# METHODS FOR CELL-TYPE SPECIFIC PROFILING TO IDENTIFY DRUG TARGETS

## CROSS REFERENCE TO RELATED APPLICATIONS

**[001]** This application claims priority to U.S. provisional patent application 62/457,420, filed February 10, 2017 and U.S. provisional patent application 62/558,396, filed September 14, 2017, each of which is hereby incoporated by reference in its entirety.

## SEQUENCE LISTING

**[002]** The instant application contains a "lengthy" Sequence Listing which has been submitted via CD-R in lieu of a printed paper copy and is hereby incorporated by reference in its entirety. This contains a sequence listing text file as part of the originally filed subject matter as follows: File name: 2111_1000PCT_SL.txt; File size: 123,473,920 Bytes; Date created: February 9, 2018. These CD-Rs are labeled "CRF," "Copy 1," and "Copy 2," respectively, and each contain only one identical file, as identified immediately above. The machine-readable format of each CD-R is IBM-PC and the operating system of each compact disc is MS-Windows.

## FIELD OF THE INVENTION

**[003]** The invention relates to profiling gene and protein expression of a plurality of nuclei from a single cell type to identify a drug target.

## BACKGROUND OF THE INVENTION

**[004]** The mammalian central nervous system (CNS) is a complex organ that comprises hundreds of different, intermingled cell types. The ability to genetically target (Gong, et al. (2003) Nature 425, 917–925) and molecularly profile specific cell types (Heiman, et al. (2008) Cell 135, 738–748) has begun to provide insight into essential features of the mammalian brain that were discovered in the founding studies of Ramon y Cajal over a century ago (Ramon y Cajal, S., et al. (1899). Texture of the Nervous System of Man and the Vertebrates (Wein New York: Springer). Each anatomically distinct, classically defined cell type expresses a set of genes that is characteristic (Dougherty, et al. (2010) Nucleic Acids Res 38, 4218–4230 and Doyle, et al. (2008) Cell 135, 749–762), and these genes confer properties that are essential for specialized cellular functions (Kim, I.-J., et al. (2008) Nature 452, 478–482; Nakajima, M., et al. (2014) Cell 159, 295–305). Expression of these genes is dependent on maintenance of cell specific epigenetic states that organize nuclear function (Kriaucionis, et al. (2009) Science 324, 929–930; Mellén, et al. (2012) Cell 151, 1417–1430). Application of present profiling technologies in mouse models has led also to the realization that environmental influences (Heiman, et al. (2008) Cell 135, 738–

748; Shrestha, et al. (2015) eLife 4, 289), internal physiological cues (Schmidt, et al. (2012) Cell 149, 1152–1163), and disease causing genetic lesions (Fyffe, et al. (2008) Neuron 59, 947–958; Ingram, et al. (2016) Neuron 89, 1194–1207) alter gene expression in affected cell types. Despite the pace of advances in experimental systems, fundamental issues of human brain complexity remain unsolved. It is not known, for instance, how many distinct cell types exist in the human brain, how these cell types vary between individuals or across species, whether the process of brain aging is equivalent between cell types, and why mutations in broadly expressed genes can have devastating consequences in one or a few select cell types.

**[005]** Although there is abundant information on the circuits affected in psychiatric and neurodegenerative diseases, the ability to specifically modulate these circuits requires knowledge of targets that are found exclusively in the neurons in the circuit.

**[006]** A method called Translating Ribosomal Affinity Purification (TRAP) was previously developed to enable the identification of all genes expressed in a cell type of interest. TRAP profiling studies have led to development of several drugs that have entered clinical studies. Although TRAP technology has enabled some drug development, a main limitation of TRAP is that target identification is initially done using transgenic mice. While mice and humans are similar, there are known differences in the CNS circuitry of the two species, and there may also be differences in gene expression across orthologous cell types. Furthermore, it is unknown how much gene expression in specific cells varies across individual subjects and whether these differences affect pathogenesis or response to treatment. In TRAP, BAC vectors are used to create transgenic mice lines. See, Doyle et al., *Cell*, 135:749-762 (2008) and Heiman et al., *Cell*, 135:738-748 (2008), which are hereby incorporated by reference in their entireties. The method is then called bacTRAP.

**[007]** In this method, the EGFP-L10a ribosomal fusion protein is targeted to the desired cell type, e.g., Purkinje cells. Affinity purification is performed for cell-specific polysomal RNAs using anti-EGFP coated magnetic beads as shown in Heiman et al. Microarrays may be used to analyze the purified samples. BACs are frequently selected from the gene expression nervous system atlas (GENSAT) project (www.gensat.org) developed by Dr. Nathaniel Heintz at The Rockefeller University. In some cases, the transgene may be expressed in more than one cell type. For example, immunofluorescence in Doyle et al. showed EGFP-L10a expressed in both Pvalb-positive and NeuN-negative interneurons of the cerebellar molecular layer, which is evidence that both stellate and basket cells were targeted. mRNA is immunoprecipitated, and genome-wide transcriptional profiling is performed on the mRNA sample. These results were compared to profiling of non-immunoprecipitated samples to identify markers specific for the cell type.

**[008]** To develop more effective and specific drugs, candidate targets need to be identified directly from humans and human tissues instead of transgenic mice, and the extent that these targets vary across individuals needs to be determined. Therefore, there is a long-felt need to develop a generalizable method that enables molecular studies of defined cell types in wild-type animals and humans. In addition, non-genetic technologies are needed to complement the discovery of specific characteristics of neural cell types and circuits in model systems and provide insight into potentially unique properties of the human nervous system.

## SUMMARY

**[009]** In one aspect, the present disclosure provides for a method profiling the gene expression of a nucleus, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei wherein the tissue sample comprises brain tissue, brain stem tissue, and/or spinal cord tissue; labeling at least one nucleus from the processed tissue sample by contacting the processed tissue sample with two or more affinity labels that each bind a different nucleic acid transcript or protein unique to the nucleus of at least one cell type contained in the tissue sample, wherein each nucleic acid transcript or protein is encoded by a gene selected from Tables 19-24, wherein the affinity labels are selected from the group consisting of an antibody, an RNA probe, and a DNA probe; purifying at least one labeled nucleus using the two or more affinity labels; and collecting nucleic acid transcript and/or protein expression data for the labeled nucleus, thereby profiling the gene expression of the nucleus. Various examples of the disclosure herein provide method profiling the gene expression of a nucleus, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; labeling at least one nucleus from the processed tissue sample by contacting the processed tissue sample with an affinity label that binds a nucleic acid transcript or protein unique to the nucleus of at least one cell type contained in the tissue sample, wherein the nucleic acid transcript or protein is encoded by a gene selected from Tables 19-24; purifying at least one labeled nucleus; and collecting nucleic acid transcript and/or protein expression data for the labeled nucleus, thereby profiling the gene expression of the nucleus.

**[0010]** In some examples, the cell type originates in cerebellar tissue, and is selected from the group consisting of: granule cells, Purkinje cells, glia, Bergmann glia, dopaminergic neurons, basket/stellate cells, astrocytes, brainstem motor neurons, oligodendrocytes, upper motor neurons, lower motor neurons, and cerebellar deep nuclei. In some examples, the protein is a transcription factor localized within the nuclei. In some examples, the cell type originates in basal ganglia tissue, and is selected from

the group consisting of: striatonigral medium-sized spiny neurons (MSNs), striatopallidal MSNs, striatal cholinergic interneurons, subthalamic nucleus, dopaminergic neurons, and bed nucleus of the stria terminalis (BNST) neurons.  In some examples, the cell type originates in thalamus tissue, and is selected from the group consisting of: thalamocortical neurons, thalamostriatal neurons, and thalamic reticular nucleus neurons. In some examples, the cell type originates in cortex tissue, and is selected from the group consisting of corticostriatal neurons, entorhinal cortex layer 2/3 neurons, fast-spiking cortical interneurons, and layer 2/3 pyramidal cells from pre-frontal cortex tissue. the cell type is cholinergic projection neurons from medial habenula tissue of a pineal gland. In some examples, the cell type originates in hippocampus tissue, and is selected from the group consisting of: cornu ammonis region 1 (CA1), cornu ammonis region 2 (CA2), cornu ammonis region 3 (CA3), and dentate gyrus cells. In some examples, the cell type originates in at least

one tissue selected from the group consisting of: brain tissue, brain stem tissue, and spinal cord tissue.

**[0011]** Various examples of the disclosure herein provide a method of isolating granule cells, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with at least one affinity label that binds a nucleic acid transcript or protein encoded by one of genes Itpr, NeuN, Cdh15, Calb2, Rbfox3, Neurod1, and Reln, wherein the nucleic acid transcript or protein is unique to the nuclei of granule cells; and purifying at least one labeled nucleus. In some examples, the at least one labeled nucleus does not include a nucleic acid transcript encoded by Olig2.

**[0012]** Various examples of the disclosure herein provide a method of isolating Purkinje cells, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with an affinity label that binds a nucleic acid transcript or protein encoded by one of genes Pcp2, Pvalb, Cabl1, and Itpr1; and purifying at least one labeled nucleus.

**[0013]** Various examples of the disclosure herein provide a method of isolating Purkinje cells, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with an affinity label that binds a nucleic acid transcript or protein encoded by one of genes Lypd6, Pvalb, Kit, NeuN, Itpr, and Sorcs3; and purifying at least one labeled nucleus.

**[0014]** Various examples of the disclosure herein provide a method of isolating astrocytes and oligodendrocytes, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with an affinity label that binds a nucleic acid transcript or protein encoded by one of genes Olig2, Pdga, Cspg4, Mag, Mbp, and Mog; and purifying at least one labeled nucleus.

**[0015]** Various examples of the disclosure herein provide a method of isolating astrocytes, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with an affinity label that binds a nucleic acid transcript or protein encoded by one of genes Aldh1a1, Gfap, S110b, and Slc1a3; and purifying at least one labeled nucleus.

**[0016]** Various examples of the disclosure herein provide a method of isolating basket cells, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with at least one affinity label that binds a nucleic acid transcript or protein

encoded by Sorcs3 and NeuN, wherein the combination of the nucleic acid transcript or protein encoded by Sorcs3 and is unique to the nuclei of basket cells; and purifying at least one labeled nucleus.

**[0017]** Various examples of the disclosure herein provide a method of isolating dopaminergic neurons, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with at least one affinity label that binds a nucleic acid transcript or protein encoded by FoxA1, Slc6a3, TH, FoxA2, or Drd2, wherein nucleic acid transcript or protein is unique to the nuclei of dopaminergic neurons; and purifying at least one labeled nucleus.

**[0018]** Various examples of the disclosure herein provide a method of isolating brainstem motor neurons, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with at least one affinity label that binds a nucleic acid transcript or protein encoded by VaChT or ErrB, wherein nucleic acid transcript or protein is unique to the nuclei of brainstem motor neurons; and purifying at least one labeled nucleus.

**[0019]** In some examples, the affinity label is selected from the group consisting of an antibody, a RNA probe, and a DNA probe. In some examples, the method further comprises collecting nucleic acid transcript and/or protein transcript data for the labeled nucleus, thereby profiling the gene expression of the nucleus. In some examples, the method further comprises: comparing gene expression of the nucleus to gene expression in at least one nucleus of the cell type from a different tissue sample to identify variability in gene expression, thereby obtaining a drug target. Alternatively, in some examples, the method further comprises comparing gene expression of the nucleus to gene expression in at least one nucleus of a different cell type to identify variability in gene expression, thereby obtaining a drug target.

**[0020]** In some examples, the affinity label further comprising a fluorescent tag. In some examples, purifying of the nucleus is performed by fluorescence-activated cell sorting (FACS). In some examples, the tissue sample is derived from a mammal. In some examples, the mammal is selected from the group consisting of: a mouse, a human, a rat, and another non-human primate. In some examples, the tissue sample or the different tissue sample was frozen prior to isolation of the nucleus. In some examples, the tissue sample or the different tissue sample was fresh prior to isolation of the nuclei. In some examples, the tissue sample or the different tissue sample is derived from a female. In some examples, the tissue sample or the different tissue sample is derived from a male. In some examples, the nuclei are contiguous to an endoplasmic reticulum. In some examples, the protein is a

membrane protein. In some examples, the membrane protein is synthesized in the endoplasmic reticulum. In some examples, the protein is localized in the endoplasmic reticulum. In some examples, the nucleic acid transcript is localized in the nuclei. In some examples, the RNA probe specifically binds a chromosomal associated transcript (CAT) or a polyA transcript. In some examples, the DNA probe specifically binds a transporter gene. In some examples, the affinity label is more than one antibody, RNA probe, or DNA probe. In some examples, each affinity label binds a different factor. In some examples, the more than one antibody, RNA probe, or DNA probe bind to the same factor.

**[0021]** In some examples, the tissue sample is post-mortem. In some examples, the tissue sample or the different tissue sample originates from a diseased subject. In some examples, the tissue sample or the different tissue sample originates in a healthy subject. In some examples, the diseased subject is affected by at least one condition selected from the group consisting of: ataxia, Parkinson's disease, Alzheimer's disease, and amyotrophic lateral sclerosis (ALS), and Huntington's disease. In some examples, the cell type is associated with ataxia, and is selected from the group consisting of: Purkinje cells, granule cells, Bergmann glia, basket/stellate cells, astrocytes, oligodendrocytes, and cerebellar deep nuclei. In some examples, the cell type is associated with Parkinson's Disease, and is selected from the group consisting of: substantia nigra and VTA dopaminergic neurons. In some examples, the cell type is associated with Alzheimer's Disease, and is selected from: layer 2/3 entorhincortex, CA1 hippocampus, and CA2/3 hippocampus. In some examples, the cell type is associated with ALS, and is selected from the group consisting of: brain stem, cortical motor neurons, and spinal cord motor neurons. In some examples, the diseased subject is expressing a disease phenotype. In some examples, the diseased subject is not expressing a disease phenotype. In some examples, the method further comprises comparing profiling for a tissue sample originating from a diseased subject and a tissue sample from a healthy subject. In some examples, the method further comprises comparing profiling for a tissue sample originating from at least two different healthy subjects. In some examples, the method further comprises identifying variability between disease stages by comparing profiling for a tissue sample from a diseased subject expressing a disease phenotype with profiling for a tissue sample from a diseased subject not expressing a disease phenotype.

**[0022]** In some examples, the method further comprises profiling the gene expression is performed for a plurality of nuclei from a single cell type. In some examples, the method further comprises profiling the gene expression is performed for a plurality of nuclei from different cell types. In some examples, the method further comprises identifying variability among different subjects by comparing profiling for more than one tissue sample, wherein each

tissue sample is from a different subject. In some examples, the drug target is encoded by a gene selected from Tables 19-24.

**[0023]** Various examples of the disclosure herein provide a method of profiling epigenetic expression of a nucleus, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue with an affinity label that binds a factor unique to at least one cell type, wherein the affinity label is selected from the group consisting of an antibody, a RNA probe, and a DNA probe; purifying at least one labeled nucleus; and collecting information regarding histone modifications, binding of transcription factors, and DNA modifications for the nucleus, thereby profiling the epigenetic expression.

**[0024]** Various examples of the disclosure herein provide a method of profiling nuclear architecture of a nucleus, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue with an affinity label that binds a factor unique to at least one cell type, wherein the affinity label is selected from the group consisting of an antibody, a RNA probe, and a DNA probe; purifying at least one labeled nucleus; and collecting information regarding chromosome conformation for the labeled nucleus, thereby profiling the nuclear architecture.

**[0025]** Various examples of the disclosure herein provide a method of profiling nuclear architecture of a nucleus, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue with an affinity label that binds a factor unique to at least one cell type, wherein the affinity label is an antibody; isolating gDNA from the nuclei; performing oxidative bisulfite sequencing; and collecting chromosome conformation for the labeled nucleus, thereby profiling the nuclear architecture.

**[0026]** Various examples of the disclosure herein provide a method of isolating a nucleus from a single cell type, the method comprising: processing a tissue sample containing a plurality of cell types to expose nuclei; isolating nuclei from the processed tissue sample by contacting the processed tissue sample with more than two affinity labels specific to a unique combination of nucleic acid transcripts and/or proteins for the cell type, wherein each affinity label specifically binds a nucleic acid transcript comprising a sequence selected from SEQ ID NO: 1-28,815 or the affinity label specifically binds a protein comprising an amino acid sequence selected from 28,816-38,643; and purifying at least one labeled nucleus, thereby isolating the nucleus from the cell type.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0027]** FIG. 1 shows an embodiment of a sorting method that may be used in the cellular profiling technique described herein. "A" represents nuclei of the cell type of interest, and "B" represents nuclei of another cell type.

**[0028]** FIG. 2A shows flow cytometry sorting results for 3 cell types from the cerebellum using Itpr1 and NeuN. A combination of Itpr1 and NeuN was used to isolate 3 populations: Purkinje cells, granules cells, and glia. Itpr1 is on the x-axis, and NeuN is on the y-axis. The Itpr1+ population was the nuclei of Purkinje cells, and the NeuN+ population was the nuclei of glia. The NeuN+/Itpr1- nuclei (largest group) represent granule cells. FIG. 2B shows gene expression profiling from RNAseq data comparing sorting of Purkinje nuclear RNA from transgenic animals (GFP sort) to Itpr1+ nuclei. Pcp4 is a Purkinje marker (enriched in sorted Purkinje nuclei compared to cerebellar unsorted nuclei), and Calb2 is a granule cell marker (enriched in unsorted compared to Purkinje).

**[0029]** FIG. 3A shows flow cytometry sorting results from nuclei staining and sorting for dopaminergic neurons nuclei. FIG. 3B compares RNAseq tracks from unsorted midbrain nuclei and sorted dopaminergic nuclei.

**[0030]** FIG. 4 provides a genome browser view showing three tracks – nuclear RNA levels from granule cells, cytoplasmic RNA levels from total cerebellum, and ATACseq DNA accessibility from total cerebellum – for mouse, rat, and human to reveal species specific and cell-type specific differences.

**[0031]** FIG. 5A and FIG. 5B show flow cytometry sorting results for nuclei from two different human subjects.

**[0032]** FIG. 6 shows flow cytometry sorting results to approximate the size of the nuclei with the combination of forward-scattered light (FSC) and side-scattered light (SSC).

**[0033]** FIG. 7A, FIG. 7B, FIG. 7C, and FIG. 7D show flow cytometry results for 4 different staining strategies for human cerebellar nuclei.

**[0034]** FIG. 8 provides a boxplot showing pairwise Pearson's correlation coefficient within cell types and between cell types for different individuals.

**[0035]** FIG. 9 provides a dot plot showing pairwise Pearson's correlation coefficient for each sample, broken down by cell type and species.

**[0036]** FIG. 10 is a graph showing changes in expression of FosB in granule, basket, and glial cells for an autolysis time of 5 to about 25 hours.

**[0037]** Figure 11A, Figure 11B, and Figure 11C provide scatterplots showing gene expression across age for three cell-type specific aging down-regulated genes. Figure 11A shows results for Aqp7. Figure 11B shows results for Asic1, and Figure 11C shows results for Robo2.

[0038] FIG. 12 provides the expression of stress response and immediate early genes in three individuals across three cell types in Fos+ and Fos- individuals. The gene tracks show merged expression from three Fos+ and three age- and gender-matched Fos- individuals.

[0039] FIG. 13A shows gene expression of fos genes and immediate early genes in granule cells, stellate cells, and glia. FIG. 13B shows gene expression of long-term stress response genes in these cells. FIG. 13C shows expression of stress-associated genes, such as the activated astrocyte markers GFAP, S100B, Exportin 1 (Xpo1, also known as leucine-rich nuclear export signal (Nes)), and Musashi RNA Binding Protein 1 (Msi1) in glia, separate from markers of more long-term stress.

[0040] FIG. 14 shows RNAseq data of cell-type specific Chromosomal Associated Transcripts (CATs).

## DETAILED DESCRIPTION OF THE INVENTION

### I. INTRODUCTION

[0041] Complex tissue is made of many cell types. The translating ribosomal affinity purification (TRAP) method has been used previously to define the molecular signature of diverse cell types in a single tissue. The TRAP method requires the use of transgenic animals, which creates numerous challenges. For example, some disease models are difficult to breed in animals, and animal models do not necessarily recapitulate all aspects of human disease, such as effects on human neurons. Further, a study of aging would require maintaining a specific transgenic strain for years. Additionally, the TRAP method requires fresh samples containing high quality RNA for accurate analysis.

[0042] Determination of the molecular properties of genetically targeted cell types has led to fundamental insights into mouse brain function and dysfunction. Embodiments of the cellular profiling technique described herein provide a strategy for exploration of gene expression events in specific cell types in a broad range of species for in-depth and reproducible studies of gene expression to identify markers for each cell type or condition. Results are shown herein for mouse, rat, and human neurons and glia, and features of homologous human cell types have been revealed. Classically defined, homologous neuronal and glial cell types are shown to differ between rodents and humans by the expression of hundreds of orthologous, cell specific genes. Evidence that these genes are differentially active was obtained using the combination of epigenetic mapping, RNAseq, quantitative PCR, and immunofluorescence localization. Studies of sixteen human postmortem brains showed cell-specific molecular responses to aging. The responses of human neurons and glia to aging were observed to be cell-type specific, and that analysis of postmortem human brain tissue also revealed the induction of a shared, robust response to an unknown external event experienced by three of sixteen donors. The compositions

and methods herein establish a comprehensive approach for analysis of unique molecular events associated with specific pathways and cell types in a wide variety of human conditions.

**[0043]** Recent advances in technologies for human genome sequencing and analysis have led to an increase in knowledge of the complex genetic causes of human psychiatric and neurological disease (Burguière, et al. (2015) Curr Opin Neurobiol 30, 59–65; Hinz, F.I., et al. (2017). Molecular Genetics of Neurodegenerative Dementias. PubMed - NCBI. Cold Spring Harb Perspect Biol 9, a023705; Vorstman, et al. (2017) Nat Rev Genet 18, 362–376, each of which are hereby incorporated by reference herein in its entirety). In some cases, recreation of the causative mutations in the mouse genome has resulted in experimental models that are sufficiently accurate for investigation of the molecular basis of the disorder (Lombardi, et al. (2015) J. Clin. Invest. 125, 2914–2923; Lyst, et al. (2015). Nat Rev Genet 16, 261–275; Orr, H.T. (2012) J. Cell Biol. 197, 167–177, each of which is hereby incorporated by reference herein in its entirety), and they have led to the discovery of unexpected features of the disease (Guy, al. (2007) Science 315, 1143–1147, which is hereby incorporated by reference herein in its entirety). In other cases, informative animal models remain elusive (Lavin, M.F. (2013). DNA Repair 12, 612–619, which is hereby incorporated by reference herein in its entirety), and investigation of molecular mechanisms of disease remains difficult (Biton, et al. (2008) DNA Repair 7, 1028–1038; Medina, M., et al. (2014) Front. Pharmacol. 5, 270, which is hereby incorporated by reference herein in its entirety).

**[0044]** Technologies used previous to the development of the cellular profiling technique described herein to attempt genome wide profiling of specific cell types in human tissues include laser capture microdissection and single cell sequencing technologies. Neither technology can produce reliable deep profiles of identified cell types. Laser capture microdissection requires specialized equipment and training, and results are heavily dependent on the precise dissection methodology and tissue anatomy; therefore, there is tremendous variability in results across samples.

**[0045]** The data from single cell RNAseq is also highly variable between individual cells. Single cell RNAseq is also problematic in the nervous system because it is difficult to dissociate neurons away from each other. In studies that dissociate neurons, only the cell body is captured, and the neuronal processes (axons and dendrites) are lost. It is well known in the art that the processes in neurons are very large compared to the size of the cell body and also have their own local translation machinery. Therefore, gene expression analysis of only cell bodies is depleted for genes that are expressed in neuronal processes, which some of the most important genes for determining neuronal identity. By profiling gene expression in the nucleus, which synthesizes all RNA for the cell, this bias can be avoided. The depth of data from any individual cell is not

sufficient to establish a comprehensive profile, thus this method is not accepted by many in the art of cellular profiling.

**[0046]** Human disease is a problem that is experienced across an entire population of cells. Cell types from single-cell analysis must be defined post-hoc, and this analysis may be obscured by disease state. Additionally, sequencing results from single cell RNAseq are not deep enough to detect subtle changes that may occur with disease. For these reasons, the cell type should be considered as a population. To do so using single cell methods would require sequencing thousands of individual cells, and some cell types are so rare that enrichment is required to study a disease that only affects these rare cell types. Distinguishing technical and biological variability would be nearly impossible without enrichment.

**[0047]** To enable the identification of human specific targets, the cellular profiling technique described herein has been developed for molecular profiling of specific cell types post-mortem human tissue. The cellular profiling technique described herein has a broad range of applications including studying gene expression and epigenetic changes to identify targets drugs or other therapeutic modalities.

**[0048]** Because cells in the CNS have complex morphologies and cannot be effectively dissociated from each other, the cellular profiling technique described herein sorts for nuclei rather than whole cells. In some embodiments of the method, after isolating nuclei from a brain region of interest, the nuclei may be immunostained with antibodies specific to transcription factors or transcripts that specifically label the cell type of interest. Immunofluorescence establishes whether nuclei can be labeled using an antibody against a membrane protein. Staining was observed in the endoplasmic reticulum (ER) around the nucleus. Alternatively, RNA probes or DNA probes may be used to label the cell type of interest.

**[0049]** In some embodiments, after purifying the labeled population using fluorescent activated cell sorting (FACS), the isolated nuclei may be used for gene expression profiling. FIG. 1 provides an embodiment of a sorting method that may be used with the cellular profiling technique described herein. "A" represents nuclei of the cell type of interest, and "B" represents nuclei from another cell type.

**[0050]** In certain embodiments, an algorithm may be used to identify cell-specific and enriched gene expression for a single cell type. For example, one analytical method for identifying and quantifying cell-specific and enriched mRNAs across multiple cell populations is referred to as specificity index (SI), as described in Dougherty et al., *Nucleic Acids Research*, 38(13):4218-4230, which is hereby incorporated by reference in its entirety. Gene expression was measured in multiple cell types. These values were first normalized within replicates and then globally normalized across cell types. Non-specific background was filtered out using

negative controls. The filtered values were iteratively compared to other unfiltered samples in the dataset and a ratio was calculated for each set of samples. The sets were ranked from highest to lowest to prevent extreme outliers from skewing the subsequent analysis and to make analysis more robust for difficult to normalize data sets. These ranks are averaged to provide the SI. Permutation testing was used to assign a p-value to each SI value to provide a list of genes significantly enriched in the cell type of interest. The lower the SI value the more specific that the gene is to the cell type.

**[0051]** The cellular profiling technique described herein has a range of applications including: identifying human targets for therapeutics, understanding how variability between people leads to the variable penetrance of therapeutics, investigating the early changes that occur in human degenerative disorders, identifying drug targets, and developing therapies based on comparative analysis of vulnerable and spared cell populations. The cellular profiling technique described herein can be used to profile any cell type of interest. For example, gene expression may be compared for different cell types to identify genes that are uniquely expressed in the cell type of interest to identify putative drug targets. By comparing heterogeneity among different patients may also reveal biomarkers of disease that could be used to identify patients before symptoms appear or to select subsets of patients in whom a therapeutic intervention would be more effective.

**[0052]** In other embodiments, gene expression between species (e.g. mouse and human) is compared using the cellular profiling technique described herein to identify shared and species-specific genes. This information also informs drug discovery because mouse specific targets are less commercially valuable. Additionally, species-shared targets allow for basic studies in mice that are more likely to translate to humans. Finally, the human-specific targets may be the reason humans develop some diseases but it's difficult to make a mouse to develop the same disease. Following up on shared targets may offer novel drug targets that could not be identified in mice only.

**[0053]** Another application of the cellular profiling technique described herein is comparing gene expression between the same cell type in the same tissue across different individuals to identify variability across individuals. Presently, genome-wide association studies (GWAS) are used to look at variability between individuals at the DNA level, but these techniques do not show whether variability in DNA impacts gene expression and function. Data generated by the cellular profiling technique described herein can be used for patient stratification and combined with GWAS data to determine why there is variability in response to treatments across individuals.

**[0054]** In contrast to the TRAP method, the cellular profiling technique described herein does not require use of transgenic animals. The cellular profiling technique described herein can be used with postmortem tissue from any species including non-model organisms such as humans and other primates.

**[0055]** In certain embodiments of the invention, a tissue sample was processed, and an antibody specific to a protein that is expressed in a cell type of interest was added to the sample. A fluorescent label for the antibody was then added to the sample. Nuclei from the cell type of interest were isolated from the tissue sample by fluorescence. For example, FACS was used to isolate the nuclei based on fluorescence intensity. Sorting may be performed using antibodies specific to transcription factors that are localized in the nucleus (e.g., Matevossian et al., J. Vis. Exp. (13), e717, doi:10.3791/717, (2008), which is hereby incorporated by reference in its entirety) or using antibodies specific to proteins that that are localized in the endoplasmic reticulum (ER). Since many neurons have been identified based on membrane markers, antibodies specific to membrane proteins that are synthesized in the ER may be used to study the nervous system. Additionally, a portion of the endoplasmic reticulum was observed to remain attached to the isolated nuclei.

**[0056]** The antibodies used for labeling and sorting nuclei from specific cell types may be selected from previous TRAP method studies to identify factors that are specifically expressed in our cell types of interest. Alternative to antibodies, RNA or DNA probes that are specific to nucleic acid transcripts localized in the nucleus or the ER of the cell type(s) of interest are used. For example, Mo et al., *Neuron*, 86:1364-1384 (2015), which is hereby incorporated by reference in its entirety, analyzed excitatory neuron, PV interneurons, and VIP neurons in transgenic mice using Camk2a, PV, and VIP as targets, respectively. In Mo, about 50% of the cortical nuclei were Camk2a positive, about 3% were PV positive, and about 2% were VIP positive.

**[0057]** The methods herein provide studies of cellular vulnerability in human neurodegenerative disease, and circuit based molecular characterization of cell types involved in obsessive compulsive disorder, drug addiction, autism spectrum disorder, and age dependent cognitive loss. In some embodiments, the goal of the cellular profiling technique described herein is to obtain human CNS cell type data to establish a characterization of brain circuits or pathways implicated in important human neurological disorders and neurodegenerative diseases. For example, cell specific data from mice were obtained using antibodies specific to proteins identified from nuclear enriched, fully processed, polyA+ RNA and chromosomal associated transcripts (CATs). RNA/DNA probes against these may be designed for additional labeling and sorting. Specifically, purified GFP+ nuclei from transgenic animals developed for the TRAP method and isolated RNA was analyzed using PolyDT beads to capture the PolyA+ RNA, which

are mature RNAs. An enrichment was observed for RNAs in the ER, which is contiguous with the nuclear membrane. These data provide details about transcripts that are enriched in the ER close to the nucleus and that are putative targets for antibodies and RNA/DNA probes that may be used to perform the sorting step in the cellular profiling technique described herein. The methods herein result in production of highly reproducible cell type specific data, and confirmation of cell specific expression profiles by *in situ* hybridization or immunofluorescence of newly discovered cell specific markers in human tissue samples. This data provides confirmation that transcript profiles from bulk tissue, such as from the brain, can be used to identify new cell specific probes.

II. GENE NOMENCLATURE

**[0058]** Gene symbols are used herein, along with ENSEMBL Gene IDs, to refer to genes from mice, rats, and humans. Unless otherwise noted, the gene names corresponding to each gene symbol are shown in Table 1.

**Table 1. Gene symbols and names**

| Symbol | Name | Symbol | Name |
|---|---|---|---|
| 1700025G04Rik | RIKEN cDNA 1700025G04 gene | LINGO2 | leucine rich repeat and Ig domain containing 2 |
| 1700047M11Rik | RIKEN cDNA 1700047M11 gene | LIPG | lipase G, endothelial type |
| 1810041L15Rik | RIKEN cDNA 1810041L15 gene | LITAF | lipopolysaccharide induced TNF factor |
| 2410124H12Rik | RIKEN cDNA 2410124H12 gene | LMCD1 | LIM and cysteine rich domains 1 |
| 2410131K14Rik | RIKEN cDNA 2410131K14 gene | LMNTD2 | lamin tail domain containing 2 |
| 2810459M11Rik | RIKEN cDNA 2810459M11 gene | LMO2 | LIM domain only 2 |
| 3110035E14Rik | RIKEN cDNA 3110035E14 gene | LOC100506990 | N/A |
| 3110039M20Rik | RIKEN cDNA 3110039M20 gene | LONRF2 | LON peptidase N-terminal domain and ring finger 2 |
| 3110043O21Rik | RIKEN cDNA 3110043O21 gene | LOXL2 | lysyl oxidase like 2 |
| 3632451O06Rik | RIKEN cDNA 3632451O06 gene | LPAR1 | lysophosphatidic acid receptor 1 |
| 4930578C19Rik | RIKEN cDNA 4930578C19 gene | LPCAT2 | lysophosphatidylcholine acyltransferase 2 |
| 5730559C18Rik | RIKEN cDNA 5730559C18 gene | LPCAT4 | lysophosphatidylcholine acyltransferase 4 |
| 8030451O07Rik | N/A | LPL | lipoprotein lipase |
| 9530059O14Rik | RIKEN cDNA 9530059O14 gene | LPP | LIM domain containing preferred translocation partner in lipoma |
| 9530077C05Rik | RIKEN cDNA 9530077C05 gene | LRCH1 | leucine rich repeats and calponin homology domain containing 1 |
| A230077H06Rik | RIKEN cDNA A230077H06 gene | LRIG1 | leucine rich repeats and immunoglobulin like domains 1 |
| A2M | alpha-2-macroglobulin | LRP1 | LDL receptor related protein 1 |
| A730036I17Rik | RIKEN cDNA A730036I17 gene | LRP1B | LDL receptor related protein 1B |
| A830018L16Rik | RIKEN cDNA A830018L16 gene | LRP2 | LDL receptor related protein 2 |
| AASS | aminoadipate-semialdehyde synthase | LRPAP1 | LDL receptor related protein associated protein 1 |
| AATK | apoptosis associated tyrosine kinase | LRRC1 | leucine rich repeat containing 1 |
| ABAT | 4-aminobutyrate aminotransferase | LRRC2 | leucine rich repeat containing 2 |
| ABCA1 | ATP binding cassette subfamily A member 1 | LRRC20 | leucine rich repeat containing 20 |
| ABCA17P | ATP binding cassette subfamily A member 17, pseudogene | LRRC38 | leucine rich repeat containing 38 |
| ABCA8 | ATP binding cassette subfamily A member 8 | LRRC3B | leucine rich repeat containing 3B |
| ABCC10 | ATP binding cassette subfamily C member 10 | LRRC4C | leucine rich repeat containing 4C |
| ABCC8 | ATP binding cassette subfamily C member 8 | LRRC69 | leucine rich repeat containing 69 |
| ABCG2 | ATP binding cassette subfamily G member 2 (Junior blood group) | LRRC7 | leucine rich repeat containing 7 |
| ABHD2 | abhydrolase domain containing 2 | LRRK2 | leucine rich repeat kinase 2 |

| | | | |
|---|---|---|---|
| ABHD3 | abhydrolase domain containing 3 | LRRTM4 | leucine rich repeat transmembrane neuronal 4 |
| ABHD5 | abhydrolase domain containing 5 | LRTM1 | leucine rich repeats and transmembrane domains 1 |
| ABI3 | ABI family member 3 | LSM5 | LSM5 homolog, U6 small nuclear RNA and mRNA degradation associated |
| ABI3BP | ABI family member 3 binding protein | LTBP2 | latent transforming growth factor beta binding protein 2 |
| ABL1 | ABL proto-oncogene 1, non-receptor tyrosine kinase | LTK | leukocyte receptor tyrosine kinase |
| ABLIM1 | actin binding LIM protein 1 | LURAP1 | leucine rich adaptor protein 1 |
| ABLIM2 | actin binding LIM protein family member 2 | LURAP1L | leucine rich adaptor protein 1 like |
| ABLIM3 | actin binding LIM protein family member 3 | LY6E | lymphocyte antigen 6 family member E |
| ABRA | actin binding Rho activating protein | LYPD1 | LY6/PLAUR domain containing 1 |
| ABTB2 | ankyrin repeat and BTB domain containing 2 | LYPD6 | LY6/PLAUR domain containing 6 |
| ACAD8 | acyl-CoA dehydrogenase family member 8 | LYPD6B | LY6/PLAUR domain containing 6B |
| ACAP3 | ArfGAP with coiled-coil, ankyrin repeat and PH domains 3 | LYRM1 | LYR motif containing 1 |
| ACE | angiotensin I converting enzyme | LYZL4 | lysozyme like 4 |
| ACER3 | alkaline ceramidase 3 | MAATS1 | MYCBP associated and testis expressed 1 |
| ACHE | acetylcholinesterase (Cartwright blood group) | MAF | MAF bZIP transcription factor |
| ACO2 | aconitase 2 | MAFF | MAF bZIP transcription factor F |
| ACOT11 | acyl-CoA thioesterase 11 | MAG | myelin associated glycoprotein |
| ACOT7 | acyl-CoA thioesterase 7 | MAGI3 | membrane associated guanylate kinase, WW and PDZ domain containing 3 |
| ACSBG1 | acyl-CoA synthetase bubblegum family member 1 | MAGT1 | magnesium transporter 1 |
| ACSM5 | acyl-CoA synthetase medium chain family member 5 | MAK | male germ cell associated kinase |
| ACSS1 | acyl-CoA synthetase short chain family member 1 | MAL | mal, T-cell differentiation protein |
| ACSS3 | acyl-CoA synthetase short chain family member 3 | MAL2 | mal, T-cell differentiation protein 2 (gene/pseudogene) |
| ACTB | actin beta | MAMSTR | MEF2 activating motif and SAP domain containing transcriptional regulator |
| ACTBL2 | actin, beta like 2 | Man1a | mannosidase 1, alpha |
| ACTC1 | actin, alpha, cardiac muscle 1 | MAN1A1 | mannosidase alpha class 1A member 1 |
| ACTL6B | actin like 6B | MAN1C1 | mannosidase alpha class 1C member 1 |
| ACTN2 | actinin alpha 2 | MAN2A1 | mannosidase alpha class 2A member 1 |
| ACTR3B | ARP3 actin related protein 3 homolog B | MAP2K6 | mitogen-activated protein kinase 6 |
| ADAM11 | ADAM metallopeptidase domain 11 | MAP6D1 | MAP6 domain containing 1 |
| ADAM12 | ADAM metallopeptidase domain 12 | MAP7 | microtubule associated protein 7 |
| ADAM19 | ADAM metallopeptidase domain 19 | MAPK12 | mitogen-activated protein kinase 12 |
| ADAMTS10 | ADAM metallopeptidase with thrombospondin type 1 motif 10 | MAPK4 | mitogen-activated protein kinase 4 |
| ADAMTS15 | ADAM metallopeptidase with thrombospondin type 1 motif 15 | MAPRE2 | microtubule associated protein RP/EB family member 2 |
| ADAMTS16 | ADAM metallopeptidase with thrombospondin type 1 motif 16 | MARC2 | mitochondrial amidoxime reducing component 2 |
| ADAMTS17 | ADAM metallopeptidase with thrombospondin type 1 motif 17 | MARCH1 | membrane associated ring-CH-type finger 1 |
| ADAMTS18 | ADAM metallopeptidase with thrombospondin type 1 motif 18 | MARCH11 | membrane associated ring-CH-type finger 11 |
| ADAMTS2 | ADAM metallopeptidase with thrombospondin type 1 motif 2 | MARCKS | myristoylated alanine rich protein kinase C substrate |
| ADAMTS6 | ADAM metallopeptidase with thrombospondin type 1 motif 6 | MARCKSL1 | MARCKS like 1 |
| ADAMTS7 | ADAM metallopeptidase with thrombospondin type 1 motif 7 | MARVELD2 | MARVEL domain containing 2 |
| ADAMTS9 | ADAM metallopeptidase with thrombospondin type 1 motif 9 | MASP1 | mannan binding lectin serine peptidase 1 |
| ADAMTSL3 | ADAMTS like 3 | MATN1 | matrilin 1, cartilage matrix protein |
| ADAMTSL4 | ADAMTS like 4 | MATN4 | matrilin 4 |
| ADARB1 | adenosine deaminase, RNA specific B1 | MBOAT1 | membrane bound O-acyltransferase domain containing 1 |

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|---|---|---|---|
| ADARB2 | adenosine deaminase, RNA specific B2 (inactive) | MBOAT2 | membrane bound O-acyltransferase domain containing 2 |
| ADCY1 | adenylate cyclase 1 | MBOAT7 | membrane bound O-acyltransferase domain containing 7 |
| ADCYAP1R1 | ADCYAP receptor type I | MBP | myelin basic protein |
| ADD2 | adducin 2 | MCAM | melanoma cell adhesion molecule |
| ADGRA1 | adhesion G protein-coupled receptor A1 | MCC | mutated in colorectal cancers |
| ADGRA3 | adhesion G protein-coupled receptor A3 | MCL1 | MCL1, BCL2 family apoptosis regulator |
| ADGRG1 | adhesion G protein-coupled receptor G1 | MCTP1 | multiple C2 and transmembrane domain containing 1 |
| ADGRL3 | adhesion G protein-coupled receptor L3 | MDFI | MyoD family inhibitor |
| ADGRV1 | adhesion G protein-coupled receptor V1 | MDGA1 | MAM domain containing glycosylphosphatidylinositol anchor 1 |
| ADM | adrenomedullin | MDGA2 | MAM domain containing glycosylphosphatidylinositol anchor 2 |
| ADORA1 | adenosine A1 receptor | MED12L | mediator complex subunit 12 like |
| ADORA2B | adenosine A2b receptor | MEF2C | myocyte enhancer factor 2C |
| ADRA1A | adrenoceptor alpha 1A | MEF2C-AS1 | MEF2C antisense RNA 1 |
| ADRA1B | adrenoceptor alpha 1B | MEG8 | maternally expressed 8, small nucleolar RNA host gene |
| ADRA1D | adrenoceptor alpha 1D | MEGF10 | multiple EGF like domains 10 |
| ADRA2B | adrenoceptor alpha 2B | MEGF11 | multiple EGF like domains 11 |
| ADRB2 | adrenoceptor beta 2 | MEI4 | meiotic double-stranded break formation protein 4 |
| AF529169 | cDNA sequence AF529169 | MEIS1 | Meis homeobox 1 |
| AFAP1 | actin filament associated protein 1 | MEIS2 | Meis homeobox 2 |
| AFAP1L1 | actin filament associated protein 1 like 1 | MEIS3 | Meis homeobox 3 |
| AFAP1L2 | actin filament associated protein 1 like 2 | MERTK | MER proto-oncogene, tyrosine kinase |
| AFF2 | AF4/FMR2 family member 2 | METRN | meteorin, glial cell differentiation regulator |
| AFP | alpha fetoprotein | METTL7A | methyltransferase like 7A |
| AGAP1 | ArfGAP with GTPase domain, ankyrin repeat and PH domain 1 | METTL9 | methyltransferase like 9 |
| AGBL2 | ATP/GTP binding protein like 2 | MFAP3L | microfibril associated protein 3 like |
| AGPAT3 | 1-acylglycerol-3-phosphate O-acyltransferase 3 | MFF | mitochondrial fission factor |
| AGPAT4 | 1-acylglycerol-3-phosphate O-acyltransferase 4 | MFGE8 | milk fat globule-EGF factor 8 protein |
| AGRN | agrin | MFHAS1 | malignant fibrous histiocytoma amplified sequence 1 |
| AGT | angiotensinogen | MFSD2A | major facilitator superfamily domain containing 2A |
| AHNAK | AHNAK nucleoprotein | MFSD9 | major facilitator superfamily domain containing 9 |
| AHRR | aryl-hydrocarbon receptor repressor | MGAT3 | mannosyl (beta-1,4-)-glycoprotein beta-1,4-N-acetylglucosaminyltransferase |
| AHSA1 | activator of HSP90 ATPase activity 1 | MGAT4C | MGAT4 family member C |
| AI464131 | expressed sequence AI464131 | MGAT5B | mannosyl (alpha-1,6-)-glycoprotein beta-1,6-N-acetyl-glucosaminyltransferase, isozyme B |
| AI593442 | expressed sequence AI593442 | MGLL | monoglyceride lipase |
| AK4 | adenylate kinase 4 | MGP | matrix Gla protein |
| AKAIN1 | A-kinase anchor inhibitor 1 | MGST1 | microsomal glutathione S-transferase 1 |
| AKAP13 | A-kinase anchoring protein 13 | MIAT | myocardial infarction associated transcript (non-protein coding) |
| AKNA | AT-hook transcription factor | MICAL2 | microtubule associated monooxygenase, calponin and LIM domain containing 2 |
| AKR1C1 | aldo-keto reductase family 1 member C1 | MICALCL | MICAL C-terminal like |
| AKR1C2 | aldo-keto reductase family 1 member C2 | MID1 | midline 1 |
| AKR1C3 | aldo-keto reductase family 1 member C3 | MID2 | midline 2 |
| AKR1C4 | aldo-keto reductase family 1 member C4 | MIDN | midnolin |
| ALAS2 | 5'-aminolevulinate synthase 2 | MIR136 | microRNA 136 |
| ALCAM | activated leukocyte cell adhesion molecule | MIR31HG | MIR31 host gene |
| ALDH1A1 | aldehyde dehydrogenase 1 family member A1 | MIR346 | microRNA 346 |
| ALDH1A3 | aldehyde dehydrogenase 1 family member A3 | MIR34C | microRNA 34c |
| ALDH1L1 | aldehyde dehydrogenase 1 family member L1 | MIR3671 | microRNA 3671 |
| ALDH1L2 | aldehyde dehydrogenase 1 family member L2 | MIR384 | microRNA 384 |

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|---|---|---|---|
| ALDH6A1 | aldehyde dehydrogenase 6 family member A1 | MIR646HG | MIR646 host gene |
| ALDOC | aldolase, fructose-bisphosphate C | MIR6723 | microRNA 6723 |
| ALK | ALK receptor tyrosine kinase | MIR7-3HG | MIR7-3 host gene |
| ALOX5 | arachidonate 5-lipoxygenase | MIR9-3HG | MIR9-3 host gene |
| ALS2 | ALS2, alsin Rho guanine nucleotide exchange factor | MKX | mohawk homeobox |
| ALS2CR12 | amyotrophic lateral sclerosis 2 chromosome region 12 | MLC1 | megalencephalic leukoencephalopathy with subcortical cysts 1 |
| AMPD3 | adenosine monophosphate deaminase 3 | MLLT11 | MLLT11, transcription factor 7 cofactor |
| AMZ1 | archaelysin family metallopeptidase 1 | MLYCD | malonyl-CoA decarboxylase |
| ANGPT1 | angiopoietin 1 | MMD2 | monocyte to macrophage differentiation associated 2 |
| ANGPTL3 | angiopoietin like 3 | MMP14 | matrix metallopeptidase 14 |
| ANKRD33B | ankyrin repeat domain 33B | MMP15 | matrix metallopeptidase 15 |
| ANKRD37 | ankyrin repeat domain 37 | MMP16 | matrix metallopeptidase 16 |
| ANKRD42 | ankyrin repeat domain 42 | MMP2 | matrix metallopeptidase 2 |
| ANLN | anillin actin binding protein | MMP24 | matrix metallopeptidase 24 |
| ANO4 | anoctamin 4 | MNS1 | meiosis specific nuclear structural 1 |
| ANO6 | anoctamin 6 | MOBP | myelin-associated oligodendrocyte basic protein |
| ANXA3 | annexin A3 | MOG | myelin oligodendrocyte glycoprotein |
| AOX1 | aldehyde oxidase 1 | MORF4L2 | mortality factor 4 like 2 |
| AP1S3 | adaptor related protein complex 1 sigma 3 subunit | MPND | MPN domain containing |
| APBA2 | amyloid beta precursor protein binding family A member 2 | MPP6 | membrane palmitoylated protein 6 |
| APBB2 | amyloid beta precursor protein binding family B member 2 | MPP7 | membrane palmitoylated protein 7 |
| APCDD1 | APC down-regulated 1 | MPPED1 | metallophosphoesterase domain containing 1 |
| APEX2 | apurinic/apyrimidinic endodeoxyribonuclease 2 | MPZ | myelin protein zero |
| APH1B | aph-1 homolog B, gamma-secretase subunit | MRAP2 | melanocortin 2 receptor accessory protein 2 |
| APLNR | apelin receptor | MRGPRF | MAS related GPR family member F |
| APLP1 | amyloid beta precursor like protein 1 | MRLN | myoregulin |
| APOD | apolipoprotein D | MRM2 | mitochondrial rRNA methyltransferase 2 |
| APPL2 | adaptor protein, phosphotyrosine interacting with PH domain and leucine zipper 2 | MRPL18 | mitochondrial ribosomal protein L18 |
| AQP4 | aquaporin 4 | MSI1 | musashi RNA binding protein 1 |
| AQP7 | aquaporin 7 | MSMO1 | methylsterol monooxygenase 1 |
| AQP9 | aquaporin 9 | MSRA | methionine sulfoxide reductase A |
| AR | androgen receptor | MSX2 | msh homeobox 2 |
| ARAP3 | ArfGAP with RhoGAP domain, ankyrin repeat and PH domain 3 | MT2A | metallothionein 2A |
| ARC | activity regulated cytoskeleton associated protein | MT3 | metallothionein 3 |
| ARF4 | ADP ribosylation factor 4 | MTCH1 | mitochondrial carrier 1 |
| ARG2 | arginase 2 | MTCH2 | mitochondrial carrier 2 |
| ARHGAP10 | Rho GTPase activating protein 10 | MT-CO1 | mitochondrially encoded cytochrome c oxidase I |
| ARHGAP15 | Rho GTPase activating protein 15 | MTFP1 | mitochondrial fission process 1 |
| ARHGAP20 | Rho GTPase activating protein 20 | MTHFD1L | methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1 like |
| ARHGAP22 | Rho GTPase activating protein 22 | MTHFD2L | methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 2 like |
| ARHGAP23 | Rho GTPase activating protein 23 | MTHFSD | methenyltetrahydrofolate synthetase domain containing |
| ARHGAP24 | Rho GTPase activating protein 24 | MT-ND4 | mitochondrially encoded NADH:ubiquinone oxidoreductase core subunit 4 |
| ARHGAP25 | Rho GTPase activating protein 25 | MTRF1 | mitochondrial translation release factor 1 |
| ARHGAP26 | Rho GTPase activating protein 26 | MTRNR2L6 | MT-RNR2-like 6 |
| ARHGAP29 | Rho GTPase activating protein 29 | MTRNR2L8 | MT-RNR2-like 8 |
| ARHGAP32 | Rho GTPase activating protein 32 | MTSS1 | MTSS1, I-BAR domain containing |
| ARHGEF10L | Rho guanine nucleotide exchange factor 10 like | MTTP | microsomal triglyceride transfer protein |
| ARHGEF2 | Rho/Rac guanine nucleotide exchange factor 2 | MVP | major vault protein |
| ARHGEF26 | Rho guanine nucleotide exchange factor 26 | MXD1 | MAX dimerization protein 1 |
| ARHGEF28 | Rho guanine nucleotide exchange factor 28 | MXD4 | MAX dimerization protein 4 |

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|---|---|---|---|
| ARHGEF3 | Rho guanine nucleotide exchange factor 3 | MXRA8 | matrix remodeling associated 8 |
| ARHGEF33 | Rho guanine nucleotide exchange factor 33 | MYBPC1 | myosin binding protein C, slow type |
| ARHGEF37 | Rho guanine nucleotide exchange factor 37 | MYCL | MYCL proto-oncogene, bHLH transcription factor |
| ARHGEF4 | Rho guanine nucleotide exchange factor 4 | MYH11 | myosin heavy chain 11 |
| ARHGEF6 | Rac/Cdc42 guanine nucleotide exchange factor 6 | MYH14 | myosin heavy chain 14 |
| ARIH1 | ariadne RBR E3 ubiquitin protein ligase 1 | MYH6 | myosin heavy chain 6 |
| ARL4A | ADP ribosylation factor like GTPase 4A | MYLIP | myosin regulatory light chain interacting protein |
| ARL5B | ADP ribosylation factor like GTPase 5B | MYO10 | myosin X |
| ARMCX1 | armadillo repeat containing, X-linked 1 | MYO16 | myosin XVI |
| ARNT2 | aryl hydrocarbon receptor nuclear translocator 2 | MYO1D | myosin ID |
| ARPP21 | cAMP regulated phosphoprotein 21 | MYO7A | myosin VIIA |
| ARRB1 | arrestin beta 1 | MYORG | myogenesis regulating glycosidase (putative) |
| ARRDC3 | arrestin domain containing 3 | MYOT | myotilin |
| ARSDP1 | arylsulfatase D pseudogene 1 | MYRF | myelin regulatory factor |
| ARSG | arylsulfatase G | MYRIP | myosin VIIA and Rab interacting protein |
| ARX | aristaless related homeobox | MYT1 | myelin transcription factor 1 |
| ASAP3 | ArfGAP with SH3 domain, ankyrin repeat and PH domain 3 | MYT1L | myelin transcription factor 1 like |
| ASCL1 | achaete-scute family bHLH transcription factor 1 | N/A | N/A |
| ASGR1 | asialoglycoprotein receptor 1 | NAA20 | N(alpha)-acetyltransferase 20, NatB catalytic subunit |
| ASIC1 | acid sensing ion channel subunit 1 | NAB2 | NGFI-A binding protein 2 |
| ASIC2 | acid sensing ion channel subunit 2 | NAF1 | nuclear assembly factor 1 ribonucleoprotein |
| ASIC4 | acid sensing ion channel subunit family member 4 | NAMA | non-protein coding RNA, associated with MAP kinase pathway and growth arrest |
| ASNS | asparagine synthetase (glutamine-hydrolyzing) | NAMPT | nicotinamide phosphoribosyltransferase |
| ASPA | aspartoacylase | NAPA | NSF attachment protein alpha |
| ASPG | asparaginase | NARS2 | asparaginyl-tRNA synthetase 2, mitochondrial |
| ASTN2 | astrotactin 2 | NAT8 | N-acetyltransferase 8 (putative) |
| ATAD2 | ATPase family, AAA domain containing 2 | Nat8f5 | N-acetyltransferase 8 (GCN5-related) family member 5 |
| ATF3 | activating transcription factor 3 | NAV2 | neuron navigator 2 |
| ATF6B | activating transcription factor 6 beta | NCALD | neurocalcin delta |
| ATL2 | atlastin GTPase 2 | NCAM2 | neural cell adhesion molecule 2 |
| ATL3 | atlastin GTPase 3 | NCAN | neurocan |
| ATOH8 | atonal bHLH transcription factor 8 | NCEH1 | neutral cholesterol ester hydrolase 1 |
| ATP13A4 | ATPase 13A4 | NCKAP5 | NCK associated protein 5 |
| ATP1A1 | ATPase Na+/K+ transporting subunit alpha 1 | NDEL1 | nudE neurodevelopment protein 1 like 1 |
| ATP1A2 | ATPase Na+/K+ transporting subunit alpha 2 | NDNF | neuron derived neurotrophic factor |
| ATP1A3 | ATPase Na+/K+ transporting subunit alpha 3 | NDRG1 | N-myc downstream regulated 1 |
| ATP1B1 | ATPase Na+/K+ transporting subunit beta 1 | NDRG2 | NDRG family member 2 |
| ATP1B2 | ATPase Na+/K+ transporting subunit beta 2 | NDST3 | N-deacetylase and N-sulfotransferase 3 |
| ATP1B3 | ATPase Na+/K+ transporting subunit beta 3 | NDST4 | N-deacetylase and N-sulfotransferase 4 |
| ATP2A3 | ATPase sarcoplasmic/endoplasmic reticulum Ca2+ transporting 3 | NEAT1 | nuclear paraspeckle assembly transcript 1 (non-protein coding) |
| ATP2B2 | ATPase plasma membrane Ca2+ transporting 2 | NECAB1 | N-terminal EF-hand calcium binding protein 1 |
| ATP2B3 | ATPase plasma membrane Ca2+ transporting 3 | NECTIN3 | nectin cell adhesion molecule 3 |
| ATP2C2 | ATPase secretory pathway Ca2+ transporting 2 | NEDD4 | neural precursor cell expressed, developmentally down-regulated 4, E3 ubiquitin protein ligase |
| ATP6V0B | ATPase H+ transporting V0 subunit b | NEDD4L | neural precursor cell expressed, developmentally down-regulated 4-like, E3 ubiquitin protein ligase |
| ATP8A1 | ATPase phospholipid transporting 8A1 | NEFH | neurofilament heavy |
| ATP8B1 | ATPase phospholipid transporting 8B1 | NEFL | neurofilament light |
| ATRNL1 | attractin like 1 | NEFM | neurofilament medium |
| ATXN1 | ataxin 1 | NEGR1 | neuronal growth regulator 1 |
| ATXN7L2 | ataxin 7 like 2 | NEK2 | NIMA related kinase 2 |
| AVPI1 | arginine vasopressin induced 1 | NEK4 | NIMA related kinase 4 |
| AXL | AXL receptor tyrosine kinase | NELL1 | neural EGFL like 1 |
| AZGP1 | alpha-2-glycoprotein 1, zinc-binding | NEO1 | neogenin 1 |
| AZIN1 | antizyme inhibitor 1 | NES | nestin |

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|---|---|---|---|
| B230209E15Rik | RIKEN cDNA B230209E15 gene | NETO1 | neuropilin and tolloid like 1 |
| B3GALT4 | beta-1,3-galactosyltransferase 4 | NEU4 | neuraminidase 4 |
| B3GAT2 | beta-1,3-glucuronyltransferase 2 | NEURL1 | neuralized E3 ubiquitin protein ligase 1 |
| B3GLCT | beta 3-glucosyltransferase | Neurl1a | neuralized E3 ubiquitin protein ligase 1A |
| B3GNT5 | UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 5 | NEUROD1 | neuronal differentiation 1 |
| B3GNT7 | UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 7 | NEUROD6 | neuronal differentiation 6 |
| B4GALT6 | beta-1,4-galactosyltransferase 6 | NEXN | nexilin F-actin binding protein |
| BACH2 | BTB domain and CNC homolog 2 | NFAM1 | NFAT activating protein with ITAM motif 1 |
| BAD | BCL2 associated agonist of cell death | NFATC2 | nuclear factor of activated T-cells 2 |
| BAG3 | BCL2 associated athanogene 3 | NFATC4 | nuclear factor of activated T-cells 4 |
| BAIAP2 | BAI1 associated protein 2 | NFIL3 | nuclear factor, interleukin 3 regulated |
| BAMBI | BMP and activin membrane bound inhibitor | NFKBID | NFKB inhibitor delta |
| BARHL1 | BarH like homeobox 1 | NHS | NHS actin remodeling regulator |
| BARHL2 | BarH like homeobox 2 | NHSL1 | NHS like 1 |
| BASP1 | brain abundant membrane attached signal protein 1 | NHSL2 | NHS like 2 |
| BBS2 | Bardet-Biedl syndrome 2 | NID1 | nidogen 1 |
| BC052040 | N/A | NINJ2 | ninjurin 2 |
| BCAR1 | BCAR1, Cas family scaffolding protein | NIPAL4 | NIPA like domain containing 4 |
| BCAS1 | breast carcinoma amplified sequence 1 | NKAIN2 | sodium/potassium transporting ATPase interacting 2 |
| BCAS2 | BCAS2, pre-mRNA processing factor | NKAIN3 | sodium/potassium transporting ATPase interacting 3 |
| BCHE | butyrylcholinesterase | NKAIN4 | sodium/potassium transporting ATPase interacting 4 |
| BCL11A | B-cell CLL/lymphoma 11A | NKD1 | naked cuticle homolog 1 |
| BCL11B | B-cell CLL/lymphoma 11B | NKIRAS2 | NFKB inhibitor interacting Ras like 2 |
| BDNF | brain derived neurotrophic factor | NKRF | NFKB repressing factor |
| BEAN1 | brain expressed associated with NEDD4 1 | NKX2-2 | NK2 homeobox 2 |
| BEGAIN | brain enriched guanylate kinase associated | NLGN3 | neuroligin 3 |
| BEST3 | bestrophin 3 | NLGN4Y | neuroligin 4, Y-linked |
| BGN | biglycan | NLN | neurolysin |
| BHLHE22 | basic helix-loop-helix family member e22 | NNT | nicotinamide nucleotide transhydrogenase |
| BHLHE40 | basic helix-loop-helix family member e40 | NOL3 | nucleolar protein 3 |
| BHLHE40-AS1 | BHLHE40 antisense RNA 1 | NOS1 | nitric oxide synthase 1 |
| BICD1 | BICD cargo adaptor 1 | NOTCH1 | notch 1 |
| BICD2 | BICD cargo adaptor 2 | NOTCH3 | notch 3 |
| BLM | Bloom syndrome RecQ like helicase | NPAS4 | neuronal PAS domain protein 4 |
| BLNK | B-cell linker | NPL | N-acetylneuraminate pyruvate lyase |
| BMP2K | BMP2 inducible kinase | NPR1 | natriuretic peptide receptor 1 |
| BMP3 | bone morphogenetic protein 3 | NPR3 | natriuretic peptide receptor 3 |
| BMPER | BMP binding endothelial regulator | NPY1R | neuropeptide Y receptor Y1 |
| BMS1P21 | BMS1, ribosome biogenesis factor pseudogene 21 | NPY6R | neuropeptide Y receptor Y6 (pseudogene) |
| BNC2 | basonuclin 2 | NR3C2 | nuclear receptor subfamily 3 group C member 2 |
| BOC | BOC cell adhesion associated, oncogene regulated | NR4A1 | nuclear receptor subfamily 4 group A member 1 |
| BRINP2 | BMP/retinoic acid inducible neural specific 2 | NR4A2 | nuclear receptor subfamily 4 group A member 2 |
| BRINP3 | BMP/retinoic acid inducible neural specific 3 | NR4A3 | nuclear receptor subfamily 4 group A member 3 |
| BSG | basigin (Ok blood group) | NRBF2 | nuclear receptor binding factor 2 |
| BSN | bassoon presynaptic cytomatrix protein | NRCAM | neuronal cell adhesion molecule |
| BTAF1 | B-TFIID TATA-box binding protein associated factor 1 | NREP | neuronal regeneration related protein |
| BTBD1 | BTB domain containing 1 | NRG1 | neuregulin 1 |
| BTBD11 | BTB domain containing 11 | NRG2 | neuregulin 2 |
| BTBD17 | BTB domain containing 17 | NRG3 | neuregulin 3 |
| BTG1 | BTG anti-proliferation factor 1 | NRGN | neurogranin |
| BTG2 | BTG anti-proliferation factor 2 | NRIP3 | nuclear receptor interacting protein 3 |
| BTN1A1 | butyrophilin subfamily 1 member A1 | NRK | Nik related kinase |
| BUB1B | BUB1 mitotic checkpoint serine/threonine kinase B | NRXN1 | neurexin 1 |
| BZW1 | basic leucine zipper and W2 domains 1 | NRXN2 | neurexin 2 |

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|---|---|---|---|
| C10orf90 | chromosome 10 open reading frame 90 | NRXN3 | neurexin 3 |
| C11orf87 | chromosome 11 open reading frame 87 | NT5DC2 | 5'-nucleotidase domain containing 2 |
| C12orf49 | chromosome 12 open reading frame 49 | NT5E | 5'-nucleotidase ecto |
| C14orf132 | chromosome 14 open reading frame 132 | NTF3 | neurotrophin 3 |
| C14orf37 | chromosome 14 open reading frame 37 | NTM | neurotrimin |
| C1orf146 | chromosome 1 open reading frame 146 | NTN1 | netrin 1 |
| C1orf21 | chromosome 1 open reading frame 21 | NTN4 | netrin 4 |
| C1orf61 | chromosome 1 open reading frame 61 | NTNG1 | netrin G1 |
| C1QA | complement C1q A chain | NTNG2 | netrin G2 |
| C1QB | complement C1q B chain | NTSR1 | neurotensin receptor 1 |
| C1QL1 | complement C1q like 1 | NTSR2 | neurotensin receptor 2 |
| C1QL2 | complement C1q like 2 | NUDC | nuclear distribution C, dynein complex regulator |
| C1QTNF4 | C1q and TNF related 4 | NUDCD3 | NudC domain containing 3 |
| C1RL | complement C1r subcomponent like | NUDT4 | nudix hydrolase 4 |
| C21orf91 | chromosome 21 open reading frame 91 | NUMBL | NUMB like, endocytic adaptor protein |
| C2orf27A | chromosome 2 open reading frame 27A | NUP58 | nucleoporin 58 |
| C2orf69 | chromosome 2 open reading frame 69 | NUP62CL | nucleoporin 62 C-terminal like |
| C2orf72 | chromosome 2 open reading frame 72 | NUP93 | nucleoporin 93 |
| C2orf73 | chromosome 2 open reading frame 73 | NWD1 | NACHT and WD repeat domain containing 1 |
| C2orf80 | chromosome 2 open reading frame 80 | NXN | nucleoredoxin |
| C3 | complement C3 | NXNL2 | nucleoredoxin like 2 |
| C3orf67 | chromosome 3 open reading frame 67 | NXPE3 | neurexophilin and PC-esterase domain family member 3 |
| C4orf22 | chromosome 4 open reading frame 22 | NYAP2 | neuronal tyrosine-phosphorylated phosphoinositide-3-kinase adaptor 2 |
| C4orf33 | chromosome 4 open reading frame 33 | NYX | nyctalopin |
| C6orf106 | chromosome 6 open reading frame 106 | OAT | ornithine aminotransferase |
| C6orf163 | chromosome 6 open reading frame 163 | OGDHL | oxoglutarate dehydrogenase like |
| C8orf34 | chromosome 8 open reading frame 34 | OLFM1 | olfactomedin 1 |
| C8orf46 | chromosome 8 open reading frame 46 | OLFM2 | olfactomedin 2 |
| C9orf135 | chromosome 9 open reading frame 135 | OLFM3 | olfactomedin 3 |
| C9orf72 | chromosome 9 open reading frame 72 | OLIG1 | oligodendrocyte transcription factor 1 |
| CA12 | carbonic anhydrase 12 | OLIG2 | oligodendrocyte transcription factor 2 |
| CA14 | carbonic anhydrase 14 | ONECUT1 | one cut homeobox 1 |
| CA2 | carbonic anhydrase 2 | ONECUT2 | one cut homeobox 2 |
| CA4 | carbonic anhydrase 4 | OPALIN | oligodendrocytic myelin paranodal and inner loop protein |
| CA7 | carbonic anhydrase 7 | OPHN1 | oligophrenin 1 |
| CA8 | carbonic anhydrase 8 | OPLAH | 5-oxoprolinase, ATP-hydrolysing |
| CAB39L | calcium binding protein 39 like | OPRD1 | opioid receptor delta 1 |
| CABIN1 | calcineurin binding protein 1 | OPTC | opticin |
| CABLES1 | Cdk5 and Abl enzyme substrate 1 | OSBP | oxysterol binding protein |
| CABP1 | calcium binding protein 1 | OSBPL10 | oxysterol binding protein like 10 |
| CACHD1 | cache domain containing 1 | OSBPL3 | oxysterol binding protein like 3 |
| CACNA1A | calcium voltage-gated channel subunit alpha1 A | OTUD6B | OTU domain containing 6B |
| CACNA1B | calcium voltage-gated channel subunit alpha1 B | OTUD6B-AS1 | OTUD6B antisense RNA 1 (head to head) |
| CACNA1D | calcium voltage-gated channel subunit alpha1 D | OXSR1 | oxidative stress responsive 1 |
| CACNA1E | calcium voltage-gated channel subunit alpha1 E | P2RY1 | purinergic receptor P2Y1 |
| CACNA1G | calcium voltage-gated channel subunit alpha1 G | P2RY12 | purinergic receptor P2Y12 |
| CACNA2D1 | calcium voltage-gated channel auxiliary subunit alpha2delta 1 | P4HA1 | prolyl 4-hydroxylase subunit alpha 1 |
| CACNA2D2 | calcium voltage-gated channel auxiliary subunit alpha2delta 2 | P4HA2 | prolyl 4-hydroxylase subunit alpha 2 |
| CACNA2D3 | calcium voltage-gated channel auxiliary subunit alpha2delta 3 | P4HA2-AS1 | P4HA2 antisense RNA 1 |
| CACNB3 | calcium voltage-gated channel auxiliary subunit beta 3 | PACS2 | phosphofurin acidic cluster sorting protein 2 |
| CACNB4 | calcium voltage-gated channel auxiliary subunit beta 4 | PAFAH1B1 | platelet activating factor acetylhydrolase 1b regulatory subunit 1 |

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|---|---|---|---|
| CACNG3 | calcium voltage-gated channel auxiliary subunit gamma 3 | PAGR1 | PAXIP1 associated glutamate rich protein 1 |
| CACNG4 | calcium voltage-gated channel auxiliary subunit gamma 4 | PAK5 | p21 (RAC1) activated kinase 5 |
| CACNG5 | calcium voltage-gated channel auxiliary subunit gamma 5 | Pak7 | p21 protein (Cdc42/Rac)-activated kinase 7 |
| CACNG8 | calcium voltage-gated channel auxiliary subunit gamma 8 | PALM2 | paralemmin 2 |
| CACYBP | calcyclin binding protein | PAM | peptidylglycine alpha-amidating monooxygenase |
| CADM3 | cell adhesion molecule 3 | PANX2 | pannexin 2 |
| CADPS | calcium dependent secretion activator | PAQR4 | progestin and adipoQ receptor family member 4 |
| CADPS2 | calcium dependent secretion activator 2 | PAQR6 | progestin and adipoQ receptor family member 6 |
| CALB1 | calbindin 1 | PARD3 | par-3 family cell polarity regulator |
| CALB2 | calbindin 2 | PARD3B | par-3 family cell polarity regulator beta |
| CALCRL | calcitonin receptor like receptor | PARD6G | par-6 family cell polarity regulator gamma |
| CALHM3 | calcium homeostasis modulator 3 | PARD6G-AS1 | PARD6G antisense RNA 1 |
| CALN1 | calneuron 1 | PARM1 | prostate androgen-regulated mucin-like protein 1 |
| CALR | calreticulin | PATJ | PATJ, crumbs cell polarity complex component |
| CALY | calcyon neuron specific vesicular protein | PAX2 | paired box 2 |
| CAMK1G | calcium/calmodulin dependent protein kinase IG | PAX3 | paired box 3 |
| CAMK2A | calcium/calmodulin dependent protein kinase II alpha | PAX6 | paired box 6 |
| CAMK2G | calcium/calmodulin dependent protein kinase II gamma | PAXBP1 | PAX3 and PAX7 binding protein 1 |
| CAMK4 | calcium/calmodulin dependent protein kinase IV | PBX3 | PBX homeobox 3 |
| CAMKK2 | calcium/calmodulin dependent protein kinase kinase 2 | PBXIP1 | PBX homeobox interacting protein 1 |
| CAMKV | CaM kinase like vesicle associated | PC | pyruvate carboxylase |
| CAP2 | cyclase associated actin cytoskeleton regulatory protein 2 | PCBP1 | poly(rC) binding protein 1 |
| CAPN1 | calpain 1 | PCDH1 | protocadherin 1 |
| CAPN3 | calpain 3 | PCDH15 | protocadherin related 15 |
| CAPN5 | calpain 5 | PCDH17 | protocadherin 17 |
| CAPN9 | calpain 9 | PCDH9 | protocadherin 9 |
| CAPZB | capping actin protein of muscle Z-line beta subunit | PCDHA1 | protocadherin alpha 1 |
| Car12 | carbonic anhydrase 12 | PCDHA3 | protocadherin alpha 3 |
| Car14 | carbonic anhydrase 14 | PCGF5 | polycomb group ring finger 5 |
| Car2 | carbonic anhydrase 2 | PCK1 | phosphoenolpyruvate carboxykinase 1 |
| Car4 | carbonic anhydrase 4 | PCP2 | Purkinje cell protein 2 |
| Car7 | carbonic anhydrase 7 | PCP4 | Purkinje cell protein 4 |
| Car8 | carbonic anhydrase 8 | Pcsk1 | proprotein convertase subtilisin/kexin type 1 |
| CARMIL1 | capping protein regulator and myosin 1 linker 1 | PCSK5 | proprotein convertase subtilisin/kexin type 5 |
| CARNS1 | carnosine synthase 1 | PCSK6 | proprotein convertase subtilisin/kexin type 6 |
| CASP12 | caspase 12 (gene/pseudogene) | PCSK7 | proprotein convertase subtilisin/kexin type 7 |
| CASP3 | caspase 3 | Pcx | pyruvate carboxylase |
| CASP4 | caspase 4 | PCYT1B | phosphate cytidylyltransferase 1, choline, beta |
| CASP9 | caspase 9 | PDC | phosducin |
| CASQ2 | calsequestrin 2 | PDE1A | phosphodiesterase 1A |
| CASTOR1 | cytosolic arginine sensor for mTORC1 subunit 1 | PDE1B | phosphodiesterase 1B |
| CASTOR2 | cytosolic arginine sensor for mTORC1 subunit 2 | PDE1C | phosphodiesterase 1C |
| CATSPERG | cation channel sperm associated auxiliary subunit gamma | PDE3A | phosphodiesterase 3A |
| CAV1 | caveolin 1 | PDE3B | phosphodiesterase 3B |
| CAV2 | caveolin 2 | PDE4D | phosphodiesterase 4D |
| CBFA2T3 | CBFA2/RUNX1 translocation partner 3 | PDE5A | phosphodiesterase 5A |
| CBFB | core-binding factor beta subunit | PDE7A | phosphodiesterase 7A |
| CBLB | Cbl proto-oncogene B | PDE7B | phosphodiesterase 7B |
| CBLN1 | cerebellin 1 precursor | PDE8A | phosphodiesterase 8A |
| CBLN2 | cerebellin 2 precursor | PDE8B | phosphodiesterase 8B |
| CBLN3 | cerebellin 3 precursor | PDE9A | phosphodiesterase 9A |

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|---|---|---|---|
| CBS | cystathionine-beta-synthase | PDGFC | platelet derived growth factor C |
| CBWD6 | COBW domain containing 6 | PDGFD | platelet derived growth factor D |
| CCBE1 | collagen and calcium binding EGF domains 1 | PDGFRA | platelet derived growth factor receptor alpha |
| CCDC13 | coiled-coil domain containing 13 | PDGFRB | platelet derived growth factor receptor beta |
| CCDC146 | coiled-coil domain containing 146 | PDK3 | pyruvate dehydrogenase kinase 3 |
| CCDC152 | coiled-coil domain containing 152 | PDLIM3 | PDZ and LIM domain 3 |
| CCDC155 | coiled-coil domain containing 155 | PDLIM4 | PDZ and LIM domain 4 |
| CCDC175 | coiled-coil domain containing 175 | PDZD3 | PDZ domain containing 3 |
| CCDC180 | coiled-coil domain containing 180 | PDZD7 | PDZ domain containing 7 |
| CCDC61 | coiled-coil domain containing 61 | Pdzph1 | PDZ and pleckstrin homology domains 1 |
| CCDC80 | coiled-coil domain containing 80 | PDZRN4 | PDZ domain containing ring finger 4 |
| CCDC85A | coiled-coil domain containing 85A | PEA15 | proliferation and apoptosis adaptor protein 15 |
| CCDC88A | coiled-coil domain containing 88A | Pea15a | phosphoprotein enriched in astrocytes 15A |
| CCK | cholecystokinin | PEBP4 | phosphatidylethanolamine binding protein 4 |
| CCKBR | cholecystokinin B receptor | PEG3 | paternally expressed 3 |
| CCM2L | CCM2 like scaffolding protein | PENK | proenkephalin |
| CCND1 | cyclin D1 | PER1 | period circadian regulator 1 |
| CCND2 | cyclin D2 | PET100 | PET100 homolog |
| CCNH | cyclin H | PEX5L | peroxisomal biogenesis factor 5 like |
| CD101 | CD101 molecule | PFKFB4 | 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 4 |
| CD27 | CD27 molecule | PFKM | phosphofructokinase, muscle |
| CD33 | CD33 molecule | PFKP | phosphofructokinase, platelet |
| CD70 | CD70 molecule | PGGHG | protein-glucosylgalactosylhydroxylysine glucosidase |
| CD74 | CD74 molecule | PGM2L1 | phosphoglucomutase 2 like 1 |
| CD82 | CD82 molecule | PGM5 | phosphoglucomutase 5 |
| CD83 | CD83 molecule | PGR | progesterone receptor |
| CD9 | CD9 molecule | PHACTR2-AS1 | PHACTR2 antisense RNA 1 |
| CDADC1 | cytidine and dCMP deaminase domain containing 1 | PHF10 | PHD finger protein 10 |
| CDC14B | cell division cycle 14B | PHF21B | PHD finger protein 21B |
| CDC42EP1 | CDC42 effector protein 1 | PHF24 | PHD finger protein 24 |
| CDC42EP3 | CDC42 effector protein 3 | PHKA1 | phosphorylase kinase regulatory subunit alpha 1 |
| CDC42EP4 | CDC42 effector protein 4 | PHKA2 | phosphorylase kinase regulatory subunit alpha 2 |
| CDH1 | cadherin 1 | PHKG1 | phosphorylase kinase catalytic subunit gamma 1 |
| CDH10 | cadherin 10 | PHOX2A | paired like homeobox 2a |
| CDH11 | cadherin 11 | PHYHIP | phytanoyl-CoA 2-hydroxylase interacting protein |
| CDH13 | cadherin 13 | PI16 | peptidase inhibitor 16 |
| CDH15 | cadherin 15 | PID1 | phosphotyrosine interaction domain containing 1 |
| CDH19 | cadherin 19 | PIEZO2 | piezo type mechanosensitive ion channel component 2 |
| CDH2 | cadherin 2 | PIGA | phosphatidylinositol glycan anchor biosynthesis class A |
| CDH23 | cadherin related 23 | PIGH | phosphatidylinositol glycan anchor biosynthesis class H |
| CDH26 | cadherin 26 | PIGS | phosphatidylinositol glycan anchor biosynthesis class S |
| CDH4 | cadherin 4 | PIGZ | phosphatidylinositol glycan anchor biosynthesis class Z |
| CDH7 | cadherin 7 | PIH1D3 | PIH1 domain containing 3 |
| CDH8 | cadherin 8 | Pih1h3b | PIH1 domain containing 3B |
| CDHR1 | cadherin related family member 1 | PIK3C2B | phosphatidylinositol-4-phosphate 3-kinase catalytic subunit type 2 beta |
| CDK14 | cyclin dependent kinase 14 | PIK3R1 | phosphoinositide-3-kinase regulatory subunit 1 |
| CDK15 | cyclin dependent kinase 15 | PILRA | paired immunoglobin like type 2 receptor alpha |
| CDK16 | cyclin dependent kinase 16 | PIM3 | Pim-3 proto-oncogene, serine/threonine kinase |
| CDK18 | cyclin dependent kinase 18 | PIN4 | peptidylprolyl cis/trans isomerase, NIMA-interacting 4 |
| CDK2 | cyclin dependent kinase 2 | PIP4K2A | phosphatidylinositol-5-phosphate 4-kinase type 2 alpha |

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|---|---|---|---|
| CDK5R2 | cyclin dependent kinase 5 regulatory subunit 2 | PIP5K1C | phosphatidylinositol-4-phosphate 5-kinase type 1 gamma |
| CDK5RAP2 | CDK5 regulatory subunit associated protein 2 | PIPOX | pipecolic acid and sarcosine oxidase |
| CDKL1 | cyclin dependent kinase like 1 | PITPNM3 | PITPNM family member 3 |
| CDKN1A | cyclin dependent kinase inhibitor 1A | PIWIL1 | piwi like RNA-mediated gene silencing 1 |
| CDO1 | cysteine dioxygenase type 1 | PKD1 | polycystin 1, transient receptor potential channel interacting |
| CDYL | chromodomain Y like | PKD2 | polycystin 2, transient receptor potential cation channel |
| CDYL2 | chromodomain Y like 2 | PKD2L1 | polycystin 2 like 1, transient receptor potential cation channel |
| CEBPB | CCAAT/enhancer binding protein beta | PKDCC | protein kinase domain containing, cytoplasmic |
| CEMIP | cell migration inducing hyaluronan binding protein | PKIA | cAMP-dependent protein kinase inhibitor alpha |
| CEP126 | centrosomal protein 126 | PKMYT1 | protein kinase, membrane associated tyrosine/threonine 1 |
| CEP76 | centrosomal protein 76 | PKNOX2 | PBX/knotted 1 homeobox 2 |
| CEPT1 | choline/ethanolamine phosphotransferase 1 | PKP3 | plakophilin 3 |
| CERCAM | cerebral endothelial cell adhesion molecule | PLA2G16 | phospholipase A2 group XVI |
| CERKL | ceramide kinase like | PLA2G3 | phospholipase A2 group III |
| CERS4 | ceramide synthase 4 | PLA2G4A | phospholipase A2 group IVA |
| CFAP161 | cilia and flagella associated protein 161 | PLA2G4E | phospholipase A2 group IVE |
| CFAP20 | cilia and flagella associated protein 20 | PLA2G5 | phospholipase A2 group V |
| CFAP221 | cilia and flagella associated protein 221 | PLA2G7 | phospholipase A2 group VII |
| CFAP43 | cilia and flagella associated protein 43 | PLAG1 | PLAG1 zinc finger |
| CFAP46 | cilia and flagella associated protein 46 | PLAT | plasminogen activator, tissue type |
| CFAP53 | cilia and flagella associated protein 53 | PLCB1 | phospholipase C beta 1 |
| CFAP70 | cilia and flagella associated protein 70 | PLCE1 | phospholipase C epsilon 1 |
| CFAP74 | cilia and flagella associated protein 74 | PLCH1 | phospholipase C eta 1 |
| CGN | cingulin | PLCH2 | phospholipase C eta 2 |
| CGNL1 | cingulin like 1 | PLCL1 | phospholipase C like 1 (inactive) |
| CHAC1 | ChaC glutathione specific gamma-glutamylcyclotransferase 1 | PLCXD3 | phosphatidylinositol specific phospholipase C X domain containing 3 |
| CHD7 | chromodomain helicase DNA binding protein 7 | PLD1 | phospholipase D1 |
| CHDH | choline dehydrogenase | PLD4 | phospholipase D family member 4 |
| CHGB | chromogranin B | PLD5 | phospholipase D family member 5 |
| CHID1 | chitinase domain containing 1 | PLEKHD1 | pleckstrin homology and coiled-coil domain containing D1 |
| CHL1 | cell adhesion molecule L1 like | PLEKHG3 | pleckstrin homology and RhoGEF domain containing G3 |
| CHN2 | chimerin 2 | PLEKHG5 | pleckstrin homology and RhoGEF domain containing G5 |
| CHODL | chondrolectin | PLEKHH1 | pleckstrin homology, MyTH4 and FERM domain containing H1 |
| CHORDC1 | cysteine and histidine rich domain containing 1 | PLEKHH2 | pleckstrin homology, MyTH4 and FERM domain containing H2 |
| CHRD | chordin | PLEKHO2 | pleckstrin homology domain containing O2 |
| CHRM1 | cholinergic receptor muscarinic 1 | PLK2 | polo like kinase 2 |
| CHRM3 | cholinergic receptor muscarinic 3 | PLK5 | polo like kinase 5 |
| CHRNA3 | cholinergic receptor nicotinic alpha 3 subunit | PLLP | plasmolipin |
| CHST1 | carbohydrate sulfotransferase 1 | PLOD2 | procollagen-lysine,2-oxoglutarate 5-dioxygenase 2 |
| CHST10 | carbohydrate sulfotransferase 10 | PLP1 | proteolipid protein 1 |
| CHST11 | carbohydrate sulfotransferase 11 | PLPP2 | phospholipid phosphatase 2 |
| CHST12 | carbohydrate sulfotransferase 12 | PLPP3 | phospholipid phosphatase 3 |
| CHST15 | carbohydrate sulfotransferase 15 | PLPP4 | phospholipid phosphatase 4 |
| CHST5 | carbohydrate sulfotransferase 5 | PLPPR1 | phospholipid phosphatase related 1 |
| CHST8 | carbohydrate sulfotransferase 8 | PLPPR4 | phospholipid phosphatase related 4 |
| CHST9 | carbohydrate sulfotransferase 9 | PLS1 | plastin 1 |
| CHSY1 | chondroitin sulfate synthase 1 | PLSCR1 | phospholipid scramblase 1 |
| CHSY3 | chondroitin sulfate synthase 3 | PLSCR4 | phospholipid scramblase 4 |
| CHTF18 | chromosome transmission fidelity factor 18 | PLTP | phospholipid transfer protein |

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|---|---|---|---|
| CIPC | CLOCK interacting pacemaker | PLXDC1 | plexin domain containing 1 |
| CIT | citron rho-interacting serine/threonine kinase | PLXDC2 | plexin domain containing 2 |
| CKMT1B | creatine kinase, mitochondrial 1B | PLXNA1 | plexin A1 |
| CLASRP | CLK4 associating serine/arginine rich protein | PLXNA4 | plexin A4 |
| CLCN1 | chloride voltage-gated channel 1 | PLXNB1 | plexin B1 |
| CLCN3 | chloride voltage-gated channel 3 | PLXNB3 | plexin B3 |
| CLCN5 | chloride voltage-gated channel 5 | PLXNC1 | plexin C1 |
| CLDN1 | claudin 1 | PMEL | premelanosome protein |
| CLDN11 | claudin 11 | PMEPA1 | prostate transmembrane protein, androgen induced 1 |
| CLEC2L | C-type lectin domain family 2 member L | PMP2 | peripheral myelin protein 2 |
| CLEC7A | C-type lectin domain containing 7A | PMP22 | peripheral myelin protein 22 |
| CLIC5 | chloride intracellular channel 5 | PMVK | phosphomevalonate kinase |
| CLIC6 | chloride intracellular channel 6 | PNLIP | pancreatic lipase |
| CLK1 | CDC like kinase 1 | PNMA2 | PNMA family member 2 |
| CLMN | calmin | PNP | purine nucleoside phosphorylase |
| CLMP | CXADR like membrane protein | PNPLA3 | patatin like phospholipase domain containing 3 |
| CLSTN2 | calsyntenin 2 | PNPLA8 | patatin like phospholipase domain containing 8 |
| CLSTN3 | calsyntenin 3 | POLR2A | RNA polymerase II subunit A |
| CLVS2 | clavesin 2 | POLR2J3 | RNA polymerase II subunit J3 |
| CMTM5 | CKLF like MARVEL transmembrane domain containing 5 | PON2 | paraoxonase 2 |
| CMTM8 | CKLF like MARVEL transmembrane domain containing 8 | POR | cytochrome p450 oxidoreductase |
| CNDP1 | carnosine dipeptidase 1 | POU3F2 | POU class 3 homeobox 2 |
| CNIH3 | cornichon family AMPA receptor auxiliary protein 3 | PPARG | peroxisome proliferator activated receptor gamma |
| CNKSR3 | CNKSR family member 3 | PPFIA4 | PTPRF interacting protein alpha 4 |
| CNMD | chondromodulin | PPFIBP1 | PPFIA binding protein 1 |
| CNP | 2',3'-cyclic nucleotide 3' phosphodiesterase | PPFIBP2 | PPFIA binding protein 2 |
| CNPY1 | canopy FGF signaling regulator 1 | PPM1E | protein phosphatase, Mg2+/Mn2+ dependent 1E |
| CNR1 | cannabinoid receptor 1 | PPM1H | protein phosphatase, Mg2+/Mn2+ dependent 1H |
| CNTFR | ciliary neurotrophic factor receptor | PPM1J | protein phosphatase, Mg2+/Mn2+ dependent 1J |
| CNTN2 | contactin 2 | PPP1R11 | protein phosphatase 1 regulatory inhibitor subunit 11 |
| CNTN3 | contactin 3 | PPP1R14A | protein phosphatase 1 regulatory inhibitor subunit 14A |
| CNTN4 | contactin 4 | PPP1R15A | protein phosphatase 1 regulatory subunit 15A |
| CNTN5 | contactin 5 | PPP1R16B | protein phosphatase 1 regulatory subunit 16B |
| CNTNAP4 | contactin associated protein like 4 | PPP1R17 | protein phosphatase 1 regulatory subunit 17 |
| CNTNAP5 | contactin associated protein like 5 | PPP1R1C | protein phosphatase 1 regulatory inhibitor subunit 1C |
| Cntnap5a | contactin associated protein-like 5A | PPP1R36 | protein phosphatase 1 regulatory subunit 36 |
| COBL | cordon-bleu WH2 repeat protein | PPP2CA | protein phosphatase 2 catalytic subunit alpha |
| COL11A1 | collagen type XI alpha 1 chain | PPP2R2C | protein phosphatase 2 regulatory subunit Bgamma |
| COL11A2 | collagen type XI alpha 2 chain | PPP4R4 | protein phosphatase 4 regulatory subunit 4 |
| COL12A1 | collagen type XII alpha 1 chain | PPP6R2 | protein phosphatase 6 regulatory subunit 2 |
| COL13A1 | collagen type XIII alpha 1 chain | PRAG1 | PEAK1 related, kinase-activating pseudokinase 1 |
| COL15A1 | collagen type XV alpha 1 chain | PRDM1 | PR/SET domain 1 |
| COL18A1 | collagen type XVIII alpha 1 chain | PRDM8 | PR/SET domain 8 |
| COL1A1 | collagen type I alpha 1 chain | PRELP | proline and arginine rich end leucine rich repeat protein |
| COL1A2 | collagen type I alpha 2 chain | PREX1 | phosphatidylinositol-3,4,5-trisphosphate dependent Rac exchange factor 1 |
| COL20A1 | collagen type XX alpha 1 chain | PREX2 | phosphatidylinositol-3,4,5-trisphosphate dependent Rac exchange factor 2 |
| COL22A1 | collagen type XXII alpha 1 chain | PRICKLE1 | prickle planar cell polarity protein 1 |
| COL23A1 | collagen type XXIII alpha 1 chain | PRIMA1 | proline rich membrane anchor 1 |
| COL25A1 | collagen type XXV alpha 1 chain | PRKAG2 | protein kinase AMP-activated non-catalytic subunit gamma 2 |

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|---|---|---|---|
| COL4A1 | collagen type IV alpha 1 chain | PRKAG3 | protein kinase AMP-activated non-catalytic subunit gamma 3 |
| COL4A5 | collagen type IV alpha 5 chain | PRKCB | protein kinase C beta |
| COL5A1 | collagen type V alpha 1 chain | PRKCD | protein kinase C delta |
| COL5A3 | collagen type V alpha 3 chain | PRKCG | protein kinase C gamma |
| COL6A1 | collagen type VI alpha 1 chain | PRKCQ | protein kinase C theta |
| COL9A1 | collagen type IX alpha 1 chain | PRKD3 | protein kinase D3 |
| COLEC12 | collectin subfamily member 12 | PRKG1 | protein kinase, cGMP-dependent, type I |
| COLGALT2 | collagen beta(1-O)galactosyltransferase 2 | PRKG2 | protein kinase, cGMP-dependent, type II |
| COQ10B | coenzyme Q10B | PRKY | protein kinase, Y-linked, pseudogene |
| CORIN | corin, serine peptidase | PRMT8 | protein arginine methyltransferase 8 |
| CORO1C | coronin 1C | PRMT9 | protein arginine methyltransferase 9 |
| CORO2A | coronin 2A | PRNP | prion protein |
| CORO2B | coronin 2B | PROCR | protein C receptor |
| CORO6 | coronin 6 | PRODH | proline dehydrogenase 1 |
| COTL1 | coactosin like F-actin binding protein 1 | PROX1 | prospero homeobox 1 |
| COX6B2 | cytochrome c oxidase subunit 6B2 | PRR5 | proline rich 5 |
| CPE | carboxypeptidase E | PRR5L | proline rich 5 like |
| CPLX2 | complexin 2 | PRRC1 | proline rich coiled-coil 1 |
| CPLX3 | complexin 3 | PRRG3 | proline rich and Gla domain 3 |
| CPM | carboxypeptidase M | PRRT2 | proline rich transmembrane protein 2 |
| CPNE4 | copine 4 | PRRT4 | proline rich transmembrane protein 4 |
| CPNE7 | copine 7 | PRRX1 | paired related homeobox 1 |
| CPNE8 | copine 8 | PRSS51 | protease, serine 51 |
| CPNE9 | copine family member 9 | PRSS55 | protease, serine 55 |
| CPVL | carboxypeptidase, vitellogenic like | PSD2 | pleckstrin and Sec7 domain containing 2 |
| CREB3L1 | cAMP responsive element binding protein 3 like 1 | PSRC1 | proline and serine rich coiled-coil 1 |
| CREB3L2 | cAMP responsive element binding protein 3 like 2 | PSTPIP2 | proline-serine-threonine phosphatase interacting protein 2 |
| CRIM1 | cysteine rich transmembrane BMP regulator 1 | PTCH2 | patched 2 |
| CRIPT | CXXC repeat containing interactor of PDZ3 domain | PTCHD1 | patched domain containing 1 |
| CRISPLD1 | cysteine rich secretory protein LCCL domain containing 1 | PTCHD4 | patched domain containing 4 |
| CRISPLD2 | cysteine rich secretory protein LCCL domain containing 2 | PTER | phosphotriesterase related |
| CRLF1 | cytokine receptor like factor 1 | PTGES3 | prostaglandin E synthase 3 |
| CRTAC1 | cartilage acidic protein 1 | PTGFRN | prostaglandin F2 receptor inhibitor |
| CRY1 | cryptochrome circadian regulator 1 | PTK2B | protein tyrosine kinase 2 beta |
| CRYAB | crystallin alpha B | PTK7 | protein tyrosine kinase 7 (inactive) |
| CRYBA2 | crystallin beta A2 | PTMS | parathymosin |
| CRYBG3 | crystallin beta-gamma domain containing 3 | PTN | pleiotrophin |
| CRYL1 | crystallin lambda 1 | PTP4A1 | protein tyrosine phosphatase type IVA, member 1 |
| CRYM | crystallin mu | PTP4A3 | protein tyrosine phosphatase type IVA, member 3 |
| CRYM-AS1 | CRYM antisense RNA 1 | PTPN14 | protein tyrosine phosphatase, non-receptor type 14 |
| CSF1R | colony stimulating factor 1 receptor | PTPN22 | protein tyrosine phosphatase, non-receptor type 22 |
| CSMD1 | CUB and Sushi multiple domains 1 | PTPN3 | protein tyrosine phosphatase, non-receptor type 3 |
| CSMD2 | CUB and Sushi multiple domains 2 | PTPN5 | protein tyrosine phosphatase, non-receptor type 5 |
| CSPG4 | chondroitin sulfate proteoglycan 4 | PTPRB | protein tyrosine phosphatase, receptor type B |
| CSPG5 | chondroitin sulfate proteoglycan 5 | PTPRE | protein tyrosine phosphatase, receptor type E |
| CSRNP1 | cysteine and serine rich nuclear protein 1 | PTPRJ | protein tyrosine phosphatase, receptor type J |
| CSRNP3 | cysteine and serine rich nuclear protein 3 | PTPRK | protein tyrosine phosphatase, receptor type K |
| CSRP1 | cysteine and glycine rich protein 1 | PTPRM | protein tyrosine phosphatase, receptor type M |
| CSTA | cystatin A | PTPRN | protein tyrosine phosphatase, receptor type N |
| Csta1 | cystatin A1 | PTPRO | protein tyrosine phosphatase, receptor type O |
| CSTF2T | cleavage stimulation factor subunit 2 tau variant | PTPRR | protein tyrosine phosphatase, receptor type R |
| CTH | cystathionine gamma-lyase | PTPRT | protein tyrosine phosphatase, receptor type T |
| CTNNA3 | catenin alpha 3 | PTPRZ1 | protein tyrosine phosphatase, receptor type Z1 |
| CTSL | cathepsin L | PTTG1 | pituitary tumor-transforming 1 |
| CTSS | cathepsin S | PUDP | pseudouridine 5'-phosphatase |
| CTTNBP2 | cortactin binding protein 2 | PURB | purine rich element binding protein B |

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|---|---|---|---|
| CTXN1 | cortexin 1 | PVALB | parvalbumin |
| CTXN3 | cortexin 3 | PXDC1 | PX domain containing 1 |
| CUL7 | cullin 7 | PXDN | peroxidasin |
| CX3CL1 | C-X3-C motif chemokine ligand 1 | PXDNL | peroxidasin like |
| CX3CR1 | C-X3-C motif chemokine receptor 1 | PXK | PX domain containing serine/threonine kinase like |
| CXCL12 | C-X-C motif chemokine ligand 12 | PXN | paxillin |
| CXCL14 | C-X-C motif chemokine ligand 14 | PXYLP1 | 2-phosphoxylose phosphatase 1 |
| CXCL5 | C-X-C motif chemokine ligand 5 | PYGM | glycogen phosphorylase, muscle associated |
| CXCR4 | C-X-C motif chemokine receptor 4 | PYROXD2 | pyridine nucleotide-disulphide oxidoreductase domain 2 |
| CXorf36 | chromosome X open reading frame 36 | QDPR | quinoid dihydropteridine reductase |
| CXXC4 | CXXC finger protein 4 | Qk | quaking |
| CYB5A | cytochrome b5 type A | QKI | QKI, KH domain containing RNA binding |
| CYCS | cytochrome c, somatic | QPRT | quinolinate phosphoribosyltransferase |
| CYFIP2 | cytoplasmic FMR1 interacting protein 2 | RAB11FIP1 | RAB11 family interacting protein 1 |
| CYGB | cytoglobin | RAB15 | RAB15, member RAS oncogene family |
| CYP27A1 | cytochrome P450 family 27 subfamily A member 1 | RAB27A | RAB27A, member RAS oncogene family |
| CYP2D6 | cytochrome P450 family 2 subfamily D member 6 | RAB27B | RAB27B, member RAS oncogene family |
| CYP2J2 | cytochrome P450 family 2 subfamily J member 2 | RAB31 | RAB31, member RAS oncogene family |
| Cyp2j9 | cytochrome P450, family 2, subfamily j, polypeptide 9 | RAB33A | RAB33A, member RAS oncogene family |
| CYP7B1 | cytochrome P450 family 7 subfamily B member 1 | RAB34 | RAB34, member RAS oncogene family |
| CYR61 | cysteine rich angiogenic inducer 61 | RAB37 | RAB37, member RAS oncogene family |
| CYSTM1 | cysteine rich transmembrane module containing 1 | RAB3A | RAB3A, member RAS oncogene family |
| CYYR1 | cysteine and tyrosine rich 1 | RAB3B | RAB3B, member RAS oncogene family |
| D430019H16Rik | RIKEN cDNA D430019H16 gene | RAB3C | RAB3C, member RAS oncogene family |
| D430041D05Rik | RIKEN cDNA D430041D05 gene | RAB6B | RAB6B, member RAS oncogene family |
| D4300420O9Rik | RIKEN cDNA D4300420O9 gene | RAI2 | retinoic acid induced 2 |
| D630003M21Rik | RIKEN cDNA D630003M21 gene | RALGPS2 | Ral GEF with PH domain and SH3 binding motif 2 |
| D7Ertd443e | DNA segment, Chr 7, ERATO Doi 443, expressed | RALYL | RALY RNA binding protein like |
| DAB1 | DAB1, reelin adaptor protein | RAMP1 | receptor activity modifying protein 1 |
| DACH1 | dachshund family transcription factor 1 | RAMP2 | receptor activity modifying protein 2 |
| DACT2 | dishevelled binding antagonist of beta catenin 2 | RANBP2 | RAN binding protein 2 |
| DAGLA | diacylglycerol lipase alpha | RANBP3L | RAN binding protein 3 like |
| DAO | D-amino acid oxidase | RAPGEF3 | Rap guanine nucleotide exchange factor 3 |
| DAPK1 | death associated protein kinase 1 | RAPGEF4 | Rap guanine nucleotide exchange factor 4 |
| DAPK2 | death associated protein kinase 2 | RARB | retinoic acid receptor beta |
| DBH | dopamine beta-hydroxylase | RASAL1 | RAS protein activator like 1 |
| DCBLD1 | discoidin, CUB and LCCL domain containing 1 | RASAL2 | RAS protein activator like 2 |
| DCC | DCC netrin 1 receptor | RASGEF1B | RasGEF domain family member 1B |
| DCLK1 | doublecortin like kinase 1 | RASGRF1 | Ras protein specific guanine nucleotide releasing factor 1 |
| DCUN1D3 | defective in cullin neddylation 1 domain containing 3 | RASGRP1 | RAS guanyl releasing protein 1 |
| DCX | doublecortin | RASGRP3 | RAS guanyl releasing protein 3 |
| DDHD1 | DDHD domain containing 1 | RASIP1 | Ras interacting protein 1 |
| DDIT3 | DNA damage inducible transcript 3 | RASL11B | RAS like family 11 member B |
| DDIT4 | DNA damage inducible transcript 4 | RASL12 | RAS like family 12 |
| DDIT4L | DNA damage inducible transcript 4 like | RASSF2 | Ras association domain family member 2 |
| DDN | dendrin | RBFOX3 | RNA binding fox-1 homolog 3 |
| DDO | D-aspartate oxidase | RBKS | ribokinase |
| DDR2 | discoidin domain receptor tyrosine kinase 2 | RBM22 | RNA binding motif protein 22 |
| DDX3Y | DEAD-box helicase 3, Y-linked | RBM24 | RNA binding motif protein 24 |
| DDX49 | DEAD-box helicase 49 | RBM25 | RNA binding motif protein 25 |
| DEDD2 | death effector domain containing 2 | RBM7 | RNA binding motif protein 7 |
| DEPDC1B | DEP domain containing 1B | RBMS3 | RNA binding motif single stranded interacting protein 3 |
| DEPDC7 | DEP domain containing 7 | RBP2 | retinol binding protein 2 |
| DES | desmin | RBPJL | recombination signal binding protein for immunoglobulin kappa J region like |

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|---|---|---|---|
| DGCR5 | DiGeorge syndrome critical region gene 5 (non-protein coding) | RBPMS2 | RNA binding protein with multiple splicing 2 |
| DGKA | diacylglycerol kinase alpha | RCAN2 | regulator of calcineurin 2 |
| DGKB | diacylglycerol kinase beta | RCN1 | reticulocalbin 1 |
| DGKH | diacylglycerol kinase eta | RCN2 | reticulocalbin 2 |
| DGKI | diacylglycerol kinase iota | RECK | reversion inducing cysteine rich protein with kazal motifs |
| DHDDS | dehydrodolichyl diphosphate synthase subunit | REEP1 | receptor accessory protein 1 |
| DHFR | dihydrofolate reductase | RELN | reelin |
| DIRAS2 | DIRAS family GTPase 2 | REP15 | RAB15 effector protein |
| DISP2 | dispatched RND transporter family member 2 | REPIN1 | replication initiator 1 |
| DISP3 | dispatched RND transporter family member 3 | RERG | RAS like estrogen regulated growth inhibitor |
| DIXDC1 | DIX domain containing 1 | RET | ret proto-oncogene |
| DKK4 | dickkopf WNT signaling pathway inhibitor 4 | RETREG1 | reticulophagy regulator 1 |
| DLC1 | DLC1 Rho GTPase activating protein | RFTN1 | raftlin, lipid raft linker 1 |
| DLG1 | discs large MAGUK scaffold protein 1 | RFX4 | regulatory factor X4 |
| DLG4 | discs large MAGUK scaffold protein 4 | RGCC | regulator of cell cycle |
| DLGAP2 | DLG associated protein 2 | RGL3 | ral guanine nucleotide dissociation stimulator like 3 |
| DLGAP4 | DLG associated protein 4 | RGMA | repulsive guidance molecule family member a |
| Dlx4os | distal-less homeobox 4, opposite strand | RGMB | repulsive guidance molecule family member b |
| Dlx6os1 | distal-less homeobox 6, opposite strand 1 | RGS16 | regulator of G protein signaling 16 |
| DMD | dystrophin | RGS2 | regulator of G protein signaling 2 |
| DMGDH | dimethylglycine dehydrogenase | RGS20 | regulator of G protein signaling 20 |
| DMP1 | dentin matrix acidic phosphoprotein 1 | RGS4 | regulator of G protein signaling 4 |
| DNAH5 | dynein axonemal heavy chain 5 | RGS6 | regulator of G protein signaling 6 |
| DNAH6 | dynein axonemal heavy chain 6 | RGS7BP | regulator of G protein signaling 7 binding protein |
| DNAJA1 | DnaJ heat shock protein family (Hsp40) member A1 | RGS8 | regulator of G protein signaling 8 |
| DNAJA4 | DnaJ heat shock protein family (Hsp40) member A4 | RGS9 | regulator of G protein signaling 9 |
| DNAJB1 | DnaJ heat shock protein family (Hsp40) member B1 | RHBG | Rh family B glycoprotein (gene/pseudogene) |
| DNAJB4 | DnaJ heat shock protein family (Hsp40) member B4 | RHCG | Rh family C glycoprotein |
| DNAJB5 | DnaJ heat shock protein family (Hsp40) member B5 | RHEB | Ras homolog, mTORC1 binding |
| DNAJB6 | DnaJ heat shock protein family (Hsp40) member B6 | RHOB | ras homolog family member B |
| DNAJC27 | DnaJ heat shock protein family (Hsp40) member C27 | RHOBTB1 | Rho related BTB domain containing 1 |
| DNAJC7 | DnaJ heat shock protein family (Hsp40) member C7 | RHOBTB3 | Rho related BTB domain containing 3 |
| DNER | delta/notch like EGF repeat containing | RHOD | ras homolog family member D |
| DNMBP | dynamin binding protein | RHOJ | ras homolog family member J |
| DOC2B | double C2 domain beta | RHOU | ras homolog family member U |
| DOCK1 | dedicator of cytokinesis 1 | RHPN2 | rhophilin Rho GTPase binding protein 2 |
| DOCK5 | dedicator of cytokinesis 5 | RIMBP2 | RIMS binding protein 2 |
| DOCK6 | dedicator of cytokinesis 6 | RIMS1 | regulating synaptic membrane exocytosis 1 |
| DOCK7 | dedicator of cytokinesis 7 | RIMS3 | regulating synaptic membrane exocytosis 3 |
| DOCK8 | dedicator of cytokinesis 8 | RIMS4 | regulating synaptic membrane exocytosis 4 |
| DOK6 | docking protein 6 | RIN2 | Ras and Rab interactor 2 |
| DOPEY2 | dopey family member 2 | RIT2 | Ras like without CAAX 2 |
| DPF3 | double PHD fingers 3 | RLBP1 | retinaldehyde binding protein 1 |
| DPP10 | dipeptidyl peptidase like 10 | RLF | rearranged L-myc fusion |
| DPY19L1 | dpy-19 like C-mannosyltransferase 1 | RNF112 | ring finger protein 112 |
| DPY19L2 | dpy-19 like 2 | RNF122 | ring finger protein 122 |
| DPY19L4 | dpy-19 like 4 | RNF139 | ring finger protein 139 |
| DPYD | dihydropyrimidine dehydrogenase | RNF152 | ring finger protein 152 |
| DPYSL3 | dihydropyrimidinase like 3 | RNF17 | ring finger protein 17 |
| DPYSL4 | dihydropyrimidinase like 4 | RNF182 | ring finger protein 182 |
| DRD1 | dopamine receptor D1 | RNF207 | ring finger protein 207 |
| DRD2 | dopamine receptor D2 | RNF212 | ring finger protein 212 |
| DSCAML1 | DS cell adhesion molecule like 1 | RNF215 | ring finger protein 215 |
| DTX4 | deltex E3 ubiquitin ligase 4 | RNF217 | ring finger protein 217 |
| DUS3L | dihydrouridine synthase 3 like | RNF220 | ring finger protein 220 |
| DUSP1 | dual specificity phosphatase 1 | RNF39 | ring finger protein 39 |
| DUSP16 | dual specificity phosphatase 16 | RNF43 | ring finger protein 43 |

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| DUSP22 | dual specificity phosphatase 22 | ROBO2 | roundabout guidance receptor 2 |
| DUSP26 | dual specificity phosphatase 26 | ROBO3 | roundabout guidance receptor 3 |
| DUSP5 | dual specificity phosphatase 5 | RORA | RAR related orphan receptor A |
| DYNLT3 | dynein light chain Tctex-type 3 | RPA1 | replication protein A1 |
| DYRK1B | dual specificity tyrosine phosphorylation regulated kinase 1B | RPH3A | rabphilin 3A |
| DYRK4 | dual specificity tyrosine phosphorylation regulated kinase 4 | RPL10 | ribosomal protein L10 |
| DYSF | dysferlin | RPL13 | ribosomal protein L13 |
| DZANK1 | double zinc ribbon and ankyrin repeat domains 1 | RPRM | reprimo, TP53 dependent G2 arrest mediator homolog |
| DZIP1L | DAZ interacting zinc finger protein 1 like | RPS4Y1 | ribosomal protein S4, Y-linked 1 |
| E2F3 | E2F transcription factor 3 | RPS6KA1 | ribosomal protein S6 kinase A1 |
| EBF1 | early B-cell factor 1 | RPS6KA5 | ribosomal protein S6 kinase A5 |
| EBF2 | early B-cell factor 2 | RPUSD3 | RNA pseudouridylate synthase domain containing 3 |
| EBF3 | early B-cell factor 3 | RRNAD1 | ribosomal RNA adenine dimethylase domain containing 1 |
| EBF4 | early B-cell factor 4 | RSPO1 | R-spondin 1 |
| ECD | ecdysoneless cell cycle regulator | RSPO2 | R-spondin 2 |
| ECE1 | endothelin converting enzyme 1 | RSPO4 | R-spondin 4 |
| ECHDC2 | enoyl-CoA hydratase domain containing 2 | RTL4 | retrotransposon Gag like 4 |
| EDEM1 | ER degradation enhancing alpha-mannosidase like protein 1 | RTN1 | reticulon 1 |
| EDIL3 | EGF like repeats and discoidin domains 3 | RTN4R | reticulon 4 receptor |
| EDNRB | endothelin receptor type B | RTN4RL1 | reticulon 4 receptor like 1 |
| EFEMP1 | EGF containing fibulin like extracellular matrix protein 1 | RTN4RL2 | reticulon 4 receptor like 2 |
| EFHC2 | EF-hand domain containing 2 | RUBCNL | RUN and cysteine rich domain containing beclin 1 interacting protein like |
| EFHD1 | EF-hand domain family member D1 | RUNX1T1 | RUNX1 translocation partner 1 |
| EFHD2 | EF-hand domain family member D2 | RUVBL2 | RuvB like AAA ATPase 2 |
| EFNA5 | ephrin A5 | RXFP1 | relaxin/insulin like family peptide receptor 1 |
| EFNB3 | ephrin B3 | RYR1 | ryanodine receptor 1 |
| EFR3B | EFR3 homolog B | RYR2 | ryanodine receptor 2 |
| EGF | epidermal growth factor | RYR3 | ryanodine receptor 3 |
| EGFR | epidermal growth factor receptor | S100A4 | S100 calcium binding protein A4 |
| EGLN3 | egl-9 family hypoxia inducible factor 3 | S100B | S100 calcium binding protein B |
| EGR1 | early growth response 1 | S1PR1 | sphingosine-1-phosphate receptor 1 |
| EGR3 | early growth response 3 | S1PR5 | sphingosine-1-phosphate receptor 5 |
| EHD3 | EH domain containing 3 | SALL1 | spalt like transcription factor 1 |
| EIF2AK3 | eukaryotic translation initiation factor 2 alpha kinase 3 | SAMD12 | sterile alpha motif domain containing 12 |
| EIF2S3 | eukaryotic translation initiation factor 2 subunit gamma | SAMD9L | sterile alpha motif domain containing 9 like |
| Eif2s3y | eukaryotic translation initiation factor 2, subunit 3, structural gene Y-linked | SAPCD2 | suppressor APC domain containing 2 |
| EIF4A3 | eukaryotic translation initiation factor 4A3 | SAT1 | spermidine/spermine N1-acetyltransferase 1 |
| ELAVL2 | ELAV like RNA binding protein 2 | SBDS | SBDS, ribosome maturation factor |
| ELAVL3 | ELAV like RNA binding protein 3 | SBNO2 | strawberry notch homolog 2 |
| ELAVL4 | ELAV like RNA binding protein 4 | SCAMP5 | secretory carrier membrane protein 5 |
| ELF2 | E74 like ETS transcription factor 2 | SCARA3 | scavenger receptor class A member 3 |
| ELFN1 | extracellular leucine rich repeat and fibronectin type III domain containing 1 | SCEL | sciellin |
| ELMO1 | engulfment and cell motility 1 | SCG3 | secretogranin III |
| ELMO2 | engulfment and cell motility 2 | SCGN | secretagogin, EF-hand calcium binding protein |
| ELMOD1 | ELMO domain containing 1 | SCHLAP1 | SWI/SNF complex antagonist associated with prostate cancer 1 (non-protein coding) |
| ELN | elastin | SCN1A | sodium voltage-gated channel alpha subunit 1 |
| ELOVL1 | ELOVL fatty acid elongase 1 | SCN2A | sodium voltage-gated channel alpha subunit 2 |
| ELOVL2 | ELOVL fatty acid elongase 2 | SCN2B | sodium voltage-gated channel beta subunit 2 |

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| ELOVL5 | ELOVL fatty acid elongase 5 | SCN4B | sodium voltage-gated channel beta subunit 4 |
| ELOVL7 | ELOVL fatty acid elongase 7 | SCN9A | sodium voltage-gated channel alpha subunit 9 |
| ELP1 | elongator complex protein 1 | SCNN1G | sodium channel epithelial 1 gamma subunit |
| EME2 | essential meiotic structure-specific endonuclease subunit 2 | SCRT1 | scratch family transcriptional repressor 1 |
| EMILIN2 | elastin microfibril interfacer 2 | SCUBE1 | signal peptide, CUB domain and EGF like domain containing 1 |
| EML5 | echinoderm microtubule associated protein like 5 | SDC1 | syndecan 1 |
| EMP2 | epithelial membrane protein 2 | SDC3 | syndecan 3 |
| EN2 | engrailed homeobox 2 | SDC4 | syndecan 4 |
| ENAH | ENAH, actin regulator | SDK1 | sidekick cell adhesion molecule 1 |
| ENC1 | ectodermal-neural cortex 1 | SEC14L5 | SEC14 like lipid binding 5 |
| ENOX1 | ecto-NOX disulfide-thiol exchanger 1 | SEC24D | SEC24 homolog D, COPII coat complex component |
| ENPP1 | ectonucleotide pyrophosphatase/phosphodiesterase 1 | SEL1L3 | SEL1L family member 3 |
| ENPP2 | ectonucleotide pyrophosphatase/phosphodiesterase 2 | SELENOK | selenoprotein K |
| ENPP4 | ectonucleotide pyrophosphatase/phosphodiesterase 4 | SELENOM | selenoprotein M |
| ENPP6 | ectonucleotide pyrophosphatase/phosphodiesterase 6 | SELPLG | selectin P ligand |
| ENTPD2 | ectonucleoside triphosphate diphosphohydrolase 2 | SEMA3B | semaphorin 3B |
| EPB41L1 | erythrocyte membrane protein band 4.1 like 1 | SEMA3C | semaphorin 3C |
| EPB41L4B | erythrocyte membrane protein band 4.1 like 4B | SEMA3D | semaphorin 3D |
| EPHA3 | EPH receptor A3 | SEMA3E | semaphorin 3E |
| EPHA4 | EPH receptor A4 | SEMA3G | semaphorin 3G |
| EPHA6 | EPH receptor A6 | SEMA4D | semaphorin 4D |
| EPHB1 | EPH receptor B1 | SEMA4G | semaphorin 4G |
| EPHB4 | EPH receptor B4 | SEMA5A | semaphorin 5A |
| EPN1 | epsin 1 | SEMA5B | semaphorin 5B |
| EPS15 | epidermal growth factor receptor pathway substrate 15 | SEMA6A | semaphorin 6A |
| ERBB3 | erb-b2 receptor tyrosine kinase 3 | SEMA6D | semaphorin 6D |
| ERBB4 | erb-b2 receptor tyrosine kinase 4 | SEPSECS | Sep (O-phosphoserine) tRNA:Sec (selenocysteine) tRNA synthase |
| ERBIN | erbb2 interacting protein | SEPT4 | septin 4 |
| ERC2 | ELKS/RAB6-interacting/CAST family member 2 | SEPT7 | septin 7 |
| ERG28 | ergosterol biosynthesis 28 homolog | SERINC2 | serine incorporator 2 |
| ERGIC1 | endoplasmic reticulum-golgi intermediate compartment 1 | SERP1 | stress associated endoplasmic reticulum protein 1 |
| ERICH5 | glutamate rich 5 | SERPINB1 | serpin family B member 1 |
| ERMN | ermin | Serpinb1a | serine (or cysteine) peptidase inhibitor, clade B, member 1a |
| ERRFI1 | ERBB receptor feedback inhibitor 1 | SERPINE2 | serpin family E member 2 |
| ESRRB | estrogen related receptor beta | SERPINH1 | serpin family H member 1 |
| ESRRG | estrogen related receptor gamma | SERPINI1 | serpin family I member 1 |
| ESYT2 | extended synaptotagmin 2 | SERPINI2 | serpin family I member 2 |
| ETF1 | eukaryotic translation termination factor 1 | SERTM1 | serine rich and transmembrane domain containing 1 |
| Eif4 | enhancer trap locus 4 | SESTD1 | SEC14 and spectrin domain containing 1 |
| ETNPPL | ethanolamine-phosphate phospho-lyase | SETBP1 | SET binding protein 1 |
| ETS1 | ETS proto-oncogene 1, transcription factor | SEZ6L2 | seizure related 6 homolog like 2 |
| ETV1 | ETS variant 1 | SF3B4 | splicing factor 3b subunit 4 |
| ETV3 | ETS variant 3 | SFXN5 | sideroflexin 5 |
| ETV4 | ETS variant 4 | SGCA | sarcoglycan alpha |
| ETV5 | ETS variant 5 | SGCD | sarcoglycan delta |
| EVA1A | eva-1 homolog A, regulator of programmed cell death | SGK2 | SGK2, serine/threonine kinase 2 |
| EVF2_5P | N/A | SGMS2 | sphingomyelin synthase 2 |
| EXOSC4 | exosome component 4 | SH2B2 | SH2B adaptor protein 2 |
| EXPH5 | exophilin 5 | SH2D1A | SH2 domain containing 1A |
| EXTL2 | exostosin like glycosyltransferase 2 | SH2D4B | SH2 domain containing 4B |
| EYA1 | EYA transcriptional coactivator and phosphatase 1 | SH3BGRL2 | SH3 domain binding glutamate rich protein like 2 |
| EYS | eyes shut homolog (Drosophila) | SH3BP2 | SH3 domain binding protein 2 |

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| F3 | coagulation factor III, tissue factor | SH3BP4 | SH3 domain binding protein 4 |
| FA2H | fatty acid 2-hydroxylase | SH3D19 | SH3 domain containing 19 |
| FAM102A | family with sequence similarity 102 member A | SH3GL3 | SH3 domain containing GRB2 like 3, endophilin A3 |
| FAM102B | family with sequence similarity 102 member B | SH3RF1 | SH3 domain containing ring finger 1 |
| FAM107A | family with sequence similarity 107 member A | SH3RF3 | SH3 domain containing ring finger 3 |
| FAM107B | family with sequence similarity 107 member B | SH3TC2 | SH3 domain and tetratricopeptide repeats 2 |
| FAM114A1 | family with sequence similarity 114 member A1 | SHANK1 | SH3 and multiple ankyrin repeat domains 1 |
| FAM117A | family with sequence similarity 117 member A | SHANK2 | SH3 and multiple ankyrin repeat domains 2 |
| FAM122C | family with sequence similarity 122C | SHANK3 | SH3 and multiple ankyrin repeat domains 3 |
| FAM124A | family with sequence similarity 124 member A | SHC3 | SHC adaptor protein 3 |
| FAM131A | family with sequence similarity 131 member A | SHC4 | SHC adaptor protein 4 |
| FAM135B | family with sequence similarity 135 member B | SHF | Src homology 2 domain containing F |
| FAM167A | family with sequence similarity 167 member A | SHISA6 | shisa family member 6 |
| FAM171B | family with sequence similarity 171 member B | SHISA7 | shisa family member 7 |
| FAM196A | family with sequence similarity 196 member A | SHISA8 | shisa family member 8 |
| FAM198B | family with sequence similarity 198 member B | SHROOM2 | shroom family member 2 |
| FAM19A1 | family with sequence similarity 19 member A1, C-C motif chemokine like | SHROOM3 | shroom family member 3 |
| FAM19A4 | family with sequence similarity 19 member A4, C-C motif chemokine like | SHROOM4 | shroom family member 4 |
| FAM20A | FAM20A, golgi associated secretory pathway pseudokinase | SHTN1 | shootin 1 |
| FAM212B | family with sequence similarity 212 member B | SIAH2 | siah E3 ubiquitin protein ligase 2 |
| FAM222B | family with sequence similarity 222 member B | SIAH3 | siah E3 ubiquitin protein ligase family member 3 |
| FAM43A | family with sequence similarity 43 member A | SIDT1 | SID1 transmembrane family member 1 |
| FAM46A | family with sequence similarity 46 member A | SIK3 | SIK family kinase 3 |
| FAM46C | family with sequence similarity 46 member C | SIPA1L1 | signal induced proliferation associated 1 like 1 |
| FAM49B | family with sequence similarity 49 member B | SIPA1L2 | signal induced proliferation associated 1 like 2 |
| FAM53A | family with sequence similarity 53 member A | SIPA1L3 | signal induced proliferation associated 1 like 3 |
| FAM69A | family with sequence similarity 69 member A | SIRPA | signal regulatory protein alpha |
| FAM83D | family with sequence similarity 83 member D | SIX4 | SIX homeobox 4 |
| FAM84A | family with sequence similarity 84 member A | SKAP2 | src kinase associated phosphoprotein 2 |
| FAM89A | family with sequence similarity 89 member A | SKOR1 | SKI family transcriptional corepressor 1 |
| FAM8A4P | family with sequence similarity 8 member A4, pseudogene | SKOR2 | SKI family transcriptional corepressor 2 |
| FAM92B | family with sequence similarity 92 member B | SLC12A2 | solute carrier family 12 member 2 |
| FAR2 | fatty acyl-CoA reductase 2 | SLC12A3 | solute carrier family 12 member 3 |
| FARP1 | FERM, ARH/RhoGEF and pleckstrin domain protein 1 | SLC12A4 | solute carrier family 12 member 4 |
| FAT1 | FAT atypical cadherin 1 | SLC12A5 | solute carrier family 12 member 5 |
| FAT2 | FAT atypical cadherin 2 | SLC12A8 | solute carrier family 12 member 8 |
| FAT3 | FAT atypical cadherin 3 | SLC13A1 | solute carrier family 13 member 1 |
| FBLN2 | fibulin 2 | SLC13A5 | solute carrier family 13 member 5 |
| FBN1 | fibrillin 1 | SLC14A1 | solute carrier family 14 member 1 (Kidd blood group) |
| FBN2 | fibrillin 2 | SLC14A2 | solute carrier family 14 member 2 |
| FBXL21 | F-box and leucine rich repeat protein 21 (gene/pseudogene) | SLC15A2 | solute carrier family 15 member 2 |
| FBXO24 | F-box protein 24 | SLC16A10 | solute carrier family 16 member 10 |
| FBXO32 | F-box protein 32 | SLC17A4 | solute carrier family 17 member 4 |
| FBXW5 | F-box and WD repeat domain containing 5 | SLC17A7 | solute carrier family 17 member 7 |
| FBXW9 | F-box and WD repeat domain containing 9 | SLC18A3 | solute carrier family 18 member A3 |
| FCER2 | Fc fragment of IgE receptor II | SLC19A1 | solute carrier family 19 member 1 |
| FCHSD2 | FCH and double SH3 domains 2 | SLC19A2 | solute carrier family 19 member 2 |
| FDFT1 | farnesyl-diphosphate farnesyltransferase 1 | SLC1A1 | solute carrier family 1 member 1 |
| FEM1C | fem-1 homolog C | SLC1A3 | solute carrier family 1 member 3 |
| FERMT1 | fermitin family member 1 | SLC1A4 | solute carrier family 1 member 4 |
| FEZF2 | FEZ family zinc finger 2 | SLC1A6 | solute carrier family 1 member 6 |
| FGD3 | FYVE, RhoGEF and PH domain containing 3 | SLC20A1 | solute carrier family 20 member 1 |

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|---|---|---|---|
| FGD4 | FYVE, RhoGEF and PH domain containing 4 | SLC22A15 | solute carrier family 22 member 15 |
| FGD6 | FYVE, RhoGEF and PH domain containing 6 | SLC22A23 | solute carrier family 22 member 23 |
| FGF13 | fibroblast growth factor 13 | SLC22A4 | solute carrier family 22 member 4 |
| FGF3 | fibroblast growth factor 3 | SLC22A6 | solute carrier family 22 member 6 |
| FGF5 | fibroblast growth factor 5 | SLC22A8 | solute carrier family 22 member 8 |
| FGFBP3 | fibroblast growth factor binding protein 3 | SLC24A3 | solute carrier family 24 member 3 |
| FGFR1 | fibroblast growth factor receptor 1 | SLC24A4 | solute carrier family 24 member 4 |
| FGFR2 | fibroblast growth factor receptor 2 | SLC25A18 | solute carrier family 25 member 18 |
| FGFR3 | fibroblast growth factor receptor 3 | SLC25A29 | solute carrier family 25 member 29 |
| FGGY | FGGY carbohydrate kinase domain containing | SLC25A3 | solute carrier family 25 member 3 |
| FHDC1 | FH2 domain containing 1 | SLC25A33 | solute carrier family 25 member 33 |
| FHL3 | four and a half LIM domains 3 | SLC25A6 | solute carrier family 25 member 6 |
| FHL5 | four and a half LIM domains 5 | SLC26A3 | solute carrier family 26 member 3 |
| FHOD3 | formin homology 2 domain containing 3 | SLC26A5 | solute carrier family 26 member 5 |
| FIBIN | fin bud initiation factor homolog (zebrafish) | SLC26A8 | solute carrier family 26 member 8 |
| FIGN | fidgetin, microtubule severing factor | SLC27A6 | solute carrier family 27 member 6 |
| FILIP1L | filamin A interacting protein 1 like | SLC2A10 | solute carrier family 2 member 10 |
| FJX1 | four jointed box 1 | SLC2A13 | solute carrier family 2 member 13 |
| FKBP4 | FK506 binding protein 4 | SLC2A3 | solute carrier family 2 member 3 |
| FKBP5 | FK506 binding protein 5 | SLC2A4 | solute carrier family 2 member 4 |
| FLI1 | Fli-1 proto-oncogene, ETS transcription factor | SLC30A3 | solute carrier family 30 member 3 |
| FLNB | filamin B | SLC31A2 | solute carrier family 31 member 2 |
| FLRT2 | fibronectin leucine rich transmembrane protein 2 | SLC32A1 | solute carrier family 32 member 1 |
| FLT3 | fms related tyrosine kinase 3 | SLC35D1 | solute carrier family 35 member D1 |
| FMNL1 | formin like 1 | SLC35F1 | solute carrier family 35 member F1 |
| FMNL3 | formin like 3 | SLC35F4 | solute carrier family 35 member F4 |
| FMO3 | flavin containing monooxygenase 3 | SLC38A1 | solute carrier family 38 member 1 |
| FNDC3B | fibronectin type III domain containing 3B | SLC38A10 | solute carrier family 38 member 10 |
| FOLH1 | folate hydrolase 1 | SLC38A5 | solute carrier family 38 member 5 |
| FOS | Fos proto-oncogene, AP-1 transcription factor subunit | SLC38A7 | solute carrier family 38 member 7 |
| FOSB | FosB proto-oncogene, AP-1 transcription factor subunit | SLC39A12 | solute carrier family 39 member 12 |
| FOSL2 | FOS like 2, AP-1 transcription factor subunit | SLC41A1 | solute carrier family 41 member 1 |
| FOXA1 | forkhead box A1 | SLC43A2 | solute carrier family 43 member 2 |
| FOXA2 | forkhead box A2 | SLC43A3 | solute carrier family 43 member 3 |
| FOXG1 | forkhead box G1 | SLC44A5 | solute carrier family 44 member 5 |
| FOXH1 | forkhead box H1 | SLC45A1 | solute carrier family 45 member 1 |
| FOXP4 | forkhead box P4 | SLC45A3 | solute carrier family 45 member 3 |
| FRAS1 | Fraser extracellular matrix complex subunit 1 | SLC4A4 | solute carrier family 4 member 4 |
| FREM1 | FRAS1 related extracellular matrix 1 | SLC4A7 | solute carrier family 4 member 7 |
| FRMD1 | FERM domain containing 1 | SLC5A11 | solute carrier family 5 member 11 |
| FRMD3 | FERM domain containing 3 | SLC5A4 | solute carrier family 5 member 4 |
| FRMD4A | FERM domain containing 4A | SLC5A7 | solute carrier family 5 member 7 |
| FRMD4B | FERM domain containing 4B | SLC5A8 | solute carrier family 5 member 8 |
| FRMPD1 | FERM and PDZ domain containing 1 | SLC6A12 | solute carrier family 6 member 12 |
| FRMPD2 | FERM and PDZ domain containing 2 | SLC6A13 | solute carrier family 6 member 13 |
| FRMPD4 | FERM and PDZ domain containing 4 | SLC6A3 | solute carrier family 6 member 3 |
| FRRS1 | ferric chelate reductase 1 | SLC6A7 | solute carrier family 6 member 7 |
| FRRS1L | ferric chelate reductase 1 like | SLC7A1 | solute carrier family 7 member 1 |
| FRY | FRY microtubule binding protein | SLC7A10 | solute carrier family 7 member 10 |
| FSD2 | fibronectin type III and SPRY domain containing 2 | SLC7A11 | solute carrier family 7 member 11 |
| FSIP2 | fibrous sheath interacting protein 2 | SLC7A14 | solute carrier family 7 member 14 |
| FSTL4 | follistatin like 4 | SLC7A3 | solute carrier family 7 member 3 |
| FSTL5 | follistatin like 5 | SLC7A5 | solute carrier family 7 member 5 |
| FTH1 | ferritin heavy chain 1 | SLC8A1 | solute carrier family 8 member A1 |
| FTL | ferritin light chain | SLC8A1-AS1 | SLC8A1 antisense RNA 1 |
| FXYD1 | FXYD domain containing ion transport regulator 1 | SLC8A2 | solute carrier family 8 member A2 |
| FXYD7 | FXYD domain containing ion transport regulator 7 | SLC8A3 | solute carrier family 8 member A3 |
| FZD7 | frizzled class receptor 7 | SLC8B1 | solute carrier family 8 member B1 |

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| FZD8 | frizzled class receptor 8 | SLC9A3 | solute carrier family 9 member A3 |
| FZD9 | frizzled class receptor 9 | SLC9A9 | solute carrier family 9 member A9 |
| FZR1 | fizzy and cell division cycle 20 related 1 | SLCO2B1 | solute carrier organic anion transporter family member 2B1 |
| GAB1 | GRB2 associated binding protein 1 | SLCO4A1 | solute carrier organic anion transporter family member 4A1 |
| GAB2 | GRB2 associated binding protein 2 | SLCO4C1 | solute carrier organic anion transporter family member 4C1 |
| GABARAPL1 | GABA type A receptor associated protein like 1 | SLFN11 | schlafen family member 11 |
| GABBR1 | gamma-aminobutyric acid type B receptor subunit 1 | SLIT2 | slit guidance ligand 2 |
| GABBR2 | gamma-aminobutyric acid type B receptor subunit 2 | SLIT3 | slit guidance ligand 3 |
| GABRA2 | gamma-aminobutyric acid type A receptor alpha2 subunit | SLITRK1 | SLIT and NTRK like family member 1 |
| GABRA4 | gamma-aminobutyric acid type A receptor alpha4 subunit | SLITRK6 | SLIT and NTRK like family member 6 |
| GABRA6 | gamma-aminobutyric acid type A receptor alpha6 subunit | SMAD3 | SMAD family member 3 |
| GABRB1 | gamma-aminobutyric acid type A receptor beta1 subunit | SMAD7 | SMAD family member 7 |
| GABRD | gamma-aminobutyric acid type A receptor delta subunit | SMIM17 | small integral membrane protein 17 |
| GABRG2 | gamma-aminobutyric acid type A receptor gamma2 subunit | SMOC1 | SPARC related modular calcium binding 1 |
| GABRG3 | gamma-aminobutyric acid type A receptor gamma3 subunit | SMPX | small muscle protein, X-linked |
| GACAT2 | gastric cancer associated transcript 2 (non-protein coding) | SNAI2 | snail family transcriptional repressor 2 |
| GAD | N/A | SNAI3-AS1 | SNAI3 antisense RNA 1 |
| Gad1 | glutamate decarboxylase 1 | SNAPC1 | small nuclear RNA activating complex polypeptide 1 |
| GAD2 | glutamate decarboxylase 2 | SNCAIP | synuclein alpha interacting protein |
| GADD45A | growth arrest and DNA damage inducible alpha | SNED1 | sushi, nidogen and EGF like domains 1 |
| GAL3ST1 | galactose-3-O-sulfotransferase 1 | SNHG5 | small nucleolar RNA host gene 5 |
| GAL3ST4 | galactose-3-O-sulfotransferase 4 | SNTB1 | syntrophin beta 1 |
| GALNT14 | polypeptide N-acetylgalactosaminyltransferase 14 | SNX22 | sorting nexin 22 |
| GALNT15 | polypeptide N-acetylgalactosaminyltransferase 15 | SNX33 | sorting nexin 33 |
| GALNT16 | polypeptide N-acetylgalactosaminyltransferase 16 | SOAT1 | sterol O-acyltransferase 1 |
| GALNT17 | polypeptide N-acetylgalactosaminyltransferase 17 | SOBP | sine oculis binding protein homolog |
| GALNT18 | polypeptide N-acetylgalactosaminyltransferase 18 | SOCS2 | suppressor of cytokine signaling 2 |
| GALNT3 | polypeptide N-acetylgalactosaminyltransferase 3 | SOD1 | superoxide dismutase 1 |
| GALNT5 | polypeptide N-acetylgalactosaminyltransferase 5 | SOD3 | superoxide dismutase 3 |
| GALNT6 | polypeptide N-acetylgalactosaminyltransferase 6 | SORBS2 | sorbin and SH3 domain containing 2 |
| GALNTL6 | polypeptide N-acetylgalactosaminyltransferase like 6 | SORBS3 | sorbin and SH3 domain containing 3 |
| GALR1 | galanin receptor 1 | SORCS3 | sortilin related VPS10 domain containing receptor 3 |
| GAP43 | growth associated protein 43 | SOS1 | SOS Ras/Rac guanine nucleotide exchange factor 1 |
| GAPDH | glyceraldehyde-3-phosphate dehydrogenase | SOX10 | SRY-box 10 |
| GAREM2 | GRB2 associated regulator of MAPK1 subtype 2 | SOX13 | SRY-box 13 |
| GARNL3 | GTPase activating Rap/RanGAP domain like 3 | Sox1ot | Sox1 overlapping transcript |
| GAS1 | growth arrest specific 1 | SOX2 | SRY-box 2 |
| GATM | glycine amidinotransferase | SOX6 | SRY-box 6 |
| Gatsl2 | GATS protein-like 2 | SOX8 | SRY-box 8 |
| GBAP1 | glucosylceramidase beta pseudogene 1 | SOX9 | SRY-box 9 |
| GCA | grancalcin | SP5 | Sp5 transcription factor |
| GCH1 | GTP cyclohydrolase 1 | SPAG5 | sperm associated antigen 5 |
| GCK | glucokinase | SPAG9 | sperm associated antigen 9 |
| GDA | guanine deaminase | SPARC | secreted protein acidic and cysteine rich |
| GDF10 | growth differentiation factor 10 | SPARCL1 | SPARC like 1 |
| GDF11 | growth differentiation factor 11 | SPATA13 | spermatogenesis associated 13 |
| GDPD4 | glycerophosphodiester phosphodiesterase domain containing 4 | SPATA9 | spermatogenesis associated 9 |

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|---|---|---|---|
| GDPD5 | glycerophosphodiester phosphodiesterase domain containing 5 | SPATC1 | spermatogenesis and centriole associated 1 |
| GEM | GTP binding protein overexpressed in skeletal muscle | SPECC1 | sperm antigen with calponin homology and coiled-coil domains 1 |
| GFAP | glial fibrillary acidic protein | SPEG | SPEG complex locus |
| GFRA2 | GDNF family receptor alpha 2 | SPHK2 | sphingosine kinase 2 |
| GHITM | growth hormone inducible transmembrane protein | SPHKAP | SPHK1 interactor, AKAP domain containing |
| GHR | growth hormone receptor | SPOCK3 | SPARC/osteonectin, cwcv and kazal like domains proteoglycan 3 |
| GIPC2 | GIPC PDZ domain containing family member 2 | SPON1 | spondin 1 |
| GIPR | gastric inhibitory polypeptide receptor | SPON2 | spondin 2 |
| GJA1 | gap junction protein alpha 1 | SPP1 | secreted phosphoprotein 1 |
| GJB1 | gap junction protein beta 1 | SPRED3 | sprouty related EVH1 domain containing 3 |
| GJB4 | gap junction protein beta 4 | SPRY4-AS1 | SPRY4 antisense RNA 1 |
| GJB6 | gap junction protein beta 6 | SPSB4 | splA/ryanodine receptor domain and SOCS box containing 4 |
| GJC2 | gap junction protein gamma 2 | SPTB | spectrin beta, erythrocytic |
| GJC3 | gap junction protein gamma 3 | SPTBN2 | spectrin beta, non-erythrocytic 2 |
| GJD2 | gap junction protein delta 2 | SPTY2D1 | SPT2 chromatin protein domain containing 1 |
| GLB1L3 | galactosidase beta 1 like 3 | SRC | SRC proto-oncogene, non-receptor tyrosine kinase |
| GLDC | glycine decarboxylase | SRCIN1 | SRC kinase signaling inhibitor 1 |
| GLDN | gliomedin | SRGAP1 | SLIT-ROBO Rho GTPase activating protein 1 |
| GLI1 | GLI family zinc finger 1 | SRGN | serglycin |
| GLI2 | GLI family zinc finger 2 | SRPX | sushi repeat containing protein, X-linked |
| GLI3 | GLI family zinc finger 3 | SRRM4 | serine/arginine repetitive matrix 4 |
| GLIPR1 | GLI pathogenesis related 1 | SRSF3 | serine and arginine rich splicing factor 3 |
| GLIPR2 | GLI pathogenesis related 2 | SSH1 | slingshot protein phosphatase 1 |
| GLIS1 | GLIS family zinc finger 1 | SSTR1 | somatostatin receptor 1 |
| GLIS3 | GLIS family zinc finger 3 | SSTR2 | somatostatin receptor 2 |
| GLP2R | glucagon like peptide 2 receptor | ST13 | ST13, Hsp70 interacting protein |
| GLRA1 | glycine receptor alpha 1 | ST18 | ST18, C2H2C-type zinc finger |
| GLUD1 | glutamate dehydrogenase 1 | ST3GAL2 | ST3 beta-galactoside alpha-2,3-sialyltransferase 2 |
| GLUL | glutamate-ammonia ligase | ST3GAL5 | ST3 beta-galactoside alpha-2,3-sialyltransferase 5 |
| Gm11549 | predicted gene 11549 | ST5 | suppression of tumorigenicity 5 |
| Gm136 | predicted gene 136 | ST6GAL2 | ST6 beta-galactoside alpha-2,6-sialyltransferase 2 |
| Gm20425 | predicted gene 20425 | ST6GALNAC3 | ST6 N-acetylgalactosaminide alpha-2,6-sialyltransferase 3 |
| Gm266 | predicted gene 266 | ST6GALNAC5 | ST6 N-acetylgalactosaminide alpha-2,6-sialyltransferase 5 |
| Gm28653 | predicted gene 28653 | STAB2 | stabilin 2 |
| Gm5083 | predicted gene 5083 | STAC | SH3 and cysteine rich domain |
| Gm5089 | predicted gene 5089 | STAC2 | SH3 and cysteine rich domain 2 |
| Gm5468 | predicted gene 5468 | STAG3 | stromal antigen 3 |
| Gm8179 | N/A | STAMBPL1 | STAM binding protein like 1 |
| GNA12 | G protein subunit alpha 12 | STARD13 | StAR related lipid transfer domain containing 13 |
| GNAL | G protein subunit alpha L | STARD8 | StAR related lipid transfer domain containing 8 |
| GNAO1 | G protein subunit alpha o1 | STAT2 | signal transducer and activator of transcription 2 |
| GNB3 | G protein subunit beta 3 | STAT5A | signal transducer and activator of transcription 5A |
| GNG11 | G protein subunit gamma 11 | STC2 | stanniocalcin 2 |
| GNG12 | G protein subunit gamma 12 | STEAP3 | STEAP3 metalloreductase |
| GNG13 | G protein subunit gamma 13 | STIP1 | stress induced phosphoprotein 1 |
| GNG2 | G protein subunit gamma 2 | STK17B | serine/threonine kinase 17b |
| GNL3 | G protein nucleolar 3 | STK19 | serine/threonine kinase 19 |
| GOLGA7B | golgin A7 family member B | STK3 | serine/threonine kinase 3 |
| GOT1 | glutamic-oxaloacetic transaminase 1 | STK32A | serine/threonine kinase 32A |
| GPATCH4 | G-patch domain containing 4 | STK32B | serine/threonine kinase 32B |
| GPC2 | glypican 2 | STK33 | serine/threonine kinase 33 |
| GPC6 | glypican 6 | STK38L | serine/threonine kinase 38 like |
| GPCPD1 | glycerophosphocholine phosphodiesterase 1 | STMN4 | stathmin 4 |
| GPHN | gephyrin | STON1 | stonin 1 |

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|---|---|---|---|
| GPNMB | glycoprotein nmb | STON2 | stonin 2 |
| GPR107 | G protein-coupled receptor 107 | STOX2 | storkhead box 2 |
| GPR135 | G protein-coupled receptor 135 | STRAP | serine/threonine kinase receptor associated protein |
| GPR153 | G protein-coupled receptor 153 | STRC | stereocilin |
| GPR161 | G protein-coupled receptor 161 | STRIP2 | striatin interacting protein 2 |
| GPR22 | G protein-coupled receptor 22 | STRN | striatin |
| GPR34 | G protein-coupled receptor 34 | STUM | stum, mechanosensory transduction mediator homolog |
| GPR37 | G protein-coupled receptor 37 | STX17 | syntaxin 17 |
| GPR37L1 | G protein-coupled receptor 37 like 1 | STXBP2 | syntaxin binding protein 2 |
| GPR63 | G protein-coupled receptor 63 | STXBP3 | syntaxin binding protein 3 |
| GPR84 | G protein-coupled receptor 84 | SULF2 | sulfatase 2 |
| GPRASP2 | G protein-coupled receptor associated sorting protein 2 | SURF2 | surfeit 2 |
| GPRC5C | G protein-coupled receptor class C group 5 member C | SUSD5 | sushi domain containing 5 |
| GPSM2 | G protein signaling modulator 2 | SUSD6 | sushi domain containing 6 |
| GPX2 | glutathione peroxidase 2 | SV2B | synaptic vesicle glycoprotein 2B |
| GRAMD2B | GRAM domain containing 2B | SV2C | synaptic vesicle glycoprotein 2C |
| Gramd3 | GRAM domain containing 3 | SVEP1 | sushi, von Willebrand factor type A, EGF and pentraxin domain containing 1 |
| GRAMD4 | GRAM domain containing 4 | SVIL | supervillin |
| GRB10 | growth factor receptor bound protein 10 | SVOP | SV2 related protein |
| GRB14 | growth factor receptor bound protein 14 | SWAP70 | switching B-cell complex subunit SWAP70 |
| GRB7 | growth factor receptor bound protein 7 | SYAP1 | synapse associated protein 1 |
| GREB1 | growth regulation by estrogen in breast cancer 1 | SYCP1 | synaptonemal complex protein 1 |
| GREB1L | growth regulation by estrogen in breast cancer 1 like | SYN3 | synapsin III |
| GRHL1 | grainyhead like transcription factor 1 | SYNDIG1 | synapse differentiation inducing 1 |
| GRIA1 | glutamate ionotropic receptor AMPA type subunit 1 | SYNDIG1L | synapse differentiation inducing 1 like |
| GRIA3 | glutamate ionotropic receptor AMPA type subunit 3 | SYNJ2 | synaptojanin 2 |
| GRID1 | glutamate ionotropic receptor delta type subunit 1 | SYNPR | synaptoporin |
| GRID2 | glutamate ionotropic receptor delta type subunit 2 | SYT10 | synaptotagmin 10 |
| GRID2IP | Grid2 interacting protein | SYT12 | synaptotagmin 12 |
| GRIK1 | glutamate ionotropic receptor kainate type subunit 1 | SYT14 | synaptotagmin 14 |
| GRIK2 | glutamate ionotropic receptor kainate type subunit 2 | SYT16 | synaptotagmin 16 |
| GRIK3 | glutamate ionotropic receptor kainate type subunit 3 | SYT17 | synaptotagmin 17 |
| GRIN2A | glutamate ionotropic receptor NMDA type subunit 2A | SYT2 | synaptotagmin 2 |
| GRIN2B | glutamate ionotropic receptor NMDA type subunit 2B | SYT3 | synaptotagmin 3 |
| GRIN2C | glutamate ionotropic receptor NMDA type subunit 2C | SYT4 | synaptotagmin 4 |
| GRIN2D | glutamate ionotropic receptor NMDA type subunit 2D | SYT7 | synaptotagmin 7 |
| GRIP1 | glutamate receptor interacting protein 1 | TANC1 | tetratricopeptide repeat, ankyrin repeat and coiled-coil containing 1 |
| GRK3 | G protein-coupled receptor kinase 3 | TAOK2 | TAO kinase 2 |
| GRK4 | G protein-coupled receptor kinase 4 | TAOK3 | TAO kinase 3 |
| GRK5 | G protein-coupled receptor kinase 5 | TBC1D1 | TBC1 domain family member 1 |
| GRM1 | glutamate metabotropic receptor 1 | TBC1D4 | TBC1 domain family member 4 |
| GRM4 | glutamate metabotropic receptor 4 | TBC1D5 | TBC1 domain family member 5 |
| GRM5 | glutamate metabotropic receptor 5 | TBCEL | tubulin folding cofactor E like |
| GRM7 | glutamate metabotropic receptor 7 | TBL1X | transducin beta like 1X-linked |
| GRM8 | glutamate metabotropic receptor 8 | TBR1 | T-box, brain 1 |
| GSAP | gamma-secretase activating protein | TBXAS1 | thromboxane A synthase 1 |
| GSDME | gasdermin E | TCEAL2 | transcription elongation factor A like 2 |
| GSN | gelsolin | TCEAL5 | transcription elongation factor A like 5 |
| GSTM1 | glutathione S-transferase mu 1 | TCEAL6 | transcription elongation factor A like 6 |
| GSTO2 | glutathione S-transferase omega 2 | TCEAL7 | transcription elongation factor A like 7 |
| GSX1 | GS homeobox 1 | TCEAL9 | transcription elongation factor A like 9 |

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|---|---|---|---|
| GTF2A1L | general transcription factor IIA subunit 1 like | TCERG1L | transcription elongation regulator 1 like |
| GTF2B | general transcription factor IIB | TCF7L1 | transcription factor 7 like 1 |
| GTPBP2 | GTP binding protein 2 | TCP1 | t-complex 1 |
| GTSCR1 | Gilles de la Tourette syndrome chromosome region, candidate 1 | TCP11L2 | t-complex 11 like 2 |
| GUCY1A3 | guanylate cyclase 1 soluble subunit alpha | TCTE1 | t-complex-associated-testis-expressed 1 |
| GYG2 | glycogenin 2 | TCTEX1D1 | Tctex1 domain containing 1 |
| GYG2P1 | glycogenin 2 pseudogene 1 | TDP1 | tyrosyl-DNA phosphodiesterase 1 |
| GYS1 | glycogen synthase 1 | TEAD1 | TEA domain transcription factor 1 |
| GZF1 | GDNF inducible zinc finger protein 1 | TEAD4 | TEA domain transcription factor 4 |
| HAMP | hepcidin antimicrobial peptide | TEC | tec protein tyrosine kinase |
| HAPLN2 | hyaluronan and proteoglycan link protein 2 | TEK | TEK receptor tyrosine kinase |
| HAS2 | hyaluronan synthase 2 | TES | testin LIM domain protein |
| HCN1 | hyperpolarization activated cyclic nucleotide gated potassium channel 1 | TESC | tescalcin |
| HCN2 | hyperpolarization activated cyclic nucleotide gated potassium and sodium channel 2 | TEX14 | testis expressed 14, intercellular bridge forming factor |
| HCN4 | hyperpolarization activated cyclic nucleotide gated potassium channel 4 | TEX2 | testis expressed 2 |
| HDAC8 | histone deacetylase 8 | TEX36 | testis expressed 36 |
| HDHD2 | haloacid dehalogenase like hydrolase domain containing 2 | TEX52 | testis expressed 52 |
| HEBP1 | heme binding protein 1 | TEX9 | testis expressed 9 |
| HECA | hdc homolog, cell cycle regulator | TF | transferrin |
| HECTD2-AS1 | N/A | TFAP2A | transcription factor AP-2 alpha |
| HECW1 | HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1 | TFAP2B | transcription factor AP-2 beta |
| HEG1 | heart development protein with EGF like domains 1 | TFRC | transferrin receptor |
| HEPACAM | hepatic and glial cell adhesion molecule | TG | thyroglobulin |
| HERPUD1 | homocysteine inducible ER protein with ubiquitin like domain 1 | TGFB2 | transforming growth factor beta 2 |
| HES1 | hes family bHLH transcription factor 1 | TGFB3 | transforming growth factor beta 3 |
| HES3 | hes family bHLH transcription factor 3 | TGFBR2 | transforming growth factor beta receptor 2 |
| HEY2 | hes related family bHLH transcription factor with YRPW motif 2 | TH | tyrosine hydroxylase |
| HGF | hepatocyte growth factor | THBS2 | thrombospondin 2 |
| HHATL | hedgehog acyltransferase like | THBS4 | thrombospondin 4 |
| HHIP | hedgehog interacting protein | THSD7B | thrombospondin type 1 domain containing 7B |
| HIF3A | hypoxia inducible factor 3 alpha subunit | THYN1 | thymocyte nuclear protein 1 |
| HIGD1A | HIG1 hypoxia inducible domain family member 1A | TIMP3 | TIMP metallopeptidase inhibitor 3 |
| HIP1 | huntingtin interacting protein 1 | TIPARP | TCDD inducible poly(ADP-ribose) polymerase |
| HIP1R | huntingtin interacting protein 1 related | TLCD1 | TLC domain containing 1 |
| HIPK4 | homeodomain interacting protein kinase 4 | TLE4 | transducin like enhancer of split 4 |
| HIST1H2BD | histone cluster 1 H2B family member d | TLE6 | transducin like enhancer of split 6 |
| HIST2H2BA | histone cluster 2 H2B family member a (pseudogene) | TLL1 | tolloid like 1 |
| HIST2H2BE | histone cluster 2 H2B family member e | TLR3 | toll like receptor 3 |
| HIST2H2BF | histone cluster 2 H2B family member f | TLR4 | toll like receptor 4 |
| HK2 | hexokinase 2 | TM2D2 | TM2 domain containing 2 |
| HMCES | 5-hydroxymethylcytosine binding, ES cell specific | TM4SF1 | transmembrane 4 L six family member 1 |
| HMGCLL1 | 3-hydroxymethyl-3-methylglutaryl-CoA lyase like 1 | TMC1 | transmembrane channel like 1 |
| HMGCR | 3-hydroxy-3-methylglutaryl-CoA reductase | TMC3-AS1 | TMC3 antisense RNA 1 |
| HMGCS1 | 3-hydroxy-3-methylglutaryl-CoA synthase 1 | TMC7 | transmembrane channel like 7 |
| HMGN1 | high mobility group nucleosome binding domain 1 | TMEM100 | transmembrane protein 100 |
| HOMER1 | homer scaffolding protein 1 | TMEM108 | transmembrane protein 108 |
| HOMER3 | homer scaffolding protein 3 | TMEM123 | transmembrane protein 123 |
| HOXD1 | homeobox D1 | TMEM125 | transmembrane protein 125 |
| HPCAL1 | hippocalcin like 1 | TMEM130 | transmembrane protein 130 |
| HPCAL4 | hippocalcin like 4 | Tmem131 | transmembrane protein 131 |
| HPN | hepsin | TMEM131L | transmembrane 131 like |

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|---|---|---|---|
| HPSE2 | heparanase 2 (inactive) | TMEM132B | transmembrane protein 132B |
| HRASLS | HRAS like suppressor | TMEM132C | transmembrane protein 132C |
| HRH2 | histamine receptor H2 | TMEM132D | transmembrane protein 132D |
| HRH3 | histamine receptor H3 | TMEM132E | transmembrane protein 132E |
| HS3ST1 | heparan sulfate-glucosamine 3-sulfotransferase 1 | TMEM144 | transmembrane protein 144 |
| HS3ST2 | heparan sulfate-glucosamine 3-sulfotransferase 2 | TMEM150C | transmembrane protein 150C |
| HS3ST4 | heparan sulfate-glucosamine 3-sulfotransferase 4 | TMEM163 | transmembrane protein 163 |
| HS6ST2 | heparan sulfate 6-O-sulfotransferase 2 | TMEM175 | transmembrane protein 175 |
| HSD17B11 | hydroxysteroid 17-beta dehydrogenase 11 | TMEM176A | transmembrane protein 176A |
| HSD17B12 | hydroxysteroid 17-beta dehydrogenase 12 | TMEM176B | transmembrane protein 176B |
| HSP90AA1 | heat shock protein 90 alpha family class A member 1 | Tmem178 | transmembrane protein 178 |
| HSP90AB1 | heat shock protein 90 alpha family class B member 1 | TMEM178A | transmembrane protein 178A |
| HSPA1A | heat shock protein family A (Hsp70) member 1A | TMEM178B | transmembrane protein 178B |
| HSPA1B | heat shock protein family A (Hsp70) member 1B | TMEM179 | transmembrane protein 179 |
| HSPA4 | heat shock protein family A (Hsp70) member 4 | TMEM184C | transmembrane protein 184C |
| HSPA4L | heat shock protein family A (Hsp70) member 4 like | TMEM198 | transmembrane protein 198 |
| HSPA8 | heat shock protein family A (Hsp70) member 8 | TMEM2 | transmembrane protein 2 |
| HSPA9 | heat shock protein family A (Hsp70) member 9 | TMEM200A | transmembrane protein 200A |
| HSPB1 | heat shock protein family B (small) member 1 | TMEM252 | transmembrane protein 252 |
| HSPD1 | heat shock protein family D (Hsp60) member 1 | TMEM254 | transmembrane protein 254 |
| HSPE1-MOB4 | HSPE1-MOB4 readthrough | TMEM255A | transmembrane protein 255A |
| HSPH1 | heat shock protein family H (Hsp110) member 1 | TMEM255B | transmembrane protein 255B |
| HTR1B | 5-hydroxytryptamine receptor 1B | TMEM266 | transmembrane protein 266 |
| HTR2A | 5-hydroxytryptamine receptor 2A | TMEM270 | transmembrane protein 270 |
| HTR2C | 5-hydroxytryptamine receptor 2C | TMEM44 | transmembrane protein 44 |
| HTR5A | 5-hydroxytryptamine receptor 5A | TMEM51 | transmembrane protein 51 |
| HTR5A-AS1 | HTR5A antisense RNA 1 | TMEM63A | transmembrane protein 63A |
| HTRA1 | HtrA serine peptidase 1 | TMEM88B | transmembrane protein 88B |
| HUNK | hormonally up-regulated Neu-associated kinase | TMEM98 | transmembrane protein 98 |
| ICAM5 | intercellular adhesion molecule 5 | TMOD1 | tropomodulin 1 |
| ICMT | isoprenylcysteine carboxyl methyltransferase | TMPRSS5 | transmembrane protease, serine 5 |
| Icosl | icos ligand | TMTC1 | transmembrane and tetratricopeptide repeat containing 1 |
| ICOSLG | inducible T-cell costimulator ligand | TMTC4 | transmembrane and tetratricopeptide repeat containing 4 |
| ID2 | inhibitor of DNA binding 2 | TNC | tenascin C |
| ID4 | inhibitor of DNA binding 4, HLH protein | TNFAIP6 | TNF alpha induced protein 6 |
| IDI1 | isopentenyl-diphosphate delta isomerase 1 | TNFRSF13C | TNF receptor superfamily member 13C |
| IFFO1 | intermediate filament family orphan 1 | TNFRSF19 | TNF receptor superfamily member 19 |
| IFNLR1 | interferon lambda receptor 1 | TNFSF9 | TNF superfamily member 9 |
| IFRD1 | interferon related developmental regulator 1 | TNK2 | tyrosine kinase non receptor 2 |
| IFT43 | intraflagellar transport 43 | TNNI1 | troponin I1, slow skeletal type |
| IGDCC3 | immunoglobulin superfamily DCC subclass member 3 | TNR | tenascin R |
| IGDCC4 | immunoglobulin superfamily DCC subclass member 4 | TNS1 | tensin 1 |
| IGF2 | insulin like growth factor 2 | TNS3 | tensin 3 |
| IGFBP3 | insulin like growth factor binding protein 3 | TOB1 | transducer of ERBB2, 1 |
| IGFBP5 | insulin like growth factor binding protein 5 | TOGARAM2 | TOG array regulator of axonemal microtubules 2 |
| IGSF11 | immunoglobulin superfamily member 11 | TOM1L1 | target of myb1 like 1 membrane trafficking protein |
| IGSF3 | immunoglobulin superfamily member 3 | TOP1 | DNA topoisomerase I |
| IL15 | interleukin 15 | TOX2 | TOX high mobility group box family member 2 |
| IL16 | interleukin 16 | TOX3 | TOX high mobility group box family member 3 |
| IL18 | interleukin 18 | TP53I11 | tumor protein p53 inducible protein 11 |
| IL20RB | interleukin 20 receptor subunit beta | TP53INP2 | tumor protein p53 inducible nuclear protein 2 |
| IL22 | interleukin 22 | TP73 | tumor protein p73 |
| IL33 | interleukin 33 | TPCN1 | two pore segment channel 1 |
| ILDR2 | immunoglobulin like domain containing receptor 2 | TPM3 | tropomyosin 3 |
| Iltifb | interleukin 10-related T cell-derived inducible factor beta | TPM4 | tropomyosin 4 |

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|---|---|---|---|
| IMPA2 | inositol monophosphatase 2 | TPPP | tubulin polymerization promoting protein |
| IMPG1 | interphotoreceptor matrix proteoglycan 1 | TPT1 | tumor protein, translationally-controlled 1 |
| INAVA | innate immunity activator | TRA2B | transformer 2 beta homolog |
| INF2 | inverted formin, FH2 and WH2 domain containing | TRABD2B | TraB domain containing 2B |
| INHBA | inhibin beta A subunit | TRAF1 | TNF receptor associated factor 1 |
| INPP1 | inositol polyphosphate-1-phosphatase | TRAF4 | TNF receptor associated factor 4 |
| INPP4B | inositol polyphosphate-4-phosphatase type II B | TRAF5 | TNF receptor associated factor 5 |
| INPP5A | inositol polyphosphate-5-phosphatase A | TRDN | triadin |
| INPP5D | inositol polyphosphate-5-phosphatase D | TREH | trehalase |
| INSC | INSC, spindle orientation adaptor protein | TREM2 | triggering receptor expressed on myeloid cells 2 |
| INSIG1 | insulin induced gene 1 | TRHDE | thyrotropin releasing hormone degrading enzyme |
| IPCEF1 | interaction protein for cytohesin exchange factors 1 | TRIL | TLR4 interactor with leucine rich repeats |
| IQCH | IQ motif containing H | TRIM15 | tripartite motif containing 15 |
| IQGAP1 | IQ motif containing GTPase activating protein 1 | TRIM2 | tripartite motif containing 2 |
| IQSEC1 | IQ motif and Sec7 domain 1 | TRIM26 | tripartite motif containing 26 |
| IQSEC3 | IQ motif and Sec7 domain 3 | Trim30a | tripartite motif-containing 30A |
| IRAK2 | interleukin 1 receptor associated kinase 2 | TRIM36 | tripartite motif containing 36 |
| IRX1 | iroquois homeobox 1 | TRIM5 | tripartite motif containing 5 |
| IRX2 | iroquois homeobox 2 | TRIM59 | tripartite motif containing 59 |
| IRX5 | iroquois homeobox 5 | TRIM62 | tripartite motif containing 62 |
| ISYNA1 | inositol-3-phosphate synthase 1 | TRIM67 | tripartite motif containing 67 |
| ITGA11 | integrin subunit alpha 11 | Trp53cor1 | tumor protein p53 pathway corepressor 1 |
| ITGA2 | integrin subunit alpha 2 | TRPC3 | transient receptor potential cation channel subfamily C member 3 |
| ITGA4 | integrin subunit alpha 4 | TRPC5 | transient receptor potential cation channel subfamily C member 5 |
| ITGA5 | integrin subunit alpha 5 | TRPC6 | transient receptor potential cation channel subfamily C member 6 |
| ITGA7 | integrin subunit alpha 7 | TRPC7 | transient receptor potential cation channel subfamily C member 7 |
| ITGA8 | integrin subunit alpha 8 | TRPM2 | transient receptor potential cation channel subfamily M member 2 |
| ITGA9 | integrin subunit alpha 9 | TRPV3 | transient receptor potential cation channel subfamily V member 3 |
| ITGAV | integrin subunit alpha V | TRPV6 | transient receptor potential cation channel subfamily V member 6 |
| ITGB4 | integrin subunit beta 4 | TSC22D2 | TSC22 domain family member 2 |
| ITGB5 | integrin subunit beta 5 | TSC22D3 | TSC22 domain family member 3 |
| ITGB8 | integrin subunit beta 8 | TSG1 | N/A |
| ITIH3 | inter-alpha-trypsin inhibitor heavy chain 3 | TSHB | thyroid stimulating hormone beta |
| ITM2A | integral membrane protein 2A | TSHZ2 | teashirt zinc finger homeobox 2 |
| ITPKA | inositol-trisphosphate 3-kinase A | TSIX | TSIX transcript, XIST antisense RNA |
| ITPKB | inositol-trisphosphate 3-kinase B | TSPAN11 | tetraspanin 11 |
| ITPR1 | inositol 1,4,5-trisphosphate receptor type 1 | TSPAN14 | tetraspanin 14 |
| ITPRIPL2 | ITPRIP like 2 | TSPAN15 | tetraspanin 15 |
| ITSN2 | intersectin 2 | TSPAN18 | tetraspanin 18 |
| JAG1 | jagged 1 | TSPAN2 | tetraspanin 2 |
| JAM2 | junctional adhesion molecule 2 | TSPAN5 | tetraspanin 5 |
| JAM3 | junctional adhesion molecule 3 | TSPAN6 | tetraspanin 6 |
| JAML | junction adhesion molecule like | TSPOAP1 | TSPO associated protein 1 |
| JAZF1 | JAZF zinc finger 1 | TSTD2 | thiosulfate sulfurtransferase like domain containing 2 |
| JDP2 | Jun dimerization protein 2 | TTC23L | tetratricopeptide repeat domain 23 like |
| JKAMP | JNK1/MAPK8 associated membrane protein | TTC28 | tetratricopeptide repeat domain 28 |
| JMY | junction mediating and regulatory protein, p53 cofactor | TTC32 | tetratricopeptide repeat domain 32 |
| JOSD1 | Josephin domain containing 1 | TTLL3 | tubulin tyrosine ligase like 3 |
| JPH1 | junctophilin 1 | TTLL5 | tubulin tyrosine ligase like 5 |
| JPH3 | junctophilin 3 | TTPA | alpha tocopherol transfer protein |

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|---|---|---|---|
| JUN | Jun proto-oncogene, AP-1 transcription factor subunit | TTTY10 | testis-specific transcript, Y-linked 10 (non-protein coding) |
| JUNB | JunB proto-oncogene, AP-1 transcription factor subunit | TTTY14 | testis-specific transcript, Y-linked 14 (non-protein coding) |
| JUND | JunD proto-oncogene, AP-1 transcription factor subunit | TTTY15 | testis-specific transcript, Y-linked 15 (non-protein coding) |
| KANK1 | KN motif and ankyrin repeat domains 1 | TTYH3 | tweety family member 3 |
| KANK2 | KN motif and ankyrin repeat domains 2 | TUBA8 | tubulin alpha 8 |
| KANK4 | KN motif and ankyrin repeat domains 4 | TUBB2B | tubulin beta 2B class IIb |
| KCNA1 | potassium voltage-gated channel subfamily A member 1 | TUBB4A | tubulin beta 4A class IVa |
| KCNA2 | potassium voltage-gated channel subfamily A member 2 | TULP3 | tubby like protein 3 |
| KCNA3 | potassium voltage-gated channel subfamily A member 3 | TUNAR | TCL1 upstream neural differentiation-associated RNA |
| KCNA4 | potassium voltage-gated channel subfamily A member 4 | TUSC3 | tumor suppressor candidate 3 |
| KCNAB1 | potassium voltage-gated channel subfamily A member regulatory beta subunit 1 | TWISTNB | TWIST neighbor |
| KCNAB2 | potassium voltage-gated channel subfamily A regulatory beta subunit 2 | TXLNGY | taxilin gamma pseudogene, Y-linked |
| KCNAB3 | potassium voltage-gated channel subfamily A regulatory beta subunit 3 | TXNIP | thioredoxin interacting protein |
| KCNC1 | potassium voltage-gated channel subfamily C member 1 | TXNL4A | thioredoxin like 4A |
| KCNC2 | potassium voltage-gated channel subfamily C member 2 | TYMS | thymidylate synthetase |
| KCNC3 | potassium voltage-gated channel subfamily C member 3 | U2AF1 | U2 small nuclear RNA auxiliary factor 1 |
| KCND3 | potassium voltage-gated channel subfamily D member 3 | UAP1 | UDP-N-acetylglucosamine pyrophosphorylase 1 |
| KCNF1 | potassium voltage-gated channel modifier subfamily F member 1 | UBASH3B | ubiquitin associated and SH3 domain containing B |
| KCNG4 | potassium voltage-gated channel modifier subfamily G member 4 | UBB | ubiquitin B |
| KCNH1 | potassium voltage-gated channel subfamily H member 1 | UBC | ubiquitin C |
| KCNH5 | potassium voltage-gated channel subfamily H member 5 | UBE2B | ubiquitin conjugating enzyme E2 B |
| KCNH7 | potassium voltage-gated channel subfamily H member 7 | UBE2QL1 | ubiquitin conjugating enzyme E2 Q family like 1 |
| KCNH8 | potassium voltage-gated channel subfamily H member 8 | UBE4A | ubiquitination factor E4A |
| KCNIP1 | potassium voltage-gated channel interacting protein 1 | UCP2 | uncoupling protein 2 |
| KCNIP2 | potassium voltage-gated channel interacting protein 2 | UFL1 | UFM1 specific ligase 1 |
| KCNIP4 | potassium voltage-gated channel interacting protein 4 | UFSP2 | UFM1 specific peptidase 2 |
| KCNJ10 | potassium voltage-gated channel subfamily J member 10 | UGGT2 | UDP-glucose glycoprotein glucosyltransferase 2 |
| KCNJ12 | potassium voltage-gated channel subfamily J member 12 | UGT8 | UDP glycosyltransferase 8 |
| KCNJ16 | potassium voltage-gated channel subfamily J member 16 | Ugt8a | UDP galactosyltransferase 8A |
| KCNJ3 | potassium voltage-gated channel subfamily J member 3 | UNC13C | unc-13 homolog C |
| KCNJ4 | potassium voltage-gated channel subfamily J member 4 | UNC5B | unc-5 netrin receptor B |
| KCNJ6 | potassium voltage-gated channel subfamily J member 6 | UNC5D | unc-5 netrin receptor D |
| KCNK1 | potassium two pore domain channel subfamily K member 1 | UNC80 | unc-80 homolog, NALCN channel complex subunit |

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|---|---|---|---|
| KCNK10 | potassium two pore domain channel subfamily K member 10 | UNCX | UNC homeobox |
| KCNK12 | potassium two pore domain channel subfamily K member 12 | UPP1 | uridine phosphorylase 1 |
| KCNK13 | potassium two pore domain channel subfamily K member 13 | USP11 | ubiquitin specific peptidase 11 |
| KCNK3 | potassium two pore domain channel subfamily K member 3 | USP28 | ubiquitin specific peptidase 28 |
| KCNMA1 | potassium calcium-activated channel subfamily M alpha 1 | USP37 | ubiquitin specific peptidase 37 |
| KCNN3 | potassium calcium-activated channel subfamily N member 3 | USP4 | ubiquitin specific peptidase 4 |
| KCNQ3 | potassium voltage-gated channel subfamily Q member 3 | USP43 | ubiquitin specific peptidase 43 |
| KCNQ5 | potassium voltage-gated channel subfamily Q member 5 | USP9Y | ubiquitin specific peptidase 9, Y-linked |
| KCNT2 | potassium sodium-activated channel subfamily T member 2 | USPL1 | ubiquitin specific peptidase like 1 |
| KCNV1 | potassium voltage-gated channel modifier subfamily V member 1 | UTY | ubiquitously transcribed tetratricopeptide repeat containing, Y-linked |
| Kctd12b | potassium channel tetramerisation domain containing 12b | VAMP1 | vesicle associated membrane protein 1 |
| KCTD13 | potassium channel tetramerization domain containing 13 | VAT1L | vesicle amine transport 1 like |
| KCTD21-AS1 | KCTD21 antisense RNA 1 | VAV2 | vav guanine nucleotide exchange factor 2 |
| KCTD3 | potassium channel tetramerization domain containing 3 | VAX2 | ventral anterior homeobox 2 |
| KDELR3 | KDEL endoplasmic reticulum protein retention receptor 3 | VCAN | versican |
| KDM5C | lysine demethylase 5C | VGLL4 | vestigial like family member 4 |
| KDM5D | lysine demethylase 5D | VIM | vimentin |
| KEL | Kell blood group, metallo-endopeptidase | VIP | vasoactive intestinal peptide |
| KHDRBS3 | KH RNA binding domain containing, signal transduction associated 3 | VIPR2 | vasoactive intestinal peptide receptor 2 |
| KIA1755 | N/A | VIT | vitrin |
| KIAA0513 | KIAA0513 | VMP1 | vacuole membrane protein 1 |
| KIAA0556 | KIAA0556 | VPS37B | VPS37B, ESCRT-I subunit |
| KIAA0895 | KIAA0895 | VSIG2 | V-set and immunoglobulin domain containing 2 |
| KIAA0895L | KIAA0895 like | VSIG8 | V-set and immunoglobulin domain containing 8 |
| KIAA1024 | KIAA1024 | VSNL1 | visinin like 1 |
| KIAA1217 | KIAA1217 | VSTM2B | V-set and transmembrane domain containing 2B |
| KIAA1456 | KIAA1456 | VTN | vitronectin |
| KIAA1549L | KIAA1549 like | VWA5A | von Willebrand factor A domain containing 5A |
| KIAA1644 | KIAA1644 | VWA5B2 | von Willebrand factor A domain containing 5B2 |
| KIF13A | kinesin family member 13A | VWC2 | von Willebrand factor C domain containing 2 |
| KIF13B | kinesin family member 13B | WASH7P | WAS protein family homolog 7 pseudogene |
| KIF19 | kinesin family member 19 | WDR17 | WD repeat domain 17 |
| Kif19a | kinesin family member 19A | WDR45B | WD repeat domain 45B |
| KIF21B | kinesin family member 21B | WDR49 | WD repeat domain 49 |
| KIF26B | kinesin family member 26B | WDR66 | WD repeat domain 66 |
| KIF3B | kinesin family member 3B | WFDC1 | WAP four-disulfide core domain 1 |
| KIF6 | kinesin family member 6 | WFS1 | wolframin ER transmembrane glycoprotein |
| Kirrel | kin of IRRE like (Drosophila) | WIF1 | WNT inhibitory factor 1 |
| KIRREL1 | kirre like nephrin family adhesion molecule 1 | WIPI1 | WD repeat domain, phosphoinositide interacting 1 |
| KIT | KIT proto-oncogene receptor tyrosine kinase | WLS | wntless Wnt ligand secretion mediator |
| Kitl | kit ligand | WNT6 | Wnt family member 6 |
| KITLG | KIT ligand | WNT7A | Wnt family member 7A |
| KLHDC4 | kelch domain containing 4 | WNT7B | Wnt family member 7B |
| KLHL13 | kelch like family member 13 | WSCD1 | WSC domain containing 1 |
| KLHL15 | kelch like family member 15 | WSCD2 | WSC domain containing 2 |

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|---|---|---|---|
| KLHL22 | kelch like family member 22 | WWC1 | WW and C2 domain containing 1 |
| KLHL5 | kelch like family member 5 | WWC2 | WW and C2 domain containing 2 |
| KLK6 | kallikrein related peptidase 6 | XIST | X inactive specific transcript (non-protein coding) |
| KNDC1 | kinase non-catalytic C-lobe domain containing 1 | XKR7 | XK related 7 |
| KNOP1 | lysine rich nucleolar protein 1 | XRRA1 | X-ray radiation resistance associated 1 |
| KNTC1 | kinetochore associated 1 | XYLT1 | xylosyltransferase 1 |
| KRT222 | keratin 222 | YBX2 | Y-box binding protein 2 |
| KRT24 | keratin 24 | YES1 | YES proto-oncogene 1, Src family tyrosine kinase |
| KRTAP10-1 | keratin associated protein 10-1 | YIPF5 | Yip1 domain family member 5 |
| KRTAP10-10 | keratin associated protein 10-10 | YIPF7 | Yip1 domain family member 7 |
| KRTAP10-11 | keratin associated protein 10-11 | ZBTB16 | zinc finger and BTB domain containing 16 |
| KRTAP10-12 | keratin associated protein 10-12 | ZBTB21 | zinc finger and BTB domain containing 21 |
| KRTAP10-2 | keratin associated protein 10-2 | ZBTB46 | zinc finger and BTB domain containing 46 |
| KRTAP10-3 | keratin associated protein 10-3 | ZCCHC24 | zinc finger CCHC-type containing 24 |
| KRTAP10-4 | keratin associated protein 10-4 | ZDHHC14 | zinc finger DHHC-type containing 14 |
| KRTAP10-5 | keratin associated protein 10-5 | ZDHHC2 | zinc finger DHHC-type containing 2 |
| KRTAP10-6 | keratin associated protein 10-6 | ZDHHC23 | zinc finger DHHC-type containing 23 |
| KRTAP10-7 | keratin associated protein 10-7 | ZEB2 | zinc finger E-box binding homeobox 2 |
| KRTAP10-8 | keratin associated protein 10-8 | ZFAND2A | zinc finger AN1-type containing 2A |
| KRTAP10-9 | keratin associated protein 10-9 | ZFAND5 | zinc finger AN1-type containing 5 |
| KRTAP12-2 | keratin associated protein 12-2 | ZFAND6 | zinc finger AN1-type containing 6 |
| KSR2 | kinase suppressor of ras 2 | ZFHX4 | zinc finger homeobox 4 |
| L1CAM | L1 cell adhesion molecule | ZFP36L1 | ZFP36 ring finger protein like 1 |
| L3HYPDH | trans-L-3-hydroxyproline dehydratase | Zfp385c | zinc finger protein 385C |
| L3MBTL2 | L3MBTL2, polycomb repressive complex 1 subunit | Zfp395 | zinc finger protein 395 |
| LACTB2-AS1 | LACTB2 antisense RNA 1 | Zfp423 | zinc finger protein 423 |
| LAMA1 | laminin subunit alpha 1 | Zfp462 | zinc finger protein 462 |
| LAMA2 | laminin subunit alpha 2 | Zfp521 | zinc finger protein 521 |
| LAMA3 | laminin subunit alpha 3 | Zfp608 | zinc finger protein 608 |
| LAMA4 | laminin subunit alpha 4 | Zfp804b | zinc finger protein 804B |
| LAMB1 | laminin subunit beta 1 | Zfp831 | zinc finger protein 831 |
| LAMB2 | laminin subunit beta 2 | ZFPM1 | zinc finger protein, FOG family member 1 |
| LAMP5 | lysosomal associated membrane protein family member 5 | ZFPM2 | zinc finger protein, FOG family member 2 |
| LAPTM4B | lysosomal protein transmembrane 4 beta | ZFX | zinc finger protein, X-linked |
| LARP6 | La ribonucleoprotein domain family member 6 | ZFY | zinc finger protein, Y-linked |
| LARS2 | leucyl-tRNA synthetase 2, mitochondrial | ZIC1 | Zic family member 1 |
| LBH | limb bud and heart development | ZIC2 | Zic family member 2 |
| LBX1 | ladybird homeobox 1 | ZIC3 | Zic family member 3 |
| LCAT | lecithin-cholesterol acyltransferase | ZIC4 | Zic family member 4 |
| LCN8 | lipocalin 8 | ZIC5 | Zic family member 5 |
| LCORL | ligand dependent nuclear receptor corepressor like | ZKSCAN1 | zinc finger with KRAB and SCAN domains 1 |
| LDAH | lipid droplet associated hydrolase | ZMAT4 | zinc finger matrin-type 4 |
| LDB2 | LIM domain binding 2 | ZNF10 | zinc finger protein 10 |
| LDB3 | LIM domain binding 3 | ZNF124 | zinc finger protein 124 |
| LECT2 | leukocyte cell derived chemotaxin 2 | ZNF131 | zinc finger protein 131 |
| LENG9 | leukocyte receptor cluster member 9 | ZNF141 | zinc finger protein 141 |
| LFNG | LFNG O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase | ZNF184 | zinc finger protein 184 |
| LGALS3 | galectin 3 | ZNF212 | zinc finger protein 212 |
| LGI2 | leucine rich repeat LGI family member 2 | ZNF219 | zinc finger protein 219 |
| LGI4 | leucine rich repeat LGI family member 4 | ZNF253 | zinc finger protein 253 |
| LGR5 | leucine rich repeat containing G protein-coupled receptor 5 | ZNF304 | zinc finger protein 304 |
| LGR6 | leucine rich repeat containing G protein-coupled receptor 6 | ZNF331 | zinc finger protein 331 |
| Lhfp | lipoma HMGIC fusion partner | ZNF385C | zinc finger protein 385C |
| LHFPL2 | LHFPL tetraspan subfamily member 2 | ZNF395 | zinc finger protein 395 |
| LHFPL3 | LHFPL tetraspan subfamily member 3 | ZNF404 | zinc finger protein 404 |
| LHFPL6 | LHFPL tetraspan subfamily member 6 | ZNF423 | zinc finger protein 423 |

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|---|---|---|---|
| LHX1 | LIM homeobox 1 | ZNF462 | zinc finger protein 462 |
| Lhx1os | LIM homeobox 1, opposite strand | ZNF496 | zinc finger protein 496 |
| LHX5 | LIM homeobox 5 | ZNF521 | zinc finger protein 521 |
| LIMD1 | LIM domains containing 1 | ZNF546 | zinc finger protein 546 |
| LIMS2 | LIM zinc finger domain containing 2 | ZNF580 | zinc finger protein 580 |
| LIN28B | lin-28 homolog B | ZNF585A | zinc finger protein 585A |
| LIN7A | lin-7 homolog A, crumbs cell polarity complex component | ZNF607 | zinc finger protein 607 |
| LINC00278 | long intergenic non-protein coding RNA 278 | ZNF608 | zinc finger protein 608 |
| LINC00457 | long intergenic non-protein coding RNA 457 | ZNF703 | zinc finger protein 703 |
| LINC00499 | long intergenic non-protein coding RNA 499 | ZNF711 | zinc finger protein 711 |
| LINC00844 | long intergenic non-protein coding RNA 844 | ZNF736 | zinc finger protein 736 |
| LINC00963 | long intergenic non-protein coding RNA 963 | ZNF804B | zinc finger protein 804B |
| LINC01032 | long intergenic non-protein coding RNA 1032 | ZNF831 | zinc finger protein 831 |
| LINC01158 | long intergenic non-protein coding RNA 1158 | ZNF84 | zinc finger protein 84 |
| LINC01208 | long intergenic non-protein coding RNA 1208 | ZNF891 | zinc finger protein 891 |
| LINC01515 | long intergenic non-protein coding RNA 1515 | ZNHIT1 | zinc finger HIT-type containing 1 |
| LINC01544 | long intergenic non-protein coding RNA 1544 | ZNRD1 | zinc ribbon domain containing 1 |
| LINC01933 | long intergenic non-protein coding RNA 1933 | ZNRF1 | zinc and ring finger 1 |
| LINC02112 | long intergenic non-protein coding RNA 2112 | ZP2 | zona pellucida glycoprotein 2 |
| LINC02125 | long intergenic non-protein coding RNA 2125 | ZSCAN29 | zinc finger and SCAN domain containing 29 |
| LINC02398 | long intergenic non-protein coding RNA 2398 | ZSCAN30 | zinc finger and SCAN domain containing 30 |
| LINC02405 | long intergenic non-protein coding RNA 2405 | ZSWIM6 | zinc finger SWIM-type containing 6 |
| LINCMD1 | long intergenic non-protein coding RNA, muscle differentiation 1 | ZYG11A | zyg-11 family member A, cell cycle regulator |
| LINGO1 | leucine rich repeat and Ig domain containing 1 | ZYX | zyxin |
| 1700063D05Rik | RIKEN cDNA 1700063D05 gene | Hpcal1 | hippocalcin-like 1 |
| 1700086L19Rik | RIKEN cDNA 1700086L19 gene | Icmt | isoprenylcysteine carboxyl methyltransferase |
| 1700124L16Rik | RIKEN cDNA 1700124L16 gene | Id2 | inhibitor of DNA binding 2 |
| 2510003B16Rik | N/A | Ifitm7 | interferon induced transmembrane protein 7 |
| 4930449E18Rik | N/A | Kalrn | kalirin, RhoGEF kinase |
| 6330403K07Rik | RIKEN cDNA 6330403K07 gene | Kcnd2 | potassium voltage-gated channel, Shal-related family, member 2 |
| 9330117O12Rik | N/A | Kcnj6 | potassium inwardly-rectifying channel, subfamily J, member 6 |
| 9330188P03Rik | N/A | Kcnk12 | potassium channel, subfamily K, member 12 |
| 9530026P05Rik | RIKEN cDNA 9530026P05 gene | Kcnk9 | potassium channel, subfamily K, member 9 |
| A230001M10Rik | RIKEN cDNA A230001M10 gene | Kcns2 | K+ voltage-gated channel, subfamily S, 2 |
| A330049N07Rik | RIKEN cDNA A330049N07 gene | Kirrel3 | kin of IRRE like 3 (Drosophila) |
| A530058N18Rik | RIKEN cDNA A530058N18 gene | Lhfpl3 | lipoma HMGIC fusion partner-like 3 |
| A730017C20Rik | RIKEN cDNA A730017C20 gene | Lhfpl3 | lipoma HMGIC fusion partner-like 3 |
| Ackr1 | atypical chemokine receptor 1 (Duffy blood group) | Limd1 | LIM domains containing 1 |
| Adarb2 | adenosine deaminase, RNA-specific, B2 | Lrp8 | low density lipoprotein receptor-related protein 8, apolipoprotein e receptor |
| Adipor2 | adiponectin receptor 2 | Mbp | myelin basic protein |
| AI504432 | expressed sequence AI504432 | Mir124a-1hg | Mir124-1 host gene (non-protein coding) |
| Alms1-ps2 | ALMS1, centrosome and basal body associated, pseudogene 2 | Mir6390 | microRNA 6390 |
| Anks1b | ankyrin repeat and sterile alpha motif domain containing 1B | Mmp16 | matrix metallopeptidase 16 |
| Apoe | apolipoprotein E | Mt1 | metallothionein 1 |
| Arhgap26 | Rho GTPase activating protein 26 | Mt2 | metallothionein 2 |
| Arl4c | ADP-ribosylation factor-like 4C | Mthfd2 | methylenetetrahydrofolate dehydrogenase (NAD+ dependent), methenyltetrahydrofolate cyclohydrolase |
| Arrdc2 | arrestin domain containing 2 | Myrip | myosin VIIA and Rab interacting protein |
| Asphd1 | aspartate beta-hydroxylase domain containing 1 | Myt1l | myelin transcription factor 1-like |
| Atp6ap1l | ATPase, H+ transporting, lysosomal accessory protein 1-like | Nat8 | N-acetyltransferase 8 (GCN5-related) |

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|---|---|---|---|
| AU022751 | expressed sequence AU022751 | Neat1 | nuclear paraspeckle assembly transcript 1 (non-protein coding) |
| B3galt5 | UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 5 | Nhlrc4 | NHL repeat containing 4 |
| Bcl2l15 | BCL2-like 15 | Nhsl2 | NHS-like 2 |
| Bmp4 | bone morphogenetic protein 4 | Nos1 | nitric oxide synthase 1, neuronal |
| Btg1-ps1 | B cell translocation gene 1, anti-proliferative, pseudogene 1 | Nrep | neuronal regeneration related protein |
| Bzrap1 | N/A | Nrn1 | neuritin 1 |
| C030029H02Rik | RIKEN cDNA C030029H02 gene | Nxph1 | neurexophilin 1 |
| C130030K03Rik | N/A | Olfm2 | olfactomedin 2 |
| Cacna1d | calcium channel, voltage-dependent, L type, alpha 1D subunit | Opcml | opioid binding protein/cell adhesion molecule-like |
| Calcrl | calcitonin receptor-like | Pagr1a | PAXIP1 associated glutamate rich protein 1A |
| Ccdc190 | coiled-coil domain containing 190 | Patj | PATJ, crumbs cell polarity complex component |
| Ccdc78 | coiled-coil domain containing 78 | Pcdh7 | protocadherin 7 |
| Ccp110 | centriolar coiled coil protein 110 | Phlda1 | pleckstrin homology like domain, family A, member 1 |
| Cdh22 | cadherin 22 | Pkib | protein kinase inhibitor beta, cAMP dependent, testis specific |
| Celrr | cerebellum expressed regulatory RNA | Plcxd3 | phosphatidylinositol-specific phospholipase C, X domain containing 3 |
| Chadl | chondroadherin-like | Pnpla7 | patatin-like phospholipase domain containing 7 |
| Chd3os | chromodomain helicase DNA binding protein 3, opposite strand | Prdm8 | PR domain containing 8 |
| Cntn2 | contactin 2 | Proca1 | protein interacting with cyclin A1 |
| Cntnap5b | contactin associated protein-like 5B | Prodh | proline dehydrogenase |
| Cntnap5c | contactin associated protein-like 5C | Prr18 | proline rich 18 |
| Col18a1 | collagen, type XVIII, alpha 1 | Prr36 | proline rich 36 |
| Cplx2 | complexin 2 | Ptch2 | patched 2 |
| Cpne2 | copine II | Ptgds | prostaglandin D2 synthase (brain) |
| Cyp2j12 | cytochrome P450, family 2, subfamily j, polypeptide 12 | Rab34 | RAB34, member RAS oncogene family |
| D430036J16Rik | RIKEN cDNA D430036J16 gene | Rasgrp3 | RAS, guanyl releasing protein 3 |
| Dbpht2 | DNA binding protein with his-thr domain | Rgs8 | regulator of G-protein signaling 8 |
| Defb23 | defensin beta 23 | Ror1 | receptor tyrosine kinase-like orphan receptor 1 |
| Diras2 | DIRAS family, GTP-binding RAS-like 2 | Rora | RAR-related orphan receptor alpha |
| Dnah11 | dynein, axonemal, heavy chain 11 | Rtl4 | retrotransposon Gag like 4 |
| Dock10 | dedicator of cytokinesis 10 | S100a3 | S100 calcium binding protein A3 |
| Dscam | DS cell adhesion molecule | S1pr5 | sphingosine-1-phosphate receptor 5 |
| Elfn2 | leucine rich repeat and fibronectin type III, extracellular 2 | Scn2a | sodium channel, voltage-gated, type II, alpha |
| Epb41l2 | erythrocyte membrane protein band 4.1 like 2 | Sema5b | sema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 5B |
| Epn2 | epsin 2 | Sh3pxd2b | SH3 and PX domains 2B |
| Erbin | Erbb2 interacting protein | Shf | Src homology 2 domain containing F |
| Fam173a | family with sequence similarity 173, member A | Slain1 | SLAIN motif family, member 1 |
| Fam21 | N/A | Slc1a2 | solute carrier family 1 (glial high affinity glutamate transporter), member 2 |
| Fam3c | family with sequence similarity 3, member C | Slc38a3 | solute carrier family 38, member 3 |
| Far2 | fatty acyl CoA reductase 2 | Slitrk4 | SLIT and NTRK-like family, member 4 |
| Far2 | fatty acyl CoA reductase 3 | Snx22 | sorting nexin 22 |
| Far2 | fatty acyl CoA reductase 4 | Speer4a | spermatogenesis associated glutamate (E)-rich protein 4A |
| Fbxw15 | F-box and WD-40 domain protein 15 | Sstr1 | somatostatin receptor 1 |
| Frmpd3 | FERM and PDZ domain containing 3 | Stxbp5l | syntaxin binding protein 5-like |
| Fzd7 | frizzled class receptor 7 | Sv2b | synaptic vesicle glycoprotein 2 b |
| G0s2 | G0/G1 switch gene 2 | Syt1 | synaptotagmin I |
| Gap43 | growth associated protein 43 | Tbata | thymus, brain and testes associated |

| | | | |
|---|---|---|---|
| Gbp11 | guanylate binding protein 11 | Tenm1 | teneurin transmembrane protein 1 |
| Gdpd5 | glycerophosphodiester phosphodiesterase domain containing 5 | Tmem100 | transmembrane protein 100 |
| Gfra1 | glial cell line derived neurotrophic factor family receptor alpha 1 | Tmem151b | transmembrane protein 151B |
| Glce | glucuronyl C5-epimerase | Tmem176b | transmembrane protein 176B |
| Gm10471 | predicted gene 10471 | Tmem229a | transmembrane protein 229A |
| Gm11780 | predicted gene 11780 | Tmem88b | transmembrane protein 88B |
| Gm14204 | predicted gene 14204 | Trf | transferrin |
| Gm1979 | predicted gene 1979 | Tspyl4 | TSPY-like 4 |
| Gm21671 | predicted gene, 21671 | Ttyh1 | tweety family member 1 |
| Gm2694 | predicted gene 2694 | Unc5d | unc-5 netrin receptor D |
| Gm30731 | predicted gene, 30731 | Usp54 | ubiquitin specific peptidase 54 |
| Gm5803 | N/A | Wscd2 | WSC domain containing 2 |
| Gm5862 | predicted gene 5862 | Xylt1 | xylosyltransferase 1 |
| Gm6277 | predicted gene 6277 | Zdhhc23 | zinc finger, DHHC domain containing 23 |
| Gm6277 | predicted gene 6277 | Zfand4 | zinc finger, AN1-type domain 4 |
| Gm9895 | N/A | Zfp488 | zinc finger protein 488 |
| Gpr12 | G-protein coupled receptor 12 | | |
| Grm4 | glutamate receptor, metabotropic 4 | | |
| H2-Bl | histocompatibility 2, blastocyst | | |
| Hecw1 | | | |

**[0059]** For mice, Table 2 and Table 2b provide the unique ENSEMBL identifiers corresponding to the mouse genes (MUSG), transcripts (MUST), and proteins (if available) (MUSP) analyzed in the experiments herein. The unique identifiers for each ENSEMBL entry has been modified to remove the first five leading zeros (0) of the identifier after the ENSMUSG, ENSMUST, and ENSMUSP label. Where an ENSEMBL transcript or protein identifer was not available, GenBank transcripts (nucleic acid or protein) are included.

**Table 2. ENSEMBL IDs for mice**

| Symbol | MUSG | MUST | MUSP | Symbol | MUSG | MUST | MUSP | Symbol | MUSG | MUST | MUSP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1700047M11Rik | 100147 | 189594 | N/A | Frem1 | 059049 | 170248 | 125809 | Pitpnm3 | 040543 | 132781 | N/A |
| 1700047M11Rik | 100147 | 185216 | N/A | Fmd3 | 049122 | 084474 | 081514 | Pitpnm3 | 040543 | 142471 | N/A |
| 2410124H12Rik | 051297 | 160494 | N/A | Fmd3 | 049122 | 098006 | 095615 | Pitpnm3 | 040543 | 108508 | 104148 |
| 3110039M20Rik | 104861 | 127041 | N/A | Fmd3 | 049122 | 154134 | N/A | Pkd2l1 | 037578 | 042026 | 045675 |
| 3110039M20Rik | 104861 | 145291 | N/A | Fmd4a | 026657 | 138735 | N/A | Pkd2l1 | 037578 | 161357 | N/A |
| 8030451O07Rik | N/A | N/A | N/A | Fmd4a | 026657 | 137809 | N/A | Pkia | 027499 | 192468 | 142120 |
| 9530059O14Rik | 097736 | 181682 | N/A | Fmd4a | 026657 | 177457 | 134788 | Pkia | 027499 | 028999 | 028999 |
| 9530059O14Rik | 097736 | 181107 | N/A | Fmd4a | 026657 | 132710 | N/A | Pkia | 027499 | 193330 | 141466 |
| 9530059O14Rik | 097736 | 215759 | N/A | Fmd4a | 026657 | 091497 | 089079 | Pknox2 | 035934 | 177218 | 135581 |
| 9530059O14Rik | 097736 | 181719 | N/A | Fmd4a | 026657 | 175669 | 135306 | Pknox2 | 035934 | 039674 | 035806 |
| A230077H06Rik | 100600 | 189574 | N/A | Fmd4a | 026657 | 147156 | N/A | Pknox2 | 035934 | 175938 | 138866 |
| A230077H06Rik | 100600 | 188579 | N/A | Fmd4a | 026657 | 176803 | 135432 | Pknox2 | 035934 | 177080 | N/A |
| A230077H06Rik | 100600 | 189855 | N/A | Fmd4a | 026657 | 175944 | 135686 | Pknox2 | 035934 | 176562 | N/A |
| A230077H06Rik | 100600 | 205953 | N/A | Fmd4a | 026657 | 115037 | 110689 | Pknox2 | 035934 | 176622 | N/A |
| A2m | 030111 | 204850 | 144862 | Fmd4a | 026657 | 141746 | N/A | Pknox2 | 035934 | 177444 | 135641 |
| A2m | 030111 | 032203 | 032203 | Fmd4a | 026657 | 075767 | 075172 | Pknox2 | 035934 | 188348 | 139976 |
| A2m | 030111 | 203413 | N/A | Fmd4a | 026657 | 176962 | N/A | Pknox2 | 035934 | 188057 | 140793 |
| A730036I17Rik | 056738 | 143346 | N/A | Fmd4a | 026657 | 115039 | N/A | Pknox2 | 035934 | 189294 | 139728 |
| A730036I17Rik | 056738 | 148548 | N/A | Fmd4a | 026657 | 123919 | N/A | Pknox2 | 035934 | 188433 | N/A |
| A730036I17Rik | 056738 | 165505 | N/A | Fmd4a | 026657 | 153160 | N/A | Pknox2 | 035934 | 213653 | N/A |
| Aass | 029695 | 031707 | 031707 | Fmd4a | 026657 | 176828 | 134803 | Pknox2 | 035934 | 215175 | N/A |
| Aass | 029695 | 138063 | N/A | Fmd4a | 026657 | 142452 | N/A | Pknox2 | 035934 | 080754 | 079578 |
| Aass | 029695 | 149864 | 115079 | Fmd4a | 026657 | 176864 | 135057 | Pkp3 | 054065 | 106039 | 101654 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aass | 029695 | 152280 | N/A | Frmd4b | 030064 | 113355 | 108982 | Pkp3 | 054065 | 159375 | 124572 |
| Aatk | 025375 | 103020 | 099309 | Frmd4b | 030064 | 203486 | N/A | Pkp3 | 054065 | 066873 | 069961 |
| Aatk | 025375 | 064307 | 067181 | Frmd4b | 030064 | 143698 | N/A | Pkp3 | 054065 | 163041 | 124434 |
| Aatk | 025375 | 103019 | 099308 | Frmd4b | 030064 | 113359 | 108986 | Pkp3 | 054065 | 160869 | 124013 |
| Aatk | 025375 | 150730 | N/A | Frmd4b | 030064 | 032146 | 032146 | Pkp3 | 054065 | 160615 | N/A |
| Aatk | 025375 | 142959 | N/A | Frmd4b | 030064 | 146191 | N/A | Pkp3 | 054065 | 160403 | N/A |
| Aatk | 025375 | 134319 | N/A | Frmd4b | 030064 | 155326 | N/A | Pkp3 | 054065 | 159253 | N/A |
| Aatk | 025375 | 132575 | N/A | Frmd4b | 030064 | 138301 | N/A | Pkp3 | 054065 | 161142 | N/A |
| Aatk | 025375 | 136386 | N/A | Frmd4b | 030064 | 152385 | N/A | Pla2g16 | 060675 | 025925 | 025925 |
| Aatk | 025375 | 128836 | N/A | Frmd4b | 030064 | 113353 | N/A | Pla2g16 | 060675 | 136756 | 115151 |
| Abat | 057880 | 065987 | 063548 | Frmd4b | 030064 | 142589 | N/A | Pla2g16 | 060675 | 136465 | 119403 |
| Abat | 057880 | 140795 | N/A | Frmd4b | 030064 | 126899 | N/A | Pla2g16 | 060675 | 141887 | 123524 |
| Abat | 057880 | 115838 | 111504 | Frmd4b | 030064 | 124050 | 145240 | Pla2g4a | 056220 | 070200 | 070868 |
| Abat | 057880 | 144444 | 121881 | Frmpd1 | 035615 | 107804 | 103434 | Pla2g4a | 056220 | 111926 | 107557 |
| Abat | 057880 | 115839 | 111505 | Frmpd1 | 035615 | 134280 | 118757 | Pla2g4a | 056220 | 190507 | 139851 |
| Abat | 057880 | 128459 | N/A | Frmpd1 | 035615 | 044773 | 047232 | Pla2g4a | 056220 | 155438 | N/A |
| Abat | 057880 | 138987 | 116686 | Frmpd2 | 108841 | 208853 | 146522 | Pla2g4a | 056220 | 142040 | N/A |
| Abca1 | 015243 | 030010 | 030010 | Frmpd2 | 108841 | 208577 | 146693 | Pla2g4a | 056220 | 134676 | N/A |
| Abca1 | 015243 | 149127 | N/A | Frmpd2 | 108841 | 207581 | N/A | Pla2g4e | 050211 | 090071 | 087525 |
| Abcc8 | 040136 | 210655 | 148169 | Frmpd2 | 108841 | 208380 | N/A | Pla2g4e | 050211 | 127009 | N/A |
| Abcc8 | 040136 | 209432 | 147431 | Frmpd4 | 049176 | 112149 | 107777 | Pla2g4e | 050211 | 136845 | N/A |
| Abcc8 | 040136 | 210770 | 147925 | Frmpd4 | 049176 | 112146 | 107774 | Pla2g4e | 050211 | 152263 | N/A |
| Abcc8 | 040136 | 210637 | N/A | Frmpd4 | 049176 | 112147 | 107775 | Pla2g5 | 041193 | 102512 | 099570 |
| Abcc8 | 040136 | 033123 | 033123 | Frmpd4 | 049176 | 112145 | 107773 | Pla2g5 | 041193 | 102513 | 099571 |
| Abcc8 | 040136 | 210110 | 147479 | Frs1 | 033386 | 040260 | 039487 | Pla2g5 | 041193 | 102511 | 099569 |
| Abcc8 | 040136 | 210986 | N/A | Frs1 | 033386 | 199626 | 143546 | Pla2g5 | 041193 | 127183 | N/A |
| Abcc8 | 040136 | 210511 | 148198 | Frs1 | 033386 | 195905 | 143255 | Pla2g5 | 041193 | 136393 | N/A |
| Abcg2 | 029802 | 147213 | 120940 | Frs1 | 033386 | 199584 | N/A | Pla2g5 | 041193 | 140117 | N/A |
| Abcg2 | 029802 | 204924 | N/A | Frs1 | 033386 | 197323 | N/A | Pla2g5 | 041193 | 154844 | N/A |
| Abcg2 | 029802 | 148008 | 114454 | Frs1 | 033386 | 199030 | 142793 | Pla2g5 | 041193 | 140100 | N/A |
| Abcg2 | 029802 | 031822 | 031822 | Frs11 | 045589 | 053681 | 052507 | Pla2g5 | 041193 | 030524 | 030524 |
| Abcg2 | 029802 | 124542 | N/A | Frs11 | 045589 | 128276 | 121657 | Pla2g7 | 023913 | 167214 | 130404 |
| Abcg2 | 029802 | 145161 | 122924 | Fry | 056602 | 200960 | 144674 | Pla2g7 | 023913 | 024706 | 024706 |
| Abcg2 | 029802 | 143752 | 138608 | Fry | 056602 | 202530 | 144277 | Pla2g7 | 023913 | 167418 | 131898 |
| Abcg2 | 029802 | 203146 | 145435 | Fry | 056602 | 203000 | N/A | Pla2g7 | 023913 | 165706 | N/A |
| Abcg2 | 029802 | 114294 | 109933 | Fry | 056602 | 202600 | 144317 | Pla2g7 | 023913 | 169694 | 132027 |
| Abcg2 | 029802 | 204948 | 144876 | Fry | 056602 | 201854 | N/A | Pla2g7 | 023913 | 163489 | N/A |
| Abcg2 | 029802 | 143447 | N/A | Fry | 056602 | 087204 | 084454 | Plag1 | 003282 | 003369 | 003369 |
| Abcg2 | 029802 | 145685 | 138703 | Fry | 056602 | 202841 | N/A | Plag1 | 003282 | 137439 | 117532 |
| Abcg2 | 029802 | 134426 | N/A | Fry | 056602 | 200964 | N/A | Plag1 | 003282 | 151543 | 119937 |
| Abhd2 | 039202 | 037315 | 038361 | Fry | 056602 | 202630 | N/A | Plag1 | 003282 | 147035 | N/A |
| Abhd2 | 039202 | 135333 | N/A | Fry | 056602 | 201634 | N/A | Plat | 031538 | 210960 | N/A |
| Abhd5 | 032540 | 156520 | 122274 | Fry | 056602 | 202566 | 144657 | Plat | 031538 | 033941 | 033941 |
| Abhd5 | 032540 | 035128 | 135538 | Fry | 056602 | 200863 | 143845 | Plat | 031538 | 211033 | N/A |
| Abhd5 | 032540 | 111497 | 107123 | Fry | 056602 | 201196 | N/A | Plcb1 | 051177 | 131552 | 118756 |
| Abhd5 | 032540 | 176005 | N/A | Fry | 056602 | 202070 | N/A | Plcb1 | 051177 | 110116 | 105743 |
| Abhd5 | 032540 | 175973 | 135807 | Fry | 056602 | 200750 | N/A | Plcb1 | 051177 | 130524 | N/A |
| Abhd5 | 032540 | 214061 | N/A | Fry | 056602 | 202571 | N/A | Plcb1 | 051177 | 202531 | N/A |
| Abhd5 | 032540 | 216775 | N/A | Fry | 056602 | 201628 | N/A | Plcb1 | 051177 | 070724 | 064844 |
| Abhd5 | 032540 | 154161 | 122939 | Fsip2 | 075249 | 143764 | 120314 | Plcb1 | 051177 | 129382 | N/A |
| Abi3bp | 035258 | 048471 | 036257 | Fsip2 | 075249 | 136202 | 114196 | Plcb1 | 051177 | 201485 | 144399 |
| Abi3bp | 035258 | 096013 | 093712 | Fsip2 | 075249 | 132967 | 122350 | Plcb1 | 051177 | 201524 | N/A |
| Abi3bp | 035258 | 096012 | 093711 | Fstl5 | 034098 | 038364 | 038506 | Plce1 | 024998 | 181994 | N/A |
| Abi3bp | 035258 | 171000 | 128818 | Fstl5 | 034098 | 159686 | N/A | Plce1 | 024998 | 182481 | 138360 |
| Ablim1 | 025085 | 079360 | 078336 | Fstl5 | 034098 | 160261 | 125393 | Plce1 | 024998 | 169713 | 130604 |
| Ablim1 | 025085 | 111529 | 107154 | Fstl5 | 034098 | 191664 | N/A | Plce1 | 024998 | 182267 | 138330 |
| Ablim1 | 025085 | 099294 | 096897 | Fstl5 | 034098 | 162471 | 125688 | Plce1 | 024998 | 182999 | 138098 |
| Ablim1 | 025085 | 111559 | 107184 | Fth1 | 024661 | 025563 | 025563 | Plce1 | 024998 | 182589 | N/A |
| Ablim1 | 025085 | 111528 | 107153 | Fxyd1 | 036570 | 206328 | 145712 | Plce1 | 024998 | 183131 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ablim1 | 025085 | 111526 | 107151 | Fxyd1 | 036570 | 205807 | 145990 | Plch1 | 036834 | 048134 | 047693 |
| Ablim1 | 025085 | 111550 | 107175 | Fxyd1 | 036570 | 205917 | N/A | Plch1 | 036834 | 159374 | N/A |
| Ablim1 | 025085 | 111558 | 107183 | Fxyd1 | 036570 | 206012 | 146295 | Plch1 | 036834 | 159982 | N/A |
| Ablim1 | 025085 | 111555 | 107180 | Fxyd1 | 036570 | 206305 | 145589 | Plch1 | 036834 | 084105 | 081122 |
| Ablim1 | 025085 | 111546 | 107172 | Fxyd1 | 036570 | 206030 | 146129 | Plch1 | 036834 | 162269 | 124463 |
| Ablim1 | 025085 | 111544 | 107169 | Fxyd1 | 036570 | 206317 | N/A | Plch1 | 036834 | 159676 | 124632 |
| Ablim1 | 025085 | 156316 | N/A | Fxyd1 | 036570 | 205778 | 145818 | Plch1 | 036834 | 059973 | 058524 |
| Ablim1 | 025085 | 137389 | N/A | Fxyd1 | 036570 | 108110 | 103745 | Plch1 | 036834 | 177143 | 135424 |
| Ablim1 | 025085 | 127198 | N/A | Fxyd1 | 036570 | 206860 | 146288 | Plch1 | 036834 | 176861 | 135562 |
| Ablim1 | 025085 | 133782 | N/A | Fxyd1 | 036570 | 206474 | 145920 | Plch1 | 036834 | 175947 | 135353 |
| Ablim1 | 025085 | 134430 | N/A | Fxyd1 | 036570 | 071697 | 071617 | Plch1 | 036834 | 159188 | 124491 |
| Ablim1 | 025085 | 150425 | N/A | Fxyd1 | 036570 | 205439 | 146064 | Plch1 | 036834 | 161052 | 125581 |
| Ablim1 | 025085 | 128212 | N/A | Fxyd1 | 036570 | 205542 | N/A | Plch1 | 036834 | 160638 | 123921 |
| Ablim1 | 025085 | 111524 | 107149 | Fxyd1 | 036570 | 206522 | N/A | Plcl1 | 038349 | 042986 | 037854 |
| Ablim1 | 025085 | 133369 | 117798 | Fxyd1 | 036570 | 205392 | N/A | Plcl1 | 038349 | 187059 | N/A |
| Ablim1 | 025085 | 104902 | 127818 | Fxyd1 | 036570 | 039909 | 048460 | Pld5 | 055214 | 125404 | 121428 |
| Ablim2 | 029095 | 101280 | 098838 | Fxyd7 | 036578 | 206341 | 146171 | Pld5 | 055214 | 065967 | 069326 |
| Ablim2 | 029095 | 054598 | 050571 | Fxyd7 | 036578 | 073892 | 073555 | Pld5 | 055214 | 156184 | N/A |
| Ablim2 | 029095 | 114205 | 109843 | Fzd9 | 049551 | 062572 | 053551 | Pld5 | 055214 | 144340 | N/A |
| Ablim2 | 029095 | 114210 | 109848 | Gab2 | 004508 | 004622 | 004622 | Pld5 | 055214 | 111166 | 106796 |
| Ablim2 | 029095 | 114206 | 109844 | Gab2 | 004508 | 206791 | 146200 | Pld5 | 055214 | 111167 | 106797 |
| Ablim2 | 029095 | 114204 | 109842 | Gabra2 | 000560 | 197284 | 142892 | Plekhd1 | 066438 | 153762 | N/A |
| Ablim2 | 029095 | 129347 | 123525 | Gabra2 | 000560 | 198625 | 143645 | Plekhd1 | 066438 | 142760 | 121812 |
| Ablim2 | 029095 | 130233 | 118159 | Gabra2 | 000560 | 197124 | N/A | Plekhd1 | 066438 | 152465 | N/A |
| Ablim2 | 029095 | 114203 | 109841 | Gabra2 | 000560 | 000572 | 000572 | Plekhd1 | 066438 | 140770 | 119711 |
| Ablim2 | 029095 | 150146 | 144134 | Gabra2 | 000560 | 199861 | N/A | Plekhg3 | 052609 | 217730 | 151564 |
| Ablim2 | 029095 | 151636 | 123616 | Gabra2 | 000560 | 199012 | N/A | Plekhg3 | 052609 | 075249 | 074729 |
| Ablim2 | 029095 | 135885 | N/A | Gabra4 | 029211 | 031121 | 031121 | Plekhg3 | 052609 | 218461 | N/A |
| Ablim2 | 029095 | 151322 | 114616 | Gabra4 | 029211 | 199357 | 143675 | Plekhg3 | 052609 | 219063 | 151851 |
| Ablim2 | 029095 | 125378 | 115931 | Gabra4 | 029211 | 197994 | 143063 | Plekhg3 | 052609 | 218380 | 151867 |
| Ablim2 | 029095 | 153025 | N/A | Gabra4 | 029211 | 198138 | 142466 | Plekhg3 | 052609 | 219751 | 151704 |
| Ablim2 | 029095 | 130209 | N/A | Gabra4 | 029211 | 199150 | N/A | Plekhg3 | 052609 | 218357 | N/A |
| Ablim2 | 029095 | 153529 | 118019 | Gabra6 | 020428 | 020703 | 020703 | Plekhg3 | 052609 | 219426 | N/A |
| Ablim3 | 032735 | 049378 | 041243 | Gabra6 | 020428 | 155218 | 126114 | Plekhg3 | 052609 | 218427 | N/A |
| Ablim3 | 032735 | 166783 | 125836 | Gabra6 | 020428 | 109286 | 104909 | Plekhh1 | 060716 | 039928 | 049460 |
| Abtb2 | 032724 | 076212 | 075566 | Gabrb1 | 029212 | 199967 | 143682 | Plekhh1 | 060716 | 217954 | 151944 |
| Abtb2 | 032724 | 131122 | N/A | Gabrb1 | 029212 | 031122 | 031122 | Plekhh1 | 060716 | 219956 | 151747 |
| Abtb2 | 032724 | 138580 | N/A | Gabrd | 029054 | 150423 | N/A | Plekhh1 | 060716 | 219946 | N/A |
| Acad8 | 031969 | 129490 | N/A | Gabrd | 029054 | 030925 | 030925 | Plekhh2 | 040852 | 047206 | 039628 |
| Acad8 | 031969 | 120367 | 112908 | Gabrd | 029054 | 129892 | N/A | Plekho2 | 050721 | 214740 | N/A |
| Acad8 | 031969 | 151075 | N/A | Gabrg2 | 020436 | 070725 | 064739 | Plekho2 | 050721 | 213554 | N/A |
| Acad8 | 031969 | 215693 | 150728 | Gabrg2 | 020436 | 070735 | 063812 | Plekho2 | 050721 | 068944 | 063677 |
| Acad8 | 031969 | 128923 | 122444 | Gabrg2 | 020436 | 146198 | N/A | Plekho2 | 050721 | 213652 | N/A |
| Acad8 | 031969 | 132293 | 123012 | Gabrg2 | 020436 | 109290 | 104913 | Pllp | 031775 | 034227 | 034227 |
| Acad8 | 031969 | 138102 | N/A | Gabrg3 | 055026 | 068911 | 067632 | Pllp | 031775 | 212555 | N/A |
| Acad8 | 031969 | 060513 | 054370 | Gabrg3 | 055026 | 068394 | 065255 | Pllp | 031775 | 213043 | 148729 |
| Acer3 | 030760 | 033020 | 033020 | Gabrg3 | 055026 | 171965 | N/A | Plp1 | 031425 | 033800 | 033800 |
| Acer3 | 030760 | 120520 | 112884 | Gad1 | 070880 | 094934 | 092539 | Plp1 | 031425 | 113085 | 108708 |
| Acer3 | 030760 | 151258 | 116127 | Gad1 | 070880 | 130604 | 117721 | Plp1 | 031425 | 125644 | N/A |
| Acer3 | 030760 | 206182 | N/A | Gad1 | 070880 | 148210 | 119733 | Plp1 | 031425 | 144880 | N/A |
| Acer3 | 030760 | 137899 | 120334 | Gad1 | 070880 | 130998 | 119379 | Plpp3 | 028517 | 064139 | 065719 |
| Aco2 | 022477 | 023116 | 023116 | Gad1 | 070880 | 155979 | N/A | Plpp4 | 070366 | 094018 | 091557 |
| Aco2 | 022477 | 157003 | N/A | Gad1 | 070880 | 140478 | N/A | Plpp4 | 070366 | 206551 | N/A |
| Aco2 | 022477 | 135198 | N/A | Gad1 | 070880 | 130618 | 117521 | Plpp4 | 070366 | 206918 | N/A |
| Aco2 | 022477 | 126352 | N/A | Gad1 | 070880 | 123330 | 116301 | Plpp4 | 070366 | 205630 | 145851 |
| Aco2 | 022477 | 155704 | N/A | Gad2 | 026787 | 028123 | 028123 | Plpp4 | 070366 | 205896 | 145944 |
| Aco2 | 022477 | 144324 | N/A | Gad2 | 026787 | 156728 | N/A | Plppr4 | 044667 | 061071 | 052306 |
| Acot11 | 034853 | 102762 | 099823 | Gal3st1 | 049721 | 078757 | 077815 | Plppr4 | 044667 | 125664 | N/A |
| Acot11 | 034853 | 065253 | 069636 | Gal3st1 | 049721 | 063004 | 058348 | Plppr4 | 044667 | 197743 | 143753 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acot11 | 034853 | 140541 | 124567 | Gal3st1 | 049721 | 109981 | 105608 | Pls1 | 049493 | 093800 | 091317 |
| Acot11 | 034853 | 144809 | N/A | Galnt14 | 024064 | 024858 | 024858 | Pls1 | 049493 | 119760 | 113200 |
| Acot11 | 034853 | 156567 | 123942 | Galnt14 | 024064 | 146565 | N/A | Pls1 | 049493 | 135816 | N/A |
| Acot11 | 034853 | 145061 | 125123 | Galnt14 | 024064 | 112591 | 108210 | Piscrl | 032369 | 093801 | 091318 |
| Acot11 | 034853 | 148688 | 124385 | Galnt15 | 021903 | 022460 | 022460 | Piscrl | 032369 | 186364 | 139479 |
| Acsbg1 | 032281 | 034822 | 034822 | Galnt15 | 021903 | 164208 | 131978 | Piscrl | 032369 | 187952 | N/A |
| Acsbg1 | 032281 | 138315 | 118133 | Galnt16 | 021130 | 219993 | 151829 | Piscrl4 | 032377 | 034941 | 034941 |
| Acsbg1 | 032281 | 128163 | 119551 | Galnt16 | 021130 | 218943 | 151619 | Piscrl4 | 032377 | 143866 | N/A |
| Acsbg1 | 032281 | 128624 | 121622 | Galnt16 | 021130 | 021558 | 021558 | Pitp | 017754 | 109316 | 104939 |
| Acsbg1 | 032281 | 132914 | N/A | Galnt16 | 021130 | 218648 | N/A | Pitp | 017754 | 109317 | 104940 |
| Acsm5 | 030972 | 207796 | 146520 | Galnt16 | 021130 | 217926 | 151370 | Pitp | 017754 | 059954 | 061519 |
| Acsm5 | 030972 | 066465 | 063416 | Galnt16 | 021130 | 219267 | 151800 | Pitp | 017754 | 142603 | N/A |
| Acsm5 | 030972 | 207307 | 146737 | Galnt18 | 038296 | 049430 | 043636 | Pitp | 017754 | 148912 | N/A |
| Acsm5 | 030972 | 207440 | 146938 | Galnt18 | 038296 | 106663 | 102274 | Pitp | 017754 | 156255 | 119955 |
| Acsm5 | 030972 | 207381 | 146715 | Galnt3 | 026994 | 028378 | 028378 | Pitp | 017754 | 128110 | 122760 |
| Acsm5 | 030972 | 207387 | 146357 | Galnt3 | 026994 | 153563 | N/A | Plxdc1 | 017417 | 017561 | 017561 |
| Acsm5 | 030972 | 207813 | 147176 | Galnt3 | 026994 | 150793 | N/A | Plxdc1 | 017417 | 107565 | 103191 |
| Actb | 029580 | 100497 | 098066 | Galnt3 | 026994 | 155453 | N/A | Plxdc1 | 017417 | 141708 | N/A |
| Actb | 029580 | 196997 | N/A | Galnt5 | 026828 | 112616 | 108235 | Plxdc1 | 017417 | 107564 | 103190 |
| Actb | 029580 | 167721 | 127663 | Galnt5 | 026828 | 144671 | N/A | Plxna4 | 029765 | 115096 | 110748 |
| Actb | 029580 | 171419 | 130611 | Galnt5 | 026828 | 166729 | 131362 | Plxna4 | 029765 | 200732 | N/A |
| Actb | 029580 | 167386 | N/A | Galnt6 | 037280 | 159715 | 123848 | Plxnb1 | 053646 | 072093 | 071966 |
| Actb | 029580 | 163829 | 132135 | Galnt6 | 037280 | 052069 | 056705 | Plxnb1 | 053646 | 131462 | 115265 |
| Actb | 029580 | 106216 | 101823 | Galnt6 | 037280 | 161514 | 124793 | Plxnb1 | 053646 | 130366 | 114358 |
| Actb | 029580 | 165629 | N/A | Galntl6 | 096914 | 204128 | 145321 | Plxnb1 | 053646 | 192988 | 142431 |
| Actb | 029580 | 164765 | N/A | Galntl6 | 096914 | 204067 | 145016 | Plxnb1 | 053646 | 195364 | N/A |
| Actbl2 | 055194 | 054716 | 052086 | Galntl6 | 096914 | 204937 | N/A | Plxnb1 | 053646 | 192117 | N/A |
| Actr3b | 056367 | 128727 | 121629 | Galntl6 | 096914 | 077447 | N/A | Plxnb1 | 053646 | 194734 | N/A |
| Actr3b | 056367 | 088244 | 085578 | Galntl6 | 096914 | 146513 | 118306 | Plxnb3 | 031385 | 149478 | N/A |
| Actr3b | 056367 | 198693 | N/A | Galntl6 | 096914 | 125865 | N/A | Plxnb3 | 031385 | 146812 | N/A |
| Adam11 | 020926 | 103081 | 099370 | Galntl6 | 096914 | 203398 | 145298 | Plxnb3 | 031385 | 147127 | N/A |
| Adam11 | 020926 | 068150 | 069466 | Galntl6 | 096914 | 188531 | 139677 | Plxnb3 | 031385 | 002079 | 002079 |
| Adam11 | 020926 | 124879 | N/A | Galntl6 | 096914 | 098757 | 096353 | Plxnb3 | 031385 | 155096 | N/A |
| Adam11 | 020926 | 141563 | N/A | Galr1 | 024553 | 065224 | 066381 | Plxnc1 | 074785 | 099337 | 096939 |
| Adam11 | 020926 | 142912 | N/A | Gapdh | 057666 | 192506 | N/A | Plxnc1 | 074785 | 218839 | N/A |
| Adam11 | 020926 | 126024 | N/A | Gapdh | 057666 | 147954 | N/A | Plxnc1 | 074785 | 180514 | N/A |
| Adam11 | 020926 | 134296 | N/A | Gapdh | 057666 | 117757 | 113942 | Plxnc1 | 074785 | 181244 | 138038 |
| Adam11 | 020926 | 143269 | N/A | Gapdh | 057666 | 118875 | 113213 | Plxnc1 | 074785 | 180573 | N/A |
| Adam11 | 020926 | 135513 | N/A | Gapdh | 057666 | 183272 | 138508 | Pmepa1 | 038400 | 124124 | N/A |
| Adam12 | 054555 | 067680 | 065213 | Gapdh | 057666 | 182464 | N/A | Pmepa1 | 038400 | 139306 | 115534 |
| Adam12 | 054555 | 138363 | 114874 | Gapdh | 057666 | 144205 | N/A | Pmepa1 | 038400 | 036248 | 039950 |
| Adam12 | 054555 | 134504 | 123161 | Gapdh | 057666 | 182115 | N/A | Pmp2 | 052468 | 029034 | 029034 |
| Adam12 | 054555 | 127524 | 120094 | Gapdh | 057666 | 182052 | 138403 | Pmp22 | 018217 | 018361 | 018361 |
| Adam12 | 054555 | 206313 | N/A | Gapdh | 057666 | 182277 | 138295 | Pmp22 | 018217 | 108702 | 104342 |
| Adam12 | 054555 | 206426 | N/A | Gapdh | 057666 | 182670 | N/A | Pmp22 | 018217 | 108701 | 104341 |
| Adam12 | 054555 | 154144 | N/A | Gapdh | 057666 | 144588 | N/A | Pmp22 | 018217 | 140648 | N/A |
| Adamts10 | 024299 | 174666 | N/A | Gapdh | 057666 | 073605 | 073289 | Pmp22 | 018217 | 108700 | 104340 |
| Adamts10 | 024299 | 173972 | N/A | Garem2 | 044576 | 058045 | 054208 | Polr2a | 005198 | 058470 | 050771 |
| Adamts10 | 024299 | 174104 | N/A | Gaml3 | 038860 | 102810 | 099874 | Polr2a | 005198 | 156588 | N/A |
| Adamts10 | 024299 | 173813 | N/A | Gaml3 | 038860 | 049618 | 057582 | Polr2a | 005198 | 151586 | N/A |
| Adamts10 | 024299 | 174348 | 133856 | Gaml3 | 038860 | 137381 | 122576 | Polr2a | 005198 | 071213 | 071200 |
| Adamts10 | 024299 | 172922 | 133891 | Gaml3 | 038860 | 153717 | N/A | Pon2 | 032667 | 057792 | 062670 |
| Adamts10 | 024299 | 173013 | 134181 | Gaml3 | 038860 | 139778 | N/A | Pon2 | 032667 | 123838 | N/A |
| Adamts10 | 024299 | 173030 | 134549 | Gaml3 | 038860 | 193171 | 142077 | Pon2 | 032667 | 135342 | N/A |
| Adamts10 | 024299 | 174170 | N/A | Gaml3 | 038860 | 150242 | N/A | Pon2 | 032667 | 203882 | N/A |
| Adamts10 | 024299 | 173241 | 134298 | Gaml3 | 038860 | 135296 | N/A | Por | 005514 | 153500 | 121531 |
| Adamts10 | 024299 | 087623 | 084905 | Gaml3 | 038860 | 148043 | N/A | Por | 005514 | 150058 | N/A |
| Adamts10 | 024299 | 173931 | 133434 | Gaml3 | 038860 | 133135 | 119973 | Por | 005514 | 153515 | 121022 |
| Adamts15 | 033453 | 065112 | 067022 | Gaml3 | 038860 | 127509 | 141523 | Por | 005514 | 005651 | 005651 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adamts15 | 033453 | 217070 | N/A | Gaml3 | 038860 | 124000 | 123601 | Por | 005514 | 122113 | 112924 |
| Adamts15 | 033453 | 216215 | 150677 | Gas1 | 052957 | 065086 | 064555 | Por | 005514 | 147515 | N/A |
| Adamts16 | 049538 | 080145 | 079041 | Gas1 | 052957 | 223933 | 153311 | Por | 005514 | 127096 | 119138 |
| Adamts16 | 049538 | 123552 | 122031 | Gatm | 027199 | 028624 | 028624 | Por | 005514 | 149684 | N/A |
| Adamts16 | 049538 | 109694 | 105316 | Gatm | 027199 | 154598 | N/A | Por | 005514 | 132084 | N/A |
| Adamts16 | 049538 | 130726 | N/A | Gatm | 027199 | 140808 | N/A | Pparg | 000440 | 171644 | 131962 |
| Adamts18 | 053399 | 093113 | 090801 | Gatm | 111138 | 215775 | 150264 | Pparg | 000440 | 203732 | 145525 |
| Adamts18 | 053399 | 212665 | 148330 | Gatm | 111138 | 214872 | N/A | Pparg | 000440 | 204305 | 145083 |
| Adamts18 | 053399 | 212437 | 148288 | Gatm | 111138 | 214402 | N/A | Pparg | 000440 | 203308 | N/A |
| Adamts18 | 053399 | 213076 | N/A | Gatsl2 | 015944 | 016088 | 016088 | Pparg | 000440 | 205213 | 144975 |
| Adamts18 | 053399 | 213061 | N/A | Gatsl2 | 015944 | 201013 | N/A | Pparg | 000440 | 000450 | 000450 |
| Adamts18 | 053399 | 213078 | N/A | Gatsl2 | 015944 | 140240 | N/A | Pparg | 000440 | 203896 | N/A |
| Adamts18 | 053399 | 212527 | N/A | Gca | 026893 | 028257 | 028257 | Ppfia4 | 026458 | 168515 | 128314 |
| Adamts2 | 036545 | 040523 | 040171 | Gca | 026893 | 148083 | N/A | Ppfia4 | 026458 | 186730 | 139800 |
| Adamts2 | 036545 | 142118 | N/A | Gda | 058624 | 087600 | 084882 | Ppfia4 | 026458 | 186964 | N/A |
| Adamts2 | 036545 | 125988 | N/A | Gda | 058624 | 136258 | N/A | Ppfia4 | 026458 | 189862 | N/A |
| Adamts2 | 036545 | 127534 | N/A | Gda | 058624 | 121725 | 112758 | Ppfia4 | 026458 | 189361 | 139833 |
| Adamts6 | 046169 | 224784 | 153665 | Gdf10 | 021943 | 168727 | 128621 | Ppfia4 | 026458 | 186553 | N/A |
| Adamts6 | 046169 | 223562 | 153504 | Gfap | 020932 | 067444 | 064691 | Ppfibp1 | 016487 | 133825 | N/A |
| Adamts6 | 046169 | 224742 | 152936 | Gfap | 020932 | 127909 | N/A | Ppfibp1 | 016487 | 155415 | 121270 |
| Adamts6 | 046169 | 224208 | 153359 | Gfap | 020932 | 077902 | 077061 | Ppfibp1 | 016487 | 204028 | N/A |
| Adamts6 | 046169 | 224303 | 153431 | Gfra2 | 022103 | 022699 | 022699 | Ppfibp1 | 016487 | 136837 | 114340 |
| Adamts6 | 046169 | 224504 | 153194 | Gfra2 | 022103 | 227697 | 154391 | Ppfibp1 | 016487 | 123902 | N/A |
| Adamts6 | 046169 | 065766 | 064570 | Gfra2 | 022103 | 227633 | 153937 | Ppfibp1 | 016487 | 149203 | N/A |
| Adamts9 | 030022 | 113438 | 109065 | Ghitm | 041028 | 165649 | 129712 | Ppfibp1 | 016487 | 126774 | N/A |
| Adamts9 | 030022 | 125490 | N/A | Ghitm | 041028 | 042564 | 046212 | Ppfibp1 | 016487 | 203730 | 145088 |
| Adamts9 | 030022 | 130314 | N/A | Ghitm | 041028 | 224769 | 153458 | Ppfibp1 | 016487 | 111623 | 107250 |
| Adamts9 | 030022 | 203690 | N/A | Ghitm | 041028 | 223921 | N/A | Ppfibp1 | 016487 | 204660 | 144887 |
| Adamts9 | 030022 | 136751 | N/A | Ghr | 055737 | 069451 | 069457 | Ppfibp1 | 016487 | 154221 | 122515 |
| Adamts9 | 030022 | 167391 | 126498 | Ghr | 055737 | 161561 | 124064 | Ppfibp1 | 016487 | 016631 | 016631 |
| Adamtsl4 | 015850 | 117782 | 113424 | Ghr | 055737 | 110698 | 106326 | Ppfibp2 | 036528 | 207852 | N/A |
| Adamtsl4 | 015850 | 015994 | 015994 | Ghr | 055737 | 110697 | 106325 | Ppfibp2 | 036528 | 040056 | 042574 |
| Adamtsl4 | 015850 | 151054 | N/A | Ghr | 055737 | 161770 | 125044 | Ppfibp2 | 036528 | 208504 | N/A |
| Adamtsl4 | 015850 | 124410 | N/A | Ghr | 055737 | 160343 | N/A | Ppfibp2 | 036528 | 208956 | 146889 |
| Adamtsl4 | 015850 | 148854 | 120844 | Ghr | 055737 | 162993 | N/A | Ppfibp2 | 036528 | 098134 | 095738 |
| Adcy1 | 020431 | 020706 | 020706 | Ghr | 055737 | 159508 | N/A | Ppfibp2 | 036528 | 208159 | 147038 |
| Adcy1 | 020431 | 135398 | N/A | Glr | 055737 | 161180 | N/A | Ppm1e | 046442 | 055438 | 061278 |
| Adcyap1r1 | 029778 | 070736 | 063784 | Ghr | 055737 | 159912 | N/A | Ppm1e | 046442 | 155154 | N/A |
| Adcyap1r1 | 029778 | 070756 | 066902 | Gipc2 | 039131 | 152283 | N/A | Ppm1h | 034613 | 162853 | N/A |
| Adcyap1r1 | 029778 | 166962 | 130742 | Gipc2 | 039131 | 046614 | 037328 | Ppm1h | 034613 | 161487 | 124982 |
| Adcyap1r1 | 029778 | 167484 | 131641 | Gipc2 | 039131 | 128741 | N/A | Ppm1h | 034613 | 067918 | 066561 |
| Adcyap1r1 | 029778 | 172084 | 127319 | Gipc2 | 039131 | 130196 | N/A | Ppm1h | 034613 | 160315 | N/A |
| Adcyap1r1 | 029778 | 165857 | 129614 | Gipc2 | 039131 | 152680 | N/A | Ppm1h | 034613 | 159885 | N/A |
| Adcyap1r1 | 029778 | 167234 | 126994 | Gipc2 | 039131 | 200501 | N/A | Ppm1h | 034613 | 161065 | N/A |
| Adcyap1r1 | 029778 | 165786 | 130923 | Gipc2 | 039131 | 133672 | N/A | Ppm1h | 034613 | 161371 | N/A |
| Add2 | 030000 | 203529 | N/A | Gipc2 | 039131 | 197813 | N/A | Ppm1h | 034613 | 162969 | 124006 |
| Add2 | 030000 | 204059 | 145160 | Gipc2 | 039131 | 133102 | N/A | Ppp1r14a | 037166 | 207714 | 146684 |
| Add2 | 030000 | 203366 | 144849 | Gipr | 030406 | 094790 | 092384 | Ppp1r14a | 037166 | 048187 | 035642 |
| Add2 | 030000 | 203445 | 145494 | Gipr | 030406 | 206857 | N/A | Ppp1r16b | 037754 | 052927 | 062615 |
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| Add2 | 030000 | 203196 | 145104 | Gja1 | 050953 | 068581 | 064536 | Ppp1r16b | 037754 | 145073 | 117310 |
| Add2 | 030000 | 203786 | 144694 | Gja1 | 050953 | 218760 | N/A | Ppp1r16b | 037754 | 103116 | 099405 |
| Add2 | 030000 | 203279 | 145452 | Gja1 | 050953 | 217789 | 151596 | Ppp1r17 | 002930 | 052827 | 059708 |
| Add2 | 030000 | 032069 | 032069 | Gja1 | 050953 | 220204 | N/A | Ppp4r4 | 021209 | 021631 | 021631 |
| Adgra1 | 025475 | 026548 | 026548 | Gja1 | 050953 | 220194 | 151603 | Ppp4r4 | 021209 | 189871 | 139786 |
| Adgra1 | 025475 | 137584 | N/A | Gja1 | 050953 | 218834 | 151647 | Ppp4r4 | 021209 | 187155 | 140874 |
| Adgra1 | 025475 | 129454 | N/A | Gja1 | 050953 | 218444 | 151974 | Ppp4r4 | 021209 | 190664 | 140295 |
| Adgra3 | 029090 | 030971 | 030971 | Gja1 | 050953 | 220069 | 151620 | Ppp4r4 | 021209 | 190151 | 139815 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adgra3 | 029090 | 196177 | N/A | Gjb1 | 047797 | 119080 | 113904 | Prag1 | 050271 | 110492 | 106118 |
| Adgra3 | 029090 | 198818 | N/A | Gjb1 | 047797 | 052130 | 062723 | Prag1 | 050271 | 145386 | N/A |
| Adgra3 | 029090 | 196229 | N/A | Gjb1 | 047797 | 119190 | 113516 | Prag1 | 050271 | 150295 | N/A |
| Adgra3 | 029090 | 198868 | N/A | Gjb6 | 040055 | 039380 | 035630 | Prex1 | 039621 | 036719 | 037180 |
| Adgra3 | 029090 | 196915 | N/A | Gjb6 | 040055 | 224544 | N/A | Prex1 | 039621 | 127553 | N/A |
| Adgra3 | 029090 | 199132 | N/A | Gjb6 | 040055 | 160703 | 124927 | Prex1 | 039621 | 099080 | 096679 |
| Adgrg1 | 031785 | 211850 | N/A | Gjb6 | 040055 | 162931 | N/A | Prex1 | 039621 | 109246 | 104869 |
| Adgrg1 | 031785 | 212581 | 148742 | Gjc2 | 043448 | 108793 | 104421 | Prex1 | 039621 | 140624 | N/A |
| Adgrg1 | 031785 | 179619 | 137520 | Gjc2 | 043448 | 108790 | 104418 | Prex1 | 039621 | 152238 | N/A |
| Adgrg1 | 031785 | 212660 | 148644 | Gjc3 | 056966 | 077119 | 076367 | Prex1 | 039621 | 136564 | N/A |
| Adgrg1 | 031785 | 093271 | 090959 | Gjc3 | 056966 | 199083 | N/A | Prex1 | 039621 | 136974 | N/A |
| Adgrg1 | 031785 | 211944 | 148386 | Gjd2 | 068615 | 090275 | 087742 | Prex2 | 048960 | 027056 | 027056 |
| Adgrg1 | 031785 | 212799 | 148349 | Slc1a3 | 005360 | 005493 | 005493 | Prex2 | 048960 | 190935 | N/A |
| Adgrg1 | 031785 | 212141 | 148331 | Slc1a3 | 005360 | 125997 | N/A | Prex2 | 048960 | 189822 | N/A |
| Adgrg1 | 031785 | 212976 | 148439 | Slc1a3 | 005360 | 128879 | N/A | Prex2 | 048960 | 187694 | N/A |
| Adgrg1 | 031785 | 212995 | 148309 | Slc1a3 | 005360 | 153455 | N/A | Prex2 | 048960 | 188189 | 140621 |
| Adgrg1 | 031785 | 212956 | 148374 | Slc1a3 | 005360 | 157065 | 118902 | Prex2 | 048960 | 187745 | 140788 |
| Adgrg1 | 031785 | 212531 | 148650 | Slc1a3 | 005360 | 129325 | N/A | Prex2 | 048960 | 189385 | 140863 |
| Adgrg1 | 031785 | 211984 | 148412 | Slc1a3 | 005360 | 133309 | N/A | Prex2 | 048960 | 188154 | 140580 |
| Adgrg1 | 031785 | 212118 | 148304 | Slc1a3 | 005360 | 126747 | N/A | Prickle1 | 036158 | 048982 | 049204 |
| Adgrg1 | 031785 | 211806 | N/A | Slc1a3 | 005360 | 005493 | 005493 | Prickle1 | 036158 | 109255 | 104878 |
| Adgrg1 | 031785 | 211911 | N/A | Slc1a3 | 005360 | 125997 | N/A | Primal | 041669 | 123655 | N/A |
| Adgrv1 | 069170 | 128120 | 122358 | Slc1a3 | 005360 | 128879 | N/A | Primal | 041669 | 127843 | 114309 |
| Adgrv1 | 069170 | 095585 | 093245 | Slc1a3 | 005360 | 153455 | N/A | Primal | 041669 | 074416 | 074017 |
| Adgrv1 | 069170 | 224088 | 153419 | Slc1a3 | 005360 | 157065 | 118902 | Primal | 041669 | 156176 | 123331 |
| Adgrv1 | 069170 | 125698 | 120136 | Slc1a3 | 005360 | 129325 | N/A | Primal | 041669 | 155547 | N/A |
| Adgrv1 | 069170 | 156631 | N/A | Slc1a3 | 005360 | 133309 | N/A | Prkag3 | 006542 | 160732 | 125344 |
| Adgrv1 | 069170 | 109565 | 105193 | Slc1a3 | 005360 | 126747 | N/A | Prkag3 | 006542 | 113672 | 109302 |
| Adgrv1 | 069170 | 129725 | N/A | Gldc | 024827 | 025778 | 025778 | Prkag3 | 006542 | 081636 | 080342 |
| Adgrv1 | 069170 | 156627 | N/A | Gldn | 046167 | 056740 | 056080 | Prkag3 | 006542 | 162093 | 125242 |
| Adgrv1 | 069170 | 146141 | N/A | Gli1 | 025407 | 026474 | 026474 | Prkag3 | 006542 | 159728 | 124979 |
| Adgrv1 | 069170 | 125663 | N/A | Gli1 | 025407 | 219808 | N/A | Prkag3 | 006542 | 188073 | 139909 |
| Adgrv1 | 069170 | 126444 | 123552 | Gli1 | 025407 | 218236 | 151718 | Prkcb | 052889 | 143692 | 138788 |
| Adgrv1 | 069170 | 128585 | 121899 | Gli1 | 025407 | 219671 | 151749 | Prkcb | 052889 | 064989 | 070019 |
| Adgrv1 | 069170 | 146749 | 114579 | Gli1 | 025407 | 218451 | N/A | Prkcb | 052889 | 064921 | 064812 |
| Adgrv1 | 069170 | 132045 | N/A | Gli2 | 048402 | 062483 | 054837 | Prkcb | 052889 | 131167 | N/A |
| Adm | 030790 | 033054 | 033054 | Gli2 | 048402 | 161301 | 125342 | Prkcb | 052889 | 149583 | N/A |
| Adm | 030790 | 185766 | N/A | Gli2 | 048402 | 162552 | 125059 | Prkcb | 052889 | 205550 | N/A |
| Adora1 | 042429 | 086465 | 083656 | Gli2 | 048402 | 161056 | 124768 | Prkcb | 052889 | 127910 | N/A |
| Adora1 | 042429 | 038191 | 043522 | Gli2 | 048402 | 160991 | 125634 | Prkcb | 052889 | 206495 | N/A |
| Adora1 | 042429 | 187631 | 140801 | Gli2 | 048402 | 159839 | 125661 | Prkcd | 021948 | 112210 | 107829 |
| Adora1 | 042429 | 169927 | 132105 | Gli2 | 048402 | 161451 | 124132 | Prkcd | 021948 | 022521 | 022521 |
| Adra1a | 045875 | 159365 | 124322 | Gli2 | 048402 | 162607 | 123808 | Prkcd | 021948 | 112207 | 107826 |
| Adra1a | 045875 | 054661 | 053703 | Gli2 | 048402 | 159678 | N/A | Prkcd | 021948 | 112206 | 107825 |
| Adra1a | 045875 | 160647 | N/A | Gli3 | 021318 | 130065 | 115989 | Prkcd | 021948 | 140701 | N/A |
| Adra1a | 045875 | 225182 | 153103 | Gli3 | 021318 | 141194 | 152092 | Prkcd | 021948 | 112202 | 107821 |
| Adra1a | 045875 | 159068 | 124570 | Gli3 | 021318 | 130535 | N/A | Prkcd | 021948 | 112203 | 107822 |
| Adra1a | 045875 | 161339 | 125354 | Gli3 | 021318 | 110510 | 106137 | Prkcd | 021948 | 130736 | N/A |
| Adra1b | 050541 | 067258 | 070200 | Glipr2 | 028480 | 030202 | 030202 | Prkcd | 021948 | 135714 | N/A |
| Adra1b | 050541 | 139906 | 123435 | Glipr2 | 028480 | 107855 | 103487 | Prkcd | 021948 | 145806 | N/A |
| Adra1b | 050541 | 124306 | N/A | Glis1 | 034762 | 046005 | 035650 | Prkcd | 021948 | 112208 | N/A |
| Adra1b | 050541 | 167574 | 129200 | Glis1 | 034762 | 106738 | 102349 | Prkcd | 021948 | 227078 | N/A |
| Adra2b | 058620 | 104934 | 100539 | Glis1 | 034762 | 130573 | N/A | Prkcd | 021948 | 112211 | 107830 |
| Adra2b | 058620 | 071902 | 071798 | Glis1 | 034762 | 135835 | 118600 | Prkcg | 078816 | 203600 | N/A |
| Adrb2 | 045730 | 053640 | 062256 | Glis1 | 034762 | 138211 | N/A | Prkcg | 078816 | 100301 | 097874 |
| AF529169 | 039313 | 044491 | 046111 | Glis1 | 034762 | 125573 | N/A | Prkcg | 078816 | 172109 | 131351 |
| AF529169 | 039313 | 191465 | 140942 | Glp2r | 049928 | 021289 | 021289 | Prkcg | 078816 | 203081 | 145498 |
| Afap1 | 029094 | 064571 | 067779 | Glp2r | 049928 | 051765 | 061560 | Prkcg | 078816 | 203454 | N/A |
| Afap1 | 029094 | 146300 | N/A | Glul | 026473 | 086199 | 083375 | Prkcg | 097449 | 181455 | 137923 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Afap1 | 029094 | 141824 | 119364 | Glul | 026473 | 139476 | 114377 | Prkcg | 097449 | 181221 | 137836 |
| Afap1 | 029094 | 212374 | 148414 | Glul | 026473 | 140685 | 123157 | Prkcq | 026778 | 028118 | 028118 |
| Afap1 | 029094 | 201482 | N/A | Glul | 026473 | 153134 | N/A | Prkcq | 026778 | 114853 | N/A |
| Afap1l1 | 033032 | 154876 | 121278 | Glul | 026473 | 154576 | N/A | Prkcq | 026778 | 195207 | N/A |
| Afap1l1 | 033032 | 120472 | 113286 | Gm11549 | 085007 | 124606 | 153318 | Prkcq | 026778 | 102970 | 100035 |
| Afap1l1 | 033032 | 147278 | N/A | Gm136 | 071015 | 095129 | 092748 | Prkcq | 026778 | 192461 | N/A |
| Aff2 | 031189 | 033532 | 033532 | Gm20425 | 090639 | 166836 | 127808 | Prkcq | 026778 | 195628 | N/A |
| Aff2 | 031189 | 143097 | N/A | Gm266 | 010529 | 010673 | 010673 | Prkd3 | 024070 | 003191 | 003191 |
| Aff2 | 031189 | 151662 | N/A | Gm5083 | 089815 | 163056 | N/A | Prkd3 | 024070 | 119284 | 113395 |
| Aff2 | 031189 | 139977 | N/A | Gm5083 | 089815 | 159595 | N/A | Prkd3 | 024070 | 146917 | N/A |
| Afp | 054932 | 042755 | 041006 | Gm5089 | 064052 | 081580 | 080290 | Prkd3 | 024070 | 118768 | 113232 |
| Afp | 054932 | 200693 | 144019 | Gm5468 | 056089 | 227851 | N/A | Prkd3 | 024070 | 118991 | 112775 |
| Afp | 054932 | 201061 | N/A | Gm5468 | 056089 | 069992 | N/A | Prkd3 | 024070 | 124229 | N/A |
| Afp | 054932 | 200728 | N/A | Sox1ot | 047935 | 186174 | N/A | Prkd3 | 024070 | 130070 | N/A |
| Afp | 054932 | 202209 | N/A | Sox1ot | 047935 | 080795 | N/A | Prkd3 | 024070 | 168887 | 132004 |
| Agap1 | 055013 | 027521 | 027521 | Gm8179 | N/A | N/A | N/A | Prkg2 | 029334 | 161490 | 124963 |
| Agap1 | 055013 | 190096 | 140599 | Gna12 | 000149 | 000153 | 000153 | Prkg2 | 029334 | 162619 | 142743 |
| Agap1 | 055013 | 185417 | N/A | Gna12 | 000149 | 198447 | 143414 | Prkg2 | 029334 | 162147 | 143708 |
| Agap1 | 055013 | 074945 | 074478 | Gnal | 024524 | 025402 | 025402 | Prkg2 | 029334 | 031277 | 031277 |
| Agap1 | 055013 | 212721 | 148732 | Gnal | 024524 | 076605 | 075908 | Prkg2 | 029334 | 160765 | N/A |
| Agap1 | 055013 | 212924 | 148317 | Gnb3 | 023439 | 024206 | 024206 | Prmt8 | 030350 | 032500 | 032500 |
| Agpat3 | 001211 | 001240 | 001240 | Gnb3 | 023439 | 129251 | N/A | Procr | 027611 | 029140 | 029140 |
| Agpat3 | 001211 | 105389 | 101028 | Gnb3 | 023439 | 140233 | N/A | Procr | 027611 | 143493 | N/A |
| Agpat3 | 001211 | 105390 | 101029 | Gnb3 | 023439 | 135996 | N/A | Procr | 027611 | 155095 | N/A |
| Agpat3 | 001211 | 105388 | 101027 | Gng11 | 032766 | 031670 | 031670 | Procr | 027611 | 132608 | 114567 |
| Agpat3 | 001211 | 105387 | 101026 | Gng13 | 025739 | 172002 | 131648 | Prr5 | 036106 | 171460 | 127890 |
| Agpat3 | 001211 | 146296 | N/A | Gng13 | 025739 | 115108 | 110760 | Prr5 | 036106 | 065499 | 066396 |
| Agpat3 | 001211 | 219907 | N/A | Gng2 | 043004 | 161247 | 124725 | Prr5l | 032841 | 043845 | 042167 |
| Agpat3 | 001211 | 219932 | 151528 | Gng2 | 043004 | 162425 | 124153 | Prr5l | 032841 | 141814 | 118537 |
| Agpat3 | 001211 | 139282 | 119713 | Gng2 | 043004 | 159028 | 125141 | Prr5l | 032841 | 125985 | 122996 |
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| Agpat3 | 001211 | 138035 | 121052 | Gng2 | 043004 | 160013 | 125697 | Prr5l | 032841 | 124802 | 118502 |
| Agpat3 | 001211 | 146899 | 114657 | Gng2 | 043004 | 055100 | 055256 | Prr5l | 032841 | 144549 | 116266 |
| Agpat3 | 001211 | 166360 | 132954 | Gpc6 | 058571 | 123239 | N/A | Prr5l | 032841 | 140387 | N/A |
| Agpat4 | 023827 | 164143 | 128085 | Gpc6 | 058571 | 088483 | 085835 | Prr5l | 032841 | 127358 | N/A |
| Agpat4 | 023827 | 024594 | 024594 | Gpc6 | 058571 | 125435 | 120362 | Prr5l | 032841 | 163762 | 127530 |
| Agpat4 | 023827 | 172259 | N/A | Gpc6 | 058571 | 078849 | 077893 | Prr5l | 032841 | 171088 | 130152 |
| Agpat4 | 023827 | 167792 | 127477 | Gpcpd1 | 027346 | 127712 | N/A | Prrc1 | 024594 | 025490 | 025490 |
| Agpat4 | 023827 | 170858 | 127417 | Gpcpd1 | 027346 | 148833 | 116156 | Prrg3 | 033361 | 126362 | 118155 |
| Agpat4 | 023827 | 167905 | N/A | Gpcpd1 | 027346 | 110136 | 105763 | Prrg3 | 033361 | 048790 | 038947 |
| Agrn | 041936 | 154494 | N/A | Gpcpd1 | 027346 | 060955 | 062221 | Prrg3 | 033361 | 170096 | 128073 |
| Agrn | 041936 | 105574 | 101199 | Gpcpd1 | 027346 | 149854 | 116949 | Prrx1 | 026586 | 075805 | 075203 |
| Agrn | 041936 | 071248 | 071229 | Gpcpd1 | 027346 | 145694 | 116457 | Prrx1 | 026586 | 027878 | 027878 |
| Agrn | 041936 | 105575 | 101200 | Gpcpd1 | 027346 | 028822 | 028822 | Prrx1 | 026586 | 183691 | N/A |
| Agrn | 041936 | 181062 | N/A | Gpcpd1 | 027346 | 124632 | 117217 | Prrx1 | 026586 | 174397 | 134338 |
| Agrn | 041936 | 180572 | 137931 | Gpcpd1 | 027346 | 124107 | 122751 | Prrx1 | 026586 | 174098 | N/A |
| Agrn | 041936 | 144749 | N/A | Gpcpd1 | 027346 | 110135 | 105762 | Psd2 | 024347 | 115716 | 111381 |
| AI464131 | 046312 | 054920 | 059038 | Gpcpd1 | 027346 | 140867 | N/A | Psd2 | 024347 | 176873 | 135616 |
| AI464131 | 046312 | 149596 | 122357 | Gpcpd1 | 027346 | 131617 | N/A | Psd2 | 024347 | 177432 | 135431 |
| AI593442 | 078307 | 213937 | 149532 | Gpcpd1 | 027346 | 110142 | 105769 | Psd2 | 024347 | 176472 | 135285 |
| AI593442 | 078307 | 213843 | 149128 | Gphn | 047454 | 052472 | 054064 | Psd2 | 024347 | 175734 | 135795 |
| AI593442 | 078307 | 098768 | 096365 | Gphn | 047454 | 110388 | 106018 | Psd2 | 024347 | 175720 | N/A |
| Ak4 | 028527 | 102780 | 099841 | Gphn | 047454 | 219629 | N/A | Pstpip2 | 025429 | 114741 | 110389 |
| Ak4 | 028527 | 106946 | 102559 | Gpr135 | 043398 | 050649 | 058762 | Ptchd1 | 041552 | 038665 | 039443 |
| Ak4 | 028527 | 106945 | 102558 | Gpr153 | 042804 | 105650 | 101275 | Ptchd1 | 041552 | 170236 | 132293 |
| Ak4 | 028527 | 131397 | 115456 | Gpr153 | 042804 | 055754 | 052742 | Ptchd1 | 041552 | 141356 | N/A |
| Ak4 | 028527 | 133055 | 115454 | Gpr153 | 042804 | 144035 | N/A | Ptchd4 | 042256 | 048691 | 047640 |
| Ak4 | 028527 | 151561 | N/A | Gpr153 | 042804 | 105651 | 101276 | Pter | 026730 | 154269 | 118645 |
| Ak4 | 028527 | 155749 | 121112 | Gpr22 | 044067 | 057783 | 056125 | Pter | 026730 | 150283 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Akain1 | 091636 | 169935 | 131134 | Gpr22 | 044067 | 176710 | 134839 | Pter | 026730 | 114796 | 110444 |
| Akna | 039158 | 035724 | 041614 | Gpr22 | 044067 | 174480 | 134674 | Pter | 026730 | 134794 | 117009 |
| Akna | 039158 | 140586 | N/A | Gpr37 | 039904 | 200812 | 144683 | Pter | 026730 | 028063 | 028063 |
| Aldh1a1 | 053279 | 224807 | N/A | Gpr37 | 039904 | 054867 | 052185 | Pter | 026730 | 193742 | N/A |
| Aldh1a1 | 053279 | 225337 | 153410 | Gpr37l1 | 026424 | 027682 | 027682 | Pter | 026730 | 195521 | N/A |
| Aldh1a1 | 053279 | 224358 | N/A | Gpr63 | 040372 | 151006 | N/A | Ptgfrn | 027864 | 102694 | 099755 |
| Aldh1a1 | 053279 | 225313 | 153011 | Gpr63 | 040372 | 038920 | 039312 | Ptgfrn | 027864 | 198037 | N/A |
| Aldh1a1 | 053279 | 225249 | N/A | Gprasp2 | 072966 | 134986 | N/A | Ptgfrn | 027864 | 200065 | N/A |
| Aldh1a1 | 053279 | 087638 | 084918 | Gprasp2 | 072966 | 113136 | 108761 | Ptk2b | 059456 | 022622 | 022622 |
| Aldh1a1 | 053279 | 224807 | N/A | Gprasp2 | 072966 | 150797 | N/A | Ptk2b | 059456 | 154865 | 122683 |
| Aldh1a1 | 053279 | 225337 | 153410 | Gprasp2 | 072966 | 132798 | N/A | Ptk2b | 059456 | 089250 | 086661 |
| Aldh1a1 | 053279 | 224358 | N/A | Gprasp2 | 072966 | 141953 | N/A | Ptk2b | 059456 | 136216 | N/A |
| Aldh1a1 | 053279 | 225313 | 153011 | Gprasp2 | 072966 | 142034 | N/A | Ptk2b | 059456 | 111121 | 106750 |
| Aldh1a1 | 053279 | 225249 | N/A | Gprasp2 | 072966 | 137392 | N/A | Ptk2b | 059456 | 148104 | N/A |
| Aldh1a1 | 053279 | 087638 | 084918 | Gprasp2 | 072966 | 130034 | N/A | Ptk2b | 059456 | 127083 | N/A |
| Aldh1l1 | 030088 | 127199 | N/A | Gprasp2 | 072966 | 148658 | N/A | Ptk2b | 059456 | 178730 | 137008 |
| Aldh1l1 | 030088 | 130418 | 114304 | Gprasp2 | 072966 | 138251 | N/A | Ptn | 029838 | 101534 | 099073 |
| Aldh1l1 | 030088 | 032175 | 032175 | Gprasp2 | 072966 | 173804 | 134666 | Ptn | 029838 | 201321 | 144184 |
| Aldh1l1 | 030088 | 203111 | 145233 | Gprc5c | 051043 | 133245 | 121572 | Ptpn14 | 026604 | 097442 | 095051 |
| Aldh1l1 | 030088 | 204796 | 145380 | Gprc5c | 051043 | 122967 | 114335 | Ptpn14 | 026604 | 194127 | N/A |
| Aldh1l1 | 030088 | 152436 | N/A | Gprc5c | 051043 | 053361 | 061760 | Ptpn14 | 026604 | 128275 | N/A |
| Aldh1l1 | 030088 | 137669 | N/A | Gprc5c | 051043 | 021071 | 021071 | Ptpn14 | 026604 | 027898 | 027898 |
| Aldh1l2 | 020256 | 020497 | 020497 | Gprc5c | 051043 | 136785 | 116786 | Ptpn14 | 026604 | 195038 | N/A |
| Aldh1l2 | 020256 | 146640 | 117076 | Gprc5c | 051043 | 142262 | 121524 | Ptpn14 | 026604 | 148129 | N/A |
| Aldh1l2 | 020256 | 147381 | N/A | Gprc5c | 051043 | 152314 | 118667 | Ptpn22 | 027843 | 146071 | 122307 |
| Aldh1l2 | 020256 | 141184 | N/A | Gprc5c | 051043 | 177952 | 136702 | Ptpn22 | 027843 | 029433 | 029433 |
| Aldh1l2 | 020256 | 138858 | N/A | Gpx2 | 042808 | 221421 | N/A | Ptpn22 | 027843 | 198530 | N/A |
| Aldh1l2 | 020256 | 143793 | N/A | Gpx2 | 042808 | 220569 | N/A | Ptpn22 | 027843 | 197997 | N/A |
| Aldh1l2 | 020256 | 125193 | N/A | Gpx2 | 042808 | 082431 | 081012 | Ptpn22 | 027843 | 196385 | N/A |
| Aldoc | 017390 | 102478 | 099536 | Grand3 | 001700 | 070166 | 068453 | Ptpn22 | 027843 | 198701 | N/A |
| Aldoc | 017390 | 128032 | N/A | Grb14 | 026888 | 134020 | N/A | Ptpn22 | 027843 | 134373 | N/A |
| Aldoc | 017390 | 124090 | N/A | Grb14 | 026888 | 149193 | 118115 | Ptpn22 | 027843 | 126548 | N/A |
| Aldoc | 017390 | 156039 | N/A | Grb14 | 026888 | 150643 | 121571 | Ptpn5 | 030854 | 102626 | 099686 |
| Aldoc | 017390 | 148689 | N/A | Grb14 | 026888 | 028252 | 028252 | Ptpn5 | 030854 | 209161 | N/A |
| Aldoc | 017390 | 017534 | 017534 | Grb14 | 026888 | 137085 | N/A | Ptpn5 | 030854 | 033142 | 033142 |
| Als2 | 026024 | 027178 | 027178 | Grb14 | 026888 | 156765 | 121001 | Ptpn5 | 030854 | 208324 | N/A |
| Als2 | 026024 | 163058 | 125753 | Grb14 | 026888 | 145603 | N/A | Ptpn5 | 030854 | 208531 | N/A |
| Als2 | 026024 | 159166 | N/A | Grb14 | 026888 | 146807 | N/A | Ptpn5 | 030854 | 207172 | N/A |
| Als2 | 026024 | 160945 | 140990 | Greb1l | 042942 | 173356 | N/A | Ptpn5 | 030854 | 208437 | N/A |
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| Amz1 | 050022 | 126975 | N/A | Greb1l | 042942 | 172532 | 134090 | Ptpn5 | 030854 | 209184 | N/A |
| Amz1 | 050022 | 060918 | 053110 | Greb1l | 042942 | 224958 | N/A | Ptpn5 | 030854 | 207344 | N/A |
| Amz1 | 050022 | 177057 | N/A | Greb1l | 042942 | 174553 | N/A | Ptpn5 | 030854 | 209057 | N/A |
| Amz1 | 050022 | 120630 | 113911 | Greb1l | 042942 | 172680 | 134314 | Ptprk | 019889 | 166468 | 126279 |
| Amz1 | 050022 | 156006 | N/A | Greb1l | 042942 | 173261 | N/A | Ptprk | 019889 | 218359 | 151986 |
| Amz1 | 050022 | 155644 | N/A | Grhl1 | 020656 | 085553 | 082689 | Ptprk | 019889 | 218276 | 151866 |
| Amz1 | 050022 | 176035 | 135504 | Grhl1 | 020656 | 221426 | N/A | Ptprk | 019889 | 219478 | N/A |
| Angpt1 | 022309 | 022921 | 022921 | Grhl1 | 020656 | 223442 | N/A | Ptprk | 019889 | 218633 | N/A |
| Angpt1 | 022309 | 227738 | N/A | Grhl1 | 020656 | 020985 | 020985 | Ptprk | 019889 | 219107 | N/A |
| Angptl3 | 028553 | 030280 | 030280 | Gria1 | 020524 | 125292 | 133439 | Ptprk | 019889 | 218584 | N/A |
| Angptl3 | 028553 | 136091 | N/A | Gria1 | 020524 | 036315 | 044494 | Ptprk | 019889 | 219761 | N/A |
| Angptl3 | 028553 | 125546 | N/A | Gria1 | 020524 | 094179 | 091731 | Ptprk | 019889 | 219621 | 151294 |
| Ankrd33b | 022237 | 123325 | 118984 | Gria1 | 020524 | 151045 | 117746 | Ptprk | 019889 | 220357 | 151493 |
| Ankrd33b | 022237 | 156679 | 117974 | Gria1 | 020524 | 173531 | N/A | Ptprk | 019889 | 220404 | N/A |
| Ankrd33b | 022237 | 044324 | 037918 | Gria3 | 001986 | 128197 | N/A | Ptprn | 033278 | 037974 | 045603 |
| Ankrd33b | 022237 | 110410 | 106040 | Gria3 | 001986 | 115103 | 110755 | Ptprn | 033278 | 223982 | 153662 |
| Ankrd33b | 022237 | 227867 | N/A | Gria3 | 001986 | 076349 | 075687 | Ptprn | 033278 | 225074 | N/A |
| Ankrd33b | 022237 | 076942 | 076209 | Gria3 | 001986 | 156721 | N/A | Ptprn | 033278 | 224091 | 153463 |
| Ankrd33b | 022237 | 227391 | N/A | Gria3 | 001986 | 139965 | 116381 | Ptprn | 033278 | 225554 | 153042 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Anln | 036777 | 040912 | 045873 | Gria3 | 001986 | 148212 | N/A | Ptprm | 033278 | 225688 | N/A |
| Anln | 036777 | 215006 | 149721 | Gria3 | 001986 | 124169 | 117766 | Ptprm | 033278 | 224862 | 153179 |
| Anln | 036777 | 217010 | N/A | Gria3 | 001986 | 126843 | N/A | Ptpro | 030223 | 203010 | N/A |
| Anln | 036777 | 216897 | N/A | Gria3 | 001986 | 165288 | 131523 | Ptpro | 030223 | 167679 | 127112 |
| Anln | 036777 | 216793 | 149740 | Grid1 | 041078 | 043349 | 044009 | Ptpro | 030223 | 077115 | 076364 |
| Anln | 036777 | 215486 | N/A | Grid1 | 041078 | 227253 | N/A | Ptpro | 030223 | 167002 | 131764 |
| Ano4 | 035189 | 182462 | 138440 | Grid1 | 041078 | 173307 | N/A | Ptpro | 030223 | 203914 | 144870 |
| Ano4 | 035189 | 182341 | 138193 | Grid2 | 071424 | 159319 | N/A | Ptpro | 030223 | 204780 | N/A |
| Ano4 | 035189 | 182613 | 138268 | Grid2 | 071424 | 159561 | N/A | Ptpro | 030223 | 203255 | N/A |
| Ano4 | 035189 | 182790 | 138325 | Grid2 | 071424 | 095852 | 093536 | Ptpro | 030223 | 203127 | N/A |
| Ano4 | 035189 | 182598 | 138174 | Grid2 | 071424 | 160408 | N/A | Ptprr | 020151 | 063470 | 064392 |
| Ano4 | 035189 | 182888 | N/A | Grid2 | 071424 | 161105 | N/A | Ptprr | 020151 | 142617 | N/A |
| Ano4 | 035189 | 182041 | N/A | Grid2 | 071424 | 162968 | N/A | Ptprr | 020151 | 105271 | 100907 |
| Ano4 | 035189 | 182419 | 138435 | Grid2 | 071424 | 210324 | 147707 | Ptprr | 020151 | 148731 | 120965 |
| Ano4 | 035189 | 183268 | 138627 | Grid2ip | 010825 | 110733 | 106361 | Ptprr | 020151 | 155606 | 122259 |
| Ano4 | 035189 | 181976 | 138792 | Grid2ip | 010825 | 010969 | 010969 | Ptprr | 020151 | 128399 | 114455 |
| Ano4 | 035189 | 182624 | 138525 | Grid2ip | 010825 | 120825 | 113443 | Ptprr | 020151 | 124369 | N/A |
| Ano4 | 035189 | 180843 | N/A | Grid2ip | 010825 | 196148 | N/A | Ptprt | 053141 | 109445 | 105071 |
| Ano6 | 064210 | 071874 | 071770 | Grid2ip | 010825 | 138948 | N/A | Ptprt | 053141 | 109443 | 105069 |
| Ano6 | 064210 | 226936 | N/A | Grik1 | 022935 | 228188 | 154130 | Ptprt | 053141 | 109442 | 105068 |
| Ano6 | 064210 | 227791 | 153954 | Grik1 | 022935 | 023652 | 023652 | Ptprt | 053141 | 109441 | 105067 |
| Ano6 | 064210 | 226682 | N/A | Grik1 | 022935 | 072256 | 072107 | Ptprt | 053141 | 153770 | N/A |
| Ano6 | 064210 | 227151 | 153853 | Grik1 | 022935 | 227986 | 153786 | Ptprt | 053141 | 129015 | N/A |
| Ano6 | 064210 | 226932 | N/A | Grik1 | 022935 | 228034 | 154596 | Ptprz1 | 068748 | 090568 | 088056 |
| Ano6 | 064210 | 226793 | 154532 | Grik1 | 022935 | 211444 | 147948 | Ptprz1 | 068748 | 202579 | 144605 |
| Ano6 | 064210 | 226761 | N/A | Grik1 | 022935 | 210700 | N/A | Ptprz1 | 068748 | 202102 | 143902 |
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| Aox1 | 063558 | 160168 | N/A | Grik1 | 022935 | 226447 | N/A | Ptprz1 | 068748 | 201827 | N/A |
| Apba2 | 030519 | 032732 | 032732 | Grik1 | 022935 | 210910 | N/A | Ptprz1 | 068748 | 200769 | N/A |
| Apba2 | 030519 | 205613 | 146269 | Grik1 | 022935 | 114137 | 109773 | Pttg1 | 020415 | 020687 | 020687 |
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| Apba2 | 030519 | 206246 | 146038 | Grik2 | 056073 | 217673 | N/A | Pttg1 | 020415 | 140434 | 122019 |
| Apba2 | 030519 | 205551 | N/A | Grik2 | 056073 | 218598 | 151389 | Pttg1 | 020415 | 101340 | 098894 |
| Apba2 | 030519 | 206061 | N/A | Grik2 | 056073 | 219509 | 151982 | Pttg1 | 020415 | 118368 | 112834 |
| Apba2 | 030519 | 206630 | 146108 | Grik2 | 056073 | 218441 | 151671 | Pttg1 | 020415 | 121638 | 112815 |
| Apbb2 | 029207 | 162955 | N/A | Grik2 | 056073 | 220330 | N/A | Pttg1 | 020415 | 152115 | 119554 |
| Apbb2 | 029207 | 162366 | 125116 | Grik2 | 056073 | 219051 | N/A | Pttg1 | 020415 | 020685 | 020685 |
| Apbb2 | 029207 | 160870 | 123978 | Grik2 | 056073 | 218669 | 152029 | Pttg1 | 020415 | 150726 | N/A |
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| Apbb2 | 029207 | 159786 | 125211 | Grik2 | 056073 | 079751 | 078687 | Purb | 094483 | 179343 | 136957 |
| Apbb2 | 029207 | 201776 | N/A | Grik2 | 056073 | 105484 | 101124 | Pvalb | 005716 | 005860 | 005860 |
| Apbb2 | 029207 | 160775 | N/A | Grik3 | 001985 | 030676 | 030676 | Pvalb | 005716 | 120592 | 112598 |
| Apbb2 | 029207 | 162349 | 123752 | Grin2a | 059003 | 199708 | 142900 | Pxdc1 | 021411 | 053459 | 051246 |
| Apbb2 | 029207 | 160063 | 123778 | Grin2a | 059003 | 115835 | 111501 | Pxdc1 | 021411 | 021847 | 021847 |
| Apbb2 | 029207 | 161771 | N/A | Grin2a | 059003 | 199267 | N/A | Pxdc1 | 021411 | 125037 | 117791 |
| Apbb2 | 029207 | 162401 | N/A | Grin2a | 059003 | 156482 | N/A | Pxdc1 | 021411 | 152392 | N/A |
| Apbb2 | 029207 | 160185 | N/A | Grin2a | 059003 | 197242 | N/A | Pxdn | 020674 | 220271 | 151320 |
| Apbb2 | 029207 | 162382 | 124139 | Grin2a | 059003 | 032331 | 032331 | Pxdn | 020674 | 122328 | 113703 |
| Apbb2 | 029207 | 161879 | 125550 | Grin2b | 030209 | 053880 | 062284 | Pxdn | 020674 | 118321 | 113477 |
| Apbb2 | 029207 | 160103 | 123766 | Grin2b | 030209 | 152012 | 142696 | Pxdn | 020674 | 155318 | N/A |
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| Apbb2 | 029207 | 161716 | 124350 | Grin2b | 030209 | 125905 | 139706 | Pxdn | 020674 | 137316 | N/A |
| Apbb2 | 029207 | 161936 | N/A | Grin2b | 030209 | 198283 | N/A | Pxdn | 020674 | 218620 | N/A |
| Apbb2 | 029207 | 159847 | N/A | Grin2b | 030209 | 111905 | 107536 | Pxk | 033885 | 036682 | 035265 |
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| Apcdd1 | 071847 | 096554 | 094302 | Grin2c | 020734 | 106554 | 102164 | Pxk | 033885 | 225616 | N/A |
| Apcdd1 | 071847 | 163716 | 125868 | Grin2d | 002771 | 002848 | 002848 | Pxk | 033885 | 225653 | 152987 |
| Aplp1 | 006651 | 006828 | 006828 | Grin2d | 002771 | 211713 | 147663 | Pxk | 033885 | 224462 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aplp1 | 006651 | 208792 | N/A | Grin2d | 002771 | 211250 | 147506 | Pxk | 033885 | 112689 | 108309 |
| Aplp1 | 006651 | 208404 | N/A | Grip1 | 034813 | 077871 | 077033 | Pxylp1 | 043587 | 112951 | 108574 |
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| Aplp1 | 006651 | 209054 | N/A | Grip1 | 034813 | 147356 | 115478 | Pxylp1 | 043587 | 120101 | 113210 |
| Apod | 022548 | 130560 | 119827 | Grip1 | 034813 | 105262 | 100897 | Pxylp1 | 043587 | 119141 | 113489 |
| Apod | 022548 | 115230 | 110885 | Grip1 | 034813 | 147454 | 118073 | Pxylp1 | 043587 | 126411 | 121537 |
| Apod | 022548 | 023207 | N/A | Grip1 | 034813 | 147598 | N/A | Pxylp1 | 043587 | 121077 | 113059 |
| Apod | 022548 | 156456 | N/A | Grip1 | 034813 | 138410 | 123234 | Pxylp1 | 043587 | 135834 | N/A |
| Apod | 022548 | 155682 | N/A | Grip1 | 034813 | 144825 | 121670 | Pxylp1 | 043587 | 154146 | 114946 |
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| Appl2 | 020263 | 020500 | 020500 | Grip1 | 034813 | 144959 | 122323 | Pxylp1 | 043587 | 124923 | 120377 |
| Appl2 | 020263 | 177187 | 135157 | Grip1 | 034813 | 139352 | N/A | Pxylp1 | 043587 | 141127 | N/A |
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| Appl2 | 020263 | 130285 | N/A | Grip1 | 034813 | 105261 | 100896 | Pyroxd2 | 060224 | 076505 | 075825 |
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| Appl2 | 020263 | 147582 | N/A | Grip1 | 034813 | 081260 | 080016 | Qdpr | 015806 | 197946 | 143584 |
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| Appl2 | 020263 | 147118 | N/A | Grk4 | 052783 | 148588 | 122826 | Qdpr | 015806 | 118097 | 113958 |
| Appl2 | 020263 | 146876 | 121336 | Grk4 | 052783 | 153323 | N/A | Qdpr | 015806 | 015950 | 015950 |
| Appl2 | 020263 | 150685 | 115903 | Grk4 | 052783 | 134217 | N/A | Qdpr | 015806 | 200259 | N/A |
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| Appl2 | 020263 | 176294 | 135645 | Grm1 | 019828 | 044306 | 037255 | Qdpr | 015806 | 154962 | 122081 |
| Aqp4 | 024411 | 079081 | 078088 | Grm1 | 019828 | 135120 | N/A | Qdpr | 015806 | 127562 | 115453 |
| Aqp7 | 028427 | 030136 | 030136 | Grm1 | 019828 | 155772 | N/A | Qk | 062078 | 042296 | 046740 |
| Aqp7 | 028427 | 054945 | 093007 | Grm1 | 019828 | 156826 | N/A | Qk | 062078 | 097414 | 095025 |
| Aqp7 | 028427 | 144201 | N/A | Grm1 | 019828 | 105560 | 101189 | Rab11fip1 | 031488 | 054212 | 058042 |
| Aqp7 | 028427 | 149517 | N/A | Grm5 | 049583 | 208791 | N/A | Rab11fip1 | 031488 | 033878 | 033878 |
| Ar | 046532 | 052837 | 052648 | Grm5 | 049583 | 208878 | N/A | Rab11fip1 | 031488 | 209377 | 147543 |
| Arhgap10 | 037148 | 076316 | 075658 | Grm5 | 049583 | 125009 | 118393 | Rab11fip1 | 031488 | 210187 | N/A |
| Arhgap10 | 037148 | 210922 | 147485 | Grm5 | 049583 | 208776 | N/A | Rab11fip1 | 031488 | 210919 | N/A |
| Arhgap10 | 037148 | 210519 | 147493 | Grm5 | 049583 | 155358 | 114927 | Rab11fip1 | 031488 | 211646 | N/A |
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| Arhgap20 | 053199 | 146509 | N/A | Grm8 | 024211 | 115323 | 110978 | Rab15 | 021062 | 134124 | N/A |
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| Arhgap20 | 053199 | 126567 | N/A | Grm8 | 024211 | 131897 | 120394 | Rab27a | 032202 | 034722 | 034722 |
| Arhgap20 | 053199 | 149754 | N/A | Grm8 | 024211 | 146727 | N/A | Rab27a | 032202 | 184575 | N/A |
| Arhgap22 | 063506 | 165792 | 153801 | Grm8 | 024211 | 132755 | 118098 | Rab27a | 032202 | 184032 | N/A |
| Arhgap22 | 063506 | 111956 | 107587 | Grm8 | 024211 | 202861 | N/A | Rab27b | 024511 | 121693 | 114094 |
| Arhgap22 | 063506 | 131086 | 154002 | Grm8 | 024211 | 115324 | 110979 | Rab27b | 024511 | 127217 | N/A |
| Arhgap22 | 063506 | 137590 | N/A | Gsap | 039934 | 197522 | N/A | Rab27b | 024511 | 117692 | 112807 |
| Arhgap22 | 063506 | 111955 | 107586 | Gsap | 039934 | 198014 | 143739 | Rab27b | 024511 | 069749 | 068349 |
| Arhgap22 | 063506 | 140711 | 154670 | Gsap | 039934 | 036031 | 043679 | Rab31 | 056515 | 070673 | 068195 |
| Arhgap22 | 063506 | 140166 | N/A | Gsap | 039934 | 197404 | N/A | Rab3a | 031840 | 110093 | 105720 |
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| Arhgap23 | 049807 | 121799 | 112999 | Gsap | 039934 | 195969 | 142560 | Rab3a | 031840 | 034301 | 034301 |
| Arhgap23 | 049807 | 152933 | N/A | Gsap | 039934 | 198937 | 142986 | Rab3a | 031840 | 110090 | 105717 |
| Arhgap23 | 049807 | 142465 | 123191 | Gsap | 039934 | 196035 | N/A | Rab3a | 031840 | 110092 | 105719 |
| Arhgap23 | 049807 | 093940 | 091472 | Gsap | 039934 | 198930 | 142596 | Rab3a | 031840 | 130468 | N/A |
| Arhgap23 | 049807 | 107601 | 103227 | Gsap | 039934 | 199553 | N/A | Rab3a | 111277 | 217185 | 150125 |
| Arhgap24 | 057315 | 094559 | 092138 | Gsn | 026879 | 201185 | 144561 | Rab3b | 003411 | 106650 | 102261 |
| Arhgap24 | 057315 | 126125 | N/A | Gsn | 026879 | 202990 | 144296 | Rab3b | 003411 | 106651 | 102262 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Arhgap24 | 057315 | 112854 | 108475 | Gsn | 026879 | 202899 | 144470 | Rab3b | 003411 | 003502 | 003502 |
| Arhgap24 | 057315 | 112853 | 108474 | Gsn | 026879 | 142324 | 118120 | Rab3b | 003411 | 157062 | N/A |
| Arhgap24 | 057315 | 112852 | 108473 | Gsn | 026879 | 139867 | 144217 | Rab3c | 021700 | 167824 | 132945 |
| Arhgap24 | 057315 | 130222 | N/A | Gsn | 026879 | 028239 | 028239 | Rab3c | 021700 | 223922 | 153347 |
| Arhgap24 | 057315 | 070000 | 070048 | Gsn | 026879 | 124323 | N/A | Rab3c | 021700 | 224180 | 153136 |
| Arhgap24 | 057315 | 073302 | 073028 | Gstm1 | 058135 | 004140 | 004140 | Rab3c | 021700 | 224287 | N/A |
| Arhgap25 | 030047 | 145128 | N/A | Gstm1 | 058135 | 198532 | N/A | Rab3c | 021700 | 226040 | N/A |
| Arhgap25 | 030047 | 113637 | 109267 | Gstm1 | 058135 | 153314 | 123481 | Rai2 | 043518 | 112338 | 107957 |
| Arhgap25 | 030047 | 101197 | 098758 | Gstm1 | 058135 | 126593 | 118874 | Rai2 | 043518 | 061514 | 051618 |
| Arhgap25 | 030047 | 071024 | 068964 | Gsx1 | 053129 | 065382 | 069728 | Ralgps2 | 026594 | 172057 | 132533 |
| Arhgap25 | 030047 | 203559 | N/A | Gtf2a1l | 024154 | 024970 | 024970 | Ralgps2 | 026594 | 027886 | 027886 |
| Arhgef10l | 040964 | 069623 | 066249 | Gtf2a1l | 024154 | 161481 | 124286 | Ralgps2 | 026594 | 192343 | 142004 |
| Arhgef10l | 040964 | 097820 | 095431 | Gucy1a3 | 033910 | 193924 | 142138 | Ralgps2 | 026594 | 171292 | 130581 |
| Arhgef10l | 040964 | 105799 | 101425 | Gucy1a3 | 033910 | 048976 | 048918 | Ralgps2 | 026594 | 063199 | 063872 |
| Arhgef10l | 040964 | 105798 | 101424 | Gucy1a3 | 033910 | 192289 | 141478 | Ralgps2 | 026594 | 191605 | 139645 |
| Arhgef10l | 040964 | 105797 | 101423 | Gucy1a3 | 033910 | 191942 | N/A | Ralgps2 | 026594 | 189208 | N/A |
| Arhgef10l | 040964 | 138493 | 119471 | Gucy1a3 | 033910 | 194788 | N/A | Ralgps2 | 026594 | 185198 | 139618 |
| Arhgef10l | 040964 | 039204 | 040531 | N/A | N/A | N/A | N/A | Ralgps2 | 026594 | 189316 | 140230 |
| Arhgef10l | 040964 | 154979 | 122667 | Hapln2 | 004894 | 160737 | N/A | Ralgps2 | 026594 | 190648 | 140055 |
| Arhgef10l | 040964 | 147426 | 123642 | Hapln2 | 004894 | 005014 | 005014 | Ralgps2 | 026594 | 188656 | 140342 |
| Arhgef10l | 040964 | 140403 | 117038 | Hapln2 | 004894 | 162352 | N/A | Ralgps2 | 026594 | 191503 | N/A |
| Arhgef10l | 040964 | 125045 | N/A | Hapln2 | 004894 | 160150 | 125271 | Ralgps2 | 026594 | 185970 | N/A |
| Arhgef10l | 040964 | 143614 | 120437 | Has2 | 022367 | 050544 | 062212 | Ralgps2 | 026594 | 190762 | 139822 |
| Arhgef2 | 028059 | 212392 | N/A | Hcn1 | 021730 | 207599 | N/A | Ralgps2 | 026594 | 189648 | 140108 |
| Arhgef2 | 028059 | 176226 | N/A | Hcn1 | 021730 | 006991 | 006991 | Raly1 | 039717 | 191806 | 148406 |
| Arhgef2 | 028059 | 175749 | N/A | Hcn2 | 020331 | 099513 | 097113 | Raly1 | 039717 | 193117 | 148795 |
| Arhgef2 | 028059 | 175903 | 135168 | Hcn2 | 020331 | 020581 | 020581 | Raly1 | 039717 | 211860 | 148430 |
| Arhgef2 | 028059 | 176514 | N/A | Hdac8 | 067567 | 087916 | 085226 | Raly1 | 039717 | 192209 | 142094 |
| Arhgef2 | 028059 | 177023 | 134859 | Hdac8 | 067567 | 154872 | 138805 | Raly1 | 039717 | 171075 | 125848 |
| Arhgef2 | 028059 | 176539 | 135612 | Hdac8 | 067567 | 148481 | N/A | Raly1 | 039717 | 108372 | 104009 |
| Arhgef2 | 028059 | 177498 | 134840 | Hdac8 | 067567 | 137785 | N/A | Raly1 | 039717 | 108373 | 148751 |
| Arhgef2 | 028059 | 176500 | 134834 | Hdac8 | 067567 | 154024 | N/A | Ramp2 | 001240 | 129680 | 122072 |
| Arhgef2 | 028059 | 175779 | 135177 | Hebp1 | 042770 | 045855 | 042232 | Ramp2 | 001240 | 149006 | N/A |
| Arhgef2 | 028059 | 029694 | 029694 | Hebp1 | 042770 | 204000 | N/A | Ramp2 | 001240 | 128260 | 127718 |
| Arhgef2 | 028059 | 176804 | 135397 | Hebp1 | 042770 | 204730 | N/A | Ramp2 | 001240 | 122006 | 114061 |
| Arhgef2 | 028059 | 177418 | N/A | Hebp1 | 042770 | 205232 | N/A | Ramp2 | 001240 | 149585 | 116331 |
| Arhgef2 | 028059 | 107510 | 103134 | Heg1 | 075254 | 152832 | N/A | Ramp2 | 001240 | 151830 | 123150 |
| Arhgef2 | 028059 | 170653 | 127843 | Heg1 | 075254 | 152782 | 123686 | Ramp2 | 001240 | 138229 | N/A |
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| Arhgef2 | 028059 | 176400 | N/A | Heg1 | 075254 | 128105 | N/A | Rapgef3 | 022469 | 126854 | 116426 |
| Arhgef2 | 028059 | 177303 | 135131 | Heg1 | 075254 | 146518 | N/A | Rapgef3 | 022469 | 129223 | 118148 |
| Arhgef2 | 028059 | 176307 | 134843 | Heg1 | 075254 | 126532 | 119790 | Rapgef3 | 022469 | 128775 | 120126 |
| Arhgef2 | 028059 | 175911 | 135428 | Heg1 | 075254 | 154863 | N/A | Rapgef3 | 022469 | 177352 | 135238 |
| Arhgef2 | 028059 | 176243 | 135771 | Hepacam | 046240 | 051839 | 054105 | Rapgef3 | 022469 | 134885 | 135317 |
| Arhgef2 | 028059 | 176316 | 135808 | Hepacam | 046240 | 215951 | 150856 | Rapgef3 | 022469 | 175894 | 135194 |
| Arhgef2 | 028059 | 177120 | N/A | Hes3 | 028946 | 094438 | 092006 | Rapgef3 | 022469 | 125002 | N/A |
| Arhgef2 | 028059 | 176879 | 134766 | Hes3 | 028946 | 218045 | 151815 | Rapgef3 | 022469 | 123397 | N/A |
| Arhgef2 | 028059 | 175745 | 135044 | Hhatl | 032523 | 035110 | 035110 | Rapgef3 | 022469 | 155810 | N/A |
| Arhgef2 | 028059 | 176528 | N/A | Hhatl | 032523 | 163981 | 131971 | Rapgef3 | 022469 | 146214 | N/A |
| Arhgef2 | 028059 | 176079 | N/A | Hhatl | 032523 | 214768 | 149486 | Rapgef3 | 022469 | 134371 | 122746 |
| Arhgef2 | 028059 | 176123 | N/A | Hhatl | 032523 | 215910 | 149350 | Rapgef3 | 022469 | 153241 | N/A |
| Arhgef2 | 028059 | 177091 | N/A | Hhatl | 032523 | 215477 | 150866 | Rapgef3 | 022469 | 149419 | 122285 |
| Arhgef2 | 028059 | 176301 | N/A | Hhatl | 032523 | 217652 | 150721 | Rapgef3 | 022469 | 153464 | N/A |
| Arhgef2 | 028059 | 177099 | N/A | Hif3a | 004328 | 108492 | 104132 | Rapgef3 | 022469 | 146620 | 116673 |
| Arhgef2 | 028059 | 176272 | N/A | Hif3a | 004328 | 037762 | 048248 | Rapgef3 | 022469 | 142196 | N/A |
| Arhgef26 | 036885 | 079300 | 078281 | Hif3a | 004328 | 139224 | 146258 | Rapgef3 | 022469 | 135080 | 117337 |
| Arhgef26 | 036885 | 163008 | N/A | Hif3a | 004328 | 153833 | 117728 | Rapgef4 | 049044 | 090826 | 088336 |
| Arhgef26 | 036885 | 161493 | N/A | Hip1 | 039959 | 060311 | 059033 | Rapgef4 | 049044 | 150234 | N/A |
| Arhgef26 | 036885 | 159746 | N/A | Hip1 | 039959 | 202643 | 144086 | Rapgef4 | 049044 | 102698 | 099759 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Arhgef26 | 036885 | 161057 | 124392 | Hip1 | 039959 | 201479 | N/A | Rapgef4 | 049044 | 151236 | N/A |
| Arhgef26 | 036885 | 192138 | N/A | Hip1 | 039959 | 200808 | 144429 | Rapgef4 | 049044 | 028525 | 028525 |
| Arhgef28 | 021662 | 109426 | 105053 | Hip1 | 039959 | 200898 | N/A | Rapgef4 | 049044 | 153887 | N/A |
| Arhgef28 | 021662 | 225884 | 153423 | Hip1 | 039959 | 212301 | 148842 | Rapgef4 | 049044 | 149421 | N/A |
| Arhgef28 | 021662 | 225663 | N/A | Hip1 | 039959 | 202236 | N/A | Rapgef4 | 049044 | 124004 | N/A |
| Arhgef28 | 021662 | 225269 | N/A | Hip1 | 039959 | 201998 | 144392 | Rapgef4 | 049044 | 122975 | N/A |
| Arhgef28 | 021662 | 223849 | 153000 | Hip1 | 039959 | 202095 | N/A | Rapgef4 | 049044 | 156031 | N/A |
| Arhgef28 | 021662 | 224926 | N/A | Hip1 | 039959 | 202044 | N/A | Rapgef4 | 049044 | 146970 | N/A |
| Arhgef28 | 021662 | 224866 | 153114 | Hip1r | 000915 | 000939 | 000939 | Ratb | 017491 | 063750 | 067694 |
| Arhgef33 | 054901 | 223878 | 153224 | Hip1r | 000915 | 167879 | 127361 | Ratb | 017491 | 225921 | 152980 |
| Arhgef33 | 054901 | 224391 | 153551 | Hip1r | 000915 | 166258 | 130766 | Ratb | 017491 | 223576 | 153098 |
| Arhgef33 | 054901 | 225018 | N/A | Hip1r | 000915 | 171407 | N/A | Ratb | 017491 | 225594 | 153178 |
| Arhgef33 | 054901 | 224631 | N/A | Hip1r | 000915 | 198664 | 143309 | Ratb | 017491 | 223976 | 153519 |
| Arhgef33 | 054901 | 224676 | N/A | Hip1r | 000915 | 167325 | N/A | Ratb | 017491 | 225356 | N/A |
| Arhgef33 | 054901 | 224002 | N/A | Hip1r | 000915 | 166684 | N/A | Ratb | 017491 | 225245 | 153454 |
| Arhgef33 | 054901 | 225658 | 153062 | Hk2 | 000628 | 000642 | 000642 | Rasal2 | 070565 | 078308 | 077423 |
| Arhgef33 | 054901 | 224966 | 153018 | Hk2 | 000628 | 168725 | N/A | Rasal2 | 070565 | 132699 | 114964 |
| Arhgef33 | 054901 | 225223 | 153484 | Hk2 | 000628 | 170833 | 125986 | Rasal2 | 070565 | 129880 | 118367 |
| Arhgef33 | 054901 | 225548 | 153111 | Hk2 | 000628 | 169270 | 128572 | Rasal2 | 070565 | 134543 | 119623 |
| Arhgef33 | 054901 | 226013 | N/A | Hmgcll1 | 007908 | 008052 | 008052 | Rasal2 | 070565 | 128538 | N/A |
| Arhgef33 | 054901 | 068175 | 063284 | Hmgcll1 | 007908 | 183425 | 139094 | Rasal2 | 070565 | 143358 | 116974 |
| Arhgef37 | 045094 | 171629 | 130560 | Hmgcll1 | 007908 | 183979 | 138914 | Rasal2 | 070565 | 143080 | N/A |
| Arhgef4 | 037509 | 159747 | 124213 | Hmgcll1 | 007908 | 121592 | N/A | Rasgef1b | 089809 | 031276 | 031276 |
| Arhgef4 | 037509 | 162599 | 124906 | Hmgcll1 | 007908 | 183505 | N/A | Rasgef1b | 089809 | 168092 | 129652 |
| Arhgef4 | 037509 | 159021 | 124467 | Hmgcll1 | 007908 | 126321 | N/A | Rasgef1b | 089809 | 209346 | 147997 |
| Arhgef4 | 037509 | 047664 | 035980 | Hmgcll1 | 007908 | 117981 | 114045 | Rasgef1b | 089809 | 166484 | 128947 |
| Arhgef4 | 037509 | 162760 | N/A | Hmgn1 | 040681 | 050884 | 061012 | Rasgef1b | 089809 | 166632 | N/A |
| Arhgef4 | 037509 | 159059 | N/A | Hmgn1 | 040681 | 145713 | N/A | Rasgef1b | 089809 | 146396 | 125723 |
| Arhgef4 | 037509 | 160855 | 124207 | Hmgn1 | 040681 | 133885 | 122427 | Rasgef1b | 089809 | 161516 | 125057 |
| Arhgef4 | 037509 | 211073 | 148067 | Hmgn1 | 040681 | 142179 | N/A | Rasgef1b | 089809 | 142639 | N/A |
| Arl4a | 047446 | 101472 | 099013 | Homer3 | 003573 | 087467 | 084735 | Rasgef1b | 089809 | 160803 | N/A |
| Arl4a | 047446 | 136441 | 122987 | Homer3 | 003573 | 140212 | 117033 | Rasgef1b | 089809 | 161148 | 125009 |
| Arl4a | 047446 | 144910 | 122126 | Homer3 | 003573 | 155711 | N/A | Rasgrf1 | 032356 | 189545 | 140921 |
| Arl4a | 047446 | 138572 | N/A | Homer3 | 003573 | 003669 | 003669 | Rasgrf1 | 032356 | 034909 | 034909 |
| Arl4a | 047446 | 146905 | 114458 | Homer3 | 003573 | 143528 | N/A | Rasgrf1 | 032356 | 034912 | 034912 |
| Amt2 | 015709 | 085077 | 082154 | Homer3 | 003573 | 135692 | N/A | Rasgrf1 | 032356 | 190073 | N/A |
| Amt2 | 015709 | 209133 | 147129 | Homer3 | 003573 | 135368 | 137560 | Rasgrp1 | 027347 | 102534 | 099593 |
| Amt2 | 015709 | 208232 | 146413 | Homer3 | 003573 | 110124 | 105751 | Rasgrp1 | 027347 | 174770 | 134167 |
| Amt2 | 015709 | 208564 | 146989 | Hpcal4 | 046093 | 059667 | 051487 | Rasgrp1 | 027347 | 173541 | 134027 |
| Amt2 | 015709 | 207459 | N/A | Hpcal4 | 046093 | 106246 | 101853 | Rasgrp1 | 027347 | 172901 | 133449 |
| Amt2 | 015709 | 208129 | 146614 | Hpcal4 | 046093 | 126995 | 122104 | Rasgrp1 | 027347 | 173252 | 134592 |
| Amt2 | 015709 | 208936 | N/A | Hpcal4 | 046093 | 136619 | N/A | Rasgrp1 | 027347 | 110898 | N/A |
| Amt2 | 015709 | 207759 | N/A | Hpcal4 | 046093 | 152194 | 120066 | Rasgrp1 | 027347 | 178884 | 136423 |
| Amt2 | 015709 | 208204 | 146781 | Hpse2 | 074852 | 099428 | 097026 | Rassf2 | 027339 | 028814 | 028814 |
| Amt2 | 015709 | 208995 | 146599 | Hrh2 | 034987 | 038101 | 038170 | Rassf2 | 027339 | 103182 | 099471 |
| Amt2 | 015709 | 207769 | 146414 | Hrh2 | 034987 | 209846 | 148117 | Rassf2 | 027339 | 155829 | N/A |
| Amt2 | 015709 | 208392 | 146776 | Hrh2 | 034987 | 211742 | 147413 | Rassf2 | 027339 | 139047 | 120194 |
| Amt2 | 015709 | 208863 | 146868 | Hs3st1 | 051022 | 117944 | 113919 | Rassf2 | 027339 | 140791 | 117619 |
| Anb1 | 018909 | 098266 | 095866 | Hs3st1 | 051022 | 053116 | 051055 | Rbks | 029136 | 201744 | N/A |
| Anb1 | 018909 | 032995 | 032995 | Hs3st1 | 051022 | 137142 | 114997 | Rbks | 029136 | 031018 | 031018 |
| Anb1 | 018909 | 162404 | 124351 | Hs3st1 | 051022 | 152057 | 118060 | Rbks | 029136 | 202036 | N/A |
| Anb1 | 018909 | 161525 | 124483 | Hs3st2 | 046321 | 206880 | 146027 | Rbm24 | 038132 | 037923 | 043120 |
| Anb1 | 018909 | 161268 | N/A | Hs3st2 | 046321 | 084628 | 081678 | Rbm24 | 038132 | 225221 | N/A |
| Anb1 | 018909 | 162043 | N/A | Hs3st4 | 078591 | 106437 | 102045 | Rbm24 | 038132 | 225727 | N/A |
| Anb1 | 018909 | 159642 | N/A | Hs6st2 | 062184 | 088172 | 085497 | Rbm24 | 038132 | 224638 | N/A |
| Anb1 | 018909 | 162933 | N/A | Hs6st2 | 062184 | 114871 | 110521 | Rbm24 | 038132 | 225890 | N/A |
| Anb1 | 018909 | 162290 | 125056 | Hs6st2 | 062184 | 142738 | N/A | Rbm25 | 010608 | 181983 | 138572 |
| Anb1 | 018909 | 179755 | 136963 | Hs6st2 | 062184 | 140145 | N/A | Rbm25 | 010608 | 182004 | 138573 |
| Amdc3 | 074794 | 159090 | N/A | Hs6st2 | 062184 | 142983 | N/A | Rbm25 | 010608 | 048155 | 048470 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arrdc3 | 074794 | 159690 | 124418 | Hsd17b11 | 029311 | 031251 | 031251 | Rbm25 | 010608 | 182618 | 138665 |
| Arrdc3 | 074794 | 099356 | 096957 | Hsd17b11 | 029311 | 119025 | 113455 | Rbm25 | 010608 | 183154 | 138669 |
| Arrdc3 | 074794 | 161441 | 125455 | Hspa1b | 090877 | 172753 | 133815 | Rbm25 | 010608 | 182036 | 138565 |
| Arrdc3 | 074794 | 159856 | N/A | Htr1b | 049511 | 183482 | 139389 | Rbm25 | 010608 | 182347 | 138410 |
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| Arsg | 020604 | 106697 | 102308 | Htr2a | 034997 | 036653 | 047774 | Rbm25 | 010608 | 182881 | N/A |
| Arsg | 020604 | 106696 | 102307 | Htr2c | 041380 | 149260 | N/A | Rbm25 | 010608 | 183128 | N/A |
| Arsg | 020604 | 152252 | N/A | Htr2c | 041380 | 131999 | N/A | Rbm25 | 010608 | 182450 | 138416 |
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| Arsg | 020604 | 020928 | 020928 | Htr2c | 041380 | 096299 | 094021 | Rbm25 | 010608 | 183039 | N/A |
| Arx | 035277 | 187010 | N/A | Htr2c | 041380 | 156697 | 138772 | Rbm25 | 010608 | 182032 | N/A |
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| Arx | 035277 | 113947 | 109580 | Htr2c | 041380 | 112831 | 108450 | Rbm25 | 010608 | 183282 | N/A |
| Asap3 | 036995 | 047526 | 041899 | Htra1 | 006205 | 150717 | N/A | Rbm25 | 010608 | 182840 | N/A |
| Ascl1 | 020052 | 020243 | 020243 | Htra1 | 006205 | 006367 | 006367 | Rbm25 | 010608 | 183181 | N/A |
| Asgr1 | 020884 | 146411 | 121842 | Htra1 | 006205 | 153290 | N/A | Rbms3 | 039607 | 111773 | 107403 |
| Asgr1 | 020884 | 108585 | 104226 | Htra1 | 006205 | 140741 | N/A | Rbms3 | 039607 | 068962 | 066735 |
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| Asic1 | 023017 | 023758 | 023758 | Icosl | 000732 | 105393 | 101032 | Rbms3 | 039607 | 111772 | 107402 |
| Asic1 | 023017 | 226291 | N/A | Icosl | 000732 | 217675 | N/A | Rbms3 | 039607 | 044901 | 039706 |
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| Asic1 | 023017 | 228610 | N/A | Id4 | 021379 | 021810 | 021810 | Rbms3 | 039607 | 172564 | 134528 |
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| Asic2 | 020704 | 021045 | 021045 | Ifi43 | 007867 | 054565 | 061891 | Rbms3 | 039607 | 084824 | N/A |
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| Asns | 029752 | 115542 | 111204 | Ifi43 | 007867 | 222905 | 152281 | Rbp2 | 032454 | 187905 | 140630 |
| Asns | 029752 | 031766 | 031766 | Ifi43 | 007867 | 223269 | N/A | Rbp2 | 032454 | 188779 | N/A |
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| Aspa | 020774 | 021119 | 021119 | Igdcc4 | 032816 | 213533 | 150272 | Rbpms2 | 032387 | 055844 | 057600 |
| Aspa | 020774 | 184572 | 139318 | Igdcc4 | 032816 | 035499 | 045387 | Rbpms2 | 032387 | 213927 | N/A |
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| Astn2 | 028373 | 068214 | 065786 | Igdcc4 | 032816 | 166273 | 132576 | Rcn1 | 005973 | 127019 | N/A |
| Astn2 | 028373 | 084496 | 081540 | Igfbp3 | 020427 | 020702 | 020702 | Rcn2 | 032320 | 147842 | 120953 |
| Atf2 | 059811 | 068282 | 064758 | Igfbp3 | 020427 | 135887 | 131670 | Rcn2 | 032320 | 114276 | 109915 |
| Atf2 | 059811 | 223273 | N/A | Igfbp5 | 026185 | 027377 | 027377 | Rcn2 | 032320 | 151585 | N/A |
| Atf2 | 059811 | 221286 | N/A | Igfbp5 | 026185 | 137339 | N/A | Rcn2 | 032320 | 144869 | N/A |
| Atf2 | 059811 | 222193 | 152340 | Igsf11 | 022790 | 210186 | N/A | Reck | 028476 | 030198 | 030198 |
| Atf2 | 059811 | 222415 | 152866 | Igsf11 | 022790 | 114706 | 110354 | Reck | 028476 | 128463 | N/A |
| Atf2 | 059811 | 221666 | N/A | Igsf11 | 022790 | 209958 | N/A | Reck | 028476 | 130415 | N/A |
| Atf2 | 059811 | 222243 | N/A | Igsf11 | 022790 | 023478 | 023478 | Reln | 042453 | 161356 | 124052 |
| Atf2 | 059811 | 112437 | 108056 | Igsf11 | 022790 | 210471 | N/A | Reln | 042453 | 160791 | N/A |
| Atf3 | 024759 | 170373 | 132619 | Igsf3 | 042035 | 198995 | N/A | Reln | 042453 | 062372 | 058025 |
| Atf3 | 024759 | 025668 | 025668 | Igsf3 | 042035 | 043983 | 048900 | Reln | 042453 | 200318 | N/A |
| Atp13a4 | 038094 | 182573 | 138700 | Igsf3 | 042035 | 195164 | 141823 | Reln | 042453 | 200667 | N/A |
| Atp13a4 | 038094 | 182627 | 138479 | Il15 | 031712 | 209363 | 147848 | Reln | 042453 | 199034 | N/A |
| Atp13a4 | 038094 | 057018 | 060987 | Il15 | 031712 | 209573 | 148256 | Reln | 042453 | 159768 | N/A |
| Atp13a4 | 038094 | 182676 | N/A | Il15 | 031712 | 034148 | 034148 | Reln | 042453 | 161353 | N/A |
| Atp13a4 | 038094 | 182013 | 138583 | Il15 | 031712 | 211565 | 147319 | Reln | 042453 | 162427 | N/A |
| Atp13a4 | 038094 | 182094 | N/A | Il15 | 031712 | 209687 | N/A | Reln | 042453 | 159741 | N/A |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Atp13a4 | 038094 | 182357 | N/A | Il15 | 031712 | 211722 | N/A | Reln | 042453 | 162876 | 124077 |
| Atp13a4 | 038094 | 182168 | 138515 | Il15 | 031712 | 210094 | 147312 | Reln | 042453 | 162637 | N/A |
| Atp13a4 | 038094 | 039090 | 048753 | Il15 | 031712 | 211282 | N/A | Reln | 042453 | 162622 | N/A |
| Atp13a4 | 038094 | 182824 | N/A | Il15 | 031712 | 210885 | N/A | Reln | 042453 | 160707 | N/A |
| Atp13a4 | 038094 | 182694 | N/A | Il15 | 031712 | 210472 | N/A | Reln | 042453 | 161782 | N/A |
| Atp1a1 | 033161 | 036493 | 039657 | Il16 | 001741 | 001792 | 001792 | Rep15 | 040121 | 036194 | 037503 |
| Atp1a1 | 033161 | 130649 | N/A | Il16 | 001741 | 145610 | 146496 | Rerg | 030222 | 032347 | 032347 |
| Atp1a1 | 033161 | 136340 | N/A | Il16 | 001741 | 151047 | N/A | Rerg | 030222 | 117919 | 113105 |
| Atp1a2 | 007097 | 085913 | 083077 | Il16 | 001741 | 153560 | 118516 | Rerg | 030222 | 119610 | 113702 |
| Atp1a2 | 007097 | 131751 | N/A | Il16 | 001741 | 131916 | 122022 | Rerg | 030222 | 203003 | 144823 |
| Atp1a2 | 007097 | 191781 | N/A | Il16 | 001741 | 156553 | 122813 | Rerg | 030222 | 149100 | 144902 |
| Atp1a2 | 007097 | 097464 | 095072 | Il18 | 039217 | 213916 | 150305 | Ret | 030110 | 032201 | 032201 |
| Atp1a2 | 007097 | 137679 | N/A | Il18 | 039217 | 214117 | 151002 | Ret | 030110 | 088790 | 086169 |
| Atp1a3 | 040907 | 102858 | 099922 | Il18 | 039217 | 180021 | 137193 | Rftn1 | 039316 | 044503 | 046524 |
| Atp1a3 | 040907 | 080882 | 079691 | Il18 | 039217 | 059081 | 054591 | Rftn1 | 039316 | 113195 | 108820 |
| Atp1a3 | 040907 | 196684 | 143735 | Il20rb | 044244 | 098458 | 096057 | Rftn1 | 039316 | 156094 | N/A |
| Atp1a3 | 040907 | 146595 | N/A | Il20rb | 044244 | 136606 | N/A | Rfx4 | 020037 | 060397 | 051107 |
| Atp1a3 | 040907 | 125444 | N/A | Il20rb | 044244 | 136856 | N/A | Rfx4 | 020037 | 173479 | N/A |
| Atp1b1 | 026576 | 027863 | 027863 | Il20rb | 044244 | 125259 | N/A | Rfx4 | 020037 | 165868 | N/A |
| Atp1b1 | 026576 | 193980 | N/A | Il20rb | 044244 | 152756 | N/A | Rfx4 | 020037 | 166696 | 128690 |
| Atp1b1 | 026576 | 193367 | 141777 | Il20rb | 044244 | 122880 | N/A | Rfx4 | 020037 | 020226 | N/A |
| Atp1b1 | 026576 | 192522 | N/A | Il22 | 074695 | 096691 | 094449 | Rfx4 | 020037 | 095388 | 093035 |
| Atp1b2 | 041329 | 047889 | 047353 | Il33 | 024810 | 120388 | 113829 | Rgcc | 022018 | 022595 | 022595 |
| Atp1b2 | 041329 | 130394 | N/A | Il33 | 024810 | 144528 | 122319 | Rgma | 070509 | 119206 | 112599 |
| Atp1b2 | 041329 | 138694 | 116290 | Il33 | 024810 | 177518 | 135854 | Rgma | 070509 | 094312 | 091870 |
| Atp1b2 | 041329 | 144425 | N/A | Il33 | 024810 | 025724 | 025724 | Rgma | 070509 | 128471 | 116552 |
| Atp1b2 | 041329 | 153198 | N/A | Il33 | 024810 | 136850 | 135324 | Rgma | 070509 | 139780 | 145758 |
| Atp2a3 | 020788 | 108486 | 104126 | Iltifb | 090461 | 163808 | 128415 | Rgma | 070509 | 206253 | N/A |
| Atp2a3 | 020788 | 108484 | 104124 | Iltifb | 090461 | 179123 | N/A | Rgs6 | 021219 | 201602 | 144044 |
| Atp2a3 | 020788 | 149493 | N/A | 5730559C18Rik | 041605 | 120339 | 113785 | Rgs6 | 021219 | 186848 | 141044 |
| Atp2a3 | 020788 | 135234 | N/A | 5730559C18Rik | 041605 | 150163 | 118074 | Rgs6 | 021219 | 161801 | 125256 |
| Atp2a3 | 020788 | 163326 | 127036 | 5730559C18Rik | 041605 | 144464 | 115554 | Rgs6 | 021219 | 185665 | 139566 |
| Atp2a3 | 020788 | 108485 | 104125 | 5730559C18Rik | 041605 | 194374 | N/A | Rgs6 | 021219 | 200911 | 143801 |
| Atp2a3 | 020788 | 021142 | 021142 | 5730559C18Rik | 041605 | 153910 | 120263 | Rgs6 | 021219 | 202210 | 143961 |
| Atp2b2 | 030302 | 101045 | 098606 | 5730559C18Rik | 041605 | 195177 | 141506 | Rgs6 | 021219 | 186458 | 139735 |
| Atp2b2 | 030302 | 089003 | 086398 | Inhba | 041324 | 164993 | 132085 | Rgs6 | 021219 | 186081 | 140188 |
| Atp2b2 | 030302 | 152831 | 138165 | Inhba | 041324 | 042603 | 047894 | Rgs6 | 021219 | 201271 | 144139 |
| Atp2b2 | 030302 | 205052 | 145174 | Inpp1 | 026102 | 027271 | 027271 | Rgs6 | 021219 | 200861 | 144118 |
| Atp2b2 | 030302 | 101044 | 098605 | Inpp1 | 026102 | 177279 | 135225 | Rgs6 | 021219 | 186309 | 140701 |
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| Atp2b2 | 030302 | 144507 | N/A | Inpp1 | 026102 | 162576 | 124890 | Rgs6 | 021219 | 193448 | N/A |
| Atp2b2 | 030302 | 154738 | N/A | Inpp1 | 026102 | 162351 | N/A | Rgs6 | 021219 | 191311 | 140723 |
| Atp2b3 | 031376 | 033744 | 033744 | Inpp1 | 026102 | 159725 | 123977 | Rgs6 | 021219 | 191352 | 139718 |
| Atp2b3 | 031376 | 088429 | 085775 | Inpp4b | 037940 | 172167 | N/A | Rgs6 | 021219 | 191107 | 139725 |
| Atp2b3 | 031376 | 114479 | 110123 | Inpp4b | 037940 | 213285 | 150520 | Rgs6 | 021219 | 186323 | 141079 |
| Atp8a1 | 037685 | 135930 | 118379 | Inpp4b | 037940 | 217122 | 150541 | Rgs6 | 021219 | 185674 | 139940 |
| Atp8a1 | 037685 | 037380 | 042215 | Inpp4b | 037940 | 169387 | 130104 | Rgs6 | 021219 | 190964 | N/A |
| Atp8a1 | 037685 | 072971 | 072738 | Inpp4b | 037940 | 215332 | 148972 | Rgs6 | 021219 | 201767 | 143829 |
| Atp8a1 | 037685 | 200955 | 144465 | Inpp4b | 037940 | 042529 | 044466 | Rgs6 | 021219 | 201512 | N/A |
| Atp8a1 | 037685 | 149501 | N/A | Inpp4b | 037940 | 169116 | 131947 | Rgs6 | 021219 | 101234 | 098793 |
| Atp8a1 | 037685 | 155911 | N/A | Inpp4b | 037940 | 109852 | 105478 | Rgs7bp | 021719 | 063551 | 066614 |
| Atp8a1 | 037685 | 152433 | N/A | Inpp4b | 037940 | 172031 | 131324 | Rgs9 | 020599 | 020920 | 020920 |
| Atp8a1 | 037685 | 130652 | N/A | Inpp4b | 037940 | 164870 | N/A | Rgs9 | 020599 | 103062 | 099351 |
| Atp8a1 | 037685 | 113652 | 109282 | Inpp4b | 037940 | 216036 | N/A | Rgs9 | 020599 | 106706 | 102317 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atp8a1 | 037685 | 113651 | 109281 | Inpp4b | 037940 | 170160 | 132156 | Rgs9 | 020599 | 156785 | N/A |
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| Atp8a1 | 037685 | 202248 | N/A | Inpp4b | 037940 | 109851 | 105477 | Rhpn2 | 030494 | 032705 | 032705 |
| Atp8a1 | 037685 | 128726 | N/A | Inpp4b | 037940 | 165821 | N/A | Rhpn2 | 030494 | 155140 | N/A |
| Atp8a1 | 037685 | 141443 | 121630 | Inpp5a | 025477 | 106098 | 101704 | Rhpn2 | 030494 | 187997 | N/A |
| Atp8b1 | 039529 | 025482 | 025482 | Inpp5a | 025477 | 026550 | 026550 | Rhpn2 | 030494 | 085556 | 082692 |
| Atrnl1 | 054843 | 077282 | 076514 | Inpp5a | 025477 | 097975 | 095589 | Rimbp2 | 029420 | 199537 | 143276 |
| Atxn1 | 046876 | 091628 | 089217 | Inpp5a | 025477 | 138183 | N/A | Rimbp2 | 029420 | 198941 | 142455 |
| Atxn1 | 046876 | 167708 | 129890 | Inpp5a | 025477 | 131781 | N/A | Rimbp2 | 029420 | 196085 | 143725 |
| Atxn1 | 046876 | 180110 | 137439 | Inpp5a | 025477 | 210320 | N/A | Rimbp2 | 029420 | 200470 | 143099 |
| Atxn1 | 046876 | 221082 | N/A | Inpp5a | 025477 | 152475 | N/A | Rimbp2 | 029420 | 199737 | 142712 |
| Atxn1 | 046876 | 222943 | N/A | Insc | 048782 | 161800 | 125061 | Rimbp2 | 029420 | 196569 | N/A |
| Atxn1 | 046876 | 222610 | N/A | Insc | 048782 | 136645 | 119459 | Rimbp2 | 029420 | 111346 | 106978 |
| Axl | 002602 | 002677 | 002677 | Insc | 048782 | 139670 | N/A | Rims1 | 041670 | 185942 | 140963 |
| Axl | 002602 | 085948 | 083110 | Insc | 048782 | 117543 | 112682 | Rims1 | 041670 | 097808 | 095417 |
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| Axl | 002602 | 147680 | N/A | Insc | 048782 | 169913 | 129505 | Rims1 | 041670 | 097810 | 095419 |
| Axl | 002602 | 137383 | N/A | Ipcef1 | 064065 | 086896 | 084110 | Rims1 | 041670 | 097809 | 095418 |
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| B3gat2 | 026156 | 063663 | 066582 | Ipcef1 | 064065 | 144622 | N/A | Rims3 | 032890 | 106283 | 101890 |
| B3gat2 | 026156 | 140583 | 117089 | Ipcef1 | 064065 | 105617 | 101242 | Rims3 | 032890 | 171363 | 130295 |
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| B3glct | 051950 | 202302 | N/A | Ipcef1 | 064065 | 078070 | 077215 | Rin2 | 001768 | 147976 | 124206 |
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| Bach2 | 040270 | 108180 | 103815 | Iqgap1 | 030536 | 205813 | 145556 | Rlbp1 | 039194 | 053718 | 054545 |
| Bach2 | 040270 | 037416 | 043693 | Iqgap1 | 030536 | 205304 | 146126 | Rlbp1 | 039194 | 206624 | N/A |
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| Bach2 | 040270 | 156430 | N/A | Iqsec1 | 034312 | 101153 | 098712 | Rlbp1 | 039194 | 206320 | 145611 |
| Bach2 | 040270 | 146748 | N/A | Iqsec1 | 034312 | 204983 | N/A | Rlbp1 | 039194 | 205442 | 145850 |
| Bach2 | 040270 | 125263 | N/A | Iqsec1 | 034312 | 212100 | 148669 | Rlbp1 | 039194 | 205638 | 146144 |
| Bach2 | 040270 | 171600 | 131592 | Iqsec1 | 034312 | 154198 | N/A | Rlbp1 | 039194 | 206695 | 146075 |
| Baiap2 | 025372 | 026436 | 026436 | Iqsec1 | 034312 | 141434 | N/A | Rnf112 | 010086 | 060255 | 059903 |
| Baiap2 | 025372 | 106231 | 101838 | Iqsec1 | 034312 | 205068 | N/A | Rnf112 | 010086 | 054927 | 056464 |
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| Baiap2 | 025372 | 106233 | 101840 | Iqsec1 | 034312 | 146977 | N/A | Rnf112 | 010086 | 126859 | N/A |
| Baiap2 | 025372 | 146566 | N/A | Iqsec1 | 034312 | 101151 | 098710 | Rnf112 | 010086 | 136966 | N/A |
| Baiap2 | 025372 | 146960 | N/A | Irak2 | 060477 | 059286 | 055073 | Rnf112 | 010086 | 130648 | N/A |
| Baiap2 | 025372 | 152523 | N/A | Irak2 | 060477 | 089023 | 086417 | Rnf207 | 058498 | 076183 | 075540 |
| Baiap2 | 025372 | 131580 | N/A | Irak2 | 060477 | 204091 | N/A | Rnf207 | 058498 | 108688 | N/A |
| Barhl2 | 034384 | 086795 | 084005 | Irak2 | 060477 | 089022 | 086416 | Rnf207 | 058498 | 170820 | 129400 |
| Basp1 | 045763 | 058845 | 053943 | Irak2 | 060477 | 204744 | 144848 | Rnf207 | 058498 | 135837 | N/A |
| Basp1 | 045763 | 228597 | 154675 | Irak2 | 060477 | 155554 | N/A | Rnf207 | 058498 | 127565 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bbs2 | 031755 | 034206 | 034206 | Irak2 | 060477 | 113024 | N/A | Rnf207 | 058498 | 142427 | N/A |
| Bbs2 | 031755 | 170208 | N/A | Irak2 | 060477 | 203381 | N/A | Rnf207 | 058498 | 130008 | 127196 |
| Bbs2 | 031755 | 172347 | N/A | Irak2 | 060477 | 143948 | N/A | Rnf207 | 058498 | 143968 | N/A |
| BC052040 | 040282 | 110918 | 106543 | Irx1 | 060969 | 077337 | 076562 | Rnf207 | 058498 | 134269 | N/A |
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| Bcar1 | 031955 | 166232 | 129584 | Irx2 | 001504 | 074372 | 073976 | Rnf207 | 058498 | 146496 | N/A |
| Bcar1 | 031955 | 212349 | 148364 | Irx2 | 001504 | 169028 | N/A | Rnf217 | 063760 | 081989 | 080650 |
| Bcar1 | 031955 | 212147 | N/A | Irx2 | 001504 | 167067 | 127963 | Rnf220 | 028677 | 030439 | 030439 |
| Bche | 027792 | 029367 | 029367 | Irx2 | 001504 | 163393 | N/A | Rnf220 | 028677 | 102690 | 099751 |
| Bche | 027792 | 133690 | N/A | Irx2 | 001504 | 172353 | 126691 | Rnf220 | 028677 | 221654 | 152367 |
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| Bcl11a | 000861 | 118955 | 112948 | Itga2 | 015533 | 056117 | 053891 | Rnf220 | 028677 | 223371 | N/A |
| Bcl11a | 000861 | 127494 | N/A | Itga2 | 015533 | 224204 | 153056 | Rnf220 | 028677 | 221157 | N/A |
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| Bcl11a | 000861 | 109514 | 105140 | Itga9 | 039115 | 149150 | 122408 | Rnf220 | 028677 | 133971 | N/A |
| Bcl11b | 048251 | 066060 | 068258 | Itga9 | 039115 | 124422 | N/A | Rnf220 | 028677 | 150148 | N/A |
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| Bcl11b | 048251 | 109891 | 105517 | Itgav | 027087 | 028499 | 028499 | Rnf220 | 028677 | 123222 | N/A |
| Bcl11b | 048251 | 066060 | 068258 | Itgav | 027087 | 125360 | N/A | Rnf43 | 034177 | 134684 | N/A |
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| Beanl | 031872 | 164076 | 132056 | Itgav | 027087 | 111740 | 107369 | Rnf43 | 034177 | 121782 | 112748 |
| Beanl | 031872 | 093245 | 090931 | Itgav | 027087 | 141725 | 122730 | Rnf43 | 034177 | 040089 | 044241 |
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| Beanl | 031872 | 213077 | 148283 | Itgav | 027087 | 125402 | 118016 | Rnf43 | 034177 | 124625 | N/A |
| Beanl | 031872 | 171018 | 129403 | Itgav | 027087 | 131192 | 121295 | Rnf43 | 034177 | 150866 | N/A |
| Beanl | 031872 | 167633 | 131530 | Itgb4 | 020758 | 021107 | 021107 | Rnf43 | 034177 | 165679 | 130685 |
| Bhlhe22 | 025128 | 026120 | 026120 | Itgb4 | 020758 | 068981 | 070811 | Robo2 | 052516 | 226478 | 154353 |
| Bicd1 | 003452 | 203502 | N/A | Itgb4 | 020758 | 106460 | 102068 | Robo2 | 052516 | 117785 | 112776 |
| Bicd1 | 003452 | 086829 | 084039 | Itgb4 | 020758 | 106458 | 102066 | Robo2 | 052516 | 117200 | 113795 |
| Bicd1 | 003452 | 111513 | 107138 | Itgb4 | 020758 | 151691 | N/A | Robo2 | 052516 | 149114 | N/A |
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| Bicd1 | 003452 | 003544 | 003544 | Itgb4 | 020758 | 127523 | N/A | Robo2 | 052516 | 116586 | 112285 |
| Bicd1 | 003452 | 173408 | 133727 | Itgb4 | 020758 | 130286 | N/A | Robo2 | 052516 | 138852 | N/A |
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| Bicd2 | 037933 | 110084 | 105711 | Itgb8 | 025321 | 151023 | N/A | Robo3 | 032128 | 167089 | N/A |
| Bicd2 | 037933 | 110085 | 105712 | Itih3 | 006522 | 006697 | 006697 | Robo3 | 032128 | 171467 | N/A |
| Bicd2 | 037933 | 220723 | 152090 | Itih3 | 006522 | 227181 | N/A | Robo3 | 032128 | 034643 | 034643 |
| Blm | 030528 | 206901 | 146062 | Itih3 | 006522 | 227995 | 154659 | Robo3 | 032128 | 115038 | 110690 |
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| Blm | 030528 | 205730 | 145573 | Itpkb | 038855 | 195043 | N/A | Rpa1 | 000751 | 154894 | N/A |
| Blm | 030528 | 205263 | N/A | Itpr1 | 030102 | 032192 | 032192 | Rpa1 | 000751 | 135770 | N/A |
| Blm | 030528 | 205713 | N/A | Itpr1 | 030102 | 203615 | 144880 | Rph3a | 029608 | 079204 | 078198 |
| Blm | 030528 | 205584 | N/A | Itpr1 | 030102 | 203995 | N/A | Rph3a | 029608 | 202406 | 143917 |
| Bmp2k | 034663 | 112974 | 108598 | Itpr1 | 030102 | 203936 | 145526 | Rph3a | 029608 | 202326 | 144291 |
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| Bnc2 | 028487 | 102820 | 099884 | Itpr1 | 030102 | 205053 | N/A | Rprm | 075334 | 100089 | 097667 |
| Bnc2 | 028487 | 107198 | 102816 | Itpr1 | 030102 | 203262 | 145177 | Rps6ka1 | 003644 | 105894 | 101514 |

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| Bnc2 | 028487 | 176612 | 135778 | Itpr1 | 030102 | 203638 | 145522 | Rps6ka1 | 003644 | 168974 | 126774 |
| Bnc2 | 028487 | 176971 | 135607 | Itpr1 | 030102 | 203687 | 145339 | Rps6ka1 | 003644 | 003741 | 003741 |
| Bnc2 | 028487 | 176691 | 135375 | Itpr1 | 030102 | 205048 | N/A | Rps6ka1 | 003644 | 157067 | 121341 |
| Bnc2 | 028487 | 177277 | 135580 | Itpr1 | 030102 | 203530 | N/A | Rps6ka1 | 003644 | 174481 | 134507 |
| Bnc2 | 028487 | 176702 | 134774 | Itpr1 | 030102 | 203288 | N/A | Rps6ka1 | 003644 | 137486 | 119328 |
| Bnc2 | 028487 | 176998 | 135283 | Itpr1 | 030102 | 205005 | N/A | Rps6ka1 | 003644 | 173989 | N/A |
| Bnc2 | 028487 | 176601 | 135480 | Itpripl2 | 095115 | 178344 | 136409 | Rps6ka1 | 003644 | 129636 | N/A |
| Bnc2 | 028487 | 175800 | 134795 | Jam2 | 053062 | 114195 | 109833 | Rps6ka1 | 003644 | 173961 | N/A |
| Bnc2 | 028487 | 176418 | 135569 | Jam2 | 053062 | 098407 | 096007 | Rpusd3 | 051169 | 113092 | 108715 |
| Bnc2 | 028487 | 175757 | N/A | Jam2 | 053062 | 138054 | N/A | Rpusd3 | 051169 | 060634 | 059057 |
| Bnc2 | 028487 | 176947 | 135411 | Jam3 | 031990 | 034472 | 034472 | Rpusd3 | 051169 | 203758 | N/A |
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| Bnc2 | 028487 | 123276 | N/A | Jam3 | 031990 | 167074 | N/A | Rpusd3 | 051169 | 124078 | N/A |
| Bnc2 | 028487 | 176346 | 134942 | Jam3 | 031990 | 213682 | N/A | Rpusd3 | 051169 | 151618 | 115950 |
| Bnc2 | 028487 | 177256 | N/A | Jazf1 | 063568 | 128282 | N/A | Rpusd3 | 051169 | 134853 | N/A |
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| Bnc2 | 028487 | 177040 | 135089 | Jazf1 | 063568 | 074541 | 074129 | Rpusd3 | 051169 | 150452 | N/A |
| Bnc2 | 028487 | 176264 | N/A | Jkamp | 005078 | 117449 | 113744 | Rspo2 | 051920 | 226810 | 154600 |
| Bnc2 | 028487 | 176370 | 134953 | Jkamp | 005078 | 057257 | 061370 | Rspo2 | 051920 | 063492 | 067325 |
| Boc | 022687 | 114634 | 110281 | Jkamp | 005078 | 125764 | 117251 | Rspo2 | 051920 | 226402 | N/A |
| Brinp2 | 004031 | 195271 | 141709 | Jkamp | 005078 | 132371 | N/A | Rtn1 | 021087 | 150156 | N/A |
| Brinp2 | 004031 | 004133 | 004133 | Jkamp | 005078 | 134041 | N/A | Rtn1 | 021087 | 078505 | 077594 |
| Brinp2 | 004031 | 194578 | N/A | Jkamp | 005078 | 152381 | N/A | Rtn1 | 021087 | 137990 | 120033 |
| Brinp2 | 004031 | 192709 | N/A | Jkamp | 005078 | 145752 | N/A | Rtn1 | 021087 | 144181 | N/A |
| Brinp3 | 035131 | 074622 | 074201 | Jph1 | 042686 | 186024 | 140705 | Rtn1 | 021087 | 221756 | N/A |
| Brinp3 | 035131 | 132847 | 118552 | Jph1 | 042686 | 038382 | 039072 | Rtn1 | 021087 | 021497 | 021497 |
| Brinp3 | 035131 | 128345 | 116763 | Kank1 | 032702 | 049400 | 042177 | Rtn1 | 021087 | 150156 | N/A |
| Brinp3 | 035131 | 125331 | N/A | Kank1 | 032702 | 146647 | 116660 | Rtn1 | 021087 | 078505 | 077594 |
| Brinp3 | 035131 | 166814 | 126074 | Kank1 | 032702 | 137260 | N/A | Rtn1 | 021087 | 137990 | 120033 |
| Bsg | 023175 | 179781 | 136487 | Kank1 | 032702 | 155788 | N/A | Rtn1 | 021087 | 144181 | N/A |
| Bsg | 023175 | 067036 | 070751 | Kank4 | 035407 | 102790 | 099851 | Rtn1 | 021087 | 221756 | N/A |
| Bsg | 023175 | 179201 | N/A | Kank4 | 035407 | 137270 | N/A | Rtn1 | 021087 | 021497 | 021497 |
| Bsg | 023175 | 178383 | 137126 | Kcna1 | 047976 | 055168 | 055225 | Rtn4r | 043811 | 059589 | 062924 |
| Bsg | 023175 | 105381 | 101020 | Kcna1 | 047976 | 203094 | 144947 | Rtn4r | 111113 | 213627 | 149817 |
| Bsg | 023175 | 180235 | N/A | Kcna1 | 047976 | 205171 | N/A | Rtn4rl1 | 045287 | 102514 | 099572 |
| Bsn | 032589 | 035208 | 035208 | Kcna2 | 040724 | 197470 | 143798 | Rtn4rl2 | 050896 | 151799 | 118362 |
| Bsn | 032589 | 124763 | 139053 | Kcna2 | 040724 | 038695 | 041702 | Rtn4rl2 | 050896 | 151759 | N/A |
| Btbd1 | 025103 | 026093 | 026093 | Kcna2 | 040724 | 196403 | 142873 | Rtn4rl2 | 050896 | 054514 | 057725 |
| Btbd1 | 025103 | 208114 | N/A | Kcnab2 | 028931 | 159840 | 124156 | Rubcnl | 034959 | 036072 | 045566 |
| Btbd1 | 025103 | 208178 | N/A | Kcnab2 | 028931 | 160884 | 125058 | Rubcnl | 034959 | 228689 | N/A |
| Btbd1 | 025103 | 208566 | N/A | Kcnab2 | 028931 | 030768 | 030768 | Rxfp1 | 034009 | 078527 | 077611 |
| Btbd11 | 020042 | 105307 | 100944 | Kcnab2 | 028931 | 159186 | 124588 | Rxfp1 | 034009 | 182491 | 138578 |
| Btbd11 | 020042 | 020231 | 020231 | Kcnab2 | 028931 | 105648 | 101273 | Rxfp1 | 034009 | 183199 | N/A |
| Btbd11 | 020042 | 105306 | 100943 | Kcnab2 | 028931 | 159844 | N/A | Rxfp1 | 034009 | 183040 | N/A |
| Btbd11 | 020042 | 135235 | N/A | Kcnab2 | 028931 | 161496 | N/A | Ryr1 | 030592 | 214374 | 149042 |
| Btbd11 | 020042 | 145323 | N/A | Kcnab2 | 028931 | 161236 | 125270 | Ryr1 | 030592 | 179893 | 137123 |
| Btbd11 | 020042 | 128338 | N/A | Kcnab2 | 028931 | 159435 | N/A | Ryr1 | 030592 | 208318 | N/A |
| Btbd11 | 020042 | 156123 | N/A | Kcnab2 | 028931 | 162200 | N/A | Ryr1 | 030592 | 208010 | N/A |
| Btbd11 | 020042 | 145433 | N/A | Kcnab2 | 028931 | 162165 | N/A | Ryr1 | 030592 | 207764 | N/A |
| Btbd17 | 000202 | 156053 | N/A | Kcnab2 | 028931 | 161844 | N/A | Ryr1 | 030592 | 207783 | N/A |
| Btbd17 | 000202 | 000206 | 000206 | Kcnab2 | 028931 | 162518 | N/A | Ryr1 | 030592 | 208922 | N/A |
| Btbd17 | 000202 | 156192 | N/A | Kcnab2 | 028931 | 162017 | 123939 | Ryr1 | 030592 | 032813 | 032813 |
| Btbd17 | 000202 | 141481 | N/A | Kcnab3 | 018470 | 018614 | 018614 | Ryr2 | 021313 | 021750 | 021750 |
| Btbd17 | 000202 | 146853 | N/A | Kcnab3 | 018470 | 142328 | N/A | Ryr2 | 021313 | 222113 | N/A |
| Btbd17 | 000202 | 141386 | N/A | Kcnab3 | 018470 | 134561 | N/A | Ryr2 | 021313 | 222788 | N/A |
| Btbd17 | 000202 | 137965 | N/A | Kcnc1 | 058975 | 025202 | 025202 | Ryr2 | 021313 | 221527 | 152510 |
| 2410131K14Rik | 032840 | 049138 | 043410 | Kcnc1 | 058975 | 160433 | 124938 | Ryr2 | 021313 | 221916 | N/A |
| 3632451O06Rik | 036242 | 036972 | 036220 | Kcnc1 | 058975 | 160234 | N/A | Ryr2 | 021313 | 220712 | 152669 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3632451O06Rik | 036242 | 118129 | 113609 | Kcnc2 | 035681 | 219301 | 151579 | Ryr2 | 021313 | 221941 | N/A |
| 3632451O06Rik | 036242 | 177321 | N/A | Kcnc2 | 035681 | 092175 | 089814 | Ryr2 | 021313 | 221890 | N/A |
| 1700025G04Rik | 032666 | 187603 | 140950 | Kcnc2 | 035681 | 218445 | 151560 | Ryr2 | 021313 | 221609 | N/A |
| 1700025G04Rik | 032666 | 044581 | 036406 | Kcnc2 | 035681 | 219607 | 151870 | Ryr2 | 021313 | 222386 | N/A |
| 1700025G04Rik | 032666 | 128433 | N/A | Kcnc2 | 035681 | 218827 | 151995 | Ryr2 | 021313 | 220597 | 152051 |
| 1700025G04Rik | 032666 | 121533 | 113971 | Kcnc3 | 062785 | 209177 | 146535 | Ryr2 | 021313 | 221018 | N/A |
| C1ql1 | 045532 | 057849 | 050469 | Kcnc3 | 062785 | 207493 | 146425 | Ryr2 | 021313 | 221341 | N/A |
| C1ql2 | 036907 | 037286 | 037257 | Kcnc3 | 062785 | 208651 | 146988 | Ryr2 | 021313 | 170156 | 127991 |
| C1qtnf4 | 040794 | 111466 | 107091 | Kcnc3 | 062785 | 107907 | 103540 | Ryr3 | 057378 | 091818 | 089426 |
| C1qtnf4 | 110961 | 214937 | 150588 | Kcnc3 | 062785 | 107906 | 103539 | Ryr3 | 057378 | 208135 | 146719 |
| 2810459M11Rik | 026227 | 027429 | 027429 | Kcnc3 | 062785 | 208412 | N/A | Ryr3 | 057378 | 128192 | N/A |
| 2810459M11Rik | 026227 | 165824 | 131459 | Kcnc3 | 062785 | 207497 | 146479 | Ryr3 | 057378 | 207603 | N/A |
| C3 | 024164 | 024988 | 024988 | Kcnf1 | 051726 | 170580 | 131480 | Ryr3 | 057378 | 156757 | N/A |
| C3 | 024164 | 177425 | 135663 | Kcnh1 | 058248 | 078470 | 077563 | Ryr3 | 057378 | 146187 | N/A |
| C3 | 024164 | 177046 | 135560 | Kcnh1 | 058248 | 110844 | 106468 | Ryr3 | 057378 | 208574 | N/A |
| C3 | 024164 | 176457 | N/A | Kcnh1 | 058248 | 151152 | 141247 | Ryr3 | 057378 | 134358 | 147196 |
| A830018L16Rik | 057715 | 048613 | 043857 | Kcnh5 | 034402 | 042299 | 046864 | Ryr3 | 057378 | 142537 | N/A |
| A830018L16Rik | 057715 | 150870 | N/A | Kcnh7 | 059742 | 075052 | 074563 | Ryr3 | 057378 | 080673 | 079503 |
| A830018L16Rik | 057715 | 142117 | N/A | Kcnh7 | 059742 | 112454 | 108073 | Ryr3 | 057378 | 208290 | 147250 |
| A830018L16Rik | 057715 | 141512 | 139635 | Kcnh7 | 059742 | 112452 | 108071 | Ryr3 | 057378 | 208151 | 146449 |
| A830018L16Rik | 057715 | 135014 | 119143 | Kcnh7 | 059742 | 131799 | N/A | S100a4 | 001020 | 001046 | 001046 |
| A830018L16Rik | 057715 | 137824 | 117421 | Kcnh8 | 035580 | 039366 | 049206 | S100a4 | 001020 | 142476 | 143522 |
| A830018L16Rik | 057715 | 179089 | 137287 | Kcnh8 | 035580 | 184279 | N/A | S100b | 033208 | 036387 | 047968 |
| A830018L16Rik | 057715 | 141339 | 121311 | Kcnip1 | 053519 | 109340 | 104964 | S1pr1 | 045092 | 055676 | 050897 |
| A830018L16Rik | 057715 | 191437 | N/A | Kcnip1 | 053519 | 065970 | 069063 | Sall1 | 031665 | 034090 | 034090 |
| A830018L16Rik | 057715 | 171690 | 132334 | Kcnip1 | 053519 | 101368 | 098919 | Samd12 | 058656 | 078673 | 077741 |
| 3110035E14Rik | 067879 | 088666 | 086041 | Kcnip1 | 053519 | 135034 | N/A | Samd12 | 058656 | 154119 | N/A |
| 3110043O21Rik | 028300 | 084724 | 081775 | Kcnip1 | 053519 | 154760 | N/A | Samd12 | 058656 | 132059 | 123446 |
| 3110043O21Rik | 028300 | 108126 | 103761 | Kcnip4 | 029088 | 166924 | 131276 | Samd12 | 058656 | 132362 | N/A |
| 3110043O21Rik | 028300 | 108127 | 103762 | Kcnip4 | 029088 | 172363 | N/A | Sapcd2 | 026955 | 114293 | 109932 |
| 3110043O21Rik | 028300 | 142628 | N/A | Kcnip4 | 029088 | 176978 | 134758 | Sapcd2 | 026955 | 100323 | 097898 |
| 3110043O21Rik | 028300 | 156472 | N/A | Kcnip4 | 029088 | 087395 | 084656 | Sapcd2 | 026955 | 155310 | N/A |
| 3110043O21Rik | 028300 | 130538 | N/A | Kcnip4 | 029088 | 101215 | N/A | Sapcd2 | 026955 | 129214 | N/A |
| 3110043O21Rik | 028300 | 149138 | N/A | Kcnip4 | 029088 | 176191 | 135071 | Sapcd2 | 026955 | 137171 | N/A |
| Cab39l | 021981 | 225149 | N/A | Kcnip4 | 029088 | 175660 | 135799 | Sapcd2 | 026955 | 132539 | N/A |
| Cab39l | 021981 | 224281 | N/A | Kcnip4 | 029088 | 101214 | N/A | Sapcd2 | 026955 | 028329 | 028329 |
| Cab39l | 021981 | 022553 | 022553 | Kcnj10 | 044708 | 056136 | 054356 | Scamp5 | 040722 | 046587 | 035898 |
| Cab39l | 021981 | 225595 | 153643 | Kcnj12 | 042529 | 089184 | 086588 | Scamp5 | 040722 | 215208 | N/A |
| Cab39l | 021981 | 223678 | 153281 | Kcnj12 | 042529 | 041944 | 041696 | Scamp5 | 040722 | 214256 | 150867 |
| Cab39l | 021981 | 224893 | 153449 | Kcnj12 | 042529 | 108717 | 104357 | Scamp5 | 040722 | 215734 | 151197 |
| Abl1 | 026842 | 146537 | N/A | Kcnj16 | 051497 | 106636 | 102247 | Scamp5 | 040722 | 213771 | 149622 |
| Abl1 | 026842 | 156736 | N/A | Kcnj16 | 051497 | 106635 | 102246 | Scamp5 | 040722 | 215059 | 150248 |
| Abl1 | 026842 | 075759 | 075167 | Kcnj16 | 051497 | 125692 | 119921 | Scel | 022123 | 227322 | 154402 |
| Abl1 | 026842 | 142554 | 142123 | Kcnj16 | 051497 | 150902 | 121758 | Scel | 022123 | 095576 | 093233 |
| Abl1 | 026842 | 123471 | 142297 | Kcnj16 | 051497 | 180023 | 136382 | Scg3 | 032181 | 034699 | 034699 |
| Abl1 | 026842 | 135233 | 141320 | Kcnj16 | 051497 | 178798 | 137414 | Scg3 | 032181 | 213324 | 149561 |
| Abl1 | 026842 | 028190 | 028190 | Kcnj3 | 026824 | 067101 | 063329 | Scg3 | 032181 | 215603 | 152480 |
| Abl1 | 026842 | 124089 | 117748 | Kcnj3 | 026824 | 112632 | 108251 | Scg3 | 032181 | 213637 | N/A |
| Abl1 | 026842 | 127714 | N/A | Kcnj3 | 026824 | 112633 | 108252 | Scg3 | 032181 | 214244 | 151074 |
| Abl1 | 026842 | 124726 | N/A | Kcnj4 | 044216 | 057801 | 094075 | Scg3 | 032181 | 214176 | N/A |
| Cables1 | 040957 | 171109 | 129463 | Kcnk10 | 033854 | 221240 | 152473 | Scg3 | 032181 | 215722 | N/A |
| Cables1 | 040957 | 046948 | 040639 | Kcnk10 | 033854 | 110113 | 105740 | Scn1a | 064329 | 200839 | 144214 |
| Cables1 | 040957 | 225430 | N/A | Kcnk10 | 033854 | 221305 | 152656 | Scn1a | 064329 | 112366 | 107985 |
| Cabp1 | 029544 | 031519 | 031519 | Kcnk10 | 033854 | 221906 | N/A | Scn1a | 064329 | 077489 | 076697 |
| Cabp1 | 029544 | 112113 | 107741 | Kcnk13 | 045404 | 160413 | 123916 | Scn1a | 064329 | 094951 | 092558 |
| Cabp1 | 029544 | 112109 | N/A | Kcnk13 | 045404 | 162221 | N/A | Scn1a | 064329 | 156865 | 144633 |
| Cabp1 | 029544 | 112112 | 107740 | Kcnk13 | 045404 | 049788 | 051846 | Scn1a | 064329 | 138910 | 116881 |
| Cabp1 | 029544 | 145197 | 138183 | Kcnk13 | 045404 | 177549 | 136882 | Scn1a | 064329 | 129508 | N/A |
| Cabp1 | 029544 | 151775 | N/A | Kcnk3 | 049265 | 066295 | 098987 | Scn1a | 064329 | 112371 | 107990 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cabp1 | 029544 | 201900 | N/A | Kcnk3 | 049265 | 197428 | N/A | Scn2a | 075318 | 144254 | 117955 |
| Cachd1 | 028532 | 030257 | 030257 | Kcnma1 | 063142 | 145596 | 153247 | Scn2a | 075318 | 028377 | 028377 |
| Cachd1 | 028532 | 097955 | 095568 | Kcnma1 | 063142 | 188285 | 140275 | Scn2a | 075318 | 201378 | N/A |
| Cachd1 | 028532 | 123475 | N/A | Kcnma1 | 063142 | 225431 | 153670 | Scn2a | 075318 | 202653 | N/A |
| Cachd1 | 028532 | 136430 | N/A | Kcnma1 | 063142 | 188210 | 141069 | Scn2a | 075318 | 200829 | 143882 |
| Cacna1a | 034656 | 135382 | N/A | Kcnma1 | 063142 | 224787 | 152999 | Scn2a | 075318 | 138368 | N/A |
| Cacna1a | 034656 | 121390 | 112436 | Kcnma1 | 063142 | 224025 | 153078 | Scn2a | 075318 | 202508 | 143958 |
| Cacna1a | 034656 | 122053 | 114055 | Kcnma1 | 063142 | 190044 | 140033 | Scn2a | 075318 | 202162 | 143888 |
| Cacna1a | 034656 | 215756 | 149242 | Kcnma1 | 063142 | 225315 | 153584 | Scn2a | 075318 | 100067 | 097645 |
| Cacna1a | 034656 | 129620 | N/A | Kcnma1 | 063142 | 225794 | 153254 | Scn2b | 070304 | 093855 | 091377 |
| Cacna1a | 034656 | 126302 | N/A | Kcnma1 | 063142 | 225556 | 152959 | Scn2b | 070304 | 170998 | 126826 |
| Cacna1a | 034656 | 143215 | N/A | Kcnma1 | 063142 | 190985 | 140154 | Scn4b | 046480 | 060125 | 062507 |
| Cacna1a | 034656 | 141981 | N/A | Kcnma1 | 063142 | 223727 | 153158 | Scn9a | 075316 | 100064 | 097642 |
| Cacna1a | 034656 | 144879 | N/A | Kcnma1 | 063142 | 223655 | 153362 | Scn9a | 075316 | 112354 | 107973 |
| Cacna1a | 034656 | 153691 | N/A | Kcnma1 | 063142 | 224077 | 153214 | Scn9a | 075316 | 151234 | N/A |
| Cacna1a | 034656 | 130507 | N/A | Kcnma1 | 063142 | 188991 | 140751 | Scn9a | 075316 | 141603 | N/A |
| Cacna1b | 004113 | 070864 | 063236 | Kcnma1 | 063142 | 224468 | 153312 | Scn9a | 075316 | 164384 | 126528 |
| Cacna1b | 004113 | 102939 | 100003 | Kcnma1 | 063142 | 224812 | 153527 | Scn9a | 075316 | 100063 | 097641 |
| Cacna1b | 004113 | 131861 | 141653 | Kcnma1 | 063142 | 224285 | 153316 | Scn9a | 075316 | 169900 | 131711 |
| Cacna1b | 004113 | 041342 | 037416 | Kcnma1 | 063142 | 225471 | 153083 | Scnn1g | 000216 | 000221 | 000221 |
| Cacna1b | 004113 | 114447 | 110090 | Kcnma1 | 063142 | 224232 | 153291 | Scube1 | 016763 | 144773 | N/A |
| Cacna1b | 004113 | 133892 | 115285 | Kcnma1 | 063142 | 223749 | 153216 | Scube1 | 016763 | 043634 | 044835 |
| Cacna1b | 004113 | 125798 | 141767 | Kcnma1 | 063142 | 212542 | N/A | Scube1 | 016763 | 076060 | 075434 |
| Cacna1b | 004113 | 155356 | 116674 | Kcnma1 | 063142 | 226051 | 153356 | Scube1 | 016763 | 016907 | 016907 |
| Cacna1b | 004113 | 124183 | 114605 | Kcnma1 | 063142 | 224933 | N/A | Scube1 | 016763 | 171496 | 130131 |
| Cacna1b | 004113 | 100348 | 097920 | Kcnma1 | 063142 | 212576 | 148692 | Sdc3 | 025743 | 070478 | 065877 |
| Cacna1e | 004110 | 187541 | 140937 | Kcnma1 | 063142 | 223847 | N/A | Sdc3 | 025743 | 146093 | N/A |
| Cacna1e | 004110 | 211821 | 148507 | Kcnma1 | 063142 | 225305 | N/A | Sdc3 | 025743 | 152591 | 118685 |
| Cacna1e | 004110 | 226546 | 153897 | Kcnma1 | 063142 | 224465 | N/A | Sdc3 | 025743 | 141297 | 123608 |
| Cacna1e | 004110 | 188384 | N/A | Kcnma1 | 063142 | 190339 | 141143 | Sdc3 | 025743 | 140623 | N/A |
| Cacna1e | 004110 | 188965 | N/A | Kcnma1 | 063142 | 065788 | 065293 | Sdc4 | 017009 | 017153 | 017153 |
| Cacna1e | 004110 | 188321 | N/A | Kcnma1 | 063142 | 100831 | 098393 | Sdc4 | 017009 | 142909 | N/A |
| Cacna1e | 004110 | 186256 | N/A | Kcnma1 | 063142 | 074983 | 074511 | Sec14l5 | 091712 | 165810 | 128063 |
| Cacna1e | 004110 | 004214 | 004214 | Kcnma1 | 063142 | 112423 | 108042 | Sec24d | 039234 | 047923 | 035823 |
| Cacna1g | 020866 | 107786 | 103415 | Kcnma1 | 063142 | 172099 | 132204 | Sec24d | 039234 | 198210 | N/A |
| Cacna1g | 020866 | 107791 | 103420 | Kcnma1 | 063142 | 177634 | 136447 | Sec24d | 039234 | 200333 | 143588 |
| Cacna1g | 020866 | 103166 | 099455 | Kcnma1 | 063142 | 163322 | 128553 | Sec24d | 039234 | 197291 | N/A |
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| Cacna1g | 020866 | 100561 | 098127 | Kcnma1 | 063142 | 179097 | 136568 | Sec24d | 039234 | 196631 | N/A |
| Cacna1g | 020866 | 107793 | 103422 | Kcnn3 | 000794 | 000811 | 000811 | Sec24d | 039234 | 200309 | N/A |
| Cacna1g | 020866 | 107788 | 103417 | Kcnn3 | 000794 | 124584 | N/A | Sec24d | 039234 | 196482 | N/A |
| Cacna1g | 020866 | 107790 | 103419 | Kcnq5 | 028033 | 029667 | 029667 | Sel1l3 | 029189 | 031090 | 031090 |
| Cacna1g | 020866 | 107789 | 103418 | Kcnq5 | 028033 | 115300 | 110955 | Sel1l3 | 029189 | 196435 | N/A |
| Cacna1g | 020866 | 107785 | 103414 | Kcnq5 | 028033 | 173058 | 134166 | Sel1l3 | 029189 | 196516 | N/A |
| Cacna1g | 020866 | 133331 | N/A | Kcnq5 | 028033 | 174183 | 134389 | Sel1l3 | 029189 | 196550 | N/A |
| Cacna1g | 020866 | 146160 | N/A | Kcnq5 | 028033 | 173404 | 134076 | Sel1l3 | 029189 | 199919 | N/A |
| Cacna1g | 020866 | 142190 | N/A | Kcnq5 | 028033 | 115299 | N/A | Sema3c | 028780 | 030568 | 030568 |
| Cacna1g | 020866 | 133000 | N/A | Kcnq5 | 028033 | 134505 | N/A | Sema3c | 028780 | 170181 | 126614 |
| Cacna1g | 020866 | 152811 | N/A | Kcnt2 | 052726 | 120709 | 112887 | Sema3c | 028780 | 170348 | N/A |
| Cacna1g | 020866 | 021234 | 021234 | Kcnt2 | 052726 | 120796 | 113333 | Sema3c | 028780 | 169603 | 132330 |
| Cacna2d1 | 040118 | 101581 | 099117 | Kcnt2 | 052726 | 119786 | 113535 | Sema3c | 028780 | 115271 | N/A |
| Cacna2d1 | 040118 | 039370 | 049457 | Kcnt2 | 052726 | 192840 | N/A | Sema3d | 040254 | 030868 | 030868 |
| Cacna2d1 | 040118 | 199704 | 142881 | Kcnt2 | 052726 | 145077 | N/A | Sema3d | 040254 | 196618 | N/A |
| Cacna2d1 | 040118 | 180204 | 136260 | Kcnt2 | 052726 | 193606 | 141947 | Sema3d | 040254 | 197927 | 142453 |
| Cacna2d1 | 040118 | 078272 | 077391 | Kcnv1 | 022342 | 022967 | 022967 | Sema3d | 040254 | 196093 | N/A |
| Cacna2d1 | 040118 | 196750 | 143082 | Kcnv1 | 022342 | 228536 | N/A | Sema3d | 040254 | 195923 | N/A |
| Cacna2d1 | 040118 | 200270 | N/A | Kctd12b | 041633 | 039424 | 037539 | Sema4d | 021451 | 110040 | 105667 |
| Cacna2d1 | 040118 | 200158 | N/A | Kctd12b | 041633 | 112572 | 108191 | Sema4d | 021451 | 021900 | 021900 |
| Cacna2d1 | 040118 | 200294 | N/A | Kctd13 | 030685 | 032924 | 032924 | Sema4d | 021451 | 110039 | 105666 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cacna2d1 | 040118 | 199236 | N/A | Kctd13 | 030685 | 141369 | N/A | Sema4d | 021451 | 125511 | N/A |
| Cacna2d1 | 040118 | 115281 | 110936 | Kctd13 | 030685 | 139233 | N/A | Sema4d | 021451 | 138228 | N/A |
| Cacna2d1 | 040118 | 167946 | 131507 | Kctd3 | 026608 | 193143 | 141861 | Sema4d | 021451 | 139865 | N/A |
| Cacna2d2 | 010066 | 010210 | 010210 | Kctd3 | 026608 | 085678 | 082821 | Sema4d | 021451 | 150662 | N/A |
| Cacna2d2 | 010066 | 168532 | 132512 | Kctd3 | 026608 | 192200 | N/A | Sema4d | 021451 | 139018 | N/A |
| Cacna2d2 | 010066 | 085092 | 082173 | Kctd3 | 026608 | 195745 | N/A | Sema4d | 021451 | 146238 | N/A |
| Cacna2d2 | 010066 | 166799 | 126029 | Kctd3 | 026608 | 195658 | 141863 | Sema4d | 021451 | 146922 | N/A |
| Cacna2d2 | 010066 | 170737 | 125943 | Kctd3 | 026608 | 195488 | N/A | Sema4d | 021451 | 143396 | N/A |
| Cacna2d2 | 010066 | 169354 | N/A | Kctd3 | 026608 | 192458 | N/A | Sema4d | 021451 | 139858 | N/A |
| Cacna2d2 | 010066 | 171809 | N/A | Kctd3 | 026608 | 193590 | N/A | Sema4d | 021451 | 155896 | N/A |
| Cacna2d2 | 010066 | 194842 | N/A | Kctd3 | 026608 | 195787 | N/A | Sema5a | 022231 | 226876 | N/A |
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| Cacna2d3 | 021991 | 022567 | 022567 | Kdm5d | 056673 | 055032 | 061095 | Sema5a | 022231 | 228103 | N/A |
| Cacna2d3 | 021991 | 225985 | 152967 | Kdm5d | 056673 | 188910 | N/A | Sema5a | 022231 | 228555 | N/A |
| Cacna2d3 | 021991 | 225668 | 153037 | Kdm5d | 056673 | 186696 | 140663 | Sema5a | 022231 | 228015 | N/A |
| Cacna2d3 | 021991 | 225733 | 153143 | Kdm5d | 056673 | 186726 | 140462 | Sema5a | 022231 | 227802 | N/A |
| Cacna2d3 | 021991 | 225863 | 153444 | Kdm5d | 056673 | 189626 | N/A | Sema5a | 022231 | 227976 | N/A |
| Cacna2d3 | 021991 | 224950 | N/A | Kdm5d | 056673 | 185542 | N/A | Sema5a | 022231 | 227429 | N/A |
| Cacna2d3 | 021991 | 226048 | N/A | Kdm5d | 056673 | 187296 | N/A | Sema6a | 019647 | 019791 | 019791 |
| Cacna2d3 | 021991 | 225953 | N/A | Kdm5d | 056673 | 189955 | N/A | Sema6a | 019647 | 076043 | 075420 |
| Cacna2d3 | 021991 | 224128 | N/A | Khdrbs3 | 022332 | 022954 | 022954 | Sema6a | 019647 | 135790 | 120011 |
| Cacnb4 | 017412 | 102760 | 099821 | 9530077C05Rik | 036411 | 058868 | 062120 | Sema6a | 019647 | 141224 | N/A |
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| Cacnb4 | 017412 | 132322 | N/A | 9530077C05Rik | 036411 | 213133 | N/A | Sema6a | 019647 | 126684 | 118655 |
| Cacnb4 | 017412 | 148837 | N/A | 1810041L15Rik | 062760 | 080751 | 079575 | Sema6a | 019647 | 144223 | N/A |
| Cacnb4 | 017412 | 178799 | 136811 | 1810041L15Rik | 062760 | 189248 | 141117 | Sema6a | 019647 | 123228 | 120249 |
| Cacng3 | 066189 | 084615 | 081664 | 1810041L15Rik | 062760 | 189994 | 140712 | Sema6a | 019647 | 115449 | 111109 |
| Cacng3 | 066189 | 182563 | 138495 | 1810041L15Rik | 062760 | 186527 | 140964 | Sema6d | 027200 | 103241 | 099531 |
| Cacng3 | 066189 | 182095 | 138755 | Kif13a | 021375 | 056978 | 055304 | Sema6d | 027200 | 137172 | N/A |
| Cacng4 | 020723 | 021066 | 021066 | Kif13a | 021375 | 223881 | 153657 | Sema6d | 027200 | 151199 | N/A |
| Cacng4 | 020723 | 134076 | N/A | Kif13a | 021375 | 225836 | 153536 | Sema6d | 027200 | 103240 | 099530 |
| Cacng5 | 040373 | 039071 | 047888 | Kif13a | 021375 | 224756 | 153385 | Sema6d | 027200 | 132088 | N/A |
| Cacng5 | 040373 | 106742 | 102353 | Kif13a | 021375 | 225591 | 153614 | Sema6d | 027200 | 051419 | 061123 |
| Cadm3 | 005338 | 111220 | 106851 | Kif13a | 021375 | 223856 | 152982 | Sema6d | 027200 | 103238 | 099528 |
| Cadm3 | 005338 | 005470 | 005470 | Kif13a | 021375 | 225904 | N/A | Sema6d | 027200 | 103239 | 099529 |
| Cadm3 | 005338 | 136540 | N/A | Kif13a | 021375 | 224457 | N/A | Sema6d | 027200 | 076335 | 075674 |
| Cadm3 | 005338 | 157032 | N/A | Kif13a | 021375 | 224923 | N/A | Sema6d | 027200 | 078621 | 077691 |
| Cadm3 | 005338 | 126963 | N/A | Kif13b | 060012 | 224126 | 153252 | Sema6d | 027200 | 077847 | 077014 |
| Cadps2 | 017978 | 115358 | 111015 | Kif13b | 060012 | 224507 | N/A | Sept4 | 020486 | 122945 | 115682 |
| Cadps2 | 017978 | 018122 | 018122 | Kif13b | 060012 | 224503 | 153168 | Sept4 | 020486 | 107962 | 103596 |
| Cadps2 | 017978 | 142913 | 138167 | Kif13b | 060012 | 224677 | N/A | Sept4 | 020486 | 140398 | N/A |
| Cadps2 | 017978 | 115361 | 111018 | Kif13b | 060012 | 100473 | 098041 | Sept4 | 020486 | 122067 | 112960 |
| Cadps2 | 017978 | 156986 | N/A | Kif19a | 010021 | 126555 | N/A | Sept4 | 020486 | 132723 | N/A |
| Cadps2 | 017978 | 125350 | 115866 | Kif19a | 010021 | 137326 | N/A | Sept4 | 020486 | 123081 | N/A |
| Cadps2 | 017978 | 069074 | 064876 | Kif19a | 010021 | 138804 | 115663 | Sept4 | 020486 | 133638 | N/A |
| Cadps2 | 017978 | 152131 | N/A | Kif19a | 010021 | 084368 | 081398 | Sept4 | 020486 | 135175 | N/A |
| Cadps2 | 017978 | 115356 | 111013 | Kif19a | 010021 | 131782 | N/A | Sept4 | 020486 | 107961 | 103595 |
| Cadps2 | 017978 | 136279 | N/A | Kif19a | 010021 | 138340 | 122743 | Sept4 | 020486 | 018544 | 018544 |
| Cadps2 | 017978 | 115355 | N/A | Kif19a | 010021 | 134165 | N/A | Sept4 | 020486 | 063156 | 060127 |
| Cadps2 | 017978 | 166458 | 125972 | Kif21b | 041642 | 075164 | 074661 | Sept4 | 020486 | 107960 | 103594 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cadps2 | 017978 | 163871 | 128905 | Kif21b | 041642 | 130864 | 114297 | Sept4 | 020486 | 136229 | N/A |
| Calb1 | 028222 | 029876 | 029876 | Kif21b | 041642 | 122892 | N/A | Sept4 | 020486 | 134923 | N/A |
| Calb1 | 028222 | 136266 | N/A | Kif21b | 041642 | 171381 | 131815 | Sept4 | 020486 | 133202 | 115790 |
| Calb1 | 028222 | 141336 | N/A | Kif21b | 041642 | 127624 | N/A | Sept4 | 020486 | 148216 | N/A |
| Calb2 | 003657 | 212297 | 148680 | Kif21b | 041642 | 165333 | N/A | Sept4 | 020486 | 127414 | N/A |
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| Caln1 | 060371 | 086029 | 083193 | Kif26b | 026494 | 161017 | 124462 | Sept7 | 001833 | 165594 | 127641 |
| Caln1 | 060371 | 202728 | 143823 | Kif26b | 026494 | 160789 | 124608 | Sept7 | 001833 | 215692 | N/A |
| Caln1 | 060371 | 141131 | 144225 | Kif6 | 023999 | 162854 | 124674 | Sept7 | 001833 | 215721 | N/A |
| Caln1 | 060371 | 111287 | 106918 | Kif6 | 023999 | 159354 | N/A | Sept7 | 001833 | 213980 | N/A |
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| Camk1g | 016179 | 169907 | 128143 | Kif6 | 023999 | 024798 | N/A | Sept7 | 001833 | 214911 | N/A |
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| Camk2a | 024617 | 102888 | 099952 | Kirrel | 041734 | 159976 | 125525 | Sept7 | 001833 | 115272 | 110927 |
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| Camk2g | 021820 | 100837 | 098398 | Kit | 005672 | 136002 | N/A | Serpinb1a | 044734 | 223016 | N/A |
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| Camk2g | 021820 | 226630 | 154158 | Kitl | 019966 | 105283 | 100920 | Serpine2 | 026249 | 189793 | 140065 |
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| Camk2g | 021820 | 225463 | 153453 | Kitl | 019966 | 219881 | N/A | Serpinh1 | 070436 | 169437 | 126390 |
| Camk2g | 021820 | 225660 | N/A | Klhl13 | 036782 | 115313 | 110968 | Serpinh1 | 070436 | 094154 | 091706 |
| Camk2g | 021820 | 225958 | N/A | Klhl13 | 036782 | 115319 | 110974 | Serpinh1 | 070436 | 208119 | 146969 |
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| Camk2g | 021820 | 225635 | N/A | Klhl13 | 036782 | 035973 | 041190 | Serpini1 | 027834 | 161776 | 123845 |
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| Camkv | 032936 | 195219 | 142005 | Klhl5 | 054920 | 204479 | N/A | Sertm1 | 056306 | 162201 | 124102 |
| Camkv | 032936 | 194206 | 141444 | Klhl5 | 054920 | 203561 | N/A | Sertm1 | 056306 | 070342 | 064870 |
| Cap2 | 021373 | 021802 | 021802 | Klhl5 | 054920 | 203538 | 145269 | Sestd1 | 042272 | 102660 | 099721 |
| Cap2 | 021373 | 119341 | 112952 | Klk6 | 050063 | 107968 | 103602 | Sestd1 | 042272 | 102659 | 099720 |
| Cap2 | 021373 | 225824 | 153125 | Klk6 | 050063 | 107966 | 103600 | Sestd1 | 042272 | 145366 | N/A |
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| Cap2 | 021373 | 126687 | 153072 | Klk6 | 050063 | 107967 | 103601 | Setbp1 | 024548 | 025430 | 025430 |
| Capn5 | 035547 | 040971 | 048183 | Kndc1 | 066129 | 154782 | N/A | Sez6l2 | 030683 | 106335 | 101942 |
| Capn5 | 035547 | 107112 | 102729 | Kndc1 | 066129 | 121839 | 113856 | Sez6l2 | 030683 | 146017 | 115905 |
| Capn5 | 035547 | 134638 | N/A | Kndc1 | 066129 | 156941 | N/A | Sez6l2 | 030683 | 106333 | 101940 |
| Capn5 | 035547 | 155056 | 116697 | Kndc1 | 066129 | 210154 | N/A | Sez6l2 | 030683 | 106332 | 101939 |
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| Capzb | 028745 | 102508 | 099566 | Krt24 | 020913 | 017255 | 017255 | Sez6l2 | 030683 | 134471 | N/A |
| Capzb | 028745 | 131912 | 114973 | Ksr2 | 061578 | 073347 | N/A | Sez6l2 | 030683 | 155138 | 146086 |
| Capzb | 028745 | 102507 | 099565 | Ksr2 | 061578 | 180430 | 137670 | Sgcd | 020354 | 154578 | N/A |
| Capzb | 028745 | 131793 | N/A | L3hypdh | 019718 | 138029 | N/A | Sgcd | 020354 | 077221 | 076459 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Capzb | 028745 | 150077 | N/A | L3hypdh | 019718 | 124405 | N/A | Sgcd | 020354 | 109220 | 104843 |
| Capzb | 028745 | 030518 | 030518 | L3hypdh | 019718 | 019862 | 019862 | Sgcd | 020354 | 128558 | N/A |
| Capzb | 028745 | 156760 | N/A | L3mbtl2 | 022394 | 023029 | 023029 | Sgms2 | 050931 | 090246 | 087713 |
| Capzb | 028745 | 145368 | 119252 | L3mbtl2 | 022394 | 174229 | 133967 | Sgms2 | 050931 | 126569 | 114192 |
| Capzb | 028745 | 138045 | 122077 | L3mbtl2 | 022394 | 172620 | N/A | Sgms2 | 050931 | 197057 | 143170 |
| Capzb | 028745 | 042675 | 038011 | L3mbtl2 | 022394 | 172568 | N/A | Sgms2 | 050931 | 200431 | N/A |
| Capzb | 028745 | 132385 | N/A | L3mbtl2 | 022394 | 172748 | 134333 | Sh2d1a | 005696 | 129855 | N/A |
| Car12 | 032373 | 071889 | 071786 | L3mbtl2 | 022394 | 174274 | N/A | Sh2d1a | 005696 | 189753 | 141070 |
| Car12 | 032373 | 152011 | N/A | L3mbtl2 | 022394 | 173105 | N/A | Sh2d1a | 005696 | 005839 | 005839 |
| Car12 | 032373 | 123195 | N/A | L3mbtl2 | 022394 | 173607 | N/A | Sh2d1a | 005696 | 115070 | 110722 |
| Car12 | 032373 | 217394 | N/A | L3mbtl2 | 022394 | 174497 | 133549 | Sh2d1a | 005696 | 153948 | 138624 |
| Car12 | 032373 | 085420 | 082541 | L3mbtl2 | 022394 | 174401 | N/A | Sh2d1a | 005696 | 128393 | N/A |
| Car12 | 032373 | 134829 | 118030 | L3mbtl2 | 022394 | 173761 | N/A | Sh2d1a | 005696 | 101619 | N/A |
| Car14 | 038526 | 036181 | 036983 | Lama1 | 032796 | 035471 | 043957 | Sh2d4b | 037833 | 070328 | 064708 |
| Car14 | 038526 | 147962 | 117464 | Lama2 | 019899 | 186279 | N/A | Sh2d4b | 037833 | 096000 | 093699 |
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| Car14 | 038526 | 126722 | N/A | Lama2 | 019899 | 219763 | 151741 | Sh3bgrl2 | 032261 | 188241 | 140951 |
| Car2 | 027562 | 192609 | 141876 | Lama2 | 019899 | 189575 | 140716 | Sh3bgrl2 | 032261 | 113215 | 108841 |
| Car2 | 027562 | 029078 | 029078 | Lama2 | 019899 | 185839 | N/A | Sh3bgrl2 | 032261 | 188617 | N/A |
| Car2 | 027562 | 195520 | N/A | Lama2 | 019899 | 186965 | N/A | Sh3bgrl2 | 032261 | 188030 | 140348 |
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| Car4 | 000805 | 103194 | 099483 | Lama2 | 019899 | 187535 | N/A | Sh3bp4 | 036206 | 066279 | 067581 |
| Car4 | 000805 | 138331 | N/A | Lama4 | 019846 | 159506 | N/A | Sh3bp4 | 036206 | 123745 | N/A |
| Car4 | 000805 | 150596 | 121381 | Lama4 | 019846 | 019992 | 019992 | Sh3d19 | 028082 | 182969 | N/A |
| Car4 | 000805 | 127827 | 115878 | Lama4 | 019846 | 162211 | N/A | Sh3d19 | 028082 | 182723 | N/A |
| Car4 | 000805 | 108076 | 103711 | Lama4 | 019846 | 161303 | N/A | Sh3d19 | 028082 | 183119 | N/A |
| Car7 | 031883 | 212942 | N/A | Lama4 | 019846 | 159580 | N/A | Sh3d19 | 028082 | 182399 | N/A |
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| Car7 | 031883 | 162761 | 125404 | Lamb1 | 002900 | 169088 | 132778 | Sh3d19 | 028082 | 107664 | 103291 |
| Car7 | 031883 | 162399 | N/A | Lamb1 | 002900 | 002979 | 002979 | Sh3tf1 | 031642 | 034060 | 034060 |
| Car8 | 041261 | 066674 | 063511 | Lamb1 | 002900 | 164228 | N/A | Sh3tf1 | 031642 | 209611 | 148118 |
| Carmil1 | 021338 | 125901 | 126522 | Lamb1 | 002900 | 170495 | 132001 | Sh3tf1 | 031642 | 210210 | N/A |
| Carmil1 | 021338 | 151566 | 120971 | Lamb1 | 002900 | 169065 | N/A | Sh3tf3 | 037990 | 135526 | 114368 |
| Carmil1 | 021338 | 072889 | 072662 | Lamb1 | 002900 | 164009 | N/A | Sh3tf3 | 037990 | 153031 | 120938 |
| Carmil1 | 021338 | 110398 | 106028 | Lamb1 | 002900 | 172134 | N/A | Sh3tf3 | 037990 | 133151 | N/A |
| Carmil1 | 021338 | 147261 | N/A | Lamp5 | 027270 | 144403 | 120703 | Sh3tf3 | 037990 | 148267 | N/A |
| Carmil1 | 021338 | 142171 | N/A | Lamp5 | 027270 | 057503 | 061180 | Sh3tf3 | 037990 | 152924 | N/A |
| Carmil1 | 021338 | 128416 | N/A | Lamp5 | 027270 | 154674 | N/A | Sh3tc2 | 045629 | 051720 | 055094 |
| Carmil1 | 021338 | 125420 | N/A | Lamp5 | 027270 | 143777 | N/A | Shank1 | 038738 | 107938 | 103571 |
| Carmil1 | 021338 | 144159 | N/A | Lamp5 | 027270 | 123436 | N/A | Shank1 | 038738 | 107935 | 103568 |
| Carmil1 | 021338 | 140042 | 127121 | Laptm4b | 022257 | 022867 | 022867 | Shank1 | 038738 | 107934 | 103567 |
| Carmil1 | 021338 | 123076 | 130100 | Laptm4b | 022257 | 226437 | 154241 | Shank1 | 038738 | 134470 | N/A |
| Carmil1 | 021338 | 136517 | N/A | Laptm4b | 022257 | 226627 | 153935 | Shank1 | 038738 | 154776 | N/A |
| Cams1 | 075289 | 167055 | 131624 | Laptm4b | 022257 | 228547 | 154118 | Shank1 | 038738 | 127164 | N/A |
| Casp12 | 025887 | 027009 | 027009 | Lars2 | 035202 | 038863 | 036710 | Shank3 | 022623 | 109309 | 104932 |
| Casp12 | 025887 | 151788 | 121565 | Lars2 | 035202 | 215674 | N/A | Shank3 | 022623 | 135214 | N/A |
| Casp12 | 025887 | 149520 | N/A | Lars2 | 035202 | 214074 | N/A | Shank3 | 022623 | 066545 | 064477 |
| Casp12 | 025887 | 138308 | N/A | Lars2 | 035202 | 217116 | 150083 | Shank3 | 022623 | 154240 | N/A |
| Casp12 | 025887 | 151332 | 122201 | Lars2 | 035202 | 216843 | 150895 | Shank3 | 022623 | 123799 | N/A |
| Casq2 | 027861 | 029454 | 029454 | Lars2 | 035202 | 215464 | 149082 | Shank3 | 022623 | 167173 | 132229 |
| Casq2 | 027861 | 165540 | 130482 | Lars2 | 035202 | 214557 | N/A | Shank3 | 022623 | 039074 | 048062 |
| Casq2 | 027861 | 164123 | 131232 | Lars2 | 035202 | 213711 | N/A | Shc3 | 021448 | 021898 | 021898 |
| Casq2 | 027861 | 159521 | N/A | Lars2 | 035202 | 215087 | N/A | Shc3 | 021448 | 223543 | 152080 |
| Casq2 | 027861 | 159833 | N/A | Lbh | 024063 | 024857 | 024857 | Shc3 | 021448 | 221850 | N/A |
| Cav1 | 007655 | 007799 | 007799 | Lbh | 024063 | 148556 | 123062 | Shc4 | 035109 | 042246 | 043146 |
| Cav1 | 007655 | 115456 | 111116 | Lcat | 035237 | 038896 | 038232 | Shc4 | 035109 | 110480 | 106106 |
| Cav1 | 007655 | 115455 | 111115 | Lcorl | 015882 | 045586 | 042677 | Shc4 | 035109 | 110477 | 106103 |
| Cav1 | 007655 | 130505 | N/A | Lcorl | 015882 | 190036 | 140503 | Shc4 | 035109 | 157002 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cav1 | 007655 | 177234 | 135875 | Lcorl | 015882 | 121573 | 112416 | Shisa6 | 053930 | 134562 | N/A |
| Cav1 | 007655 | 150901 | 135374 | Lcorl | 015882 | 199744 | N/A | Shisa6 | 053930 | 123454 | 120862 |
| Cav1 | 007655 | 123439 | 120252 | Lcorl | 015882 | 200142 | N/A | Shisa6 | 053930 | 066679 | 071025 |
| Cav1 | 007655 | 115454 | 111114 | Lcorl | 015882 | 087164 | 084408 | Shisa7 | 053550 | 117452 | 112405 |
| Cav1 | 007655 | 115453 | 111113 | Lcorl | 015882 | 016026 | 016026 | Shisa7 | 053550 | 119433 | 112423 |
| Cav1 | 007655 | 133065 | N/A | Lcorl | 015882 | 189859 | 139996 | Shisa7 | 053550 | 157068 | N/A |
| Cav2 | 000058 | 000058 | 000058 | Lcorl | 015882 | 187615 | 139466 | Shisa7 | 053550 | 132806 | N/A |
| Cav2 | 000058 | 115459 | 111119 | Lcorl | 015882 | 067997 | N/A | Shisa7 | 053550 | 066041 | 064886 |
| Cav2 | 000058 | 115462 | 111122 | Lcorl | 015882 | 156295 | N/A | Shroom3 | 029381 | 113055 | 108678 |
| Cbfb | 031885 | 052209 | 059382 | Lcorl | 015882 | 186633 | 141174 | Shroom3 | 029381 | 168878 | 130419 |
| Cbfb | 031885 | 109392 | 105019 | Ldah | 037669 | 037383 | 042285 | Shroom3 | 029381 | 202767 | N/A |
| Cbfb | 031885 | 109395 | 105022 | Ldah | 037669 | 218883 | 151802 | Shroom3 | 029381 | 113054 | 108677 |
| Cbfb | 031885 | 109394 | 105021 | Ldah | 037669 | 218305 | 151881 | Shroom3 | 029381 | 172849 | N/A |
| Cbfb | 031885 | 186070 | N/A | Ldah | 037669 | 219043 | 151289 | Shroom3 | 029381 | 225438 | 153516 |
| Cbfb | 031885 | 190915 | N/A | Ldah | 037669 | 218086 | 151612 | Shroom3 | 029381 | 113051 | 108674 |
| Cbfb | 031885 | 187323 | N/A | Ldah | 037669 | 169104 | 129424 | Shroom3 | 029381 | 172706 | 133690 |
| Cbln1 | 031654 | 034076 | 034076 | Ldah | 037669 | 220345 | 151631 | Shroom3 | 029381 | 201800 | N/A |
| Cbln1 | 031654 | 211279 | N/A | Ldah | 037669 | 217763 | N/A | Shroom3 | 029381 | 200869 | N/A |
| Cbln1 | 031654 | 169693 | 126575 | Ldah | 037669 | 217999 | 151852 | Shroom3 | 029381 | 172752 | N/A |
| Cbln2 | 024647 | 068423 | 068863 | Ldah | 037669 | 219357 | 151362 | Shroom4 | 068270 | 103005 | 100070 |
| Cbln2 | 024647 | 122464 | 113996 | Ldah | 037669 | 219058 | 151541 | Shroom4 | 068270 | 143641 | 131806 |
| Cbln2 | 024647 | 122079 | 113695 | Ldah | 037669 | 220274 | 151309 | Shroom4 | 068270 | 089520 | 086949 |
| Cbln2 | 024647 | 169470 | 126810 | Ldah | 037669 | 217872 | 151257 | Shtn1 | 041362 | 047511 | 041378 |
| Cbln3 | 040380 | 063871 | 070494 | Ldah | 037669 | 219532 | 151941 | Shtn1 | 041362 | 163821 | 126227 |
| Cbln3 | 040380 | 172378 | 127798 | Ldb2 | 039706 | 199534 | 142442 | Siah3 | 091722 | 164848 | 130827 |
| Cdc13 | 079235 | 135986 | 114787 | Ldb2 | 039706 | 070748 | 067737 | Sidt1 | 022696 | 127567 | 116201 |
| Cdc13 | 079235 | 155511 | 128061 | Ldb2 | 039706 | 199256 | 143775 | Sidt1 | 022696 | 136381 | 115372 |
| Cdc13 | 079235 | 126851 | N/A | Ldb2 | 039706 | 199261 | 143289 | Sidt1 | 022696 | 047446 | 038433 |
| Cdc13 | 079235 | 142783 | 130887 | Ldb2 | 039706 | 199471 | N/A | Sidt1 | 022696 | 127124 | N/A |
| Cdc13 | 079235 | 140929 | N/A | Ldb2 | 039706 | 198356 | N/A | Sidt1 | 022696 | 147032 | 114424 |
| Cdc13 | 079235 | 146716 | N/A | Ldb2 | 039706 | 198894 | N/A | Sidt1 | 022696 | 124651 | N/A |
| Cdc152 | 091119 | 226261 | 153730 | Leng9 | 043432 | 058358 | 061079 | Sipa1l1 | 042700 | 220550 | N/A |
| Cdc152 | 091119 | 228405 | 153740 | Lfng | 029570 | 031555 | 031555 | Sipa1l1 | 042700 | 166429 | 131030 |
| Cdc152 | 091119 | 165386 | 129305 | Lfng | 029570 | 200626 | N/A | Sipa1l1 | 042700 | 220963 | 152681 |
| Cdc175 | 021086 | 021494 | 021494 | Lfng | 029570 | 199848 | N/A | Sipa1l1 | 042700 | 222312 | N/A |
| Cdc180 | 035539 | 127261 | N/A | Lgi4 | 036560 | 039775 | 041579 | Sipa1l1 | 042700 | 222849 | N/A |
| Cdc180 | 035539 | 149903 | 119784 | Lgi4 | 036560 | 169785 | 145660 | Sipa1l1 | 042700 | 222298 | 152356 |
| Cdc180 | 035539 | 151024 | 122332 | Lgi4 | 036560 | 164725 | 146008 | Sipa1l1 | 042700 | 222714 | 152212 |
| Cdc180 | 035539 | 178561 | 136714 | Lgi4 | 036560 | 172001 | 125865 | Sipa1l1 | 042700 | 220766 | N/A |
| Cdc80 | 022665 | 139509 | N/A | Lgr5 | 020140 | 020350 | 020350 | Sipa1l1 | 042700 | 221169 | 152485 |
| Cdc80 | 022665 | 138048 | N/A | Lgr5 | 020140 | 172806 | 133860 | Sipa1l1 | 042700 | 221327 | N/A |
| Cdc80 | 022665 | 155800 | N/A | Lgr5 | 020140 | 173740 | 133707 | Sipa1l1 | 042700 | 053969 | 061014 |
| Cdc80 | 022665 | 099498 | 097097 | Lgr5 | 020140 | 173619 | N/A | Sipa1l3 | 030583 | 183330 | 138345 |
| Cdc80 | 022665 | 134924 | N/A | Lgr5 | 020140 | 144732 | N/A | Sipa1l3 | 030583 | 182223 | N/A |
| Cdc80 | 022665 | 061050 | 058752 | Lgr5 | 020140 | 105272 | N/A | Sipa1l3 | 030583 | 183096 | 138171 |
| Cdc85a | 032878 | 160016 | 125648 | Lgr5 | 020140 | 149008 | N/A | Sipa1l3 | 030583 | 182009 | N/A |
| Cdc85a | 032878 | 140601 | 124184 | Lgr5 | 020140 | 129309 | N/A | Sipa1l3 | 030583 | 182780 | 138311 |
| Cdc85a | 032878 | 093253 | 090941 | Lgr6 | 042793 | 044828 | 035444 | Sipa1l3 | 030583 | 182484 | 138714 |
| Cdc85a | 032878 | 146385 | 124972 | Lgr6 | 042793 | 137968 | 122334 | Sipa1l3 | 030583 | 182829 | N/A |
| Cdc85a | 032878 | 042534 | 044649 | Lgr6 | 042793 | 139369 | N/A | Sipa1l3 | 030583 | 183164 | N/A |
| Cdc85a | 032878 | 109501 | N/A | Lhfp | 048332 | 059562 | 056364 | Sipa1l3 | 030583 | 182911 | N/A |
| Cdc85a | 032878 | 109502 | 105128 | Lhfp | 048332 | 137954 | N/A | Sipa1l3 | 030583 | 183275 | 138381 |
| Cdc88a | 032740 | 040182 | 048978 | Lhfp | 048332 | 147139 | 119019 | Sipa1l3 | 030583 | 182529 | N/A |
| Cdc88a | 032740 | 123561 | 119173 | Lhfp | 048332 | 196913 | N/A | Sipa1l3 | 030583 | 182011 | N/A |
| Cdc88a | 032740 | 155854 | 115117 | Lhfpl2 | 045312 | 054274 | 062239 | Sipa1l3 | 030583 | 181975 | 138592 |
| Cdc88a | 032740 | 140194 | 114942 | Lhfpl2 | 045312 | 144838 | N/A | Sipa1l3 | 030583 | 182702 | N/A |
| Cdc88a | 032740 | 137227 | N/A | Lhfpl2 | 045312 | 156071 | 117113 | Sipa1l3 | 030583 | 182236 | N/A |
| Cdc88a | 032740 | 144450 | N/A | Lhfpl2 | 045312 | 221096 | 152453 | Sipa1l3 | 030583 | 183081 | N/A |
| Cdc88a | 032740 | 109477 | 105103 | Lhfpl2 | 045312 | 223423 | 152241 | Sipa1l3 | 030583 | 183085 | N/A |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Cck | 032532 | 216176 | 149163 | Lhfpl2 | 045312 | 120051 | 113786 | Sipa1l3 | 030583 | 085809 | 082965 |
| Cck | 032532 | 216138 | 150080 | Lhfpl2 | 045312 | 118195 | 112655 | Sirpa | 037902 | 127751 | N/A |
| Cck | 032532 | 035120 | 035120 | Lhfpl2 | 045312 | 131595 | N/A | Sirpa | 037902 | 136153 | N/A |
| Cck | 032532 | 215228 | 149679 | Lhfpl2 | 045312 | 121618 | 113468 | Sirpa | 037902 | 153491 | 120324 |
| Cck | 032532 | 213106 | 149410 | Lhx1 | 018698 | 018842 | 018842 | Sirpa | 037902 | 161620 | 124048 |
| Cck | 032532 | 217581 | 150557 | Lhx1 | 018698 | 184646 | 138899 | Sirpa | 037902 | 136554 | N/A |
| Cckbr | 030898 | 033189 | 033189 | Lhx1 | 018698 | 176503 | N/A | Sirpa | 037902 | 103203 | 099492 |
| Cckbr | 030898 | 181339 | 138052 | Lhx1 | 018698 | 092827 | 090503 | Sirpa | 037902 | 103202 | 099491 |
| Ccnd1 | 070348 | 093962 | 091495 | Lhx1os | 087211 | 134800 | N/A | Sirpa | 037902 | 049262 | 049022 |
| Ccnd1 | 070348 | 208193 | N/A | Lhx1os | 087211 | 126072 | N/A | Sirpa | 037902 | 160952 | N/A |
| Ccnd1 | 070348 | 135985 | N/A | Lhx1os | 087211 | 128121 | N/A | Sirpa | 037902 | 163034 | 124888 |
| Ccnd2 | 000184 | 000188 | 000188 | Lhx5 | 029595 | 031591 | 031591 | Sirpa | 037902 | 160276 | 125004 |
| Ccnd2 | 000184 | 201564 | N/A | Lims2 | 024395 | 025254 | 025254 | Sirpa | 037902 | 162764 | N/A |
| Ccnd2 | 000184 | 201985 | N/A | Lims2 | 024395 | 225404 | 153218 | Sirpa | 037902 | 099113 | 096713 |
| Ccnd2 | 000184 | 201902 | 144006 | Lims2 | 024395 | 225470 | N/A | Sirpa | 037902 | 179001 | 137611 |
| Ccnd2 | 000184 | 202363 | N/A | Lims2 | 024395 | 224383 | 152960 | Skap2 | 059182 | 204778 | 145462 |
| Ccnd2 | 000184 | 201066 | 144095 | Lims2 | 024395 | 226112 | N/A | Skap2 | 059182 | 205174 | N/A |
| Ccnd2 | 000184 | 201637 | 144245 | Lims2 | 024395 | 225400 | N/A | Skap2 | 059182 | 078214 | 077342 |
| Ccnd2 | 000184 | 201857 | N/A | Lims2 | 024395 | 223753 | 153122 | Skap2 | 059182 | 203948 | 145275 |
| Cd70 | 019489 | 019633 | 019633 | Lims2 | 024395 | 225125 | N/A | Skap2 | 059182 | 205112 | N/A |
| Cd82 | 027215 | 099696 | 097287 | Lims2 | 024395 | 224328 | 153433 | Skap2 | 059182 | 204178 | N/A |
| Cd82 | 027215 | 028644 | 028644 | Lin28b | 063804 | 079390 | 078361 | Skap2 | 059182 | 203313 | N/A |
| Cd82 | 027215 | 126772 | N/A | Lin28b | 063804 | 215708 | N/A | Skor1 | 022245 | 119146 | 113924 |
| Cd82 | 027215 | 111257 | 106888 | Lin28b | 063804 | 214555 | N/A | Skor1 | 022245 | 116613 | 112312 |
| Cd82 | 027215 | 123565 | 114762 | Lin7a | 019906 | 020057 | 020057 | Skor1 | 022245 | 055281 | 055037 |
| Cd82 | 027215 | 145553 | 115310 | Lin7a | 019906 | 105280 | 100916 | Skor2 | 091519 | 166956 | 132338 |
| Cd82 | 027215 | 150508 | 120183 | Lin7a | 019906 | 218031 | 151715 | Slc12a2 | 024597 | 115366 | 111023 |
| Cd82 | 027215 | 111256 | 106887 | Gm28653 | 099906 | 227082 | N/A | Slc12a8 | 035506 | 121925 | 112439 |
| Cd82 | 027215 | 144168 | N/A | Gm28653 | 099906 | 185494 | N/A | Slc12a8 | 035506 | 119173 | 113633 |
| Cd82 | 027215 | 124804 | 115349 | Lingo1 | 049556 | 210032 | 148179 | Slc12a8 | 035506 | 122314 | 113901 |
| Cd82 | 027215 | 116457 | 112158 | Lingo1 | 049556 | 114256 | 109894 | Slc12a8 | 035506 | 122427 | 113164 |
| Cd9 | 030342 | 032492 | 032492 | Lingo1 | 049556 | 114247 | 109885 | Slc12a8 | 035506 | 117134 | 112925 |
| Cd9 | 030342 | 130132 | N/A | Lingo1 | 049556 | 209596 | N/A | Slc12a8 | 035506 | 149291 | N/A |
| Cd9 | 030342 | 140024 | N/A | Lingo1 | 049556 | 210332 | N/A | Slc12a8 | 035506 | 059056 | 062337 |
| Cdc14b | 033102 | 221634 | 152388 | Lingo1 | 049556 | 209332 | N/A | Slc14a1 | 059336 | 091813 | 089421 |
| Cdc14b | 033102 | 039318 | 046003 | Lingo1 | 049556 | 210995 | N/A | Slc14a1 | 059336 | 160292 | 125114 |
| Cdc14b | 033102 | 221139 | 152843 | Lingo1 | 049556 | 053568 | 059050 | Slc14a1 | 059336 | 160639 | 125367 |
| Cdc14b | 033102 | 109769 | 105391 | Lingo2 | 045083 | 065173 | 069772 | Slc14a2 | 024552 | 025434 | 025434 |
| Cdc14b | 033102 | 221788 | N/A | Lingo2 | 045083 | 098151 | 095754 | Slc14a2 | 024552 | 163367 | 126416 |
| Cdc14b | 033102 | 222713 | 152246 | Lingo2 | 045083 | 108122 | 103757 | Slc16a10 | 019838 | 092566 | 090227 |
| Cdc14b | 033102 | 221217 | 152736 | Lingo2 | 045083 | 124999 | N/A | Slc16a10 | 019838 | 213827 | 151126 |
| Cdc14b | 033102 | 222766 | 152870 | Lingo2 | 045083 | 145615 | N/A | Slc16a10 | 019838 | 213488 | 150416 |
| Cdc14b | 033102 | 223116 | N/A | Lingo2 | 045083 | 127372 | N/A | Slc16a10 | 019838 | 217252 | N/A |
| Cdc14b | 033102 | 221437 | N/A | Lingo2 | 045083 | 144170 | N/A | Slc17a7 | 070570 | 085374 | 082489 |
| Cdc14b | 033102 | 109770 | 105392 | Lingo2 | 045083 | 125128 | N/A | Slc17a7 | 070570 | 209634 | 147661 |
| Cdc42ep1 | 049521 | 059619 | 060930 | Lingo2 | 045083 | 108124 | 103759 | Slc17a7 | 070570 | 210498 | N/A |
| Cdc42ep4 | 041598 | 106616 | 102227 | Lingo2 | 045083 | 164772 | 130423 | Slc17a7 | 070570 | 210540 | N/A |
| Cdc42ep4 | 041598 | 053536 | 060227 | Litaf | 022500 | 023143 | 023143 | Slc17a7 | 070570 | 211652 | N/A |
| Cdc42ep4 | 041598 | 131488 | 114599 | Litaf | 022500 | 117360 | 112667 | Slc19a1 | 001436 | 136150 | 121237 |
| Cdc42ep4 | 041598 | 153453 | 120316 | Litaf | 022500 | 162323 | 123948 | Slc19a1 | 001436 | 133059 | 120266 |
| Cdh1 | 000303 | 000312 | 000312 | Litaf | 022500 | 140170 | N/A | Slc19a1 | 001436 | 144234 | 116784 |
| Cdh1 | 000303 | 136580 | N/A | Lmod1 | 057604 | 032376 | 032376 | Slc19a1 | 001436 | 105410 | 101050 |
| Cdh1 | 000303 | 167688 | 132112 | Lmo2 | 032698 | 111143 | 106773 | Slc19a1 | 001436 | 136925 | 119382 |
| Cdh10 | 022321 | 166873 | 128782 | Lmo2 | 032698 | 111140 | 106770 | Slc19a1 | 001436 | 130703 | 115658 |
| Cdh10 | 022321 | 176801 | N/A | Lmo2 | 032698 | 133210 | N/A | Slc19a1 | 001436 | 132984 | 116657 |
| Cdh10 | 022321 | 176593 | N/A | Lmo2 | 032698 | 111139 | 106769 | Slc19a1 | 001436 | 127249 | N/A |
| Cdh10 | 022321 | 040562 | 042199 | Lmo2 | 032698 | 123437 | 117703 | Slc19a1 | 001436 | 131031 | 114884 |
| Cdh10 | 022321 | 176146 | 135546 | Lmo2 | 032698 | 138815 | 121927 | Slc1a1 | 024935 | 161340 | N/A |
| Cdh10 | 022321 | 176409 | N/A | Lmo2 | 032698 | 156813 | 122369 | Slc1a1 | 024935 | 025875 | 025875 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cdh11 | 031673 | 075190 | 074681 | Lmo2 | 032698 | 170926 | 128317 | Slc1a1 | 024935 | 161119 | N/A |
| Cdh11 | 031673 | 210578 | N/A | Lonrf2 | 048814 | 147695 | 117600 | Slc1a1 | 024935 | 160702 | N/A |
| Cdh11 | 031673 | 210425 | N/A | Lonrf2 | 048814 | 191724 | N/A | Slc1a1 | 024935 | 162189 | N/A |
| Cdh13 | 031841 | 117160 | 113527 | Lonrf2 | 048814 | 039612 | 047372 | Slc1a4 | 020142 | 004634 | 004634 |
| Cdh13 | 031841 | 145849 | N/A | Lpcat2 | 033192 | 046290 | 049252 | Slc1a4 | 020142 | 109594 | 105223 |
| Cdh13 | 031841 | 142551 | N/A | Lpcat2 | 033192 | 210099 | 147941 | Slc1a6 | 005357 | 005490 | 005490 |
| Cdh13 | 031841 | 129548 | N/A | Lpcat2 | 033192 | 209265 | 148089 | Slc1a6 | 005357 | 217717 | 151544 |
| Cdh13 | 031841 | 148836 | N/A | Lpcat2 | 033192 | 130471 | N/A | Slc20a1 | 027397 | 028880 | 028880 |
| Cdh13 | 031841 | 123567 | N/A | Lpcat2 | 033192 | 151106 | N/A | Slc20a1 | 027397 | 140907 | N/A |
| Cdh13 | 031841 | 212476 | N/A | Lpp | 033306 | 115314 | 110969 | Slc20a1 | 027397 | 144744 | N/A |
| Cdh13 | 031841 | 151842 | N/A | Lpp | 033306 | 078988 | 078005 | Slc20a1 | 027397 | 141285 | N/A |
| Cdh15 | 031962 | 034443 | 034443 | Lpp | 033306 | 038053 | 036304 | Slc20a1 | 027397 | 148988 | 121074 |
| Cdh19 | 047216 | 094626 | 092210 | Lrch1 | 068015 | 088970 | 086363 | Slc20a1 | 027397 | 110315 | 105944 |
| Cdh19 | 047216 | 187555 | N/A | Lrch1 | 068015 | 228134 | N/A | Slc20a1 | 027397 | 125714 | N/A |
| Cdh2 | 024304 | 025166 | 025166 | Lrch1 | 068015 | 228252 | 154004 | Slc20a1 | 027397 | 144025 | N/A |
| Cdh2 | 024304 | 152779 | N/A | Lrch1 | 068015 | 226799 | N/A | Slc22a15 | 033147 | 106928 | 102541 |
| Cdh2 | 024304 | 115850 | 111516 | Lrch1 | 068015 | 227433 | N/A | Slc22a15 | 033147 | 190824 | 139518 |
| Cdh4 | 000305 | 000314 | 000314 | Lrig1 | 030029 | 204645 | 144963 | Slc22a15 | 033147 | 182130 | N/A |
| Cdh4 | 000305 | 108911 | 104539 | Lrig1 | 030029 | 101126 | 098686 | Slc22a15 | 033147 | 183293 | N/A |
| Cdh4 | 000305 | 124708 | N/A | Lrig1 | 030029 | 203876 | N/A | Slc22a15 | 033147 | 183255 | 138357 |
| Cdh4 | 000305 | 136411 | N/A | Lrig1 | 030029 | 141014 | N/A | Slc22a15 | 033147 | 183098 | N/A |
| Cdh4 | 000305 | 129659 | N/A | Lrig1 | 030029 | 150811 | N/A | Slc22a15 | 033147 | 182040 | N/A |
| Cdh4 | 000305 | 098996 | 096594 | Lrig1 | 030029 | 124165 | N/A | Slc22a23 | 038267 | 148390 | 122283 |
| Cdh8 | 036510 | 155527 | 123619 | Lrig1 | 030029 | 032105 | 032105 | Slc22a23 | 038267 | 040336 | 042742 |
| Cdh8 | 036510 | 142129 | 114507 | Lrp1 | 040249 | 049149 | 044004 | Slc22a23 | 038267 | 128392 | N/A |
| Cdh8 | 036510 | 093249 | 090935 | Lrp1 | 040249 | 125480 | N/A | Slc22a23 | 038267 | 145038 | 122376 |
| Cdh8 | 036510 | 145601 | 122493 | Lrp1 | 040249 | 121829 | 113584 | Slc22a23 | 038267 | 143353 | N/A |
| Cdh8 | 036510 | 128860 | 117326 | Lrp1 | 040249 | 133620 | 115305 | Slc22a4 | 020334 | 020586 | 020586 |
| Cdh8 | 036510 | 126895 | N/A | Lrp1 | 040249 | 129877 | N/A | Slc22a4 | 020334 | 146351 | N/A |
| Cdh8 | 036510 | 142475 | 115977 | Lrp1 | 040249 | 129727 | 120567 | Slc22a4 | 020334 | 154369 | N/A |
| Cdhr1 | 021803 | 022337 | 022337 | Lrp1 | 040249 | 145947 | N/A | Slc24a3 | 063873 | 153249 | N/A |
| Cdk14 | 028926 | 115451 | 111111 | Lrp1 | 040249 | 140269 | N/A | Slc24a3 | 063873 | 131123 | N/A |
| Cdk14 | 028926 | 030763 | 030763 | Lrp1 | 040249 | 135188 | N/A | Slc24a3 | 063873 | 110007 | 105634 |
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| Cdk14 | 028926 | 134867 | N/A | Lrp1b | 049252 | 134032 | N/A | Slc25a18 | 004902 | 112682 | 108302 |
| Cdk14 | 028926 | 132390 | N/A | Lrp1b | 049252 | 203080 | 145278 | Slc25a33 | 028982 | 105686 | 101311 |
| Cdk14 | 028926 | 153331 | N/A | Lrp1b | 049252 | 138700 | N/A | Slc26a3 | 001225 | 167432 | 130676 |
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| Cdk14 | 028926 | 131392 | 114741 | Lrp1b | 049252 | 133104 | N/A | Slc26a3 | 001225 | 110854 | 106478 |
| Cdk14 | 028926 | 167567 | 130895 | Lrp1b | 049252 | 142688 | 144957 | Slc26a3 | 001225 | 001254 | 001254 |
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| Cdk18 | 026437 | 188387 | N/A | Lrrc2 | 032495 | 196834 | 142360 | Slc27a6 | 024600 | 025500 | 025500 |
| Cdk18 | 026437 | 185601 | 140034 | Lrrc2 | 032495 | 196598 | 143319 | Slc2a10 | 027661 | 029196 | 029196 |
| Cdk18 | 026437 | 189733 | N/A | Lrrc20 | 037151 | 049242 | 048042 | Slc2a10 | 027661 | 148463 | N/A |
| Cdk18 | 026437 | 112362 | 107981 | Lrrc38 | 028584 | 052458 | 053597 | Slc2a4 | 018566 | 178809 | N/A |
| Cdk5rap2 | 039298 | 124251 | N/A | Lrrc38 | 097351 | 181564 | 137856 | Slc2a4 | 018566 | 018710 | 018710 |
| Cdk5rap2 | 039298 | 144099 | 119891 | Lrrc3b | 045201 | 055211 | 059463 | Slc2a4 | 018566 | 141837 | 136806 |
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| Cdk5rap2 | 039298 | 126416 | N/A | Lrrc3b | 045201 | 163937 | 128624 | Slc2a4 | 018566 | 178363 | 136455 |
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| Cdkl1 | 020990 | 021377 | 021377 | Lrrc4c | 050587 | 059049 | 131795 | Slc2a4 | 018566 | 135437 | 137092 |
| Cdkl1 | 020990 | 221646 | 152086 | Lrrc4c | 050587 | 170144 | 128490 | Slc30a3 | 029151 | 031037 | 031037 |

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| Cdyl | 059288 | 075220 | 074707 | Lrrc7 | 028176 | 200137 | 142498 | Slc30a3 | 029151 | 201783 | 144353 |
| Cdyl | 059288 | 225602 | 153274 | Lrrc7 | 028176 | 199890 | 142440 | Slc30a3 | 029151 | 202731 | 144574 |
| Cdyl | 059288 | 163595 | 131784 | Lrrc7 | 028176 | 197866 | N/A | Slc30a3 | 029151 | 200906 | 144098 |
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| Cebpb | 056501 | 070642 | 069850 | Lrrc7 | 028176 | 106044 | 101659 | Slc31a2 | 066152 | 107468 | 103092 |
| Cep126 | 040729 | 037397 | 042904 | Lrrk2 | 036273 | 060642 | 052584 | Slc31a2 | 066152 | 084530 | 081578 |
| Cep126 | 040729 | 217241 | N/A | Lrrk2 | 036273 | 140734 | N/A | Slc31a2 | 066152 | 107467 | 103091 |
| Cep126 | 040729 | 214150 | N/A | Lrrk2 | 036273 | 156900 | N/A | Slc32a1 | 037771 | 045738 | 036299 |
| Cep76 | 073542 | 097542 | 095149 | Lrrk2 | 036273 | 133743 | N/A | Slc35d1 | 028521 | 150285 | 122124 |
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| Cercam | 039787 | 153863 | N/A | Lrtm1 | 045776 | 055662 | 061828 | Slc39a12 | 036949 | 133258 | 122795 |
| Cercam | 039787 | 155355 | N/A | Lrtm1 | 045776 | 224760 | 153372 | Slc41a1 | 013275 | 132585 | N/A |
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| Cerkl | 075256 | 099974 | N/A | Ltbp2 | 002020 | 002073 | 002073 | Slc41a1 | 013275 | 146360 | N/A |
| Cerkl | 075256 | 147402 | N/A | Ltbp2 | 002020 | 163189 | 127693 | Slc43a2 | 038178 | 042561 | 046074 |
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| Cerkl | 075256 | 152413 | N/A | Ly6e | 022587 | 188866 | 140145 | Slc43a2 | 038178 | 152775 | N/A |
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| Cers4 | 008206 | 176042 | 135594 | Ly6e | 022587 | 189186 | 139477 | Slc44a5 | 028360 | 089948 | 087394 |
| Cers4 | 008206 | 008350 | 008350 | Ly6e | 022587 | 187284 | 140553 | Slc44a5 | 028360 | 128362 | N/A |
| Cers4 | 008206 | 176267 | N/A | Ly6e | 022587 | 190810 | 139482 | Slc44a5 | 028360 | 144677 | N/A |
| Cers4 | 008206 | 175781 | N/A | Ly6e | 022587 | 185861 | 141145 | Slc45a1 | 039838 | 037827 | 036774 |
| Cers4 | 008206 | 176837 | N/A | Ly6e | 022587 | 185863 | 140060 | Slc45a1 | 039838 | 117997 | 112737 |
| Cers4 | 008206 | 176932 | N/A | Ly6e | 022587 | 191127 | 139966 | Slc45a1 | 039838 | 147706 | N/A |
| Cers4 | 008206 | 176705 | N/A | Ly6e | 022587 | 191436 | 139549 | Slc4a4 | 060961 | 148750 | 119325 |
| Cers4 | 008206 | 176130 | 135652 | Ly6e | 022587 | 186927 | N/A | Slc4a4 | 060961 | 135283 | N/A |
| Cfap161 | 011154 | 119134 | 114051 | Ly6e | 022587 | 188503 | N/A | Slc4a4 | 060961 | 113218 | 108844 |
| Cfap161 | 011154 | 011298 | 011298 | Ly6e | 022587 | 191145 | 140829 | Slc4a4 | 060961 | 156238 | 121744 |
| Cfap161 | 011154 | 208785 | N/A | Ly6e | 022587 | 191439 | N/A | Slc4a4 | 060961 | 144713 | 122975 |
| Cfap161 | 011154 | 149671 | 115281 | Ly6e | 022587 | 188042 | 141059 | Slc4a4 | 060961 | 130041 | 118413 |
| Cfap20 | 031796 | 212731 | N/A | Ly6e | 022587 | 051698 | 056703 | Slc4a4 | 060961 | 113216 | 108842 |
| Cfap20 | 031796 | 034249 | 034249 | Ly6e | 022587 | 169343 | 132081 | Slc4a4 | 060961 | 134303 | 119976 |
| Cfap20 | 031796 | 213086 | 148651 | Lypd1 | 026344 | 159417 | 125149 | Slc4a7 | 021733 | 057015 | 058313 |
| Cfap20 | 031796 | 212579 | N/A | Lypd1 | 026344 | 162899 | 125158 | Slc4a7 | 021733 | 225496 | N/A |
| Cfap20 | 031796 | 212684 | 148527 | Lypd1 | 026344 | 027582 | 027582 | Slc4a7 | 021733 | 225232 | 153280 |
| Cfap20 | 031796 | 211908 | 148668 | Lypd1 | 026344 | 159529 | 123824 | Slc4a7 | 021733 | 224197 | N/A |
| Cfap20 | 031796 | 212807 | N/A | Lypd1 | 026344 | 161361 | 124265 | Slc4a7 | 021733 | 223981 | 153084 |
| Cfap20 | 031796 | 212131 | 148415 | Lypd6 | 050447 | 053208 | 061578 | Slc4a7 | 021733 | 223607 | 153180 |
| Cgn | 068876 | 107272 | 102893 | Lypd6 | 050447 | 128451 | 116803 | Slc4a7 | 021733 | 225238 | 152984 |
| Cgn | 068876 | 107273 | 102894 | Lypd6 | 050447 | 126337 | 119755 | Slc4a7 | 021733 | 223761 | 153045 |
| Cgn | 068876 | 153263 | 143156 | Lypd6 | 050447 | 112712 | 108332 | Slc4a7 | 021733 | 225175 | 153166 |
| Cgn | 068876 | 155485 | 142809 | Lypd6 | 050447 | 169232 | 131002 | Slc4a7 | 021733 | 224222 | 153116 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Cgnl1 | 032232 | 121322 | 113917 | Lypd6b | 026765 | 028103 | 028103 | Slc4a7 | 021733 | 225630 | 153597 |
| Cgnl1 | 032232 | 152224 | N/A | Lypd6b | 026765 | 153422 | N/A | Slc4a7 | 021733 | 225979 | 153690 |
| Cgnl1 | 032232 | 122065 | 112479 | Lypd6b | 026765 | 129867 | N/A | Slc4a7 | 021733 | 226079 | 153323 |
| Cgnl1 | 032232 | 136044 | N/A | Lyzl4 | 032530 | 077706 | 076887 | Slc4a7 | 021733 | 224952 | 153345 |
| Cgnl1 | 032232 | 146567 | N/A | Lyzl4 | 032530 | 120918 | 113034 | Slc4a7 | 021733 | 223695 | 153648 |
| Cgnl1 | 032232 | 072899 | 072672 | Lyzl4 | 032530 | 213757 | 151031 | Slc4a7 | 021733 | 224333 | 153470 |
| Chac1 | 027313 | 028780 | 028780 | Lyzl4 | 032530 | 125075 | 115284 | Slc4a7 | 021733 | 223740 | 152933 |
| Chd7 | 041235 | 170457 | N/A | Lyzl4 | 032530 | 214592 | 150807 | Slc4a7 | 021733 | 224672 | 152950 |
| Chd7 | 041235 | 127476 | 118711 | Mag | 036634 | 187137 | 139564 | Slc4a7 | 021733 | 224049 | 153093 |
| Chd7 | 041235 | 051558 | 059079 | Mag | 036634 | 191081 | 139881 | Slc4a7 | 021733 | 224752 | 153185 |
| Chd7 | 041235 | 129655 | 123241 | Mag | 036634 | 188569 | 140526 | Slc4a7 | 021733 | 225078 | N/A |
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| Chd7 | 041235 | 130709 | N/A | Mag | 036634 | 190638 | 140578 | Slc4a7 | 021733 | 225508 | N/A |
| Chd7 | 041235 | 222546 | 152166 | Mag | 036634 | 190950 | 139861 | Slc4a7 | 021733 | 224750 | N/A |
| Chd7 | 041235 | 039267 | 043903 | Mag | 036634 | 191486 | N/A | Slc4a7 | 021733 | 225613 | N/A |
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| Chdh | 015970 | 125796 | N/A | Magi3 | 052539 | 064371 | 067932 | Slc5a11 | 030769 | 140721 | N/A |
| Chdh | 015970 | 118917 | 112916 | Magi3 | 052539 | 121198 | 112934 | Slc5a11 | 030769 | 033035 | 033035 |
| Chgb | 027350 | 028826 | 028826 | Magi3 | 052539 | 122303 | 113713 | Slc5a11 | 030769 | 131461 | 123027 |
| Chid1 | 025512 | 153191 | 114693 | Magi3 | 052539 | 199201 | N/A | Slc5a11 | 030769 | 127655 | 117956 |
| Chid1 | 025512 | 118694 | 112891 | Mak | 021363 | 225084 | 152946 | Slc5a11 | 030769 | 131209 | 120678 |
| Chid1 | 025512 | 209452 | 147938 | Mak | 021363 | 225789 | N/A | Slc5a11 | 030769 | 206180 | N/A |
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| Chid1 | 025512 | 064642 | 065953 | Mak | 021363 | 224740 | 153314 | Slc5a7 | 023945 | 095712 | 093379 |
| Chid1 | 025512 | 155305 | N/A | Mak | 021363 | 225906 | 153176 | Slc6a7 | 052026 | 025520 | 025520 |
| Chid1 | 025512 | 143561 | 115174 | Mak | 021363 | 224423 | 152961 | Slc7a1 | 041313 | 048116 | 046714 |
| Chid1 | 025512 | 133359 | N/A | Mak | 021363 | 165087 | 129615 | Slc7a1 | 041313 | 138257 | 117781 |
| Chid1 | 025512 | 166082 | 130360 | Mak | 021363 | 021792 | 021792 | Slc7a1 | 041313 | 201860 | N/A |
| Chid1 | 025512 | 026586 | 026586 | Mal | 027375 | 028854 | 028854 | Slc7a1 | 041313 | 202457 | 144000 |
| Chl1 | 030077 | 203912 | 145026 | Mal | 027375 | 028853 | 028853 | Slc7a1 | 041313 | 138596 | 122914 |
| Chl1 | 030077 | 203489 | N/A | Mal2 | 024479 | 025356 | 025356 | Slc7a1 | 041313 | 201348 | N/A |
| Chl1 | 030077 | 066905 | 063933 | Manla | 003746 | 003843 | 003843 | Slc7a10 | 030495 | 135452 | 127577 |
| Chl1 | 030077 | 203830 | 144758 | Manla | 003746 | 105470 | 101110 | Slc7a10 | 030495 | 001854 | 001854 |
| Chl1 | 030077 | 204321 | 144725 | Manla | 003746 | 218317 | 151328 | Slc7a10 | 030495 | 131048 | 118331 |
| Chl1 | 030077 | 205098 | 144739 | Manla | 003746 | 220088 | 151568 | Slc7a10 | 030495 | 167441 | 129954 |
| Chn2 | 004633 | 138930 | N/A | Manla | 003746 | 219234 | N/A | Slc7a10 | 030495 | 146959 | 127311 |
| Chn2 | 004633 | 046856 | 035908 | Manla | 003746 | 146483 | N/A | Slc7a11 | 027737 | 194462 | 141988 |
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| Chn2 | 004633 | 146114 | 114476 | Manlc1 | 037306 | 038628 | 037949 | Slc7a14 | 069072 | 091259 | 088803 |
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| Chodl | 022860 | 023568 | 023568 | Map6d1 | 041205 | 040880 | 043332 | Slc8a1 | 054640 | 163680 | 126373 |
| Chodl | 022860 | 069148 | 063961 | Map7 | 019996 | 020173 | 020173 | Slc8a1 | 054640 | 086538 | 083725 |
| Chodl | 022860 | 114216 | 109854 | Map7 | 019996 | 116259 | 111963 | Slc8a1 | 054640 | 163123 | 132809 |
| Chrm1 | 032773 | 177197 | 135356 | Map7 | 019996 | 214231 | 149367 | Slc8a2 | 030376 | 211649 | 147497 |
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| Chrm3 | 046159 | 187510 | 140131 | Map7 | 019996 | 217251 | N/A | Slc8a3 | 079055 | 064594 | 063258 |
| Chrm3 | 046159 | 223242 | N/A | Map7 | 019996 | 215924 | 150818 | Slc8a3 | 079055 | 182208 | 138735 |
| Chrm3 | 046159 | 190395 | N/A | Map7 | 019996 | 216065 | N/A | Slc8a3 | 079055 | 182366 | 138803 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Chrm3 | 046159 | 063093 | 055579 | Map7 | 019996 | 213386 | N/A | Slc8a3 | 079055 | 183102 | N/A |
| Chst1 | 027221 | 065797 | 064246 | Map7 | 019996 | 213312 | 151101 | Slc8b1 | 032754 | 068326 | 064714 |
| Chst10 | 026080 | 027249 | 027249 | Map7 | 019996 | 215812 | N/A | Slc8b1 | 032754 | 111890 | 107521 |
| Chst10 | 026080 | 193441 | 142028 | Map7 | 019996 | 216474 | N/A | Slc8b1 | 032754 | 076051 | 075428 |
| Chst10 | 026080 | 192948 | 141470 | Map7 | 019996 | 216308 | N/A | Slc8b1 | 032754 | 147496 | 120947 |
| Chst10 | 026080 | 194361 | 141295 | Mapk12 | 022610 | 088827 | 086207 | Slc8b1 | 032754 | 140329 | 117260 |
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| Chst11 | 034612 | 040110 | 045349 | March11 | 022269 | 126304 | 153852 | Slc9a3 | 036123 | 221703 | 152682 |
| Chst15 | 030930 | 077472 | 076682 | March11 | 022269 | 140840 | 118729 | Slc9a3 | 036123 | 036208 | 038142 |
| Chst15 | 030930 | 080215 | 079105 | March11 | 022269 | 152841 | 120622 | Slc9a9 | 031129 | 033463 | 033463 |
| Chst15 | 030930 | 132508 | N/A | March11 | 022269 | 155819 | N/A | Slc9a9 | 031129 | 162870 | N/A |
| Chst15 | 030930 | 207068 | N/A | Marcks | 069662 | 092584 | 090245 | Slc9a9 | 031129 | 162329 | N/A |
| Chst8 | 060402 | 078686 | 077752 | Marcksl1 | 047945 | 062356 | 055637 | Slco4a1 | 038963 | 038259 | 046502 |
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| Chst8 | 060402 | 154629 | 123498 | Marveld2 | 021636 | 163163 | 129990 | Slco4a1 | 038963 | 038225 | 045023 |
| Chst8 | 060402 | 135295 | N/A | Marveld2 | 021636 | 168772 | 126438 | Slco4a1 | 038963 | 138446 | N/A |
| Chst8 | 060402 | 206207 | N/A | Marveld2 | 021636 | 022137 | 022137 | Slco4a1 | 038963 | 128367 | N/A |
| Chst8 | 060402 | 205390 | N/A | Maspl | 022887 | 089883 | 087327 | Slco4c1 | 040693 | 071985 | 071875 |
| Chst9 | 047161 | 053017 | 049975 | Matn1 | 040533 | 102576 | 099636 | Slit3 | 056427 | 069837 | 066857 |
| Chst9 | 047161 | 130553 | 121484 | Matn4 | 016995 | 109359 | 104983 | Slit3 | 056427 | 156571 | N/A |
| Chsy1 | 032640 | 036372 | 047487 | Matn4 | 016995 | 109358 | 104982 | Slit3 | 056427 | 153098 | N/A |
| Chsy3 | 058152 | 080721 | 079546 | Matn4 | 016995 | 103103 | 099392 | Slit3 | 056427 | 124438 | N/A |
| Chtf18 | 019214 | 170575 | 131366 | Matn4 | 016995 | 103104 | 099393 | Slitrk1 | 075478 | 100322 | 097897 |
| Chtf18 | 019214 | 048054 | 043896 | Matn4 | 016995 | 154940 | N/A | Slitrk6 | 045871 | 078386 | 077492 |
| Chtf18 | 019214 | 168914 | N/A | Mboat1 | 038732 | 153269 | N/A | Smad3 | 032402 | 034973 | 034973 |
| Chtf18 | 019214 | 167940 | 131349 | Mboat1 | 038732 | 152798 | N/A | Smad3 | 032402 | 154323 | 116790 |
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| Cipc | 034157 | 189246 | 140266 | Mboat2 | 020646 | 222198 | 152150 | Smad7 | 025880 | 026999 | 026999 |
| Cipc | 034157 | 185434 | 140769 | Mboat2 | 020646 | 221952 | 152348 | Smad7 | 025880 | 174843 | 133544 |
| Cipc | 034157 | 191032 | 140097 | Mboat2 | 020646 | 220497 | N/A | Smad7 | 025880 | 174411 | 133696 |
| Cipc | 034157 | 187814 | 141049 | Mboat2 | 020646 | 078902 | 077937 | Smad7 | 025880 | 172718 | N/A |
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| Cipc | 034157 | 188046 | 139742 | Mboat2 | 020646 | 222994 | 152712 | Smpx | 041476 | 038007 | 048522 |
| Cipc | 034157 | 185783 | 140830 | Mcam | 032135 | 149241 | 121090 | Smpx | 041476 | 136141 | 119573 |
| Cipc | 034157 | 186499 | 139553 | Mcam | 032135 | 034650 | 034650 | Smpx | 041476 | 112520 | 108139 |
| Cipc | 034157 | 190588 | 140595 | Mcam | 032135 | 098852 | 096451 | Smpx | 041476 | 147283 | 120412 |
| Cipc | 034157 | 191463 | 140683 | Mcam | 032135 | 216002 | 149002 | Smpx | 041476 | 112521 | 108140 |
| Cipc | 034157 | 038369 | 038630 | Mcam | 032135 | 147836 | 117924 | Smpx | 041476 | 132805 | N/A |
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| Clasrp | 061028 | 208427 | N/A | Mdfi | 032717 | 152455 | 117665 | Sobp | 038248 | 040275 | 040072 |
| Clasrp | 061028 | 208464 | N/A | Mdfi | 032717 | 132125 | 114581 | Sobp | 038248 | 189987 | N/A |
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| Clcn1 | 029862 | 114684 | N/A | Med12l | 056476 | 197374 | 143419 | Sorbs2 | 031626 | 138049 | 123503 |
| Clcn1 | 029862 | 163235 | 132387 | Med12l | 056476 | 029393 | 029393 | Sorbs2 | 031626 | 132139 | 123250 |
| Clcn1 | 029862 | 169902 | N/A | Med12l | 056476 | 040325 | 042269 | Sorbs2 | 031626 | 141039 | 117544 |
| Clcn5 | 004317 | 004428 | 004428 | Med12l | 056476 | 164225 | 127038 | Sorbs2 | 031626 | 171337 | 128000 |
| Clcn5 | 004317 | 154382 | N/A | Mef2c | 005583 | 198199 | 143742 | Sorbs2 | 031626 | 067107 | 067641 |
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| Clcn5 | 004317 | 115746 | 111412 | Mef2c | 005583 | 198916 | 143235 | Sorbs2 | 031626 | 134321 | 115842 |
| Clcn5 | 004317 | 132126 | N/A | Mef2c | 005583 | 200123 | 142833 | Sorbs2 | 031626 | 135336 | 114286 |
| Cldn11 | 037625 | 046174 | 042181 | Mef2c | 005583 | 005722 | 005722 | Sorbs2 | 031626 | 127395 | N/A |
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| Clec7a | 079293 | 184581 | 139167 | Mef2c | 005583 | 200394 | 143598 | Sorbs2 | 031626 | 210946 | 147573 |
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| Clic6 | 022949 | 023670 | 023670 | Mef2c | 005583 | 196832 | N/A | Sorbs2 | 031626 | 133864 | N/A |
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| Clmn | 021097 | 109936 | 105562 | Mef2c | 005583 | 198069 | 143286 | Sorbs2 | 031626 | 126067 | 118562 |
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| Clmn | 021097 | 223342 | 152070 | Mef2c | 005583 | 197938 | 143187 | Sorbs2 | 031626 | 149752 | 121073 |
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| Clstn2 | 032452 | 035027 | 035027 | Mef2c | 005583 | 195984 | 143611 | Sorbs2 | 031626 | 155858 | 122820 |
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| Clvs2 | 019785 | 159533 | N/A | Mef2c | 005583 | 198217 | 142487 | Sorbs2 | 031626 | 211721 | N/A |
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| Nat8f5 | 079494 | 032074 | 032074 | Mef2c | 005583 | 198360 | 143058 | Sorbs2 | 031626 | 067065 | 070720 |
| Cmtm5 | 040759 | 037814 | 036138 | Mef2c | 005583 | 197145 | 142619 | Sorbs3 | 022091 | 227653 | 154195 |
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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cnntm5 | 040759 | 226807 | N/A | Megf10 | 024593 | 139892 | 116814 | Sorbs3 | 022091 | 227259 | 153715 |
| Cnih3 | 026514 | 161880 | 124611 | Mei4 | 043289 | 057067 | 061341 | Sorbs3 | 022091 | 227929 | 154773 |
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| Cnih3 | 026514 | 162685 | 124247 | Mei4 | 043289 | 189391 | 139589 | Sox10 | 033006 | 040019 | 039466 |
| Cnih3 | 026514 | 209607 | 148015 | Meis1 | 020160 | 144988 | 134969 | Sox13 | 070643 | 144386 | 122980 |
| Cnksr3 | 015202 | 015346 | 015346 | Meis1 | 020160 | 102878 | 099942 | Sox13 | 070643 | 153799 | 119729 |
| Cnksr3 | 015202 | 150282 | 115863 | Meis1 | 020160 | 068264 | 069277 | Sox13 | 070643 | 145922 | N/A |
| Cnp | 006782 | 103120 | 099409 | Meis1 | 020160 | 118661 | N/A | Sox13 | 070643 | 126530 | N/A |
| Cnp | 006782 | 148034 | N/A | Meis1 | 020160 | 177417 | 135726 | Sox13 | 070643 | 094551 | 092130 |
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| Cnp | 006782 | 147403 | N/A | Meis1 | 020160 | 125722 | N/A | Sox6 | 051910 | 206034 | 145919 |
| Cnpy1 | 044681 | 141601 | 122171 | Meis1 | 020160 | 137300 | N/A | Sox6 | 051910 | 169129 | 126404 |
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| Cnpy1 | 044681 | 120068 | 112773 | Meis2 | 027210 | 028639 | 028639 | Sox6 | 051910 | 205405 | 145732 |
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| Cnr1 | 044288 | 057188 | 055797 | Meis2 | 027210 | 110908 | 106533 | Sox6 | 051910 | 206573 | N/A |
| Cnr1 | 044288 | 133462 | N/A | Meis2 | 027210 | 110906 | 106531 | Sox6 | 051910 | 205479 | 145561 |
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| Cntfr | 028444 | 102961 | 100026 | Meis2 | 027210 | 120995 | N/A | Sox6 | 051910 | 206123 | 145576 |
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| Cntfr | 028444 | 151181 | N/A | Meis2 | 027210 | 151279 | N/A | Sox6 | 051910 | 206912 | N/A |
| Cntfr | 028444 | 064443 | N/A | Meis2 | 027210 | 177493 | N/A | Sox6 | 051910 | 072804 | 072583 |
| Cntfr | 028444 | 084701 | N/A | Meis2 | 027210 | 149217 | N/A | Sox6 | 051910 | 166877 | 129512 |
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| Cntn3 | 030075 | 204990 | N/A | Meis2 | 027210 | 150477 | N/A | Sox6 | 051910 | 166207 | 129027 |
| Cntn3 | 030075 | 203619 | 145176 | Meis2 | 027210 | 154671 | N/A | Sox8 | 024176 | 025003 | 025003 |
| Cntn3 | 030075 | 032159 | 032159 | Meis2 | 027210 | 140461 | N/A | Sox8 | 024176 | 174560 | 133742 |
| Cntn4 | 064293 | 132044 | N/A | Meis2 | 027210 | 135543 | N/A | Sox8 | 024176 | 173447 | 133403 |
| Cntn4 | 064293 | 113261 | 108886 | Meis2 | 027210 | 134314 | N/A | Sox9 | 000567 | 000579 | 000579 |
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| Cntn4 | 064293 | 113260 | 108885 | Meis2 | 027210 | 138526 | N/A | Spag5 | 002055 | 045026 | 045286 |
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| Cntn4 | 064293 | 132395 | N/A | Mfap3l | 031647 | 161421 | 124136 | Spag5 | 002055 | 149711 | N/A |
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| Cntn4 | 064293 | 123596 | N/A | Mfap3l | 031647 | 161702 | 124330 | Spag5 | 002055 | 125477 | N/A |
| Cntn4 | 064293 | 142626 | N/A | Mfap3l | 031647 | 034066 | 034066 | Sparc | 018593 | 108858 | 104486 |
| Cntn4 | 064293 | 113264 | 108889 | Mff | 026150 | 078332 | 077446 | Sparc | 018593 | 018737 | 018737 |
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| Cntn5 | 039488 | 162484 | 124214 | Mff | 026150 | 073025 | 072784 | Sparc | 018593 | 213866 | 149604 |
| Cntn5 | 039488 | 160358 | N/A | Mff | 026150 | 161648 | 124164 | Sparc | 018593 | 216313 | 149918 |
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| Cntn5 | 039488 | 179049 | 135903 | Mff | 026150 | 160786 | 125230 | Sparc | 018593 | 130642 | N/A |
| Cntnap4 | 031772 | 125976 | N/A | Mff | 026150 | 162003 | 124334 | Sparc | 018593 | 141530 | 119475 |
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| Cntnap4 | 031772 | 125196 | N/A | Mff | 026150 | 160750 | 125223 | Sparcl1 | 029309 | 031249 | 031249 |
| Cntnap4 | 031772 | 127636 | N/A | Mff | 026150 | 159279 | 123713 | Sparcl1 | 029309 | 199947 | 143177 |
| Cntnap4 | 031772 | 140753 | N/A | Mff | 026150 | 160044 | 125005 | Specc1 | 042331 | 201866 | N/A |
| Cntnap4 | 031772 | 034225 | 034225 | Mff | 026150 | 160744 | 125629 | Specc1 | 042331 | 202178 | 144161 |
| Cntnap5a | 070695 | 043725 | 035732 | Mff | 026150 | 160632 | N/A | Specc1 | 042331 | 136971 | N/A |
| Cobl | 020173 | 172919 | 133669 | Mff | 026150 | 188333 | N/A | Specc1 | 042331 | 202389 | 144055 |
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| Cobl | 020173 | 109651 | 105278 | Mfge8 | 030605 | 107409 | 103032 | Specc1 | 042331 | 202905 | 144311 |
| Cobl | 020173 | 172956 | 134372 | Mfge8 | 030605 | 032825 | 032825 | Specc1 | 042331 | 201364 | 143853 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cobl | 020173 | 172827 | 133368 | Mfge8 | 030605 | 205563 | 145720 | Specc1 | 042331 | 092415 | 090071 |
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| Col11a1 | 027966 | 196345 | N/A | Mfge8 | 030605 | 205526 | N/A | Specc1 | 042331 | 202179 | 144300 |
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| Col11a1 | 027966 | 211802 | 148798 | Mfhas1 | 070056 | 037666 | 044135 | Specc1 | 042331 | 201671 | 144030 |
| Col11a1 | 027966 | 138680 | N/A | Mfhas1 | 070056 | 209953 | 147927 | Speg | 026207 | 087122 | 084361 |
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| Col11a1 | 027966 | 123619 | 121027 | Mfsd2a | 028655 | 152308 | N/A | Speg | 026207 | 113590 | 109220 |
| Col11a2 | 024330 | 131134 | 122082 | Mfsd2a | 028655 | 030408 | 030408 | Speg | 026207 | 187214 | N/A |
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| Col15a1 | 028339 | 107731 | 103359 | Mgat5b | 043857 | 136584 | 122276 | Spock3 | 054162 | 141513 | N/A |
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| Col1a2 | 029661 | 141483 | 125275 | Mgll | 033174 | 151699 | N/A | Spon1 | 038156 | 084696 | 081746 |
| Col1a2 | 029661 | 031668 | 031668 | Mgll | 033174 | 113582 | 109212 | Spp1 | 029304 | 086833 | 084043 |
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| Col1a2 | 029661 | 124686 | N/A | Mgll | 033174 | 203824 | 145364 | Spp1 | 029304 | 132457 | 123163 |
| Col1a2 | 029661 | 203346 | N/A | Mgll | 033174 | 205045 | N/A | Spp1 | 029304 | 112747 | 108367 |
| Col20a1 | 016356 | 149179 | 115291 | Mgll | 033174 | 163271 | 127374 | Spsb4 | 046997 | 055433 | 057849 |
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| Col22a1 | 079022 | 159410 | 124182 | Mgst1 | 008540 | 120302 | 113257 | Sptb | 021061 | 170532 | N/A |
| Col22a1 | 079022 | 162081 | N/A | Mgst1 | 008540 | 120230 | 113859 | Sptb | 021061 | 166101 | 129782 |
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| Col23a1 | 063564 | 102765 | 099826 | Miat | 097767 | 182953 | N/A | Src | 027646 | 145715 | N/A |
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| Col4a5 | 031274 | 112931 | 108553 | Miat | 097767 | 182258 | N/A | Src | 027646 | 133900 | N/A |
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| Col4a5 | 031274 | 130732 | 116610 | Miat | 097767 | 183036 | N/A | Src | 027646 | 109531 | 105157 |
| Col4a5 | 031274 | 128669 | N/A | Miat | 097767 | 182699 | N/A | Src | 027646 | 109529 | 105155 |
| Col5a1 | 026837 | 028280 | 028280 | Mical2 | 038244 | 050149 | 051163 | Src | 027646 | 092576 | 090237 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Col5a1 | 026837 | 145423 | 123532 | Mical2 | 038244 | 106647 | N/A | Srgap1 | 020121 | 020322 | 020322 |
| Col5a3 | 004098 | 004201 | 004201 | Mical2 | 038244 | 106648 | N/A | Srgap1 | 020121 | 161996 | N/A |
| Col5a3 | 004098 | 145974 | N/A | Mical2 | 038244 | 037991 | 047639 | Srgap1 | 020121 | 161156 | 125109 |
| Col6a1 | 001119 | 001147 | 001147 | Mical2 | 038244 | 150428 | N/A | Srgap1 | 020121 | 162710 | N/A |
| Col6a1 | 001119 | 137599 | N/A | Mical2 | 038244 | 144509 | 123341 | Srgap1 | 020121 | 081688 | 080389 |
| Colgalt2 | 032649 | 127586 | 119210 | Micalcl | 030771 | 051308 | 062443 | Ssh1 | 042121 | 159592 | 124312 |
| Colgalt2 | 032649 | 044311 | 037532 | Micalcl | 030771 | 033033 | 033033 | Ssh1 | 042121 | 112298 | 107917 |
| Colgalt2 | 032649 | 127586 | 119210 | Micalcl | 030771 | 106645 | 102256 | Ssh1 | 042121 | 077689 | 076873 |
| Colgalt2 | 032649 | 044311 | 037532 | Micalcl | 030771 | 213108 | 150200 | Ssh1 | 042121 | 159510 | 125025 |
| Corin | 005220 | 167460 | 127389 | Micalcl | 030771 | 140202 | N/A | Ssh1 | 042121 | 162396 | 125388 |
| Corin | 005220 | 005352 | 005352 | Mid1 | 035299 | 112104 | 107732 | Ssh1 | 042121 | 162322 | N/A |
| Corin | 005220 | 175766 | 135889 | Mid1 | 035299 | 036753 | 038765 | St18 | 033740 | 140079 | 118322 |
| Corin | 005220 | 177290 | 135511 | Mid1 | 035299 | 078947 | 077974 | St18 | 033740 | 131494 | 117789 |
| Corin | 005220 | 176974 | 135722 | Mid1 | 035299 | 149258 | N/A | St18 | 033740 | 043578 | 042056 |
| Corin | 005220 | 176320 | N/A | Mid1 | 035299 | 133857 | N/A | St18 | 033740 | 139756 | 142063 |
| Corin | 005220 | 176439 | N/A | Mid1 | 035299 | 146073 | N/A | St18 | 033740 | 131467 | 120134 |
| Coro1c | 004530 | 164980 | 129314 | Mid1 | 035299 | 152163 | N/A | St18 | 033740 | 150761 | 120298 |
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| Coro1c | 004530 | 168634 | N/A | Mid1 | 035299 | 112107 | 107735 | St18 | 033740 | 132207 | 142317 |
| Coro1c | 004530 | 172016 | N/A | Mid1 | 035299 | 079443 | 078412 | St18 | 033740 | 142304 | N/A |
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| Coro1c | 004530 | 168493 | N/A | Mid1 | 035299 | 163810 | 128176 | St18 | 033740 | 163727 | 131417 |
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| Coro1c | 004530 | 168399 | 132504 | Mid2 | 000266 | 112990 | 108614 | St3gal5 | 056091 | 114112 | 109747 |
| Coro1c | 004530 | 171630 | N/A | Mid2 | 000266 | 112988 | 108612 | St3gal5 | 056091 | 187007 | 146063 |
| Coro2b | 041729 | 048043 | 041826 | Mid2 | 000266 | 140144 | N/A | St3gal5 | 056091 | 188366 | 145599 |
| Coro2b | 041729 | 131981 | 133481 | Mid2 | 000266 | 128809 | 123221 | St5 | 031024 | 084738 | 081789 |
| Coro2b | 041729 | 164246 | 128441 | Mid2 | 000266 | 112993 | 108617 | St5 | 031024 | 077909 | 077067 |
| Coro2b | 041729 | 151604 | N/A | Midn | 035621 | 099492 | 097091 | St5 | 031024 | 207664 | N/A |
| Coro2b | 041729 | 174439 | 134079 | Midn | 035621 | 042057 | 046967 | St5 | 031024 | 208557 | N/A |
| Coro2b | 041729 | 173171 | 134709 | Midn | 035621 | 151202 | 115717 | St5 | 031024 | 207745 | 146934 |
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| Coro6 | 020836 | 102493 | 099551 | Midn | 035621 | 153477 | 119787 | St5 | 031024 | 208583 | 146747 |
| Coro6 | 020836 | 130255 | 120232 | Midn | 035621 | 146516 | 119962 | St5 | 031024 | 207394 | 146549 |
| Coro6 | 020836 | 021190 | 021190 | Midn | 035621 | 144526 | 120988 | St5 | 031024 | 208734 | 146829 |
| Coro6 | 020836 | 079770 | 078703 | Mkx | 061013 | 176586 | N/A | St5 | 031024 | 079282 | 078264 |
| Coro6 | 020836 | 108391 | 104028 | Mkx | 061013 | 079788 | 078718 | St5 | 031024 | 168005 | 130119 |
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| Cotl1 | 031827 | 034285 | 034285 | Mkx | 061013 | 176608 | N/A | St6galnac3 | 052544 | 199707 | 143030 |
| Cotl1 | 031827 | 211873 | 148448 | Mkx | 061013 | 176757 | N/A | St6galnac3 | 052544 | 064460 | 068598 |
| Cotl1 | 031827 | 212676 | N/A | Mlc1 | 035805 | 042594 | 047667 | St6galnac3 | 052544 | 200576 | N/A |
| Cotl1 | 031827 | 168698 | 126329 | Mlc1 | 035805 | 109368 | 104993 | St6galnac3 | 052544 | 198775 | N/A |
| Cpe | 037852 | 048967 | 048555 | Mlycd | 074064 | 098367 | 095970 | Stac | 032502 | 161995 | 125182 |
| Cpe | 037852 | 210783 | N/A | Mlycd | 074064 | 145121 | N/A | Stac | 032502 | 035083 | 035083 |
| Cpe | 037852 | 210680 | N/A | Mmd2 | 039533 | 037048 | 039357 | Stac | 032502 | 162345 | N/A |
| Cpe | 037852 | 211312 | N/A | Mmd2 | 039533 | 195947 | N/A | Stac2 | 017400 | 017544 | 017544 |
| Cpm | 020183 | 138020 | N/A | Mmd2 | 039533 | 196972 | N/A | Stac2 | 017400 | 131519 | 118164 |
| Cpm | 020183 | 123374 | N/A | Mmp14 | 000957 | 089688 | 087119 | Stag3 | 036928 | 160729 | 124170 |
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| Cpne4 | 032564 | 098443 | 096042 | Mmp14 | 000957 | 197947 | N/A | Stag3 | 036928 | 048028 | 040945 |
| Cpne4 | 032564 | 157006 | 117155 | Mmp14 | 000957 | 198679 | N/A | Stag3 | 036928 | 162245 | 125523 |
| Cpne4 | 032564 | 057742 | 049663 | Mmp14 | 000957 | 196155 | 143012 | Stag3 | 036928 | 161691 | 125290 |
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| Cpne4 | 032564 | 213452 | 150551 | Mmp2 | 031740 | 211691 | N/A | Stag3 | 036928 | 159189 | 124959 |
| Cpne7 | 034796 | 134235 | N/A | Mmp2 | 031740 | 211308 | N/A | Stambpl1 | 024776 | 054956 | 059927 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cpne7 | 034796 | 037900 | 042159 | Mmp2 | 031740 | 211567 | 147838 | Stambpl1 | 024776 | 125232 | N/A |
| Cpne7 | 034796 | 131659 | N/A | Mmp24 | 027612 | 029141 | 029141 | Stambpl1 | 024776 | 119603 | 112938 |
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| Cpne7 | 034796 | 127431 | N/A | Mns1 | 032221 | 183809 | 139105 | Stambpl1 | 024776 | 130756 | N/A |
| Cpne9 | 030270 | 041203 | 044416 | Mns1 | 032221 | 184604 | 139232 | Stard13 | 016128 | 110483 | 106109 |
| Cpne9 | 030270 | 132372 | N/A | Mns1 | 032221 | 034746 | 034746 | Stard13 | 016128 | 062015 | 053232 |
| Cpne9 | 030270 | 130191 | 138786 | Mobp | 032517 | 068698 | 071084 | Stard13 | 016128 | 202111 | 144056 |
| Cpne9 | 030270 | 124574 | N/A | Mobp | 032517 | 215512 | 149831 | Stard13 | 016128 | 201680 | N/A |
| Cpne9 | 030270 | 204050 | N/A | Mobp | 032517 | 111627 | 107254 | Stard13 | 016128 | 202385 | N/A |
| Cpne9 | 030270 | 128148 | N/A | Mobp | 032517 | 093773 | 091287 | Stard13 | 016128 | 129088 | 116705 |
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| Cpne9 | 030270 | 136728 | N/A | Mog | 076439 | 102665 | 099726 | Stard13 | 016128 | 202866 | N/A |
| Creb3l1 | 027230 | 028663 | 028663 | Mog | 076439 | 167275 | 129489 | Stard8 | 031216 | 036606 | 044491 |
| Crim1 | 024074 | 112498 | 108117 | Mpp6 | 038388 | 166318 | 125880 | Stard8 | 031216 | 149999 | 114897 |
| Crispld1 | 025776 | 159958 | 124095 | Mpp6 | 038388 | 036236 | 039314 | Stard8 | 031216 | 145820 | N/A |
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| Crispld1 | 025776 | 095075 | 092686 | Mpp6 | 038388 | 203415 | N/A | Stat2 | 040033 | 218863 | N/A |
| Cryab | 032060 | 217475 | 149803 | Mpp6 | 038388 | 036225 | 038772 | Stat2 | 040033 | 085708 | 082855 |
| Cryab | 032060 | 214609 | 149454 | Mpp6 | 038388 | 171601 | 129004 | Stat2 | 040033 | 217852 | N/A |
| Cryab | 032060 | 034562 | 034562 | Mpp6 | 038388 | 167628 | 129355 | Stat2 | 040033 | 220142 | N/A |
| Cryab | 032060 | 214962 | 149759 | Mpp6 | 038388 | 167063 | N/A | Stat2 | 040033 | 217727 | N/A |
| Cryab | 032060 | 216755 | 150669 | Mpp6 | 038388 | 167319 | N/A | Stat2 | 040033 | 218862 | N/A |
| Cryab | 032060 | 216393 | N/A | Mpp7 | 057440 | 115869 | 111535 | Stat2 | 040033 | 220277 | N/A |
| Cryba2 | 006546 | 133833 | 140298 | Mpped1 | 041708 | 109470 | 105096 | Stat2 | 040033 | 105238 | 100872 |
| Cryba2 | 006546 | 006721 | 006721 | Mpped1 | 041708 | 123387 | 123230 | Stc2 | 020303 | 020546 | 020546 |
| Cryl1 | 021947 | 022517 | 022517 | Mpped1 | 041708 | 046168 | 041981 | Stc2 | 020303 | 152094 | N/A |
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| Crym | 030905 | 134067 | N/A | Mpped1 | 041708 | 148868 | 131679 | Stk17b | 026094 | 027263 | 027263 |
| Crym | 030905 | 033198 | 033198 | Mpped1 | 041708 | 163723 | 126242 | Stk17b | 026094 | 187066 | N/A |
| Csmd1 | 060924 | 082104 | 080751 | Mpped1 | 041708 | 172115 | 132518 | Stk17b | 026094 | 185920 | 139880 |
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| Csmd1 | 060924 | 133933 | N/A | Msi1 | 054256 | 151444 | N/A | Stk3 | 022329 | 128425 | N/A |
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| Csmd2 | 028804 | 129619 | N/A | Msi1 | 054256 | 131079 | 144032 | Stk32a | 039954 | 045477 | 038471 |
| Csmd2 | 028804 | 144298 | N/A | Msi1 | 054256 | 145005 | N/A | Stmn4 | 022044 | 152093 | 117000 |
| Csmd2 | 028804 | 184063 | 138958 | Msi1 | 054256 | 139918 | N/A | Stmn4 | 022044 | 074523 | 074113 |
| Csmd2 | 028804 | 148247 | N/A | Msi1 | 054256 | 145840 | N/A | Stmn4 | 022044 | 136192 | N/A |
| Csmd2 | 028804 | 139561 | N/A | Msi1 | 054256 | 136586 | 143900 | Stmn4 | 022044 | 123435 | N/A |
| Csmd2 | 028804 | 221199 | 152795 | Msi1 | 054256 | 130849 | N/A | Stmn4 | 022044 | 118426 | 113629 |
| Cspg4 | 032911 | 214057 | N/A | Msra | 054733 | 067927 | 065754 | Stmn4 | 022044 | 121955 | 113788 |
| Cspg4 | 032911 | 035661 | 038909 | Msra | 054733 | 210428 | 147689 | Stmn4 | 022044 | 120229 | 113759 |
| Cspg4 | 032911 | 215666 | N/A | Msra | 054733 | 210363 | 148189 | Stmn4 | 022044 | 134440 | 123092 |
| Cspg4 | 032911 | 217052 | N/A | Msra | 054733 | 209392 | N/A | Stmn4 | 022044 | 147477 | N/A |
| Cspg5 | 032482 | 035058 | 035058 | Msra | 054733 | 209513 | N/A | Ston1 | 033855 | 137138 | 118522 |
| Cspg5 | 032482 | 196060 | 143164 | Msx2 | 021469 | 021922 | 021922 | Ston1 | 033855 | 153613 | N/A |
| Cspg5 | 032482 | 196176 | N/A | Msx2 | 021469 | 188606 | N/A | Ston1 | 033855 | 064035 | 067027 |
| Cspg5 | 032482 | 197850 | 143005 | mt-Co1 | 064351 | 082402 | 080993 | Ston1 | 033855 | 150023 | 122928 |
| Cspg5 | 032482 | 199736 | 142845 | mt-Nd4 | 064363 | 082414 | 081000 | Ston1 | 033855 | 132384 | N/A |
| Csmp3 | 044647 | 122912 | 117533 | Mt3 | 031760 | 034211 | 034211 | Ston1 | 033855 | 112216 | N/A |
| Csmp3 | 044647 | 053910 | 055719 | Mt3 | 031760 | 211930 | 148345 | Ston1 | 033855 | 163588 | 131703 |
| Csmp3 | 044647 | 139896 | N/A | Mt3 | 031760 | 211915 | 148383 | Ston2 | 020961 | 052969 | 053908 |
| Csmp3 | 044647 | 112397 | 135151 | Mtch2 | 027282 | 136872 | 121851 | Ston2 | 020961 | 164713 | 131098 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Csmp3 | 044647 | 129133 | N/A | Mtch2 | 027282 | 150232 | 118566 | Ston2 | 020961 | 111609 | N/A |
| Csmp3 | 044647 | 176109 | 135019 | Mtch2 | 027282 | 111467 | 107092 | Ston2 | 020961 | 170077 | 126429 |
| Csmp3 | 044647 | 145598 | 135605 | Mtch2 | 027282 | 111468 | 107093 | Ston2 | 020961 | 170984 | N/A |
| Csmp3 | 044647 | 112394 | 108013 | Mtch2 | 027282 | 057216 | N/A | Ston2 | 020961 | 166967 | 128561 |
| Csrp1 | 026421 | 097561 | 095169 | Mtch2 | 027282 | 148936 | N/A | Ston2 | 020961 | 166008 | N/A |
| Csrp1 | 026421 | 027677 | 027677 | Mtch2 | 027282 | 146392 | N/A | Stox2 | 038143 | 079195 | 078190 |
| Csta1 | 034362 | 096090 | 093795 | Mtch2 | 027282 | 143773 | N/A | Stox2 | 038143 | 211882 | 148776 |
| Csta1 | 034362 | 161638 | 125577 | Mtch2 | 027282 | 142350 | N/A | Stox2 | 038143 | 110367 | 105996 |
| Ctnna3 | 060843 | 105441 | 101081 | Mtch2 | 027282 | 144696 | N/A | Stox2 | 038143 | 211737 | 147477 |
| Ctnna3 | 060843 | 105440 | 101080 | Mtch2 | 027282 | 135026 | N/A | Stox2 | 038143 | 210030 | 147281 |
| Ctnna3 | 060843 | 133190 | N/A | Mtch2 | 111714 | 214148 | 149233 | Stox2 | 038143 | 209337 | 148231 |
| Ctnna3 | 060843 | 135474 | N/A | Mtch2 | 111714 | 213376 | 149651 | Stox2 | 038143 | 210153 | 147670 |
| Ctnna3 | 060843 | 075099 | 074606 | Mtch2 | 111714 | 217470 | N/A | Stox2 | 038143 | 209941 | N/A |
| Ctnbp2 | 000416 | 152499 | N/A | Mtch2 | 111714 | 214378 | 150912 | Stox2 | 038143 | 181417 | N/A |
| Ctnbp2 | 000416 | 146775 | 119383 | Mtch2 | 111714 | 215609 | N/A | Strip2 | 039629 | 046028 | 036477 |
| Ctnbp2 | 000416 | 148602 | 118432 | Mtch2 | 111714 | 216454 | 151033 | Strip2 | 039629 | 130969 | N/A |
| Ctnbp2 | 000416 | 090601 | 088089 | Mtch2 | 111714 | 216814 | N/A | Strip2 | 039629 | 115224 | 110879 |
| Ctnbp2 | 000416 | 141581 | 123162 | Mtch2 | 111714 | 215750 | N/A | Strip2 | 039629 | 137068 | N/A |
| Ctnbp2 | 000416 | 139557 | N/A | Mtch2 | 111714 | 214987 | N/A | Strip2 | 039629 | 151738 | 119506 |
| Ctnbp2 | 000416 | 129669 | 116878 | Mtch2 | 111714 | 216471 | N/A | Stm | 024077 | 145910 | 120830 |
| Ctnbp2 | 000416 | 142963 | 122590 | Mtch2 | 111714 | 217168 | N/A | Stm | 024077 | 024881 | 024881 |
| Ctnbp2 | 000416 | 140416 | N/A | Mtfp1 | 004748 | 004868 | 004868 | Stm | 024077 | 145480 | 117663 |
| Ctxn1 | 048644 | 053252 | 057115 | Mtfp1 | 004748 | 123607 | N/A | Stx17 | 061455 | 107721 | 103349 |
| Ctxn3 | 069372 | 091892 | 089507 | Mtss1 | 022353 | 080371 | 079239 | Stx17 | 061455 | 153502 | 117512 |
| Ctxn3 | 069372 | 209782 | 147740 | Mtss1 | 022353 | 226393 | N/A | Stx17 | 061455 | 107720 | 103348 |
| Ctxn3 | 069372 | 209786 | 147982 | Mtss1 | 022353 | 226976 | N/A | Stx17 | 061455 | 064765 | 068087 |
| Cxcl14 | 021508 | 224801 | 153440 | Mtss1 | 022353 | 227045 | 154093 | Stxbp3 | 027882 | 102621 | 099681 |
| Cxcl14 | 021508 | 021970 | 021970 | Mtss1 | 022353 | 227196 | 154064 | Stxbp3 | 027882 | 124782 | N/A |
| Cxcl5 | 029371 | 202380 | N/A | Mtss1 | 022353 | 228067 | 153850 | Stxbp3 | 027882 | 124903 | N/A |
| Cxcl5 | 029371 | 031318 | 031318 | Mtss1 | 022353 | 227290 | N/A | Stxbp3 | 027882 | 150010 | N/A |
| Cxcr4 | 045382 | 052172 | 053489 | Mtss1 | 022353 | 227238 | N/A | Stxbp3 | 027882 | 196679 | 142785 |
| Cxcr4 | 045382 | 142893 | 120153 | Mtss1 | 022353 | 228365 | N/A | Stxbp3 | 027882 | 200035 | N/A |
| 4930578C19Rik | 037358 | 044188 | 046567 | Mtss1 | 022353 | 228655 | N/A | Stxbp3 | 027882 | 138552 | 142860 |
| 4930578C19Rik | 037358 | 147039 | N/A | Mtss1 | 022353 | 226923 | N/A | Stxbp3 | 027882 | 106596 | 102206 |
| Cxxc4 | 044365 | 197151 | N/A | Mtss1 | 022353 | 227797 | N/A | Sulf2 | 006800 | 109249 | 104872 |
| Cxxc4 | 044365 | 181904 | 138000 | Mxd4 | 037235 | 201189 | N/A | Sulf2 | 006800 | 146497 | 154557 |
| Cxxc4 | 044365 | 181597 | N/A | Mxd4 | 037235 | 042701 | 039071 | Sulf2 | 006800 | 088086 | 085405 |
| Cxxc4 | 044365 | 199134 | N/A | Mxd4 | 037235 | 119171 | 113300 | Sulf2 | 006800 | 125503 | N/A |
| Cxxc4 | 044365 | 166288 | 128574 | Mxd4 | 037235 | 201763 | N/A | Sulf2 | 006800 | 143996 | N/A |
| Cyb5a | 024646 | 160180 | 124480 | Mxra8 | 029070 | 141883 | 114929 | Sulf2 | 006800 | 139266 | 154315 |
| Cyb5a | 024646 | 025549 | 025549 | Mxra8 | 029070 | 030947 | 030947 | Sulf2 | 006800 | 133395 | 154724 |
| Cyb5a | 024646 | 159846 | N/A | Mxra8 | 029070 | 133592 | N/A | Susd5 | 086596 | 135338 | 128826 |
| Cyb5a | 024646 | 163083 | 124412 | Mxra8 | 029070 | 143886 | N/A | Svep1 | 028369 | 042850 | 045856 |
| Cyb5a | 024646 | 159837 | N/A | Mxra8 | 029070 | 141766 | N/A | Svep1 | 028369 | 128783 | N/A |
| Cyfip2 | 020340 | 093166 | 090854 | Mxra8 | 029070 | 126487 | N/A | Svep1 | 028369 | 146329 | N/A |
| Cyfip2 | 020340 | 142017 | 119801 | Mxra8 | 029070 | 132142 | N/A | Svep1 | 028369 | 149152 | N/A |
| Cyfip2 | 020340 | 129474 | 116715 | Mybpc1 | 020061 | 121629 | 112615 | Svil | 024236 | 126977 | 115078 |
| Cyfip2 | 020340 | 165599 | 127586 | Mybpc1 | 020061 | 124144 | N/A | Svil | 024236 | 131210 | N/A |
| Cyfip2 | 020340 | 093165 | 090853 | Mybpc1 | 020061 | 119185 | 112699 | Svil | 024236 | 138258 | N/A |
| Cyp27a1 | 026170 | 027356 | 027356 | Mybpc1 | 020061 | 153964 | 122472 | Svil | 024236 | 143254 | 119287 |
| Cyp27a1 | 026170 | 190781 | N/A | Mybpc1 | 020061 | 148205 | N/A | Svil | 024236 | 153016 | 121497 |
| Cyp27a1 | 026170 | 189083 | N/A | Mybpc1 | 020061 | 156573 | 119024 | Svil | 024236 | 140448 | 119803 |
| Cyp2j9 | 015224 | 055693 | 050464 | Mycl | 028654 | 144998 | 117232 | Svil | 024236 | 148564 | N/A |
| Cyp2j9 | 015224 | 126509 | N/A | Mycl | 028654 | 106252 | 101859 | Svil | 024236 | 210707 | 147843 |
| Cyp7b1 | 039519 | 035625 | 037487 | Mycl | 028654 | 030407 | 030407 | Svil | 024236 | 127297 | 115223 |
| D430019H16Rik | 094910 | 178224 | 137376 | Mycl | 028654 | 135925 | N/A | Svil | 024236 | 131609 | 122242 |
| D430041D05Rik | 068373 | 136156 | N/A | Mycl | 028654 | 147259 | N/A | Svil | 024236 | 125512 | 121972 |
| D430041D05Rik | 068373 | 141159 | 117041 | Myh14 | 030739 | 107899 | 103531 | Svil | 024236 | 139761 | N/A |
| D430041D05Rik | 068373 | 156278 | N/A | Myh14 | 030739 | 048102 | 046059 | Svil | 024236 | 146723 | 115591 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D430041D05Rik | 068373 | 149165 | N/A | Myh14 | 030739 | 208200 | 146686 | Svil | 024236 | 129543 | N/A |
| D430041D05Rik | 068373 | 155458 | N/A | Myh14 | 030739 | 208044 | N/A | Svil | 024236 | 025079 | 025079 |
| D430041D05Rik | 068373 | 139015 | 124519 | Myh14 | 030739 | 207775 | 147115 | Swap70 | 031015 | 033325 | 033325 |
| D430041D05Rik | 068373 | 149466 | 124980 | Myh14 | 030739 | 209024 | N/A | Swap70 | 031015 | 209261 | N/A |
| D430041D05Rik | 068373 | 089726 | 106756 | Myh14 | 030739 | 208085 | N/A | Swap70 | 031015 | 210743 | N/A |
| D430042O09Rik | 032743 | 124223 | 118668 | Myh14 | 030739 | 208131 | 146584 | Swap70 | 031015 | 210513 | N/A |
| D430042O09Rik | 032743 | 069660 | 065744 | Myh14 | 030739 | 107900 | 103532 | Sycp1 | 027855 | 029448 | 029448 |
| D430042O09Rik | 032743 | 205723 | N/A | Myh6 | 040752 | 081857 | 080538 | Sycp1 | 027855 | 198651 | N/A |
| D430042O09Rik | 032743 | 148701 | 119527 | Myh6 | 040752 | 226297 | 154634 | Sycp1 | 027855 | 196988 | 143651 |
| D430042O09Rik | 032743 | 122337 | N/A | Myh6 | 040752 | 228731 | 153961 | Sycp1 | 027855 | 199930 | 143493 |
| D430042O09Rik | 032743 | 205462 | N/A | Myh6 | 040752 | 227905 | N/A | Syn3 | 059602 | 120638 | 113720 |
| D430042O09Rik | 032743 | 132204 | 115955 | Myh6 | 040752 | 131892 | N/A | Syn3 | 059602 | 145864 | N/A |
| D430042O09Rik | 032743 | 155059 | N/A | Myh6 | 040752 | 124930 | 115615 | Syn3 | 059602 | 123783 | N/A |
| D630003M21Rik | 037813 | 103121 | 099410 | Myh6 | 040752 | 111456 | 107083 | Syn3 | 059602 | 139197 | N/A |
| D630003M21Rik | 037813 | 046944 | 040546 | Mylip | 038175 | 038275 | 047403 | Syn3 | 059602 | 121789 | 113408 |
| D630003M21Rik | 037813 | 169335 | 130623 | Mylip | 038175 | 222178 | 152597 | Syn3 | 059602 | 143319 | N/A |
| D7Ertd443e | 030994 | 094002 | 091539 | Myo10 | 022272 | 110457 | 106087 | Syndig1 | 074736 | 109935 | 105561 |
| D7Ertd443e | 030994 | 172947 | 134479 | Myo10 | 022272 | 137601 | 118280 | Syndig1 | 074736 | 144179 | 116877 |
| D7Ertd443e | 030994 | 106129 | 101735 | Myo10 | 022272 | 127486 | N/A | Syndig1 | 074736 | 109934 | 105560 |
| D7Ertd443e | 030994 | 206005 | N/A | Myo10 | 022272 | 130517 | N/A | Syndig1 | 074736 | 137280 | 122838 |
| D7Ertd443e | 030994 | 174700 | 134411 | Myo10 | 022272 | 126076 | N/A | Syndig1 | 074736 | 149705 | 122327 |
| D7Ertd443e | 030994 | 173195 | 134585 | Myo10 | 022272 | 135981 | 123057 | Syndig1 | 074736 | 140870 | 114499 |
| D7Ertd443e | 030994 | 173754 | 133963 | Myo10 | 022272 | 022882 | 022882 | Syndig1l | 071234 | 095550 | 093206 |
| D7Ertd443e | 030994 | 174271 | N/A | Myo10 | 022272 | 135173 | 118744 | Syndig1l | 071234 | 222422 | 152374 |
| Tmem131 | 026116 | 194563 | 142307 | Myo10 | 022272 | 131834 | 119200 | Syndig1l | 071234 | 221905 | 152304 |
| Tmem131 | 026116 | 191381 | N/A | Myo10 | 022272 | 124966 | 120817 | Syndig1l | 071234 | 221793 | N/A |
| Tmem131 | 026116 | 187917 | N/A | Myo10 | 022272 | 151360 | 119367 | Synj2 | 023805 | 146009 | 122381 |
| Tmem131 | 026116 | 189470 | 140620 | Myo10 | 022272 | 125667 | 120566 | Synj2 | 023805 | 134767 | 138449 |
| Tmem131 | 026116 | 190442 | 140187 | Myo10 | 022272 | 145587 | N/A | Synj2 | 023805 | 080283 | 079164 |
| Tmem131 | 026116 | 186486 | 142080 | Myo1d | 035441 | 041065 | 037819 | Synj2 | 023805 | 142409 | 120006 |
| Tmem131 | 026116 | 185964 | 141413 | Myo1d | 035441 | 070997 | 066948 | Synj2 | 023805 | 061091 | 060382 |
| Tmem131 | 026116 | 027290 | 027290 | Myo1d | 035441 | 125944 | N/A | Synj2 | 023805 | 115790 | 111456 |
| Dagla | 035735 | 039327 | 046358 | Myo7a | 030761 | 107128 | 102745 | Synj2 | 023805 | 115789 | 111455 |
| Dagla | 035735 | 125567 | 138702 | Myo7a | 030761 | 156992 | 146114 | Synj2 | 023805 | 115788 | 111454 |
| Dagla | 035735 | 156361 | N/A | Myo7a | 030761 | 084979 | 082046 | Synj2 | 023805 | 115787 | 111453 |
| Dao | 042096 | 112292 | 107911 | Myo7a | 030761 | 107122 | 102739 | Synj2 | 023805 | 115786 | 111452 |
| Dao | 042096 | 086599 | 083792 | Myo7a | 030761 | 205746 | 146165 | Synj2 | 023805 | 115784 | 111450 |
| Dao | 042096 | 161610 | 125588 | Myo7a | 030761 | 107127 | 102744 | Synj2 | 023805 | 115785 | 111451 |
| Dao | 042096 | 199175 | 143337 | Myo7a | 030761 | 124787 | N/A | Synj2 | 023805 | 130661 | N/A |
| Dao | 042096 | 162214 | N/A | Myo7a | 030761 | 152975 | N/A | Synj2 | 023805 | 154114 | 122316 |
| Dapk1 | 021559 | 226059 | 153607 | Myo7a | 030761 | 153657 | N/A | Synj2 | 023805 | 126881 | 115371 |
| Dapk1 | 021559 | 077453 | 076666 | Myo7a | 030761 | 155637 | N/A | Synj2 | 023805 | 115791 | 111457 |
| Dapk1 | 021559 | 224340 | N/A | Myo7a | 030761 | 149079 | N/A | Synpr | 056296 | 070323 | 064986 |
| Dapk1 | 021559 | 044083 | 040825 | Myo7a | 030761 | 138627 | 114944 | Synpr | 056296 | 223580 | N/A |
| Dapk1 | 021559 | 225632 | N/A | Myo7a | 030761 | 131632 | N/A | Synpr | 056296 | 225636 | N/A |
| Dapk1 | 021559 | 224789 | 153205 | Myot | 024471 | 025349 | 025349 | Synpr | 056296 | 226094 | N/A |
| Dapk1 | 021559 | 225952 | N/A | Myot | 024471 | 115498 | 111160 | Synpr | 056296 | 223583 | 153361 |
| Slc6a3 | 021609 | 022100 | 022100 | Myrf | 036098 | 088013 | 085329 | Synpr | 056296 | 153954 | 116342 |
| Dcc | 060534 | 114943 | 110593 | Myrf | 036098 | 190922 | N/A | Synpr | 056296 | 145700 | N/A |
| Dcc | 060534 | 073379 | 073094 | Myrf | 036098 | 186056 | 140871 | Synpr | 056296 | 147677 | N/A |
| Dcc | 060534 | 126030 | N/A | Myrf | 036098 | 186854 | 140838 | Synpr | 056296 | 112656 | 108275 |
| Ddhd1 | 037697 | 111828 | 107459 | Myrf | 036098 | 189897 | 139601 | Syt10 | 063260 | 029441 | 029441 |
| Ddhd1 | 037697 | 087320 | 084577 | Myrf | 036098 | 189439 | N/A | Syt12 | 049303 | 059295 | 055237 |
| Ddhd1 | 037697 | 051310 | 050088 | Ncald | 051359 | 090150 | 087611 | Syt12 | 049303 | 128114 | N/A |
| Ddhd1 | 037697 | 152110 | N/A | Ncald | 051359 | 120746 | 112898 | Syt12 | 049303 | 166191 | 130418 |
| Ddhd1 | 037697 | 129599 | N/A | Ncald | 051359 | 119730 | 113858 | Syt12 | 049303 | 133222 | N/A |
| Ddhd1 | 037697 | 149286 | 118848 | Ncald | 051359 | 116445 | 112146 | Syt14 | 016200 | 215093 | 151129 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ddhd1 | 037697 | 156758 | 121837 | Ncald | 051359 | 153775 | 114576 | Syt14 | 016200 | 195354 | 142190 |
| Ddhd1 | 037697 | 141487 | 133358 | Ncald | 051359 | 148652 | 121460 | Syt14 | 016200 | 195530 | 141563 |
| Ddhd1 | 037697 | 126428 | N/A | Ncald | 051359 | 132423 | N/A | Syt14 | 016200 | 016344 | 016344 |
| Ddhd1 | 037697 | 226301 | 154065 | Ncald | 051359 | 150453 | 119726 | Syt14 | 016200 | 191907 | N/A |
| Ddhd1 | 037697 | 147551 | N/A | Ncald | 051359 | 226924 | N/A | Syt17 | 058420 | 081574 | 080284 |
| Ddhd1 | 037697 | 153547 | N/A | Ncald | 051359 | 137944 | N/A | Syt17 | 058420 | 203465 | 147122 |
| Ddhd1 | 037697 | 226559 | N/A | Ncald | 051359 | 123317 | N/A | Syt17 | 058420 | 203796 | 145087 |
| Ddn | 059213 | 075444 | 074895 | Ncald | 051359 | 168992 | 130126 | Syt17 | 058420 | 203485 | 144987 |
| Ddr2 | 026674 | 194690 | 141443 | Ncam2 | 022762 | 037785 | 049390 | Syt17 | 058420 | 207034 | 146460 |
| Ddr2 | 026674 | 192312 | 142191 | Ncam2 | 022762 | 067602 | 063468 | Syt17 | 058420 | 207650 | N/A |
| Ddr2 | 026674 | 195867 | N/A | Ncan | 002341 | 002412 | 002412 | Syt4 | 024261 | 025110 | 025110 |
| Ddr2 | 026674 | 194619 | N/A | Nceh1 | 027698 | 046515 | 045864 | Tanc1 | 035168 | 112568 | 108187 |
| Ddr2 | 026674 | 027985 | 027985 | Nceh1 | 027698 | 138947 | 115209 | Tanc1 | 035168 | 142573 | N/A |
| Ddr2 | 026674 | 170800 | 129624 | Nceh1 | 027698 | 129412 | N/A | Tanc1 | 035168 | 128030 | N/A |
| Ddx3y | 069045 | 091190 | 088729 | Nceh1 | 027698 | 091284 | 088829 | Tanc1 | 035168 | 139863 | 123345 |
| Ddx3y | 069045 | 188182 | N/A | Nceh1 | 027698 | 140872 | N/A | Tanc1 | 035168 | 127013 | N/A |
| Ddx3y | 069045 | 188484 | 140361 | Nckap5 | 049690 | 161954 | 125624 | Tanc1 | 035168 | 056900 | N/A |
| Ddx3y | 069045 | 187596 | N/A | Nckap5 | 049690 | 162877 | 124748 | Tanc1 | 035168 | 126271 | N/A |
| Depdc1b | 021697 | 051594 | 059291 | Nckap5 | 049690 | 160736 | N/A | Tanc1 | 035168 | 136248 | N/A |
| Depdc1b | 021697 | 168037 | N/A | Nckap5 | 049690 | 057846 | 062229 | Tanc1 | 035168 | 162857 | N/A |
| Depdc1b | 021697 | 163307 | 131707 | Nckap5 | 049690 | 094610 | 092193 | Tanc1 | 035168 | 147650 | N/A |
| Depdc1b | 021697 | 171178 | 132972 | Nckap5 | 049690 | 159934 | N/A | Tanc1 | 035168 | 037526 | 036003 |
| Depdc1b | 021697 | 167413 | N/A | Nckap5 | 049690 | 162646 | 123936 | Taok3 | 061288 | 111978 | 107609 |
| Depdc1b | 021697 | 172402 | N/A | Nckap5 | 049690 | 160693 | 123975 | Taok3 | 061288 | 125738 | 117841 |
| Depdc7 | 027173 | 028595 | 028595 | Nckap5 | 049690 | 162664 | N/A | Taok3 | 061288 | 128720 | N/A |
| Depdc7 | 027173 | 144133 | N/A | Nckap5 | 049690 | 162647 | N/A | Taok3 | 061288 | 092889 | 090565 |
| Des | 026208 | 027409 | 027409 | Nckap5 | 049690 | 112583 | 108202 | Taok3 | 061288 | 126813 | N/A |
| Des | 026208 | 144894 | N/A | Nckap5 | 049690 | 094609 | 092192 | Taok3 | 061288 | 145640 | 116920 |
| Des | 026208 | 125948 | N/A | Ndrg1 | 005125 | 005256 | 005256 | Taok3 | 061288 | 153709 | N/A |
| Gsdme | 029821 | 204417 | N/A | Ndrg1 | 005125 | 165966 | N/A | Taok3 | 061288 | 127814 | 119998 |
| Gsdme | 029821 | 165099 | 130522 | Ndrg1 | 005125 | 166420 | 127099 | Taok3 | 061288 | 111975 | 107606 |
| Gsdme | 029821 | 101405 | 098952 | Ndrg1 | 005125 | 171569 | N/A | Taok3 | 061288 | 179276 | 136750 |
| Gsdme | 029821 | 031845 | 031845 | Ndrg1 | 005125 | 164675 | 130150 | Tbc1d1 | 029174 | 199270 | 143451 |
| Gsdme | 029821 | 167893 | 132062 | Ndrg1 | 005125 | 168542 | 127940 | Tbc1d1 | 029174 | 043893 | 044577 |
| Gsdme | 029821 | 204700 | N/A | Ndrg1 | 005125 | 167817 | 127075 | Tbc1d1 | 029174 | 121370 | 112493 |
| Gsdme | 029821 | 170142 | 126759 | Ndrg1 | 005125 | 168979 | 126985 | Tbc1d1 | 029174 | 129389 | N/A |
| Dgkb | 036095 | 222337 | 152460 | Ndrg1 | 005125 | 172447 | 130281 | Tbc1d1 | 029174 | 119756 | 113643 |
| Dgkb | 036095 | 221176 | 152446 | Ndrg1 | 005125 | 171266 | 129093 | Tbc1d1 | 029174 | 147348 | 119710 |
| Dgkb | 036095 | 220990 | 152378 | Ndrg1 | 005125 | 170903 | 127302 | Tbc1d1 | 029174 | 140960 | N/A |
| Dgkb | 036095 | 221540 | N/A | Ndrg1 | 005125 | 163496 | 130584 | Tbc1d1 | 029174 | 101195 | 098756 |
| Dgkb | 036095 | 040500 | 037900 | Ndrg1 | 005125 | 164070 | 126091 | Tbc1d4 | 033083 | 161991 | 125509 |
| Dgkb | 036095 | 221098 | N/A | Ndrg2 | 004558 | 004673 | 004673 | Tbc1d4 | 033083 | 161304 | N/A |
| Dgkb | 036095 | 221686 | N/A | Ndrg2 | 004558 | 111632 | 107259 | Tbc1d4 | 033083 | 159951 | 124511 |
| Dgkb | 036095 | 220606 | N/A | Ndrg2 | 004558 | 226698 | N/A | Tbc1d4 | 033083 | 162617 | 124909 |
| Dgkh | 034731 | 226342 | 154036 | Ndrg2 | 004558 | 227237 | 153938 | Tbc1d4 | 033083 | 160297 | N/A |
| Dgkh | 034731 | 227537 | 154107 | Ndrg2 | 004558 | 226122 | N/A | Tbc1d4 | 033083 | 159484 | N/A |
| Dgkh | 034731 | 228362 | 154554 | Ndrg2 | 004558 | 227402 | 154279 | Tbc1d4 | 033083 | 159668 | N/A |
| Dgkh | 034731 | 227767 | 154031 | Ndrg2 | 004558 | 228164 | 153830 | Tbc1d4 | 033083 | 159664 | 124734 |
| Dgkh | 034731 | 227820 | N/A | Ndrg2 | 004558 | 226366 | N/A | Tbc1d4 | 033083 | 100340 | 097913 |
| Dgkh | 034731 | 074729 | 074290 | Ndrg2 | 004558 | 226528 | 154716 | Tbc1d4 | 033083 | 160473 | N/A |
| Dgki | 038665 | 101532 | 099071 | Ndrg2 | 004558 | 226184 | 154135 | Tbc1d5 | 023923 | 024717 | 024717 |
| Dgki | 038665 | 150300 | 138457 | Ndrg2 | 004558 | 228620 | N/A | Tbc1d5 | 023923 | 224977 | N/A |
| Dgki | 038665 | 138286 | 138628 | Ndrg2 | 004558 | 226364 | N/A | Tbc1d5 | 023923 | 224528 | 153172 |
| Dgki | 038665 | 090314 | 087788 | Ndrg2 | 004558 | 228173 | N/A | Tbc1d5 | 023923 | 225252 | N/A |
| Dgki | 038665 | 042075 | 047858 | Ndst3 | 027977 | 137404 | 118796 | Tbc1d5 | 023923 | 223979 | N/A |
| Dgki | 038665 | 143046 | N/A | Ndst3 | 027977 | 132112 | 120623 | Tbc1d5 | 023923 | 223758 | N/A |
| Dgki | 038665 | 146656 | N/A | Ndst3 | 027977 | 154668 | 118207 | Tbc1d5 | 023923 | 224547 | N/A |
| Dgki | 038665 | 136457 | N/A | Ndst3 | 027977 | 124803 | 122617 | Tbc1d5 | 023923 | 224123 | N/A |
| Disp3 | 041544 | 047720 | 038490 | Ndst3 | 027977 | 172537 | 133657 | Tbc1d5 | 023923 | 225473 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Disp3 | 041544 | 143851 | N/A | Ndst3 | 027977 | 199046 | N/A | Tbcel | 037287 | 125995 | 114721 |
| Disp3 | 041544 | 129734 | N/A | Ndst3 | 027977 | 199825 | N/A | Tbcel | 037287 | 066148 | 067882 |
| Dixdc1 | 032064 | 034566 | 034566 | Ndst3 | 027977 | 132896 | N/A | Tbcel | 037287 | 066179 | 065125 |
| Dixdc1 | 032064 | 141919 | N/A | Ndst3 | 027977 | 029602 | 029602 | Tbcel | 037287 | 142775 | N/A |
| Dixdc1 | 032064 | 117646 | 112431 | Ndst4 | 027971 | 173932 | 133341 | Tbcel | 037287 | 138506 | 116616 |
| Dixdc1 | 032064 | 119449 | N/A | Ndst4 | 027971 | 147016 | N/A | Tbcel | 037287 | 128959 | 121164 |
| Dixdc1 | 032064 | 121634 | 113089 | Ndst4 | 027971 | 144344 | 120687 | Tbcel | 037287 | 134374 | 114275 |
| Dixdc1 | 032064 | 124424 | N/A | Ndst4 | 027971 | 174648 | 133575 | Tbcel | 037287 | 213428 | N/A |
| Dixdc1 | 032064 | 120622 | 113934 | Ndst4 | 027971 | 172632 | N/A | Tbr1 | 035033 | 048934 | 046787 |
| Dixdc1 | 032064 | 151109 | N/A | Ndst4 | 027971 | 198101 | 142414 | Tbr1 | 035033 | 102737 | 099798 |
| Dixdc1 | 032064 | 149717 | N/A | Nectin3 | 022656 | 023335 | 023335 | Tbr1 | 035033 | 131538 | N/A |
| Dixdc1 | 032064 | 154315 | N/A | Nectin3 | 022656 | 023334 | 023334 | Tbr1 | 035033 | 136867 | N/A |
| Dixdc1 | 032064 | 117093 | 112654 | Nectin3 | 022656 | 096052 | 093757 | Tbxas1 | 029925 | 162521 | 125406 |
| Dixdc1 | 032064 | 118707 | 113907 | Nectin3 | 022656 | 133935 | N/A | Tbxas1 | 029925 | 003017 | 003017 |
| Dlc1 | 031523 | 033923 | 033923 | Nectin3 | 022656 | 149901 | 117479 | Tbxas1 | 029925 | 159226 | N/A |
| Dlc1 | 031523 | 098826 | 096425 | Nectin3 | 022656 | 121245 | 113146 | Tbxas1 | 029925 | 161781 | N/A |
| Dlc1 | 031523 | 163663 | 132812 | Nectin3 | 022656 | 132089 | N/A | Tbxas1 | 029925 | 160963 | 124640 |
| Dlc1 | 031523 | 156312 | N/A | Nectin3 | 022656 | 119941 | 113301 | Tbxas1 | 029925 | 162656 | N/A |
| Dlc1 | 031523 | 145245 | N/A | Nectin3 | 022656 | 121803 | 112567 | Tbxas1 | 029925 | 161360 | N/A |
| Dlc1 | 031523 | 036104 | N/A | Nectin3 | 022656 | 124602 | 115927 | Tceal7 | 079428 | 126811 | 122260 |
| Dlc1 | 031523 | 178717 | N/A | Nedd4l | 024589 | 225057 | 153537 | Tceal7 | 079428 | 113116 | 108741 |
| Dlc1 | 031523 | 179652 | N/A | Nedd4l | 024589 | 225261 | 153107 | Tcerg1l | 091002 | 162222 | N/A |
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| Dlgap2 | 047495 | 152652 | 123078 | Nedd4l | 024589 | 223959 | N/A | Tcerg1l | 091002 | 160436 | 124476 |
| Dlgap2 | 047495 | 133298 | 119613 | Nedd4l | 024589 | 224347 | 153052 | Tcf7l1 | 055799 | 069536 | 069403 |
| Dlgap2 | 047495 | 150247 | 123104 | Nedd4l | 024589 | 224516 | N/A | Tcf7l1 | 055799 | 114053 | 109687 |
| Dlgap2 | 047495 | 141155 | N/A | Nedd4l | 024589 | 224890 | N/A | Tcf7l1 | 055799 | 141743 | N/A |
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| Dlgap2 | 047495 | 141214 | N/A | Nedd4l | 024589 | 226058 | 153526 | Tcf7l1 | 055799 | 182651 | N/A |
| Dlgap2 | 047495 | 137130 | N/A | Nedd4l | 024589 | 224663 | N/A | Tcp11l2 | 020034 | 020223 | 020223 |
| Dlgap2 | 047495 | 129119 | N/A | Nedd4l | 024589 | 163516 | 132838 | Tcp11l2 | 020034 | 162874 | N/A |
| Dlgap2 | 047495 | 043279 | 039647 | Nefh | 020396 | 093369 | 091061 | Tcp11l2 | 020034 | 160057 | N/A |
| Dlgap4 | 061689 | 169464 | 126980 | Negr1 | 040037 | 074015 | 073664 | Tcte1 | 023949 | 113547 | 109175 |
| Dlgap4 | 061689 | 109568 | 105196 | Negr1 | 040037 | 041425 | 041132 | Tctex1d1 | 028523 | 220547 | 152803 |
| Dlgap4 | 061689 | 070782 | 068745 | Negr1 | 040037 | 106065 | 101680 | Tctex1d1 | 028523 | 223169 | 152761 |
| Dlgap4 | 061689 | 137356 | 135698 | Negr1 | 040037 | 197246 | N/A | Tctex1d1 | 028523 | 030248 | 030248 |
| Dlgap4 | 061689 | 131157 | 134941 | Negr1 | 040037 | 175773 | 135531 | Tctex1d1 | 028523 | 125417 | 117319 |
| Dlgap4 | 061689 | 109566 | 105194 | Nek2 | 026622 | 027931 | 027931 | Tctex1d1 | 028523 | 169211 | 128228 |
| Dlgap4 | 061689 | 127944 | N/A | Nek2 | 026622 | 126446 | N/A | Tctex1d1 | 028523 | 140654 | 116692 |
| Dlgap4 | 061689 | 146412 | 135156 | Nek2 | 026622 | 150839 | N/A | Tctex1d1 | 028523 | 139883 | N/A |
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| Dlgap4 | 061689 | 171030 | 129756 | Nek2 | 110797 | 213394 | 149034 | Tdp1 | 021177 | 151019 | N/A |
| Dlgap4 | 061689 | 000094 | 000094 | Nek2 | 110797 | 216945 | N/A | Tdp1 | 021177 | 125639 | N/A |
| Dlgap4 | 061689 | 099145 | 096749 | Nek2 | 110797 | 217216 | N/A | Tdp1 | 021177 | 153627 | 118656 |
| Dlgap4 | 061689 | 123730 | N/A | Nek2 | 110797 | 215890 | N/A | Tdp1 | 021177 | 221396 | N/A |
| Dlgap4 | 061689 | 109567 | 105195 | Nek4 | 021918 | 226551 | 154678 | Tdp1 | 021177 | 137653 | 123269 |
| Dlx4os | 086552 | 156477 | N/A | Nek4 | 021918 | 228328 | 154090 | Tdp1 | 021177 | 126424 | N/A |
| Dlx6os1 | 098326 | 184182 | N/A | Nek4 | 021918 | 228392 | N/A | Tdp1 | 021177 | 128739 | N/A |
| Dlx6os1 | 090063 | 159827 | N/A | Nek4 | 021918 | 050171 | 057915 | Tdp1 | 021177 | 220685 | N/A |
| Dlx6os1 | 090063 | 159568 | N/A | Nek4 | 021918 | 226833 | 154606 | Tdp1 | 021177 | 021594 | 021594 |
| Dlx6os1 | 090063 | 210702 | N/A | Nek4 | 021918 | 227602 | N/A | Tead1 | 055320 | 084705 | 081755 |
| Dmd | 045103 | 114000 | 109633 | Nek4 | 021918 | 227199 | N/A | Tead1 | 055320 | 059768 | 060671 |
| Dmd | 045103 | 128983 | N/A | Nek4 | 021918 | 226146 | 153710 | Tead1 | 055320 | 106638 | 102249 |
| Dmd | 045103 | 113991 | 109624 | Nell1 | 055409 | 151721 | 114706 | Tead1 | 055320 | 172065 | N/A |
| Dmd | 045103 | 132333 | N/A | Nell1 | 055409 | 081872 | 080550 | Tead1 | 055320 | 171373 | 131765 |
| Dmd | 045103 | 146331 | N/A | Nell1 | 055409 | 145096 | N/A | Tead1 | 055320 | 164363 | 127574 |
| Dmd | 045103 | 149433 | N/A | Nell1 | 055409 | 107603 | 103229 | Tead1 | 055320 | 163593 | N/A |
| Dmd | 045103 | 113992 | 109625 | Nell1 | 055409 | 154410 | N/A | Tead1 | 055320 | 170352 | 129798 |
| Dmd | 045103 | 156107 | N/A | Neo1 | 032340 | 068664 | 063656 | Tead1 | 055320 | 168981 | 133025 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dmd | 045103 | 147740 | N/A | Neo1 | 032340 | 214547 | 150600 | Tead1 | 055320 | 171197 | 128439 |
| Dmd | 045103 | 141778 | N/A | Neo1 | 032340 | 215165 | N/A | Tead1 | 055320 | 165036 | 131221 |
| Dmd | 045103 | 141261 | N/A | Neo1 | 032340 | 217545 | N/A | Tead1 | 055320 | 167060 | 130564 |
| Dmd | 045103 | 139998 | N/A | Neo1 | 032340 | 215026 | N/A | Tead1 | 055320 | 168328 | N/A |
| Dmd | 045103 | 123308 | N/A | Neo1 | 032340 | 216964 | 149424 | Tead1 | 055320 | 210510 | N/A |
| Dmd | 045103 | 127295 | N/A | Nes | 004891 | 159830 | N/A | Tead1 | 055320 | 069256 | 130459 |
| Dmp1 | 029307 | 066708 | 068053 | Nes | 004891 | 090973 | 088493 | Tead4 | 030353 | 130454 | 118083 |
| Dnah5 | 022262 | 067048 | 069751 | Nes | 004891 | 160694 | 125571 | Tead4 | 030353 | 006311 | 006311 |
| Dnah6 | 052861 | 114040 | 109674 | Neto1 | 050321 | 058829 | 057340 | Tead4 | 030353 | 112157 | 107784 |
| Dnah6 | 052861 | 204053 | 144791 | Neu4 | 034000 | 050890 | 051151 | Tead4 | 030353 | 133118 | 120941 |
| Dnah6 | 052861 | 114038 | N/A | Neu4 | 034000 | 190212 | 140127 | Tead4 | 030353 | 143004 | 118606 |
| Dnah6 | 052861 | 064948 | 068758 | Rbfox3 | 025576 | 117731 | 113636 | Tec | 029217 | 071944 | 071836 |
| Dner | 036766 | 049126 | 042927 | Rbfox3 | 025576 | 103023 | 099312 | Tec | 029217 | 113594 | 109224 |
| Dner | 036766 | 191306 | N/A | Rbfox3 | 025576 | 017576 | 017576 | Tec | 029217 | 126481 | 123606 |
| Dner | 036766 | 185606 | 140986 | Rbfox3 | 025576 | 069343 | 069598 | Tec | 029217 | 155342 | 118980 |
| Dner | 036766 | 191546 | 140662 | Rbfox3 | 025576 | 106278 | 101885 | Tec | 029217 | 073843 | 073509 |
| Dnmbp | 025195 | 212396 | 148582 | Rbfox3 | 025576 | 120061 | 113987 | Tec | 029217 | 138842 | 120155 |
| Dnmbp | 025195 | 212592 | 148421 | Rbfox3 | 025576 | 154746 | 118332 | Tec | 029217 | 149533 | 123258 |
| Dnmbp | 025195 | 212048 | 148546 | Rbfox3 | 025576 | 136551 | 119255 | Tec | 029217 | 150193 | N/A |
| Dnmbp | 025195 | 212032 | 148708 | Rbfox3 | 025576 | 128863 | N/A | Tec | 029217 | 202547 | 144458 |
| Dnmbp | 025195 | 212157 | N/A | Rbfox3 | 025576 | 134774 | N/A | Tek | 006386 | 073939 | 073595 |
| Dnmbp | 025195 | 026209 | 026209 | Rbfox3 | 025576 | 117731 | 113636 | Tek | 006386 | 102798 | 099862 |
| Doc2b | 020848 | 021209 | 021209 | Rbfox3 | 025576 | 103023 | 099312 | Tek | 006386 | 071168 | 071162 |
| Dock1 | 058325 | 211570 | N/A | Rbfox3 | 025576 | 017576 | 017576 | Tek | 006386 | 131958 | N/A |
| Dock1 | 058325 | 211593 | 147945 | Rbfox3 | 025576 | 069343 | 069598 | Tes | 029552 | 115467 | 111127 |
| Dock1 | 058325 | 084488 | 081531 | Rbfox3 | 025576 | 106278 | 101885 | Tes | 029552 | 200690 | N/A |
| Dock1 | 058325 | 210617 | N/A | Rbfox3 | 025576 | 120061 | 113987 | Tes | 029552 | 154266 | 118791 |
| Dock1 | 058325 | 210464 | N/A | Rbfox3 | 025576 | 154746 | 118332 | Tes | 029552 | 121170 | N/A |
| Dock1 | 058325 | 210121 | 147797 | Rbfox3 | 025576 | 136551 | 119255 | Tes | 029552 | 076654 | 075950 |
| Dock5 | 044447 | 039135 | 036674 | Rbfox3 | 025576 | 128863 | N/A | Tesc | 029359 | 031304 | 031304 |
| Dock5 | 044447 | 226033 | N/A | Rbfox3 | 025576 | 134774 | N/A | Tesc | 029359 | 124648 | 138436 |
| Dock5 | 044447 | 224823 | N/A | Neurl1a | 006435 | 111808 | 107439 | Tesc | 029359 | 135540 | N/A |
| Dock6 | 032198 | 217336 | 149156 | Neurl1a | 006435 | 111807 | 107438 | Tesc | 029359 | 151792 | N/A |
| Dock6 | 032198 | 215729 | 150250 | Neurod1 | 034701 | 041099 | 040364 | Tesc | 029359 | 148777 | N/A |
| Dock6 | 032198 | 034728 | 034728 | Neurod6 | 037984 | 044767 | 047016 | Tesc | 029359 | 145526 | N/A |
| Dock6 | 032198 | 217310 | N/A | Nfatc2 | 027544 | 074618 | 074198 | Tex36 | 030976 | 033275 | 033275 |
| Dock6 | 032198 | 216626 | 150347 | Nfatc2 | 027544 | 109184 | 104812 | Tex52 | 079304 | 130785 | 145112 |
| Dock6 | 032198 | 217515 | N/A | Nfatc2 | 027544 | 151292 | N/A | Tex52 | 079304 | 100926 | 098486 |
| Dock6 | 032198 | 213296 | N/A | Nfatc2 | 027544 | 099067 | N/A | Tex9 | 090626 | 184312 | 138844 |
| Dock6 | 032198 | 213775 | N/A | Nfatc2 | 027544 | 029057 | 029057 | Tex9 | 090626 | 085358 | 082467 |
| Dock7 | 028556 | 030286 | 030286 | Nfatc2 | 027544 | 137451 | 118329 | Tex9 | 090626 | 184125 | 139026 |
| Dock7 | 028556 | 206128 | N/A | Nfatc2 | 027544 | 140137 | N/A | Tex9 | 090626 | 183399 | N/A |
| Dock7 | 028556 | 127417 | 117797 | Nfatc2 | 027544 | 138546 | N/A | Tex9 | 090626 | 184831 | 138999 |
| Dock7 | 028556 | 124466 | 145749 | Nfatc2 | 027544 | 171689 | 130875 | Tex9 | 090626 | 183574 | 139386 |
| Dock7 | 028556 | 075836 | 075233 | Nhsl1 | 039835 | 207038 | 147021 | Tex9 | 090626 | 183856 | 139247 |
| Dock7 | 028556 | 205650 | 145604 | Nhsl1 | 039835 | 159299 | N/A | Tex9 | 090626 | 184557 | 139212 |
| Dock7 | 028556 | 140225 | N/A | Nhsl1 | 039835 | 161510 | N/A | Tex9 | 090626 | 184066 | N/A |
| Dock7 | 028556 | 205484 | N/A | Nhsl1 | 039835 | 160602 | N/A | Tex9 | 090626 | 184734 | N/A |
| Dock7 | 028556 | 124040 | N/A | Nhsl1 | 039835 | 037341 | 040799 | Tex9 | 090626 | 183428 | 139326 |
| Dock7 | 028556 | 205652 | 145833 | Nhsl1 | 039835 | 160547 | N/A | Tex9 | 090626 | 183551 | N/A |
| Dock7 | 028556 | 139152 | N/A | Nhsl1 | 039835 | 160600 | N/A | Tex9 | 090626 | 183501 | 138882 |
| Dock7 | 028556 | 140848 | N/A | Nhsl1 | 039835 | 162891 | 124072 | Tex9 | 090626 | 185151 | 138929 |
| Dock7 | 028556 | 150254 | 114204 | Nhsl1 | 039835 | 100054 | 097631 | Tex9 | 090626 | 185106 | N/A |
| Dock7 | 028556 | 127946 | 119103 | Nid1 | 005397 | 005532 | 005532 | Tex9 | 090626 | 184624 | N/A |
| Dock7 | 028556 | 205783 | N/A | Nid1 | 005397 | 222142 | N/A | Tfap2a | 021359 | 021787 | 021787 |
| Dock7 | 028556 | 153362 | N/A | Nid1 | 005397 | 222436 | N/A | Tfap2a | 021359 | 224319 | N/A |
| Dock7 | 028556 | 131386 | 145985 | Ninj2 | 041377 | 112711 | 108331 | Tfap2a | 021359 | 223869 | 153149 |
| Dock7 | 028556 | 206604 | N/A | Ninj2 | 041377 | 035244 | 046306 | Tfap2a | 021359 | 225180 | 153271 |
| Dock8 | 052085 | 025831 | 025831 | Nipal4 | 020411 | 020679 | 020679 | Tfap2a | 021359 | 224999 | 153522 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Dok6 | 073514 | 097495 | 095103 | Nkain2 | 069670 | 191234 | 140463 | Tfap2a | 021359 | 224665 | 153667 |
| Dok6 | 073514 | 160328 | N/A | Nkain2 | 069670 | 218645 | 151255 | Tfap2a | 021359 | 223908 | N/A |
| Dopey2 | 022946 | 045004 | 044437 | Nkain2 | 069670 | 219125 | 151959 | Tfap2a | 021359 | 224700 | N/A |
| Dopey2 | 022946 | 226335 | N/A | Nkain2 | 069670 | 219306 | N/A | Tfap2a | 021359 | 110193 | 105822 |
| Dopey2 | 022946 | 226418 | N/A | Nkain2 | 069670 | 092602 | 090264 | Tfap2b | 025927 | 027059 | 027059 |
| Dopey2 | 022946 | 228846 | 154446 | Nkain2 | 069670 | 092603 | 090265 | Tfap2b | 025927 | 187754 | 140213 |
| Dopey2 | 022946 | 227156 | 154771 | Nkx2-2 | 027434 | 109970 | 105596 | Tfap2b | 025927 | 064976 | 064488 |
| Dopey2 | 022946 | 226836 | 154636 | Nkx2-2 | 027434 | 067075 | 069666 | Tfap2b | 025927 | 191068 | N/A |
| Dopey2 | 022946 | 226215 | 154229 | Nkx2-2 | 027434 | 109969 | N/A | Tfap2b | 025927 | 186972 | N/A |
| Dopey2 | 022946 | 226535 | N/A | Nkx2-2 | 027434 | 172627 | N/A | Tg | 053469 | 065916 | 070239 |
| Dopey2 | 022946 | 227939 | N/A | Nlgn3 | 031302 | 118111 | 113863 | Tg | 053469 | 163495 | 129868 |
| Dopey2 | 022946 | 228261 | N/A | Nlgn3 | 031302 | 130555 | 122213 | Tg | 053469 | 167512 | N/A |
| Dopey2 | 022946 | 227278 | N/A | Nlgn3 | 031302 | 151528 | 123283 | Tg | 053469 | 171045 | 126454 |
| Dopey2 | 022946 | 228423 | N/A | Nlgn3 | 031302 | 065858 | 066304 | Tg | 053469 | 166906 | N/A |
| Dpf3 | 021221 | 147469 | 122598 | Nlgn3 | 031302 | 147443 | N/A | Tg | 053469 | 167344 | N/A |
| Dpf3 | 021221 | 144237 | 122004 | Nlgn3 | 031302 | 144860 | N/A | Tg | 053469 | 172153 | 128410 |
| Dpf3 | 021221 | 133282 | 121199 | Nln | 021710 | 109315 | 104938 | Tg | 053469 | 166403 | N/A |
| Dpf3 | 021221 | 140327 | 120700 | Nln | 021710 | 225324 | 153299 | Tgfb2 | 039239 | 045288 | 043849 |
| Dpf3 | 021221 | 178756 | 136280 | Nln | 021710 | 224058 | N/A | Tgfb2 | 039239 | 195201 | 142149 |
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| Dpf3 | 021221 | 177801 | 136740 | Nln | 021710 | 224945 | 153227 | Tgfb2 | 039239 | 194960 | N/A |
| Dpp10 | 036815 | 112606 | 108225 | Nln | 021710 | 224475 | N/A | Tgfb2 | 039239 | 194593 | N/A |
| Dpp10 | 036815 | 112603 | 108222 | Nln | 021710 | 225478 | N/A | Tgfb2 | 039239 | 193640 | N/A |
| Dpp10 | 036815 | 187202 | N/A | Nln | 021710 | 224086 | N/A | Tgfb3 | 021253 | 003687 | 003687 |
| Dpp10 | 036815 | 140361 | N/A | Nrt | 025453 | 069902 | 070564 | Th | 000214 | 000219 | 000219 |
| Dpy19l1 | 043067 | 115277 | 110932 | Nrt | 025453 | 099149 | 096753 | Th | 000214 | 105929 | 101549 |
| Dpy19l1 | 043067 | 142064 | 119986 | Nrt | 025453 | 109204 | 104827 | Th | 000214 | 124951 | 122876 |
| Dpy19l1 | 043067 | 152480 | N/A | Nrt | 025453 | 133627 | N/A | Th | 000214 | 138482 | 123661 |
| Dpy19l1 | 043067 | 149001 | N/A | Nrt | 025453 | 144599 | N/A | Th | 000214 | 123057 | 122162 |
| Dpy19l1 | 043067 | 129048 | N/A | Nrt | 025453 | 223268 | 152868 | Th | 000214 | 140344 | 115434 |
| Dpy19l1 | 043067 | 170356 | 129575 | Notch1 | 026923 | 028288 | 028288 | Thbs2 | 023885 | 170872 | 128308 |
| Dpy19l2 | 085576 | 133010 | 132092 | Notch1 | 026923 | 132941 | N/A | Thsd7b | 042581 | 148051 | N/A |
| Dpyd | 033308 | 039177 | 039429 | Notch1 | 026923 | 148948 | N/A | Thsd7b | 042581 | 073527 | 073220 |
| Dpyd | 033308 | 126254 | N/A | Notch1 | 026923 | 138034 | N/A | Thsd7b | 042581 | 040311 | 041716 |
| Dpyd | 033308 | 150950 | N/A | Notch1 | 026923 | 126872 | N/A | Thsd7b | 042581 | 140629 | N/A |
| Dpyd | 033308 | 149101 | 143022 | Notch1 | 026923 | 140082 | N/A | Thsd7b | 042581 | 152305 | 117750 |
| Dpyd | 033308 | 200178 | N/A | Notch1 | 026923 | 147481 | N/A | Thsd7b | 042581 | 190870 | N/A |
| Dpyd | 033308 | 129148 | N/A | Notch1 | 026923 | 123873 | N/A | Thsd7b | 042581 | 151700 | N/A |
| Dpysl3 | 024501 | 121805 | 112928 | Notch1 | 026923 | 129506 | N/A | Thsd7b | 042581 | 140834 | N/A |
| Dpysl3 | 024501 | 135547 | N/A | Notch1 | 026923 | 132820 | 115258 | Thsd7b | 042581 | 143130 | N/A |
| Dpysl3 | 024501 | 118043 | 113711 | Notch1 | 026923 | 131393 | N/A | Thyn1 | 035443 | 214910 | N/A |
| Dpysl3 | 024501 | 025379 | 025379 | Npr3 | 022206 | 066529 | 066737 | Thyn1 | 035443 | 213770 | 151200 |
| Dpysl3 | 024501 | 124207 | 114981 | Npr3 | 022206 | 226139 | N/A | Thyn1 | 035443 | 213683 | 150823 |
| Dpysl3 | 024501 | 118071 | 113604 | Npr3 | 022206 | 228603 | 154180 | Thyn1 | 035443 | 039161 | 037614 |
| Dpysl4 | 025478 | 026551 | 026551 | Npr3 | 022206 | 228489 | 153895 | Thyn1 | 035443 | 214458 | N/A |
| Dpysl4 | 025478 | 139364 | N/A | Npr3 | 022206 | 226878 | N/A | Thyn1 | 035443 | 217143 | N/A |
| Dpysl4 | 025478 | 154273 | N/A | Npy1r | 036437 | 212588 | 148417 | Thyn1 | 035443 | 215024 | N/A |
| Dpysl4 | 025478 | 122844 | N/A | Npy1r | 036437 | 039303 | 045530 | Thyn1 | 035443 | 216361 | N/A |
| Dpysl4 | 025478 | 145499 | 117764 | Nrcam | 020598 | 218940 | N/A | Timp3 | 020044 | 020234 | 020234 |
| Dpysl4 | 025478 | 121184 | 112896 | Nrcam | 020598 | 110748 | 106376 | Timp3 | 020044 | 151134 | N/A |
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| Dtd1 | 021478 | 222706 | N/A | Nrcam | 020598 | 220130 | N/A | Timp3 | 020044 | 132307 | 133236 |
| Dtd1 | 021478 | 021932 | 021932 | Nrcam | 020598 | 020939 | 020939 | Tlcd1 | 019437 | 098545 | 096145 |
| Dtd2 | 032259 | 075764 | 075170 | Nrcam | 020598 | 220126 | 151296 | Tlcd1 | 019437 | 147819 | 126593 |
| Dscaml1 | 032087 | 217335 | N/A | Nrcam | 020598 | 217907 | 151419 | Tlcd1 | 019437 | 145507 | N/A |
| Dscaml1 | 032087 | 217538 | 149771 | Nrcam | 020598 | 218540 | 151732 | Tlcd1 | 019437 | 092880 | 090556 |
| Dscaml1 | 032087 | 213919 | 150245 | Nrcam | 020598 | 219928 | N/A | Tlcd1 | 019437 | 127587 | 114202 |
| Dscaml1 | 032087 | 216340 | N/A | Nrcam | 020598 | 218805 | N/A | Tlcd1 | 019437 | 141578 | N/A |
| Dscaml1 | 032087 | 034592 | 034592 | Nrcam | 020598 | 220123 | 151844 | Tlcd1 | 019437 | 108338 | 103975 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dscaml1 | 032087 | 216078 | 148905 | Ntcam | 020598 | 218431 | 151873 | Tlcd1 | 019437 | 140379 | N/A |
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| Dscaml1 | 032087 | 215027 | N/A | Ntcam | 020598 | 219906 | 151243 | Tle4 | 024642 | 167776 | 126249 |
| Dscaml1 | 032087 | 214151 | N/A | Ntcam | 020598 | 220082 | 151824 | Tll1 | 053626 | 066166 | 070560 |
| Dusp16 | 030203 | 129433 | 115925 | Ntcam | 020598 | 217796 | N/A | Tll1 | 053626 | 209451 | N/A |
| Dusp16 | 030203 | 100857 | 098419 | Ntcam | 020598 | 218062 | 151475 | Tll1 | 053626 | 211755 | N/A |
| Dusp16 | 030203 | 204083 | 144834 | Nrg1 | 062991 | 207470 | 146456 | Tll1 | 053626 | 210256 | 147695 |
| Dusp16 | 030203 | 203651 | N/A | Nrg1 | 062991 | 207417 | 146905 | Tlr3 | 031639 | 034056 | 034056 |
| Dusp16 | 030203 | 203452 | N/A | Nrg1 | 062991 | 209107 | 146617 | Tlr3 | 031639 | 167106 | 126556 |
| Dusp16 | 030203 | 148926 | 144917 | Nrg1 | 062991 | 208617 | 146857 | Tlr3 | 031639 | 210013 | 147783 |
| Dusp16 | 030203 | 149776 | 144784 | Nrg1 | 062991 | 208205 | 147156 | Tlr3 | 031639 | 209772 | 147738 |
| Dusp22 | 069255 | 091672 | 089260 | Nrg1 | 062991 | 073884 | 073546 | Tlr3 | 031639 | 211370 | 148127 |
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| Dusp22 | 069255 | 220748 | N/A | Nrg1 | 062991 | 208819 | 146403 | Tlr3 | 031639 | 209651 | 147961 |
| Dusp22 | 069255 | 221725 | 152283 | Nrg1 | 062991 | 208335 | 146375 | Tlr3 | 031639 | 209269 | N/A |
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| Dusp26 | 039661 | 162551 | N/A | Nrg1 | 062991 | 208355 | N/A | Tmc7 | 042246 | 153635 | N/A |
| Dusp26 | 039661 | 161713 | 124949 | Nrg1 | 062991 | 208931 | 146507 | Tmc7 | 042246 | 145989 | N/A |
| Dusp26 | 039661 | 160700 | N/A | Nrg1 | 062991 | 209022 | 146842 | Tmc7 | 042246 | 139693 | N/A |
| Dusp5 | 034765 | 038287 | 047900 | Nrg1 | 062991 | 207584 | N/A | N/A | N/A | N/A | N/A |
| Dzank1 | 037259 | 081982 | 080643 | Nrg1 | 062991 | 208820 | N/A | Tmem108 | 042757 | 049452 | 046021 |
| Dzank1 | 037259 | 124823 | N/A | Nrg1 | 062991 | 208206 | N/A | Tmem108 | 042757 | 189588 | 140027 |
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| Dzank1 | 037259 | 163701 | 133177 | Nrg2 | 060275 | 115712 | 111377 | Tmem108 | 042757 | 191069 | N/A |
| Dzip1l | 037784 | 131095 | 116647 | Nrg2 | 060275 | 115705 | N/A | Tmem108 | 042757 | 215136 | 149890 |
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| Dzip1l | 037784 | 134969 | N/A | Nrg3 | 041014 | 176122 | N/A | Tmem125 | 050854 | 156191 | 117286 |
| Dzip1l | 037784 | 190893 | N/A | Nrgn | 053310 | 065668 | 070113 | Tmem125 | 050854 | 154025 | N/A |
| Ebf1 | 057098 | 081265 | 080020 | Nrgn | 053310 | 182070 | N/A | Tmem132b | 070498 | 185104 | 139013 |
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| Ebf2 | 022053 | 022637 | 022637 | Nrxn1 | 024109 | 160844 | 125407 | Tmem132c | 034324 | 145748 | 121783 |
| Ebf2 | 022053 | 176161 | 135500 | Nrxn1 | 024109 | 197268 | 142815 | Tmem132e | 020701 | 092852 | 090528 |
| Ebf2 | 022053 | 177231 | N/A | Nrxn1 | 024109 | 174331 | 133491 | Tmem132e | 020701 | 054245 | 052484 |
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| Ebf3 | 010476 | 033378 | 033378 | Nrxn1 | 024109 | 173917 | 133389 | Tmem132e | 020701 | 202598 | N/A |
| Ebf3 | 010476 | 106118 | 101724 | Nrxn1 | 024109 | 174337 | 133724 | Tmem150c | 050640 | 124145 | N/A |
| Ebf3 | 010476 | 210774 | 147829 | Nrxn1 | 024109 | 161402 | 124116 | Tmem150c | 050640 | 165548 | N/A |
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| Ebf3 | 010476 | 209905 | N/A | Nrxn1 | 024109 | 054059 | 057294 | Tmem150c | 050640 | 063192 | 057116 |
| Ebf3 | 010476 | 209864 | N/A | Nrxn1 | 024109 | 172466 | 134402 | Tmem150c | 050640 | 146731 | N/A |
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| Ebf3 | 010476 | 169486 | 132563 | Nrxn1 | 024109 | 197104 | 142621 | Tmem163 | 026347 | 185560 | 140828 |
| Ebf4 | 053552 | 110288 | 105917 | Nrxn1 | 024109 | 176918 | N/A | Tmem163 | 026347 | 160111 | N/A |
| Ebf4 | 053552 | 110286 | 105915 | Nrxn1 | 024109 | 196269 | N/A | Tmem163 | 026347 | 162406 | N/A |
| Ebf4 | 053552 | 134728 | N/A | Nrxn1 | 024109 | 161102 | N/A | Tmem163 | 026347 | 160616 | 124307 |
| Ebf4 | 053552 | 126740 | 133528 | Nrxn1 | 024109 | 196559 | 142891 | Tmem178 | 024245 | 025092 | 025092 |
| Ebf4 | 053552 | 140169 | 134520 | Nrxn1 | 024109 | 176118 | 135241 | Tmem179 | 054013 | 066791 | 068004 |
| Ebf4 | 053552 | 110287 | 105916 | Nrxn1 | 024109 | 198899 | N/A | Tmem179 | 054013 | 222836 | 152792 |
| Ece1 | 057530 | 102518 | 099576 | Nrxn1 | 024109 | 161637 | N/A | Tmem200a | 049420 | 217910 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ece1 | 057530 | 130407 | 125529 | Nrxn1 | 024109 | 177342 | 135301 | Tmem200a | 049420 | 218232 | 151861 |
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| Ece1 | 057530 | 129607 | N/A | Nrxn1 | 024109 | 162227 | N/A | Tmem200a | 049420 | 219651 | 151832 |
| Echdc2 | 028601 | 052999 | 051268 | Nrxn1 | 024109 | 160467 | N/A | Tmem200a | 049420 | 219338 | 151494 |
| Echdc2 | 028601 | 130942 | 124746 | Nrxn1 | 024109 | 159419 | N/A | Tmem200a | 049420 | 219872 | 151559 |
| Echdc2 | 028601 | 125647 | 123913 | Nrxn1 | 024109 | 162002 | N/A | Tmem255a | 036502 | 089056 | 086457 |
| Echdc2 | 028601 | 116307 | 112009 | Ntf3 | 049107 | 204542 | 144828 | Tmem255a | 036502 | 089054 | 086455 |
| Echdc2 | 028601 | 135718 | 114371 | Ntf3 | 049107 | 112244 | 107863 | Tmem255a | 036502 | 155848 | N/A |
| Echdc2 | 028601 | 138701 | N/A | Ntf3 | 049107 | 050484 | 052302 | Tmem255a | 036502 | 066498 | 064511 |
| Echdc2 | 028601 | 133049 | N/A | Ntm | 059974 | 075069 | 074578 | Tmem255a | 036502 | 139358 | N/A |
| Echdc2 | 028601 | 123280 | N/A | Ntm | 059974 | 124119 | N/A | Tmem266 | 032313 | 085754 | 082906 |
| Echdc2 | 028601 | 126900 | 123734 | Ntm | 059974 | 151977 | N/A | Tmem266 | 032313 | 034862 | 034862 |
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| Echdc2 | 028601 | 106691 | 102302 | Ntm | 059974 | 140118 | 114810 | Tmem63a | 026519 | 162283 | 125287 |
| Echdc2 | 028601 | 116309 | 112011 | Ntm | 059974 | 155308 | 119030 | Tmem63a | 026519 | 027800 | 027800 |
| Edem1 | 030104 | 204804 | 144901 | Ntm | 059974 | 115236 | 110891 | Tmem63a | 026519 | 159436 | 125192 |
| Edem1 | 030104 | 089162 | 086565 | Ntm | 059974 | 148606 | N/A | Tmem63a | 026519 | 161523 | 124021 |
| Edem1 | 030104 | 203469 | N/A | Ntm | 059974 | 126044 | N/A | Tmem63a | 026519 | 160508 | 124973 |
| Edem1 | 030104 | 204524 | N/A | Ntm | 059974 | 146651 | N/A | Tmem63a | 026519 | 160536 | 124860 |
| Edem1 | 030104 | 203302 | N/A | Ntn1 | 020902 | 108674 | 104314 | Tmem63a | 026519 | 161942 | N/A |
| Edil3 | 034488 | 118731 | 112829 | Ntn1 | 020902 | 135141 | 121193 | Tmem98 | 035413 | 040865 | 042825 |
| Edil3 | 034488 | 153974 | N/A | Ntn1 | 020902 | 021284 | 021284 | Tmod1 | 028328 | 107773 | 103402 |
| Edil3 | 034488 | 081769 | 080462 | Ntn4 | 020019 | 147080 | 123306 | Tmod1 | 028328 | 156200 | 134075 |
| Edil3 | 034488 | 134241 | N/A | Ntn4 | 020019 | 020204 | 020204 | Tmod1 | 028328 | 128689 | N/A |
| Edil3 | 034488 | 133761 | N/A | Ntsr1 | 027568 | 029084 | 029084 | Tmod1 | 028328 | 136553 | N/A |
| Edil3 | 034488 | 137921 | N/A | Ntsr1 | 027568 | 170448 | 127548 | Tmod1 | 028328 | 155730 | N/A |
| Edil3 | 034488 | 140625 | N/A | Ntsr2 | 020591 | 221596 | 152110 | Tmprss5 | 032268 | 165088 | 132181 |
| Edil3 | 034488 | 043111 | 044652 | Ntsr2 | 020591 | 111064 | 106693 | Tmprss5 | 032268 | 171217 | N/A |
| Ednrb | 022122 | 022718 | 022718 | Ntsr2 | 020591 | 220892 | 152290 | Tmprss5 | 032268 | 166272 | 130069 |
| Ednrb | 022122 | 227824 | 154806 | Ntsr2 | 020591 | 222957 | N/A | Tmprss5 | 032268 | 070390 | 064527 |
| Ednrb | 022122 | 172237 | 126057 | Ntsr2 | 020591 | 221049 | 152592 | Tmprss5 | 032268 | 167095 | 131650 |
| Slc13a1 | 029700 | 031713 | 031713 | Nudt4 | 020029 | 020217 | 020217 | Tmprss5 | 032268 | 170246 | 129482 |
| Slc13a1 | 029700 | 174594 | N/A | Nup62cl | 072944 | 101212 | 098772 | Tmprss5 | 032268 | 170426 | 128662 |
| Slc13a1 | 029700 | 177412 | N/A | Nup62cl | 072944 | 154385 | 121310 | Tmtc4 | 041594 | 037726 | 046368 |
| Slc13a1 | 029700 | 176692 | N/A | Nup62cl | 072944 | 133780 | 116491 | Tmtc4 | 041594 | 143189 | 116480 |
| Efemp1 | 020467 | 020759 | 020759 | Nup62cl | 072944 | 125678 | 116128 | Tmtc4 | 041594 | 126867 | 116379 |
| Efemp1 | 020467 | 139713 | 114757 | Nup62cl | 072944 | 124075 | 122713 | Tmtc4 | 041594 | 148661 | 121523 |
| Efemp1 | 020467 | 124103 | N/A | Nwd1 | 048148 | 161386 | N/A | Tmtc4 | 041594 | 126494 | N/A |
| Efhc2 | 025038 | 026014 | 026014 | Nwd1 | 048148 | 161557 | 125470 | Tmtc4 | 041594 | 228661 | N/A |
| Efhd1 | 026255 | 118687 | 112980 | Nwd1 | 048148 | 161254 | 124804 | Tmtc4 | 041594 | 125900 | N/A |
| Efhd1 | 026255 | 027472 | 027472 | Nwd1 | 048148 | 228312 | 154488 | Tmtc4 | 041594 | 135917 | N/A |
| Efhd1 | 026255 | 150831 | N/A | Nwd1 | 048148 | 160443 | 124446 | Tmtc4 | 041594 | 227430 | N/A |
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| Efna5 | 048915 | 076840 | 076115 | Nwd1 | 048148 | 160912 | N/A | Tmtc4 | 041594 | 228552 | N/A |
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| Efnb3 | 003934 | 004036 | 004036 | Nwd1 | 048148 | 093427 | 091135 | Tmtc4 | 041594 | 141478 | N/A |
| Egft | 020122 | 020329 | 020329 | Nxn | 020844 | 021204 | 021204 | Tnc | 028364 | 030056 | 030056 |
| Egfr | 020122 | 102884 | 099948 | Nxn | 020844 | 131472 | N/A | Tnc | 028364 | 107372 | 102995 |
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| Egft | 020122 | 138518 | N/A | Ogdhl | 021913 | 228529 | 154185 | Tnc | 028364 | 107377 | 103000 |
| Egfr | 020122 | 139722 | N/A | Ogdhl | 021913 | 228286 | N/A | Tnfaip6 | 053475 | 065927 | 069231 |
| Egln3 | 035105 | 039516 | 041874 | Ogdhl | 021913 | 022480 | 022480 | Tnfrsf13c | 068105 | 089161 | 086564 |
| Egr3 | 033730 | 035908 | 037042 | Olfm1 | 026833 | 028177 | 028177 | Tnfrsf13c | 068105 | 109535 | 105161 |
| Egr3 | 033730 | 225200 | 153491 | Olfm1 | 026833 | 113920 | 109553 | Tnfrsf19 | 060548 | 111236 | 106867 |
| Egr3 | 033730 | 223809 | N/A | Olfm1 | 026833 | 102879 | 099943 | Tnfrsf19 | 060548 | 111234 | 106865 |
| Egr3 | 033730 | 223747 | N/A | Olfm1 | 026833 | 152415 | N/A | Tnfrsf19 | 060548 | 225501 | N/A |
| Ehd3 | 024065 | 024860 | 024860 | Olfm1 | 026833 | 100244 | 097815 | Tnfrsf19 | 060548 | 224371 | 153577 |
| Eif2s3y | 069049 | 091197 | 088736 | Olfm3 | 027965 | 081752 | 080448 | Tnfrsf19 | 060548 | 225730 | 152920 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Eif2s3y | 069049 | 137006 | N/A | Olfm3 | 027965 | 149158 | 121097 | Tnk2 | 022791 | 145627 | 152338 |
| Eif2s3y | 069049 | 148961 | N/A | Olfm3 | 027965 | 051309 | 060985 | Tnk2 | 022791 | 124585 | 152549 |
| Eif2s3y | 069049 | 154556 | N/A | Olig1 | 046160 | 056882 | 061408 | Tnk2 | 022791 | 115126 | 110779 |
| Eif2s3y | 069049 | 139083 | N/A | Olig2 | 039830 | 035608 | 036797 | Tnk2 | 022791 | 115125 | 110778 |
| Eif2s3y | 069049 | 134820 | N/A | Onecut2 | 045991 | 175965 | 135692 | Tnk2 | 022791 | 115124 | 110777 |
| Elavl2 | 008489 | 107110 | 102727 | Onecut2 | 045991 | 115145 | 110798 | Tnk2 | 022791 | 115123 | 110776 |
| Elavl2 | 008489 | 008633 | 008633 | Opalin | 050121 | 087176 | 084422 | Tnk2 | 022791 | 164358 | N/A |
| Elavl2 | 008489 | 107118 | 102735 | Ophn1 | 031214 | 033560 | 033560 | Tnk2 | 022791 | 150383 | N/A |
| Elavl2 | 008489 | 107120 | 102737 | Ophn1 | 031214 | 142267 | 119361 | Tnk2 | 022791 | 156614 | N/A |
| Elavl2 | 008489 | 102799 | 099863 | Ophn1 | 031214 | 156634 | N/A | Tnk2 | 022791 | 137044 | N/A |
| Elavl2 | 008489 | 128599 | N/A | Ophn1 | 031214 | 113826 | 109457 | Tnk2 | 022791 | 115122 | 110775 |
| Elavl2 | 008489 | 107116 | 102733 | Ophn1 | 031214 | 125150 | N/A | Tnk2 | 022791 | 115120 | 110773 |
| Elavl2 | 008489 | 107109 | 102726 | Ophn1 | 031214 | 147805 | N/A | Tnk2 | 022791 | 131238 | 129382 |
| Elavl2 | 008489 | 107111 | 102728 | Ophn1 | 031214 | 156917 | N/A | Tnk2 | 022791 | 115121 | 110774 |
| Elavl2 | 008489 | 176469 | N/A | Ophn1 | 031214 | 140598 | N/A | Tnk2 | 022791 | 168506 | N/A |
| Elavl2 | 008489 | 177109 | 135780 | Ophn1 | 031214 | 147529 | 121723 | Tnk2 | 022791 | 152361 | 125905 |
| Elavl2 | 008489 | 147611 | 117770 | Ophn1 | 031214 | 154920 | N/A | Tnni1 | 026418 | 187830 | N/A |
| Elavl2 | 008489 | 176362 | 135038 | Oplah | 022562 | 171340 | 129100 | Tnni1 | 026418 | 132795 | 121122 |
| Elavl2 | 008489 | 144769 | N/A | Oplah | 022562 | 170261 | N/A | Tnni1 | 026418 | 152208 | 121966 |
| Elavl2 | 008489 | 176151 | N/A | Oplah | 022562 | 169664 | N/A | Tnni1 | 026418 | 137331 | N/A |
| Elavl2 | 008489 | 107124 | 102741 | Oplah | 022562 | 170063 | N/A | Tnni1 | 026418 | 152075 | 121343 |
| Elavl4 | 028546 | 106603 | 102214 | Oplah | 022562 | 163127 | N/A | Tnni1 | 026418 | 154463 | 122925 |
| Elavl4 | 028546 | 102723 | 099784 | Oplah | 022562 | 164189 | 131967 | Tnni1 | 026418 | 139986 | 123049 |
| Elavl4 | 028546 | 106598 | 102208 | Oplah | 022562 | 163977 | N/A | Tnni1 | 026418 | 148201 | 123509 |
| Elavl4 | 028546 | 106597 | 102207 | Oplah | 022562 | 210024 | 148028 | Tnni1 | 026418 | 129217 | 119848 |
| Elavl4 | 028546 | 102722 | 099783 | Oplah | 022562 | 165279 | 127955 | Tnr | 015829 | 192069 | 141553 |
| Elavl4 | 028546 | 106600 | 102210 | Oplah | 022562 | 023222 | 023222 | Tnr | 015829 | 195199 | N/A |
| Elavl4 | 028546 | 106601 | 102212 | Oprd1 | 050511 | 056336 | 050077 | Tnr | 015829 | 193325 | 141752 |
| Elavl4 | 028546 | 142722 | 121828 | Optc | 010311 | 124051 | 120568 | Tnr | 015829 | 192457 | 141509 |
| Elavl4 | 028546 | 153200 | N/A | Optc | 010311 | 153617 | 123262 | Tnr | 015829 | 111669 | 107298 |
| Elavl4 | 028546 | 144554 | N/A | Optc | 010311 | 149380 | 115661 | Tns1 | 055322 | 187584 | 140254 |
| Elavl4 | 028546 | 153906 | 120942 | Optc | 010311 | 126123 | 117086 | Tns1 | 055322 | 191104 | 140317 |
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| Elf2 | 037174 | 194641 | 141197 | Osbp | 024687 | 025590 | 025590 | Tns1 | 055322 | 185702 | 140094 |
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| Elf2 | 037174 | 062009 | 061076 | Osbpl10 | 040875 | 182384 | 138552 | Tns1 | 055322 | 212888 | 148638 |
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| Elf2 | 037174 | 195432 | 142300 | Osbpl10 | 040875 | 182413 | N/A | Tns1 | 055322 | 191367 | 140991 |
| Elf2 | 037174 | 183338 | 139358 | Osbpl10 | 040875 | 046627 | 038013 | Tns1 | 055322 | 188942 | N/A |
| Elf2 | 037174 | 184677 | 139199 | Osbpl3 | 029822 | 114468 | 110112 | Tns1 | 055322 | 191264 | N/A |
| Elf2 | 037174 | 194209 | N/A | Osbpl3 | 029822 | 141466 | N/A | Tns1 | 055322 | 186381 | N/A |
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| Elfn1 | 048988 | 050519 | 053869 | Osbpl3 | 029822 | 114466 | 110110 | Tns1 | 055322 | 187281 | 139616 |
| Elfn1 | 048988 | 198608 | N/A | Osbpl3 | 029822 | 133141 | N/A | Tns1 | 055322 | 188436 | N/A |
| Elmo2 | 017670 | 103091 | 099380 | Osbpl3 | 029822 | 203907 | 145249 | Tns1 | 055322 | 191204 | 140878 |
| Elmo2 | 017670 | 148643 | 117124 | Osbpl3 | 029822 | 146341 | 114472 | Tns1 | 055322 | 188208 | 140837 |
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| Elmo2 | 017670 | 094329 | 091887 | Osbpl3 | 029822 | 154333 | N/A | Tns1 | 055322 | 169786 | 127715 |
| Elmo2 | 017670 | 103088 | 099377 | P2ry1 | 027765 | 029331 | 029331 | Tns3 | 020422 | 020695 | 020695 |
| Elmo2 | 017670 | 071699 | 071619 | P2ry1 | 027765 | 193201 | 142006 | Tns3 | 020422 | 131941 | N/A |
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| Elmo2 | 017670 | 149844 | N/A | P2ry12 | 036353 | 050360 | 051353 | Tox2 | 074607 | 109428 | 105055 |
| Elmo2 | 017670 | 126318 | 116124 | P2ry12 | 036353 | 199609 | 143521 | Tox2 | 074607 | 128999 | 122344 |
| Elmo2 | 017670 | 133205 | 119682 | P2ry12 | 036353 | 199675 | 143706 | Tox2 | 074607 | 099110 | 096710 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Elmo2 | 017670 | 128690 | 114303 | P2ry12 | 036353 | 170388 | 126819 | Tox2 | 074607 | 148599 | 118219 |
| Elmod1 | 041986 | 215313 | N/A | Pak7 | 039913 | 035264 | 047285 | Tox2 | 074607 | 165937 | 126243 |
| Elmod1 | 041986 | 048409 | 046191 | Pak7 | 039913 | 077200 | 076440 | Tox3 | 043668 | 109621 | 105250 |
| Elmod1 | 041986 | 216880 | N/A | Pak7 | 039913 | 143329 | N/A | Tox3 | 043668 | 176616 | 135697 |
| Elmod1 | 041986 | 213111 | N/A | Palm2 | 090053 | 102905 | 099969 | Tox3 | 043668 | 176034 | 134931 |
| Elmod1 | 041986 | 166580 | 129082 | Palm2 | 090053 | 102904 | 099968 | Tpcn1 | 032741 | 046426 | 042188 |
| Elovl2 | 021364 | 021793 | 021793 | Palm2 | 090053 | 142556 | 129817 | Tpcn1 | 032741 | 200708 | N/A |
| Elovl2 | 021364 | 117096 | 114112 | Palm2 | 090053 | 131201 | N/A | Tpcn1 | 032741 | 202072 | N/A |
| Elovl7 | 021696 | 022207 | 022207 | Pam | 026335 | 159041 | 124284 | Tpcn1 | 032741 | 201601 | N/A |
| Elovl7 | 021696 | 225550 | 152997 | Pam | 026335 | 058762 | 057112 | Tppp | 021573 | 140217 | N/A |
| Emilin2 | 024053 | 024849 | 024849 | Pam | 026335 | 161567 | 125418 | Tppp | 021573 | 022057 | 022057 |
| Eml5 | 051166 | 065716 | 065643 | Pam | 026335 | 162681 | 125133 | Trabd2b | 070867 | 094894 | 092494 |
| Eml5 | 051166 | 223282 | 152709 | Pam | 026335 | 159585 | N/A | Traf1 | 026875 | 172159 | 130759 |
| Eml5 | 051166 | 222717 | N/A | Pam | 026335 | 160210 | N/A | Traf1 | 026875 | 028234 | 028234 |
| Eml5 | 051166 | 220848 | N/A | Pam | 026335 | 162803 | N/A | Traf1 | 026875 | 113064 | 108687 |
| Eml5 | 051166 | 221107 | N/A | Pam | 026335 | 159131 | N/A | Traf1 | 026875 | 129131 | N/A |
| Eml5 | 051166 | 222097 | 152624 | Pam | 026335 | 161071 | N/A | Traf1 | 026875 | 201690 | 144189 |
| Eml5 | 051166 | 222593 | N/A | Pam | 026335 | 159841 | 124479 | Traf1 | 026875 | 201335 | N/A |
| Eml5 | 051166 | 221511 | N/A | Pam | 026335 | 159428 | N/A | Traf1 | 026875 | 141238 | N/A |
| Eml5 | 051166 | 220676 | N/A | Pam | 026335 | 162426 | N/A | Traf1 | 026875 | 156479 | N/A |
| Eml5 | 051166 | 222128 | 152401 | Pam | 026335 | 186731 | N/A | Traf1 | 026875 | 135870 | N/A |
| Emp2 | 022505 | 078357 | 077466 | Pam | 026335 | 163007 | N/A | Trhde | 050663 | 061632 | 057449 |
| En2 | 039095 | 036177 | 036761 | Pam | 026335 | 097625 | 095228 | Trhde | 050663 | 152702 | N/A |
| Enah | 022995 | 193703 | 141462 | Panx2 | 058441 | 161372 | 125514 | Trhde | 050663 | 152282 | N/A |
| Enah | 022995 | 111024 | 106653 | Panx2 | 058441 | 162424 | 124354 | Tril | 043496 | 127748 | 116056 |
| Enah | 022995 | 195703 | N/A | Panx2 | 058441 | 159960 | 124928 | Trim30a | 030921 | 076922 | 076189 |
| Enah | 022995 | 191649 | N/A | Paqr6 | 041423 | 147948 | 119656 | Trim30a | 030921 | 125762 | N/A |
| Enah | 022995 | 193074 | 141936 | Paqr6 | 041423 | 147991 | 114166 | Trim30a | 030921 | 142124 | N/A |
| Enah | 022995 | 078719 | 077781 | Paqr6 | 041423 | 149640 | N/A | Trim36 | 033949 | 167364 | 129771 |
| Enah | 022995 | 195059 | 141344 | Paqr6 | 041423 | 123200 | N/A | Trim36 | 033949 | 037011 | 037978 |
| Enah | 022995 | 111030 | 106659 | Paqr6 | 041423 | 147818 | N/A | Trim59 | 034317 | 107802 | 103432 |
| Enah | 022995 | 195788 | N/A | Pard3 | 025812 | 162309 | 124282 | Trim59 | 034317 | 136512 | 120270 |
| Enah | 022995 | 192768 | N/A | Pard3 | 025812 | 160272 | 125453 | Trim59 | 034317 | 142560 | N/A |
| Enah | 022995 | 192967 | 141330 | Pard3 | 025812 | 162907 | 124319 | Trim59 | 034317 | 153259 | N/A |
| Enah | 022995 | 195840 | N/A | Pard3 | 025812 | 160717 | 125612 | Trim62 | 041000 | 147852 | 123646 |
| Enah | 022995 | 195461 | N/A | Pard3 | 025812 | 160593 | N/A | Trim62 | 041000 | 035667 | 039121 |
| Enah | 022995 | 192497 | N/A | Pard3 | 025812 | 026921 | 026921 | Trim67 | 036913 | 167588 | 130343 |
| Enah | 022995 | 177811 | 136863 | Pard3 | 025812 | 162456 | 124162 | Trim67 | 036913 | 211867 | 148625 |
| Enah | 022995 | 111025 | 106654 | Pard3 | 025812 | 162665 | 124718 | Trim67 | 036913 | 041106 | 040601 |
| Enc1 | 041773 | 041623 | 038783 | Pard3 | 025812 | 161348 | 123951 | Trp53cor1 | 085912 | 133221 | N/A |
| Enox1 | 022012 | 022589 | 022589 | Pard3 | 025812 | 162035 | N/A | Trpc3 | 027716 | 029271 | 029271 |
| Enox1 | 022012 | 226576 | N/A | Pard3 | 025812 | 162176 | 123944 | Trpc3 | 027716 | 129322 | N/A |
| Enox1 | 022012 | 228148 | N/A | Pard3 | 025812 | 159537 | 124934 | Trpc3 | 027716 | 123220 | N/A |
| Enox1 | 022012 | 228102 | N/A | Pard3 | 025812 | 161277 | 124789 | Trpc3 | 027716 | 133542 | N/A |
| Enox1 | 022012 | 227831 | 154296 | Pard3 | 025812 | 160766 | 124533 | Trpc3 | 027716 | 146475 | N/A |
| Enox1 | 022012 | 227662 | 154512 | Pard3 | 025812 | 162602 | 125450 | Trpc5 | 041710 | 040184 | 049063 |
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| Enpp1 | 037370 | 105520 | 101159 | Pard3 | 025812 | 160581 | 124141 | Trpc7 | 021541 | 022023 | 022023 |
| Enpp1 | 037370 | 039882 | 046090 | Pard3 | 025812 | 162536 | 125212 | Trpc7 | 021541 | 109871 | 105497 |
| Enpp1 | 037370 | 135846 | 114273 | Pard3 | 025812 | 161355 | 125064 | Trpc7 | 021541 | 151918 | 119809 |
| Enpp1 | 037370 | 150570 | N/A | Pard3 | 025812 | 159141 | 124733 | Trpc7 | 021541 | 174457 | 133305 |
| Enpp1 | 037370 | 142974 | N/A | Pard3 | 025812 | 159818 | 124339 | Trpc7 | 021541 | 173067 | 134481 |
| Enpp2 | 022425 | 041591 | 036180 | Pard3 | 025812 | 163021 | N/A | Trpc7 | 021541 | 173817 | 133411 |
| Enpp2 | 022425 | 173516 | 133877 | Pard3 | 025812 | 162727 | 124359 | Trpc7 | 021541 | 173513 | 134662 |
| Enpp2 | 022425 | 167541 | 132640 | Pard3 | 025812 | 163002 | N/A | Trpc7 | 021541 | 173466 | 134285 |
| Enpp2 | 022425 | 171545 | 128941 | Pard3 | 025812 | 159511 | 124441 | Trpm2 | 009292 | 105401 | 101040 |
| Enpp2 | 022425 | 228823 | N/A | Pard3 | 025812 | 159940 | N/A | Trpm2 | 009292 | 105400 | N/A |
| Enpp2 | 022425 | 227483 | N/A | Pard3 | 025812 | 079777 | 078710 | Trpm2 | 009292 | 140471 | N/A |
| Enpp2 | 022425 | 228222 | 154470 | Pard3 | 025812 | 108752 | 104383 | Trpm2 | 009292 | 153842 | N/A |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Enpp2 | 022425 | 227057 | N/A | Pard3b | 052062 | 138768 | N/A | Trpm2 | 009292 | 138238 | N/A |
| Enpp2 | 022425 | 226339 | 154729 | Pard3b | 052062 | 075374 | 074837 | Trpm2 | 009292 | 126206 | N/A |
| Enpp4 | 023961 | 024757 | 024757 | Pard3b | 052062 | 129030 | N/A | Trpm2 | 009292 | 217806 | N/A |
| Enpp4 | 023961 | 143137 | 114429 | Pard3b | 052062 | 188325 | N/A | Trpm2 | 009292 | 219997 | 151231 |
| Enpp6 | 038173 | 039840 | 044608 | Pard3b | 052062 | 046673 | 040439 | Trpm2 | 009292 | 105399 | 101038 |
| Enpp6 | 038173 | 140149 | N/A | Pard3b | 052062 | 094906 | 092510 | Trpm2 | 009292 | 154996 | N/A |
| Enpp6 | 038173 | 123066 | 147811 | Pard6g | 056214 | 070219 | 069182 | Trpv3 | 043029 | 049676 | 053755 |
| Enpp6 | 038173 | 119686 | 112633 | Parm1 | 034981 | 040576 | 042844 | Tsc22d3 | 031431 | 112995 | N/A |
| Enpp6 | 038173 | 149593 | 121470 | Patj | 061859 | 141796 | N/A | Tsc22d3 | 031431 | 055738 | 062589 |
| Enpp6 | 038173 | 210466 | N/A | Patj | 061859 | 041284 | 049176 | Tsc22d3 | 031431 | 133023 | N/A |
| Epb41l4b | 028434 | 030142 | 030142 | Patj | 061859 | 107033 | 102648 | Tsc22d3 | 031431 | 112996 | 108620 |
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| Epb41l4b | 028434 | 044022 | 037625 | Patj | 061859 | 107030 | 102645 | Tsc22d3 | 031431 | 152048 | N/A |
| Epb41l4b | 028434 | 136337 | N/A | Patj | 061859 | 136675 | N/A | Tshb | 027857 | 196958 | N/A |
| Epb41l4b | 028434 | 133859 | N/A | Patj | 061859 | 141965 | N/A | Tshb | 027857 | 029450 | 029450 |
| Epb41l4b | 028434 | 149109 | N/A | Patj | 061859 | 142103 | 116021 | Tshb | 027857 | 170856 | 127165 |
| Epb41l4b | 028434 | 150665 | N/A | Patj | 061859 | 107029 | 102644 | Tshb | 027857 | 200041 | 142782 |
| Epha3 | 052504 | 064405 | 066554 | Patj | 061859 | 135606 | N/A | Tshb | 027857 | 197322 | 142670 |
| Epha4 | 026235 | 188952 | 139640 | Patj | 061859 | 134901 | 115936 | Tshb | 027857 | 172026 | 128440 |
| Epha4 | 026235 | 188797 | 140954 | Patj | 061859 | 102792 | 099854 | Tshz2 | 047907 | 109159 | 104787 |
| Epha4 | 026235 | 187346 | 140631 | Patj | 061859 | 030290 | 030290 | Tshz2 | 047907 | 109157 | 104785 |
| Epha4 | 026235 | 190149 | 140408 | Pax2 | 004231 | 174490 | 134661 | Tshz2 | 047907 | 185239 | 140884 |
| Epha4 | 026235 | 189934 | N/A | Pax2 | 004231 | 173346 | 134311 | Tshz2 | 047907 | 123300 | 118550 |
| Epha4 | 026235 | 186930 | 140370 | Pax2 | 004231 | 004340 | 004340 | Tshz2 | 047907 | 140699 | 120013 |
| Epha4 | 026235 | 027451 | 027451 | Pax3 | 004872 | 004994 | 004994 | Tspan11 | 030351 | 032501 | 032501 |
| Ephb1 | 032537 | 035129 | 035129 | Pax3 | 004872 | 087086 | 084320 | Tspan11 | 030351 | 149801 | N/A |
| Ephb1 | 032537 | 085169 | 082261 | Pax3 | 004872 | 172555 | N/A | Tspan14 | 037824 | 224209 | 153208 |
| Ephb1 | 032537 | 217014 | N/A | Paxbp1 | 022974 | 118522 | 113835 | Tspan14 | 037824 | 224349 | N/A |
| Ephb1 | 032537 | 217184 | N/A | Paxbp1 | 022974 | 023698 | 023698 | Tspan14 | 037824 | 047652 | 035263 |
| Ephb1 | 032537 | 215514 | N/A | Paxbp1 | 022974 | 150397 | N/A | Tspan15 | 037031 | 047883 | 047029 |
| Ephb1 | 032537 | 149800 | 139470 | Paxbp1 | 022974 | 146281 | N/A | Tspan15 | 037031 | 218394 | N/A |
| Eps15 | 028552 | 102729 | 099790 | Paxbp1 | 022974 | 145136 | 117142 | Tspan15 | 037031 | 219106 | N/A |
| Eps15 | 028552 | 176251 | 135034 | Paxbp1 | 022974 | 128922 | N/A | Tspan15 | 037031 | 218824 | N/A |
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| Eps15 | 028552 | 175776 | 135270 | Paxbp1 | 022974 | 127002 | N/A | Tspan18 | 027217 | 111265 | 106896 |
| Eps15 | 028552 | 132165 | 118949 | Pbx3 | 038718 | 113132 | 108757 | Tspan18 | 027217 | 028646 | 028646 |
| Eps15 | 028552 | 150755 | N/A | Pbx3 | 038718 | 040638 | 045281 | Tspan18 | 027217 | 154951 | N/A |
| Eps15 | 028552 | 141751 | N/A | Pbx3 | 038718 | 176213 | N/A | Tspan18 | 027217 | 181716 | N/A |
| Eps15 | 028552 | 030281 | 030281 | Pbx3 | 038718 | 153278 | 123567 | Tspan18 | 027217 | 152141 | N/A |
| Eps15 | 028552 | 126015 | N/A | Pbx3 | 038718 | 143776 | 119914 | Tspan2 | 027858 | 029451 | 029451 |
| Eps15 | 028552 | 177192 | 135755 | Pbx3 | 038718 | 175855 | 135838 | Tspan2 | 027858 | 196611 | 142964 |
| Eps15 | 028552 | 177140 | N/A | Pbx3 | 038718 | 138021 | 135226 | Tspan2 | 027858 | 119902 | 113803 |
| Erbb3 | 018166 | 082059 | 080716 | Pbx3 | 038718 | 141653 | 115710 | Tspan2 | 027858 | 197345 | 142543 |
| Erbb4 | 062209 | 119142 | 112713 | Pbx3 | 038718 | 127353 | 114695 | Tspan5 | 028152 | 029800 | 029800 |
| Erbb4 | 062209 | 121473 | 114123 | Pbx3 | 038718 | 155423 | N/A | Tspan5 | 028152 | 142890 | 120969 |
| Erbb4 | 062209 | 153432 | 115373 | Pkd1 | 032855 | 228550 | 154062 | Tspan5 | 028152 | 127772 | 122500 |
| Erbb4 | 062209 | 131148 | N/A | Pkd1 | 032855 | 035565 | 049296 | Tspan5 | 028152 | 153336 | 122120 |
| Erbb4 | 062209 | 126682 | N/A | Pkd1 | 032855 | 228745 | 153873 | Tspan5 | 028152 | 142001 | 117857 |
| Erich5 | 044726 | 060894 | 058182 | Pkd1 | 032855 | 227107 | 154792 | Tspan5 | 028152 | 135629 | 120961 |
| Ermn | 026830 | 090940 | 088458 | Pkd1 | 032855 | 226883 | 154668 | Tspan5 | 028152 | 146356 | 114663 |
| Esrrb | 021255 | 116402 | 112103 | Pkd1 | 032855 | 226178 | N/A | Tspan5 | 028152 | 119993 | 113230 |
| Esrrb | 021255 | 110203 | 105832 | Pkd1 | 032855 | 227836 | 154626 | Tspan5 | 028152 | 121826 | 113359 |
| Esrrb | 021255 | 110204 | 105833 | Pkd1 | 032855 | 228750 | N/A | Tspan6 | 067377 | 087557 | 084838 |
| Esrrb | 021255 | 021680 | 021680 | Pkd1 | 032855 | 227058 | 153867 | Tspan6 | 067377 | 176718 | 135005 |
| Esrrb | 021255 | 167891 | 131335 | Pkd1 | 032855 | 228581 | 154141 | Tspan6 | 067377 | 176641 | 135626 |
| Esrrb | 021255 | 136464 | N/A | Pkd2 | 034462 | 086831 | 084041 | Tspan6 | 067377 | 177468 | N/A |
| Esrrg | 026610 | 127489 | 119286 | Pkd2 | 034462 | 130931 | N/A | Tspoap1 | 034156 | 039627 | 048063 |
| Esrrg | 026610 | 110939 | 106564 | Pkd2 | 034462 | 133540 | N/A | Tspoap1 | 034156 | 100644 | 098209 |
| Esrrg | 026610 | 152927 | N/A | Pcsk1 | 021587 | 022075 | 022075 | Tspoap1 | 034156 | 148422 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Esrrg | 026610 | 027906 | 027906 | Pcsk1 | 021587 | 135349 | N/A | Tspoap1 | 034156 | 144502 | 122665 |
| Esrrg | 026610 | 110938 | 106563 | Pcsk1 | 021587 | 222727 | 152702 | Tspoap1 | 034156 | 142329 | 118819 |
| Etl4 | 036617 | 114610 | 110257 | Ifrd1 | 001627 | 001672 | 001672 | Tspoap1 | 034156 | 153578 | N/A |
| Etl4 | 036617 | 146881 | 119778 | Ifrd1 | 001627 | 164047 | 127553 | Tspoap1 | 034156 | 148814 | N/A |
| Etl4 | 036617 | 131714 | 116637 | Ifrd1 | 001627 | 170119 | N/A | Tspoap1 | 034156 | 135957 | N/A |
| Etl4 | 036617 | 045555 | 041431 | Ifrd1 | 001627 | 165027 | 133028 | Tspoap1 | 034156 | 133645 | 117356 |
| Etl4 | 036617 | 114614 | 110261 | Ifrd1 | 001627 | 171530 | 128635 | Tspoap1 | 034156 | 154758 | N/A |
| Etl4 | 036617 | 114604 | 110251 | Ifrd1 | 001627 | 169926 | 127673 | Tstd2 | 035495 | 107772 | 103401 |
| Etl4 | 036617 | 146613 | N/A | Ifrd1 | 001627 | 169319 | 130824 | Tstd2 | 035495 | 107770 | 103399 |
| Etl4 | 036617 | 066509 | 066170 | Ifrd1 | 001627 | 170752 | N/A | Tstd2 | 035495 | 160008 | N/A |
| Etl4 | 036617 | 129278 | N/A | Ifrd1 | 001627 | 164354 | 130846 | Tstd2 | 035495 | 137399 | N/A |
| Etl4 | 036617 | 123383 | N/A | Ifrd1 | 001627 | 171553 | N/A | Tstd2 | 035495 | 147837 | 115473 |
| Etl4 | 036617 | 136870 | N/A | Pcsk5 | 024713 | 025618 | 025618 | Tstd2 | 035495 | 144495 | 117990 |
| Etl4 | 036617 | 125556 | N/A | Pcsk5 | 024713 | 050715 | 050272 | Tstd2 | 035495 | 129929 | 125707 |
| Etl4 | 036617 | 146488 | N/A | Pcsk5 | 024713 | 025618 | 025618 | Tstd2 | 035495 | 156021 | 117865 |
| Etl4 | 036617 | 125772 | N/A | Pcsk5 | 024713 | 050715 | 050272 | Ttc28 | 033209 | 156290 | 137609 |
| Etl4 | 036617 | 114607 | 110254 | Pcsk7 | 035382 | 039059 | 047508 | Ttc28 | 033209 | 143505 | N/A |
| Etl4 | 036617 | 114606 | 110253 | Pcsk7 | 035382 | 215535 | N/A | Ttc28 | 033209 | 125470 | N/A |
| Etl4 | 036617 | 114608 | 110255 | Pcsk7 | 035382 | 215189 | 150500 | Ttc28 | 033209 | 128584 | N/A |
| Etl4 | 036617 | 139531 | N/A | Pcsk7 | 035382 | 216672 | 150393 | Ttc28 | 033209 | 129017 | N/A |
| Etl4 | 036617 | 156587 | N/A | Pcsk7 | 035382 | 213854 | 150379 | Ttc28 | 033209 | 040111 | 136116 |
| Etl4 | 036617 | 114627 | 110274 | Pcsk7 | 035382 | 216614 | N/A | Ttll3 | 030276 | 204026 | 145049 |
| Etnppl | 019232 | 166187 | 131294 | Pcsk7 | 035382 | 216504 | N/A | Ttll3 | 030276 | 204683 | N/A |
| Etnppl | 019232 | 072271 | 072121 | Pcsk7 | 035382 | 216514 | N/A | Ttll3 | 030276 | 032414 | 032414 |
| Etnppl | 019232 | 199940 | N/A | Pcsk7 | 035382 | 214425 | N/A | Ttll3 | 030276 | 203524 | 145329 |
| Etnppl | 019232 | 172432 | N/A | Pcdh1 | 051375 | 160721 | 124732 | Ttll3 | 030276 | 205017 | 145044 |
| Etnppl | 019232 | 163620 | 129120 | Pcdh1 | 051375 | 161701 | 125576 | Ttll3 | 030276 | 203925 | N/A |
| Etnppl | 019232 | 170664 | 128425 | Pcdh1 | 051375 | 057185 | 055199 | Ttll3 | 030276 | 204255 | N/A |
| Etv1 | 004151 | 160244 | 125733 | Pcdh1 | 051375 | 159405 | 125309 | Ttll3 | 030276 | 203880 | N/A |
| Etv1 | 004151 | 095767 | 093442 | Pcdh1 | 051375 | 194312 | 141877 | Ttll3 | 030276 | 038889 | 037870 |
| Etv1 | 004151 | 162563 | 125157 | Pcdh1 | 051375 | 193828 | 142328 | Ttpa | 073988 | 125799 | 117031 |
| Etv1 | 004151 | 161164 | 124650 | Pcdh15 | 052613 | 123398 | N/A | Ttpa | 073988 | 121491 | 113966 |
| Etv1 | 004151 | 160996 | 124705 | Pcdh15 | 052613 | 148572 | N/A | Ttpa | 073988 | 117632 | 113026 |
| Etv1 | 004151 | 160856 | 125692 | Pcdh15 | 052613 | 156999 | N/A | Ttpa | 073988 | 098244 | 095845 |
| Etv1 | 004151 | 162730 | N/A | Pcdh15 | 052613 | 193174 | 142238 | Tuba8 | 030137 | 032233 | 032233 |
| Etv1 | 004151 | 161513 | 124166 | Pcdh15 | 052613 | 105426 | 101066 | Tubb2b | 045136 | 075774 | 075178 |
| Etv1 | 004151 | 161980 | 124736 | Pcdh15 | 052613 | 129404 | 117731 | Tubb2b | 045136 | 220744 | N/A |
| Etv1 | 004151 | 160701 | 124019 | Pcdh15 | 052613 | 131321 | 122911 | Tubb4a | 062591 | 071135 | 071135 |
| Etv1 | 004151 | 159334 | 125676 | Pcdh15 | 052613 | 126920 | 121939 | Tulp3 | 001521 | 001562 | 001562 |
| Etv1 | 004151 | 220492 | N/A | Pcdh15 | 052613 | 147189 | 122940 | Tulp3 | 001521 | 128708 | N/A |
| Etv1 | 004151 | 161591 | N/A | Pcdh15 | 052613 | 105424 | 101064 | Tulp3 | 001521 | 138313 | N/A |
| Etv4 | 017724 | 107176 | 102794 | Pcdh15 | 052613 | 092420 | 090076 | Tulp3 | 001521 | 133134 | 145180 |
| Etv4 | 017724 | 017868 | 017868 | Pcdh15 | 052613 | 136096 | 121534 | Tulp3 | 001521 | 203625 | N/A |
| Etv4 | 017724 | 132040 | N/A | Pcdh15 | 052613 | 105429 | 101069 | Tulp3 | 001521 | 157005 | 145361 |
| Etv4 | 017724 | 129160 | N/A | Pcdh15 | 052613 | 125055 | 114326 | Tusc3 | 039530 | 209440 | 148134 |
| Etv4 | 017724 | 131862 | N/A | Pcdh15 | 052613 | 193361 | 141792 | Tusc3 | 039530 | 211241 | 148022 |
| Etv4 | 017724 | 129995 | N/A | Pcdh15 | 052613 | 131724 | 122466 | Tusc3 | 039530 | 209970 | N/A |
| Etv4 | 017724 | 140970 | N/A | Pcdh15 | 052613 | 152655 | 118201 | Tusc3 | 039530 | 210890 | 147691 |
| Etv4 | 017724 | 131117 | N/A | Pcdh15 | 052613 | 144302 | 122606 | Tusc3 | 039530 | 167992 | 126080 |
| Etv4 | 017724 | 149099 | N/A | Pcdh15 | 052613 | 151116 | 119662 | Tusc3 | 039530 | 169034 | 129916 |
| Etv4 | 017724 | 137179 | N/A | Pcdh15 | 052613 | 155701 | 135495 | Txnip | 038393 | 074519 | 102710 |
| Etv4 | 017724 | 154512 | N/A | Pcdh15 | 052613 | 152819 | 123647 | Txnip | 038393 | 049093 | 041467 |
| Etv4 | 017724 | 164750 | 129261 | Pcdh15 | 052613 | 125517 | 115399 | Txnip | 038393 | 151832 | N/A |
| Etv5 | 013089 | 079601 | 078551 | Pcdh15 | 052613 | 124046 | 121130 | Txnip | 038393 | 196871 | N/A |
| Etv5 | 013089 | 168774 | 131791 | Pcdh15 | 052613 | 146682 | 134863 | Txnip | 038393 | 144639 | N/A |
| Etv5 | 013089 | 170803 | 128338 | Pcdh15 | 052613 | 177107 | 135501 | Txnip | 038393 | 128221 | N/A |
| Etv5 | 013089 | 165506 | N/A | Pcdh15 | 052613 | 149977 | 118833 | Ubash3b | 032020 | 044155 | 043865 |
| Etv5 | 013089 | 170393 | 132210 | Pcdh15 | 052613 | 191854 | 141973 | Ubash3b | 032020 | 151485 | 116038 |
| Evala | 035104 | 150976 | 122674 | Pcdh15 | 052613 | 134009 | 120618 | Ubash3b | 032020 | 124819 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Evala | 035104 | 042974 | 037422 | Pcdh15 | 052613 | 177420 | 135849 | Ubash3b | 032020 | 136530 | 114176 |
| Evala | 035104 | 150691 | N/A | Pcdh15 | 052613 | 125006 | 120056 | Ubash3b | 032020 | 129906 | 134923 |
| Evala | 035104 | 149023 | 117345 | Pcdh15 | 052613 | 191709 | 142313 | Ubash3b | 032020 | 132996 | N/A |
| Exph5 | 034584 | 051014 | 062632 | Pcdh15 | 052613 | 193739 | 142173 | Ube2b | 020390 | 020657 | 020657 |
| Exph5 | 034584 | 139096 | N/A | Pcdh15 | 052613 | 195531 | 141920 | Ube2b | 020390 | 109086 | 104714 |
| Exph5 | 034584 | 132410 | N/A | Pcdh15 | 052613 | 147455 | N/A | Ube2b | 020390 | 124699 | N/A |
| Extl2 | 027963 | 029575 | 029575 | Pcdh15 | 052613 | 194315 | 141594 | Ube2b | 020390 | 147833 | N/A |
| Extl2 | 027963 | 106501 | 102110 | Pcdh15 | 052613 | 139106 | N/A | Ube2ql1 | 052981 | 065118 | 070906 |
| Extl2 | 027963 | 128228 | N/A | Pcdh15 | 052613 | 128843 | N/A | Ucp2 | 033685 | 126534 | 120967 |
| Extl2 | 027963 | 145945 | N/A | Pcdh15 | 052613 | 127928 | N/A | Ucp2 | 033685 | 207890 | N/A |
| Extl2 | 027963 | 149920 | N/A | Pcdh15 | 052613 | 194729 | N/A | Ucp2 | 033685 | 126381 | N/A |
| Extl2 | 027963 | 106502 | 102111 | Pcdh15 | 052613 | 192370 | N/A | Ucp2 | 033685 | 207748 | 146337 |
| Eya1 | 025932 | 168081 | 126383 | Pcdh15 | 052613 | 064562 | 068561 | Ucp2 | 033685 | 129324 | 115648 |
| Eya1 | 025932 | 080664 | 079493 | Pcdh17 | 035566 | 071370 | 071325 | Ucp2 | 033685 | 153287 | 115953 |
| Eya1 | 025932 | 190337 | 141112 | Pcdh17 | 035566 | 226362 | N/A | Ucp2 | 033685 | 133044 | 115598 |
| Eya1 | 025932 | 189526 | 140619 | Pcdh9 | 055421 | 195826 | 141396 | Ucp2 | 033685 | 151221 | N/A |
| Eya1 | 025932 | 188857 | 140171 | Pcdh9 | 055421 | 193901 | 141759 | Ucp2 | 033685 | 133498 | N/A |
| Eya1 | 025932 | 185453 | 141072 | Pcdh9 | 055421 | 192221 | 142260 | Ucp2 | 033685 | 138673 | N/A |
| Eya1 | 025932 | 187790 | 139542 | Pcdh9 | 055421 | 195376 | 142224 | Ucp2 | 033685 | 149808 | N/A |
| Eya1 | 025932 | 185329 | N/A | Pcdh9 | 055421 | 194129 | 141205 | Ugt8a | 032854 | 057944 | 050852 |
| Eya1 | 025932 | 027066 | 027066 | Pcdh9 | 055421 | 192817 | N/A | Ugt8a | 032854 | 198610 | 143605 |
| F3 | 028128 | 029771 | 029771 | Pcdh9 | 055421 | 194056 | 141602 | Ugt8a | 032854 | 196481 | N/A |
| F3 | 028128 | 196746 | N/A | Pcdh9 | 055421 | 068992 | 070935 | Unc13c | 062151 | 184666 | 139027 |
| F3 | 028128 | 197731 | N/A | Pcdha1 | 103442 | 193839 | 142308 | Unc13c | 062151 | 075245 | 074726 |
| F3 | 028128 | 199997 | 143678 | Pcdha1 | 103442 | 070797 | 068828 | Unc80 | 055567 | 061620 | 053692 |
| Fa2h | 033579 | 038475 | 043597 | Pcdha3 | 102312 | 192503 | 141989 | Unc80 | 055567 | 114008 | 109641 |
| Fa2h | 033579 | 162463 | N/A | Pcp2 | 004630 | 136105 | 121079 | Unc80 | 055567 | 136727 | N/A |
| Fa2h | 033579 | 159336 | N/A | Pcp2 | 004630 | 145855 | N/A | Unc80 | 055567 | 212557 | 148517 |
| Fa2h | 033579 | 162216 | N/A | Pcp2 | 004630 | 142431 | 121403 | Unc80 | 055567 | 187179 | N/A |
| Fam102a | 039157 | 136816 | N/A | Pcp2 | 004630 | 133459 | 122902 | Unc80 | 055567 | 152844 | 117070 |
| Fam102a | 039157 | 133512 | 116809 | Pcp2 | 004630 | 004749 | 004749 | Uncx | 029546 | 172997 | 134067 |
| Fam102a | 039157 | 048375 | 044731 | Pcp2 | 004630 | 128566 | 146683 | Uncx | 029546 | 174792 | 139081 |
| Fam102a | 039157 | 133366 | 118624 | Pcp2 | 004630 | 144977 | 146399 | Upp1 | 020407 | 020677 | 020677 |
| Fam102a | 039157 | 147723 | N/A | Pcp4 | 090223 | 061739 | 062539 | Upp1 | 020407 | 101525 | 099063 |
| Fam107b | 026655 | 226435 | 154419 | Pcsk6 | 030513 | 176199 | 135851 | Upp1 | 020407 | 170444 | 125934 |
| Fam107b | 026655 | 115052 | 110704 | Pcsk6 | 030513 | 055576 | 053742 | Upp1 | 020407 | 130522 | 123285 |
| Fam107b | 026655 | 115055 | 110707 | Pcsk6 | 030513 | 098391 | 095992 | Upp1 | 020407 | 168121 | N/A |
| Fam107b | 026655 | 115054 | 110706 | Pcsk6 | 030513 | 176209 | 135033 | Upp1 | 020407 | 172452 | 129787 |
| Fam107b | 026655 | 027965 | 027965 | Pcsk6 | 030513 | 177369 | N/A | Upp1 | 020407 | 166455 | 129276 |
| Fam107b | 026655 | 115053 | 110705 | Pcsk6 | 030513 | 177272 | N/A | Upp1 | 020407 | 146696 | N/A |
| Fam107b | 026655 | 177125 | 135757 | Pcx | 024892 | 224726 | 153479 | Upp1 | 020407 | 164791 | 127473 |
| Fam107b | 026655 | 177037 | 135325 | Pcx | 024892 | 223659 | N/A | Usp11 | 031066 | 033383 | 033383 |
| Fam107b | 026655 | 176254 | 135846 | Pcx | 024892 | 225189 | 152918 | Usp11 | 031066 | 127294 | N/A |
| Fam114a1 | 029185 | 031080 | 031080 | Pcx | 024892 | 113825 | 109456 | Usp11 | 031066 | 137101 | N/A |
| Fam114a1 | 029185 | 139366 | 119284 | Pcx | 024892 | 068004 | 063825 | Usp11 | 031066 | 149960 | N/A |
| Fam117a | 038893 | 037502 | 049162 | Pdc | 006007 | 191228 | 141136 | Uty | 068457 | 143286 | 115113 |
| Fam117a | 038893 | 129553 | N/A | Pdc | 006007 | 186572 | 140843 | Uty | 068457 | 154666 | 122818 |
| Fam117a | 038893 | 143482 | N/A | Pdc | 006007 | 185698 | 140669 | Uty | 068457 | 069309 | 070012 |
| Fam117a | 038893 | 129290 | N/A | Pdc | 006007 | 165062 | 131631 | Uty | 068457 | 139365 | 114752 |
| Fam117a | 038893 | 155999 | N/A | Pde1a | 059173 | 102655 | 099715 | Uty | 068457 | 154004 | 114910 |
| Fam117a | 038893 | 132357 | N/A | Pde1a | 059173 | 183775 | 139327 | Uty | 068457 | 185837 | N/A |
| Fam124a | 035184 | 162987 | N/A | Pde1a | 059173 | 102653 | 099713 | Uty | 068457 | 143958 | 120069 |
| Fam124a | 035184 | 161899 | N/A | Pde1a | 059173 | 090756 | 088260 | Uty | 068457 | 137048 | 119406 |
| Fam124a | 035184 | 039064 | 047681 | Pde1a | 059173 | 102652 | 099712 | Uty | 068457 | 133976 | N/A |
| Fam124a | 035184 | 160745 | N/A | Pde1a | 059173 | 102651 | 099711 | Uty | 068457 | 157073 | N/A |
| Retreg1 | 022270 | 022881 | 022881 | Pde1a | 059173 | 134739 | 120188 | Uty | 068457 | 150715 | 116372 |
| Retreg1 | 022270 | 228600 | 154407 | Pde1a | 059173 | 146076 | N/A | Uty | 068457 | 154527 | N/A |
| Retreg1 | 022270 | 228327 | 154377 | Pde1a | 059173 | 125887 | N/A | Slc18a3 | 100241 | 191501 | 139829 |
| Retreg1 | 022270 | 227275 | 154471 | Pde1a | 059173 | 102654 | 099714 | Vamp1 | 030337 | 032487 | 032487 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Retreg1 | 022270 | 226750 | 154791 | Pde1b | 022489 | 226468 | 153865 | Vamp1 | 030337 | 100942 | 098503 |
| Retreg1 | 022270 | 226438 | 154765 | Pde1b | 022489 | 023132 | 023132 | Vamp1 | 030337 | 063588 | 063466 |
| Retreg1 | 022270 | 110438 | 106068 | Pde1b | 022489 | 226493 | 154483 | Vamp1 | 030337 | 205223 | 144835 |
| Retreg1 | 022270 | 228306 | 154070 | Pde1b | 022489 | 227955 | 153722 | Vamp1 | 030337 | 160523 | N/A |
| Fam171b | 048388 | 051454 | 062702 | Pde1b | 022489 | 227925 | N/A | Vamp1 | 030337 | 159547 | N/A |
| Fam171b | 048388 | 148184 | N/A | Pde1c | 004347 | 044505 | 046601 | Vat1l | 046844 | 142591 | N/A |
| Fam196a | 073805 | 210055 | N/A | Pde1c | 004347 | 203372 | 145508 | Vat1l | 046844 | 049509 | 053431 |
| Fam196a | 073805 | 171394 | 129222 | Pde1c | 004347 | 203967 | N/A | Vat1l | 046844 | 150963 | 116680 |
| Fam196a | 073805 | 210826 | N/A | Pde1c | 004347 | 114327 | 109966 | Vat1l | 046844 | 124143 | N/A |
| Fam198b | 027955 | 118853 | 114093 | Pde1c | 004347 | 170774 | 133170 | Vav2 | 009621 | 185188 | 138964 |
| Fam198b | 027955 | 145992 | 120603 | Pde1c | 004347 | 203462 | 145419 | Vav2 | 009621 | 056176 | 062782 |
| Fam198b | 027955 | 135021 | 117199 | Pde1c | 004347 | 168944 | 128364 | Vav2 | 009621 | 149758 | N/A |
| Fam198b | 027955 | 193204 | N/A | Pde1c | 004347 | 166102 | 131350 | Vav2 | 009621 | 148067 | N/A |
| Fam198b | 027955 | 029567 | 029567 | Pde1c | 004347 | 166890 | 131892 | Vav2 | 009621 | 146843 | N/A |
| Fam19a1 | 059187 | 122120 | 113152 | Pde1c | 004347 | 164752 | 129185 | Vav2 | 009621 | 135584 | N/A |
| Fam19a1 | 059187 | 075080 | 074589 | Pde1c | 004347 | 164037 | 130139 | Vav2 | 009621 | 132642 | N/A |
| Fam19a1 | 059187 | 129844 | N/A | Pde1c | 004347 | 204821 | N/A | Vax2 | 034777 | 037807 | 035976 |
| Fam19a1 | 059187 | 125951 | N/A | Pde1c | 004347 | 203492 | N/A | Vcan | 021614 | 159910 | 125446 |
| Fam19a4 | 046500 | 089295 | 086710 | Pde1c | 004347 | 203689 | N/A | Vcan | 021614 | 159337 | 125432 |
| Fam19a4 | 046500 | 203930 | N/A | Pde3b | 030671 | 032909 | 032909 | Vcan | 021614 | 160029 | N/A |
| Fam20a | 020614 | 155559 | 116687 | Pde3b | 030671 | 140007 | N/A | Vcan | 021614 | 109546 | 105173 |
| Fam20a | 020614 | 020938 | 020938 | Pde3b | 030671 | 210411 | N/A | Vcan | 021614 | 109543 | 105170 |
| Fam20a | 020614 | 146408 | N/A | Pde3b | 030671 | 149455 | N/A | Vcan | 021614 | 109544 | 105171 |
| Fam20a | 020614 | 144972 | N/A | Pde4d | 021699 | 133929 | N/A | Vcan | 021614 | 162715 | 125521 |
| Fam222b | 037750 | 073705 | 073384 | Pde4d | 021699 | 151111 | N/A | Vcan | 021614 | 160740 | 125694 |
| Fam222b | 037750 | 100782 | 126620 | Pde4d | 021699 | 122041 | 113488 | Vcan | 021614 | 159285 | 125674 |
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| Fam49b | 022378 | 063838 | 066359 | Pde4d | 021699 | 153234 | 121592 | Vgll4 | 030315 | 155620 | N/A |
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| Fam49b | 022378 | 226675 | 154205 | Pde4d | 021699 | 134973 | N/A | Vim | 026728 | 028062 | 028062 |
| Fam49b | 022378 | 227118 | N/A | Pde4d | 021699 | 152630 | N/A | Vim | 026728 | 193675 | 141494 |
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| Fam69a | 029270 | 031198 | 031198 | Pde4d | 021699 | 120664 | 113024 | Vim | 026728 | 191615 | N/A |
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| Fam84a | 020607 | 020926 | 020926 | Pde4d | 021699 | 117420 | 113610 | Vip | 019772 | 217331 | N/A |
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| Fam92b | 042269 | 048786 | 038825 | Pde5a | 053965 | 066728 | 069011 | Vipr2 | 011171 | 100988 | N/A |
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| Fat1 | 070047 | 191428 | 140596 | Pde7b | 019990 | 020165 | 020165 | Vit | 024076 | 024880 | 024880 |
| Fat1 | 070047 | 189017 | 140765 | Pde7b | 019990 | 169016 | 130596 | Vmp1 | 018171 | 018315 | 018315 |
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| Fat2 | 055333 | 068853 | 067556 | Pde7b | 019990 | 170683 | N/A | Vmp1 | 018171 | 127267 | N/A |
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|---|---|---|---|---|---|---|---|---|---|---|---|
| Fbln2 | 064080 | 203406 | N/A | Pde8b | 021684 | 162670 | 125237 | Vsig2 | 001943 | 213502 | N/A |
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| Fbn1 | 027204 | 148272 | N/A | Pde8b | 021684 | 022192 | 022192 | Vstm2b | 039257 | 206223 | 145703 |
| Fbn1 | 027204 | 103234 | 099524 | Pde8b | 021684 | 159608 | 125191 | Vstm2b | 039257 | 186352 | 140241 |
| Fbn2 | 024598 | 025497 | 025497 | Pde8b | 021684 | 160957 | 125115 | Vstm2b | 039257 | 205845 | 146231 |
| Fchsd2 | 030691 | 208439 | 146962 | Pde8b | 021684 | 160412 | N/A | Vwc2 | 050830 | 109681 | 105303 |
| Fchsd2 | 030691 | 032931 | 032931 | Pde8b | 021684 | 162328 | N/A | Vwc2 | 050830 | 129670 | 128761 |
| Fchsd2 | 030691 | 098250 | 095850 | Pde8b | 021684 | 159598 | 124447 | Vwc2 | 050830 | 154155 | N/A |
| Fchsd2 | 030691 | 137196 | N/A | Pde8b | 021684 | 162716 | N/A | Vwc2 | 050830 | 056344 | 049692 |
| Fchsd2 | 030691 | 145802 | N/A | Pde9a | 041119 | 047168 | 038005 | Galnt17 | 034040 | 086023 | 083187 |
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| Fezf2 | 021743 | 224714 | 153090 | Pde9a | 041119 | 154567 | N/A | Wdr17 | 039375 | 175915 | 135805 |
| Fezf2 | 021743 | 022262 | 022262 | Pde9a | 041119 | 141314 | 117364 | Wdr17 | 039375 | 128850 | N/A |
| Fezf2 | 021743 | 224023 | 153647 | Pde9a | 041119 | 136384 | 116724 | Wdr17 | 039375 | 150488 | 122326 |
| Fgd3 | 037946 | 110087 | 105714 | Pde9a | 041119 | 130547 | N/A | Wdr17 | 039375 | 153074 | N/A |
| Fgd3 | 037946 | 048716 | 048692 | Pde9a | 041119 | 155395 | N/A | Wdr17 | 039375 | 144482 | 134950 |
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| Fgd4 | 022788 | 161861 | 125174 | Pde9a | 041119 | 155113 | N/A | Wdr17 | 039375 | 129132 | 134935 |
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| Fgd4 | 022788 | 159058 | N/A | Pdgfra | 029231 | 202681 | 143906 | Wdr49 | 104301 | 204982 | N/A |
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| Fgd4 | 022788 | 161624 | N/A | Pdgfra | 029231 | 201711 | 143891 | Wfdc1 | 023336 | 024107 | 024107 |
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| Fgd6 | 020021 | 020208 | 020208 | Pdgfra | 029231 | 202161 | 144485 | Wfs1 | 039474 | 166339 | 132404 |
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| Fgf13 | 031137 | 033473 | 033473 | Pdgfra | 029231 | 200822 | 144634 | Wif1 | 020218 | 175867 | 135486 |
| Fgf13 | 031137 | 138503 | N/A | Pdk3 | 035232 | 045748 | 036604 | Wif1 | 020218 | 145691 | N/A |
| Fgf13 | 031137 | 123660 | N/A | Pdk3 | 035232 | 134502 | N/A | Wipi1 | 041895 | 103060 | 099349 |
| Fgf13 | 031137 | 124402 | 114905 | Pdk3 | 035232 | 154717 | N/A | Wipi1 | 041895 | 047186 | 038635 |
| Fgf13 | 031137 | 145767 | 119897 | Pdlim4 | 020388 | 018755 | 018755 | Wipi1 | 041895 | 106689 | 102300 |
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| Fgf13 | 031137 | 131319 | 115765 | Pdlim4 | 020388 | 144477 | 121248 | Wls | 028173 | 068952 | 067898 |
| Fgf13 | 031137 | 119306 | 113206 | Pdlim4 | 020388 | 127271 | N/A | Wls | 028173 | 198878 | 143475 |
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| Fgfr1 | 031565 | 084027 | 081041 | Pdzd3 | 032105 | 213186 | N/A | Wls | 028173 | 200191 | 142774 |
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| Fgfr1 | 031565 | 148322 | N/A | Pdzph1 | 024227 | 177360 | 135180 | Wnt6 | 033227 | 006716 | 006716 |
| Fgfr1 | 031565 | 210778 | N/A | Pdzrn4 | 036218 | 169942 | 133159 | Wnt6 | 033227 | 189544 | N/A |
| Fgfr1 | 031565 | 124228 | 116564 | Pdzrn4 | 036218 | 035399 | 040456 | Wnt7a | 030093 | 032180 | 032180 |
| Fgfr1 | 031565 | 210846 | 148032 | Pea15a | 013698 | 013842 | 013842 | Wnt7a | 030093 | 133092 | N/A |
| Fgfr1 | 031565 | 167764 | 131343 | Pea15a | 013698 | 111247 | 106878 | Wnt7a | 030093 | 132936 | N/A |

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| Fgfr1 | 031565 | 138104 | 148135 | Pea15a | 013698 | 125361 | N/A | Wscd1 | 020811 | 150531 | 123659 |
| Fgfr1 | 031565 | 138455 | 147898 | Pea15a | 013698 | 155109 | 117735 | Wscd1 | 020811 | 021168 | 021168 |
| Fgfr1 | 031565 | 126118 | N/A | Pea15a | 013698 | 152432 | N/A | Wscd1 | 020811 | 108511 | 104151 |
| Fgfr1 | 031565 | 210504 | N/A | Peg3 | 002265 | 051209 | 050750 | Wscd1 | 020811 | 138339 | N/A |
| Fgfr1 | 031565 | 120106 | N/A | Peg3 | 002265 | 150182 | 116161 | Wscd1 | 020811 | 108510 | 104150 |
| Fgfr1 | 031565 | 211419 | N/A | Peg3 | 002265 | 143703 | 122423 | Wscd1 | 020811 | 132095 | N/A |
| Fgfr1 | 031565 | 145218 | N/A | Peg3 | 002265 | 155910 | N/A | Wwc1 | 018849 | 018993 | 018993 |
| Fgfr1 | 031565 | 133936 | N/A | Penk | 045573 | 070375 | 066822 | Wwc1 | 018849 | 131001 | N/A |
| Fgfr1 | 031565 | 179592 | 136640 | Penk | 045573 | 133567 | 122389 | Wwc1 | 018849 | 127086 | N/A |
| Fgfr1 | 031565 | 178276 | 137515 | Pet100 | 087687 | 208950 | 146433 | Xist | 086503 | 153883 | N/A |
| Fgfr2 | 030849 | 120187 | 113248 | Pet100 | 087687 | 208185 | N/A | Xist | 086503 | 127786 | N/A |
| Fgfr2 | 030849 | 124096 | 130971 | Pet100 | 087687 | 156380 | 137626 | Xist | 086503 | 185876 | N/A |
| Fgfr2 | 030849 | 153166 | 120100 | Pet100 | 087687 | 207257 | N/A | Xrra1 | 035211 | 036155 | 035929 |
| Fgfr2 | 030849 | 117872 | 113994 | Pet100 | 087687 | 207428 | 146950 | Xrra1 | 035211 | 208354 | 146815 |
| Fgfr2 | 030849 | 130557 | N/A | Pet100 | 087687 | 207389 | 146942 | Xrra1 | 035211 | 207855 | 147177 |
| Fgfr2 | 030849 | 122054 | 112430 | Pex5l | 027674 | 194016 | 142196 | Xrra1 | 035211 | 208270 | N/A |
| Fgfr2 | 030849 | 136264 | N/A | Pex5l | 027674 | 193681 | 141454 | Xrra1 | 035211 | 208449 | N/A |
| Fgfr2 | 030849 | 121064 | 113452 | Pex5l | 027674 | 192093 | 141387 | Yes1 | 014932 | 202543 | 144001 |
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| Fgfr2 | 030849 | 117858 | 112623 | Pex5l | 027674 | 108219 | N/A | Zbtb16 | 066687 | 216150 | 150887 |
| Fgfr2 | 030849 | 120141 | 113415 | Pex5l | 027674 | 155264 | N/A | Zcchc24 | 055538 | 069180 | 068677 |
| Fgfr2 | 030849 | 117357 | 112580 | Pex5l | 027674 | 194627 | N/A | Zcchc24 | 055538 | 184642 | N/A |
| Fgfr2 | 030849 | 122448 | 113993 | Pex5l | 027674 | 108225 | 103860 | Zdhhc14 | 034265 | 089185 | 086589 |
| Fgfr2 | 030849 | 118296 | 112471 | Pfkfb4 | 025648 | 198140 | 142378 | Zdhhc2 | 039470 | 049389 | 041727 |
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| Fgfr2 | 030849 | 117073 | 112672 | Pfkfb4 | 025648 | 198277 | N/A | Zdhhc2 | 039470 | 128166 | 123070 |
| Fgfr2 | 030849 | 129542 | N/A | Pfkfb4 | 025648 | 199620 | N/A | Zdhhc2 | 039470 | 164934 | N/A |
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| Fgfr2 | 030849 | 148675 | N/A | Pfkfb4 | 025648 | 199184 | N/A | Zeb2 | 026872 | 176438 | 134849 |
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| Fgfr3 | 054252 | 201437 | 144379 | Pfkm | 033065 | 163507 | 132803 | Zeb2 | 026872 | 200844 | 144421 |
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| Fgfr3 | 054252 | 202182 | 143936 | Pfkp | 021196 | 021614 | 021614 | Zeb2 | 026872 | 201623 | 144075 |
| Fgfr3 | 054252 | 134610 | N/A | Pfkp | 021196 | 142972 | 114439 | Zeb2 | 026872 | 202432 | 144197 |
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| Fgfr3 | 054252 | 114411 | 110053 | Pgghg | 062031 | 164337 | N/A | Zeb2 | 026872 | 127520 | 120130 |
| Fgfr3 | 054252 | 171509 | 131845 | Pgghg | 062031 | 164580 | 128214 | Zeb2 | 026872 | 201490 | 143976 |
| Fggy | 028573 | 079223 | 078216 | Pgghg | 062031 | 169736 | N/A | Zeb2 | 026872 | 153561 | 135491 |
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| Fggy | 028573 | 141248 | N/A | Pgghg | 062031 | 079403 | 078372 | Zeb2 | 026872 | 124942 | N/A |
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| Fggy | 028573 | 043335 | 043460 | Pgm2l1 | 030729 | 084935 | 081998 | Zeb2 | 026872 | 201298 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fggy | 028573 | 147783 | N/A | Pgm2l1 | 030729 | 208158 | N/A | Zeb2 | 026872 | 202345 | N/A |
| Fggy | 028573 | 150830 | 115546 | Pgm2l1 | 030729 | 162108 | 124851 | Zeb2 | 026872 | 123037 | N/A |
| Fggy | 028573 | 134012 | 115859 | Pgm2l1 | 030729 | 054436 | 054782 | Zeb2 | 026872 | 126743 | N/A |
| Fggy | 028573 | 131654 | 116264 | Pgr | 031870 | 070463 | 063562 | Zfand6 | 030629 | 209117 | 146518 |
| Fggy | 028573 | 107091 | 102706 | Pgr | 031870 | 098986 | 096584 | Zfand6 | 030629 | 069537 | 069228 |
| Fggy | 028573 | 176840 | N/A | Pgr | 031870 | 151080 | N/A | Zfand6 | 030629 | 178385 | 135968 |
| Fggy | 028573 | 147766 | N/A | Pgr | 031870 | 189181 | 140124 | Zfand6 | 030629 | 209140 | N/A |
| Fggy | 028573 | 143742 | 117386 | Phf21b | 016624 | 016768 | 016768 | Zfand6 | 030629 | 209165 | 146878 |
| Fggy | 028573 | 125742 | N/A | Phf21b | 016624 | 162996 | N/A | Zfand6 | 030629 | 207865 | 146682 |
| Fggy | 028573 | 153119 | N/A | Phf21b | 016624 | 159939 | 125355 | Zfand6 | 030629 | 208782 | 147192 |
| Fggy | 028573 | 130541 | 115688 | Phf21b | 016624 | 162044 | 124941 | Zfand6 | 030629 | 208519 | N/A |
| Fggy | 028573 | 156223 | 118147 | Phf21b | 016624 | 159502 | N/A | Zfand6 | 030629 | 208831 | N/A |
| Fggy | 028573 | 142384 | 123407 | Phf21b | 016624 | 160389 | N/A | Zfand6 | 030629 | 207975 | 146559 |
| Fhl3 | 032643 | 106199 | 101805 | Phf24 | 036062 | 151824 | N/A | Zfhx4 | 025255 | 175866 | 135827 |
| Fhl3 | 032643 | 145942 | 121702 | Phf24 | 036062 | 132173 | 138443 | Zfhx4 | 025255 | 175641 | N/A |
| Fhl3 | 032643 | 038684 | 040150 | Phf24 | 036062 | 107975 | 103609 | Zfhx4 | 025255 | 176175 | 139253 |
| Fhl5 | 028259 | 029922 | 029922 | Phf24 | 036062 | 107976 | 103610 | Zfhx4 | 025255 | 176383 | 135289 |
| Fhl5 | 028259 | 108204 | 103839 | Phf24 | 036062 | 069184 | 071011 | Zfhx4 | 025255 | 026284 | 026284 |
| Fign | 075324 | 131615 | 122855 | Phf24 | 036062 | 124380 | 138593 | Zfp36l1 | 021127 | 021552 | 021552 |
| Fign | 075324 | 102728 | 124338 | Phf24 | 036062 | 139100 | 138130 | Zfp36l1 | 021127 | 219642 | 151682 |
| Fign | 075324 | 153538 | N/A | Phf24 | 036062 | 138425 | 115816 | Zfp36l1 | 021127 | 218835 | 151269 |
| Fign | 075324 | 126042 | N/A | Phf24 | 036062 | 131234 | 138332 | Zfp36l1 | 021127 | 165114 | 127522 |
| Filip1l | 043336 | 159816 | 124179 | Phkg1 | 025537 | 026617 | 026617 | Zfp385c | 014198 | 103119 | 099408 |
| Filip1l | 043336 | 099667 | 133252 | Phkg1 | 025537 | 154932 | 122040 | Zfp385c | 014198 | 148560 | N/A |
| Filip1l | 043336 | 159414 | 124069 | Phkg1 | 025537 | 140667 | 117510 | Zfp385c | 014198 | 151589 | 119259 |
| Fli1 | 016087 | 016231 | 016231 | Phkg1 | 025537 | 154495 | N/A | Zfp385c | 014198 | 153494 | 115268 |
| Fli1 | 016087 | 183767 | 138984 | Phkg1 | 025537 | 200832 | N/A | Zfp395 | 034522 | 224623 | 153350 |
| Flrt2 | 047414 | 057324 | 062171 | Phkg1 | 025537 | 200922 | N/A | Zfp395 | 034522 | 225865 | N/A |
| Flrt2 | 047414 | 110117 | 105744 | Phox2a | 007946 | 008090 | 008090 | Zfp395 | 034522 | 066994 | 064422 |
| Flt3 | 042817 | 049324 | 039041 | Phox2a | 007946 | 209878 | N/A | Zfp395 | 034522 | 224687 | 153406 |
| Flt3 | 042817 | 110549 | N/A | Phyhip | 003469 | 003561 | 003561 | Zfp395 | 034522 | 225512 | N/A |
| Fmnl1 | 055805 | 042286 | 046296 | Phyhip | 003469 | 159180 | 125254 | Zfp423 | 045333 | 165770 | 129724 |
| Fmnl1 | 055805 | 218163 | 151439 | Pid1 | 045658 | 168574 | 127716 | Zfp423 | 045333 | 109655 | 105282 |
| Fmnl1 | 055805 | 107027 | 102642 | Pid1 | 045658 | 176559 | 135164 | Zfp423 | 045333 | 052250 | 052379 |
| Fmnl1 | 055805 | 126425 | N/A | Pid1 | 045658 | 175948 | N/A | Zfp423 | 045333 | 174764 | 134575 |
| Fmnl1 | 055805 | 154871 | N/A | Pid1 | 045658 | 176720 | 134961 | Zfp423 | 045333 | 174249 | 134103 |
| Fmnl1 | 055805 | 021322 | N/A | Pid1 | 045658 | 175996 | 134979 | Zfp423 | 045333 | 173725 | N/A |
| Fmnl1 | 055805 | 129726 | 133299 | Pid1 | 045658 | 176822 | 135425 | Zfp423 | 045333 | 173092 | N/A |
| Fmo3 | 026691 | 028010 | 028010 | Pid1 | 045658 | 177458 | 135120 | Zfp462 | 060206 | 133895 | 122775 |
| Fmo3 | 026691 | 142759 | N/A | Pid1 | 045658 | 187992 | N/A | Zfp462 | 060206 | 098070 | 095677 |
| Fndc3b | 039286 | 195008 | 141620 | Piezo2 | 041482 | 047480 | 040019 | Zfp462 | 060206 | 030131 | 030131 |
| Fndc3b | 039286 | 046157 | 041495 | Piezo2 | 041482 | 137141 | 117107 | Zfp462 | 060206 | 079605 | 078555 |
| Fndc3b | 039286 | 191684 | N/A | Piezo2 | 041482 | 132576 | N/A | Zfp521 | 024420 | 025288 | 025288 |
| Fndc3b | 039286 | 193779 | 141888 | Piezo2 | 041482 | 123322 | N/A | Zfp608 | 052713 | 064763 | 068192 |
| Folh1 | 001773 | 001824 | 001824 | Piezo2 | 041482 | 183217 | 138758 | Zfp804b | 092094 | 200317 | 143568 |
| Folh1 | 001773 | 107271 | 102892 | Piezo2 | 041482 | 182233 | 138170 | Zfp804b | 092094 | 164784 | 130571 |
| Folh1 | 001773 | 209082 | N/A | Piezo2 | 041482 | 182166 | 138754 | Zfp831 | 050600 | 059452 | 060255 |
| Fosb | 003545 | 003640 | 003640 | Piezo2 | 041482 | 182177 | N/A | Zic1 | 032368 | 034927 | 034927 |
| Fosb | 003545 | 207334 | 147210 | Piezo2 | 041482 | 046860 | 036099 | Zic1 | 032368 | 065360 | 068858 |
| Fosb | 003545 | 208505 | 146525 | Piga | 031381 | 208741 | 147146 | Zic1 | 032368 | 173121 | N/A |
| Fosb | 003545 | 207716 | 146949 | Piga | 031381 | 112257 | 137831 | Zic2 | 061524 | 075888 | 075283 |
| Fosb | 003545 | 208326 | 146569 | Piga | 031381 | 033754 | 033754 | Zic2 | 061524 | 137059 | N/A |
| Fosb | 003545 | 208446 | 146789 | Piga | 031381 | 151911 | 138077 | Zic3 | 067860 | 137687 | 116383 |
| Fosb | 003545 | 208230 | N/A | Piga | 031381 | 208697 | 146731 | Zic3 | 067860 | 088627 | 085999 |
| Foxa1 | 035451 | 044380 | 041118 | Piga | 031381 | 208261 | 146808 | Zic3 | 067860 | 088631 | 086003 |
| Foxa1 | 035451 | 218398 | N/A | Piga | 031381 | 112255 | 107874 | Zic3 | 067860 | 088629 | 086001 |
| Foxa2 | 037025 | 109964 | 105590 | Piga | 031381 | 133813 | 122176 | Zic4 | 036972 | 173342 | 133974 |
| Foxa2 | 037025 | 047315 | 045918 | Piga | 031381 | 155849 | N/A | Zic4 | 036972 | 172978 | N/A |
| Foxa2 | 037025 | 172928 | 134081 | Pigh | 021120 | 072154 | 072018 | Zic4 | 036972 | 173054 | 134364 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Foxa2 | 037025 | 146242 | N/A | Pigh | 021120 | 217998 | 151930 | Zic4 | 036972 | 174611 | N/A |
| Foxg1 | 020950 | 135006 | N/A | Pigh | 021120 | 217979 | N/A | Zic4 | 036972 | 172646 | 134053 |
| Foxg1 | 020950 | 154930 | N/A | Pigs | 041958 | 048073 | 044871 | Zic4 | 036972 | 170572 | N/A |
| Foxg1 | 020950 | 179669 | 136372 | Pigz | 045625 | 052174 | 057509 | Zic4 | 036972 | 174212 | 133808 |
| Foxg1 | 020950 | 021333 | 021333 | Pigz | 045625 | 151412 | N/A | Zic4 | 036972 | 173933 | 133958 |
| Foxh1 | 033837 | 037824 | 036591 | Pigz | 045625 | 134928 | N/A | Zic4 | 036972 | 174802 | N/A |
| Foxp4 | 023991 | 113265 | 108890 | Pigz | 045625 | 134666 | N/A | Zic4 | 036972 | 172858 | N/A |
| Foxp4 | 023991 | 113263 | 108888 | Pih1h3b | 042433 | 044806 | 048754 | Zic4 | 036972 | 066384 | 069568 |
| Foxp4 | 023991 | 097311 | 094916 | Pik3c2b | 026447 | 153707 | 115469 | Zic4 | 036972 | 085242 | N/A |
| Foxp4 | 023991 | 113262 | 108887 | Pik3c2b | 026447 | 145153 | N/A | Zic5 | 041703 | 039118 | 035754 |
| Foxp4 | 023991 | 136314 | N/A | Pik3c2b | 026447 | 124934 | N/A | Zic5 | 041703 | 143084 | N/A |
| Foxp4 | 023991 | 154108 | N/A | Pik3c2b | 026447 | 077730 | 076911 | Zkscan1 | 029729 | 019660 | 019660 |
| Foxp4 | 023991 | 137039 | N/A | Pik3r1 | 041417 | 055518 | 056774 | Zkscan1 | 029729 | 110963 | 106588 |
| Foxp4 | 023991 | 153752 | N/A | Pik3r1 | 041417 | 035532 | 047004 | Zkscan1 | 029729 | 110962 | 106587 |
| Frem1 | 059049 | 107230 | 102849 | Pik3r1 | 041417 | 187009 | 140256 | Zkscan1 | 029729 | 066617 | 068480 |
| Frem1 | 059049 | 127886 | 122467 | Pik3r1 | 041417 | 185795 | 140312 | Zmat4 | 037492 | 131410 | 115719 |
| Frem1 | 059049 | 131102 | N/A | Pik3r1 | 041417 | 190171 | N/A | Zmat4 | 037492 | 042352 | 049430 |
| Frem1 | 059049 | 130889 | N/A | Pik3r1 | 041417 | 185701 | N/A | Zmat4 | 037492 | 123412 | 121626 |
| Frem1 | 059049 | 141841 | N/A | Pik3r1 | 041417 | 189426 | N/A | Zmat4 | 037492 | 208021 | N/A |
| Frem1 | 059049 | 133610 | N/A | Pitpnm3 | 040543 | 075258 | 074737 | Zmat4 | 037492 | 207301 | 146734 |
| Frem1 | 059049 | 071708 | 071627 | Pitpnm3 | 040543 | 134210 | N/A | Zmat4 | 037492 | 135747 | 121337 |
| | | | | | | | | Zmat4 | 037492 | 146774 | N/A |

**[0060]** Table 2b contains further genes in mice. The table identifies unique ENSEMBL identifiers corresponding to the mouse genes (MUSG), transcripts (MUST), and proteins (if available) (MUSP) analyzed in the experiments herein. The unique identifiers for each ENSEMBL entry has been modified to remove the first five leading zeros (0) of the identifier after the ENSMUSG, ENSMUST, and ENSMUSP label. Where an ENSEMBL transcript or protein identifer was not available, GenBank transcripts (nucleic acid or protein) are included.

**Table 2b. ENSEMBLand GenBank IDs for mice**

| Symbol | MUSG | MUST | MUSP | Symbol | MUSG | MUST | MUSP |
|---|---|---|---|---|---|---|---|
| 1700063D05Rik | 100837 | 213914.1 | N/A | Lrp8 | 28613 | 143601 | 115854 |
| 1700063D05Rik | 100837 | 214568.1 | N/A | Lrp8 | 28613 | 106732 | 102343 |
| 1700063D05Rik | 100837 | 191461.6 | N/A | Lrp8 | 28613 | 106731 | 102342 |
| 1700063D05Rik | 100837 | 185590.6 | N/A | Lrp8 | 28613 | 123140 | N/A |
| 1700063D05Rik | 100837 | 188499.1 | N/A | Lrp8 | 28613 | 145832 | N/A |
| 1700086L19Rik | 71265 | 185822.6 | N/A | Lrp8 | 28613 | 30356 | 30356 |
| 1700086L19Rik | 71265 | 186463.6 | N/A | Lrp8 | 28613 | 106733 | 102344 |
| 1700086L19Rik | 71265 | 95617.2 | N/A | Lrp8 | 28613 | 126573 | 118020 |
| 1700124L16Rik | 99354 | 190077.1 | N/A | Lrp8 | 28613 | 146552 | N/A |
| 1700124L16Rik | 99354 | 189308.2 | N/A | Lrp8 | 28613 | 147319 | N/A |
| 1700124L16Rik | 99354 | 189129.5 | N/A | Lrp8 | 28613 | 135591 | N/A |
| 2510003B16Rik | N/A | NR_131048.1.1 | N/A | Lrp8 | 28613 | 135022 | N/A |
| 4930449E18Rik | N/A | NR_045319.1.1 | N/A | Mbp | 41607 | 91789 | 89393 |
| 6330403K07Rik | 18451 | 156068.2 | N/A | Mbp | 41607 | 114676 | 110324 |
| 9330117O12Rik | N/A | NR_045400.1.1 | N/A | Mbp | 41607 | 47865 | 46185 |
| 9330188P03Rik | N/A | XR_105640.1.1 | N/A | Mbp | 41607 | 143506 | 138313 |
| 9530026P05Rik | 97462 | 181145.7 | N/A | Mbp | 41607 | 152071 | 115409 |
| 9530026P05Rik | 97462 | 181121.7 | N/A | Mbp | 41607 | 142850 | 115082 |
| 9530026P05Rik | 97462 | 204449.2 | N/A | Mbp | 41607 | 133193 | 116019 |
| 9530026P05Rik | 97462 | 204609.1 | N/A | Mbp | 41607 | 123251 | 121855 |
| 9530026P05Rik | 97462 | 181840.3 | N/A | Mbp | 41607 | 153478 | 114630 |
| 9530026P05Rik | 97462 | 205093.2 | N/A | Mbp | 41607 | 132369 | 114230 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A230001M10Rik | 105891 | 198712.4 | N/A | Mbp | 41607 | 150952 | N/A |
| A230001M10Rik | 105891 | 196720.4 | N/A | Mbp | 41607 | 62446 | 53495 |
| A230001M10Rik | 105891 | 196659.1 | N/A | Mbp | 41607 | 102812 | 99876 |
| A330049N07Rik | 111994 | 220010.1 | N/A | Mbp | 41607 | 75372 | 74836 |
| A330049N07Rik | 111994 | 219920.1 | N/A | Mbp | 41607 | 80658 | 79488 |
| A330049N07Rik | 111994 | 219536.1 | N/A | Mbp | 41607 | 114674 | 110322 |
| A530058N18Rik | 87694 | 147411.1 | N/A | Mir124a-1hg | 97545 | 185812 | N/A |
| A530058N18Rik | 87694 | 135729.7 | N/A | Mir124a-1hg | 97545 | 180610 | N/A |
| A530058N18Rik | 87694 | 152254.7 | N/A | Mir124a-1hg | 97545 | 181808 | N/A |
| A530058N18Rik | 87694 | 141209.7 | N/A | Mir124a-1hg | 97545 | 186703 | N/A |
| A530058N18Rik | 87694 | 128469.7 | N/A | Mir6390 | 98780 | 184405 | N/A |
| A530058N18Rik | 87694 | 143993.1 | N/A | Mmp16 | 28226 | 183662 | 139102 |
| A530058N18Rik | 87694 | 134129.1 | N/A | Mmp16 | 28226 | 142434 | 121087 |
| A730017C20Rik | 50875 | 165666.8 | 125952 | Mmp16 | 28226 | 29881 | 29881 |
| A730017C20Rik | 50875 | 58633.8 | 56379 | Mmp16 | 28226 | 133416 | N/A |
| A730017C20Rik | 50875 | 118510.7 | 113023 | Mmp16 | 28226 | 149353 | 116930 |
| A730017C20Rik | 50875 | 175830.1 | 135330 | Mmp16 | 28226 | 139418 | N/A |
| A730017C20Rik | 50875 | 175897.7 | 135020 | Mt1 | 31765 | 34215 | 34215 |
| A730017C20Rik | 50875 | 117064.7 | 113487 | Mt1 | 31765 | 212291 | 148443 |
| A730017C20Rik | 50875 | 154125.1 | N/A | Mt1 | 31765 | 211807 | 148764 |
| Ackr1 | 37872 | 38227.5 | 45134 | Mt2 | 31762 | 34214 | 34214 |
| Ackr1 | 37872 | 194046.1 | 141765 | Mt2 | 31762 | 212806 | 148308 |
| Ackr1 | 37872 | 194298.1 | N/A | Mthfd2 | 5667 | 5810 | 5810 |
| Adarb2 | 52551 | 64473.12 | 64775 | Mthfd2 | 5667 | 203847 | 145266 |
| Adarb2 | 52551 | 123187.1 | 120757 | Mthfd2 | 5667 | 141044 | N/A |
| Adarb2 | 52551 | 135574.7 | 115148 | Mthfd2 | 5667 | 139802 | N/A |
| Adarb2 | 52551 | 139438.1 | N/A | Mthfd2 | 5667 | 141193 | N/A |
| Adarb2 | 52551 | 223148.1 | N/A | Mthfd2 | 5667 | 203375 | N/A |
| Adarb2 | 52551 | 223223.1 | N/A | Mthfd2 | 5667 | 204472 | 145222 |
| Adipor2 | 30168 | 32272.12 | 32272 | Myrip | 41794 | 133173 | 122046 |
| Adipor2 | 30168 | 169744.7 | 126138 | Myrip | 41794 | 48121 | 46891 |
| Adipor2 | 30168 | 189710.1 | 139895 | Myrip | 41794 | 214784 | 149149 |
| Adipor2 | 30168 | 187699.6 | 139703 | Myrip | 41794 | 139665 | N/A |
| Adipor2 | 30168 | 188851.1 | N/A | Myrip | 41794 | 129168 | N/A |
| AI504432 | 56145 | 70085.5 | N/A | Myt1l | 61911 | 218583 | 151588 |
| Alms1-ps2 | 90098 | 160606.1 | N/A | Myt1l | 61911 | 49784 | 58264 |
| Alms1-ps2 | 90098 | 161983.7 | N/A | Myt1l | 61911 | 219060 | N/A |
| Anks1b | 58589 | 182356.7 | 138234 | Myt1l | 61911 | 219899 | N/A |
| Anks1b | 58589 | 182113.7 | 138655 | Myt1l | 61911 | 219231 | N/A |
| Anks1b | 58589 | 182430.7 | 138660 | Myt1l | 61911 | 21009 | 21009 |
| Anks1b | 58589 | 179337.8 | 136410 | Myt1l | 61911 | 219463 | N/A |
| Anks1b | 58589 | 179694.8 | 136146 | Myt1l | 61911 | 217961 | N/A |
| Anks1b | 58589 | 182284.7 | 138794 | Myt1l | 61911 | 218198 | 151919 |
| Anks1b | 58589 | 99366.1 | 96967 | Myt1l | 61911 | 220072 | N/A |
| Anks1b | 58589 | 183156.7 | 138539 | Myt1l | 61911 | 219744 | 151977 |
| Anks1b | 58589 | 182595.7 | 138314 | Nat8 | 30004 | 32073 | 32073 |
| Anks1b | 58589 | 182960.7 | 138222 | Neat1 | 92274 | 173672 | N/A |
| Anks1b | 58589 | 182786.7 | 138720 | Neat1 | 92274 | 174287 | N/A |
| Anks1b | 58589 | 99368.1 | 96968 | Neat1 | 92274 | 174829 | N/A |
| Anks1b | 58589 | 183136.7 | 138738 | Nhlrc4 | 90113 | 85027 | 82102 |
| Anks1b | 58589 | 183109.1 | 138667 | Nhlrc4 | 90113 | 159540 | N/A |
| Anks1b | 58589 | 182550.7 | 138643 | Nhlrc4 | 90113 | 162078 | N/A |
| Anks1b | 58589 | 182936.7 | 138209 | Nhsl2 | 79481 | 125115 | N/A |
| Anks1b | 58589 | 182600.7 | 138650 | Nhsl2 | 79481 | 124279 | 116112 |
| Anks1b | 58589 | 182053.7 | 138644 | Nhsl2 | 79481 | 101339 | 98893 |
| Anks1b | 58589 | 182966.7 | 138610 | Nhsl2 | 79481 | 155477 | N/A |
| Anks1b | 58589 | 99364.11 | 96965 | Nhsl2 | 79481 | 144753 | 143176 |
| Anks1b | 58589 | 182427.7 | 138480 | Nhsl2 | 79481 | 144397 | N/A |
| Anks1b | 58589 | 182202.7 | 138398 | Nhsl2 | 79481 | 129185 | N/A |

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| Anks1b | 58589 | 183024.1 | 138256 | Nos1 | 29361 | 171055 | 127432 |
| Anks1b | 58589 | 182045.1 | 138679 | Nos1 | 29361 | 138554 | N/A |
| Anks1b | 58589 | 182192.7 | 138701 | Nos1 | 29361 | 102557 | 99617 |
| Anks1b | 58589 | 182083.1 | 138576 | Nos1 | 29361 | 86451 | 138506 |
| Anks1b | 58589 | 182907.7 | 138614 | Nos1 | 29361 | 142742 | 120421 |
| Anks1b | 58589 | 182003.1 | N/A | Nos1 | 29361 | 138579 | 138176 |
| Anks1b | 58589 | 182632.7 | N/A | Nos1 | 29361 | 124194 | N/A |
| Anks1b | 58589 | 183012.1 | N/A | Ntrep | 42834 | 51087 | 58132 |
| Anks1b | 58589 | 183145.1 | N/A | Ntrep | 42834 | 171533 | 127787 |
| Anks1b | 58589 | 183051.7 | N/A | Ntrep | 42834 | 168890 | 130297 |
| Anks1b | 58589 | 183002.1 | N/A | Nmt | 39114 | 224323 | 153099 |
| Apoe | 2985 | 174064.8 | 133302 | Nmt | 39114 | 37623 | 40900 |
| Apoe | 2985 | 173739.7 | 133371 | Nmt | 39114 | 223611 | 153395 |
| Apoe | 2985 | 3066.15 | 3066 | Nmt | 39114 | 122286 | 113721 |
| Apoe | 2985 | 174355.7 | 134160 | Nmt | 39114 | 224960 | 153173 |
| Apoe | 2985 | 172983.7 | 133359 | Nxph1 | 46178 | 162942 | N/A |
| Apoe | 2985 | 174144.7 | 134622 | Nxph1 | 46178 | 160300 | 125274 |
| Apoe | 2985 | 174710.1 | 134429 | Nxph1 | 46178 | 60369 | 60926 |
| Apoe | 2985 | 174191.1 | 133447 | Olfm2 | 32172 | 34692 | 34692 |
| Apoe | 2985 | 172808.1 | 134558 | Olfm2 | 32172 | 215999 | 149231 |
| Apoe | 2985 | 167646.8 | N/A | Olfm2 | 32172 | 217198 | 151018 |
| Apoe | 2985 | 207525.1 | N/A | Olfm2 | 32172 | 215039 | N/A |
| Arhgap26 | 36452 | 97593.8 | 95200 | Opcml | 62257 | 134002 | N/A |
| Arhgap26 | 36452 | 137497.7 | 121197 | Opcml | 62257 | 115243 | 110898 |
| Arhgap26 | 36452 | 154551.7 | 123145 | Opcml | 62257 | 214395 | N/A |
| Arhgap26 | 36452 | 155576.7 | 122371 | Opcml | 62257 | 123779 | N/A |
| Arhgap26 | 36452 | 141058.7 | 119865 | Opcml | 62257 | 133142 | N/A |
| Arhgap26 | 36452 | 148850.7 | 121894 | Opcml | 62257 | 73822 | 73493 |
| Arhgap26 | 36452 | 187912.1 | 141188 | Opcml | 62257 | 126673 | N/A |
| Arhgap26 | 36452 | 151757.7 | 122448 | Opcml | 62257 | 150098 | N/A |
| Arhgap26 | 36452 | 145090.7 | N/A | Opcml | 62257 | 126845 | N/A |
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| Arhgap26 | 36452 | 123820.1 | N/A | Pagr1a | 30680 | 206416 | 146318 |
| Arhgap26 | 36452 | 127448.7 | N/A | Patj | 61859 | 141796 | N/A |
| Arhgap26 | 36452 | 149112.1 | N/A | Patj | 61859 | 41284 | 49176 |
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| Arrdc2 | 2910 | 2989.1 | 2989 | Patj | 61859 | 135606 | N/A |
| Arrdc2 | 2910 | 212405.1 | 148405 | Patj | 61859 | 134901 | 115936 |
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| Arrdc2 | 2910 | 212508.1 | N/A | Pcdh7 | 29108 | 94783 | 92376 |
| Asphd1 | 46378 | 106340.7 | 101947 | Pcdh7 | 29108 | 192287 | 142276 |
| Asphd1 | 46378 | 52937.11 | 49848 | Pcdh7 | 29108 | 195156 | 141378 |
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| Atp6ap1l | 78958 | 182446.1 | 138791 | Pkib | 19876 | 95668 | 93329 |
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| B3galt5 | 74892 | 134058.7 | N/A | Pkib | 19876 | 177325 | 135280 |
| B3galt5 | 74892 | 153586.1 | N/A | Pkib | 19876 | 177473 | 135835 |
| Bcl2l15 | 44165 | 106822.1 | 102435 | Pkib | 19876 | 66028 | 67532 |
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| Bmp4 | 21835 | 100676.2 | 98242 | Pnpla7 | 36833 | 45295 | 44078 |
| Bmp4 | 21835 | 135408.1 | N/A | Pnpla7 | 36833 | 137913 | 141577 |
| Bmp4 | 21835 | 226759.1 | N/A | Pnpla7 | 36833 | 153618 | 117428 |
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| C030029H02Rik | 110027 | 210438.1 | N/A | Pnpla7 | 36833 | 145508 | N/A |
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| C130030K03Rik | N/A | NR_046212.1.1 | N/A | Pnpla7 | 36833 | 132082 | N/A |
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| Calcrl | 59588 | 74262.8 | 73875 | Prodh | 3526 | 3620 | 3620 |
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| Ccdc190 | 70532 | 94348.3 | 91908 | Prodh | 3526 | 126087 | 121736 |
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| Cdh22 | 53166 | 65438.12 | 66864 | Prodh | 111321 | 216846 | 151119 |
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| Celrr | 97881 | 181433.7 | N/A | Prr18 | 55945 | 69742 | 69019 |
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| Chadl | 63765 | 72910.5 | 72682 | Prr36 | 64125 | 176227 | 135166 |
| Chadl | 63765 | 173598.7 | 133834 | Ptch2 | 28681 | 30443 | 30443 |
| Chadl | 63765 | 173898.1 | 133981 | Ptch2 | 28681 | 144620 | 122548 |
| Chd3os | 43419 | 129321.1 | 146712 | Ptch2 | 28681 | 156989 | N/A |
| Chd3os | 43419 | 218008.1 | 151352 | Ptch2 | 28681 | 137209 | 114461 |
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| Cntn2 | 53024 | 86521.1 | 83707 | Ptch2 | 28681 | 123226 | N/A |
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| Cntn2 | 53024 | 186530.2 | 139897 | Ptgds | 15090 | 144016 | N/A |

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| Cntn2 | 53024 | 188065.6 | 140306 | Ptgds | 15090 | 137417 | N/A |
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| Cntn2 | 53024 | 190601.6 | N/A | Rab34 | 2059 | 2128 | 2128 |
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| Cntnap5b | 67028 | 86738.9 | 83944 | Rab34 | 2059 | 108322 | 103958 |
| Cntnap5b | 67028 | 188735.1 | 139877 | Rab34 | 2059 | 56241 | 59769 |
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| Cntnap5c | 38048 | 76038.6 | 75416 | Rab34 | 2059 | 148603 | N/A |
| Col18a1 | 1435 | 81654.12 | 80358 | Rab34 | 2059 | 126864 | N/A |
| Col18a1 | 1435 | 105409.7 | 101049 | Rab34 | 2059 | 156435 | 122848 |
| Col18a1 | 1435 | 72755.11 | 72538 | Rab34 | 2059 | 154542 | N/A |
| Col18a1 | 1435 | 156009.1 | 122580 | Rasgrp3 | 71042 | 164192 | 129393 |
| Col18a1 | 1435 | 218407.1 | 151291 | Rasgrp3 | 71042 | 95204 | 92828 |
| Cplx2 | 25867 | 26985.8 | 26985 | Rgs8 | 42671 | 41776 | 45715 |
| Cpne2 | 34361 | 48653.9 | 45755 | Rgs8 | 42671 | 124500 | 122518 |
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| Cpne2 | 34361 | 212550.1 | 148447 | Rgs8 | 42671 | 152114 | 121910 |
| Cpne2 | 34361 | 136550.7 | N/A | Rgs8 | 42671 | 111812 | 107443 |
| Cpne2 | 34361 | 156377.1 | N/A | Rgs8 | 42671 | 147700 | 123565 |
| Cpne2 | 34361 | 156894.1 | N/A | Rgs8 | 42671 | 147482 | 118365 |
| Cyp2j12 | 81225 | 97972.4 | 133811 | Rgs8 | 42671 | 111814 | 107445 |
| Cyp2j12 | 81225 | 121694.2 | 134394 | Rgs8 | 42671 | 111810 | 107441 |
| D430036J16Rik | 97466 | 181447.7 | N/A | Rgs8 | 42671 | 147794 | N/A |
| D430036J16Rik | 97466 | 181893.7 | N/A | Ror1 | 35305 | 39630 | 48171 |
| D430036J16Rik | 97466 | 180663.7 | N/A | Rora | 32238 | 140351 | N/A |
| D430036J16Rik | 97466 | 183536.7 | N/A | Rora | 32238 | 34766 | 34766 |
| D430036J16Rik | 97466 | 183781.1 | N/A | Rora | 32238 | 174296 | 134291 |
| Dbpht2 | 29878 | 221311.1 | N/A | Rora | 32238 | 143507 | N/A |
| Dbpht2 | 29878 | 72100.3 | N/A | Rora | 32238 | 132355 | N/A |
| Defb23 | 74681 | 99206.2 | 96812 | Rora | 32238 | 113624 | 109254 |
| Diras2 | 47842 | 57442.7 | 55416 | Rtl4 | 71679 | 112843 | 108462 |
| Dnah11 | 18581 | 84806.6 | 81867 | Rtl4 | 71679 | 96301 | 108463 |
| Dnah11 | 18581 | 176756.8 | 135748 | S100a3 | 1021 | 199225 | N/A |
| Dnah11 | 18581 | 176239.1 | N/A | S100a3 | 1021 | 200508 | 142747 |
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| Dock10 | 38608 | 77946.11 | 77099 | S100a3 | 1021 | 1047 | 1047 |
| Dock10 | 38608 | 187774.6 | 140085 | S100a3 | 1021 | 196635 | N/A |
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| Dock10 | 38608 | 190595.6 | 139567 | Scn2a | 75318 | 144254 | 117955 |
| Dock10 | 38608 | 189486.6 | 140868 | Scn2a | 75318 | 28377 | 28377 |
| Dock10 | 38608 | 186087.6 | 140102 | Scn2a | 75318 | 201378 | N/A |
| Dock10 | 38608 | 191449.1 | 140513 | Scn2a | 75318 | 202653 | N/A |
| Dock10 | 38608 | 191505.1 | N/A | Scn2a | 75318 | 200829 | 143882 |
| Dock10 | 38608 | 186835.1 | N/A | Scn2a | 75318 | 138368 | N/A |
| Dock10 | 38608 | 187698.1 | N/A | Scn2a | 75318 | 202508 | 143958 |
| Dock10 | 38608 | 187885.1 | N/A | Scn2a | 75318 | 202162 | 143888 |
| Dscam | 50272 | 56102.7 | 56040 | Scn2a | 75318 | 100067 | 97645 |
| Elfn2 | 43460 | 88592.4 | 85960 | Sema5b | 52133 | 50625 | 57494 |
| Epb41l2 | 19978 | 53748.15 | 55122 | Sema5b | 52133 | 133554 | N/A |
| Epb41l2 | 19978 | 92645.6 | 90314 | Sema5b | 52133 | 120756 | 112536 |
| Epb41l2 | 19978 | 220290.1 | 151707 | Sema5b | 52133 | 149097 | N/A |
| Epb41l2 | 19978 | 218903.1 | 151685 | Sema5b | 52133 | 128966 | N/A |
| Epb41l2 | 19978 | 217929.1 | 151875 | Sema5b | 52133 | 128347 | 121703 |
| Epb41l2 | 19978 | 219900.1 | 151332 | Sema5b | 52133 | 149855 | 115969 |
| Epb41l2 | 19978 | 219805.1 | 151233 | Sema5b | 52133 | 139805 | N/A |
| Epb41l2 | 19978 | 219967.1 | 151632 | Sh3pxd2b | 40711 | 38753 | 44276 |
| Epb41l2 | 19978 | 219166.1 | 151702 | Sh3pxd2b | 40711 | 138771 | N/A |
| Epb41l2 | 19978 | 217943.1 | 152003 | Shf | 33256 | 48635 | 45135 |

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| Epb41l2 | 19978 | 219224.1 | 151926 | Shf | 33256 | 151130 | 114524 |
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| Epb41l2 | 19978 | 220121.1 | N/A | Shf | 33256 | 110532 | 106161 |
| Epb41l2 | 19978 | 219138.1 | N/A | Shf | 33256 | 139819 | 119980 |
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| Epb41l2 | 19978 | 219201.1 | N/A | Shf | 33256 | 121237 | 113923 |
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| Epn2 | 1036 | 179936.7 | 136950 | Slain1 | 55717 | 160805 | 125128 |
| Epn2 | 1036 | 178202.7 | 136553 | Slain1 | 55717 | 159456 | 125685 |
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| Epn2 | 1036 | 108713.7 | 104353 | Slc1a2 | 5089 | 80210 | 79100 |
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| Epn2 | 1036 | 148956.7 | 122514 | Slc1a2 | 5089 | 111213 | 106844 |
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| Erbin | 21709 | 91269.1 | 88813 | Slc1a2 | 5089 | 123759 | 115129 |
| Erbin | 21709 | 191275.6 | 140536 | Slc1a2 | 5089 | 136488 | 122094 |
| Erbin | 21709 | 169083.7 | 127607 | Slc38a3 | 10064 | 167868 | 130414 |
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| Erbin | 21709 | 22222.11 | 22222 | Slc38a3 | 10064 | 194895 | N/A |
| Erbin | 21709 | 53927.11 | 57956 | Slc38a3 | 10064 | 193932 | 142087 |
| Erbin | 21709 | 189323.1 | N/A | Slc38a3 | 10064 | 177567 | 137561 |
| Fam107a | 21750 | 121887.7 | 114015 | Slc38a3 | 10064 | 195739 | 141484 |
| Fam107a | 21750 | 36070.14 | 45513 | Slc38a3 | 10064 | 192211 | 141569 |
| Fam107a | 21750 | 120411.7 | 112769 | Slc38a3 | 10064 | 194230 | N/A |
| Fam107a | 21750 | 137133.1 | 120854 | Slc38a3 | 10064 | 195033 | N/A |
| Fam173a | 57411 | 72735.7 | 72518 | Slc38a3 | 10064 | 191923 | N/A |
| Fam21 | N/A | NM_026585.3.1 | NP_080861.2 | Slc38a3 | 10064 | 192323 | 141850 |
| Fam3c | 29672 | 165576.7 | 127709 | Slc38a3 | 10064 | 192990 | 141528 |
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| Far2 | 30303 | 32443.13 | 32443 | Snx22 | 39452 | 44711 | 44389 |
| Far2 | 30303 | 111607.3 | 107234 | Snx22 | 39452 | 214332 | N/A |
| Far2 | 30303 | 203278.1 | N/A | Speer4a | 73119 | 79447 | 78415 |
| Fbxw15 | 74060 | 56745.11 | 58175 | Sstr1 | 35431 | 110671 | 106299 |
| Fbxw15 | 74060 | 198397.4 | 143385 | Sstr1 | 35431 | 44299 | 37045 |
| Fbxw15 | 74060 | 198112.1 | 142894 | Stxbp5l | 22829 | 114782 | 110430 |
| Fmnd3 | 42425 | 208130.1 | 146983 | Stxbp5l | 22829 | 149790 | N/A |
| Fmnd3 | 42425 | 44702.6 | 42515 | Stxbp5l | 22829 | 123629 | N/A |
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| Fzd7 | 41075 | 114246.3 | 109884 | Stxbp5l | 22829 | 114781 | 110429 |
| G0s2 | 9633 | 9777.3 | 9777 | Stxbp5l | 22829 | 149984 | N/A |
| Gap43 | 47261 | 102817.4 | 99881 | Stxbp5l | 22829 | 114775 | 110423 |
| Gap43 | 47261 | 125187.1 | N/A | Stxbp5l | 22829 | 151910 | N/A |
| Gbp11 | 92021 | 171587.1 | 132552 | Stxbp5l | 22829 | 23526 | 23526 |
| Gbp11 | 92021 | 100960.1 | 98520 | Stxbp5l | 22829 | 114787 | 110435 |
| Gdpd5 | 35314 | 37528.9 | 36175 | Sv2b | 53025 | 165175 | 127245 |
| Gdpd5 | 35314 | 213887.1 | 150361 | Sv2b | 53025 | 85164 | 82254 |

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| Gdpd5 | 35314 | 208800.1 | 146372 | Sv2b | 53025 | 206344 | 146049 |
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| Gdpd5 | 35314 | 207530.1 | 146887 | Sv2b | 53025 | 206845 | N/A |
| Gdpd5 | 35314 | 208947.1 | N/A | Sv2b | 53025 | 206675 | N/A |
| Gdpd5 | 35314 | 208061.1 | N/A | Sv2b | 53025 | 206236 | N/A |
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| Gfra1 | 25089 | 26076.13 | 26076 | Syt1 | 35864 | 64054 | 63293 |
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| Gfra1 | 25089 | 131877.1 | 122810 | Syt1 | 35864 | 126278 | N/A |
| Gfra1 | 25089 | 138530.7 | 115239 | Tbata | 20096 | 122261 | 113902 |
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| Glce | 32252 | 185675.6 | 139949 | Tbata | 20096 | 143207 | 151724 |
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| Glce | 32252 | 186514.1 | N/A | Tbata | 20096 | 126831 | 119957 |
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| Gm11780 | 85155 | 136880.1 | N/A | Tenm1 | 16150 | 126161 | N/A |
| Gm14204 | 86496 | 123944.1 | N/A | Tenm1 | 16150 | 115059 | 110711 |
| Gm14204 | 86496 | 145773.1 | N/A | Tenm1 | 16150 | 125231 | N/A |
| Gm14204 | 86496 | 155319.1 | N/A | Tenm1 | 16150 | 154433 | N/A |
| Gm14204 | 86496 | 123016.1 | N/A | Tenm1 | 16150 | 115058 | 110710 |
| Gm1979 | 91049 | 168875.7 | 130718 | Tenm1 | 16150 | 16294 | 16294 |
| Gm1979 | 91049 | 170224.2 | 130782 | Tmem100 | 69763 | 92788 | 90464 |
| Gm21671 | 95550 | 162387.5 | 133924 | Tmem151b | 96847 | 180252 | 136337 |
| Gm2694 | 97248 | 180700.8 | N/A | Tmem176b | 29810 | 166247 | 131064 |
| Gm2694 | 97248 | 180806.8 | N/A | Tmem176b | 29810 | 164733 | 128705 |
| Gm2694 | 97248 | 211631.1 | N/A | Tmem176b | 29810 | 101429 | 98972 |
| Gm2694 | 97248 | 181898.1 | N/A | Tmem176b | 29810 | 203355 | 145395 |
| Gm2694 | 97248 | 210935.1 | N/A | Tmem176b | 29810 | 204073 | 144864 |
| Gm2694 | 97248 | 181159.7 | N/A | Tmem176b | 29810 | 204783 | 144810 |
| Gm2694 | 97248 | 182174.7 | N/A | Tmem176b | 29810 | 205159 | 144949 |
| Gm2694 | 97248 | 211487.1 | N/A | Tmem176b | 29810 | 203229 | 144865 |
| Gm2694 | 97248 | 182758.1 | N/A | Tmem176b | 29810 | 205147 | 145235 |
| Gm2694 | 97248 | 182650.7 | N/A | Tmem176b | 29810 | 203265 | 144869 |
| Gm2694 | 97248 | 210170.1 | N/A | Tmem176b | 29810 | 203501 | 144742 |
| Gm30731 | 107859 | 203909 | N/A | Tmem176b | 29810 | 203618 | N/A |
| Gm5803 | N/A | NM_001165971.1.1 | N/A | Tmem229a | 48022 | 127247 | 116234 |
| Gm5862 | 67700 | 72286.6 | 72133 | Tmem88b | 73680 | 97742 | 95349 |
| Gm6277 | 97440 | 224036.1 | N/A | Trf | 32554 | 112645 | 108264 |
| Gm6277 | 97440 | 180860.2 | N/A | Trf | 32554 | 35158 | 35158 |
| Gm9895 | N/A | NR_045687.1.1 | N/A | Trf | 32554 | 190051 | N/A |
| Gpr12 | 41468 | 36211.7 | 38245 | Trf | 32554 | 168142 | 128609 |
| Gpr12 | 41468 | 197431.1 | 142889 | Trf | 32554 | 170904 | 128390 |
| Gpr12 | 41468 | 197825.1 | 143415 | Trf | 32554 | 164377 | 128647 |
| Gpr12 | 41468 | 200112.1 | 143653 | Trf | 32554 | 112503 | N/A |
| Gpr12 | 41468 | 196096.1 | N/A | Trf | 32554 | 165296 | 129013 |
| Grm4 | 63239 | 118161.1 | 113819 | Trf | 32554 | 126359 | 120472 |
| Grm4 | 63239 | 118489.7 | 112578 | Tspyl4 | 39485 | 47935 | 36360 |
| Grm4 | 63239 | 146277.7 | N/A | Tspyl4 | 39485 | 213791 | N/A |
| Grm4 | 63239 | 147865.1 | N/A | Ttyh1 | 30428 | 130150 | N/A |
| H2-Bl | 73406 | 173080.9 | 134155 | Ttyh1 | 30428 | 126971 | N/A |
| H2-Bl | 73406 | 183560.7 | 138812 | Ttyh1 | 30428 | 119661 | 113937 |
| H2-Bl | 73406 | 183999.7 | 139165 | Ttyh1 | 30428 | 129423 | 120182 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| H2-Bl | 73406 | 184502.7 | 139275 | Tlyh1 | 30428 | 148760 | N/A |
| H2-Bl | 73406 | 184850.7 | N/A | Tlyh1 | 30428 | 79415 | 78384 |
| H2-Bl | 73406 | 185087.7 | 139166 | Tlyh1 | 30428 | 206987 | 146170 |
| H2-Bl | 73406 | 185167.7 | 139373 | Tlyh1 | 30428 | 153673 | 115623 |
| H2-Bl | 73406 | 192532.1 | 142113 | Tlyh1 | 30428 | 32594 | 32594 |
| H2-Bl | 73406 | 194244.5 | 141809 | Tlyh1 | 30428 | 151959 | N/A |
| H2-Bl | 73406 | 195833.5 | 141271 | Tlyh1 | 30428 | 134536 | N/A |
| H2-Bl | 73406 | 195838.5 | 141253 | Tlyh1 | 30428 | 206869 | 146131 |
| Hecw1 | 21301 | 110516.2 | 106145 | Tlyh1 | 30428 | 205971 | N/A |
| Hecw1 | 21301 | 220718.1 | 152215 | Tlyh1 | 30428 | 132400 | N/A |
| Hecw1 | N/A | 221274.1 | 152351 | Tlyh1 | 30428 | 148951 | N/A |
| Hecw1 | N/A | 221863.1 | N/A | Tlyh1 | 30428 | 128317 | N/A |
| Hecw1 | N/A | 222241.1 | N/A | Tlyh1 | 30428 | 139789 | N/A |
| Hecw1 | N/A | 222904.1 | N/A | Tlyh1 | 30428 | 140637 | N/A |
| Hecw1 | N/A | 223189.1 | 152279 | Unc5d | 63626 | 168630 | 128521 |
| Hecw1 | N/A | 223283.1 | N/A | Unc5d | 63626 | 210785 | 147721 |
| Hecw1 | N/A | 223317.1 | N/A | Unc5d | 63626 | 211448 | 147306 |
| Hecw1 | N/A | 223550.1 | 152688 | Unc5d | 63626 | 210298 | 148236 |
| Hpcal1 | 71379 | 71858 | 71756 | Unc5d | 63626 | 209401 | 148043 |
| Hpcal1 | 71379 | 222944 | 152772 | Usp54 | 34235 | 22356 | 22356 |
| Icmt | 39662 | 48892 | 43390 | Usp54 | 34235 | 123287 | 117503 |
| Icmt | 39662 | 151372 | 133950 | Usp54 | 34235 | 143267 | N/A |
| Icmt | 39662 | 125617 | N/A | Usp54 | 34235 | 127342 | N/A |
| Icmt | 39662 | 134242 | N/A | Usp54 | 34235 | 35340 | 36214 |
| Id2 | 20644 | 221761 | 152052 | Wscd2 | 63430 | 138757 | N/A |
| Id2 | 20644 | 222667 | 152069 | Wscd2 | 63430 | 94452 | 92021 |
| Id2 | 20644 | 20974 | 20974 | Wscd2 | 63430 | 181650 | N/A |
| Ifitm7 | 65968 | 117803 | 113641 | Wscd2 | 63430 | 180565 | N/A |
| Ifitm7 | 65968 | 178021 | 136512 | Wscd2 | 63430 | 181294 | N/A |
| Kalm | 61751 | 114960 | 110611 | Wscd2 | 63430 | 198673 | N/A |
| Kalm | 61751 | 151491 | 123416 | Xylt1 | 30657 | 160035 | N/A |
| Kalm | 61751 | 114949 | 110599 | Xylt1 | 30657 | 32892 | 32892 |
| Kalm | 61751 | 89655 | 87084 | Xylt1 | 30657 | 161889 | N/A |
| Kalm | 61751 | 114953 | 110603 | Zdhhc23 | 36304 | 36321 | 44744 |
| Kalm | 61751 | 137216 | N/A | Zdhhc23 | 36304 | 165648 | 128650 |
| Kalm | 61751 | 114954 | 110604 | Zfand4 | 42213 | 222819 | 152213 |
| Kalm | 61751 | 132569 | N/A | Zfand4 | 42213 | 220845 | 152078 |
| Kalm | 61751 | 142817 | 116188 | Zfand4 | 42213 | 36503 | 40057 |
| Kalm | 61751 | 114963 | 110614 | Zfand4 | 42213 | 223495 | 152064 |
| Kalm | 61751 | 76810 | 76088 | Zfand4 | 42213 | 222494 | 152710 |
| Kalm | 61751 | 114961 | 110612 | Zfand4 | 42213 | 221239 | N/A |
| Kalm | 61751 | 114966 | 110617 | Zfand4 | 42213 | 222144 | N/A |
| Kalm | 61751 | 114964 | 110615 | Zfand4 | 42213 | 221069 | 152313 |
| Kalm | 61751 | 114973 | 110624 | Zfand4 | 42213 | 221824 | N/A |
| Kalm | 61751 | 132002 | N/A | Zfand4 | 42213 | 112900 | 108521 |
| Kalm | 61751 | 156668 | N/A | Zfp488 | 44519 | 166737 | 132436 |
| Kalm | 61751 | 114947 | 110597 | | | | |
| Kalm | 61751 | 124430 | N/A | | | | |
| Kcnd2 | 60882 | 81542 | 80257 | | | | |
| Kcnj6 | 43301 | 95873 | 93558 | | | | |
| Kcnj6 | 43301 | 99508 | 97108 | | | | |
| Kcnj6 | 43301 | 165538 | 130321 | | | | |
| Kcnk12 | 50138 | 55221 | 53595 | | | | |
| Kcnk9 | 36760 | 44624 | 38729 | | | | |
| Kcns2 | 50963 | 72868 | 72645 | | | | |
| Kcns2 | 50963 | 228725 | 153984 | | | | |
| Kirrel3 | 32036 | 184203 | 139393 | | | | |
| Kirrel3 | 32036 | 183580 | N/A | | | | |
| Kirrel3 | 32036 | 187625 | 139951 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Kirrel3 | 32036 | 190549 | 139714 | | | | |
| Kirrel3 | 32036 | 45091 | 48863 | | | | |
| Kirrel3 | 32036 | 188933 | 139418 | | | | |
| Kirrel3 | 32036 | 187182 | 140219 | | | | |
| Kirrel3 | 32036 | 188658 | 140086 | | | | |
| Kirrel3 | 32036 | 115148 | 110801 | | | | |
| Lhfpl3 | 106379 | 197992 | 143576 | | | | |
| Lhfpl3 | 106379 | 196406 | 142837 | | | | |
| Limd1 | 25239 | 26269 | 26269 | | | | |
| Limd1 | 25239 | 216352 | N/A | | | | |
| Limd1 | 25239 | 217639 | 150888 | | | | |
| Limd1 | 25239 | 213278 | N/A | | | | |
| Limd1 | 25239 | 214309 | N/A | | | | |

**[0061]** For rats, Table 3 provides the unique ENSEMBL identifiers corresponding to the rat genes (MUSG), transcripts (MUST), and proteins (if available) (MUSP) analyzed in the experiments herein. The unique identifiers for each ENSEMBL entry has been modified to remove the first five leading zeros (0) of the identifier after the ENSMUSG, ENSMUST, and ENSMUSP label.

**Table 3. ENSEMBL IDs for rats**

| Symbol | MUSG | MUST | MUSP | Symbol | MUSG | MUST | MUSP | Symbol | MUSG | MUST | MUSP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1700047M11Rik | 100147 | 189594 | N/A | Frem1 | 059049 | 170248 | 125809 | Pitpnm3 | 040543 | 132781 | N/A |
| 1700047M11Rik | 100147 | 185216 | N/A | Frmd3 | 049122 | 084474 | 081514 | Pitpnm3 | 040543 | 142471 | N/A |
| 2410124H12Rik | 051297 | 160494 | N/A | Frmd3 | 049122 | 098006 | 095615 | Pitpnm3 | 040543 | 108508 | 104148 |
| 3110039M20Rik | 104861 | 127041 | N/A | Frmd3 | 049122 | 154134 | N/A | Pkd2l1 | 037578 | 042026 | 045675 |
| 3110039M20Rik | 104861 | 145291 | N/A | Frmd4a | 026657 | 138735 | N/A | Pkd2l1 | 037578 | 161357 | N/A |
| 8030451O07Rik | N/A | N/A | N/A | Frmd4a | 026657 | 137809 | N/A | Pkia | 027499 | 192468 | 142120 |
| 9530059O14Rik | 097736 | 181682 | N/A | Frmd4a | 026657 | 177457 | 134788 | Pkia | 027499 | 028999 | 028999 |
| 9530059O14Rik | 097736 | 181107 | N/A | Frmd4a | 026657 | 132710 | N/A | Pkia | 027499 | 193330 | 141466 |
| 9530059O14Rik | 097736 | 215759 | N/A | Frmd4a | 026657 | 091497 | 089079 | Pknox2 | 035934 | 177218 | 135581 |
| 9530059O14Rik | 097736 | 181719 | N/A | Frmd4a | 026657 | 175669 | 135306 | Pknox2 | 035934 | 039674 | 035806 |
| A230077H06Rik | 100600 | 189574 | N/A | Frmd4a | 026657 | 147156 | N/A | Pknox2 | 035934 | 175938 | 138866 |
| A230077H06Rik | 100600 | 188579 | N/A | Frmd4a | 026657 | 176803 | 135432 | Pknox2 | 035934 | 177080 | N/A |
| A230077H06Rik | 100600 | 189855 | N/A | Frmd4a | 026657 | 175944 | 135686 | Pknox2 | 035934 | 176562 | N/A |
| A230077H06Rik | 100600 | 205953 | N/A | Frmd4a | 026657 | 115037 | 110689 | Pknox2 | 035934 | 176622 | N/A |
| A2m | 030111 | 204850 | 144862 | Frmd4a | 026657 | 141746 | N/A | Pknox2 | 035934 | 177444 | 135641 |
| A2m | 030111 | 032203 | 032203 | Frmd4a | 026657 | 075767 | 075172 | Pknox2 | 035934 | 188348 | 139976 |
| A2m | 030111 | 203413 | N/A | Frmd4a | 026657 | 176962 | N/A | Pknox2 | 035934 | 188057 | 140793 |
| A730036I17Rik | 056738 | 143346 | N/A | Frmd4a | 026657 | 115039 | N/A | Pknox2 | 035934 | 189294 | 139728 |
| A730036I17Rik | 056738 | 148548 | N/A | Frmd4a | 026657 | 123919 | N/A | Pknox2 | 035934 | 188433 | N/A |
| A730036I17Rik | 056738 | 165505 | N/A | Frmd4a | 026657 | 153160 | N/A | Pknox2 | 035934 | 213653 | N/A |
| Aass | 029695 | 031707 | 031707 | Frmd4a | 026657 | 176828 | 134803 | Pknox2 | 035934 | 215175 | N/A |
| Aass | 029695 | 138063 | N/A | Frmd4a | 026657 | 142452 | N/A | Pknox2 | 035934 | 080754 | 079578 |
| Aass | 029695 | 149864 | 115079 | Frmd4a | 026657 | 176864 | 135057 | Pkp3 | 054065 | 106039 | 101654 |
| Aass | 029695 | 152280 | N/A | Frmd4b | 030064 | 113355 | 108982 | Pkp3 | 054065 | 159375 | 124572 |
| Aatk | 025375 | 103020 | 099309 | Frmd4b | 030064 | 203486 | N/A | Pkp3 | 054065 | 066873 | 069961 |
| Aatk | 025375 | 064307 | 067181 | Frmd4b | 030064 | 143698 | N/A | Pkp3 | 054065 | 163041 | 124434 |
| Aatk | 025375 | 103019 | 099308 | Frmd4b | 030064 | 113359 | 108986 | Pkp3 | 054065 | 160869 | 124013 |
| Aatk | 025375 | 150730 | N/A | Frmd4b | 030064 | 032146 | 032146 | Pkp3 | 054065 | 160615 | N/A |
| Aatk | 025375 | 142959 | N/A | Frmd4b | 030064 | 146191 | N/A | Pkp3 | 054065 | 160403 | N/A |
| Aatk | 025375 | 134319 | N/A | Frmd4b | 030064 | 155326 | N/A | Pkp3 | 054065 | 159253 | N/A |
| Aatk | 025375 | 132575 | N/A | Frmd4b | 030064 | 138301 | N/A | Pkp3 | 054065 | 161142 | N/A |
| Aatk | 025375 | 136386 | N/A | Frmd4b | 030064 | 152385 | N/A | Pla2g16 | 060675 | 025925 | 025925 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aatk | 025375 | 128836 | N/A | Frmd4b | 030064 | 113353 | N/A | Pla2g16 | 060675 | 136756 | 115151 |
| Abat | 057880 | 065987 | 063548 | Frmd4b | 030064 | 142589 | N/A | Pla2g16 | 060675 | 136465 | 119403 |
| Abat | 057880 | 140795 | N/A | Frmd4b | 030064 | 126899 | N/A | Pla2g16 | 060675 | 141887 | 123524 |
| Abat | 057880 | 115838 | 111504 | Frmd4b | 030064 | 124050 | 145240 | Pla2g4a | 056220 | 070200 | 070868 |
| Abat | 057880 | 144444 | 121881 | Frmpd1 | 035615 | 107804 | 103434 | Pla2g4a | 056220 | 111926 | 107557 |
| Abat | 057880 | 115839 | 111505 | Frmpd1 | 035615 | 134280 | 118757 | Pla2g4a | 056220 | 190507 | 139851 |
| Abat | 057880 | 128459 | N/A | Frmpd1 | 035615 | 044773 | 047232 | Pla2g4a | 056220 | 155438 | N/A |
| Abat | 057880 | 138987 | 116686 | Frmpd2 | 108841 | 208853 | 146522 | Pla2g4a | 056220 | 142040 | N/A |
| Abca1 | 015243 | 030010 | 030010 | Frmpd2 | 108841 | 208577 | 146693 | Pla2g4a | 056220 | 134676 | N/A |
| Abca1 | 015243 | 149127 | N/A | Frmpd2 | 108841 | 207581 | N/A | Pla2g4e | 050211 | 090071 | 087525 |
| Abcc8 | 040136 | 210655 | 148169 | Frmpd2 | 108841 | 208380 | N/A | Pla2g4e | 050211 | 127009 | N/A |
| Abcc8 | 040136 | 209432 | 147431 | Frmpd4 | 049176 | 112149 | 107777 | Pla2g4e | 050211 | 136845 | N/A |
| Abcc8 | 040136 | 210770 | 147925 | Frmpd4 | 049176 | 112146 | 107774 | Pla2g4e | 050211 | 152263 | N/A |
| Abcc8 | 040136 | 210637 | N/A | Frmpd4 | 049176 | 112147 | 107775 | Pla2g5 | 041193 | 102512 | 099570 |
| Abcc8 | 040136 | 033123 | 033123 | Frmpd4 | 049176 | 112145 | 107773 | Pla2g5 | 041193 | 102513 | 099571 |
| Abcc8 | 040136 | 210110 | 147479 | Frrs1 | 033386 | 040260 | 039487 | Pla2g5 | 041193 | 102511 | 099569 |
| Abcc8 | 040136 | 210986 | N/A | Frrs1 | 033386 | 199626 | 143546 | Pla2g5 | 041193 | 127183 | N/A |
| Abcc8 | 040136 | 210511 | 148198 | Frrs1 | 033386 | 195905 | 143255 | Pla2g5 | 041193 | 136393 | N/A |
| Abcg2 | 029802 | 147213 | 120940 | Frrs1 | 033386 | 199584 | N/A | Pla2g5 | 041193 | 140117 | N/A |
| Abcg2 | 029802 | 204924 | N/A | Frrs1 | 033386 | 197323 | N/A | Pla2g5 | 041193 | 154844 | N/A |
| Abcg2 | 029802 | 148008 | 114454 | Frrs1 | 033386 | 199030 | 142793 | Pla2g5 | 041193 | 140100 | N/A |
| Abcg2 | 029802 | 031822 | 031822 | Frrs1l | 045589 | 053681 | 052507 | Pla2g5 | 041193 | 030524 | 030524 |
| Abcg2 | 029802 | 124542 | N/A | Frrs1l | 045589 | 128276 | 121657 | Pla2g7 | 023913 | 167214 | 130404 |
| Abcg2 | 029802 | 145161 | 122924 | Fry | 056602 | 200960 | 144674 | Pla2g7 | 023913 | 024706 | 024706 |
| Abcg2 | 029802 | 143752 | 138608 | Fry | 056602 | 202530 | 144277 | Pla2g7 | 023913 | 167418 | 131898 |
| Abcg2 | 029802 | 203146 | 145435 | Fry | 056602 | 203000 | N/A | Pla2g7 | 023913 | 165706 | N/A |
| Abcg2 | 029802 | 114294 | 109933 | Fry | 056602 | 202600 | 144317 | Pla2g7 | 023913 | 169694 | 132027 |
| Abcg2 | 029802 | 204948 | 144876 | Fry | 056602 | 201854 | N/A | Pla2g7 | 023913 | 163489 | N/A |
| Abcg2 | 029802 | 143447 | N/A | Fry | 056602 | 087204 | 084454 | Plag1 | 003282 | 003369 | 003369 |
| Abcg2 | 029802 | 145685 | 138703 | Fry | 056602 | 202841 | N/A | Plag1 | 003282 | 137439 | 117532 |
| Abcg2 | 029802 | 134426 | N/A | Fry | 056602 | 200964 | N/A | Plag1 | 003282 | 151543 | 119937 |
| Abhd2 | 039202 | 037315 | 038361 | Fry | 056602 | 202630 | N/A | Plag1 | 003282 | 147035 | N/A |
| Abhd2 | 039202 | 135333 | N/A | Fry | 056602 | 201634 | N/A | Plat | 031538 | 210960 | N/A |
| Abhd5 | 032540 | 156520 | 122274 | Fry | 056602 | 202566 | 144657 | Plat | 031538 | 033941 | 033941 |
| Abhd5 | 032540 | 035128 | 135538 | Fry | 056602 | 200863 | 143845 | Plat | 031538 | 211033 | N/A |
| Abhd5 | 032540 | 111497 | 107123 | Fry | 056602 | 201196 | N/A | Plcb1 | 051177 | 131552 | 118756 |
| Abhd5 | 032540 | 176005 | N/A | Fry | 056602 | 202070 | N/A | Plcb1 | 051177 | 110116 | 105743 |
| Abhd5 | 032540 | 175973 | 135807 | Fry | 056602 | 200750 | N/A | Plcb1 | 051177 | 130524 | N/A |
| Abhd5 | 032540 | 214061 | N/A | Fry | 056602 | 202571 | N/A | Plcb1 | 051177 | 202531 | N/A |
| Abhd5 | 032540 | 216775 | N/A | Fry | 056602 | 201628 | N/A | Plcb1 | 051177 | 070724 | 064844 |
| Abhd5 | 032540 | 154161 | 122939 | Fsip2 | 075249 | 143764 | 120314 | Plcb1 | 051177 | 129382 | N/A |
| Abi3bp | 035258 | 048471 | 036257 | Fsip2 | 075249 | 136202 | 114196 | Plcb1 | 051177 | 201485 | 144399 |
| Abi3bp | 035258 | 096013 | 093712 | Fsip2 | 075249 | 132967 | 122350 | Plcb1 | 051177 | 201524 | N/A |
| Abi3bp | 035258 | 096012 | 093711 | Fstl5 | 034098 | 038364 | 038506 | Plce1 | 024998 | 181994 | N/A |
| Abi3bp | 035258 | 171000 | 128818 | Fstl5 | 034098 | 159686 | N/A | Plce1 | 024998 | 182481 | 138360 |
| Ablim1 | 025085 | 079360 | 078336 | Fstl5 | 034098 | 160261 | 125393 | Plce1 | 024998 | 169713 | 130604 |
| Ablim1 | 025085 | 111529 | 107154 | Fstl5 | 034098 | 191664 | N/A | Plce1 | 024998 | 182267 | 138330 |
| Ablim1 | 025085 | 099294 | 096897 | Fstl5 | 034098 | 162471 | 125688 | Plce1 | 024998 | 182999 | 138098 |
| Ablim1 | 025085 | 111559 | 107184 | Fth1 | 024661 | 025563 | 025563 | Plce1 | 024998 | 182589 | N/A |
| Ablim1 | 025085 | 111528 | 107153 | Fxyd1 | 036570 | 206328 | 145712 | Plce1 | 024998 | 183131 | N/A |
| Ablim1 | 025085 | 111526 | 107151 | Fxyd1 | 036570 | 205807 | 145990 | Plch1 | 036834 | 048134 | 047693 |
| Ablim1 | 025085 | 111550 | 107175 | Fxyd1 | 036570 | 205917 | N/A | Plch1 | 036834 | 159374 | N/A |
| Ablim1 | 025085 | 111558 | 107183 | Fxyd1 | 036570 | 206012 | 146295 | Plch1 | 036834 | 159982 | N/A |
| Ablim1 | 025085 | 111555 | 107180 | Fxyd1 | 036570 | 206305 | 145589 | Plch1 | 036834 | 084105 | 081122 |
| Ablim1 | 025085 | 111546 | 107172 | Fxyd1 | 036570 | 206030 | 146129 | Plch1 | 036834 | 162269 | 124463 |
| Ablim1 | 025085 | 111544 | 107169 | Fxyd1 | 036570 | 206317 | N/A | Plch1 | 036834 | 159676 | 124632 |
| Ablim1 | 025085 | 156316 | N/A | Fxyd1 | 036570 | 205778 | 145818 | Plch1 | 036834 | 059973 | 058524 |
| Ablim1 | 025085 | 137389 | N/A | Fxyd1 | 036570 | 108110 | 103745 | Plch1 | 036834 | 177143 | 135424 |
| Ablim1 | 025085 | 127198 | N/A | Fxyd1 | 036570 | 206860 | 146288 | Plch1 | 036834 | 176861 | 135562 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ablim1 | 025085 | 133782 | N/A | Fxyd1 | 036570 | 206474 | 145920 | Plch1 | 036834 | 175947 | 135353 |
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| Ablim1 | 025085 | 150425 | N/A | Fxyd1 | 036570 | 205439 | 146064 | Plch1 | 036834 | 161052 | 125581 |
| Ablim1 | 025085 | 128212 | N/A | Fxyd1 | 036570 | 205542 | N/A | Plch1 | 036834 | 160638 | 123921 |
| Ablim1 | 025085 | 111524 | 107149 | Fxyd1 | 036570 | 206522 | N/A | Plcl1 | 038349 | 042986 | 037854 |
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| Ablim2 | 029095 | 101280 | 098838 | Fxyd7 | 036578 | 206341 | 146171 | Pld5 | 055214 | 065967 | 069326 |
| Ablim2 | 029095 | 054598 | 050571 | Fxyd7 | 036578 | 073892 | 073555 | Pld5 | 055214 | 156184 | N/A |
| Ablim2 | 029095 | 114205 | 109843 | Fzd9 | 049551 | 062572 | 053551 | Pld5 | 055214 | 144340 | N/A |
| Ablim2 | 029095 | 114210 | 109848 | Gab2 | 004508 | 004622 | 004622 | Pld5 | 055214 | 111166 | 106796 |
| Ablim2 | 029095 | 114206 | 109844 | Gab2 | 004508 | 206791 | 146200 | Pld5 | 055214 | 111167 | 106797 |
| Ablim2 | 029095 | 114204 | 109842 | Gabra2 | 000560 | 197284 | 142892 | Plekhd1 | 066438 | 153762 | N/A |
| Ablim2 | 029095 | 129347 | 123525 | Gabra2 | 000560 | 198625 | 143645 | Plekhd1 | 066438 | 142760 | 121812 |
| Ablim2 | 029095 | 130233 | 118159 | Gabra2 | 000560 | 197124 | N/A | Plekhd1 | 066438 | 152465 | N/A |
| Ablim2 | 029095 | 114203 | 109841 | Gabra2 | 000560 | 000572 | 000572 | Plekhd1 | 066438 | 140770 | 119711 |
| Ablim2 | 029095 | 150146 | 144134 | Gabra2 | 000560 | 199861 | N/A | Plekhg3 | 052609 | 217730 | 151564 |
| Ablim2 | 029095 | 151636 | 123616 | Gabra2 | 000560 | 199012 | N/A | Plekhg3 | 052609 | 075249 | 074729 |
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| Abtb2 | 032724 | 138580 | N/A | Gabrd | 029054 | 150423 | N/A | Plekhh1 | 060716 | 219946 | N/A |
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| Acad8 | 031969 | 120367 | 112908 | Gabrd | 029054 | 129892 | N/A | Plekho2 | 050721 | 214740 | N/A |
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| Acer3 | 030760 | 033020 | 033020 | Gabrg3 | 055026 | 171965 | N/A | Plp1 | 031425 | 033800 | 033800 |
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| Aco2 | 022477 | 023116 | 023116 | Gad1 | 070880 | 155979 | N/A | Plpp4 | 070366 | 094018 | 091557 |
| Aco2 | 022477 | 157003 | N/A | Gad1 | 070880 | 140478 | N/A | Plpp4 | 070366 | 206551 | N/A |
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| Aco2 | 022477 | 155704 | N/A | Gad2 | 026787 | 028123 | 028123 | Plpp4 | 070366 | 205896 | 145944 |
| Aco2 | 022477 | 144324 | N/A | Gad2 | 026787 | 156728 | N/A | Plppr4 | 044667 | 061071 | 052306 |
| Acot11 | 034853 | 102762 | 099823 | Gal3st1 | 049721 | 078757 | 077815 | Plppr4 | 044667 | 125664 | N/A |
| Acot11 | 034853 | 065253 | 069636 | Gal3st1 | 049721 | 063004 | 058348 | Plppr4 | 044667 | 197743 | 143753 |
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| Acot11 | 034853 | 144809 | N/A | Galnt14 | 024064 | 024858 | 024858 | Pls1 | 049493 | 119760 | 113200 |
| Acot11 | 034853 | 156567 | 123942 | Galnt14 | 024064 | 146565 | N/A | Pls1 | 049493 | 135816 | N/A |
| Acot11 | 034853 | 145061 | 125123 | Galnt14 | 024064 | 112591 | 108210 | Plscr1 | 032369 | 093801 | 091318 |
| Acot11 | 034853 | 148688 | 124385 | Galnt15 | 021903 | 022460 | 022460 | Plscr1 | 032369 | 186364 | 139479 |
| Acsbg1 | 032281 | 034822 | 034822 | Galnt15 | 021903 | 164208 | 131978 | Plscr1 | 032369 | 187952 | N/A |
| Acsbg1 | 032281 | 138315 | 118133 | Galnt16 | 021130 | 219993 | 151829 | Plscr4 | 032377 | 034941 | 034941 |
| Acsbg1 | 032281 | 128163 | 119551 | Galnt16 | 021130 | 218943 | 151619 | Plscr4 | 032377 | 143866 | N/A |
| Acsbg1 | 032281 | 128624 | 121622 | Galnt16 | 021130 | 021558 | 021558 | Pltp | 017754 | 109316 | 104939 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acsbg1 | 032281 | 132914 | N/A | Galnt16 | 021130 | 218648 | N/A | Pltp | 017754 | 109317 | 104940 |
| Acsm5 | 030972 | 207796 | 146520 | Galnt16 | 021130 | 217926 | 151370 | Pltp | 017754 | 059954 | 061519 |
| Acsm5 | 030972 | 066465 | 063416 | Galnt16 | 021130 | 219267 | 151800 | Pltp | 017754 | 142603 | N/A |
| Acsm5 | 030972 | 207307 | 146737 | Galnt18 | 038296 | 049430 | 043636 | Pltp | 017754 | 148912 | N/A |
| Acsm5 | 030972 | 207440 | 146938 | Galnt18 | 038296 | 106663 | 102274 | Pltp | 017754 | 156255 | 119955 |
| Acsm5 | 030972 | 207381 | 146715 | Galnt3 | 026994 | 028378 | 028378 | Pltp | 017754 | 128110 | 122760 |
| Acsm5 | 030972 | 207387 | 146357 | Galnt3 | 026994 | 153563 | N/A | Plxdc1 | 017417 | 017561 | 017561 |
| Acsm5 | 030972 | 207813 | 147176 | Galnt3 | 026994 | 150793 | N/A | Plxdc1 | 017417 | 107565 | 103191 |
| Actb | 029580 | 100497 | 098066 | Galnt3 | 026994 | 155453 | N/A | Plxdc1 | 017417 | 141708 | N/A |
| Actb | 029580 | 196997 | N/A | Galnt5 | 026828 | 112616 | 108235 | Plxdc1 | 017417 | 107564 | 103190 |
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| Actb | 029580 | 165629 | N/A | Galntl6 | 096914 | 204128 | 145321 | Plxnb1 | 053646 | 192988 | 142431 |
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| Actr3b | 056367 | 128727 | 121629 | Galntl6 | 096914 | 077447 | N/A | Plxnb1 | 053646 | 194734 | N/A |
| Actr3b | 056367 | 088244 | 085578 | Galntl6 | 096914 | 146513 | 118306 | Plxnb3 | 031385 | 149478 | N/A |
| Actr3b | 056367 | 198693 | N/A | Galntl6 | 096914 | 125865 | N/A | Plxnb3 | 031385 | 146812 | N/A |
| Adam11 | 020926 | 103081 | 099370 | Galntl6 | 096914 | 203398 | 145298 | Plxnb3 | 031385 | 147127 | N/A |
| Adam11 | 020926 | 068150 | 069466 | Galntl6 | 096914 | 188531 | 139677 | Plxnb3 | 031385 | 002079 | 002079 |
| Adam11 | 020926 | 124879 | N/A | Galntl6 | 096914 | 098757 | 096353 | Plxnb3 | 031385 | 155096 | N/A |
| Adam11 | 020926 | 141563 | N/A | Galrl | 024553 | 065224 | 066381 | Plxnc1 | 074785 | 099337 | 096939 |
| Adam11 | 020926 | 142912 | N/A | Gapdh | 057666 | 192506 | N/A | Plxnc1 | 074785 | 218839 | N/A |
| Adam11 | 020926 | 126024 | N/A | Gapdh | 057666 | 147954 | N/A | Plxnc1 | 074785 | 180514 | N/A |
| Adam11 | 020926 | 134296 | N/A | Gapdh | 057666 | 117757 | 113942 | Plxnc1 | 074785 | 181244 | 138038 |
| Adam11 | 020926 | 143269 | N/A | Gapdh | 057666 | 118875 | 113213 | Plxnc1 | 074785 | 180573 | N/A |
| Adam11 | 020926 | 135513 | N/A | Gapdh | 057666 | 183272 | 138508 | Pmepa1 | 038400 | 124124 | N/A |
| Adam12 | 054555 | 067680 | 065213 | Gapdh | 057666 | 182464 | N/A | Pmepa1 | 038400 | 139306 | 115534 |
| Adam12 | 054555 | 138363 | 114874 | Gapdh | 057666 | 144205 | N/A | Pmepa1 | 038400 | 036248 | 039950 |
| Adam12 | 054555 | 134504 | 123161 | Gapdh | 057666 | 182115 | N/A | Pmp2 | 052468 | 029034 | 029034 |
| Adam12 | 054555 | 127524 | 120094 | Gapdh | 057666 | 182052 | 138403 | Pmp22 | 018217 | 018361 | 018361 |
| Adam12 | 054555 | 206313 | N/A | Gapdh | 057666 | 182277 | 138295 | Pmp22 | 018217 | 108702 | 104342 |
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| Adamts10 | 024299 | 174666 | N/A | Gapdh | 057666 | 073605 | 073289 | Pmp22 | 018217 | 108700 | 104340 |
| Adamts10 | 024299 | 173972 | N/A | Garem2 | 044576 | 058045 | 054208 | Polr2a | 005198 | 058470 | 050771 |
| Adamts10 | 024299 | 174104 | N/A | Gaml3 | 038860 | 102810 | 099874 | Polr2a | 005198 | 156588 | N/A |
| Adamts10 | 024299 | 173813 | N/A | Gaml3 | 038860 | 049618 | 057582 | Polr2a | 005198 | 151586 | N/A |
| Adamts10 | 024299 | 174348 | 133856 | Gaml3 | 038860 | 137381 | 122576 | Polr2a | 005198 | 071213 | 071200 |
| Adamts10 | 024299 | 172922 | 133891 | Gaml3 | 038860 | 153717 | N/A | Pon2 | 032667 | 057792 | 062670 |
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| Adamts15 | 033453 | 065112 | 067022 | Gaml3 | 038860 | 127509 | 141523 | Por | 005514 | 005651 | 005651 |
| Adamts15 | 033453 | 217070 | N/A | Gaml3 | 038860 | 124000 | 123601 | Por | 005514 | 122113 | 112924 |
| Adamts15 | 033453 | 216215 | 150677 | Gas1 | 052957 | 065086 | 064555 | Por | 005514 | 147515 | N/A |
| Adamts16 | 049538 | 080145 | 079041 | Gas1 | 052957 | 223933 | 153311 | Por | 005514 | 127096 | 119138 |
| Adamts16 | 049538 | 123552 | 122031 | Gatm | 027199 | 028624 | 028624 | Por | 005514 | 149684 | N/A |
| Adamts16 | 049538 | 109694 | 105316 | Gatm | 027199 | 154598 | N/A | Por | 005514 | 132084 | N/A |
| Adamts16 | 049538 | 130726 | N/A | Gatm | 027199 | 140808 | N/A | Pparg | 000440 | 171644 | 131962 |
| Adamts18 | 053399 | 093113 | 090801 | Gatm | 111138 | 215775 | 150264 | Pparg | 000440 | 203732 | 145525 |
| Adamts18 | 053399 | 212665 | 148330 | Gatm | 111138 | 214872 | N/A | Pparg | 000440 | 204305 | 145083 |
| Adamts18 | 053399 | 212437 | 148288 | Gatm | 111138 | 214402 | N/A | Pparg | 000440 | 203308 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adamts18 | 053399 | 213076 | N/A | Gatsl2 | 015944 | 016088 | 016088 | Pparg | 000440 | 205213 | 144975 |
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| Adamts18 | 053399 | 213078 | N/A | Gatsl2 | 015944 | 140240 | N/A | Pparg | 000440 | 203896 | N/A |
| Adamts18 | 053399 | 212527 | N/A | Gca | 026893 | 028257 | 028257 | Ppfia4 | 026458 | 168515 | 128314 |
| Adamts2 | 036545 | 040523 | 040171 | Gca | 026893 | 148083 | N/A | Ppfia4 | 026458 | 186730 | 139800 |
| Adamts2 | 036545 | 142118 | N/A | Gda | 058624 | 087600 | 084882 | Ppfia4 | 026458 | 186964 | N/A |
| Adamts2 | 036545 | 125988 | N/A | Gda | 058624 | 136258 | N/A | Ppfia4 | 026458 | 189862 | N/A |
| Adamts2 | 036545 | 127534 | N/A | Gda | 058624 | 121725 | 112758 | Ppfia4 | 026458 | 189361 | 139833 |
| Adamts6 | 046169 | 224784 | 153665 | Gdf10 | 021943 | 168727 | 128621 | Ppfia4 | 026458 | 186553 | N/A |
| Adamts6 | 046169 | 223562 | 153504 | Gfap | 020932 | 067444 | 064691 | Ppfibp1 | 016487 | 133825 | N/A |
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| Adamts6 | 046169 | 224303 | 153431 | Gfra2 | 022103 | 022699 | 022699 | Ppfibp1 | 016487 | 136837 | 114340 |
| Adamts6 | 046169 | 224504 | 153194 | Gfra2 | 022103 | 227697 | 154391 | Ppfibp1 | 016487 | 123902 | N/A |
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| Adamts9 | 030022 | 113438 | 109065 | Ghitm | 041028 | 165649 | 129712 | Ppfibp1 | 016487 | 126774 | N/A |
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| Adamtsl4 | 015850 | 117782 | 113424 | Ghr | 055737 | 110698 | 106326 | Ppfibp2 | 036528 | 207852 | N/A |
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| Adcy1 | 020431 | 020706 | 020706 | Ghr | 055737 | 159508 | N/A | Ppfibp2 | 036528 | 208159 | 147038 |
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| Adcyap1r1 | 029778 | 070736 | 063784 | Ghr | 055737 | 159912 | N/A | Ppm1e | 046442 | 155154 | N/A |
| Adcyap1r1 | 029778 | 070756 | 066902 | Gipc2 | 039131 | 152283 | N/A | Ppm1h | 034613 | 162853 | N/A |
| Adcyap1r1 | 029778 | 166962 | 130742 | Gipc2 | 039131 | 046614 | 037328 | Ppm1h | 034613 | 161487 | 124982 |
| Adcyap1r1 | 029778 | 167484 | 131641 | Gipc2 | 039131 | 128741 | N/A | Ppm1h | 034613 | 067918 | 066561 |
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| Adcyap1r1 | 029778 | 165786 | 130923 | Gipc2 | 039131 | 133672 | N/A | Ppm1h | 034613 | 161371 | N/A |
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| Adgra1 | 025475 | 026548 | 026548 | Gja1 | 050953 | 220194 | 151603 | Ppp4r4 | 021209 | 189871 | 139786 |
| Adgra1 | 025475 | 137584 | N/A | Gja1 | 050953 | 218834 | 151647 | Ppp4r4 | 021209 | 187155 | 140874 |
| Adgra1 | 025475 | 129454 | N/A | Gja1 | 050953 | 218444 | 151974 | Ppp4r4 | 021209 | 190664 | 140295 |
| Adgra3 | 029090 | 030971 | 030971 | Gja1 | 050953 | 220069 | 151620 | Ppp4r4 | 021209 | 190151 | 139815 |
| Adgra3 | 029090 | 196177 | N/A | Gjb1 | 047797 | 119080 | 113904 | Prag1 | 050271 | 110492 | 106118 |
| Adgra3 | 029090 | 198818 | N/A | Gjb1 | 047797 | 052130 | 062723 | Prag1 | 050271 | 145386 | N/A |
| Adgra3 | 029090 | 196229 | N/A | Gjb1 | 047797 | 119190 | 113516 | Prag1 | 050271 | 150295 | N/A |
| Adgra3 | 029090 | 198868 | N/A | Gjb6 | 040055 | 039380 | 035630 | Ptex1 | 039621 | 036719 | 037180 |
| Adgra3 | 029090 | 196915 | N/A | Gjb6 | 040055 | 224544 | N/A | Ptex1 | 039621 | 127553 | N/A |
| Adgra3 | 029090 | 199132 | N/A | Gjb6 | 040055 | 160703 | 124927 | Ptex1 | 039621 | 099080 | 096679 |
| Adgrg1 | 031785 | 211850 | N/A | Gjb6 | 040055 | 162931 | N/A | Ptex1 | 039621 | 109246 | 104869 |
| Adgrg1 | 031785 | 212581 | 148742 | Gjc2 | 043448 | 108793 | 104421 | Ptex1 | 039621 | 140624 | N/A |
| Adgrg1 | 031785 | 179619 | 137520 | Gjc2 | 043448 | 108790 | 104418 | Ptex1 | 039621 | 152238 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adgrg1 | 031785 | 212660 | 148644 | Gjc3 | 056966 | 077119 | 076367 | Prex1 | 039621 | 136564 | N/A |
| Adgrg1 | 031785 | 093271 | 090959 | Gjc3 | 056966 | 199083 | N/A | Prex1 | 039621 | 136974 | N/A |
| Adgrg1 | 031785 | 211944 | 148386 | Gjd2 | 068615 | 090275 | 087742 | Prex2 | 048960 | 027056 | 027056 |
| Adgrg1 | 031785 | 212799 | 148349 | Slc1a3 | 005360 | 005493 | 005493 | Prex2 | 048960 | 190935 | N/A |
| Adgrg1 | 031785 | 212141 | 148331 | Slc1a3 | 005360 | 125997 | N/A | Prex2 | 048960 | 189822 | N/A |
| Adgrg1 | 031785 | 212976 | 148439 | Slc1a3 | 005360 | 128879 | N/A | Prex2 | 048960 | 187694 | N/A |
| Adgrg1 | 031785 | 212995 | 148309 | Slc1a3 | 005360 | 153455 | N/A | Prex2 | 048960 | 188189 | 140621 |
| Adgrg1 | 031785 | 212956 | 148374 | Slc1a3 | 005360 | 157065 | 118902 | Prex2 | 048960 | 187745 | 140788 |
| Adgrg1 | 031785 | 212531 | 148650 | Slc1a3 | 005360 | 129325 | N/A | Prex2 | 048960 | 189385 | 140863 |
| Adgrg1 | 031785 | 211984 | 148412 | Slc1a3 | 005360 | 133309 | N/A | Prex2 | 048960 | 188154 | 140580 |
| Adgrg1 | 031785 | 212118 | 148304 | Slc1a3 | 005360 | 126747 | N/A | Prickle1 | 036158 | 048982 | 049204 |
| Adgrg1 | 031785 | 211806 | N/A | Slc1a3 | 005360 | 005493 | 005493 | Prickle1 | 036158 | 109255 | 104878 |
| Adgrg1 | 031785 | 211911 | N/A | Slc1a3 | 005360 | 125997 | N/A | Prima1 | 041669 | 123655 | N/A |
| Adgrv1 | 069170 | 128120 | 122358 | Slc1a3 | 005360 | 128879 | N/A | Prima1 | 041669 | 127843 | 114309 |
| Adgrv1 | 069170 | 095585 | 093245 | Slc1a3 | 005360 | 153455 | N/A | Prima1 | 041669 | 074416 | 074017 |
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| Adgrv1 | 069170 | 125698 | 120136 | Slc1a3 | 005360 | 129325 | N/A | Prima1 | 041669 | 155547 | N/A |
| Adgrv1 | 069170 | 156631 | N/A | Slc1a3 | 005360 | 133309 | N/A | Prkag3 | 006542 | 160732 | 125344 |
| Adgrv1 | 069170 | 109565 | 105193 | Slc1a3 | 005360 | 126747 | N/A | Prkag3 | 006542 | 113672 | 109302 |
| Adgrv1 | 069170 | 129725 | N/A | Gldc | 024827 | 025778 | 025778 | Prkag3 | 006542 | 081636 | 080342 |
| Adgrv1 | 069170 | 156627 | N/A | Gldn | 046167 | 056740 | 056080 | Prkag3 | 006542 | 162093 | 125242 |
| Adgrv1 | 069170 | 146141 | N/A | Gli1 | 025407 | 026474 | 026474 | Prkag3 | 006542 | 159728 | 124979 |
| Adgrv1 | 069170 | 125663 | N/A | Gli1 | 025407 | 219808 | N/A | Prkag3 | 006542 | 188073 | 139909 |
| Adgrv1 | 069170 | 126444 | 123552 | Gli1 | 025407 | 218236 | 151718 | Prkcb | 052889 | 143692 | 138788 |
| Adgrv1 | 069170 | 128585 | 121899 | Gli1 | 025407 | 219671 | 151749 | Prkcb | 052889 | 064989 | 070019 |
| Adgrv1 | 069170 | 146749 | 114579 | Gli1 | 025407 | 218451 | N/A | Prkcb | 052889 | 064921 | 064812 |
| Adgrv1 | 069170 | 132045 | N/A | Gli2 | 048402 | 062483 | 054837 | Prkcb | 052889 | 131167 | N/A |
| Adm | 030790 | 033054 | 033054 | Gli2 | 048402 | 161301 | 125342 | Prkcb | 052889 | 149583 | N/A |
| Adm | 030790 | 185766 | N/A | Gli2 | 048402 | 162552 | 125059 | Prkcb | 052889 | 205550 | N/A |
| Adora1 | 042429 | 086465 | 083656 | Gli2 | 048402 | 161056 | 124768 | Prkcb | 052889 | 127910 | N/A |
| Adora1 | 042429 | 038191 | 043522 | Gli2 | 048402 | 160991 | 125634 | Prkcb | 052889 | 206495 | N/A |
| Adora1 | 042429 | 187631 | 140801 | Gli2 | 048402 | 159839 | 125661 | Prkcd | 021948 | 112210 | 107829 |
| Adora1 | 042429 | 169927 | 132105 | Gli2 | 048402 | 161451 | 124132 | Prkcd | 021948 | 022521 | 022521 |
| Adra1a | 045875 | 159365 | 124322 | Gli2 | 048402 | 162607 | 123808 | Prkcd | 021948 | 112207 | 107826 |
| Adra1a | 045875 | 054661 | 053703 | Gli2 | 048402 | 159678 | N/A | Prkcd | 021948 | 112206 | 107825 |
| Adra1a | 045875 | 160647 | N/A | Gli3 | 021318 | 130065 | 115989 | Prkcd | 021948 | 140701 | N/A |
| Adra1a | 045875 | 225182 | 153103 | Gli3 | 021318 | 141194 | 152092 | Prkcd | 021948 | 112202 | 107821 |
| Adra1a | 045875 | 159068 | 124570 | Gli3 | 021318 | 130535 | N/A | Prkcd | 021948 | 112203 | 107822 |
| Adra1a | 045875 | 161339 | 125354 | Gli3 | 021318 | 110510 | 106137 | Prkcd | 021948 | 130736 | N/A |
| Adra1b | 050541 | 067258 | 070200 | Glipr2 | 028480 | 030202 | 030202 | Prkcd | 021948 | 135714 | N/A |
| Adra1b | 050541 | 139906 | 123435 | Glipr2 | 028480 | 107855 | 103487 | Prkcd | 021948 | 145806 | N/A |
| Adra1b | 050541 | 124306 | N/A | Glis1 | 034762 | 046005 | 035650 | Prkcd | 021948 | 112208 | N/A |
| Adra1b | 050541 | 167574 | 129200 | Glis1 | 034762 | 106738 | 102349 | Prkcd | 021948 | 227078 | N/A |
| Adra2b | 058620 | 104934 | 100539 | Glis1 | 034762 | 130573 | N/A | Prkcd | 021948 | 112211 | 107830 |
| Adra2b | 058620 | 071902 | 071798 | Glis1 | 034762 | 135835 | 118600 | Prkcg | 078816 | 203600 | N/A |
| Adrb2 | 045730 | 053640 | 062256 | Glis1 | 034762 | 138211 | N/A | Prkcg | 078816 | 100301 | 097874 |
| AF529169 | 039313 | 044491 | 046111 | Glis1 | 034762 | 125573 | N/A | Prkcg | 078816 | 172109 | 131351 |
| AF529169 | 039313 | 191465 | 140942 | Glp2r | 049928 | 021289 | 021289 | Prkcg | 078816 | 203081 | 145498 |
| Afap1 | 029094 | 064571 | 067779 | Glp2r | 049928 | 051765 | 061560 | Prkcg | 078816 | 203454 | N/A |
| Afap1 | 029094 | 146300 | N/A | Glul | 026473 | 086199 | 083375 | Prkcg | 097449 | 181455 | 137923 |
| Afap1 | 029094 | 141824 | 119364 | Glul | 026473 | 139476 | 114377 | Prkcg | 097449 | 181221 | 137836 |
| Afap1 | 029094 | 212374 | 148414 | Glul | 026473 | 140685 | 123157 | Prkcq | 026778 | 028118 | 028118 |
| Afap1 | 029094 | 201482 | N/A | Glul | 026473 | 153134 | N/A | Prkcq | 026778 | 114853 | N/A |
| Afap1l1 | 033032 | 154876 | 121278 | Glul | 026473 | 154576 | N/A | Prkcq | 026778 | 195207 | N/A |
| Afap1l1 | 033032 | 120472 | 113286 | Gm11549 | 085007 | 124606 | 153318 | Prkcq | 026778 | 102970 | 100035 |
| Afap1l1 | 033032 | 147278 | N/A | Gm136 | 071015 | 095129 | 092748 | Prkcq | 026778 | 192461 | N/A |
| Aff2 | 031189 | 033532 | 033532 | Gm20425 | 090639 | 166836 | 127808 | Prkcq | 026778 | 195628 | N/A |
| Aff2 | 031189 | 143097 | N/A | Gm266 | 010529 | 010673 | 010673 | Prkd3 | 024070 | 003191 | 003191 |
| Aff2 | 031189 | 151662 | N/A | Gm5083 | 089815 | 163056 | N/A | Prkd3 | 024070 | 119284 | 113395 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aff2 | 031189 | 139977 | N/A | Gm5083 | 089815 | 159595 | N/A | Prkd3 | 024070 | 146917 | N/A |
| Afp | 054932 | 042755 | 041006 | Gm5089 | 064052 | 081580 | 080290 | Prkd3 | 024070 | 118768 | 113232 |
| Afp | 054932 | 200693 | 144019 | Gm5468 | 056089 | 227851 | N/A | Prkd3 | 024070 | 118991 | 112775 |
| Afp | 054932 | 201061 | N/A | Gm5468 | 056089 | 069992 | N/A | Prkd3 | 024070 | 124229 | N/A |
| Afp | 054932 | 200728 | N/A | Sox1ot | 047935 | 186174 | N/A | Prkd3 | 024070 | 130070 | N/A |
| Afp | 054932 | 202209 | N/A | Sox1ot | 047935 | 080795 | N/A | Prkd3 | 024070 | 168887 | 132004 |
| Agap1 | 055013 | 027521 | 027521 | Gm8179 | N/A | N/A | N/A | Prkg2 | 029334 | 161490 | 124963 |
| Agap1 | 055013 | 190096 | 140599 | Gna12 | 000149 | 000153 | 000153 | Prkg2 | 029334 | 162619 | 142743 |
| Agap1 | 055013 | 185417 | N/A | Gna12 | 000149 | 198447 | 143414 | Prkg2 | 029334 | 162147 | 143708 |
| Agap1 | 055013 | 074945 | 074478 | Gnal | 024524 | 025402 | 025402 | Prkg2 | 029334 | 031277 | 031277 |
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| Agap1 | 055013 | 212924 | 148317 | Gnb3 | 023439 | 024206 | 024206 | Prmt8 | 030350 | 032500 | 032500 |
| Agpat3 | 001211 | 001240 | 001240 | Gnb3 | 023439 | 129251 | N/A | Procr | 027611 | 029140 | 029140 |
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| Agpat3 | 001211 | 105388 | 101027 | Gng11 | 032766 | 031670 | 031670 | Procr | 027611 | 132608 | 114567 |
| Agpat3 | 001211 | 105387 | 101026 | Gng13 | 025739 | 172002 | 131648 | Prr5 | 036106 | 171460 | 127890 |
| Agpat3 | 001211 | 146296 | N/A | Gng13 | 025739 | 115108 | 110760 | Prr5 | 036106 | 065499 | 066396 |
| Agpat3 | 001211 | 219907 | N/A | Gng2 | 043004 | 161247 | 124725 | Prr5l | 032841 | 043845 | 042167 |
| Agpat3 | 001211 | 219932 | 151528 | Gng2 | 043004 | 162425 | 124153 | Prr5l | 032841 | 141814 | 118537 |
| Agpat3 | 001211 | 139282 | 119713 | Gng2 | 043004 | 159028 | 125141 | Prr5l | 032841 | 125985 | 122996 |
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| Agpat3 | 001211 | 138035 | 121052 | Gng2 | 043004 | 160013 | 125697 | Prr5l | 032841 | 124802 | 118502 |
| Agpat3 | 001211 | 146899 | 114657 | Gng2 | 043004 | 055100 | 055256 | Prr5l | 032841 | 144549 | 116266 |
| Agpat3 | 001211 | 166360 | 132954 | Gpc6 | 058571 | 123239 | N/A | Prr5l | 032841 | 140387 | N/A |
| Agpat4 | 023827 | 164143 | 128085 | Gpc6 | 058571 | 088483 | 085835 | Prr5l | 032841 | 127358 | N/A |
| Agpat4 | 023827 | 024594 | 024594 | Gpc6 | 058571 | 125435 | 120362 | Prr5l | 032841 | 163762 | 127530 |
| Agpat4 | 023827 | 172259 | N/A | Gpc6 | 058571 | 078849 | 077893 | Prr5l | 032841 | 171088 | 130152 |
| Agpat4 | 023827 | 167792 | 127477 | Gpcpd1 | 027346 | 127712 | N/A | Prrc1 | 024594 | 025490 | 025490 |
| Agpat4 | 023827 | 170858 | 127417 | Gpcpd1 | 027346 | 148833 | 116156 | Prrg3 | 033361 | 126362 | 118155 |
| Agpat4 | 023827 | 167905 | N/A | Gpcpd1 | 027346 | 110136 | 105763 | Prrg3 | 033361 | 048790 | 038947 |
| Agm | 041936 | 154494 | N/A | Gpcpd1 | 027346 | 060955 | 062221 | Prrg3 | 033361 | 170096 | 128073 |
| Agm | 041936 | 105574 | 101199 | Gpcpd1 | 027346 | 149854 | 116949 | Prrx1 | 026586 | 075805 | 075203 |
| Agm | 041936 | 071248 | 071229 | Gpcpd1 | 027346 | 145694 | 116457 | Prrx1 | 026586 | 027878 | 027878 |
| Agm | 041936 | 105575 | 101200 | Gpcpd1 | 027346 | 028822 | 028822 | Prrx1 | 026586 | 183691 | N/A |
| Agm | 041936 | 181062 | N/A | Gpcpd1 | 027346 | 124632 | 117217 | Prrx1 | 026586 | 174397 | 134338 |
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| Agm | 041936 | 144749 | N/A | Gpcpd1 | 027346 | 110135 | 105762 | Psd2 | 024347 | 115716 | 111381 |
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| AI593442 | 078307 | 213843 | 149128 | Gphn | 047454 | 052472 | 054064 | Psd2 | 024347 | 175734 | 135795 |
| AI593442 | 078307 | 098768 | 096365 | Gphn | 047454 | 110388 | 106018 | Psd2 | 024347 | 175720 | N/A |
| Ak4 | 028527 | 102780 | 099841 | Gphn | 047454 | 219629 | N/A | Pstpip2 | 025429 | 114741 | 110389 |
| Ak4 | 028527 | 106946 | 102559 | Gpr135 | 043398 | 050649 | 058762 | Ptchd1 | 041552 | 038665 | 039443 |
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| Ak4 | 028527 | 133055 | 115454 | Gpr153 | 042804 | 144035 | N/A | Ptchd4 | 042256 | 048691 | 047640 |
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| Ak4 | 028527 | 155749 | 121112 | Gpr22 | 044067 | 057783 | 056125 | Pter | 026730 | 150283 | N/A |
| Akain1 | 091636 | 169935 | 131134 | Gpr22 | 044067 | 176710 | 134839 | Pter | 026730 | 114796 | 110444 |
| Akna | 039158 | 035724 | 041614 | Gpr22 | 044067 | 174480 | 134674 | Pter | 026730 | 134794 | 117009 |
| Akna | 039158 | 140586 | N/A | Gpr37 | 039904 | 200812 | 144683 | Pter | 026730 | 028063 | 028063 |
| Aldh1a1 | 053279 | 224807 | N/A | Gpr37 | 039904 | 054867 | 052185 | Pter | 026730 | 193742 | N/A |
| Aldh1a1 | 053279 | 225337 | 153410 | Gpr37l1 | 026424 | 027682 | 027682 | Pter | 026730 | 195521 | N/A |
| Aldh1a1 | 053279 | 224358 | N/A | Gpr63 | 040372 | 151006 | N/A | Ptgfrn | 027864 | 102694 | 099755 |
| Aldh1a1 | 053279 | 225313 | 153011 | Gpr63 | 040372 | 038920 | 039312 | Ptgfrn | 027864 | 198037 | N/A |
| Aldh1a1 | 053279 | 225249 | N/A | Gprasp2 | 072966 | 134986 | N/A | Ptgfrn | 027864 | 200065 | N/A |
| Aldh1a1 | 053279 | 087638 | 084918 | Gprasp2 | 072966 | 113136 | 108761 | Ptk2b | 059456 | 022622 | 022622 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aldh1a1 | 053279 | 224807 | N/A | Gprasp2 | 072966 | 150797 | N/A | Ptk2b | 059456 | 154865 | 122683 |
| Aldh1a1 | 053279 | 225337 | 153410 | Gprasp2 | 072966 | 132798 | N/A | Ptk2b | 059456 | 089250 | 086661 |
| Aldh1a1 | 053279 | 224358 | N/A | Gprasp2 | 072966 | 141953 | N/A | Ptk2b | 059456 | 136216 | N/A |
| Aldh1a1 | 053279 | 225313 | 153011 | Gprasp2 | 072966 | 142034 | N/A | Ptk2b | 059456 | 111121 | 106750 |
| Aldh1a1 | 053279 | 225249 | N/A | Gprasp2 | 072966 | 137392 | N/A | Ptk2b | 059456 | 148104 | N/A |
| Aldh1a1 | 053279 | 087638 | 084918 | Gprasp2 | 072966 | 130034 | N/A | Ptk2b | 059456 | 127083 | N/A |
| Aldh1l1 | 030088 | 127199 | N/A | Gprasp2 | 072966 | 148658 | N/A | Ptk2b | 059456 | 178730 | 137008 |
| Aldh1l1 | 030088 | 130418 | 114304 | Gprasp2 | 072966 | 138251 | N/A | Ptn | 029838 | 101534 | 099073 |
| Aldh1l1 | 030088 | 032175 | 032175 | Gprasp2 | 072966 | 173804 | 134666 | Ptn | 029838 | 201321 | 144184 |
| Aldh1l1 | 030088 | 203111 | 145233 | Gprc5c | 051043 | 133245 | 121572 | Ptpn14 | 026604 | 097442 | 095051 |
| Aldh1l1 | 030088 | 204796 | 145380 | Gprc5c | 051043 | 122967 | 114335 | Ptpn14 | 026604 | 194127 | N/A |
| Aldh1l1 | 030088 | 152436 | N/A | Gprc5c | 051043 | 053361 | 061760 | Ptpn14 | 026604 | 128275 | N/A |
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| Aldh1l2 | 020256 | 020497 | 020497 | Gprc5c | 051043 | 136785 | 116786 | Ptpn14 | 026604 | 195038 | N/A |
| Aldh1l2 | 020256 | 146640 | 117076 | Gprc5c | 051043 | 142262 | 121524 | Ptpn14 | 026604 | 148129 | N/A |
| Aldh1l2 | 020256 | 147381 | N/A | Gprc5c | 051043 | 152314 | 118667 | Ptpn22 | 027843 | 146071 | 122307 |
| Aldh1l2 | 020256 | 141184 | N/A | Gprc5c | 051043 | 177952 | 136702 | Ptpn22 | 027843 | 029433 | 029433 |
| Aldh1l2 | 020256 | 138858 | N/A | Gpx2 | 042808 | 221421 | N/A | Ptpn22 | 027843 | 198530 | N/A |
| Aldh1l2 | 020256 | 143793 | N/A | Gpx2 | 042808 | 220569 | N/A | Ptpn22 | 027843 | 197997 | N/A |
| Aldh1l2 | 020256 | 125193 | N/A | Gpx2 | 042808 | 082431 | 081012 | Ptpn22 | 027843 | 196385 | N/A |
| Aldoc | 017390 | 102478 | 099536 | Gramd3 | 001700 | 070166 | 068453 | Ptpn22 | 027843 | 198701 | N/A |
| Aldoc | 017390 | 128032 | N/A | Grb14 | 026888 | 134020 | N/A | Ptpn22 | 027843 | 134373 | N/A |
| Aldoc | 017390 | 124090 | N/A | Grb14 | 026888 | 149193 | 118115 | Ptpn22 | 027843 | 126548 | N/A |
| Aldoc | 017390 | 156039 | N/A | Grb14 | 026888 | 150643 | 121571 | Ptpn5 | 030854 | 102626 | 099686 |
| Aldoc | 017390 | 148689 | N/A | Grb14 | 026888 | 028252 | 028252 | Ptpn5 | 030854 | 209161 | N/A |
| Aldoc | 017390 | 017534 | 017534 | Grb14 | 026888 | 137085 | N/A | Ptpn5 | 030854 | 033142 | 033142 |
| Als2 | 026024 | 027178 | 027178 | Grb14 | 026888 | 156765 | 121001 | Ptpn5 | 030854 | 208324 | N/A |
| Als2 | 026024 | 163058 | 125753 | Grb14 | 026888 | 145603 | N/A | Ptpn5 | 030854 | 208531 | N/A |
| Als2 | 026024 | 159166 | N/A | Grb14 | 026888 | 146807 | N/A | Ptpn5 | 030854 | 207172 | N/A |
| Als2 | 026024 | 160945 | 140990 | Greb1l | 042942 | 173356 | N/A | Ptpn5 | 030854 | 208437 | N/A |
| Als2 | 026024 | 188469 | N/A | Greb1l | 042942 | 048977 | 049003 | Ptpn5 | 030854 | 209179 | N/A |
| Amz1 | 050022 | 126975 | N/A | Greb1l | 042942 | 172532 | 134090 | Ptpn5 | 030854 | 209184 | N/A |
| Amz1 | 050022 | 060918 | 053110 | Greb1l | 042942 | 224958 | N/A | Ptpn5 | 030854 | 207344 | N/A |
| Amz1 | 050022 | 177057 | N/A | Greb1l | 042942 | 174553 | N/A | Ptpn5 | 030854 | 209057 | N/A |
| Amz1 | 050022 | 120630 | 113911 | Greb1l | 042942 | 172680 | 134314 | Ptprk | 019889 | 166468 | 126279 |
| Amz1 | 050022 | 156006 | N/A | Greb1l | 042942 | 173261 | N/A | Ptprk | 019889 | 218359 | 151986 |
| Amz1 | 050022 | 155644 | N/A | Grhl1 | 020656 | 085553 | 082689 | Ptprk | 019889 | 218276 | 151866 |
| Amz1 | 050022 | 176035 | 135504 | Grhl1 | 020656 | 221426 | N/A | Ptprk | 019889 | 219478 | N/A |
| Angpt1 | 022309 | 022921 | 022921 | Grhl1 | 020656 | 223442 | N/A | Ptprk | 019889 | 218633 | N/A |
| Angpt1 | 022309 | 227738 | N/A | Grhl1 | 020656 | 020985 | 020985 | Ptprk | 019889 | 219107 | N/A |
| Angptl3 | 028553 | 030280 | 030280 | Gria1 | 020524 | 125292 | 133439 | Ptprk | 019889 | 218584 | N/A |
| Angptl3 | 028553 | 136091 | N/A | Gria1 | 020524 | 036315 | 044494 | Ptprk | 019889 | 219761 | N/A |
| Angptl3 | 028553 | 125546 | N/A | Gria1 | 020524 | 094179 | 091731 | Ptprk | 019889 | 219621 | 151294 |
| Ankrd33b | 022237 | 123325 | 118984 | Gria1 | 020524 | 151045 | 117746 | Ptprk | 019889 | 220357 | 151493 |
| Ankrd33b | 022237 | 156679 | 117974 | Gria1 | 020524 | 173531 | N/A | Ptprk | 019889 | 220404 | N/A |
| Ankrd33b | 022237 | 044324 | 037918 | Gria3 | 001986 | 128197 | N/A | Ptprm | 033278 | 037974 | 045603 |
| Ankrd33b | 022237 | 110410 | 106040 | Gria3 | 001986 | 115103 | 110755 | Ptprm | 033278 | 223982 | 153662 |
| Ankrd33b | 022237 | 227867 | N/A | Gria3 | 001986 | 076349 | 075687 | Ptprm | 033278 | 225074 | N/A |
| Ankrd33b | 022237 | 076942 | 076209 | Gria3 | 001986 | 156721 | N/A | Ptprm | 033278 | 224091 | 153463 |
| Ankrd33b | 022237 | 227391 | N/A | Gria3 | 001986 | 139965 | 116381 | Ptprm | 033278 | 225554 | 153042 |
| Anln | 036777 | 040912 | 045873 | Gria3 | 001986 | 148212 | N/A | Ptprm | 033278 | 225688 | N/A |
| Anln | 036777 | 215006 | 149721 | Gria3 | 001986 | 124169 | 117766 | Ptprm | 033278 | 224862 | 153179 |
| Anln | 036777 | 217010 | N/A | Gria3 | 001986 | 126843 | N/A | Ptpro | 030223 | 203010 | N/A |
| Anln | 036777 | 216897 | N/A | Gria3 | 001986 | 165288 | 131523 | Ptpro | 030223 | 167679 | 127112 |
| Anln | 036777 | 216793 | 149740 | Grid1 | 041078 | 043349 | 044009 | Ptpro | 030223 | 077115 | 076364 |
| Anln | 036777 | 215486 | N/A | Grid1 | 041078 | 227253 | N/A | Ptpro | 030223 | 167002 | 131764 |
| Ano4 | 035189 | 182462 | 138440 | Grid1 | 041078 | 173307 | N/A | Ptpro | 030223 | 203914 | 144870 |
| Ano4 | 035189 | 182341 | 138193 | Grid2 | 071424 | 159319 | N/A | Ptpro | 030223 | 204780 | N/A |
| Ano4 | 035189 | 182613 | 138268 | Grid2 | 071424 | 159561 | N/A | Ptpro | 030223 | 203255 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ano4 | 035189 | 182790 | 138325 | Grid2 | 071424 | 095852 | 093536 | Ptpro | 030223 | 203127 | N/A |
| Ano4 | 035189 | 182598 | 138174 | Grid2 | 071424 | 160408 | N/A | Ptprr | 020151 | 063470 | 064392 |
| Ano4 | 035189 | 182888 | N/A | Grid2 | 071424 | 161105 | N/A | Ptprr | 020151 | 142617 | N/A |
| Ano4 | 035189 | 182041 | N/A | Grid2 | 071424 | 162968 | N/A | Ptprr | 020151 | 105271 | 100907 |
| Ano4 | 035189 | 182419 | 138435 | Grid2 | 071424 | 210324 | 147707 | Ptprr | 020151 | 148731 | 120965 |
| Ano4 | 035189 | 183268 | 138627 | Grid2ip | 010825 | 110733 | 106361 | Ptprr | 020151 | 155606 | 122259 |
| Ano4 | 035189 | 181976 | 138792 | Grid2ip | 010825 | 010969 | 010969 | Ptprr | 020151 | 128399 | 114455 |
| Ano4 | 035189 | 182624 | 138525 | Grid2ip | 010825 | 120825 | 113443 | Ptprr | 020151 | 124369 | N/A |
| Ano4 | 035189 | 180843 | N/A | Grid2ip | 010825 | 196148 | N/A | Ptprt | 053141 | 109445 | 105071 |
| Ano6 | 064210 | 071874 | 071770 | Grid2ip | 010825 | 138948 | N/A | Ptprt | 053141 | 109443 | 105069 |
| Ano6 | 064210 | 226936 | N/A | Grik1 | 022935 | 228188 | 154130 | Ptprt | 053141 | 109442 | 105068 |
| Ano6 | 064210 | 227791 | 153954 | Grik1 | 022935 | 023652 | 023652 | Ptprt | 053141 | 109441 | 105067 |
| Ano6 | 064210 | 226682 | N/A | Grik1 | 022935 | 072256 | 072107 | Ptprt | 053141 | 153770 | N/A |
| Ano6 | 064210 | 227151 | 153853 | Grik1 | 022935 | 227986 | 153786 | Ptprt | 053141 | 129015 | N/A |
| Ano6 | 064210 | 226932 | N/A | Grik1 | 022935 | 228034 | 154596 | Ptprz1 | 068748 | 090568 | 088056 |
| Ano6 | 064210 | 226793 | 154532 | Grik1 | 022935 | 211444 | 147948 | Ptprz1 | 068748 | 202579 | 144605 |
| Ano6 | 064210 | 226761 | N/A | Grik1 | 022935 | 210700 | N/A | Ptprz1 | 068748 | 202102 | 143902 |
| Aox1 | 063558 | 001027 | 001027 | Grik1 | 022935 | 211635 | N/A | Ptprz1 | 068748 | 202341 | N/A |
| Aox1 | 063558 | 160168 | N/A | Grik1 | 022935 | 226447 | N/A | Ptprz1 | 068748 | 201827 | N/A |
| Apba2 | 030519 | 032732 | 032732 | Grik1 | 022935 | 210910 | N/A | Ptprz1 | 068748 | 200769 | N/A |
| Apba2 | 030519 | 205613 | 146269 | Grik1 | 022935 | 114137 | 109773 | Pttg1 | 020415 | 020687 | 020687 |
| Apba2 | 030519 | 205604 | 146279 | Grik2 | 056073 | 218823 | 151921 | Pttg1 | 020415 | 117446 | 112841 |
| Apba2 | 030519 | 206246 | 146038 | Grik2 | 056073 | 217673 | N/A | Pttg1 | 020415 | 140434 | 122019 |
| Apba2 | 030519 | 205551 | N/A | Grik2 | 056073 | 218598 | 151389 | Pttg1 | 020415 | 101340 | 098894 |
| Apba2 | 030519 | 206061 | N/A | Grik2 | 056073 | 219509 | 151982 | Pttg1 | 020415 | 118368 | 112834 |
| Apba2 | 030519 | 206630 | 146108 | Grik2 | 056073 | 218441 | 151671 | Pttg1 | 020415 | 121638 | 112815 |
| Apbb2 | 029207 | 162955 | N/A | Grik2 | 056073 | 220330 | N/A | Pttg1 | 020415 | 152115 | 119554 |
| Apbb2 | 029207 | 162366 | 125116 | Grik2 | 056073 | 219051 | N/A | Pttg1 | 020415 | 020685 | 020685 |
| Apbb2 | 029207 | 160870 | 123978 | Grik2 | 056073 | 218669 | 152029 | Pttg1 | 020415 | 150726 | N/A |
| Apbb2 | 029207 | 159512 | 124807 | Grik2 | 056073 | 220263 | 151372 | Pttg1 | 020415 | 148130 | N/A |
| Apbb2 | 029207 | 159786 | 125211 | Grik2 | 056073 | 079751 | 078687 | Putb | 094483 | 179343 | 136957 |
| Apbb2 | 029207 | 201776 | N/A | Grik2 | 056073 | 105484 | 101124 | Pvalb | 005716 | 005860 | 005860 |
| Apbb2 | 029207 | 160775 | N/A | Grik3 | 001985 | 030676 | 030676 | Pvalb | 005716 | 120592 | 112598 |
| Apbb2 | 029207 | 162349 | 123752 | Grin2a | 059003 | 199708 | 142900 | Pxdc1 | 021411 | 053459 | 051246 |
| Apbb2 | 029207 | 160063 | 123778 | Grin2a | 059003 | 115835 | 111501 | Pxdc1 | 021411 | 021847 | 021847 |
| Apbb2 | 029207 | 161771 | N/A | Grin2a | 059003 | 199267 | N/A | Pxdc1 | 021411 | 125037 | 117791 |
| Apbb2 | 029207 | 162401 | N/A | Grin2a | 059003 | 156482 | N/A | Pxdc1 | 021411 | 152392 | N/A |
| Apbb2 | 029207 | 160185 | N/A | Grin2a | 059003 | 197242 | N/A | Pxdn | 020674 | 220271 | 151320 |
| Apbb2 | 029207 | 162382 | 124139 | Grin2a | 059003 | 032331 | 032331 | Pxdn | 020674 | 122328 | 113703 |
| Apbb2 | 029207 | 161879 | 125550 | Grin2b | 030209 | 053880 | 062284 | Pxdn | 020674 | 118321 | 113477 |
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| Apbb2 | 029207 | 161716 | 124350 | Grin2b | 030209 | 125905 | 139706 | Pxdn | 020674 | 137316 | N/A |
| Apbb2 | 029207 | 161936 | N/A | Grin2b | 030209 | 198283 | N/A | Pxdn | 020674 | 218620 | N/A |
| Apbb2 | 029207 | 159847 | N/A | Grin2b | 030209 | 111905 | 107536 | Pxk | 033885 | 036682 | 035265 |
| Apbb2 | 029207 | 087256 | 084511 | Grin2c | 020734 | 003351 | 003351 | Pxk | 033885 | 225827 | N/A |
| Apcdd1 | 071847 | 096554 | 094302 | Grin2c | 020734 | 106554 | 102164 | Pxk | 033885 | 225616 | N/A |
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| Aplp1 | 006651 | 006828 | 006828 | Grin2d | 002771 | 211713 | 147663 | Pxk | 033885 | 224462 | N/A |
| Aplp1 | 006651 | 208792 | N/A | Grin2d | 002771 | 211250 | 147506 | Pxk | 033885 | 112689 | 108309 |
| Aplp1 | 006651 | 208404 | N/A | Grip1 | 034813 | 077871 | 077033 | Pxylp1 | 043587 | 112951 | 108574 |
| Aplp1 | 006651 | 207514 | N/A | Grip1 | 034813 | 041962 | 042436 | Pxylp1 | 043587 | 078478 | 077571 |
| Aplp1 | 006651 | 209054 | N/A | Grip1 | 034813 | 147356 | 115478 | Pxylp1 | 043587 | 120101 | 113210 |
| Apod | 022548 | 130560 | 119827 | Grip1 | 034813 | 105262 | 100897 | Pxylp1 | 043587 | 119141 | 113489 |
| Apod | 022548 | 115230 | 110885 | Grip1 | 034813 | 147454 | 118073 | Pxylp1 | 043587 | 126411 | 121537 |
| Apod | 022548 | 023207 | N/A | Grip1 | 034813 | 147598 | N/A | Pxylp1 | 043587 | 121077 | 113059 |
| Apod | 022548 | 156456 | N/A | Grip1 | 034813 | 138410 | 123234 | Pxylp1 | 043587 | 135834 | N/A |
| Apod | 022548 | 155682 | N/A | Grip1 | 034813 | 144825 | 121670 | Pxylp1 | 043587 | 154146 | 114946 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Apod | 022548 | 145837 | N/A | Grip1 | 034813 | 148954 | 118397 | Pxylp1 | 043587 | 137770 | N/A |
| Appl2 | 020263 | 020500 | 020500 | Grip1 | 034813 | 144959 | 122323 | Pxylp1 | 043587 | 124923 | 120377 |
| Appl2 | 020263 | 177187 | 135157 | Grip1 | 034813 | 139352 | N/A | Pxylp1 | 043587 | 141127 | N/A |
| Appl2 | 020263 | 176675 | 135672 | Grip1 | 034813 | 127787 | N/A | Pxylp1 | 043587 | 136987 | N/A |
| Appl2 | 020263 | 141048 | N/A | Grip1 | 034813 | 130387 | 123288 | Pxylp1 | 043587 | 185561 | N/A |
| Appl2 | 020263 | 130285 | N/A | Grip1 | 034813 | 105261 | 100896 | Pyroxd2 | 060224 | 076505 | 075825 |
| Appl2 | 020263 | 148096 | N/A | Grip1 | 034813 | 154238 | 122349 | Qdpr | 015806 | 198258 | 143741 |
| Appl2 | 020263 | 147582 | N/A | Grip1 | 034813 | 081260 | 080016 | Qdpr | 015806 | 197946 | 143584 |
| Appl2 | 020263 | 150351 | N/A | Grk4 | 052783 | 074651 | 074223 | Qdpr | 015806 | 117425 | 112469 |
| Appl2 | 020263 | 127788 | N/A | Grk4 | 052783 | 001112 | 001112 | Qdpr | 015806 | 120867 | 113203 |
| Appl2 | 020263 | 147118 | N/A | Grk4 | 052783 | 148588 | 122826 | Qdpr | 015806 | 118097 | 113958 |
| Appl2 | 020263 | 146876 | 121336 | Grk4 | 052783 | 153323 | N/A | Qdpr | 015806 | 015950 | 015950 |
| Appl2 | 020263 | 150685 | 115903 | Grk4 | 052783 | 134217 | N/A | Qdpr | 015806 | 200259 | N/A |
| Appl2 | 020263 | 133719 | N/A | Grm1 | 019828 | 105561 | 101190 | Qdpr | 015806 | 149290 | N/A |
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| Aqp4 | 024411 | 079081 | 078088 | Grm1 | 019828 | 135120 | N/A | Qdpr | 015806 | 127562 | 115453 |
| Aqp7 | 028427 | 030136 | 030136 | Grm1 | 019828 | 155772 | N/A | Qk | 062078 | 042296 | 046740 |
| Aqp7 | 028427 | 054945 | 093007 | Grm1 | 019828 | 156826 | N/A | Qk | 062078 | 097414 | 095025 |
| Aqp7 | 028427 | 144201 | N/A | Grm1 | 019828 | 105560 | 101189 | Rab11fip1 | 031488 | 054212 | 058042 |
| Aqp7 | 028427 | 149517 | N/A | Grm5 | 049583 | 208791 | N/A | Rab11fip1 | 031488 | 033878 | 033878 |
| Ar | 046532 | 052837 | 052648 | Grm5 | 049583 | 208878 | N/A | Rab11fip1 | 031488 | 209377 | 147543 |
| Arhgap10 | 037148 | 076316 | 075658 | Grm5 | 049583 | 125009 | 118393 | Rab11fip1 | 031488 | 210187 | N/A |
| Arhgap10 | 037148 | 210922 | 147485 | Grm5 | 049583 | 208776 | N/A | Rab11fip1 | 031488 | 210919 | N/A |
| Arhgap10 | 037148 | 210519 | 147493 | Grm5 | 049583 | 155358 | 114927 | Rab11fip1 | 031488 | 211646 | N/A |
| Arhgap15 | 049744 | 055776 | 056461 | Grm5 | 049583 | 138732 | N/A | Rab15 | 021062 | 021459 | 021459 |
| Arhgap15 | 049744 | 112824 | 108443 | Grm5 | 049583 | 107263 | 102884 | Rab15 | 021062 | 143863 | N/A |
| Arhgap15 | 049744 | 112822 | 108441 | Grm7 | 056755 | 174018 | 134635 | Rab15 | 021062 | 122419 | 112457 |
| Arhgap15 | 049744 | 140528 | N/A | Grm7 | 056755 | 071076 | 064404 | Rab15 | 021062 | 121716 | 113299 |
| Arhgap15 | 049744 | 128630 | N/A | Grm7 | 056755 | 172951 | 133957 | Rab15 | 021062 | 118604 | 112789 |
| Arhgap20 | 053199 | 130405 | 120124 | Grm7 | 056755 | 173001 | 134233 | Rab15 | 021062 | 154765 | 122067 |
| Arhgap20 | 053199 | 065496 | 065633 | Grm7 | 056755 | 174310 | 133897 | Rab15 | 021062 | 141622 | 115720 |
| Arhgap20 | 053199 | 146509 | N/A | Grm8 | 024211 | 115323 | 110978 | Rab15 | 021062 | 134124 | N/A |
| Arhgap20 | 053199 | 124907 | N/A | Grm8 | 024211 | 090512 | 087998 | Rab27a | 032202 | 184146 | 139310 |
| Arhgap20 | 053199 | 126567 | N/A | Grm8 | 024211 | 131897 | 120394 | Rab27a | 032202 | 034722 | 034722 |
| Arhgap20 | 053199 | 149754 | N/A | Grm8 | 024211 | 146727 | N/A | Rab27a | 032202 | 184575 | N/A |
| Arhgap22 | 063506 | 165792 | 153801 | Grm8 | 024211 | 132755 | 118098 | Rab27a | 032202 | 184032 | N/A |
| Arhgap22 | 063506 | 111956 | 107587 | Grm8 | 024211 | 202861 | N/A | Rab27b | 024511 | 121693 | 114094 |
| Arhgap22 | 063506 | 131086 | 154002 | Grm8 | 024211 | 115324 | 110979 | Rab27b | 024511 | 127217 | N/A |
| Arhgap22 | 063506 | 137590 | N/A | Gsap | 039934 | 197522 | N/A | Rab27b | 024511 | 117692 | 112807 |
| Arhgap22 | 063506 | 111955 | 107586 | Gsap | 039934 | 198014 | 143739 | Rab27b | 024511 | 069749 | 068349 |
| Arhgap22 | 063506 | 140711 | 154670 | Gsap | 039934 | 036031 | 043679 | Rab31 | 056515 | 070673 | 068195 |
| Arhgap22 | 063506 | 140166 | N/A | Gsap | 039934 | 197404 | N/A | Rab3a | 031840 | 110093 | 105720 |
| Arhgap22 | 063506 | 132659 | N/A | Gsap | 039934 | 198071 | 142407 | Rab3a | 031840 | 143118 | 123384 |
| Arhgap23 | 049807 | 121799 | 112999 | Gsap | 039934 | 195969 | 142560 | Rab3a | 031840 | 034301 | 034301 |
| Arhgap23 | 049807 | 152933 | N/A | Gsap | 039934 | 198937 | 142986 | Rab3a | 031840 | 110090 | 105717 |
| Arhgap23 | 049807 | 142465 | 123191 | Gsap | 039934 | 196035 | N/A | Rab3a | 031840 | 110092 | 105719 |
| Arhgap23 | 049807 | 093940 | 091472 | Gsap | 039934 | 198930 | 142596 | Rab3a | 031840 | 130468 | N/A |
| Arhgap23 | 049807 | 107601 | 103227 | Gsap | 039934 | 199553 | N/A | Rab3a | 111277 | 217185 | 150125 |
| Arhgap24 | 057315 | 094559 | 092138 | Gsn | 026879 | 201185 | 144561 | Rab3b | 003411 | 106650 | 102261 |
| Arhgap24 | 057315 | 126125 | N/A | Gsn | 026879 | 202990 | 144296 | Rab3b | 003411 | 106651 | 102262 |
| Arhgap24 | 057315 | 112854 | 108475 | Gsn | 026879 | 202899 | 144470 | Rab3b | 003411 | 003502 | 003502 |
| Arhgap24 | 057315 | 112853 | 108474 | Gsn | 026879 | 142324 | 118120 | Rab3b | 003411 | 157062 | N/A |
| Arhgap24 | 057315 | 112852 | 108473 | Gsn | 026879 | 139867 | 144217 | Rab3c | 021700 | 167824 | 132945 |
| Arhgap24 | 057315 | 130222 | N/A | Gsn | 026879 | 028239 | 028239 | Rab3c | 021700 | 223922 | 153347 |
| Arhgap24 | 057315 | 070000 | 070048 | Gsn | 026879 | 124323 | N/A | Rab3c | 021700 | 224180 | 153136 |
| Arhgap24 | 057315 | 073302 | 073028 | Gstm1 | 058135 | 004140 | 004140 | Rab3c | 021700 | 224287 | N/A |
| Arhgap25 | 030047 | 145128 | N/A | Gstm1 | 058135 | 198532 | N/A | Rab3c | 021700 | 226040 | N/A |
| Arhgap25 | 030047 | 113637 | 109267 | Gstm1 | 058135 | 153314 | 123481 | Rai2 | 043518 | 112338 | 107957 |
| Arhgap25 | 030047 | 101197 | 098758 | Gstm1 | 058135 | 126593 | 118874 | Rai2 | 043518 | 061514 | 051618 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Arhgap25 | 030047 | 071024 | 068964 | Gsx1 | 053129 | 065382 | 069728 | Ralgps2 | 026594 | 172057 | 132533 |
| Arhgap25 | 030047 | 203559 | N/A | Gtf2a1l | 024154 | 024970 | 024970 | Ralgps2 | 026594 | 027886 | 027886 |
| Arhgef10l | 040964 | 069623 | 066249 | Gtf2a1l | 024154 | 161481 | 124286 | Ralgps2 | 026594 | 192343 | 142004 |
| Arhgef10l | 040964 | 097820 | 095431 | Gucy1a3 | 033910 | 193924 | 142138 | Ralgps2 | 026594 | 171292 | 130581 |
| Arhgef10l | 040964 | 105799 | 101425 | Gucy1a3 | 033910 | 048976 | 048918 | Ralgps2 | 026594 | 063199 | 063872 |
| Arhgef10l | 040964 | 105798 | 101424 | Gucy1a3 | 033910 | 192289 | 141478 | Ralgps2 | 026594 | 191605 | 139645 |
| Arhgef10l | 040964 | 105797 | 101423 | Gucy1a3 | 033910 | 191942 | N/A | Ralgps2 | 026594 | 189208 | N/A |
| Arhgef10l | 040964 | 138493 | 119471 | Gucy1a3 | 033910 | 194788 | N/A | Ralgps2 | 026594 | 185198 | 139618 |
| Arhgef10l | 040964 | 039204 | 040531 | N/A | N/A | N/A | N/A | Ralgps2 | 026594 | 189316 | 140230 |
| Arhgef10l | 040964 | 154979 | 122667 | Hapln2 | 004894 | 160737 | N/A | Ralgps2 | 026594 | 190648 | 140055 |
| Arhgef10l | 040964 | 147426 | 123642 | Hapln2 | 004894 | 005014 | 005014 | Ralgps2 | 026594 | 188656 | 140342 |
| Arhgef10l | 040964 | 140403 | 117038 | Hapln2 | 004894 | 162352 | N/A | Ralgps2 | 026594 | 191503 | N/A |
| Arhgef10l | 040964 | 125045 | N/A | Hapln2 | 004894 | 160150 | 125271 | Ralgps2 | 026594 | 185970 | N/A |
| Arhgef10l | 040964 | 143614 | 120437 | Has2 | 022367 | 050544 | 062212 | Ralgps2 | 026594 | 190762 | 139822 |
| Arhgef2 | 028059 | 212392 | N/A | Hcn1 | 021730 | 207599 | N/A | Ralgps2 | 026594 | 189648 | 140108 |
| Arhgef2 | 028059 | 176226 | N/A | Hcn1 | 021730 | 006991 | 006991 | Ralyl | 039717 | 191806 | 148406 |
| Arhgef2 | 028059 | 175749 | N/A | Hcn2 | 020331 | 099513 | 097113 | Ralyl | 039717 | 193117 | 148795 |
| Arhgef2 | 028059 | 175903 | 135168 | Hcn2 | 020331 | 020581 | 020581 | Ralyl | 039717 | 211860 | 148430 |
| Arhgef2 | 028059 | 176514 | N/A | Hdac8 | 067567 | 087916 | 085226 | Ralyl | 039717 | 192209 | 142094 |
| Arhgef2 | 028059 | 177023 | 134859 | Hdac8 | 067567 | 154872 | 138805 | Ralyl | 039717 | 171075 | 125848 |
| Arhgef2 | 028059 | 176539 | 135612 | Hdac8 | 067567 | 148481 | N/A | Ralyl | 039717 | 108372 | 104009 |
| Arhgef2 | 028059 | 177498 | 134840 | Hdac8 | 067567 | 137785 | N/A | Ralyl | 039717 | 108373 | 148751 |
| Arhgef2 | 028059 | 176500 | 134834 | Hdac8 | 067567 | 154024 | N/A | Ramp2 | 001240 | 129680 | 122072 |
| Arhgef2 | 028059 | 175779 | 135177 | Hebp1 | 042770 | 045855 | 042232 | Ramp2 | 001240 | 149006 | N/A |
| Arhgef2 | 028059 | 029694 | 029694 | Hebp1 | 042770 | 204000 | N/A | Ramp2 | 001240 | 128260 | 127718 |
| Arhgef2 | 028059 | 176804 | 135397 | Hebp1 | 042770 | 204730 | N/A | Ramp2 | 001240 | 122006 | 114061 |
| Arhgef2 | 028059 | 177418 | N/A | Hebp1 | 042770 | 205232 | N/A | Ramp2 | 001240 | 149585 | 116331 |
| Arhgef2 | 028059 | 107510 | 103134 | Heg1 | 075254 | 152832 | N/A | Ramp2 | 001240 | 151830 | 123150 |
| Arhgef2 | 028059 | 170653 | 127843 | Heg1 | 075254 | 152782 | 123686 | Ramp2 | 001240 | 138229 | N/A |
| Arhgef2 | 028059 | 176401 | N/A | Heg1 | 075254 | 132797 | N/A | Ramp2 | 001240 | 107282 | 102903 |
| Arhgef2 | 028059 | 176400 | N/A | Heg1 | 075254 | 128105 | N/A | Rapgef3 | 022469 | 126854 | 116426 |
| Arhgef2 | 028059 | 177303 | 135131 | Heg1 | 075254 | 146518 | N/A | Rapgef3 | 022469 | 129223 | 118148 |
| Arhgef2 | 028059 | 176307 | 134843 | Heg1 | 075254 | 126532 | 119790 | Rapgef3 | 022469 | 128775 | 120126 |
| Arhgef2 | 028059 | 175911 | 135428 | Heg1 | 075254 | 154863 | N/A | Rapgef3 | 022469 | 177352 | 135238 |
| Arhgef2 | 028059 | 176243 | 135771 | Hepacam | 046240 | 051839 | 054105 | Rapgef3 | 022469 | 134885 | 135317 |
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| Arhgef2 | 028059 | 177120 | N/A | Hes3 | 028946 | 094438 | 092006 | Rapgef3 | 022469 | 125002 | N/A |
| Arhgef2 | 028059 | 176879 | 134766 | Hes3 | 028946 | 218045 | 151815 | Rapgef3 | 022469 | 123397 | N/A |
| Arhgef2 | 028059 | 175745 | 135044 | Hhatl | 032523 | 035110 | 035110 | Rapgef3 | 022469 | 155810 | N/A |
| Arhgef2 | 028059 | 176528 | N/A | Hhatl | 032523 | 163981 | 131971 | Rapgef3 | 022469 | 146214 | N/A |
| Arhgef2 | 028059 | 176079 | N/A | Hhatl | 032523 | 214768 | 149486 | Rapgef3 | 022469 | 134371 | 122746 |
| Arhgef2 | 028059 | 176123 | N/A | Hhatl | 032523 | 215910 | 149350 | Rapgef3 | 022469 | 153241 | N/A |
| Arhgef2 | 028059 | 177091 | N/A | Hhatl | 032523 | 215477 | 150866 | Rapgef3 | 022469 | 149419 | 122285 |
| Arhgef2 | 028059 | 176301 | N/A | Hhatl | 032523 | 217652 | 150721 | Rapgef3 | 022469 | 153464 | N/A |
| Arhgef2 | 028059 | 177099 | N/A | Hif3a | 004328 | 108492 | 104132 | Rapgef3 | 022469 | 146620 | 116673 |
| Arhgef2 | 028059 | 176272 | N/A | Hif3a | 004328 | 037762 | 048248 | Rapgef3 | 022469 | 142196 | N/A |
| Arhgef26 | 036885 | 079300 | 078281 | Hif3a | 004328 | 139224 | 146258 | Rapgef3 | 022469 | 135080 | 117337 |
| Arhgef26 | 036885 | 163008 | N/A | Hif3a | 004328 | 153833 | 117728 | Rapgef4 | 049044 | 090826 | 088336 |
| Arhgef26 | 036885 | 161493 | N/A | Hip1 | 039959 | 060311 | 059033 | Rapgef4 | 049044 | 150234 | N/A |
| Arhgef26 | 036885 | 159746 | N/A | Hip1 | 039959 | 202643 | 144086 | Rapgef4 | 049044 | 102698 | 099759 |
| Arhgef26 | 036885 | 161057 | 124392 | Hip1 | 039959 | 201479 | N/A | Rapgef4 | 049044 | 151236 | N/A |
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| Arhgef28 | 021662 | 109426 | 105053 | Hip1 | 039959 | 200898 | N/A | Rapgef4 | 049044 | 153887 | N/A |
| Arhgef28 | 021662 | 225884 | 153423 | Hip1 | 039959 | 212301 | 148842 | Rapgef4 | 049044 | 149421 | N/A |
| Arhgef28 | 021662 | 225663 | N/A | Hip1 | 039959 | 202236 | N/A | Rapgef4 | 049044 | 124004 | N/A |
| Arhgef28 | 021662 | 225269 | N/A | Hip1 | 039959 | 201998 | 144392 | Rapgef4 | 049044 | 122975 | N/A |
| Arhgef28 | 021662 | 223849 | 153000 | Hip1 | 039959 | 202095 | N/A | Rapgef4 | 049044 | 156031 | N/A |
| Arhgef28 | 021662 | 224926 | N/A | Hip1 | 039959 | 202044 | N/A | Rapgef4 | 049044 | 146970 | N/A |
| Arhgef28 | 021662 | 224866 | 153114 | Hip1r | 000915 | 000939 | 000939 | Rarb | 017491 | 063750 | 067694 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arhgef33 | 054901 | 223878 | 153224 | Hip1r | 000915 | 167879 | 127361 | Rarb | 017491 | 225921 | 152980 |
| Arhgef33 | 054901 | 224391 | 153551 | Hip1r | 000915 | 166258 | 130766 | Rarb | 017491 | 223576 | 153098 |
| Arhgef33 | 054901 | 225018 | N/A | Hip1r | 000915 | 171407 | N/A | Rarb | 017491 | 225594 | 153178 |
| Arhgef33 | 054901 | 224631 | N/A | Hip1r | 000915 | 198664 | 143309 | Rarb | 017491 | 223976 | 153519 |
| Arhgef33 | 054901 | 224676 | N/A | Hip1r | 000915 | 167325 | N/A | Rarb | 017491 | 225356 | N/A |
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| Arhgef33 | 054901 | 225658 | 153062 | Hk2 | 000628 | 000642 | 000642 | Rasal2 | 070565 | 078308 | 077423 |
| Arhgef33 | 054901 | 224966 | 153018 | Hk2 | 000628 | 168725 | N/A | Rasal2 | 070565 | 132699 | 114964 |
| Arhgef33 | 054901 | 225223 | 153484 | Hk2 | 000628 | 170833 | 125986 | Rasal2 | 070565 | 129880 | 118367 |
| Arhgef33 | 054901 | 225548 | 153111 | Hk2 | 000628 | 169270 | 128572 | Rasal2 | 070565 | 134543 | 119623 |
| Arhgef33 | 054901 | 226013 | N/A | Hmgcll1 | 007908 | 008052 | 008052 | Rasal2 | 070565 | 128538 | N/A |
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| Arhgef37 | 045094 | 171629 | 130560 | Hmgcll1 | 007908 | 183979 | 138914 | Rasal2 | 070565 | 143080 | N/A |
| Arhgef4 | 037509 | 159747 | 124213 | Hmgcll1 | 007908 | 121592 | N/A | Rasgef1b | 089809 | 031276 | 031276 |
| Arhgef4 | 037509 | 162599 | 124906 | Hmgcll1 | 007908 | 183505 | N/A | Rasgef1b | 089809 | 168092 | 129652 |
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| Arhgef4 | 037509 | 047664 | 035980 | Hmgcll1 | 007908 | 117981 | 114045 | Rasgef1b | 089809 | 166484 | 128947 |
| Arhgef4 | 037509 | 162760 | N/A | Hmgn1 | 040681 | 050884 | 061012 | Rasgef1b | 089809 | 166632 | N/A |
| Arhgef4 | 037509 | 159059 | N/A | Hmgn1 | 040681 | 145713 | N/A | Rasgef1b | 089809 | 146396 | 125723 |
| Arhgef4 | 037509 | 160855 | 124207 | Hmgn1 | 040681 | 133885 | 122427 | Rasgef1b | 089809 | 161516 | 125057 |
| Arhgef4 | 037509 | 211073 | 148067 | Hmgn1 | 040681 | 142179 | N/A | Rasgef1b | 089809 | 142639 | N/A |
| Arl4a | 047446 | 101472 | 099013 | Homer3 | 003573 | 087467 | 084735 | Rasgef1b | 089809 | 160803 | N/A |
| Arl4a | 047446 | 136441 | 122987 | Homer3 | 003573 | 140212 | 117033 | Rasgef1b | 089809 | 161148 | 125009 |
| Arl4a | 047446 | 144910 | 122126 | Homer3 | 003573 | 155711 | N/A | Rasgrf1 | 032356 | 189545 | 140921 |
| Arl4a | 047446 | 138572 | N/A | Homer3 | 003573 | 003669 | 003669 | Rasgrf1 | 032356 | 034909 | 034909 |
| Arl4a | 047446 | 146905 | 114458 | Homer3 | 003573 | 143528 | N/A | Rasgrf1 | 032356 | 034912 | 034912 |
| Amt2 | 015709 | 085077 | 082154 | Homer3 | 003573 | 135692 | N/A | Rasgrf1 | 032356 | 190073 | N/A |
| Amt2 | 015709 | 209133 | 147129 | Homer3 | 003573 | 135368 | 137560 | Rasgrp1 | 027347 | 102534 | 099593 |
| Amt2 | 015709 | 208232 | 146413 | Homer3 | 003573 | 110124 | 105751 | Rasgrp1 | 027347 | 174770 | 134167 |
| Amt2 | 015709 | 208564 | 146989 | Hpcal4 | 046093 | 059667 | 051487 | Rasgrp1 | 027347 | 173541 | 134027 |
| Amt2 | 015709 | 207459 | N/A | Hpcal4 | 046093 | 106246 | 101853 | Rasgrp1 | 027347 | 172901 | 133449 |
| Amt2 | 015709 | 208129 | 146614 | Hpcal4 | 046093 | 126995 | 122104 | Rasgrp1 | 027347 | 173252 | 134592 |
| Amt2 | 015709 | 208936 | N/A | Hpcal4 | 046093 | 136619 | N/A | Rasgrp1 | 027347 | 110898 | N/A |
| Amt2 | 015709 | 207759 | N/A | Hpcal4 | 046093 | 152194 | 120066 | Rasgrp1 | 027347 | 178884 | 136423 |
| Amt2 | 015709 | 208204 | 146781 | Hpse2 | 074852 | 099428 | 097026 | Rassf2 | 027339 | 028814 | 028814 |
| Amt2 | 015709 | 208995 | 146599 | Hrh2 | 034987 | 038101 | 038170 | Rassf2 | 027339 | 103182 | 099471 |
| Amt2 | 015709 | 207769 | 146414 | Hrh2 | 034987 | 209846 | 148117 | Rassf2 | 027339 | 155829 | N/A |
| Amt2 | 015709 | 208392 | 146776 | Hrh2 | 034987 | 211742 | 147413 | Rassf2 | 027339 | 139047 | 120194 |
| Amt2 | 015709 | 208863 | 146868 | Hs3st1 | 051022 | 117944 | 113919 | Rassf2 | 027339 | 140791 | 117619 |
| Anb1 | 018909 | 098266 | 095866 | Hs3st1 | 051022 | 053116 | 051055 | Rbks | 029136 | 201744 | N/A |
| Anb1 | 018909 | 032995 | 032995 | Hs3st1 | 051022 | 137142 | 114997 | Rbks | 029136 | 031018 | 031018 |
| Anb1 | 018909 | 162404 | 124351 | Hs3st1 | 051022 | 152057 | 118060 | Rbks | 029136 | 202036 | N/A |
| Anb1 | 018909 | 161525 | 124483 | Hs3st2 | 046321 | 206880 | 146027 | Rbm24 | 038132 | 037923 | 043120 |
| Anb1 | 018909 | 161268 | N/A | Hs3st2 | 046321 | 084628 | 081678 | Rbm24 | 038132 | 225221 | N/A |
| Anb1 | 018909 | 162043 | N/A | Hs3st4 | 078591 | 106437 | 102045 | Rbm24 | 038132 | 225727 | N/A |
| Anb1 | 018909 | 159642 | N/A | Hs6st2 | 062184 | 088172 | 085497 | Rbm24 | 038132 | 224638 | N/A |
| Anb1 | 018909 | 162933 | N/A | Hs6st2 | 062184 | 114871 | 110521 | Rbm24 | 038132 | 225890 | N/A |
| Anb1 | 018909 | 162290 | 125056 | Hs6st2 | 062184 | 142738 | N/A | Rbm25 | 010608 | 181983 | 138572 |
| Anb1 | 018909 | 179755 | 136963 | Hs6st2 | 062184 | 140145 | N/A | Rbm25 | 010608 | 182004 | 138573 |
| Anrdc3 | 074794 | 159090 | N/A | Hs6st2 | 062184 | 142983 | N/A | Rbm25 | 010608 | 048155 | 048470 |
| Anrdc3 | 074794 | 159690 | 124418 | Hsd17b11 | 029311 | 031251 | 031251 | Rbm25 | 010608 | 182618 | 138665 |
| Anrdc3 | 074794 | 099356 | 096957 | Hsd17b11 | 029311 | 119025 | 113455 | Rbm25 | 010608 | 183154 | 138669 |
| Anrdc3 | 074794 | 161441 | 125455 | Hspa1b | 090877 | 172753 | 133815 | Rbm25 | 010608 | 182036 | 138565 |
| Anrdc3 | 074794 | 159856 | N/A | Htr1b | 049511 | 183482 | 139389 | Rbm25 | 010608 | 182347 | 138410 |
| Anrdc3 | 074794 | 162904 | N/A | Htr1b | 049511 | 051005 | 050898 | Rbm25 | 010608 | 182633 | 138625 |
| Arsg | 020604 | 106697 | 102308 | Htr2a | 034997 | 036653 | 047774 | Rbm25 | 010608 | 182881 | N/A |
| Arsg | 020604 | 106696 | 102307 | Htr2c | 041380 | 149260 | N/A | Rbm25 | 010608 | 183128 | N/A |
| Arsg | 020604 | 152252 | N/A | Htr2c | 041380 | 131999 | N/A | Rbm25 | 010608 | 182450 | 138416 |
| Arsg | 020604 | 136336 | N/A | Htr2c | 041380 | 036303 | 043936 | Rbm25 | 010608 | 182255 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsg | 020604 | 020928 | 020928 | Htr2c | 041380 | 096299 | 094021 | Rbm25 | 010608 | 183039 | N/A |
| Arx | 035277 | 187010 | N/A | Htr2c | 041380 | 156697 | 138772 | Rbm25 | 010608 | 182032 | N/A |
| Arx | 035277 | 046565 | 049039 | Htr2c | 041380 | 134368 | N/A | Rbm25 | 010608 | 183242 | N/A |
| Arx | 035277 | 113947 | 109580 | Htr2c | 041380 | 112831 | 108450 | Rbm25 | 010608 | 183282 | N/A |
| Asap3 | 036995 | 047526 | 041899 | Htra1 | 006205 | 150717 | N/A | Rbm25 | 010608 | 182840 | N/A |
| Ascl1 | 020052 | 020243 | 020243 | Htra1 | 006205 | 006367 | 006367 | Rbm25 | 010608 | 183181 | N/A |
| Asgr1 | 020884 | 146411 | 121842 | Htra1 | 006205 | 153290 | N/A | Rbms3 | 039607 | 111773 | 107403 |
| Asgr1 | 020884 | 108585 | 104226 | Htra1 | 006205 | 140741 | N/A | Rbms3 | 039607 | 068962 | 066735 |
| Asgr1 | 020884 | 018699 | 018699 | Htra1 | 006205 | 150905 | N/A | Rbms3 | 039607 | 173429 | 133900 |
| Asgr1 | 020884 | 092959 | 090637 | Hunk | 053414 | 065856 | 068007 | Rbms3 | 039607 | 174868 | 133621 |
| Asgr1 | 020884 | 123369 | 137469 | Icam5 | 032174 | 019616 | 019616 | Rbms3 | 039607 | 164018 | 131371 |
| Asic1 | 023017 | 023758 | 023758 | Icosl | 000732 | 105393 | 101032 | Rbms3 | 039607 | 111772 | 107402 |
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| Asic1 | 023017 | 228012 | N/A | Icosl | 000732 | 219038 | 151346 | Rbms3 | 039607 | 172469 | 134172 |
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| Asic1 | 023017 | 228610 | N/A | Id4 | 021379 | 021810 | 021810 | Rbms3 | 039607 | 172564 | 134528 |
| Asic1 | 023017 | 227670 | N/A | Ifi43 | 007867 | 221194 | N/A | Rbms3 | 039607 | 174276 | N/A |
| Asic2 | 020704 | 021045 | 021045 | Ifi43 | 007867 | 054565 | 061891 | Rbms3 | 039607 | 084824 | N/A |
| Asic2 | 020704 | 066197 | 067095 | Ifi43 | 007867 | 222821 | 152079 | Rbp2 | 032454 | 189446 | 140676 |
| Asns | 029752 | 115542 | 111204 | Ifi43 | 007867 | 222905 | 152281 | Rbp2 | 032454 | 187905 | 140630 |
| Asns | 029752 | 031766 | 031766 | Ifi43 | 007867 | 223269 | N/A | Rbp2 | 032454 | 188779 | N/A |
| Asns | 029752 | 140097 | N/A | Ifi43 | 007867 | 221161 | N/A | Rbp2 | 032454 | 035029 | 035029 |
| Asns | 029752 | 133972 | N/A | Ifi43 | 007867 | 220711 | N/A | Rbpjl | 017007 | 137427 | N/A |
| Asns | 029752 | 126303 | 115415 | Igdcc3 | 032394 | 034961 | 034961 | Rbpjl | 017007 | 017151 | 017151 |
| Asns | 029752 | 139596 | 120489 | Igdcc3 | 032394 | 217371 | 149084 | Rbpjl | 017007 | 109356 | N/A |
| Asns | 029752 | 148349 | 118003 | Igdcc3 | 032394 | 217135 | N/A | Rbpms2 | 032387 | 169003 | 131076 |
| Aspa | 020774 | 021119 | 021119 | Igdcc4 | 032816 | 213533 | 150272 | Rbpms2 | 032387 | 055844 | 057600 |
| Aspa | 020774 | 184572 | 139318 | Igdcc4 | 032816 | 035499 | 045387 | Rbpms2 | 032387 | 213927 | N/A |
| Aspa | 020774 | 155630 | 139131 | Igdcc4 | 032816 | 216542 | N/A | Rbpms2 | 032387 | 216342 | 149535 |
| Aspa | 020774 | 132774 | N/A | Igdcc4 | 032816 | 213423 | N/A | Rbpms2 | 032387 | 216382 | 151192 |
| Aspa | 020774 | 134079 | 121135 | Igdcc4 | 032816 | 214978 | N/A | Rbpms2 | 032387 | 216769 | N/A |
| Aspa | 020774 | 141898 | 118109 | Igdcc4 | 032816 | 077696 | 076878 | Rcn1 | 005973 | 006128 | 006128 |
| Astn2 | 028373 | 068214 | 065786 | Igdcc4 | 032816 | 166273 | 132576 | Rcn1 | 005973 | 127019 | N/A |
| Astn2 | 028373 | 084496 | 081540 | Igfbp3 | 020427 | 020702 | 020702 | Rcn2 | 032320 | 147842 | 120953 |
| Atl2 | 059811 | 068282 | 064758 | Igfbp3 | 020427 | 135887 | 131670 | Rcn2 | 032320 | 114276 | 109915 |
| Atl2 | 059811 | 223273 | N/A | Igfbp5 | 026185 | 027377 | 027377 | Rcn2 | 032320 | 151585 | N/A |
| Atl2 | 059811 | 221286 | N/A | Igfbp5 | 026185 | 137339 | N/A | Rcn2 | 032320 | 144869 | N/A |
| Atl2 | 059811 | 222193 | 152340 | Igsf11 | 022790 | 210186 | N/A | Reck | 028476 | 030198 | 030198 |
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| Atl2 | 059811 | 222243 | N/A | Igsf11 | 022790 | 023478 | 023478 | Reln | 042453 | 161356 | 124052 |
| Atl2 | 059811 | 112437 | 108056 | Igsf11 | 022790 | 210471 | N/A | Reln | 042453 | 160791 | N/A |
| Atl3 | 024759 | 170373 | 132619 | Igsf3 | 042035 | 198995 | N/A | Reln | 042453 | 062372 | 058025 |
| Atl3 | 024759 | 025668 | 025668 | Igsf3 | 042035 | 043983 | 048900 | Reln | 042453 | 200318 | N/A |
| Atp13a4 | 038094 | 182573 | 138700 | Igsf3 | 042035 | 195164 | 141823 | Reln | 042453 | 200667 | N/A |
| Atp13a4 | 038094 | 182627 | 138479 | Il15 | 031712 | 209363 | 147848 | Reln | 042453 | 199034 | N/A |
| Atp13a4 | 038094 | 057018 | 060987 | Il15 | 031712 | 209573 | 148256 | Reln | 042453 | 159768 | N/A |
| Atp13a4 | 038094 | 182676 | N/A | Il15 | 031712 | 034148 | 034148 | Reln | 042453 | 161353 | N/A |
| Atp13a4 | 038094 | 182013 | 138583 | Il15 | 031712 | 211565 | 147319 | Reln | 042453 | 162427 | N/A |
| Atp13a4 | 038094 | 182094 | N/A | Il15 | 031712 | 209687 | N/A | Reln | 042453 | 159741 | N/A |
| Atp13a4 | 038094 | 182357 | N/A | Il15 | 031712 | 211722 | N/A | Reln | 042453 | 162876 | 124077 |
| Atp13a4 | 038094 | 182168 | 138515 | Il15 | 031712 | 210094 | 147312 | Reln | 042453 | 162637 | N/A |
| Atp13a4 | 038094 | 039090 | 048753 | Il15 | 031712 | 211282 | N/A | Reln | 042453 | 162622 | N/A |
| Atp13a4 | 038094 | 182824 | N/A | Il15 | 031712 | 210885 | N/A | Reln | 042453 | 160707 | N/A |
| Atp13a4 | 038094 | 182694 | N/A | Il15 | 031712 | 210472 | N/A | Reln | 042453 | 161782 | N/A |
| Atp1a1 | 033161 | 036493 | 039657 | Il16 | 001741 | 001792 | 001792 | Rep15 | 040121 | 036194 | 037503 |
| Atp1a1 | 033161 | 130649 | N/A | Il16 | 001741 | 145610 | 146496 | Rerg | 030222 | 032347 | 032347 |
| Atp1a1 | 033161 | 136340 | N/A | Il16 | 001741 | 151047 | N/A | Rerg | 030222 | 117919 | 113105 |
| Atp1a2 | 007097 | 085913 | 083077 | Il16 | 001741 | 153560 | 118516 | Rerg | 030222 | 119610 | 113702 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atp1a2 | 007097 | 131751 | N/A | Il16 | 001741 | 131916 | 122022 | Rerg | 030222 | 203003 | 144823 |
| Atp1a2 | 007097 | 191781 | N/A | Il16 | 001741 | 156553 | 122813 | Rerg | 030222 | 149100 | 144902 |
| Atp1a2 | 007097 | 097464 | 095072 | Il18 | 039217 | 213916 | 150305 | Ret | 030110 | 032201 | 032201 |
| Atp1a2 | 007097 | 137679 | N/A | Il18 | 039217 | 214117 | 151002 | Ret | 030110 | 088790 | 086169 |
| Atp1a3 | 040907 | 102858 | 099922 | Il18 | 039217 | 180021 | 137193 | Rftn1 | 039316 | 044503 | 046524 |
| Atp1a3 | 040907 | 080882 | 079691 | Il18 | 039217 | 059081 | 054591 | Rftn1 | 039316 | 113195 | 108820 |
| Atp1a3 | 040907 | 196684 | 143735 | Il20rb | 044244 | 098458 | 096057 | Rftn1 | 039316 | 156094 | N/A |
| Atp1a3 | 040907 | 146595 | N/A | Il20rb | 044244 | 136606 | N/A | Rfx4 | 020037 | 060397 | 051107 |
| Atp1a3 | 040907 | 125444 | N/A | Il20rb | 044244 | 136856 | N/A | Rfx4 | 020037 | 173479 | N/A |
| Atp1b1 | 026576 | 027863 | 027863 | Il20rb | 044244 | 125259 | N/A | Rfx4 | 020037 | 165868 | N/A |
| Atp1b1 | 026576 | 193980 | N/A | Il20rb | 044244 | 152756 | N/A | Rfx4 | 020037 | 166696 | 128690 |
| Atp1b1 | 026576 | 193367 | 141777 | Il20rb | 044244 | 122880 | N/A | Rfx4 | 020037 | 020226 | N/A |
| Atp1b1 | 026576 | 192522 | N/A | Il22 | 074695 | 096691 | 094449 | Rfx4 | 020037 | 095388 | 093035 |
| Atp1b2 | 041329 | 047889 | 047353 | Il33 | 024810 | 120388 | 113829 | Rgcc | 022018 | 022595 | 022595 |
| Atp1b2 | 041329 | 130394 | N/A | Il33 | 024810 | 144528 | 122319 | Rgma | 070509 | 119206 | 112599 |
| Atp1b2 | 041329 | 138694 | 116290 | Il33 | 024810 | 177518 | 135854 | Rgma | 070509 | 094312 | 091870 |
| Atp1b2 | 041329 | 144425 | N/A | Il33 | 024810 | 025724 | 025724 | Rgma | 070509 | 128471 | 116552 |
| Atp1b2 | 041329 | 153198 | N/A | Il33 | 024810 | 136850 | 135324 | Rgma | 070509 | 139780 | 145758 |
| Atp2a3 | 020788 | 108486 | 104126 | Iltifb | 090461 | 163808 | 128415 | Rgma | 070509 | 206253 | N/A |
| Atp2a3 | 020788 | 108484 | 104124 | Iltifb | 090461 | 179123 | N/A | Rgs6 | 021219 | 201602 | 144044 |
| Atp2a3 | 020788 | 149493 | N/A | 5730559C18Rik | 041605 | 120339 | 113785 | Rgs6 | 021219 | 186848 | 141044 |
| Atp2a3 | 020788 | 135234 | N/A | 5730559C18Rik | 041605 | 150163 | 118074 | Rgs6 | 021219 | 161801 | 125256 |
| Atp2a3 | 020788 | 163326 | 127036 | 5730559C18Rik | 041605 | 144464 | 115554 | Rgs6 | 021219 | 185665 | 139566 |
| Atp2a3 | 020788 | 108485 | 104125 | 5730559C18Rik | 041605 | 194374 | N/A | Rgs6 | 021219 | 200911 | 143801 |
| Atp2a3 | 020788 | 021142 | 021142 | 5730559C18Rik | 041605 | 153910 | 120263 | Rgs6 | 021219 | 202210 | 143961 |
| Atp2b2 | 030302 | 101045 | 098606 | 5730559C18Rik | 041605 | 195177 | 141506 | Rgs6 | 021219 | 186458 | 139735 |
| Atp2b2 | 030302 | 089003 | 086398 | Inhba | 041324 | 164993 | 132085 | Rgs6 | 021219 | 186081 | 140188 |
| Atp2b2 | 030302 | 152831 | 138165 | Inhba | 041324 | 042603 | 047894 | Rgs6 | 021219 | 201271 | 144139 |
| Atp2b2 | 030302 | 205052 | 145174 | Inpp1 | 026102 | 027271 | 027271 | Rgs6 | 021219 | 200861 | 144118 |
| Atp2b2 | 030302 | 101044 | 098605 | Inpp1 | 026102 | 177279 | 135225 | Rgs6 | 021219 | 186309 | 140701 |
| Atp2b2 | 030302 | 135199 | N/A | Inpp1 | 026102 | 159607 | N/A | Rgs6 | 021219 | 201861 | 144395 |
| Atp2b2 | 030302 | 144507 | N/A | Inpp1 | 026102 | 162576 | 124890 | Rgs6 | 021219 | 193448 | N/A |
| Atp2b2 | 030302 | 154738 | N/A | Inpp1 | 026102 | 162351 | N/A | Rgs6 | 021219 | 191311 | 140723 |
| Atp2b3 | 031376 | 033744 | 033744 | Inpp1 | 026102 | 159725 | 123977 | Rgs6 | 021219 | 191352 | 139718 |
| Atp2b3 | 031376 | 088429 | 085775 | Inpp4b | 037940 | 172167 | N/A | Rgs6 | 021219 | 191107 | 139725 |
| Atp2b3 | 031376 | 114479 | 110123 | Inpp4b | 037940 | 213285 | 150520 | Rgs6 | 021219 | 186323 | 141079 |
| Atp8a1 | 037685 | 135930 | 118379 | Inpp4b | 037940 | 217122 | 150541 | Rgs6 | 021219 | 185674 | 139940 |
| Atp8a1 | 037685 | 037380 | 042215 | Inpp4b | 037940 | 169387 | 130104 | Rgs6 | 021219 | 190964 | N/A |
| Atp8a1 | 037685 | 072971 | 072738 | Inpp4b | 037940 | 215332 | 148972 | Rgs6 | 021219 | 201767 | 143829 |
| Atp8a1 | 037685 | 200955 | 144465 | Inpp4b | 037940 | 042529 | 044466 | Rgs6 | 021219 | 201512 | N/A |
| Atp8a1 | 037685 | 149501 | N/A | Inpp4b | 037940 | 169116 | 131947 | Rgs6 | 021219 | 101234 | 098793 |
| Atp8a1 | 037685 | 155911 | N/A | Inpp4b | 037940 | 109852 | 105478 | Rgs7bp | 021719 | 063551 | 066614 |
| Atp8a1 | 037685 | 152433 | N/A | Inpp4b | 037940 | 172031 | 131324 | Rgs9 | 020599 | 020920 | 020920 |
| Atp8a1 | 037685 | 130652 | N/A | Inpp4b | 037940 | 164870 | N/A | Rgs9 | 020599 | 103062 | 099351 |
| Atp8a1 | 037685 | 113652 | 109282 | Inpp4b | 037940 | 216036 | N/A | Rgs9 | 020599 | 106706 | 102317 |
| Atp8a1 | 037685 | 113651 | 109281 | Inpp4b | 037940 | 170160 | 132156 | Rgs9 | 020599 | 156785 | N/A |
| Atp8a1 | 037685 | 143013 | N/A | Inpp4b | 037940 | 216387 | N/A | Rgs9 | 020599 | 106704 | 102315 |
| Atp8a1 | 037685 | 202248 | N/A | Inpp4b | 037940 | 109851 | 105477 | Rhpn2 | 030494 | 032705 | 032705 |
| Atp8a1 | 037685 | 128726 | N/A | Inpp4b | 037940 | 165821 | N/A | Rhpn2 | 030494 | 155140 | N/A |
| Atp8a1 | 037685 | 141443 | 121630 | Inpp5a | 025477 | 106098 | 101704 | Rhpn2 | 030494 | 187997 | N/A |
| Atp8b1 | 039529 | 025482 | 025482 | Inpp5a | 025477 | 026550 | 026550 | Rhpn2 | 030494 | 085556 | 082692 |
| Atml1 | 054843 | 077282 | 076514 | Inpp5a | 025477 | 097975 | 095589 | Rimbp2 | 029420 | 199537 | 143276 |
| Atxn1 | 046876 | 091628 | 089217 | Inpp5a | 025477 | 138183 | N/A | Rimbp2 | 029420 | 198941 | 142455 |
| Atxn1 | 046876 | 167708 | 129890 | Inpp5a | 025477 | 131781 | N/A | Rimbp2 | 029420 | 196085 | 143725 |
| Atxn1 | 046876 | 180110 | 137439 | Inpp5a | 025477 | 210320 | N/A | Rimbp2 | 029420 | 200470 | 143099 |
| Atxn1 | 046876 | 221082 | N/A | Inpp5a | 025477 | 152475 | N/A | Rimbp2 | 029420 | 199737 | 142712 |
| Atxn1 | 046876 | 222943 | N/A | Insc | 048782 | 161800 | 125061 | Rimbp2 | 029420 | 196569 | N/A |
| Atxn1 | 046876 | 222610 | N/A | Insc | 048782 | 136645 | 119459 | Rimbp2 | 029420 | 111346 | 106978 |
| Axl | 002602 | 002677 | 002677 | Insc | 048782 | 139670 | N/A | Rims1 | 041670 | 185942 | 140963 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Axl | 002602 | 085948 | 083110 | Insc | 048782 | 117543 | 112682 | Rims1 | 041670 | 097808 | 095417 |
| Axl | 002602 | 124442 | N/A | Insc | 048782 | 151464 | 117296 | Rims1 | 041670 | 081544 | 080259 |
| Axl | 002602 | 137211 | N/A | Insc | 048782 | 136347 | N/A | Rims1 | 041670 | 115273 | 110928 |
| Axl | 002602 | 132989 | N/A | Insc | 048782 | 150991 | N/A | Rims1 | 041670 | 218140 | 151404 |
| Axl | 002602 | 132038 | 114907 | Insc | 048782 | 206274 | 145636 | Rims1 | 041670 | 097811 | 095420 |
| Axl | 002602 | 147680 | N/A | Insc | 048782 | 169913 | 129505 | Rims1 | 041670 | 097810 | 095419 |
| Axl | 002602 | 137383 | N/A | Ipcef1 | 064065 | 086896 | 084110 | Rims1 | 041670 | 097809 | 095418 |
| B230209E15Rik | 109006 | 209115 | N/A | Ipcef1 | 064065 | 145156 | 114267 | Rims1 | 041670 | 164877 | 131808 |
| B230209E15Rik | 109006 | 211785 | N/A | Ipcef1 | 064065 | 151960 | 118510 | Rims3 | 032890 | 132895 | N/A |
| B3gat2 | 026156 | 144602 | 115870 | Ipcef1 | 064065 | 149708 | N/A | Rims3 | 032890 | 071093 | 068178 |
| B3gat2 | 026156 | 063663 | 066582 | Ipcef1 | 064065 | 144622 | N/A | Rims3 | 032890 | 106283 | 101890 |
| B3gat2 | 026156 | 140583 | 117089 | Ipcef1 | 064065 | 105617 | 101242 | Rims3 | 032890 | 171363 | 130295 |
| B3glct | 051950 | 100404 | 097972 | Ipcef1 | 064065 | 154998 | N/A | Rims4 | 035226 | 044734 | 045637 |
| B3glct | 051950 | 202302 | N/A | Ipcef1 | 064065 | 078070 | 077215 | Rin2 | 001768 | 147976 | 124206 |
| B3glct | 051950 | 201088 | N/A | Ipcef1 | 064065 | 170680 | 128131 | Rin2 | 001768 | 110005 | 105632 |
| B3gnt5 | 022686 | 121344 | 112624 | Iqch | 037801 | 042322 | 047953 | Rin2 | 001768 | 142847 | 125476 |
| B3gnt5 | 022686 | 079780 | 078712 | Iqch | 037801 | 163982 | 126546 | Rin2 | 001768 | 150449 | 124078 |
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| B3gnt5 | 022686 | 131557 | N/A | Iqch | 037801 | 080527 | 079370 | Rin2 | 001768 | 149269 | N/A |
| B3gnt5 | 022686 | 155780 | N/A | Iqch | 037801 | 171243 | 131828 | Rin2 | 001768 | 144278 | N/A |
| B3gnt5 | 022686 | 119468 | 113145 | Iqch | 037801 | 170960 | N/A | Rin2 | 001768 | 094480 | 092053 |
| B3gnt5 | 022686 | 164397 | 126157 | Iqgap1 | 030536 | 167377 | 128278 | Rit2 | 057455 | 153060 | 114323 |
| B3gnt7 | 079445 | 189618 | N/A | Iqgap1 | 030536 | 205606 | 145991 | Rit2 | 057455 | 139924 | 122938 |
| B3gnt7 | 079445 | 113306 | 108931 | Iqgap1 | 030536 | 205383 | N/A | Rit2 | 057455 | 082070 | 080724 |
| B3gnt7 | 079445 | 188695 | 140392 | Iqgap1 | 030536 | 206149 | N/A | Rit2 | 057455 | 153196 | N/A |
| B4galt6 | 056124 | 070080 | 066515 | Iqgap1 | 030536 | 205824 | N/A | Rlbp1 | 039194 | 179243 | 137143 |
| Bach2 | 040270 | 108180 | 103815 | Iqgap1 | 030536 | 205813 | 145556 | Rlbp1 | 039194 | 053718 | 054545 |
| Bach2 | 040270 | 037416 | 043693 | Iqgap1 | 030536 | 205304 | 146126 | Rlbp1 | 039194 | 206624 | N/A |
| Bach2 | 040270 | 149201 | N/A | Iqgap1 | 030536 | 205540 | N/A | Rlbp1 | 039194 | 206162 | 146196 |
| Bach2 | 040270 | 156430 | N/A | Iqsec1 | 034312 | 101153 | 098712 | Rlbp1 | 039194 | 206320 | 145611 |
| Bach2 | 040270 | 146748 | N/A | Iqsec1 | 034312 | 204983 | N/A | Rlbp1 | 039194 | 205442 | 145850 |
| Bach2 | 040270 | 125263 | N/A | Iqsec1 | 034312 | 212100 | 148669 | Rlbp1 | 039194 | 205638 | 146144 |
| Bach2 | 040270 | 171600 | 131592 | Iqsec1 | 034312 | 154198 | N/A | Rlbp1 | 039194 | 206695 | 146075 |
| Baiap2 | 025372 | 026436 | 026436 | Iqsec1 | 034312 | 141434 | N/A | Rnf112 | 010086 | 060255 | 059903 |
| Baiap2 | 025372 | 106231 | 101838 | Iqsec1 | 034312 | 205068 | N/A | Rnf112 | 010086 | 054927 | 056464 |
| Baiap2 | 025372 | 075180 | 074674 | Iqsec1 | 034312 | 156834 | 118802 | Rnf112 | 010086 | 102661 | 099722 |
| Baiap2 | 025372 | 103021 | 099310 | Iqsec1 | 034312 | 133492 | N/A | Rnf112 | 010086 | 152137 | N/A |
| Baiap2 | 025372 | 106233 | 101840 | Iqsec1 | 034312 | 146977 | N/A | Rnf112 | 010086 | 126859 | N/A |
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| Baiap2 | 025372 | 146960 | N/A | Irak2 | 060477 | 059286 | 055073 | Rnf112 | 010086 | 130648 | N/A |
| Baiap2 | 025372 | 152523 | N/A | Irak2 | 060477 | 089023 | 086417 | Rnf207 | 058498 | 076183 | 075540 |
| Baiap2 | 025372 | 131580 | N/A | Irak2 | 060477 | 204091 | N/A | Rnf207 | 058498 | 108688 | N/A |
| Barhl2 | 034384 | 086795 | 084005 | Irak2 | 060477 | 089022 | 086416 | Rnf207 | 058498 | 170820 | 129400 |
| Basp1 | 045763 | 058845 | 053943 | Irak2 | 060477 | 204744 | 144848 | Rnf207 | 058498 | 135837 | N/A |
| Basp1 | 045763 | 228597 | 154675 | Irak2 | 060477 | 155554 | N/A | Rnf207 | 058498 | 127565 | N/A |
| Bbs2 | 031755 | 034206 | 034206 | Irak2 | 060477 | 113024 | N/A | Rnf207 | 058498 | 142427 | N/A |
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| Bbs2 | 031755 | 172347 | N/A | Irak2 | 060477 | 143948 | N/A | Rnf207 | 058498 | 143968 | N/A |
| BC052040 | 040282 | 110918 | 106543 | Irx1 | 060969 | 077337 | 076562 | Rnf207 | 058498 | 134269 | N/A |
| BC052040 | 040282 | 147968 | N/A | Irx1 | 060969 | 223379 | 152247 | Rnf207 | 058498 | 145311 | N/A |
| BC052040 | 040282 | 166472 | 126772 | Irx1 | 060969 | 223460 | 152128 | Rnf207 | 058498 | 123133 | N/A |
| Bcar1 | 031955 | 166232 | 129584 | Irx2 | 001504 | 074372 | 073976 | Rnf207 | 058498 | 146496 | N/A |
| Bcar1 | 031955 | 212349 | 148364 | Irx2 | 001504 | 169028 | N/A | Rnf217 | 063760 | 081989 | 080650 |
| Bcar1 | 031955 | 212147 | N/A | Irx2 | 001504 | 167067 | 127963 | Rnf220 | 028677 | 030439 | 030439 |
| Bche | 027792 | 029367 | 029367 | Irx2 | 001504 | 163393 | N/A | Rnf220 | 028677 | 102690 | 099751 |
| Bche | 027792 | 133690 | N/A | Irx2 | 001504 | 172353 | 126691 | Rnf220 | 028677 | 221654 | 152367 |
| Bche | 027792 | 138216 | 141329 | Irx5 | 031737 | 210246 | 147339 | Rnf220 | 028677 | 094853 | 092449 |
| Bche | 027792 | 153917 | N/A | Irx5 | 031737 | 034184 | 034184 | Rnf220 | 028677 | 128122 | N/A |
| Bcl11a | 000861 | 118955 | 112948 | Itga2 | 015533 | 056117 | 053891 | Rnf220 | 028677 | 223371 | N/A |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Bcl11a | 000861 | 127494 | N/A | Itga2 | 015533 | 224204 | 153056 | Rnf220 | 028677 | 221157 | N/A |
| Bcl11a | 000861 | 000881 | 000881 | Itga9 | 039115 | 044165 | 044227 | Rnf220 | 028677 | 151829 | 152638 |
| Bcl11a | 000861 | 124148 | N/A | Itga9 | 039115 | 125021 | N/A | Rnf220 | 028677 | 223182 | N/A |
| Bcl11a | 000861 | 109516 | 105142 | Itga9 | 039115 | 124360 | 122417 | Rnf220 | 028677 | 154974 | N/A |
| Bcl11a | 000861 | 109514 | 105140 | Itga9 | 039115 | 149150 | 122408 | Rnf220 | 028677 | 133971 | N/A |
| Bcl11b | 048251 | 066060 | 068258 | Itga9 | 039115 | 124422 | N/A | Rnf220 | 028677 | 150148 | N/A |
| Bcl11b | 048251 | 109887 | 105513 | Itga9 | 039115 | 155437 | N/A | Rnf220 | 028677 | 138435 | N/A |
| Bcl11b | 048251 | 109891 | 105517 | Itgav | 027087 | 028499 | 028499 | Rnf220 | 028677 | 123222 | N/A |
| Bcl11b | 048251 | 066060 | 068258 | Itgav | 027087 | 125360 | N/A | Rnf43 | 034177 | 134684 | N/A |
| Bcl11b | 048251 | 109887 | 105513 | Itgav | 027087 | 151463 | N/A | Rnf43 | 034177 | 123658 | N/A |
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| Bean1 | 031872 | 164076 | 132056 | Itgav | 027087 | 111740 | 107369 | Rnf43 | 034177 | 121782 | 112748 |
| Bean1 | 031872 | 093245 | 090931 | Itgav | 027087 | 141725 | 122730 | Rnf43 | 034177 | 040089 | 044241 |
| Bean1 | 031872 | 212979 | 148571 | Itgav | 027087 | 155521 | N/A | Rnf43 | 034177 | 162740 | N/A |
| Bean1 | 031872 | 213077 | 148283 | Itgav | 027087 | 125402 | 118016 | Rnf43 | 034177 | 124625 | N/A |
| Bean1 | 031872 | 171018 | 129403 | Itgav | 027087 | 131192 | 121295 | Rnf43 | 034177 | 150866 | N/A |
| Bean1 | 031872 | 167633 | 131530 | Itgb4 | 020758 | 021107 | 021107 | Rnf43 | 034177 | 165679 | 130685 |
| Bhlhe22 | 025128 | 026120 | 026120 | Itgb4 | 020758 | 068981 | 070811 | Robo2 | 052516 | 226478 | 154353 |
| Bicd1 | 003452 | 203502 | N/A | Itgb4 | 020758 | 106460 | 102068 | Robo2 | 052516 | 117785 | 112776 |
| Bicd1 | 003452 | 086829 | 084039 | Itgb4 | 020758 | 106458 | 102066 | Robo2 | 052516 | 117200 | 113795 |
| Bicd1 | 003452 | 111513 | 107138 | Itgb4 | 020758 | 151691 | N/A | Robo2 | 052516 | 149114 | N/A |
| Bicd1 | 003452 | 130270 | N/A | Itgb4 | 020758 | 150129 | N/A | Robo2 | 052516 | 137420 | N/A |
| Bicd1 | 003452 | 003544 | 003544 | Itgb4 | 020758 | 127523 | N/A | Robo2 | 052516 | 116586 | 112285 |
| Bicd1 | 003452 | 173408 | 133727 | Itgb4 | 020758 | 130286 | N/A | Robo2 | 052516 | 138852 | N/A |
| Bicd1 | 003452 | 174886 | N/A | Itgb4 | 020758 | 169928 | 127604 | Robo2 | 052516 | 227347 | 154010 |
| Bicd1 | 003452 | 172926 | 133986 | Itgb4 | 020758 | 106461 | 102069 | Robo2 | 052516 | 147408 | N/A |
| Bicd1 | 003452 | 140759 | N/A | Itgb8 | 025321 | 026360 | 026360 | Robo2 | 052516 | 140062 | N/A |
| Bicd2 | 037933 | 048544 | 039394 | Itgb8 | 025321 | 137804 | N/A | Robo2 | 052516 | 156010 | N/A |
| Bicd2 | 037933 | 110084 | 105711 | Itgb8 | 025321 | 151023 | N/A | Robo3 | 032128 | 167089 | N/A |
| Bicd2 | 037933 | 110085 | 105712 | Itih3 | 006522 | 006697 | 006697 | Robo3 | 032128 | 171467 | N/A |
| Bicd2 | 037933 | 220723 | 152090 | Itih3 | 006522 | 227181 | N/A | Robo3 | 032128 | 034643 | 034643 |
| Blm | 030528 | 206901 | 146062 | Itih3 | 006522 | 227995 | 154659 | Robo3 | 032128 | 115038 | 110690 |
| Blm | 030528 | 081314 | 080062 | Itih3 | 006522 | 226547 | 154256 | Robo3 | 032128 | 170512 | 150639 |
| Blm | 030528 | 170315 | 127995 | Itih3 | 006522 | 226179 | N/A | Robo3 | 032128 | 167216 | N/A |
| Blm | 030528 | 206518 | N/A | Itih3 | 006522 | 228114 | 154720 | Rpa1 | 000751 | 092907 | 090585 |
| Blm | 030528 | 206948 | N/A | Itpka | 027296 | 028758 | 028758 | Rpa1 | 000751 | 000767 | 000767 |
| Blm | 030528 | 206989 | 146098 | Itpkb | 038855 | 070181 | 069851 | Rpa1 | 000751 | 149365 | N/A |
| Blm | 030528 | 205730 | 145573 | Itpkb | 038855 | 195043 | N/A | Rpa1 | 000751 | 154894 | N/A |
| Blm | 030528 | 205263 | N/A | Itpr1 | 030102 | 032192 | 032192 | Rpa1 | 000751 | 135770 | N/A |
| Blm | 030528 | 205713 | N/A | Itpr1 | 030102 | 203615 | 144880 | Rph3a | 029608 | 079204 | 078198 |
| Blm | 030528 | 205584 | N/A | Itpr1 | 030102 | 203995 | N/A | Rph3a | 029608 | 202406 | 143917 |
| Bmp2k | 034663 | 112974 | 108598 | Itpr1 | 030102 | 203936 | 145526 | Rph3a | 029608 | 202326 | 144291 |
| Bmp2k | 034663 | 035635 | 037970 | Itpr1 | 030102 | 212125 | 148284 | Rph3a | 029608 | 200792 | 144437 |
| Bnc2 | 028487 | 102820 | 099884 | Itpr1 | 030102 | 205053 | N/A | Rprm | 075334 | 100089 | 097667 |
| Bnc2 | 028487 | 107198 | 102816 | Itpr1 | 030102 | 203262 | 145177 | Rps6ka1 | 003644 | 105894 | 101514 |
| Bnc2 | 028487 | 176612 | 135778 | Itpr1 | 030102 | 203638 | 145522 | Rps6ka1 | 003644 | 168974 | 126774 |
| Bnc2 | 028487 | 176971 | 135607 | Itpr1 | 030102 | 203687 | 145339 | Rps6ka1 | 003644 | 003741 | 003741 |
| Bnc2 | 028487 | 176691 | 135375 | Itpr1 | 030102 | 205048 | N/A | Rps6ka1 | 003644 | 157067 | 121341 |
| Bnc2 | 028487 | 177277 | 135580 | Itpr1 | 030102 | 203530 | N/A | Rps6ka1 | 003644 | 174481 | 134507 |
| Bnc2 | 028487 | 176702 | 134774 | Itpr1 | 030102 | 203288 | N/A | Rps6ka1 | 003644 | 137486 | 119328 |
| Bnc2 | 028487 | 176998 | 135283 | Itpr1 | 030102 | 205005 | N/A | Rps6ka1 | 003644 | 173989 | N/A |
| Bnc2 | 028487 | 176601 | 135480 | Itpripl2 | 095115 | 178344 | 136409 | Rps6ka1 | 003644 | 129636 | N/A |
| Bnc2 | 028487 | 175800 | 134795 | Jam2 | 053062 | 114195 | 109833 | Rps6ka1 | 003644 | 173961 | N/A |
| Bnc2 | 028487 | 176418 | 135569 | Jam2 | 053062 | 098407 | 096007 | Rpusd3 | 051169 | 113092 | 108715 |
| Bnc2 | 028487 | 175757 | N/A | Jam2 | 053062 | 138054 | N/A | Rpusd3 | 051169 | 060634 | 059057 |
| Bnc2 | 028487 | 176947 | 135411 | Jam3 | 031990 | 034472 | 034472 | Rpusd3 | 051169 | 203758 | N/A |
| Bnc2 | 028487 | 175969 | 135656 | Jam3 | 031990 | 215446 | N/A | Rpusd3 | 051169 | 129047 | 120380 |
| Bnc2 | 028487 | 176476 | N/A | Jam3 | 031990 | 213170 | N/A | Rpusd3 | 051169 | 147726 | 120250 |
| Bnc2 | 028487 | 123276 | N/A | Jam3 | 031990 | 167074 | N/A | Rpusd3 | 051169 | 124078 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bnc2 | 028487 | 176346 | 134942 | Jam3 | 031990 | 213682 | N/A | Rpusd3 | 051169 | 151618 | 115950 |
| Bnc2 | 028487 | 177256 | N/A | Jazf1 | 063568 | 128282 | N/A | Rpusd3 | 051169 | 134853 | N/A |
| Bnc2 | 028487 | 175756 | 135499 | Jazf1 | 063568 | 136250 | N/A | Rpusd3 | 051169 | 129560 | 114511 |
| Bnc2 | 028487 | 177040 | 135089 | Jazf1 | 063568 | 074541 | 074129 | Rpusd3 | 051169 | 150452 | N/A |
| Bnc2 | 028487 | 176264 | N/A | Jkamp | 005078 | 117449 | 113744 | Rspo2 | 051920 | 226810 | 154600 |
| Bnc2 | 028487 | 176370 | 134953 | Jkamp | 005078 | 057257 | 061370 | Rspo2 | 051920 | 063492 | 067325 |
| Boc | 022687 | 114634 | 110281 | Jkamp | 005078 | 125764 | 117251 | Rspo2 | 051920 | 226402 | N/A |
| Brinp2 | 004031 | 195271 | 141709 | Jkamp | 005078 | 132371 | N/A | Rtn1 | 021087 | 150156 | N/A |
| Brinp2 | 004031 | 004133 | 004133 | Jkamp | 005078 | 134041 | N/A | Rtn1 | 021087 | 078505 | 077594 |
| Brinp2 | 004031 | 194578 | N/A | Jkamp | 005078 | 152381 | N/A | Rtn1 | 021087 | 137990 | 120033 |
| Brinp2 | 004031 | 192709 | N/A | Jkamp | 005078 | 145752 | N/A | Rtn1 | 021087 | 144181 | N/A |
| Brinp3 | 035131 | 074622 | 074201 | Jph1 | 042686 | 186024 | 140705 | Rtn1 | 021087 | 221756 | N/A |
| Brinp3 | 035131 | 132847 | 118552 | Jph1 | 042686 | 038382 | 039072 | Rtn1 | 021087 | 021497 | 021497 |
| Brinp3 | 035131 | 128345 | 116763 | Kank1 | 032702 | 049400 | 042177 | Rtn1 | 021087 | 150156 | N/A |
| Brinp3 | 035131 | 125331 | N/A | Kank1 | 032702 | 146647 | 116660 | Rtn1 | 021087 | 078505 | 077594 |
| Brinp3 | 035131 | 166814 | 126074 | Kank1 | 032702 | 137260 | N/A | Rtn1 | 021087 | 137990 | 120033 |
| Bsg | 023175 | 179781 | 136487 | Kank1 | 032702 | 155788 | N/A | Rtn1 | 021087 | 144181 | N/A |
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| Bsg | 023175 | 178383 | 137126 | Kcna1 | 047976 | 055168 | 055225 | Rtn4r | 043811 | 059589 | 062924 |
| Bsg | 023175 | 105381 | 101020 | Kcna1 | 047976 | 203094 | 144947 | Rtn4r | 111113 | 213627 | 149817 |
| Bsg | 023175 | 180235 | N/A | Kcna1 | 047976 | 205171 | N/A | Rtn4rl1 | 045287 | 102514 | 099572 |
| Bsn | 032589 | 035208 | 035208 | Kcna2 | 040724 | 197470 | 143798 | Rtn4rl2 | 050896 | 151799 | 118362 |
| Bsn | 032589 | 124763 | 139053 | Kcna2 | 040724 | 038695 | 041702 | Rtn4rl2 | 050896 | 151759 | N/A |
| Btbd1 | 025103 | 026093 | 026093 | Kcna2 | 040724 | 196403 | 142873 | Rtn4rl2 | 050896 | 054514 | 057725 |
| Btbd1 | 025103 | 208114 | N/A | Kcnab2 | 028931 | 159840 | 124156 | Rubcnl | 034959 | 036072 | 045566 |
| Btbd1 | 025103 | 208178 | N/A | Kcnab2 | 028931 | 160884 | 125058 | Rubcnl | 034959 | 228689 | N/A |
| Btbd1 | 025103 | 208566 | N/A | Kcnab2 | 028931 | 030768 | 030768 | Rxfp1 | 034009 | 078527 | 077611 |
| Btbd11 | 020042 | 105307 | 100944 | Kcnab2 | 028931 | 159186 | 124588 | Rxfp1 | 034009 | 182491 | 138578 |
| Btbd11 | 020042 | 020231 | 020231 | Kcnab2 | 028931 | 105648 | 101273 | Rxfp1 | 034009 | 183199 | N/A |
| Btbd11 | 020042 | 105306 | 100943 | Kcnab2 | 028931 | 159844 | N/A | Rxfp1 | 034009 | 183040 | N/A |
| Btbd11 | 020042 | 135235 | N/A | Kcnab2 | 028931 | 161496 | N/A | Ryr1 | 030592 | 214374 | 149042 |
| Btbd11 | 020042 | 145323 | N/A | Kcnab2 | 028931 | 161236 | 125270 | Ryr1 | 030592 | 179893 | 137123 |
| Btbd11 | 020042 | 128338 | N/A | Kcnab2 | 028931 | 159435 | N/A | Ryr1 | 030592 | 208318 | N/A |
| Btbd11 | 020042 | 156123 | N/A | Kcnab2 | 028931 | 162200 | N/A | Ryr1 | 030592 | 208010 | N/A |
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| Btbd17 | 000202 | 156053 | N/A | Kcnab2 | 028931 | 161844 | N/A | Ryr1 | 030592 | 207783 | N/A |
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| Btbd17 | 000202 | 141481 | N/A | Kcnab3 | 018470 | 018614 | 018614 | Ryr2 | 021313 | 021750 | 021750 |
| Btbd17 | 000202 | 146853 | N/A | Kcnab3 | 018470 | 142328 | N/A | Ryr2 | 021313 | 222113 | N/A |
| Btbd17 | 000202 | 141386 | N/A | Kcnab3 | 018470 | 134561 | N/A | Ryr2 | 021313 | 222788 | N/A |
| Btbd17 | 000202 | 137965 | N/A | Kcnc1 | 058975 | 025202 | 025202 | Ryr2 | 021313 | 221527 | 152510 |
| 2410131K14Rik | 032840 | 049138 | 043410 | Kcnc1 | 058975 | 160433 | 124938 | Ryr2 | 021313 | 221916 | N/A |
| 3632451O06Rik | 036242 | 036972 | 036220 | Kcnc1 | 058975 | 160234 | N/A | Ryr2 | 021313 | 220712 | 152669 |
| 3632451O06Rik | 036242 | 118129 | 113609 | Kcnc2 | 035681 | 219301 | 151579 | Ryr2 | 021313 | 221941 | N/A |
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| 1700025G04Rik | 032666 | 187603 | 140950 | Kcnc2 | 035681 | 218445 | 151560 | Ryr2 | 021313 | 221609 | N/A |
| 1700025G04Rik | 032666 | 044581 | 036406 | Kcnc2 | 035681 | 219607 | 151870 | Ryr2 | 021313 | 222386 | N/A |
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| 1700025G04Rik | 032666 | 121533 | 113971 | Kcnc3 | 062785 | 209177 | 146535 | Ryr2 | 021313 | 221018 | N/A |
| C1ql1 | 045532 | 057849 | 050469 | Kcnc3 | 062785 | 207493 | 146425 | Ryr2 | 021313 | 221341 | N/A |
| C1ql2 | 036907 | 037286 | 037257 | Kcnc3 | 062785 | 208651 | 146988 | Ryr2 | 021313 | 170156 | 127991 |
| C1qtnf4 | 040794 | 111466 | 107091 | Kcnc3 | 062785 | 107907 | 103540 | Ryr3 | 057378 | 091818 | 089426 |
| C1qtnf4 | 110961 | 214937 | 150588 | Kcnc3 | 062785 | 107906 | 103539 | Ryr3 | 057378 | 208135 | 146719 |
| 2810459M11Rik | 026227 | 027429 | 027429 | Kcnc3 | 062785 | 208412 | N/A | Ryr3 | 057378 | 128192 | N/A |
| 2810459M11Rik | 026227 | 165824 | 131459 | Kcnc3 | 062785 | 207497 | 146479 | Ryr3 | 057378 | 207603 | N/A |
| C3 | 024164 | 024988 | 024988 | Kcnf1 | 051726 | 170580 | 131480 | Ryr3 | 057378 | 156757 | N/A |
| C3 | 024164 | 177425 | 135663 | Kcnh1 | 058248 | 078470 | 077563 | Ryr3 | 057378 | 146187 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C3 | 024164 | 177046 | 135560 | Kcnh1 | 058248 | 110844 | 106468 | Ryr3 | 057378 | 208574 | N/A |
| C3 | 024164 | 176457 | N/A | Kcnh1 | 058248 | 151152 | 141247 | Ryr3 | 057378 | 134358 | 147196 |
| A830018L16Rik | 057715 | 048613 | 043857 | Kcnh5 | 034402 | 042299 | 046864 | Ryr3 | 057378 | 142537 | N/A |
| A830018L16Rik | 057715 | 150870 | N/A | Kcnh7 | 059742 | 075052 | 074563 | Ryr3 | 057378 | 080673 | 079503 |
| A830018L16Rik | 057715 | 142117 | N/A | Kcnh7 | 059742 | 112454 | 108073 | Ryr3 | 057378 | 208290 | 147250 |
| A830018L16Rik | 057715 | 141512 | 139635 | Kcnh7 | 059742 | 112452 | 108071 | Ryr3 | 057378 | 208151 | 146449 |
| A830018L16Rik | 057715 | 135014 | 119143 | Kcnh7 | 059742 | 131799 | N/A | S100a4 | 001020 | 001046 | 001046 |
| A830018L16Rik | 057715 | 137824 | 117421 | Kcnh8 | 035580 | 039366 | 049206 | S100a4 | 001020 | 142476 | 143522 |
| A830018L16Rik | 057715 | 179089 | 137287 | Kcnh8 | 035580 | 184279 | N/A | S100b | 033208 | 036387 | 047968 |
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| A830018L16Rik | 057715 | 191437 | N/A | Kcnip1 | 053519 | 065970 | 069063 | Sall1 | 031665 | 034090 | 034090 |
| A830018L16Rik | 057715 | 171690 | 132334 | Kcnip1 | 053519 | 101368 | 098919 | Samd12 | 058656 | 078673 | 077741 |
| 3110035E14Rik | 067879 | 088666 | 086041 | Kcnip1 | 053519 | 135034 | N/A | Samd12 | 058656 | 154119 | N/A |
| 3110043O21Rik | 028300 | 084724 | 081775 | Kcnip1 | 053519 | 154760 | N/A | Samd12 | 058656 | 132059 | 123446 |
| 3110043O21Rik | 028300 | 108126 | 103761 | Kcnip4 | 029088 | 166924 | 131276 | Samd12 | 058656 | 132362 | N/A |
| 3110043O21Rik | 028300 | 108127 | 103762 | Kcnip4 | 029088 | 172363 | N/A | Sapcd2 | 026955 | 114293 | 109932 |
| 3110043O21Rik | 028300 | 142628 | N/A | Kcnip4 | 029088 | 176978 | 134758 | Sapcd2 | 026955 | 100323 | 097898 |
| 3110043O21Rik | 028300 | 156472 | N/A | Kcnip4 | 029088 | 087395 | 084656 | Sapcd2 | 026955 | 155310 | N/A |
| 3110043O21Rik | 028300 | 130538 | N/A | Kcnip4 | 029088 | 101215 | N/A | Sapcd2 | 026955 | 129214 | N/A |
| 3110043O21Rik | 028300 | 149138 | N/A | Kcnip4 | 029088 | 176191 | 135071 | Sapcd2 | 026955 | 137171 | N/A |
| Cab39l | 021981 | 225149 | N/A | Kcnip4 | 029088 | 175660 | 135799 | Sapcd2 | 026955 | 132539 | N/A |
| Cab39l | 021981 | 224281 | N/A | Kcnip4 | 029088 | 101214 | N/A | Sapcd2 | 026955 | 028329 | 028329 |
| Cab39l | 021981 | 022553 | 022553 | Kcnj10 | 044708 | 056136 | 054356 | Scamp5 | 040722 | 046587 | 035898 |
| Cab39l | 021981 | 225595 | 153643 | Kcnj12 | 042529 | 089184 | 086588 | Scamp5 | 040722 | 215208 | N/A |
| Cab39l | 021981 | 223678 | 153281 | Kcnj12 | 042529 | 041944 | 041696 | Scamp5 | 040722 | 214256 | 150867 |
| Cab39l | 021981 | 224893 | 153449 | Kcnj12 | 042529 | 108717 | 104357 | Scamp5 | 040722 | 215734 | 151197 |
| Abl1 | 026842 | 146537 | N/A | Kcnj16 | 051497 | 106636 | 102247 | Scamp5 | 040722 | 213771 | 149622 |
| Abl1 | 026842 | 156736 | N/A | Kcnj16 | 051497 | 106635 | 102246 | Scamp5 | 040722 | 215059 | 150248 |
| Abl1 | 026842 | 075759 | 075167 | Kcnj16 | 051497 | 125692 | 119921 | Scel | 022123 | 227322 | 154402 |
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| Abl1 | 026842 | 123471 | 142297 | Kcnj16 | 051497 | 180023 | 136382 | Scg3 | 032181 | 034699 | 034699 |
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| Abl1 | 026842 | 028190 | 028190 | Kcnj3 | 026824 | 067101 | 063329 | Scg3 | 032181 | 215603 | 152480 |
| Abl1 | 026842 | 124089 | 117748 | Kcnj3 | 026824 | 112632 | 108251 | Scg3 | 032181 | 213637 | N/A |
| Abl1 | 026842 | 127714 | N/A | Kcnj3 | 026824 | 112633 | 108252 | Scg3 | 032181 | 214244 | 151074 |
| Abl1 | 026842 | 124726 | N/A | Kcnj4 | 044216 | 057801 | 094075 | Scg3 | 032181 | 214176 | N/A |
| Cables1 | 040957 | 171109 | 129463 | Kcnk10 | 033854 | 221240 | 152473 | Scg3 | 032181 | 215722 | N/A |
| Cables1 | 040957 | 046948 | 040639 | Kcnk10 | 033854 | 110113 | 105740 | Scn1a | 064329 | 200839 | 144214 |
| Cables1 | 040957 | 225430 | N/A | Kcnk10 | 033854 | 221305 | 152656 | Scn1a | 064329 | 112366 | 107985 |
| Cabp1 | 029544 | 031519 | 031519 | Kcnk10 | 033854 | 221906 | N/A | Scn1a | 064329 | 077489 | 076697 |
| Cabp1 | 029544 | 112113 | 107741 | Kcnk13 | 045404 | 160413 | 123916 | Scn1a | 064329 | 094951 | 092558 |
| Cabp1 | 029544 | 112109 | N/A | Kcnk13 | 045404 | 162221 | N/A | Scn1a | 064329 | 156865 | 144633 |
| Cabp1 | 029544 | 112112 | 107740 | Kcnk13 | 045404 | 049788 | 051846 | Scn1a | 064329 | 138910 | 116881 |
| Cabp1 | 029544 | 145197 | 138183 | Kcnk13 | 045404 | 177549 | 136882 | Scn1a | 064329 | 129508 | N/A |
| Cabp1 | 029544 | 151775 | N/A | Kcnk3 | 049265 | 066295 | 098987 | Scn1a | 064329 | 112371 | 107990 |
| Cabp1 | 029544 | 201900 | N/A | Kcnk3 | 049265 | 197428 | N/A | Scn2a | 075318 | 144254 | 117955 |
| Cachd1 | 028532 | 030257 | 030257 | Kcnma1 | 063142 | 145596 | 153247 | Scn2a | 075318 | 028377 | 028377 |
| Cachd1 | 028532 | 097955 | 095568 | Kcnma1 | 063142 | 188285 | 140275 | Scn2a | 075318 | 201378 | N/A |
| Cachd1 | 028532 | 123475 | N/A | Kcnma1 | 063142 | 225431 | 153670 | Scn2a | 075318 | 202653 | N/A |
| Cachd1 | 028532 | 136430 | N/A | Kcnma1 | 063142 | 188210 | 141069 | Scn2a | 075318 | 200829 | 143882 |
| Cacna1a | 034656 | 135382 | N/A | Kcnma1 | 063142 | 224787 | 152999 | Scn2a | 075318 | 138368 | N/A |
| Cacna1a | 034656 | 121390 | 112436 | Kcnma1 | 063142 | 224025 | 153078 | Scn2a | 075318 | 202508 | 143958 |
| Cacna1a | 034656 | 122053 | 114055 | Kcnma1 | 063142 | 190044 | 140033 | Scn2a | 075318 | 202162 | 143888 |
| Cacna1a | 034656 | 215756 | 149242 | Kcnma1 | 063142 | 225315 | 153584 | Scn2a | 075318 | 100067 | 097645 |
| Cacna1a | 034656 | 129620 | N/A | Kcnma1 | 063142 | 225794 | 153254 | Scn2b | 070304 | 093855 | 091377 |
| Cacna1a | 034656 | 126302 | N/A | Kcnma1 | 063142 | 225556 | 152959 | Scn2b | 070304 | 170998 | 126826 |
| Cacna1a | 034656 | 143215 | N/A | Kcnma1 | 063142 | 190985 | 140154 | Scn4b | 046480 | 060125 | 062507 |
| Cacna1a | 034656 | 141981 | N/A | Kcnma1 | 063142 | 223727 | 153158 | Scn9a | 075316 | 100064 | 097642 |
| Cacna1a | 034656 | 144879 | N/A | Kcnma1 | 063142 | 223655 | 153362 | Scn9a | 075316 | 112354 | 107973 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cacna1a | 034656 | 153691 | N/A | Kcnma1 | 063142 | 224077 | 153214 | Scn9a | 075316 | 151234 | N/A |
| Cacna1a | 034656 | 130507 | N/A | Kcnma1 | 063142 | 188991 | 140751 | Scn9a | 075316 | 141603 | N/A |
| Cacna1b | 004113 | 070864 | 063236 | Kcnma1 | 063142 | 224468 | 153312 | Scn9a | 075316 | 164384 | 126528 |
| Cacna1b | 004113 | 102939 | 100003 | Kcnma1 | 063142 | 224812 | 153527 | Scn9a | 075316 | 100063 | 097641 |
| Cacna1b | 004113 | 131861 | 141653 | Kcnma1 | 063142 | 224285 | 153316 | Scn9a | 075316 | 169900 | 131711 |
| Cacna1b | 004113 | 041342 | 037416 | Kcnma1 | 063142 | 225471 | 153083 | Scnn1g | 000216 | 000221 | 000221 |
| Cacna1b | 004113 | 114447 | 110090 | Kcnma1 | 063142 | 224232 | 153291 | Scube1 | 016763 | 144773 | N/A |
| Cacna1b | 004113 | 133892 | 115285 | Kcnma1 | 063142 | 223749 | 153216 | Scube1 | 016763 | 043634 | 044835 |
| Cacna1b | 004113 | 125798 | 141767 | Kcnma1 | 063142 | 212542 | N/A | Scube1 | 016763 | 076060 | 075434 |
| Cacna1b | 004113 | 155356 | 116674 | Kcnma1 | 063142 | 226051 | 153356 | Scube1 | 016763 | 016907 | 016907 |
| Cacna1b | 004113 | 124183 | 114605 | Kcnma1 | 063142 | 224933 | N/A | Scube1 | 016763 | 171496 | 130131 |
| Cacna1b | 004113 | 100348 | 097920 | Kcnma1 | 063142 | 212576 | 148692 | Sdc3 | 025743 | 070478 | 065877 |
| Cacna1e | 004110 | 187541 | 140937 | Kcnma1 | 063142 | 223847 | N/A | Sdc3 | 025743 | 146093 | N/A |
| Cacna1e | 004110 | 211821 | 148507 | Kcnma1 | 063142 | 225305 | N/A | Sdc3 | 025743 | 152591 | 118685 |
| Cacna1e | 004110 | 226546 | 153897 | Kcnma1 | 063142 | 224465 | N/A | Sdc3 | 025743 | 141297 | 123608 |
| Cacna1e | 004110 | 188384 | N/A | Kcnma1 | 063142 | 190339 | 141143 | Sdc3 | 025743 | 140623 | N/A |
| Cacna1e | 004110 | 188965 | N/A | Kcnma1 | 063142 | 065788 | 065293 | Sdc4 | 017009 | 017153 | 017153 |
| Cacna1e | 004110 | 188321 | N/A | Kcnma1 | 063142 | 100831 | 098393 | Sdc4 | 017009 | 142909 | N/A |
| Cacna1e | 004110 | 186256 | N/A | Kcnma1 | 063142 | 074983 | 074511 | Sec14l5 | 091712 | 165810 | 128063 |
| Cacna1e | 004110 | 004214 | 004214 | Kcnma1 | 063142 | 112423 | 108042 | Sec24d | 039234 | 047923 | 035823 |
| Cacna1g | 020866 | 107786 | 103415 | Kcnma1 | 063142 | 172099 | 132204 | Sec24d | 039234 | 198210 | N/A |
| Cacna1g | 020866 | 107791 | 103420 | Kcnma1 | 063142 | 177634 | 136447 | Sec24d | 039234 | 200333 | 143588 |
| Cacna1g | 020866 | 103166 | 099455 | Kcnma1 | 063142 | 163322 | 128553 | Sec24d | 039234 | 197291 | N/A |
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| Cacna1g | 020866 | 100561 | 098127 | Kcnma1 | 063142 | 179097 | 136568 | Sec24d | 039234 | 196631 | N/A |
| Cacna1g | 020866 | 107793 | 103422 | Kcnn3 | 000794 | 000811 | 000811 | Sec24d | 039234 | 200309 | N/A |
| Cacna1g | 020866 | 107788 | 103417 | Kcnn3 | 000794 | 124584 | N/A | Sec24d | 039234 | 196482 | N/A |
| Cacna1g | 020866 | 107790 | 103419 | Kcnq5 | 028033 | 029667 | 029667 | Sel1l3 | 029189 | 031090 | 031090 |
| Cacna1g | 020866 | 107789 | 103418 | Kcnq5 | 028033 | 115300 | 110955 | Sel1l3 | 029189 | 196435 | N/A |
| Cacna1g | 020866 | 107785 | 103414 | Kcnq5 | 028033 | 173058 | 134166 | Sel1l3 | 029189 | 196516 | N/A |
| Cacna1g | 020866 | 133331 | N/A | Kcnq5 | 028033 | 174183 | 134389 | Sel1l3 | 029189 | 196550 | N/A |
| Cacna1g | 020866 | 146160 | N/A | Kcnq5 | 028033 | 173404 | 134076 | Sel1l3 | 029189 | 199919 | N/A |
| Cacna1g | 020866 | 142190 | N/A | Kcnq5 | 028033 | 115299 | N/A | Sema3c | 028780 | 030568 | 030568 |
| Cacna1g | 020866 | 133000 | N/A | Kcnq5 | 028033 | 134505 | N/A | Sema3c | 028780 | 170181 | 126614 |
| Cacna1g | 020866 | 152811 | N/A | Kcnt2 | 052726 | 120709 | 112887 | Sema3c | 028780 | 170348 | N/A |
| Cacna1g | 020866 | 021234 | 021234 | Kcnt2 | 052726 | 120796 | 113333 | Sema3c | 028780 | 169603 | 132330 |
| Cacna2d1 | 040118 | 101581 | 099117 | Kcnt2 | 052726 | 119786 | 113535 | Sema3c | 028780 | 115271 | N/A |
| Cacna2d1 | 040118 | 039370 | 049457 | Kcnt2 | 052726 | 192840 | N/A | Sema3d | 040254 | 030868 | 030868 |
| Cacna2d1 | 040118 | 199704 | 142881 | Kcnt2 | 052726 | 145077 | N/A | Sema3d | 040254 | 196618 | N/A |
| Cacna2d1 | 040118 | 180204 | 136260 | Kcnt2 | 052726 | 193606 | 141947 | Sema3d | 040254 | 197927 | 142453 |
| Cacna2d1 | 040118 | 078272 | 077391 | Kcnv1 | 022342 | 022967 | 022967 | Sema3d | 040254 | 196093 | N/A |
| Cacna2d1 | 040118 | 196750 | 143082 | Kcnv1 | 022342 | 228536 | N/A | Sema3d | 040254 | 195923 | N/A |
| Cacna2d1 | 040118 | 200270 | N/A | Kctd12b | 041633 | 039424 | 037539 | Sema4d | 021451 | 110040 | 105667 |
| Cacna2d1 | 040118 | 200158 | N/A | Kctd12b | 041633 | 112572 | 108191 | Sema4d | 021451 | 021900 | 021900 |
| Cacna2d1 | 040118 | 200294 | N/A | Kctd13 | 030685 | 032924 | 032924 | Sema4d | 021451 | 110039 | 105666 |
| Cacna2d1 | 040118 | 199236 | N/A | Kctd13 | 030685 | 141369 | N/A | Sema4d | 021451 | 125511 | N/A |
| Cacna2d1 | 040118 | 115281 | 110936 | Kctd13 | 030685 | 139233 | N/A | Sema4d | 021451 | 138228 | N/A |
| Cacna2d1 | 040118 | 167946 | 131507 | Kctd3 | 026608 | 193143 | 141861 | Sema4d | 021451 | 139865 | N/A |
| Cacna2d2 | 010066 | 010210 | 010210 | Kctd3 | 026608 | 085678 | 082821 | Sema4d | 021451 | 150662 | N/A |
| Cacna2d2 | 010066 | 168532 | 132512 | Kctd3 | 026608 | 192200 | N/A | Sema4d | 021451 | 139018 | N/A |
| Cacna2d2 | 010066 | 085092 | 082173 | Kctd3 | 026608 | 195745 | N/A | Sema4d | 021451 | 146238 | N/A |
| Cacna2d2 | 010066 | 166799 | 126029 | Kctd3 | 026608 | 195658 | 141863 | Sema4d | 021451 | 146922 | N/A |
| Cacna2d2 | 010066 | 170737 | 125943 | Kctd3 | 026608 | 195488 | N/A | Sema4d | 021451 | 143396 | N/A |
| Cacna2d2 | 010066 | 169354 | N/A | Kctd3 | 026608 | 192458 | N/A | Sema4d | 021451 | 139858 | N/A |
| Cacna2d2 | 010066 | 171809 | N/A | Kctd3 | 026608 | 193590 | N/A | Sema4d | 021451 | 155896 | N/A |
| Cacna2d2 | 010066 | 194842 | N/A | Kctd3 | 026608 | 195787 | N/A | Sema5a | 022231 | 226876 | N/A |
| Cacna2d2 | 010066 | 168959 | N/A | Kctd3 | 026608 | 193273 | N/A | Sema5a | 022231 | 067458 | 069024 |
| Cacna2d2 | 010066 | 164988 | 130451 | Kdm5d | 056673 | 189069 | 139636 | Sema5a | 022231 | 228442 | N/A |
| Cacna2d3 | 021991 | 022567 | 022567 | Kdm5d | 056673 | 055032 | 061095 | Sema5a | 022231 | 228103 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cacna2d3 | 021991 | 225985 | 152967 | Kdm5d | 056673 | 188910 | N/A | Sema5a | 022231 | 228555 | N/A |
| Cacna2d3 | 021991 | 225668 | 153037 | Kdm5d | 056673 | 186696 | 140663 | Sema5a | 022231 | 228015 | N/A |
| Cacna2d3 | 021991 | 225733 | 153143 | Kdm5d | 056673 | 186726 | 140462 | Sema5a | 022231 | 227802 | N/A |
| Cacna2d3 | 021991 | 225863 | 153444 | Kdm5d | 056673 | 189626 | N/A | Sema5a | 022231 | 227976 | N/A |
| Cacna2d3 | 021991 | 224950 | N/A | Kdm5d | 056673 | 185542 | N/A | Sema5a | 022231 | 227429 | N/A |
| Cacna2d3 | 021991 | 226048 | N/A | Kdm5d | 056673 | 187296 | N/A | Sema6a | 019647 | 019791 | 019791 |
| Cacna2d3 | 021991 | 225953 | N/A | Kdm5d | 056673 | 189955 | N/A | Sema6a | 019647 | 076043 | 075420 |
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| Cacnb4 | 017412 | 102760 | 099821 | 9530077C05Rik | 036411 | 058868 | 062120 | Sema6a | 019647 | 141224 | N/A |
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| Cacnb4 | 017412 | 132322 | N/A | 9530077C05Rik | 036411 | 213133 | N/A | Sema6a | 019647 | 126684 | 118655 |
| Cacnb4 | 017412 | 148837 | N/A | 1810041L15Rik | 062760 | 080751 | 079575 | Sema6a | 019647 | 144223 | N/A |
| Cacnb4 | 017412 | 178799 | 136811 | 1810041L15Rik | 062760 | 189248 | 141117 | Sema6a | 019647 | 123228 | 120249 |
| Cacng3 | 066189 | 084615 | 081664 | 1810041L15Rik | 062760 | 189994 | 140712 | Sema6a | 019647 | 115449 | 111109 |
| Cacng3 | 066189 | 182563 | 138495 | 1810041L15Rik | 062760 | 186527 | 140964 | Sema6d | 027200 | 103241 | 099531 |
| Cacng3 | 066189 | 182095 | 138755 | Kif13a | 021375 | 056978 | 055304 | Sema6d | 027200 | 137172 | N/A |
| Cacng4 | 020723 | 021066 | 021066 | Kif13a | 021375 | 223881 | 153657 | Sema6d | 027200 | 151199 | N/A |
| Cacng4 | 020723 | 134076 | N/A | Kif13a | 021375 | 225836 | 153536 | Sema6d | 027200 | 103240 | 099530 |
| Cacng5 | 040373 | 039071 | 047888 | Kif13a | 021375 | 224756 | 153385 | Sema6d | 027200 | 132088 | N/A |
| Cacng5 | 040373 | 106742 | 102353 | Kif13a | 021375 | 225591 | 153614 | Sema6d | 027200 | 051419 | 061123 |
| Cadm3 | 005338 | 111220 | 106851 | Kif13a | 021375 | 223856 | 152982 | Sema6d | 027200 | 103238 | 099528 |
| Cadm3 | 005338 | 005470 | 005470 | Kif13a | 021375 | 225904 | N/A | Sema6d | 027200 | 103239 | 099529 |
| Cadm3 | 005338 | 136540 | N/A | Kif13a | 021375 | 224457 | N/A | Sema6d | 027200 | 076335 | 075674 |
| Cadm3 | 005338 | 157032 | N/A | Kif13a | 021375 | 224923 | N/A | Sema6d | 027200 | 078621 | 077691 |
| Cadm3 | 005338 | 126963 | N/A | Kif13b | 060012 | 224126 | 153252 | Sema6d | 027200 | 077847 | 077014 |
| Cadps2 | 017978 | 115358 | 111015 | Kif13b | 060012 | 224507 | N/A | Sept4 | 020486 | 122945 | 115682 |
| Cadps2 | 017978 | 018122 | 018122 | Kif13b | 060012 | 224503 | 153168 | Sept4 | 020486 | 107962 | 103596 |
| Cadps2 | 017978 | 142913 | 138167 | Kif13b | 060012 | 224677 | N/A | Sept4 | 020486 | 140398 | N/A |
| Cadps2 | 017978 | 115361 | 111018 | Kif13b | 060012 | 100473 | 098041 | Sept4 | 020486 | 122067 | 112960 |
| Cadps2 | 017978 | 156986 | N/A | Kif19a | 010021 | 126555 | N/A | Sept4 | 020486 | 132723 | N/A |
| Cadps2 | 017978 | 125350 | 115866 | Kif19a | 010021 | 137326 | N/A | Sept4 | 020486 | 123081 | N/A |
| Cadps2 | 017978 | 069074 | 064876 | Kif19a | 010021 | 138804 | 115663 | Sept4 | 020486 | 133638 | N/A |
| Cadps2 | 017978 | 152131 | N/A | Kif19a | 010021 | 084368 | 081398 | Sept4 | 020486 | 135175 | N/A |
| Cadps2 | 017978 | 115356 | 111013 | Kif19a | 010021 | 131782 | N/A | Sept4 | 020486 | 107961 | 103595 |
| Cadps2 | 017978 | 136279 | N/A | Kif19a | 010021 | 138340 | 122743 | Sept4 | 020486 | 018544 | 018544 |
| Cadps2 | 017978 | 115355 | N/A | Kif19a | 010021 | 134165 | N/A | Sept4 | 020486 | 063156 | 060127 |
| Cadps2 | 017978 | 166458 | 125972 | Kif21b | 041642 | 075164 | 074661 | Sept4 | 020486 | 107960 | 103594 |
| Cadps2 | 017978 | 163871 | 128905 | Kif21b | 041642 | 130864 | 114297 | Sept4 | 020486 | 136229 | N/A |
| Calb1 | 028222 | 029876 | 029876 | Kif21b | 041642 | 122892 | N/A | Sept4 | 020486 | 134923 | N/A |
| Calb1 | 028222 | 136266 | N/A | Kif21b | 041642 | 171381 | 131815 | Sept4 | 020486 | 133202 | 115790 |
| Calb1 | 028222 | 141336 | N/A | Kif21b | 041642 | 127624 | N/A | Sept4 | 020486 | 148216 | N/A |
| Calb2 | 003657 | 212297 | 148680 | Kif21b | 041642 | 165333 | N/A | Sept4 | 020486 | 127414 | N/A |
| Calb2 | 003657 | 003754 | 003754 | Kif26b | 026494 | 193931 | N/A | Sept4 | 020486 | 143950 | N/A |
| Caln1 | 060371 | 086029 | 083193 | Kif26b | 026494 | 161017 | 124462 | Sept7 | 001833 | 165594 | 127641 |
| Caln1 | 060371 | 202728 | 143823 | Kif26b | 026494 | 160789 | 124608 | Sept7 | 001833 | 215692 | N/A |
| Caln1 | 060371 | 141131 | 144225 | Kif6 | 023999 | 162854 | 124674 | Sept7 | 001833 | 215721 | N/A |
| Caln1 | 060371 | 111287 | 106918 | Kif6 | 023999 | 159354 | N/A | Sept7 | 001833 | 213980 | N/A |
| Caln1 | 060371 | 111288 | 106919 | Kif6 | 023999 | 162029 | 125227 | Sept7 | 001833 | 217598 | N/A |
| Camk1g | 016179 | 169907 | 128143 | Kif6 | 023999 | 024798 | N/A | Sept7 | 001833 | 214911 | N/A |
| Camk1g | 016179 | 016323 | 016323 | Kif6 | 023999 | 159396 | N/A | Sept7 | 001833 | 214520 | N/A |
| Camk1g | 016179 | 163202 | 131451 | Kif6 | 023999 | 160049 | N/A | Sept7 | 001833 | 213435 | N/A |
| Camk1g | 016179 | 165718 | N/A | Kif6 | 023999 | 162419 | N/A | Sept7 | 001833 | 214360 | N/A |
| Camk2a | 024617 | 102888 | 099952 | Kinrel | 041734 | 159976 | 125525 | Sept7 | 001833 | 115272 | 110927 |
| Camk2a | 024617 | 134496 | N/A | Kinrel | 041734 | 041732 | 043756 | Serinc2 | 023232 | 122374 | 112535 |
| Camk2a | 024617 | 025519 | 025519 | Kinrel | 041734 | 107618 | 103243 | Serinc2 | 023232 | 105996 | 101618 |
| Camk2a | 024617 | 115297 | 110952 | Kit | 005672 | 144270 | 116465 | Serinc2 | 023232 | 120126 | 113044 |
| Camk2a | 024617 | 137805 | 123480 | Kit | 005672 | 005815 | 005815 | Serinc2 | 023232 | 146478 | 115198 |
| Camk2a | 024617 | 115295 | 110950 | Kit | 005672 | 143221 | N/A | Serinc2 | 023232 | 154846 | 116586 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Camk2a | 024617 | 039904 | 048325 | Kit | 005672 | 151357 | N/A | Serpinb1a | 044734 | 076352 | 075690 |
| Camk2g | 021820 | 100837 | 098398 | Kit | 005672 | 136002 | N/A | Serpinb1a | 044734 | 223016 | N/A |
| Camk2g | 021820 | 071816 | 071720 | Kit | 005672 | 148993 | N/A | Serpinb1a | 044734 | 091668 | 089257 |
| Camk2g | 021820 | 080440 | 079298 | Kit | 005672 | 202167 | N/A | Serpinb1a | 044734 | 221967 | N/A |
| Camk2g | 021820 | 223863 | 153007 | Kit | 005672 | 201240 | N/A | Serpine2 | 026249 | 027467 | 027467 |
| Camk2g | 021820 | 226630 | 154158 | Kitl | 019966 | 105283 | 100920 | Serpine2 | 026249 | 189793 | 140065 |
| Camk2g | 021820 | 225328 | 152992 | Kitl | 019966 | 219050 | N/A | Serpine2 | 026249 | 190724 | 140255 |
| Camk2g | 021820 | 224887 | 153165 | Kitl | 019966 | 130190 | 123360 | Serpine2 | 026249 | 153862 | N/A |
| Camk2g | 021820 | 223712 | 153471 | Kitl | 019966 | 218200 | 151554 | Serpine2 | 026249 | 191529 | N/A |
| Camk2g | 021820 | 225609 | 152903 | Kitl | 019966 | 020129 | 020129 | Serpine2 | 026249 | 191026 | N/A |
| Camk2g | 021820 | 225463 | 153453 | Kitl | 019966 | 219881 | N/A | Serpinh1 | 070436 | 169437 | 126390 |
| Camk2g | 021820 | 225660 | N/A | Klhl13 | 036782 | 115313 | 110968 | Serpinh1 | 070436 | 094154 | 091706 |
| Camk2g | 021820 | 225958 | N/A | Klhl13 | 036782 | 115319 | 110974 | Serpinh1 | 070436 | 208119 | 146969 |
| Camk2g | 021820 | 224245 | N/A | Klhl13 | 036782 | 115316 | 110971 | Serpinh1 | 070436 | 207849 | 147064 |
| Camk2g | 021820 | 225800 | N/A | Klhl13 | 036782 | 115317 | 110972 | Serpinh1 | 070436 | 208749 | 146515 |
| Camk2g | 021820 | 224566 | N/A | Klhl13 | 036782 | 144360 | N/A | Serpinh1 | 070436 | 207989 | 146444 |
| Camk2g | 021820 | 224804 | N/A | Klhl13 | 036782 | 153345 | N/A | Serpinh1 | 070436 | 208292 | 146373 |
| Camk2g | 021820 | 225635 | N/A | Klhl13 | 036782 | 035973 | 041190 | Serpini1 | 027834 | 161776 | 123845 |
| Camk4 | 038128 | 042868 | 046539 | Klhl5 | 054920 | 204097 | 144976 | Serpini1 | 027834 | 029423 | 029423 |
| Camkv | 032936 | 035700 | 040430 | Klhl5 | 054920 | 101191 | 098752 | Serpini1 | 027834 | 195285 | N/A |
| Camkv | 032936 | 192318 | N/A | Klhl5 | 054920 | 204348 | 144732 | Serpini1 | 027834 | 161695 | N/A |
| Camkv | 032936 | 193533 | 141347 | Klhl5 | 054920 | 204829 | N/A | Serpini2 | 034139 | 039047 | 046943 |
| Camkv | 032936 | 195219 | 142005 | Klhl5 | 054920 | 204479 | N/A | Serttm1 | 056306 | 162201 | 124102 |
| Camkv | 032936 | 194206 | 141444 | Klhl5 | 054920 | 203561 | N/A | Serttm1 | 056306 | 070342 | 064870 |
| Cap2 | 021373 | 021802 | 021802 | Klhl5 | 054920 | 203538 | 145269 | Sestd1 | 042272 | 102660 | 099721 |
| Cap2 | 021373 | 119341 | 112952 | Klk6 | 050063 | 107968 | 103602 | Sestd1 | 042272 | 102659 | 099720 |
| Cap2 | 021373 | 225824 | 153125 | Klk6 | 050063 | 107966 | 103600 | Sestd1 | 042272 | 145366 | N/A |
| Cap2 | 021373 | 225444 | N/A | Klk6 | 050063 | 177514 | 135591 | Sestd1 | 042272 | 139021 | N/A |
| Cap2 | 021373 | 126687 | 153072 | Klk6 | 050063 | 107967 | 103601 | Setbp1 | 024548 | 025430 | 025430 |
| Capn5 | 035547 | 040971 | 048183 | Kndc1 | 066129 | 154782 | N/A | Sez6l2 | 030683 | 106335 | 101942 |
| Capn5 | 035547 | 107112 | 102729 | Kndc1 | 066129 | 121839 | 113856 | Sez6l2 | 030683 | 146017 | 115905 |
| Capn5 | 035547 | 134638 | N/A | Kndc1 | 066129 | 156941 | N/A | Sez6l2 | 030683 | 106333 | 101940 |
| Capn5 | 035547 | 155056 | 116697 | Kndc1 | 066129 | 210154 | N/A | Sez6l2 | 030683 | 106332 | 101939 |
| Capn5 | 035547 | 129430 | 121200 | Kndc1 | 066129 | 053445 | 050586 | Sez6l2 | 030683 | 125669 | 145667 |
| Capzb | 028745 | 102508 | 099566 | Krt24 | 020913 | 017255 | 017255 | Sez6l2 | 030683 | 134471 | N/A |
| Capzb | 028745 | 131912 | 114973 | Ksr2 | 061578 | 073347 | N/A | Sez6l2 | 030683 | 155138 | 146086 |
| Capzb | 028745 | 102507 | 099565 | Ksr2 | 061578 | 180430 | 137670 | Sgcd | 020354 | 154578 | N/A |
| Capzb | 028745 | 131793 | N/A | L3hypdh | 019718 | 138029 | N/A | Sgcd | 020354 | 077221 | 076459 |
| Capzb | 028745 | 150077 | N/A | L3hypdh | 019718 | 124405 | N/A | Sgcd | 020354 | 109220 | 104843 |
| Capzb | 028745 | 030518 | 030518 | L3hypdh | 019718 | 019862 | 019862 | Sgcd | 020354 | 128558 | N/A |
| Capzb | 028745 | 156760 | N/A | L3mbtl2 | 022394 | 023029 | 023029 | Sgms2 | 050931 | 090246 | 087713 |
| Capzb | 028745 | 145368 | 119252 | L3mbtl2 | 022394 | 174229 | 133967 | Sgms2 | 050931 | 126569 | 114192 |
| Capzb | 028745 | 138045 | 122077 | L3mbtl2 | 022394 | 172620 | N/A | Sgms2 | 050931 | 197057 | 143170 |
| Capzb | 028745 | 042675 | 038011 | L3mbtl2 | 022394 | 172568 | N/A | Sgms2 | 050931 | 200431 | N/A |
| Capzb | 028745 | 132385 | N/A | L3mbtl2 | 022394 | 172748 | 134333 | Sh2d1a | 005696 | 129855 | N/A |
| Car12 | 032373 | 071889 | 071786 | L3mbtl2 | 022394 | 174274 | N/A | Sh2d1a | 005696 | 189753 | 141070 |
| Car12 | 032373 | 152011 | N/A | L3mbtl2 | 022394 | 173105 | N/A | Sh2d1a | 005696 | 005839 | 005839 |
| Car12 | 032373 | 123195 | N/A | L3mbtl2 | 022394 | 173607 | N/A | Sh2d1a | 005696 | 115070 | 110722 |
| Car12 | 032373 | 217394 | N/A | L3mbtl2 | 022394 | 174497 | 133549 | Sh2d1a | 005696 | 153948 | 138624 |
| Car12 | 032373 | 085420 | 082541 | L3mbtl2 | 022394 | 174401 | N/A | Sh2d1a | 005696 | 128393 | N/A |
| Car12 | 032373 | 134829 | 118030 | L3mbtl2 | 022394 | 173761 | N/A | Sh2d1a | 005696 | 101619 | N/A |
| Car14 | 038526 | 036181 | 036983 | Lama1 | 032796 | 035471 | 043957 | Sh2d4b | 037833 | 070328 | 064708 |
| Car14 | 038526 | 147962 | 117464 | Lama2 | 019899 | 186279 | N/A | Sh2d4b | 037833 | 096000 | 093699 |
| Car14 | 038526 | 149202 | N/A | Lama2 | 019899 | 092639 | 090304 | Sh2d4b | 037833 | 225854 | N/A |
| Car14 | 038526 | 126722 | N/A | Lama2 | 019899 | 219763 | 151741 | Sh3bgrl2 | 032261 | 188241 | 140951 |
| Car2 | 027562 | 192609 | 141876 | Lama2 | 019899 | 189575 | 140716 | Sh3bgrl2 | 032261 | 113215 | 108841 |
| Car2 | 027562 | 029078 | 029078 | Lama2 | 019899 | 185839 | N/A | Sh3bgrl2 | 032261 | 188617 | N/A |
| Car2 | 027562 | 195520 | N/A | Lama2 | 019899 | 186965 | N/A | Sh3bgrl2 | 032261 | 188030 | 140348 |
| Car4 | 000805 | 139416 | N/A | Lama2 | 019899 | 188963 | N/A | Sh3bgrl2 | 032261 | 185664 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Car4 | 000805 | 103194 | 099483 | Lama2 | 019899 | 187535 | N/A | Sh3bp4 | 036206 | 066279 | 067581 |
| Car4 | 000805 | 138331 | N/A | Lama4 | 019846 | 159506 | N/A | Sh3bp4 | 036206 | 123745 | N/A |
| Car4 | 000805 | 150596 | 121381 | Lama4 | 019846 | 019992 | 019992 | Sh3d19 | 028082 | 182969 | N/A |
| Car4 | 000805 | 127827 | 115878 | Lama4 | 019846 | 162211 | N/A | Sh3d19 | 028082 | 182723 | N/A |
| Car4 | 000805 | 108076 | 103711 | Lama4 | 019846 | 161303 | N/A | Sh3d19 | 028082 | 183119 | N/A |
| Car7 | 031883 | 212942 | N/A | Lama4 | 019846 | 159580 | N/A | Sh3d19 | 028082 | 182399 | N/A |
| Car7 | 031883 | 159416 | 125112 | Lama4 | 019846 | 161992 | N/A | Sh3d19 | 028082 | 182666 | 138320 |
| Car7 | 031883 | 056051 | 052136 | Lama4 | 019846 | 163036 | N/A | Sh3d19 | 028082 | 183202 | N/A |
| Car7 | 031883 | 162761 | 125404 | Lamb1 | 002900 | 169088 | 132778 | Sh3d19 | 028082 | 107664 | 103291 |
| Car7 | 031883 | 162399 | N/A | Lamb1 | 002900 | 002979 | 002979 | Sh3rf1 | 031642 | 034060 | 034060 |
| Car8 | 041261 | 066674 | 063511 | Lamb1 | 002900 | 164228 | N/A | Sh3rf1 | 031642 | 209611 | 148118 |
| Carmil1 | 021338 | 125901 | 126522 | Lamb1 | 002900 | 170495 | 132001 | Sh3rf1 | 031642 | 210210 | N/A |
| Carmil1 | 021338 | 151566 | 120971 | Lamb1 | 002900 | 169065 | N/A | Sh3rf3 | 037990 | 135526 | 114368 |
| Carmil1 | 021338 | 072889 | 072662 | Lamb1 | 002900 | 164009 | N/A | Sh3rf3 | 037990 | 153031 | 120938 |
| Carmil1 | 021338 | 110398 | 106028 | Lamb1 | 002900 | 172134 | N/A | Sh3rf3 | 037990 | 133151 | N/A |
| Carmil1 | 021338 | 147261 | N/A | Lamp5 | 027270 | 144403 | 120703 | Sh3rf3 | 037990 | 148267 | N/A |
| Carmil1 | 021338 | 142171 | N/A | Lamp5 | 027270 | 057503 | 061180 | Sh3rf3 | 037990 | 152924 | N/A |
| Carmil1 | 021338 | 128416 | N/A | Lamp5 | 027270 | 154674 | N/A | Sh3tc2 | 045629 | 051720 | 055094 |
| Carmil1 | 021338 | 125420 | N/A | Lamp5 | 027270 | 143777 | N/A | Shank1 | 038738 | 107938 | 103571 |
| Carmil1 | 021338 | 144159 | N/A | Lamp5 | 027270 | 123436 | N/A | Shank1 | 038738 | 107935 | 103568 |
| Carmil1 | 021338 | 140042 | 127121 | Laptm4b | 022257 | 022867 | 022867 | Shank1 | 038738 | 107934 | 103567 |
| Carmil1 | 021338 | 123076 | 130100 | Laptm4b | 022257 | 226437 | 154241 | Shank1 | 038738 | 134470 | N/A |
| Carmil1 | 021338 | 136517 | N/A | Laptm4b | 022257 | 226627 | 153935 | Shank1 | 038738 | 154776 | N/A |
| Cams1 | 075289 | 167055 | 131624 | Laptm4b | 022257 | 228547 | 154118 | Shank1 | 038738 | 127164 | N/A |
| Casp12 | 025887 | 027009 | 027009 | Lars2 | 035202 | 038863 | 036710 | Shank3 | 022623 | 109309 | 104932 |
| Casp12 | 025887 | 151788 | 121565 | Lars2 | 035202 | 215674 | N/A | Shank3 | 022623 | 135214 | N/A |
| Casp12 | 025887 | 149520 | N/A | Lars2 | 035202 | 214074 | N/A | Shank3 | 022623 | 066545 | 064477 |
| Casp12 | 025887 | 138308 | N/A | Lars2 | 035202 | 217116 | 150083 | Shank3 | 022623 | 154240 | N/A |
| Casp12 | 025887 | 151332 | 122201 | Lars2 | 035202 | 216843 | 150895 | Shank3 | 022623 | 123799 | N/A |
| Casq2 | 027861 | 029454 | 029454 | Lars2 | 035202 | 215464 | 149082 | Shank3 | 022623 | 167173 | 132229 |
| Casq2 | 027861 | 165540 | 130482 | Lars2 | 035202 | 214557 | N/A | Shank3 | 022623 | 039074 | 048062 |
| Casq2 | 027861 | 164123 | 131232 | Lars2 | 035202 | 213711 | N/A | Shc3 | 021448 | 021898 | 021898 |
| Casq2 | 027861 | 159521 | N/A | Lars2 | 035202 | 215087 | N/A | Shc3 | 021448 | 223543 | 152080 |
| Casq2 | 027861 | 159833 | N/A | Lbh | 024063 | 024857 | 024857 | Shc3 | 021448 | 221850 | N/A |
| Cav1 | 007655 | 007799 | 007799 | Lbh | 024063 | 148556 | 123062 | Shc4 | 035109 | 042246 | 043146 |
| Cav1 | 007655 | 115456 | 111116 | Lcat | 035237 | 038896 | 038232 | Shc4 | 035109 | 110480 | 106106 |
| Cav1 | 007655 | 115455 | 111115 | Lcorl | 015882 | 045586 | 042677 | Shc4 | 035109 | 110477 | 106103 |
| Cav1 | 007655 | 130505 | N/A | Lcorl | 015882 | 190036 | 140503 | Shc4 | 035109 | 157002 | N/A |
| Cav1 | 007655 | 177234 | 135875 | Lcorl | 015882 | 121573 | 112416 | Shisa6 | 053930 | 134562 | N/A |
| Cav1 | 007655 | 150901 | 135374 | Lcorl | 015882 | 199744 | N/A | Shisa6 | 053930 | 123454 | 120862 |
| Cav1 | 007655 | 123439 | 120252 | Lcorl | 015882 | 200142 | N/A | Shisa6 | 053930 | 066679 | 071025 |
| Cav1 | 007655 | 115454 | 111114 | Lcorl | 015882 | 087164 | 084408 | Shisa7 | 053550 | 117452 | 112405 |
| Cav1 | 007655 | 115453 | 111113 | Lcorl | 015882 | 016026 | 016026 | Shisa7 | 053550 | 119433 | 112423 |
| Cav1 | 007655 | 133065 | N/A | Lcorl | 015882 | 189859 | 139996 | Shisa7 | 053550 | 157068 | N/A |
| Cav2 | 000058 | 000058 | 000058 | Lcorl | 015882 | 187615 | 139466 | Shisa7 | 053550 | 132806 | N/A |
| Cav2 | 000058 | 115459 | 111119 | Lcorl | 015882 | 067997 | N/A | Shisa7 | 053550 | 066041 | 064886 |
| Cav2 | 000058 | 115462 | 111122 | Lcorl | 015882 | 156295 | N/A | Shroom3 | 029381 | 113055 | 108678 |
| Cbfb | 031885 | 052209 | 059382 | Lcorl | 015882 | 186633 | 141174 | Shroom3 | 029381 | 168878 | 130419 |
| Cbfb | 031885 | 109392 | 105019 | Ldah | 037669 | 037383 | 042285 | Shroom3 | 029381 | 202767 | N/A |
| Cbfb | 031885 | 109395 | 105022 | Ldah | 037669 | 218883 | 151802 | Shroom3 | 029381 | 113054 | 108677 |
| Cbfb | 031885 | 109394 | 105021 | Ldah | 037669 | 218305 | 151881 | Shroom3 | 029381 | 172849 | N/A |
| Cbfb | 031885 | 186070 | N/A | Ldah | 037669 | 219043 | 151289 | Shroom3 | 029381 | 225438 | 153516 |
| Cbfb | 031885 | 190915 | N/A | Ldah | 037669 | 218086 | 151612 | Shroom3 | 029381 | 113051 | 108674 |
| Cbfb | 031885 | 187323 | N/A | Ldah | 037669 | 169104 | 129424 | Shroom3 | 029381 | 172706 | 133690 |
| Cbln1 | 031654 | 034076 | 034076 | Ldah | 037669 | 220345 | 151631 | Shroom3 | 029381 | 201800 | N/A |
| Cbln1 | 031654 | 211279 | N/A | Ldah | 037669 | 217763 | N/A | Shroom3 | 029381 | 200869 | N/A |
| Cbln1 | 031654 | 169693 | 126575 | Ldah | 037669 | 217999 | 151852 | Shroom3 | 029381 | 172752 | N/A |
| Cbln2 | 024647 | 068423 | 068863 | Ldah | 037669 | 219357 | 151362 | Shroom4 | 068270 | 103005 | 100070 |
| Cbln2 | 024647 | 122464 | 113996 | Ldah | 037669 | 219058 | 151541 | Shroom4 | 068270 | 143641 | 131806 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cbln2 | 024647 | 122079 | 113695 | Ldah | 037669 | 220274 | 151309 | Shroom4 | 068270 | 089520 | 086949 |
| Cbln2 | 024647 | 169470 | 126810 | Ldah | 037669 | 217872 | 151257 | Shtn1 | 041362 | 047511 | 041378 |
| Cbln3 | 040380 | 063871 | 070494 | Ldah | 037669 | 219532 | 151941 | Shtn1 | 041362 | 163821 | 126227 |
| Cbln3 | 040380 | 172378 | 127798 | Ldb2 | 039706 | 199534 | 142442 | Siah3 | 091722 | 164848 | 130827 |
| Cdc13 | 079235 | 135986 | 114787 | Ldb2 | 039706 | 070748 | 067737 | Sidt1 | 022696 | 127567 | 116201 |
| Cdc13 | 079235 | 155511 | 128061 | Ldb2 | 039706 | 199256 | 143775 | Sidt1 | 022696 | 136381 | 115372 |
| Cdc13 | 079235 | 126851 | N/A | Ldb2 | 039706 | 199261 | 143289 | Sidt1 | 022696 | 047446 | 038433 |
| Cdc13 | 079235 | 142783 | 130887 | Ldb2 | 039706 | 199471 | N/A | Sidt1 | 022696 | 127124 | N/A |
| Cdc13 | 079235 | 140929 | N/A | Ldb2 | 039706 | 198356 | N/A | Sidt1 | 022696 | 147032 | 114424 |
| Cdc13 | 079235 | 146716 | N/A | Ldb2 | 039706 | 198894 | N/A | Sidt1 | 022696 | 124651 | N/A |
| Cdc152 | 091119 | 226261 | 153730 | Leng9 | 043432 | 058358 | 061079 | Sipa1l1 | 042700 | 220550 | N/A |
| Cdc152 | 091119 | 228405 | 153740 | Lfng | 029570 | 031555 | 031555 | Sipa1l1 | 042700 | 166429 | 131030 |
| Cdc152 | 091119 | 165386 | 129305 | Lfng | 029570 | 200626 | N/A | Sipa1l1 | 042700 | 220963 | 152681 |
| Cdc175 | 021086 | 021494 | 021494 | Lfng | 029570 | 199848 | N/A | Sipa1l1 | 042700 | 222312 | N/A |
| Cdc180 | 035539 | 127261 | N/A | Lgi4 | 036560 | 039775 | 041579 | Sipa1l1 | 042700 | 222849 | N/A |
| Cdc180 | 035539 | 149903 | 119784 | Lgi4 | 036560 | 169785 | 145660 | Sipa1l1 | 042700 | 222298 | 152356 |
| Cdc180 | 035539 | 151024 | 122332 | Lgi4 | 036560 | 164725 | 146008 | Sipa1l1 | 042700 | 222714 | 152212 |
| Cdc180 | 035539 | 178561 | 136714 | Lgi4 | 036560 | 172001 | 125865 | Sipa1l1 | 042700 | 220766 | N/A |
| Cdc80 | 022665 | 139509 | N/A | Lgr5 | 020140 | 020350 | 020350 | Sipa1l1 | 042700 | 221169 | 152485 |
| Cdc80 | 022665 | 138048 | N/A | Lgr5 | 020140 | 172806 | 133860 | Sipa1l1 | 042700 | 221327 | N/A |
| Cdc80 | 022665 | 155800 | N/A | Lgr5 | 020140 | 173740 | 133707 | Sipa1l1 | 042700 | 053969 | 061014 |
| Cdc80 | 022665 | 099498 | 097097 | Lgr5 | 020140 | 173619 | N/A | Sipa1l3 | 030583 | 183330 | 138345 |
| Cdc80 | 022665 | 134924 | N/A | Lgr5 | 020140 | 144732 | N/A | Sipa1l3 | 030583 | 182223 | N/A |
| Cdc80 | 022665 | 061050 | 058752 | Lgr5 | 020140 | 105272 | N/A | Sipa1l3 | 030583 | 183096 | 138171 |
| Cdc85a | 032878 | 160016 | 125648 | Lgr5 | 020140 | 149008 | N/A | Sipa1l3 | 030583 | 182009 | N/A |
| Cdc85a | 032878 | 140601 | 124184 | Lgr5 | 020140 | 129309 | N/A | Sipa1l3 | 030583 | 182780 | 138311 |
| Cdc85a | 032878 | 093253 | 090941 | Lgr6 | 042793 | 044828 | 035444 | Sipa1l3 | 030583 | 182484 | 138714 |
| Cdc85a | 032878 | 146385 | 124972 | Lgr6 | 042793 | 137968 | 122334 | Sipa1l3 | 030583 | 182829 | N/A |
| Cdc85a | 032878 | 042534 | 044649 | Lgr6 | 042793 | 139369 | N/A | Sipa1l3 | 030583 | 183164 | N/A |
| Cdc85a | 032878 | 109501 | N/A | Lhfp | 048332 | 059562 | 056364 | Sipa1l3 | 030583 | 182911 | N/A |
| Cdc85a | 032878 | 109502 | 105128 | Lhfp | 048332 | 137954 | N/A | Sipa1l3 | 030583 | 183275 | 138381 |
| Cdc88a | 032740 | 040182 | 048978 | Lhfp | 048332 | 147139 | 119019 | Sipa1l3 | 030583 | 182529 | N/A |
| Cdc88a | 032740 | 123561 | 119173 | Lhfp | 048332 | 196913 | N/A | Sipa1l3 | 030583 | 182011 | N/A |
| Cdc88a | 032740 | 155854 | 115117 | Lhfpl2 | 045312 | 054274 | 062239 | Sipa1l3 | 030583 | 181975 | 138592 |
| Cdc88a | 032740 | 140194 | 114942 | Lhfpl2 | 045312 | 144838 | N/A | Sipa1l3 | 030583 | 182702 | N/A |
| Cdc88a | 032740 | 137227 | N/A | Lhfpl2 | 045312 | 156071 | 117113 | Sipa1l3 | 030583 | 182236 | N/A |
| Cdc88a | 032740 | 144450 | N/A | Lhfpl2 | 045312 | 221096 | 152453 | Sipa1l3 | 030583 | 183081 | N/A |
| Cdc88a | 032740 | 109477 | 105103 | Lhfpl2 | 045312 | 223423 | 152241 | Sipa1l3 | 030583 | 183085 | N/A |
| Cck | 032532 | 216176 | 149163 | Lhfpl2 | 045312 | 120051 | 113786 | Sipa1l3 | 030583 | 085809 | 082965 |
| Cck | 032532 | 216138 | 150080 | Lhfpl2 | 045312 | 118195 | 112655 | Sirpa | 037902 | 127751 | N/A |
| Cck | 032532 | 035120 | 035120 | Lhfpl2 | 045312 | 131595 | N/A | Sirpa | 037902 | 136153 | N/A |
| Cck | 032532 | 215228 | 149679 | Lhfpl2 | 045312 | 121618 | 113468 | Sirpa | 037902 | 153491 | 120324 |
| Cck | 032532 | 213106 | 149410 | Lhx1 | 018698 | 018842 | 018842 | Sirpa | 037902 | 161620 | 124048 |
| Cck | 032532 | 217581 | 150557 | Lhx1 | 018698 | 184646 | 138899 | Sirpa | 037902 | 136554 | N/A |
| Cckbr | 030898 | 033189 | 033189 | Lhx1 | 018698 | 176503 | N/A | Sirpa | 037902 | 103203 | 099492 |
| Cckbr | 030898 | 181339 | 138052 | Lhx1 | 018698 | 092827 | 090503 | Sirpa | 037902 | 103202 | 099491 |
| Ccnd1 | 070348 | 093962 | 091495 | Lhx1os | 087211 | 134800 | N/A | Sirpa | 037902 | 049262 | 049022 |
| Ccnd1 | 070348 | 208193 | N/A | Lhx1os | 087211 | 126072 | N/A | Sirpa | 037902 | 160952 | N/A |
| Ccnd1 | 070348 | 135985 | N/A | Lhx1os | 087211 | 128121 | N/A | Sirpa | 037902 | 163034 | 124888 |
| Ccnd2 | 000184 | 000188 | 000188 | Lhx5 | 029595 | 031591 | 031591 | Sirpa | 037902 | 160276 | 125004 |
| Ccnd2 | 000184 | 201564 | N/A | Lims2 | 024395 | 025254 | 025254 | Sirpa | 037902 | 162764 | N/A |
| Ccnd2 | 000184 | 201985 | N/A | Lims2 | 024395 | 225404 | 153218 | Sirpa | 037902 | 099113 | 096713 |
| Ccnd2 | 000184 | 201902 | 144006 | Lims2 | 024395 | 225470 | N/A | Sirpa | 037902 | 179001 | 137611 |
| Ccnd2 | 000184 | 202363 | N/A | Lims2 | 024395 | 224383 | 152960 | Skap2 | 059182 | 204778 | 145462 |
| Ccnd2 | 000184 | 201066 | 144095 | Lims2 | 024395 | 226112 | N/A | Skap2 | 059182 | 205174 | N/A |
| Ccnd2 | 000184 | 201637 | 144245 | Lims2 | 024395 | 225400 | N/A | Skap2 | 059182 | 078214 | 077342 |
| Ccnd2 | 000184 | 201857 | N/A | Lims2 | 024395 | 223753 | 153122 | Skap2 | 059182 | 203948 | 145275 |
| Cd70 | 019489 | 019633 | 019633 | Lims2 | 024395 | 225125 | N/A | Skap2 | 059182 | 205112 | N/A |
| Cd82 | 027215 | 099696 | 097287 | Lims2 | 024395 | 224328 | 153433 | Skap2 | 059182 | 204178 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cd82 | 027215 | 028644 | 028644 | Lin28b | 063804 | 079390 | 078361 | Skap2 | 059182 | 203313 | N/A |
| Cd82 | 027215 | 126772 | N/A | Lin28b | 063804 | 215708 | N/A | Skor1 | 022245 | 119146 | 113924 |
| Cd82 | 027215 | 111257 | 106888 | Lin28b | 063804 | 214555 | N/A | Skor1 | 022245 | 116613 | 112312 |
| Cd82 | 027215 | 123565 | 114762 | Lin7a | 019906 | 020057 | 020057 | Skor1 | 022245 | 055281 | 055037 |
| Cd82 | 027215 | 145553 | 115310 | Lin7a | 019906 | 105280 | 100916 | Skor2 | 091519 | 166956 | 132338 |
| Cd82 | 027215 | 150508 | 120183 | Lin7a | 019906 | 218031 | 151715 | Slc12a2 | 024597 | 115366 | 111023 |
| Cd82 | 027215 | 111256 | 106887 | Gm28653 | 099906 | 227082 | N/A | Slc12a8 | 035506 | 121925 | 112439 |
| Cd82 | 027215 | 144168 | N/A | Gm28653 | 099906 | 185494 | N/A | Slc12a8 | 035506 | 119173 | 113633 |
| Cd82 | 027215 | 124804 | 115349 | Lingo1 | 049556 | 210032 | 148179 | Slc12a8 | 035506 | 122314 | 113901 |
| Cd82 | 027215 | 116457 | 112158 | Lingo1 | 049556 | 114256 | 109894 | Slc12a8 | 035506 | 122427 | 113164 |
| Cd9 | 030342 | 032492 | 032492 | Lingo1 | 049556 | 114247 | 109885 | Slc12a8 | 035506 | 117134 | 112925 |
| Cd9 | 030342 | 130132 | N/A | Lingo1 | 049556 | 209596 | N/A | Slc12a8 | 035506 | 149291 | N/A |
| Cd9 | 030342 | 140024 | N/A | Lingo1 | 049556 | 210332 | N/A | Slc12a8 | 035506 | 059056 | 062337 |
| Cdc14b | 033102 | 221634 | 152388 | Lingo1 | 049556 | 209332 | N/A | Slc14a1 | 059336 | 091813 | 089421 |
| Cdc14b | 033102 | 039318 | 046003 | Lingo1 | 049556 | 210995 | N/A | Slc14a1 | 059336 | 160292 | 125114 |
| Cdc14b | 033102 | 221139 | 152843 | Lingo1 | 049556 | 053568 | 059050 | Slc14a1 | 059336 | 160639 | 125367 |
| Cdc14b | 033102 | 109769 | 105391 | Lingo2 | 045083 | 065173 | 069772 | Slc14a2 | 024552 | 025434 | 025434 |
| Cdc14b | 033102 | 221788 | N/A | Lingo2 | 045083 | 098151 | 095754 | Slc14a2 | 024552 | 163367 | 126416 |
| Cdc14b | 033102 | 222713 | 152246 | Lingo2 | 045083 | 108122 | 103757 | Slc16a10 | 019838 | 092566 | 090227 |
| Cdc14b | 033102 | 221217 | 152736 | Lingo2 | 045083 | 124999 | N/A | Slc16a10 | 019838 | 213827 | 151126 |
| Cdc14b | 033102 | 222766 | 152870 | Lingo2 | 045083 | 145615 | N/A | Slc16a10 | 019838 | 213488 | 150416 |
| Cdc14b | 033102 | 223116 | N/A | Lingo2 | 045083 | 127372 | N/A | Slc16a10 | 019838 | 217252 | N/A |
| Cdc14b | 033102 | 221437 | N/A | Lingo2 | 045083 | 144170 | N/A | Slc17a7 | 070570 | 085374 | 082489 |
| Cdc14b | 033102 | 109770 | 105392 | Lingo2 | 045083 | 125128 | N/A | Slc17a7 | 070570 | 209634 | 147661 |
| Cdc42ep1 | 049521 | 059619 | 060930 | Lingo2 | 045083 | 108124 | 103759 | Slc17a7 | 070570 | 210498 | N/A |
| Cdc42ep4 | 041598 | 106616 | 102227 | Lingo2 | 045083 | 164772 | 130423 | Slc17a7 | 070570 | 210540 | N/A |
| Cdc42ep4 | 041598 | 053536 | 060227 | Litaf | 022500 | 023143 | 023143 | Slc17a7 | 070570 | 211652 | N/A |
| Cdc42ep4 | 041598 | 131488 | 114599 | Litaf | 022500 | 117360 | 112667 | Slc19a1 | 001436 | 136150 | 121237 |
| Cdc42ep4 | 041598 | 153453 | 120316 | Litaf | 022500 | 162323 | 123948 | Slc19a1 | 001436 | 133059 | 120266 |
| Cdh1 | 000303 | 000312 | 000312 | Litaf | 022500 | 140170 | N/A | Slc19a1 | 001436 | 144234 | 116784 |
| Cdh1 | 000303 | 136580 | N/A | Lmcd1 | 057604 | 032376 | 032376 | Slc19a1 | 001436 | 105410 | 101050 |
| Cdh1 | 000303 | 167688 | 132112 | Lmo2 | 032698 | 111143 | 106773 | Slc19a1 | 001436 | 136925 | 119382 |
| Cdh10 | 022321 | 166873 | 128782 | Lmo2 | 032698 | 111140 | 106770 | Slc19a1 | 001436 | 130703 | 115658 |
| Cdh10 | 022321 | 176801 | N/A | Lmo2 | 032698 | 133210 | N/A | Slc19a1 | 001436 | 132984 | 116657 |
| Cdh10 | 022321 | 176593 | N/A | Lmo2 | 032698 | 111139 | 106769 | Slc19a1 | 001436 | 127249 | N/A |
| Cdh10 | 022321 | 040562 | 042199 | Lmo2 | 032698 | 123437 | 117703 | Slc19a1 | 001436 | 131031 | 114884 |
| Cdh10 | 022321 | 176146 | 135546 | Lmo2 | 032698 | 138815 | 121927 | Slc1a1 | 024935 | 161340 | N/A |
| Cdh10 | 022321 | 176409 | N/A | Lmo2 | 032698 | 156813 | 122369 | Slc1a1 | 024935 | 025875 | 025875 |
| Cdh11 | 031673 | 075190 | 074681 | Lmo2 | 032698 | 170926 | 128317 | Slc1a1 | 024935 | 161119 | N/A |
| Cdh11 | 031673 | 210578 | N/A | Lonrf2 | 048814 | 147695 | 117600 | Slc1a1 | 024935 | 160702 | N/A |
| Cdh11 | 031673 | 210425 | N/A | Lonrf2 | 048814 | 191724 | N/A | Slc1a1 | 024935 | 162189 | N/A |
| Cdh13 | 031841 | 117160 | 113527 | Lonrf2 | 048814 | 039612 | 047372 | Slc1a4 | 020142 | 004634 | 004634 |
| Cdh13 | 031841 | 145849 | N/A | Lpcat2 | 033192 | 046290 | 049252 | Slc1a4 | 020142 | 109594 | 105223 |
| Cdh13 | 031841 | 142551 | N/A | Lpcat2 | 033192 | 210099 | 147941 | Slc1a6 | 005357 | 005490 | 005490 |
| Cdh13 | 031841 | 129548 | N/A | Lpcat2 | 033192 | 209265 | 148089 | Slc1a6 | 005357 | 217717 | 151544 |
| Cdh13 | 031841 | 148836 | N/A | Lpcat2 | 033192 | 130471 | N/A | Slc20a1 | 027397 | 028880 | 028880 |
| Cdh13 | 031841 | 123567 | N/A | Lpcat2 | 033192 | 151106 | N/A | Slc20a1 | 027397 | 140907 | N/A |
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| Cdh13 | 031841 | 151842 | N/A | Lpp | 033306 | 078988 | 078005 | Slc20a1 | 027397 | 141285 | N/A |
| Cdh15 | 031962 | 034443 | 034443 | Lpp | 033306 | 038053 | 036304 | Slc20a1 | 027397 | 148988 | 121074 |
| Cdh19 | 047216 | 094626 | 092210 | Lrch1 | 068015 | 088970 | 086363 | Slc20a1 | 027397 | 110315 | 105944 |
| Cdh19 | 047216 | 187555 | N/A | Lrch1 | 068015 | 228134 | N/A | Slc20a1 | 027397 | 125714 | N/A |
| Cdh2 | 024304 | 025166 | 025166 | Lrch1 | 068015 | 228252 | 154004 | Slc20a1 | 027397 | 144025 | N/A |
| Cdh2 | 024304 | 152779 | N/A | Lrch1 | 068015 | 226799 | N/A | Slc22a15 | 033147 | 106928 | 102541 |
| Cdh2 | 024304 | 115850 | 111516 | Lrch1 | 068015 | 227433 | N/A | Slc22a15 | 033147 | 190824 | 139518 |
| Cdh4 | 000305 | 000314 | 000314 | Lrig1 | 030029 | 204645 | 144963 | Slc22a15 | 033147 | 182130 | N/A |
| Cdh4 | 000305 | 108911 | 104539 | Lrig1 | 030029 | 101126 | 098686 | Slc22a15 | 033147 | 183293 | N/A |
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| Cdh4 | 000305 | 136411 | N/A | Lrig1 | 030029 | 141014 | N/A | Slc22a15 | 033147 | 183098 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cdh4 | 000305 | 129659 | N/A | Lrig1 | 030029 | 150811 | N/A | Slc22a15 | 033147 | 182040 | N/A |
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| Cdh8 | 036510 | 155527 | 123619 | Lrig1 | 030029 | 032105 | 032105 | Slc22a23 | 038267 | 040336 | 042742 |
| Cdh8 | 036510 | 142129 | 114507 | Lrp1 | 040249 | 049149 | 044004 | Slc22a23 | 038267 | 128392 | N/A |
| Cdh8 | 036510 | 093249 | 090935 | Lrp1 | 040249 | 125480 | N/A | Slc22a23 | 038267 | 145038 | 122376 |
| Cdh8 | 036510 | 145601 | 122493 | Lrp1 | 040249 | 121829 | 113584 | Slc22a23 | 038267 | 143353 | N/A |
| Cdh8 | 036510 | 128860 | 117326 | Lrp1 | 040249 | 133620 | 115305 | Slc22a4 | 020334 | 020586 | 020586 |
| Cdh8 | 036510 | 126895 | N/A | Lrp1 | 040249 | 129877 | N/A | Slc22a4 | 020334 | 146351 | N/A |
| Cdh8 | 036510 | 142475 | 115977 | Lrp1 | 040249 | 129727 | 120567 | Slc22a4 | 020334 | 154369 | N/A |
| Cdhr1 | 021803 | 022337 | 022337 | Lrp1 | 040249 | 145947 | N/A | Slc24a3 | 063873 | 153249 | N/A |
| Cdk14 | 028926 | 115451 | 111111 | Lrp1 | 040249 | 140269 | N/A | Slc24a3 | 063873 | 131123 | N/A |
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| Cdk14 | 028926 | 115450 | 111110 | Lrp1 | 040249 | 118455 | 113497 | Slc24a3 | 063873 | 137908 | N/A |
| Cdk14 | 028926 | 115452 | 111112 | Lrp1b | 049252 | 129974 | N/A | Slc24a3 | 063873 | 081121 | 079897 |
| Cdk14 | 028926 | 199623 | N/A | Lrp1b | 049252 | 052550 | 054275 | Slc24a4 | 041771 | 159329 | 124513 |
| Cdk14 | 028926 | 133465 | N/A | Lrp1b | 049252 | 142546 | 117212 | Slc24a4 | 041771 | 079020 | 078030 |
| Cdk14 | 028926 | 156660 | N/A | Lrp1b | 049252 | 203015 | 145066 | Slc24a4 | 041771 | 161325 | 125012 |
| Cdk14 | 028926 | 134867 | N/A | Lrp1b | 049252 | 134032 | N/A | Slc25a18 | 004902 | 112682 | 108302 |
| Cdk14 | 028926 | 132390 | N/A | Lrp1b | 049252 | 203080 | 145278 | Slc25a33 | 028982 | 105686 | 101311 |
| Cdk14 | 028926 | 153331 | N/A | Lrp1b | 049252 | 138700 | N/A | Slc26a3 | 001225 | 167432 | 130676 |
| Cdk14 | 028926 | 171119 | N/A | Lrp1b | 049252 | 204204 | 145045 | Slc26a3 | 001225 | 171616 | 128722 |
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| Cdk14 | 028926 | 137554 | N/A | Lrp1b | 049252 | 185258 | 139874 | Slc26a3 | 001225 | 168209 | N/A |
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| Cdk18 | 026437 | 027697 | 027697 | Lrrc2 | 032495 | 035076 | 035076 | Slc26a3 | 001225 | 109275 | N/A |
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| Cdk5rap2 | 039298 | 124251 | N/A | Lrrc38 | 097351 | 181564 | 137856 | Slc2a4 | 018566 | 018710 | 018710 |
| Cdk5rap2 | 039298 | 144099 | 119891 | Lrrc3b | 045201 | 055211 | 059463 | Slc2a4 | 018566 | 141837 | 136806 |
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| Cdk5rap2 | 039298 | 126416 | N/A | Lrrc3b | 045201 | 163937 | 128624 | Slc2a4 | 018566 | 178363 | 136455 |
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| Cdk5rap2 | 039298 | 140108 | 119151 | Lrrc4c | 050587 | 162807 | 125218 | Slc2a4 | 018566 | 142500 | 137463 |
| Cdkl1 | 020990 | 021377 | 021377 | Lrrc4c | 050587 | 059049 | 131795 | Slc2a4 | 018566 | 135437 | 137092 |
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| Cdo1 | 033022 | 035804 | 046517 | Lrrc7 | 028176 | 200196 | 143365 | Slc30a3 | 029151 | 202740 | 144566 |
| Cdyl | 059288 | 075220 | 074707 | Lrrc7 | 028176 | 200137 | 142498 | Slc30a3 | 029151 | 201783 | 144353 |
| Cdyl | 059288 | 225602 | 153274 | Lrrc7 | 028176 | 199890 | 142440 | Slc30a3 | 029151 | 202731 | 144574 |
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| Cebpb | 056501 | 070642 | 069850 | Lrrc7 | 028176 | 106044 | 101659 | Slc31a2 | 066152 | 107468 | 103092 |
| Cep126 | 040729 | 037397 | 042904 | Lrrk2 | 036273 | 060642 | 052584 | Slc31a2 | 066152 | 084530 | 081578 |
| Cep126 | 040729 | 217241 | N/A | Lrrk2 | 036273 | 140734 | N/A | Slc31a2 | 066152 | 107467 | 103091 |
| Cep126 | 040729 | 214150 | N/A | Lrrk2 | 036273 | 156900 | N/A | Slc32a1 | 037771 | 045738 | 036299 |
| Cep76 | 073542 | 097542 | 095149 | Lrrk2 | 036273 | 133743 | N/A | Slc35d1 | 028521 | 150285 | 122124 |
| Cept1 | 040774 | 068301 | 065743 | Lrrk2 | 036273 | 137657 | N/A | Slc35d1 | 028521 | 036195 | 037617 |
| Cept1 | 040774 | 121231 | 112509 | Lrrk2 | 036273 | 172797 | N/A | Slc35d1 | 028521 | 183432 | 138926 |
| Cept1 | 040774 | 039153 | 037277 | Lrrtm4 | 052581 | 147663 | 117263 | Slc35d1 | 028521 | 094947 | N/A |
| Cept1 | 040774 | 192438 | 142097 | Lrrtm4 | 052581 | 128718 | 114425 | Slc35d1 | 028521 | 154845 | N/A |
| Cept1 | 040774 | 148269 | 118343 | Lrrtm4 | 052581 | 126005 | 117445 | Slc35f1 | 038602 | 105473 | 101113 |
| Cept1 | 040774 | 137530 | 115898 | Lrrtm4 | 052581 | 133918 | 115016 | Slc38a1 | 023169 | 088452 | 085799 |
| Cept1 | 040774 | 141525 | 122460 | Lrrtm4 | 052581 | 126399 | 121124 | Slc38a1 | 023169 | 088454 | 085801 |
| Cercam | 039787 | 154464 | 119476 | Lrrtm4 | 052581 | 136421 | 121621 | Slc38a1 | 023169 | 100262 | 097833 |
| Cercam | 039787 | 047521 | 041622 | Lrrtm4 | 052581 | 145407 | 114465 | Slc39a12 | 036949 | 114731 | 110379 |
| Cercam | 039787 | 134152 | 115902 | Lrrtm4 | 052581 | 074662 | 074232 | Slc39a12 | 036949 | 082290 | 080911 |
| Cercam | 039787 | 153863 | N/A | Lrtm1 | 045776 | 055662 | 061828 | Slc39a12 | 036949 | 133258 | 122795 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cercam | 039787 | 155355 | N/A | Lrtm1 | 045776 | 224760 | 153372 | Slc41a1 | 013275 | 132585 | N/A |
| Cerkl | 075256 | 156731 | 121353 | Lrtm1 | 045776 | 224708 | 153518 | Slc41a1 | 013275 | 086559 | 083747 |
| Cerkl | 075256 | 099974 | N/A | Ltbp2 | 002020 | 002073 | 002073 | Slc41a1 | 013275 | 146360 | N/A |
| Cerkl | 075256 | 147402 | N/A | Ltbp2 | 002020 | 163189 | 127693 | Slc43a2 | 038178 | 042561 | 046074 |
| Cerkl | 075256 | 143974 | 114325 | Ltbp2 | 002020 | 166383 | 127255 | Slc43a2 | 038178 | 108433 | 104071 |
| Cerkl | 075256 | 152549 | N/A | Ltbp2 | 002020 | 163214 | 132067 | Slc43a2 | 038178 | 151891 | N/A |
| Cerkl | 075256 | 143602 | N/A | Ltbp2 | 002020 | 165141 | 132690 | Slc43a2 | 038178 | 145901 | N/A |
| Cerkl | 075256 | 123859 | N/A | Ltbp2 | 002020 | 168699 | N/A | Slc43a2 | 038178 | 134112 | N/A |
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| Cerkl | 075256 | 156830 | N/A | Lurap1 | 028701 | 030469 | 030469 | Slc43a2 | 038178 | 127226 | 117264 |
| Cerkl | 075256 | 130499 | N/A | Lurap1 | 028701 | 135982 | N/A | Slc43a2 | 038178 | 143035 | 123101 |
| Cerkl | 075256 | 145766 | N/A | Lurap1l | 048706 | 055922 | 062628 | Slc43a2 | 038178 | 149727 | 116255 |
| Cerkl | 075256 | 152413 | N/A | Ly6e | 022587 | 188866 | 140145 | Slc43a2 | 038178 | 152775 | N/A |
| Cers4 | 008206 | 177010 | N/A | Ly6e | 022587 | 187606 | 139471 | Slc43a2 | 038178 | 169547 | 126838 |
| Cers4 | 008206 | 176042 | 135594 | Ly6e | 022587 | 189186 | 139477 | Slc44a5 | 028360 | 089948 | 087394 |
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| Cers4 | 008206 | 176267 | N/A | Ly6e | 022587 | 190810 | 139482 | Slc44a5 | 028360 | 144677 | N/A |
| Cers4 | 008206 | 175781 | N/A | Ly6e | 022587 | 185861 | 141145 | Slc45a1 | 039838 | 037827 | 036774 |
| Cers4 | 008206 | 176837 | N/A | Ly6e | 022587 | 185863 | 140060 | Slc45a1 | 039838 | 117997 | 112737 |
| Cers4 | 008206 | 176932 | N/A | Ly6e | 022587 | 191127 | 139966 | Slc45a1 | 039838 | 147706 | N/A |
| Cers4 | 008206 | 176705 | N/A | Ly6e | 022587 | 191436 | 139549 | Slc4a4 | 060961 | 148750 | 119325 |
| Cers4 | 008206 | 176130 | 135652 | Ly6e | 022587 | 186927 | N/A | Slc4a4 | 060961 | 135283 | N/A |
| Cfap161 | 011154 | 119134 | 114051 | Ly6e | 022587 | 188503 | N/A | Slc4a4 | 060961 | 113218 | 108844 |
| Cfap161 | 011154 | 011298 | 011298 | Ly6e | 022587 | 191145 | 140829 | Slc4a4 | 060961 | 156238 | 121744 |
| Cfap161 | 011154 | 208785 | N/A | Ly6e | 022587 | 191439 | N/A | Slc4a4 | 060961 | 144713 | 122975 |
| Cfap161 | 011154 | 149671 | 115281 | Ly6e | 022587 | 188042 | 141059 | Slc4a4 | 060961 | 130041 | 118413 |
| Cfap20 | 031796 | 212731 | N/A | Ly6e | 022587 | 051698 | 056703 | Slc4a4 | 060961 | 113216 | 108842 |
| Cfap20 | 031796 | 034249 | 034249 | Ly6e | 022587 | 169343 | 132081 | Slc4a4 | 060961 | 134303 | 119976 |
| Cfap20 | 031796 | 213086 | 148651 | Lypd1 | 026344 | 159417 | 125149 | Slc4a7 | 021733 | 057015 | 058313 |
| Cfap20 | 031796 | 212579 | N/A | Lypd1 | 026344 | 162899 | 125158 | Slc4a7 | 021733 | 225496 | N/A |
| Cfap20 | 031796 | 212684 | 148527 | Lypd1 | 026344 | 027582 | 027582 | Slc4a7 | 021733 | 225232 | 153280 |
| Cfap20 | 031796 | 211908 | 148668 | Lypd1 | 026344 | 159529 | 123824 | Slc4a7 | 021733 | 224197 | N/A |
| Cfap20 | 031796 | 212807 | N/A | Lypd1 | 026344 | 161361 | 124265 | Slc4a7 | 021733 | 223981 | 153084 |
| Cfap20 | 031796 | 212131 | 148415 | Lypd6 | 050447 | 053208 | 061578 | Slc4a7 | 021733 | 223607 | 153180 |
| Cgn | 068876 | 107272 | 102893 | Lypd6 | 050447 | 128451 | 116803 | Slc4a7 | 021733 | 225238 | 152984 |
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| Cgnl1 | 032232 | 121322 | 113917 | Lypd6b | 026765 | 028103 | 028103 | Slc4a7 | 021733 | 225630 | 153597 |
| Cgnl1 | 032232 | 152224 | N/A | Lypd6b | 026765 | 153422 | N/A | Slc4a7 | 021733 | 225979 | 153690 |
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| Cgnl1 | 032232 | 136044 | N/A | Lyzl4 | 032530 | 077706 | 076887 | Slc4a7 | 021733 | 224952 | 153345 |
| Cgnl1 | 032232 | 146567 | N/A | Lyzl4 | 032530 | 120918 | 113034 | Slc4a7 | 021733 | 223695 | 153648 |
| Cgnl1 | 032232 | 072899 | 072672 | Lyzl4 | 032530 | 213757 | 151031 | Slc4a7 | 021733 | 224333 | 153470 |
| Chac1 | 027313 | 028780 | 028780 | Lyzl4 | 032530 | 125075 | 115284 | Slc4a7 | 021733 | 223740 | 152933 |
| Chd7 | 041235 | 170457 | N/A | Lyzl4 | 032530 | 214592 | 150807 | Slc4a7 | 021733 | 224672 | 152950 |
| Chd7 | 041235 | 127476 | 118711 | Mag | 036634 | 187137 | 139564 | Slc4a7 | 021733 | 224049 | 153093 |
| Chd7 | 041235 | 051558 | 059079 | Mag | 036634 | 191081 | 139881 | Slc4a7 | 021733 | 224752 | 153185 |
| Chd7 | 041235 | 129655 | 123241 | Mag | 036634 | 188569 | 140526 | Slc4a7 | 021733 | 225078 | N/A |
| Chd7 | 041235 | 170391 | 127007 | Mag | 036634 | 186422 | N/A | Slc4a7 | 021733 | 223771 | 153532 |
| Chd7 | 041235 | 130709 | N/A | Mag | 036634 | 190638 | 140578 | Slc4a7 | 021733 | 225508 | N/A |
| Chd7 | 041235 | 222546 | 152166 | Mag | 036634 | 190950 | 139861 | Slc4a7 | 021733 | 224750 | N/A |
| Chd7 | 041235 | 039267 | 043903 | Mag | 036634 | 191486 | N/A | Slc4a7 | 021733 | 225613 | N/A |
| Chdh | 015970 | 067620 | 065542 | Mag | 036634 | 040548 | 041464 | Slc5a11 | 030769 | 131933 | 121459 |
| Chdh | 015970 | 125796 | N/A | Magi3 | 052539 | 064371 | 067932 | Slc5a11 | 030769 | 140721 | N/A |
| Chdh | 015970 | 118917 | 112916 | Magi3 | 052539 | 121198 | 112934 | Slc5a11 | 030769 | 033035 | 033035 |
| Chgb | 027350 | 028826 | 028826 | Magi3 | 052539 | 122303 | 113713 | Slc5a11 | 030769 | 131461 | 123027 |
| Chid1 | 025512 | 153191 | 114693 | Magi3 | 052539 | 199201 | N/A | Slc5a11 | 030769 | 127655 | 117956 |
| Chid1 | 025512 | 118694 | 112891 | Mak | 021363 | 225084 | 152946 | Slc5a11 | 030769 | 131209 | 120678 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Chid1 | 025512 | 209452 | 147938 | Mak | 021363 | 225789 | N/A | Slc5a11 | 030769 | 206180 | N/A |
| Chid1 | 025512 | 147610 | N/A | Mak | 021363 | 070193 | 064750 | Slc5a11 | 030769 | 167299 | 127977 |
| Chid1 | 025512 | 064642 | 065953 | Mak | 021363 | 224740 | 153314 | Slc5a7 | 023945 | 095712 | 093379 |
| Chid1 | 025512 | 155305 | N/A | Mak | 021363 | 225906 | 153176 | Slc6a7 | 052026 | 025520 | 025520 |
| Chid1 | 025512 | 143561 | 115174 | Mak | 021363 | 224423 | 152961 | Slc7a1 | 041313 | 048116 | 046714 |
| Chid1 | 025512 | 133359 | N/A | Mak | 021363 | 165087 | 129615 | Slc7a1 | 041313 | 138257 | 117781 |
| Chid1 | 025512 | 166082 | 130360 | Mak | 021363 | 021792 | 021792 | Slc7a1 | 041313 | 201860 | N/A |
| Chid1 | 025512 | 026586 | 026586 | Mal | 027375 | 028854 | 028854 | Slc7a1 | 041313 | 202457 | 144000 |
| Chl1 | 030077 | 203912 | 145026 | Mal | 027375 | 028853 | 028853 | Slc7a1 | 041313 | 138596 | 122914 |
| Chl1 | 030077 | 203489 | N/A | Mal2 | 024479 | 025356 | 025356 | Slc7a1 | 041313 | 201348 | N/A |
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| Chl1 | 030077 | 203830 | 144758 | Manla | 003746 | 105470 | 101110 | Slc7a10 | 030495 | 001854 | 001854 |
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| Chn2 | 004633 | 138930 | N/A | Manla | 003746 | 219234 | N/A | Slc7a10 | 030495 | 146959 | 127311 |
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| Chodl | 022860 | 023568 | 023568 | Map6d1 | 041205 | 040880 | 043332 | Slc8a1 | 054640 | 163680 | 126373 |
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| Chst10 | 026080 | 192175 | N/A | Mapk4 | 024558 | 162863 | 124408 | Slc9a3 | 036123 | 221410 | N/A |
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| Chst8 | 060402 | 078686 | 077752 | Marcksl1 | 047945 | 062356 | 055637 | Slco4a1 | 038963 | 038259 | 046502 |
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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chst9 | 047161 | 053017 | 049975 | Matn1 | 040533 | 102576 | 099636 | Slit3 | 056427 | 069837 | 066857 |
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| Cipc | 034157 | 189246 | 140266 | Mboat2 | 020646 | 222198 | 152150 | Smad7 | 025880 | 026999 | 026999 |
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| Clasrp | 061028 | 208464 | N/A | Mdfi | 032717 | 132125 | 114581 | Sobp | 038248 | 189987 | N/A |
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| Clcn1 | 029862 | 031894 | 031894 | Mdga2 | 034912 | 179577 | N/A | Socs2 | 020027 | 128363 | N/A |
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| Clcn1 | 029862 | 169024 | 130968 | Med12l | 056476 | 040846 | 041859 | Sorbs2 | 031626 | 209534 | N/A |
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| Clcn5 | 004317 | 004428 | 004428 | Med12l | 056476 | 164225 | 127038 | Sorbs2 | 031626 | 171337 | 128000 |
| Clcn5 | 004317 | 154382 | N/A | Mef2c | 005583 | 198199 | 143742 | Sorbs2 | 031626 | 067107 | 067641 |
| Clcn5 | 004317 | 128319 | 122555 | Mef2c | 005583 | 199450 | 143315 | Sorbs2 | 031626 | 145458 | 116536 |
| Clcn5 | 004317 | 115746 | 111412 | Mef2c | 005583 | 198916 | 143235 | Sorbs2 | 031626 | 134321 | 115842 |
| Clcn5 | 004317 | 132126 | N/A | Mef2c | 005583 | 200123 | 142833 | Sorbs2 | 031626 | 135336 | 114286 |
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| Clec7a | 079293 | 195589 | 141234 | Mef2c | 005583 | 196493 | 142897 | Sorbs2 | 031626 | 153798 | 118353 |
| Clec7a | 079293 | 184581 | 139167 | Mef2c | 005583 | 200394 | 143598 | Sorbs2 | 031626 | 210946 | 147573 |
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| Clmp | 032024 | 134153 | N/A | Mef2c | 005583 | 185052 | 138826 | Sorbs2 | 031626 | 140088 | 114158 |
| Clstn2 | 032452 | 035027 | 035027 | Mef2c | 005583 | 195984 | 143611 | Sorbs2 | 031626 | 155858 | 122820 |
| Clstn2 | 032452 | 162295 | 124081 | Mef2c | 005583 | 199167 | 142884 | Sorbs2 | 031626 | 132730 | N/A |
| Clvs2 | 019785 | 019920 | 019920 | Mef2c | 005583 | 195904 | 143339 | Sorbs2 | 031626 | 146627 | 120487 |
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| Cmtm5 | 040759 | 037814 | 036138 | Mef2c | 005583 | 197145 | 142619 | Sorbs3 | 022091 | 227653 | 154195 |
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| Cnih3 | 026514 | 161880 | 124611 | Mei4 | 043289 | 057067 | 061341 | Sorbs3 | 022091 | 227929 | 154773 |
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| Cnp | 006782 | 150414 | N/A | Meis1 | 020160 | 177357 | 139074 | Sox2 | 074637 | 099151 | 096755 |
| Cnp | 006782 | 147403 | N/A | Meis1 | 020160 | 125722 | N/A | Sox6 | 051910 | 206034 | 145919 |
| Cnpy1 | 044681 | 141601 | 122171 | Meis1 | 020160 | 137300 | N/A | Sox6 | 051910 | 169129 | 126404 |
| Cnpy1 | 044681 | 118882 | 113944 | Meis1 | 020160 | 185131 | 139219 | Sox6 | 051910 | 206369 | 145931 |
| Cnpy1 | 044681 | 120068 | 112773 | Meis2 | 027210 | 028639 | 028639 | Sox6 | 051910 | 205405 | 145732 |
| Cnpy1 | 044681 | 117098 | 113956 | Meis2 | 027210 | 102538 | 099597 | Sox6 | 051910 | 205980 | N/A |
| Cnpy1 | 044681 | 141196 | 116024 | Meis2 | 027210 | 110907 | 106532 | Sox6 | 051910 | 206775 | N/A |
| Cnr1 | 044288 | 057188 | 055797 | Meis2 | 027210 | 110908 | 106533 | Sox6 | 051910 | 206573 | N/A |
| Cnr1 | 044288 | 133462 | N/A | Meis2 | 027210 | 110906 | 106531 | Sox6 | 051910 | 205479 | 145561 |
| Cnr1 | 044288 | 084736 | 081787 | Meis2 | 027210 | 074285 | 073898 | Sox6 | 051910 | 206427 | N/A |
| Cntfr | 028444 | 102961 | 100026 | Meis2 | 027210 | 120995 | N/A | Sox6 | 051910 | 206123 | 145576 |
| Cntfr | 028444 | 102962 | 100027 | Meis2 | 027210 | 189640 | N/A | Sox6 | 051910 | 205818 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cntfr | 028444 | 151181 | N/A | Meis2 | 027210 | 151279 | N/A | Sox6 | 051910 | 206912 | N/A |
| Cntfr | 028444 | 064443 | N/A | Meis2 | 027210 | 177493 | N/A | Sox6 | 051910 | 072804 | 072583 |
| Cntfr | 028444 | 084701 | N/A | Meis2 | 027210 | 149217 | N/A | Sox6 | 051910 | 166877 | 129512 |
| Cntfr | 028444 | 145379 | 115631 | Meis2 | 027210 | 118654 | N/A | Sox6 | 051910 | 106612 | 102223 |
| Cntn3 | 030075 | 204990 | N/A | Meis2 | 027210 | 150477 | N/A | Sox6 | 051910 | 166207 | 129027 |
| Cntn3 | 030075 | 203619 | 145176 | Meis2 | 027210 | 154671 | N/A | Sox8 | 024176 | 025003 | 025003 |
| Cntn3 | 030075 | 032159 | 032159 | Meis2 | 027210 | 140461 | N/A | Sox8 | 024176 | 174560 | 133742 |
| Cntn4 | 064293 | 132044 | N/A | Meis2 | 027210 | 135543 | N/A | Sox8 | 024176 | 173447 | 133403 |
| Cntn4 | 064293 | 113261 | 108886 | Meis2 | 027210 | 134314 | N/A | Sox9 | 000567 | 000579 | 000579 |
| Cntn4 | 064293 | 089208 | 086616 | Meis2 | 027210 | 133990 | N/A | Sp5 | 075304 | 100043 | 097620 |
| Cntn4 | 064293 | 113260 | 108885 | Meis2 | 027210 | 138526 | N/A | Spag5 | 002055 | 045026 | 045286 |
| Cntn4 | 064293 | 113258 | 108883 | Mertk | 014361 | 014505 | 014505 | Spag5 | 002055 | 133579 | N/A |
| Cntn4 | 064293 | 125904 | N/A | Mertk | 014361 | 140221 | N/A | Spag5 | 002055 | 146068 | N/A |
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| Cntn4 | 064293 | 130040 | N/A | Metrn | 002274 | 002344 | 002344 | Spag5 | 002055 | 150016 | N/A |
| Cntn4 | 064293 | 132395 | N/A | Mfap3l | 031647 | 161421 | 124136 | Spag5 | 002055 | 149711 | N/A |
| Cntn4 | 064293 | 204621 | N/A | Mfap3l | 031647 | 160719 | 125139 | Spag5 | 002055 | 128359 | N/A |
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| Cntn4 | 064293 | 113264 | 108889 | Mff | 026150 | 078332 | 077446 | Sparc | 018593 | 018737 | 018737 |
| Cntn5 | 039488 | 160216 | 124327 | Mff | 026150 | 161572 | N/A | Sparc | 018593 | 123775 | N/A |
| Cntn5 | 039488 | 162484 | 124214 | Mff | 026150 | 073025 | 072784 | Sparc | 018593 | 213866 | 149604 |
| Cntn5 | 039488 | 160358 | N/A | Mff | 026150 | 161648 | 124164 | Sparc | 018593 | 216313 | 149918 |
| Cntn5 | 039488 | 074133 | 073769 | Mff | 026150 | 162056 | N/A | Sparc | 018593 | 214685 | 151000 |
| Cntn5 | 039488 | 179049 | 135903 | Mff | 026150 | 160786 | 125230 | Sparc | 018593 | 130642 | N/A |
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| Cntnap4 | 031772 | 118171 | 112511 | Mff | 026150 | 160972 | 124200 | Sparc | 018593 | 125787 | N/A |
| Cntnap4 | 031772 | 125196 | N/A | Mff | 026150 | 160750 | 125223 | Sparcl1 | 029309 | 031249 | 031249 |
| Cntnap4 | 031772 | 127636 | N/A | Mff | 026150 | 159279 | 123713 | Sparcl1 | 029309 | 199947 | 143177 |
| Cntnap4 | 031772 | 140753 | N/A | Mff | 026150 | 160044 | 125005 | Specc1 | 042331 | 201866 | N/A |
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| Cntnap5a | 070695 | 043725 | 035732 | Mff | 026150 | 160632 | N/A | Specc1 | 042331 | 136971 | N/A |
| Cobl | 020173 | 172919 | 133669 | Mff | 026150 | 188333 | N/A | Specc1 | 042331 | 202389 | 144055 |
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| Cobl | 020173 | 046755 | 045693 | Mff | 026150 | 162573 | N/A | Specc1 | 042331 | 201624 | 144659 |
| Cobl | 020173 | 174874 | 133470 | Mfge8 | 030605 | 206338 | N/A | Specc1 | 042331 | 049836 | 063102 |
| Cobl | 020173 | 109651 | 105278 | Mfge8 | 030605 | 107409 | 103032 | Specc1 | 042331 | 202905 | 144311 |
| Cobl | 020173 | 172956 | 134372 | Mfge8 | 030605 | 032825 | 032825 | Specc1 | 042331 | 201364 | 143853 |
| Cobl | 020173 | 172827 | 133368 | Mfge8 | 030605 | 205563 | 145720 | Specc1 | 042331 | 092415 | 090071 |
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| Col11a1 | 027966 | 196345 | N/A | Mfge8 | 030605 | 205526 | N/A | Specc1 | 042331 | 202179 | 144300 |
| Col11a1 | 027966 | 196654 | N/A | Mfge8 | 030605 | 206844 | N/A | Specc1 | 042331 | 108709 | 104349 |
| Col11a1 | 027966 | 211802 | 148798 | Mfhas1 | 070056 | 037666 | 044135 | Specc1 | 042331 | 201671 | 144030 |
| Col11a1 | 027966 | 138680 | N/A | Mfhas1 | 070056 | 209953 | 147927 | Speg | 026207 | 087122 | 084361 |
| Col11a1 | 027966 | 184978 | 138879 | Mfhas1 | 070056 | 154989 | N/A | Speg | 026207 | 148515 | 116953 |
| Col11a1 | 027966 | 123619 | 121027 | Mfsd2a | 028655 | 152308 | N/A | Speg | 026207 | 113590 | 109220 |
| Col11a2 | 024330 | 131134 | 122082 | Mfsd2a | 028655 | 030408 | 030408 | Speg | 026207 | 187214 | N/A |
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| Col11a2 | 024330 | 173749 | N/A | Mgat4c | 019888 | 146230 | N/A | Speg | 026207 | 125118 | N/A |
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| Col11a2 | 024330 | 144927 | N/A | Mgat4c | 019888 | 134930 | N/A | Speg | 026207 | 132222 | N/A |
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| Col13a1 | 058806 | 145469 | 117248 | Mgat4c | 019888 | 138522 | 118056 | Speg | 026207 | 113588 | 109218 |
| Col13a1 | 058806 | 105451 | N/A | Mgat4c | 019888 | 130580 | N/A | Speg | 026207 | 113587 | 109217 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Col13a1 | 058806 | 105453 | 101093 | Mgat4c | 019888 | 138016 | 116902 | Speg | 026207 | 122266 | 113646 |
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| Col15a1 | 028339 | 082303 | 080921 | Mgat4c | 019888 | 218984 | N/A | Sphkap | 026163 | 160237 | N/A |
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| Col15a1 | 028339 | 148103 | N/A | Mgat4c | 019888 | 179929 | 135959 | Spock3 | 054162 | 118003 | 113683 |
| Col15a1 | 028339 | 140094 | N/A | Mgat5b | 043857 | 103027 | 099316 | Spock3 | 054162 | 138398 | N/A |
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| Col1a2 | 029661 | 141483 | 125275 | Mgll | 033174 | 151699 | N/A | Spon1 | 038156 | 084696 | 081746 |
| Col1a2 | 029661 | 031668 | 031668 | Mgll | 033174 | 113582 | 109212 | Spp1 | 029304 | 086833 | 084043 |
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| Col1a2 | 029661 | 124686 | N/A | Mgll | 033174 | 203824 | 145364 | Spp1 | 029304 | 132457 | 123163 |
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| Col20a1 | 016356 | 149179 | 115291 | Mgll | 033174 | 163271 | 127374 | Spsb4 | 046997 | 055433 | 057849 |
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| Col22a1 | 079022 | 159410 | 124182 | Mgst1 | 008540 | 120302 | 113257 | Sptb | 021061 | 170532 | N/A |
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| Col22a1 | 079022 | 159993 | 125069 | Mgst1 | 008540 | 118091 | 112923 | Sptbn2 | 067889 | 008991 | 008991 |
| Col22a1 | 079022 | 160513 | 124270 | Mgst1 | 008540 | 125810 | 114222 | Src | 027646 | 109533 | 105159 |
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| Col4a5 | 031274 | 112931 | 108553 | Miat | 097767 | 182258 | N/A | Src | 027646 | 133900 | N/A |
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| Col5a1 | 026837 | 028280 | 028280 | Mical2 | 038244 | 050149 | 051163 | Src | 027646 | 092576 | 090237 |
| Col5a1 | 026837 | 145423 | 123532 | Mical2 | 038244 | 106647 | N/A | Srgap1 | 020121 | 020322 | 020322 |
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| Col5a3 | 004098 | 145974 | N/A | Mical2 | 038244 | 037991 | 047639 | Srgap1 | 020121 | 161156 | 125109 |
| Col6a1 | 001119 | 001147 | 001147 | Mical2 | 038244 | 150428 | N/A | Srgap1 | 020121 | 162710 | N/A |
| Col6a1 | 001119 | 137599 | N/A | Mical2 | 038244 | 144509 | 123341 | Srgap1 | 020121 | 081688 | 080389 |
| Colgalt2 | 032649 | 127586 | 119210 | Micalcl | 030771 | 051308 | 062443 | Sshl | 042121 | 159592 | 124312 |
| Colgalt2 | 032649 | 044311 | 037532 | Micalcl | 030771 | 033033 | 033033 | Sshl | 042121 | 112298 | 107917 |
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| Colgalt2 | 032649 | 044311 | 037532 | Micalcl | 030771 | 213108 | 150200 | Sshl | 042121 | 159510 | 125025 |
| Corin | 005220 | 167460 | 127389 | Micalcl | 030771 | 140202 | N/A | Sshl | 042121 | 162396 | 125388 |
| Corin | 005220 | 005352 | 005352 | Mid1 | 035299 | 112104 | 107732 | Sshl | 042121 | 162322 | N/A |
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| Corin | 005220 | 177290 | 135511 | Mid1 | 035299 | 078947 | 077974 | St18 | 033740 | 131494 | 117789 |
| Corin | 005220 | 176974 | 135722 | Mid1 | 035299 | 149258 | N/A | St18 | 033740 | 043578 | 042056 |
| Corin | 005220 | 176320 | N/A | Mid1 | 035299 | 133857 | N/A | St18 | 033740 | 139756 | 142063 |
| Corin | 005220 | 176439 | N/A | Mid1 | 035299 | 146073 | N/A | St18 | 033740 | 131467 | 120134 |
| Coro1c | 004530 | 164980 | 129314 | Mid1 | 035299 | 152163 | N/A | St18 | 033740 | 150761 | 120298 |
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| Coro1c | 004530 | 163995 | N/A | Mid1 | 035299 | 151722 | N/A | St18 | 033740 | 139838 | 118129 |
| Coro1c | 004530 | 168634 | N/A | Mid1 | 035299 | 112107 | 107735 | St18 | 033740 | 132207 | 142317 |
| Coro1c | 004530 | 172016 | N/A | Mid1 | 035299 | 079443 | 078412 | St18 | 033740 | 142304 | N/A |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Coro1c | 004530 | 111283 | N/A | Mid1 | 035299 | 143815 | N/A | St18 | 033740 | 151015 | N/A |
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| Coro1c | 004530 | 168493 | N/A | Mid1 | 035299 | 163810 | 128176 | St18 | 033740 | 163727 | 131417 |
| Coro1c | 004530 | 163264 | 129457 | Mid1 | 035299 | 112105 | 107733 | St3gal5 | 056091 | 069994 | 070414 |
| Coro1c | 004530 | 168399 | 132504 | Mid2 | 000266 | 112990 | 108614 | St3gal5 | 056091 | 114112 | 109747 |
| Coro1c | 004530 | 171630 | N/A | Mid2 | 000266 | 112988 | 108612 | St3gal5 | 056091 | 187007 | 146063 |
| Coro2b | 041729 | 048043 | 041826 | Mid2 | 000266 | 140144 | N/A | St3gal5 | 056091 | 188366 | 145599 |
| Coro2b | 041729 | 131981 | 133481 | Mid2 | 000266 | 128809 | 123221 | St5 | 031024 | 084738 | 081789 |
| Coro2b | 041729 | 164246 | 128441 | Mid2 | 000266 | 112993 | 108617 | St5 | 031024 | 077909 | 077067 |
| Coro2b | 041729 | 151604 | N/A | Midn | 035621 | 099492 | 097091 | St5 | 031024 | 207664 | N/A |
| Coro2b | 041729 | 174439 | 134079 | Midn | 035621 | 042057 | 046967 | St5 | 031024 | 208557 | N/A |
| Coro2b | 041729 | 173171 | 134709 | Midn | 035621 | 151202 | 115717 | St5 | 031024 | 207745 | 146934 |
| Coro2b | 041729 | 123379 | N/A | Midn | 035621 | 124179 | N/A | St5 | 031024 | 208981 | N/A |
| Coro6 | 020836 | 102493 | 099551 | Midn | 035621 | 153477 | 119787 | St5 | 031024 | 208583 | 146747 |
| Coro6 | 020836 | 130255 | 120232 | Midn | 035621 | 146516 | 119962 | St5 | 031024 | 207394 | 146549 |
| Coro6 | 020836 | 021190 | 021190 | Midn | 035621 | 144526 | 120988 | St5 | 031024 | 208734 | 146829 |
| Coro6 | 020836 | 079770 | 078703 | Mkx | 061013 | 176586 | N/A | St5 | 031024 | 079282 | 078264 |
| Coro6 | 020836 | 108391 | 104028 | Mkx | 061013 | 079788 | 078718 | St5 | 031024 | 168005 | 130119 |
| Coro6 | 020836 | 052515 | 056862 | Mkx | 061013 | 188926 | N/A | St6galnac3 | 052544 | 200397 | 143747 |
| Cotl1 | 031827 | 034285 | 034285 | Mkx | 061013 | 176608 | N/A | St6galnac3 | 052544 | 199707 | 143030 |
| Cotl1 | 031827 | 211873 | 148448 | Mkx | 061013 | 176757 | N/A | St6galnac3 | 052544 | 064460 | 068598 |
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| Cpe | 037852 | 048967 | 048555 | Mlycd | 074064 | 098367 | 095970 | Stac | 032502 | 161995 | 125182 |
| Cpe | 037852 | 210783 | N/A | Mlycd | 074064 | 145121 | N/A | Stac | 032502 | 035083 | 035083 |
| Cpe | 037852 | 210680 | N/A | Mmd2 | 039533 | 037048 | 039357 | Stac | 032502 | 162345 | N/A |
| Cpe | 037852 | 211312 | N/A | Mmd2 | 039533 | 195947 | N/A | Stac2 | 017400 | 017544 | 017544 |
| Cpm | 020183 | 138020 | N/A | Mmd2 | 039533 | 196972 | N/A | Stac2 | 017400 | 131519 | 118164 |
| Cpm | 020183 | 123374 | N/A | Mmp14 | 000957 | 089688 | 087119 | Stag3 | 036928 | 160729 | 124170 |
| Cpm | 020183 | 020399 | 020399 | Mmp14 | 000957 | 197874 | 142665 | Stag3 | 036928 | 161113 | N/A |
| Cpm | 020183 | 141991 | N/A | Mmp14 | 000957 | 225641 | 153679 | Stag3 | 036928 | 159483 | N/A |
| Cpne4 | 032564 | 098443 | 096042 | Mmp14 | 000957 | 197947 | N/A | Stag3 | 036928 | 048028 | 040945 |
| Cpne4 | 032564 | 157006 | 117155 | Mmp14 | 000957 | 198679 | N/A | Stag3 | 036928 | 162245 | 125523 |
| Cpne4 | 032564 | 057742 | 049663 | Mmp14 | 000957 | 196155 | 143012 | Stag3 | 036928 | 161691 | 125290 |
| Cpne4 | 032564 | 077190 | 076432 | Mmp14 | 000957 | 226710 | N/A | Stag3 | 036928 | 161615 | N/A |
| Cpne4 | 032564 | 213120 | 150096 | Mmp2 | 031740 | 034187 | 034187 | Stag3 | 036928 | 160849 | 125376 |
| Cpne4 | 032564 | 213452 | 150551 | Mmp2 | 031740 | 211691 | N/A | Stag3 | 036928 | 159189 | 124959 |
| Cpne7 | 034796 | 134235 | N/A | Mmp2 | 031740 | 211308 | N/A | Stambpl1 | 024776 | 054956 | 059927 |
| Cpne7 | 034796 | 037900 | 042159 | Mmp2 | 031740 | 211567 | 147838 | Stambpl1 | 024776 | 125232 | N/A |
| Cpne7 | 034796 | 131659 | N/A | Mmp24 | 027612 | 029141 | 029141 | Stambpl1 | 024776 | 119603 | 112938 |
| Cpne7 | 034796 | 123191 | N/A | Mmp24 | 027612 | 135945 | N/A | Stambpl1 | 024776 | 129535 | 115333 |
| Cpne7 | 034796 | 127431 | N/A | Mns1 | 032221 | 183809 | 139105 | Stambpl1 | 024776 | 130756 | N/A |
| Cpne9 | 030270 | 041203 | 044416 | Mns1 | 032221 | 184604 | 139232 | Stard13 | 016128 | 110483 | 106109 |
| Cpne9 | 030270 | 132372 | N/A | Mns1 | 032221 | 034746 | 034746 | Stard13 | 016128 | 062015 | 053232 |
| Cpne9 | 030270 | 130191 | 138786 | Mobp | 032517 | 068698 | 071084 | Stard13 | 016128 | 202111 | 144056 |
| Cpne9 | 030270 | 124574 | N/A | Mobp | 032517 | 215512 | 149831 | Stard13 | 016128 | 201680 | N/A |
| Cpne9 | 030270 | 204050 | N/A | Mobp | 032517 | 111627 | 107254 | Stard13 | 016128 | 202385 | N/A |
| Cpne9 | 030270 | 128148 | N/A | Mobp | 032517 | 093773 | 091287 | Stard13 | 016128 | 129088 | 116705 |
| Cpne9 | 030270 | 155779 | N/A | Mobp | 032517 | 174193 | 134410 | Stard13 | 016128 | 141117 | N/A |
| Cpne9 | 030270 | 138388 | N/A | Mobp | 032517 | 214943 | 149285 | Stard13 | 016128 | 146814 | N/A |
| Cpne9 | 030270 | 134523 | N/A | Mobp | 032517 | 214008 | N/A | Stard13 | 016128 | 126770 | 122468 |
| Cpne9 | 030270 | 136728 | N/A | Mog | 076439 | 102665 | 099726 | Stard13 | 016128 | 202866 | N/A |
| Creb3l1 | 027230 | 028663 | 028663 | Mog | 076439 | 167275 | 129489 | Stard8 | 031216 | 036606 | 044491 |
| Crim1 | 024074 | 112498 | 108117 | Mpp6 | 038388 | 166318 | 125880 | Stard8 | 031216 | 149999 | 114897 |
| Crispld1 | 025776 | 159958 | 124095 | Mpp6 | 038388 | 036236 | 039314 | Stard8 | 031216 | 145820 | N/A |
| Crispld1 | 025776 | 160305 | 123800 | Mpp6 | 038388 | 204545 | 144737 | Stard8 | 031216 | 127361 | N/A |
| Crispld1 | 025776 | 095075 | 092686 | Mpp6 | 038388 | 203415 | N/A | Stat2 | 040033 | 218863 | N/A |
| Cryab | 032060 | 217475 | 149803 | Mpp6 | 038388 | 036225 | 038772 | Stat2 | 040033 | 085708 | 082855 |
| Cryab | 032060 | 214609 | 149454 | Mpp6 | 038388 | 171601 | 129004 | Stat2 | 040033 | 217852 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cryab | 032060 | 034562 | 034562 | Mpp6 | 038388 | 167628 | 129355 | Stat2 | 040033 | 220142 | N/A |
| Cryab | 032060 | 214962 | 149759 | Mpp6 | 038388 | 167063 | N/A | Stat2 | 040033 | 217727 | N/A |
| Cryab | 032060 | 216755 | 150669 | Mpp6 | 038388 | 167319 | N/A | Stat2 | 040033 | 218862 | N/A |
| Cryab | 032060 | 216393 | N/A | Mpp7 | 057440 | 115869 | 111535 | Stat2 | 040033 | 220277 | N/A |
| Cryba2 | 006546 | 133833 | 140298 | Mpped1 | 041708 | 109470 | 105096 | Stat2 | 040033 | 105238 | 100872 |
| Cryba2 | 006546 | 006721 | 006721 | Mpped1 | 041708 | 123387 | 123230 | Stc2 | 020303 | 020546 | 020546 |
| Cryl1 | 021947 | 022517 | 022517 | Mpped1 | 041708 | 046168 | 041981 | Stc2 | 020303 | 152094 | N/A |
| Cryl1 | 021947 | 223986 | N/A | Mpped1 | 041708 | 109469 | 105095 | Stc2 | 020303 | 134199 | N/A |
| Cryl1 | 021947 | 224292 | N/A | Mpped1 | 041708 | 150489 | 128786 | Stc2 | 020303 | 139991 | N/A |
| Cryl1 | 021947 | 225765 | N/A | Mpped1 | 041708 | 125739 | 131463 | Stc2 | 020303 | 149467 | N/A |
| Crym | 030905 | 134067 | N/A | Mpped1 | 041708 | 148868 | 131679 | Stk17b | 026094 | 027263 | 027263 |
| Crym | 030905 | 033198 | 033198 | Mpped1 | 041708 | 163723 | 126242 | Stk17b | 026094 | 187066 | N/A |
| Csmd1 | 060924 | 082104 | 080751 | Mpped1 | 041708 | 172115 | 132518 | Stk17b | 026094 | 185920 | 139880 |
| Csmd1 | 060924 | 125551 | N/A | Mpped1 | 041708 | 171560 | 125835 | Stk3 | 022329 | 018476 | 018476 |
| Csmd1 | 060924 | 131778 | N/A | Mpped1 | 041708 | 172398 | 131333 | Stk3 | 022329 | 226555 | 154154 |
| Csmd1 | 060924 | 138348 | N/A | Mtm2 | 029557 | 031536 | 031536 | Stk3 | 022329 | 067033 | 064225 |
| Csmd1 | 060924 | 137947 | N/A | Msi1 | 054256 | 150779 | 120516 | Stk3 | 022329 | 226730 | N/A |
| Csmd1 | 060924 | 133933 | N/A | Msi1 | 054256 | 151444 | N/A | Stk3 | 022329 | 128425 | N/A |
| Csmd1 | 060924 | 122983 | N/A | Msi1 | 054256 | 067168 | 070415 | Stk3 | 022329 | 138841 | 116310 |
| Csmd2 | 028804 | 129619 | N/A | Msi1 | 054256 | 131079 | 144032 | Stk32a | 039954 | 045477 | 038471 |
| Csmd2 | 028804 | 144298 | N/A | Msi1 | 054256 | 145005 | N/A | Stmn4 | 022044 | 152093 | 117000 |
| Csmd2 | 028804 | 184063 | 138958 | Msi1 | 054256 | 139918 | N/A | Stmn4 | 022044 | 074523 | 074113 |
| Csmd2 | 028804 | 148247 | N/A | Msi1 | 054256 | 145840 | N/A | Stmn4 | 022044 | 136192 | N/A |
| Csmd2 | 028804 | 139561 | N/A | Msi1 | 054256 | 136586 | 143900 | Stmn4 | 022044 | 123435 | N/A |
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| Cspg4 | 032911 | 214057 | N/A | Msra | 054733 | 067927 | 065754 | Stmn4 | 022044 | 121955 | 113788 |
| Cspg4 | 032911 | 035661 | 038909 | Msra | 054733 | 210428 | 147689 | Stmn4 | 022044 | 120229 | 113759 |
| Cspg4 | 032911 | 215666 | N/A | Msra | 054733 | 210363 | 148189 | Stmn4 | 022044 | 134440 | 123092 |
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| Cspg5 | 032482 | 035058 | 035058 | Msra | 054733 | 209513 | N/A | Ston1 | 033855 | 137138 | 118522 |
| Cspg5 | 032482 | 196060 | 143164 | Msx2 | 021469 | 021922 | 021922 | Ston1 | 033855 | 153613 | N/A |
| Cspg5 | 032482 | 196176 | N/A | Msx2 | 021469 | 188606 | N/A | Ston1 | 033855 | 064035 | 067027 |
| Cspg5 | 032482 | 197850 | 143005 | mt-Co1 | 064351 | 082402 | 080993 | Ston1 | 033855 | 150023 | 122928 |
| Cspg5 | 032482 | 199736 | 142845 | mt-Nd4 | 064363 | 082414 | 081000 | Ston1 | 033855 | 132384 | N/A |
| Csmp3 | 044647 | 122912 | 117533 | Mt3 | 031760 | 034211 | 034211 | Ston1 | 033855 | 112216 | N/A |
| Csmp3 | 044647 | 053910 | 055719 | Mt3 | 031760 | 211930 | 148345 | Ston1 | 033855 | 163588 | 131703 |
| Csmp3 | 044647 | 139896 | N/A | Mt3 | 031760 | 211915 | 148383 | Ston2 | 020961 | 052969 | 053908 |
| Csmp3 | 044647 | 112397 | 135151 | Mtch2 | 027282 | 136872 | 121851 | Ston2 | 020961 | 164713 | 131098 |
| Csmp3 | 044647 | 129133 | N/A | Mtch2 | 027282 | 150232 | 118566 | Ston2 | 020961 | 111609 | N/A |
| Csmp3 | 044647 | 176109 | 135019 | Mtch2 | 027282 | 111467 | 107092 | Ston2 | 020961 | 170077 | 126429 |
| Csmp3 | 044647 | 145598 | 135605 | Mtch2 | 027282 | 111468 | 107093 | Ston2 | 020961 | 170984 | N/A |
| Csmp3 | 044647 | 112394 | 108013 | Mtch2 | 027282 | 057216 | N/A | Ston2 | 020961 | 166967 | 128561 |
| Csrp1 | 026421 | 097561 | 095169 | Mtch2 | 027282 | 148936 | N/A | Ston2 | 020961 | 166008 | N/A |
| Csrp1 | 026421 | 027677 | 027677 | Mtch2 | 027282 | 146392 | N/A | Stox2 | 038143 | 079195 | 078190 |
| Csta1 | 034362 | 096090 | 093795 | Mtch2 | 027282 | 143773 | N/A | Stox2 | 038143 | 211882 | 148776 |
| Csta1 | 034362 | 161638 | 125577 | Mtch2 | 027282 | 142350 | N/A | Stox2 | 038143 | 110367 | 105996 |
| Ctnna3 | 060843 | 105441 | 101081 | Mtch2 | 027282 | 144696 | N/A | Stox2 | 038143 | 211737 | 147477 |
| Ctnna3 | 060843 | 105440 | 101080 | Mtch2 | 027282 | 135026 | N/A | Stox2 | 038143 | 210030 | 147281 |
| Ctnna3 | 060843 | 133190 | N/A | Mtch2 | 111714 | 214148 | 149233 | Stox2 | 038143 | 209337 | 148231 |
| Ctnna3 | 060843 | 135474 | N/A | Mtch2 | 111714 | 213376 | 149651 | Stox2 | 038143 | 210153 | 147670 |
| Ctnna3 | 060843 | 075099 | 074606 | Mtch2 | 111714 | 217470 | N/A | Stox2 | 038143 | 209941 | N/A |
| Ctnnbp2 | 000416 | 152499 | N/A | Mtch2 | 111714 | 214378 | 150912 | Stox2 | 038143 | 181417 | N/A |
| Ctnnbp2 | 000416 | 146775 | 119383 | Mtch2 | 111714 | 215609 | N/A | Stnp2 | 039629 | 046028 | 036477 |
| Ctnnbp2 | 000416 | 148602 | 118432 | Mtch2 | 111714 | 216454 | 151033 | Stnp2 | 039629 | 130969 | N/A |
| Ctnnbp2 | 000416 | 090601 | 088089 | Mtch2 | 111714 | 216814 | N/A | Stnp2 | 039629 | 115224 | 110879 |
| Ctnnbp2 | 000416 | 141581 | 123162 | Mtch2 | 111714 | 215750 | N/A | Stnp2 | 039629 | 137068 | N/A |
| Ctnnbp2 | 000416 | 139557 | N/A | Mtch2 | 111714 | 214987 | N/A | Stnp2 | 039629 | 151738 | 119506 |
| Ctnnbp2 | 000416 | 129669 | 116878 | Mtch2 | 111714 | 216471 | N/A | Stn | 024077 | 145910 | 120830 |
| Ctnnbp2 | 000416 | 142963 | 122590 | Mtch2 | 111714 | 217168 | N/A | Stn | 024077 | 024881 | 024881 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Ctnbp2 | 000416 | 140416 | N/A | Mtfp1 | 004748 | 004868 | 004868 | Stm | 024077 | 145480 | 117663 |
| Ctxn1 | 048644 | 053252 | 057115 | Mtfp1 | 004748 | 123607 | N/A | Stx17 | 061455 | 107721 | 103349 |
| Ctxn3 | 069372 | 091892 | 089507 | Mtss1 | 022353 | 080371 | 079239 | Stx17 | 061455 | 153502 | 117512 |
| Ctxn3 | 069372 | 209782 | 147740 | Mtss1 | 022353 | 226393 | N/A | Stx17 | 061455 | 107720 | 103348 |
| Ctxn3 | 069372 | 209786 | 147982 | Mtss1 | 022353 | 226976 | N/A | Stx17 | 061455 | 064765 | 068087 |
| Cxcl14 | 021508 | 224801 | 153440 | Mtss1 | 022353 | 227045 | 154093 | Stxbp3 | 027882 | 102621 | 099681 |
| Cxcl14 | 021508 | 021970 | 021970 | Mtss1 | 022353 | 227196 | 154064 | Stxbp3 | 027882 | 124782 | N/A |
| Cxcl5 | 029371 | 202380 | N/A | Mtss1 | 022353 | 228067 | 153850 | Stxbp3 | 027882 | 124903 | N/A |
| Cxcl5 | 029371 | 031318 | 031318 | Mtss1 | 022353 | 227290 | N/A | Stxbp3 | 027882 | 150010 | N/A |
| Cxcr4 | 045382 | 052172 | 053489 | Mtss1 | 022353 | 227238 | N/A | Stxbp3 | 027882 | 196679 | 142785 |
| Cxcr4 | 045382 | 142893 | 120153 | Mtss1 | 022353 | 228365 | N/A | Stxbp3 | 027882 | 200035 | N/A |
| 4930578C19Rik | 037358 | 044188 | 046567 | Mtss1 | 022353 | 228655 | N/A | Stxbp3 | 027882 | 138552 | 142860 |
| 4930578C19Rik | 037358 | 147039 | N/A | Mtss1 | 022353 | 226923 | N/A | Stxbp3 | 027882 | 106596 | 102206 |
| Cxxc4 | 044365 | 197151 | N/A | Mtss1 | 022353 | 227797 | N/A | Sulf2 | 006800 | 109249 | 104872 |
| Cxxc4 | 044365 | 181904 | 138000 | Mxd4 | 037235 | 201189 | N/A | Sulf2 | 006800 | 146497 | 154557 |
| Cxxc4 | 044365 | 181597 | N/A | Mxd4 | 037235 | 042701 | 039071 | Sulf2 | 006800 | 088086 | 085405 |
| Cxxc4 | 044365 | 199134 | N/A | Mxd4 | 037235 | 119171 | 113300 | Sulf2 | 006800 | 125503 | N/A |
| Cxxc4 | 044365 | 166288 | 128574 | Mxd4 | 037235 | 201763 | N/A | Sulf2 | 006800 | 143996 | N/A |
| Cyb5a | 024646 | 160180 | 124480 | Mxra8 | 029070 | 141883 | 114929 | Sulf2 | 006800 | 139266 | 154315 |
| Cyb5a | 024646 | 025549 | 025549 | Mxra8 | 029070 | 030947 | 030947 | Sulf2 | 006800 | 133395 | 154724 |
| Cyb5a | 024646 | 159846 | N/A | Mxra8 | 029070 | 133592 | N/A | Susd5 | 086596 | 135338 | 128826 |
| Cyb5a | 024646 | 163083 | 124412 | Mxra8 | 029070 | 143886 | N/A | Svep1 | 028369 | 042850 | 045856 |
| Cyb5a | 024646 | 159837 | N/A | Mxra8 | 029070 | 141766 | N/A | Svep1 | 028369 | 128783 | N/A |
| Cyfip2 | 020340 | 093166 | 090854 | Mxra8 | 029070 | 126487 | N/A | Svep1 | 028369 | 146329 | N/A |
| Cyfip2 | 020340 | 142017 | 119801 | Mxra8 | 029070 | 132142 | N/A | Svep1 | 028369 | 149152 | N/A |
| Cyfip2 | 020340 | 129474 | 116715 | Mybpc1 | 020061 | 121629 | 112615 | Svil | 024236 | 126977 | 115078 |
| Cyfip2 | 020340 | 165599 | 127586 | Mybpc1 | 020061 | 124144 | N/A | Svil | 024236 | 131210 | N/A |
| Cyfip2 | 020340 | 093165 | 090853 | Mybpc1 | 020061 | 119185 | 112699 | Svil | 024236 | 138258 | N/A |
| Cyp27a1 | 026170 | 027356 | 027356 | Mybpc1 | 020061 | 153964 | 122472 | Svil | 024236 | 143254 | 119287 |
| Cyp27a1 | 026170 | 190781 | N/A | Mybpc1 | 020061 | 148205 | N/A | Svil | 024236 | 153016 | 121497 |
| Cyp27a1 | 026170 | 189083 | N/A | Mybpc1 | 020061 | 156573 | 119024 | Svil | 024236 | 140448 | 119803 |
| Cyp2j9 | 015224 | 055693 | 050464 | Mycl | 028654 | 144998 | 117232 | Svil | 024236 | 148564 | N/A |
| Cyp2j9 | 015224 | 126509 | N/A | Mycl | 028654 | 106252 | 101859 | Svil | 024236 | 210707 | 147843 |
| Cyp7b1 | 039519 | 035625 | 037487 | Mycl | 028654 | 030407 | 030407 | Svil | 024236 | 127297 | 115223 |
| D430019H16Rik | 094910 | 178224 | 137376 | Mycl | 028654 | 135925 | N/A | Svil | 024236 | 131609 | 122242 |
| D430041D05Rik | 068373 | 136156 | N/A | Mycl | 028654 | 147259 | N/A | Svil | 024236 | 125512 | 121972 |
| D430041D05Rik | 068373 | 141159 | 117041 | Myh14 | 030739 | 107899 | 103531 | Svil | 024236 | 139761 | N/A |
| D430041D05Rik | 068373 | 156278 | N/A | Myh14 | 030739 | 048102 | 046059 | Svil | 024236 | 146723 | 115591 |
| D430041D05Rik | 068373 | 149165 | N/A | Myh14 | 030739 | 208200 | 146686 | Svil | 024236 | 129543 | N/A |
| D430041D05Rik | 068373 | 155458 | N/A | Myh14 | 030739 | 208044 | N/A | Svil | 024236 | 025079 | 025079 |
| D430041D05Rik | 068373 | 139015 | 124519 | Myh14 | 030739 | 207775 | 147115 | Swap70 | 031015 | 033325 | 033325 |
| D430041D05Rik | 068373 | 149466 | 124980 | Myh14 | 030739 | 209024 | N/A | Swap70 | 031015 | 209261 | N/A |
| D430041D05Rik | 068373 | 089726 | 106756 | Myh14 | 030739 | 208085 | N/A | Swap70 | 031015 | 210743 | N/A |
| D430042O09Rik | 032743 | 124223 | 118668 | Myh14 | 030739 | 208131 | 146584 | Swap70 | 031015 | 210513 | N/A |
| D430042O09Rik | 032743 | 069660 | 065744 | Myh14 | 030739 | 107900 | 103532 | Sycp1 | 027855 | 029448 | 029448 |
| D430042O09Rik | 032743 | 205723 | N/A | Myh6 | 040752 | 081857 | 080538 | Sycp1 | 027855 | 198651 | N/A |
| D430042O09Rik | 032743 | 148701 | 119527 | Myh6 | 040752 | 226297 | 154634 | Sycp1 | 027855 | 196988 | 143651 |
| D430042O09Rik | 032743 | 122337 | N/A | Myh6 | 040752 | 228731 | 153961 | Sycp1 | 027855 | 199930 | 143493 |
| D430042O09Rik | 032743 | 205462 | N/A | Myh6 | 040752 | 227905 | N/A | Syn3 | 059602 | 120638 | 113720 |
| D430042O09Rik | 032743 | 132204 | 115955 | Myh6 | 040752 | 131892 | N/A | Syn3 | 059602 | 145864 | N/A |
| D430042O09Rik | 032743 | 155059 | N/A | Myh6 | 040752 | 124930 | 115615 | Syn3 | 059602 | 123783 | N/A |
| D630003M21Rik | 037813 | 103121 | 099410 | Myh6 | 040752 | 111456 | 107083 | Syn3 | 059602 | 139197 | N/A |
| D630003M21Rik | 037813 | 046944 | 040546 | Mylip | 038175 | 038275 | 047403 | Syn3 | 059602 | 121789 | 113408 |
| D630003M21Rik | 037813 | 169335 | 130623 | Mylip | 038175 | 222178 | 152597 | Syn3 | 059602 | 143319 | N/A |
| D7Ertd443e | 030994 | 094002 | 091539 | Myo10 | 022272 | 110457 | 106087 | Syndig1 | 074736 | 109935 | 105561 |
| D7Ertd443e | 030994 | 172947 | 134479 | Myo10 | 022272 | 137601 | 118280 | Syndig1 | 074736 | 144179 | 116877 |
| D7Ertd443e | 030994 | 106129 | 101735 | Myo10 | 022272 | 127486 | N/A | Syndig1 | 074736 | 109934 | 105560 |
| D7Ertd443e | 030994 | 206005 | N/A | Myo10 | 022272 | 130517 | N/A | Syndig1 | 074736 | 137280 | 122838 |
| D7Ertd443e | 030994 | 174700 | 134411 | Myo10 | 022272 | 126076 | N/A | Syndig1 | 074736 | 149705 | 122327 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| D7Ertd443e | 030994 | 173195 | 134585 | Myo10 | 022272 | 135981 | 123057 | Syndig1 | 074736 | 140870 | 114499 |
| D7Ertd443e | 030994 | 173754 | 133963 | Myo10 | 022272 | 022882 | 022882 | Syndig1l | 071234 | 095550 | 093206 |
| D7Ertd443e | 030994 | 174271 | N/A | Myo10 | 022272 | 135173 | 118744 | Syndig1l | 071234 | 222422 | 152374 |
| Tmem131 | 026116 | 194563 | 142307 | Myo10 | 022272 | 131834 | 119200 | Syndig1l | 071234 | 221905 | 152304 |
| Tmem131 | 026116 | 191381 | N/A | Myo10 | 022272 | 124966 | 120817 | Syndig1l | 071234 | 221793 | N/A |
| Tmem131 | 026116 | 187917 | N/A | Myo10 | 022272 | 151360 | 119367 | Synj2 | 023805 | 146009 | 122381 |
| Tmem131 | 026116 | 189470 | 140620 | Myo10 | 022272 | 125667 | 120566 | Synj2 | 023805 | 134767 | 138449 |
| Tmem131 | 026116 | 190442 | 140187 | Myo10 | 022272 | 145587 | N/A | Synj2 | 023805 | 080283 | 079164 |
| Tmem131 | 026116 | 186486 | 142080 | Myo1d | 035441 | 041065 | 037819 | Synj2 | 023805 | 142409 | 120006 |
| Tmem131 | 026116 | 185964 | 141413 | Myo1d | 035441 | 070997 | 066948 | Synj2 | 023805 | 061091 | 060382 |
| Tmem131 | 026116 | 027290 | 027290 | Myo1d | 035441 | 125944 | N/A | Synj2 | 023805 | 115790 | 111456 |
| Dagla | 035735 | 039327 | 046358 | Myo7a | 030761 | 107128 | 102745 | Synj2 | 023805 | 115789 | 111455 |
| Dagla | 035735 | 125567 | 138702 | Myo7a | 030761 | 156992 | 146114 | Synj2 | 023805 | 115788 | 111454 |
| Dagla | 035735 | 156361 | N/A | Myo7a | 030761 | 084979 | 082046 | Synj2 | 023805 | 115787 | 111453 |
| Dao | 042096 | 112292 | 107911 | Myo7a | 030761 | 107122 | 102739 | Synj2 | 023805 | 115786 | 111452 |
| Dao | 042096 | 086599 | 083792 | Myo7a | 030761 | 205746 | 146165 | Synj2 | 023805 | 115784 | 111450 |
| Dao | 042096 | 161610 | 125588 | Myo7a | 030761 | 107127 | 102744 | Synj2 | 023805 | 115785 | 111451 |
| Dao | 042096 | 199175 | 143337 | Myo7a | 030761 | 124787 | N/A | Synj2 | 023805 | 130661 | N/A |
| Dao | 042096 | 162214 | N/A | Myo7a | 030761 | 152975 | N/A | Synj2 | 023805 | 154114 | 122316 |
| Dapk1 | 021559 | 226059 | 153607 | Myo7a | 030761 | 153657 | N/A | Synj2 | 023805 | 126881 | 115371 |
| Dapk1 | 021559 | 077453 | 076666 | Myo7a | 030761 | 155637 | N/A | Synj2 | 023805 | 115791 | 111457 |
| Dapk1 | 021559 | 224340 | N/A | Myo7a | 030761 | 149079 | N/A | Sympr | 056296 | 070323 | 064986 |
| Dapk1 | 021559 | 044083 | 040825 | Myo7a | 030761 | 138627 | 114944 | Sympr | 056296 | 223580 | N/A |
| Dapk1 | 021559 | 225632 | N/A | Myo7a | 030761 | 131632 | N/A | Sympr | 056296 | 225636 | N/A |
| Dapk1 | 021559 | 224789 | 153205 | Myot | 024471 | 025349 | 025349 | Sympr | 056296 | 226094 | N/A |
| Dapk1 | 021559 | 225952 | N/A | Myot | 024471 | 115498 | 111160 | Sympr | 056296 | 223583 | 153361 |
| Slc6a3 | 021609 | 022100 | 022100 | Myt1 | 036098 | 088013 | 085329 | Sympr | 056296 | 153954 | 116342 |
| Dcc | 060534 | 114943 | 110593 | Myt1 | 036098 | 190922 | N/A | Sympr | 056296 | 145700 | N/A |
| Dcc | 060534 | 073379 | 073094 | Myt1 | 036098 | 186056 | 140871 | Sympr | 056296 | 147677 | N/A |
| Dcc | 060534 | 126030 | N/A | Myt1 | 036098 | 186854 | 140838 | Sympr | 056296 | 112656 | 108275 |
| Ddhd1 | 037697 | 111828 | 107459 | Myt1 | 036098 | 189897 | 139601 | Syt10 | 063260 | 029441 | 029441 |
| Ddhd1 | 037697 | 087320 | 084577 | Myt1 | 036098 | 189439 | N/A | Syt12 | 049303 | 059295 | 055237 |
| Ddhd1 | 037697 | 051310 | 050088 | Ncald | 051359 | 090150 | 087611 | Syt12 | 049303 | 128114 | N/A |
| Ddhd1 | 037697 | 152110 | N/A | Ncald | 051359 | 120746 | 112898 | Syt12 | 049303 | 166191 | 130418 |
| Ddhd1 | 037697 | 129599 | N/A | Ncald | 051359 | 119730 | 113858 | Syt12 | 049303 | 133222 | N/A |
| Ddhd1 | 037697 | 149286 | 118848 | Ncald | 051359 | 116445 | 112146 | Syt14 | 016200 | 215093 | 151129 |
| Ddhd1 | 037697 | 156758 | 121837 | Ncald | 051359 | 153775 | 114576 | Syt14 | 016200 | 195354 | 142190 |
| Ddhd1 | 037697 | 141487 | 133358 | Ncald | 051359 | 148652 | 121460 | Syt14 | 016200 | 195530 | 141563 |
| Ddhd1 | 037697 | 126428 | N/A | Ncald | 051359 | 132423 | N/A | Syt14 | 016200 | 016344 | 016344 |
| Ddhd1 | 037697 | 226301 | 154065 | Ncald | 051359 | 150453 | 119726 | Syt14 | 016200 | 191907 | N/A |
| Ddhd1 | 037697 | 147551 | N/A | Ncald | 051359 | 226924 | N/A | Syt17 | 058420 | 081574 | 080284 |
| Ddhd1 | 037697 | 153547 | N/A | Ncald | 051359 | 137944 | N/A | Syt17 | 058420 | 203465 | 147122 |
| Ddhd1 | 037697 | 226559 | N/A | Ncald | 051359 | 123317 | N/A | Syt17 | 058420 | 203796 | 145087 |
| Ddn | 059213 | 075444 | 074895 | Ncald | 051359 | 168992 | 130126 | Syt17 | 058420 | 203485 | 144987 |
| Ddr2 | 026674 | 194690 | 141443 | Ncam2 | 022762 | 037785 | 049390 | Syt17 | 058420 | 207034 | 146460 |
| Ddr2 | 026674 | 192312 | 142191 | Ncam2 | 022762 | 067602 | 063468 | Syt17 | 058420 | 207650 | N/A |
| Ddr2 | 026674 | 195867 | N/A | Ncan | 002341 | 002412 | 002412 | Syt4 | 024261 | 025110 | 025110 |
| Ddr2 | 026674 | 194619 | N/A | Nceh1 | 027698 | 046515 | 045864 | Tanc1 | 035168 | 112568 | 108187 |
| Ddr2 | 026674 | 027985 | 027985 | Nceh1 | 027698 | 138947 | 115209 | Tanc1 | 035168 | 142573 | N/A |
| Ddr2 | 026674 | 170800 | 129624 | Nceh1 | 027698 | 129412 | N/A | Tanc1 | 035168 | 128030 | N/A |
| Ddx3y | 069045 | 091190 | 088729 | Nceh1 | 027698 | 091284 | 088829 | Tanc1 | 035168 | 139863 | 123345 |
| Ddx3y | 069045 | 188182 | N/A | Nceh1 | 027698 | 140872 | N/A | Tanc1 | 035168 | 127013 | N/A |
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| Ddx3y | 069045 | 187596 | N/A | Nckap5 | 049690 | 162877 | 124748 | Tanc1 | 035168 | 126271 | N/A |
| Depdc1b | 021697 | 051594 | 059291 | Nckap5 | 049690 | 160736 | N/A | Tanc1 | 035168 | 136248 | N/A |
| Depdc1b | 021697 | 168037 | N/A | Nckap5 | 049690 | 057846 | 062229 | Tanc1 | 035168 | 162857 | N/A |
| Depdc1b | 021697 | 163307 | 131707 | Nckap5 | 049690 | 094610 | 092193 | Tanc1 | 035168 | 147650 | N/A |
| Depdc1b | 021697 | 171178 | 132972 | Nckap5 | 049690 | 159934 | N/A | Tanc1 | 035168 | 037526 | 036003 |
| Depdc1b | 021697 | 167413 | N/A | Nckap5 | 049690 | 162646 | 123936 | Taok3 | 061288 | 111978 | 107609 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depdc1b | 021697 | 172402 | N/A | Nckap5 | 049690 | 160693 | 123975 | Taok3 | 061288 | 125738 | 117841 |
| Depdc7 | 027173 | 028595 | 028595 | Nckap5 | 049690 | 162664 | N/A | Taok3 | 061288 | 128720 | N/A |
| Depdc7 | 027173 | 144133 | N/A | Nckap5 | 049690 | 162647 | N/A | Taok3 | 061288 | 092889 | 090565 |
| Des | 026208 | 027409 | 027409 | Nckap5 | 049690 | 112583 | 108202 | Taok3 | 061288 | 126813 | N/A |
| Des | 026208 | 144894 | N/A | Nckap5 | 049690 | 094609 | 092192 | Taok3 | 061288 | 145640 | 116920 |
| Des | 026208 | 125948 | N/A | Ndrg1 | 005125 | 005256 | 005256 | Taok3 | 061288 | 153709 | N/A |
| Gsdme | 029821 | 204417 | N/A | Ndrg1 | 005125 | 165966 | N/A | Taok3 | 061288 | 127814 | 119998 |
| Gsdme | 029821 | 165099 | 130522 | Ndrg1 | 005125 | 166420 | 127099 | Taok3 | 061288 | 111975 | 107606 |
| Gsdme | 029821 | 101405 | 098952 | Ndrg1 | 005125 | 171569 | N/A | Taok3 | 061288 | 179276 | 136750 |
| Gsdme | 029821 | 031845 | 031845 | Ndrg1 | 005125 | 164675 | 130150 | Tbc1d1 | 029174 | 199270 | 143451 |
| Gsdme | 029821 | 167893 | 132062 | Ndrg1 | 005125 | 168542 | 127940 | Tbc1d1 | 029174 | 043893 | 044577 |
| Gsdme | 029821 | 204700 | N/A | Ndrg1 | 005125 | 167817 | 127075 | Tbc1d1 | 029174 | 121370 | 112493 |
| Gsdme | 029821 | 170142 | 126759 | Ndrg1 | 005125 | 168979 | 126985 | Tbc1d1 | 029174 | 129389 | N/A |
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| Dgkb | 036095 | 221098 | N/A | Ndrg2 | 004558 | 004673 | 004673 | Tbc1d4 | 033083 | 161304 | N/A |
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| Dgkb | 036095 | 220606 | N/A | Ndrg2 | 004558 | 226698 | N/A | Tbc1d4 | 033083 | 162617 | 124909 |
| Dgkh | 034731 | 226342 | 154036 | Ndrg2 | 004558 | 227237 | 153938 | Tbc1d4 | 033083 | 160297 | N/A |
| Dgkh | 034731 | 227537 | 154107 | Ndrg2 | 004558 | 226122 | N/A | Tbc1d4 | 033083 | 159484 | N/A |
| Dgkh | 034731 | 228362 | 154554 | Ndrg2 | 004558 | 227402 | 154279 | Tbc1d4 | 033083 | 159668 | N/A |
| Dgkh | 034731 | 227767 | 154031 | Ndrg2 | 004558 | 228164 | 153830 | Tbc1d4 | 033083 | 159664 | 124734 |
| Dgkh | 034731 | 227820 | N/A | Ndrg2 | 004558 | 226366 | N/A | Tbc1d4 | 033083 | 100340 | 097913 |
| Dgkh | 034731 | 074729 | 074290 | Ndrg2 | 004558 | 226528 | 154716 | Tbc1d4 | 033083 | 160473 | N/A |
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| Dgki | 038665 | 150300 | 138457 | Ndrg2 | 004558 | 228620 | N/A | Tbc1d5 | 023923 | 224977 | N/A |
| Dgki | 038665 | 138286 | 138628 | Ndrg2 | 004558 | 226364 | N/A | Tbc1d5 | 023923 | 224528 | 153172 |
| Dgki | 038665 | 090314 | 087788 | Ndrg2 | 004558 | 228173 | N/A | Tbc1d5 | 023923 | 225252 | N/A |
| Dgki | 038665 | 042075 | 047858 | Ndst3 | 027977 | 137404 | 118796 | Tbc1d5 | 023923 | 223979 | N/A |
| Dgki | 038665 | 143046 | N/A | Ndst3 | 027977 | 132112 | 120623 | Tbc1d5 | 023923 | 223758 | N/A |
| Dgki | 038665 | 146656 | N/A | Ndst3 | 027977 | 154668 | 118207 | Tbc1d5 | 023923 | 224547 | N/A |
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| Disp3 | 041544 | 047720 | 038490 | Ndst3 | 027977 | 172537 | 133657 | Tbc1d5 | 023923 | 225473 | N/A |
| Disp3 | 041544 | 143851 | N/A | Ndst3 | 027977 | 199046 | N/A | Tbcel | 037287 | 125995 | 114721 |
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| Dixdc1 | 032064 | 034566 | 034566 | Ndst3 | 027977 | 132896 | N/A | Tbcel | 037287 | 066179 | 065125 |
| Dixdc1 | 032064 | 141919 | N/A | Ndst3 | 027977 | 029602 | 029602 | Tbcel | 037287 | 142775 | N/A |
| Dixdc1 | 032064 | 117646 | 112431 | Ndst4 | 027971 | 173932 | 133341 | Tbcel | 037287 | 138506 | 116616 |
| Dixdc1 | 032064 | 119449 | N/A | Ndst4 | 027971 | 147016 | N/A | Tbcel | 037287 | 128959 | 121164 |
| Dixdc1 | 032064 | 121634 | 113089 | Ndst4 | 027971 | 144344 | 120687 | Tbcel | 037287 | 134374 | 114275 |
| Dixdc1 | 032064 | 124424 | N/A | Ndst4 | 027971 | 174648 | 133575 | Tbcel | 037287 | 213428 | N/A |
| Dixdc1 | 032064 | 120622 | 113934 | Ndst4 | 027971 | 172632 | N/A | Tbr1 | 035033 | 048934 | 046787 |
| Dixdc1 | 032064 | 151109 | N/A | Ndst4 | 027971 | 198101 | 142414 | Tbr1 | 035033 | 102737 | 099798 |
| Dixdc1 | 032064 | 149717 | N/A | Nectin3 | 022656 | 023335 | 023335 | Tbr1 | 035033 | 131538 | N/A |
| Dixdc1 | 032064 | 154315 | N/A | Nectin3 | 022656 | 023334 | 023334 | Tbr1 | 035033 | 136867 | N/A |
| Dixdc1 | 032064 | 117093 | 112654 | Nectin3 | 022656 | 096052 | 093757 | Tbxas1 | 029925 | 162521 | 125406 |
| Dixdc1 | 032064 | 118707 | 113907 | Nectin3 | 022656 | 133935 | N/A | Tbxas1 | 029925 | 003017 | 003017 |
| Dlc1 | 031523 | 033923 | 033923 | Nectin3 | 022656 | 149901 | 117479 | Tbxas1 | 029925 | 159226 | N/A |
| Dlc1 | 031523 | 098826 | 096425 | Nectin3 | 022656 | 121245 | 113146 | Tbxas1 | 029925 | 161781 | N/A |
| Dlc1 | 031523 | 163663 | 132812 | Nectin3 | 022656 | 132089 | N/A | Tbxas1 | 029925 | 160963 | 124640 |
| Dlc1 | 031523 | 156312 | N/A | Nectin3 | 022656 | 119941 | 113301 | Tbxas1 | 029925 | 162656 | N/A |
| Dlc1 | 031523 | 145245 | N/A | Nectin3 | 022656 | 121803 | 112567 | Tbxas1 | 029925 | 161360 | N/A |
| Dlc1 | 031523 | 036104 | N/A | Nectin3 | 022656 | 124602 | 115927 | Tceal7 | 079428 | 126811 | 122260 |
| Dlc1 | 031523 | 178717 | N/A | Nedd4l | 024589 | 225057 | 153537 | Tceal7 | 079428 | 113116 | 108741 |
| Dlc1 | 031523 | 179652 | N/A | Nedd4l | 024589 | 225261 | 153107 | Tcerg1l | 091002 | 162222 | N/A |
| Dlc1 | 031523 | 179501 | 137498 | Nedd4l | 024589 | 224385 | 153594 | Tcerg1l | 091002 | 161213 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dlgap2 | 047495 | 152652 | 123078 | Nedd4l | 024589 | 223959 | N/A | Tceng1l | 091002 | 160436 | 124476 |
| Dlgap2 | 047495 | 133298 | 119613 | Nedd4l | 024589 | 224347 | 153052 | Tcf7l1 | 055799 | 069536 | 069403 |
| Dlgap2 | 047495 | 150247 | 123104 | Nedd4l | 024589 | 224516 | N/A | Tcf7l1 | 055799 | 114053 | 109687 |
| Dlgap2 | 047495 | 141155 | N/A | Nedd4l | 024589 | 224890 | N/A | Tcf7l1 | 055799 | 141743 | N/A |
| Dlgap2 | 047495 | 136000 | N/A | Nedd4l | 024589 | 080418 | 079280 | Tcf7l1 | 055799 | 149446 | 115060 |
| Dlgap2 | 047495 | 141214 | N/A | Nedd4l | 024589 | 226058 | 153526 | Tcf7l1 | 055799 | 182651 | N/A |
| Dlgap2 | 047495 | 137130 | N/A | Nedd4l | 024589 | 224663 | N/A | Tcp11l2 | 020034 | 020223 | 020223 |
| Dlgap2 | 047495 | 129119 | N/A | Nedd4l | 024589 | 163516 | 132838 | Tcp11l2 | 020034 | 162874 | N/A |
| Dlgap2 | 047495 | 043279 | 039647 | Nefh | 020396 | 093369 | 091061 | Tcp11l2 | 020034 | 160057 | N/A |
| Dlgap4 | 061689 | 169464 | 126980 | Negr1 | 040037 | 074015 | 073664 | Tcte1 | 023949 | 113547 | 109175 |
| Dlgap4 | 061689 | 109568 | 105196 | Negr1 | 040037 | 041425 | 041132 | Tctex1d1 | 028523 | 220547 | 152803 |
| Dlgap4 | 061689 | 070782 | 068745 | Negr1 | 040037 | 106065 | 101680 | Tctex1d1 | 028523 | 223169 | 152761 |
| Dlgap4 | 061689 | 137356 | 135698 | Negr1 | 040037 | 197246 | N/A | Tctex1d1 | 028523 | 030248 | 030248 |
| Dlgap4 | 061689 | 131157 | 134941 | Negr1 | 040037 | 175773 | 135531 | Tctex1d1 | 028523 | 125417 | 117319 |
| Dlgap4 | 061689 | 109566 | 105194 | Nek2 | 026622 | 027931 | 027931 | Tctex1d1 | 028523 | 169211 | 128228 |
| Dlgap4 | 061689 | 127944 | N/A | Nek2 | 026622 | 126446 | N/A | Tctex1d1 | 028523 | 140654 | 116692 |
| Dlgap4 | 061689 | 146412 | 135156 | Nek2 | 026622 | 150839 | N/A | Tctex1d1 | 028523 | 139883 | N/A |
| Dlgap4 | 061689 | 177013 | 135409 | Nek2 | 026622 | 136733 | N/A | Tctex1d1 | 028523 | 116317 | 112019 |
| Dlgap4 | 061689 | 171030 | 129756 | Nek2 | 110797 | 213394 | 149034 | Tdp1 | 021177 | 151019 | N/A |
| Dlgap4 | 061689 | 000094 | 000094 | Nek2 | 110797 | 216945 | N/A | Tdp1 | 021177 | 125639 | N/A |
| Dlgap4 | 061689 | 099145 | 096749 | Nek2 | 110797 | 217216 | N/A | Tdp1 | 021177 | 153627 | 118656 |
| Dlgap4 | 061689 | 123730 | N/A | Nek2 | 110797 | 215890 | N/A | Tdp1 | 021177 | 221396 | N/A |
| Dlgap4 | 061689 | 109567 | 105195 | Nek4 | 021918 | 226551 | 154678 | Tdp1 | 021177 | 137653 | 123269 |
| Dlx4os | 086552 | 156477 | N/A | Nek4 | 021918 | 228328 | 154090 | Tdp1 | 021177 | 126424 | N/A |
| Dlx6os1 | 098326 | 184182 | N/A | Nek4 | 021918 | 228392 | N/A | Tdp1 | 021177 | 128739 | N/A |
| Dlx6os1 | 090063 | 159827 | N/A | Nek4 | 021918 | 050171 | 057915 | Tdp1 | 021177 | 220685 | N/A |
| Dlx6os1 | 090063 | 159568 | N/A | Nek4 | 021918 | 226833 | 154606 | Tdp1 | 021177 | 021594 | 021594 |
| Dlx6os1 | 090063 | 210702 | N/A | Nek4 | 021918 | 227602 | N/A | Tead1 | 055320 | 084705 | 081755 |
| Dmd | 045103 | 114000 | 109633 | Nek4 | 021918 | 227199 | N/A | Tead1 | 055320 | 059768 | 060671 |
| Dmd | 045103 | 128983 | N/A | Nek4 | 021918 | 226146 | 153710 | Tead1 | 055320 | 106638 | 102249 |
| Dmd | 045103 | 113991 | 109624 | Nell1 | 055409 | 151721 | 114706 | Tead1 | 055320 | 172065 | N/A |
| Dmd | 045103 | 132333 | N/A | Nell1 | 055409 | 081872 | 080550 | Tead1 | 055320 | 171373 | 131765 |
| Dmd | 045103 | 146331 | N/A | Nell1 | 055409 | 145096 | N/A | Tead1 | 055320 | 164363 | 127574 |
| Dmd | 045103 | 149433 | N/A | Nell1 | 055409 | 107603 | 103229 | Tead1 | 055320 | 163593 | N/A |
| Dmd | 045103 | 113992 | 109625 | Nell1 | 055409 | 154410 | N/A | Tead1 | 055320 | 170352 | 129798 |
| Dmd | 045103 | 156107 | N/A | Neo1 | 032340 | 068664 | 063656 | Tead1 | 055320 | 168981 | 133025 |
| Dmd | 045103 | 147740 | N/A | Neo1 | 032340 | 214547 | 150600 | Tead1 | 055320 | 171197 | 128439 |
| Dmd | 045103 | 141778 | N/A | Neo1 | 032340 | 215165 | N/A | Tead1 | 055320 | 165036 | 131221 |
| Dmd | 045103 | 141261 | N/A | Neo1 | 032340 | 217545 | N/A | Tead1 | 055320 | 167060 | 130564 |
| Dmd | 045103 | 139998 | N/A | Neo1 | 032340 | 215026 | N/A | Tead1 | 055320 | 168328 | N/A |
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| Dmd | 045103 | 127295 | N/A | Nes | 004891 | 159830 | N/A | Tead1 | 055320 | 069256 | 130459 |
| Dmp1 | 029307 | 066708 | 068053 | Nes | 004891 | 090973 | 088493 | Tead4 | 030353 | 130454 | 118083 |
| Dnah5 | 022262 | 067048 | 069751 | Nes | 004891 | 160694 | 125571 | Tead4 | 030353 | 006311 | 006311 |
| Dnah6 | 052861 | 114040 | 109674 | Neto1 | 050321 | 058829 | 057340 | Tead4 | 030353 | 112157 | 107784 |
| Dnah6 | 052861 | 204053 | 144791 | Neu4 | 034000 | 050890 | 051151 | Tead4 | 030353 | 133118 | 120941 |
| Dnah6 | 052861 | 114038 | N/A | Neu4 | 034000 | 190212 | 140127 | Tead4 | 030353 | 143004 | 118606 |
| Dnah6 | 052861 | 064948 | 068758 | Rbfox3 | 025576 | 117731 | 113636 | Tec | 029217 | 071944 | 071836 |
| Dner | 036766 | 049126 | 042927 | Rbfox3 | 025576 | 103023 | 099312 | Tec | 029217 | 113594 | 109224 |
| Dner | 036766 | 191306 | N/A | Rbfox3 | 025576 | 017576 | 017576 | Tec | 029217 | 126481 | 123606 |
| Dner | 036766 | 185606 | 140986 | Rbfox3 | 025576 | 069343 | 069598 | Tec | 029217 | 155342 | 118980 |
| Dner | 036766 | 191546 | 140662 | Rbfox3 | 025576 | 106278 | 101885 | Tec | 029217 | 073843 | 073509 |
| Dnmbp | 025195 | 212396 | 148582 | Rbfox3 | 025576 | 120061 | 113987 | Tec | 029217 | 138842 | 120155 |
| Dnmbp | 025195 | 212592 | 148421 | Rbfox3 | 025576 | 154746 | 118332 | Tec | 029217 | 149533 | 123258 |
| Dnmbp | 025195 | 212048 | 148546 | Rbfox3 | 025576 | 136551 | 119255 | Tec | 029217 | 150193 | N/A |
| Dnmbp | 025195 | 212032 | 148708 | Rbfox3 | 025576 | 128863 | N/A | Tec | 029217 | 202547 | 144458 |
| Dnmbp | 025195 | 212157 | N/A | Rbfox3 | 025576 | 134774 | N/A | Tek | 006386 | 073939 | 073595 |
| Dnmbp | 025195 | 026209 | 026209 | Rbfox3 | 025576 | 117731 | 113636 | Tek | 006386 | 102798 | 099862 |
| Doc2b | 020848 | 021209 | 021209 | Rbfox3 | 025576 | 103023 | 099312 | Tek | 006386 | 071168 | 071162 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dock1 | 058325 | 211570 | N/A | Rbfox3 | 025576 | 017576 | 017576 | Tek | 006386 | 131958 | N/A |
| Dock1 | 058325 | 211593 | 147945 | Rbfox3 | 025576 | 069343 | 069598 | Tes | 029552 | 115467 | 111127 |
| Dock1 | 058325 | 084488 | 081531 | Rbfox3 | 025576 | 106278 | 101885 | Tes | 029552 | 200690 | N/A |
| Dock1 | 058325 | 210617 | N/A | Rbfox3 | 025576 | 120061 | 113987 | Tes | 029552 | 154266 | 118791 |
| Dock1 | 058325 | 210464 | N/A | Rbfox3 | 025576 | 154746 | 118332 | Tes | 029552 | 121170 | N/A |
| Dock1 | 058325 | 210121 | 147797 | Rbfox3 | 025576 | 136551 | 119255 | Tes | 029552 | 076654 | 075950 |
| Dock5 | 044447 | 039135 | 036674 | Rbfox3 | 025576 | 128863 | N/A | Tesc | 029359 | 031304 | 031304 |
| Dock5 | 044447 | 226033 | N/A | Rbfox3 | 025576 | 134774 | N/A | Tesc | 029359 | 124648 | 138436 |
| Dock5 | 044447 | 224823 | N/A | Neurl1a | 006435 | 111808 | 107439 | Tesc | 029359 | 135540 | N/A |
| Dock6 | 032198 | 217336 | 149156 | Neurl1a | 006435 | 111807 | 107438 | Tesc | 029359 | 151792 | N/A |
| Dock6 | 032198 | 215729 | 150250 | Neurod1 | 034701 | 041099 | 040364 | Tesc | 029359 | 148777 | N/A |
| Dock6 | 032198 | 034728 | 034728 | Neurod6 | 037984 | 044767 | 047016 | Tesc | 029359 | 145526 | N/A |
| Dock6 | 032198 | 217310 | N/A | Nfatc2 | 027544 | 074618 | 074198 | Tex36 | 030976 | 033275 | 033275 |
| Dock6 | 032198 | 216626 | 150347 | Nfatc2 | 027544 | 109184 | 104812 | Tex52 | 079304 | 130785 | 145112 |
| Dock6 | 032198 | 217515 | N/A | Nfatc2 | 027544 | 151292 | N/A | Tex52 | 079304 | 100926 | 098486 |
| Dock6 | 032198 | 213296 | N/A | Nfatc2 | 027544 | 099067 | N/A | Tex9 | 090626 | 184312 | 138844 |
| Dock6 | 032198 | 213775 | N/A | Nfatc2 | 027544 | 029057 | 029057 | Tex9 | 090626 | 085358 | 082467 |
| Dock7 | 028556 | 030286 | 030286 | Nfatc2 | 027544 | 137451 | 118329 | Tex9 | 090626 | 184125 | 139026 |
| Dock7 | 028556 | 206128 | N/A | Nfatc2 | 027544 | 140137 | N/A | Tex9 | 090626 | 183399 | N/A |
| Dock7 | 028556 | 127417 | 117797 | Nfatc2 | 027544 | 138546 | N/A | Tex9 | 090626 | 184831 | 138999 |
| Dock7 | 028556 | 124466 | 145749 | Nfatc2 | 027544 | 171689 | 130875 | Tex9 | 090626 | 183574 | 139386 |
| Dock7 | 028556 | 075836 | 075233 | Nhsl1 | 039835 | 207038 | 147021 | Tex9 | 090626 | 183856 | 139247 |
| Dock7 | 028556 | 205650 | 145604 | Nhsl1 | 039835 | 159299 | N/A | Tex9 | 090626 | 184557 | 139212 |
| Dock7 | 028556 | 140225 | N/A | Nhsl1 | 039835 | 161510 | N/A | Tex9 | 090626 | 184066 | N/A |
| Dock7 | 028556 | 205484 | N/A | Nhsl1 | 039835 | 160602 | N/A | Tex9 | 090626 | 184734 | N/A |
| Dock7 | 028556 | 124040 | N/A | Nhsl1 | 039835 | 037341 | 040799 | Tex9 | 090626 | 183428 | 139326 |
| Dock7 | 028556 | 205652 | 145833 | Nhsl1 | 039835 | 160547 | N/A | Tex9 | 090626 | 183551 | N/A |
| Dock7 | 028556 | 139152 | N/A | Nhsl1 | 039835 | 160600 | N/A | Tex9 | 090626 | 183501 | 138882 |
| Dock7 | 028556 | 140848 | N/A | Nhsl1 | 039835 | 162891 | 124072 | Tex9 | 090626 | 185151 | 138929 |
| Dock7 | 028556 | 150254 | 114204 | Nhsl1 | 039835 | 100054 | 097631 | Tex9 | 090626 | 185106 | N/A |
| Dock7 | 028556 | 127946 | 119103 | Nid1 | 005397 | 005532 | 005532 | Tex9 | 090626 | 184624 | N/A |
| Dock7 | 028556 | 205783 | N/A | Nid1 | 005397 | 222142 | N/A | Tfap2a | 021359 | 021787 | 021787 |
| Dock7 | 028556 | 153362 | N/A | Nid1 | 005397 | 222436 | N/A | Tfap2a | 021359 | 224319 | N/A |
| Dock7 | 028556 | 131386 | 145985 | Ninj2 | 041377 | 112711 | 108331 | Tfap2a | 021359 | 223869 | 153149 |
| Dock7 | 028556 | 206604 | N/A | Ninj2 | 041377 | 035244 | 046306 | Tfap2a | 021359 | 225180 | 153271 |
| Dock8 | 052085 | 025831 | 025831 | Nipal4 | 020411 | 020679 | 020679 | Tfap2a | 021359 | 224999 | 153522 |
| Dok6 | 073514 | 097495 | 095103 | Nkain2 | 069670 | 191234 | 140463 | Tfap2a | 021359 | 224665 | 153667 |
| Dok6 | 073514 | 160328 | N/A | Nkain2 | 069670 | 218645 | 151255 | Tfap2a | 021359 | 223908 | N/A |
| Dopey2 | 022946 | 045004 | 044437 | Nkain2 | 069670 | 219125 | 151959 | Tfap2a | 021359 | 224700 | N/A |
| Dopey2 | 022946 | 226335 | N/A | Nkain2 | 069670 | 219306 | N/A | Tfap2a | 021359 | 110193 | 105822 |
| Dopey2 | 022946 | 226418 | N/A | Nkain2 | 069670 | 092602 | 090264 | Tfap2b | 025927 | 027059 | 027059 |
| Dopey2 | 022946 | 228846 | 154446 | Nkain2 | 069670 | 092603 | 090265 | Tfap2b | 025927 | 187754 | 140213 |
| Dopey2 | 022946 | 227156 | 154771 | Nkx2-2 | 027434 | 109970 | 105596 | Tfap2b | 025927 | 064976 | 064488 |
| Dopey2 | 022946 | 226836 | 154636 | Nkx2-2 | 027434 | 067075 | 069666 | Tfap2b | 025927 | 191068 | N/A |
| Dopey2 | 022946 | 226215 | 154229 | Nkx2-2 | 027434 | 109969 | N/A | Tfap2b | 025927 | 186972 | N/A |
| Dopey2 | 022946 | 226535 | N/A | Nkx2-2 | 027434 | 172627 | N/A | Tg | 053469 | 065916 | 070239 |
| Dopey2 | 022946 | 227939 | N/A | Nlgn3 | 031302 | 118111 | 113863 | Tg | 053469 | 163495 | 129868 |
| Dopey2 | 022946 | 228261 | N/A | Nlgn3 | 031302 | 130555 | 122213 | Tg | 053469 | 167512 | N/A |
| Dopey2 | 022946 | 227278 | N/A | Nlgn3 | 031302 | 151528 | 123283 | Tg | 053469 | 171045 | 126454 |
| Dopey2 | 022946 | 228423 | N/A | Nlgn3 | 031302 | 065858 | 066304 | Tg | 053469 | 166906 | N/A |
| Dpf3 | 021221 | 147469 | 122598 | Nlgn3 | 031302 | 147443 | N/A | Tg | 053469 | 167344 | N/A |
| Dpf3 | 021221 | 144237 | 122004 | Nlgn3 | 031302 | 144860 | N/A | Tg | 053469 | 172153 | 128410 |
| Dpf3 | 021221 | 133282 | 121199 | Nln | 021710 | 109315 | 104938 | Tg | 053469 | 166403 | N/A |
| Dpf3 | 021221 | 140327 | 120700 | Nln | 021710 | 225324 | 153299 | Tgfb2 | 039239 | 045288 | 043849 |
| Dpf3 | 021221 | 178756 | 136280 | Nln | 021710 | 224058 | N/A | Tgfb2 | 039239 | 195201 | 142149 |
| Dpf3 | 021221 | 177959 | 137477 | Nln | 021710 | 225704 | N/A | Tgfb2 | 039239 | 191766 | N/A |
| Dpf3 | 021221 | 177801 | 136740 | Nln | 021710 | 224945 | 153227 | Tgfb2 | 039239 | 194960 | N/A |
| Dpp10 | 036815 | 112606 | 108225 | Nln | 021710 | 224475 | N/A | Tgfb2 | 039239 | 194593 | N/A |
| Dpp10 | 036815 | 112603 | 108222 | Nln | 021710 | 225478 | N/A | Tgfb2 | 039239 | 193640 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dpp10 | 036815 | 187202 | N/A | Nln | 021710 | 224086 | N/A | Tgfb3 | 021253 | 003687 | 003687 |
| Dpp10 | 036815 | 140361 | N/A | Nnt | 025453 | 069902 | 070564 | Th | 000214 | 000219 | 000219 |
| Dpy19l1 | 043067 | 115277 | 110932 | Nnt | 025453 | 099149 | 096753 | Th | 000214 | 105929 | 101549 |
| Dpy19l1 | 043067 | 142064 | 119986 | Nnt | 025453 | 109204 | 104827 | Th | 000214 | 124951 | 122876 |
| Dpy19l1 | 043067 | 152480 | N/A | Nnt | 025453 | 133627 | N/A | Th | 000214 | 138482 | 123661 |
| Dpy19l1 | 043067 | 149001 | N/A | Nnt | 025453 | 144599 | N/A | Th | 000214 | 123057 | 122162 |
| Dpy19l1 | 043067 | 129048 | N/A | Nnt | 025453 | 223268 | 152868 | Th | 000214 | 140344 | 115434 |
| Dpy19l1 | 043067 | 170356 | 129575 | Notch1 | 026923 | 028288 | 028288 | Thbs2 | 023885 | 170872 | 128308 |
| Dpy19l2 | 085576 | 133010 | 132092 | Notch1 | 026923 | 132941 | N/A | Thsd7b | 042581 | 148051 | N/A |
| Dpyd | 033308 | 039177 | 039429 | Notch1 | 026923 | 148948 | N/A | Thsd7b | 042581 | 073527 | 073220 |
| Dpyd | 033308 | 126254 | N/A | Notch1 | 026923 | 138034 | N/A | Thsd7b | 042581 | 040311 | 041716 |
| Dpyd | 033308 | 150950 | N/A | Notch1 | 026923 | 126872 | N/A | Thsd7b | 042581 | 140629 | N/A |
| Dpyd | 033308 | 149101 | 143022 | Notch1 | 026923 | 140082 | N/A | Thsd7b | 042581 | 152305 | 117750 |
| Dpyd | 033308 | 200178 | N/A | Notch1 | 026923 | 147481 | N/A | Thsd7b | 042581 | 190870 | N/A |
| Dpyd | 033308 | 129148 | N/A | Notch1 | 026923 | 123873 | N/A | Thsd7b | 042581 | 151700 | N/A |
| Dpysl3 | 024501 | 121805 | 112928 | Notch1 | 026923 | 129506 | N/A | Thsd7b | 042581 | 140834 | N/A |
| Dpysl3 | 024501 | 135547 | N/A | Notch1 | 026923 | 132820 | 115258 | Thsd7b | 042581 | 143130 | N/A |
| Dpysl3 | 024501 | 118043 | 113711 | Notch1 | 026923 | 131393 | N/A | Thyn1 | 035443 | 214910 | N/A |
| Dpysl3 | 024501 | 025379 | 025379 | Npr3 | 022206 | 066529 | 066737 | Thyn1 | 035443 | 213770 | 151200 |
| Dpysl3 | 024501 | 124207 | 114981 | Npr3 | 022206 | 226139 | N/A | Thyn1 | 035443 | 213683 | 150823 |
| Dpysl3 | 024501 | 118071 | 113604 | Npr3 | 022206 | 228603 | 154180 | Thyn1 | 035443 | 039161 | 037614 |
| Dpysl4 | 025478 | 026551 | 026551 | Npr3 | 022206 | 228489 | 153895 | Thyn1 | 035443 | 214458 | N/A |
| Dpysl4 | 025478 | 139364 | N/A | Npr3 | 022206 | 226878 | N/A | Thyn1 | 035443 | 217143 | N/A |
| Dpysl4 | 025478 | 154273 | N/A | Npy1r | 036437 | 212588 | 148417 | Thyn1 | 035443 | 215024 | N/A |
| Dpysl4 | 025478 | 122844 | N/A | Npy1r | 036437 | 039303 | 045530 | Thyn1 | 035443 | 216361 | N/A |
| Dpysl4 | 025478 | 145499 | 117764 | Nrcam | 020598 | 218940 | N/A | Timp3 | 020044 | 020234 | 020234 |
| Dpysl4 | 025478 | 121184 | 112896 | Nrcam | 020598 | 110748 | 106376 | Timp3 | 020044 | 151134 | N/A |
| Dtd1 | 021478 | 221470 | 152768 | Nrcam | 020598 | 219592 | N/A | Timp3 | 020044 | 136045 | N/A |
| Dtd1 | 021478 | 222706 | N/A | Nrcam | 020598 | 220130 | N/A | Timp3 | 020044 | 132307 | 133236 |
| Dtd1 | 021478 | 021932 | 021932 | Nrcam | 020598 | 020939 | 020939 | Tlcd1 | 019437 | 098545 | 096145 |
| Dtd2 | 032259 | 075764 | 075170 | Nrcam | 020598 | 220126 | 151296 | Tlcd1 | 019437 | 147819 | 126593 |
| Dscaml1 | 032087 | 217335 | N/A | Nrcam | 020598 | 217907 | 151419 | Tlcd1 | 019437 | 145507 | N/A |
| Dscaml1 | 032087 | 217538 | 149771 | Nrcam | 020598 | 218540 | 151732 | Tlcd1 | 019437 | 092880 | 090556 |
| Dscaml1 | 032087 | 213919 | 150245 | Nrcam | 020598 | 219928 | N/A | Tlcd1 | 019437 | 127587 | 114202 |
| Dscaml1 | 032087 | 216340 | N/A | Nrcam | 020598 | 218805 | N/A | Tlcd1 | 019437 | 141578 | N/A |
| Dscaml1 | 032087 | 034592 | 034592 | Nrcam | 020598 | 220123 | 151844 | Tlcd1 | 019437 | 108338 | 103975 |
| Dscaml1 | 032087 | 216078 | 148905 | Nrcam | 020598 | 218431 | 151873 | Tlcd1 | 019437 | 140379 | N/A |
| Dscaml1 | 032087 | 216685 | 149247 | Nrcam | 020598 | 219939 | 152002 | Tle4 | 024642 | 052011 | 057527 |
| Dscaml1 | 032087 | 215027 | N/A | Nrcam | 020598 | 219906 | 151243 | Tle4 | 024642 | 167776 | 126249 |
| Dscaml1 | 032087 | 214151 | N/A | Nrcam | 020598 | 220082 | 151824 | Tll1 | 053626 | 066166 | 070560 |
| Dusp16 | 030203 | 129433 | 115925 | Nrcam | 020598 | 217796 | N/A | Tll1 | 053626 | 209451 | N/A |
| Dusp16 | 030203 | 100857 | 098419 | Nrcam | 020598 | 218062 | 151475 | Tll1 | 053626 | 211755 | N/A |
| Dusp16 | 030203 | 204083 | 144834 | Nrg1 | 062991 | 207470 | 146456 | Tll1 | 053626 | 210256 | 147695 |
| Dusp16 | 030203 | 203651 | N/A | Nrg1 | 062991 | 207417 | 146905 | Tlr3 | 031639 | 034056 | 034056 |
| Dusp16 | 030203 | 203452 | N/A | Nrg1 | 062991 | 209107 | 146617 | Tlr3 | 031639 | 167106 | 126556 |
| Dusp16 | 030203 | 148926 | 144917 | Nrg1 | 062991 | 208617 | 146857 | Tlr3 | 031639 | 210013 | 147783 |
| Dusp16 | 030203 | 149776 | 144784 | Nrg1 | 062991 | 208205 | 147156 | Tlr3 | 031639 | 209772 | 147738 |
| Dusp22 | 069255 | 091672 | 089260 | Nrg1 | 062991 | 073884 | 073546 | Tlr3 | 031639 | 211370 | 148127 |
| Dusp22 | 069255 | 110310 | 105939 | Nrg1 | 062991 | 208488 | 147121 | Tlr3 | 031639 | 210996 | 148263 |
| Dusp22 | 069255 | 220748 | N/A | Nrg1 | 062991 | 208819 | 146403 | Tlr3 | 031639 | 209651 | 147961 |
| Dusp22 | 069255 | 221725 | 152283 | Nrg1 | 062991 | 208335 | 146375 | Tlr3 | 031639 | 209269 | N/A |
| Dusp22 | 069255 | 095914 | 093603 | Nrg1 | 062991 | 208598 | 146478 | Tlr3 | 031639 | 210354 | N/A |
| Dusp26 | 039661 | 036631 | 046794 | Nrg1 | 062991 | 208497 | 146816 | Tmc1 | 024749 | 039500 | 040859 |
| Dusp26 | 039661 | 170204 | 126397 | Nrg1 | 062991 | 207678 | N/A | Tmc7 | 042246 | 044195 | 046927 |
| Dusp26 | 039661 | 162551 | N/A | Nrg1 | 062991 | 208355 | N/A | Tmc7 | 042246 | 153635 | N/A |
| Dusp26 | 039661 | 161713 | 124949 | Nrg1 | 062991 | 208931 | 146507 | Tmc7 | 042246 | 145989 | N/A |
| Dusp26 | 039661 | 160700 | N/A | Nrg1 | 062991 | 209022 | 146842 | Tmc7 | 042246 | 139693 | N/A |
| Dusp5 | 034765 | 038287 | 047900 | Nrg1 | 062991 | 207584 | N/A | N/A | N/A | N/A | N/A |
| Dzank1 | 037259 | 081982 | 080643 | Nrg1 | 062991 | 208820 | N/A | Tmem108 | 042757 | 049452 | 046021 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Dzank1 | 037259 | 124823 | N/A | Nrg1 | 062991 | 208206 | N/A | Tmem108 | 042757 | 189588 | 140027 |
| Dzank1 | 037259 | 150816 | N/A | Nrg2 | 060275 | 115713 | 111378 | Tmem108 | 042757 | 189066 | 141160 |
| Dzank1 | 037259 | 163701 | 133177 | Nrg2 | 060275 | 115712 | 111377 | Tmem108 | 042757 | 191069 | N/A |
| Dzip1l | 037784 | 131095 | 116647 | Nrg2 | 060275 | 115705 | N/A | Tmem108 | 042757 | 215136 | 149890 |
| Dzip1l | 037784 | 078367 | 077475 | Nrg2 | 060275 | 225173 | N/A | Tmem108 | 042757 | 186455 | N/A |
| Dzip1l | 037784 | 112885 | 108506 | Nrg3 | 041014 | 166968 | 136884 | Tmem125 | 050854 | 060214 | 063157 |
| Dzip1l | 037784 | 112886 | 108507 | Nrg3 | 041014 | 168810 | 129783 | Tmem125 | 050854 | 128098 | 115304 |
| Dzip1l | 037784 | 112884 | 108505 | Nrg3 | 041014 | 173780 | 134727 | Tmem125 | 050854 | 150044 | 117871 |
| Dzip1l | 037784 | 134969 | N/A | Nrg3 | 041014 | 176122 | N/A | Tmem125 | 050854 | 156191 | 117286 |
| Dzip1l | 037784 | 190893 | N/A | Nrgn | 053310 | 065668 | 070113 | Tmem125 | 050854 | 154025 | N/A |
| Ebf1 | 057098 | 081265 | 080020 | Nrgn | 053310 | 182070 | N/A | Tmem132b | 070498 | 185104 | 139013 |
| Ebf1 | 057098 | 101326 | 099857 | Ntk | 052854 | 113052 | 108675 | Tmem132b | 070498 | 031446 | 031446 |
| Ebf1 | 057098 | 109268 | 104891 | Ntk | 052854 | 131829 | 115962 | Tmem132b | 070498 | 184422 | N/A |
| Ebf1 | 057098 | 140822 | N/A | Ntk | 052854 | 155201 | N/A | Tmem132c | 034324 | 119026 | 113090 |
| Ebf1 | 057098 | 149997 | N/A | Ntk | 052854 | 142132 | N/A | Tmem132c | 034324 | 134780 | N/A |
| Ebf1 | 057098 | 135993 | N/A | Ntk | 052854 | 064937 | 063397 | Tmem132c | 034324 | 128068 | N/A |
| Ebf1 | 057098 | 138452 | N/A | Nrxn1 | 024109 | 072671 | 072458 | Tmem132c | 034324 | 132592 | N/A |
| Ebf2 | 022053 | 022637 | 022637 | Nrxn1 | 024109 | 160844 | 125407 | Tmem132c | 034324 | 145748 | 121783 |
| Ebf2 | 022053 | 176161 | 135500 | Nrxn1 | 024109 | 197268 | 142815 | Tmem132e | 020701 | 092852 | 090528 |
| Ebf2 | 022053 | 177231 | N/A | Nrxn1 | 024109 | 174331 | 133491 | Tmem132e | 020701 | 054245 | 052484 |
| Ebf2 | 022053 | 176029 | 135782 | Nrxn1 | 024109 | 159778 | 125561 | Tmem132e | 020701 | 132477 | N/A |
| Ebf3 | 010476 | 033378 | 033378 | Nrxn1 | 024109 | 173917 | 133389 | Tmem132e | 020701 | 202598 | N/A |
| Ebf3 | 010476 | 106118 | 101724 | Nrxn1 | 024109 | 174337 | 133724 | Tmem150c | 050640 | 124145 | N/A |
| Ebf3 | 010476 | 210774 | 147829 | Nrxn1 | 024109 | 161402 | 124116 | Tmem150c | 050640 | 165548 | N/A |
| Ebf3 | 010476 | 209578 | 147512 | Nrxn1 | 024109 | 173222 | 146701 | Tmem150c | 050640 | 139520 | 114464 |
| Ebf3 | 010476 | 209905 | N/A | Nrxn1 | 024109 | 054059 | 057294 | Tmem150c | 050640 | 063192 | 057116 |
| Ebf3 | 010476 | 209864 | N/A | Nrxn1 | 024109 | 172466 | 134402 | Tmem150c | 050640 | 146731 | N/A |
| Ebf3 | 010476 | 168203 | 130334 | Nrxn1 | 024109 | 160800 | 124561 | Tmem163 | 026347 | 027585 | 027585 |
| Ebf3 | 010476 | 169486 | 132563 | Nrxn1 | 024109 | 197104 | 142621 | Tmem163 | 026347 | 185560 | 140828 |
| Ebf4 | 053552 | 110288 | 105917 | Nrxn1 | 024109 | 176918 | N/A | Tmem163 | 026347 | 160111 | N/A |
| Ebf4 | 053552 | 110286 | 105915 | Nrxn1 | 024109 | 196269 | N/A | Tmem163 | 026347 | 162406 | N/A |
| Ebf4 | 053552 | 134728 | N/A | Nrxn1 | 024109 | 161102 | N/A | Tmem163 | 026347 | 160616 | 124307 |
| Ebf4 | 053552 | 126740 | 133528 | Nrxn1 | 024109 | 196559 | 142891 | Tmem178 | 024245 | 025092 | 025092 |
| Ebf4 | 053552 | 140169 | 134520 | Nrxn1 | 024109 | 176118 | 135241 | Tmem179 | 054013 | 066791 | 068004 |
| Ebf4 | 053552 | 110287 | 105916 | Nrxn1 | 024109 | 198899 | N/A | Tmem179 | 054013 | 222836 | 152792 |
| Ece1 | 057530 | 102518 | 099576 | Nrxn1 | 024109 | 161637 | N/A | Tmem200a | 049420 | 217910 | N/A |
| Ece1 | 057530 | 130407 | 125529 | Nrxn1 | 024109 | 177342 | 135301 | Tmem200a | 049420 | 218232 | 151861 |
| Ece1 | 057530 | 151110 | 114671 | Nrxn1 | 024109 | 197224 | 142650 | Tmem200a | 049420 | 066049 | 064080 |
| Ece1 | 057530 | 129607 | N/A | Nrxn1 | 024109 | 162227 | N/A | Tmem200a | 049420 | 219651 | 151832 |
| Echdc2 | 028601 | 052999 | 051268 | Nrxn1 | 024109 | 160467 | N/A | Tmem200a | 049420 | 219338 | 151494 |
| Echdc2 | 028601 | 130942 | 124746 | Nrxn1 | 024109 | 159419 | N/A | Tmem200a | 049420 | 219872 | 151559 |
| Echdc2 | 028601 | 125647 | 123913 | Nrxn1 | 024109 | 162002 | N/A | Tmem255a | 036502 | 089056 | 086457 |
| Echdc2 | 028601 | 116307 | 112009 | Ntf3 | 049107 | 204542 | 144828 | Tmem255a | 036502 | 089054 | 086455 |
| Echdc2 | 028601 | 135718 | 114371 | Ntf3 | 049107 | 112244 | 107863 | Tmem255a | 036502 | 155848 | N/A |
| Echdc2 | 028601 | 138701 | N/A | Ntf3 | 049107 | 050484 | 052302 | Tmem255a | 036502 | 066498 | 064511 |
| Echdc2 | 028601 | 133049 | N/A | Ntm | 059974 | 075069 | 074578 | Tmem255a | 036502 | 139358 | N/A |
| Echdc2 | 028601 | 123280 | N/A | Ntm | 059974 | 124119 | N/A | Tmem266 | 032313 | 085754 | 082906 |
| Echdc2 | 028601 | 126900 | 123734 | Ntm | 059974 | 151977 | N/A | Tmem266 | 032313 | 034862 | 034862 |
| Echdc2 | 028601 | 150487 | N/A | Ntm | 059974 | 115237 | 110892 | Tmem266 | 032313 | 130465 | N/A |
| Echdc2 | 028601 | 127392 | N/A | Ntm | 059974 | 152513 | N/A | Tmem63a | 026519 | 161847 | 124937 |
| Echdc2 | 028601 | 106691 | 102302 | Ntm | 059974 | 140118 | 114810 | Tmem63a | 026519 | 162283 | 125287 |
| Echdc2 | 028601 | 116309 | 112011 | Ntm | 059974 | 155308 | 119030 | Tmem63a | 026519 | 027800 | 027800 |
| Edem1 | 030104 | 204804 | 144901 | Ntm | 059974 | 115236 | 110891 | Tmem63a | 026519 | 159436 | 125192 |
| Edem1 | 030104 | 089162 | 086565 | Ntm | 059974 | 148606 | N/A | Tmem63a | 026519 | 161523 | 124021 |
| Edem1 | 030104 | 203469 | N/A | Ntm | 059974 | 126044 | N/A | Tmem63a | 026519 | 160508 | 124973 |
| Edem1 | 030104 | 204524 | N/A | Ntm | 059974 | 146651 | N/A | Tmem63a | 026519 | 160536 | 124860 |
| Edem1 | 030104 | 203302 | N/A | Ntn1 | 020902 | 108674 | 104314 | Tmem63a | 026519 | 161942 | N/A |
| Edil3 | 034488 | 118731 | 112829 | Ntn1 | 020902 | 135141 | 121193 | Tmem98 | 035413 | 040865 | 042825 |
| Edil3 | 034488 | 153974 | N/A | Ntn1 | 020902 | 021284 | 021284 | Tmod1 | 028328 | 107773 | 103402 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Edil3 | 034488 | 081769 | 080462 | Ntn4 | 020019 | 147080 | 123306 | Tmod1 | 028328 | 156200 | 134075 |
| Edil3 | 034488 | 134241 | N/A | Ntn4 | 020019 | 020204 | 020204 | Tmod1 | 028328 | 128689 | N/A |
| Edil3 | 034488 | 133761 | N/A | Ntsr1 | 027568 | 029084 | 029084 | Tmod1 | 028328 | 136553 | N/A |
| Edil3 | 034488 | 137921 | N/A | Ntsr1 | 027568 | 170448 | 127548 | Tmod1 | 028328 | 155730 | N/A |
| Edil3 | 034488 | 140625 | N/A | Ntsr2 | 020591 | 221596 | 152110 | Tmprss5 | 032268 | 165088 | 132181 |
| Edil3 | 034488 | 043111 | 044652 | Ntsr2 | 020591 | 111064 | 106693 | Tmprss5 | 032268 | 171217 | N/A |
| Ednrb | 022122 | 022718 | 022718 | Ntsr2 | 020591 | 220892 | 152290 | Tmprss5 | 032268 | 166272 | 130069 |
| Ednrb | 022122 | 227824 | 154806 | Ntsr2 | 020591 | 222957 | N/A | Tmprss5 | 032268 | 070390 | 064527 |
| Ednrb | 022122 | 172237 | 126057 | Ntsr2 | 020591 | 221049 | 152592 | Tmprss5 | 032268 | 167095 | 131650 |
| Slc13a1 | 029700 | 031713 | 031713 | Nudt4 | 020029 | 020217 | 020217 | Tmprss5 | 032268 | 170246 | 129482 |
| Slc13a1 | 029700 | 174594 | N/A | Nup62cl | 072944 | 101212 | 098772 | Tmprss5 | 032268 | 170426 | 128662 |
| Slc13a1 | 029700 | 177412 | N/A | Nup62cl | 072944 | 154385 | 121310 | Tmtc4 | 041594 | 037726 | 046368 |
| Slc13a1 | 029700 | 176692 | N/A | Nup62cl | 072944 | 133780 | 116491 | Tmtc4 | 041594 | 143189 | 116480 |
| Efemp1 | 020467 | 020759 | 020759 | Nup62cl | 072944 | 125678 | 116128 | Tmtc4 | 041594 | 126867 | 116379 |
| Efemp1 | 020467 | 139713 | 114757 | Nup62cl | 072944 | 124075 | 122713 | Tmtc4 | 041594 | 148661 | 121523 |
| Efemp1 | 020467 | 124103 | N/A | Nwd1 | 048148 | 161386 | N/A | Tmtc4 | 041594 | 126494 | N/A |
| Efhc2 | 025038 | 026014 | 026014 | Nwd1 | 048148 | 161557 | 125470 | Tmtc4 | 041594 | 228661 | N/A |
| Efhd1 | 026255 | 118687 | 112980 | Nwd1 | 048148 | 161254 | 124804 | Tmtc4 | 041594 | 125900 | N/A |
| Efhd1 | 026255 | 027472 | 027472 | Nwd1 | 048148 | 228312 | 154488 | Tmtc4 | 041594 | 135917 | N/A |
| Efhd1 | 026255 | 150831 | N/A | Nwd1 | 048148 | 160443 | 124446 | Tmtc4 | 041594 | 227430 | N/A |
| Efhd2 | 040659 | 036854 | 044502 | Nwd1 | 048148 | 163026 | N/A | Tmtc4 | 041594 | 128969 | 118814 |
| Efna5 | 048915 | 076840 | 076115 | Nwd1 | 048148 | 160912 | N/A | Tmtc4 | 041594 | 228552 | N/A |
| Efna5 | 048915 | 078839 | 077883 | Nwd1 | 048148 | 162248 | N/A | Tmtc4 | 041594 | 153496 | N/A |
| Efnb3 | 003934 | 004036 | 004036 | Nwd1 | 048148 | 093427 | 091135 | Tmtc4 | 041594 | 141478 | N/A |
| Egfr | 020122 | 020329 | 020329 | Nxn | 020844 | 021204 | 021204 | Tnc | 028364 | 030056 | 030056 |
| Egfr | 020122 | 102884 | 099948 | Nxn | 020844 | 131472 | N/A | Tnc | 028364 | 107372 | 102995 |
| Egfr | 020122 | 125984 | 122632 | Nxpe3 | 075033 | 099705 | 097296 | Tnc | 028364 | 107371 | 102994 |
| Egfr | 020122 | 138518 | N/A | Ogdhl | 021913 | 228529 | 154185 | Tnc | 028364 | 107377 | 103000 |
| Egfr | 020122 | 139722 | N/A | Ogdhl | 021913 | 228286 | N/A | Tnfaip6 | 053475 | 065927 | 069231 |
| Egln3 | 035105 | 039516 | 041874 | Ogdhl | 021913 | 022480 | 022480 | Tnfrsf13c | 068105 | 089161 | 086564 |
| Egr3 | 033730 | 035908 | 037042 | Olfm1 | 026833 | 028177 | 028177 | Tnfrsf13c | 068105 | 109535 | 105161 |
| Egr3 | 033730 | 225200 | 153491 | Olfm1 | 026833 | 113920 | 109553 | Tnfrsf19 | 060548 | 111236 | 106867 |
| Egr3 | 033730 | 223809 | N/A | Olfm1 | 026833 | 102879 | 099943 | Tnfrsf19 | 060548 | 111234 | 106865 |
| Egr3 | 033730 | 223747 | N/A | Olfm1 | 026833 | 152415 | N/A | Tnfrsf19 | 060548 | 225501 | N/A |
| Ehd3 | 024065 | 024860 | 024860 | Olfm1 | 026833 | 100244 | 097815 | Tnfrsf19 | 060548 | 224371 | 153577 |
| Eif2s3y | 069049 | 091197 | 088736 | Olfm3 | 027965 | 081752 | 080448 | Tnfrsf19 | 060548 | 225730 | 152920 |
| Eif2s3y | 069049 | 137006 | N/A | Olfm3 | 027965 | 149158 | 121097 | Tnk2 | 022791 | 145627 | 152338 |
| Eif2s3y | 069049 | 148961 | N/A | Olfm3 | 027965 | 051309 | 060985 | Tnk2 | 022791 | 124585 | 152549 |
| Eif2s3y | 069049 | 154556 | N/A | Olig1 | 046160 | 056882 | 061408 | Tnk2 | 022791 | 115126 | 110779 |
| Eif2s3y | 069049 | 139083 | N/A | Olig2 | 039830 | 035608 | 036797 | Tnk2 | 022791 | 115125 | 110778 |
| Eif2s3y | 069049 | 134820 | N/A | Onecut2 | 045991 | 175965 | 135692 | Tnk2 | 022791 | 115124 | 110777 |
| Elavl2 | 008489 | 107110 | 102727 | Onecut2 | 045991 | 115145 | 110798 | Tnk2 | 022791 | 115123 | 110776 |
| Elavl2 | 008489 | 008633 | 008633 | Opalin | 050121 | 087176 | 084422 | Tnk2 | 022791 | 164358 | N/A |
| Elavl2 | 008489 | 107118 | 102735 | Ophn1 | 031214 | 033560 | 033560 | Tnk2 | 022791 | 150383 | N/A |
| Elavl2 | 008489 | 107120 | 102737 | Ophn1 | 031214 | 142267 | 119361 | Tnk2 | 022791 | 156614 | N/A |
| Elavl2 | 008489 | 102799 | 099863 | Ophn1 | 031214 | 156634 | N/A | Tnk2 | 022791 | 137044 | N/A |
| Elavl2 | 008489 | 128599 | N/A | Ophn1 | 031214 | 113826 | 109457 | Tnk2 | 022791 | 115122 | 110775 |
| Elavl2 | 008489 | 107116 | 102733 | Ophn1 | 031214 | 125150 | N/A | Tnk2 | 022791 | 115120 | 110773 |
| Elavl2 | 008489 | 107109 | 102726 | Ophn1 | 031214 | 147805 | N/A | Tnk2 | 022791 | 131238 | 129382 |
| Elavl2 | 008489 | 107111 | 102728 | Ophn1 | 031214 | 156917 | N/A | Tnk2 | 022791 | 115121 | 110774 |
| Elavl2 | 008489 | 176469 | N/A | Ophn1 | 031214 | 140598 | N/A | Tnk2 | 022791 | 168506 | N/A |
| Elavl2 | 008489 | 177109 | 135780 | Ophn1 | 031214 | 147529 | 121723 | Tnk2 | 022791 | 152361 | 125905 |
| Elavl2 | 008489 | 147611 | 117770 | Ophn1 | 031214 | 154920 | N/A | Tnni1 | 026418 | 187830 | N/A |
| Elavl2 | 008489 | 176362 | 135038 | Oplah | 022562 | 171340 | 129100 | Tnni1 | 026418 | 132795 | 121122 |
| Elavl2 | 008489 | 144769 | N/A | Oplah | 022562 | 170261 | N/A | Tnni1 | 026418 | 152208 | 121966 |
| Elavl2 | 008489 | 176151 | N/A | Oplah | 022562 | 169664 | N/A | Tnni1 | 026418 | 137331 | N/A |
| Elavl2 | 008489 | 107124 | 102741 | Oplah | 022562 | 170063 | N/A | Tnni1 | 026418 | 152075 | 121343 |
| Elavl4 | 028546 | 106603 | 102214 | Oplah | 022562 | 163127 | N/A | Tnni1 | 026418 | 154463 | 122925 |
| Elavl4 | 028546 | 102723 | 099784 | Oplah | 022562 | 164189 | 131967 | Tnni1 | 026418 | 139986 | 123049 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Elavl4 | 028546 | 106598 | 102208 | Oplah | 022562 | 163977 | N/A | Tnni1 | 026418 | 148201 | 123509 |
| Elavl4 | 028546 | 106597 | 102207 | Oplah | 022562 | 210024 | 148028 | Tnni1 | 026418 | 129217 | 119848 |
| Elavl4 | 028546 | 102722 | 099783 | Oplah | 022562 | 165279 | 127955 | Tnr | 015829 | 192069 | 141553 |
| Elavl4 | 028546 | 106600 | 102210 | Oplah | 022562 | 023222 | 023222 | Tnr | 015829 | 195199 | N/A |
| Elavl4 | 028546 | 106601 | 102212 | Oprd1 | 050511 | 056336 | 050077 | Tnr | 015829 | 193325 | 141752 |
| Elavl4 | 028546 | 142722 | 121828 | Optc | 010311 | 124051 | 120568 | Tnr | 015829 | 192457 | 141509 |
| Elavl4 | 028546 | 153200 | N/A | Optc | 010311 | 153617 | 123262 | Tnr | 015829 | 111669 | 107298 |
| Elavl4 | 028546 | 144554 | N/A | Optc | 010311 | 149380 | 115661 | Tns1 | 055322 | 187584 | 140254 |
| Elavl4 | 028546 | 153906 | 120942 | Optc | 010311 | 126123 | 117086 | Tns1 | 055322 | 191104 | 140317 |
| Elavl4 | 028546 | 138972 | 123014 | Optc | 010311 | 124245 | N/A | Tns1 | 055322 | 187691 | 139844 |
| Elf2 | 037174 | 194641 | 141197 | Osbp | 024687 | 025590 | 025590 | Tns1 | 055322 | 185702 | 140094 |
| Elf2 | 037174 | 183463 | 139360 | Osbpl10 | 040875 | 183104 | 138287 | Tns1 | 055322 | 185331 | 140771 |
| Elf2 | 037174 | 062009 | 061076 | Osbpl10 | 040875 | 182384 | 138552 | Tns1 | 055322 | 212888 | 148638 |
| Elf2 | 037174 | 091144 | 088678 | Osbpl10 | 040875 | 183141 | 138760 | Tns1 | 055322 | 189228 | 139721 |
| Elf2 | 037174 | 108051 | 103686 | Osbpl10 | 040875 | 182199 | 138206 | Tns1 | 055322 | 191527 | N/A |
| Elf2 | 037174 | 108053 | 103688 | Osbpl10 | 040875 | 182920 | 138266 | Tns1 | 055322 | 185264 | N/A |
| Elf2 | 037174 | 193909 | N/A | Osbpl10 | 040875 | 182363 | N/A | Tns1 | 055322 | 185529 | N/A |
| Elf2 | 037174 | 195432 | 142300 | Osbpl10 | 040875 | 182413 | N/A | Tns1 | 055322 | 191367 | 140991 |
| Elf2 | 037174 | 183338 | 139358 | Osbpl10 | 040875 | 046627 | 038013 | Tns1 | 055322 | 188942 | N/A |
| Elf2 | 037174 | 184677 | 139199 | Osbpl3 | 029822 | 114468 | 110112 | Tns1 | 055322 | 191264 | N/A |
| Elf2 | 037174 | 194209 | N/A | Osbpl3 | 029822 | 141466 | N/A | Tns1 | 055322 | 186381 | N/A |
| Elf2 | 037174 | 156983 | 141525 | Osbpl3 | 029822 | 090019 | 087473 | Tns1 | 055322 | 189571 | N/A |
| Elf2 | 037174 | 163748 | 126871 | Osbpl3 | 029822 | 071728 | 071643 | Tns1 | 055322 | 190389 | 140448 |
| Elfn1 | 048988 | 050519 | 053869 | Osbpl3 | 029822 | 114466 | 110110 | Tns1 | 055322 | 187281 | 139616 |
| Elfn1 | 048988 | 198608 | N/A | Osbpl3 | 029822 | 133141 | N/A | Tns1 | 055322 | 188436 | N/A |
| Elmo2 | 017670 | 103091 | 099380 | Osbpl3 | 029822 | 203907 | 145249 | Tns1 | 055322 | 191204 | 140878 |
| Elmo2 | 017670 | 148643 | 117124 | Osbpl3 | 029822 | 146341 | 114472 | Tns1 | 055322 | 188208 | 140837 |
| Elmo2 | 017670 | 074046 | 073691 | Osbpl3 | 029822 | 136926 | 144934 | Tns1 | 055322 | 190599 | N/A |
| Elmo2 | 017670 | 094329 | 091887 | Osbpl3 | 029822 | 154333 | N/A | Tns1 | 055322 | 169786 | 127715 |
| Elmo2 | 017670 | 103088 | 099377 | P2ry1 | 027765 | 029331 | 029331 | Tns3 | 020422 | 020695 | 020695 |
| Elmo2 | 017670 | 071699 | 071619 | P2ry1 | 027765 | 193201 | 142006 | Tns3 | 020422 | 131941 | N/A |
| Elmo2 | 017670 | 127496 | N/A | P2ry1 | 027765 | 193943 | 141371 | Tns3 | 020422 | 134823 | N/A |
| Elmo2 | 017670 | 137188 | 123232 | P2ry12 | 036353 | 196583 | 143036 | Tns3 | 020422 | 129074 | N/A |
| Elmo2 | 017670 | 149844 | N/A | P2ry12 | 036353 | 050360 | 051353 | Tox2 | 074607 | 109428 | 105055 |
| Elmo2 | 017670 | 126318 | 116124 | P2ry12 | 036353 | 199609 | 143521 | Tox2 | 074607 | 128999 | 122344 |
| Elmo2 | 017670 | 133205 | 119682 | P2ry12 | 036353 | 199675 | 143706 | Tox2 | 074607 | 099110 | 096710 |
| Elmo2 | 017670 | 128690 | 114303 | P2ry12 | 036353 | 170388 | 126819 | Tox2 | 074607 | 148599 | 118219 |
| Elmod1 | 041986 | 215313 | N/A | Pak7 | 039913 | 035264 | 047285 | Tox2 | 074607 | 165937 | 126243 |
| Elmod1 | 041986 | 048409 | 046191 | Pak7 | 039913 | 077200 | 076440 | Tox3 | 043668 | 109621 | 105250 |
| Elmod1 | 041986 | 216880 | N/A | Pak7 | 039913 | 143329 | N/A | Tox3 | 043668 | 176616 | 135697 |
| Elmod1 | 041986 | 213111 | N/A | Palm2 | 090053 | 102905 | 099969 | Tox3 | 043668 | 176034 | 134931 |
| Elmod1 | 041986 | 166580 | 129082 | Palm2 | 090053 | 102904 | 099968 | Tpcn1 | 032741 | 046426 | 042188 |
| Elovl2 | 021364 | 021793 | 021793 | Palm2 | 090053 | 142556 | 129817 | Tpcn1 | 032741 | 200708 | N/A |
| Elovl2 | 021364 | 117096 | 114112 | Palm2 | 090053 | 131201 | N/A | Tpcn1 | 032741 | 202072 | N/A |
| Elovl7 | 021696 | 022207 | 022207 | Pam | 026335 | 159041 | 124284 | Tpcn1 | 032741 | 201601 | N/A |
| Elovl7 | 021696 | 225550 | 152997 | Pam | 026335 | 058762 | 057112 | Tpgp | 021573 | 140217 | N/A |
| Emilin2 | 024053 | 024849 | 024849 | Pam | 026335 | 161567 | 125418 | Tpgp | 021573 | 022057 | 022057 |
| Eml5 | 051166 | 065716 | 065643 | Pam | 026335 | 162681 | 125133 | Tnabd2b | 070867 | 094894 | 092494 |
| Eml5 | 051166 | 223282 | 152709 | Pam | 026335 | 159585 | N/A | Traf1 | 026875 | 172159 | 130759 |
| Eml5 | 051166 | 222717 | N/A | Pam | 026335 | 160210 | N/A | Traf1 | 026875 | 028234 | 028234 |
| Eml5 | 051166 | 220848 | N/A | Pam | 026335 | 162803 | N/A | Traf1 | 026875 | 113064 | 108687 |
| Eml5 | 051166 | 221107 | N/A | Pam | 026335 | 159131 | N/A | Traf1 | 026875 | 129131 | N/A |
| Eml5 | 051166 | 222097 | 152624 | Pam | 026335 | 161071 | N/A | Traf1 | 026875 | 201690 | 144189 |
| Eml5 | 051166 | 222593 | N/A | Pam | 026335 | 159841 | 124479 | Traf1 | 026875 | 201335 | N/A |
| Eml5 | 051166 | 221511 | N/A | Pam | 026335 | 159428 | N/A | Traf1 | 026875 | 141238 | N/A |
| Eml5 | 051166 | 220676 | N/A | Pam | 026335 | 162426 | N/A | Traf1 | 026875 | 156479 | N/A |
| Eml5 | 051166 | 222128 | 152401 | Pam | 026335 | 186731 | N/A | Traf1 | 026875 | 135870 | N/A |
| Emp2 | 022505 | 078357 | 077466 | Pam | 026335 | 163007 | N/A | Trhde | 050663 | 061632 | 057449 |
| En2 | 039095 | 036177 | 036761 | Pam | 026335 | 097625 | 095228 | Trhde | 050663 | 152702 | N/A |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Enah | 022995 | 193703 | 141462 | Panx2 | 058441 | 161372 | 125514 | Trhde | 050663 | 152282 | N/A |
| Enah | 022995 | 111024 | 106653 | Panx2 | 058441 | 162424 | 124354 | Tril | 043496 | 127748 | 116056 |
| Enah | 022995 | 195703 | N/A | Panx2 | 058441 | 159960 | 124928 | Trim30a | 030921 | 076922 | 076189 |
| Enah | 022995 | 191649 | N/A | Paqr6 | 041423 | 147948 | 119656 | Trim30a | 030921 | 125762 | N/A |
| Enah | 022995 | 193074 | 141936 | Paqr6 | 041423 | 147991 | 114166 | Trim30a | 030921 | 142124 | N/A |
| Enah | 022995 | 078719 | 077781 | Paqr6 | 041423 | 149640 | N/A | Trim36 | 033949 | 167364 | 129771 |
| Enah | 022995 | 195059 | 141344 | Paqr6 | 041423 | 123200 | N/A | Trim36 | 033949 | 037011 | 037978 |
| Enah | 022995 | 111030 | 106659 | Paqr6 | 041423 | 147818 | N/A | Trim59 | 034317 | 107802 | 103432 |
| Enah | 022995 | 195788 | N/A | Pard3 | 025812 | 162309 | 124282 | Trim59 | 034317 | 136512 | 120270 |
| Enah | 022995 | 192768 | N/A | Pard3 | 025812 | 160272 | 125453 | Trim59 | 034317 | 142560 | N/A |
| Enah | 022995 | 192967 | 141330 | Pard3 | 025812 | 162907 | 124319 | Trim59 | 034317 | 153259 | N/A |
| Enah | 022995 | 195840 | N/A | Pard3 | 025812 | 160717 | 125612 | Trim62 | 041000 | 147852 | 123646 |
| Enah | 022995 | 195461 | N/A | Pard3 | 025812 | 160593 | N/A | Trim62 | 041000 | 035667 | 039121 |
| Enah | 022995 | 192497 | N/A | Pard3 | 025812 | 026921 | 026921 | Trim67 | 036913 | 167588 | 130343 |
| Enah | 022995 | 177811 | 136863 | Pard3 | 025812 | 162456 | 124162 | Trim67 | 036913 | 211867 | 148625 |
| Enah | 022995 | 111025 | 106654 | Pard3 | 025812 | 162665 | 124718 | Trim67 | 036913 | 041106 | 040601 |
| Enc1 | 041773 | 041623 | 038783 | Pard3 | 025812 | 161348 | 123951 | Trp53cor1 | 085912 | 133221 | N/A |
| Enox1 | 022012 | 022589 | 022589 | Pard3 | 025812 | 162035 | N/A | Trpc3 | 027716 | 029271 | 029271 |
| Enox1 | 022012 | 226576 | N/A | Pard3 | 025812 | 162176 | 123944 | Trpc3 | 027716 | 129322 | N/A |
| Enox1 | 022012 | 228148 | N/A | Pard3 | 025812 | 159537 | 124934 | Trpc3 | 027716 | 123220 | N/A |
| Enox1 | 022012 | 228102 | N/A | Pard3 | 025812 | 161277 | 124789 | Trpc3 | 027716 | 133542 | N/A |
| Enox1 | 022012 | 227831 | 154296 | Pard3 | 025812 | 160766 | 124533 | Trpc3 | 027716 | 146475 | N/A |
| Enox1 | 022012 | 227662 | 154512 | Pard3 | 025812 | 162602 | 125450 | Trpc5 | 041710 | 040184 | 049063 |
| Enox1 | 022012 | 228845 | N/A | Pard3 | 025812 | 162531 | 125610 | Trpc5 | 041710 | 148240 | N/A |
| Enpp1 | 037370 | 105520 | 101159 | Pard3 | 025812 | 160581 | 124141 | Trpc7 | 021541 | 022023 | 022023 |
| Enpp1 | 037370 | 039882 | 046090 | Pard3 | 025812 | 162536 | 125212 | Trpc7 | 021541 | 109871 | 105497 |
| Enpp1 | 037370 | 135846 | 114273 | Pard3 | 025812 | 161355 | 125064 | Trpc7 | 021541 | 151918 | 119809 |
| Enpp1 | 037370 | 150570 | N/A | Pard3 | 025812 | 159141 | 124733 | Trpc7 | 021541 | 174457 | 133305 |
| Enpp1 | 037370 | 142974 | N/A | Pard3 | 025812 | 159818 | 124339 | Trpc7 | 021541 | 173067 | 134481 |
| Enpp2 | 022425 | 041591 | 036180 | Pard3 | 025812 | 163021 | N/A | Trpc7 | 021541 | 173817 | 133411 |
| Enpp2 | 022425 | 173516 | 133877 | Pard3 | 025812 | 162727 | 124359 | Trpc7 | 021541 | 173513 | 134662 |
| Enpp2 | 022425 | 167541 | 132640 | Pard3 | 025812 | 163002 | N/A | Trpc7 | 021541 | 173466 | 134285 |
| Enpp2 | 022425 | 171545 | 128941 | Pard3 | 025812 | 159511 | 124441 | Trpm2 | 009292 | 105401 | 101040 |
| Enpp2 | 022425 | 228823 | N/A | Pard3 | 025812 | 159940 | N/A | Trpm2 | 009292 | 105400 | N/A |
| Enpp2 | 022425 | 227483 | N/A | Pard3 | 025812 | 079777 | 078710 | Trpm2 | 009292 | 140471 | N/A |
| Enpp2 | 022425 | 228222 | 154470 | Pard3 | 025812 | 108752 | 104383 | Trpm2 | 009292 | 153842 | N/A |
| Enpp2 | 022425 | 227057 | N/A | Pard3b | 052062 | 138768 | N/A | Trpm2 | 009292 | 138238 | N/A |
| Enpp2 | 022425 | 226339 | 154729 | Pard3b | 052062 | 075374 | 074837 | Trpm2 | 009292 | 126206 | N/A |
| Enpp4 | 023961 | 024757 | 024757 | Pard3b | 052062 | 129030 | N/A | Trpm2 | 009292 | 217806 | N/A |
| Enpp4 | 023961 | 143137 | 114429 | Pard3b | 052062 | 188325 | N/A | Trpm2 | 009292 | 219997 | 151231 |
| Enpp6 | 038173 | 039840 | 044608 | Pard3b | 052062 | 046673 | 040439 | Trpm2 | 009292 | 105399 | 101038 |
| Enpp6 | 038173 | 140149 | N/A | Pard3b | 052062 | 094906 | 092510 | Trpm2 | 009292 | 154996 | N/A |
| Enpp6 | 038173 | 123066 | 147811 | Pard6g | 056214 | 070219 | 069182 | Trpv3 | 043029 | 049676 | 053755 |
| Enpp6 | 038173 | 119686 | 112633 | Parm1 | 034981 | 040576 | 042844 | Tsc22d3 | 031431 | 112995 | N/A |
| Enpp6 | 038173 | 149593 | 121470 | Patj | 061859 | 141796 | N/A | Tsc22d3 | 031431 | 055738 | 062589 |
| Enpp6 | 038173 | 210466 | N/A | Patj | 061859 | 041284 | 049176 | Tsc22d3 | 031431 | 133023 | N/A |
| Epb41l4b | 028434 | 030142 | 030142 | Patj | 061859 | 107033 | 102648 | Tsc22d3 | 031431 | 112996 | 108620 |
| Epb41l4b | 028434 | 095076 | 092687 | Patj | 061859 | 107034 | 102649 | Tsc22d3 | 031431 | 123898 | 123569 |
| Epb41l4b | 028434 | 044022 | 037625 | Patj | 061859 | 107030 | 102645 | Tsc22d3 | 031431 | 152048 | N/A |
| Epb41l4b | 028434 | 136337 | N/A | Patj | 061859 | 136675 | N/A | Tshb | 027857 | 196958 | N/A |
| Epb41l4b | 028434 | 133859 | N/A | Patj | 061859 | 141965 | N/A | Tshb | 027857 | 029450 | 029450 |
| Epb41l4b | 028434 | 149109 | N/A | Patj | 061859 | 142103 | 116021 | Tshb | 027857 | 170856 | 127165 |
| Epb41l4b | 028434 | 150665 | N/A | Patj | 061859 | 107029 | 102644 | Tshb | 027857 | 200041 | 142782 |
| Epha3 | 052504 | 064405 | 066554 | Patj | 061859 | 135606 | N/A | Tshb | 027857 | 197322 | 142670 |
| Epha4 | 026235 | 188952 | 139640 | Patj | 061859 | 134901 | 115936 | Tshb | 027857 | 172026 | 128440 |
| Epha4 | 026235 | 188797 | 140954 | Patj | 061859 | 102792 | 099854 | Tshz2 | 047907 | 109159 | 104787 |
| Epha4 | 026235 | 187346 | 140631 | Patj | 061859 | 030290 | 030290 | Tshz2 | 047907 | 109157 | 104785 |
| Epha4 | 026235 | 190149 | 140408 | Pax2 | 004231 | 174490 | 134661 | Tshz2 | 047907 | 185239 | 140884 |
| Epha4 | 026235 | 189934 | N/A | Pax2 | 004231 | 173346 | 134311 | Tshz2 | 047907 | 123300 | 118550 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Epha4 | 026235 | 186930 | 140370 | Pax2 | 004231 | 004340 | 004340 | Tshz2 | 047907 | 140699 | 120013 |
| Epha4 | 026235 | 027451 | 027451 | Pax3 | 004872 | 004994 | 004994 | Tspan11 | 030351 | 032501 | 032501 |
| Ephb1 | 032537 | 035129 | 035129 | Pax3 | 004872 | 087086 | 084320 | Tspan11 | 030351 | 149801 | N/A |
| Ephb1 | 032537 | 085169 | 082261 | Pax3 | 004872 | 172555 | N/A | Tspan14 | 037824 | 224209 | 153208 |
| Ephb1 | 032537 | 217014 | N/A | Paxbp1 | 022974 | 118522 | 113835 | Tspan14 | 037824 | 224349 | N/A |
| Ephb1 | 032537 | 217184 | N/A | Paxbp1 | 022974 | 023698 | 023698 | Tspan14 | 037824 | 047652 | 035263 |
| Ephb1 | 032537 | 215514 | N/A | Paxbp1 | 022974 | 150397 | N/A | Tspan15 | 037031 | 047883 | 047029 |
| Ephb1 | 032537 | 149800 | 139470 | Paxbp1 | 022974 | 146281 | N/A | Tspan15 | 037031 | 218394 | N/A |
| Eps15 | 028552 | 102729 | 099790 | Paxbp1 | 022974 | 145136 | 117142 | Tspan15 | 037031 | 219106 | N/A |
| Eps15 | 028552 | 176251 | 135034 | Paxbp1 | 022974 | 128922 | N/A | Tspan15 | 037031 | 218824 | N/A |
| Eps15 | 028552 | 177089 | 134922 | Paxbp1 | 022974 | 124653 | N/A | Tspan15 | 037031 | 220143 | N/A |
| Eps15 | 028552 | 175776 | 135270 | Paxbp1 | 022974 | 127002 | N/A | Tspan18 | 027217 | 111265 | 106896 |
| Eps15 | 028552 | 132165 | 118949 | Pbx3 | 038718 | 113132 | 108757 | Tspan18 | 027217 | 028646 | 028646 |
| Eps15 | 028552 | 150755 | N/A | Pbx3 | 038718 | 040638 | 045281 | Tspan18 | 027217 | 154951 | N/A |
| Eps15 | 028552 | 141751 | N/A | Pbx3 | 038718 | 176213 | N/A | Tspan18 | 027217 | 181716 | N/A |
| Eps15 | 028552 | 030281 | 030281 | Pbx3 | 038718 | 153278 | 123567 | Tspan18 | 027217 | 152141 | N/A |
| Eps15 | 028552 | 126015 | N/A | Pbx3 | 038718 | 143776 | 119914 | Tspan2 | 027858 | 029451 | 029451 |
| Eps15 | 028552 | 177192 | 135755 | Pbx3 | 038718 | 175855 | 135838 | Tspan2 | 027858 | 196611 | 142964 |
| Eps15 | 028552 | 177140 | N/A | Pbx3 | 038718 | 138021 | 135226 | Tspan2 | 027858 | 119902 | 113803 |
| Erbb3 | 018166 | 082059 | 080716 | Pbx3 | 038718 | 141653 | 115710 | Tspan2 | 027858 | 197345 | 142543 |
| Erbb4 | 062209 | 119142 | 112713 | Pbx3 | 038718 | 127353 | 114695 | Tspan5 | 028152 | 029800 | 029800 |
| Erbb4 | 062209 | 121473 | 114123 | Pbx3 | 038718 | 155423 | N/A | Tspan5 | 028152 | 142890 | 120969 |
| Erbb4 | 062209 | 153432 | 115373 | Pkd1 | 032855 | 228550 | 154062 | Tspan5 | 028152 | 127772 | 122500 |
| Erbb4 | 062209 | 131148 | N/A | Pkd1 | 032855 | 035565 | 049296 | Tspan5 | 028152 | 153336 | 122120 |
| Erbb4 | 062209 | 126682 | N/A | Pkd1 | 032855 | 228745 | 153873 | Tspan5 | 028152 | 142001 | 117857 |
| Erich5 | 044726 | 060894 | 058182 | Pkd1 | 032855 | 227107 | 154792 | Tspan5 | 028152 | 135629 | 120961 |
| Ermn | 026830 | 090940 | 088458 | Pkd1 | 032855 | 226883 | 154668 | Tspan5 | 028152 | 146356 | 114663 |
| Esrrb | 021255 | 116402 | 112103 | Pkd1 | 032855 | 226178 | N/A | Tspan5 | 028152 | 119993 | 113230 |
| Esrrb | 021255 | 110203 | 105832 | Pkd1 | 032855 | 227836 | 154626 | Tspan5 | 028152 | 121826 | 113359 |
| Esrrb | 021255 | 110204 | 105833 | Pkd1 | 032855 | 228750 | N/A | Tspan6 | 067377 | 087557 | 084838 |
| Esrrb | 021255 | 021680 | 021680 | Pkd1 | 032855 | 227058 | 153867 | Tspan6 | 067377 | 176718 | 135005 |
| Esrrb | 021255 | 167891 | 131335 | Pkd1 | 032855 | 228581 | 154141 | Tspan6 | 067377 | 176641 | 135626 |
| Esrrb | 021255 | 136464 | N/A | Pkd2 | 034462 | 086831 | 084041 | Tspan6 | 067377 | 177468 | N/A |
| Esrrg | 026610 | 127489 | 119286 | Pkd2 | 034462 | 130931 | N/A | Tspoap1 | 034156 | 039627 | 048063 |
| Esrrg | 026610 | 110939 | 106564 | Pkd2 | 034462 | 133540 | N/A | Tspoap1 | 034156 | 100644 | 098209 |
| Esrrg | 026610 | 152927 | N/A | Pcsk1 | 021587 | 022075 | 022075 | Tspoap1 | 034156 | 148422 | N/A |
| Esrrg | 026610 | 027906 | 027906 | Pcsk1 | 021587 | 135349 | N/A | Tspoap1 | 034156 | 144502 | 122665 |
| Esrrg | 026610 | 110938 | 106563 | Pcsk1 | 021587 | 222727 | 152702 | Tspoap1 | 034156 | 142329 | 118819 |
| Etl4 | 036617 | 114610 | 110257 | Ifrd1 | 001627 | 001672 | 001672 | Tspoap1 | 034156 | 153578 | N/A |
| Etl4 | 036617 | 146881 | 119778 | Ifrd1 | 001627 | 164047 | 127553 | Tspoap1 | 034156 | 148814 | N/A |
| Etl4 | 036617 | 131714 | 116637 | Ifrd1 | 001627 | 170119 | N/A | Tspoap1 | 034156 | 135957 | N/A |
| Etl4 | 036617 | 045555 | 041431 | Ifrd1 | 001627 | 165027 | 133028 | Tspoap1 | 034156 | 133645 | 117356 |
| Etl4 | 036617 | 114614 | 110261 | Ifrd1 | 001627 | 171530 | 128635 | Tspoap1 | 034156 | 154758 | N/A |
| Etl4 | 036617 | 114604 | 110251 | Ifrd1 | 001627 | 169926 | 127673 | Tstd2 | 035495 | 107772 | 103401 |
| Etl4 | 036617 | 146613 | N/A | Ifrd1 | 001627 | 169319 | 130824 | Tstd2 | 035495 | 107770 | 103399 |
| Etl4 | 036617 | 066509 | 066170 | Ifrd1 | 001627 | 170752 | N/A | Tstd2 | 035495 | 160008 | N/A |
| Etl4 | 036617 | 129278 | N/A | Ifrd1 | 001627 | 164354 | 130846 | Tstd2 | 035495 | 137399 | N/A |
| Etl4 | 036617 | 123383 | N/A | Ifrd1 | 001627 | 171553 | N/A | Tstd2 | 035495 | 147837 | 115473 |
| Etl4 | 036617 | 136870 | N/A | Pcsk5 | 024713 | 025618 | 025618 | Tstd2 | 035495 | 144495 | 117990 |
| Etl4 | 036617 | 125556 | N/A | Pcsk5 | 024713 | 050715 | 050272 | Tstd2 | 035495 | 129929 | 125707 |
| Etl4 | 036617 | 146488 | N/A | Pcsk5 | 024713 | 025618 | 025618 | Tstd2 | 035495 | 156021 | 117865 |
| Etl4 | 036617 | 125772 | N/A | Pcsk5 | 024713 | 050715 | 050272 | Ttc28 | 033209 | 156290 | 137609 |
| Etl4 | 036617 | 114607 | 110254 | Pcsk7 | 035382 | 039059 | 047508 | Ttc28 | 033209 | 143505 | N/A |
| Etl4 | 036617 | 114606 | 110253 | Pcsk7 | 035382 | 215535 | N/A | Ttc28 | 033209 | 125470 | N/A |
| Etl4 | 036617 | 114608 | 110255 | Pcsk7 | 035382 | 215189 | 150500 | Ttc28 | 033209 | 128584 | N/A |
| Etl4 | 036617 | 139531 | N/A | Pcsk7 | 035382 | 216672 | 150393 | Ttc28 | 033209 | 129017 | N/A |
| Etl4 | 036617 | 156587 | N/A | Pcsk7 | 035382 | 213854 | 150379 | Ttc28 | 033209 | 040111 | 136116 |
| Etl4 | 036617 | 114627 | 110274 | Pcsk7 | 035382 | 216614 | N/A | Ttll3 | 030276 | 204026 | 145049 |
| Etnppl | 019232 | 166187 | 131294 | Pcsk7 | 035382 | 216504 | N/A | Ttll3 | 030276 | 204683 | N/A |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Etnppl | 019232 | 072271 | 072121 | Pcsk7 | 035382 | 216514 | N/A | Ttll3 | 030276 | 032414 | 032414 |
| Etnppl | 019232 | 199940 | N/A | Pcsk7 | 035382 | 214425 | N/A | Ttll3 | 030276 | 203524 | 145329 |
| Etnppl | 019232 | 172432 | N/A | Pcdh1 | 051375 | 160721 | 124732 | Ttll3 | 030276 | 205017 | 145044 |
| Etnppl | 019232 | 163620 | 129120 | Pcdh1 | 051375 | 161701 | 125576 | Ttll3 | 030276 | 203925 | N/A |
| Etnppl | 019232 | 170664 | 128425 | Pcdh1 | 051375 | 057185 | 055199 | Ttll3 | 030276 | 204255 | N/A |
| Etv1 | 004151 | 160244 | 125733 | Pcdh1 | 051375 | 159405 | 125309 | Ttll3 | 030276 | 203880 | N/A |
| Etv1 | 004151 | 095767 | 093442 | Pcdh1 | 051375 | 194312 | 141877 | Ttll3 | 030276 | 038889 | 037870 |
| Etv1 | 004151 | 162563 | 125157 | Pcdh1 | 051375 | 193828 | 142328 | Ttpa | 073988 | 125799 | 117031 |
| Etv1 | 004151 | 161164 | 124650 | Pcdh15 | 052613 | 123398 | N/A | Ttpa | 073988 | 121491 | 113966 |
| Etv1 | 004151 | 160996 | 124705 | Pcdh15 | 052613 | 148572 | N/A | Ttpa | 073988 | 117632 | 113026 |
| Etv1 | 004151 | 160856 | 125692 | Pcdh15 | 052613 | 156999 | N/A | Ttpa | 073988 | 098244 | 095845 |
| Etv1 | 004151 | 162730 | N/A | Pcdh15 | 052613 | 193174 | 142238 | Tuba8 | 030137 | 032233 | 032233 |
| Etv1 | 004151 | 161513 | 124166 | Pcdh15 | 052613 | 105426 | 101066 | Tubb2b | 045136 | 075774 | 075178 |
| Etv1 | 004151 | 161980 | 124736 | Pcdh15 | 052613 | 129404 | 117731 | Tubb2b | 045136 | 220744 | N/A |
| Etv1 | 004151 | 160701 | 124019 | Pcdh15 | 052613 | 131321 | 122911 | Tubb4a | 062591 | 071135 | 071135 |
| Etv1 | 004151 | 159334 | 125676 | Pcdh15 | 052613 | 126920 | 121939 | Tulp3 | 001521 | 001562 | 001562 |
| Etv1 | 004151 | 220492 | N/A | Pcdh15 | 052613 | 147189 | 122940 | Tulp3 | 001521 | 128708 | N/A |
| Etv1 | 004151 | 161591 | N/A | Pcdh15 | 052613 | 105424 | 101064 | Tulp3 | 001521 | 138313 | N/A |
| Etv4 | 017724 | 107176 | 102794 | Pcdh15 | 052613 | 092420 | 090076 | Tulp3 | 001521 | 133134 | 145180 |
| Etv4 | 017724 | 017868 | 017868 | Pcdh15 | 052613 | 136096 | 121534 | Tulp3 | 001521 | 203625 | N/A |
| Etv4 | 017724 | 132040 | N/A | Pcdh15 | 052613 | 105429 | 101069 | Tulp3 | 001521 | 157005 | 145361 |
| Etv4 | 017724 | 129160 | N/A | Pcdh15 | 052613 | 125055 | 114326 | Tusc3 | 039530 | 209440 | 148134 |
| Etv4 | 017724 | 131862 | N/A | Pcdh15 | 052613 | 193361 | 141792 | Tusc3 | 039530 | 211241 | 148022 |
| Etv4 | 017724 | 129995 | N/A | Pcdh15 | 052613 | 131724 | 122466 | Tusc3 | 039530 | 209970 | N/A |
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| Etv4 | 017724 | 131117 | N/A | Pcdh15 | 052613 | 144302 | 122606 | Tusc3 | 039530 | 167992 | 126080 |
| Etv4 | 017724 | 149099 | N/A | Pcdh15 | 052613 | 151116 | 119662 | Tusc3 | 039530 | 169034 | 129916 |
| Etv4 | 017724 | 137179 | N/A | Pcdh15 | 052613 | 155701 | 135495 | Txnip | 038393 | 074519 | 102710 |
| Etv4 | 017724 | 154512 | N/A | Pcdh15 | 052613 | 152819 | 123647 | Txnip | 038393 | 049093 | 041467 |
| Etv4 | 017724 | 164750 | 129261 | Pcdh15 | 052613 | 125517 | 115399 | Txnip | 038393 | 151832 | N/A |
| Etv5 | 013089 | 079601 | 078551 | Pcdh15 | 052613 | 124046 | 121130 | Txnip | 038393 | 196871 | N/A |
| Etv5 | 013089 | 168774 | 131791 | Pcdh15 | 052613 | 146682 | 134863 | Txnip | 038393 | 144639 | N/A |
| Etv5 | 013089 | 170803 | 128338 | Pcdh15 | 052613 | 177107 | 135501 | Txnip | 038393 | 128221 | N/A |
| Etv5 | 013089 | 165506 | N/A | Pcdh15 | 052613 | 149977 | 118833 | Ubash3b | 032020 | 044155 | 043865 |
| Etv5 | 013089 | 170393 | 132210 | Pcdh15 | 052613 | 191854 | 141973 | Ubash3b | 032020 | 151485 | 116038 |
| Evala | 035104 | 150976 | 122674 | Pcdh15 | 052613 | 134009 | 120618 | Ubash3b | 032020 | 124819 | N/A |
| Evala | 035104 | 042974 | 037422 | Pcdh15 | 052613 | 177420 | 135849 | Ubash3b | 032020 | 136530 | 114176 |
| Evala | 035104 | 150691 | N/A | Pcdh15 | 052613 | 125006 | 120056 | Ubash3b | 032020 | 129906 | 134923 |
| Evala | 035104 | 149023 | 117345 | Pcdh15 | 052613 | 191709 | 142313 | Ubash3b | 032020 | 132996 | N/A |
| Exph5 | 034584 | 051014 | 062632 | Pcdh15 | 052613 | 193739 | 142173 | Ube2b | 020390 | 020657 | 020657 |
| Exph5 | 034584 | 139096 | N/A | Pcdh15 | 052613 | 195531 | 141920 | Ube2b | 020390 | 109086 | 104714 |
| Exph5 | 034584 | 132410 | N/A | Pcdh15 | 052613 | 147455 | N/A | Ube2b | 020390 | 124699 | N/A |
| Extl2 | 027963 | 029575 | 029575 | Pcdh15 | 052613 | 194315 | 141594 | Ube2b | 020390 | 147833 | N/A |
| Extl2 | 027963 | 106501 | 102110 | Pcdh15 | 052613 | 139106 | N/A | Ube2ql1 | 052981 | 065118 | 070906 |
| Extl2 | 027963 | 128228 | N/A | Pcdh15 | 052613 | 128843 | N/A | Ucp2 | 033685 | 126534 | 120967 |
| Extl2 | 027963 | 145945 | N/A | Pcdh15 | 052613 | 127928 | N/A | Ucp2 | 033685 | 207890 | N/A |
| Extl2 | 027963 | 149920 | N/A | Pcdh15 | 052613 | 194729 | N/A | Ucp2 | 033685 | 126381 | N/A |
| Extl2 | 027963 | 106502 | 102111 | Pcdh15 | 052613 | 192370 | N/A | Ucp2 | 033685 | 207748 | 146337 |
| Eya1 | 025932 | 168081 | 126383 | Pcdh15 | 052613 | 064562 | 068561 | Ucp2 | 033685 | 129324 | 115648 |
| Eya1 | 025932 | 080664 | 079493 | Pcdh17 | 035566 | 071370 | 071325 | Ucp2 | 033685 | 153287 | 115953 |
| Eya1 | 025932 | 190337 | 141112 | Pcdh17 | 035566 | 226362 | N/A | Ucp2 | 033685 | 133044 | 115598 |
| Eya1 | 025932 | 189526 | 140619 | Pcdh9 | 055421 | 195826 | 141396 | Ucp2 | 033685 | 151221 | N/A |
| Eya1 | 025932 | 188857 | 140171 | Pcdh9 | 055421 | 193901 | 141759 | Ucp2 | 033685 | 133498 | N/A |
| Eya1 | 025932 | 185453 | 141072 | Pcdh9 | 055421 | 192221 | 142260 | Ucp2 | 033685 | 138673 | N/A |
| Eya1 | 025932 | 187790 | 139542 | Pcdh9 | 055421 | 195376 | 142224 | Ucp2 | 033685 | 149808 | N/A |
| Eya1 | 025932 | 185329 | N/A | Pcdh9 | 055421 | 194129 | 141205 | Ugt8a | 032854 | 057944 | 050852 |
| Eya1 | 025932 | 027066 | 027066 | Pcdh9 | 055421 | 192817 | N/A | Ugt8a | 032854 | 198610 | 143605 |
| F3 | 028128 | 029771 | 029771 | Pcdh9 | 055421 | 194056 | 141602 | Ugt8a | 032854 | 196481 | N/A |
| F3 | 028128 | 196746 | N/A | Pcdh9 | 055421 | 068992 | 070935 | Unc13c | 062151 | 184666 | 139027 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| F3 | 028128 | 197731 | N/A | Pcdha1 | 103442 | 193839 | 142308 | Unc13c | 062151 | 075245 | 074726 |
| F3 | 028128 | 199997 | 143678 | Pcdha1 | 103442 | 070797 | 068828 | Unc80 | 055567 | 061620 | 053692 |
| Fa2h | 033579 | 038475 | 043597 | Pcdha3 | 102312 | 192503 | 141989 | Unc80 | 055567 | 114008 | 109641 |
| Fa2h | 033579 | 162463 | N/A | Pcp2 | 004630 | 136105 | 121079 | Unc80 | 055567 | 136727 | N/A |
| Fa2h | 033579 | 159336 | N/A | Pcp2 | 004630 | 145855 | N/A | Unc80 | 055567 | 212557 | 148517 |
| Fa2h | 033579 | 162216 | N/A | Pcp2 | 004630 | 142431 | 121403 | Unc80 | 055567 | 187179 | N/A |
| Fam102a | 039157 | 136816 | N/A | Pcp2 | 004630 | 133459 | 122902 | Unc80 | 055567 | 152844 | 117070 |
| Fam102a | 039157 | 133512 | 116809 | Pcp2 | 004630 | 004749 | 004749 | Uncx | 029546 | 172997 | 134067 |
| Fam102a | 039157 | 048375 | 044731 | Pcp2 | 004630 | 128566 | 146683 | Uncx | 029546 | 174792 | 139081 |
| Fam102a | 039157 | 133366 | 118624 | Pcp2 | 004630 | 144977 | 146399 | Upp1 | 020407 | 020677 | 020677 |
| Fam102a | 039157 | 147723 | N/A | Pcp4 | 090223 | 061739 | 062539 | Upp1 | 020407 | 101525 | 099063 |
| Fam107b | 026655 | 226435 | 154419 | Pcsk6 | 030513 | 176199 | 135851 | Upp1 | 020407 | 170444 | 125934 |
| Fam107b | 026655 | 115052 | 110704 | Pcsk6 | 030513 | 055576 | 053742 | Upp1 | 020407 | 130522 | 123285 |
| Fam107b | 026655 | 115055 | 110707 | Pcsk6 | 030513 | 098391 | 095992 | Upp1 | 020407 | 168121 | N/A |
| Fam107b | 026655 | 115054 | 110706 | Pcsk6 | 030513 | 176209 | 135033 | Upp1 | 020407 | 172452 | 129787 |
| Fam107b | 026655 | 027965 | 027965 | Pcsk6 | 030513 | 177369 | N/A | Upp1 | 020407 | 166455 | 129276 |
| Fam107b | 026655 | 115053 | 110705 | Pcsk6 | 030513 | 177272 | N/A | Upp1 | 020407 | 146696 | N/A |
| Fam107b | 026655 | 177125 | 135757 | Pcx | 024892 | 224726 | 153479 | Upp1 | 020407 | 164791 | 127473 |
| Fam107b | 026655 | 177037 | 135325 | Pcx | 024892 | 223659 | N/A | Usp11 | 031066 | 033383 | 033383 |
| Fam107b | 026655 | 176254 | 135846 | Pcx | 024892 | 225189 | 152918 | Usp11 | 031066 | 127294 | N/A |
| Fam114a1 | 029185 | 031080 | 031080 | Pcx | 024892 | 113825 | 109456 | Usp11 | 031066 | 137101 | N/A |
| Fam114a1 | 029185 | 139366 | 119284 | Pcx | 024892 | 068004 | 063825 | Usp11 | 031066 | 149960 | N/A |
| Fam117a | 038893 | 037502 | 049162 | Pdc | 006007 | 191228 | 141136 | Uty | 068457 | 143286 | 115113 |
| Fam117a | 038893 | 129553 | N/A | Pdc | 006007 | 186572 | 140843 | Uty | 068457 | 154666 | 122818 |
| Fam117a | 038893 | 143482 | N/A | Pdc | 006007 | 185698 | 140669 | Uty | 068457 | 069309 | 070012 |
| Fam117a | 038893 | 129290 | N/A | Pdc | 006007 | 165062 | 131631 | Uty | 068457 | 139365 | 114752 |
| Fam117a | 038893 | 155999 | N/A | Pde1a | 059173 | 102655 | 099715 | Uty | 068457 | 154004 | 114910 |
| Fam117a | 038893 | 132357 | N/A | Pde1a | 059173 | 183775 | 139327 | Uty | 068457 | 185837 | N/A |
| Fam124a | 035184 | 162987 | N/A | Pde1a | 059173 | 102653 | 099713 | Uty | 068457 | 143958 | 120069 |
| Fam124a | 035184 | 161899 | N/A | Pde1a | 059173 | 090756 | 088260 | Uty | 068457 | 137048 | 119406 |
| Fam124a | 035184 | 039064 | 047681 | Pde1a | 059173 | 102652 | 099712 | Uty | 068457 | 133976 | N/A |
| Fam124a | 035184 | 160745 | N/A | Pde1a | 059173 | 102651 | 099711 | Uty | 068457 | 157073 | N/A |
| Retreg1 | 022270 | 022881 | 022881 | Pde1a | 059173 | 134739 | 120188 | Uty | 068457 | 150715 | 116372 |
| Retreg1 | 022270 | 228600 | 154407 | Pde1a | 059173 | 146076 | N/A | Uty | 068457 | 154527 | N/A |
| Retreg1 | 022270 | 228327 | 154377 | Pde1a | 059173 | 125887 | N/A | Slc18a3 | 100241 | 191501 | 139829 |
| Retreg1 | 022270 | 227275 | 154471 | Pde1a | 059173 | 102654 | 099714 | Vamp1 | 030337 | 032487 | 032487 |
| Retreg1 | 022270 | 226750 | 154791 | Pde1b | 022489 | 226468 | 153865 | Vamp1 | 030337 | 100942 | 098503 |
| Retreg1 | 022270 | 226438 | 154765 | Pde1b | 022489 | 023132 | 023132 | Vamp1 | 030337 | 063588 | 063466 |
| Retreg1 | 022270 | 110438 | 106068 | Pde1b | 022489 | 226493 | 154483 | Vamp1 | 030337 | 205223 | 144835 |
| Retreg1 | 022270 | 228306 | 154070 | Pde1b | 022489 | 227955 | 153722 | Vamp1 | 030337 | 160523 | N/A |
| Fam171b | 048388 | 051454 | 062702 | Pde1b | 022489 | 227925 | N/A | Vamp1 | 030337 | 159547 | N/A |
| Fam171b | 048388 | 148184 | N/A | Pde1c | 004347 | 044505 | 046601 | Vat1l | 046844 | 142591 | N/A |
| Fam196a | 073805 | 210055 | N/A | Pde1c | 004347 | 203372 | 145508 | Vat1l | 046844 | 049509 | 053431 |
| Fam196a | 073805 | 171394 | 129222 | Pde1c | 004347 | 203967 | N/A | Vat1l | 046844 | 150963 | 116680 |
| Fam196a | 073805 | 210826 | N/A | Pde1c | 004347 | 114327 | 109966 | Vat1l | 046844 | 124143 | N/A |
| Fam198b | 027955 | 118853 | 114093 | Pde1c | 004347 | 170774 | 133170 | Vav2 | 009621 | 185188 | 138964 |
| Fam198b | 027955 | 145992 | 120603 | Pde1c | 004347 | 203462 | 145419 | Vav2 | 009621 | 056176 | 062782 |
| Fam198b | 027955 | 135021 | 117199 | Pde1c | 004347 | 168944 | 128364 | Vav2 | 009621 | 149758 | N/A |
| Fam198b | 027955 | 193204 | N/A | Pde1c | 004347 | 166102 | 131350 | Vav2 | 009621 | 148067 | N/A |
| Fam198b | 027955 | 029567 | 029567 | Pde1c | 004347 | 166890 | 131892 | Vav2 | 009621 | 146843 | N/A |
| Fam19a1 | 059187 | 122120 | 113152 | Pde1c | 004347 | 164752 | 129185 | Vav2 | 009621 | 135584 | N/A |
| Fam19a1 | 059187 | 075080 | 074589 | Pde1c | 004347 | 164037 | 130139 | Vav2 | 009621 | 132642 | N/A |
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| Fam19a1 | 059187 | 125951 | N/A | Pde1c | 004347 | 203492 | N/A | Vcan | 021614 | 159910 | 125446 |
| Fam19a4 | 046500 | 089295 | 086710 | Pde1c | 004347 | 203689 | N/A | Vcan | 021614 | 159337 | 125432 |
| Fam19a4 | 046500 | 203930 | N/A | Pde3b | 030671 | 032909 | 032909 | Vcan | 021614 | 160029 | N/A |
| Fam20a | 020614 | 155559 | 116687 | Pde3b | 030671 | 140007 | N/A | Vcan | 021614 | 109546 | 105173 |
| Fam20a | 020614 | 020938 | 020938 | Pde3b | 030671 | 210411 | N/A | Vcan | 021614 | 109543 | 105170 |
| Fam20a | 020614 | 146408 | N/A | Pde3b | 030671 | 149455 | N/A | Vcan | 021614 | 109544 | 105171 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fam20a | 020614 | 144972 | N/A | Pde4d | 021699 | 133929 | N/A | Vcan | 021614 | 162715 | 125521 |
| Fam222b | 037750 | 073705 | 073384 | Pde4d | 021699 | 151111 | N/A | Vcan | 021614 | 160740 | 125694 |
| Fam222b | 037750 | 100782 | 126620 | Pde4d | 021699 | 122041 | 113488 | Vcan | 021614 | 159285 | 125674 |
| Fam222b | 037750 | 155571 | 121832 | Pde4d | 021699 | 129374 | N/A | Vgll4 | 030315 | 152710 | N/A |
| Fam46a | 032265 | 034802 | 034802 | Pde4d | 021699 | 138938 | N/A | Vgll4 | 030315 | 032459 | 032459 |
| Fam46a | 032265 | 187711 | 140869 | Pde4d | 021699 | 120671 | 112991 | Vgll4 | 030315 | 123478 | N/A |
| Fam49b | 022378 | 063838 | 066359 | Pde4d | 021699 | 153234 | 121592 | Vgll4 | 030315 | 155620 | N/A |
| Fam49b | 022378 | 164532 | 132486 | Pde4d | 021699 | 119507 | 114089 | Vgll4 | 030315 | 147639 | 123139 |
| Fam49b | 022378 | 228226 | 154320 | Pde4d | 021699 | 079975 | 078891 | Vgll4 | 030315 | 139640 | 118618 |
| Fam49b | 022378 | 228908 | 154547 | Pde4d | 021699 | 135275 | 119583 | Vgll4 | 030315 | 204693 | N/A |
| Fam49b | 022378 | 227024 | 153790 | Pde4d | 021699 | 074103 | 073742 | Vim | 026728 | 141365 | 114742 |
| Fam49b | 022378 | 226675 | 154205 | Pde4d | 021699 | 134973 | N/A | Vim | 026728 | 028062 | 028062 |
| Fam49b | 022378 | 227118 | N/A | Pde4d | 021699 | 152630 | N/A | Vim | 026728 | 193675 | 141494 |
| Fam49b | 022378 | 226129 | N/A | Pde4d | 021699 | 119672 | 113567 | Vim | 026728 | 155605 | N/A |
| Fam69a | 029270 | 031198 | 031198 | Pde4d | 021699 | 120664 | 113024 | Vim | 026728 | 191615 | N/A |
| Fam69a | 029270 | 145239 | 117801 | Pde4d | 021699 | 151429 | N/A | Vim | 026728 | 148248 | N/A |
| Fam69a | 029270 | 153172 | 114892 | Pde4d | 021699 | 117879 | 112774 | Vip | 019772 | 019906 | 019906 |
| Fam84a | 020607 | 020926 | 020926 | Pde4d | 021699 | 117420 | 113610 | Vip | 019772 | 217331 | N/A |
| Fam84a | 020607 | 221405 | 152642 | Pde4d | 021699 | 155459 | 114945 | Vipr2 | 011171 | 176078 | N/A |
| Fam89a | 043068 | 055257 | 058156 | Pde4d | 021699 | 177907 | 136485 | Vipr2 | 011171 | 011315 | 011315 |
| Fam92b | 042269 | 048786 | 038825 | Pde5a | 053965 | 066728 | 069011 | Vipr2 | 011171 | 100988 | N/A |
| Fam92b | 042269 | 153177 | N/A | Pde5a | 053965 | 200389 | 143042 | Vipr2 | 011171 | 175785 | N/A |
| Fam92b | 042269 | 135567 | 134033 | Pde5a | 053965 | 198314 | N/A | Vipr2 | 011171 | 177199 | N/A |
| Fam92b | 042269 | 142478 | N/A | Pde5a | 053965 | 199253 | N/A | Vipr2 | 011171 | 176433 | 135149 |
| Fat1 | 070047 | 191428 | 140596 | Pde7b | 019990 | 020165 | 020165 | Vit | 024076 | 024880 | 024880 |
| Fat1 | 070047 | 189017 | 140765 | Pde7b | 019990 | 169016 | 130596 | Vmp1 | 018171 | 018315 | 018315 |
| Fat1 | 070047 | 215588 | 149194 | Pde7b | 019990 | 169404 | 132378 | Vmp1 | 018171 | 123590 | N/A |
| Fat1 | 070047 | 186342 | 139921 | Pde7b | 019990 | 170265 | 126324 | Vmp1 | 018171 | 145846 | N/A |
| Fat1 | 070047 | 189367 | N/A | Pde7b | 019990 | 164195 | 126913 | Vmp1 | 018171 | 150176 | N/A |
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| Fat2 | 055333 | 068853 | 067556 | Pde7b | 019990 | 170683 | N/A | Vmp1 | 018171 | 127267 | N/A |
| Fat2 | 055333 | 108864 | 104492 | Pde7b | 019990 | 166147 | N/A | Vmp1 | 018171 | 139040 | N/A |
| Fbln2 | 064080 | 113498 | 109126 | Pde8a | 025584 | 026672 | 026672 | Vmp1 | 018171 | 143991 | 118302 |
| Fbln2 | 064080 | 041544 | 048334 | Pde8a | 025584 | 128154 | N/A | Vsig2 | 001943 | 002008 | 002008 |
| Fbln2 | 064080 | 153364 | 120101 | Pde8a | 025584 | 130494 | N/A | Vsig2 | 001943 | 215957 | 149703 |
| Fbln2 | 064080 | 132021 | 116456 | Pde8b | 021684 | 162412 | 124409 | Vsig2 | 001943 | 215271 | 150115 |
| Fbln2 | 064080 | 203406 | N/A | Pde8b | 021684 | 162670 | 125237 | Vsig2 | 001943 | 213502 | N/A |
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| Fbn1 | 027204 | 028633 | 028633 | Pde8b | 021684 | 067082 | 070465 | Vstm2b | 039257 | 044705 | 044002 |
| Fbn1 | 027204 | 148272 | N/A | Pde8b | 021684 | 022192 | 022192 | Vstm2b | 039257 | 206223 | 145703 |
| Fbn1 | 027204 | 103234 | 099524 | Pde8b | 021684 | 159608 | 125191 | Vstm2b | 039257 | 186352 | 140241 |
| Fbn2 | 024598 | 025497 | 025497 | Pde8b | 021684 | 160957 | 125115 | Vstm2b | 039257 | 205845 | 146231 |
| Fchsd2 | 030691 | 208439 | 146962 | Pde8b | 021684 | 160412 | N/A | Vwc2 | 050830 | 109681 | 105303 |
| Fchsd2 | 030691 | 032931 | 032931 | Pde8b | 021684 | 162328 | N/A | Vwc2 | 050830 | 129670 | 128761 |
| Fchsd2 | 030691 | 098250 | 095850 | Pde8b | 021684 | 159598 | 124447 | Vwc2 | 050830 | 154155 | N/A |
| Fchsd2 | 030691 | 137196 | N/A | Pde8b | 021684 | 162716 | N/A | Vwc2 | 050830 | 056344 | 049692 |
| Fchsd2 | 030691 | 145802 | N/A | Pde9a | 041119 | 047168 | 038005 | Galnt17 | 034040 | 086023 | 083187 |
| Fchsd2 | 030691 | 142727 | N/A | Pde9a | 041119 | 143549 | 117911 | Galnt17 | 034040 | 160609 | 125395 |
| Fchsd2 | 030691 | 130426 | N/A | Pde9a | 041119 | 131417 | 115188 | Galnt17 | 034040 | 160807 | N/A |
| Fchsd2 | 030691 | 208063 | N/A | Pde9a | 041119 | 134525 | 121003 | Galnt17 | 034040 | 161228 | N/A |
| Fchsd2 | 030691 | 151693 | N/A | Pde9a | 041119 | 127929 | 117611 | Galnt17 | 034040 | 162966 | N/A |
| Fchsd2 | 030691 | 208638 | N/A | Pde9a | 041119 | 137927 | 121126 | Wdr17 | 039375 | 144711 | 117710 |
| Fchsd2 | 030691 | 208917 | N/A | Pde9a | 041119 | 124902 | 118869 | Wdr17 | 039375 | 127511 | 115550 |
| Fezf2 | 021743 | 224714 | 153090 | Pde9a | 041119 | 154567 | N/A | Wdr17 | 039375 | 175915 | 135805 |
| Fezf2 | 021743 | 022262 | 022262 | Pde9a | 041119 | 141314 | 117364 | Wdr17 | 039375 | 128850 | N/A |
| Fezf2 | 021743 | 224023 | 153647 | Pde9a | 041119 | 136384 | 116724 | Wdr17 | 039375 | 150488 | 122326 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fgd3 | 037946 | 110087 | 105714 | Pde9a | 041119 | 130547 | N/A | Wdr17 | 039375 | 153074 | N/A |
| Fgd3 | 037946 | 048716 | 048692 | Pde9a | 041119 | 155395 | N/A | Wdr17 | 039375 | 144482 | 134950 |
| Fgd3 | 037946 | 110086 | 105713 | Pde9a | 041119 | 154392 | 117065 | Wdr17 | 039375 | 126316 | N/A |
| Fgd4 | 022788 | 161861 | 125174 | Pde9a | 041119 | 155113 | N/A | Wdr17 | 039375 | 129132 | 134935 |
| Fgd4 | 022788 | 162671 | 125736 | Pdgfc | 028019 | 029652 | 029652 | Wdr17 | 039375 | 148806 | N/A |
| Fgd4 | 022788 | 069284 | 069573 | Pdgfc | 028019 | 129285 | 118970 | Wdr17 | 039375 | 176866 | 134978 |
| Fgd4 | 022788 | 172181 | N/A | Pdgfc | 028019 | 143721 | 122047 | Wdr17 | 039375 | 148408 | 135523 |
| Fgd4 | 022788 | 162045 | N/A | Pdgfd | 032006 | 058692 | 056240 | Wdr17 | 039375 | 176180 | N/A |
| Fgd4 | 022788 | 162124 | N/A | Pdgfd | 032006 | 168039 | 128388 | Wdr49 | 104301 | 193989 | 144721 |
| Fgd4 | 022788 | 159542 | 125649 | Pdgfd | 032006 | 214892 | 149162 | Wdr49 | 104301 | 203169 | 144789 |
| Fgd4 | 022788 | 159058 | N/A | Pdgfra | 029231 | 202681 | 143906 | Wdr49 | 104301 | 204982 | N/A |
| Fgd4 | 022788 | 162414 | N/A | Pdgfra | 029231 | 000476 | 000476 | Wdr49 | 104301 | 204341 | 145379 |
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| Fgd4 | 022788 | 161624 | N/A | Pdgfra | 029231 | 201711 | 143891 | Wfdc1 | 023336 | 024107 | 024107 |
| Fgd4 | 022788 | 161188 | 123763 | Pdgfra | 029231 | 201241 | N/A | Wfs1 | 039474 | 043964 | 048053 |
| Fgd6 | 020021 | 020208 | 020208 | Pdgfra | 029231 | 202161 | 144485 | Wfs1 | 039474 | 166339 | 132404 |
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| Fgf13 | 031137 | 033473 | 033473 | Pdgfra | 029231 | 200822 | 144634 | Wif1 | 020218 | 175867 | 135486 |
| Fgf13 | 031137 | 138503 | N/A | Pdk3 | 035232 | 045748 | 036604 | Wif1 | 020218 | 145691 | N/A |
| Fgf13 | 031137 | 123660 | N/A | Pdk3 | 035232 | 134502 | N/A | Wipi1 | 041895 | 103060 | 099349 |
| Fgf13 | 031137 | 124402 | 114905 | Pdk3 | 035232 | 154717 | N/A | Wipi1 | 041895 | 047186 | 038635 |
| Fgf13 | 031137 | 145767 | 119897 | Pdlim4 | 020388 | 018755 | 018755 | Wipi1 | 041895 | 106689 | 102300 |
| Fgf13 | 031137 | 119833 | 113639 | Pdlim4 | 020388 | 093109 | 090797 | Wipi1 | 041895 | 153738 | N/A |
| Fgf13 | 031137 | 131319 | 115765 | Pdlim4 | 020388 | 144477 | 121248 | Wls | 028173 | 068952 | 067898 |
| Fgf13 | 031137 | 119306 | 113206 | Pdlim4 | 020388 | 127271 | N/A | Wls | 028173 | 198878 | 143475 |
| Fgf13 | 031137 | 150413 | N/A | Pdlim4 | 020388 | 151948 | N/A | Wls | 028173 | 200571 | N/A |
| Fgfr1 | 031565 | 155564 | 117884 | Pdzd3 | 032105 | 034618 | 034618 | Wls | 028173 | 197328 | N/A |
| Fgfr1 | 031565 | 084027 | 081041 | Pdzd3 | 032105 | 213186 | N/A | Wls | 028173 | 200191 | 142774 |
| Fgfr1 | 031565 | 119398 | 113855 | Pdzph1 | 024227 | 177108 | N/A | Wls | 028173 | 196276 | N/A |
| Fgfr1 | 031565 | 117179 | 113909 | Pdzph1 | 024227 | 025064 | 025064 | Wls | 028173 | 196782 | N/A |
| Fgfr1 | 031565 | 148322 | N/A | Pdzph1 | 024227 | 177360 | 135180 | Wnt6 | 033227 | 006716 | 006716 |
| Fgfr1 | 031565 | 210778 | N/A | Pdzm4 | 036218 | 169942 | 133159 | Wnt6 | 033227 | 189544 | N/A |
| Fgfr1 | 031565 | 124228 | 116564 | Pdzm4 | 036218 | 035399 | 040456 | Wnt7a | 030093 | 032180 | 032180 |
| Fgfr1 | 031565 | 210846 | 148032 | Pea15a | 013698 | 013842 | 013842 | Wnt7a | 030093 | 133092 | N/A |
| Fgfr1 | 031565 | 167764 | 131343 | Pea15a | 013698 | 111247 | 106878 | Wnt7a | 030093 | 132936 | N/A |
| Fgfr1 | 031565 | 138104 | 148135 | Pea15a | 013698 | 125361 | N/A | Wscd1 | 020811 | 150531 | 123659 |
| Fgfr1 | 031565 | 138455 | 147898 | Pea15a | 013698 | 155109 | 117735 | Wscd1 | 020811 | 021168 | 021168 |
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| Fgfr1 | 031565 | 210504 | N/A | Peg3 | 002265 | 051209 | 050750 | Wscd1 | 020811 | 138339 | N/A |
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| Fgfr1 | 031565 | 211419 | N/A | Peg3 | 002265 | 143703 | 122423 | Wscd1 | 020811 | 132095 | N/A |
| Fgfr1 | 031565 | 145218 | N/A | Peg3 | 002265 | 155910 | N/A | Wwc1 | 018849 | 018993 | 018993 |
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| Fgfr1 | 031565 | 178276 | 137515 | Pet100 | 087687 | 208950 | 146433 | Xist | 086503 | 153883 | N/A |
| Fgfr2 | 030849 | 120187 | 113248 | Pet100 | 087687 | 208185 | N/A | Xist | 086503 | 127786 | N/A |
| Fgfr2 | 030849 | 124096 | 130971 | Pet100 | 087687 | 156380 | 137626 | Xist | 086503 | 185876 | N/A |
| Fgfr2 | 030849 | 153166 | 120100 | Pet100 | 087687 | 207257 | N/A | Xrra1 | 035211 | 036155 | 035929 |
| Fgfr2 | 030849 | 117872 | 113994 | Pet100 | 087687 | 207428 | 146950 | Xrra1 | 035211 | 208354 | 146815 |
| Fgfr2 | 030849 | 130557 | N/A | Pet100 | 087687 | 207389 | 146942 | Xrra1 | 035211 | 207855 | 147177 |
| Fgfr2 | 030849 | 122054 | 112430 | Pex5l | 027674 | 194016 | 142196 | Xrra1 | 035211 | 208270 | N/A |
| Fgfr2 | 030849 | 136264 | N/A | Pex5l | 027674 | 193681 | 141454 | Xrra1 | 035211 | 208449 | N/A |
| Fgfr2 | 030849 | 121064 | 113452 | Pex5l | 027674 | 192093 | 141387 | Yes1 | 014932 | 202543 | 144001 |
| Fgfr2 | 030849 | 117754 | 113187 | Pex5l | 027674 | 193289 | 142008 | Yes1 | 014932 | 072311 | 072154 |
| Fgfr2 | 030849 | 120715 | 113474 | Pex5l | 027674 | 078226 | 077353 | Yes1 | 014932 | 200779 | N/A |
| Fgfr2 | 030849 | 119260 | 113010 | Pex5l | 027674 | 108224 | 103859 | Yes1 | 014932 | 168707 | 132161 |
| Fgfr2 | 030849 | 117089 | 112992 | Pex5l | 027674 | 108226 | 103861 | Yes1 | 014932 | 200999 | 144355 |
| Fgfr2 | 030849 | 117691 | 113180 | Pex5l | 027674 | 108221 | 103856 | Zbtb16 | 066687 | 093852 | 091374 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fgfr2 | 030849 | 117858 | 112623 | Pex5l | 027674 | 108219 | N/A | Zbtb16 | 066687 | 216150 | 150887 |
| Fgfr2 | 030849 | 120141 | 113415 | Pex5l | 027674 | 155264 | N/A | Zcchc24 | 055538 | 069180 | 068677 |
| Fgfr2 | 030849 | 117357 | 112580 | Pex5l | 027674 | 194627 | N/A | Zcchc24 | 055538 | 184642 | N/A |
| Fgfr2 | 030849 | 122448 | 113993 | Pex5l | 027674 | 108225 | 103860 | Zdhhc14 | 034265 | 089185 | 086589 |
| Fgfr2 | 030849 | 118296 | 112471 | Pfkfb4 | 025648 | 198140 | 142378 | Zdhhc2 | 039470 | 049389 | 041727 |
| Fgfr2 | 030849 | 121080 | 112585 | Pfkfb4 | 025648 | 051873 | 057197 | Zdhhc2 | 039470 | 131672 | N/A |
| Fgfr2 | 030849 | 117073 | 112672 | Pfkfb4 | 025648 | 198277 | N/A | Zdhhc2 | 039470 | 128166 | 123070 |
| Fgfr2 | 030849 | 129542 | N/A | Pfkfb4 | 025648 | 199620 | N/A | Zdhhc2 | 039470 | 164934 | N/A |
| Fgfr2 | 030849 | 147859 | N/A | Pfkfb4 | 025648 | 196249 | 143249 | Zdhhc2 | 039470 | 168799 | N/A |
| Fgfr2 | 030849 | 133806 | N/A | Pfkfb4 | 025648 | 199591 | 142992 | Zdhhc2 | 039470 | 167766 | 129996 |
| Fgfr2 | 030849 | 148675 | N/A | Pfkfb4 | 025648 | 199184 | N/A | Zeb2 | 026872 | 176438 | 134849 |
| Fgfr2 | 030849 | 127091 | 122856 | Pfkfb4 | 025648 | 200229 | N/A | Zeb2 | 026872 | 176732 | 135393 |
| Fgfr2 | 030849 | 129103 | N/A | Pfkfb4 | 025648 | 200015 | 142339 | Zeb2 | 026872 | 028229 | 028229 |
| Fgfr2 | 030849 | 208844 | N/A | Pfkfb4 | 025648 | 198763 | N/A | Zeb2 | 026872 | 068415 | 069685 |
| Fgfr3 | 054252 | 201437 | 144379 | Pfkm | 033065 | 163507 | 132803 | Zeb2 | 026872 | 200844 | 144421 |
| Fgfr3 | 054252 | 067150 | 070998 | Pfkm | 033065 | 051226 | 059801 | Zeb2 | 026872 | 177302 | 134747 |
| Fgfr3 | 054252 | 164207 | 133064 | Pfkp | 021196 | 131648 | N/A | Zeb2 | 026872 | 076836 | 076111 |
| Fgfr3 | 054252 | 087820 | 085122 | Pfkp | 021196 | 138703 | 117030 | Zeb2 | 026872 | 201804 | 144637 |
| Fgfr3 | 054252 | 202182 | 143936 | Pfkp | 021196 | 021614 | 021614 | Zeb2 | 026872 | 201623 | 144075 |
| Fgfr3 | 054252 | 134610 | N/A | Pfkp | 021196 | 142972 | 114439 | Zeb2 | 026872 | 202432 | 144197 |
| Fgfr3 | 054252 | 155002 | 119941 | Pfkp | 021196 | 154100 | 116523 | Zeb2 | 026872 | 201211 | 144406 |
| Fgfr3 | 054252 | 181298 | 143963 | Pfkp | 021196 | 133041 | 123662 | Zeb2 | 026872 | 209076 | N/A |
| Fgfr3 | 054252 | 132724 | N/A | Pfkp | 021196 | 142372 | N/A | Zeb2 | 026872 | 201413 | N/A |
| Fgfr3 | 054252 | 201295 | 144104 | Pfkp | 021196 | 151894 | N/A | Zeb2 | 026872 | 201969 | 144141 |
| Fgfr3 | 054252 | 202791 | 143797 | Pfkp | 021196 | 144053 | N/A | Zeb2 | 026872 | 131635 | N/A |
| Fgfr3 | 054252 | 152661 | N/A | Pfkp | 021196 | 148999 | N/A | Zeb2 | 026872 | 202935 | 143841 |
| Fgfr3 | 054252 | 142860 | N/A | Pfkp | 021196 | 135761 | N/A | Zeb2 | 026872 | 202371 | N/A |
| Fgfr3 | 054252 | 202138 | 143945 | Pfkp | 021196 | 137327 | N/A | Zeb2 | 026872 | 145529 | N/A |
| Fgfr3 | 054252 | 169212 | 130856 | Pfkp | 021196 | 136585 | 115313 | Zeb2 | 026872 | 202187 | 144552 |
| Fgfr3 | 054252 | 114411 | 110053 | Pgghg | 062031 | 164337 | N/A | Zeb2 | 026872 | 127520 | 120130 |
| Fgfr3 | 054252 | 171509 | 131845 | Pgghg | 062031 | 164580 | 128214 | Zeb2 | 026872 | 201490 | 143976 |
| Fggy | 028573 | 079223 | 078216 | Pgghg | 062031 | 169736 | N/A | Zeb2 | 026872 | 153561 | 135491 |
| Fggy | 028573 | 176162 | N/A | Pgghg | 062031 | 168084 | N/A | Zeb2 | 026872 | 152232 | N/A |
| Fggy | 028573 | 141248 | N/A | Pgghg | 062031 | 079403 | 078372 | Zeb2 | 026872 | 124942 | N/A |
| Fggy | 028573 | 177394 | 134881 | Pgghg | 062031 | 163094 | 128478 | Zeb2 | 026872 | 201982 | N/A |
| Fggy | 028573 | 043335 | 043460 | Pgm2l1 | 030729 | 084935 | 081998 | Zeb2 | 026872 | 201298 | N/A |
| Fggy | 028573 | 147783 | N/A | Pgm2l1 | 030729 | 208158 | N/A | Zeb2 | 026872 | 202345 | N/A |
| Fggy | 028573 | 150830 | 115546 | Pgm2l1 | 030729 | 162108 | 124851 | Zeb2 | 026872 | 123037 | N/A |
| Fggy | 028573 | 134012 | 115859 | Pgm2l1 | 030729 | 054436 | 054782 | Zeb2 | 026872 | 126743 | N/A |
| Fggy | 028573 | 131654 | 116264 | Pgr | 031870 | 070463 | 063562 | Zfand6 | 030629 | 209117 | 146518 |
| Fggy | 028573 | 107091 | 102706 | Pgr | 031870 | 098986 | 096584 | Zfand6 | 030629 | 069537 | 069228 |
| Fggy | 028573 | 176840 | N/A | Pgr | 031870 | 151080 | N/A | Zfand6 | 030629 | 178385 | 135968 |
| Fggy | 028573 | 147766 | N/A | Pgr | 031870 | 189181 | 140124 | Zfand6 | 030629 | 209140 | N/A |
| Fggy | 028573 | 143742 | 117386 | Phf21b | 016624 | 016768 | 016768 | Zfand6 | 030629 | 209165 | 146878 |
| Fggy | 028573 | 125742 | N/A | Phf21b | 016624 | 162996 | N/A | Zfand6 | 030629 | 207865 | 146682 |
| Fggy | 028573 | 153119 | N/A | Phf21b | 016624 | 159939 | 125355 | Zfand6 | 030629 | 208782 | 147192 |
| Fggy | 028573 | 130541 | 115688 | Phf21b | 016624 | 162044 | 124941 | Zfand6 | 030629 | 208519 | N/A |
| Fggy | 028573 | 156223 | 118147 | Phf21b | 016624 | 159502 | N/A | Zfand6 | 030629 | 208831 | N/A |
| Fggy | 028573 | 142384 | 123407 | Phf21b | 016624 | 160389 | N/A | Zfand6 | 030629 | 207975 | 146559 |
| Fhl3 | 032643 | 106199 | 101805 | Phf24 | 036062 | 151824 | N/A | Zfhx4 | 025255 | 175866 | 135827 |
| Fhl3 | 032643 | 145942 | 121702 | Phf24 | 036062 | 132173 | 138443 | Zfhx4 | 025255 | 175641 | N/A |
| Fhl3 | 032643 | 038684 | 040150 | Phf24 | 036062 | 107975 | 103609 | Zfhx4 | 025255 | 176175 | 139253 |
| Fhl5 | 028259 | 029922 | 029922 | Phf24 | 036062 | 107976 | 103610 | Zfhx4 | 025255 | 176383 | 135289 |
| Fhl5 | 028259 | 108204 | 103839 | Phf24 | 036062 | 069184 | 071011 | Zfhx4 | 025255 | 026284 | 026284 |
| Fign | 075324 | 131615 | 122855 | Phf24 | 036062 | 124380 | 138593 | Zfp36l1 | 021127 | 021552 | 021552 |
| Fign | 075324 | 102728 | 124338 | Phf24 | 036062 | 139100 | 138130 | Zfp36l1 | 021127 | 219642 | 151682 |
| Fign | 075324 | 153538 | N/A | Phf24 | 036062 | 138425 | 115816 | Zfp36l1 | 021127 | 218835 | 151269 |
| Fign | 075324 | 126042 | N/A | Phf24 | 036062 | 131234 | 138332 | Zfp36l1 | 021127 | 165114 | 127522 |
| Filip1l | 043336 | 159816 | 124179 | Phkg1 | 025537 | 026617 | 026617 | Zfp385c | 014198 | 103119 | 099408 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Filip1l | 043336 | 099667 | 133252 | Phkg1 | 025537 | 154932 | 122040 | Zfp385c | 014198 | 148560 | N/A |
| Filip1l | 043336 | 159414 | 124069 | Phkg1 | 025537 | 140667 | 117510 | Zfp385c | 014198 | 151589 | 119259 |
| Fli1 | 016087 | 016231 | 016231 | Phkg1 | 025537 | 154495 | N/A | Zfp385c | 014198 | 153494 | 115268 |
| Fli1 | 016087 | 183767 | 138984 | Phkg1 | 025537 | 200832 | N/A | Zfp395 | 034522 | 224623 | 153350 |
| Flrt2 | 047414 | 057324 | 062171 | Phkg1 | 025537 | 200922 | N/A | Zfp395 | 034522 | 225865 | N/A |
| Flrt2 | 047414 | 110117 | 105744 | Phox2a | 007946 | 008090 | 008090 | Zfp395 | 034522 | 066994 | 064422 |
| Flt3 | 042817 | 049324 | 039041 | Phox2a | 007946 | 209878 | N/A | Zfp395 | 034522 | 224687 | 153406 |
| Flt3 | 042817 | 110549 | N/A | Phyhip | 003469 | 003561 | 003561 | Zfp395 | 034522 | 225512 | N/A |
| Fmnl1 | 055805 | 042286 | 046296 | Phyhip | 003469 | 159180 | 125254 | Zfp423 | 045333 | 165770 | 129724 |
| Fmnl1 | 055805 | 218163 | 151439 | Pid1 | 045658 | 168574 | 127716 | Zfp423 | 045333 | 109655 | 105282 |
| Fmnl1 | 055805 | 107027 | 102642 | Pid1 | 045658 | 176559 | 135164 | Zfp423 | 045333 | 052250 | 052379 |
| Fmnl1 | 055805 | 126425 | N/A | Pid1 | 045658 | 175948 | N/A | Zfp423 | 045333 | 174764 | 134575 |
| Fmnl1 | 055805 | 154871 | N/A | Pid1 | 045658 | 176720 | 134961 | Zfp423 | 045333 | 174249 | 134103 |
| Fmnl1 | 055805 | 021322 | N/A | Pid1 | 045658 | 175996 | 134979 | Zfp423 | 045333 | 173725 | N/A |
| Fmnl1 | 055805 | 129726 | 133299 | Pid1 | 045658 | 176822 | 135425 | Zfp423 | 045333 | 173092 | N/A |
| Fmo3 | 026691 | 028010 | 028010 | Pid1 | 045658 | 177458 | 135120 | Zfp462 | 060206 | 133895 | 122775 |
| Fmo3 | 026691 | 142759 | N/A | Pid1 | 045658 | 187992 | N/A | Zfp462 | 060206 | 098070 | 095677 |
| Fndc3b | 039286 | 195008 | 141620 | Piezo2 | 041482 | 047480 | 040019 | Zfp462 | 060206 | 030131 | 030131 |
| Fndc3b | 039286 | 046157 | 041495 | Piezo2 | 041482 | 137141 | 117107 | Zfp462 | 060206 | 079605 | 078555 |
| Fndc3b | 039286 | 191684 | N/A | Piezo2 | 041482 | 132576 | N/A | Zfp521 | 024420 | 025288 | 025288 |
| Fndc3b | 039286 | 193779 | 141888 | Piezo2 | 041482 | 123322 | N/A | Zfp608 | 052713 | 064763 | 068192 |
| Folh1 | 001773 | 001824 | 001824 | Piezo2 | 041482 | 183217 | 138758 | Zfp804b | 092094 | 200317 | 143568 |
| Folh1 | 001773 | 107271 | 102892 | Piezo2 | 041482 | 182233 | 138170 | Zfp804b | 092094 | 164784 | 130571 |
| Folh1 | 001773 | 209082 | N/A | Piezo2 | 041482 | 182166 | 138754 | Zfp831 | 050600 | 059452 | 060255 |
| Fosb | 003545 | 003640 | 003640 | Piezo2 | 041482 | 182177 | N/A | Zic1 | 032368 | 034927 | 034927 |
| Fosb | 003545 | 207334 | 147210 | Piezo2 | 041482 | 046860 | 036099 | Zic1 | 032368 | 065360 | 068858 |
| Fosb | 003545 | 208505 | 146525 | Piga | 031381 | 208741 | 147146 | Zic1 | 032368 | 173121 | N/A |
| Fosb | 003545 | 207716 | 146949 | Piga | 031381 | 112257 | 137831 | Zic2 | 061524 | 075888 | 075283 |
| Fosb | 003545 | 208326 | 146569 | Piga | 031381 | 033754 | 033754 | Zic2 | 061524 | 137059 | N/A |
| Fosb | 003545 | 208446 | 146789 | Piga | 031381 | 151911 | 138077 | Zic3 | 067860 | 137687 | 116383 |
| Fosb | 003545 | 208230 | N/A | Piga | 031381 | 208697 | 146731 | Zic3 | 067860 | 088627 | 085999 |
| Foxa1 | 035451 | 044380 | 041118 | Piga | 031381 | 208261 | 146808 | Zic3 | 067860 | 088631 | 086003 |
| Foxa1 | 035451 | 218398 | N/A | Piga | 031381 | 112255 | 107874 | Zic3 | 067860 | 088629 | 086001 |
| Foxa2 | 037025 | 109964 | 105590 | Piga | 031381 | 133813 | 122176 | Zic4 | 036972 | 173342 | 133974 |
| Foxa2 | 037025 | 047315 | 045918 | Piga | 031381 | 155849 | N/A | Zic4 | 036972 | 172978 | N/A |
| Foxa2 | 037025 | 172928 | 134081 | Pigh | 021120 | 072154 | 072018 | Zic4 | 036972 | 173054 | 134364 |
| Foxa2 | 037025 | 146242 | N/A | Pigh | 021120 | 217998 | 151930 | Zic4 | 036972 | 174611 | N/A |
| Foxg1 | 020950 | 135006 | N/A | Pigh | 021120 | 217979 | N/A | Zic4 | 036972 | 172646 | 134053 |
| Foxg1 | 020950 | 154930 | N/A | Pigs | 041958 | 048073 | 044871 | Zic4 | 036972 | 170572 | N/A |
| Foxg1 | 020950 | 179669 | 136372 | Pigz | 045625 | 052174 | 057509 | Zic4 | 036972 | 174212 | 133808 |
| Foxg1 | 020950 | 021333 | 021333 | Pigz | 045625 | 151412 | N/A | Zic4 | 036972 | 173933 | 133958 |
| Foxh1 | 033837 | 037824 | 036591 | Pigz | 045625 | 134928 | N/A | Zic4 | 036972 | 174802 | N/A |
| Foxp4 | 023991 | 113265 | 108890 | Pigz | 045625 | 134666 | N/A | Zic4 | 036972 | 172858 | N/A |
| Foxp4 | 023991 | 113263 | 108888 | Pih1h3b | 042433 | 044806 | 048754 | Zic4 | 036972 | 066384 | 069568 |
| Foxp4 | 023991 | 097311 | 094916 | Pik3c2b | 026447 | 153707 | 115469 | Zic4 | 036972 | 085242 | N/A |
| Foxp4 | 023991 | 113262 | 108887 | Pik3c2b | 026447 | 145153 | N/A | Zic5 | 041703 | 039118 | 035754 |
| Foxp4 | 023991 | 136314 | N/A | Pik3c2b | 026447 | 124934 | N/A | Zic5 | 041703 | 143084 | N/A |
| Foxp4 | 023991 | 154108 | N/A | Pik3c2b | 026447 | 077730 | 076911 | Zkscan1 | 029729 | 019660 | 019660 |
| Foxp4 | 023991 | 137039 | N/A | Pik3r1 | 041417 | 055518 | 056774 | Zkscan1 | 029729 | 110963 | 106588 |
| Foxp4 | 023991 | 153752 | N/A | Pik3r1 | 041417 | 035532 | 047004 | Zkscan1 | 029729 | 110962 | 106587 |
| Frem1 | 059049 | 107230 | 102849 | Pik3r1 | 041417 | 187009 | 140256 | Zkscan1 | 029729 | 066617 | 068480 |
| Frem1 | 059049 | 127886 | 122467 | Pik3r1 | 041417 | 185795 | 140312 | Zmat4 | 037492 | 131410 | 115719 |
| Frem1 | 059049 | 131102 | N/A | Pik3r1 | 041417 | 190171 | N/A | Zmat4 | 037492 | 042352 | 049430 |
| Frem1 | 059049 | 130889 | N/A | Pik3r1 | 041417 | 185701 | N/A | Zmat4 | 037492 | 123412 | 121626 |
| Frem1 | 059049 | 141841 | N/A | Pik3r1 | 041417 | 189426 | N/A | Zmat4 | 037492 | 208021 | N/A |
| Frem1 | 059049 | 133610 | N/A | Pitpnm3 | 040543 | 075258 | 074737 | Zmat4 | 037492 | 207301 | 146734 |
| Frem1 | 059049 | 071708 | 071627 | Pitpnm3 | 040543 | 134210 | N/A | Zmat4 | 037492 | 135747 | 121337 |
| | | | | | | | | Zmat4 | 037492 | 146774 | N/A |

**[0062]** For human samples, Table 4 provides the unique ENSEMBL identifiers corresponding to the human genes (ENSG), transcripts (ENST), and proteins (if available) (ENSP) analyzed in the experiments herein. The unique identifiers for each ENSEMBL entry has been modified to remove the first five leading zeros (0) of the identifier after the ENSG, ENST, and ENSP label.

**Table 4. ENSEMBL IDs for humans**

| Symbol | ENSG | ENST | SEQ ID | ENSP | SEQ ID | Symbol | ENSG | ENST | SEQ ID | ENSP | SEQ ID | Symbol | ENSG | ENST | SEQ ID | ENSP | SEQ ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A2M | 175899 | 543436 | 1 | N/A | | GABBR1 | 232569 | 489750 | 7939 | N/A | | PLD1 | 075651 | 463281 | 15877 | N/A | |
| A2M | 175899 | 495442 | 2 | N/A | | GABBR1 | 232569 | 461230 | 7940 | N/A | | PLD1 | 075651 | 356327 | 15878 | 348681 | 33603 |
| A2M | 175899 | 495709 | 3 | N/A | | GABBR1 | 232569 | 467296 | 7941 | N/A | | PLD1 | 075651 | 351298 | 15879 | 342793 | 33604 |
| A2M | 175899 | 318602 | 4 | 323929 | 23816 | GABBR1 | 232569 | 481333 | 7942 | N/A | | PLD1 | 075651 | 446289 | 15880 | 395556 | 33605 |
| A2M | 175899 | 545828 | 5 | N/A | | GABBR1 | 232569 | 547410 | 7943 | 448531 | 28716 | PLD1 | 075651 | 465816 | 15881 | N/A | |
| A2M | 175899 | 542567 | 6 | N/A | | GABBR1 | 232569 | 546913 | 7944 | 448999 | 28717 | PLD1 | 075651 | 467432 | 15882 | N/A | |
| A2M | 175899 | 462568 | 7 | N/A | | GABBR1 | 206466 | 383542 | 7945 | 373034 | 28718 | PLD1 | 075651 | 471075 | 15883 | N/A | |
| A2M | 175899 | 546069 | 8 | 438599 | 23817 | GABBR1 | 206466 | 383537 | 7946 | 373029 | 28719 | PLD1 | 075651 | 481505 | 15884 | N/A | |
| A2M | 175899 | 472360 | 9 | N/A | | GABBR1 | 206466 | 383541 | 7947 | 373033 | 28720 | PLD1 | 075651 | 498278 | 15885 | N/A | |
| A2M | 175899 | 539638 | 10 | 445717 | 23818 | GABBR1 | 206466 | 495291 | 7948 | N/A | | PLD1 | 075651 | 475273 | 15886 | N/A | |
| A2M | 175899 | 404455 | 11 | 385710 | 23819 | GABBR1 | 206466 | 489481 | 7949 | N/A | | PLD1 | 075651 | 440204 | 15887 | 391164 | 33606 |
| A2M | 175899 | 467091 | 12 | N/A | | GABBR1 | 206466 | 482350 | 7950 | N/A | | PLD1 | 075651 | 418087 | 15888 | 400639 | 33607 |
| A2M | 175899 | 497324 | 13 | N/A | | GABBR1 | 206466 | 498610 | 7951 | N/A | | PLD1 | 075651 | 489995 | 15889 | N/A | |
| AASS | 008311 | 460376 | 14 | N/A | | GABBR1 | 206466 | 383543 | 7952 | 373035 | 28721 | PLD1 | 075651 | 460926 | 15890 | N/A | |
| AASS | 008311 | 393376 | 15 | 377040 | 23820 | GABBR1 | 206466 | 493602 | 7953 | N/A | | PLD1 | 075651 | 497307 | 15891 | N/A | |
| AASS | 008311 | 473553 | 16 | N/A | | GABBR1 | 206466 | 471385 | 7954 | N/A | | PLD1 | 075651 | 627725 | 15892 | 486967 | 33608 |
| AASS | 008311 | 417368 | 17 | 403768 | 23821 | GABBR1 | 206466 | 462863 | 7955 | N/A | | PLD1 | 075651 | 331659 | 15893 | 328422 | 33609 |
| AASS | 008311 | 431170 | 18 | 414001 | 23822 | GABBR1 | 206466 | 478066 | 7956 | N/A | | PLD4 | 166428 | 540372 | 15894 | 438677 | 33610 |
| AASS | 008311 | 358954 | 19 | 351834 | 23823 | GABBR1 | 206466 | 552399 | 7957 | 449449 | 28722 | PLD4 | 166428 | 392593 | 15895 | 376372 | 33611 |
| AASS | 008311 | 426162 | 20 | 394180 | 23824 | GABBR1 | 232632 | 438094 | 7958 | 406285 | 28723 | PLD4 | 166428 | 557573 | 15896 | 451278 | 33612 |
| AATK | 181409 | 326724 | 21 | 324196 | 23825 | GABBR1 | 232632 | 460735 | 7959 | N/A | | PLD4 | 166428 | 472901 | 15897 | N/A | |
| AATK | 181409 | 570932 | 22 | 460986 | 23826 | GABBR1 | 232632 | 486623 | 7960 | N/A | | PLD4 | 166428 | 472702 | 15898 | N/A | |
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| AATK | 181409 | 417379 | 24 | 398796 | 23828 | GABBR1 | 232632 | 423604 | 7962 | 388035 | 28725 | PLD5 | 180287 | 536534 | 15900 | 440896 | 33614 |
| AATK | 181409 | 573469 | 25 | N/A | | GABBR1 | 232632 | 414980 | 7963 | 406499 | 28726 | PLD5 | 180287 | 314833 | 15901 | 314748 | 33615 |
| AATK | 181409 | 573441 | 26 | N/A | | GABBR1 | 232632 | 483304 | 7964 | N/A | | PLD5 | 180287 | 366545 | 15902 | 355503 | 33616 |
| AATK | 181409 | 572339 | 27 | N/A | | GABBR1 | 232632 | 470098 | 7965 | N/A | | PLD5 | 180287 | 467561 | 15903 | 440132 | 33617 |
| AATK | 181409 | 576053 | 28 | N/A | | GABBR1 | 232632 | 487021 | 7966 | N/A | | PLD5 | 180287 | 474177 | 15904 | N/A | |
| AATK | 181409 | 575363 | 29 | 460202 | 23829 | GABBR1 | 232632 | 474366 | 7967 | N/A | | PLD5 | 180287 | 459864 | 15905 | 438191 | 33618 |
| AATK | 181409 | 572798 | 30 | N/A | | GABBR1 | 232632 | 468622 | 7968 | N/A | | PLD5 | 180287 | 442594 | 15906 | 414188 | 33619 |
| ABAT | 183044 | 268251 | 31 | 268251 | 23830 | GABBR1 | 232632 | 463819 | 7969 | N/A | | PLD5 | 180287 | 427495 | 15907 | 401285 | 33620 |
| ABAT | 183044 | 564714 | 32 | 456392 | 23831 | GABBR1 | 232632 | 548767 | 7970 | 446983 | 28727 | PLEKHD1 | 175985 | 556123 | 15908 | N/A | |
| ABAT | 183044 | 563992 | 33 | N/A | | GABBR1 | 237051 | 418225 | 7971 | 416731 | 28728 | PLEKHD1 | 175985 | 322564 | 15909 | 317175 | 33621 |
| ABAT | 183044 | 568847 | 34 | 455184 | 23832 | GABBR1 | 237051 | 458612 | 7972 | 416903 | 28729 | PLEKHG3 | 126822 | 555982 | 15910 | 450501 | 33622 |
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| ABAT | 183044 | 569695 | 36 | N/A | | GABBR1 | 237051 | 496339 | 7974 | N/A | | PLEKHG3 | 126822 | 247226 | 15912 | 247226 | 33624 |
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| ABAT | 183044 | 569156 | 42 | 454963 | 23838 | GABBR1 | 237051 | 496077 | 7980 | N/A | | PLEKHG3 | 126822 | 484731 | 15918 | 450973 | 33628 |
| ABAT | 183044 | 562115 | 43 | 455502 | 23839 | GABBR1 | 237051 | 460802 | 7981 | N/A | | PLEKHG3 | 126822 | 492928 | 15919 | N/A | |
| ABAT | 183044 | 565671 | 44 | N/A | | GABBR1 | 237051 | 482516 | 7982 | N/A | | PLEKHG3 | 126822 | 394691 | 15920 | 378183 | 33629 |
| ABAT | 183044 | 564453 | 45 | N/A | | GABBR1 | 237051 | 550820 | 7983 | 448763 | 28732 | PLEKHG5 | 171680 | 377748 | 15921 | 366977 | 33630 |
| ABAT | 183044 | 396600 | 46 | 379845 | 23840 | GABBR2 | 136928 | 259455 | 7984 | 259455 | 28733 | PLEKHG5 | 171680 | 487949 | 15922 | N/A | |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABCA1 | 165029 | 423487 | 48 | 416623 | 23842 | GABBR2 | 136928 | 636575 | 7986 | N/A | | PLEKHG5 | 171680 | 377728 | 15924 | 366957 | 33632 |
| ABCA1 | 165029 | 494467 | 49 | N/A | | GABBR2 | 136928 | 634457 | 7987 | 489352 | 28734 | PLEKHG5 | 171680 | 377732 | 15925 | 366961 | 33633 |
| ABCA1 | 165029 | 374736 | 50 | 363868 | 23843 | GABBR2 | 136928 | 634354 | 7988 | N/A | | PLEKHG5 | 171680 | 400915 | 15926 | 383706 | 33634 |
| ABCA17P | 238098 | 512848 | 51 | N/A | | GABBR2 | 136928 | 635462 | 7989 | N/A | | PLEKHG5 | 171680 | 377740 | 15927 | 366969 | 33635 |
| ABCA17P | 238098 | 640929 | 52 | N/A | | GABBR2 | 136928 | 634314 | 7990 | N/A | | PLEKHG5 | 171680 | 639593 | 15928 | 491569 | 33636 |
| ABCA17P | 238098 | 469908 | 53 | N/A | | GABBR2 | 136928 | 634919 | 7991 | N/A | | PLEKHG5 | 171680 | 400913 | 15929 | 383704 | 33637 |
| ABCA17P | 238098 | 482286 | 54 | N/A | | GABBR2 | 136928 | 477471 | 7992 | N/A | | PLEKHG5 | 171680 | 535355 | 15930 | 441445 | 33638 |
| ABCA17P | 238098 | 505660 | 55 | N/A | | GABBR2 | 136928 | 634227 | 7993 | N/A | | PLEKHG5 | 171680 | 340850 | 15931 | 344570 | 33639 |
| ABCA17P | 238098 | 466730 | 56 | N/A | | GABBR2 | 136928 | 637717 | 7994 | 490789 | 28735 | PLEKHG5 | 171680 | 537245 | 15932 | 439625 | 33640 |
| ABCA17P | 238098 | 494925 | 57 | N/A | | GABBR2 | 136928 | 638001 | 7995 | N/A | | PLEKHG5 | 171680 | 489097 | 15933 | N/A | |
| ABCA8 | 141338 | 269080 | 58 | 269080 | 23844 | GABRA2 | 151834 | 510861 | 7996 | 421828 | 28736 | PLEKHH1 | 054690 | 329153 | 15934 | 330278 | 33641 |
| ABCA8 | 141338 | 586539 | 59 | 467271 | 23845 | GABRA2 | 151834 | 514090 | 7997 | 421300 | 28737 | PLEKHH1 | 054690 | 558386 | 15935 | N/A | |
| ABCA8 | 141338 | 588458 | 60 | N/A | | GABRA2 | 151834 | 381620 | 7998 | 371033 | 28738 | PLEKHH1 | 054690 | 561456 | 15936 | N/A | |
| ABCA8 | 141338 | 586292 | 61 | N/A | | GABRA2 | 151834 | 356504 | 7999 | 348897 | 28739 | PLEKHH1 | 054690 | 558981 | 15937 | N/A | |
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| ABCA8 | 141338 | 589980 | 63 | N/A | | GABRA2 | 151834 | 510233 | 8001 | 422642 | 28741 | PLEKHH1 | 054690 | 561135 | 15939 | N/A | |
| ABCA8 | 141338 | 541225 | 64 | N/A | | GABRA2 | 151834 | 507069 | 8002 | 427603 | 28742 | PLEKHH1 | 054690 | 561370 | 15940 | 452988 | 33642 |
| ABCA8 | 141338 | 589533 | 65 | 467186 | 23846 | GABRA2 | 151834 | 513005 | 8003 | 421639 | 28743 | PLEKHH1 | 054690 | 558296 | 15941 | N/A | |
| ABCA8 | 141338 | 590359 | 66 | N/A | | GABRA2 | 151834 | 515082 | 8004 | 423840 | 28744 | PLEKHH1 | 054690 | 560100 | 15942 | N/A | |
| ABCA8 | 141338 | 587206 | 67 | N/A | | GABRA2 | 151834 | 514236 | 8005 | 425240 | 28745 | PLEKHH1 | 054690 | 558366 | 15943 | N/A | |
| ABCA8 | 141338 | 428549 | 68 | N/A | | GABRA2 | 151834 | 514193 | 8006 | 425526 | 28746 | PLEKHH1 | 054690 | 559981 | 15944 | N/A | |
| ABCA8 | 141338 | 585850 | 69 | N/A | | GABRA2 | 151834 | 503806 | 8007 | 424362 | 28747 | PLEKHH1 | 054690 | 561057 | 15945 | 453343 | 33643 |
| ABCA8 | 141338 | 585531 | 70 | 466126 | 23847 | GABRA2 | 151834 | 506961 | 8008 | 424093 | 28748 | PLEKHH1 | 054690 | 559766 | 15946 | N/A | |
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| ABCC10 | 124574 | 372515 | 73 | 361593 | 23850 | GABRA2 | 151834 | 540012 | 8011 | 444409 | 28750 | PLEKHH1 | 054690 | 558214 | 15949 | N/A | |
| ABCC10 | 124574 | 502549 | 74 | N/A | | GABRA4 | 109158 | 264318 | 8012 | 264318 | 28751 | PLEKHH2 | 152527 | 282406 | 15950 | 282406 | 33645 |
| ABCC10 | 124574 | 372530 | 75 | 361608 | 23851 | GABRA4 | 109158 | 511523 | 8013 | 422152 | 28752 | PLEKHH2 | 152527 | 405223 | 15951 | N/A | |
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| ABCC10 | 124574 | 244533 | 77 | 244533 | 23852 | GABRA4 | 109158 | 502874 | 8015 | 424386 | 28754 | PLEKHH2 | 152527 | 491692 | 15953 | 427746 | 33646 |
| ABCC10 | 124574 | 463024 | 78 | N/A | | GABRA4 | 109158 | 509316 | 8016 | N/A | | PLEKHH2 | 152527 | 460356 | 15954 | N/A | |
| ABCC10 | 124574 | 469856 | 79 | N/A | | GABRA6 | 145863 | 522269 | 8017 | N/A | | PLEKHH2 | 152527 | 480103 | 15955 | N/A | |
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| ABCC10 | 124574 | 437104 | 81 | N/A | | GABRA6 | 145863 | 274545 | 8019 | 274545 | 28755 | PLEKHH2 | 152527 | 490038 | 15957 | 430377 | 33647 |
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| ABCC8 | 006071 | 531642 | 83 | 435378 | 23854 | GABRA6 | 145863 | 524220 | 8021 | N/A | | PLEKHO2 | 241839 | 616065 | 15959 | 483505 | 33649 |
| ABCC8 | 006071 | 526037 | 84 | N/A | | GABRA6 | 145863 | 520000 | 8022 | 429943 | 28757 | PLK2 | 145632 | 274289 | 15960 | 274289 | 33650 |
| ABCC8 | 006071 | 389817 | 85 | 374467 | 23855 | GABRA6 | 145863 | 517823 | 8023 | 430212 | 28758 | PLK2 | 145632 | 502671 | 15961 | N/A | |
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| ABCC8 | 006071 | 532220 | 88 | N/A | | GABRB1 | 163288 | 513567 | 8026 | 426753 | 28760 | PLK2 | 145632 | 505244 | 15964 | N/A | |
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| ABCC8 | 006071 | 531137 | 92 | N/A | | GABRB1 | 163288 | 510909 | 8030 | 426766 | 28762 | PLK2 | 145632 | 515415 | 15968 | N/A | |
| ABCC8 | 006071 | 524561 | 93 | N/A | | GABRD | 187730 | 378585 | 8031 | 367848 | 28763 | PLK2 | 145632 | 509555 | 15969 | N/A | |
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| ABCC8 | 006071 | 528202 | 99 | N/A | | GABRD | 187730 | 639935 | 8037 | N/A | | PLK5 | 185988 | 454744 | 15975 | 468376 | 33652 |
| ABCC8 | 006071 | 635881 | 100 | N/A | | GABRD | 187730 | 640949 | 8038 | 492500 | 28768 | PLK5 | 185988 | 642079 | 15976 | 493341 | 33653 |
| ABCC8 | 006071 | 526002 | 101 | N/A | | GABRD | 187730 | 640030 | 8039 | 491411 | 28769 | PLK5 | 185988 | 334770 | 15977 | 466248 | 33654 |
| ABCC8 | 006071 | 302539 | 102 | 303960 | 23860 | GABRD | 187730 | 640423 | 8040 | N/A | | PLK5 | 185988 | 588430 | 15978 | 465896 | 33655 |
| ABCC8 | 006071 | 612903 | 103 | 483031 | 23861 | GABRD | 187730 | 639625 | 8041 | N/A | | PLK5 | 185988 | 588292 | 15979 | N/A | |
| ABCG2 | 118777 | 515655 | 104 | 426917 | 23862 | GABRD | 187730 | 639777 | 8042 | N/A | | PLLP | 102934 | 564376 | 15980 | N/A | |
| ABCG2 | 118777 | 237612 | 105 | 237612 | 23863 | GABRD | 187730 | 640981 | 8043 | 491287 | 28770 | PLLP | 102934 | 613167 | 15981 | 481720 | 33656 |
| ABCG2 | 118777 | 505480 | 106 | 426916 | 23864 | GABRD | 187730 | 638763 | 8044 | 492352 | 28771 | PLLP | 102934 | 219207 | 15982 | 219207 | 33657 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABCG2 | 118777 | 503830 | 107 | 426934 | 23865 | GABRD | 187730 | 639070 | 8045 | N/A | | PLLP | 102934 | 569059 | 15983 | 454656 | 33658 |
| ABHD2 | 140526 | 569411 | 108 | 457882 | 23866 | GABRD | 187730 | 640892 | 8046 | N/A | | PLLP | 102934 | 564018 | 15984 | 463575 | 33659 |
| ABHD2 | 140526 | 352732 | 109 | 268129 | 23867 | GABRD | 187730 | 640317 | 8047 | N/A | | PLOD2 | 152952 | 461497 | 15985 | 419354 | 33660 |
| ABHD2 | 140526 | 564876 | 110 | N/A | | GABRD | 187730 | 638804 | 8048 | 491871 | 28772 | PLOD2 | 152952 | 282903 | 15986 | 282903 | 33661 |
| ABHD2 | 140526 | 569550 | 111 | 454645 | 23868 | GABRD | 187730 | 640688 | 8049 | N/A | | PLOD2 | 152952 | 360060 | 15987 | 353170 | 33662 |
| ABHD2 | 140526 | 565066 | 112 | 454531 | 23869 | GABRG2 | 113327 | 522053 | 8050 | N/A | | PLOD2 | 152952 | 494950 | 15988 | 420094 | 33663 |
| ABHD2 | 140526 | 565973 | 113 | 455639 | 23870 | GABRG2 | 113327 | 640500 | 8051 | N/A | | PLOD2 | 152952 | 495700 | 15989 | N/A | |
| ABHD2 | 140526 | 565825 | 114 | N/A | | GABRG2 | 113327 | 638253 | 8052 | N/A | | PLOD2 | 152952 | 475505 | 15990 | N/A | |
| ABHD2 | 140526 | 562254 | 115 | N/A | | GABRG2 | 113327 | 639278 | 8053 | 491958 | 28773 | PLOD2 | 152952 | 478436 | 15991 | N/A | |
| ABHD2 | 140526 | 562073 | 116 | N/A | | GABRG2 | 113327 | 638660 | 8054 | 492869 | 28774 | PLOD2 | 152952 | 460520 | 15992 | N/A | |
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| ABHD3 | 158201 | 289119 | 118 | 289119 | 23871 | GABRG2 | 113327 | 640574 | 8056 | 491582 | 28776 | PLOD2 | 152952 | 480704 | 15994 | 419880 | 33665 |
| ABHD3 | 158201 | 580981 | 119 | 462935 | 23872 | GABRG2 | 113327 | 639111 | 8057 | 492125 | 28777 | PLP1 | 123560 | 434483 | 15995 | 403335 | 33666 |
| ABHD3 | 158201 | 578270 | 120 | 462578 | 23873 | GABRG2 | 113327 | 639975 | 8058 | 492096 | 28778 | PLP1 | 123560 | 494475 | 15996 | 480409 | 33667 |
| ABHD3 | 158201 | 577564 | 121 | N/A | | GABRG2 | 113327 | 639213 | 8059 | 491909 | 28779 | PLP1 | 123560 | 455268 | 15997 | 409802 | 33668 |
| ABHD3 | 158201 | 580477 | 122 | 463996 | 23874 | GABRG2 | 113327 | 639683 | 8060 | 492581 | 28780 | PLP1 | 123560 | 422393 | 15998 | 413931 | 33669 |
| ABHD3 | 158201 | 577891 | 123 | 463365 | 23875 | GABRG2 | 113327 | 639384 | 8061 | 491240 | 28781 | PLP1 | 123560 | 433491 | 15999 | 393391 | 33670 |
| ABHD3 | 158201 | 579875 | 124 | N/A | | GABRG2 | 113327 | 640985 | 8062 | 492293 | 28782 | PLP1 | 123560 | 443502 | 16000 | 391853 | 33671 |
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| ABHD3 | 158201 | 577928 | 126 | N/A | | GABRG2 | 113327 | 639424 | 8064 | 491245 | 28784 | PLP1 | 123560 | 619236 | 16002 | 477619 | 33673 |
| ABHD3 | 158201 | 579982 | 127 | N/A | | GABRG2 | 113327 | 414552 | 8065 | 410732 | 28785 | PLP1 | 123560 | 464776 | 16003 | N/A | |
| ABHD5 | 011198 | 456453 | 128 | 391582 | 23877 | GABRG2 | 113327 | 639549 | 8066 | N/A | | PLP1 | 123560 | 619257 | 16004 | N/A | |
| ABHD5 | 011198 | 458276 | 129 | 390849 | 23878 | GABRG2 | 113327 | 522990 | 8067 | 430732 | 28786 | PLP1 | 123560 | 465975 | 16005 | N/A | |
| ABHD5 | 011198 | 486764 | 130 | N/A | | GABRG2 | 113327 | 361925 | 8068 | 354651 | 28787 | PLP1 | 123560 | 480325 | 16006 | N/A | |
| ABHD5 | 011198 | 013894 | 131 | 013894 | 23879 | GABRG2 | 113327 | 638782 | 8069 | N/A | | PLP1 | 123560 | 485931 | 16007 | N/A | |
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| ABI3 | 108798 | 225941 | 135 | 225941 | 23882 | GABRG2 | 113327 | 356592 | 8073 | 349000 | 28791 | PLP1 | 123560 | 478642 | 16011 | N/A | |
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| ABI3BP | 154175 | 471714 | 139 | 420524 | 23886 | GABRG2 | 113327 | 639046 | 8077 | 492659 | 28793 | PLP1 | 123560 | 494119 | 16015 | N/A | |
| ABI3BP | 154175 | 470336 | 140 | N/A | | GABRG2 | 113327 | 640757 | 8078 | 492329 | 28794 | PLP1 | 123560 | 496836 | 16016 | N/A | |
| ABI3BP | 154175 | 284322 | 141 | 284322 | 23887 | GABRG3 | 182256 | 615808 | 8079 | 479113 | 28795 | PLP1 | 123560 | 612423 | 16017 | 481006 | 33674 |
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| ABI3BP | 154175 | 497021 | 144 | N/A | | GABRG3 | 182256 | 554786 | 8082 | N/A | | PLPP2 | 141934 | 269812 | 16020 | 269812 | 33677 |
| ABI3BP | 154175 | 486770 | 145 | 419029 | 23889 | GABRG3 | 182256 | 554696 | 8083 | 451862 | 28797 | PLPP2 | 141934 | 621795 | 16021 | N/A | |
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| ABI3BP | 154175 | 530539 | 165 | 436918 | 23906 | GAL3ST1 | 128242 | 431313 | 8103 | 395080 | 28814 | PLPPR1 | 276539 | 633861 | 16041 | 488301 | 33689 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| ABLIM1 | 099204 | 481974 | 177 | N/A | | GAL3ST1 | 128242 | 411821 | 8115 | 394912 | 28826 | PLS1 | 120756 | 461644 | 16053 | 419271 | 33700 |
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| ABLIM1 | 099204 | 533213 | 179 | 433629 | 23915 | GAL3ST1 | 128242 | 448604 | 8117 | 390068 | 28828 | PLS1 | 120756 | 337777 | 16055 | 336831 | 33702 |
| ABLIM1 | 099204 | 369252 | 180 | 358256 | 23916 | GAL3ST1 | 128242 | 338911 | 8118 | 343234 | 28829 | PLS1 | 120756 | 497199 | 16056 | 417491 | 33703 |
| ABLIM1 | 099204 | 369266 | 181 | 358270 | 23917 | GAL3ST4 | 197093 | 460995 | 8119 | 488800 | 28830 | PLS1 | 120756 | 497002 | 16057 | 418700 | 33704 |
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| ABLIM2 | 163995 | 509819 | 184 | N/A | | GAL3ST4 | 197093 | 411994 | 8122 | 414733 | 28833 | PLSCR1 | 188313 | 342435 | 16060 | 345494 | 33705 |
| ABLIM2 | 163995 | 514025 | 185 | 423661 | 23919 | GAL3ST4 | 197093 | 423751 | 8123 | 390066 | 28834 | PLSCR1 | 188313 | 493432 | 16061 | 419680 | 33706 |
| ABLIM2 | 163995 | 447017 | 186 | 393511 | 23920 | GAL3ST4 | 197093 | 360039 | 8124 | 353142 | 28835 | PLSCR1 | 188313 | 463777 | 16062 | 419228 | 33707 |
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| ABLIM2 | 163995 | 407564 | 189 | 384658 | 23923 | GALNT14 | 158089 | 324589 | 8127 | 314500 | 28837 | PLSCR1 | 188313 | 448787 | 16065 | 411675 | 33710 |
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| ABLIM3 | 173210 | 326685 | 197 | 315841 | 23928 | GALNT14 | 158089 | 481023 | 8135 | N/A | | PLSCR1 | 188313 | 486631 | 16073 | 418550 | 33716 |
| ABLIM3 | 173210 | 309868 | 198 | 310309 | 23929 | GALNT14 | 158089 | 424136 | 8136 | 398723 | 28842 | PLSCR1 | 188313 | 472349 | 16074 | 420523 | 33717 |
| ABLIM3 | 173210 | 506113 | 199 | 425394 | 23930 | GALNT14 | 158089 | 496397 | 8137 | N/A | | PLSCR1 | 188313 | 494568 | 16075 | N/A | |
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| ABLIM3 | 173210 | 515796 | 203 | N/A | | GALNT14 | 158089 | 485468 | 8141 | N/A | | PLSCR4 | 114698 | 354952 | 16079 | 347038 | 33718 |
| ABLIM3 | 173210 | 514212 | 204 | N/A | | GALNT15 | 131386 | 339732 | 8142 | 344260 | 28843 | PLSCR4 | 114698 | 433593 | 16080 | 415605 | 33719 |
| ABLIM3 | 173210 | 519549 | 205 | N/A | | GALNT15 | 131386 | 437509 | 8143 | 395873 | 28844 | PLSCR4 | 114698 | 446574 | 16081 | 399315 | 33720 |
| ABLIM3 | 173210 | 517451 | 206 | 430150 | 23934 | GALNT15 | 131386 | 470031 | 8144 | N/A | | PLSCR4 | 114698 | 493382 | 16082 | 419040 | 33721 |
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| ABRA | 174429 | 311955 | 209 | 311436 | 23936 | GALNT15 | 131386 | 617544 | 8147 | 480229 | 28846 | PLSCR4 | 114698 | 460885 | 16085 | 420385 | 33723 |
| ABTB2 | 166016 | 435224 | 210 | 410157 | 23937 | GALNT16 | 100626 | 554858 | 8148 | N/A | | PLSCR4 | 114698 | 476202 | 16086 | 418173 | 33724 |
| ABTB2 | 166016 | 530814 | 211 | N/A | | GALNT16 | 100626 | 554317 | 8149 | N/A | | PLSCR4 | 114698 | 481701 | 16087 | 418419 | 33725 |
| ACAD8 | 151498 | 281182 | 212 | 281182 | 23938 | GALNT16 | 100626 | 555920 | 8150 | N/A | | PLSCR4 | 114698 | 498625 | 16088 | 417248 | 33726 |
| ACAD8 | 151498 | 526026 | 213 | 431532 | 23939 | GALNT16 | 100626 | 337827 | 8151 | 336729 | 28847 | PLSCR4 | 114698 | 383083 | 16089 | 372561 | 33727 |
| ACAD8 | 151498 | 524426 | 214 | 431310 | 23940 | GALNT16 | 100626 | 553471 | 8152 | 451420 | 28848 | PLTP | 100979 | 354050 | 16090 | 335290 | 33728 |
| ACAD8 | 151498 | 534433 | 215 | N/A | | GALNT16 | 100626 | 448469 | 8153 | 402970 | 28849 | PLTP | 100979 | 372420 | 16091 | 361497 | 33729 |
| ACAD8 | 151498 | 374752 | 216 | 363884 | 23941 | GALNT16 | 100626 | 553669 | 8154 | 451200 | 28850 | PLTP | 100979 | 372431 | 16092 | 361508 | 33730 |
| ACAD8 | 151498 | 525961 | 217 | N/A | | GALNT16 | 100626 | 553740 | 8155 | N/A | | PLTP | 100979 | 477313 | 16093 | 417138 | 33731 |
| ACAD8 | 151498 | 530533 | 218 | N/A | | GALNT16 | 100626 | 556677 | 8156 | N/A | | PLTP | 100979 | 420868 | 16094 | 411671 | 33732 |
| ACAD8 | 151498 | 534240 | 219 | N/A | | GALNT16 | 100626 | 556829 | 8157 | N/A | | PLXDC1 | 161381 | 315392 | 16095 | 323927 | 33733 |
| ACAD8 | 151498 | 533387 | 220 | N/A | | GALNT18 | 110328 | 227756 | 8158 | 227756 | 28851 | PLXDC1 | 161381 | 394318 | 16096 | N/A | |
| ACAD8 | 151498 | 527082 | 221 | N/A | | GALNT18 | 110328 | 526064 | 8159 | N/A | | PLXDC1 | 161381 | 578390 | 16097 | 462089 | 33734 |
| ACAD8 | 151498 | 524547 | 222 | N/A | | GALNT3 | 115339 | 392701 | 8160 | 376465 | 28852 | PLXDC1 | 161381 | 578517 | 16098 | N/A | |
| ACAD8 | 151498 | 531338 | 223 | N/A | | GALNT3 | 115339 | 409882 | 8161 | 386955 | 28853 | PLXDC1 | 161381 | 493200 | 16099 | N/A | |
| ACAD8 | 151498 | 528325 | 224 | N/A | | GALNT3 | 115339 | 412248 | 8162 | 412643 | 28854 | PLXDC1 | 161381 | 461225 | 16100 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACAD8 | 151498 | 527665 | 225 | N/A | | GALNT3 | 115339 | 437849 | 8163 | 391104 | 28855 | PLXDC1 | 161381 | 444911 | 16101 | 409687 | 33735 |
| ACAD8 | 151498 | 527713 | 226 | N/A | | GALNT3 | 115339 | 463254 | 8164 | N/A | | PLXDC1 | 161381 | 578277 | 16102 | N/A | |
| ACAD8 | 151498 | 524739 | 227 | N/A | | GALNT3 | 115339 | 431484 | 8165 | 397112 | 28856 | PLXDC1 | 161381 | 582025 | 16103 | N/A | |
| ACAD8 | 151498 | 524502 | 228 | N/A | | GALNT3 | 115339 | 414977 | 8166 | 413477 | 28857 | PLXDC1 | 161381 | 579417 | 16104 | N/A | |
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| ACAP3 | 131584 | 492936 | 230 | N/A | | GALNT3 | 115339 | 447156 | 8168 | 399880 | 28859 | PLXDC1 | 161381 | 578808 | 16106 | 462241 | 33737 |
| ACAP3 | 131584 | 467278 | 231 | N/A | | GALNT5 | 136542 | 259056 | 8169 | 259056 | 28860 | PLXDC1 | 161381 | 441877 | 16107 | 393227 | 33738 |
| ACAP3 | 131584 | 470659 | 232 | N/A | | GALNT5 | 136542 | 463418 | 8170 | N/A | | PLXDC1 | 161381 | 444435 | 16108 | N/A | |
| ACAP3 | 131584 | 379037 | 233 | N/A | | GALNT5 | 136542 | 461704 | 8171 | N/A | | PLXDC1 | 161381 | 577838 | 16109 | N/A | |
| ACAP3 | 131584 | 476572 | 234 | N/A | | GALNT6 | 139629 | 543196 | 8172 | 444171 | 28861 | PLXDC1 | 161381 | 415163 | 16110 | 416819 | 33739 |
| ACAP3 | 131584 | 493992 | 235 | N/A | | GALNT6 | 139629 | 356317 | 8173 | 348668 | 28862 | PLXDC1 | 161381 | 579190 | 16111 | 464029 | 33740 |
| ACAP3 | 131584 | 472541 | 236 | N/A | | GALNT6 | 139629 | 603680 | 8174 | N/A | | PLXDC1 | 161381 | 580667 | 16112 | N/A | |
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| ACAP3 | 131584 | 478065 | 238 | N/A | | GALNT6 | 139629 | 604381 | 8176 | 474101 | 28864 | PLXDC1 | 161381 | 583285 | 16114 | N/A | |
| ACAP3 | 131584 | 479108 | 239 | N/A | | GALNT6 | 139629 | 604847 | 8177 | 474515 | 28865 | PLXDC2 | 120594 | 377242 | 16115 | 366450 | 33741 |
| ACAP3 | 131584 | 438966 | 240 | N/A | | GALNT6 | 139629 | 605720 | 8178 | N/A | | PLXDC2 | 120594 | 377252 | 16116 | 366460 | 33742 |
| ACAP3 | 131584 | 353662 | 241 | 321139 | 23944 | GALNT6 | 139629 | 605367 | 8179 | N/A | | PLXDC2 | 120594 | 377238 | 16117 | N/A | |
| ACE | 159640 | 583336 | 242 | N/A | | GALNT6 | 139629 | 603482 | 8180 | N/A | | PLXNA1 | 114554 | 393409 | 16118 | 377061 | 33743 |
| ACE | 159640 | 584529 | 243 | N/A | | GALNT6 | 139629 | 605089 | 8181 | N/A | | PLXNA1 | 114554 | 503234 | 16119 | N/A | |
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| ACE | 159640 | 290866 | 246 | 290866 | 23946 | GALNT6 | 139629 | 605055 | 8184 | 474483 | 28866 | PLXNA4 | 221866 | 359827 | 16122 | 352882 | 33744 |
| ACE | 159640 | 582627 | 247 | 462280 | 23947 | GALNT6 | 139629 | 604506 | 8185 | 474163 | 28867 | PLXNA4 | 221866 | 496550 | 16123 | N/A | |
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| ACE | 159640 | 290863 | 250 | 290863 | 23949 | GALNT6 | 139629 | 603188 | 8188 | 474052 | 28870 | PLXNA4 | 221866 | 321063 | 16126 | 323194 | 33747 |
| ACE | 159640 | 582005 | 251 | 462002 | 23950 | GALNT6 | 139629 | 605617 | 8189 | 473836 | 28871 | PLXNB1 | 164050 | 296440 | 16127 | 296440 | 33748 |
| ACE | 159640 | 578839 | 252 | 462110 | 23951 | GALNT6 | 139629 | 604426 | 8190 | 473918 | 28872 | PLXNB1 | 164050 | 485535 | 16128 | N/A | |
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| ACE | 159640 | 579204 | 255 | 464629 | 23954 | GALNTL6 | 174473 | 504379 | 8193 | N/A | | PLXNB1 | 164050 | 483753 | 16131 | N/A | |
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| ACE | 159640 | 582761 | 257 | 462909 | 23955 | GALNTL6 | 174473 | 508122 | 8195 | 423827 | 28875 | PLXNB1 | 164050 | 483676 | 16133 | N/A | |
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| ACE | 159640 | 428043 | 263 | 397593 | 23957 | GAP43 | 172020 | 393780 | 8201 | 377372 | 28879 | PLXNB1 | 164050 | 465117 | 16139 | N/A | |
| ACER3 | 078124 | 534206 | 264 | 435733 | 23958 | GAPDH | 111640 | 229239 | 8202 | 229239 | 28880 | PLXNB1 | 164050 | 467913 | 16140 | N/A | |
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| ACER3 | 078124 | 531461 | 269 | 433368 | 23962 | GAPDH | 111640 | 474249 | 8207 | N/A | | PLXNB1 | 164050 | 473683 | 16145 | N/A | |
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| ACER3 | 078124 | 526597 | 271 | 431149 | 23964 | GAPDH | 111640 | 396859 | 8209 | 380068 | 28883 | PLXNB3 | 198753 | 411613 | 16147 | 391650 | 33753 |
| ACER3 | 078124 | 533873 | 272 | 436252 | 23965 | GAPDH | 111640 | 466525 | 8210 | N/A | | PLXNB3 | 198753 | 482654 | 16148 | N/A | |
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| ACER3 | 078124 | 278544 | 274 | 278544 | 23967 | GAPDH | 111640 | 619601 | 8212 | 478864 | 28885 | PLXNB3 | 198753 | 485980 | 16150 | N/A | |
| ACER3 | 078124 | 527508 | 275 | N/A | | GAREM2 | 157833 | 401533 | 8213 | 384593 | 28886 | PLXNB3 | 198753 | 448847 | 16151 | 412454 | 33755 |
| ACER3 | 078124 | 525325 | 276 | N/A | | GAREM2 | 157833 | 407684 | 8214 | 384581 | 28887 | PLXNB3 | 198753 | 469190 | 16152 | N/A | |
| ACER3 | 078124 | 530921 | 277 | N/A | | GAREM2 | 157833 | 496070 | 8215 | N/A | | PLXNB3 | 198753 | 472415 | 16153 | N/A | |
| ACHE | 087085 | 419336 | 278 | 403474 | 23968 | GARNL3 | 136895 | 439286 | 8216 | 400579 | 28888 | PLXNB3 | 198753 | 538966 | 16154 | 442736 | 33756 |
| ACHE | 087085 | 241069 | 279 | 241069 | 23969 | GARNL3 | 136895 | 444677 | 8217 | 411160 | 28889 | PLXNC1 | 136040 | 258526 | 16155 | 258526 | 33757 |
| ACHE | 087085 | 428317 | 280 | 414858 | 23970 | GARNL3 | 136895 | 429629 | 8218 | 397246 | 28890 | PLXNC1 | 136040 | 546733 | 16156 | N/A | |
| ACHE | 087085 | 412389 | 281 | 394976 | 23971 | GARNL3 | 136895 | 453030 | 8219 | 389679 | 28891 | PLXNC1 | 136040 | 551850 | 16157 | 447843 | 33758 |
| ACHE | 087085 | 426415 | 282 | 397143 | 23972 | GARNL3 | 136895 | 446764 | 8220 | 416473 | 28892 | PLXNC1 | 136040 | 546659 | 16158 | N/A | |
| ACHE | 087085 | 454485 | 283 | 390004 | 23973 | GARNL3 | 136895 | 441134 | 8221 | 396319 | 28893 | PLXNC1 | 136040 | 549810 | 16159 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACHE | 087085 | 440755 | 284 | 410380 | 23974 | GARNL3 | 136895 | 478702 | 8222 | N/A | | PLXNC1 | 136040 | 549217 | 16160 | 446781 | 33759 |
| ACHE | 087085 | 430554 | 285 | 399725 | 23975 | GARNL3 | 136895 | 425970 | 8223 | 411329 | 28894 | PLXNC1 | 136040 | 550080 | 16161 | 447625 | 33760 |
| ACHE | 087085 | 442452 | 286 | 415901 | 23976 | GARNL3 | 136895 | 498801 | 8224 | N/A | | PLXNC1 | 136040 | 547057 | 16162 | 446720 | 33761 |
| ACHE | 087085 | 411582 | 287 | 404865 | 23977 | GARNL3 | 136895 | 487565 | 8225 | N/A | | PLXNC1 | 136040 | 551495 | 16163 | N/A | |
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| ACHE | 087085 | 445236 | 289 | 400933 | 23979 | GARNL3 | 136895 | 373386 | 8227 | 362484 | 28896 | PLXNC1 | 136040 | 549187 | 16165 | N/A | |
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| ACHE | 087085 | 302913 | 291 | 303211 | 23980 | GARNL3 | 136895 | 495172 | 8229 | N/A | | PMEL | 185664 | 552882 | 16167 | 449690 | 33764 |
| ACO2 | 100412 | 216254 | 292 | 216254 | 23981 | GARNL3 | 136895 | 460176 | 8230 | 474589 | 28897 | PMEL | 185664 | 550464 | 16168 | 450036 | 33765 |
| ACO2 | 100412 | 396512 | 293 | 379769 | 23982 | GARNL3 | 136895 | 481875 | 8231 | N/A | | PMEL | 185664 | 548747 | 16169 | 448828 | 33766 |
| ACO2 | 100412 | 471094 | 294 | N/A | | GARNL3 | 136895 | 478696 | 8232 | N/A | | PMEL | 185664 | 548493 | 16170 | 447374 | 33767 |
| ACO2 | 100412 | 482208 | 295 | N/A | | GARNL3 | 136895 | 496711 | 8233 | N/A | | PMEL | 185664 | 550447 | 16171 | 448029 | 33768 |
| ACO2 | 100412 | 478010 | 296 | N/A | | GARNL3 | 136895 | 481242 | 8234 | N/A | | PMEL | 185664 | 549564 | 16172 | N/A | |
| ACO2 | 100412 | 481310 | 297 | N/A | | GARNL3 | 136895 | 497703 | 8235 | N/A | | PMEL | 185664 | 549404 | 16173 | 449520 | 33769 |
| ACO2 | 100412 | 466237 | 298 | N/A | | GARNL3 | 136895 | 463005 | 8236 | N/A | | PMEL | 185664 | 550762 | 16174 | N/A | |
| ACOT11 | 162390 | 481208 | 299 | N/A | | GARNL3 | 136895 | 435213 | 8237 | 396205 | 28898 | PMEL | 185664 | 548803 | 16175 | 447732 | 33770 |
| ACOT11 | 162390 | 498228 | 300 | N/A | | GAS1 | 180447 | 298743 | 8238 | 298743 | 28899 | PMEL | 185664 | 547137 | 16176 | 448849 | 33771 |
| ACOT11 | 162390 | 343744 | 301 | 340260 | 23983 | GATM | 171766 | 396659 | 8239 | 379895 | 28900 | PMEL | 185664 | 546543 | 16177 | 446662 | 33772 |
| ACOT11 | 162390 | 371316 | 302 | 360366 | 23984 | GATM | 171766 | 558362 | 8240 | N/A | | PMEL | 185664 | 556802 | 16178 | N/A | |
| ACOT11 | 162390 | 479837 | 303 | N/A | | GATM | 171766 | 558336 | 8241 | 454008 | 28901 | PMEL | 185664 | 548689 | 16179 | N/A | |
| ACOT7 | 097021 | 608083 | 304 | 476610 | 23985 | GATM | 171766 | 561376 | 8242 | N/A | | PMEL | 185664 | 550590 | 16180 | N/A | |
| ACOT7 | 097021 | 377842 | 305 | 367073 | 23986 | GATM | 171766 | 558916 | 8243 | N/A | | PMEL | 185664 | 549430 | 16181 | N/A | |
| ACOT7 | 097021 | 377845 | 306 | 367076 | 23987 | GATM | 171766 | 558163 | 8244 | 453781 | 28902 | PMEL | 185664 | 549418 | 16182 | 446633 | 33773 |
| ACOT7 | 097021 | 377855 | 307 | 367086 | 23988 | GATM | 171766 | 558537 | 8245 | 453151 | 28903 | PMEL | 185664 | 549233 | 16183 | 448871 | 33774 |
| ACOT7 | 097021 | 377860 | 308 | 367091 | 23989 | GATM | 171766 | 561148 | 8246 | 453860 | 28904 | PMEL | 185664 | 549413 | 16184 | N/A | |
| ACOT7 | 097021 | 418124 | 309 | 402532 | 23990 | GATM | 171766 | 559885 | 8247 | 453087 | 28905 | PMEPA1 | 124225 | 341744 | 16185 | 345826 | 33775 |
| ACOT7 | 097021 | 361521 | 310 | 354615 | 23991 | GATM | 171766 | 558118 | 8248 | 452971 | 28906 | PMEPA1 | 124225 | 395816 | 16186 | 379161 | 33776 |
| ACOT7 | 097021 | 473466 | 311 | 465719 | 23992 | GATM | 171766 | 560538 | 8249 | N/A | | PMEPA1 | 124225 | 347215 | 16187 | 344014 | 33777 |
| ACOT7 | 097021 | 481175 | 312 | N/A | | GATM | 171766 | 458245 | 8250 | N/A | | PMEPA1 | 124225 | 395814 | 16188 | 379159 | 33778 |
| ACOT7 | 097021 | 545482 | 313 | 439218 | 23993 | GATM | 171766 | 527933 | 8251 | N/A | | PMEPA1 | 124225 | 414037 | 16189 | 401506 | 33779 |
| ACSBG1 | 103740 | 258873 | 314 | 258873 | 23994 | CASTOR2 | 274070 | 616305 | 8252 | 484732 | 28907 | PMEPA1 | 124225 | 395819 | 16190 | 379164 | 33780 |
| ACSBG1 | 103740 | 560124 | 315 | 453605 | 23995 | CASTOR2 | 274070 | 622472 | 8253 | N/A | | PMEPA1 | 124225 | 472841 | 16191 | N/A | |
| ACSBG1 | 103740 | 560817 | 316 | 453451 | 23996 | CASTOR1 | 239282 | 459785 | 8254 | N/A | | PMEPA1 | 124225 | 265626 | 16192 | 265626 | 33781 |
| ACSBG1 | 103740 | 560183 | 317 | N/A | | CASTOR1 | 239282 | 407689 | 8255 | 384183 | 28908 | PMP2 | 147588 | 256103 | 16193 | 256103 | 33782 |
| ACSBG1 | 103740 | 558301 | 318 | N/A | | CASTOR1 | 239282 | 404953 | 8256 | 385868 | 28909 | PMP2 | 147588 | 519260 | 16194 | 429917 | 33783 |
| ACSBG1 | 103740 | 559707 | 319 | 453447 | 23997 | CASTOR1 | 239282 | 440839 | 8257 | 411842 | 28910 | PMP22 | 109099 | 395938 | 16195 | 379269 | 33784 |
| ACSBG1 | 103740 | 558728 | 320 | N/A | | CASTOR1 | 239282 | 421236 | 8258 | 390869 | 28911 | PMP22 | 109099 | 312280 | 16196 | 308937 | 33785 |
| ACSBG1 | 103740 | 557935 | 321 | 453585 | 23998 | CASTOR1 | 239282 | 497605 | 8259 | N/A | | PMP22 | 109099 | 494511 | 16197 | 462782 | 33786 |
| ACSBG1 | 103740 | 559114 | 322 | 454188 | 23999 | CASTOR1 | 239282 | 415484 | 8260 | 416041 | 28912 | PMP22 | 109099 | 395936 | 16198 | 379268 | 33787 |
| ACSBG1 | 103740 | 559241 | 323 | 453547 | 24000 | CASTOR1 | 239282 | 425691 | 8261 | 408419 | 28913 | PMP22 | 109099 | 580584 | 16199 | 464468 | 33788 |
| ACSBG1 | 103740 | 558130 | 324 | 453800 | 24001 | CASTOR1 | 239282 | 463795 | 8262 | N/A | | PMP22 | 109099 | 426385 | 16200 | 409824 | 33789 |
| ACSBG1 | 103740 | 558828 | 325 | N/A | | CASTOR1 | 239282 | 471480 | 8263 | N/A | | PMP22 | 109099 | 580497 | 16201 | N/A | |
| ACSBG1 | 103740 | 558793 | 326 | N/A | | CASTOR1 | 239282 | 492159 | 8264 | N/A | | PMP22 | 109099 | 471150 | 16202 | N/A | |
| ACSBG1 | 103740 | 559713 | 327 | N/A | | CASTOR1 | 239282 | 440704 | 8265 | 407871 | 28914 | PMP22 | 109099 | 612492 | 16203 | 484631 | 33790 |
| ACSM5 | 183549 | 575584 | 328 | 460112 | 24002 | CASTOR1 | 239282 | 464854 | 8266 | N/A | | PMVK | 163344 | 368467 | 16204 | 357452 | 33791 |
| ACSM5 | 183549 | 331849 | 329 | 327916 | 24003 | CASTOR1 | 239282 | 498572 | 8267 | N/A | | PNLIP | 175535 | 369221 | 16205 | 358223 | 33792 |
| ACSM5 | 183549 | 575070 | 330 | 478073 | 24004 | GBAP1 | 160766 | 459805 | 8268 | N/A | | PNLIP | 175535 | 470562 | 16206 | N/A | |
| ACSM5 | 183549 | 570305 | 331 | N/A | | GBAP1 | 160766 | 486869 | 8269 | N/A | | PNMA2 | 240694 | 522362 | 16207 | 429344 | 33793 |
| ACSM5 | 183549 | 574748 | 332 | N/A | | GBAP1 | 160766 | 368374 | 8270 | N/A | | PNMA2 | 240694 | 521740 | 16208 | N/A | |
| ACSM5 | 183549 | 573920 | 333 | 461752 | 24005 | GBAP1 | 160766 | 486197 | 8271 | N/A | | PNMA2 | 240694 | 518212 | 16209 | N/A | |
| ACSM5 | 183549 | 577024 | 334 | N/A | | GBAP1 | 160766 | 473223 | 8272 | N/A | | PNMA2 | 240694 | 521875 | 16210 | N/A | |
| ACSS1 | 154930 | 484396 | 335 | N/A | | GBAP1 | 160766 | 566701 | 8273 | N/A | | PNMA2 | 240694 | 523244 | 16211 | N/A | |
| ACSS1 | 154930 | 323482 | 336 | 316924 | 24006 | GBAP1 | 160766 | 463838 | 8274 | N/A | | PNMA2 | 240694 | 522450 | 16212 | N/A | |
| ACSS1 | 154930 | 376726 | 337 | 365916 | 24007 | GBAP1 | 160766 | 462587 | 8275 | N/A | | PNMA2 | 240694 | 522764 | 16213 | N/A | |
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| ACSS1 | 154930 | 537502 | 339 | 439304 | 24009 | GCA | 115271 | 446271 | 8277 | 393218 | 28915 | PNP | 198805 | 553418 | 16215 | 450663 | 33794 |
| ACSS3 | 111058 | 616449 | 340 | N/A | | GCA | 115271 | 429691 | 8278 | 412899 | 28916 | PNP | 198805 | 361505 | 16216 | 354532 | 33795 |
| ACSS3 | 111058 | 549175 | 341 | 447748 | 24010 | GCA | 115271 | 437150 | 8279 | 394842 | 28917 | PNP | 198805 | 556293 | 16217 | N/A | |
| ACSS3 | 111058 | 548058 | 342 | 449535 | 24011 | GCA | 115271 | 481161 | 8280 | N/A | | PNP | 198805 | 557229 | 16218 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACSS3 | 111058 | 261206 | 343 | 261206 | 24012 | GCA | 115271 | 453113 | 8281 | 403805 | 28918 | PNP | 198805 | 554056 | 16219 | N/A | |
| ACSS3 | 111058 | 548387 | 344 | N/A | | GCA | 115271 | 487445 | 8282 | N/A | | PNP | 198805 | 553591 | 16220 | 452421 | 33796 |
| ACSS3 | 111058 | 548324 | 345 | N/A | | GCA | 115271 | 479199 | 8283 | N/A | | PNP | 198805 | 554065 | 16221 | 451108 | 33797 |
| ACSS3 | 111058 | 551745 | 346 | N/A | | GCA | 115271 | 233612 | 8284 | 233612 | 28919 | PNP | 198805 | 556754 | 16222 | N/A | |
| ACSS3 | 111058 | 546664 | 347 | 449507 | 24013 | GCA | 115271 | 414723 | 8285 | 408620 | 28920 | PNPLA3 | 100344 | 216180 | 16223 | 216180 | 33798 |
| ACTB | 075624 | 464611 | 348 | N/A | | GCH1 | 131979 | 543643 | 8286 | 444011 | 28921 | PNPLA3 | 100344 | 406117 | 16224 | 384668 | 33799 |
| ACTB | 075624 | 331789 | 349 | 349960 | 24014 | GCH1 | 131979 | 491895 | 8287 | 419045 | 28922 | PNPLA3 | 100344 | 423180 | 16225 | 397987 | 33800 |
| ACTB | 075624 | 425660 | 350 | 409264 | 24015 | GCH1 | 131979 | 254299 | 8288 | N/A | | PNPLA3 | 100344 | 478713 | 16226 | N/A | |
| ACTB | 075624 | 462491 | 351 | N/A | | GCH1 | 131979 | 536224 | 8289 | 445246 | 28923 | PNPLA3 | 100344 | 497129 | 16227 | N/A | |
| ACTB | 075624 | 493945 | 352 | N/A | | GCH1 | 131979 | 395521 | 8290 | N/A | | PNPLA8 | 135241 | 426128 | 16228 | 394988 | 33801 |
| ACTB | 075624 | 484841 | 353 | N/A | | GCH1 | 131979 | 622544 | 8291 | 477796 | 28924 | PNPLA8 | 135241 | 257694 | 16229 | 257694 | 33802 |
| ACTB | 075624 | 473257 | 354 | N/A | | GCH1 | 131979 | 395514 | 8292 | 378890 | 28925 | PNPLA8 | 135241 | 422087 | 16230 | 410804 | 33803 |
| ACTB | 075624 | 477812 | 355 | N/A | | GCK | 106633 | 459642 | 8293 | N/A | | PNPLA8 | 135241 | 453144 | 16231 | 387789 | 33804 |
| ACTB | 075624 | 432588 | 356 | 407473 | 24016 | GCK | 106633 | 336642 | 8294 | 338009 | 28926 | PNPLA8 | 135241 | 436062 | 16232 | 406779 | 33805 |
| ACTB | 075624 | 480301 | 357 | N/A | | GCK | 106633 | 403799 | 8295 | 384247 | 28927 | PNPLA8 | 135241 | 453085 | 16233 | 402274 | 33806 |
| ACTB | 075624 | 443528 | 358 | 393951 | 24017 | GCK | 106633 | 395796 | 8296 | 379142 | 28928 | PNPLA8 | 135241 | 483879 | 16234 | N/A | |
| ACTB | 075624 | 417101 | 359 | 399487 | 24018 | GCK | 106633 | 345378 | 8297 | 223366 | 28929 | PNPLA8 | 135241 | 476592 | 16235 | N/A | |
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| ACTBL2 | 169067 | 423391 | 361 | 416706 | 24020 | GCK | 106633 | 473353 | 8299 | N/A | | PNPLA8 | 135241 | 489738 | 16237 | N/A | |
| ACTC1 | 159251 | 290378 | 362 | 290378 | 24021 | GCK | 106633 | 476008 | 8300 | N/A | | PNPLA8 | 135241 | 427008 | 16238 | 406033 | 33807 |
| ACTC1 | 159251 | 557860 | 363 | N/A | | GCK | 106633 | 616242 | 8301 | 482149 | 28931 | PNPLA8 | 135241 | 415498 | 16239 | 391872 | 33808 |
| ACTC1 | 159251 | 560563 | 364 | N/A | | GDA | 119125 | 376986 | 8302 | 366185 | 28932 | POLR2A | 181222 | 617998 | 16240 | N/A | |
| ACTL6B | 077080 | 160382 | 365 | 160382 | 24022 | GDA | 119125 | 358399 | 8303 | 351170 | 28933 | POLR2A | 181222 | 572844 | 16241 | 461879 | 33809 |
| ACTL6B | 077080 | 487125 | 366 | N/A | | GDA | 119125 | 475764 | 8304 | 436619 | 28934 | POLR2A | 181222 | 576952 | 16242 | N/A | |
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| ACTN2 | 077522 | 366578 | 371 | 355537 | 24024 | GDA | 119125 | 238018 | 8309 | 238018 | 28938 | POLR2A | 181222 | 573603 | 16247 | N/A | |
| ACTN2 | 077522 | 492634 | 372 | N/A | | GDA | 119125 | 545168 | 8310 | 437972 | 28939 | POLR2A | 181222 | 576553 | 16248 | N/A | |
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| ACTN2 | 077522 | 492101 | 374 | N/A | | GDF11 | 135414 | 257868 | 8312 | 257868 | 28941 | POLR2B | 168255 | 489144 | 16250 | 419145 | 33811 |
| ACTN2 | 077522 | 461367 | 375 | N/A | | GDF11 | 135414 | 546799 | 8313 | 448390 | 28942 | POLR2B | 168255 | 379340 | 16251 | 368645 | 33812 |
| ACTN2 | 077522 | 546208 | 376 | 438384 | 24025 | GDPD4 | 178795 | 376217 | 8314 | 365390 | 28943 | POLR2B | 168255 | 486319 | 16252 | 419146 | 33813 |
| ACTN2 | 077522 | 542672 | 377 | 443495 | 24026 | GDPD4 | 178795 | 315938 | 8315 | 320815 | 28944 | POLR2B | 168255 | 503564 | 16253 | N/A | |
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| ACTR3B | 133627 | 256001 | 379 | 256001 | 24028 | GDPD4 | 178795 | 532155 | 8317 | N/A | | POLR2B | 168255 | 508848 | 16255 | 425877 | 33814 |
| ACTR3B | 133627 | 397282 | 380 | 380452 | 24029 | GDPD4 | 178795 | 527489 | 8318 | N/A | | POLR2B | 168255 | 513506 | 16256 | 421085 | 33815 |
| ACTR3B | 133627 | 488782 | 381 | N/A | | GDPD4 | 178795 | 534245 | 8319 | N/A | | POLR2B | 168255 | 504677 | 16257 | N/A | |
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| ADAM11 | 073670 | 200557 | 383 | 200557 | 24030 | GDPD5 | 158555 | 527820 | 8321 | 437123 | 28946 | POLR2B | 168255 | 502415 | 16259 | N/A | |
| ADAM11 | 073670 | 355638 | 384 | 347856 | 24031 | GDPD5 | 158555 | 533784 | 8322 | 437049 | 28947 | POLR2B | 168255 | 507355 | 16260 | 426619 | 33816 |
| ADAM11 | 073670 | 535346 | 385 | 443773 | 24032 | GDPD5 | 158555 | 529721 | 8323 | 433214 | 28948 | POLR2B | 168255 | 608621 | 16261 | 477228 | 33817 |
| ADAM11 | 073670 | 587773 | 386 | 465537 | 24033 | GDPD5 | 158555 | 336898 | 8324 | 337972 | 28949 | POLR2B | 168255 | 511313 | 16262 | 422109 | 33818 |
| ADAM11 | 073670 | 588363 | 387 | N/A | | GDPD5 | 158555 | 533805 | 8325 | 435196 | 28950 | POLR2B | 168255 | 504157 | 16263 | N/A | |
| ADAM12 | 148848 | 368679 | 388 | 357668 | 24034 | GDPD5 | 158555 | 531759 | 8326 | N/A | | POLR2B | 168255 | 508910 | 16264 | N/A | |
| ADAM12 | 148848 | 368676 | 389 | 357665 | 24035 | GDPD5 | 158555 | 534322 | 8327 | 435728 | 28951 | POLR2B | 168255 | 621093 | 16265 | 483328 | 33819 |
| ADAM12 | 148848 | 467145 | 390 | N/A | | GDPD5 | 158555 | 531561 | 8328 | N/A | | POLR2B | 168255 | 443430 | 16266 | N/A | |
| ADAM12 | 148848 | 482291 | 391 | N/A | | GDPD5 | 158555 | 527322 | 8329 | N/A | | POLR2B | 168255 | 513438 | 16267 | 421950 | 33820 |
| ADAM12 | 148848 | 485388 | 392 | N/A | | GDPD5 | 158555 | 533911 | 8330 | N/A | | POLR2B | 168255 | 504101 | 16268 | N/A | |
| ADAM12 | 148848 | 448723 | 393 | 391268 | 24036 | GDPD5 | 158555 | 528031 | 8331 | N/A | | POLR2B | 168255 | 613744 | 16269 | 482932 | 33821 |
| ADAM12 | 148848 | 494661 | 394 | N/A | | GDPD5 | 158555 | 532435 | 8332 | 433727 | 28952 | PON2 | 105854 | 455123 | 16270 | 414515 | 33822 |
| ADAM19 | 135074 | 517951 | 395 | 428376 | 24037 | GDPD5 | 158555 | 529095 | 8333 | N/A | | PON2 | 105854 | 433091 | 16271 | 404622 | 33823 |
| ADAM19 | 135074 | 517374 | 396 | 431027 | 24038 | GDPD5 | 158555 | 524785 | 8334 | N/A | | PON2 | 105854 | 222572 | 16272 | 222572 | 33824 |
| ADAM19 | 135074 | 257527 | 397 | 257527 | 24039 | GDPD5 | 158555 | 531441 | 8335 | N/A | | PON2 | 105854 | 633192 | 16273 | 488378 | 33825 |
| ADAM19 | 135074 | 517905 | 398 | 428654 | 24040 | GDPD5 | 158555 | 443276 | 8336 | 396535 | 28953 | PON2 | 105854 | 483292 | 16274 | 488874 | 33826 |
| ADAM19 | 135074 | 519752 | 399 | N/A | | GEM | 164949 | 396194 | 8337 | 379497 | 28954 | PON2 | 105854 | 446142 | 16275 | 405211 | 33827 |
| ADAMTS10 | 142303 | 595838 | 400 | 470501 | 24041 | GEM | 164949 | 297596 | 8338 | 297596 | 28955 | PON2 | 105854 | 459842 | 16276 | N/A | |
| ADAMTS10 | 142303 | 593913 | 401 | 469901 | 24042 | GEM | 164949 | 523660 | 8339 | N/A | | PON2 | 105854 | 469926 | 16277 | 488550 | 33828 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADAMTS10 | 142303 | 597188 | 402 | 471851 | 24043 | GEM | 164949 | 521817 | 8340 | N/A | | PON2 | 105854 | 491069 | 16278 | 488462 | 33829 |
| ADAMTS10 | 142303 | 596851 | 403 | 469559 | 24044 | GEM | 164949 | 523433 | 8341 | 428258 | 28956 | PON2 | 105854 | 490778 | 16279 | 488826 | 33830 |
| ADAMTS10 | 142303 | 596911 | 404 | N/A | | GFAP | 131095 | 639277 | 8342 | 492432 | 28957 | PON2 | 105854 | 632034 | 16280 | 487898 | 33831 |
| ADAMTS10 | 142303 | 593826 | 405 | 469516 | 24045 | GFAP | 131095 | 588735 | 8343 | 466598 | 28958 | PON2 | 105854 | 493290 | 16281 | 488822 | 33832 |
| ADAMTS10 | 142303 | 596236 | 406 | N/A | | GFAP | 131095 | 638304 | 8344 | 491042 | 28959 | PON2 | 105854 | 478801 | 16282 | 487703 | 33833 |
| ADAMTS10 | 142303 | 603221 | 407 | N/A | | GFAP | 131095 | 441312 | 8345 | N/A | | PON2 | 105854 | 460873 | 16283 | N/A | |
| ADAMTS10 | 142303 | 601163 | 408 | N/A | | GFAP | 131095 | 639243 | 8346 | 491375 | 28960 | PON2 | 105854 | 493469 | 16284 | N/A | |
| ADAMTS10 | 142303 | 601872 | 409 | N/A | | GFAP | 131095 | 638488 | 8347 | N/A | | PON2 | 105854 | 471883 | 16285 | N/A | |
| ADAMTS10 | 142303 | 596709 | 410 | N/A | | GFAP | 131095 | 639369 | 8348 | 491243 | 28961 | PON2 | 105854 | 469716 | 16286 | N/A | |
| ADAMTS10 | 142303 | 596466 | 411 | N/A | | GFAP | 131095 | 592065 | 8349 | N/A | | PON2 | 105854 | 633531 | 16287 | 488838 | 33834 |
| ADAMTS10 | 142303 | 593534 | 412 | N/A | | GFAP | 131095 | 640859 | 8350 | 492300 | 28962 | POR | 127948 | 453773 | 16288 | 395813 | 33835 |
| ADAMTS10 | 142303 | 270328 | 413 | 270328 | 24046 | GFAP | 131095 | 638400 | 8351 | 491466 | 28963 | POR | 127948 | 439963 | 16289 | 390540 | 33836 |
| ADAMTS15 | 166106 | 299164 | 414 | 299164 | 24047 | GFAP | 131095 | 639042 | 8352 | 492860 | 28964 | POR | 127948 | 461988 | 16290 | 419970 | 33837 |
| ADAMTS16 | 145536 | 511368 | 415 | 421631 | 24048 | GFAP | 131095 | 640545 | 8353 | 491735 | 28965 | POR | 127948 | 448410 | 16291 | 399409 | 33838 |
| ADAMTS16 | 145536 | 274181 | 416 | 274181 | 24049 | GFAP | 131095 | 638921 | 8354 | N/A | | POR | 127948 | 421059 | 16292 | 409881 | 33839 |
| ADAMTS16 | 145536 | 433402 | 417 | N/A | | GFAP | 131095 | 253408 | 8355 | 253408 | 28966 | POR | 127948 | 471238 | 16293 | N/A | |
| ADAMTS16 | 145536 | 513709 | 418 | N/A | | GFAP | 131095 | 586125 | 8356 | 467397 | 28967 | POR | 127948 | 394893 | 16294 | 378355 | 33840 |
| ADAMTS17 | 140470 | 268070 | 419 | 268070 | 24050 | GFAP | 131095 | 638618 | 8357 | 492832 | 28968 | POR | 127948 | 412521 | 16295 | 409238 | 33841 |
| ADAMTS17 | 140470 | 557896 | 420 | N/A | | GFAP | 131095 | 589701 | 8358 | N/A | | POR | 127948 | 414186 | 16296 | 399327 | 33842 |
| ADAMTS17 | 140470 | 568565 | 421 | 456161 | 24051 | GFAP | 131095 | 592706 | 8359 | N/A | | POR | 127948 | 432753 | 16297 | 389409 | 33843 |
| ADAMTS17 | 140470 | 378898 | 422 | N/A | | GFAP | 131095 | 585543 | 8360 | N/A | | POR | 127948 | 449920 | 16298 | 399556 | 33844 |
| ADAMTS17 | 140470 | 559976 | 423 | N/A | | GFAP | 131095 | 591880 | 8361 | 467530 | 28969 | POR | 127948 | 418341 | 16299 | 389719 | 33845 |
| ADAMTS17 | 140470 | 560486 | 424 | N/A | | GFAP | 131095 | 588640 | 8362 | N/A | | POR | 127948 | 412064 | 16300 | 404731 | 33846 |
| ADAMTS17 | 140470 | 558960 | 425 | 453604 | 24052 | GFAP | 131095 | 640552 | 8363 | N/A | | POR | 127948 | 454934 | 16301 | 414263 | 33847 |
| ADAMTS17 | 140470 | 561355 | 426 | 458005 | 24053 | GFAP | 131095 | 435360 | 8364 | 403962 | 28970 | POR | 127948 | 447222 | 16302 | 393527 | 33848 |
| ADAMTS17 | 140470 | 558930 | 427 | N/A | | GFAP | 131095 | 591327 | 8365 | N/A | | POR | 127948 | 426184 | 16303 | 400964 | 33849 |
| ADAMTS18 | 140873 | 562332 | 428 | 454368 | 24054 | GFAP | 131095 | 638281 | 8366 | 491088 | 28971 | POR | 127948 | 439297 | 16304 | 403494 | 33850 |
| ADAMTS18 | 140873 | 282849 | 429 | 282849 | 24055 | GFAP | 131095 | 639921 | 8367 | 492156 | 28972 | POR | 127948 | 475509 | 16305 | N/A | |
| ADAMTS18 | 140873 | 568393 | 430 | N/A | | GFAP | 131095 | 592320 | 8368 | 465320 | 28973 | POR | 127948 | 460892 | 16306 | N/A | |
| ADAMTS18 | 140873 | 449265 | 431 | 392540 | 24056 | GFAP | 131095 | 586127 | 8369 | N/A | | POR | 127948 | 439269 | 16307 | 412490 | 33851 |
| ADAMTS18 | 140873 | 562345 | 432 | 457395 | 24057 | GFAP | 131095 | 586793 | 8370 | 468500 | 28974 | POR | 127948 | 496888 | 16308 | N/A | |
| ADAMTS18 | 140873 | 567914 | 433 | N/A | | GFAP | 131095 | 587997 | 8371 | N/A | | POR | 127948 | 487247 | 16309 | N/A | |
| ADAMTS18 | 140873 | 567121 | 434 | N/A | | GFAP | 131095 | 376990 | 8372 | 366189 | 28975 | POR | 127948 | 495770 | 16310 | N/A | |
| ADAMTS18 | 140873 | 564369 | 435 | N/A | | GFAP | 131095 | 591719 | 8373 | N/A | | POR | 127948 | 493973 | 16311 | N/A | |
| ADAMTS18 | 140873 | 569309 | 436 | N/A | | GFAP | 131095 | 590922 | 8374 | N/A | | POU3F2 | 184486 | 328345 | 16312 | 329170 | 33852 |
| ADAMTS2 | 087116 | 251582 | 437 | 251582 | 24058 | GFAP | 131095 | 588957 | 8375 | 465565 | 28976 | PPARG | 132170 | 397010 | 16313 | 380205 | 33853 |
| ADAMTS2 | 087116 | 522937 | 438 | N/A | | GFAP | 131095 | 588316 | 8376 | 465629 | 28977 | PPARG | 132170 | 397029 | 16314 | 380224 | 33854 |
| ADAMTS2 | 087116 | 523450 | 439 | N/A | | GFAP | 131095 | 585728 | 8377 | 465208 | 28978 | PPARG | 132170 | 309576 | 16315 | 312472 | 33855 |
| ADAMTS2 | 087116 | 518335 | 440 | 489888 | 24059 | GFAP | 131095 | 588037 | 8378 | 466163 | 28979 | PPARG | 132170 | 397015 | 16316 | 380210 | 33856 |
| ADAMTS2 | 087116 | 274609 | 441 | 274609 | 24060 | GFAP | 131095 | 593179 | 8379 | 467106 | 28980 | PPARG | 132170 | 455517 | 16317 | 411931 | 33857 |
| ADAMTS2 | 283802 | 639986 | 442 | 492346 | 24061 | GFRA2 | 168546 | 524240 | 8380 | 428518 | 28981 | PPARG | 132170 | 397012 | 16318 | 380207 | 33858 |
| ADAMTS2 | 283802 | 639510 | 443 | N/A | | GFRA2 | 168546 | 306793 | 8381 | 306654 | 28982 | PPARG | 132170 | 397026 | 16319 | 380221 | 33859 |
| ADAMTS2 | 283802 | 639035 | 444 | N/A | | GFRA2 | 168546 | 517328 | 8382 | 429445 | 28983 | PPARG | 132170 | 497594 | 16320 | N/A | |
| ADAMTS2 | 283802 | 638226 | 445 | 491140 | 24062 | GFRA2 | 168546 | 518077 | 8383 | 429206 | 28984 | PPARG | 132170 | 438682 | 16321 | 392285 | 33860 |
| ADAMTS2 | 283802 | 639107 | 446 | 492365 | 24063 | GFRA2 | 168546 | 517892 | 8384 | 429979 | 28985 | PPARG | 132170 | 397000 | 16322 | 380196 | 33861 |
| ADAMTS6 | 049192 | 381055 | 447 | 370443 | 24064 | GFRA2 | 168546 | 522071 | 8385 | 428721 | 28986 | PPARG | 132170 | 477039 | 16323 | N/A | |
| ADAMTS6 | 049192 | 381052 | 448 | 424377 | 24065 | GFRA2 | 168546 | 519195 | 8386 | 430622 | 28987 | PPARG | 132170 | 287820 | 16324 | 287820 | 33862 |
| ADAMTS6 | 049192 | 314351 | 449 | N/A | | GFRA2 | 168546 | 520676 | 8387 | N/A | | PPARG | 132170 | 397023 | 16325 | 380218 | 33863 |
| ADAMTS6 | 049192 | 417396 | 450 | N/A | | GHITM | 165678 | 372134 | 8388 | 361207 | 28988 | PPARG | 132170 | 396999 | 16326 | 380195 | 33864 |
| ADAMTS6 | 049192 | 470597 | 451 | N/A | | GHR | 112964 | 230882 | 8389 | 230882 | 28989 | PPFIA4 | 143847 | 367240 | 16327 | 356209 | 33865 |
| ADAMTS6 | 049192 | 464680 | 452 | N/A | | GHR | 112964 | 513671 | 8390 | 426739 | 28990 | PPFIA4 | 143847 | 447715 | 16328 | 402576 | 33866 |
| ADAMTS6 | 049192 | 504282 | 453 | N/A | | GHR | 112964 | 505006 | 8391 | N/A | | PPFIA4 | 143847 | 601609 | 16329 | N/A | |
| ADAMTS6 | 049192 | 502886 | 454 | N/A | | GHR | 112964 | 511135 | 8392 | 422333 | 28991 | PPFIA4 | 143847 | 600426 | 16330 | 470427 | 33867 |
| ADAMTS7 | 136378 | 388820 | 455 | 373472 | 24066 | GHR | 112964 | 513625 | 8393 | N/A | | PPFIA4 | 143847 | 272198 | 16331 | 272198 | 33868 |
| ADAMTS7 | 136378 | 569934 | 456 | N/A | | GHR | 112964 | 615111 | 8394 | 478291 | 28992 | PPFIA4 | 143847 | 599966 | 16332 | 471264 | 33869 |
| ADAMTS7 | 136378 | 566303 | 457 | N/A | | GHR | 112964 | 618088 | 8395 | 482373 | 28993 | PPFIA4 | 143847 | 600447 | 16333 | N/A | |
| ADAMTS7 | 136378 | 565793 | 458 | N/A | | GHR | 112964 | 357703 | 8396 | 350335 | 28994 | PPFIA4 | 143847 | 599514 | 16334 | 472251 | 33870 |
| ADAMTS7 | 136378 | 568712 | 459 | N/A | | GHR | 112964 | 537449 | 8397 | 442206 | 28995 | PPFIA4 | 143847 | 594656 | 16335 | N/A | |
| ADAMTS9 | 163638 | 498707 | 460 | 418735 | 24067 | GHR | 112964 | 612382 | 8398 | 478332 | 28996 | PPFIA4 | 143847 | 486360 | 16336 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADAMTS9 | 163638 | 477180 | 461 | N/A | | GHR | 112964 | 622294 | 8399 | 483926 | 28997 | PPFIA4 | 143847 | 597023 | 16337 | N/A | |
| ADAMTS9 | 163638 | 295903 | 462 | 295903 | 24068 | GHR | 112964 | 620156 | 8400 | 483403 | 28998 | PPFIA4 | 143847 | 594572 | 16338 | N/A | |
| ADAMTS9 | 163638 | 467257 | 463 | 478086 | 24069 | GHR | 112964 | 612626 | 8401 | 479846 | 28999 | PPFIA4 | 143847 | 295706 | 16339 | 295706 | 33871 |
| ADAMTS9 | 163638 | 481060 | 464 | 417521 | 24070 | GIPC2 | 137960 | 476882 | 8402 | N/A | | PPFIBP1 | 110841 | 538433 | 16340 | 442462 | 33872 |
| ADAMTS9 | 163638 | 482490 | 465 | N/A | | GIPC2 | 137960 | 370759 | 8403 | 359795 | 29000 | PPFIBP1 | 110841 | 545381 | 16341 | 445822 | 33873 |
| ADAMTS9 | 163638 | 475557 | 466 | N/A | | GIPR | 010310 | 590918 | 8404 | 467494 | 29001 | PPFIBP1 | 110841 | 545334 | 16342 | 438036 | 33874 |
| ADAMTS9 | 163638 | 459780 | 467 | 419217 | 24071 | GIPR | 010310 | 263281 | 8405 | 263281 | 29002 | PPFIBP1 | 110841 | 540114 | 16343 | 444304 | 33875 |
| ADAMTS9 | 163638 | 467119 | 468 | N/A | | GIPR | 010310 | 304207 | 8406 | 305321 | 29003 | PPFIBP1 | 110841 | 541633 | 16344 | N/A | |
| ADAMTS9 | 163638 | 494004 | 469 | N/A | | GIPR | 010310 | 585889 | 8407 | 467342 | 29004 | PPFIBP1 | 110841 | 537927 | 16345 | 445425 | 33876 |
| ADAMTSL3 | 156218 | 286744 | 470 | 286744 | 24072 | GIPR | 010310 | 591322 | 8408 | 465385 | 29005 | PPFIBP1 | 110841 | 318304 | 16346 | 314724 | 33877 |
| ADAMTSL3 | 156218 | 567476 | 471 | 456313 | 24073 | GIPR | 010310 | 588816 | 8409 | N/A | | PPFIBP1 | 110841 | 535047 | 16347 | 444046 | 33878 |
| ADAMTSL3 | 156218 | 569510 | 472 | N/A | | GIPR | 010310 | 591224 | 8410 | N/A | | PPFIBP1 | 110841 | 542629 | 16348 | 443442 | 33879 |
| ADAMTSL3 | 156218 | 561483 | 473 | N/A | | GIPR | 010310 | 593127 | 8411 | N/A | | PPFIBP1 | 110841 | 228425 | 16349 | 228425 | 33880 |
| ADAMTSL3 | 156218 | 565653 | 474 | N/A | | GJA1 | 152661 | 282561 | 8412 | 282561 | 29006 | PPFIBP1 | 110841 | 535575 | 16350 | 437438 | 33881 |
| ADAMTSL3 | 156218 | 567663 | 475 | N/A | | GJB1 | 169562 | 374029 | 8413 | 363141 | 29007 | PPFIBP1 | 110841 | 542187 | 16351 | 445132 | 33882 |
| ADAMTSL3 | 156218 | 562296 | 476 | N/A | | GJB1 | 169562 | 374022 | 8414 | 363134 | 29008 | PPFIBP1 | 110841 | 534917 | 16352 | N/A | |
| ADAMTSL3 | 156218 | 567716 | 477 | N/A | | GJB1 | 169562 | 447581 | 8415 | 407223 | 29009 | PPFIBP1 | 110841 | 537261 | 16353 | 443324 | 33883 |
| ADAMTSL4 | 143382 | 369041 | 478 | 358037 | 24074 | GJB1 | 169562 | 361726 | 8416 | 354900 | 29010 | PPFIBP1 | 110841 | 619325 | 16354 | 479763 | 33884 |
| ADAMTSL4 | 143382 | 483335 | 479 | N/A | | GJB4 | 189433 | 339480 | 8417 | 345868 | 29011 | PPFIBP1 | 110841 | 540503 | 16355 | N/A | |
| ADAMTSL4 | 143382 | 369038 | 480 | 358034 | 24075 | GJB6 | 121742 | 241124 | 8418 | 241124 | 29012 | PPFIBP1 | 110841 | 539326 | 16356 | 438174 | 33885 |
| ADAMTSL4 | 143382 | 489159 | 481 | N/A | | GJB6 | 121742 | 400066 | 8419 | 382939 | 29013 | PPFIBP1 | 110841 | 540256 | 16357 | N/A | |
| ADAMTSL4 | 143382 | 369039 | 482 | 358035 | 24076 | GJB6 | 121742 | 400065 | 8420 | 382938 | 29014 | PPFIBP2 | 166387 | 526873 | 16358 | 434641 | 33886 |
| ADAMTSL4 | 143382 | 271643 | 483 | 271643 | 24077 | GJB6 | 121742 | 356192 | 8421 | 348521 | 29015 | PPFIBP2 | 166387 | 528947 | 16359 | 431724 | 33887 |
| ADARB1 | 197381 | 462214 | 484 | N/A | | GJB6 | 121742 | 636852 | 8422 | 489698 | 29016 | PPFIBP2 | 166387 | 299492 | 16360 | 299492 | 33888 |
| ADARB1 | 197381 | 460734 | 485 | N/A | | GJC2 | 198835 | 366714 | 8423 | 355675 | 29017 | PPFIBP2 | 166387 | 527790 | 16361 | 434981 | 33889 |
| ADARB1 | 197381 | 389861 | 486 | N/A | | GJC3 | 176402 | 312891 | 8424 | 325775 | 29018 | PPFIBP2 | 166387 | 526046 | 16362 | 433026 | 33890 |
| ADARB1 | 197381 | 492414 | 487 | 436367 | 24078 | GJD2 | 159248 | 290374 | 8425 | 290374 | 29019 | PPFIBP2 | 166387 | 524548 | 16363 | 433917 | 33891 |
| ADARB1 | 197381 | 496664 | 488 | 435381 | 24079 | SLC1A3 | 079215 | 265113 | 8426 | 265113 | 29020 | PPFIBP2 | 166387 | 529575 | 16364 | 435794 | 33892 |
| ADARB1 | 197381 | 389863 | 489 | 374513 | 24080 | SLC1A3 | 079215 | 513903 | 8427 | 427203 | 29021 | PPFIBP2 | 166387 | 533792 | 16365 | 436498 | 33893 |
| ADARB1 | 197381 | 348831 | 490 | 015877 | 24081 | SLC1A3 | 079215 | 504121 | 8428 | N/A | | PPFIBP2 | 166387 | 532926 | 16366 | N/A | |
| ADARB1 | 197381 | 449478 | 491 | 387480 | 24082 | SLC1A3 | 079215 | 512374 | 8429 | N/A | | PPFIBP2 | 166387 | 525597 | 16367 | 433839 | 33894 |
| ADARB1 | 197381 | 464215 | 492 | N/A | | SLC1A3 | 079215 | 416645 | 8430 | N/A | | PPFIBP2 | 166387 | 529021 | 16368 | N/A | |
| ADARB1 | 197381 | 360697 | 493 | 353920 | 24083 | SLC1A3 | 079215 | 506725 | 8431 | N/A | | PPFIBP2 | 166387 | 528883 | 16369 | 435469 | 33895 |
| ADARB1 | 197381 | 481022 | 494 | N/A | | SLC1A3 | 079215 | 505202 | 8432 | 424986 | 29022 | PPFIBP2 | 166387 | 529321 | 16370 | N/A | |
| ADARB1 | 197381 | 631642 | 495 | N/A | | SLC1A3 | 079215 | 513646 | 8433 | 420992 | 29023 | PPFIBP2 | 166387 | 530189 | 16371 | N/A | |
| ADARB1 | 197381 | 437626 | 496 | 414600 | 24084 | SLC1A3 | 079215 | 502864 | 8434 | N/A | | PPFIBP2 | 166387 | 530181 | 16372 | 437321 | 33896 |
| ADARB1 | 197381 | 611195 | 497 | 478160 | 24085 | SLC1A3 | 079215 | 514563 | 8435 | N/A | | PPFIBP2 | 166387 | 532416 | 16373 | N/A | |
| ADARB1 | 197381 | 629643 | 498 | 486475 | 24086 | SLC1A3 | 079215 | 509272 | 8436 | N/A | | PPFIBP2 | 166387 | 534409 | 16374 | 433713 | 33897 |
| ADARB2 | 185736 | 381312 | 499 | 370713 | 24087 | SLC1A3 | 079215 | 505376 | 8437 | N/A | | PPFIBP2 | 166387 | 530582 | 16375 | N/A | |
| ADARB2 | 185736 | 381310 | 500 | 370711 | 24088 | SLC1A3 | 079215 | 506178 | 8438 | N/A | | PPFIBP2 | 166387 | 532381 | 16376 | N/A | |
| ADARB2 | 185736 | 474762 | 501 | N/A | | SLC1A3 | 079215 | 612708 | 8439 | 483657 | 29024 | PPFIBP2 | 166387 | 530081 | 16377 | 436739 | 33898 |
| ADARB2 | 185736 | 490172 | 502 | N/A | | SLC1A3 | 079215 | 381918 | 8440 | 371343 | 29025 | PPFIBP2 | 166387 | 532172 | 16378 | N/A | |
| ADARB2 | 185736 | 381305 | 503 | 370706 | 24089 | SLC1A3 | 079215 | 613445 | 8441 | 477672 | 29026 | PPFIBP2 | 166387 | 524495 | 16379 | N/A | |
| ADARB2 | 185736 | 477140 | 504 | N/A | | SLC1A3 | 079215 | 265113 | 8442 | 265113 | 29027 | PPFIBP2 | 166387 | 532112 | 16380 | N/A | |
| ADARB2 | 185736 | 469464 | 505 | N/A | | SLC1A3 | 079215 | 513903 | 8443 | 427203 | 29028 | PPFIBP2 | 166387 | 528929 | 16381 | N/A | |
| ADCY1 | 164742 | 432715 | 506 | 392721 | 24090 | SLC1A3 | 079215 | 504121 | 8444 | N/A | | PPFIBP2 | 166387 | 529664 | 16382 | N/A | |
| ADCY1 | 164742 | 297323 | 507 | 297323 | 24091 | SLC1A3 | 079215 | 512374 | 8445 | N/A | | PPFIBP2 | 166387 | 534552 | 16383 | 436489 | 33899 |
| ADCY1 | 164742 | 468353 | 508 | N/A | | SLC1A3 | 079215 | 416645 | 8446 | N/A | | PPM1E | 175175 | 308249 | 16384 | 312411 | 33900 |
| ADCY1 | 164742 | 621543 | 509 | 479770 | 24092 | SLC1A3 | 079215 | 506725 | 8447 | N/A | | PPM1H | 111110 | 228705 | 16385 | 228705 | 33901 |
| ADCYAP1R1 | 078549 | 304166 | 510 | 306620 | 24093 | SLC1A3 | 079215 | 505202 | 8448 | 424986 | 29029 | PPM1H | 111110 | 551214 | 16386 | N/A | |
| ADCYAP1R1 | 078549 | 409363 | 511 | 387335 | 24094 | SLC1A3 | 079215 | 513646 | 8449 | 420992 | 29030 | PPM1H | 111110 | 551519 | 16387 | N/A | |
| ADCYAP1R1 | 078549 | 431811 | 512 | 400893 | 24095 | SLC1A3 | 079215 | 502864 | 8450 | N/A | | PPM1H | 111110 | 548414 | 16388 | N/A | |
| ADCYAP1R1 | 078549 | 396211 | 513 | 379514 | 24096 | SLC1A3 | 079215 | 514563 | 8451 | N/A | | PPM1H | 111110 | 547857 | 16389 | N/A | |
| ADCYAP1R1 | 078549 | 409489 | 514 | 386395 | 24097 | SLC1A3 | 079215 | 509272 | 8452 | N/A | | PPM1J | 155367 | 471106 | 16390 | 474405 | 33902 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADCYAP1R1 | 078549 | 436116 | 515 | 416622 | 24098 | SLC1A3 | 079215 | 505376 | 8453 | N/A | | PPM1J | 155367 | 309276 | 16391 | 308926 | 33903 |
| ADCYAP1R1 | 078549 | 614107 | 516 | 483721 | 24099 | SLC1A3 | 079215 | 506178 | 8454 | N/A | | PPM1J | 155367 | 464951 | 16392 | 475711 | 33904 |
| ADD2 | 075340 | 403045 | 517 | 384303 | 24100 | SLC1A3 | 079215 | 612708 | 8455 | 483657 | 29031 | PPM1J | 155367 | 482367 | 16393 | 474145 | 33905 |
| ADD2 | 075340 | 264436 | 518 | 264436 | 24101 | SLC1A3 | 079215 | 381918 | 8456 | 371343 | 29032 | PPM1J | 155367 | 486709 | 16394 | N/A | |
| ADD2 | 075340 | 407644 | 519 | 384677 | 24102 | SLC1A3 | 079215 | 613445 | 8457 | 477672 | 29033 | PPP1R11 | 237403 | 455350 | 16395 | 397132 | 33906 |
| ADD2 | 075340 | 355733 | 520 | 347972 | 24103 | GLB1L3 | 166105 | 389887 | 8458 | 374537 | 29034 | PPP1R11 | 237403 | 448378 | 16396 | 403557 | 33907 |
| ADD2 | 075340 | 481675 | 521 | N/A | | GLB1L3 | 166105 | 431683 | 8459 | 396615 | 29035 | PPP1R11 | 237403 | 429382 | 16397 | 390917 | 33908 |
| ADD2 | 075340 | 522886 | 522 | 430243 | 24104 | GLB1L3 | 166105 | 532985 | 8460 | N/A | | PPP1R11 | 237403 | 418211 | 16398 | 411976 | 33909 |
| ADD2 | 075340 | 456320 | 523 | 414546 | 24105 | GLB1L3 | 166105 | 486034 | 8461 | N/A | | PPP1R11 | 237403 | 444101 | 16399 | 396522 | 33910 |
| ADD2 | 075340 | 413157 | 524 | 388072 | 24106 | GLB1L3 | 166105 | 498012 | 8462 | N/A | | PPP1R11 | 237403 | 430959 | 16400 | 399723 | 33911 |
| ADD2 | 075340 | 430656 | 525 | 398112 | 24107 | GLB1L3 | 166105 | 455971 | 8463 | 397929 | 29036 | PPP1R11 | 233314 | 441553 | 16401 | 392044 | 33912 |
| ADD2 | 075340 | 415348 | 526 | 412357 | 24108 | GLB1L3 | 166105 | 410100 | 8464 | N/A | | PPP1R11 | 233314 | 437937 | 16402 | 394056 | 33913 |
| ADD2 | 075340 | 425976 | 527 | 412681 | 24109 | GLB1L3 | 166105 | 467068 | 8465 | N/A | | PPP1R11 | 233314 | 446310 | 16403 | 400763 | 33914 |
| ADD2 | 075340 | 447731 | 528 | 403722 | 24110 | GLDC | 178445 | 321612 | 8466 | 370737 | 29037 | PPP1R11 | 233314 | 414618 | 16404 | 404824 | 33915 |
| ADD2 | 075340 | 473232 | 529 | N/A | | GLDC | 178445 | 638274 | 8467 | 491487 | 29038 | PPP1R11 | 233314 | 434591 | 16405 | 399965 | 33916 |
| ADD2 | 075340 | 496178 | 530 | N/A | | GLDC | 178445 | 639639 | 8468 | 491312 | 29039 | PPP1R11 | 233314 | 452227 | 16406 | 392260 | 33917 |
| ADGRA1 | 197177 | 607359 | 531 | 475778 | 24111 | GLDC | 178445 | 640505 | 8469 | N/A | | PPP1R11 | 236560 | 448550 | 16407 | 411693 | 33918 |
| ADGRA1 | 197177 | 392607 | 532 | 376384 | 24112 | GLDC | 178445 | 638233 | 8470 | N/A | | PPP1R11 | 236560 | 431424 | 16408 | 411038 | 33919 |
| ADGRA1 | 197177 | 392606 | 533 | 376383 | 24113 | GLDC | 178445 | 639364 | 8471 | N/A | | PPP1R11 | 236560 | 414032 | 16409 | 408173 | 33920 |
| ADGRA3 | 152990 | 511051 | 534 | 424927 | 24114 | GLDC | 178445 | 638661 | 8472 | 491369 | 29040 | PPP1R11 | 236560 | 439463 | 16410 | 416038 | 33921 |
| ADGRA3 | 152990 | 334304 | 535 | 334952 | 24115 | GLDC | 178445 | 639461 | 8473 | N/A | | PPP1R11 | 236560 | 451993 | 16411 | 415651 | 33922 |
| ADGRA3 | 152990 | 499527 | 536 | N/A | | GLDC | 178445 | 639954 | 8474 | N/A | | PPP1R11 | 236560 | 450177 | 16412 | 399167 | 33923 |
| ADGRA3 | 152990 | 282943 | 537 | N/A | | GLDC | 178445 | 639318 | 8475 | 491932 | 29041 | PPP1R11 | 234058 | 436591 | 16413 | 414808 | 33924 |
| ADGRA3 | 152990 | 504617 | 538 | N/A | | GLDC | 178445 | 638694 | 8476 | N/A | | PPP1R11 | 234058 | 448210 | 16414 | 414471 | 33925 |
| ADGRA3 | 152990 | 506155 | 539 | N/A | | GLDC | 178445 | 477960 | 8477 | N/A | | PPP1R11 | 234058 | 422273 | 16415 | 406410 | 33926 |
| ADGRA3 | 152990 | 508133 | 540 | 422606 | 24116 | GLDC | 178445 | 639443 | 8478 | N/A | | PPP1R11 | 234058 | 430828 | 16416 | 391581 | 33927 |
| ADGRA3 | 152990 | 502482 | 541 | 421006 | 24117 | GLDC | 178445 | 640592 | 8479 | N/A | | PPP1R11 | 234058 | 412077 | 16417 | 401267 | 33928 |
| ADGRA3 | 152990 | 514129 | 542 | 425223 | 24118 | GLDC | 178445 | 460457 | 8480 | N/A | | PPP1R11 | 234058 | 444994 | 16418 | 390548 | 33929 |
| ADGRA3 | 152990 | 506133 | 543 | N/A | | GLDC | 178445 | 640208 | 8481 | 491895 | 29042 | PPP1R11 | 204619 | 376773 | 16419 | 365964 | 33930 |
| ADGRA3 | 152990 | 513385 | 544 | N/A | | GLDC | 178445 | 463305 | 8482 | 491209 | 29043 | PPP1R11 | 204619 | 376772 | 16420 | 365963 | 33931 |
| ADGRA3 | 152990 | 514749 | 545 | N/A | | GLDC | 178445 | 640703 | 8483 | N/A | | PPP1R11 | 204619 | 376769 | 16421 | 365960 | 33932 |
| ADGRA3 | 152990 | 506346 | 546 | N/A | | GLDC | 178445 | 639493 | 8484 | N/A | | PPP1R11 | 204619 | 376765 | 16422 | 365956 | 33933 |
| ADGRG1 | 205336 | 565587 | 547 | 456781 | 24119 | GLDC | 178445 | 638654 | 8485 | 491101 | 29044 | PPP1R11 | 204619 | 376763 | 16423 | 365954 | 33934 |
| ADGRG1 | 205336 | 568791 | 548 | 454321 | 24120 | GLDC | 178445 | 639840 | 8486 | 491161 | 29045 | PPP1R11 | 204619 | 376758 | 16424 | 365949 | 33935 |
| ADGRG1 | 205336 | 570044 | 549 | 456166 | 24121 | GLDC | 178445 | 639020 | 8487 | 491392 | 29046 | PPP1R11 | 227720 | 433942 | 16425 | 399222 | 33936 |
| ADGRG1 | 205336 | 567553 | 550 | 455812 | 24122 | GLDN | 186417 | 335449 | 8488 | 335196 | 29047 | PPP1R11 | 227720 | 452679 | 16426 | 412297 | 33937 |
| ADGRG1 | 205336 | 565314 | 551 | 456469 | 24123 | GLDN | 186417 | 560215 | 8489 | 484633 | 29048 | PPP1R11 | 227720 | 417223 | 16427 | 412526 | 33938 |
| ADGRG1 | 205336 | 564912 | 552 | N/A | | GLDN | 186417 | 558286 | 8490 | N/A | | PPP1R11 | 227720 | 436833 | 16428 | 400589 | 33939 |
| ADGRG1 | 205336 | 562673 | 553 | N/A | | GLDN | 186417 | 560690 | 8491 | N/A | | PPP1R11 | 227720 | 428563 | 16429 | 406648 | 33940 |
| ADGRG1 | 205336 | 564907 | 554 | 455245 | 24124 | GLDN | 186417 | 559317 | 8492 | N/A | | PPP1R11 | 227720 | 449435 | 16430 | 409066 | 33941 |
| ADGRG1 | 205336 | 568908 | 555 | 457456 | 24125 | GLDN | 186417 | 464150 | 8493 | N/A | | PPP1R11 | 206501 | 400658 | 16431 | 383499 | 33942 |
| ADGRG1 | 205336 | 568909 | 556 | 455215 | 24126 | GLDN | 186417 | 396399 | 8494 | 379681 | 29049 | PPP1R11 | 206501 | 383612 | 16432 | 373107 | 33943 |
| ADGRG1 | 205336 | 566778 | 557 | 456796 | 24127 | GLDN | 186417 | 561194 | 8495 | N/A | | PPP1R11 | 206501 | 400657 | 16433 | 383498 | 33944 |
| ADGRG1 | 205336 | 562101 | 558 | N/A | | GLDN | 186417 | 558426 | 8496 | 453433 | 29050 | PPP1R11 | 206501 | 400656 | 16434 | 383497 | 33945 |
| ADGRG1 | 205336 | 561872 | 559 | N/A | | GLDN | 186417 | 612989 | 8497 | 479249 | 29051 | PPP1R11 | 206501 | 400655 | 16435 | 383496 | 33946 |
| ADGRG1 | 205336 | 561988 | 560 | 456238 | 24128 | GLI1 | 111087 | 532291 | 8498 | 436671 | 29052 | PPP1R11 | 206501 | 400654 | 16436 | 383495 | 33947 |
| ADGRG1 | 205336 | 567835 | 561 | 456794 | 24129 | GLI1 | 111087 | 228682 | 8499 | 228682 | 29053 | PPP1R11 | 237829 | 437171 | 16437 | 404779 | 33948 |
| ADGRG1 | 205336 | 569372 | 562 | 457979 | 24130 | GLI1 | 111087 | 528432 | 8500 | 434421 | 29054 | PPP1R11 | 237829 | 449087 | 16438 | 398205 | 33949 |
| ADGRG1 | 205336 | 563548 | 563 | 454263 | 24131 | GLI1 | 111087 | 530789 | 8501 | N/A | | PPP1R11 | 237829 | 431977 | 16439 | 407981 | 33950 |
| ADGRG1 | 205336 | 562003 | 564 | 454607 | 24132 | GLI1 | 111087 | 528467 | 8502 | 434408 | 29055 | PPP1R11 | 237829 | 433662 | 16440 | 410429 | 33951 |
| ADGRG1 | 205336 | 561833 | 565 | 458063 | 24133 | GLI1 | 111087 | 527742 | 8503 | N/A | | PPP1R11 | 237829 | 458506 | 16441 | 403611 | 33952 |
| ADGRG1 | 205336 | 569531 | 566 | 457307 | 24134 | GLI1 | 111087 | 543426 | 8504 | 437607 | 29056 | PPP1R11 | 237829 | 455887 | 16442 | 388044 | 33953 |
| ADGRG1 | 205336 | 565013 | 567 | 454364 | 24135 | GLI1 | 111087 | 546141 | 8505 | 441006 | 29057 | PPP1R14A | 167641 | 587515 | 16443 | 465811 | 33954 |
| ADGRG1 | 205336 | 561696 | 568 | 455600 | 24136 | GLI2 | 074047 | 482119 | 8506 | N/A | | PPP1R14A | 167641 | 591291 | 16444 | 466572 | 33955 |
| ADGRG1 | 205336 | 562414 | 569 | 456494 | 24137 | GLI2 | 074047 | 472722 | 8507 | N/A | | PPP1R14A | 167641 | 347262 | 16445 | 301243 | 33956 |
| ADGRG1 | 205336 | 561969 | 570 | 456002 | 24138 | GLI2 | 074047 | 418323 | 8508 | 398992 | 29058 | PPP1R14A | 167641 | 301242 | 16446 | 301242 | 33957 |
| ADGRG1 | 205336 | 568487 | 571 | N/A | | GLI2 | 074047 | 438299 | 8509 | 400593 | 29059 | PPP1R14A | 167641 | 591585 | 16447 | 465104 | 33958 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADGRG1 | 205336 | 562631 | 572 | 455351 | 24139 | GLI2 | 074047 | 452692 | 8510 | 403715 | 29060 | PPP1R15A | 087074 | 200453 | 16448 | 200453 | 33959 |
| ADGRG1 | 205336 | 563445 | 573 | 457073 | 24140 | GLI2 | 074047 | 445186 | 8511 | 397488 | 29061 | PPP1R15A | 087074 | 600406 | 16449 | 469239 | 33960 |
| ADGRG1 | 205336 | 562608 | 574 | N/A | | GLI2 | 074047 | 341310 | 8512 | 344473 | 29062 | PPP1R16B | 101445 | 299824 | 16450 | 299824 | 33961 |
| ADGRG1 | 205336 | 565338 | 575 | 457122 | 24141 | GLI2 | 074047 | 452319 | 8513 | 390436 | 29063 | PPP1R16B | 101445 | 373331 | 16451 | 362428 | 33962 |
| ADGRG1 | 205336 | 567702 | 576 | 456787 | 24142 | GLI2 | 074047 | 437950 | 8514 | 415773 | 29064 | PPP1R16B | 101445 | 468265 | 16452 | N/A | |
| ADGRG1 | 205336 | 567154 | 577 | 456632 | 24143 | GLI2 | 074047 | 435313 | 8515 | N/A | | PPP1R16B | 101445 | 463749 | 16453 | N/A | |
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| ADGRG1 | 205336 | 563007 | 579 | 454574 | 24145 | GLI2 | 074047 | 433812 | 8517 | 402383 | 29066 | PPP1R17 | 106341 | 409146 | 16455 | 386459 | 33964 |
| ADGRG1 | 205336 | 562558 | 580 | 456620 | 24146 | GLI2 | 074047 | 361492 | 8518 | 354586 | 29067 | PPP1R17 | 106341 | 498609 | 16456 | N/A | |
| ADGRG1 | 205336 | 566271 | 581 | 454855 | 24147 | GLI3 | 106571 | 395925 | 8519 | 379258 | 29068 | PPP1R1C | 150722 | 495820 | 16457 | N/A | |
| ADGRG1 | 205336 | 568645 | 582 | 454879 | 24148 | GLI3 | 106571 | 479210 | 8520 | N/A | | PPP1R1C | 150722 | 486067 | 16458 | N/A | |
| ADGRG1 | 205336 | 563374 | 583 | 455209 | 24149 | GLI3 | 106571 | 464291 | 8521 | N/A | | PPP1R1C | 150722 | 475249 | 16459 | N/A | |
| ADGRG1 | 205336 | 568234 | 584 | 458014 | 24150 | GLI3 | 106571 | 448703 | 8522 | 406135 | 29069 | PPP1R1C | 150722 | 464264 | 16460 | N/A | |
| ADGRG1 | 205336 | 565770 | 585 | 456603 | 24151 | GLI3 | 106571 | 437480 | 8523 | 407963 | 29070 | PPP1R1C | 150722 | 490645 | 16461 | N/A | |
| ADGRG1 | 205336 | 564338 | 586 | 457657 | 24152 | GLI3 | 106571 | 428534 | 8524 | N/A | | PPP1R1C | 150722 | 465612 | 16462 | N/A | |
| ADGRG1 | 205336 | 566164 | 587 | 455074 | 24153 | GLIPR1 | 139278 | 266659 | 8525 | 266659 | 29071 | PPP1R1C | 150722 | 409137 | 16463 | 386359 | 33965 |
| ADGRG1 | 205336 | 567397 | 588 | 455226 | 24154 | GLIPR1 | 139278 | 536703 | 8526 | 440595 | 29072 | PPP1R1C | 150722 | 280295 | 16464 | 280295 | 33966 |
| ADGRG1 | 205336 | 568979 | 589 | 455553 | 24155 | GLIPR1 | 139278 | 456650 | 8527 | 391144 | 29073 | PPP1R1C | 150722 | 409702 | 16465 | 386778 | 33967 |
| ADGRG1 | 205336 | 569992 | 590 | N/A | | GLIPR1 | 139278 | 550491 | 8528 | 448008 | 29074 | PPP1R1C | 150722 | 479855 | 16466 | N/A | |
| ADGRG1 | 205336 | 566123 | 591 | 457143 | 24156 | GLIPR2 | 122694 | 377959 | 8529 | 367195 | 29075 | PPP1R1C | 150722 | 461410 | 16467 | N/A | |
| ADGRG1 | 205336 | 562682 | 592 | 456819 | 24157 | GLIPR2 | 122694 | 377960 | 8530 | 367196 | 29076 | PPP1R1C | 150722 | 494189 | 16468 | N/A | |
| ADGRG1 | 205336 | 561782 | 593 | 455176 | 24158 | GLIPR2 | 122694 | 474050 | 8531 | N/A | | PPP1R36 | 165807 | 298705 | 16469 | 298705 | 33968 |
| ADGRG1 | 205336 | 564783 | 594 | 454490 | 24159 | GLIPR2 | 122694 | 619700 | 8532 | 478768 | 29077 | PPP1R36 | 165807 | 555645 | 16470 | 451900 | 33969 |
| ADGRG1 | 205336 | 564729 | 595 | 455965 | 24160 | GLIPR2 | 122694 | 396613 | 8533 | 379857 | 29078 | PPP1R36 | 165807 | 467261 | 16471 | 435229 | 33970 |
| ADGRG1 | 205336 | 565976 | 596 | 454933 | 24161 | GLIS1 | 174332 | 312233 | 8534 | 309653 | 29079 | PPP1R36 | 165807 | 557202 | 16472 | 452491 | 33971 |
| ADGRG1 | 205336 | 566888 | 597 | N/A | | GLIS1 | 174332 | 628545 | 8535 | 486112 | 29080 | PPP1R36 | 165807 | 554400 | 16473 | N/A | |
| ADGRG1 | 205336 | 562804 | 598 | N/A | | GLIS3 | 107249 | 324333 | 8536 | 325494 | 29081 | PPP1R36 | 165807 | 556023 | 16474 | N/A | |
| ADGRG1 | 205336 | 566508 | 599 | 454779 | 24162 | GLIS3 | 107249 | 461870 | 8537 | N/A | | PPP2CA | 113575 | 481195 | 16475 | 418447 | 33972 |
| ADGRG1 | 205336 | 565539 | 600 | 457612 | 24163 | GLIS3 | 107249 | 381971 | 8538 | 371398 | 29082 | PPP2CA | 113575 | 472253 | 16476 | N/A | |
| ADGRG1 | 205336 | 567915 | 601 | 457063 | 24164 | GLIS3 | 107249 | 467497 | 8539 | N/A | | PPP2CA | 113575 | 495833 | 16477 | N/A | |
| ADGRG1 | 205336 | 569132 | 602 | N/A | | GLIS3 | 107249 | 463680 | 8540 | N/A | | PPP2CA | 113575 | 522385 | 16478 | 430869 | 33973 |
| ADGRG1 | 205336 | 564103 | 603 | 457994 | 24165 | GLIS3 | 107249 | 464391 | 8541 | N/A | | PPP2CA | 113575 | 523082 | 16479 | 428816 | 33974 |
| ADGRG1 | 205336 | 562467 | 604 | 456256 | 24166 | GLIS3 | 107249 | 469833 | 8542 | N/A | | PPP2CA | 113575 | 231504 | 16480 | N/A | |
| ADGRG1 | 205336 | 568700 | 605 | N/A | | GLIS3 | 107249 | 490709 | 8543 | N/A | | PPP2R2C | 074211 | 335585 | 16481 | 335083 | 33975 |
| ADGRG1 | 205336 | 540164 | 606 | 444911 | 24167 | GLIS3 | 107249 | 473846 | 8544 | N/A | | PPP2R2C | 074211 | 506140 | 16482 | 423649 | 33976 |
| ADGRG1 | 205336 | 568531 | 607 | 456682 | 24168 | GLIS3 | 107249 | 462164 | 8545 | 418671 | 29083 | PPP2R2C | 074211 | 515571 | 16483 | 422374 | 33977 |
| ADGRG1 | 205336 | 564360 | 608 | 457223 | 24169 | GLIS3 | 107249 | 478315 | 8546 | 418995 | 29084 | PPP2R2C | 074211 | 382599 | 16484 | 372042 | 33978 |
| ADGRG1 | 205336 | 568074 | 609 | 458087 | 24170 | GLIS3 | 107249 | 478844 | 8547 | 418005 | 29085 | PPP2R2C | 074211 | 507294 | 16485 | 425247 | 33979 |
| ADGRG1 | 205336 | 563414 | 610 | 456147 | 24171 | GLIS3 | 107249 | 481827 | 8548 | 417883 | 29086 | PPP2R2C | 074211 | 513943 | 16486 | N/A | |
| ADGRG1 | 205336 | 568618 | 611 | 454233 | 24172 | GLIS3 | 107249 | 491889 | 8549 | 419914 | 29087 | PPP2R2C | 074211 | 314348 | 16487 | N/A | |
| ADGRG1 | 205336 | 569494 | 612 | 456362 | 24173 | GLIS3 | 107249 | 477901 | 8550 | 417794 | 29088 | PPP2R2C | 074211 | 509917 | 16488 | 423650 | 33980 |
| ADGRG1 | 205336 | 566169 | 613 | 456263 | 24174 | GLIS3 | 107249 | 465708 | 8551 | N/A | | PPP2R2C | 074211 | 507028 | 16489 | N/A | |
| ADGRG1 | 205336 | 568157 | 614 | 454289 | 24175 | GLIS3 | 107249 | 471664 | 8552 | N/A | | PPP4R4 | 119698 | 304338 | 16490 | 305924 | 33981 |
| ADGRG1 | 205336 | 569154 | 615 | 456544 | 24176 | GLP2R | 065325 | 574745 | 8553 | 458242 | 29089 | PPP4R4 | 119698 | 328839 | 16491 | 330831 | 33982 |
| ADGRG1 | 205336 | 569101 | 616 | 457953 | 24177 | GLP2R | 065325 | 262441 | 8554 | 262441 | 29090 | PPP4R4 | 119698 | 553661 | 16492 | 451543 | 33983 |
| ADGRG1 | 205336 | 563862 | 617 | 457806 | 24178 | GLP2R | 065325 | 458005 | 8555 | 404471 | 29091 | PPP4R4 | 119698 | 556884 | 16493 | 452121 | 33984 |
| ADGRG1 | 205336 | 564722 | 618 | 456599 | 24179 | GLP2R | 065325 | 304773 | 8556 | 303605 | 29092 | PPP4R4 | 119698 | 555690 | 16494 | N/A | |
| ADGRG1 | 205336 | 569158 | 619 | 457635 | 24180 | GLRA1 | 145888 | 274576 | 8557 | 274576 | 29093 | PPP4R4 | 119698 | 556470 | 16495 | 451556 | 33985 |
| ADGRG1 | 205336 | 566187 | 620 | 457178 | 24181 | GLRA1 | 145888 | 462581 | 8558 | 430595 | 29094 | PPP4R4 | 278326 | 630860 | 16496 | 487248 | 33986 |
| ADGRG1 | 205336 | 565505 | 621 | N/A | | GLRA1 | 145888 | 455880 | 8559 | 411593 | 29095 | PPP4R4 | 278326 | 619905 | 16497 | 480902 | 33987 |
| ADGRG1 | 205336 | 565391 | 622 | 456731 | 24182 | GLRA1 | 145888 | 471351 | 8560 | N/A | | PPP4R4 | 278326 | 614957 | 16498 | 482849 | 33988 |
| ADGRG1 | 205336 | 456916 | 623 | 398034 | 24183 | GLUD1 | 148672 | 277865 | 8561 | 277865 | 29096 | PPP4R4 | 278326 | 628432 | 16499 | 487271 | 33989 |
| ADGRL3 | 150471 | 512091 | 624 | 423388 | 24184 | GLUD1 | 148672 | 487058 | 8562 | N/A | | PPP4R4 | 278326 | 630154 | 16500 | 486247 | 33990 |
| ADGRL3 | 150471 | 509779 | 625 | N/A | | GLUD1 | 148672 | 465164 | 8563 | N/A | | PPP6R2 | 100239 | 359139 | 16501 | 352051 | 33991 |
| ADGRL3 | 150471 | 514591 | 626 | 422533 | 24185 | GLUD1 | 148672 | 474574 | 8564 | N/A | | PPP6R2 | 100239 | 395741 | 16502 | 379090 | 33992 |
| ADGRL3 | 150471 | 509896 | 627 | 423787 | 24186 | GLUL | 135821 | 331872 | 8565 | 356537 | 29097 | PPP6R2 | 100239 | 395744 | 16503 | 379093 | 33993 |
| ADGRL3 | 150471 | 511324 | 628 | 423033 | 24187 | GLUL | 135821 | 491322 | 8566 | N/A | | PPP6R2 | 100239 | 216061 | 16504 | 216061 | 33994 |
| ADGRL3 | 150471 | 506700 | 629 | 424120 | 24188 | GLUL | 135821 | 339526 | 8567 | 344958 | 29098 | PPP6R2 | 100239 | 401672 | 16505 | 384532 | 33995 |
| ADGRL3 | 150471 | 507164 | 630 | 421476 | 24189 | GLUL | 135821 | 463851 | 8568 | N/A | | PPP6R2 | 100239 | 427222 | 16506 | 391595 | 33996 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADGRL3 | 150471 | 508693 | 631 | 424030 | 24190 | GLUL | 135821 | 461447 | 8569 | N/A | | PPP6R2 | 100239 | 473283 | 16507 | N/A | |
| ADGRL3 | 150471 | 507625 | 632 | 421372 | 24191 | GLUL | 135821 | 484996 | 8570 | N/A | | PPP6R2 | 100239 | 470046 | 16508 | N/A | |
| ADGRL3 | 150471 | 514157 | 633 | 425201 | 24192 | GLUL | 135821 | 489818 | 8571 | N/A | | PPP6R2 | 100239 | 612753 | 16509 | 478417 | 33997 |
| ADGRL3 | 150471 | 504896 | 634 | 423434 | 24193 | GLUL | 135821 | 475808 | 8572 | N/A | | PRAG1 | 275342 | 615670 | 16510 | 481109 | 33998 |
| ADGRL3 | 150471 | 508946 | 635 | 421627 | 24194 | GLUL | 135821 | 480604 | 8573 | N/A | | PRAG1 | 275342 | 622241 | 16511 | 479068 | 33999 |
| ADGRL3 | 150471 | 506720 | 636 | 420931 | 24195 | GLUL | 135821 | 462444 | 8574 | N/A | | PRDM1 | 057657 | 369091 | 16512 | 358087 | 34000 |
| ADGRL3 | 150471 | 506746 | 637 | 423884 | 24196 | GLUL | 135821 | 311223 | 8575 | 307900 | 29099 | PRDM1 | 057657 | 369096 | 16513 | 358092 | 34001 |
| ADGRL3 | 150471 | 514996 | 638 | 424258 | 24197 | GLUL | 135821 | 417584 | 8576 | 398320 | 29100 | PRDM1 | 057657 | 424894 | 16514 | 395566 | 34002 |
| ADGRL3 | 150471 | 509089 | 639 | N/A | | C6orf163 | 203872 | 388923 | 8577 | 373575 | 29101 | PRDM1 | 057657 | 489365 | 16515 | N/A | |
| ADGRL3 | 150471 | 502815 | 640 | 424402 | 24198 | C6orf163 | 203872 | 608326 | 8578 | 477323 | 29102 | PRDM1 | 057657 | 450060 | 16516 | 399772 | 34003 |
| ADGRL3 | 150471 | 508078 | 641 | N/A | | C6orf163 | 203872 | 369574 | 8579 | N/A | | PRDM1 | 057657 | 481163 | 16517 | N/A | |
| ADGRV1 | 164199 | 508842 | 642 | 425936 | 24199 | C6orf163 | 203872 | 608891 | 8580 | N/A | | PRDM1 | 057657 | 369089 | 16518 | 358085 | 34004 |
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| ADGRV1 | 164199 | 640083 | 648 | N/A | | TF | 091513 | 494430 | 8586 | 418396 | 29106 | PRDM8 | 152784 | 508061 | 16524 | N/A | |
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| ADGRV1 | 164199 | 639530 | 677 | N/A | | GNA12 | 146535 | 485329 | 8615 | N/A | | PRICKLE1 | 139174 | 640801 | 16553 | 491473 | 34025 |
| ADGRV1 | 164199 | 639212 | 678 | N/A | | GNA12 | 146535 | 447791 | 8616 | 391462 | 29120 | PRICKLE1 | 139174 | 551050 | 16554 | 446970 | 34026 |
| ADM | 148926 | 278175 | 679 | 278175 | 24215 | GNAL | 141404 | 334049 | 8617 | 334051 | 29121 | PRICKLE1 | 139174 | 547113 | 16555 | 446699 | 34027 |
| ADM | 148926 | 534464 | 680 | 431438 | 24216 | GNAL | 141404 | 585590 | 8618 | N/A | | PRICKLE1 | 139174 | 640646 | 16556 | 492483 | 34028 |
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| ADM | 148926 | 525063 | 685 | 435124 | 24221 | GNAL | 141404 | 590972 | 8623 | N/A | | PRIMA1 | 175785 | 477603 | 16561 | 434370 | 34030 |
| ADM | 148926 | 528544 | 686 | 434749 | 24222 | GNAL | 141404 | 590228 | 8624 | 467709 | 29126 | PRIMA1 | 175785 | 393143 | 16562 | 376851 | 34031 |
| ADORA1 | 163485 | 309502 | 687 | 308549 | 24223 | GNAL | 141404 | 602628 | 8625 | 473600 | 29127 | PRIMA1 | 175785 | 316227 | 16563 | 320948 | 34032 |
| ADORA1 | 163485 | 367236 | 688 | 356205 | 24224 | GNAL | 141404 | 586926 | 8626 | 466709 | 29128 | PRIMA1 | 274089 | 629961 | 16564 | 486953 | 34033 |
| ADORA1 | 163485 | 367235 | 689 | 356204 | 24225 | GNAO1 | 087258 | 262493 | 8627 | 262493 | 29129 | PRIMA1 | 274089 | 627063 | 16565 | 486875 | 34034 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADORA1 | 163485 | 464019 | 690 | N/A | | GNAO1 | 087258 | 569295 | 8628 | 492271 | 29130 | PRIMA1 | 274089 | 617019 | 16566 | 479855 | 34035 |
| ADORA1 | 163485 | 472535 | 691 | N/A | | GNAO1 | 087258 | 638705 | 8629 | 491223 | 29131 | PRIMA1 | 274089 | 611347 | 16567 | 479082 | 34036 |
| ADORA1 | 163485 | 467253 | 692 | N/A | | GNAO1 | 087258 | 262494 | 8630 | 262494 | 29132 | PRKAG2 | 106617 | 287878 | 16568 | 287878 | 34037 |
| ADORA1 | 163485 | 337894 | 693 | 338435 | 24226 | GNAO1 | 087258 | 570235 | 8631 | 477740 | 29133 | PRKAG2 | 106617 | 418337 | 16569 | 387386 | 34038 |
| ADORA1 | 163485 | 640524 | 694 | 491900 | 24227 | GNAO1 | 087258 | 563661 | 8632 | 492694 | 29134 | PRKAG2 | 106617 | 492843 | 16570 | 419577 | 34039 |
| ADORA1 | 163485 | 618295 | 695 | 483953 | 24228 | GNAO1 | 087258 | 639966 | 8633 | N/A | | PRKAG2 | 106617 | 392801 | 16571 | 376549 | 34040 |
| ADORA2B | 170425 | 304222 | 696 | 304501 | 24229 | GNAO1 | 087258 | 640893 | 8634 | 492677 | 29135 | PRKAG2 | 106617 | 479461 | 16572 | N/A | |
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| ADRA1A | 120907 | 380582 | 700 | 369956 | 24232 | GNAO1 | 087258 | 639251 | 8638 | N/A | | PRKAG2 | 106617 | 476632 | 16576 | 419493 | 34043 |
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| ADRA1B | 170214 | 641205 | 709 | 493019 | 24239 | GNAO1 | 087258 | 640560 | 8647 | N/A | | PRKAG3 | 115592 | 529249 | 16585 | 436068 | 34046 |
| ADRA1B | 170214 | 641475 | 710 | N/A | | GNAO1 | 087258 | 568375 | 8648 | 491143 | 29140 | PRKAG3 | 115592 | 470307 | 16586 | 419272 | 34047 |
| ADRA1B | 170214 | 306675 | 711 | 306662 | 24240 | GNAO1 | 087258 | 640469 | 8649 | 491875 | 29141 | PRKAG3 | 115592 | 490971 | 16587 | N/A | |
| ADRA1D | 171873 | 379453 | 712 | 368766 | 24241 | GNAO1 | 087258 | 564727 | 8650 | 454971 | 29142 | PRKAG3 | 115592 | 430489 | 16588 | 416100 | 34048 |
| ADRA1D | 171873 | 621688 | 713 | N/A | | GNAO1 | 087258 | 639787 | 8651 | N/A | | PRKAG3 | 115592 | 439262 | 16589 | 397133 | 34049 |
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| ADRB2 | 169252 | 305988 | 715 | 305372 | 24243 | GNB3 | 111664 | 540458 | 8653 | N/A | | PRKCB | 166501 | 303531 | 16591 | 305355 | 34051 |
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| AFAP1 | 196526 | 382543 | 721 | 371983 | 24247 | GNB3 | 111664 | 542868 | 8659 | N/A | | PRKCB | 166501 | 463752 | 16597 | N/A | |
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| AFAP1 | 196526 | 612691 | 725 | N/A | | GNG12 | 172380 | 370982 | 8663 | 360021 | 29150 | PRKCD | 163932 | 394729 | 16601 | 378217 | 34057 |
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| AFAP1L1 | 157510 | 296721 | 729 | 296721 | 24251 | GNG2 | 186469 | 556522 | 8667 | 450904 | 29153 | PRKCD | 163932 | 464818 | 16605 | 419629 | 34060 |
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| AFAP1L1 | 157510 | 508444 | 732 | N/A | | GNG2 | 186469 | 554832 | 8670 | N/A | | PRKCG | 126583 | 263431 | 16608 | 263431 | 34063 |
| AFAP1L1 | 157510 | 513665 | 733 | N/A | | GNG2 | 186469 | 553299 | 8671 | N/A | | PRKCG | 126583 | 419486 | 16609 | 387919 | 34064 |
| AFAP1L2 | 169129 | 304129 | 734 | 303042 | 24253 | GNG2 | 186469 | 335281 | 8672 | 334448 | 29156 | PRKCQ | 065675 | 539722 | 16610 | 441752 | 34065 |
| AFAP1L2 | 169129 | 369271 | 735 | 358276 | 24254 | GNG2 | 186469 | 557208 | 8673 | N/A | | PRKCQ | 065675 | 263125 | 16611 | 263125 | 34066 |
| AFAP1L2 | 169129 | 491814 | 736 | N/A | | GNG2 | 186469 | 555472 | 8674 | 451102 | 29157 | PRKCQ | 065675 | 610727 | 16612 | 483428 | 34067 |
| AFAP1L2 | 169129 | 486300 | 737 | N/A | | GNG2 | 186469 | 556766 | 8675 | 451231 | 29158 | PRKCQ | 065675 | 397176 | 16613 | 380361 | 34068 |
| AFAP1L2 | 169129 | 419268 | 738 | 396781 | 24255 | GNG2 | 186469 | 554840 | 8676 | N/A | | PRKD3 | 115825 | 379066 | 16614 | 368356 | 34069 |
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| AGBL2 | 165923 | 528609 | 766 | 431912 | 24274 | GPATCH4 | 160818 | 497287 | 8704 | N/A | | PRMT8 | 111218 | 543701 | 16642 | N/A | |
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| AGPAT3 | 160216 | 291572 | 780 | 291572 | 24283 | GPC2 | 213420 | 490629 | 8718 | N/A | | PRODH | 100033 | 420436 | 16656 | 410805 | 34093 |
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| AGPAT3 | 160216 | 497909 | 792 | N/A | | GPHN | 171723 | 315266 | 8730 | 312771 | 29184 | PRODH | 100033 | 496625 | 16668 | N/A | |
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| AGPAT3 | 160216 | 467358 | 795 | N/A | | GPHN | 171723 | 543237 | 8733 | 438404 | 29187 | PROX1 | 117707 | 366958 | 16671 | 355925 | 34101 |
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| AGPAT4 | 026652 | 366905 | 801 | 355872 | 24297 | GPHN | 171723 | 544752 | 8739 | N/A | | PRR5 | 186654 | 432186 | 16677 | 400925 | 34106 |
| AGPAT4 | 026652 | 366911 | 802 | 355878 | 24298 | GPHN | 171723 | 555456 | 8740 | 450706 | 29192 | PRR5 | 186654 | 492475 | 16678 | N/A | |
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| AGRN | 188157 | 469403 | 805 | N/A | | GPHN | 171723 | 555503 | 8743 | 452009 | 29193 | PRR5 | 186654 | 403581 | 16681 | 384848 | 34108 |
| AGRN | 188157 | 479707 | 806 | N/A | | GPHN | 171723 | 557678 | 8744 | N/A | | PRR5 | 186654 | 492289 | 16682 | N/A | |
| AGRN | 188157 | 466223 | 807 | N/A | | GPHN | 171723 | 556240 | 8745 | 450442 | 29194 | PRR5 | 186654 | 336985 | 16683 | 337464 | 34109 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| AGRN | 188157 | 419249 | 810 | 400771 | 24301 | GPNMB | 136235 | 258733 | 8748 | 258733 | 29195 | PRR5 | 186654 | 431834 | 16686 | 407637 | 34112 |
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| AGRN | 188157 | 620552 | 812 | 484607 | 24302 | GPNMB | 136235 | 409458 | 8750 | 386476 | 29197 | PRR5 | 186654 | 477331 | 16688 | N/A | |
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| AHRR | 063438 | 505113 | 822 | 424601 | 24311 | GPR107 | 148358 | 372406 | 8760 | 361483 | 29198 | PRR5L | 135362 | 527172 | 16698 | 433708 | 34118 |
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| AHRR | 063438 | 510400 | 826 | 428893 | 24315 | GPR107 | 148358 | 483935 | 8764 | N/A | | PRR5L | 135362 | 389693 | 16702 | N/A | |
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| AHRR | 063438 | 504625 | 828 | 429944 | 24317 | GPR107 | 148358 | 372410 | 8766 | 361487 | 29201 | PRR5L | 135362 | 526682 | 16704 | 436485 | 34123 |
| AHRR | 063438 | 506456 | 829 | 426932 | 24318 | GPR107 | 148358 | 610997 | 8767 | 483750 | 29202 | PRR5L | 135362 | 532843 | 16705 | N/A | |
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| AHRR | 063438 | 507048 | 832 | N/A | | GPR153 | 158292 | 377893 | 8770 | 367125 | 29205 | PRR5L | 135362 | 532578 | 16708 | N/A | |
| AHSA1 | 100591 | 555133 | 833 | 451569 | 24320 | GPR161 | 143147 | 367838 | 8771 | 356812 | 29206 | PRR5L | 135362 | 530050 | 16709 | 432203 | 34125 |
| AHSA1 | 100591 | 216479 | 834 | 216479 | 24321 | GPR161 | 143147 | 478868 | 8772 | N/A | | PRR5L | 135362 | 526679 | 16710 | 436402 | 34126 |
| AHSA1 | 100591 | 535854 | 835 | 440108 | 24322 | GPR161 | 143147 | 367836 | 8773 | 356810 | 29207 | PRR5L | 135362 | 527487 | 16711 | 435241 | 34127 |
| AHSA1 | 100591 | 554156 | 836 | N/A | | GPR161 | 143147 | 367835 | 8774 | 356809 | 29208 | PRR5L | 135362 | 525672 | 16712 | N/A | |
| AHSA1 | 100591 | 555517 | 837 | 451467 | 24323 | GPR161 | 143147 | 493800 | 8775 | N/A | | PRR5L | 135362 | 529020 | 16713 | N/A | |
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| AHSA1 | 100591 | 553374 | 840 | 451475 | 24324 | GPR161 | 143147 | 271357 | 8778 | 271357 | 29210 | PRRC1 | 164244 | 512871 | 16716 | N/A | |
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| AHSA1 | 100591 | 555729 | 842 | 452127 | 24325 | GPR161 | 143147 | 537209 | 8780 | 441039 | 29212 | PRRC1 | 164244 | 512635 | 16718 | 421965 | 34130 |
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| AHSA1 | 100591 | 557476 | 845 | N/A | | GPR22 | 172209 | 496754 | 8783 | N/A | | PRRG3 | 130032 | 448726 | 16721 | 411509 | 34131 |
| MYORG | 164976 | 297625 | 846 | 297625 | 24327 | GPR22 | 283812 | 638179 | 8784 | N/A | | PRRG3 | 130032 | 370354 | 16722 | 359379 | 34132 |
| MYORG | 164976 | 379142 | 847 | 368437 | 24328 | GPR22 | 283812 | 639742 | 8785 | 492841 | 29214 | PRRG3 | 130032 | 370353 | 16723 | 359378 | 34133 |
| AK4 | 162433 | 497030 | 848 | N/A | | GPR22 | 283812 | 640321 | 8786 | N/A | | PRRG3 | 130032 | 448324 | 16724 | 394121 | 34134 |
| AK4 | 162433 | 470888 | 849 | N/A | | GPR34 | 171659 | 378142 | 8787 | 367384 | 29215 | PRRG3 | 130032 | 538575 | 16725 | 440217 | 34135 |
| AK4 | 162433 | 546702 | 850 | 448458 | 24329 | GPR34 | 171659 | 378138 | 8788 | 367378 | 29216 | PRRT2 | 167371 | 568516 | 16726 | N/A | |
| AK4 | 162433 | 327299 | 851 | 322175 | 24330 | GPR34 | 171659 | 620846 | 8789 | 480296 | 29217 | PRRT2 | 167371 | 637596 | 16727 | 489805 | 34136 |
| AK4 | 162433 | 474968 | 852 | N/A | | GPR37 | 170775 | 303921 | 8790 | 306449 | 29218 | PRRT2 | 167371 | 562148 | 16728 | 454634 | 34137 |
| AK4 | 162433 | 479060 | 853 | N/A | | GPR37L1 | 170075 | 367282 | 8791 | 356251 | 29219 | PRRT2 | 167371 | 637542 | 16729 | N/A | |
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| AK4 | 162433 | 395334 | 855 | 378743 | 24332 | GPR84 | 139572 | 267015 | 8793 | 267015 | 29221 | PRRT2 | 167371 | 358758 | 16731 | 351608 | 34138 |
| AKAIN1 | 231824 | 580650 | 856 | 462259 | 24333 | GPR84 | 139572 | 551809 | 8794 | 450310 | 29222 | PRRT2 | 167371 | 636131 | 16732 | 490390 | 34139 |
| AKAIN1 | 231824 | 434239 | 857 | 399075 | 24334 | GPRASP2 | 158301 | 332262 | 8795 | 339057 | 29223 | PRRT2 | 167371 | 567551 | 16733 | 489813 | 34140 |
| AKAP13 | 170776 | 560571 | 858 | N/A | | GPRASP2 | 158301 | 483720 | 8796 | N/A | | PRRT2 | 167371 | 637290 | 16734 | 490278 | 34141 |
| AKAP13 | 170776 | 559362 | 859 | 453768 | 24335 | GPRASP2 | 158301 | 486814 | 8797 | N/A | | PRRT2 | 167371 | 567659 | 16735 | 456226 | 34142 |
| AKAP13 | 170776 | 560302 | 860 | 453634 | 24336 | GPRASP2 | 158301 | 543253 | 8798 | 437872 | 29224 | PRRT2 | 167371 | 637565 | 16736 | 490207 | 34143 |
| AKAP13 | 170776 | 394518 | 861 | 378026 | 24337 | GPRASP2 | 158301 | 535209 | 8799 | 437394 | 29225 | PRRT2 | 167371 | 636619 | 16737 | 489669 | 34144 |
| AKAP13 | 170776 | 361243 | 862 | 354718 | 24338 | GPRC5C | 170412 | 482723 | 8800 | N/A | | PRRT2 | 167371 | 636019 | 16738 | N/A | |
| AKAP13 | 170776 | 560256 | 863 | 453620 | 24339 | GPRC5C | 170412 | 582873 | 8801 | N/A | | PRRT2 | 167371 | 300797 | 16739 | 300797 | 34145 |
| AKAP13 | 170776 | 558166 | 864 | 452622 | 24340 | GPRC5C | 170412 | 342648 | 8802 | 340595 | 29226 | PRRT2 | 167371 | 637403 | 16740 | 489782 | 34146 |
| AKAP13 | 170776 | 558811 | 865 | 452698 | 24341 | GPRC5C | 170412 | 481232 | 8803 | 462147 | 29227 | PRRT2 | 167371 | 572820 | 16741 | 458291 | 34147 |
| AKAP13 | 170776 | 560340 | 866 | 483091 | 24342 | GPRC5C | 170412 | 582444 | 8804 | 463813 | 29228 | PRRT2 | 167371 | 637064 | 16742 | 490826 | 34148 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AKAP13 | 170776 | 560676 | 867 | 481485 | 24343 | GPRC5C | 170412 | 582473 | 8805 | 462440 | 29229 | PRRT2 | 167371 | 636246 | 16743 | 489948 | 34149 |
| AKAP13 | 170776 | 560579 | 868 | 477780 | 24344 | GPRC5C | 170412 | 577663 | 8806 | N/A | | PRRT2 | 167371 | 636902 | 16744 | 489935 | 34150 |
| AKAP13 | 170776 | 559486 | 869 | 453205 | 24345 | GPRC5C | 170412 | 581590 | 8807 | 463090 | 29230 | PRRT2 | 167371 | 637425 | 16745 | N/A | |
| AKAP13 | 170776 | 612418 | 870 | 482058 | 24346 | GPRC5C | 170412 | 392629 | 8808 | 376405 | 29231 | PRRT4 | 224940 | 489835 | 16746 | 419296 | 34151 |
| AKAP13 | 170776 | 560957 | 871 | N/A | | GPRC5C | 170412 | 392628 | 8809 | 376404 | 29232 | PRRT4 | 224940 | 480290 | 16747 | 417878 | 34152 |
| AKAP13 | 170776 | 558092 | 872 | N/A | | GPRC5C | 170412 | 392627 | 8810 | 376403 | 29233 | PRRT4 | 224940 | 489517 | 16748 | 419282 | 34153 |
| AKAP13 | 170776 | 557852 | 873 | 480789 | 24347 | GPSM2 | 121957 | 406462 | 8811 | 385510 | 29234 | PRRT4 | 224940 | 464607 | 16749 | 420155 | 34154 |
| AKAP13 | 170776 | 560482 | 874 | N/A | | GPSM2 | 121957 | 435987 | 8812 | 408664 | 29235 | PRRT4 | 224940 | 495931 | 16750 | 419221 | 34155 |
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| AKAP13 | 170776 | 560185 | 880 | N/A | | GPX2 | 176153 | 389614 | 8818 | 374265 | 29241 | PRRX1 | 116132 | 497230 | 16756 | 450762 | 34160 |
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| AKNA | 106948 | 223791 | 884 | 223791 | 24350 | GRAMD2B | 155324 | 513040 | 8822 | 426120 | 29245 | PRRX1 | 116132 | 496573 | 16760 | N/A | |
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| AKNA | 106948 | 312033 | 888 | 309222 | 24352 | GRAMD2B | 155324 | 514932 | 8826 | N/A | | PSD2 | 146005 | 274710 | 16764 | 274710 | 34164 |
| AKNA | 106948 | 307564 | 889 | 303769 | 24353 | GRAMD2B | 155324 | 513913 | 8827 | N/A | | PSRC1 | 134222 | 369904 | 16765 | 358920 | 34165 |
| AKNA | 106948 | 374079 | 890 | 363192 | 24354 | GRAMD2B | 155324 | 505720 | 8828 | N/A | | PSRC1 | 134222 | 409267 | 16766 | 386323 | 34166 |
| AKR1C1 | 187134 | 477661 | 891 | N/A | | GRAMD2B | 155324 | 514099 | 8829 | 423236 | 29249 | PSRC1 | 134222 | 369907 | 16767 | 358923 | 34167 |
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| AKR1C2 | 151632 | 604507 | 899 | 474566 | 24360 | GRAMD2B | 155324 | 512579 | 8837 | N/A | | PSRC1 | 134222 | 471740 | 16775 | N/A | |
| AKR1C2 | 151632 | 604184 | 900 | N/A | | GRAMD2B | 155324 | 503702 | 8838 | N/A | | PSRC1 | 134222 | 369909 | 16776 | 358925 | 34173 |
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| AKR1C2 | 151632 | 604711 | 902 | N/A | | GRAMD2B | 155324 | 544396 | 8840 | 444049 | 29254 | PSTPIP2 | 152229 | 409746 | 16778 | 387261 | 34175 |
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| AKR1C3 | 196139 | 480697 | 913 | N/A | | GRB10 | 106070 | 357271 | 8851 | 349818 | 29264 | PTCHD4 | 244694 | 398738 | 16789 | 381722 | 34182 |
| AKR1C3 | 196139 | 605322 | 914 | N/A | | GRB10 | 106070 | 407526 | 8852 | 385046 | 29265 | PTER | 165983 | 535784 | 16790 | 439485 | 34183 |
| AKR1C3 | 196139 | 603312 | 915 | N/A | | GRB10 | 106070 | 401949 | 8853 | 385770 | 29266 | PTER | 165983 | 378000 | 16791 | 367239 | 34184 |
| AKR1C3 | 196139 | 603484 | 916 | N/A | | GRB10 | 106070 | 402497 | 8854 | 385748 | 29267 | PTER | 165983 | 485788 | 16792 | N/A | |
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| AKR1C4 | 198610 | 380448 | 918 | 369814 | 24366 | GRB10 | 106070 | 473696 | 8856 | N/A | | PTER | 165983 | 298942 | 16794 | 298942 | 34186 |
| AKR1C4 | 198610 | 263126 | 919 | 263126 | 24367 | GRB10 | 106070 | 482397 | 8857 | N/A | | PTGES3 | 110958 | 537473 | 16795 | N/A | |
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| ALAS2 | 158578 | 330807 | 921 | 332369 | 24369 | GRB10 | 106070 | 439044 | 8859 | 413023 | 29269 | PTGES3 | 110958 | 414274 | 16797 | 405299 | 34188 |
| ALAS2 | 158578 | 335854 | 922 | 337131 | 24370 | GRB10 | 106070 | 465602 | 8860 | N/A | | PTGES3 | 110958 | 436399 | 16798 | 402385 | 34189 |
| ALAS2 | 158578 | 498636 | 923 | N/A | | GRB10 | 106070 | 483819 | 8861 | N/A | | PTGES3 | 110958 | 448157 | 16799 | 414892 | 34190 |
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| ALAS2 | 158578 | 477869 | 925 | N/A | | GRB10 | 106070 | 483157 | 8863 | N/A | | PTGES3 | 110958 | 614328 | 16801 | 482075 | 34192 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| ALDH1A1 | 165092 | 297785 | 937 | 297785 | 24376 | GRB14 | 115290 | 469573 | 8875 | N/A | | PTK2B | 120899 | 517339 | 16813 | 427931 | 34200 |
| ALDH1A1 | 165092 | 376939 | 938 | 366138 | 24377 | GRB14 | 115290 | 424693 | 8876 | 401702 | 29275 | PTK2B | 120899 | 521000 | 16814 | N/A | |
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| ALDH1A1 | 165092 | 419959 | 940 | 388026 | 24378 | GRB7 | 141738 | 309156 | 8878 | 310771 | 29277 | PTK2B | 120899 | 397497 | 16816 | N/A | |
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| ALDH1A1 | 165092 | 297785 | 944 | 297785 | 24380 | GRB7 | 141738 | 584819 | 8882 | N/A | | PTK2B | 120899 | 522245 | 16820 | N/A | |
| ALDH1A1 | 165092 | 376939 | 945 | 366138 | 24381 | GRB7 | 141738 | 394211 | 8883 | 377761 | 29279 | PTK2B | 120899 | 420218 | 16821 | 391995 | 34202 |
| ALDH1A1 | 165092 | 482210 | 946 | N/A | | GRB7 | 141738 | 578702 | 8884 | N/A | | PTK7 | 112655 | 230419 | 16822 | 230419 | 34203 |
| ALDH1A1 | 165092 | 419959 | 947 | 388026 | 24382 | GRB7 | 141738 | 445327 | 8885 | 403459 | 29280 | PTK7 | 112655 | 476760 | 16823 | 417607 | 34204 |
| ALDH1A1 | 165092 | 446946 | 948 | 401361 | 24383 | GRB7 | 141738 | 394209 | 8886 | 377759 | 29281 | PTK7 | 112655 | 470019 | 16824 | 420322 | 34205 |
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| ALDH1A1 | 165092 | 493311 | 950 | N/A | | GRB7 | 141738 | 394204 | 8888 | 377754 | 29282 | PTK7 | 112655 | 349241 | 16826 | 325462 | 34207 |
| ALDH1A3 | 184254 | 561338 | 951 | 452789 | 24384 | GRB7 | 141738 | 461756 | 8889 | N/A | | PTK7 | 112655 | 352931 | 16827 | 326029 | 34208 |
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| ALDH1L1 | 144908 | 273450 | 958 | 273450 | 24389 | GREB1 | 196208 | 470980 | 8896 | N/A | | PTK7 | 112655 | 489707 | 16834 | 420765 | 34213 |
| ALDH1L1 | 144908 | 472186 | 959 | 420293 | 24390 | GREB1 | 196208 | 432985 | 8897 | 403886 | 29288 | PTK7 | 112655 | 470471 | 16835 | N/A | |
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| ALDH1L1 | 144908 | 462808 | 963 | N/A | | GREB1L | 141449 | 584446 | 8901 | N/A | | PTK7 | 112655 | 497957 | 16839 | 418462 | 34216 |
| ALDH1L1 | 144908 | 476245 | 964 | N/A | | GREB1L | 141449 | 269218 | 8902 | 269218 | 29291 | PTK7 | 112655 | 473339 | 16840 | 420186 | 34217 |
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| ALDH1L1 | 144908 | 413612 | 966 | N/A | | GREB1L | 141449 | 578368 | 8904 | N/A | | PTMS | 159335 | 540667 | 16842 | N/A | |
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| ALDH1L1 | 144908 | 393431 | 974 | 377081 | 24400 | GRHL1 | 134317 | 439493 | 8912 | 387521 | 29297 | PTN | 105894 | 393083 | 16850 | 376798 | 34224 |
| ALDH1L1 | 144908 | 455064 | 975 | 414126 | 24401 | GRHL1 | 134317 | 497403 | 8913 | N/A | | PTP4A1 | 112245 | 639568 | 16851 | N/A | |
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| ALDH1L2 | 136010 | 258494 | 977 | 258494 | 24402 | GRHL1 | 134317 | 324907 | 8915 | 324693 | 29299 | PTP4A1 | 112245 | 370651 | 16853 | 359685 | 34225 |
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| ALDH1L2 | 136010 | 548418 | 979 | 447464 | 24404 | GRHL1 | 134317 | 494520 | 8917 | N/A | | PTP4A1 | 112245 | 473334 | 16855 | N/A | |
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| ALDH6A1 | 119711 | 553458 | 981 | 450436 | 24405 | GRHL1 | 134317 | 405379 | 8919 | 384209 | 29302 | PTP4A1 | 112245 | 627002 | 16857 | 487586 | 34228 |
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| ALDH6A1 | 119711 | 350259 | 983 | 342564 | 24406 | GRIA1 | 155511 | 520353 | 8921 | N/A | | PTP4A3 | 275575 | 633621 | 16859 | 487610 | 34230 |
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| | | | | | | | | | | | | | | | | | |
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| ALDOC | 109107 | 435638 | 994 | 398976 | 24414 | GRIA1 | 155511 | 520966 | 8932 | N/A | | PTP4A3 | 184489 | 520105 | 16870 | 428758 | 34235 |
| ALDOC | 109107 | 578590 | 995 | 463118 | 24415 | GRIA3 | 125675 | 616590 | 8933 | 479607 | 29309 | PTP4A3 | 184489 | 523147 | 16871 | 428725 | 34236 |
| ALDOC | 109107 | 582381 | 996 | N/A | | GRIA3 | 125675 | 611689 | 8934 | 478758 | 29310 | PTP4A3 | 184489 | 524028 | 16872 | 430332 | 34237 |
| ALK | 171094 | 642122 | 997 | 493203 | 24416 | GRIA3 | 125675 | 541091 | 8935 | 446440 | 29311 | PTP4A3 | 184489 | 329397 | 16873 | 332274 | 34238 |
| ALK | 171094 | 389048 | 998 | 373700 | 24417 | GRIA3 | 125675 | 620443 | 8936 | 478489 | 29312 | PTP4A3 | 184489 | 349124 | 16874 | 331730 | 34239 |
| ALK | 171094 | 431873 | 999 | 414027 | 24418 | GRIA3 | 125675 | 479118 | 8937 | N/A | | PTPN14 | 152104 | 366956 | 16875 | 355923 | 34240 |
| ALK | 171094 | 638605 | 1000 | N/A | | GRIA3 | 125675 | 477389 | 8938 | N/A | | PTPN14 | 152104 | 473261 | 16876 | N/A | |
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| ALOX5 | 012779 | 498461 | 1017 | N/A | | GRID2IP | 215045 | 435185 | 8955 | 408364 | 29325 | PTPN3 | 070159 | 497739 | 16893 | N/A | |
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| ALOX5 | 012779 | 612635 | 1019 | 483803 | 24426 | GRIK1 | 171189 | 327783 | 8957 | 327687 | 29327 | PTPN3 | 070159 | 446349 | 16895 | 395384 | 34252 |
| ALS2 | 003393 | 264276 | 1020 | 264276 | 24427 | GRIK1 | 171189 | 389125 | 8958 | 373777 | 29328 | PTPN3 | 070159 | 262539 | 16896 | 262539 | 34253 |
| ALS2 | 003393 | 439495 | 1021 | 403832 | 24428 | GRIK1 | 171189 | 399913 | 8959 | 382797 | 29329 | PTPN5 | 110786 | 477854 | 16897 | 435056 | 34254 |
| ALS2 | 003393 | 489440 | 1022 | N/A | | GRIK1 | 171189 | 399914 | 8960 | 382798 | 29330 | PTPN5 | 110786 | 358540 | 16898 | 351342 | 34255 |
| ALS2 | 003393 | 482891 | 1023 | N/A | | GRIK1 | 171189 | 389124 | 8961 | 373776 | 29331 | PTPN5 | 110786 | 396166 | 16899 | 379469 | 34256 |
| ALS2 | 003393 | 494017 | 1024 | N/A | | GRIK1 | 171189 | 399907 | 8962 | 382791 | 29332 | PTPN5 | 110786 | 396170 | 16900 | 379473 | 34257 |
| ALS2 | 003393 | 483703 | 1025 | N/A | | GRIK1 | 171189 | 399909 | 8963 | 382795 | 29333 | PTPN5 | 110786 | 396168 | 16901 | 379471 | 34258 |
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| ALS2 | 003393 | 467448 | 1027 | 429223 | 24429 | GRIK2 | 164418 | 421544 | 8965 | 397026 | 29334 | PTPRB | 127329 | 334414 | 16903 | 334928 | 34259 |
| ALS2 | 003393 | 496244 | 1028 | N/A | | GRIK2 | 164418 | 413795 | 8966 | 405596 | 29335 | PTPRB | 127329 | 550358 | 16904 | 448058 | 34260 |
| ALS2 | 003393 | 409632 | 1029 | 386384 | 24430 | GRIK2 | 164418 | 369138 | 8967 | 358134 | 29336 | PTPRB | 127329 | 538708 | 16905 | 438927 | 34261 |
| ALS2 | 003393 | 410052 | 1030 | 386948 | 24431 | GRIK2 | 164418 | 358361 | 8968 | 351128 | 29337 | PTPRB | 127329 | 550857 | 16906 | 447302 | 34262 |
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| ALS2CR12 | 155749 | 286190 | 1032 | 286190 | 24432 | GRIK2 | 164418 | 436862 | 8970 | 407140 | 29339 | PTPRB | 127329 | 549400 | 16908 | N/A | |
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| ALS2CR12 | 155749 | 494171 | 1034 | N/A | | GRIK2 | 164418 | 487161 | 8972 | N/A | | PTPRB | 127329 | 548122 | 16910 | 446982 | 34265 |
| ALS2CR12 | 155749 | 392257 | 1035 | 376086 | 24434 | GRIK2 | 164418 | 369134 | 8973 | 358130 | 29340 | PTPRB | 127329 | 538174 | 16911 | N/A | |
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| ALS2CR12 | 155749 | 425488 | 1038 | 393945 | 24436 | GRIK3 | 163873 | 373091 | 8976 | 362183 | 29343 | PTPRE | 132334 | 254667 | 16914 | 254667 | 34267 |
| ALS2CR12 | 155749 | 448967 | 1039 | N/A | | GRIK3 | 163873 | 373093 | 8977 | 362185 | 29344 | PTPRE | 132334 | 442830 | 16915 | 410540 | 34268 |
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| AMPD3 | 133805 | 532250 | 1043 | 432707 | 24439 | GRIN2A | 183454 | 461292 | 8981 | N/A | | PTPRE | 132334 | 306042 | 16919 | 303350 | 34272 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AMPD3 | 133805 | 295663 | 1044 | N/A | | GRIN2A | 183454 | 636273 | 8982 | N/A | | PTPRE | 132334 | 487428 | 16920 | N/A | |
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| AMPD3 | 133805 | 530864 | 1057 | N/A | | GRIN2B | 273079 | 637214 | 8995 | 489997 | 29352 | PTPRK | 152894 | 368226 | 16933 | 357209 | 34281 |
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| AMZ1 | 174945 | 480560 | 1063 | N/A | | GRIN2B | 273079 | 630791 | 9001 | 486677 | 29354 | PTPRK | 152894 | 415046 | 16939 | 406825 | 34287 |
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| AMZ1 | 174945 | 433945 | 1065 | N/A | | GRIN2B | 273079 | 637875 | 9003 | N/A | | PTPRK | 152894 | 531050 | 16941 | 432960 | 34289 |
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| ANKRD37 | 186352 | 335174 | 1081 | 335147 | 24461 | GRIP1 | 155974 | 543172 | 9019 | 443860 | 29365 | PTPRK | 273993 | 618215 | 16957 | 484742 | 34296 |
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| ANKRD37 | 186352 | 506424 | 1084 | N/A | | GRIP1 | 155974 | 542309 | 9022 | 438500 | 29368 | PTPRK | 273993 | 626594 | 16960 | 487005 | 34299 |
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| ANKRD42 | 137494 | 526731 | 1088 | 433585 | 24465 | GRIP1 | 155974 | 359742 | 9026 | 352780 | 29372 | PTPRK | 273993 | 626859 | 16964 | N/A | |
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| ANLN | 011426 | 265748 | 1094 | 265748 | 24470 | GRK4 | 125388 | 398052 | 9032 | 381129 | 29378 | PTPRK | 273993 | 627390 | 16970 | N/A | |
| ANLN | 011426 | 396068 | 1095 | 379380 | 24471 | GRK4 | 125388 | 345167 | 9033 | 264764 | 29379 | PTPRK | 273993 | 627786 | 16971 | N/A | |
| ANLN | 011426 | 424865 | 1096 | 404979 | 24472 | GRK4 | 125388 | 504933 | 9034 | 427445 | 29380 | PTPRK | 273993 | 629834 | 16972 | N/A | |
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| ANLN | 011426 | 460598 | 1098 | N/A | | GRK4 | 125388 | 505271 | 9036 | N/A | | PTPRK | 273993 | 621720 | 16974 | 482183 | 34305 |
| ANLN | 011426 | 429082 | 1099 | 398712 | 24474 | GRK4 | 125388 | 509545 | 9037 | N/A | | PTPRK | 273993 | 627768 | 16975 | 485893 | 34306 |
| ANLN | 011426 | 441696 | 1100 | 397465 | 24475 | GRK4 | 125388 | 511827 | 9038 | N/A | | PTPRK | 273993 | 625700 | 16976 | N/A | |
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| ANLN | 011426 | 495714 | 1102 | N/A | | GRK5 | 198873 | 392870 | 9040 | 376609 | 29381 | PTPRM | 173482 | 332175 | 16978 | 331418 | 34308 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| ANO4 | 262139 | 573650 | 1107 | 469449 | 24480 | GRM1 | 152822 | 355289 | 9045 | 347437 | 29383 | PTPRM | 173482 | 578698 | 16983 | N/A | |
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| ANO4 | 262139 | 570509 | 1109 | 471431 | 24482 | GRM1 | 152822 | 507907 | 9047 | 425599 | 29385 | PTPRM | 173482 | 577468 | 16985 | 464128 | 34312 |
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| ANO6 | 177119 | 426898 | 1118 | N/A | | GRM4 | 124493 | 609278 | 9056 | 477016 | 29392 | PTPRN | 054356 | 460801 | 16994 | N/A | |
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| ANXA3 | 138772 | 264908 | 1125 | 264908 | 24493 | GRM5 | 168959 | 305432 | 9063 | 305905 | 29396 | PTPRN | 054356 | 412847 | 17001 | 388429 | 34319 |
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| AOX1 | 138356 | 374700 | 1135 | 363832 | 24500 | GRM7 | 196277 | 440923 | 9073 | 412329 | 29406 | PTPRO | 151490 | 281171 | 17011 | 281171 | 34325 |
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| AOX1 | 138356 | 465297 | 1138 | N/A | | GRM7 | 196277 | 435689 | 9076 | 405194 | 29409 | PTPRO | 151490 | 545023 | 17014 | N/A | |
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| AOX1 | 138356 | 472553 | 1140 | N/A | | GRM7 | 196277 | 463676 | 9078 | N/A | | PTPRO | 151490 | 542557 | 17016 | 437571 | 34329 |
| AOX1 | 138356 | 260930 | 1141 | 260930 | 24502 | GRM7 | 196277 | 445087 | 9079 | 395035 | 29410 | PTPRO | 151490 | 445537 | 17017 | 393449 | 34330 |
| AOX1 | 138356 | 439380 | 1142 | 413326 | 24503 | GRM7 | 196277 | 458641 | 9080 | N/A | | PTPRO | 151490 | 544244 | 17018 | 439234 | 34331 |
| AP1S3 | 152056 | 443700 | 1143 | 397155 | 24504 | GRM7 | 196277 | 471242 | 9081 | N/A | | PTPRO | 151490 | 535311 | 17019 | 445621 | 34332 |
| AP1S3 | 152056 | 415298 | 1144 | 401705 | 24505 | GRM7 | 196277 | 402647 | 9082 | 384585 | 29411 | PTPRO | 151490 | 538907 | 17020 | N/A | |
| AP1S3 | 152056 | 334271 | 1145 | 333888 | 24506 | GRM8 | 179603 | 339582 | 9083 | 344173 | 29412 | PTPRO | 151490 | 535322 | 17021 | 446201 | 34333 |
| AP1S3 | 152056 | 396654 | 1146 | 379891 | 24507 | GRM8 | 179603 | 358373 | 9084 | 351142 | 29413 | PTPRO | 151490 | 544706 | 17022 | N/A | |
| AP1S3 | 152056 | 396653 | 1147 | 379890 | 24508 | GRM8 | 179603 | 489939 | 9085 | N/A | | PTPRR | 153233 | 440835 | 17023 | 391750 | 34334 |
| AP1S3 | 152056 | 446015 | 1148 | 388738 | 24509 | GRM8 | 179603 | 341617 | 9086 | 345747 | 29414 | PTPRR | 153233 | 537619 | 17024 | N/A | |
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| AP1S3 | 152056 | 409375 | 1150 | 387199 | 24511 | GRM8 | 179603 | 472701 | 9088 | 419832 | 29415 | PTPRR | 153233 | 547752 | 17026 | N/A | |
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| APBA2 | 276495 | 633212 | 1153 | N/A | | GRM8 | 179603 | 457830 | 9091 | 415522 | 29416 | PTPRR | 153233 | 549308 | 17029 | 446943 | 34338 |
| APBA2 | 276495 | 612449 | 1154 | 483174 | 24514 | GRM8 | 179603 | 465844 | 9092 | 418255 | 29417 | PTPRR | 153233 | 549107 | 17030 | N/A | |
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| APBA2 | 276495 | 632415 | 1157 | 488620 | 24517 | GRM8 | 179603 | 473254 | 9095 | N/A | | PTPRR | 153233 | 378778 | 17033 | 368054 | 34340 |
| APBA2 | 276495 | 631996 | 1158 | 488031 | 24518 | GRM8 | 179603 | 412160 | 9096 | 398012 | 29418 | PTPRT | 196090 | 373187 | 17034 | 362283 | 34341 |
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| APBA2 | 276495 | 632204 | 1160 | N/A | | GSAP | 186088 | 491796 | 9098 | N/A | | PTPRT | 196090 | 373184 | 17036 | 362280 | 34343 |
| APBA2 | 034053 | 561069 | 1161 | 453144 | 24520 | GSAP | 186088 | 449779 | 9099 | N/A | | PTPRT | 196090 | 373190 | 17037 | 362286 | 34344 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| APBA2 | 034053 | 558259 | 1171 | 454171 | 24528 | GSAP | 186088 | 430584 | 9109 | 402748 | 29422 | PTPRZ1 | 106278 | 471837 | 17047 | N/A | |
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| APBB2 | 163697 | 502687 | 1180 | N/A | | GSN | 148180 | 394353 | 9118 | 377882 | 29429 | PTTG1 | 164611 | 519287 | 17056 | N/A | |
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| APBB2 | 163697 | 512510 | 1182 | 426429 | 24538 | GSN | 148180 | 373818 | 9120 | 362924 | 29431 | PTTG1 | 164611 | 523659 | 17058 | N/A | |
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| APBB2 | 163697 | 514920 | 1184 | 421751 | 24540 | GSN | 148180 | 373807 | 9122 | N/A | | PTTG1 | 164611 | 352433 | 17060 | 344936 | 34357 |
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| APBB2 | 163697 | 508676 | 1195 | 422723 | 24546 | GSTM1 | 134184 | 369819 | 9133 | 358834 | 29438 | PVALB | 274665 | 628345 | 17071 | 487336 | 34365 |
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| APCDD1 | 154856 | 355285 | 1203 | 347433 | 24549 | GSX1 | 169840 | 302945 | 9141 | 304331 | 29442 | PVALB | 100362 | 467935 | 17079 | N/A | |
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| APCDD1 | 154856 | 582723 | 1205 | 463110 | 24551 | GTF2A1L | 242441 | 437125 | 9143 | 396702 | 29444 | PXDC1 | 168994 | 477592 | 17081 | N/A | |
| APCDD1 | 154856 | 578882 | 1206 | 463104 | 24552 | GTF2A1L | 242441 | 403751 | 9144 | 384597 | 29445 | PXDC1 | 168994 | 380277 | 17082 | 369630 | 34374 |
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| APCDD1 | 154856 | 579685 | 1208 | 464649 | 24554 | GTF2A1L | 242441 | 468326 | 9146 | N/A | | PXDC1 | 168994 | 485986 | 17084 | N/A | |
| APEX2 | 169188 | 374987 | 1209 | 364126 | 24555 | GTF2A1L | 242441 | 508440 | 9147 | 421474 | 29447 | PXDN | 130508 | 252804 | 17085 | 252804 | 34376 |
| APEX2 | 169188 | 471758 | 1210 | N/A | | GTF2A1L | 242441 | 430487 | 9148 | 387896 | 29448 | PXDN | 130508 | 493654 | 17086 | N/A | |
| APH1B | 138613 | 560890 | 1211 | 453002 | 24556 | GTF2B | 137947 | 370500 | 9149 | 359531 | 29449 | PXDN | 130508 | 478155 | 17087 | N/A | |
| APH1B | 138613 | 559744 | 1212 | N/A | | GTF2B | 137947 | 448623 | 9150 | 415741 | 29450 | PXDN | 130508 | 453308 | 17088 | 414098 | 34377 |
| APH1B | 138613 | 261879 | 1213 | 261879 | 24557 | GTF2B | 137947 | 494819 | 9151 | N/A | | PXDN | 130508 | 477093 | 17089 | N/A | |
| APH1B | 138613 | 380343 | 1214 | 369700 | 24558 | GTF2B | 137947 | 418217 | 9152 | 402345 | 29451 | PXDN | 130508 | 493779 | 17090 | N/A | |
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| APH1B | 138613 | 560353 | 1216 | 453327 | 24560 | GTF2B | 137947 | 471296 | 9154 | N/A | | PXDN | 130508 | 433670 | 17092 | 402738 | 34378 |
| APH1B | 138613 | 559971 | 1217 | 453516 | 24561 | GTF2B | 137947 | 471471 | 9155 | N/A | | PXDN | 130508 | 467191 | 17093 | N/A | |
| APH1B | 138613 | 558631 | 1218 | N/A | | GTPBP2 | 172432 | 496137 | 9156 | 436973 | 29452 | PXDN | 130508 | 483018 | 17094 | N/A | |
| APH1B | 138613 | 559823 | 1219 | N/A | | GTPBP2 | 172432 | 419497 | 9157 | 392944 | 29453 | PXDN | 130508 | 477810 | 17095 | N/A | |
| APH1B | 138613 | 560716 | 1220 | N/A | | GTPBP2 | 172432 | 432918 | 9158 | 398905 | 29454 | PXDN | 130508 | 447941 | 17096 | 408701 | 34379 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APLNR | 134817 | 257254 | 1221 | 257254 | 24562 | GTPBP2 | 172432 | 476510 | 9159 | N/A | | PXDN | 130508 | 425171 | 17097 | 398363 | 34380 |
| APLNR | 134817 | 606794 | 1222 | 475344 | 24563 | GTPBP2 | 172432 | 307126 | 9160 | 303997 | 29455 | PXDN | 130508 | 485177 | 17098 | N/A | |
| APLNR | 134817 | 611099 | 1223 | 477818 | 24564 | GTPBP2 | 172432 | 459959 | 9161 | N/A | | PXDNL | 147485 | 522628 | 17099 | 429855 | 34381 |
| APLP1 | 105290 | 537454 | 1224 | 441501 | 24565 | GTPBP2 | 172432 | 442748 | 9162 | 411358 | 29456 | PXDNL | 147485 | 522933 | 17100 | 428114 | 34382 |
| APLP1 | 105290 | 221891 | 1225 | 221891 | 24566 | GTPBP2 | 172432 | 480263 | 9163 | N/A | | PXDNL | 147485 | 356297 | 17101 | 348645 | 34383 |
| APLP1 | 105290 | 590561 | 1226 | 466623 | 24567 | GTPBP2 | 172432 | 452781 | 9164 | 410676 | 29457 | PXDNL | 147485 | 519183 | 17102 | N/A | |
| APLP1 | 105290 | 586861 | 1227 | 465694 | 24568 | GTPBP2 | 172432 | 307114 | 9165 | 304893 | 29458 | PXK | 168297 | 356151 | 17103 | 348472 | 34384 |
| APLP1 | 105290 | 589743 | 1228 | 466116 | 24569 | GTSCR1 | 263417 | 582578 | 9166 | N/A | | PXK | 168297 | 468776 | 17104 | 417167 | 34385 |
| APLP1 | 105290 | 592316 | 1229 | 467854 | 24570 | GUCY1A3 | 164116 | 506455 | 9167 | 424361 | 29459 | PXK | 168297 | 463280 | 17105 | 417903 | 34386 |
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| APLP1 | 105290 | 589298 | 1231 | N/A | | GUCY1A3 | 164116 | 512983 | 9169 | N/A | | PXK | 168297 | 484288 | 17107 | 417915 | 34388 |
| APLP1 | 105290 | 587274 | 1232 | 474762 | 24572 | GUCY1A3 | 164116 | 511507 | 9170 | 426968 | 29461 | PXK | 168297 | 479241 | 17108 | 419049 | 34389 |
| APLP1 | 105290 | 590926 | 1233 | N/A | | GUCY1A3 | 164116 | 515602 | 9171 | N/A | | PXK | 168297 | 477308 | 17109 | 420403 | 34390 |
| APLP1 | 105290 | 591165 | 1234 | N/A | | GUCY1A3 | 164116 | 455639 | 9172 | 412201 | 29462 | PXK | 168297 | 491164 | 17110 | 418831 | 34391 |
| APOD | 189058 | 343267 | 1235 | 345179 | 24573 | GUCY1A3 | 164116 | 509901 | 9173 | 424863 | 29463 | PXK | 168297 | 479134 | 17111 | 418202 | 34392 |
| APOD | 189058 | 458447 | 1236 | 391597 | 24574 | GUCY1A3 | 164116 | 443668 | 9174 | 409903 | 29464 | PXK | 168297 | 459676 | 17112 | 476179 | 34393 |
| APOD | 189058 | 421243 | 1237 | 415235 | 24575 | GUCY1A3 | 164116 | 393832 | 9175 | 377418 | 29465 | PXK | 168297 | 495557 | 17113 | 418376 | 34394 |
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| APOD | 189058 | 463719 | 1239 | N/A | | GUCY1A3 | 164116 | 515201 | 9177 | 422141 | 29467 | PXK | 168297 | 383716 | 17115 | 373222 | 34396 |
| APPL2 | 136044 | 258530 | 1240 | 258530 | 24577 | GUCY1A3 | 164116 | 513574 | 9178 | 426040 | 29468 | PXK | 168297 | 302779 | 17116 | 305045 | 34397 |
| APPL2 | 136044 | 547439 | 1241 | 449410 | 24578 | GUCY1A3 | 164116 | 621234 | 9179 | 479710 | 29469 | PXN | 089159 | 458477 | 17117 | 395536 | 34398 |
| APPL2 | 136044 | 539978 | 1242 | 444472 | 24579 | GYG2 | 056998 | 398806 | 9180 | 381786 | 29470 | PXN | 089159 | 228307 | 17118 | 228307 | 34399 |
| APPL2 | 136044 | 547790 | 1243 | N/A | | GYG2 | 056998 | 381163 | 9181 | 370555 | 29471 | PXN | 089159 | 424649 | 17119 | 391283 | 34400 |
| APPL2 | 136044 | 546731 | 1244 | 447828 | 24580 | GYG2 | 056998 | 381161 | 9182 | N/A | | PXN | 089159 | 637624 | 17120 | 490896 | 34401 |
| APPL2 | 136044 | 551662 | 1245 | 446917 | 24581 | GYG2 | 056998 | 520904 | 9183 | 430764 | 29472 | PXN | 089159 | 536957 | 17121 | 443887 | 34402 |
| APPL2 | 136044 | 553109 | 1246 | 446510 | 24582 | GYG2 | 056998 | 469234 | 9184 | N/A | | PXN | 089159 | 323871 | 17122 | 489977 | 34403 |
| APPL2 | 136044 | 548425 | 1247 | N/A | | GYG2 | 056998 | 353656 | 9185 | 487294 | 29473 | PXN | 089159 | 538144 | 17123 | N/A | |
| APPL2 | 136044 | 547809 | 1248 | N/A | | GYG2 | 056998 | 453106 | 9186 | N/A | | PXN | 089159 | 637617 | 17124 | 489840 | 34404 |
| APPL2 | 136044 | 552945 | 1249 | N/A | | GYG2 | 056998 | 381157 | 9187 | 370549 | 29474 | PXN | 089159 | 550795 | 17125 | N/A | |
| APPL2 | 136044 | 549573 | 1250 | N/A | | GYG2 | 056998 | 639373 | 9188 | 491962 | 29475 | PXN | 089159 | 637386 | 17126 | 490352 | 34405 |
| APPL2 | 136044 | 549974 | 1251 | 448569 | 24583 | GYG2P1 | 206159 | 382966 | 9189 | N/A | | PXN | 089159 | 547983 | 17127 | 446893 | 34406 |
| APPL2 | 136044 | 550648 | 1252 | N/A | | GYG2P1 | 206159 | 493160 | 9190 | N/A | | PXN | 089159 | 551327 | 17128 | N/A | |
| APPL2 | 136044 | 546768 | 1253 | N/A | | GYG2P1 | 206159 | 357871 | 9191 | N/A | | PXN | 089159 | 543331 | 17129 | 443745 | 34407 |
| APPL2 | 136044 | 553097 | 1254 | 449767 | 24584 | GYG2P1 | 206159 | 382963 | 9192 | N/A | | PXN | 089159 | 546532 | 17130 | 447180 | 34408 |
| APPL2 | 136044 | 549056 | 1255 | 447520 | 24585 | GYG2P1 | 206159 | 382965 | 9193 | N/A | | PXN | 089159 | 548912 | 17131 | 446607 | 34409 |
| AQP4 | 171885 | 383168 | 1256 | 372654 | 24586 | GYS1 | 104812 | 323798 | 9194 | 317904 | 29476 | PXN | 089159 | 552550 | 17132 | 446650 | 34410 |
| AQP4 | 171885 | 581374 | 1257 | 462597 | 24587 | GYS1 | 104812 | 263276 | 9195 | 263276 | 29477 | PXN | 089159 | 440827 | 17133 | N/A | |
| AQP4 | 171885 | 440832 | 1258 | 393121 | 24588 | GYS1 | 104812 | 594220 | 9196 | 470672 | 29478 | PXN | 089159 | 547746 | 17134 | N/A | |
| AQP4 | 171885 | 583022 | 1259 | N/A | | GYS1 | 104812 | 472004 | 9197 | N/A | | PXN | 089159 | 540221 | 17135 | N/A | |
| AQP4 | 171885 | 584088 | 1260 | N/A | | GYS1 | 104812 | 496048 | 9198 | N/A | | PXN | 089159 | 550205 | 17136 | N/A | |
| AQP4 | 171885 | 578776 | 1261 | 462075 | 24589 | GYS1 | 104812 | 484289 | 9199 | N/A | | PXN | 089159 | 547772 | 17137 | N/A | |
| AQP4 | 171885 | 383170 | 1262 | 372656 | 24590 | GYS1 | 104812 | 457974 | 9200 | N/A | | PXN | 089159 | 267257 | 17138 | 267257 | 34411 |
| AQP4 | 171885 | 622234 | 1263 | 484446 | 24591 | GZF1 | 125812 | 338121 | 9201 | 338290 | 29479 | PXYLP1 | 155893 | 505013 | 17139 | 421271 | 34412 |
| AQP7 | 165269 | 379507 | 1264 | 368821 | 24592 | GZF1 | 125812 | 424216 | 9202 | 410009 | 29480 | PXYLP1 | 155893 | 636601 | 17140 | 490861 | 34413 |
| AQP7 | 165269 | 537089 | 1265 | 441619 | 24593 | GZF1 | 125812 | 461789 | 9203 | N/A | | PXYLP1 | 155893 | 514880 | 17141 | 425264 | 34414 |
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| AQP7 | 165269 | 623097 | 1268 | N/A | | HAMP | 105697 | 598398 | 9206 | 471894 | 29482 | PXYLP1 | 155893 | 502783 | 17144 | 422558 | 34417 |
| AQP7 | 165269 | 439678 | 1269 | 410138 | 24596 | HAMP | 105697 | 222304 | 9207 | 222304 | 29483 | PXYLP1 | 155893 | 393010 | 17145 | 376733 | 34418 |
| AQP7 | 165269 | 379506 | 1270 | 368820 | 24597 | HAMP | 105697 | 593580 | 9208 | N/A | | PXYLP1 | 155893 | 511968 | 17146 | N/A | |
| AQP7 | 165269 | 624075 | 1271 | 485332 | 24598 | HAPLN2 | 132702 | 255039 | 9209 | 255039 | 29484 | PXYLP1 | 155893 | 514680 | 17147 | 426956 | 34419 |
| AQP7 | 165269 | 624890 | 1272 | 485131 | 24599 | HAPLN2 | 132702 | 487988 | 9210 | N/A | | PXYLP1 | 155893 | 513528 | 17148 | 426348 | 34420 |
| AQP7 | 165269 | 624005 | 1273 | 485224 | 24600 | HAPLN2 | 132702 | 456112 | 9211 | 388835 | 29485 | PXYLP1 | 155893 | 505502 | 17149 | N/A | |
| AQP7 | 165269 | 447660 | 1274 | 412868 | 24601 | HAPLN2 | 132702 | 482204 | 9212 | N/A | | PXYLP1 | 155893 | 513007 | 17150 | N/A | |
| AQP7 | 165269 | 379503 | 1275 | N/A | | HAPLN2 | 132702 | 494218 | 9213 | N/A | | PXYLP1 | 155893 | 637579 | 17151 | 490114 | 34421 |
| AQP7 | 165269 | 624420 | 1276 | 485348 | 24602 | HAS2 | 170961 | 303924 | 9214 | 306991 | 29486 | PXYLP1 | 155893 | 512457 | 17152 | 423702 | 34422 |
| AQP7 | 165269 | 624095 | 1277 | 485419 | 24603 | HCN1 | 164588 | 303230 | 9215 | 307342 | 29487 | PXYLP1 | 155893 | 504264 | 17153 | 426877 | 34423 |
| AQP7 | 165269 | 625109 | 1278 | 485081 | 24604 | HCN1 | 164588 | 637305 | 9216 | N/A | | PXYLP1 | 155893 | 508812 | 17154 | 422901 | 34424 |
| AQP7 | 165269 | 624432 | 1279 | N/A | | HCN1 | 164588 | 637256 | 9217 | N/A | | PXYLP1 | 155893 | 514263 | 17155 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AQP7 | 165269 | 623743 | 1280 | N/A | | HCN1 | 164588 | 634658 | 9218 | 489134 | 29488 | PYGM | 068976 | 483742 | 17156 | N/A | |
| AQP7 | 165269 | 625032 | 1281 | 485246 | 24605 | HCN1 | 164588 | 638054 | 9219 | N/A | | PYGM | 068976 | 377432 | 17157 | 366650 | 34425 |
| AQP7 | 165269 | 623519 | 1282 | N/A | | HCN2 | 099822 | 251287 | 9220 | 251287 | 29489 | PYGM | 068976 | 164139 | 17158 | 164139 | 34426 |
| AQP9 | 103569 | 536493 | 1283 | 441390 | 24606 | HCN4 | 138622 | 261917 | 9221 | 261917 | 29490 | PYGM | 068976 | 462303 | 17159 | N/A | |
| AQP9 | 103569 | 559443 | 1284 | N/A | | HDAC8 | 147099 | 373583 | 9222 | 362685 | 29491 | PYGM | 068976 | 460413 | 17160 | N/A | |
| AQP9 | 103569 | 219919 | 1285 | 219919 | 24607 | HDAC8 | 147099 | 373573 | 9223 | 362674 | 29492 | PYROXD2 | 119943 | 483923 | 17161 | N/A | |
| AQP9 | 103569 | 558772 | 1286 | 452673 | 24608 | HDAC8 | 147099 | 470998 | 9224 | N/A | | PYROXD2 | 119943 | 370575 | 17162 | 359607 | 34427 |
| AR | 169083 | 374690 | 1287 | 363822 | 24609 | HDAC8 | 147099 | 373568 | 9225 | 362669 | 29493 | PYROXD2 | 119943 | 464808 | 17163 | N/A | |
| AR | 169083 | 513847 | 1288 | N/A | | HDAC8 | 147099 | 436675 | 9226 | 416489 | 29494 | PYROXD2 | 119943 | 494941 | 17164 | N/A | |
| AR | 169083 | 504326 | 1289 | 421155 | 24610 | HDAC8 | 147099 | 415409 | 9227 | 396424 | 29495 | PYROXD2 | 119943 | 462874 | 17165 | N/A | |
| AR | 169083 | 514029 | 1290 | 425199 | 24611 | HDAC8 | 147099 | 412342 | 9228 | 400180 | 29496 | QDPR | 151552 | 511609 | 17166 | N/A | |
| AR | 169083 | 396043 | 1291 | 379358 | 24612 | HDAC8 | 147099 | 373571 | 9229 | 362672 | 29497 | QDPR | 151552 | 514300 | 17167 | 426039 | 34428 |
| AR | 169083 | 612010 | 1292 | 482407 | 24613 | HDAC8 | 147099 | 439122 | 9230 | 414486 | 29498 | QDPR | 151552 | 505710 | 17168 | 420873 | 34429 |
| AR | 169083 | 613054 | 1293 | 479013 | 24614 | HDAC8 | 147099 | 373560 | 9231 | 362661 | 29499 | QDPR | 151552 | 501943 | 17169 | N/A | |
| AR | 169083 | 612452 | 1294 | 484033 | 24615 | HDAC8 | 147099 | 373559 | 9232 | 362660 | 29500 | QDPR | 151552 | 508623 | 17170 | 426377 | 34430 |
| AR | 169083 | 396044 | 1295 | 379359 | 24616 | HDAC8 | 147099 | 478743 | 9233 | N/A | | QDPR | 151552 | 281243 | 17171 | 281243 | 34431 |
| ARAP3 | 120318 | 508305 | 1296 | 421826 | 24617 | HDAC8 | 147099 | 421523 | 9234 | 398997 | 29501 | QDPR | 151552 | 428702 | 17172 | 390944 | 34432 |
| ARAP3 | 120318 | 239440 | 1297 | 239440 | 24618 | HDAC8 | 147099 | 373556 | 9235 | 362657 | 29502 | QDPR | 151552 | 507439 | 17173 | 423227 | 34433 |
| ARAP3 | 120318 | 512390 | 1298 | N/A | | HDAC8 | 147099 | 373554 | 9236 | 362655 | 29503 | QDPR | 151552 | 513615 | 17174 | 422759 | 34434 |
| ARAP3 | 120318 | 513878 | 1299 | 421468 | 24619 | HDAC8 | 147099 | 444609 | 9237 | 409778 | 29504 | QKI | 112531 | 361758 | 17175 | 354951 | 34435 |
| ARAP3 | 120318 | 504448 | 1300 | 421148 | 24620 | HDAC8 | 147099 | 486704 | 9238 | N/A | | QKI | 112531 | 453779 | 17176 | 408775 | 34436 |
| ARAP3 | 120318 | 524066 | 1301 | N/A | | HDAC8 | 147099 | 373589 | 9239 | 362691 | 29505 | QKI | 112531 | 275262 | 17177 | 275262 | 34437 |
| ARAP3 | 120318 | 626478 | 1302 | 486980 | 24621 | HDHD2 | 167220 | 300605 | 9240 | 300605 | 29506 | QKI | 112531 | 392127 | 17178 | 375973 | 34438 |
| ARC | 198576 | 356613 | 1303 | 349022 | 24622 | HDHD2 | 167220 | 588183 | 9241 | 466602 | 29507 | QKI | 112531 | 361752 | 17179 | 355094 | 34439 |
| ARC | 198576 | 581404 | 1304 | N/A | | HDHD2 | 167220 | 588861 | 9242 | N/A | | QKI | 112531 | 361195 | 17180 | 354867 | 34440 |
| ARF4 | 168374 | 303436 | 1305 | 306010 | 24623 | HDHD2 | 167220 | 587841 | 9243 | N/A | | QKI | 112531 | 424802 | 17181 | 408382 | 34441 |
| ARF4 | 168374 | 496292 | 1306 | 417501 | 24624 | HDHD2 | 167220 | 590815 | 9244 | 468067 | 29508 | QKI | 112531 | 545607 | 17182 | 437867 | 34442 |
| ARF4 | 168374 | 489843 | 1307 | 475828 | 24625 | HDHD2 | 167220 | 591480 | 9245 | 466710 | 29509 | QKI | 112531 | 544436 | 17183 | 443690 | 34443 |
| ARF4 | 168374 | 486310 | 1308 | 420655 | 24626 | HDHD2 | 167220 | 586546 | 9246 | 467309 | 29510 | QKI | 112531 | 537041 | 17184 | 440991 | 34444 |
| ARF4 | 168374 | 483848 | 1309 | N/A | | HDHD2 | 167220 | 590481 | 9247 | 467998 | 29511 | QKI | 112531 | 537124 | 17185 | 443106 | 34445 |
| ARF4 | 168374 | 463880 | 1310 | 420254 | 24627 | HDHD2 | 167220 | 588940 | 9248 | 467775 | 29512 | QKI | 112531 | 545346 | 17186 | 441252 | 34446 |
| ARF4 | 168374 | 493378 | 1311 | N/A | | HDHD2 | 167220 | 591268 | 9249 | 465829 | 29513 | QKI | 112531 | 544823 | 17187 | 440599 | 34447 |
| ARF4 | 168374 | 495354 | 1312 | N/A | | HDHD2 | 167220 | 587388 | 9250 | 466923 | 29514 | QKI | 112531 | 537883 | 17188 | 441773 | 34448 |
| ARF4 | 168374 | 488156 | 1313 | 418388 | 24628 | HDHD2 | 167220 | 592591 | 9251 | 465282 | 29515 | QKI | 112531 | 540719 | 17189 | N/A | |
| ARG2 | 081181 | 261783 | 1314 | 261783 | 24629 | HDHD2 | 167220 | 591671 | 9252 | N/A | | QKI | 112531 | 544361 | 17190 | 442848 | 34449 |
| ARG2 | 081181 | 557120 | 1315 | N/A | | HEBP1 | 013583 | 014930 | 9253 | 014930 | 29516 | QKI | 112531 | 541696 | 17191 | N/A | |
| ARG2 | 081181 | 556491 | 1316 | N/A | | HEBP1 | 013583 | 540916 | 9254 | N/A | | QKI | 112531 | 361758 | 17192 | 354951 | 34450 |
| ARG2 | 081181 | 557319 | 1317 | N/A | | HEBP1 | 013583 | 535636 | 9255 | 442020 | 29517 | QKI | 112531 | 453779 | 17193 | 408775 | 34451 |
| ARHGAP10 | 071205 | 510379 | 1318 | N/A | | HEBP1 | 013583 | 536942 | 9256 | 441678 | 29518 | QKI | 112531 | 275262 | 17194 | 275262 | 34452 |
| ARHGAP10 | 071205 | 336498 | 1319 | 336923 | 24630 | HECA | 112406 | 367658 | 9257 | 356630 | 29519 | QKI | 112531 | 392127 | 17195 | 375973 | 34453 |
| ARHGAP10 | 071205 | 506054 | 1320 | N/A | | HECW1 | 002746 | 395891 | 9258 | 379228 | 29520 | QKI | 112531 | 361752 | 17196 | 355094 | 34454 |
| ARHGAP10 | 071205 | 507661 | 1321 | 422358 | 24631 | HECW1 | 002746 | 490954 | 9259 | N/A | | QKI | 112531 | 361195 | 17197 | 354867 | 34455 |
| ARHGAP10 | 071205 | 506020 | 1322 | N/A | | HECW1 | 002746 | 453890 | 9260 | 407774 | 29521 | QKI | 112531 | 424802 | 17198 | 408382 | 34456 |
| ARHGAP10 | 071205 | 513548 | 1323 | N/A | | HECW1 | 002746 | 492310 | 9261 | N/A | | QKI | 112531 | 545607 | 17199 | 437867 | 34457 |
| ARHGAP10 | 071205 | 510076 | 1324 | N/A | | HECW1 | 002746 | 471527 | 9262 | N/A | | QKI | 112531 | 544436 | 17200 | 443690 | 34458 |
| ARHGAP15 | 075884 | 409869 | 1325 | 386560 | 24632 | HECW1 | 002746 | 493057 | 9263 | N/A | | QKI | 112531 | 537041 | 17201 | 440991 | 34459 |
| ARHGAP15 | 075884 | 295095 | 1326 | 295095 | 24633 | HECW1 | 002746 | 464944 | 9264 | N/A | | QKI | 112531 | 537124 | 17202 | 443106 | 34460 |
| ARHGAP15 | 075884 | 552641 | 1327 | N/A | | HECW1 | 002746 | 481031 | 9265 | N/A | | QKI | 112531 | 545346 | 17203 | 441252 | 34461 |
| ARHGAP15 | 075884 | 460776 | 1328 | N/A | | HECW1 | 002746 | 471043 | 9266 | N/A | | QKI | 112531 | 544823 | 17204 | 440599 | 34462 |
| ARHGAP15 | 075884 | 474474 | 1329 | N/A | | HECW1 | 002746 | 461842 | 9267 | N/A | | QKI | 112531 | 537883 | 17205 | 441773 | 34463 |
| ARHGAP15 | 075884 | 469117 | 1330 | N/A | | HECW1 | 002746 | 429529 | 9268 | 413336 | 29522 | QKI | 112531 | 540719 | 17206 | N/A | |
| ARHGAP15 | 075884 | 548800 | 1331 | N/A | | HEG1 | 173706 | 311127 | 9269 | 311502 | 29523 | QKI | 112531 | 544361 | 17207 | 442848 | 34464 |
| ARHGAP15 | 075884 | 548242 | 1332 | N/A | | HEG1 | 173706 | 487661 | 9270 | 417648 | 29524 | QKI | 112531 | 541696 | 17208 | N/A | |
| ARHGAP15 | 075884 | 548929 | 1333 | N/A | | HEG1 | 173706 | 480667 | 9271 | N/A | | QPRT | 103485 | 219771 | 17209 | N/A | |
| ARHGAP15 | 075884 | 552289 | 1334 | N/A | | HEG1 | 173706 | 482699 | 9272 | 417494 | 29525 | QPRT | 103485 | 395384 | 17210 | 378782 | 34465 |
| ARHGAP15 | 075884 | 549436 | 1335 | N/A | | HEG1 | 173706 | 488654 | 9273 | N/A | | QPRT | 103485 | 562473 | 17211 | 455183 | 34466 |
| ARHGAP15 | 075884 | 419455 | 1336 | 390310 | 24634 | HEG1 | 173706 | 477536 | 9274 | N/A | | QPRT | 103485 | 564967 | 17212 | N/A | |
| ARHGAP15 | 075884 | 549060 | 1337 | N/A | | HEPACAM | 165478 | 528971 | 9275 | N/A | | RAB11FIP1 | 156675 | 287263 | 17213 | 287263 | 34467 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARHGAP20 | 137727 | 260283 | 1338 | 260283 | 24635 | HEPACAM | 165478 | 526273 | 9276 | N/A | | RAB11FIP1 | 156675 | 330843 | 17214 | 331342 | 34468 |
| ARHGAP20 | 137727 | 529591 | 1339 | 437905 | 24636 | HEPACAM | 165478 | 298251 | 9277 | 298251 | 29526 | RAB11FIP1 | 156675 | 522727 | 17215 | 430009 | 34469 |
| ARHGAP20 | 137727 | 524756 | 1340 | 432076 | 24637 | HERPUD1 | 051108 | 439977 | 9278 | 409555 | 29527 | RAB11FIP1 | 156675 | 523182 | 17216 | N/A | |
| ARHGAP20 | 137727 | 528829 | 1341 | 436319 | 24638 | HERPUD1 | 051108 | 562914 | 9279 | N/A | | RAB11FIP1 | 156675 | 522774 | 17217 | N/A | |
| ARHGAP20 | 137727 | 533353 | 1342 | 436522 | 24639 | HERPUD1 | 051108 | 568676 | 9280 | N/A | | RAB11FIP1 | 156675 | 524118 | 17218 | 430680 | 34470 |
| ARHGAP20 | 137727 | 527598 | 1343 | 431399 | 24640 | HERPUD1 | 051108 | 569569 | 9281 | N/A | | RAB15 | 139998 | 267512 | 17219 | 267512 | 34471 |
| ARHGAP22 | 128805 | 249601 | 1344 | 249601 | 24641 | HERPUD1 | 051108 | 565966 | 9282 | 456384 | 29528 | RAB15 | 139998 | 533601 | 17220 | 434103 | 34472 |
| ARHGAP22 | 128805 | 477708 | 1345 | 422868 | 24642 | HERPUD1 | 051108 | 344114 | 9283 | 340931 | 29529 | RAB15 | 139998 | 585059 | 17221 | 464662 | 34473 |
| ARHGAP22 | 128805 | 374170 | 1346 | 363285 | 24643 | HERPUD1 | 051108 | 300302 | 9284 | 300302 | 29530 | RAB15 | 139998 | 426039 | 17222 | 433485 | 34474 |
| ARHGAP22 | 128805 | 374172 | 1347 | 363287 | 24644 | HERPUD1 | 051108 | 570273 | 9285 | N/A | | RAB15 | 139998 | 554593 | 17223 | 452195 | 34475 |
| ARHGAP22 | 128805 | 417247 | 1348 | 410054 | 24645 | HERPUD1 | 051108 | 379792 | 9286 | 369118 | 29531 | RAB15 | 139998 | 555256 | 17224 | N/A | |
| ARHGAP22 | 128805 | 435790 | 1349 | 416701 | 24646 | HERPUD1 | 051108 | 569429 | 9287 | 457321 | 29532 | RAB27A | 069974 | 396307 | 17225 | 379601 | 34476 |
| ARHGAP22 | 128805 | 417912 | 1350 | 412461 | 24647 | HERPUD1 | 051108 | 563343 | 9288 | 455094 | 29533 | RAB27A | 069974 | 564609 | 17226 | 455012 | 34477 |
| ARHGAP22 | 128805 | 460425 | 1351 | 422663 | 24648 | HERPUD1 | 051108 | 566550 | 9289 | N/A | | RAB27A | 069974 | 569493 | 17227 | 456059 | 34478 |
| ARHGAP22 | 128805 | 515523 | 1352 | N/A | | HERPUD1 | 051108 | 563781 | 9290 | N/A | | RAB27A | 069974 | 566877 | 17228 | 454695 | 34479 |
| ARHGAP22 | 128805 | 471013 | 1353 | N/A | | HERPUD1 | 051108 | 568358 | 9291 | 457095 | 29534 | RAB27A | 069974 | 567380 | 17229 | 458127 | 34480 |
| ARHGAP22 | 128805 | 489984 | 1354 | N/A | | HERPUD1 | 051108 | 564678 | 9292 | N/A | | RAB27A | 069974 | 565972 | 17230 | 456536 | 34481 |
| ARHGAP22 | 128805 | 493012 | 1355 | N/A | | HERPUD1 | 051108 | 563911 | 9293 | 455841 | 29535 | RAB27A | 069974 | 563262 | 17231 | 457595 | 34482 |
| ARHGAP22 | 128805 | 491108 | 1356 | N/A | | HERPUD1 | 051108 | 567944 | 9294 | N/A | | RAB27A | 069974 | 568803 | 17232 | 457517 | 34483 |
| ARHGAP22 | 128805 | 511570 | 1357 | N/A | | HERPUD1 | 051108 | 568651 | 9295 | 457955 | 29536 | RAB27A | 069974 | 567639 | 17233 | N/A | |
| ARHGAP22 | 128805 | 464445 | 1358 | N/A | | HERPUD1 | 051108 | 568814 | 9296 | N/A | | RAB27A | 069974 | 565776 | 17234 | N/A | |
| ARHGAP23 | 275832 | 633445 | 1359 | N/A | | HES1 | 114315 | 232424 | 9297 | 232424 | 29537 | RAB27A | 069974 | 561545 | 17235 | N/A | |
| ARHGAP23 | 275832 | 622683 | 1360 | 481862 | 24649 | HES1 | 114315 | 476918 | 9298 | N/A | | RAB27A | 069974 | 336787 | 17236 | 337761 | 34484 |
| ARHGAP23 | 275832 | 620417 | 1361 | 482992 | 24650 | HES3 | 173673 | 377898 | 9299 | 367130 | 29538 | RAB27B | 041353 | 586570 | 17237 | 468542 | 34485 |
| ARHGAP23 | 275832 | 616767 | 1362 | N/A | | HEY2 | 135547 | 368365 | 9300 | 357349 | 29539 | RAB27B | 041353 | 262094 | 17238 | 262094 | 34486 |
| ARHGAP23 | 275832 | 618942 | 1363 | 482982 | 24651 | HEY2 | 135547 | 368364 | 9301 | 357348 | 29540 | RAB27B | 041353 | 586594 | 17239 | N/A | |
| ARHGAP23 | 275832 | 619156 | 1364 | 483748 | 24652 | HGF | 019991 | 222390 | 9302 | 222390 | 29541 | RAB27B | 041353 | 592334 | 17240 | 465009 | 34487 |
| ARHGAP23 | 275832 | 616909 | 1365 | 481292 | 24653 | HGF | 019991 | 457544 | 9303 | 391238 | 29542 | RAB31 | 168461 | 578921 | 17241 | 461945 | 34488 |
| ARHGAP23 | 275832 | 620325 | 1366 | 482425 | 24654 | HGF | 019991 | 444829 | 9304 | 389854 | 29543 | RAB31 | 168461 | 578734 | 17242 | 462164 | 34489 |
| ARHGAP23 | 275832 | 620329 | 1367 | 478142 | 24655 | HGF | 019991 | 453411 | 9305 | 408270 | 29544 | RAB31 | 168461 | 581109 | 17243 | 464046 | 34490 |
| ARHGAP23 | 275832 | 617798 | 1368 | N/A | | HGF | 019991 | 423064 | 9306 | 413829 | 29545 | RAB31 | 168461 | 583137 | 17244 | 462561 | 34491 |
| ARHGAP23 | 275832 | 614693 | 1369 | 484509 | 24656 | HGF | 019991 | 465234 | 9307 | N/A | | RAB31 | 168461 | 435762 | 17245 | N/A | |
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| ARHGAP23 | 273780 | 610551 | 1371 | 479208 | 24657 | HGF | 019991 | 412881 | 9309 | 396307 | 29547 | RAB31 | 168461 | 583921 | 17247 | N/A | |
| ARHGAP23 | 273780 | 631799 | 1372 | 488428 | 24658 | HGF | 019991 | 421558 | 9310 | 388592 | 29548 | RAB31 | 168461 | 580361 | 17248 | N/A | |
| ARHGAP23 | 273780 | 633736 | 1373 | N/A | | HGF | 019991 | 354224 | 9311 | 346164 | 29549 | RAB31 | 168461 | 577796 | 17249 | N/A | |
| ARHGAP23 | 273780 | 632947 | 1374 | 488885 | 24659 | HHATL | 010282 | 490003 | 9312 | N/A | | RAB31 | 168461 | 577371 | 17250 | N/A | |
| ARHGAP23 | 273780 | 633443 | 1375 | 487883 | 24660 | HHATL | 010282 | 466007 | 9313 | N/A | | RAB31 | 168461 | 580795 | 17251 | N/A | |
| ARHGAP23 | 273780 | 633302 | 1376 | 488827 | 24661 | HHATL | 010282 | 426666 | 9314 | 401568 | 29550 | RAB31 | 168461 | 577284 | 17252 | N/A | |
| ARHGAP23 | 273780 | 632895 | 1377 | 488699 | 24662 | HHATL | 010282 | 310417 | 9315 | 310621 | 29551 | RAB33A | 134594 | 257017 | 17253 | 257017 | 34492 |
| ARHGAP23 | 273780 | 631490 | 1378 | 488310 | 24663 | HHATL | 010282 | 441594 | 9316 | 405423 | 29552 | RAB34 | 109113 | 395243 | 17254 | 378664 | 34493 |
| ARHGAP23 | 273780 | 633368 | 1379 | N/A | | HHATL | 010282 | 480939 | 9317 | N/A | | RAB34 | 109113 | 625712 | 17255 | 487160 | 34494 |
| ARHGAP23 | 273780 | 634129 | 1380 | 487994 | 24664 | HHATL | 010282 | 457462 | 9318 | 403787 | 29553 | RAB34 | 109113 | 301043 | 17256 | 301043 | 34495 |
| ARHGAP23 | 273780 | 633715 | 1381 | N/A | | HHATL | 010282 | 416756 | 9319 | 395779 | 29554 | RAB34 | 109113 | 450529 | 17257 | 391048 | 34496 |
| ARHGAP24 | 138639 | 395184 | 1382 | 378611 | 24665 | HHATL | 010282 | 455195 | 9320 | 415351 | 29555 | RAB34 | 109113 | 415040 | 17258 | 410279 | 34497 |
| ARHGAP24 | 138639 | 503995 | 1383 | 423206 | 24666 | HHATL | 010282 | 417472 | 9321 | 413810 | 29556 | RAB34 | 109113 | 484161 | 17259 | N/A | |
| ARHGAP24 | 138639 | 506421 | 1384 | N/A | | HHATL | 010282 | 442469 | 9322 | 408999 | 29557 | RAB34 | 109113 | 422279 | 17260 | 397499 | 34498 |
| ARHGAP24 | 138639 | 505856 | 1385 | N/A | | HHATL | 010282 | 497000 | 9323 | N/A | | RAB34 | 109113 | 474704 | 17261 | N/A | |
| ARHGAP24 | 138639 | 509709 | 1386 | N/A | | HHIP | 164161 | 296575 | 9324 | 296575 | 29558 | RAB34 | 109113 | 436730 | 17262 | 404180 | 34499 |
| ARHGAP24 | 138639 | 512201 | 1387 | 426105 | 24667 | HHIP | 164161 | 434550 | 9325 | 408587 | 29559 | RAB34 | 109113 | 430132 | 17263 | 407953 | 34500 |
| ARHGAP24 | 138639 | 395183 | 1388 | 378610 | 24668 | HHIP | 164161 | 505891 | 9326 | N/A | | RAB34 | 109113 | 583538 | 17264 | 463488 | 34501 |
| ARHGAP24 | 138639 | 509300 | 1389 | 424256 | 24669 | HHIP | 164161 | 511314 | 9327 | N/A | | RAB34 | 109113 | 636772 | 17265 | 489794 | 34502 |
| ARHGAP24 | 138639 | 514229 | 1390 | 425589 | 24670 | HHIP | 164161 | 515080 | 9328 | N/A | | RAB34 | 109113 | 353676 | 17266 | 226259 | 34503 |
| ARHGAP24 | 138639 | 502537 | 1391 | N/A | | HHIP | 164161 | 509630 | 9329 | N/A | | RAB34 | 109113 | 412625 | 17267 | 398706 | 34504 |
| ARHGAP24 | 138639 | 503917 | 1392 | N/A | | HHIP | 164161 | 512791 | 9330 | N/A | | RAB34 | 109113 | 496866 | 17268 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARHGAP24 | 138639 | 264343 | 1393 | 264343 | 24671 | HHIP | 164161 | 503090 | 9331 | N/A | | RAB34 | 109113 | 636513 | 17269 | 490855 | 34505 |
| ARHGAP25 | 163219 | 463483 | 1394 | 417283 | 24672 | HIF3A | 124440 | 244302 | 9332 | N/A | | RAB34 | 109113 | 419712 | 17270 | 464723 | 34506 |
| ARHGAP25 | 163219 | 481684 | 1395 | N/A | | HIF3A | 124440 | 377670 | 9333 | 366898 | 29560 | RAB34 | 109113 | 481501 | 17271 | N/A | |
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| ARHGAP25 | 163219 | 409202 | 1397 | 386911 | 24673 | HIF3A | 124440 | 244303 | 9335 | 244303 | 29561 | RAB34 | 109113 | 636534 | 17273 | 490529 | 34508 |
| ARHGAP25 | 163219 | 456116 | 1398 | N/A | | HIF3A | 124440 | 528563 | 9336 | 435532 | 29562 | RAB34 | 109113 | 580843 | 17274 | 465352 | 34509 |
| ARHGAP25 | 163219 | 467265 | 1399 | 420583 | 24674 | HIF3A | 124440 | 533145 | 9337 | 435200 | 29563 | RAB34 | 109113 | 483554 | 17275 | N/A | |
| ARHGAP25 | 163219 | 485573 | 1400 | N/A | | HIF3A | 124440 | 472815 | 9338 | 434653 | 29564 | RAB34 | 109113 | 482688 | 17276 | N/A | |
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| ARHGAP25 | 163219 | 463061 | 1402 | N/A | | HIF3A | 124440 | 291300 | 9340 | N/A | | RAB34 | 109113 | 453384 | 17278 | 413156 | 34511 |
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| ARHGAP25 | 163219 | 496266 | 1404 | N/A | | HIF3A | 124440 | 600879 | 9342 | 469031 | 29567 | RAB37 | 172794 | 340415 | 17280 | 341354 | 34513 |
| ARHGAP25 | 163219 | 409030 | 1405 | 386863 | 24676 | HIF3A | 124440 | 600383 | 9343 | 471560 | 29568 | RAB37 | 172794 | 402449 | 17281 | 383934 | 34514 |
| ARHGAP25 | 163219 | 409220 | 1406 | 386241 | 24677 | HIF3A | 124440 | 525854 | 9344 | N/A | | RAB37 | 172794 | 392617 | 17282 | N/A | |
| ARHGAP25 | 163219 | 473986 | 1407 | 417425 | 24678 | HIF3A | 124440 | 529205 | 9345 | N/A | | RAB37 | 172794 | 528438 | 17283 | 432086 | 34515 |
| ARHGAP25 | 163219 | 497079 | 1408 | 417139 | 24679 | HIF3A | 124440 | 531043 | 9346 | 434700 | 29569 | RAB37 | 172794 | 392615 | 17284 | 376391 | 34516 |
| ARHGAP25 | 163219 | 497259 | 1409 | 417818 | 24680 | HIF3A | 124440 | 600236 | 9347 | N/A | | RAB37 | 172794 | 392614 | 17285 | 376390 | 34517 |
| ARHGAP25 | 163219 | 479844 | 1410 | 417467 | 24681 | HIF3A | 124440 | 529542 | 9348 | N/A | | RAB37 | 172794 | 392613 | 17286 | 376389 | 34518 |
| ARHGAP26 | 145819 | 274498 | 1411 | 274498 | 24682 | HIF3A | 124440 | 475432 | 9349 | N/A | | RAB37 | 172794 | 533530 | 17287 | N/A | |
| ARHGAP26 | 145819 | 378004 | 1412 | 367243 | 24683 | HIF3A | 124440 | 533789 | 9350 | 432809 | 29570 | RAB37 | 172794 | 527040 | 17288 | N/A | |
| ARHGAP26 | 145819 | 378013 | 1413 | 367252 | 24684 | HIGD1A | 181061 | 321331 | 9351 | 319393 | 29571 | RAB37 | 172794 | 577548 | 17289 | N/A | |
| ARHGAP26 | 145819 | 475287 | 1414 | N/A | | HIGD1A | 181061 | 418900 | 9352 | 402160 | 29572 | RAB37 | 172794 | 392612 | 17290 | 376388 | 34519 |
| ARHGAP26 | 145819 | 477867 | 1415 | N/A | | HIGD1A | 181061 | 470543 | 9353 | N/A | | RAB37 | 172794 | 392610 | 17291 | 376387 | 34520 |
| ARHGAP26 | 145819 | 451259 | 1416 | 411571 | 24685 | HIGD1A | 181061 | 430190 | 9354 | 408289 | 29573 | RAB37 | 172794 | 481224 | 17292 | 436563 | 34521 |
| ARHGAP26 | 145819 | 461314 | 1417 | N/A | | HIGD1A | 181061 | 452906 | 9355 | 398064 | 29574 | RAB37 | 172794 | 488977 | 17293 | N/A | |
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| ARHGAP26 | 145819 | 470032 | 1421 | N/A | | HIP1 | 127946 | 420909 | 9359 | 414280 | 29577 | RAB3A | 105649 | 464076 | 17297 | 474603 | 34524 |
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| ARHGAP26 | 145819 | 443045 | 1424 | 392186 | 24688 | HIP1 | 127946 | 616821 | 9362 | 484528 | 29578 | RAB3B | 169213 | 371655 | 17300 | 360718 | 34526 |
| ARHGAP26 | 145819 | 419676 | 1425 | 413283 | 24689 | HIP1R | 130787 | 535831 | 9363 | N/A | | RAB3C | 152932 | 513316 | 17301 | N/A | |
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| ARHGAP26 | 145819 | 489924 | 1427 | N/A | | HIP1R | 130787 | 452196 | 9365 | N/A | | RAB3C | 152932 | 507977 | 17303 | N/A | |
| ARHGAP26 | 145819 | 486650 | 1428 | N/A | | HIP1R | 130787 | 536772 | 9366 | N/A | | RAB3C | 152932 | 381158 | 17304 | N/A | |
| ARHGAP26 | 145819 | 421521 | 1429 | 389137 | 24691 | HIP1R | 130787 | 536847 | 9367 | N/A | | RAB6B | 154917 | 285208 | 17305 | 285208 | 34528 |
| ARHGAP26 | 145819 | 425417 | 1430 | 403388 | 24692 | HIP1R | 130787 | 541712 | 9368 | N/A | | RAB6B | 154917 | 469959 | 17306 | 418540 | 34529 |
| ARHGAP29 | 137962 | 546444 | 1431 | N/A | | HIP1R | 130787 | 536617 | 9369 | N/A | | RAB6B | 154917 | 486858 | 17307 | 419381 | 34530 |
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| ARHGAP29 | 137962 | 260526 | 1433 | 260526 | 24694 | HIP1R | 130787 | 535012 | 9371 | 446236 | 29580 | RAB6B | 154917 | 460865 | 17309 | 419526 | 34532 |
| ARHGAP29 | 137962 | 482481 | 1434 | N/A | | HIP1R | 130787 | 537322 | 9372 | N/A | | RAB6B | 154917 | 488969 | 17310 | 417433 | 34533 |
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| ARHGAP32 | 134909 | 310343 | 1436 | 310561 | 24696 | HIST1H2BD | 158373 | 377777 | 9374 | 367008 | 29582 | RAI2 | 131831 | 415486 | 17312 | 392578 | 34535 |
| ARHGAP32 | 134909 | 526162 | 1437 | N/A | | HIST1H2BD | 158373 | 289316 | 9375 | 289316 | 29583 | RAI2 | 131831 | 360011 | 17313 | 353106 | 34536 |
| ARHGAP32 | 134909 | 392657 | 1438 | 376425 | 24697 | HIST2H2BA | 223345 | 430394 | 9376 | N/A | | RAI2 | 131831 | 331511 | 17314 | 333456 | 34537 |
| ARHGAP32 | 134909 | 524655 | 1439 | 432468 | 24698 | HIST2H2BA | 223345 | 412169 | 9377 | N/A | | RAI2 | 131831 | 509491 | 17315 | 473562 | 34538 |
| ARHGAP32 | 134909 | 527272 | 1440 | 432862 | 24699 | HIST2H2BE | 184678 | 369155 | 9378 | 358151 | 29584 | RAI2 | 131831 | 451717 | 17316 | 401323 | 34539 |
| ARHGAP32 | 134909 | 534357 | 1441 | N/A | | HIST2H2BF | 203814 | 420462 | 9379 | N/A | | RAI2 | 131831 | 545871 | 17317 | 444210 | 34540 |
| ARHGAP32 | 134909 | 533509 | 1442 | N/A | | HIST2H2BF | 203814 | 469483 | 9380 | N/A | | RALGPS2 | 116191 | 495034 | 17318 | N/A | |
| ARHGAP32 | 134909 | 525234 | 1443 | 432303 | 24700 | HIST2H2BF | 203814 | 620458 | 9381 | N/A | | RALGPS2 | 116191 | 367635 | 17319 | 356607 | 34541 |
| ARHGEF10L | 074964 | 361221 | 1444 | 355060 | 24701 | HIST2H2BF | 203814 | 369167 | 9382 | 358164 | 29585 | RALGPS2 | 116191 | 324778 | 17320 | 313613 | 34542 |
| ARHGEF10L | 074964 | 375415 | 1445 | 364564 | 24702 | HIST2H2BF | 203814 | 545683 | 9383 | 445831 | 29586 | RALGPS2 | 116191 | 477383 | 17321 | N/A | |
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| ARHGEF10L | 074964 | 469726 | 1447 | N/A | | HK2 | 159399 | 409174 | 9385 | 387140 | 29588 | RALGPS2 | 116191 | 480743 | 17323 | N/A | |
| ARHGEF10L | 074964 | 375408 | 1448 | 364557 | 24703 | HK2 | 159399 | 472302 | 9386 | N/A | | RALGPS2 | 116191 | 367632 | 17324 | 356604 | 34544 |
| ARHGEF10L | 074964 | 167825 | 1449 | 167825 | 24704 | HMCES | 183624 | 509042 | 9387 | 423132 | 29589 | RALGPS2 | 116191 | 478871 | 17325 | N/A | |
| ARHGEF10L | 074964 | 482359 | 1450 | N/A | | HMCES | 183624 | 383463 | 9388 | 372955 | 29590 | RALGPS2 | 116191 | 367634 | 17326 | 356606 | 34545 |
| ARHGEF10L | 074964 | 466782 | 1451 | N/A | | HMCES | 183624 | 417226 | 9389 | 392966 | 29591 | RALYL | 184672 | 522613 | 17327 | 427787 | 34546 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARHGEF10L | 074964 | 495593 | 1452 | N/A | | HMCES | 183624 | 510314 | 9390 | 426276 | 29592 | RALYL | 184672 | 522455 | 17328 | 430394 | 34547 |
| ARHGEF2 | 116584 | 313695 | 1453 | 315325 | 24705 | HMCES | 183624 | 502878 | 9391 | 426215 | 29593 | RALYL | 184672 | 521695 | 17329 | 428667 | 34548 |
| ARHGEF2 | 116584 | 361247 | 1454 | 354837 | 24706 | HMCES | 183624 | 389735 | 9392 | 374385 | 29594 | RALYL | 184672 | 521268 | 17330 | 430367 | 34549 |
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| ARHGEF2 | 116584 | 477754 | 1456 | N/A | | HMCES | 183624 | 511665 | 9394 | 421895 | 29596 | RALYL | 184672 | 517988 | 17332 | 428711 | 34551 |
| ARHGEF2 | 116584 | 470541 | 1457 | 476689 | 24708 | HMGCLL1 | 146151 | 274901 | 9395 | 274901 | 29597 | RALYL | 184672 | 517638 | 17333 | 430128 | 34552 |
| ARHGEF2 | 116584 | 313667 | 1458 | 314787 | 24709 | HMGCLL1 | 146151 | 398661 | 9396 | 381654 | 29598 | RALYL | 184672 | 522647 | 17334 | 429284 | 34553 |
| ARHGEF2 | 116584 | 474428 | 1459 | N/A | | HMGCLL1 | 146151 | 370852 | 9397 | 359889 | 29599 | RALYL | 184672 | 523850 | 17335 | 428807 | 34554 |
| ARHGEF2 | 116584 | 470975 | 1460 | N/A | | HMGCLL1 | 146151 | 370850 | 9398 | 359887 | 29600 | RALYL | 184672 | 521376 | 17336 | 428310 | 34555 |
| ARHGEF2 | 116584 | 608543 | 1461 | N/A | | HMGCLL1 | 146151 | 508459 | 9399 | 424309 | 29601 | RALYL | 184672 | 518065 | 17337 | N/A | |
| ARHGEF2 | 116584 | 470874 | 1462 | 477448 | 24710 | HMGCLL1 | 146151 | 308161 | 9400 | 309737 | 29602 | RAMP1 | 132329 | 404910 | 17338 | 384688 | 34556 |
| ARHGEF2 | 116584 | 471589 | 1463 | 477299 | 24711 | HMGCLL1 | 146151 | 507223 | 9401 | N/A | | RAMP1 | 132329 | 254661 | 17339 | 254661 | 34557 |
| ARHGEF2 | 116584 | 497907 | 1464 | 476724 | 24712 | HMGCLL1 | 146151 | 428842 | 9402 | 412924 | 29603 | RAMP1 | 132329 | 409726 | 17340 | 386720 | 34558 |
| ARHGEF2 | 116584 | 476273 | 1465 | N/A | | HMGCLL1 | 146151 | 515546 | 9403 | 426054 | 29604 | RAMP1 | 132329 | 403885 | 17341 | 386046 | 34559 |
| ARHGEF2 | 116584 | 609707 | 1466 | 476699 | 24713 | HMGCR | 113161 | 511206 | 9404 | 426745 | 29605 | RAMP2 | 131477 | 591972 | 17342 | N/A | |
| ARHGEF2 | 116584 | 487755 | 1467 | N/A | | HMGCR | 113161 | 287936 | 9405 | 287936 | 29606 | RAMP2 | 131477 | 589683 | 17343 | 467463 | 34560 |
| ARHGEF2 | 116584 | 465079 | 1468 | N/A | | HMGCR | 113161 | 343975 | 9406 | 340816 | 29607 | RAMP2 | 131477 | 588928 | 17344 | 466980 | 34561 |
| ARHGEF2 | 116584 | 495070 | 1469 | 476532 | 24714 | HMGCR | 113161 | 509431 | 9407 | N/A | | RAMP2 | 131477 | 253796 | 17345 | 253796 | 34562 |
| ARHGEF2 | 116584 | 423422 | 1470 | 476518 | 24715 | HMGCR | 113161 | 507942 | 9408 | 427340 | 29608 | RAMP2 | 131477 | 587142 | 17346 | 466455 | 34563 |
| ARHGEF2 | 116584 | 609126 | 1471 | N/A | | HMGCR | 113161 | 442032 | 9409 | 409100 | 29609 | RAMP2 | 131477 | 588576 | 17347 | 465725 | 34564 |
| ARHGEF2 | 116584 | 368315 | 1472 | 357298 | 24716 | HMGCR | 113161 | 504466 | 9410 | N/A | | RANBP2 | 153201 | 283195 | 17348 | 283195 | 34565 |
| ARHGEF26 | 114790 | 356448 | 1473 | 348828 | 24717 | HMGCR | 113161 | 515776 | 9411 | N/A | | RANBP2 | 153201 | 425282 | 17349 | 398970 | 34566 |
| ARHGEF26 | 114790 | 465093 | 1474 | 423418 | 24718 | HMGCR | 113161 | 508070 | 9412 | N/A | | RANBP2 | 153201 | 495924 | 17350 | N/A | |
| ARHGEF26 | 114790 | 496710 | 1475 | 424446 | 24719 | HMGCR | 113161 | 509085 | 9413 | 421378 | 29610 | RANBP2 | 153201 | 495506 | 17351 | N/A | |
| ARHGEF26 | 114790 | 465817 | 1476 | 423295 | 24720 | HMGCR | 113161 | 511986 | 9414 | 420871 | 29611 | RANBP2 | 153201 | 629728 | 17352 | 485979 | 34567 |
| ARHGEF26 | 114790 | 483068 | 1477 | N/A | | HMGCR | 113161 | 514315 | 9415 | N/A | | RANBP3L | 164188 | 296604 | 17353 | 296604 | 34568 |
| ARHGEF26 | 277101 | 630534 | 1478 | N/A | | HMGCR | 113161 | 512053 | 9416 | N/A | | RANBP3L | 164188 | 502994 | 17354 | 421853 | 34569 |
| ARHGEF26 | 277101 | 629129 | 1479 | 486665 | 24721 | HMGCS1 | 112972 | 325110 | 9417 | 322706 | 29612 | RANBP3L | 164188 | 515759 | 17355 | 421149 | 34570 |
| ARHGEF26 | 277101 | 630729 | 1480 | 487265 | 24722 | HMGCS1 | 112972 | 433297 | 9418 | 399402 | 29613 | RANBP3L | 164188 | 505865 | 17356 | 427147 | 34571 |
| ARHGEF26 | 277101 | 614308 | 1481 | 481927 | 24723 | HMGCS1 | 112972 | 508319 | 9419 | N/A | | RAPGEF3 | 079337 | 449771 | 17357 | 395708 | 34572 |
| ARHGEF26 | 277101 | 618535 | 1482 | 484367 | 24724 | HMGCS1 | 112972 | 514610 | 9420 | N/A | | RAPGEF3 | 079337 | 547856 | 17358 | 449905 | 34573 |
| ARHGEF28 | 214944 | 296794 | 1483 | 296794 | 24725 | HMGCS1 | 112972 | 507004 | 9421 | N/A | | RAPGEF3 | 079337 | 549151 | 17359 | 448619 | 34574 |
| ARHGEF28 | 214944 | 509848 | 1484 | 421859 | 24726 | HMGCS1 | 112972 | 507293 | 9422 | N/A | | RAPGEF3 | 079337 | 395360 | 17360 | N/A | |
| ARHGEF28 | 214944 | 437974 | 1485 | 411459 | 24727 | HMGCS1 | 112972 | 511774 | 9423 | 427339 | 29614 | RAPGEF3 | 079337 | 482843 | 17361 | N/A | |
| ARHGEF28 | 214944 | 426542 | 1486 | 412175 | 24728 | HMGN1 | 205581 | 288344 | 9424 | 288344 | 29615 | RAPGEF3 | 079337 | 479866 | 17362 | N/A | |
| ARHGEF28 | 214944 | 510131 | 1487 | N/A | | HMGN1 | 205581 | 486741 | 9425 | N/A | | RAPGEF3 | 079337 | 488250 | 17363 | N/A | |
| ARHGEF28 | 214944 | 296799 | 1488 | 296799 | 24729 | HMGN1 | 205581 | 431390 | 9426 | 395291 | 29616 | RAPGEF3 | 079337 | 389212 | 17364 | 373864 | 34575 |
| ARHGEF28 | 214944 | 513841 | 1489 | N/A | | HMGN1 | 205581 | 380749 | 9427 | 370125 | 29617 | RAPGEF3 | 079337 | 548919 | 17365 | 448480 | 34576 |
| ARHGEF28 | 214944 | 506334 | 1490 | N/A | | HMGN1 | 205581 | 492280 | 9428 | N/A | | RAPGEF3 | 079337 | 490387 | 17366 | N/A | |
| ARHGEF28 | 214944 | 510312 | 1491 | N/A | | HMGN1 | 205581 | 436324 | 9429 | 414421 | 29618 | RAPGEF3 | 079337 | 548434 | 17367 | 447691 | 34577 |
| ARHGEF28 | 214944 | 512883 | 1492 | 421081 | 24730 | HMGN1 | 205581 | 380748 | 9430 | 370124 | 29619 | RAPGEF3 | 079337 | 473777 | 17368 | N/A | |
| ARHGEF28 | 214944 | 504003 | 1493 | N/A | | HMGN1 | 205581 | 419378 | 9431 | 396693 | 29620 | RAPGEF3 | 079337 | 476259 | 17369 | N/A | |
| ARHGEF28 | 214944 | 503341 | 1494 | N/A | | HMGN1 | 205581 | 489072 | 9432 | N/A | | RAPGEF3 | 079337 | 395358 | 17370 | 378764 | 34578 |
| ARHGEF28 | 214944 | 545377 | 1495 | 441913 | 24731 | HMGN1 | 205581 | 482192 | 9433 | N/A | | RAPGEF3 | 079337 | 494764 | 17371 | N/A | |
| ARHGEF28 | 214944 | 513042 | 1496 | 441436 | 24732 | HMGN1 | 205581 | 380747 | 9434 | 370123 | 29621 | RAPGEF3 | 079337 | 495465 | 17372 | 449818 | 34579 |
| ARHGEF3 | 163947 | 296315 | 1497 | 296315 | 24733 | HMGN1 | 205581 | 485550 | 9435 | N/A | | RAPGEF3 | 079337 | 466322 | 17373 | 446731 | 34580 |
| ARHGEF3 | 163947 | 338458 | 1498 | 341071 | 24734 | HMGN1 | 205581 | 490032 | 9436 | N/A | | RAPGEF3 | 079337 | 495953 | 17374 | 448804 | 34581 |
| ARHGEF3 | 163947 | 413728 | 1499 | 410922 | 24735 | HMGN1 | 205581 | 443046 | 9437 | 395787 | 29622 | RAPGEF3 | 079337 | 549347 | 17375 | N/A | |
| ARHGEF3 | 163947 | 465659 | 1500 | 417810 | 24736 | HMGN1 | 205581 | 464078 | 9438 | N/A | | RAPGEF3 | 079337 | 405493 | 17376 | 384521 | 34582 |
| ARHGEF3 | 163947 | 496106 | 1501 | 420420 | 24737 | HMGN1 | 205581 | 491183 | 9439 | N/A | | RAPGEF4 | 091428 | 484331 | 17377 | N/A | |
| ARHGEF3 | 163947 | 497267 | 1502 | 418826 | 24738 | HMGN1 | 205581 | 479586 | 9440 | N/A | | RAPGEF4 | 091428 | 397081 | 17378 | 380271 | 34583 |
| ARHGEF3 | 163947 | 495373 | 1503 | 417986 | 24739 | HMGN1 | 205581 | 471260 | 9441 | N/A | | RAPGEF4 | 091428 | 409036 | 17379 | 387104 | 34584 |
| ARHGEF3 | 163947 | 468727 | 1504 | 417087 | 24740 | HMGN1 | 205581 | 482733 | 9442 | N/A | | RAPGEF4 | 091428 | 464976 | 17380 | N/A | |
| ARHGEF3 | 163947 | 473779 | 1505 | 420402 | 24741 | HMGN1 | 205581 | 463631 | 9443 | N/A | | RAPGEF4 | 091428 | 397087 | 17381 | 380276 | 34585 |
| ARHGEF3 | 163947 | 481422 | 1506 | N/A | | HOMER1 | 152413 | 334082 | 9444 | 334382 | 29623 | RAPGEF4 | 091428 | 473003 | 17382 | N/A | |
| ARHGEF3 | 163947 | 498517 | 1507 | N/A | | HOMER1 | 152413 | 460741 | 9445 | N/A | | RAPGEF4 | 091428 | 473043 | 17383 | N/A | |
| ARHGEF3 | 163947 | 477833 | 1508 | 418984 | 24742 | HOMER1 | 152413 | 282260 | 9446 | 282260 | 29624 | RAPGEF4 | 091428 | 466030 | 17384 | N/A | |
| ARHGEF3 | 163947 | 477440 | 1509 | N/A | | HOMER1 | 152413 | 508576 | 9447 | 426651 | 29625 | RAPGEF4 | 091428 | 473182 | 17385 | N/A | |
| ARHGEF3 | 163947 | 468466 | 1510 | 418469 | 24743 | HOMER1 | 152413 | 535690 | 9448 | 441587 | 29626 | RAPGEF4 | 091428 | 459852 | 17386 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARHGEF3 | 163947 | 486829 | 1511 | 420633 | 24744 | HOMER3 | 051128 | 221222 | 9449 | 221222 | 29627 | RAPGEF4 | 091428 | 397085 | 17387 | 380274 | 34586 |
| ARHGEF33 | 214694 | 409978 | 1512 | 387020 | 24745 | HOMER3 | 051128 | 539827 | 9450 | 439937 | 29628 | RAPGEF4 | 091428 | 484645 | 17388 | N/A | |
| ARHGEF33 | 214694 | 488692 | 1513 | N/A | | HOMER3 | 051128 | 392351 | 9451 | 376162 | 29629 | RAPGEF4 | 091428 | 535187 | 17389 | 438011 | 34587 |
| ARHGEF33 | 214694 | 486958 | 1514 | N/A | | HOMER3 | 051128 | 594794 | 9452 | 469800 | 29630 | RAPGEF4 | 091428 | 540783 | 17390 | 440250 | 34588 |
| ARHGEF33 | 214694 | 483305 | 1515 | N/A | | HOMER3 | 051128 | 594439 | 9453 | 471835 | 29631 | RAPGEF4 | 091428 | 538974 | 17391 | 440135 | 34589 |
| ARHGEF33 | 214694 | 411874 | 1516 | 399688 | 24746 | HOMER3 | 051128 | 542541 | 9454 | 446026 | 29632 | RARB | 077092 | 383772 | 17392 | 373282 | 34590 |
| ARHGEF33 | 214694 | 433605 | 1517 | 413620 | 24747 | HOMER3 | 051128 | 595756 | 9455 | N/A | | RARB | 077092 | 437042 | 17393 | 398840 | 34591 |
| ARHGEF33 | 214694 | 430382 | 1518 | N/A | | HOMER3 | 051128 | 596482 | 9456 | 472815 | 29633 | RARB | 077092 | 330688 | 17394 | 332296 | 34592 |
| ARHGEF33 | 214694 | 398800 | 1519 | 381780 | 24748 | HOMER3 | 051128 | 600077 | 9457 | 470659 | 29634 | RARB | 077092 | 489694 | 17395 | N/A | |
| ARHGEF37 | 183111 | 505810 | 1520 | 425621 | 24749 | HOMER3 | 051128 | 599808 | 9458 | N/A | | RARB | 077092 | 480001 | 17396 | N/A | |
| ARHGEF37 | 183111 | 333677 | 1521 | 328083 | 24750 | HOMER3 | 051128 | 599097 | 9459 | 472800 | 29635 | RARB | 077092 | 462272 | 17397 | N/A | |
| ARHGEF37 | 183111 | 509831 | 1522 | N/A | | HOMER3 | 051128 | 433218 | 9460 | 396154 | 29636 | RARB | 077092 | 479097 | 17398 | N/A | |
| ARHGEF4 | 136002 | 409359 | 1523 | 386794 | 24751 | HOXD1 | 128645 | 331462 | 9461 | 328598 | 29637 | RARB | 077092 | 458646 | 17399 | 391391 | 34593 |
| ARHGEF4 | 136002 | 526381 | 1524 | N/A | | HPCAL1 | 115756 | 423674 | 9462 | 413689 | 29638 | RASAL1 | 111344 | 546530 | 17400 | 450244 | 34594 |
| ARHGEF4 | 136002 | 636987 | 1525 | 490717 | 24752 | HPCAL1 | 115756 | 307845 | 9463 | 310749 | 29639 | RASAL1 | 111344 | 261729 | 17401 | 261729 | 34595 |
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| ARHGEF4 | 136002 | 392953 | 1527 | 376680 | 24754 | HPCAL1 | 115756 | 419810 | 9465 | 416359 | 29641 | RASAL1 | 111344 | 549444 | 17403 | N/A | |
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| ARHGEF4 | 136002 | 355771 | 1529 | 348017 | 24756 | HPCAL1 | 115756 | 622018 | 9467 | 482993 | 29643 | RASAL1 | 111344 | 551051 | 17405 | N/A | |
| ARHGEF4 | 136002 | 496764 | 1530 | N/A | | HPCAL1 | 115756 | 620771 | 9468 | 483786 | 29644 | RASAL1 | 111344 | 546727 | 17406 | N/A | |
| ARHGEF4 | 136002 | 439368 | 1531 | N/A | | HPCAL1 | 115756 | 613496 | 9469 | 478231 | 29645 | RASAL1 | 111344 | 418411 | 17407 | N/A | |
| ARHGEF4 | 136002 | 528247 | 1532 | N/A | | HPCAL4 | 116983 | 372844 | 9470 | 361935 | 29646 | RASAL1 | 111344 | 548972 | 17408 | N/A | |
| ARHGEF4 | 136002 | 490728 | 1533 | N/A | | HPCAL4 | 116983 | 612703 | 9471 | 484070 | 29647 | RASAL1 | 111344 | 547810 | 17409 | N/A | |
| ARHGEF4 | 136002 | 532720 | 1534 | 432301 | 24757 | HPCAL4 | 116983 | 617690 | 9472 | 481834 | 29648 | RASAL2 | 075391 | 367649 | 17410 | 356621 | 34598 |
| ARHGEF4 | 136002 | 527365 | 1535 | N/A | | HPN | 105707 | 262626 | 9473 | 262626 | 29649 | RASAL2 | 075391 | 465723 | 17411 | N/A | |
| ARHGEF4 | 136002 | 525092 | 1536 | N/A | | HPN | 105707 | 392226 | 9474 | 376060 | 29650 | RASAL2 | 075391 | 462775 | 17412 | 420558 | 34599 |
| ARHGEF4 | 136002 | 326016 | 1537 | 316845 | 24758 | HPN | 105707 | 600390 | 9475 | 472310 | 29651 | RASAL2 | 075391 | 433130 | 17413 | 402897 | 34600 |
| ARHGEF4 | 136002 | 525839 | 1538 | 432267 | 24759 | HPN | 105707 | 597419 | 9476 | 470327 | 29652 | RASAL2 | 075391 | 463079 | 17414 | N/A | |
| ARHGEF4 | 136002 | 611048 | 1539 | 483548 | 24760 | HPN | 105707 | 599363 | 9477 | N/A | | RASGEF1B | 138670 | 509081 | 17415 | 425393 | 34601 |
| ARHGEF4 | 136002 | 428230 | 1540 | 398455 | 24761 | HPN | 105707 | 596662 | 9478 | N/A | | RASGEF1B | 138670 | 264400 | 17416 | 264400 | 34602 |
| ARHGEF6 | 129675 | 370620 | 1541 | 359654 | 24762 | HPN | 105707 | 541345 | 9479 | N/A | | RASGEF1B | 138670 | 638048 | 17417 | 490436 | 34603 |
| ARHGEF6 | 129675 | 370622 | 1542 | 359656 | 24763 | HPN | 105707 | 593305 | 9480 | N/A | | RASGEF1B | 138670 | 335927 | 17418 | 338437 | 34604 |
| ARHGEF6 | 129675 | 250617 | 1543 | 250617 | 24764 | HPN | 105707 | 600675 | 9481 | N/A | | RASGEF1B | 138670 | 504863 | 17419 | 426929 | 34605 |
| ARIH1 | 166233 | 379887 | 1544 | 369217 | 24765 | HPSE2 | 172987 | 370552 | 9482 | 359583 | 29653 | RASGEF1B | 138670 | 436139 | 17420 | 398763 | 34606 |
| ARIH1 | 166233 | 570085 | 1545 | 456746 | 24766 | HPSE2 | 172987 | 370549 | 9483 | 359580 | 29654 | RASGEF1B | 138670 | 514889 | 17421 | N/A | |
| ARIH1 | 166233 | 564062 | 1546 | 454774 | 24767 | HPSE2 | 172987 | 628193 | 9484 | 485916 | 29655 | RASGEF1B | 138670 | 507538 | 17422 | N/A | |
| ARIH1 | 166233 | 567762 | 1547 | N/A | | HPSE2 | 172987 | 370546 | 9485 | 359577 | 29656 | RASGEF1B | 138670 | 512716 | 17423 | 476065 | 34607 |
| ARIH1 | 166233 | 561987 | 1548 | N/A | | HPSE2 | 172987 | 404542 | 9486 | 384384 | 29657 | RASGEF1B | 138670 | 514050 | 17424 | 490814 | 34608 |
| ARIH1 | 166233 | 565950 | 1549 | N/A | | HPSE2 | 172987 | 614306 | 9487 | 484672 | 29658 | RASGEF1B | 138670 | 512343 | 17425 | 489822 | 34609 |
| ARIH1 | 166233 | 561770 | 1550 | 457767 | 24768 | HRASLS | 127252 | 264735 | 9488 | 264735 | 29659 | RASGEF1B | 138670 | 510780 | 17426 | 490663 | 34610 |
| ARIH1 | 166233 | 566063 | 1551 | N/A | | HRASLS | 127252 | 416012 | 9489 | 414431 | 29660 | RASGEF1B | 138670 | 508294 | 17427 | N/A | |
| ARIH1 | 166233 | 562891 | 1552 | 477687 | 24769 | HRH2 | 113749 | 377291 | 9490 | 366506 | 29661 | RASGEF1B | 138670 | 613784 | 17428 | 484927 | 34611 |
| ARIH1 | 166233 | 563310 | 1553 | N/A | | HRH2 | 113749 | 624694 | 9491 | 490705 | 29662 | RASGRF1 | 058335 | 558480 | 17429 | 452781 | 34612 |
| ARL4A | 122644 | 396662 | 1554 | 379897 | 24770 | HRH2 | 113749 | 636584 | 9492 | 489742 | 29663 | RASGRF1 | 058335 | 419573 | 17430 | 405963 | 34613 |
| ARL4A | 122644 | 356797 | 1555 | 349250 | 24771 | HRH2 | 113749 | 231683 | 9493 | 231683 | 29664 | RASGRF1 | 058335 | 394745 | 17431 | 378228 | 34614 |
| ARL4A | 122644 | 396664 | 1556 | 379899 | 24772 | HRH3 | 101180 | 340177 | 9494 | 342560 | 29665 | RASGRF1 | 058335 | 559926 | 17432 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARL4A | 122644 | 439721 | 1557 | 397651 | 24773 | HRH3 | 101180 | 317393 | 9495 | 321482 | 29666 | RASGRF1 | 058335 | 560334 | 17433 | N/A | |
| ARL4A | 122644 | 404894 | 1558 | 385236 | 24774 | HRH3 | 101180 | 611492 | 9496 | 482567 | 29667 | RASGRF1 | 058335 | 623620 | 17434 | N/A | |
| ARL4A | 122644 | 396663 | 1559 | 379898 | 24775 | HS3ST1 | 002587 | 002596 | 9497 | 002596 | 29668 | RASGRF1 | 058335 | 560286 | 17435 | N/A | |
| ARL5B | 165997 | 377275 | 1560 | 366487 | 24776 | HS3ST1 | 002587 | 514690 | 9498 | 425673 | 29669 | RASGRF1 | 058335 | 560943 | 17436 | N/A | |
| ARMCX1 | 126947 | 372829 | 1561 | 361917 | 24777 | HS3ST1 | 002587 | 510712 | 9499 | 422629 | 29670 | RASGRF1 | 058335 | 561112 | 17437 | N/A | |
| ARNT2 | 172379 | 529181 | 1562 | N/A | | HS3ST2 | 122254 | 261374 | 9500 | 261374 | 29671 | RASGRP1 | 172575 | 310803 | 17438 | 310244 | 34615 |
| ARNT2 | 172379 | 303329 | 1563 | 307479 | 24778 | HS3ST2 | 122254 | 473392 | 9501 | 454505 | 29672 | RASGRP1 | 172575 | 558432 | 17439 | 453583 | 34616 |
| ARNT2 | 172379 | 533983 | 1564 | 453651 | 24779 | HS3ST4 | 182601 | 331351 | 9502 | 330606 | 29673 | RASGRP1 | 172575 | 561180 | 17440 | 452859 | 34617 |
| ARNT2 | 172379 | 527771 | 1565 | 453792 | 24780 | HS3ST4 | 182601 | 475436 | 9503 | N/A | | RASGRP1 | 172575 | 450598 | 17441 | 388540 | 34618 |
| ARNT2 | 172379 | 525103 | 1566 | 452961 | 24781 | HS6ST2 | 171004 | 370836 | 9504 | 359873 | 29674 | RASGRP1 | 172575 | 559830 | 17442 | 452721 | 34619 |
| ARNT2 | 172379 | 531595 | 1567 | N/A | | HS6ST2 | 171004 | 521489 | 9505 | 429473 | 29675 | RASGRP1 | 172575 | 414708 | 17443 | 413105 | 34620 |
| ARNT2 | 172379 | 558849 | 1568 | N/A | | HS6ST2 | 171004 | 602570 | 9506 | N/A | | RASGRP1 | 172575 | 558164 | 17444 | 454164 | 34621 |
| ARNT2 | 172379 | 525505 | 1569 | N/A | | HS6ST2 | 171004 | 370833 | 9507 | 359870 | 29676 | RASGRP1 | 172575 | 557875 | 17445 | 453729 | 34622 |
| ARNT2 | 172379 | 622346 | 1570 | 479393 | 24782 | HS6ST2 | 171004 | 406696 | 9508 | 384013 | 29677 | RASGRP1 | 172575 | 560425 | 17446 | 454053 | 34623 |
| ARPP21 | 172995 | 450234 | 1571 | 411644 | 24783 | HS6ST2 | 171004 | 640529 | 9509 | 491722 | 29678 | RASGRP1 | 172575 | 558418 | 17447 | 453905 | 34624 |
| ARPP21 | 172995 | 428373 | 1572 | 412411 | 24784 | HSD17B11 | 198189 | 358290 | 9510 | 351035 | 29679 | RASGRP1 | 172575 | 561117 | 17448 | 454005 | 34625 |
| ARPP21 | 172995 | 421492 | 1573 | 398598 | 24785 | HSD17B11 | 198189 | 507518 | 9511 | N/A | | RASGRP1 | 172575 | 560929 | 17449 | 452892 | 34626 |
| ARPP21 | 172995 | 444190 | 1574 | 405276 | 24786 | HSD17B11 | 198189 | 512344 | 9512 | N/A | | RASGRP1 | 172575 | 539159 | 17450 | 444762 | 34627 |
| ARPP21 | 172995 | 449196 | 1575 | 409808 | 24787 | HSD17B11 | 198189 | 502576 | 9513 | N/A | | RASGRP3 | 152689 | 402538 | 17451 | 385886 | 34628 |
| ARPP21 | 172995 | 187397 | 1576 | 187397 | 24788 | HSD17B11 | 198189 | 507286 | 9514 | 423775 | 29680 | RASGRP3 | 152689 | 484909 | 17452 | N/A | |
| ARPP21 | 172995 | 452563 | 1577 | 396324 | 24789 | HSD17B11 | 198189 | 513854 | 9515 | N/A | | RASGRP3 | 152689 | 497723 | 17453 | N/A | |
| ARPP21 | 172995 | 438577 | 1578 | 409331 | 24790 | HSD17B11 | 198189 | 508413 | 9516 | N/A | | RASGRP3 | 152689 | 479528 | 17454 | N/A | |
| ARPP21 | 172995 | 414496 | 1579 | 415134 | 24791 | HSD17B12 | 149084 | 278353 | 9517 | 278353 | 29681 | RASGRP3 | 152689 | 437184 | 17455 | 393866 | 34629 |
| ARPP21 | 172995 | 419330 | 1580 | 413005 | 24792 | HSD17B12 | 149084 | 527433 | 9518 | 490749 | 29682 | RASGRP3 | 152689 | 403687 | 17456 | 384192 | 34630 |
| ARPP21 | 172995 | 427542 | 1581 | 401602 | 24793 | HSD17B12 | 149084 | 531185 | 9519 | 436582 | 29683 | RASGRP3 | 152689 | 482857 | 17457 | N/A | |
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| ARPP21 | 172995 | 412048 | 1583 | 390151 | 24795 | HSD17B12 | 149084 | 395700 | 9521 | 379052 | 29685 | RASGRP3 | 152689 | 425210 | 17459 | 401974 | 34632 |
| ARPP21 | 172995 | 396482 | 1584 | 379742 | 24796 | HSD17B12 | 149084 | 636722 | 9522 | 490003 | 29686 | RASGRP3 | 152689 | 444784 | 17460 | 400602 | 34633 |
| ARPP21 | 172995 | 432682 | 1585 | 389754 | 24797 | HSD17B12 | 149084 | 637401 | 9523 | 490421 | 29687 | RASGRP3 | 152689 | 423159 | 17461 | 388139 | 34634 |
| ARPP21 | 172995 | 432450 | 1586 | 412341 | 24798 | HSD17B12 | 149084 | 638034 | 9524 | 490701 | 29688 | RASGRP3 | 152689 | 494927 | 17462 | N/A | |
| ARPP21 | 172995 | 413378 | 1587 | 390169 | 24799 | HSD17B12 | 149084 | 527213 | 9525 | N/A | | RASGRP3 | 152689 | 407811 | 17463 | 383917 | 34635 |
| ARPP21 | 172995 | 417925 | 1588 | 412326 | 24800 | HSD17B12 | 149084 | 532178 | 9526 | N/A | | RASGRP3 | 152689 | 477927 | 17464 | N/A | |
| ARPP21 | 172995 | 396481 | 1589 | 379741 | 24801 | HSD17B12 | 149084 | 533090 | 9527 | N/A | | RASGRP3 | 152689 | 490150 | 17465 | N/A | |
| ARPP21 | 172995 | 434383 | 1590 | N/A | | HSD17B12 | 149084 | 533802 | 9528 | N/A | | RASGRP3 | 152689 | 419772 | 17466 | 409593 | 34636 |
| ARPP21 | 172995 | 441454 | 1591 | 406964 | 24802 | HSD17B12 | 149084 | 534053 | 9529 | N/A | | RASGRP3 | 152689 | 468856 | 17467 | N/A | |
| ARPP21 | 172995 | 436702 | 1592 | 397720 | 24803 | HSD17B12 | 149084 | 525736 | 9530 | N/A | | RASGRP3 | 152689 | 482731 | 17468 | N/A | |
| ARPP21 | 172995 | 438071 | 1593 | 410171 | 24804 | HSP90AA1 | 080824 | 216281 | 9531 | 216281 | 29689 | RASIP1 | 105538 | 601530 | 17469 | N/A | |
| ARPP21 | 172995 | 461826 | 1594 | N/A | | HSP90AA1 | 080824 | 334701 | 9532 | 335153 | 29690 | RASIP1 | 105538 | 222145 | 17470 | 222145 | 34637 |
| ARPP21 | 172995 | 446068 | 1595 | 399482 | 24805 | HSP90AA1 | 080824 | 554401 | 9533 | 451400 | 29691 | RASIP1 | 105538 | 599291 | 17471 | 471633 | 34638 |
| ARPP21 | 172995 | 425289 | 1596 | 408271 | 24806 | HSP90AA1 | 080824 | 557089 | 9534 | N/A | | RASIP1 | 105538 | 594232 | 17472 | N/A | |
| ARPP21 | 172995 | 427590 | 1597 | 396116 | 24807 | HSP90AA1 | 080824 | 560130 | 9535 | N/A | | RASL11B | 128045 | 248706 | 17473 | 248706 | 34639 |
| ARPP21 | 172995 | 476327 | 1598 | N/A | | HSP90AA1 | 080824 | 553585 | 9536 | 450712 | 29692 | RASL11B | 128045 | 515677 | 17474 | N/A | |
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| ARPP21 | 172995 | 481854 | 1600 | N/A | | HSP90AA1 | 080824 | 556554 | 9538 | N/A | | RASL12 | 103710 | 220062 | 17476 | 220062 | 34640 |
| ARPP21 | 172995 | 457165 | 1601 | 412233 | 24808 | HSP90AA1 | 080824 | 557234 | 9539 | 452241 | 29693 | RASL12 | 103710 | 421977 | 17477 | 390028 | 34641 |
| ARPP21 | 172995 | 462173 | 1602 | N/A | | HSP90AA1 | 080824 | 558600 | 9540 | 489370 | 29694 | RASL12 | 103710 | 434605 | 17478 | 412787 | 34642 |
| ARPP21 | 172995 | 463970 | 1603 | N/A | | HSP90AB1 | 096384 | 371646 | 9541 | 360709 | 29695 | RASSF2 | 101265 | 478553 | 17479 | N/A | |
| ARPP21 | 172995 | 473138 | 1604 | N/A | | HSP90AB1 | 096384 | 353801 | 9542 | 325875 | 29696 | RASSF2 | 101265 | 379400 | 17480 | 368710 | 34643 |
| ARPP21 | 172995 | 476052 | 1605 | N/A | | HSP90AB1 | 096384 | 371554 | 9543 | 360609 | 29697 | RASSF2 | 101265 | 379376 | 17481 | 368684 | 34644 |
| ARRB1 | 137486 | 420843 | 1606 | 409581 | 24809 | HSP90AB1 | 096384 | 620073 | 9544 | 481908 | 29698 | RBKS | 171174 | 302188 | 17482 | 306817 | 34645 |
| ARRB1 | 137486 | 360025 | 1607 | 353124 | 24810 | HSPA1A | 234475 | 433487 | 9545 | 408907 | 29699 | RBKS | 171174 | 449378 | 17483 | 413789 | 34646 |
| ARRB1 | 137486 | 532447 | 1608 | 436530 | 24811 | HSPA1A | 234475 | 452298 | 9546 | 393259 | 29700 | RBKS | 171174 | 458185 | 17484 | 393558 | 34647 |
| ARRB1 | 137486 | 531012 | 1609 | N/A | | HSPA1A | 215328 | 400040 | 9547 | 382915 | 29701 | RBKS | 171174 | 453412 | 17485 | 415975 | 34648 |
| ARRB1 | 137486 | 529741 | 1610 | N/A | | HSPA1A | 215328 | 383389 | 9548 | 372880 | 29702 | RBKS | 171174 | 612015 | 17486 | 483033 | 34649 |
| ARRB1 | 137486 | 532525 | 1611 | 433171 | 24812 | HSPA1A | 235941 | 430065 | 9549 | 404524 | 29703 | RBM22 | 086589 | 520132 | 17487 | N/A | |
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| ARRB1 | 137486 | 533609 | 1613 | 436352 | 24814 | HSPA1A | 204389 | 375651 | 9551 | 364802 | 29705 | RBM22 | 086589 | 447771 | 17489 | 412118 | 34651 |
| ARRB1 | 137486 | 527385 | 1614 | 433137 | 24815 | HSPA1A | 204389 | 608703 | 9552 | 477378 | 29706 | RBM22 | 086589 | 522469 | 17490 | N/A | |
| ARRB1 | 137486 | 530086 | 1615 | N/A | | HSPA1A | 237724 | 441618 | 9553 | 406359 | 29707 | RBM22 | 086589 | 518917 | 17491 | 428154 | 34652 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARRB1 | 137486 | 529280 | 1616 | N/A | | HSPA1A | 237724 | 449876 | 9554 | 410693 | 29708 | RBM22 | 086589 | 521248 | 17492 | N/A | |
| ARRB1 | 137486 | 533255 | 1617 | N/A | | HSPA1B | 231555 | 445736 | 9555 | 403530 | 29709 | RBM22 | 086589 | 521594 | 17493 | N/A | |
| ARRDC3 | 113369 | 265138 | 1618 | 265138 | 24816 | HSPA1B | 204388 | 375650 | 9556 | 364801 | 29710 | RBM22 | 086589 | 521464 | 17494 | 430946 | 34653 |
| ARRDC3 | 113369 | 511391 | 1619 | N/A | | HSPA1B | 212866 | 391555 | 9557 | 375399 | 29711 | RBM24 | 112183 | 379052 | 17495 | 368341 | 34654 |
| ARRDC3 | 113369 | 505631 | 1620 | N/A | | HSPA1B | 212866 | 458062 | 9558 | 402651 | 29712 | RBM24 | 112183 | 509686 | 17496 | 426222 | 34655 |
| ARRDC3 | 113369 | 514284 | 1621 | N/A | | HSPA1B | 232804 | 450744 | 9559 | 393087 | 29713 | RBM24 | 112183 | 425446 | 17497 | 396898 | 34656 |
| ARRDC3 | 113369 | 508948 | 1622 | N/A | | HSPA1B | 232804 | 417199 | 9560 | 387691 | 29714 | RBM24 | 112183 | 503965 | 17498 | 421971 | 34657 |
| ARRDC3 | 113369 | 503192 | 1623 | N/A | | HSPA1B | 224501 | 391548 | 9561 | 375391 | 29715 | RBM24 | 112183 | 318204 | 17499 | 319551 | 34658 |
| ARRDC3 | 113369 | 507075 | 1624 | N/A | | HSPA1B | 224501 | 545241 | 9562 | 442789 | 29716 | RBM24 | 112183 | 504055 | 17500 | N/A | |
| ARSDP1 | 225117 | 443820 | 1625 | N/A | | HSPA4 | 170606 | 304858 | 9563 | 302961 | 29717 | RBM24 | 112183 | 510826 | 17501 | N/A | |
| ARSG | 141337 | 448504 | 1626 | 407193 | 24817 | HSPA4 | 170606 | 504328 | 9564 | N/A | | RBM24 | 112183 | 508508 | 17502 | N/A | |
| ARSG | 141337 | 578726 | 1627 | N/A | | HSPA4 | 170606 | 514825 | 9565 | N/A | | RBM25 | 119707 | 261973 | 17503 | 261973 | 34659 |
| ARSG | 141337 | 581639 | 1628 | 462306 | 24818 | HSPA4 | 170606 | 615899 | 9566 | 478102 | 29718 | RBM25 | 119707 | 527432 | 17504 | 431150 | 34660 |
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| ARSG | 141337 | 582154 | 1630 | N/A | | HSPA4L | 164070 | 508776 | 9568 | 422482 | 29720 | RBM25 | 119707 | 532683 | 17506 | N/A | |
| ARSG | 141337 | 581032 | 1631 | N/A | | HSPA4L | 164070 | 296464 | 9569 | 296464 | 29721 | RBM25 | 119707 | 525321 | 17507 | 436868 | 34662 |
| ARSG | 141337 | 578554 | 1632 | N/A | | HSPA4L | 164070 | 508549 | 9570 | 427305 | 29722 | RBM25 | 119707 | 526754 | 17508 | 436225 | 34663 |
| ARSG | 141337 | 590690 | 1633 | N/A | | HSPA4L | 164070 | 505726 | 9571 | 425645 | 29723 | RBM25 | 119707 | 525161 | 17509 | 434004 | 34664 |
| ARSG | 141337 | 621439 | 1634 | 480910 | 24820 | HSPA4L | 164070 | 515262 | 9572 | N/A | | RBM25 | 119707 | 528081 | 17510 | 434444 | 34665 |
| ARX | 004848 | 379044 | 1635 | 368332 | 24821 | HSPA8 | 109971 | 532636 | 9573 | 437125 | 29724 | RBM25 | 119707 | 532192 | 17511 | 434950 | 34666 |
| ARX | 004848 | 636885 | 1636 | N/A | | HSPA8 | 109971 | 533540 | 9574 | 437189 | 29725 | RBM25 | 119707 | 532483 | 17512 | N/A | |
| ARX | 004848 | 637993 | 1637 | 490122 | 24822 | HSPA8 | 109971 | 534624 | 9575 | 432083 | 29726 | RBM25 | 119707 | 527449 | 17513 | N/A | |
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| ARX | 004848 | 637394 | 1639 | N/A | | HSPA8 | 109971 | 532091 | 9577 | N/A | | RBM7 | 076053 | 540163 | 17515 | 439918 | 34667 |
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| ASAP3 | 088280 | 530874 | 1647 | N/A | | HSPA8 | 109971 | 527983 | 9585 | N/A | | RBM7 | 076053 | 624815 | 17523 | 485655 | 34674 |
| ASAP3 | 088280 | 478858 | 1648 | N/A | | HSPA8 | 109971 | 528292 | 9586 | 432884 | 29733 | RBMS3 | 144642 | 432518 | 17524 | N/A | |
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| ASAP3 | 282854 | 634883 | 1659 | 489094 | 24839 | HSPA9 | 113013 | 297185 | 9597 | 297185 | 29741 | RBMS3 | 144642 | 273139 | 17535 | 273139 | 34680 |
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| ASAP3 | 282854 | 634459 | 1661 | N/A | | HSPA9 | 113013 | 524109 | 9599 | N/A | | RBMS3 | 144642 | 452462 | 17537 | 397926 | 34682 |
| ASAP3 | 282854 | 634548 | 1662 | 489187 | 24840 | HSPA9 | 113013 | 512328 | 9600 | 421892 | 29742 | RBMS3 | 144642 | 456853 | 17538 | 400519 | 34683 |
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| ASGR1 | 141505 | 269299 | 1665 | 269299 | 24842 | HSPA9 | 113013 | 508003 | 9603 | N/A | | RBMS3 | 144642 | 497319 | 17541 | N/A | |
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| ASGR1 | 141505 | 572879 | 1669 | 458530 | 24846 | HSPA9 | 113013 | 504810 | 9607 | 425598 | 29747 | RBP2 | 114113 | 511956 | 17545 | 424333 | 34685 |
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| ASGR1 | 141505 | 573596 | 1671 | N/A | | HSPA9 | 113013 | 507886 | 9609 | 423098 | 29748 | RBPJL | 124232 | 372743 | 17547 | 361828 | 34687 |
| ASGR1 | 141505 | 573083 | 1672 | 459896 | 24848 | HSPB1 | 106211 | 248553 | 9610 | 248553 | 29749 | RBPJL | 124232 | 372741 | 17548 | 361826 | 34688 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASIC1 | 110881 | 447966 | 1675 | 400228 | 24851 | HSPD1 | 144381 | 388968 | 9613 | 373620 | 29752 | RBPJL | 124232 | 622729 | 17551 | N/A | |
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| ASIC2 | 108684 | 225823 | 1683 | 225823 | 24856 | HSPD1 | 144381 | 461097 | 9621 | N/A | | RCN1 | 049449 | 532942 | 17559 | 436422 | 34698 |
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| ASIC4 | 072182 | 474489 | 1691 | N/A | | HSPH1 | 120694 | 435381 | 9629 | 408991 | 29763 | RCN1 | 049449 | 531345 | 17567 | N/A | |
| ASIC4 | 072182 | 473709 | 1692 | N/A | | HSPH1 | 120694 | 630972 | 9630 | 487365 | 29764 | RCN1 | 049449 | 528630 | 17568 | 433237 | 34702 |
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| ASNS | 070669 | 394308 | 1696 | 377845 | 24863 | HSPH1 | 120694 | 469538 | 9634 | N/A | | RCN2 | 117906 | 557805 | 17572 | 453052 | 34706 |
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| ASNS | 070669 | 414884 | 1708 | 413797 | 24872 | HTR5A | 157219 | 486819 | 9646 | N/A | | REEP1 | 068615 | 473407 | 17584 | N/A | |
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| ASPA | 108381 | 577034 | 1710 | 458324 | 24874 | HTR5A-AS1 | 220575 | 493904 | 9648 | N/A | | REEP1 | 068615 | 475475 | 17586 | N/A | |
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| ASPG | 166183 | 551177 | 1714 | 450040 | 24878 | HUNK | 142149 | 430354 | 9652 | 411860 | 29780 | RELN | 189056 | 473457 | 17590 | N/A | |
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| ASPG | 166183 | 546892 | 1716 | 448911 | 24879 | HUNK | 142149 | 439107 | 9654 | 408219 | 29781 | RELN | 189056 | 343529 | 17592 | 345694 | 34716 |
| ASPG | 166183 | 551170 | 1717 | 447032 | 24880 | ICAM5 | 105376 | 221980 | 9655 | 221980 | 29782 | RELN | 189056 | 428762 | 17593 | 392423 | 34717 |
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| ASPG | 166183 | 552126 | 1719 | N/A | | ICAM5 | 105376 | 586004 | 9657 | N/A | | REPIN1 | 214022 | 519397 | 17595 | 428562 | 34719 |
| ASPG | 166183 | 556267 | 1720 | N/A | | ICAM5 | 105376 | 587398 | 9658 | 464796 | 29783 | REPIN1 | 214022 | 487455 | 17596 | N/A | |
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| ASPG | 166183 | 551871 | 1722 | N/A | | ICMT | 116237 | 343813 | 9660 | 343552 | 29784 | REPIN1 | 214022 | 466559 | 17598 | 418507 | 34721 |
| ASTN2 | 148219 | 288520 | 1723 | 288520 | 24882 | ICMT | 116237 | 495791 | 9661 | N/A | | REPIN1 | 214022 | 489432 | 17599 | 417291 | 34722 |
| ASTN2 | 148219 | 341734 | 1724 | 339925 | 24883 | ICMT | 116237 | 489498 | 9662 | 466222 | 29785 | REPIN1 | 214022 | 475514 | 17600 | 419789 | 34723 |
| ASTN2 | 148219 | 373986 | 1725 | 363098 | 24884 | ICMT | 116237 | 474756 | 9663 | 467999 | 29786 | REPIN1 | 214022 | 473391 | 17601 | N/A | |
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| ASTN2 | 148219 | 417725 | 1727 | 412099 | 24886 | ICOSLG | 160223 | 407780 | 9665 | 384432 | 29788 | REPIN1 | 214022 | 488943 | 17603 | 419872 | 34725 |
| ASTN2 | 148219 | 358637 | 1728 | 351460 | 24887 | ICOSLG | 160223 | 400379 | 9666 | 383230 | 29789 | REPIN1 | 214022 | 495535 | 17604 | N/A | |
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| ASTN2 | 148219 | 313400 | 1730 | 314038 | 24889 | ID2 | 115738 | 234091 | 9668 | 234091 | 29791 | REPIN1 | 214022 | 469309 | 17606 | N/A | |
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| ATAD2 | 156802 | 287394 | 1732 | 287394 | 24891 | ID2 | 115738 | 472142 | 9670 | N/A | | REPIN1 | 214022 | 522266 | 17608 | 427721 | 34728 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATAD2 | 156802 | 521903 | 1733 | 429213 | 24892 | IID2 | 115738 | 396290 | 9671 | 379585 | 29793 | REPIN1 | 214022 | 518462 | 17609 | N/A | |
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| ATAD2 | 156802 | 530065 | 1738 | N/A | | IDI1 | 067064 | 429642 | 9676 | 401879 | 29797 | RERG | 134533 | 256953 | 17614 | 256953 | 34733 |
| ATF3 | 162772 | 366981 | 1739 | 355948 | 24894 | IDI1 | 067064 | 482091 | 9677 | N/A | | RERG | 134533 | 538313 | 17615 | 441505 | 34734 |
| ATF3 | 162772 | 465155 | 1740 | N/A | | IFFO1 | 010295 | 472558 | 9678 | N/A | | RERG | 134533 | 536465 | 17616 | 438280 | 34735 |
| ATF3 | 162772 | 341491 | 1741 | 344352 | 24895 | IFFO1 | 010295 | 471408 | 9679 | N/A | | RERG | 134533 | 546331 | 17617 | 444485 | 34736 |
| ATF3 | 162772 | 366985 | 1742 | 355952 | 24896 | IFFO1 | 010295 | 465801 | 9680 | 436261 | 29798 | RERG | 134533 | 545567 | 17618 | 439532 | 34737 |
| ATF3 | 162772 | 492118 | 1743 | N/A | | IFFO1 | 010295 | 336604 | 9681 | 337593 | 29799 | RERG | 134533 | 537647 | 17619 | 441860 | 34738 |
| ATF3 | 162772 | 336937 | 1744 | 336908 | 24897 | IFFO1 | 010295 | 487279 | 9682 | 432493 | 29800 | RERG | 134533 | 393736 | 17620 | 440887 | 34739 |
| ATF3 | 162772 | 464547 | 1745 | 432208 | 24898 | IFFO1 | 010295 | 396840 | 9683 | 380052 | 29801 | RERG | 134533 | 537717 | 17621 | N/A | |
| ATF3 | 162772 | 366983 | 1746 | 355950 | 24899 | IFFO1 | 010295 | 356896 | 9684 | 349364 | 29802 | RERG | 134533 | 437578 | 17622 | N/A | |
| ATF3 | 162772 | 613104 | 1747 | 480606 | 24900 | IFFO1 | 010295 | 488007 | 9685 | N/A | | RET | 165731 | 355710 | 17623 | 347942 | 34740 |
| ATF3 | 162772 | 366987 | 1748 | 355954 | 24901 | IFFO1 | 010295 | 396830 | 9686 | N/A | | RET | 165731 | 498820 | 17624 | 419080 | 34741 |
| ATF3 | 162772 | 613954 | 1749 | 483576 | 24902 | IFFO1 | 010295 | 619571 | 9687 | 482285 | 29803 | RET | 165731 | 340058 | 17625 | 344798 | 34742 |
| ATF6B | 234539 | 427136 | 1750 | 404725 | 24903 | IFFO1 | 010295 | 436152 | 9688 | 390721 | 29804 | RET | 165731 | 638465 | 17626 | 491505 | 34743 |
| ATF6B | 234539 | 439240 | 1751 | 391131 | 24904 | IFFO1 | 010295 | 615885 | 9689 | 482340 | 29805 | RET | 165731 | 640619 | 17627 | 492728 | 34744 |
| ATF6B | 234539 | 417614 | 1752 | 399944 | 24905 | IFNLR1 | 185436 | 327535 | 9690 | 327824 | 29806 | RET | 165731 | 479913 | 17628 | N/A | |
| ATF6B | 234539 | 477445 | 1753 | N/A | | IFNLR1 | 185436 | 327575 | 9691 | 328994 | 29807 | RET | 165731 | 615310 | 17629 | 480088 | 34745 |
| ATF6B | 234539 | 465605 | 1754 | N/A | | IFNLR1 | 185436 | 374421 | 9692 | 363542 | 29808 | RFTN1 | 131378 | 607320 | 17630 | 475367 | 34746 |
| ATF6B | 234539 | 498564 | 1755 | N/A | | IFNLR1 | 185436 | 374419 | 9693 | 363540 | 29809 | RFTN1 | 131378 | 432519 | 17631 | 403926 | 34747 |
| ATF6B | 234539 | 477295 | 1756 | N/A | | IFNLR1 | 185436 | 374418 | 9694 | 363539 | 29810 | RFTN1 | 131378 | 334133 | 17632 | 334153 | 34748 |
| ATF6B | 234539 | 475964 | 1757 | N/A | | IFRD1 | 006652 | 432734 | 9695 | 391379 | 29811 | RFTN1 | 131378 | 483671 | 17633 | N/A | |
| ATF6B | 213676 | 494022 | 1758 | N/A | | IFRD1 | 006652 | 005558 | 9696 | 005558 | 29812 | RFTN1 | 131378 | 451036 | 17634 | 403997 | 34749 |
| ATF6B | 213676 | 375203 | 1759 | 364349 | 24906 | IFRD1 | 006652 | 443101 | 9697 | 397592 | 29813 | RFTN1 | 131378 | 495666 | 17635 | N/A | |
| ATF6B | 213676 | 375201 | 1760 | 364347 | 24907 | IFRD1 | 006652 | 445335 | 9698 | 402453 | 29814 | RFTN1 | 131378 | 484752 | 17636 | N/A | |
| ATF6B | 213676 | 453203 | 1761 | 393419 | 24908 | IFRD1 | 006652 | 417662 | 9699 | 413893 | 29815 | RFTN1 | 131378 | 470458 | 17637 | N/A | |
| ATF6B | 213676 | 475705 | 1762 | N/A | | IFRD1 | 006652 | 403825 | 9700 | 384477 | 29816 | RFTN1 | 131378 | 449415 | 17638 | 409427 | 34750 |
| ATF6B | 213676 | 492342 | 1763 | N/A | | IFRD1 | 006652 | 429071 | 9701 | 397314 | 29817 | RFTN1 | 131378 | 441460 | 17639 | 388718 | 34751 |
| ATF6B | 213676 | 495579 | 1764 | N/A | | IFRD1 | 006652 | 476927 | 9702 | 437250 | 29818 | RFTN1 | 131378 | 453536 | 17640 | 410493 | 34752 |
| ATF6B | 213676 | 485314 | 1765 | N/A | | IFRD1 | 006652 | 440625 | 9703 | 402177 | 29819 | RFTN1 | 131378 | 431547 | 17641 | 393216 | 34753 |
| ATF6B | 213676 | 468502 | 1766 | N/A | | IFRD1 | 006652 | 466459 | 9704 | N/A | | RFX4 | 111783 | 392842 | 17642 | 376585 | 34754 |
| ATF6B | 228628 | 425571 | 1767 | 404814 | 24909 | IFRD1 | 006652 | 486688 | 9705 | N/A | | RFX4 | 111783 | 546882 | 17643 | 447423 | 34755 |
| ATF6B | 228628 | 435768 | 1768 | 399764 | 24910 | IFRD1 | 006652 | 421296 | 9706 | 403203 | 29820 | RFX4 | 111783 | 549040 | 17644 | 447735 | 34756 |
| ATF6B | 228628 | 436157 | 1769 | 389467 | 24911 | IFRD1 | 006652 | 489994 | 9707 | N/A | | RFX4 | 111783 | 539967 | 17645 | 473326 | 34757 |
| ATF6B | 228628 | 462947 | 1770 | N/A | | IFRD1 | 006652 | 470441 | 9708 | N/A | | RFX4 | 111783 | 357881 | 17646 | 350552 | 34758 |
| ATF6B | 228628 | 461317 | 1771 | N/A | | IFRD1 | 006652 | 462155 | 9709 | 435635 | 29821 | RFX4 | 111783 | 536722 | 17647 | 444163 | 34759 |
| ATF6B | 228628 | 492011 | 1772 | N/A | | IFRD1 | 006652 | 621379 | 9710 | 483255 | 29822 | RFX4 | 111783 | 536688 | 17648 | N/A | |
| ATF6B | 228628 | 483144 | 1773 | N/A | | IFRD1 | 006652 | 535603 | 9711 | 439188 | 29823 | RFX4 | 111783 | 552773 | 17649 | N/A | |
| ATF6B | 228628 | 476416 | 1774 | N/A | | IFRD1 | 006652 | 432734 | 9712 | 391379 | 29824 | RFX4 | 111783 | 551640 | 17650 | 448694 | 34760 |
| ATF6B | 168468 | 293709 | 1775 | 293709 | 24912 | IFRD1 | 006652 | 005558 | 9713 | 005558 | 29825 | RFX4 | 111783 | 552866 | 17651 | N/A | |
| ATF6B | 168468 | 383156 | 1776 | 372642 | 24913 | IFRD1 | 006652 | 443101 | 9714 | 397592 | 29826 | RFX4 | 111783 | 229387 | 17652 | 229387 | 34761 |
| ATF6B | 168468 | 413319 | 1777 | 412066 | 24914 | IFRD1 | 006652 | 445335 | 9715 | 402453 | 29827 | RFX4 | 111783 | 552917 | 17653 | 449732 | 34762 |
| ATF6B | 168468 | 465333 | 1778 | N/A | | IFRD1 | 006652 | 417662 | 9716 | 413893 | 29828 | RGCC | 102760 | 379359 | 17654 | 368664 | 34763 |
| ATF6B | 168468 | 491968 | 1779 | N/A | | IFRD1 | 006652 | 403825 | 9717 | 384477 | 29829 | RGCC | 102760 | 487837 | 17655 | N/A | |
| ATF6B | 168468 | 463669 | 1780 | N/A | | IFRD1 | 006652 | 429071 | 9718 | 397314 | 29830 | KIAA0513 | 135709 | 566428 | 17656 | 457408 | 34764 |
| ATF6B | 168468 | 465377 | 1781 | N/A | | IFRD1 | 006652 | 476927 | 9719 | 437250 | 29831 | KIAA0513 | 135709 | 567328 | 17657 | 455544 | 34765 |
| ATF6B | 168468 | 467437 | 1782 | N/A | | IFRD1 | 006652 | 440625 | 9720 | 402177 | 29832 | KIAA0513 | 135709 | 562580 | 17658 | 454547 | 34766 |
| ATL2 | 119787 | 378954 | 1783 | 368237 | 24915 | IFRD1 | 006652 | 466459 | 9721 | N/A | | KIAA0513 | 135709 | 562564 | 17659 | 454758 | 34767 |
| ATL2 | 119787 | 406122 | 1784 | 385446 | 24916 | IFRD1 | 006652 | 486688 | 9722 | N/A | | KIAA0513 | 135709 | 562388 | 17660 | N/A | |
| ATL2 | 119787 | 402054 | 1785 | 384062 | 24917 | IFRD1 | 006652 | 421296 | 9723 | 403203 | 29833 | KIAA0513 | 135709 | 258180 | 17661 | 258180 | 34768 |
| ATL2 | 119787 | 405384 | 1786 | 383944 | 24918 | IFRD1 | 006652 | 489994 | 9724 | N/A | | KIAA0513 | 135709 | 538274 | 17662 | 446439 | 34769 |
| ATL2 | 119787 | 419554 | 1787 | 415336 | 24919 | IFRD1 | 006652 | 470441 | 9725 | N/A | | RGL3 | 205517 | 562663 | 17663 | 454678 | 34770 |
| ATL2 | 119787 | 452935 | 1788 | 390743 | 24920 | IFRD1 | 006652 | 462155 | 9726 | 435635 | 29834 | RGL3 | 205517 | 563726 | 17664 | 455922 | 34771 |
| ATL2 | 119787 | 477642 | 1789 | N/A | | IFRD1 | 006652 | 621379 | 9727 | 483255 | 29835 | RGL3 | 205517 | 566153 | 17665 | N/A | |
| ATL2 | 119787 | 489896 | 1790 | N/A | | IFRD1 | 006652 | 535603 | 9728 | 439188 | 29836 | RGL3 | 205517 | 380456 | 17666 | 369823 | 34772 |
| ATL2 | 119787 | 449130 | 1791 | 409811 | 24921 | IFT43 | 119650 | 554026 | 9729 | N/A | | RGL3 | 205517 | 568628 | 17667 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATL2 | 119787 | 443098 | 1792 | 410592 | 24922 | IFT43 | 119650 | 555305 | 9730 | N/A | | RGL3 | 205517 | 393423 | 17668 | 377075 | 34773 |
| ATL2 | 119787 | 456736 | 1793 | 413216 | 24923 | IFT43 | 119650 | 555370 | 9731 | 452051 | 29837 | RGL3 | 205517 | 566919 | 17669 | N/A | |
| ATL2 | 119787 | 474535 | 1794 | N/A | | IFT43 | 119650 | 238628 | 9732 | 238628 | 29838 | RGL3 | 205517 | 589032 | 17670 | 466669 | 34774 |
| ATL2 | 119787 | 472097 | 1795 | N/A | | IFT43 | 119650 | 556742 | 9733 | 451096 | 29839 | RGL3 | 205517 | 453604 | 17671 | N/A | |
| ATL2 | 119787 | 451483 | 1796 | 404921 | 24924 | IFT43 | 119650 | 553338 | 9734 | N/A | | RGL3 | 205517 | 565895 | 17672 | N/A | |
| ATL2 | 119787 | 486927 | 1797 | N/A | | IFT43 | 119650 | 553438 | 9735 | N/A | | RGL3 | 205517 | 569439 | 17673 | N/A | |
| ATL2 | 119787 | 416222 | 1798 | 406004 | 24925 | IFT43 | 119650 | 554423 | 9736 | N/A | | RGL3 | 205517 | 561687 | 17674 | N/A | |
| ATL2 | 119787 | 629272 | 1799 | 486809 | 24926 | IFT43 | 119650 | 554233 | 9737 | N/A | | RGL3 | 205517 | 567431 | 17675 | 464876 | 34775 |
| ATL3 | 184743 | 398868 | 1800 | 381844 | 24927 | IFT43 | 119650 | 314067 | 9738 | 324177 | 29840 | RGL3 | 205517 | 563436 | 17676 | N/A | |
| ATL3 | 184743 | 538786 | 1801 | 437593 | 24928 | IFT43 | 119650 | 555677 | 9739 | N/A | | RGL3 | 205517 | 567080 | 17677 | 456429 | 34776 |
| ATL3 | 184743 | 540699 | 1802 | 441842 | 24929 | IFT43 | 119650 | 542766 | 9740 | 440064 | 29841 | RGL3 | 205517 | 568420 | 17678 | N/A | |
| ATL3 | 184743 | 535789 | 1803 | N/A | | IGDCC3 | 174498 | 327987 | 9741 | 332773 | 29842 | RGL3 | 205517 | 561570 | 17679 | N/A | |
| ATOH8 | 168874 | 469442 | 1804 | N/A | | IGDCC3 | 174498 | 558354 | 9742 | 454105 | 29843 | RGMA | 182175 | 329082 | 17680 | 330005 | 34777 |
| ATOH8 | 168874 | 306279 | 1805 | 304676 | 24930 | IGDCC3 | 174498 | 559231 | 9743 | N/A | | RGMA | 182175 | 542321 | 17681 | 440025 | 34778 |
| ATOH8 | 168874 | 463422 | 1806 | N/A | | IGDCC3 | 174498 | 559058 | 9744 | 452838 | 29844 | RGMA | 182175 | 554387 | 17682 | 451505 | 34779 |
| ATOH8 | 168874 | 473116 | 1807 | N/A | | IGDCC3 | 174498 | 559947 | 9745 | N/A | | RGMA | 182175 | 557301 | 17683 | 452126 | 34780 |
| ATOH8 | 168874 | 489682 | 1808 | N/A | | IGDCC4 | 103742 | 352385 | 9746 | 319623 | 29845 | RGMA | 182175 | 557420 | 17684 | 452170 | 34781 |
| ATP13A4 | 127249 | 400270 | 1809 | 383129 | 24931 | IGDCC4 | 103742 | 558048 | 9747 | N/A | | RGMA | 182175 | 556658 | 17685 | 456290 | 34782 |
| ATP13A4 | 127249 | 428352 | 1810 | 395367 | 24932 | IGDCC4 | 103742 | 559327 | 9748 | N/A | | RGMA | 182175 | 555584 | 17686 | N/A | |
| ATP13A4 | 127249 | 450950 | 1811 | 402023 | 24933 | IGDCC4 | 103742 | 561309 | 9749 | N/A | | RGMA | 182175 | 555598 | 17687 | 451709 | 34783 |
| ATP13A4 | 127249 | 392443 | 1812 | 376238 | 24934 | IGDCC4 | 103742 | 560319 | 9750 | N/A | | RGMA | 182175 | 557608 | 17688 | N/A | |
| ATP13A4 | 127249 | 342695 | 1813 | 339182 | 24935 | IGDCC4 | 103742 | 558819 | 9751 | N/A | | RGMA | 182175 | 556950 | 17689 | 452350 | 34784 |
| ATP13A4 | 127249 | 482964 | 1814 | N/A | | IGF2 | 167244 | 416167 | 9752 | 414497 | 29846 | RGMA | 182175 | 425933 | 17690 | 404442 | 34785 |
| ATP13A4 | 127249 | 474776 | 1815 | N/A | | IGF2 | 167244 | 434045 | 9753 | 391826 | 29847 | RGMA | 182175 | 543599 | 17691 | 442498 | 34786 |
| ATP13A4 | 127249 | 437904 | 1816 | 401481 | 24936 | IGF2 | 167244 | 381392 | 9754 | 370799 | 29848 | RGMB | 174136 | 504776 | 17692 | N/A | |
| ATP13A4 | 127249 | 490925 | 1817 | N/A | | IGF2 | 167244 | 381389 | 9755 | 370796 | 29849 | RGMB | 174136 | 505265 | 17693 | N/A | |
| ATP13A4 | 127249 | 295548 | 1818 | 295548 | 24937 | IGF2 | 167244 | 418738 | 9756 | 402047 | 29850 | RGMB | 174136 | 434027 | 17694 | N/A | |
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| ATP1A1 | 163399 | 418797 | 1820 | 400124 | 24938 | IGF2 | 167244 | 381406 | 9758 | 370813 | 29852 | RGMB | 174136 | 507054 | 17696 | N/A | |
| ATP1A1 | 163399 | 295598 | 1821 | 295598 | 24939 | IGFBP3 | 146674 | 381086 | 9759 | 370476 | 29853 | RGMB | 174136 | 513185 | 17697 | 423256 | 34788 |
| ATP1A1 | 163399 | 488733 | 1822 | N/A | | IGFBP3 | 146674 | 275521 | 9760 | 275521 | 29854 | RGMB | 174136 | 508978 | 17698 | N/A | |
| ATP1A1 | 163399 | 369494 | 1823 | 358506 | 24940 | IGFBP3 | 146674 | 460209 | 9761 | N/A | | RGS16 | 143333 | 367558 | 17699 | 356529 | 34789 |
| ATP1A1 | 163399 | 463382 | 1824 | N/A | | IGFBP3 | 146674 | 381083 | 9762 | 370473 | 29855 | RGS2 | 116741 | 483295 | 17700 | N/A | |
| ATP1A1 | 163399 | 491156 | 1825 | N/A | | IGFBP3 | 146674 | 428530 | 9763 | 390298 | 29856 | RGS2 | 116741 | 235382 | 17701 | 235382 | 34790 |
| ATP1A1 | 163399 | 440951 | 1826 | 396236 | 24941 | IGFBP3 | 146674 | 417621 | 9764 | 399116 | 29857 | RGS2 | 116741 | 464302 | 17702 | N/A | |
| ATP1A1 | 163399 | 479960 | 1827 | N/A | | IGFBP3 | 146674 | 448817 | 9765 | 389668 | 29858 | RGS2 | 116741 | 487236 | 17703 | N/A | |
| ATP1A1 | 163399 | 495965 | 1828 | N/A | | IGFBP3 | 146674 | 465642 | 9766 | N/A | | RGS20 | 147509 | 297313 | 17704 | 297313 | 34791 |
| ATP1A1 | 163399 | 369496 | 1829 | 358508 | 24942 | IGFBP3 | 146674 | 460477 | 9767 | N/A | | RGS20 | 147509 | 517659 | 17705 | 428795 | 34792 |
| ATP1A1 | 163399 | 537345 | 1830 | 445306 | 24943 | IGFBP3 | 146674 | 613132 | 9768 | 477772 | 29859 | RGS20 | 147509 | 344277 | 17706 | 344630 | 34793 |
| ATP1A2 | 018625 | 472488 | 1831 | N/A | | IGFBP3 | 146674 | 615754 | 9769 | 480717 | 29860 | RGS20 | 147509 | 523280 | 17707 | 429897 | 34794 |
| ATP1A2 | 018625 | 478587 | 1832 | N/A | | IGFBP5 | 115461 | 233813 | 9770 | 233813 | 29861 | RGS20 | 147509 | 518286 | 17708 | N/A | |
| ATP1A2 | 018625 | 361216 | 1833 | 354490 | 24944 | IGFBP5 | 115461 | 486341 | 9771 | N/A | | RGS20 | 147509 | 523414 | 17709 | N/A | |
| ATP1A2 | 018625 | 392233 | 1834 | 376066 | 24945 | IGFBP5 | 115461 | 449583 | 9772 | 413474 | 29862 | RGS20 | 147509 | 522225 | 17710 | 430627 | 34795 |
| ATP1A2 | 018625 | 468587 | 1835 | N/A | | IGSF11 | 144847 | 425327 | 9773 | 406092 | 29863 | RGS20 | 147509 | 276500 | 17711 | 276500 | 34796 |
| ATP1A2 | 018625 | 447527 | 1836 | 411705 | 24946 | IGSF11 | 144847 | 393775 | 9774 | 377370 | 29864 | RGS20 | 147509 | 523064 | 17712 | N/A | |
| ATP1A2 | 018625 | 463989 | 1837 | N/A | | IGSF11 | 144847 | 489689 | 9775 | 420486 | 29865 | RGS20 | 147509 | 517405 | 17713 | N/A | |
| ATP1A2 | 018625 | 459972 | 1838 | N/A | | IGSF11 | 144847 | 441144 | 9776 | 401240 | 29866 | RGS4 | 117152 | 421743 | 17714 | 397181 | 34797 |
| ATP1A3 | 105409 | 441343 | 1839 | 411503 | 24947 | IGSF11 | 144847 | 491903 | 9777 | 417413 | 29867 | RGS4 | 117152 | 527393 | 17715 | N/A | |
| ATP1A3 | 105409 | 302102 | 1840 | 302397 | 24948 | IGSF11 | 144847 | 459718 | 9778 | N/A | | RGS4 | 117152 | 367909 | 17716 | 356885 | 34798 |
| ATP1A3 | 105409 | 602133 | 1841 | 471581 | 24949 | IGSF11 | 144847 | 483401 | 9779 | 418976 | 29868 | RGS4 | 117152 | 531057 | 17717 | 436106 | 34799 |
| ATP1A3 | 105409 | 545399 | 1842 | 444688 | 24950 | IGSF11 | 144847 | 480431 | 9780 | 418047 | 29869 | RGS4 | 117152 | 527809 | 17718 | 433261 | 34800 |
| ATP1A3 | 105409 | 543770 | 1843 | 437577 | 24951 | IGSF11 | 144847 | 494802 | 9781 | N/A | | RGS4 | 117152 | 367908 | 17719 | 356884 | 34801 |
| ATP1A3 | 105409 | 485672 | 1844 | N/A | | IGSF11 | 144847 | 354673 | 9782 | 346700 | 29870 | RGS4 | 117152 | 491263 | 17720 | N/A | |
| ATP1A3 | 105409 | 473086 | 1845 | 469129 | 24952 | IGSF3 | 143061 | 369486 | 9783 | 358498 | 29871 | RGS4 | 117152 | 533019 | 17721 | N/A | |
| ATP1A3 | 105409 | 468774 | 1846 | N/A | | IGSF3 | 143061 | 318837 | 9784 | 321184 | 29872 | RGS4 | 117152 | 367906 | 17722 | 356882 | 34802 |
| ATP1A3 | 105409 | 465007 | 1847 | N/A | | IGSF3 | 143061 | 481589 | 9785 | 474657 | 29873 | RGS4 | 117152 | 528938 | 17723 | 432194 | 34803 |
| ATP1A3 | 105409 | 636197 | 1848 | 489877 | 24953 | IGSF3 | 143061 | 369483 | 9786 | 358495 | 29874 | RGS6 | 182732 | 553525 | 17724 | 451030 | 34804 |
| ATP1A3 | 105409 | 636258 | 1849 | N/A | | ELP1 | 070061 | 495759 | 9787 | 433514 | 29875 | RGS6 | 182732 | 555571 | 17725 | 450936 | 34805 |
| ATP1A3 | 105409 | 636282 | 1850 | N/A | | ELP1 | 070061 | 374647 | 9788 | 363779 | 29876 | RGS6 | 182732 | 553530 | 17726 | 452331 | 34806 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATP1A3 | 105409 | 637406 | 1851 | N/A | | ELP1 | 070061 | 467959 | 9789 | N/A | | RGS6 | 182732 | 554474 | 17727 | 450858 | 34807 |
| ATP1B1 | 143153 | 494797 | 1852 | 477015 | 24954 | ELP1 | 070061 | 537196 | 9790 | 439367 | 29877 | RGS6 | 182732 | 556437 | 17728 | 451855 | 34808 |
| ATP1B1 | 143153 | 367815 | 1853 | 356789 | 24955 | IL15 | 164136 | 320650 | 9791 | 323505 | 29878 | RGS6 | 182732 | 355512 | 17729 | 347699 | 34809 |
| ATP1B1 | 143153 | 367816 | 1854 | 356790 | 24956 | IL15 | 164136 | 296545 | 9792 | 296545 | 29879 | RGS6 | 182732 | 404301 | 17730 | 385243 | 34810 |
| ATP1B2 | 129244 | 577026 | 1855 | 459145 | 24957 | IL15 | 164136 | 514653 | 9793 | 422271 | 29880 | RGS6 | 182732 | 406236 | 17731 | 384218 | 34811 |
| ATP1B2 | 129244 | 250111 | 1856 | 250111 | 24958 | IL15 | 164136 | 529613 | 9794 | 435462 | 29881 | RGS6 | 182732 | 407322 | 17732 | 384612 | 34812 |
| ATP1B2 | 129244 | 577113 | 1857 | 460499 | 24959 | IL15 | 164136 | 477265 | 9795 | 436914 | 29882 | RGS6 | 182732 | 553690 | 17733 | N/A | |
| ATP1B3 | 069849 | 475483 | 1858 | 417522 | 24960 | IL15 | 164136 | 505351 | 9796 | N/A | | RGS6 | 182732 | 555368 | 17734 | N/A | |
| ATP1B3 | 069849 | 286371 | 1859 | 286371 | 24961 | IL15 | 164136 | 509249 | 9797 | N/A | | RGS6 | 182732 | 434263 | 17735 | 412144 | 34813 |
| ATP1B3 | 069849 | 465172 | 1860 | 418280 | 24962 | IL15 | 164136 | 394159 | 9798 | 377714 | 29883 | RGS6 | 182732 | 554782 | 17736 | 451912 | 34814 |
| ATP1B3 | 069849 | 466678 | 1861 | 418952 | 24963 | IL16 | 172349 | 560989 | 9799 | N/A | | RGS6 | 182732 | 554734 | 17737 | N/A | |
| ATP1B3 | 069849 | 462082 | 1862 | 418353 | 24964 | IL16 | 172349 | 560241 | 9800 | 452738 | 29884 | RGS6 | 182732 | 553519 | 17738 | N/A | |
| ATP1B3 | 069849 | 495216 | 1863 | 419962 | 24965 | IL16 | 172349 | 560547 | 9801 | 456972 | 29885 | RGS6 | 182732 | 554300 | 17739 | N/A | |
| ATP1B3 | 069849 | 482635 | 1864 | N/A | | IL16 | 172349 | 559383 | 9802 | 453250 | 29886 | RGS6 | 182732 | 402788 | 17740 | 383953 | 34815 |
| ATP1B3 | 069849 | 487199 | 1865 | 417608 | 24966 | IL16 | 172349 | 394660 | 9803 | 378155 | 29887 | RGS6 | 182732 | 622468 | 17741 | 478186 | 34816 |
| ATP1B3 | 069849 | 484727 | 1866 | N/A | | IL16 | 172349 | 302987 | 9804 | 302935 | 29888 | RGS6 | 182732 | 343854 | 17742 | 341199 | 34817 |
| ATP1B3 | 069849 | 486782 | 1867 | N/A | | IL16 | 172349 | 560115 | 9805 | 454636 | 29889 | RGS7BP | 186479 | 508162 | 17743 | N/A | |
| ATP2A3 | 074370 | 397041 | 1868 | 380234 | 24967 | IL16 | 172349 | 394652 | 9806 | 378147 | 29890 | RGS7BP | 186479 | 334025 | 17744 | 334851 | 34818 |
| ATP2A3 | 074370 | 397035 | 1869 | 380229 | 24968 | IL16 | 172349 | 560230 | 9807 | N/A | | RGS7BP | 186479 | 505263 | 17745 | N/A | |
| ATP2A3 | 074370 | 574999 | 1870 | N/A | | IL16 | 172349 | 558857 | 9808 | 453131 | 29891 | RGS8 | 135824 | 258302 | 17746 | 258302 | 34819 |
| ATP2A3 | 074370 | 570773 | 1871 | N/A | | IL16 | 172349 | 558332 | 9809 | 453214 | 29892 | RGS8 | 135824 | 483095 | 17747 | 426289 | 34820 |
| ATP2A3 | 074370 | 570845 | 1872 | 461480 | 24969 | IL16 | 172349 | 559342 | 9810 | N/A | | RGS8 | 135824 | 367557 | 17748 | 356528 | 34821 |
| ATP2A3 | 074370 | 359983 | 1873 | 353072 | 24970 | IL16 | 172349 | 559953 | 9811 | N/A | | RGS8 | 135824 | 367556 | 17749 | 356527 | 34822 |
| ATP2A3 | 074370 | 352011 | 1874 | 301387 | 24971 | IL18 | 150782 | 280357 | 9812 | 280357 | 29893 | RGS8 | 135824 | 491420 | 17750 | N/A | |
| ATP2A3 | 074370 | 397043 | 1875 | 380236 | 24972 | IL18 | 150782 | 524595 | 9813 | 434561 | 29894 | RGS8 | 135824 | 508450 | 17751 | 427076 | 34823 |
| ATP2A3 | 074370 | 572116 | 1876 | 458865 | 24973 | IL18 | 150782 | 525547 | 9814 | N/A | | RGS8 | 135824 | 515211 | 17752 | N/A | |
| ATP2A3 | 074370 | 571245 | 1877 | N/A | | IL18 | 150782 | 528832 | 9815 | 434161 | 29895 | RGS9 | 108370 | 638125 | 17753 | N/A | |
| ATP2A3 | 074370 | 576957 | 1878 | N/A | | IL18 | 150782 | 533858 | 9816 | N/A | | RGS9 | 108370 | 637818 | 17754 | N/A | |
| ATP2A3 | 074370 | 572176 | 1879 | N/A | | IL18 | 150782 | 534225 | 9817 | N/A | | RGS9 | 108370 | 582940 | 17755 | N/A | |
| ATP2A3 | 074370 | 572694 | 1880 | N/A | | IL20RB | 174564 | 484501 | 9818 | N/A | | RGS9 | 108370 | 635833 | 17756 | 490658 | 34824 |
| ATP2A3 | 074370 | 574202 | 1881 | N/A | | IL20RB | 174564 | 329582 | 9819 | 328133 | 29896 | RGS9 | 108370 | 583473 | 17757 | N/A | |
| ATP2A3 | 074370 | 309890 | 1882 | 312577 | 24974 | IL20RB | 174564 | 469964 | 9820 | 418637 | 29897 | RGS9 | 108370 | 443584 | 17758 | 405814 | 34825 |
| ATP2B2 | 157087 | 352432 | 1883 | 324172 | 24975 | IL20RB | 174564 | 491483 | 9821 | 417437 | 29898 | RGS9 | 108370 | 584234 | 17759 | 463410 | 34826 |
| ATP2B2 | 157087 | 383800 | 1884 | 373311 | 24976 | IL20RB | 174564 | 475972 | 9822 | 420725 | 29899 | RGS9 | 108370 | 449996 | 17760 | 396329 | 34827 |
| ATP2B2 | 157087 | 460129 | 1885 | 424494 | 24977 | IL22 | 127318 | 538666 | 9823 | 442424 | 29900 | RGS9 | 108370 | 262406 | 17761 | 262406 | 34828 |
| ATP2B2 | 157087 | 397077 | 1886 | 380267 | 24978 | IL22 | 127318 | 328087 | 9824 | 329384 | 29901 | RGS9 | 108370 | 581175 | 17762 | N/A | |
| ATP2B2 | 157087 | 452124 | 1887 | 414854 | 24979 | IL22 | 127318 | 538666 | 9825 | 442424 | 29902 | RGS9 | 108370 | 577186 | 17763 | N/A | |
| ATP2B2 | 157087 | 467702 | 1888 | N/A | | IL22 | 127318 | 328087 | 9826 | 329384 | 29903 | RGS9 | 108370 | 577595 | 17764 | N/A | |
| ATP2B2 | 157087 | 468426 | 1889 | N/A | | IL33 | 137033 | 381434 | 9827 | 370842 | 29904 | RHBG | 132677 | 467375 | 17765 | N/A | |
| ATP2B2 | 157087 | 480680 | 1890 | N/A | | IL33 | 137033 | 463336 | 9828 | N/A | | RHBG | 132677 | 451864 | 17766 | 389836 | 34829 |
| ATP2B2 | 157087 | 638646 | 1891 | 492732 | 24980 | IL33 | 137033 | 417746 | 9829 | 394039 | 29905 | RHBG | 132677 | 537040 | 17767 | 441197 | 34830 |
| ATP2B2 | 157087 | 360273 | 1892 | 353414 | 24981 | IL33 | 137033 | 611532 | 9830 | 478858 | 29906 | RHBG | 132677 | 613460 | 17768 | 483178 | 34831 |
| ATP2B3 | 067842 | 349466 | 1893 | 343886 | 24982 | IL33 | 137033 | 456383 | 9831 | 414238 | 29907 | RHBG | 132677 | 612897 | 17769 | 477836 | 34832 |
| ATP2B3 | 067842 | 370186 | 1894 | 359205 | 24983 | ILDR2 | 143195 | 414590 | 9832 | N/A | | RHBG | 132677 | 618120 | 17770 | N/A | |
| ATP2B3 | 067842 | 393842 | 1895 | 377425 | 24984 | ILDR2 | 143195 | 614979 | 9833 | N/A | | RHBG | 132677 | 620376 | 17771 | 478851 | 34833 |
| ATP2B3 | 067842 | 359149 | 1896 | 352062 | 24985 | ILDR2 | 143195 | 271417 | 9834 | 271417 | 29908 | RHBG | 132677 | 494874 | 17772 | N/A | |
| ATP2B3 | 067842 | 460549 | 1897 | N/A | | ILDR2 | 143195 | 528703 | 9835 | 432750 | 29909 | RHBG | 132677 | 622297 | 17773 | N/A | |
| ATP2B3 | 067842 | 496610 | 1898 | N/A | | ILDR2 | 143195 | 525740 | 9836 | 436120 | 29910 | RHCG | 140519 | 560081 | 17774 | 453588 | 34834 |
| ATP2B3 | 067842 | 263519 | 1899 | 263519 | 24986 | ILDR2 | 143195 | 529387 | 9837 | 431316 | 29911 | RHCG | 140519 | 268122 | 17775 | 268122 | 34835 |
| ATP2C2 | 064270 | 262429 | 1900 | 262429 | 24987 | ILDR2 | 143195 | 469934 | 9838 | 437008 | 29912 | RHCG | 140519 | 558360 | 17776 | 453496 | 34836 |
| ATP2C2 | 064270 | 416219 | 1901 | 397925 | 24988 | ILDR2 | 143195 | 529071 | 9839 | 436882 | 29913 | RHCG | 140519 | 558030 | 17777 | 452899 | 34837 |
| ATP2C2 | 064270 | 565631 | 1902 | N/A | | ILDR2 | 143195 | 526687 | 9840 | 434273 | 29914 | RHCG | 140519 | 558184 | 17778 | 453716 | 34838 |
| ATP2C2 | 064270 | 569207 | 1903 | 456595 | 24989 | IMPA2 | 141401 | 588752 | 9841 | N/A | | RHCG | 140519 | 559638 | 17779 | N/A | |
| ATP2C2 | 064270 | 565546 | 1904 | N/A | | IMPA2 | 141401 | 589238 | 9842 | 465416 | 29915 | RHEB | 106615 | 262187 | 17780 | 262187 | 34839 |
| ATP2C2 | 064270 | 420010 | 1905 | N/A | | IMPA2 | 141401 | 269159 | 9843 | 269159 | 29916 | RHEB | 106615 | 472642 | 17781 | 420726 | 34840 |
| ATP2C2 | 064270 | 565927 | 1906 | N/A | | IMPA2 | 141401 | 590107 | 9844 | 466059 | 29917 | RHEB | 106615 | 478470 | 17782 | 417802 | 34841 |
| ATP2C2 | 064270 | 568160 | 1907 | N/A | | IMPA2 | 141401 | 383376 | 9845 | 372867 | 29918 | RHEB | 106615 | 496004 | 17783 | 418161 | 34842 |
| ATP2C2 | 064270 | 563340 | 1908 | N/A | | IMPA2 | 141401 | 590138 | 9846 | 465938 | 29919 | RHEB | 106615 | 470072 | 17784 | N/A | |
| ATP2C2 | 064270 | 564099 | 1909 | N/A | | IMPA2 | 141401 | 588927 | 9847 | 464767 | 29920 | RHEB | 106615 | 470370 | 17785 | 417212 | 34843 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ATP2C2 | 064270 | 567892 | 1910 | N/A | | IMPA2 | 141401 | 588863 | 9848 | N/A | | RHEB | 106615 | 482053 | 17786 | N/A | |
| ATP2C2 | 064270 | 567222 | 1911 | N/A | | IMPA2 | 141401 | 588167 | 9849 | N/A | | RHOB | 143878 | 272233 | 17787 | 272233 | 34844 |
| ATP2C2 | 064270 | 624933 | 1912 | N/A | | IMPA2 | 141401 | 586230 | 9850 | 464754 | 29921 | RHOBTB1 | 072422 | 337910 | 17788 | 338671 | 34845 |
| ATP2C2 | 064270 | 567629 | 1913 | N/A | | IMPA2 | 141401 | 589374 | 9851 | N/A | | RHOBTB1 | 072422 | 357917 | 17789 | 350595 | 34846 |
| ATP2C2 | 064270 | 566874 | 1914 | N/A | | IMPA2 | 141401 | 625802 | 9852 | 486461 | 29922 | RHOBTB1 | 072422 | 496237 | 17790 | N/A | |
| ATP6V0B | 117410 | 472505 | 1915 | 432994 | 24990 | IMPG1 | 112706 | 369950 | 9853 | 358966 | 29923 | RHOBTB1 | 072422 | 461910 | 17791 | N/A | |
| ATP6V0B | 117410 | 472174 | 1916 | 431605 | 24991 | IMPG1 | 112706 | 369952 | 9854 | 358968 | 29924 | RHOBTB1 | 072422 | 490827 | 17792 | N/A | |
| ATP6V0B | 117410 | 532642 | 1917 | 434729 | 24992 | IMPG1 | 112706 | 611179 | 9855 | 481913 | 29925 | RHOBTB1 | 072422 | 483488 | 17793 | N/A | |
| ATP6V0B | 117410 | 236067 | 1918 | 236067 | 24993 | IMPG1 | 112706 | 369963 | 9856 | 358980 | 29926 | RHOBTB3 | 164292 | 515852 | 17794 | N/A | |
| ATP6V0B | 117410 | 471859 | 1919 | 432754 | 24994 | INAVA | 163362 | 532631 | 9857 | 431682 | 29927 | RHOBTB3 | 164292 | 510226 | 17795 | N/A | |
| ATP6V0B | 117410 | 472277 | 1920 | N/A | | INAVA | 163362 | 451872 | 9858 | 397255 | 29928 | RHOBTB3 | 164292 | 504949 | 17796 | N/A | |
| ATP6V0B | 117410 | 461670 | 1921 | 435396 | 24995 | INAVA | 163362 | 367342 | 9859 | 356311 | 29929 | RHOBTB3 | 164292 | 506959 | 17797 | 423688 | 34847 |
| ATP6V0B | 117410 | 468183 | 1922 | N/A | | INAVA | 163362 | 413687 | 9860 | 392105 | 29930 | RHOBTB3 | 164292 | 506817 | 17798 | 426479 | 34848 |
| ATP6V0B | 117410 | 473485 | 1923 | N/A | | INAVA | 163362 | 531649 | 9861 | N/A | | RHOBTB3 | 164292 | 379982 | 17799 | 369318 | 34849 |
| ATP6V0B | 117410 | 496131 | 1924 | N/A | | INAVA | 163362 | 526172 | 9862 | N/A | | RHOBTB3 | 164292 | 512878 | 17800 | N/A | |
| ATP6V0B | 117410 | 498208 | 1925 | 431375 | 24996 | INAVA | 163362 | 465162 | 9863 | N/A | | RHOBTB3 | 164292 | 510623 | 17801 | 423652 | 34850 |
| ATP6V0B | 117410 | 532072 | 1926 | N/A | | INAVA | 163362 | 532631 | 9864 | 431682 | 29931 | RHOBTB3 | 164292 | 502541 | 17802 | 421875 | 34851 |
| ATP6V0B | 117410 | 498664 | 1927 | 434094 | 24997 | INAVA | 163362 | 451872 | 9865 | 397255 | 29932 | RHOBTB3 | 164292 | 504179 | 17803 | 422360 | 34852 |
| ATP8A1 | 124406 | 514372 | 1928 | 426495 | 24998 | INAVA | 163362 | 367342 | 9866 | 356311 | 29933 | RHOBTB3 | 164292 | 510313 | 17804 | 424844 | 34853 |
| ATP8A1 | 124406 | 381668 | 1929 | 371084 | 24999 | INAVA | 163362 | 413687 | 9867 | 392105 | 29934 | RHOBTB3 | 164292 | 507186 | 17805 | N/A | |
| ATP8A1 | 124406 | 264449 | 1930 | 264449 | 25000 | INAVA | 163362 | 531649 | 9868 | N/A | | RHOBTB3 | 164292 | 511558 | 17806 | N/A | |
| ATP8A1 | 124406 | 511858 | 1931 | N/A | | INAVA | 163362 | 526172 | 9869 | N/A | | RHOBTB3 | 164292 | 503737 | 17807 | 426390 | 34854 |
| ATP8A1 | 124406 | 506602 | 1932 | 421164 | 25001 | INAVA | 163362 | 465162 | 9870 | N/A | | RHOBTB3 | 164292 | 513091 | 17808 | 425342 | 34855 |
| ATP8A1 | 124406 | 515872 | 1933 | 426935 | 25002 | INF2 | 203485 | 330634 | 9871 | 376406 | 29935 | RHOBTB3 | 164292 | 514198 | 17809 | 424700 | 34856 |
| ATP8A1 | 124406 | 506713 | 1934 | N/A | | INF2 | 203485 | 398337 | 9872 | 381380 | 29936 | RHOD | 173156 | 308831 | 17810 | 308576 | 34857 |
| ATP8A1 | 124406 | 504510 | 1935 | N/A | | INF2 | 203485 | 392634 | 9873 | 376410 | 29937 | RHOD | 173156 | 533360 | 17811 | N/A | |
| ATP8A1 | 124406 | 504024 | 1936 | 427295 | 25003 | INF2 | 203485 | 252527 | 9874 | 252527 | 29938 | RHOD | 173156 | 532559 | 17812 | 432003 | 34858 |
| ATP8A1 | 124406 | 510289 | 1937 | 426636 | 25004 | INF2 | 203485 | 474229 | 9875 | N/A | | RHOJ | 126785 | 557447 | 17813 | 451796 | 34859 |
| ATP8B1 | 081923 | 283684 | 1938 | 283684 | 25005 | INF2 | 203485 | 480763 | 9876 | N/A | | RHOJ | 126785 | 316754 | 17814 | 316729 | 34860 |
| ATP8B1 | 081923 | 588255 | 1939 | 468266 | 25006 | INF2 | 203485 | 477497 | 9877 | N/A | | RHOJ | 126785 | 557133 | 17815 | N/A | |
| ATP8B1 | 081923 | 589147 | 1940 | N/A | | INF2 | 203485 | 481338 | 9878 | N/A | | RHOJ | 126785 | 555125 | 17816 | 451643 | 34861 |
| ATP8B1 | 081923 | 591728 | 1941 | 467767 | 25007 | INF2 | 203485 | 617571 | 9879 | 483829 | 29939 | RHOU | 116574 | 366691 | 17817 | 355652 | 34862 |
| ATP8B1 | 081923 | 585322 | 1942 | 468751 | 25008 | INHBA | 122641 | 416150 | 9880 | N/A | | RHPN2 | 131941 | 544458 | 17818 | N/A | |
| ATRNL1 | 107518 | 616894 | 1943 | 483722 | 25009 | INHBA | 122641 | 242208 | 9881 | 242208 | 29940 | RHPN2 | 131941 | 254260 | 17819 | 254260 | 34863 |
| ATRNL1 | 107518 | 609571 | 1944 | 476902 | 25010 | INHBA | 122641 | 464515 | 9882 | N/A | | RHPN2 | 131941 | 588388 | 17820 | 465898 | 34864 |
| ATRNL1 | 107518 | 526946 | 1945 | 431423 | 25011 | INHBA | 122641 | 442711 | 9883 | 397197 | 29941 | RHPN2 | 131941 | 588683 | 17821 | N/A | |
| ATRNL1 | 107518 | 527407 | 1946 | 473412 | 25012 | INHBA | 122641 | 638023 | 9884 | 490646 | 29942 | RHPN2 | 131941 | 592247 | 17822 | N/A | |
| ATRNL1 | 107518 | 355044 | 1947 | 347152 | 25013 | INPP1 | 151689 | 322522 | 9885 | 325423 | 29943 | RHPN2 | 131941 | 591502 | 17823 | N/A | |
| ATRNL1 | 107518 | 524503 | 1948 | N/A | | INPP1 | 151689 | 430311 | 9886 | 415014 | 29944 | RHPN2 | 131941 | 585641 | 17824 | N/A | |
| ATRNL1 | 107518 | 526373 | 1949 | 434118 | 25014 | INPP1 | 151689 | 413239 | 9887 | 391415 | 29945 | RIMBP2 | 060709 | 261655 | 17825 | 261655 | 34865 |
| ATRNL1 | 107518 | 534530 | 1950 | N/A | | INPP1 | 151689 | 431594 | 9888 | 409786 | 29946 | RIMBP2 | 060709 | 540658 | 17826 | 439437 | 34866 |
| ATRNL1 | 107518 | 424738 | 1951 | N/A | | INPP1 | 151689 | 444194 | 9889 | 404732 | 29947 | RIMBP2 | 060709 | 536632 | 17827 | 439030 | 34867 |
| ATRNL1 | 107518 | 449616 | 1952 | N/A | | INPP1 | 151689 | 422454 | 9890 | N/A | | RIMBP2 | 060709 | 535703 | 17828 | 440347 | 34868 |
| ATXN1 | 124788 | 244769 | 1953 | 244769 | 25015 | INPP1 | 151689 | 417336 | 9891 | N/A | | RIMBP2 | 060709 | 544568 | 17829 | N/A | |
| ATXN1 | 124788 | 483591 | 1954 | N/A | | INPP1 | 151689 | 458647 | 9892 | 392814 | 29948 | RIMS1 | 079841 | 491071 | 17830 | 430101 | 34869 |
| ATXN1 | 124788 | 473388 | 1955 | N/A | | INPP1 | 151689 | 423767 | 9893 | 395424 | 29949 | RIMS1 | 079841 | 517960 | 17831 | 429959 | 34870 |
| ATXN1 | 124788 | 495178 | 1956 | N/A | | INPP1 | 151689 | 451089 | 9894 | 410662 | 29950 | RIMS1 | 079841 | 518273 | 17832 | 430408 | 34871 |
| ATXN1 | 124788 | 483954 | 1957 | N/A | | INPP1 | 151689 | 409027 | 9895 | 387079 | 29951 | RIMS1 | 079841 | 522291 | 17833 | 430932 | 34872 |
| ATXN1 | 124788 | 467008 | 1958 | N/A | | INPP1 | 151689 | 458193 | 9896 | 412119 | 29952 | RIMS1 | 079841 | 521978 | 17834 | 428417 | 34873 |
| ATXN1 | 124788 | 498374 | 1959 | N/A | | INPP1 | 151689 | 487628 | 9897 | N/A | | RIMS1 | 079841 | 520567 | 17835 | 430502 | 34874 |
| ATXN1 | 124788 | 492857 | 1960 | N/A | | INPP1 | 151689 | 470892 | 9898 | N/A | | RIMS1 | 079841 | 264839 | 17836 | 264839 | 34875 |
| ATXN1 | 124788 | 479680 | 1961 | N/A | | INPP1 | 151689 | 392329 | 9899 | 376142 | 29953 | RIMS1 | 079841 | 517433 | 17837 | 430359 | 34876 |
| ATXN1 | 124788 | 436367 | 1962 | 416360 | 25016 | INPP4B | 109452 | 513000 | 9900 | 425487 | 29954 | RIMS1 | 079841 | 401910 | 17838 | 385649 | 34877 |
| ATXN7L2 | 162650 | 463678 | 1963 | 474312 | 25017 | INPP4B | 109452 | 508116 | 9901 | 423954 | 29955 | RIMS1 | 079841 | 523963 | 17839 | 428328 | 34878 |
| ATXN7L2 | 162650 | 369870 | 1964 | 358886 | 25018 | INPP4B | 109452 | 509777 | 9902 | 422793 | 29956 | RIMS1 | 079841 | 425662 | 17840 | 411235 | 34879 |
| ATXN7L2 | 162650 | 497545 | 1965 | N/A | | INPP4B | 109452 | 511838 | 9903 | 426207 | 29957 | RIMS1 | 079841 | 453976 | 17841 | 389503 | 34880 |
| ATXN7L2 | 162650 | 604728 | 1966 | N/A | | INPP4B | 109452 | 512630 | 9904 | 423771 | 29958 | RIMS1 | 079841 | 524197 | 17842 | N/A | |
| ATXN7L2 | 162650 | 369869 | 1967 | N/A | | INPP4B | 109452 | 510812 | 9905 | 427250 | 29959 | RIMS1 | 079841 | 517827 | 17843 | 428367 | 34881 |
| ATXN7L2 | 162650 | 459635 | 1968 | N/A | | INPP4B | 109452 | 514525 | 9906 | 421065 | 29960 | RIMS1 | 079841 | 370420 | 17844 | 359448 | 34882 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AVPI1 | 119986 | 370626 | 1969 | 359660 | 25019 | INPP4B | 109452 | 506297 | 9907 | 424731 | 29961 | RIMS1 | 079841 | 522211 | 17845 | 429338 | 34883 |
| AXL | 167601 | 301178 | 1970 | 301178 | 25020 | INPP4B | 109452 | 507462 | 9908 | 425764 | 29962 | RIMS1 | 079841 | 463023 | 17846 | N/A | |
| AXL | 167601 | 359092 | 1971 | 351995 | 25021 | INPP4B | 109452 | 506217 | 9909 | 424057 | 29963 | RIMS1 | 079841 | 431478 | 17847 | N/A | |
| AXL | 167601 | 599659 | 1972 | N/A | | INPP4B | 109452 | 506788 | 9910 | 426957 | 29964 | RIMS1 | 079841 | 414192 | 17848 | 402273 | 34884 |
| AXL | 167601 | 594880 | 1973 | N/A | | INPP4B | 109452 | 506517 | 9911 | N/A | | RIMS1 | 079841 | 370419 | 17849 | N/A | |
| AXL | 167601 | 593513 | 1974 | 471497 | 25022 | INPP4B | 109452 | 506000 | 9912 | 420888 | 29965 | RIMS3 | 117016 | 372684 | 17850 | 361769 | 34885 |
| AZGP1 | 160862 | 483612 | 1975 | N/A | | INPP4B | 109452 | 504632 | 9913 | N/A | | RIMS3 | 117016 | 372683 | 17851 | 361768 | 34886 |
| AZGP1 | 160862 | 292401 | 1976 | 292401 | 25023 | INPP4B | 109452 | 506243 | 9914 | N/A | | RIMS4 | 101098 | 372851 | 17852 | 361942 | 34887 |
| AZGP1 | 160862 | 419575 | 1977 | 389942 | 25024 | INPP4B | 109452 | 507861 | 9915 | 426897 | 29966 | RIMS4 | 101098 | 541604 | 17853 | 439287 | 34888 |
| AZGP1 | 160862 | 411734 | 1978 | 396093 | 25025 | INPP4B | 109452 | 503927 | 9916 | 422052 | 29967 | RIN2 | 132669 | 255006 | 17854 | 255006 | 34889 |
| AZGP1 | 160862 | 477251 | 1979 | N/A | | INPP4B | 109452 | 514964 | 9917 | N/A | | RIN2 | 132669 | 459721 | 17855 | N/A | |
| AZGP1 | 160862 | 495765 | 1980 | N/A | | INPP4B | 109452 | 505483 | 9918 | N/A | | RIN2 | 132669 | 467569 | 17856 | N/A | |
| AZIN1 | 155096 | 337198 | 1981 | 337180 | 25026 | INPP4B | 109452 | 512489 | 9919 | N/A | | RIN2 | 132669 | 488077 | 17857 | N/A | |
| AZIN1 | 155096 | 347770 | 1982 | 321507 | 25027 | INPP4B | 109452 | 508084 | 9920 | N/A | | RIN2 | 132669 | 465815 | 17858 | N/A | |
| AZIN1 | 155096 | 518697 | 1983 | N/A | | INPP4B | 109452 | 262992 | 9921 | 262992 | 29968 | RIN2 | 132669 | 484638 | 17859 | N/A | |
| AZIN1 | 155096 | 523071 | 1984 | N/A | | INPP4B | 109452 | 630044 | 9922 | 486368 | 29969 | RIN2 | 132669 | 440354 | 17860 | 391239 | 34890 |
| AZIN1 | 155096 | 521536 | 1985 | 475919 | 25028 | INPP5A | 068383 | 368594 | 9923 | 357583 | 29970 | RIT2 | 152214 | 326695 | 17861 | 321805 | 34891 |
| AZIN1 | 155096 | 522311 | 1986 | N/A | | INPP5A | 068383 | 368593 | 9924 | 357582 | 29971 | RIT2 | 152214 | 589109 | 17862 | 467217 | 34892 |
| AZIN1 | 155096 | 520402 | 1987 | 429449 | 25029 | INPP5A | 068383 | 423490 | 9925 | 390936 | 29972 | RIT2 | 152214 | 590910 | 17863 | 466620 | 34893 |
| AZIN1 | 155096 | 518353 | 1988 | 429215 | 25030 | INPP5A | 068383 | 342652 | 9926 | 340707 | 29973 | RIT2 | 152214 | 594852 | 17864 | N/A | |
| AZIN1 | 155096 | 518940 | 1989 | N/A | | INPP5A | 068383 | 487614 | 9927 | N/A | | RLBP1 | 140522 | 268125 | 17865 | 268125 | 34894 |
| AZIN1 | 155096 | 517581 | 1990 | N/A | | INPP5A | 068383 | 498337 | 9928 | N/A | | RLBP1 | 140522 | 563254 | 17866 | 454740 | 34895 |
| B3GALT4 | 236802 | 430971 | 1991 | 414880 | 25031 | INPP5A | 068383 | 445580 | 9929 | 390749 | 29974 | RLBP1 | 140522 | 567787 | 17867 | 457251 | 34896 |
| B3GALT4 | 235155 | 419471 | 1992 | 398660 | 25032 | INPP5D | 281614 | 629761 | 9930 | 486669 | 29975 | RLBP1 | 140522 | 564388 | 17868 | N/A | |
| B3GALT4 | 206285 | 383209 | 1993 | 372696 | 25033 | INPP5D | 281614 | 630338 | 9931 | N/A | | RLF | 117000 | 372771 | 17869 | 361857 | 34897 |
| B3GALT4 | 226936 | 415322 | 1994 | 394876 | 25034 | INPP5D | 281614 | 630854 | 9932 | 487191 | 29976 | RNF112 | 128482 | 575165 | 17870 | 464134 | 34898 |
| B3GALT4 | 235863 | 451237 | 1995 | 390784 | 25035 | INPP5D | 281614 | 627806 | 9933 | N/A | | RNF112 | 128482 | 574149 | 17871 | N/A | |
| B3GALT4 | 235863 | 606990 | 1996 | N/A | | INPP5D | 281614 | 630466 | 9934 | N/A | | RNF112 | 128482 | 461366 | 17872 | 454919 | 34899 |
| B3GAT2 | 112309 | 230053 | 1997 | 230053 | 25036 | INPP5D | 281614 | 631055 | 9935 | N/A | | RNF112 | 128482 | 580109 | 17873 | N/A | |
| B3GAT2 | 112309 | 615536 | 1998 | 481320 | 25037 | INPP5D | 281614 | 627169 | 9936 | 487535 | 29977 | RNF112 | 128482 | 574782 | 17874 | N/A | |
| B3GLCT | 187676 | 343307 | 1999 | 343002 | 25038 | INPP5D | 281614 | 628466 | 9937 | N/A | | RNF122 | 133874 | 256257 | 17875 | 256257 | 34900 |
| B3GLCT | 187676 | 461652 | 2000 | N/A | | INPP5D | 281614 | 627243 | 9938 | N/A | | RNF139 | 170881 | 303545 | 17876 | 304051 | 34901 |
| B3GNT5 | 176597 | 326505 | 2001 | 316173 | 25039 | INPP5D | 281614 | 628814 | 9939 | N/A | | RNF139 | 170881 | 517684 | 17877 | 429836 | 34902 |
| B3GNT5 | 176597 | 493370 | 2002 | N/A | | INPP5D | 281614 | 629540 | 9940 | N/A | | RNF152 | 176641 | 312828 | 17878 | 316628 | 34903 |
| B3GNT5 | 176597 | 480551 | 2003 | N/A | | INPP5D | 281614 | 627349 | 9941 | N/A | | RNF152 | 176641 | 591306 | 17879 | 466492 | 34904 |
| B3GNT5 | 176597 | 464191 | 2004 | 418785 | 25040 | INPP5D | 281614 | 628842 | 9942 | 487335 | 29978 | RNF152 | 176641 | 588064 | 17880 | N/A | |
| B3GNT5 | 176597 | 460419 | 2005 | 420778 | 25041 | INPP5D | 281614 | 629792 | 9943 | 486018 | 29979 | RNF152 | 176641 | 619552 | 17881 | N/A | |
| B3GNT5 | 176597 | 464923 | 2006 | 418477 | 25042 | INPP5D | 168918 | 359570 | 9944 | 352575 | 29980 | RNF152 | 176641 | 588396 | 17882 | N/A | |
| B3GNT5 | 176597 | 496270 | 2007 | N/A | | INPP5D | 168918 | 451407 | 9945 | N/A | | RNF17 | 132972 | 255324 | 17883 | 255324 | 34905 |
| B3GNT5 | 176597 | 465010 | 2008 | 417868 | 25043 | INPP5D | 168918 | 445964 | 9946 | 405338 | 29981 | RNF17 | 132972 | 255326 | 17884 | N/A | |
| B3GNT5 | 176597 | 488301 | 2009 | N/A | | INPP5D | 168918 | 467393 | 9947 | N/A | | RNF17 | 132972 | 255325 | 17885 | 255325 | 34906 |
| B3GNT5 | 176597 | 477699 | 2010 | N/A | | INPP5D | 168918 | 474278 | 9948 | N/A | | RNF17 | 132972 | 418120 | 17886 | 388892 | 34907 |
| B3GNT5 | 176597 | 481531 | 2011 | 417301 | 25044 | INPP5D | 168918 | 496402 | 9949 | N/A | | RNF17 | 132972 | 339524 | 17887 | 344776 | 34908 |
| B3GNT5 | 176597 | 462559 | 2012 | N/A | | INPP5D | 168918 | 415617 | 9950 | 397421 | 29982 | RNF182 | 180537 | 488763 | 17888 | 417500 | 34909 |
| B3GNT7 | 156966 | 287590 | 2013 | 287590 | 25045 | INPP5D | 168918 | 493078 | 9951 | N/A | | RNF182 | 180537 | 488300 | 17889 | 420465 | 34910 |
| B3GNT7 | 156966 | 479618 | 2014 | N/A | | INPP5D | 168918 | 472517 | 9952 | N/A | | RNF182 | 180537 | 420478 | 17890 | 419329 | 34911 |
| B4GALT6 | 118276 | 578114 | 2015 | N/A | | INPP5D | 168918 | 493632 | 9953 | N/A | | RNF182 | 180537 | 471906 | 17891 | 417514 | 34912 |
| B4GALT6 | 118276 | 306851 | 2016 | 306459 | 25046 | INPP5D | 168918 | 480983 | 9954 | N/A | | RNF182 | 180537 | 423553 | 17892 | 418717 | 34913 |
| B4GALT6 | 118276 | 237019 | 2017 | 237019 | 25047 | INPP5D | 168918 | 465281 | 9955 | N/A | | RNF182 | 180537 | 537663 | 17893 | 443228 | 34914 |
| B4GALT6 | 118276 | 383131 | 2018 | 372613 | 25048 | INPP5D | 168918 | 417661 | 9956 | 414835 | 29983 | RNF182 | 180537 | 544682 | 17894 | 442021 | 34915 |
| B4GALT6 | 118276 | 579372 | 2019 | 463961 | 25049 | INPP5D | 168918 | 491070 | 9957 | 473280 | 29984 | RNF182 | 180537 | 537388 | 17895 | 441271 | 34916 |
| BACH2 | 112182 | 257749 | 2020 | 257749 | 25050 | INSC | 188487 | 379554 | 9958 | 368872 | 29985 | RNF207 | 158286 | 466994 | 17896 | N/A | |
| BACH2 | 112182 | 343122 | 2021 | 345642 | 25051 | INSC | 188487 | 379556 | 9959 | 368874 | 29986 | RNF207 | 158286 | 484435 | 17897 | N/A | |
| BACH2 | 112182 | 481150 | 2022 | N/A | | INSC | 188487 | 528567 | 9960 | 435022 | 29987 | RNF207 | 158286 | 377939 | 17898 | 367173 | 34917 |
| BACH2 | 112182 | 406998 | 2023 | 384145 | 25052 | INSC | 188487 | 530161 | 9961 | 436194 | 29988 | RNF207 | 158286 | 485539 | 17899 | N/A | |
| BACH2 | 112182 | 453877 | 2024 | 397668 | 25053 | INSC | 188487 | 525218 | 9962 | 436113 | 29989 | RNF207 | 158286 | 496676 | 17900 | N/A | |
| BACH2 | 112182 | 470301 | 2025 | N/A | | INSC | 188487 | 447214 | 9963 | N/A | | RNF207 | 158286 | 463453 | 17901 | N/A | |
| BACH2 | 112182 | 493201 | 2026 | N/A | | INSC | 188487 | 526102 | 9964 | N/A | | RNF207 | 158286 | 496329 | 17902 | N/A | |
| BACH2 | 112182 | 472023 | 2027 | N/A | | INSC | 188487 | 424273 | 9965 | 389161 | 29990 | RNF207 | 158286 | 492476 | 17903 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BACH2 | 112182 | 494747 | 2028 | N/A | | INSIG1 | 186480 | 340368 | 9966 | 344741 | 29991 | RNF207 | 158286 | 483336 | 17904 | N/A | |
| BACH2 | 112182 | 537989 | 2029 | 437473 | 25054 | INSIG1 | 186480 | 425172 | 9967 | 414691 | 29992 | RNF212 | 178222 | 514024 | 17905 | N/A | |
| BAD | 002330 | 394532 | 2030 | 378040 | 25055 | INSIG1 | 186480 | 342407 | 9968 | 344035 | 29993 | RNF212 | 178222 | 503206 | 17906 | N/A | |
| BAD | 002330 | 309032 | 2031 | 309103 | 25056 | INSIG1 | 186480 | 476756 | 9969 | 420198 | 29994 | RNF212 | 178222 | 514757 | 17907 | N/A | |
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| BAD | 002330 | 394531 | 2033 | 378039 | 25058 | INSIG1 | 186480 | 344756 | 9971 | 340010 | 29995 | RNF212 | 178222 | 508633 | 17909 | N/A | |
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| BAD | 002330 | 492141 | 2035 | 439202 | 25060 | IPCEF1 | 074706 | 265198 | 9973 | 265198 | 29996 | RNF212 | 178222 | 382968 | 17911 | 372428 | 34919 |
| BAD | 002330 | 544271 | 2036 | N/A | | IPCEF1 | 074706 | 422970 | 9974 | 394751 | 29997 | RNF212 | 178222 | 433731 | 17912 | 389709 | 34920 |
| BAG3 | 151929 | 369085 | 2037 | 358081 | 25061 | IPCEF1 | 074706 | 522590 | 9975 | N/A | | RNF212 | 178222 | 511620 | 17913 | 426115 | 34921 |
| BAG3 | 151929 | 450186 | 2038 | 410036 | 25062 | IPCEF1 | 074706 | 367220 | 9976 | 356189 | 29998 | RNF212 | 178222 | 508428 | 17914 | 423030 | 34922 |
| BAIAP2 | 175866 | 321280 | 2039 | 315685 | 25063 | IPCEF1 | 074706 | 519344 | 9977 | 430287 | 29999 | RNF212 | 178222 | 510715 | 17915 | 423560 | 34923 |
| BAIAP2 | 175866 | 576470 | 2040 | N/A | | IPCEF1 | 074706 | 519091 | 9978 | N/A | | RNF212 | 178222 | 512552 | 17916 | N/A | |
| BAIAP2 | 175866 | 575750 | 2041 | 460344 | 25064 | IPCEF1 | 074706 | 484827 | 9979 | N/A | | RNF212 | 178222 | 333673 | 17917 | 327481 | 34924 |
| BAIAP2 | 175866 | 570913 | 2042 | N/A | | IPCEF1 | 074706 | 517438 | 9980 | 431092 | 30000 | RNF212 | 178222 | 454487 | 17918 | N/A | |
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| BAIAP2 | 175866 | 428708 | 2045 | 401022 | 25067 | IPCEF1 | 074706 | 518162 | 9983 | N/A | | RNF215 | 099999 | 631046 | 17921 | 485721 | 34926 |
| BAIAP2 | 175866 | 575712 | 2046 | 458964 | 25068 | IPCEF1 | 074706 | 520261 | 9984 | 431004 | 30003 | RNF215 | 099999 | 630264 | 17922 | 486757 | 34927 |
| BAIAP2 | 175866 | 575245 | 2047 | 461144 | 25069 | ITPR1 | 150995 | 357086 | 9985 | 349597 | 30004 | RNF215 | 099999 | 421022 | 17923 | 396278 | 34928 |
| BAIAP2 | 175866 | 435091 | 2048 | 413069 | 25070 | ITPR1 | 150995 | 456211 | 9986 | 397885 | 30005 | RNF215 | 099999 | 382363 | 17924 | 371800 | 34929 |
| BAIAP2 | 175866 | 321300 | 2049 | 316338 | 25071 | ITPR1 | 150995 | 443694 | 9987 | 401671 | 30006 | RNF215 | 099999 | 215798 | 17925 | 215798 | 34930 |
| BAIAP2 | 175866 | 573894 | 2050 | N/A | | ITPR1 | 150995 | 491868 | 9988 | N/A | | RNF215 | 099999 | 463319 | 17926 | N/A | |
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| BAIAP2 | 175866 | 572918 | 2053 | 460131 | 25073 | ITPR1 | 150995 | 487016 | 9991 | N/A | | RNF215 | 099999 | 619645 | 17929 | 486180 | 34932 |
| BAIAP2 | 175866 | 575958 | 2054 | 458522 | 25074 | ITPR1 | 150995 | 479831 | 9992 | N/A | | RNF217 | 146373 | 521654 | 17930 | 428698 | 34933 |
| BAIAP2 | 175866 | 573659 | 2055 | 461736 | 25075 | ITPR1 | 150995 | 481415 | 9993 | N/A | | RNF217 | 146373 | 519971 | 17931 | N/A | |
| BAIAP2 | 175866 | 572073 | 2056 | 459787 | 25076 | ITPR1 | 150995 | 467545 | 9994 | N/A | | RNF217 | 146373 | 519565 | 17932 | 429012 | 34934 |
| BAIAP2 | 175866 | 573677 | 2057 | 458735 | 25077 | ITPR1 | 150995 | 493491 | 9995 | N/A | | RNF217 | 146373 | 454842 | 17933 | N/A | |
| BAIAP2 | 175866 | 574804 | 2058 | 459730 | 25078 | ITPR1 | 150995 | 463980 | 9996 | N/A | | RNF217 | 146373 | 519799 | 17934 | 427711 | 34935 |
| BAIAP2 | 175866 | 576364 | 2059 | N/A | | ITPR1 | 150995 | 490572 | 9997 | N/A | | RNF217 | 146373 | 368414 | 17935 | 357399 | 34936 |
| BAIAP2 | 175866 | 574688 | 2060 | N/A | | ITPR1 | 150995 | 472205 | 9998 | N/A | | RNF217 | 146373 | 359704 | 17936 | 352734 | 34937 |
| BAIAP2 | 175866 | 577097 | 2061 | N/A | | ITPR1 | 150995 | 478515 | 9999 | N/A | | RNF217 | 146373 | 431104 | 17937 | N/A | |
| BAIAP2 | 175866 | 576225 | 2062 | N/A | | ITPR1 | 150995 | 302640 | 10000 | 306253 | 30007 | RNF217 | 146373 | 432158 | 17938 | 404282 | 34938 |
| BAIAP2 | 175866 | 575841 | 2063 | 461101 | 25079 | ITPR1 | 150995 | 354582 | 10001 | 346595 | 30008 | RNF217 | 146373 | 368415 | 17939 | N/A | |
| BAIAP2 | 175866 | 574027 | 2064 | N/A | | ITPR1 | 150995 | 544951 | 10002 | 440564 | 30009 | RNF217 | 146373 | 560949 | 17940 | 452812 | 34939 |
| BAIAP2 | 175866 | 576756 | 2065 | 458440 | 25080 | ITPR1 | 150995 | 467056 | 10003 | N/A | | RNF220 | 187147 | 355387 | 17941 | 347548 | 34940 |
| BAIAP2 | 175866 | 416299 | 2066 | 391837 | 25081 | ITPR1 | 150995 | 357086 | 10004 | 349597 | 30010 | RNF220 | 187147 | 361799 | 17942 | 354872 | 34941 |
| BAIAP2 | 175866 | 572498 | 2067 | 460350 | 25082 | ITPR1 | 150995 | 456211 | 10005 | 397885 | 30011 | RNF220 | 187147 | 487332 | 17943 | N/A | |
| BAIAP2 | 175866 | 576995 | 2068 | N/A | | ITPR1 | 150995 | 443694 | 10006 | 401671 | 30012 | RNF220 | 187147 | 470498 | 17944 | N/A | |
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| BARHL1 | 125492 | 263610 | 2071 | 263610 | 25084 | ITPR1 | 150995 | 494681 | 10009 | N/A | | RNF220 | 187147 | 335497 | 17947 | 335580 | 34943 |
| BARHL1 | 125492 | 542090 | 2072 | 444704 | 25085 | ITPR1 | 150995 | 487016 | 10010 | N/A | | RNF220 | 187147 | 440132 | 17948 | 388533 | 34944 |
| BARHL2 | 143032 | 370445 | 2073 | 359474 | 25086 | ITPR1 | 150995 | 479831 | 10011 | N/A | | RNF220 | 187147 | 474064 | 17949 | N/A | |
| BASP1 | 176788 | 606445 | 2074 | 476090 | 25087 | ITPR1 | 150995 | 481415 | 10012 | N/A | | RNF220 | 187147 | 471494 | 17950 | N/A | |
| BASP1 | 176788 | 322611 | 2075 | 319281 | 25088 | ITPR1 | 150995 | 467545 | 10013 | N/A | | RNF220 | 187147 | 488865 | 17951 | 475383 | 34945 |
| BASP1 | 176788 | 616743 | 2076 | 482066 | 25089 | ITPR1 | 150995 | 493491 | 10014 | N/A | | RNF220 | 187147 | 497469 | 17952 | N/A | |
| BBS2 | 125124 | 564123 | 2077 | 463176 | 25090 | ITPR1 | 150995 | 463980 | 10015 | N/A | | RNF220 | 187147 | 475378 | 17953 | N/A | |
| BBS2 | 125124 | 564459 | 2078 | 463731 | 25091 | ITPR1 | 150995 | 490572 | 10016 | N/A | | RNF220 | 187147 | 484745 | 17954 | N/A | |
| BBS2 | 125124 | 568104 | 2079 | 456289 | 25092 | ITPR1 | 150995 | 472205 | 10017 | N/A | | RNF220 | 187147 | 474394 | 17955 | N/A | |
| BBS2 | 125124 | 565781 | 2080 | N/A | | ITPR1 | 150995 | 478515 | 10018 | N/A | | RNF220 | 187147 | 480686 | 17956 | N/A | |
| BBS2 | 125124 | 245157 | 2081 | 245157 | 25093 | ITPR1 | 150995 | 302640 | 10019 | 306253 | 30013 | RNF220 | 187147 | 474956 | 17957 | N/A | |
| BBS2 | 125124 | 562813 | 2082 | N/A | | ITPR1 | 150995 | 354582 | 10020 | 346595 | 30014 | RNF220 | 187147 | 372247 | 17958 | 361321 | 34946 |
| BBS2 | 125124 | 569192 | 2083 | N/A | | ITPR1 | 150995 | 544951 | 10021 | 440564 | 30015 | RNF39 | 230332 | 451425 | 17959 | 391822 | 34947 |
| BBS2 | 125124 | 566495 | 2084 | N/A | | ITPR1 | 150995 | 467056 | 10022 | N/A | | RNF39 | 230332 | 432647 | 17960 | 398512 | 34948 |
| BBS2 | 125124 | 561877 | 2085 | 454986 | 25094 | IQCH | 103599 | 512104 | 10023 | 427323 | 30016 | RNF39 | 227171 | 425956 | 17961 | 393560 | 34949 |
| BBS2 | 125124 | 566410 | 2086 | N/A | | IQCH | 103599 | 514049 | 10024 | 421223 | 30017 | RNF39 | 227171 | 442378 | 17962 | 401131 | 34950 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BBS2 | 125124 | 566452 | 2087 | N/A | | IQCH | 103599 | 535894 | 10025 | 536861 | 30018 | RNF39 | 236967 | 441449 | 17963 | 392508 | 34951 |
| BBS2 | 125124 | 566210 | 2088 | N/A | | IQCH | 103599 | 535744 | 10026 | 441306 | 30019 | RNF39 | 236967 | 450015 | 17964 | 407291 | 34952 |
| BBS2 | 125124 | 562012 | 2089 | 455651 | 25095 | IQCH | 103599 | 559568 | 10027 | 453749 | 30020 | RNF39 | 237733 | 417541 | 17965 | 407248 | 34953 |
| BBS2 | 125124 | 562059 | 2090 | N/A | | IQCH | 103599 | 560497 | 10028 | N/A | | RNF39 | 237733 | 449145 | 17966 | 408539 | 34954 |
| BBS2 | 125124 | 569342 | 2091 | N/A | | IQCH | 103599 | 561339 | 10029 | 454387 | 30021 | RNF39 | 206500 | 376750 | 17967 | 365941 | 34955 |
| BBS2 | 125124 | 561951 | 2092 | N/A | | IQCH | 103599 | 560790 | 10030 | N/A | | RNF39 | 206500 | 383611 | 17968 | 373106 | 34956 |
| BBS2 | 125124 | 561853 | 2093 | N/A | | IQCH | 103599 | 559172 | 10031 | N/A | | RNF39 | 204618 | 376751 | 17969 | 365942 | 34957 |
| BBS2 | 125124 | 565859 | 2094 | N/A | | IQCH | 103599 | 561357 | 10032 | 457425 | 30022 | RNF39 | 204618 | 244360 | 17970 | 244360 | 34958 |
| BBS2 | 125124 | 569941 | 2095 | 456741 | 25096 | IQCH | 103599 | 558759 | 10033 | 456293 | 30023 | RNF39 | 235022 | 456156 | 17971 | 395696 | 34959 |
| BBS2 | 125124 | 566689 | 2096 | N/A | | IQCH | 103599 | 546225 | 10034 | 444118 | 30024 | RNF39 | 235022 | 442063 | 17972 | 415281 | 34960 |
| BBS2 | 125124 | 565378 | 2097 | N/A | | IQCH | 103599 | 358767 | 10035 | 351617 | 30025 | RNF39 | 230467 | 457092 | 17973 | 405340 | 34961 |
| BCAR1 | 050820 | 393422 | 2098 | 377074 | 25097 | IQCH | 103599 | 629425 | 10036 | 486970 | 30026 | RNF39 | 230467 | 420562 | 17974 | 387930 | 34962 |
| BCAR1 | 050820 | 162330 | 2099 | 162330 | 25098 | IQGAP1 | 140575 | 268182 | 10037 | 268182 | 30027 | RNF43 | 108375 | 407977 | 17975 | 385328 | 34963 |
| BCAR1 | 050820 | 562556 | 2100 | 455166 | 25099 | IQGAP1 | 140575 | 633485 | 10038 | 488618 | 30028 | RNF43 | 108375 | 583753 | 17976 | 462502 | 34964 |
| BCAR1 | 050820 | 563038 | 2101 | N/A | | IQGAP1 | 140575 | 560738 | 10039 | 453181 | 30029 | RNF43 | 108375 | 584437 | 17977 | 463069 | 34965 |
| BCAR1 | 050820 | 566982 | 2102 | N/A | | IQGAP1 | 140575 | 560418 | 10040 | 452723 | 30030 | RNF43 | 108375 | 577716 | 17978 | 462764 | 34966 |
| BCAR1 | 050820 | 535626 | 2103 | 440370 | 25100 | IQGAP1 | 140575 | 559809 | 10041 | 484647 | 30031 | RNF43 | 108375 | 577625 | 17979 | 463716 | 34967 |
| BCAR1 | 050820 | 538440 | 2104 | 443841 | 25101 | IQGAP1 | 140575 | 559682 | 10042 | N/A | | RNF43 | 108375 | 581868 | 17980 | 462447 | 34968 |
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| BCAR1 | 050820 | 542031 | 2106 | 440415 | 25103 | IQGAP1 | 140575 | 558003 | 10044 | N/A | | RNF43 | 108375 | 580014 | 17982 | N/A | |
| BCAR1 | 050820 | 420641 | 2107 | 392708 | 25104 | IQGAP1 | 140575 | 560733 | 10045 | N/A | | ROBO2 | 185008 | 487694 | 17983 | 417335 | 34969 |
| BCAR1 | 050820 | 393420 | 2108 | 377072 | 25105 | IQGAP1 | 140575 | 560020 | 10046 | N/A | | ROBO2 | 185008 | 602589 | 17984 | 473268 | 34970 |
| BCAR1 | 050820 | 569340 | 2109 | 454702 | 25106 | IQGAP1 | 140575 | 560218 | 10047 | N/A | | ROBO2 | 185008 | 475034 | 17985 | N/A | |
| BCAR1 | 050820 | 564170 | 2110 | N/A | | IQGAP1 | 140575 | 558491 | 10048 | N/A | | ROBO2 | 185008 | 461745 | 17986 | 417164 | 34971 |
| BCAR1 | 050820 | 568864 | 2111 | 456625 | 25107 | IQGAP1 | 140575 | 561132 | 10049 | N/A | | ROBO2 | 185008 | 332191 | 17987 | 327536 | 34972 |
| BCAR1 | 050820 | 564028 | 2112 | 455810 | 25108 | IQGAP1 | 140575 | 561461 | 10050 | N/A | | ROBO2 | 185008 | 473767 | 17988 | 418117 | 34973 |
| BCAR1 | 050820 | 566465 | 2113 | 456929 | 25109 | IQGAP1 | 140575 | 559031 | 10051 | N/A | | ROBO2 | 185008 | 490991 | 17989 | 418344 | 34974 |
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| BCAR1 | 050820 | 546196 | 2119 | 442161 | 25114 | IQSEC1 | 144711 | 613206 | 10057 | 480301 | 30035 | ROBO2 | 185008 | 614793 | 17995 | 480344 | 34978 |
| BCAS1 | 064787 | 448484 | 2120 | 396361 | 25115 | IQSEC1 | 144711 | 473088 | 10058 | N/A | | ROBO3 | 154134 | 397801 | 17996 | 380903 | 34979 |
| BCAS1 | 064787 | 371435 | 2121 | 360490 | 25116 | IQSEC1 | 144711 | 474467 | 10059 | N/A | | ROBO3 | 154134 | 538940 | 17997 | 441797 | 34980 |
| BCAS1 | 064787 | 395961 | 2122 | 379290 | 25117 | IQSEC3 | 120645 | 538872 | 10060 | 437554 | 30036 | ROBO3 | 154134 | 527196 | 17998 | N/A | |
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| BCAS2 | 116752 | 369541 | 2124 | 358554 | 25119 | IQSEC3 | 120645 | 540907 | 10062 | N/A | | ROBO3 | 154134 | 529658 | 18000 | N/A | |
| BCAS2 | 116752 | 485021 | 2125 | N/A | | IQSEC3 | 120645 | 537151 | 10063 | N/A | | ROBO3 | 154134 | 531545 | 18001 | N/A | |
| BCHE | 114200 | 264381 | 2126 | 264381 | 25120 | IQSEC3 | 120645 | 544511 | 10064 | N/A | | ROBO3 | 154134 | 525448 | 18002 | N/A | |
| BCHE | 114200 | 497011 | 2127 | 419505 | 25121 | IQSEC3 | 262607 | 575724 | 10065 | 461496 | 30038 | ROBO3 | 154134 | 528144 | 18003 | N/A | |
| BCHE | 114200 | 482958 | 2128 | 419804 | 25122 | IQSEC3 | 262607 | 571363 | 10066 | 461043 | 30039 | ROBO3 | 154134 | 531888 | 18004 | N/A | |
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| BCHE | 114200 | 488954 | 2130 | 418504 | 25124 | IQSEC3 | 262607 | 573139 | 10068 | N/A | | ROBO3 | 154134 | 532472 | 18006 | N/A | |
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| BCL11A | 119866 | 359629 | 2132 | 352648 | 25126 | IRX1 | 170549 | 302006 | 10070 | 305244 | 30041 | ROBO3 | 154134 | 530647 | 18008 | N/A | |
| BCL11A | 119866 | 489516 | 2133 | 488390 | 25127 | IRX2 | 170561 | 382611 | 10071 | 372056 | 30042 | ROBO3 | 154134 | 526551 | 18009 | N/A | |
| BCL11A | 119866 | 479026 | 2134 | 488636 | 25128 | IRX2 | 170561 | 302057 | 10072 | 307606 | 30043 | ROBO3 | 154134 | 528820 | 18010 | N/A | |
| BCL11A | 119866 | 631857 | 2135 | 488886 | 25129 | IRX5 | 176842 | 394636 | 10073 | 378132 | 30044 | ROBO3 | 154134 | 525482 | 18011 | N/A | |
| BCL11A | 119866 | 492272 | 2136 | N/A | | IRX5 | 176842 | 560154 | 10074 | 453660 | 30045 | ROBO3 | 154134 | 534598 | 18012 | N/A | |
| BCL11A | 119866 | 335712 | 2137 | 338774 | 25130 | IRX5 | 176842 | 320990 | 10075 | 316250 | 30046 | ROBO3 | 154134 | 531075 | 18013 | N/A | |
| BCL11A | 119866 | 477659 | 2138 | N/A | | IRX5 | 176842 | 558597 | 10076 | N/A | | ROBO3 | 154134 | 525304 | 18014 | N/A | |
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| BCL11A | 119866 | 489183 | 2141 | N/A | | ISYNA1 | 105655 | 338128 | 10079 | 337746 | 30049 | RORA | 069667 | 335670 | 18017 | 335087 | 34982 |
| BCL11B | 127152 | 357195 | 2142 | 349723 | 25133 | ISYNA1 | 105655 | 457269 | 10080 | 415458 | 30050 | RORA | 069667 | 309157 | 18018 | 309753 | 34983 |
| BCL11B | 127152 | 345514 | 2143 | 280435 | 25134 | ISYNA1 | 105655 | 582287 | 10081 | N/A | | RORA | 069667 | 261523 | 18019 | 261523 | 34984 |
| BCL11B | 127152 | 443726 | 2144 | 387419 | 25135 | ISYNA1 | 105655 | 581672 | 10082 | 464528 | 30051 | RORA | 069667 | 449337 | 18020 | 402971 | 34985 |
| BCL11B | 127152 | 357195 | 2145 | 349723 | 25136 | ISYNA1 | 105655 | 578963 | 10083 | 475677 | 30052 | RORA | 069667 | 559587 | 18021 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCL11B | 127152 | 345514 | 2146 | 280435 | 25137 | ISYNA1 | 105655 | 582770 | 10084 | 464209 | 30053 | RORA | 069667 | 551975 | 18022 | 449482 | 34986 |
| BCL11B | 127152 | 443726 | 2147 | 387419 | 25138 | ISYNA1 | 105655 | 577916 | 10085 | N/A | | RORA | 069667 | 560004 | 18023 | N/A | |
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| BDNF | 176697 | 325528 | 2149 | 437138 | 25140 | ISYNA1 | 105655 | 583816 | 10087 | N/A | | RORA | 069667 | 558234 | 18025 | N/A | |
| BDNF | 176697 | 395986 | 2150 | 379309 | 25141 | ISYNA1 | 105655 | 583309 | 10088 | N/A | | RORA | 069667 | 557822 | 18026 | N/A | |
| BDNF | 176697 | 533131 | 2151 | 432727 | 25142 | ISYNA1 | 105655 | 578352 | 10089 | 462001 | 30055 | RORA | 069667 | 559145 | 18027 | N/A | |
| BDNF | 176697 | 356660 | 2152 | 349084 | 25143 | ISYNA1 | 105655 | 581800 | 10090 | 463500 | 30056 | RORA | 069667 | 561093 | 18028 | N/A | |
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| BDNF | 176697 | 530786 | 2156 | 433003 | 25147 | ITGA11 | 137809 | 569346 | 10094 | N/A | | RPA1 | 132383 | 570451 | 18032 | 459788 | 34990 |
| BDNF | 176697 | 395983 | 2157 | 379307 | 25148 | ITGA11 | 137809 | 566429 | 10095 | N/A | | RPA1 | 132383 | 254719 | 18033 | 254719 | 34991 |
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| BDNF | 176697 | 532997 | 2160 | 435805 | 25150 | ITGA11 | 137809 | 568677 | 10098 | N/A | | RPA1 | 132383 | 574049 | 18036 | 461466 | 34992 |
| BDNF | 176697 | 395981 | 2161 | 379305 | 25151 | ITGA2 | 164171 | 296585 | 10099 | 296585 | 30060 | RPA1 | 132383 | 573994 | 18037 | N/A | |
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| BDNF | 176697 | 395980 | 2165 | 379304 | 25155 | ITGA2 | 164171 | 509960 | 10103 | 424642 | 30064 | RPH3A | 089169 | 543106 | 18041 | 440384 | 34996 |
| BDNF | 176697 | 420794 | 2166 | 389564 | 25156 | ITGA2 | 164171 | 510722 | 10104 | 422145 | 30065 | RPH3A | 089169 | 551593 | 18042 | 446780 | 34997 |
| BEAN1 | 166546 | 536005 | 2167 | 442793 | 25157 | ITGA4 | 115232 | 476089 | 10105 | N/A | | RPH3A | 089169 | 546426 | 18043 | 447639 | 34998 |
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| BEAN1 | 166546 | 299694 | 2169 | 299694 | 25159 | ITGA4 | 115232 | 397033 | 10107 | 380227 | 30067 | RPH3A | 089169 | 546703 | 18045 | 446556 | 35000 |
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| BEAN1 | 166546 | 562146 | 2175 | 462088 | 25163 | ITGA4 | 115232 | 490435 | 10113 | N/A | | RPH3A | 089169 | 550901 | 18051 | 448100 | 35006 |
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| BEGAIN | 183092 | 443071 | 2178 | 411124 | 25165 | ITGA5 | 161638 | 552564 | 10116 | N/A | | RPH3A | 089169 | 415485 | 18054 | 405357 | 35009 |
| BEGAIN | 183092 | 554747 | 2179 | N/A | | ITGA5 | 161638 | 293379 | 10117 | 293379 | 30069 | RPH3A | 089169 | 552679 | 18055 | N/A | |
| BEGAIN | 183092 | 554274 | 2180 | N/A | | ITGA5 | 161638 | 547197 | 10118 | 450267 | 30070 | RPH3A | 089169 | 553114 | 18056 | 450216 | 35010 |
| BEGAIN | 183092 | 554140 | 2181 | 451125 | 25166 | ITGA5 | 161638 | 549601 | 10119 | N/A | | RPH3A | 089169 | 548866 | 18057 | 450347 | 35011 |
| BEGAIN | 183092 | 557378 | 2182 | 450722 | 25167 | ITGA5 | 161638 | 552431 | 10120 | N/A | | RPH3A | 089169 | 547099 | 18058 | 448662 | 35012 |
| BEGAIN | 183092 | 554356 | 2183 | 452607 | 25168 | ITGA5 | 161638 | 552387 | 10121 | N/A | | RPH3A | 089169 | 547222 | 18059 | N/A | |
| BEGAIN | 183092 | 556188 | 2184 | 452157 | 25169 | ITGA5 | 161638 | 552583 | 10122 | N/A | | RPH3A | 089169 | 549913 | 18060 | N/A | |
| BEGAIN | 183092 | 553553 | 2185 | 451397 | 25170 | ITGA5 | 161638 | 551564 | 10123 | N/A | | RPH3A | 089169 | 552755 | 18061 | N/A | |
| BEGAIN | 183092 | 556751 | 2186 | N/A | | ITGA5 | 161638 | 550141 | 10124 | N/A | | RPH3A | 089169 | 546687 | 18062 | N/A | |
| BEGAIN | 183092 | 637716 | 2187 | 490571 | 25171 | ITGA5 | 161638 | 551861 | 10125 | N/A | | RPH3A | 089169 | 552352 | 18063 | N/A | |
| BEGAIN | 183092 | 355173 | 2188 | 347301 | 25172 | ITGA5 | 161638 | 435631 | 10126 | 405865 | 30071 | RPH3A | 089169 | 549324 | 18064 | N/A | |
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| BEST3 | 127325 | 331471 | 2191 | 329064 | 25175 | ITGA7 | 135424 | 553804 | 10129 | 452120 | 30073 | RPL10 | 147403 | 479366 | 18067 | N/A | |
| BEST3 | 127325 | 488961 | 2192 | 433213 | 25176 | ITGA7 | 135424 | 257879 | 10130 | 257879 | 30074 | RPL10 | 147403 | 436473 | 18068 | 388600 | 35014 |
| BEST3 | 127325 | 330891 | 2193 | 332413 | 25177 | ITGA7 | 135424 | 554327 | 10131 | 450695 | 30075 | RPL10 | 147403 | 344746 | 18069 | 341730 | 35015 |
| BEST3 | 127325 | 553096 | 2194 | 449548 | 25178 | ITGA7 | 135424 | 347027 | 10132 | 343009 | 30076 | RPL10 | 147403 | 489200 | 18070 | N/A | |
| BEST3 | 127325 | 476098 | 2195 | 434713 | 25179 | ITGA7 | 135424 | 452168 | 10133 | 393844 | 30077 | RPL10 | 147403 | 491035 | 18071 | N/A | |
| BEST3 | 127325 | 552295 | 2196 | 447689 | 25180 | ITGA7 | 135424 | 555728 | 10134 | 452387 | 30078 | RPL10 | 147403 | 458500 | 18072 | 395025 | 35016 |
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| BEST3 | 127325 | 266661 | 2198 | 266661 | 25182 | ITGA7 | 135424 | 557058 | 10136 | N/A | | RPL10 | 147403 | 482732 | 18074 | N/A | |
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| BGN | 182492 | 331595 | 2202 | 327336 | 25184 | ITGA7 | 135424 | 557257 | 10140 | 450578 | 30081 | RPL10 | 147403 | 449494 | 18078 | 407754 | 35019 |
| BGN | 182492 | 472615 | 2203 | N/A | | ITGA7 | 135424 | 553276 | 10141 | N/A | | RPL10 | 147403 | 427682 | 18079 | 405064 | 35020 |
| BGN | 182492 | 480756 | 2204 | N/A | | ITGA7 | 135424 | 555687 | 10142 | 451311 | 30082 | RPL10 | 147403 | 428169 | 18080 | 398047 | 35021 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| BGN | 182492 | 492658 | 2206 | N/A | | ITGA7 | 135424 | 553737 | 10144 | N/A | | RPL10 | 147403 | 618723 | 18082 | 479103 | 35023 |
| BHLHE22 | 180828 | 321870 | 2207 | 318799 | 25186 | ITGA7 | 135424 | 556371 | 10145 | N/A | | RPRM | 177519 | 325926 | 18083 | 314946 | 35024 |
| BHLHE40 | 134107 | 256495 | 2208 | 256495 | 25187 | ITGA7 | 135424 | 553893 | 10146 | 452467 | 30084 | RPS4Y1 | 129824 | 250784 | 18084 | 250784 | 35025 |
| BHLHE40 | 134107 | 467610 | 2209 | N/A | | ITGA7 | 135424 | 555809 | 10147 | 450798 | 30085 | RPS4Y1 | 129824 | 430575 | 18085 | 415317 | 35026 |
| BHLHE40 | 134107 | 460806 | 2210 | N/A | | ITGA7 | 135424 | 554359 | 10148 | N/A | | RPS4Y1 | 129824 | 477725 | 18086 | N/A | |
| BHLHE40-AS1 | 235831 | 620618 | 2211 | N/A | | ITGA8 | 077943 | 378076 | 10149 | 367316 | 30086 | RPS4Y1 | 129824 | 515575 | 18087 | N/A | |
| BHLHE40-AS1 | 235831 | 615178 | 2212 | N/A | | ITGA8 | 077943 | 477064 | 10150 | N/A | | RPS6KA1 | 281877 | 628001 | 18088 | 485797 | 35027 |
| BHLHE40-AS1 | 235831 | 615017 | 2213 | N/A | | ITGA8 | 077943 | 468882 | 10151 | N/A | | RPS6KA1 | 281877 | 627677 | 18089 | 486119 | 35028 |
| BHLHE40-AS1 | 235831 | 441386 | 2214 | N/A | | ITGA9 | 144668 | 422441 | 10152 | 397258 | 30087 | RPS6KA1 | 281877 | 629832 | 18090 | 486881 | 35029 |
| BICD1 | 151746 | 551848 | 2215 | 448933 | 25188 | ITGA9 | 144668 | 264741 | 10153 | 264741 | 30088 | RPS6KA1 | 281877 | 625208 | 18091 | N/A | |
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| BICD1 | 151746 | 548411 | 2217 | 446793 | 25190 | ITGA9 | 144668 | 411817 | 10155 | 406533 | 30089 | RPS6KA1 | 281877 | 631108 | 18093 | 487166 | 35031 |
| BICD1 | 151746 | 281474 | 2218 | 281474 | 25191 | ITGAV | 138448 | 261023 | 10156 | 261023 | 30090 | RPS6KA1 | 281877 | 629025 | 18094 | 487239 | 35032 |
| BICD1 | 151746 | 395758 | 2219 | 379107 | 25192 | ITGAV | 138448 | 374907 | 10157 | 364042 | 30091 | RPS6KA1 | 281877 | 628081 | 18095 | 487553 | 35033 |
| BICD1 | 151746 | 551086 | 2220 | 447238 | 25193 | ITGAV | 138448 | 433736 | 10158 | 404291 | 30092 | RPS6KA1 | 281877 | 625391 | 18096 | 487154 | 35034 |
| BICD1 | 151746 | 547680 | 2221 | 475837 | 25194 | ITGAV | 138448 | 460641 | 10159 | N/A | | RPS6KA1 | 281877 | 628816 | 18097 | N/A | |
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| BICD1 | 151746 | 614004 | 2224 | N/A | | ITGAV | 138448 | 474571 | 10162 | N/A | | RPS6KA1 | 281877 | 628256 | 18100 | 487349 | 35036 |
| BICD2 | 185963 | 356884 | 2225 | 349351 | 25196 | ITGAV | 138448 | 430709 | 10163 | 389442 | 30093 | RPS6KA1 | 281877 | 627890 | 18101 | N/A | |
| BICD2 | 185963 | 375512 | 2226 | 364662 | 25197 | ITGB4 | 132470 | 579662 | 10164 | 463651 | 30094 | RPS6KA1 | 281877 | 625549 | 18102 | N/A | |
| BLM | 197299 | 355112 | 2227 | 347232 | 25198 | ITGB4 | 132470 | 200181 | 10165 | 200181 | 30095 | RPS6KA1 | 281877 | 627508 | 18103 | N/A | |
| BLM | 197299 | 560509 | 2228 | 454158 | 25199 | ITGB4 | 132470 | 450894 | 10166 | 405536 | 30096 | RPS6KA1 | 281877 | 625911 | 18104 | N/A | |
| BLM | 197299 | 559724 | 2229 | 453359 | 25200 | ITGB4 | 132470 | 580542 | 10167 | N/A | | RPS6KA1 | 281877 | 625863 | 18105 | 486179 | 35037 |
| BLM | 197299 | 559282 | 2230 | N/A | | ITGB4 | 132470 | 449880 | 10168 | 400217 | 30097 | RPS6KA1 | 281877 | 630873 | 18106 | N/A | |
| BLM | 197299 | 558599 | 2231 | N/A | | ITGB4 | 132470 | 584558 | 10169 | N/A | | RPS6KA1 | 281877 | 629099 | 18107 | 487207 | 35038 |
| BLM | 197299 | 559426 | 2232 | N/A | | ITGB4 | 132470 | 582629 | 10170 | 463788 | 30098 | RPS6KA1 | 117676 | 525525 | 18108 | 434616 | 35039 |
| BLM | 197299 | 560136 | 2233 | N/A | | ITGB4 | 132470 | 584374 | 10171 | N/A | | RPS6KA1 | 117676 | 526040 | 18109 | 436990 | 35040 |
| BLM | 197299 | 560559 | 2234 | N/A | | ITGB4 | 132470 | 584025 | 10172 | N/A | | RPS6KA1 | 117676 | 374168 | 18110 | 363283 | 35041 |
| BLM | 197299 | 558825 | 2235 | N/A | | ITGB4 | 132470 | 583327 | 10173 | N/A | | RPS6KA1 | 117676 | 524436 | 18111 | N/A | |
| BLM | 197299 | 560821 | 2236 | N/A | | ITGB4 | 132470 | 579211 | 10174 | N/A | | RPS6KA1 | 117676 | 374166 | 18112 | 363281 | 35042 |
| BLNK | 095585 | 224337 | 2237 | 224337 | 25201 | ITGB4 | 132470 | 584939 | 10175 | 464259 | 30099 | RPS6KA1 | 117676 | 526792 | 18113 | 431651 | 35043 |
| BLNK | 095585 | 371176 | 2238 | 360218 | 25202 | ITGB4 | 132470 | 578318 | 10176 | 462494 | 30100 | RPS6KA1 | 117676 | 529454 | 18114 | 433039 | 35044 |
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| BLNK | 095585 | 468252 | 2241 | N/A | | ITGB5 | 082781 | 461306 | 10179 | N/A | | RPS6KA1 | 117676 | 531113 | 18117 | N/A | |
| BLNK | 095585 | 472763 | 2242 | N/A | | ITGB5 | 082781 | 481591 | 10180 | 420814 | 30102 | RPS6KA1 | 117676 | 374163 | 18118 | 363278 | 35047 |
| BLNK | 095585 | 495266 | 2243 | 465741 | 25204 | ITGB5 | 082781 | 488466 | 10181 | 477446 | 30103 | RPS6KA1 | 117676 | 530607 | 18119 | N/A | |
| BLNK | 095585 | 427367 | 2244 | 391924 | 25205 | ITGB5 | 082781 | 474838 | 10182 | N/A | | RPS6KA1 | 117676 | 531382 | 18120 | 435412 | 35048 |
| BLNK | 095585 | 413476 | 2245 | 397487 | 25206 | ITGB5 | 082781 | 496703 | 10183 | 418367 | 30104 | RPS6KA1 | 117676 | 525582 | 18121 | N/A | |
| BMP2K | 138756 | 389010 | 2246 | 373662 | 25207 | ITGB5 | 082781 | 476988 | 10184 | N/A | | RPS6KA1 | 117676 | 527264 | 18122 | N/A | |
| BMP2K | 138756 | 502871 | 2247 | 421768 | 25208 | ITGB5 | 082781 | 465464 | 10185 | 418079 | 30105 | RPS6KA1 | 117676 | 474934 | 18123 | N/A | |
| BMP2K | 138756 | 505725 | 2248 | N/A | | ITGB5 | 082781 | 608657 | 10186 | 477230 | 30106 | RPS6KA1 | 117676 | 488985 | 18124 | N/A | |
| BMP2K | 138756 | 515075 | 2249 | N/A | | ITGB5 | 082781 | 483168 | 10187 | 419198 | 30107 | RPS6KA1 | 117676 | 403732 | 18125 | 383967 | 35049 |
| BMP2K | 138756 | 502613 | 2250 | 424668 | 25209 | ITGB5 | 082781 | 608107 | 10188 | 476655 | 30108 | RPS6KA1 | 117676 | 530305 | 18126 | N/A | |
| BMP2K | 138756 | 507670 | 2251 | N/A | | ITGB5 | 082781 | 608945 | 10189 | N/A | | RPS6KA1 | 117676 | 438977 | 18127 | 403548 | 35050 |
| BMP2K | 138756 | 335016 | 2252 | 334836 | 25210 | ITGB8 | 105855 | 537992 | 10190 | 441561 | 30109 | RPS6KA5 | 100784 | 614987 | 18128 | 479667 | 35051 |
| BMP2K | 138756 | 628286 | 2253 | 487317 | 25211 | ITGB8 | 105855 | 478974 | 10191 | N/A | | RPS6KA5 | 100784 | 536315 | 18129 | 442803 | 35052 |
| BMP3 | 152785 | 282701 | 2254 | 282701 | 25212 | ITGB8 | 105855 | 222573 | 10192 | 222573 | 30110 | RPS6KA5 | 100784 | 556178 | 18130 | 451305 | 35053 |
| BMPER | 164619 | 448280 | 2255 | 398835 | 25213 | ITGB8 | 105855 | 460204 | 10193 | N/A | | RPS6KA5 | 100784 | 418736 | 18131 | 402787 | 35054 |
| BMPER | 164619 | 297161 | 2256 | 297161 | 25214 | ITGB8 | 105855 | 477859 | 10194 | N/A | | RPS6KA5 | 100784 | 554206 | 18132 | 450591 | 35055 |
| BMPER | 164619 | 496609 | 2257 | N/A | | ITIH3 | 162267 | 467268 | 10195 | N/A | | RPS6KA5 | 100784 | 556304 | 18133 | N/A | |
| BMPER | 164619 | 436222 | 2258 | 399843 | 25215 | ITIH3 | 162267 | 416872 | 10196 | 413922 | 30111 | RPS6KA5 | 100784 | 556594 | 18134 | 451736 | 35056 |
| BMPER | 164619 | 444773 | 2259 | 409998 | 25216 | ITIH3 | 162267 | 449956 | 10197 | 415769 | 30112 | RPUSD3 | 156990 | 423108 | 18135 | 405054 | 35057 |
| BMPER | 164619 | 494786 | 2260 | N/A | | ITIH3 | 162267 | 465243 | 10198 | N/A | | RPUSD3 | 156990 | 433535 | 18136 | 398921 | 35058 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BMPER | 164619 | 476525 | 2261 | N/A | | ITIH3 | 162267 | 463893 | 10199 | N/A | | RPUSD3 | 156990 | 383820 | 18137 | 373331 | 35059 |
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| BNC2 | 173068 | 613349 | 2274 | 477717 | 25228 | ITPKA | 137825 | 425927 | 10212 | 396560 | 30116 | RPUSD3 | 156990 | 473522 | 18150 | N/A | |
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| BOC | 144857 | 464546 | 2277 | 417362 | 25231 | ITPKA | 137825 | 491007 | 10215 | N/A | | RRNAD1 | 143303 | 368216 | 18153 | 357199 | 35067 |
| BOC | 144857 | 495514 | 2278 | 418663 | 25232 | ITPKB | 143772 | 272117 | 10216 | 272117 | 30118 | RRNAD1 | 143303 | 519086 | 18154 | 429756 | 35068 |
| BOC | 144857 | 498710 | 2279 | 419022 | 25233 | ITPKB | 143772 | 366784 | 10217 | 355748 | 30119 | RRNAD1 | 143303 | 524343 | 18155 | 429389 | 35069 |
| BOC | 144857 | 485230 | 2280 | 420154 | 25234 | ITPKB | 143772 | 429204 | 10218 | 411152 | 30120 | RRNAD1 | 143303 | 484742 | 18156 | 429053 | 35070 |
| BOC | 144857 | 462425 | 2281 | 418118 | 25235 | ITPRIPL2 | 205730 | 566735 | 10219 | 455257 | 30121 | RRNAD1 | 143303 | 476229 | 18157 | 430787 | 35071 |
| BOC | 144857 | 273395 | 2282 | 273395 | 25236 | ITPRIPL2 | 205730 | 381440 | 10220 | 370849 | 30122 | RRNAD1 | 143303 | 517871 | 18158 | N/A | |
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| BOC | 144857 | 471963 | 2284 | N/A | | ITSN2 | 198399 | 361999 | 10222 | 354561 | 30123 | RRNAD1 | 143303 | 462397 | 18160 | N/A | |
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| BOC | 144857 | 473008 | 2292 | 418182 | 25240 | ITSN2 | 198399 | 469848 | 10230 | N/A | | RSPO2 | 147655 | 517781 | 18168 | 427937 | 35078 |
| BOC | 144857 | 355385 | 2293 | 347546 | 25241 | ITSN2 | 198399 | 443927 | 10231 | 391715 | 30130 | RSPO2 | 147655 | 276659 | 18169 | 276659 | 35079 |
| BRINP2 | 198797 | 361539 | 2294 | 354481 | 25242 | ITSN2 | 198399 | 407704 | 10232 | N/A | | RSPO2 | 147655 | 521502 | 18170 | 428614 | 35080 |
| BRINP2 | 198797 | 478325 | 2295 | N/A | | ITSN2 | 198399 | 622089 | 10233 | 479408 | 30131 | RSPO2 | 147655 | 521757 | 18171 | 430485 | 35081 |
| BRINP2 | 198797 | 460161 | 2296 | N/A | | JAG1 | 101384 | 254958 | 10234 | 254958 | 30132 | RSPO2 | 147655 | 521956 | 18172 | 430010 | 35082 |
| BRINP3 | 162670 | 367462 | 2297 | 356432 | 25243 | JAG1 | 101384 | 423891 | 10235 | N/A | | RSPO2 | 147655 | 520026 | 18173 | 429159 | 35083 |
| BRINP3 | 162670 | 463404 | 2298 | N/A | | JAG1 | 101384 | 617357 | 10236 | N/A | | RSPO2 | 147655 | 522333 | 18174 | 430973 | 35084 |
| BRINP3 | 162670 | 631494 | 2299 | 487601 | 25244 | JAG1 | 101384 | 488480 | 10237 | N/A | | RSPO4 | 101282 | 217260 | 18175 | 217260 | 35085 |
| BRINP3 | 162670 | 445957 | 2300 | 393441 | 25245 | JAG1 | 101384 | 612857 | 10238 | N/A | | RSPO4 | 101282 | 400634 | 18176 | 383475 | 35086 |
| BRINP3 | 162670 | 633243 | 2301 | N/A | | JAG1 | 101384 | 613518 | 10239 | 481034 | 30133 | RTN1 | 139970 | 481205 | 18177 | N/A | |
| BSG | 172270 | 545507 | 2302 | 473664 | 25246 | JAG1 | 101384 | 622545 | 10240 | 484139 | 30134 | RTN1 | 139970 | 395090 | 18178 | 378525 | 35087 |
| BSG | 172270 | 346916 | 2303 | 344707 | 25247 | JAG1 | 101384 | 620743 | 10241 | N/A | | RTN1 | 139970 | 342503 | 18179 | 340716 | 35088 |
| BSG | 172270 | 333511 | 2304 | 333769 | 25248 | JAG1 | 101384 | 617965 | 10242 | N/A | | RTN1 | 139970 | 267484 | 18180 | 267484 | 35089 |
| BSG | 172270 | 576925 | 2305 | N/A | | JAM2 | 154721 | 400532 | 10243 | 383376 | 30135 | RTN1 | 139970 | 432103 | 18181 | N/A | |
| BSG | 172270 | 573216 | 2306 | 458665 | 25249 | JAM2 | 154721 | 480456 | 10244 | 420419 | 30136 | RTN1 | 139970 | 474911 | 18182 | N/A | |
| BSG | 172270 | 353555 | 2307 | 343809 | 25250 | JAM2 | 154721 | 460679 | 10245 | 436801 | 30137 | RTN1 | 139970 | 557422 | 18183 | N/A | |
| BSG | 172270 | 572899 | 2308 | N/A | | JAM2 | 154721 | 492962 | 10246 | N/A | | RTN1 | 139970 | 490111 | 18184 | N/A | |
| BSG | 172270 | 590218 | 2309 | N/A | | JAM2 | 154721 | 477351 | 10247 | N/A | | RTN1 | 139970 | 611068 | 18185 | 483039 | 35090 |
| BSG | 172270 | 613627 | 2310 | 484849 | 25251 | JAM2 | 154721 | 471689 | 10248 | N/A | | RTN1 | 139970 | 481205 | 18186 | N/A | |
| BSG | 172270 | 618006 | 2311 | 478958 | 25252 | JAM2 | 154721 | 312957 | 10249 | 318416 | 30138 | RTN1 | 139970 | 395090 | 18187 | 378525 | 35091 |
| BSG | 172270 | 614867 | 2312 | 484624 | 25253 | JAM3 | 166086 | 299106 | 10250 | 299106 | 30139 | RTN1 | 139970 | 342503 | 18188 | 340716 | 35092 |
| BSG | 172270 | 573784 | 2313 | 473393 | 25254 | JAM3 | 166086 | 532252 | 10251 | 432455 | 30140 | RTN1 | 139970 | 267484 | 18189 | 267484 | 35093 |
| BSG | 172270 | 574970 | 2314 | N/A | | JAM3 | 166086 | 534549 | 10252 | 433206 | 30141 | RTN1 | 139970 | 432103 | 18190 | N/A | |
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| BSG | 172270 | 571735 | 2316 | N/A | | JAM3 | 166086 | 531302 | 10254 | N/A | | RTN1 | 139970 | 557422 | 18192 | N/A | |
| BSG | 172270 | 618112 | 2317 | N/A | | JAM3 | 166086 | 524969 | 10255 | N/A | | RTN1 | 139970 | 490111 | 18193 | N/A | |
| BSN | 164061 | 296452 | 2318 | 296452 | 25256 | JAM3 | 166086 | 532165 | 10256 | N/A | | RTN1 | 139970 | 611068 | 18194 | 483039 | 35094 |
| BSN | 164061 | 467456 | 2319 | N/A | | JAM3 | 166086 | 533711 | 10257 | N/A | | RTN4R | 040608 | 416372 | 18195 | 396872 | 35095 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BTAF1 | 095564 | 265990 | 2320 | 265990 | 25257 | JAML | 160593 | 529164 | 10258 | N/A | | RTN4R | 040608 | 043402 | 18196 | 043402 | 35096 |
| BTAF1 | 095564 | 471217 | 2321 | N/A | | JAML | 160593 | 531536 | 10259 | N/A | | RTN4R | 040608 | 425986 | 18197 | 403535 | 35097 |
| BTAF1 | 095564 | 476401 | 2322 | N/A | | JAML | 160593 | 524477 | 10260 | 432769 | 30143 | RTN4R | 040608 | 469601 | 18198 | N/A | |
| BTAF1 | 095564 | 544642 | 2323 | 439924 | 25258 | JAML | 160593 | 527877 | 10261 | 435145 | 30144 | RTN4R | 040608 | 474642 | 18199 | N/A | |
| BTBD1 | 064726 | 261721 | 2324 | 261721 | 25259 | JAML | 160593 | 525565 | 10262 | 431791 | 30145 | RTN4R | 040608 | 463936 | 18200 | N/A | |
| BTBD1 | 064726 | 379403 | 2325 | 368713 | 25260 | JAML | 160593 | 640745 | 10263 | 492467 | 30146 | RTN4RL1 | 185924 | 331238 | 18201 | 330631 | 35098 |
| BTBD1 | 064726 | 559652 | 2326 | 453104 | 25261 | JAML | 160593 | 531530 | 10264 | N/A | | RTN4RL2 | 186907 | 335099 | 18202 | 335397 | 35099 |
| BTBD1 | 064726 | 558344 | 2327 | N/A | | JAML | 160593 | 526620 | 10265 | 431218 | 30147 | RTN4RL2 | 186907 | 533205 | 18203 | 435606 | 35100 |
| BTBD1 | 064726 | 560015 | 2328 | N/A | | JAML | 160593 | 526595 | 10266 | 431614 | 30148 | RTN4RL2 | 186907 | 395120 | 18204 | 378552 | 35101 |
| BTBD11 | 151136 | 280758 | 2329 | 280758 | 25262 | JAML | 160593 | 356289 | 10267 | 348635 | 30149 | RUBCNL | 102445 | 389908 | 18205 | 374558 | 35102 |
| BTBD11 | 151136 | 420571 | 2330 | 413889 | 25263 | JAML | 160593 | 292067 | 10268 | 292067 | 30150 | RUBCNL | 102445 | 487195 | 18206 | N/A | |
| BTBD11 | 151136 | 490090 | 2331 | 447319 | 25264 | JAML | 160593 | 534294 | 10269 | N/A | | RUBCNL | 102445 | 378784 | 18207 | 368061 | 35103 |
| BTBD11 | 151136 | 550706 | 2332 | 447606 | 25265 | JAML | 160593 | 533261 | 10270 | 436117 | 30151 | RUBCNL | 102445 | 441284 | 18208 | 412507 | 35104 |
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| BTBD17 | 204347 | 375366 | 2336 | 364515 | 25269 | JAZF1 | 153814 | 430432 | 10274 | 387976 | 30154 | RUBCNL | 102445 | 417405 | 18212 | 402357 | 35108 |
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| BTG2 | 159388 | 290551 | 2342 | 290551 | 25275 | JDP2 | 140044 | 559773 | 10280 | N/A | | RUNX1T1 | 079102 | 396218 | 18218 | 379520 | 35114 |
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| BTN1A1 | 124557 | 613186 | 2344 | 484707 | 25277 | JDP2 | 140044 | 558068 | 10282 | N/A | | RUNX1T1 | 079102 | 422361 | 18220 | 390137 | 35116 |
| BUB1B | 156970 | 560120 | 2345 | N/A | | JDP2 | 140044 | 435893 | 10283 | 399587 | 30160 | RUNX1T1 | 079102 | 520724 | 18221 | 428742 | 35117 |
| BUB1B | 156970 | 287598 | 2346 | 287598 | 25278 | JDP2 | 140044 | 267369 | 10284 | 267369 | 30161 | RUNX1T1 | 079102 | 521078 | 18222 | N/A | |
| BUB1B | 156970 | 559414 | 2347 | N/A | | JDP2 | 140044 | 437176 | 10285 | 409787 | 30162 | RUNX1T1 | 079102 | 518844 | 18223 | 430728 | 35118 |
| BUB1B | 156970 | 558715 | 2348 | 453861 | 25279 | JKAMP | 050130 | 261247 | 10286 | 261247 | 30163 | RUNX1T1 | 079102 | 521751 | 18224 | 430778 | 35119 |
| BUB1B | 156970 | 412359 | 2349 | 398470 | 25280 | JKAMP | 050130 | 554754 | 10287 | N/A | | RUNX1T1 | 079102 | 520978 | 18225 | 429085 | 35120 |
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| BUB1B | 156970 | 559461 | 2351 | N/A | | JKAMP | 050130 | 425728 | 10289 | 389699 | 30164 | RUNX1T1 | 079102 | 520047 | 18227 | N/A | |
| BUB1B | 156970 | 557848 | 2352 | N/A | | JKAMP | 050130 | 553156 | 10290 | N/A | | RUNX1T1 | 079102 | 521553 | 18228 | 429728 | 35122 |
| BUB1B | 156970 | 559772 | 2353 | N/A | | JKAMP | 050130 | 555491 | 10291 | 451723 | 30165 | RUNX1T1 | 079102 | 522316 | 18229 | N/A | |
| BUB1B | 156970 | 558972 | 2354 | N/A | | JKAMP | 050130 | 556985 | 10292 | 451076 | 30166 | RUNX1T1 | 079102 | 518992 | 18230 | 431094 | 35123 |
| BUB1B | 156970 | 558151 | 2355 | N/A | | JKAMP | 050130 | 554271 | 10293 | 450749 | 30167 | RUNX1T1 | 079102 | 521054 | 18231 | 427763 | 35124 |
| BZW1 | 082153 | 450637 | 2356 | 412072 | 25282 | JKAMP | 050130 | 554795 | 10294 | 450813 | 30168 | RUNX1T1 | 079102 | 523290 | 18232 | N/A | |
| BZW1 | 082153 | 452206 | 2357 | 390766 | 25283 | JKAMP | 050130 | 553941 | 10295 | N/A | | RUNX1T1 | 079102 | 519847 | 18233 | 430204 | 35125 |
| BZW1 | 082153 | 410110 | 2358 | 387086 | 25284 | JKAMP | 050130 | 602482 | 10296 | N/A | | RUNX1T1 | 079102 | 517792 | 18234 | 429940 | 35126 |
| BZW1 | 082153 | 409600 | 2359 | 386474 | 25285 | JKAMP | 050130 | 554721 | 10297 | N/A | | RUNX1T1 | 079102 | 522467 | 18235 | 429532 | 35127 |
| BZW1 | 082153 | 464483 | 2360 | N/A | | JKAMP | 050130 | 553647 | 10298 | N/A | | RUNX1T1 | 079102 | 517919 | 18236 | 429506 | 35128 |
| BZW1 | 082153 | 460660 | 2361 | N/A | | JKAMP | 050130 | 356057 | 10299 | 348351 | 30169 | RUNX1T1 | 079102 | 521733 | 18237 | 430637 | 35129 |
| BZW1 | 082153 | 409226 | 2362 | 386837 | 25286 | JKAMP | 050130 | 616435 | 10300 | 479775 | 30170 | RUNX1T1 | 079102 | 520556 | 18238 | 428100 | 35130 |
| BZW1 | 082153 | 452790 | 2363 | 394316 | 25287 | JMY | 152409 | 396137 | 10301 | 379441 | 30171 | RUNX1T1 | 079102 | 521319 | 18239 | 429137 | 35131 |
| BZW1 | 082153 | 447069 | 2364 | 393587 | 25288 | JMY | 152409 | 412001 | 10302 | N/A | | RUNX1T1 | 079102 | 520583 | 18240 | 430070 | 35132 |
| BZW1 | 082153 | 419090 | 2365 | 407268 | 25289 | JOSD1 | 100221 | 216039 | 10303 | 216039 | 30172 | RUNX1T1 | 079102 | 523168 | 18241 | 429118 | 35133 |
| BZW1 | 082153 | 463310 | 2366 | N/A | | JOSD1 | 100221 | 545590 | 10304 | 444798 | 30173 | RUNX1T1 | 079102 | 519577 | 18242 | 430084 | 35134 |
| BZW1 | 082153 | 491576 | 2367 | N/A | | JOSD1 | 100221 | 482442 | 10305 | N/A | | RUNX1T1 | 079102 | 518823 | 18243 | 428475 | 35135 |
| BZW1 | 082153 | 359893 | 2368 | 395673 | 25290 | JOSD1 | 100221 | 427389 | 10306 | 410010 | 30174 | RUNX1T1 | 079102 | 521897 | 18244 | 429653 | 35136 |
| FOS | 170345 | 303562 | 2369 | 306245 | 25291 | JOSD1 | 100221 | 412832 | 10307 | 415189 | 30175 | RUNX1T1 | 079102 | 518317 | 18245 | 429062 | 35137 |
| FOS | 170345 | 554617 | 2370 | 450519 | 25292 | JOSD1 | 100221 | 417712 | 10308 | 393131 | 30176 | RUNX1T1 | 079102 | 521375 | 18246 | 429666 | 35138 |
| FOS | 170345 | 556324 | 2371 | N/A | | JOSD1 | 100221 | 456626 | 10309 | 405182 | 30177 | RUNX1T1 | 079102 | 519422 | 18247 | 429587 | 35139 |
| FOS | 170345 | 554212 | 2372 | 452443 | 25293 | JOSD1 | 100221 | 462610 | 10310 | N/A | | RUNX1T1 | 079102 | 524215 | 18248 | 429034 | 35140 |
| FOS | 170345 | 535987 | 2373 | 442268 | 25294 | JOSD1 | 100221 | 490169 | 10311 | N/A | | RUNX1T1 | 079102 | 520974 | 18249 | 429375 | 35141 |
| FOS | 170345 | 555242 | 2374 | 452386 | 25295 | JOSD1 | 100221 | 493939 | 10312 | N/A | | RUNX1T1 | 079102 | 518832 | 18250 | 429864 | 35142 |
| FOS | 170345 | 555686 | 2375 | 452590 | 25296 | JPH1 | 104369 | 342232 | 10313 | 344488 | 30178 | RUNX1T1 | 079102 | 520172 | 18251 | N/A | |
| FOS | 170345 | 555672 | 2376 | 452440 | 25297 | JPH1 | 104369 | 518195 | 10314 | N/A | | RUNX1T1 | 079102 | 517493 | 18252 | N/A | |
| FOS | 170345 | 557139 | 2377 | 451786 | 25298 | JPH1 | 104369 | 519947 | 10315 | 429652 | 30179 | RUNX1T1 | 079102 | 522065 | 18253 | N/A | |
| FOS | 170345 | 555347 | 2378 | 450886 | 25299 | JPH3 | 154118 | 537256 | 10316 | N/A | | RUNX1T1 | 079102 | 518954 | 18254 | 430080 | 35143 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FOS | 170345 | 303562 | 2379 | 306245 | 25300 | JPH3 | 154118 | 301008 | 10317 | N/A | | RUNX1T1 | 079102 | 519061 | 18255 | 430334 | 35144 |
| FOS | 170345 | 554617 | 2380 | 450519 | 25301 | JPH3 | 154118 | 284262 | 10318 | 284262 | 30180 | RUNX1T1 | 079102 | 518256 | 18256 | N/A | |
| FOS | 170345 | 556324 | 2381 | N/A | | JPH3 | 154118 | 563609 | 10319 | N/A | | RUNX1T1 | 079102 | 520428 | 18257 | 429857 | 35145 |
| FOS | 170345 | 554212 | 2382 | 452443 | 25302 | JUN | 177606 | 371222 | 10320 | 360266 | 30181 | RUNX1T1 | 079102 | 522163 | 18258 | N/A | |
| FOS | 170345 | 535987 | 2383 | 442268 | 25303 | JUNB | 171223 | 302754 | 10321 | 303315 | 30182 | RUNX1T1 | 079102 | 521902 | 18259 | N/A | |
| FOS | 170345 | 555242 | 2384 | 452386 | 25304 | JUND | 130522 | 252818 | 10322 | 252818 | 30183 | RUNX1T1 | 079102 | 522860 | 18260 | N/A | |
| FOS | 170345 | 555686 | 2385 | 452590 | 25305 | JUND | 130522 | 600972 | 10323 | 475153 | 30184 | RUNX1T1 | 079102 | 518449 | 18261 | 428133 | 35146 |
| FOS | 170345 | 555672 | 2386 | 452440 | 25306 | KANK1 | 107104 | 382303 | 10324 | 371740 | 30185 | RUNX1T1 | 079102 | 613886 | 18262 | 478331 | 35147 |
| FOS | 170345 | 557139 | 2387 | 451786 | 25307 | KANK1 | 107104 | 467541 | 10325 | N/A | | RUNX1T1 | 079102 | 617740 | 18263 | 481112 | 35148 |
| FOS | 170345 | 555347 | 2388 | 450886 | 25308 | KANK1 | 107104 | 475690 | 10326 | N/A | | RUNX1T1 | 079102 | 613302 | 18264 | 481799 | 35149 |
| C11orf87 | 185742 | 327419 | 2389 | 331581 | 25309 | KANK1 | 107104 | 489369 | 10327 | N/A | | RUNX1T1 | 079102 | 615601 | 18265 | 480500 | 35150 |
| C11orf87 | 185742 | 327419 | 2390 | 331581 | 25310 | KANK1 | 107104 | 354485 | 10328 | N/A | | RUNX1T1 | 079102 | 436581 | 18266 | 402257 | 35151 |
| C12orf49 | 111412 | 261318 | 2391 | 261318 | 25311 | KANK1 | 107104 | 382297 | 10329 | 371734 | 30186 | RUNX1T1 | 079102 | 614812 | 18267 | 481315 | 35152 |
| C12orf49 | 111412 | 547630 | 2392 | 446478 | 25312 | KANK1 | 107104 | 382293 | 10330 | 371730 | 30187 | RUNX1T1 | 079102 | 265814 | 18268 | 265814 | 35153 |
| C12orf49 | 111412 | 548356 | 2393 | 449151 | 25313 | KANK1 | 107104 | 382289 | 10331 | 371726 | 30188 | RUVBL2 | 183207 | 595090 | 18269 | 473172 | 35154 |
| C12orf49 | 111412 | 547606 | 2394 | 447722 | 25314 | KANK1 | 107104 | 382286 | 10332 | 371723 | 30189 | RUVBL2 | 183207 | 601968 | 18270 | 471524 | 35155 |
| ERG28 | 133935 | 256319 | 2395 | 256319 | 25315 | KANK1 | 107104 | 619269 | 10333 | 477725 | 30190 | RUVBL2 | 183207 | 596837 | 18271 | 469189 | 35156 |
| C14orf132 | 227051 | 555004 | 2396 | 490729 | 25316 | KANK2 | 197256 | 586659 | 10334 | 465650 | 30191 | RUVBL2 | 183207 | 595811 | 18272 | 469760 | 35157 |
| C14orf132 | 227051 | 553764 | 2397 | 489964 | 25317 | KANK2 | 197256 | 588787 | 10335 | 464896 | 30192 | RUVBL2 | 183207 | 594017 | 18273 | N/A | |
| C14orf132 | 227051 | 556728 | 2398 | 490894 | 25318 | KANK2 | 197256 | 587317 | 10336 | N/A | | RUVBL2 | 183207 | 598768 | 18274 | N/A | |
| C14orf132 | 227051 | 553782 | 2399 | 490925 | 25319 | KANK2 | 197256 | 589359 | 10337 | 468002 | 30193 | RUVBL2 | 183207 | 596247 | 18275 | 471538 | 35158 |
| C14orf132 | 227051 | 555004 | 2400 | 490729 | 25320 | KANK2 | 197256 | 589894 | 10338 | 467029 | 30194 | RUVBL2 | 183207 | 221413 | 18276 | 221413 | 35159 |
| C14orf132 | 227051 | 553764 | 2401 | 489964 | 25321 | KANK2 | 197256 | 590400 | 10339 | N/A | | RUVBL2 | 183207 | 593570 | 18277 | 469488 | 35160 |
| C14orf132 | 227051 | 556728 | 2402 | 490894 | 25322 | KANK2 | 197256 | 592675 | 10340 | 468409 | 30195 | RUVBL2 | 183207 | 594338 | 18278 | N/A | |
| C14orf132 | 227051 | 553782 | 2403 | 490925 | 25323 | KANK2 | 197256 | 590685 | 10341 | 468490 | 30196 | RUVBL2 | 183207 | 595002 | 18279 | N/A | |
| C14orf37 | 139971 | 556788 | 2404 | N/A | | KANK2 | 197256 | 588724 | 10342 | 465914 | 30197 | RUVBL2 | 183207 | 627972 | 18280 | 486242 | 35161 |
| C14orf37 | 139971 | 267485 | 2405 | 267485 | 25324 | KANK2 | 197256 | 592903 | 10343 | 464861 | 30198 | RUVBL2 | 183207 | 640699 | 18281 | 492610 | 35162 |
| C14orf37 | 139971 | 557175 | 2406 | N/A | | KANK2 | 197256 | 592215 | 10344 | N/A | | RUVBL2 | 183207 | 639391 | 18282 | 492564 | 35163 |
| C14orf37 | 139971 | 334342 | 2407 | N/A | | KANK2 | 197256 | 590095 | 10345 | N/A | | RXFP1 | 171509 | 460056 | 18283 | 423306 | 35164 |
| C14orf37 | 139971 | 555101 | 2408 | 477692 | 25325 | KANK2 | 197256 | 589427 | 10346 | N/A | | RXFP1 | 171509 | 472969 | 18284 | N/A | |
| C14orf37 | 139971 | 554218 | 2409 | N/A | | KANK4 | 132854 | 317477 | 10347 | 321161 | 30199 | RXFP1 | 171509 | 307765 | 18285 | 303248 | 35165 |
| C1orf146 | 203910 | 370375 | 2410 | 359401 | 25326 | KANK4 | 132854 | 371153 | 10348 | 360195 | 30200 | RXFP1 | 171509 | 342048 | 18286 | 432036 | 35166 |
| C1orf146 | 203910 | 370373 | 2411 | 359399 | 25327 | KANK4 | 132854 | 371150 | 10349 | 360192 | 30201 | RXFP1 | 171509 | 471616 | 18287 | 434475 | 35167 |
| C1orf21 | 116667 | 235307 | 2412 | 235307 | 25328 | KANK4 | 132854 | 354381 | 10350 | 346352 | 30202 | RXFP1 | 171509 | 343542 | 18288 | 345889 | 35168 |
| C1orf21 | 116667 | 489143 | 2413 | N/A | | KCNA1 | 111262 | 382545 | 10351 | 371985 | 30203 | RXFP1 | 171509 | 470033 | 18289 | 420712 | 35169 |
| C1orf21 | 116667 | 367514 | 2414 | N/A | | KCNA1 | 111262 | 543874 | 10352 | N/A | | RXFP1 | 171509 | 484785 | 18290 | N/A | |
| C1orf21 | 116667 | 477517 | 2415 | N/A | | KCNA1 | 111262 | 639306 | 10353 | 492506 | 30204 | RXFP1 | 171509 | 613319 | 18291 | 480522 | 35170 |
| C1orf61 | 125462 | 608007 | 2416 | N/A | | KCNA1 | 111262 | 639680 | 10354 | 492218 | 30205 | RXFP1 | 171509 | 423548 | 18292 | 405841 | 35171 |
| C1orf61 | 125462 | 400991 | 2417 | 383776 | 25329 | KCNA2 | 177301 | 640680 | 10355 | N/A | | RXFP1 | 171509 | 448688 | 18293 | 414885 | 35172 |
| C1orf61 | 125462 | 368242 | 2418 | 357225 | 25330 | KCNA2 | 177301 | 640450 | 10356 | N/A | | RYR1 | 196218 | 355481 | 18294 | 347667 | 35173 |
| C1orf61 | 125462 | 471156 | 2419 | N/A | | KCNA2 | 177301 | 525120 | 10357 | N/A | | RYR1 | 196218 | 359596 | 18295 | 352608 | 35174 |
| C1orf61 | 125462 | 497824 | 2420 | N/A | | KCNA2 | 177301 | 639227 | 10358 | N/A | | RYR1 | 196218 | 594111 | 18296 | N/A | |
| C1orf61 | 125462 | 488498 | 2421 | N/A | | KCNA2 | 177301 | 633222 | 10359 | 487785 | 30206 | RYR1 | 196218 | 594335 | 18297 | 470927 | 35175 |
| C1orf61 | 125462 | 465270 | 2422 | N/A | | KCNA2 | 177301 | 369770 | 10360 | 358785 | 30207 | RYR1 | 196218 | 599547 | 18298 | 471601 | 35176 |
| C1orf61 | 125462 | 462458 | 2423 | N/A | | KCNA2 | 177301 | 639048 | 10361 | 491627 | 30208 | RYR1 | 196218 | 600337 | 18299 | N/A | |
| C1orf61 | 125462 | 486517 | 2424 | N/A | | KCNA2 | 177301 | 640774 | 10362 | 492008 | 30209 | RYR1 | 196218 | 601514 | 18300 | 472497 | 35177 |
| C1orf61 | 125462 | 465570 | 2425 | N/A | | KCNA2 | 177301 | 639233 | 10363 | 492716 | 30210 | RYR1 | 196218 | 596431 | 18301 | 470848 | 35178 |
| C1orf61 | 125462 | 310027 | 2426 | 310651 | 25331 | KCNA2 | 177301 | 638477 | 10364 | 491354 | 30211 | RYR1 | 196218 | 593322 | 18302 | 471404 | 35179 |
| C1orf61 | 125462 | 368243 | 2427 | 357226 | 25332 | KCNA2 | 177301 | 638616 | 10365 | 491977 | 30212 | RYR1 | 196218 | 593677 | 18303 | 472126 | 35180 |
| C1orf61 | 125462 | 498346 | 2428 | N/A | | KCNA2 | 177301 | 316361 | 10366 | 314520 | 30213 | RYR2 | 198626 | 366574 | 18304 | 355533 | 35181 |
| C1orf61 | 125462 | 497822 | 2429 | N/A | | KCNA2 | 177301 | 638532 | 10367 | 491613 | 30214 | RYR2 | 198626 | 609119 | 18305 | N/A | |
| C1orf61 | 125462 | 492750 | 2430 | N/A | | KCNA2 | 177301 | 485317 | 10368 | 433109 | 30215 | RYR2 | 198626 | 609253 | 18306 | N/A | |
| C1orf61 | 125462 | 357975 | 2431 | 350661 | 25333 | KCNA2 | 177301 | 640956 | 10369 | 491647 | 30216 | RYR2 | 198626 | 608590 | 18307 | N/A | |
| C1orf61 | 125462 | 464238 | 2432 | N/A | | KCNA3 | 177272 | 369769 | 10370 | 358784 | 30217 | RYR2 | 198626 | 466626 | 18308 | N/A | |
| C1orf61 | 125462 | 482932 | 2433 | N/A | | KCNA4 | 182255 | 328224 | 10371 | 328511 | 30218 | RYR2 | 198626 | 462585 | 18309 | N/A | |
| C1orf61 | 125462 | 489918 | 2434 | N/A | | KCNA4 | 182255 | 526518 | 10372 | N/A | | RYR2 | 198626 | 360064 | 18310 | 353174 | 35182 |
| C1orf61 | 125462 | 484428 | 2435 | N/A | | KCNAB1 | 169282 | 478609 | 10373 | N/A | | RYR3 | 198838 | 634891 | 18311 | 489262 | 35183 |
| C1orf61 | 125462 | 489877 | 2436 | N/A | | KCNAB1 | 169282 | 477912 | 10374 | N/A | | RYR3 | 198838 | 415757 | 18312 | 399610 | 35184 |
| C1orf61 | 125462 | 476966 | 2437 | N/A | | KCNAB1 | 169282 | 472028 | 10375 | 420755 | 30219 | RYR3 | 198838 | 389232 | 18313 | 373884 | 35185 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C1orf61 | 125462 | 463309 | 2438 | N/A | | KCNAB1 | 169282 | 490337 | 10376 | 419952 | 30220 | RYR3 | 198838 | 634418 | 18314 | 489529 | 35186 |
| C1orf61 | 125462 | 464203 | 2439 | N/A | | KCNAB1 | 169282 | 389636 | 10377 | 374287 | 30221 | RYR3 | 198838 | 634750 | 18315 | 489294 | 35187 |
| C1orf61 | 125462 | 469813 | 2440 | N/A | | KCNAB1 | 169282 | 471742 | 10378 | 418956 | 30222 | RYR3 | 198838 | 635875 | 18316 | N/A | |
| C1orf61 | 125462 | 495000 | 2441 | N/A | | KCNAB1 | 169282 | 475456 | 10379 | 420221 | 30223 | RYR3 | 198838 | 636753 | 18317 | N/A | |
| C1orf61 | 125462 | 615748 | 2442 | 479346 | 25334 | KCNAB1 | 169282 | 302490 | 10380 | 305858 | 30224 | RYR3 | 198838 | 636583 | 18318 | N/A | |
| STUM | 203685 | 366788 | 2443 | 355752 | 25335 | KCNAB1 | 169282 | 389634 | 10381 | 374285 | 30225 | RYR3 | 198838 | 635790 | 18319 | 489672 | 35188 |
| STUM | 203685 | 467495 | 2444 | N/A | | KCNAB1 | 169282 | 489036 | 10382 | 418048 | 30226 | RYR3 | 198838 | 636417 | 18320 | N/A | |
| STUM | 203685 | 366789 | 2445 | 355753 | 25336 | KCNAB1 | 169282 | 476362 | 10383 | N/A | | RYR3 | 198838 | 637201 | 18321 | N/A | |
| C1QA | 173372 | 374642 | 2446 | 363773 | 25337 | KCNAB1 | 169282 | 461717 | 10384 | N/A | | RYR3 | 198838 | 638085 | 18322 | N/A | |
| C1QA | 173372 | 438241 | 2447 | 416841 | 25338 | KCNAB1 | 169282 | 497291 | 10385 | N/A | | RYR3 | 198838 | 638038 | 18323 | N/A | |
| C1QA | 173372 | 402322 | 2448 | 385564 | 25339 | KCNAB1 | 169282 | 496923 | 10386 | N/A | | RYR3 | 198838 | 557931 | 18324 | N/A | |
| C1QB | 173369 | 510260 | 2449 | 426317 | 25340 | KCNAB1 | 169282 | 618897 | 10387 | 484368 | 30227 | RYR3 | 198838 | 558060 | 18325 | N/A | |
| C1QB | 173369 | 509305 | 2450 | 423689 | 25341 | KCNAB2 | 069424 | 378111 | 10388 | 367351 | 30228 | RYR3 | 198838 | 638145 | 18326 | N/A | |
| C1QB | 173369 | 432749 | 2451 | 404606 | 25342 | KCNAB2 | 069424 | 378097 | 10389 | 367337 | 30229 | RYR3 | 198838 | 635749 | 18327 | N/A | |
| C1QB | 173369 | 314933 | 2452 | 313967 | 25343 | KCNAB2 | 069424 | 493807 | 10390 | N/A | | RYR3 | 198838 | 635842 | 18328 | 490438 | 35189 |
| C1QL1 | 131094 | 253407 | 2453 | 253407 | 25344 | KCNAB2 | 069424 | 378092 | 10391 | 367332 | 30230 | RYR3 | 198838 | 638032 | 18329 | 489937 | 35190 |
| C1QL2 | 144119 | 272520 | 2454 | 272520 | 25345 | KCNAB2 | 069424 | 478098 | 10392 | N/A | | RYR3 | 198838 | 637948 | 18330 | 489832 | 35191 |
| C1QTNF4 | 172247 | 302514 | 2455 | 302274 | 25346 | KCNAB2 | 069424 | 445501 | 10393 | 398395 | 30231 | RYR3 | 198838 | 636845 | 18331 | 490033 | 35192 |
| C1QTNF4 | 172247 | 530097 | 2456 | 434548 | 25347 | KCNAB2 | 069424 | 389632 | 10394 | 374283 | 30232 | RYR3 | 198838 | 634730 | 18332 | 489346 | 35193 |
| C1RL | 139178 | 539803 | 2457 | 444157 | 25348 | KCNAB2 | 069424 | 428161 | 10395 | 400285 | 30233 | RYR3 | 198838 | 637984 | 18333 | N/A | |
| C1RL | 139178 | 545280 | 2458 | 438286 | 25349 | KCNAB2 | 069424 | 602612 | 10396 | 473602 | 30234 | RYR3 | 198838 | 637615 | 18334 | N/A | |
| C1RL | 139178 | 266542 | 2459 | 266542 | 25350 | KCNAB2 | 069424 | 435937 | 10397 | N/A | | RYR3 | 198838 | 638052 | 18335 | N/A | |
| C1RL | 139178 | 504702 | 2460 | N/A | | KCNAB2 | 069424 | 164247 | 10398 | 164247 | 30235 | RYR3 | 198838 | 636656 | 18336 | N/A | |
| C1RL | 139178 | 544702 | 2461 | 441885 | 25351 | KCNAB2 | 069424 | 459822 | 10399 | N/A | | RYR3 | 198838 | 636568 | 18337 | 490632 | 35194 |
| C1RL | 139178 | 534950 | 2462 | 439180 | 25352 | KCNAB2 | 069424 | 472700 | 10400 | 464860 | 30236 | RYR3 | 198838 | 637522 | 18338 | N/A | |
| C1RL | 139178 | 543933 | 2463 | 437398 | 25353 | KCNAB2 | 069424 | 378083 | 10401 | 367323 | 30237 | RYR3 | 198838 | 559917 | 18339 | N/A | |
| C1RL | 139178 | 537833 | 2464 | 438951 | 25354 | KCNAB2 | 069424 | 458166 | 10402 | 396167 | 30238 | RYR3 | 198838 | 559333 | 18340 | N/A | |
| C1RL | 139178 | 534969 | 2465 | 437569 | 25355 | KCNAB2 | 069424 | 462676 | 10403 | 465785 | 30239 | RYR3 | 198838 | 637072 | 18341 | N/A | |
| C1RL | 139178 | 545337 | 2466 | 442611 | 25356 | KCNAB2 | 069424 | 481789 | 10404 | N/A | | RYR3 | 198838 | 560791 | 18342 | N/A | |
| C1RL | 139178 | 543941 | 2467 | N/A | | KCNAB2 | 069424 | 352527 | 10405 | 318772 | 30240 | RYR3 | 198838 | 636497 | 18343 | N/A | |
| C1RL | 139178 | 539927 | 2468 | N/A | | KCNAB2 | 069424 | 341524 | 10406 | 340824 | 30241 | RYR3 | 198838 | 636878 | 18344 | N/A | |
| C2orf27A | 197927 | 624391 | 2469 | N/A | | KCNAB3 | 170049 | 303790 | 10407 | 302719 | 30242 | RYR3 | 198838 | 622037 | 18345 | 483166 | 35195 |
| C2orf27A | 197927 | 623058 | 2470 | N/A | | KCNAB3 | 170049 | 572275 | 10408 | N/A | | S100A4 | 196154 | 368715 | 18346 | 357704 | 35196 |
| C2orf27A | 197927 | 463645 | 2471 | N/A | | KCNAB3 | 170049 | 570587 | 10409 | 458237 | 30243 | S100A4 | 196154 | 481009 | 18347 | N/A | |
| C2orf27A | 197927 | 466372 | 2472 | N/A | | KCNAB3 | 170049 | 576981 | 10410 | N/A | | S100A4 | 196154 | 354332 | 18348 | 346294 | 35197 |
| C2orf27A | 197927 | 481510 | 2473 | N/A | | KCNAB3 | 170049 | 574006 | 10411 | N/A | | S100A4 | 196154 | 468373 | 18349 | N/A | |
| C2orf69 | 178074 | 319974 | 2474 | 312770 | 25357 | KCNAB3 | 170049 | 570852 | 10412 | 461290 | 30244 | S100A4 | 196154 | 368716 | 18350 | 357705 | 35198 |
| C2orf69 | 178074 | 491721 | 2475 | N/A | | KCNC1 | 129159 | 379472 | 10413 | 368785 | 30245 | S100A4 | 196154 | 368714 | 18351 | 357703 | 35199 |
| C2orf72 | 204128 | 373640 | 2476 | 362743 | 25358 | KCNC1 | 129159 | 265969 | 10414 | 265969 | 30246 | S100B | 160307 | 291700 | 18352 | 291700 | 35200 |
| C2orf72 | 204128 | 477463 | 2477 | N/A | | KCNC1 | 129159 | 640318 | 10415 | 491189 | 30247 | S100B | 160307 | 367071 | 18353 | 356038 | 35201 |
| C2orf72 | 204128 | 463834 | 2478 | N/A | | KCNC1 | 129159 | 640153 | 10416 | N/A | | S100B | 160307 | 397648 | 18354 | 380769 | 35202 |
| C2orf72 | 204128 | 373640 | 2479 | 362743 | 25359 | KCNC1 | 129159 | 640909 | 10417 | 491644 | 30248 | S1PR1 | 170989 | 305352 | 18355 | 305416 | 35203 |
| C2orf72 | 204128 | 477463 | 2480 | N/A | | KCNC1 | 129159 | 639495 | 10418 | 491700 | 30249 | S1PR1 | 170989 | 475821 | 18356 | N/A | |
| C2orf72 | 204128 | 463834 | 2481 | N/A | | KCNC1 | 129159 | 638366 | 10419 | 491016 | 30250 | S1PR1 | 170989 | 475289 | 18357 | N/A | |
| C2orf73 | 177994 | 486488 | 2482 | 417971 | 25360 | KCNC1 | 129159 | 639325 | 10420 | 492663 | 30251 | S1PR5 | 180739 | 333430 | 18358 | 328472 | 35204 |
| C2orf73 | 177994 | 405749 | 2483 | 385348 | 25361 | KCNC1 | 129159 | 640461 | 10421 | 491345 | 30252 | S1PR5 | 180739 | 439028 | 18359 | 416915 | 35205 |
| C2orf73 | 177994 | 398634 | 2484 | 381631 | 25362 | KCNC1 | 129159 | 638825 | 10422 | 491247 | 30253 | S1PR5 | 180739 | 590601 | 18360 | 464884 | 35206 |
| C2orf73 | 177994 | 317627 | 2485 | 325555 | 25363 | KCNC1 | 129159 | 525802 | 10423 | N/A | | S1PR5 | 180739 | 617721 | 18361 | 481239 | 35207 |
| C2orf73 | 177994 | 447328 | 2486 | 389570 | 25364 | KCNC1 | 129159 | 638395 | 10424 | N/A | | SALL1 | 103449 | 251020 | 18362 | 251020 | 35208 |
| C2orf73 | 177994 | 414747 | 2487 | 403195 | 25365 | KCNC1 | 129159 | 526029 | 10425 | N/A | | SALL1 | 103449 | 566102 | 18363 | 455582 | 35209 |
| C2orf73 | 177994 | 491538 | 2488 | N/A | | KCNC2 | 166006 | 550433 | 10426 | 448301 | 30254 | SALL1 | 103449 | 570206 | 18364 | 456777 | 35210 |
| C2orf73 | 177994 | 615983 | 2489 | 481108 | 25366 | KCNC2 | 166006 | 548513 | 10427 | 449941 | 30255 | SALL1 | 103449 | 562674 | 18365 | N/A | |
| C3 | 125730 | 245907 | 2490 | 245907 | 25367 | KCNC2 | 166006 | 549446 | 10428 | 449253 | 30256 | SALL1 | 103449 | 440970 | 18366 | 407914 | 35211 |
| C3 | 125730 | 601475 | 2491 | N/A | | KCNC2 | 166006 | 350228 | 10429 | 319877 | 30257 | SAMD12 | 177570 | 453675 | 18367 | 402786 | 35212 |
| C3 | 125730 | 599899 | 2492 | N/A | | KCNC2 | 166006 | 540018 | 10430 | 438423 | 30258 | SAMD12 | 177570 | 524796 | 18368 | 435927 | 35213 |
| C3 | 125730 | 602229 | 2493 | 469482 | 25368 | KCNC2 | 166006 | 393288 | 10431 | 376966 | 30259 | SAMD12 | 177570 | 445741 | 18369 | 387605 | 35214 |
| C3 | 125730 | 599668 | 2494 | N/A | | KCNC2 | 166006 | 548243 | 10432 | N/A | | SAMD12 | 177570 | 527515 | 18370 | N/A | |
| C3 | 125730 | 601008 | 2495 | 471384 | 25369 | KCNC2 | 166006 | 546456 | 10433 | N/A | | SAMD12 | 177570 | 314727 | 18371 | 314173 | 35215 |
| C3 | 125730 | 596548 | 2496 | 469744 | 25370 | KCNC2 | 166006 | 298972 | 10434 | 298972 | 30260 | SAMD12 | 177570 | 526328 | 18372 | 431360 | 35216 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C3 | 125730 | 596179 | 2497 | N/A | | KCNC3 | 131398 | 376959 | 10435 | 366158 | 30261 | SAMD12 | 177570 | 526765 | 18373 | 434079 | 35217 |
| C3 | 125730 | 596238 | 2498 | N/A | | KCNC3 | 131398 | 474951 | 10436 | 432438 | 30262 | SAMD12 | 177570 | 409003 | 18374 | 387133 | 35218 |
| C3 | 125730 | 598805 | 2499 | N/A | | KCNC3 | 131398 | 477616 | 10437 | 434241 | 30263 | SAMD9L | 177409 | 318238 | 18375 | 326247 | 35219 |
| C3 | 125730 | 594005 | 2500 | N/A | | KCND3 | 171385 | 369697 | 10438 | 358711 | 30264 | SAMD9L | 177409 | 411955 | 18376 | 405760 | 35220 |
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| C3 | 125730 | 600763 | 2502 | N/A | | KCND3 | 171385 | 302127 | 10440 | 306923 | 30266 | SAMD9L | 177409 | 446959 | 18378 | 391699 | 35222 |
| C3 | 125730 | 594270 | 2503 | N/A | | KCNF1 | 162975 | 295082 | 10441 | 295082 | 30267 | SAMD9L | 177409 | 439952 | 18379 | 391387 | 35223 |
| C3 | 125730 | 597442 | 2504 | N/A | | KCNG4 | 168418 | 308251 | 10442 | 312129 | 30268 | SAMD9L | 177409 | 414791 | 18380 | 396137 | 35224 |
| C3 | 125730 | 595577 | 2505 | N/A | | KCNG4 | 168418 | 568181 | 10443 | 457897 | 30269 | SAMD9L | 177409 | 446033 | 18381 | 410062 | 35225 |
| C3 | 125730 | 594936 | 2506 | N/A | | KCNH1 | 143473 | 367007 | 10444 | 355974 | 30270 | SAMD9L | 177409 | 477816 | 18382 | N/A | |
| C3 | 125730 | 600744 | 2507 | 472044 | 25371 | KCNH1 | 143473 | 638498 | 10445 | 490983 | 30271 | SAMD9L | 177409 | 610760 | 18383 | 484397 | 35226 |
| C4orf22 | 197826 | 358105 | 2508 | 350818 | 25372 | KCNH1 | 143473 | 640710 | 10446 | 492513 | 30272 | SAPCD2 | 186193 | 409687 | 18384 | 386348 | 35227 |
| C4orf22 | 197826 | 512931 | 2509 | N/A | | KCNH1 | 143473 | 271751 | 10447 | 271751 | 30273 | SAT1 | 130066 | 379251 | 18385 | 368553 | 35228 |
| C4orf22 | 197826 | 514249 | 2510 | 426308 | 25373 | KCNH1 | 143473 | 639952 | 10448 | 492697 | 30274 | SAT1 | 130066 | 379253 | 18386 | 368555 | 35229 |
| C4orf22 | 197826 | 502497 | 2511 | N/A | | KCNH1 | 143473 | 640528 | 10449 | 491725 | 30275 | SAT1 | 130066 | 379254 | 18387 | 368556 | 35230 |
| C4orf22 | 197826 | 513920 | 2512 | 422569 | 25374 | KCNH1 | 143473 | 638960 | 10450 | 492302 | 30276 | SAT1 | 130066 | 379270 | 18388 | 368572 | 35231 |
| C4orf22 | 197826 | 508675 | 2513 | 425786 | 25375 | KCNH1 | 143473 | 640625 | 10451 | 492609 | 30277 | SAT1 | 130066 | 489394 | 18389 | N/A | |
| C4orf22 | 197826 | 503883 | 2514 | N/A | | KCNH1 | 143473 | 638357 | 10452 | 492865 | 30278 | SAT1 | 130066 | 463236 | 18390 | N/A | |
| C4orf22 | 197826 | 508314 | 2515 | N/A | | KCNH1 | 143473 | 640243 | 10453 | 492803 | 30279 | SAT1 | 130066 | 487713 | 18391 | N/A | |
| C4orf22 | 197826 | 621014 | 2516 | 480723 | 25376 | KCNH1 | 143473 | 640044 | 10454 | 491434 | 30280 | SAT1 | 130066 | 474223 | 18392 | N/A | |
| C4orf33 | 151470 | 281146 | 2517 | 281146 | 25377 | KCNH1 | 143473 | 640566 | 10455 | 491302 | 30281 | SAT1 | 130066 | 462639 | 18393 | N/A | |
| C4orf33 | 151470 | 502887 | 2518 | 427406 | 25378 | KCNH1 | 143473 | 640522 | 10456 | 491019 | 30282 | SBDS | 126524 | 246868 | 18394 | 246868 | 35232 |
| C4orf33 | 151470 | 502360 | 2519 | N/A | | KCNH1 | 143473 | 639754 | 10457 | N/A | | SBDS | 126524 | 414306 | 18395 | 394586 | 35233 |
| C4orf33 | 151470 | 508673 | 2520 | 427096 | 25379 | KCNH1 | 143473 | 640890 | 10458 | N/A | | SBDS | 126524 | 490953 | 18396 | N/A | |
| C4orf33 | 151470 | 508622 | 2521 | 427431 | 25380 | KCNH1 | 143473 | 639385 | 10459 | N/A | | SBDS | 126524 | 463579 | 18397 | N/A | |
| C4orf33 | 151470 | 425929 | 2522 | 401090 | 25381 | KCNH1 | 143473 | 624583 | 10460 | N/A | | SBDS | 126524 | 617799 | 18398 | 483040 | 35234 |
| C6orf106 | 196821 | 374023 | 2523 | 363135 | 25382 | KCNH1 | 283965 | 639262 | 10461 | 491565 | 30283 | SBNO2 | 064932 | 361757 | 18399 | 354733 | 35235 |
| C6orf106 | 196821 | 374026 | 2524 | 363138 | 25383 | KCNH1 | 283965 | 639694 | 10462 | 492724 | 30284 | SBNO2 | 064932 | 438103 | 18400 | 400762 | 35236 |
| C6orf106 | 196821 | 374021 | 2525 | 363133 | 25384 | KCNH1 | 283965 | 639420 | 10463 | 492350 | 30285 | SBNO2 | 064932 | 587024 | 18401 | 468520 | 35237 |
| C8orf34 | 165084 | 518698 | 2526 | 427820 | 25385 | KCNH1 | 283965 | 638907 | 10464 | 492550 | 30286 | SBNO2 | 064932 | 587673 | 18402 | N/A | |
| C8orf34 | 165084 | 349492 | 2527 | N/A | | KCNH1 | 283965 | 638293 | 10465 | 491986 | 30287 | SBNO2 | 064932 | 586109 | 18403 | N/A | |
| C8orf34 | 165084 | 523686 | 2528 | 429102 | 25386 | KCNH1 | 283965 | 640402 | 10466 | 491804 | 30288 | SBNO2 | 064932 | 592222 | 18404 | N/A | |
| C8orf34 | 165084 | 348340 | 2529 | 345255 | 25387 | KCNH1 | 283965 | 639355 | 10467 | 491578 | 30289 | SBNO2 | 064932 | 590446 | 18405 | N/A | |
| C8orf34 | 165084 | 337103 | 2530 | 337174 | 25388 | KCNH1 | 283965 | 638734 | 10468 | 492255 | 30290 | SBNO2 | 064932 | 590998 | 18406 | 468534 | 35238 |
| C8orf34 | 165084 | 521406 | 2531 | 429081 | 25389 | KCNH1 | 283965 | 639736 | 10469 | 491426 | 30291 | SBNO2 | 064932 | 590176 | 18407 | 466861 | 35239 |
| C8orf34 | 165084 | 518515 | 2532 | N/A | | KCNH1 | 283965 | 640738 | 10470 | 491522 | 30292 | SBNO2 | 064932 | 587655 | 18408 | 468302 | 35240 |
| C8orf34 | 165084 | 325233 | 2533 | 319532 | 25390 | KCNH1 | 283965 | 640013 | 10471 | 492387 | 30293 | SBNO2 | 278788 | 631948 | 18409 | 488808 | 35241 |
| C8orf46 | 169085 | 482608 | 2534 | N/A | | KCNH1 | 283965 | 639281 | 10472 | 492092 | 30294 | SBNO2 | 278788 | 622719 | 18410 | 482802 | 35242 |
| C8orf46 | 169085 | 519702 | 2535 | N/A | | KCNH1 | 283965 | 640966 | 10473 | 491901 | 30295 | SBNO2 | 278788 | 634172 | 18411 | 488286 | 35243 |
| C8orf46 | 169085 | 498712 | 2536 | N/A | | KCNH1 | 283965 | 639471 | 10474 | N/A | | SBNO2 | 278788 | 631689 | 18412 | N/A | |
| C8orf46 | 169085 | 470796 | 2537 | N/A | | KCNH1 | 283965 | 639652 | 10475 | N/A | | SBNO2 | 278788 | 632999 | 18413 | N/A | |
| C8orf46 | 169085 | 490228 | 2538 | N/A | | KCNH1 | 283965 | 640802 | 10476 | N/A | | SBNO2 | 278788 | 631752 | 18414 | N/A | |
| C8orf46 | 169085 | 305454 | 2539 | 302260 | 25391 | KCNH1 | 283965 | 635558 | 10477 | N/A | | SBNO2 | 278788 | 631951 | 18415 | N/A | |
| C8orf46 | 169085 | 521495 | 2540 | 430501 | 25392 | KCNH5 | 140015 | 322893 | 10478 | 321427 | 30296 | SBNO2 | 278788 | 632777 | 18416 | 488832 | 35244 |
| C8orf46 | 169085 | 521813 | 2541 | N/A | | KCNH5 | 140015 | 420622 | 10479 | 395439 | 30297 | SBNO2 | 278788 | 633604 | 18417 | 488079 | 35245 |
| C8orf46 | 169085 | 460144 | 2542 | 430388 | 25393 | KCNH5 | 140015 | 394968 | 10480 | 378419 | 30298 | SBNO2 | 278788 | 631778 | 18418 | 488056 | 35246 |
| C8orf46 | 169085 | 450307 | 2543 | 473681 | 25394 | KCNH5 | 140015 | 394964 | 10481 | N/A | | SBNO2 | 278788 | 612198 | 18419 | 477651 | 35247 |
| C8orf46 | 169085 | 484919 | 2544 | N/A | | KCNH7 | 184611 | 332142 | 10482 | 331727 | 30299 | SCAMP5 | 198794 | 568423 | 18420 | 457520 | 35248 |
| C8orf46 | 169085 | 522977 | 2545 | 430141 | 25395 | KCNH7 | 184611 | 328032 | 10483 | 333781 | 30300 | SCAMP5 | 198794 | 425597 | 18421 | 406547 | 35249 |
| C8orf46 | 169085 | 480005 | 2546 | 429883 | 25396 | KCNH7 | 184611 | 477019 | 10484 | N/A | | SCAMP5 | 198794 | 562327 | 18422 | 456505 | 35250 |
| C8orf46 | 169085 | 485639 | 2547 | N/A | | KCNH7 | 184611 | 621889 | 10485 | 483158 | 30301 | SCAMP5 | 198794 | 568018 | 18423 | 456991 | 35251 |
| C8orf46 | 169085 | 488582 | 2548 | N/A | | KCNH7 | 184611 | 618399 | 10486 | 482818 | 30302 | SCAMP5 | 198794 | 562212 | 18424 | 455313 | 35252 |
| C8orf46 | 169085 | 482608 | 2549 | N/A | | KCNH8 | 183960 | 328405 | 10487 | 328813 | 30303 | SCAMP5 | 198794 | 565923 | 18425 | N/A | |
| C8orf46 | 169085 | 519702 | 2550 | N/A | | KCNH8 | 183960 | 452398 | 10488 | 412141 | 30304 | SCAMP5 | 198794 | 567920 | 18426 | 454860 | 35253 |
| C8orf46 | 169085 | 498712 | 2551 | N/A | | KCNH8 | 183960 | 475063 | 10489 | N/A | | SCAMP5 | 198794 | 562765 | 18427 | 455598 | 35254 |
| C8orf46 | 169085 | 470796 | 2552 | N/A | | KCNIP1 | 182132 | 518527 | 10490 | N/A | | SCAMP5 | 198794 | 567535 | 18428 | N/A | |
| C8orf46 | 169085 | 490228 | 2553 | N/A | | KCNIP1 | 182132 | 377360 | 10491 | 366577 | 30305 | SCAMP5 | 198794 | 566872 | 18429 | 454766 | 35255 |
| C8orf46 | 169085 | 305454 | 2554 | 302260 | 25397 | KCNIP1 | 182132 | 517344 | 10492 | 431053 | 30306 | SCAMP5 | 198794 | 564491 | 18430 | 458072 | 35256 |
| C8orf46 | 169085 | 521495 | 2555 | 430501 | 25398 | KCNIP1 | 182132 | 328939 | 10493 | 329686 | 30307 | SCAMP5 | 198794 | 361900 | 18431 | 355387 | 35257 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C8orf46 | 169085 | 521813 | 2556 | N/A | | KCNIP1 | 182132 | 520740 | 10494 | 431102 | 30308 | SCAMP5 | 198794 | 564141 | 18432 | N/A | |
| C8orf46 | 169085 | 460144 | 2557 | 430388 | 25399 | KCNIP1 | 182132 | 434108 | 10495 | 414886 | 30309 | SCAMP5 | 198794 | 568119 | 18433 | 457444 | 35258 |
| C8orf46 | 169085 | 450307 | 2558 | 473681 | 25400 | KCNIP1 | 182132 | 411494 | 10496 | 395323 | 30310 | SCAMP5 | 198794 | 565989 | 18434 | 457121 | 35259 |
| C8orf46 | 169085 | 484919 | 2559 | N/A | | KCNIP1 | 182132 | 636734 | 10497 | 489903 | 30311 | SCAMP5 | 198794 | 564779 | 18435 | 455039 | 35260 |
| C8orf46 | 169085 | 522977 | 2560 | 430141 | 25401 | KCNIP1 | 182132 | 390656 | 10498 | 375071 | 30312 | SCAMP5 | 198794 | 567529 | 18436 | 455203 | 35261 |
| C8orf46 | 169085 | 480005 | 2561 | 429883 | 25402 | KCNIP1 | 182132 | 616807 | 10499 | 478151 | 30313 | SCAMP5 | 198794 | 568081 | 18437 | 454602 | 35262 |
| C8orf46 | 169085 | 485639 | 2562 | N/A | | KCNIP2 | 120049 | 348850 | 10500 | 239118 | 30314 | SCARA3 | 168077 | 337221 | 18438 | 337985 | 35263 |
| C8orf46 | 169085 | 488582 | 2563 | N/A | | KCNIP2 | 120049 | 355657 | 10501 | N/A | | SCARA3 | 168077 | 301904 | 18439 | 301904 | 35264 |
| C9orf135 | 204711 | 377197 | 2564 | 366402 | 25403 | KCNIP2 | 120049 | 356640 | 10502 | 349055 | 30315 | SCEL | 136155 | 471491 | 18440 | 432840 | 35265 |
| C9orf135 | 204711 | 527647 | 2565 | 431855 | 25404 | KCNIP2 | 120049 | 460388 | 10503 | N/A | | SCEL | 136155 | 377246 | 18441 | 366454 | 35266 |
| C9orf135 | 204711 | 529446 | 2566 | 434032 | 25405 | KCNIP2 | 120049 | 370046 | 10504 | 359063 | 30316 | SCEL | 136155 | 349847 | 18442 | 302579 | 35267 |
| C9orf135 | 204711 | 529131 | 2567 | 436701 | 25406 | KCNIP2 | 120049 | 472764 | 10505 | N/A | | SCEL | 136155 | 469982 | 18443 | N/A | |
| C9orf135 | 204711 | 466872 | 2568 | N/A | | KCNIP2 | 120049 | 434163 | 10506 | 411679 | 30317 | SCEL | 136155 | 535157 | 18444 | 437895 | 35268 |
| C9orf135 | 204711 | 495399 | 2569 | 433973 | 25407 | KCNIP2 | 120049 | 353068 | 10507 | 341624 | 30318 | SCG3 | 104112 | 220478 | 18445 | 220478 | 35269 |
| C9orf135 | 204711 | 480564 | 2570 | 433123 | 25408 | KCNIP2 | 120049 | 461105 | 10508 | 420040 | 30319 | SCG3 | 104112 | 542355 | 18446 | 445205 | 35270 |
| C9orf72 | 147894 | 380003 | 2571 | 369339 | 25409 | KCNIP2 | 120049 | 343195 | 10509 | 344169 | 30320 | SCG3 | 104112 | 558709 | 18447 | 452745 | 35271 |
| C9orf72 | 147894 | 488117 | 2572 | N/A | | KCNIP2 | 120049 | 239117 | 10510 | 239117 | 30321 | SCGN | 079689 | 377961 | 18448 | 367197 | 35272 |
| C9orf72 | 147894 | 379997 | 2573 | 369333 | 25410 | KCNIP2 | 120049 | 483385 | 10511 | N/A | | SCGN | 079689 | 612225 | 18449 | 484392 | 35273 |
| C9orf72 | 147894 | 379995 | 2574 | 369331 | 25411 | KCNIP2 | 120049 | 358038 | 10512 | 350733 | 30322 | SCGN | 079689 | 334979 | 18450 | 333933 | 35274 |
| C9orf72 | 147894 | 461679 | 2575 | N/A | | KCNIP4 | 185774 | 382148 | 10513 | 371583 | 30323 | SCHLAP1 | 281131 | 629145 | 18451 | N/A | |
| C9orf72 | 147894 | 619707 | 2576 | 482753 | 25412 | KCNIP4 | 185774 | 447367 | 10514 | 399080 | 30324 | SCN1A | 144285 | 641996 | 18452 | 493054 | 35275 |
| CA7 | 168748 | 338437 | 2577 | 345659 | 25413 | KCNIP4 | 185774 | 382150 | 10515 | 371585 | 30325 | SCN1A | 144285 | 641575 | 18453 | 492917 | 35276 |
| CA7 | 168748 | 548332 | 2578 | 447178 | 25414 | KCNIP4 | 185774 | 382152 | 10516 | 371587 | 30326 | SCN1A | 144285 | 641603 | 18454 | 492945 | 35277 |
| CA7 | 168748 | 394069 | 2579 | 377632 | 25415 | KCNIP4 | 185774 | 509207 | 10517 | 423257 | 30327 | SCN1A | 144285 | 640036 | 18455 | 491573 | 35278 |
| CA7 | 168748 | 338437 | 2580 | 345659 | 25416 | KCNIP4 | 185774 | 382149 | 10518 | N/A | | SCN1A | 144285 | 637988 | 18456 | 490780 | 35279 |
| CA7 | 168748 | 548332 | 2581 | 447178 | 25417 | KCNIP4 | 185774 | 515786 | 10519 | 445321 | 30328 | SCN1A | 144285 | 635776 | 18457 | 490692 | 35280 |
| CA7 | 168748 | 394069 | 2582 | 377632 | 25418 | KCNIP4 | 185774 | 515373 | 10520 | N/A | | SCN1A | 144285 | 636194 | 18458 | 490288 | 35281 |
| CAB39L | 102547 | 355854 | 2583 | 348113 | 25419 | KCNIP4 | 185774 | 512102 | 10521 | N/A | | SCN1A | 144285 | 303395 | 18459 | 303540 | 35282 |
| CAB39L | 102547 | 409308 | 2584 | 386375 | 25420 | KCNIP4 | 185774 | 359001 | 10522 | 351892 | 30329 | SCN1A | 144285 | 635750 | 18460 | 490799 | 35283 |
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| CAB39L | 102547 | 425242 | 2586 | 416719 | 25422 | KCNIP4 | 281758 | 629040 | 10524 | 486886 | 30330 | SCN1A | 144285 | 637038 | 18462 | 490184 | 35285 |
| CAB39L | 102547 | 410043 | 2587 | 386328 | 25423 | KCNIP4 | 281758 | 630138 | 10525 | N/A | | SCN1A | 144285 | 409050 | 18463 | 386312 | 35286 |
| CAB39L | 102547 | 457041 | 2588 | 409253 | 25424 | KCNJ10 | 177807 | 639408 | 10526 | 491635 | 30331 | SCN1A | 144285 | 625916 | 18464 | N/A | |
| CAB39L | 102547 | 413278 | 2589 | 404028 | 25425 | KCNJ10 | 177807 | 637644 | 10527 | 490282 | 30332 | SCN1A | 144285 | 473295 | 18465 | N/A | |
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| CAB39L | 102547 | 470410 | 2592 | N/A | | KCNJ10 | 177807 | 368089 | 10530 | 357068 | 30335 | SCN1A | 144285 | 637968 | 18468 | N/A | |
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| CAB39L | 102547 | 347776 | 2594 | 261669 | 25428 | KCNJ10 | 177807 | 638840 | 10532 | 492249 | 30336 | SCN1A | 144285 | 642141 | 18470 | N/A | |
| CABIN1 | 099991 | 454754 | 2595 | 394209 | 25429 | KCNJ10 | 177807 | 640017 | 10533 | 491337 | 30337 | SCN1A | 144285 | 507401 | 18471 | N/A | |
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| CABIN1 | 099991 | 405822 | 2597 | 384694 | 25431 | KCNJ10 | 177807 | 638868 | 10535 | 491250 | 30339 | SCN1A | 144285 | 423058 | 18473 | 407030 | 35290 |
| CABIN1 | 099991 | 445422 | 2598 | 412389 | 25432 | KCNJ12 | 184185 | 583088 | 10536 | 463778 | 30340 | SCN2A | 136531 | 640791 | 18474 | N/A | |
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| CABIN1 | 099991 | 474981 | 2600 | N/A | | KCNJ16 | 153822 | 591891 | 10538 | 465646 | 30342 | SCN2A | 136531 | 424833 | 18476 | 406454 | 35292 |
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| CABIN1 | 099991 | 496016 | 2602 | N/A | | KCNJ16 | 153822 | 589377 | 10540 | 465967 | 30343 | SCN2A | 136531 | 637367 | 18478 | 490592 | 35294 |
| CABIN1 | 099991 | 467937 | 2603 | N/A | | KCNJ16 | 153822 | 586462 | 10541 | 467568 | 30344 | SCN2A | 136531 | 635945 | 18479 | N/A | |
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| CABIN1 | 099991 | 495121 | 2605 | N/A | | KCNJ16 | 153822 | 587698 | 10543 | 466132 | 30346 | SCN2A | 136531 | 631182 | 18481 | 486885 | 35296 |
| CABIN1 | 099991 | 485008 | 2606 | N/A | | KCNJ16 | 153822 | 587892 | 10544 | 465163 | 30347 | SCN2A | 136531 | 636135 | 18482 | 489821 | 35297 |
| CABIN1 | 099991 | 459824 | 2607 | N/A | | KCNJ16 | 153822 | 283936 | 10545 | 283936 | 30348 | SCN2A | 136531 | 638151 | 18483 | N/A | |
| CABIN1 | 099991 | 617531 | 2608 | 480560 | 25435 | KCNJ16 | 153822 | 392670 | 10546 | 376438 | 30349 | SCN2A | 136531 | 637266 | 18484 | 490866 | 35298 |
| CABIN1 | 281670 | 629653 | 2609 | N/A | | KCNJ16 | 153822 | 392671 | 10547 | 376439 | 30350 | SCN2A | 136531 | 283256 | 18485 | 283256 | 35299 |
| CABIN1 | 281670 | 626356 | 2610 | N/A | | KCNJ16 | 153822 | 615244 | 10548 | 479817 | 30351 | SCN2A | 136531 | 636662 | 18486 | 489873 | 35300 |
| CABIN1 | 281670 | 626232 | 2611 | N/A | | KCNJ3 | 162989 | 295101 | 10549 | 295101 | 30352 | SCN2A | 136531 | 480032 | 18487 | N/A | |
| CABIN1 | 281670 | 627229 | 2612 | N/A | | KCNJ3 | 162989 | 493505 | 10550 | N/A | | SCN2A | 136531 | 636769 | 18488 | 490800 | 35301 |
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| ABL1 | 097007 | 372348 | 2614 | 361423 | 25436 | KCNJ4 | 168135 | 303592 | 10552 | 306497 | 30354 | SCN2A | 136531 | 375437 | 18490 | 364586 | 35303 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ABL1 | 097007 | 393293 | 2615 | 376971 | 25437 | KCNJ6 | 157542 | 609713 | 10553 | 477437 | 30355 | SCN2A | 136531 | 375427 | 18491 | 364576 | 35304 |
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| CABLES1 | 134508 | 400473 | 2617 | 383321 | 25439 | KCNK1 | 135750 | 472190 | 10555 | N/A | | SCN4B | 177098 | 415030 | 18493 | N/A | |
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| CABLES1 | 134508 | 580153 | 2619 | 461994 | 25441 | KCNK1 | 135750 | 487728 | 10557 | N/A | | SCN4B | 177098 | 423160 | 18495 | N/A | |
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| CABLES1 | 134508 | 585061 | 2625 | N/A | | KCNK10 | 100433 | 556282 | 10563 | 452587 | 30361 | SCN9A | 169432 | 454569 | 18501 | 413212 | 35310 |
| CABLES1 | 134508 | 420687 | 2626 | 413851 | 25444 | KCNK12 | 184261 | 327876 | 10564 | 327611 | 30362 | SCN9A | 169432 | 452182 | 18502 | 393141 | 35311 |
| CABP1 | 157782 | 316803 | 2627 | 317310 | 25445 | KCNK12 | 184261 | 493527 | 10565 | N/A | | SCN9A | 169432 | 472119 | 18503 | N/A | |
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| CABP1 | 157782 | 351200 | 2629 | 288615 | 25447 | KCNK3 | 171303 | 302909 | 10567 | 306275 | 30364 | SCNN1G | 166828 | 300061 | 18505 | 300061 | 35313 |
| CABP1 | 157782 | 453000 | 2630 | 398959 | 25448 | KCNK3 | 171303 | 620977 | 10568 | 483136 | 30365 | SCRT1 | 261678 | 569446 | 18506 | 455711 | 35314 |
| CABP1 | 157782 | 498082 | 2631 | N/A | | KCNMA1 | 156113 | 604624 | 10569 | 473714 | 30366 | SCUBE1 | 159307 | 360835 | 18507 | 354080 | 35315 |
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| CACHD1 | 158966 | 495994 | 2633 | N/A | | KCNMA1 | 156113 | 638991 | 10571 | 490978 | 30368 | SCUBE1 | 159307 | 290460 | 18509 | 290460 | 35317 |
| CACHD1 | 158966 | 470527 | 2634 | N/A | | KCNMA1 | 156113 | 639913 | 10572 | 492241 | 30369 | SCUBE1 | 159307 | 477991 | 18510 | N/A | |
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| CACNA1A | 141837 | 638009 | 2639 | 489913 | 25453 | KCNMA1 | 156113 | 372443 | 10577 | 361520 | 30374 | SDC1 | 115884 | 254351 | 18515 | 254351 | 35319 |
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| CACNA1A | 141837 | 636012 | 2646 | 490223 | 25460 | KCNMA1 | 156113 | 639657 | 10584 | N/A | | SDC3 | 162512 | 339394 | 18522 | 344468 | 35325 |
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| CACNA1A | 141837 | 637927 | 2650 | 489715 | 25464 | KCNMA1 | 156113 | 639691 | 10588 | 491040 | 30383 | SDK1 | 146555 | 404826 | 18526 | 385899 | 35327 |
| CACNA1A | 141837 | 636473 | 2651 | 490173 | 25465 | KCNMA1 | 156113 | 638512 | 10589 | N/A | | SDK1 | 146555 | 389531 | 18527 | 374182 | 35328 |
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| CACNA1A | 141837 | 637809 | 2665 | N/A | | KCNMA1 | 156113 | 638203 | 10603 | 491123 | 30396 | SEC24D | 150961 | 502830 | 18541 | N/A | |
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| CACNA1A | 141837 | 637297 | 2668 | 489692 | 25472 | KCNMA1 | 156113 | 640626 | 10606 | 491545 | 30399 | SEC24D | 150961 | 502526 | 18544 | N/A | |
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| CACNA1A | 141837 | 635917 | 2673 | N/A | | KCNMA1 | 156113 | 404857 | 10611 | 385806 | 30402 | SEC24D | 150961 | 503683 | 18549 | 426309 | 35338 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CACNA1A | 141837 | 636816 | 2674 | N/A | | KCNMA1 | 156113 | 640093 | 10612 | 492224 | 30403 | SEC24D | 150961 | 505280 | 18550 | N/A | |
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| CACNA1A | 141837 | 636984 | 2676 | N/A | | KCNMA1 | 156113 | 639544 | 10614 | 492075 | 30405 | SEL1L3 | 091490 | 399878 | 18552 | 382767 | 35340 |
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| CACNA1A | 141837 | 637485 | 2678 | N/A | | KCNMA1 | 156113 | 434208 | 10616 | 402150 | 30407 | SEL1L3 | 091490 | 513416 | 18554 | N/A | |
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| CACNA1A | 141837 | 637774 | 2680 | N/A | | KCNMA1 | 156113 | 286628 | 10618 | 286628 | 30409 | SEL1L3 | 091490 | 502949 | 18556 | 425438 | 35342 |
| CACNA1A | 141837 | 637966 | 2681 | N/A | | KCNMA1 | 156113 | 638283 | 10619 | 491300 | 30410 | SEL1L3 | 091490 | 510448 | 18557 | 421701 | 35343 |
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| CACNA1A | 141837 | 636022 | 2684 | N/A | | KCNMA1 | 156113 | 639716 | 10622 | 491131 | 30413 | SEL1L3 | 091490 | 514321 | 18560 | 424564 | 35345 |
| CACNA1A | 141837 | 637625 | 2685 | N/A | | KCNMA1 | 156113 | 640141 | 10623 | 491418 | 30414 | SEL1L3 | 091490 | 513364 | 18561 | N/A | |
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| CACNA1A | 141837 | 637981 | 2689 | N/A | | KCNMA1 | 156113 | 638751 | 10627 | 492172 | 30417 | SELENOK | 113811 | 495461 | 18565 | 418813 | 35349 |
| CACNA1A | 141837 | 574974 | 2690 | 459963 | 25473 | KCNMA1 | 156113 | 639406 | 10628 | 491732 | 30418 | SELENOK | 113811 | 488746 | 18566 | 417272 | 35350 |
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| CACNA1A | 141837 | 614285 | 2694 | 479983 | 25475 | KCNMA1 | 156113 | 638759 | 10632 | 492632 | 30422 | SELENOM | 198832 | 402395 | 18570 | 384564 | 35352 |
| CACNA1B | 148408 | 277551 | 2695 | 277551 | 25476 | KCNMA1 | 156113 | 638575 | 10633 | 492049 | 30423 | SELENOM | 198832 | 490967 | 18571 | N/A | |
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| CACNA1B | 148408 | 371363 | 2697 | 360414 | 25478 | KCNMA1 | 156113 | 638514 | 10635 | 491840 | 30424 | SELENOM | 198832 | 465536 | 18573 | N/A | |
| CACNA1B | 148408 | 371357 | 2698 | 360408 | 25479 | KCNMA1 | 156113 | 640353 | 10636 | 492153 | 30425 | SELENOM | 198832 | 491958 | 18574 | N/A | |
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| CACNA1D | 157388 | 288139 | 2705 | 288139 | 25486 | KCNMA1 | 156113 | 475352 | 10643 | 491045 | 30428 | SELPLG | 110876 | 228463 | 18581 | 228463 | 35356 |
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| CACNA1D | 157388 | 481478 | 2713 | 418014 | 25492 | KCNMA1 | 156113 | 484343 | 10651 | 492283 | 30435 | SEMA3B | 012171 | 441915 | 18589 | N/A | |
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| CACNA1D | 157388 | 636448 | 2722 | 490839 | 25498 | KCNMA1 | 156113 | 406533 | 10660 | 385552 | 30440 | SEMA3C | 075223 | 265361 | 18598 | 265361 | 35365 |
| CACNA1D | 157388 | 637081 | 2723 | N/A | | KCNMA1 | 156113 | 354353 | 10661 | 346321 | 30441 | SEMA3C | 075223 | 419255 | 18599 | 411193 | 35366 |
| CACNA1D | 157388 | 636595 | 2724 | N/A | | KCNN3 | 143603 | 271915 | 10662 | 271915 | 30442 | SEMA3C | 075223 | 458729 | 18600 | 393825 | 35367 |
| CACNA1D | 157388 | 636633 | 2725 | N/A | | KCNN3 | 143603 | 515643 | 10663 | N/A | | SEMA3C | 075223 | 475955 | 18601 | N/A | |
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| CACNA1D | 157388 | 636999 | 2728 | N/A | | KCNN3 | 143603 | 618040 | 10666 | 481848 | 30445 | SEMA3C | 075223 | 427167 | 18604 | 399891 | 35369 |
| CACNA1D | 157388 | 637844 | 2729 | N/A | | KCNQ3 | 184156 | 388996 | 10667 | 373648 | 30446 | SEMA3C | 075223 | 487621 | 18605 | N/A | |
| CACNA1D | 157388 | 636581 | 2730 | N/A | | KCNQ3 | 184156 | 639496 | 10668 | 491165 | 30447 | SEMA3C | 075223 | 470581 | 18606 | N/A | |
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| CACNA1E | 198216 | 524607 | 2732 | 432038 | 25499 | KCNQ3 | 184156 | 519445 | 10670 | 428790 | 30449 | SEMA3D | 153993 | 484038 | 18608 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CACNA1E | 198216 | 533229 | 2733 | N/A | | KCNQ3 | 184156 | 519589 | 10671 | N/A | | SEMA3D | 153993 | 463315 | 18609 | N/A | |
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| CACNA1E | 198216 | 621791 | 2735 | 481619 | 25501 | KCNQ3 | 184156 | 639358 | 10673 | 492691 | 30451 | SEMA3E | 170381 | 307792 | 18611 | 303212 | 35372 |
| CACNA1E | 198216 | 360108 | 2736 | 353222 | 25502 | KCNQ3 | 184156 | 621976 | 10674 | 482510 | 30452 | SEMA3E | 170381 | 427262 | 18612 | 405052 | 35373 |
| CACNA1E | 198216 | 367573 | 2737 | 356545 | 25503 | KCNQ5 | 185760 | 342056 | 10675 | 345055 | 30453 | SEMA3E | 170381 | 442159 | 18613 | 412867 | 35374 |
| CACNA1E | 198216 | 357570 | 2738 | 350183 | 25504 | KCNQ5 | 185760 | 628967 | 10676 | 486187 | 30454 | SEMA3E | 170381 | 453333 | 18614 | 415184 | 35375 |
| CACNA1E | 198216 | 367567 | 2739 | 356539 | 25505 | KCNQ5 | 185760 | 370398 | 10677 | 359425 | 30455 | SEMA3G | 010319 | 231721 | 18615 | 231721 | 35376 |
| CACNA1E | 198216 | 621551 | 2740 | 483914 | 25506 | KCNQ5 | 185760 | 370392 | 10678 | 359419 | 30456 | SEMA3G | 010319 | 465657 | 18616 | 420291 | 35377 |
| CACNA1E | 198216 | 358338 | 2741 | 351101 | 25507 | KCNQ5 | 185760 | 629977 | 10679 | 485743 | 30457 | SEMA3G | 010319 | 475739 | 18617 | 419181 | 35378 |
| CACNA1G | 006283 | 360761 | 2742 | 353990 | 25508 | KCNQ5 | 185760 | 443915 | 10680 | 414829 | 30458 | SEMA4D | 187764 | 537934 | 18618 | 446394 | 35379 |
| CACNA1G | 006283 | 352832 | 2743 | 339302 | 25509 | KCNQ5 | 185760 | 441538 | 10681 | 391971 | 30459 | SEMA4D | 187764 | 450295 | 18619 | 416523 | 35380 |
| CACNA1G | 006283 | 442258 | 2744 | 409759 | 25510 | KCNQ5 | 185760 | 427928 | 10682 | 388098 | 30460 | SEMA4D | 187764 | 438547 | 18620 | 405102 | 35381 |
| CACNA1G | 006283 | 416767 | 2745 | 392390 | 25511 | KCNQ5 | 185760 | 403813 | 10683 | 384453 | 30461 | SEMA4D | 187764 | 422704 | 18621 | 388768 | 35382 |
| CACNA1G | 006283 | 502264 | 2746 | 425522 | 25512 | KCNQ5 | 185760 | 414165 | 10684 | 409861 | 30462 | SEMA4D | 187764 | 486935 | 18622 | N/A | |
| CACNA1G | 006283 | 512389 | 2747 | 426261 | 25513 | KCNQ5 | 185760 | 355194 | 10685 | 347326 | 30463 | SEMA4D | 187764 | 540183 | 18623 | N/A | |
| CACNA1G | 006283 | 513964 | 2748 | 425451 | 25514 | KCNQ5 | 185760 | 402622 | 10686 | 385501 | 30464 | SEMA4D | 187764 | 544513 | 18624 | N/A | |
| CACNA1G | 006283 | 514717 | 2749 | 422407 | 25515 | KCNQ5 | 185760 | 355635 | 10687 | 347853 | 30465 | SEMA4D | 187764 | 474258 | 18625 | N/A | |
| CACNA1G | 006283 | 510366 | 2750 | 426814 | 25516 | KCNT2 | 162687 | 367433 | 10688 | 356403 | 30466 | SEMA4D | 187764 | 420681 | 18626 | 390754 | 35383 |
| CACNA1G | 006283 | 503485 | 2751 | 427238 | 25517 | KCNT2 | 162687 | 498426 | 10689 | N/A | | SEMA4D | 187764 | 433650 | 18627 | 413352 | 35384 |
| CACNA1G | 006283 | 507510 | 2752 | 423112 | 25518 | KCNT2 | 162687 | 609185 | 10690 | 476657 | 30467 | SEMA4D | 187764 | 540475 | 18628 | 438389 | 35385 |
| CACNA1G | 006283 | 511765 | 2753 | 427247 | 25519 | KCNT2 | 162687 | 294725 | 10691 | 294725 | 30468 | SEMA4D | 187764 | 418828 | 18629 | 416747 | 35386 |
| CACNA1G | 006283 | 507336 | 2754 | 420918 | 25520 | KCNT2 | 162687 | 610076 | 10692 | N/A | | SEMA4D | 187764 | 420670 | 18630 | 405652 | 35387 |
| CACNA1G | 006283 | 506406 | 2755 | 426313 | 25521 | KCNT2 | 162687 | 466914 | 10693 | 477456 | 30469 | SEMA4D | 187764 | 464051 | 18631 | N/A | |
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| CACNA1G | 006283 | 507609 | 2758 | 423045 | 25524 | KCNV1 | 164794 | 297404 | 10696 | 297404 | 30472 | SEMA4D | 187764 | 420987 | 18634 | 391733 | 35389 |
| CACNA1G | 006283 | 503436 | 2759 | 427231 | 25525 | KCTD13 | 174943 | 308768 | 10697 | 311202 | 30473 | SEMA4D | 187764 | 339861 | 18635 | 344923 | 35390 |
| CACNA1G | 006283 | 510115 | 2760 | 427173 | 25526 | KCTD13 | 174943 | 568000 | 10698 | 455785 | 30474 | SEMA4D | 187764 | 492386 | 18636 | N/A | |
| CACNA1G | 006283 | 515165 | 2761 | 426098 | 25527 | KCTD13 | 174943 | 566842 | 10699 | 459104 | 30475 | SEMA4D | 187764 | 420101 | 18637 | 399948 | 35391 |
| CACNA1G | 006283 | 514181 | 2762 | 425698 | 25528 | KCTD13 | 174943 | 568995 | 10700 | 454282 | 30476 | SEMA4D | 187764 | 475255 | 18638 | N/A | |
| CACNA1G | 006283 | 515765 | 2763 | 426232 | 25529 | KCTD13 | 174943 | 563955 | 10701 | N/A | | SEMA4D | 187764 | 469653 | 18639 | N/A | |
| CACNA1G | 006283 | 514079 | 2764 | 423317 | 25530 | KCTD13 | 174943 | 563264 | 10702 | N/A | | SEMA4D | 187764 | 455551 | 18640 | 411981 | 35392 |
| CACNA1G | 006283 | 507896 | 2765 | 421518 | 25531 | KCTD13 | 174943 | 566413 | 10703 | 460526 | 30477 | SEMA4D | 187764 | 429836 | 18641 | 395222 | 35393 |
| CACNA1G | 006283 | 511768 | 2766 | 424664 | 25532 | KCTD13 | 174943 | 561540 | 10704 | 458486 | 30478 | SEMA4G | 095539 | 519649 | 18642 | 428896 | 35394 |
| CACNA1G | 006283 | 505165 | 2767 | 422268 | 25533 | KCTD13 | 174943 | 568721 | 10705 | N/A | | SEMA4G | 095539 | 521006 | 18643 | 430881 | 35395 |
| CACNA1G | 006283 | 503607 | 2768 | 426558 | 25534 | KCTD21-AS1 | 246174 | 532831 | 10706 | N/A | | SEMA4G | 095539 | 518124 | 18644 | 430103 | 35396 |
| CACNA1G | 006283 | 515411 | 2769 | 423155 | 25535 | KCTD21-AS1 | 246174 | 523626 | 10707 | N/A | | SEMA4G | 095539 | 518244 | 18645 | N/A | |
| CACNA1G | 006283 | 429973 | 2770 | 414388 | 25536 | KCTD21-AS1 | 246174 | 530261 | 10708 | N/A | | SEMA4G | 095539 | 370250 | 18646 | 359270 | 35397 |
| CACNA1G | 006283 | 359106 | 2771 | 352011 | 25537 | KCTD21-AS1 | 246174 | 500113 | 10709 | N/A | | SEMA4G | 095539 | 517724 | 18647 | 430175 | 35398 |
| CACNA1G | 006283 | 358244 | 2772 | 350979 | 25538 | KCTD21-AS1 | 246174 | 527321 | 10710 | N/A | | SEMA4G | 095539 | 210633 | 18648 | 210633 | 35399 |
| CACNA1G | 006283 | 570567 | 2773 | 459988 | 25539 | KCTD21-AS1 | 246174 | 528468 | 10711 | N/A | | SEMA4G | 095539 | 519756 | 18649 | N/A | |
| CACNA1G | 006283 | 506520 | 2774 | 427697 | 25540 | KCTD21-AS1 | 246174 | 600795 | 10712 | N/A | | SEMA4G | 095539 | 518948 | 18650 | N/A | |
| CACNA1G | 006283 | 354983 | 2775 | 347078 | 25541 | KCTD3 | 136636 | 259154 | 10713 | 259154 | 30479 | SEMA4G | 095539 | 476171 | 18651 | 429888 | 35400 |
| CACNA2D1 | 153956 | 356860 | 2776 | 349320 | 25542 | KCTD3 | 136636 | 448333 | 10714 | 396726 | 30480 | SEMA4G | 095539 | 484128 | 18652 | N/A | |
| CACNA2D1 | 153956 | 469297 | 2777 | N/A | | KCTD3 | 136636 | 452413 | 10715 | 399962 | 30481 | SEMA4G | 095539 | 613292 | 18653 | 479499 | 35401 |
| CACNA2D1 | 153956 | 486539 | 2778 | N/A | | KCTD3 | 136636 | 495537 | 10716 | N/A | | SEMA5A | 112902 | 382496 | 18654 | 371936 | 35402 |
| CACNA2D1 | 153956 | 443883 | 2779 | 409374 | 25543 | KCTD3 | 136636 | 463650 | 10717 | N/A | | SEMA5A | 112902 | 514923 | 18655 | N/A | |
| CACNA2D1 | 153956 | 466806 | 2780 | N/A | | KDELR3 | 100196 | 216014 | 10718 | 216014 | 30482 | SEMA5A | 112902 | 513968 | 18656 | 421961 | 35403 |
| CACNA2D1 | 153956 | 464354 | 2781 | N/A | | KDELR3 | 100196 | 409006 | 10719 | 386918 | 30483 | SEMA5A | 112902 | 509486 | 18657 | N/A | |
| CACNA2D1 | 153956 | 475237 | 2782 | N/A | | KDELR3 | 100196 | 471268 | 10720 | N/A | | SEMA5B | 082684 | 451541 | 18658 | 400828 | 35404 |
| CACNA2D1 | 153956 | 492734 | 2783 | N/A | | KDM5C | 126012 | 375401 | 10721 | 364550 | 30484 | SEMA5B | 082684 | 357599 | 18659 | 350215 | 35405 |
| CACNA2D1 | 153956 | 423588 | 2784 | 405395 | 25544 | KDM5C | 126012 | 404049 | 10722 | 385394 | 30485 | SEMA5B | 082684 | 475244 | 18660 | 417570 | 35406 |
| CACNA2D1 | 153956 | 461275 | 2785 | N/A | | KDM5C | 126012 | 375379 | 10723 | 364528 | 30486 | SEMA5B | 082684 | 393583 | 18661 | 377208 | 35407 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CACNA2D1 | 153956 | 484706 | 2786 | N/A | | KDM5C | 126012 | 375383 | 10724 | 364532 | 30487 | SEMA5B | 082684 | 465147 | 18662 | N/A | |
| CACNA2D1 | 153956 | 356253 | 2787 | 348589 | 25545 | KDM5C | 126012 | 477109 | 10725 | N/A | | SEMA5B | 082684 | 421053 | 18663 | 401056 | 35408 |
| CACNA2D2 | 007402 | 423994 | 2788 | 407393 | 25546 | KDM5C | 126012 | 497100 | 10726 | N/A | | SEMA5B | 082684 | 477001 | 18664 | N/A | |
| CACNA2D2 | 007402 | 429770 | 2789 | 404631 | 25547 | KDM5C | 126012 | 465402 | 10727 | N/A | | SEMA5B | 082684 | 449546 | 18665 | 401038 | 35409 |
| CACNA2D2 | 007402 | 266039 | 2790 | 266039 | 25548 | KDM5C | 126012 | 481369 | 10728 | N/A | | SEMA5B | 082684 | 451055 | 18666 | 389588 | 35410 |
| CACNA2D2 | 007402 | 360963 | 2791 | 354228 | 25549 | KDM5C | 126012 | 497995 | 10729 | N/A | | SEMA5B | 082684 | 616742 | 18667 | 479602 | 35411 |
| CACNA2D2 | 007402 | 483620 | 2792 | N/A | | KDM5C | 126012 | 429877 | 10730 | 409757 | 30488 | SEMA5B | 082684 | 195173 | 18668 | 195173 | 35412 |
| CACNA2D2 | 007402 | 424201 | 2793 | 390329 | 25550 | KDM5C | 126012 | 495519 | 10731 | N/A | | SEMA6A | 092421 | 343348 | 18669 | 345512 | 35413 |
| CACNA2D2 | 007402 | 479441 | 2794 | 418081 | 25551 | KDM5C | 126012 | 467093 | 10732 | N/A | | SEMA6A | 092421 | 257414 | 18670 | 257414 | 35414 |
| CACNA2D2 | 007402 | 487413 | 2795 | N/A | | KDM5C | 126012 | 428012 | 10733 | 407277 | 30489 | SEMA6A | 092421 | 513137 | 18671 | 422997 | 35415 |
| CACNA2D3 | 157445 | 474759 | 2796 | 419101 | 25552 | KDM5C | 126012 | 349663 | 10734 | 344004 | 30490 | SEMA6A | 092421 | 515129 | 18672 | 422275 | 35416 |
| CACNA2D3 | 157445 | 490478 | 2797 | 417279 | 25553 | KDM5C | 126012 | 452825 | 10735 | 445176 | 30491 | SEMA6A | 092421 | 503865 | 18673 | 425364 | 35417 |
| CACNA2D3 | 157445 | 471363 | 2798 | 418228 | 25554 | KDM5D | 012817 | 469599 | 10736 | N/A | | SEMA6A | 092421 | 510263 | 18674 | 424388 | 35418 |
| CACNA2D3 | 157445 | 477024 | 2799 | 417318 | 25555 | KDM5D | 012817 | 317961 | 10737 | 322408 | 30492 | SEMA6A | 092421 | 506114 | 18675 | N/A | |
| CACNA2D3 | 157445 | 492460 | 2800 | 418028 | 25556 | KDM5D | 012817 | 382806 | 10738 | 372256 | 30493 | SEMA6A | 092421 | 514316 | 18676 | N/A | |
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| CACNA2D3 | 157445 | 478466 | 2802 | N/A | | KDM5D | 012817 | 440077 | 10740 | 398543 | 30494 | SEMA6A | 092421 | 510024 | 18678 | N/A | |
| CACNA2D3 | 157445 | 478261 | 2803 | N/A | | KDM5D | 012817 | 415360 | 10741 | 389433 | 30495 | SEMA6A | 092421 | 502996 | 18679 | N/A | |
| CACNA2D3 | 157445 | 471865 | 2804 | N/A | | KDM5D | 012817 | 485154 | 10742 | N/A | | SEMA6A | 092421 | 503962 | 18680 | N/A | |
| CACNA2D3 | 157445 | 415676 | 2805 | 389506 | 25558 | KDM5D | 012817 | 478891 | 10743 | N/A | | SEMA6A | 092421 | 515009 | 18681 | 421935 | 35419 |
| CACNA2D3 | 157445 | 620722 | 2806 | 478969 | 25559 | KDM5D | 012817 | 447300 | 10744 | 416377 | 30496 | SEMA6A | 092421 | 509665 | 18682 | 425553 | 35420 |
| CACNA2D3 | 157445 | 288197 | 2807 | 288197 | 25560 | KDM5D | 012817 | 541639 | 10745 | 444293 | 30497 | SEMA6A | 092421 | 512156 | 18683 | N/A | |
| CACNB3 | 167535 | 547693 | 2808 | N/A | | KEL | 197993 | 355265 | 10746 | 347409 | 30498 | SEMA6D | 137872 | 558014 | 18684 | 452815 | 35421 |
| CACNB3 | 167535 | 550391 | 2809 | 449389 | 25561 | KEL | 197993 | 470850 | 10747 | N/A | | SEMA6D | 137872 | 559184 | 18685 | 453097 | 35422 |
| CACNB3 | 167535 | 540990 | 2810 | 445495 | 25562 | KEL | 197993 | 478969 | 10748 | N/A | | SEMA6D | 137872 | 560636 | 18686 | 453420 | 35423 |
| CACNB3 | 167535 | 549226 | 2811 | N/A | | KEL | 197993 | 463697 | 10749 | N/A | | SEMA6D | 137872 | 561133 | 18687 | 453530 | 35424 |
| CACNB3 | 167535 | 548860 | 2812 | N/A | | KEL | 197993 | 479768 | 10750 | N/A | | SEMA6D | 137872 | 536845 | 18688 | 446152 | 35425 |
| CACNB3 | 167535 | 536187 | 2813 | 444160 | 25563 | KEL | 197993 | 494148 | 10751 | N/A | | SEMA6D | 137872 | 561106 | 18689 | N/A | |
| CACNB3 | 167535 | 548874 | 2814 | 446611 | 25564 | KEL | 197993 | 476829 | 10752 | 419889 | 30499 | SEMA6D | 137872 | 558816 | 18690 | 453661 | 35426 |
| CACNB3 | 167535 | 551716 | 2815 | N/A | | KEL | 197993 | 467543 | 10753 | 420011 | 30500 | SEMA6D | 137872 | 389425 | 18691 | 374076 | 35427 |
| CACNB3 | 167535 | 550168 | 2816 | N/A | | KEL | 197993 | 460479 | 10754 | 418886 | 30501 | SEMA6D | 137872 | 316364 | 18692 | 324857 | 35428 |
| CACNB3 | 167535 | 552463 | 2817 | N/A | | KEL | 276615 | 615381 | 10755 | 477793 | 30502 | SEMA6D | 137872 | 354744 | 18693 | 346786 | 35429 |
| CACNB3 | 167535 | 550064 | 2818 | 448074 | 25565 | KEL | 276615 | 633816 | 10756 | N/A | | SEMA6D | 137872 | 358066 | 18694 | 350770 | 35430 |
| CACNB3 | 167535 | 552022 | 2819 | N/A | | KEL | 276615 | 633860 | 10757 | N/A | | SEMA6D | 137872 | 389428 | 18695 | 374079 | 35431 |
| CACNB3 | 167535 | 549971 | 2820 | N/A | | KEL | 276615 | 633614 | 10758 | N/A | | SEMA6D | 137872 | 559196 | 18696 | 453755 | 35432 |
| CACNB3 | 167535 | 547818 | 2821 | 448137 | 25566 | KEL | 276615 | 633778 | 10759 | N/A | | SEMA6D | 137872 | 558431 | 18697 | N/A | |
| CACNB3 | 167535 | 547392 | 2822 | 446529 | 25567 | KEL | 276615 | 634110 | 10760 | N/A | | SEMA6D | 137872 | 559064 | 18698 | 453518 | 35433 |
| CACNB3 | 167535 | 301050 | 2823 | 301050 | 25568 | KEL | 276615 | 633704 | 10761 | 488896 | 30503 | SEMA6D | 137872 | 560006 | 18699 | 453689 | 35434 |
| CACNB3 | 167535 | 548279 | 2824 | 449497 | 25569 | KEL | 276615 | 632261 | 10762 | 488564 | 30504 | SEMA6D | 137872 | 355997 | 18700 | 348276 | 35435 |
| CACNB3 | 167535 | 550771 | 2825 | N/A | | KEL | 276615 | 631527 | 10763 | 488333 | 30505 | SEPSECS | 109618 | 382103 | 18701 | 371535 | 35436 |
| CACNB3 | 167535 | 547230 | 2826 | 448304 | 25570 | KHDRBS3 | 131773 | 522578 | 10764 | N/A | | SEPSECS | 109618 | 358971 | 18702 | 351857 | 35437 |
| CACNB3 | 167535 | 551544 | 2827 | 447462 | 25571 | KHDRBS3 | 131773 | 521461 | 10765 | 428643 | 30506 | SEPSECS | 109618 | 514585 | 18703 | 421880 | 35438 |
| CACNB3 | 167535 | 552812 | 2828 | N/A | | KHDRBS3 | 131773 | 518728 | 10766 | N/A | | SEPSECS | 109618 | 503150 | 18704 | 423850 | 35439 |
| CACNB3 | 167535 | 550190 | 2829 | 447261 | 25572 | KHDRBS3 | 131773 | 522433 | 10767 | N/A | | SEPSECS | 109618 | 515272 | 18705 | N/A | |
| CACNB3 | 167535 | 550483 | 2830 | 448076 | 25573 | KHDRBS3 | 131773 | 522079 | 10768 | N/A | | SEPSECS | 109618 | 505513 | 18706 | N/A | |
| CACNB3 | 167535 | 552480 | 2831 | N/A | | KHDRBS3 | 131773 | 524282 | 10769 | 427841 | 30507 | SEPSECS | 109618 | 513285 | 18707 | 423361 | 35440 |
| CACNB4 | 182389 | 539935 | 2832 | 438949 | 25574 | KHDRBS3 | 131773 | 517859 | 10770 | 427851 | 30508 | SEPSECS-AS1 | 281501 | 510415 | 18708 | N/A | |
| CACNB4 | 182389 | 637547 | 2833 | 490124 | 25575 | KHDRBS3 | 131773 | 519600 | 10771 | N/A | | SEPSECS-AS1 | 281501 | 507794 | 18709 | N/A | |
| CACNB4 | 182389 | 636901 | 2834 | 490145 | 25576 | KHDRBS3 | 131773 | 517394 | 10772 | 430284 | 30509 | SEPT4 | 108387 | 583114 | 18710 | 463768 | 35441 |
| CACNB4 | 182389 | 635738 | 2835 | 489881 | 25577 | KHDRBS3 | 131773 | 520981 | 10773 | 428607 | 30510 | SEPT4 | 108387 | 426861 | 18711 | 402348 | 35442 |
| CACNB4 | 182389 | 636130 | 2836 | 490607 | 25578 | KHDRBS3 | 131773 | 524199 | 10774 | 431022 | 30511 | SEPT4 | 108387 | 580796 | 18712 | N/A | |
| CACNB4 | 182389 | 637217 | 2837 | 490250 | 25579 | KHDRBS3 | 131773 | 355849 | 10775 | 348108 | 30512 | SEPT4 | 108387 | 582270 | 18713 | N/A | |
| CACNB4 | 182389 | 637309 | 2838 | 490127 | 25580 | KIAA0895 | 164542 | 297063 | 10776 | 297063 | 30513 | SEPT4 | 108387 | 579371 | 18714 | 464373 | 35443 |
| CACNB4 | 182389 | 636350 | 2839 | 489621 | 25581 | KIAA0895 | 164542 | 338533 | 10777 | 344805 | 30514 | SEPT4 | 108387 | 583273 | 18715 | N/A | |
| CACNB4 | 182389 | 636598 | 2840 | 490247 | 25582 | KIAA0895 | 164542 | 317020 | 10778 | 319251 | 30515 | SEPT4 | 108387 | 317268 | 18716 | 321674 | 35444 |
| CACNB4 | 182389 | 636831 | 2841 | N/A | | KIAA0895 | 164542 | 440378 | 10779 | 390837 | 30516 | SEPT4 | 108387 | 577440 | 18717 | N/A | |
| CACNB4 | 182389 | 636617 | 2842 | 490660 | 25583 | KIAA0895 | 164542 | 436884 | 10780 | 389985 | 30517 | SEPT4 | 108387 | 457347 | 18718 | 402000 | 35445 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CACNB4 | 182389 | 635890 | 2843 | 489915 | 25584 | KIAA0895 | 164542 | 453212 | 10781 | 390183 | 30518 | SEPT4 | 108387 | 580844 | 18719 | 462727 | 35446 |
| CACNB4 | 182389 | 638005 | 2844 | 489677 | 25585 | KIAA0895 | 164542 | 483360 | 10782 | N/A | | SEPT4 | 108387 | 317256 | 18720 | 321071 | 35447 |
| CACNB4 | 182389 | 636507 | 2845 | 490252 | 25586 | KIAA0895 | 164542 | 480192 | 10783 | N/A | | SEPT4 | 108387 | 412945 | 18721 | 414779 | 35448 |
| CACNB4 | 182389 | 637232 | 2846 | 490138 | 25587 | KIAA0895 | 164542 | 483526 | 10784 | N/A | | SEPT4 | 108387 | 584488 | 18722 | N/A | |
| CACNB4 | 182389 | 635930 | 2847 | 489953 | 25588 | KIAA0895 | 164542 | 431396 | 10785 | 399935 | 30519 | SEPT4 | 108387 | 580809 | 18723 | 464382 | 35449 |
| CACNB4 | 182389 | 636442 | 2848 | 489779 | 25589 | KIAA0895 | 164542 | 415803 | 10786 | 400749 | 30520 | SEPT4 | 108387 | 577729 | 18724 | 463671 | 35450 |
| CACNB4 | 182389 | 636785 | 2849 | 489788 | 25590 | KIAA0895 | 164542 | 493327 | 10787 | N/A | | SEPT4 | 108387 | 581615 | 18725 | 462278 | 35451 |
| CACNB4 | 182389 | 638091 | 2850 | 489967 | 25591 | KIAA0895 | 164542 | 429651 | 10788 | 390527 | 30521 | SEPT4 | 108387 | 578131 | 18726 | 462362 | 35452 |
| CACNB4 | 182389 | 636773 | 2851 | 489818 | 25592 | KIAA0895L | 196123 | 562514 | 10789 | N/A | | SEPT4 | 108387 | 585170 | 18727 | N/A | |
| CACNB4 | 182389 | 637942 | 2852 | N/A | | KIAA0895L | 196123 | 561679 | 10790 | N/A | | SEPT4 | 108387 | 583291 | 18728 | 463461 | 35453 |
| CACNB4 | 182389 | 637132 | 2853 | 490651 | 25593 | KIAA0895L | 196123 | 568563 | 10791 | 459322 | 30522 | SEPT4 | 108387 | 584789 | 18729 | N/A | |
| CACNB4 | 182389 | 637762 | 2854 | 489876 | 25594 | KIAA0895L | 196123 | 561621 | 10792 | 457099 | 30523 | SEPT4 | 108387 | 581921 | 18730 | N/A | |
| CACNB4 | 182389 | 637550 | 2855 | 489943 | 25595 | KIAA0895L | 196123 | 290881 | 10793 | 290881 | 30524 | SEPT4 | 108387 | 584528 | 18731 | N/A | |
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| CACNB4 | 182389 | 635803 | 2858 | N/A | | KIAA0895L | 196123 | 563831 | 10796 | N/A | | SEPT4 | 108387 | 580740 | 18734 | N/A | |
| CACNB4 | 182389 | 636762 | 2859 | 490918 | 25598 | KIAA0895L | 196123 | 570009 | 10797 | N/A | | SEPT4 | 108387 | 578747 | 18735 | N/A | |
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| CACNB4 | 182389 | 637913 | 2861 | N/A | | KIAA0895L | 196123 | 564423 | 10799 | N/A | | SEPT4 | 108387 | 582976 | 18737 | N/A | |
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| CACNB4 | 182389 | 439467 | 2863 | 390161 | 25601 | KIAA1456 | 250305 | 447063 | 10801 | 443288 | 30526 | SEPT7 | 122545 | 635172 | 18739 | 489466 | 35456 |
| CACNB4 | 182389 | 637319 | 2864 | N/A | | KIAA1456 | 250305 | 525249 | 10802 | N/A | | SEPT7 | 122545 | 635476 | 18740 | 489044 | 35457 |
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| CACNB4 | 182389 | 637330 | 2867 | 490817 | 25604 | KIAA1456 | 250305 | 400069 | 10805 | 468715 | 30528 | SEPT7 | 122545 | 634600 | 18743 | 489538 | 35460 |
| CACNB4 | 182389 | 638040 | 2868 | 489883 | 25605 | KIAA1456 | 250305 | 528753 | 10806 | 466330 | 30529 | SEPT7 | 122545 | 635669 | 18744 | N/A | |
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| CACNB4 | 182389 | 636664 | 2871 | 490572 | 25608 | KIAA1456 | 250305 | 529978 | 10809 | N/A | | SEPT7 | 122545 | 475109 | 18747 | N/A | |
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| CACNB4 | 182389 | 637535 | 2875 | 490891 | 25612 | KIF13A | 137177 | 502297 | 10813 | 425616 | 30534 | SEPT7 | 122545 | 635420 | 18751 | N/A | |
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| CACNB4 | 182389 | 636810 | 2878 | N/A | | KIF13A | 137177 | 378826 | 10816 | 368103 | 30537 | SEPT7 | 122545 | 492940 | 18754 | N/A | |
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| CACNB4 | 182389 | 360283 | 2880 | 353425 | 25615 | KIF13A | 137177 | 358380 | 10818 | 351150 | 30539 | SEPT7 | 122545 | 350320 | 18756 | 344868 | 35464 |
| CACNB4 | 182389 | 637514 | 2881 | 490304 | 25616 | KIF13A | 137177 | 506044 | 10819 | 422808 | 30540 | SEPT7 | 122545 | 432293 | 18757 | 444240 | 35465 |
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| CACNB4 | 182389 | 637007 | 2884 | 489772 | 25619 | KIF13A | 137177 | 507576 | 10822 | N/A | | SERINC2 | 168528 | 487207 | 18760 | N/A | |
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| CACNB4 | 182389 | 637765 | 2886 | N/A | | KIF13A | 137177 | 502704 | 10824 | 425453 | 30541 | SERINC2 | 168528 | 491976 | 18762 | N/A | |
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| CACNB4 | 182389 | 637773 | 2888 | N/A | | KIF13B | 197892 | 523130 | 10826 | 429106 | 30543 | SERINC2 | 168528 | 536859 | 18764 | 444307 | 35470 |
| CACNB4 | 182389 | 637216 | 2889 | 490910 | 25622 | KIF13B | 197892 | 522355 | 10827 | 429027 | 30544 | SERP1 | 120742 | 479209 | 18765 | 420076 | 35471 |
| CACNB4 | 182389 | 635731 | 2890 | N/A | | KIF13B | 197892 | 521515 | 10828 | 429201 | 30545 | SERP1 | 120742 | 487153 | 18766 | 420002 | 35472 |
| CACNB4 | 182389 | 636390 | 2891 | 490603 | 25623 | KIF13B | 197892 | 523968 | 10829 | 431006 | 30546 | SERP1 | 120742 | 491660 | 18767 | 419472 | 35473 |
| CACNB4 | 182389 | 636834 | 2892 | N/A | | KIF13B | 197892 | 522846 | 10830 | N/A | | SERP1 | 120742 | 491195 | 18768 | N/A | |
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| CACNB4 | 182389 | 636129 | 2897 | 489912 | 25625 | KIF19 | 196169 | 547389 | 10835 | N/A | | SERPINB1 | 021355 | 380739 | 18773 | 370115 | 35475 |
| CACNB4 | 182389 | 638056 | 2898 | 490787 | 25626 | KIF19 | 196169 | 549637 | 10836 | N/A | | SERPINB1 | 021355 | 468511 | 18774 | N/A | |
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| CACNB4 | 182389 | 635743 | 2900 | N/A | | KIF19 | 196169 | 389916 | 10838 | 374566 | 30550 | SERPINB1 | 021355 | 476896 | 18776 | N/A | |
| CACNB4 | 182389 | 635835 | 2901 | N/A | | KIF19 | 196169 | 551017 | 10839 | N/A | | SERPINB1 | 021355 | 460260 | 18777 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CACNB4 | 182389 | 475848 | 2902 | N/A | | KIF19 | 196169 | 359939 | 10840 | N/A | | SERPINE2 | 135919 | 409304 | 18778 | 386412 | 35476 |
| CACNB4 | 182389 | 636496 | 2903 | 490249 | 25628 | KIF19 | 196169 | 547389 | 10841 | N/A | | SERPINE2 | 135919 | 258405 | 18779 | 258405 | 35477 |
| CACNB4 | 182389 | 638083 | 2904 | N/A | | KIF19 | 196169 | 549637 | 10842 | N/A | | SERPINE2 | 135919 | 473202 | 18780 | N/A | |
| CACNB4 | 182389 | 637479 | 2905 | N/A | | KIF21B | 116852 | 332129 | 10843 | 328494 | 30551 | SERPINE2 | 135919 | 409840 | 18781 | 386969 | 35478 |
| CACNG3 | 006116 | 005284 | 2906 | 005284 | 25629 | KIF21B | 116852 | 461742 | 10844 | 433808 | 30552 | SERPINE2 | 135919 | 447280 | 18782 | 415786 | 35479 |
| CACNG4 | 075461 | 262138 | 2907 | 262138 | 25630 | KIF21B | 116852 | 360529 | 10845 | 353724 | 30553 | SERPINE2 | 135919 | 478966 | 18783 | N/A | |
| CACNG5 | 075429 | 533854 | 2908 | 436836 | 25631 | KIF21B | 116852 | 422435 | 10846 | 411831 | 30554 | SERPINE2 | 135919 | 432738 | 18784 | 408452 | 35480 |
| CACNG5 | 075429 | 307139 | 2909 | 303092 | 25632 | KIF21B | 116852 | 534043 | 10847 | N/A | | SERPINE2 | 135919 | 489065 | 18785 | N/A | |
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| CACNG8 | 142408 | 638874 | 2911 | 492637 | 25634 | KIF26B | 162849 | 479506 | 10849 | N/A | | SERPINE2 | 135919 | 423446 | 18787 | 394518 | 35482 |
| CACYBP | 116161 | 613570 | 2912 | 479414 | 25635 | KIF26B | 162849 | 366518 | 10850 | 355475 | 30556 | SERPINH1 | 149257 | 533603 | 18788 | 434657 | 35483 |
| CACYBP | 116161 | 426793 | 2913 | 403674 | 25636 | KIF26B | 162849 | 483253 | 10851 | N/A | | SERPINH1 | 149257 | 358171 | 18789 | 350894 | 35484 |
| CACYBP | 116161 | 461977 | 2914 | N/A | | KIF26B | 281216 | 615502 | 10852 | N/A | | SERPINH1 | 149257 | 526242 | 18790 | 431384 | 35485 |
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| CACYBP | 116161 | 483307 | 2916 | N/A | | KIF26B | 281216 | 626550 | 10854 | N/A | | SERPINH1 | 149257 | 529643 | 18792 | 435936 | 35487 |
| CACYBP | 116161 | 473925 | 2917 | N/A | | KIF3B | 101350 | 375712 | 10855 | 364864 | 30558 | SERPINH1 | 149257 | 525492 | 18793 | 434482 | 35488 |
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| CADM3 | 162706 | 368124 | 2921 | 357106 | 25640 | KIF6 | 164627 | 229913 | 10859 | 229913 | 30562 | SERPINH1 | 149257 | 528990 | 18797 | 432007 | 35492 |
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| CADM3 | 162706 | 416746 | 2923 | 387802 | 25642 | KIF6 | 164627 | 482238 | 10861 | N/A | | SERPINH1 | 149257 | 525611 | 18799 | 435452 | 35494 |
| CADPS | 163618 | 383710 | 2924 | 373215 | 25643 | KIF6 | 164627 | 465719 | 10862 | N/A | | SERPINH1 | 149257 | 528760 | 18800 | 437108 | 35495 |
| CADPS | 163618 | 486172 | 2925 | N/A | | KIF6 | 164627 | 538893 | 10863 | 441435 | 30564 | SERPINH1 | 149257 | 525876 | 18801 | 433532 | 35496 |
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| CADPS | 163618 | 478408 | 2933 | N/A | | KIT | 157404 | 512959 | 10871 | N/A | | SERPINI1 | 163536 | 494666 | 18809 | N/A | |
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| CADPS | 163618 | 463002 | 2935 | N/A | | KITLG | 049130 | 228280 | 10873 | 228280 | 30571 | SERPINI2 | 114204 | 461846 | 18811 | 417692 | 35504 |
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| CADPS | 163618 | 490424 | 2940 | N/A | | KITLG | 049130 | 228280 | 10878 | 228280 | 30575 | SERPINI2 | 114204 | 465031 | 18816 | N/A | |
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| CADPS | 163618 | 613879 | 2942 | 482556 | 25652 | KITLG | 049130 | 357116 | 10880 | 474021 | 30577 | SERPINI2 | 114204 | 616363 | 18818 | 481699 | 35509 |
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| CADPS2 | 081803 | 462699 | 2944 | 419418 | 25654 | KLHDC4 | 104731 | 568444 | 10882 | N/A | | SESTD1 | 187231 | 428443 | 18820 | 415332 | 35511 |
| CADPS2 | 081803 | 412584 | 2945 | 400401 | 25655 | KLHDC4 | 104731 | 567298 | 10883 | 457570 | 30579 | SESTD1 | 187231 | 446758 | 18821 | 410632 | 35512 |
| CADPS2 | 081803 | 449022 | 2946 | 398481 | 25656 | KLHDC4 | 104731 | 568346 | 10884 | N/A | | SESTD1 | 187231 | 335289 | 18822 | 334183 | 35513 |
| CADPS2 | 081803 | 397721 | 2947 | 380833 | 25657 | KLHDC4 | 104731 | 568499 | 10885 | N/A | | SESTD1 | 187231 | 426988 | 18823 | 391000 | 35514 |
| CADPS2 | 081803 | 476131 | 2948 | N/A | | KLHDC4 | 104731 | 316853 | 10886 | N/A | | SESTD1 | 187231 | 489901 | 18824 | N/A | |
| CADPS2 | 081803 | 334010 | 2949 | 333940 | 25658 | KLHDC4 | 104731 | 353170 | 10887 | 262530 | 30580 | SESTD1 | 187231 | 440010 | 18825 | 416164 | 35515 |
| CADPS2 | 081803 | 615869 | 2950 | 484355 | 25659 | KLHDC4 | 104731 | 347925 | 10888 | 325717 | 30581 | SESTD1 | 187231 | 435047 | 18826 | 410286 | 35516 |
| CADPS2 | 081803 | 313070 | 2951 | 325581 | 25660 | KLHDC4 | 104731 | 566349 | 10889 | N/A | | SESTD1 | 187231 | 486468 | 18827 | N/A | |
| CALB1 | 104327 | 469032 | 2952 | N/A | | KLHDC4 | 104731 | 270583 | 10890 | 270583 | 30582 | SESTD1 | 187231 | 452991 | 18828 | 387517 | 35517 |
| CALB1 | 104327 | 265431 | 2953 | 265431 | 25661 | KLHDC4 | 104731 | 569487 | 10891 | N/A | | SETBP1 | 152217 | 426838 | 18829 | 390687 | 35518 |
| CALB1 | 104327 | 518457 | 2954 | 429602 | 25662 | KLHDC4 | 104731 | 562155 | 10892 | 455824 | 30583 | SETBP1 | 152217 | 282030 | 18830 | 282030 | 35519 |
| CALB1 | 104327 | 497376 | 2955 | N/A | | KLHDC4 | 104731 | 562261 | 10893 | 455780 | 30584 | SETBP1 | 152217 | 591940 | 18831 | 468506 | 35520 |
| CALB1 | 104327 | 522070 | 2956 | N/A | | KLHDC4 | 104731 | 566661 | 10894 | N/A | | SEZ6L2 | 174938 | 346932 | 18832 | 319215 | 35521 |
| CALB1 | 104327 | 523716 | 2957 | 429246 | 25663 | KLHDC4 | 104731 | 562913 | 10895 | N/A | | SEZ6L2 | 174938 | 350527 | 18833 | 310206 | 35522 |
| CALB1 | 104327 | 520613 | 2958 | 430281 | 25664 | KLHDC4 | 104731 | 567513 | 10896 | N/A | | SEZ6L2 | 174938 | 308713 | 18834 | 312550 | 35523 |
| CALB1 | 104327 | 482702 | 2959 | N/A | | KLHDC4 | 104731 | 562872 | 10897 | N/A | | SEZ6L2 | 174938 | 563118 | 18835 | 454654 | 35524 |
| CALB1 | 104327 | 476853 | 2960 | N/A | | KLHDC4 | 104731 | 564484 | 10898 | N/A | | SEZ6L2 | 174938 | 568407 | 18836 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CALB1 | 104327 | 473670 | 2961 | N/A | | KLHDC4 | 104731 | 565328 | 10899 | N/A | | SEZ6L2 | 174938 | 562159 | 18837 | N/A | |
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| CALB2 | 172137 | 302628 | 2963 | 307508 | 25666 | KLHDC4 | 104731 | 564396 | 10901 | 455214 | 30586 | SEZ6L2 | 174938 | 537485 | 18839 | 439412 | 35526 |
| CALB2 | 172137 | 562305 | 2964 | 454639 | 25667 | KLHDC4 | 104731 | 568502 | 10902 | N/A | | SEZ6L2 | 174938 | 617533 | 18840 | 481917 | 35527 |
| CALB2 | 172137 | 490520 | 2965 | 454467 | 25668 | KLHDC4 | 104731 | 561825 | 10903 | 457990 | 30587 | SF3B4 | 143368 | 271628 | 18841 | 271628 | 35528 |
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| CALB2 | 172137 | 349553 | 2967 | 340294 | 25669 | KLHDC4 | 104731 | 563845 | 10905 | 454681 | 30589 | SFXN5 | 144040 | 474528 | 18843 | N/A | |
| CALB2 | 282830 | 635154 | 2968 | 489007 | 25670 | KLHDC4 | 104731 | 566561 | 10906 | 457857 | 30590 | SFXN5 | 144040 | 461352 | 18844 | N/A | |
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| CALB2 | 282830 | 635576 | 2970 | 489176 | 25672 | KLHDC4 | 104731 | 446344 | 10908 | 392909 | 30592 | SFXN5 | 144040 | 495208 | 18846 | N/A | |
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| CALCRL | 064989 | 410068 | 2975 | 387190 | 25676 | KLHL13 | 003096 | 469946 | 10913 | 419803 | 30597 | SFXN5 | 144040 | 482542 | 18851 | N/A | |
| CALCRL | 064989 | 447403 | 2976 | 415626 | 25677 | KLHL13 | 003096 | 453826 | 10914 | 393807 | 30598 | SFXN5 | 144040 | 463277 | 18852 | N/A | |
| CALCRL | 064989 | 410102 | 2977 | 386599 | 25678 | KLHL13 | 003096 | 545703 | 10915 | 440707 | 30599 | SFXN5 | 144040 | 416579 | 18853 | N/A | |
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| CALCRL | 064989 | 485973 | 2979 | N/A | | KLHL13 | 003096 | 541812 | 10917 | 444450 | 30601 | SFXN5 | 144040 | 450185 | 18855 | 398580 | 35533 |
| CALCRL | 064989 | 461244 | 2980 | N/A | | KLHL15 | 174010 | 328046 | 10918 | 332791 | 30602 | SFXN5 | 144040 | 442582 | 18856 | 396825 | 35534 |
| CALCRL | 064989 | 479784 | 2981 | N/A | | KLHL22 | 099910 | 328879 | 10919 | 331682 | 30603 | SFXN5 | 144040 | 487508 | 18857 | N/A | |
| CALHM3 | 183128 | 369783 | 2982 | 358798 | 25679 | KLHL22 | 099910 | 487090 | 10920 | N/A | | SFXN5 | 144040 | 497144 | 18858 | N/A | |
| CALN1 | 183166 | 329008 | 2983 | 332498 | 25680 | KLHL22 | 099910 | 479601 | 10921 | N/A | | SFXN5 | 144040 | 479293 | 18859 | N/A | |
| CALN1 | 183166 | 395275 | 2984 | 378690 | 25681 | KLHL22 | 099910 | 451553 | 10922 | 400095 | 30604 | SFXN5 | 144040 | 485057 | 18860 | N/A | |
| CALN1 | 183166 | 395276 | 2985 | 378691 | 25682 | KLHL22 | 099910 | 444967 | 10923 | 403999 | 30605 | SFXN5 | 144040 | 475630 | 18861 | N/A | |
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| CALN1 | 183166 | 446128 | 2987 | 411806 | 25684 | KLHL22 | 099910 | 443285 | 10925 | 397882 | 30607 | SFXN5 | 144040 | 484123 | 18863 | N/A | |
| CALN1 | 183166 | 405452 | 2988 | 384354 | 25685 | KLHL22 | 099910 | 494929 | 10926 | N/A | | SFXN5 | 144040 | 488839 | 18864 | N/A | |
| CALR | 179218 | 587486 | 2989 | N/A | | KLHL22 | 099910 | 431430 | 10927 | 409092 | 30608 | SGCA | 108823 | 513942 | 18865 | N/A | |
| CALR | 179218 | 316448 | 2990 | 320866 | 25686 | KLHL22 | 099910 | 470335 | 10928 | N/A | | SGCA | 108823 | 514934 | 18866 | 423168 | 35535 |
| CALR | 179218 | 590325 | 2991 | N/A | | KLHL22 | 099910 | 490556 | 10929 | N/A | | SGCA | 108823 | 513821 | 18867 | 426571 | 35536 |
| CALR | 179218 | 588454 | 2992 | 465105 | 25687 | KLHL22 | 099910 | 423364 | 10930 | 402746 | 30609 | SGCA | 108823 | 344627 | 18868 | 345522 | 35537 |
| CALR | 179218 | 586760 | 2993 | 465918 | 25688 | KLHL5 | 109790 | 261425 | 10931 | 261425 | 30610 | SGCA | 108823 | 262018 | 18869 | 262018 | 35538 |
| CALR | 179218 | 586803 | 2994 | N/A | | KLHL5 | 109790 | 508137 | 10932 | 423080 | 30611 | SGCA | 108823 | 502555 | 18870 | 422817 | 35539 |
| CALR | 179218 | 586967 | 2995 | 466037 | 25689 | KLHL5 | 109790 | 504108 | 10933 | 423897 | 30612 | SGCA | 108823 | 511303 | 18871 | 426104 | 35540 |
| CALY | 130643 | 252939 | 2996 | 252939 | 25690 | KLHL5 | 109790 | 381930 | 10934 | 371355 | 30613 | SGCA | 108823 | 512526 | 18872 | 426606 | 35541 |
| CALY | 130643 | 467433 | 2997 | N/A | | KLHL5 | 109790 | 261426 | 10935 | 261426 | 30614 | SGCA | 108823 | 504073 | 18873 | 422030 | 35542 |
| CALY | 130643 | 467611 | 2998 | N/A | | KLHL5 | 109790 | 514399 | 10936 | 426949 | 30615 | SGCA | 108823 | 508382 | 18874 | N/A | |
| CALY | 130643 | 368558 | 2999 | 357546 | 25691 | KLHL5 | 109790 | 515612 | 10937 | 425512 | 30616 | SGCA | 108823 | 505964 | 18875 | N/A | |
| CALY | 130643 | 368555 | 3000 | 357543 | 25692 | KLK6 | 167755 | 376851 | 10938 | 366047 | 30617 | SGCD | 170624 | 517913 | 18876 | 429378 | 35543 |
| CAMK1G | 008118 | 009105 | 3001 | 009105 | 25693 | KLK6 | 167755 | 310157 | 10939 | 309148 | 30618 | SGCD | 170624 | 435422 | 18877 | 403003 | 35544 |
| CAMK1G | 008118 | 423146 | 3002 | 392173 | 25694 | KLK6 | 167755 | 597379 | 10940 | 469630 | 30619 | SGCD | 170624 | 337851 | 18878 | 338343 | 35545 |
| CAMK1G | 008118 | 361322 | 3003 | 354861 | 25695 | KLK6 | 167755 | 594641 | 10941 | 470482 | 30620 | SGCD | 170624 | 524347 | 18879 | 430794 | 35546 |
| CAMK1G | 008118 | 494990 | 3004 | N/A | | KLK6 | 167755 | 599881 | 10942 | 471948 | 30621 | SGK2 | 101049 | 373100 | 18880 | 362192 | 35547 |
| CAMK2A | 070808 | 348628 | 3005 | 261793 | 25696 | KLK6 | 167755 | 599690 | 10943 | 469702 | 30622 | SGK2 | 101049 | 373077 | 18881 | 362168 | 35548 |
| CAMK2A | 070808 | 351010 | 3006 | N/A | | KLK6 | 167755 | 391808 | 10944 | 375684 | 30623 | SGK2 | 101049 | 373092 | 18882 | 362184 | 35549 |
| CAMK2A | 070808 | 398376 | 3007 | 381412 | 25697 | KNDC1 | 171798 | 304613 | 10945 | 304437 | 30624 | SGK2 | 101049 | 496343 | 18883 | 436841 | 35550 |
| CAMK2A | 070808 | 508662 | 3008 | N/A | | KNDC1 | 171798 | 478074 | 10946 | N/A | | SGK2 | 101049 | 617268 | 18884 | 481432 | 35551 |
| CAMK2A | 070808 | 515758 | 3009 | 427580 | 25698 | KNDC1 | 171798 | 485110 | 10947 | N/A | | SGK2 | 101049 | 617358 | 18885 | N/A | |
| CAMK2A | 070808 | 510347 | 3010 | 426607 | 25699 | KNDC1 | 171798 | 530127 | 10948 | N/A | | SGK2 | 101049 | 412111 | 18886 | 396222 | 35552 |
| CAMK2A | 070808 | 507995 | 3011 | N/A | | KNDC1 | 171798 | 368571 | 10949 | 357560 | 30625 | SGK2 | 101049 | 341458 | 18887 | 340608 | 35553 |
| CAMK2G | 148660 | 351293 | 3012 | 277853 | 25700 | KNOP1 | 103550 | 219837 | 10950 | 219837 | 30626 | SGK2 | 101049 | 426287 | 18888 | 412214 | 35554 |
| CAMK2G | 148660 | 322635 | 3013 | 315599 | 25701 | KNOP1 | 103550 | 568230 | 10951 | 455015 | 30627 | SGK2 | 101049 | 485914 | 18889 | N/A | |
| CAMK2G | 148660 | 433289 | 3014 | 393784 | 25702 | KNOP1 | 103550 | 567367 | 10952 | 455369 | 30628 | SGK2 | 101049 | 423407 | 18890 | 392795 | 35555 |
| CAMK2G | 148660 | 305762 | 3015 | 307082 | 25703 | KNOP1 | 103550 | 565844 | 10953 | N/A | | SGMS2 | 164023 | 506462 | 18891 | N/A | |
| CAMK2G | 148660 | 372765 | 3016 | 361851 | 25704 | KNOP1 | 103550 | 564480 | 10954 | 454329 | 30629 | SGMS2 | 164023 | 394684 | 18892 | 378176 | 35556 |
| CAMK2G | 148660 | 441192 | 3017 | 405561 | 25705 | KNTC1 | 184445 | 535410 | 10955 | N/A | | SGMS2 | 164023 | 515332 | 18893 | N/A | |
| CAMK2G | 148660 | 472912 | 3018 | N/A | | KNTC1 | 184445 | 450485 | 10956 | 397992 | 30630 | SGMS2 | 164023 | 503862 | 18894 | 428176 | 35557 |
| CAMK2G | 148660 | 474131 | 3019 | N/A | | KNTC1 | 184445 | 333479 | 10957 | 328236 | 30631 | SGMS2 | 164023 | 359079 | 18895 | 351981 | 35558 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAMK2G | 148660 | 477205 | 3020 | N/A | | KNTC1 | 184445 | 535186 | 10958 | N/A | | SGMS2 | 164023 | 506993 | 18896 | 428294 | 35559 |
| CAMK2G | 148660 | 492020 | 3021 | N/A | | KNTC1 | 184445 | 423927 | 10959 | 397140 | 30632 | SGMS2 | 164023 | 394686 | 18897 | 378178 | 35560 |
| CAMK2G | 148660 | 477652 | 3022 | N/A | | KNTC1 | 184445 | 545065 | 10960 | N/A | | SGMS2 | 164023 | 503385 | 18898 | 430172 | 35561 |
| CAMK2G | 148660 | 394762 | 3023 | 378243 | 25706 | KNTC1 | 184445 | 377192 | 10961 | N/A | | SGMS2 | 164023 | 504754 | 18899 | N/A | |
| CAMK2G | 148660 | 322680 | 3024 | 319060 | 25707 | KNTC1 | 184445 | 436959 | 10962 | 408760 | 30633 | SH2B2 | 160999 | 617975 | 18900 | 483034 | 35562 |
| CAMK2G | 148660 | 423381 | 3025 | 410298 | 25708 | KNTC1 | 184445 | 541466 | 10963 | N/A | | SH2B2 | 160999 | 536178 | 18901 | 440273 | 35563 |
| CAMK4 | 152495 | 508074 | 3026 | 426940 | 25709 | KNTC1 | 184445 | 546125 | 10964 | 439119 | 30634 | SH2B2 | 160999 | 444095 | 18902 | 401883 | 35564 |
| CAMK4 | 152495 | 512453 | 3027 | 422634 | 25710 | KNTC1 | 184445 | 536625 | 10965 | N/A | | SH2D1A | 183918 | 635645 | 18903 | N/A | |
| CAMK4 | 152495 | 282356 | 3028 | 282356 | 25711 | KNTC1 | 184445 | 542727 | 10966 | N/A | | SH2D1A | 183918 | 371139 | 18904 | 360181 | 35565 |
| CAMK4 | 152495 | 504544 | 3029 | 423761 | 25712 | KNTC1 | 184445 | 539013 | 10967 | N/A | | SH2D1A | 183918 | 360027 | 18905 | 353126 | 35566 |
| CAMK4 | 152495 | 515231 | 3030 | 424912 | 25713 | KNTC1 | 184445 | 541427 | 10968 | N/A | | SH2D1A | 183918 | 491950 | 18906 | N/A | |
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| CAMK4 | 152495 | 504090 | 3033 | N/A | | KRT222 | 213424 | 394052 | 10971 | 377616 | 30637 | SH2D4B | 178217 | 339284 | 18909 | 345295 | 35568 |
| CAMK4 | 152495 | 502916 | 3034 | N/A | | KRT222 | 213424 | 581564 | 10972 | 463865 | 30638 | SH2D4B | 178217 | 313455 | 18910 | 314242 | 35569 |
| CAMK4 | 152495 | 505763 | 3035 | N/A | | KRT222 | 213424 | 580719 | 10973 | 464647 | 30639 | SH2D4B | 178217 | 372150 | 18911 | N/A | |
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| CAMK4 | 152495 | 510858 | 3037 | N/A | | KRTAP12-2 | 221864 | 360770 | 10975 | 354001 | 30641 | SH3BGRL2 | 198478 | 369838 | 18913 | 358853 | 35570 |
| CAMK4 | 152495 | 512890 | 3038 | N/A | | KSR2 | 171435 | 339824 | 10976 | 339952 | 30642 | SH3BP2 | 087266 | 452765 | 18914 | 409746 | 35571 |
| CAMKK2 | 110931 | 392474 | 3039 | 376266 | 25715 | KSR2 | 171435 | 545002 | 10977 | N/A | | SH3BP2 | 087266 | 503219 | 18915 | 422796 | 35572 |
| CAMKK2 | 110931 | 347034 | 3040 | 321230 | 25716 | KSR2 | 171435 | 543793 | 10978 | N/A | | SH3BP2 | 087266 | 512131 | 18916 | N/A | |
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| CAMKK2 | 110931 | 337174 | 3042 | 336634 | 25718 | L1CAM | 198910 | 370060 | 10980 | 359077 | 30644 | SH3BP2 | 087266 | 511237 | 18918 | N/A | |
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| CAMKK2 | 110931 | 412367 | 3045 | 388368 | 25721 | L1CAM | 198910 | 361699 | 10983 | 355380 | 30647 | SH3BP2 | 087266 | 508385 | 18921 | 424917 | 35574 |
| CAMKK2 | 110931 | 404169 | 3046 | 384600 | 25722 | L1CAM | 198910 | 491983 | 10984 | N/A | | SH3BP2 | 087266 | 513020 | 18922 | 424072 | 35575 |
| CAMKK2 | 110931 | 402834 | 3047 | 384591 | 25723 | L1CAM | 198910 | 474853 | 10985 | N/A | | SH3BP2 | 087266 | 511663 | 18923 | N/A | |
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| CAMKK2 | 110931 | 535524 | 3050 | N/A | | L1CAM | 198910 | 484652 | 10988 | N/A | | SH3BP2 | 087266 | 502260 | 18926 | 425537 | 35578 |
| CAMKK2 | 110931 | 542540 | 3051 | N/A | | L1CAM | 198910 | 439496 | 10989 | 402407 | 30649 | SH3BP2 | 087266 | 511185 | 18927 | N/A | |
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| CAMKK2 | 110931 | 543477 | 3053 | 444894 | 25726 | L1CAM | 198910 | 464967 | 10991 | N/A | | SH3BP2 | 087266 | 508338 | 18929 | N/A | |
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| CAMKV | 164076 | 475665 | 3055 | N/A | | L1CAM | 198910 | 458029 | 10993 | 396079 | 30652 | SH3BP2 | 087266 | 509677 | 18931 | N/A | |
| CAMKV | 164076 | 296471 | 3056 | 296471 | 25728 | L1CAM | 198910 | 460553 | 10994 | N/A | | SH3BP2 | 087266 | 515737 | 18932 | 422605 | 35581 |
| CAMKV | 164076 | 488336 | 3057 | 418809 | 25729 | L1CAM | 198910 | 616195 | 10995 | N/A | | SH3BP2 | 087266 | 356331 | 18933 | 348685 | 35582 |
| CAMKV | 164076 | 463537 | 3058 | 417614 | 25730 | L1CAM | 198910 | 361981 | 10996 | 354712 | 30653 | SH3BP2 | 087266 | 506932 | 18934 | N/A | |
| CAMKV | 164076 | 477224 | 3059 | 419195 | 25731 | L3HYPDH | 126790 | 466522 | 10997 | N/A | | SH3BP2 | 087266 | 515183 | 18935 | N/A | |
| CAMKV | 164076 | 487726 | 3060 | 420139 | 25732 | L3HYPDH | 126790 | 247194 | 10998 | 247194 | 30654 | SH3BP2 | 087266 | 505941 | 18936 | N/A | |
| CAMKV | 164076 | 467248 | 3061 | 420053 | 25733 | L3HYPDH | 126790 | 463432 | 10999 | N/A | | SH3BP2 | 087266 | 510204 | 18937 | N/A | |
| CAMKV | 164076 | 466940 | 3062 | 420724 | 25734 | L3HYPDH | 126790 | 478430 | 11000 | N/A | | SH3BP2 | 087266 | 515802 | 18938 | N/A | |
| CAMKV | 164076 | 478149 | 3063 | N/A | | L3HYPDH | 126790 | 532049 | 11001 | N/A | | SH3BP2 | 087266 | 504450 | 18939 | N/A | |
| CAMKV | 164076 | 466535 | 3064 | 420766 | 25735 | L3HYPDH | 126790 | 543619 | 11002 | N/A | | SH3BP2 | 087266 | 513069 | 18940 | 426818 | 35583 |
| CAMKV | 164076 | 483811 | 3065 | N/A | | L3HYPDH | 126790 | 487285 | 11003 | 431608 | 30655 | SH3BP2 | 087266 | 442312 | 18941 | 388152 | 35584 |
| CAMKV | 164076 | 480398 | 3066 | 420000 | 25736 | L3HYPDH | 126790 | 481608 | 11004 | 423874 | 30656 | SH3BP2 | 087266 | 503393 | 18942 | 422168 | 35585 |
| CAMKV | 164076 | 472895 | 3067 | N/A | | L3HYPDH | 126790 | 527981 | 11005 | N/A | | SH3BP4 | 130147 | 392011 | 18943 | 375867 | 35586 |
| CAMKV | 164076 | 479704 | 3068 | N/A | | L3MBTL2 | 100395 | 216237 | 11006 | 216237 | 30657 | SH3BP4 | 130147 | 484097 | 18944 | N/A | |
| CAMKV | 164076 | 498324 | 3069 | N/A | | L3MBTL2 | 100395 | 481902 | 11007 | N/A | | SH3BP4 | 130147 | 416021 | 18945 | 403251 | 35587 |
| CAMKV | 164076 | 476105 | 3070 | N/A | | L3MBTL2 | 100395 | 489136 | 11008 | N/A | | SH3BP4 | 130147 | 409212 | 18946 | 386862 | 35588 |
| CAMKV | 164076 | 620470 | 3071 | 484045 | 25737 | L3MBTL2 | 100395 | 466589 | 11009 | N/A | | SH3BP4 | 130147 | 489601 | 18947 | N/A | |
| CAP2 | 112186 | 229922 | 3072 | 229922 | 25738 | L3MBTL2 | 100395 | 453659 | 11010 | 405849 | 30658 | SH3BP4 | 130147 | 344528 | 18948 | 340237 | 35589 |
| CAP2 | 112186 | 489374 | 3073 | 417705 | 25739 | L3MBTL2 | 100395 | 479978 | 11011 | N/A | | SH3BP4 | 130147 | 444916 | 18949 | 387995 | 35590 |
| CAP2 | 112186 | 378990 | 3074 | 368275 | 25740 | L3MBTL2 | 100395 | 452106 | 11012 | 414423 | 30659 | SH3BP4 | 130147 | 446904 | 18950 | 415391 | 35591 |
| CAP2 | 112186 | 493172 | 3075 | 417208 | 25741 | L3MBTL2 | 100395 | 449635 | 11013 | 399405 | 30660 | SH3BP4 | 130147 | 462602 | 18951 | N/A | |
| CAP2 | 112186 | 479291 | 3076 | 420615 | 25742 | L3MBTL2 | 100395 | 450939 | 11014 | 403767 | 30661 | SH3BP4 | 130147 | 493436 | 18952 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAP2 | 112186 | 465994 | 3077 | 418604 | 25743 | LACTB2-AS1 | 246366 | 499227 | 11015 | N/A | | SH3BP4 | 130147 | 454947 | 18953 | 414740 | 35592 |
| CAP2 | 112186 | 476263 | 3078 | 419906 | 25744 | LACTB2-AS1 | 246366 | 519358 | 11016 | N/A | | SH3D19 | 109686 | 604922 | 18954 | N/A | |
| CAP2 | 112186 | 616440 | 3079 | 483435 | 25745 | LACTB2-AS1 | 246366 | 518553 | 11017 | N/A | | SH3D19 | 109686 | 409598 | 18955 | 387030 | 35593 |
| CAP2 | 112186 | 611958 | 3080 | 482279 | 25746 | LACTB2-AS1 | 246366 | 518152 | 11018 | N/A | | SH3D19 | 109686 | 409252 | 18956 | 386848 | 35594 |
| CAPN1 | 014216 | 528396 | 3081 | 435847 | 25747 | LACTB2-AS1 | 246366 | 519167 | 11019 | N/A | | SH3D19 | 109686 | 478503 | 18957 | N/A | |
| CAPN1 | 014216 | 529133 | 3082 | 432512 | 25748 | LAMA1 | 101680 | 389658 | 11020 | 374309 | 30662 | SH3D19 | 109686 | 514152 | 18958 | 423449 | 35595 |
| CAPN1 | 014216 | 533820 | 3083 | 435272 | 25749 | LAMA1 | 101680 | 492048 | 11021 | N/A | | SH3D19 | 109686 | 604030 | 18959 | 488951 | 35596 |
| CAPN1 | 014216 | 527739 | 3084 | 433823 | 25750 | LAMA1 | 101680 | 488064 | 11022 | N/A | | SH3D19 | 109686 | 427414 | 18960 | 415694 | 35597 |
| CAPN1 | 014216 | 526966 | 3085 | 431528 | 25751 | LAMA1 | 101680 | 579014 | 11023 | N/A | | SH3D19 | 109686 | 508492 | 18961 | N/A | |
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| CAPN1 | 014216 | 524773 | 3087 | 434176 | 25753 | LAMA1 | 101680 | 490190 | 11025 | N/A | | SH3D19 | 109686 | 604440 | 18963 | N/A | |
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| CAPN1 | 014216 | 532285 | 3091 | 436693 | 25755 | LAMA2 | 196569 | 421865 | 11029 | 400365 | 30664 | SH3GL3 | 140600 | 492099 | 18967 | N/A | |
| CAPN1 | 014216 | 527189 | 3092 | N/A | | LAMA2 | 196569 | 466230 | 11030 | N/A | | SH3GL3 | 140600 | 427482 | 18968 | 391372 | 35600 |
| CAPN1 | 014216 | 527469 | 3093 | N/A | | LAMA2 | 196569 | 498257 | 11031 | N/A | | SH3GL3 | 140600 | 563901 | 18969 | 456249 | 35601 |
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| CAPN1 | 014216 | 531068 | 3096 | 435092 | 25758 | LAMA2 | 196569 | 617695 | 11034 | 481744 | 30666 | SH3GL3 | 140600 | 467735 | 18972 | N/A | |
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| CAPN1 | 014216 | 533909 | 3098 | 435198 | 25760 | LAMA3 | 053747 | 585600 | 11036 | 468316 | 30668 | SH3RF1 | 154447 | 511421 | 18974 | 426418 | 35604 |
| CAPN1 | 014216 | 527323 | 3099 | 431984 | 25761 | LAMA3 | 053747 | 399516 | 11037 | 382432 | 30669 | SH3RF1 | 154447 | 508685 | 18975 | N/A | |
| CAPN1 | 014216 | 526468 | 3100 | 433366 | 25762 | LAMA3 | 053747 | 591749 | 11038 | N/A | | SH3RF1 | 154447 | 502315 | 18976 | 427585 | 35605 |
| CAPN1 | 014216 | 527897 | 3101 | N/A | | LAMA3 | 053747 | 592519 | 11039 | 467662 | 30670 | SH3RF1 | 154447 | 510806 | 18977 | 421714 | 35606 |
| CAPN1 | 014216 | 533079 | 3102 | N/A | | LAMA3 | 053747 | 269217 | 11040 | 269217 | 30671 | SH3RF3 | 172985 | 309415 | 18978 | 309186 | 35607 |
| CAPN1 | 014216 | 527887 | 3103 | N/A | | LAMA3 | 053747 | 587184 | 11041 | 466557 | 30672 | SH3TC2 | 169247 | 504690 | 18979 | 425627 | 35608 |
| CAPN1 | 014216 | 530495 | 3104 | N/A | | LAMA3 | 053747 | 586751 | 11042 | 464836 | 30673 | SH3TC2 | 169247 | 510350 | 18980 | N/A | |
| CAPN1 | 014216 | 525013 | 3105 | N/A | | LAMA3 | 053747 | 588770 | 11043 | N/A | | SH3TC2 | 169247 | 323829 | 18981 | 313025 | 35609 |
| CAPN1 | 014216 | 528165 | 3106 | N/A | | LAMA3 | 053747 | 586709 | 11044 | N/A | | SH3TC2 | 169247 | 515229 | 18982 | N/A | |
| CAPN1 | 014216 | 533704 | 3107 | N/A | | LAMA3 | 053747 | 588164 | 11045 | 467473 | 30674 | SH3TC2 | 169247 | 504517 | 18983 | 421779 | 35610 |
| CAPN1 | 014216 | 530567 | 3108 | N/A | | LAMA3 | 053747 | 592442 | 11046 | N/A | | SH3TC2 | 169247 | 502274 | 18984 | 421092 | 35611 |
| CAPN3 | 092529 | 357568 | 3109 | 350181 | 25763 | LAMA3 | 053747 | 590104 | 11047 | 466658 | 30675 | SH3TC2 | 169247 | 510779 | 18985 | 423940 | 35612 |
| CAPN3 | 092529 | 349748 | 3110 | 183936 | 25764 | LAMA3 | 053747 | 588004 | 11048 | 468315 | 30676 | SH3TC2 | 169247 | 515425 | 18986 | 423660 | 35613 |
| CAPN3 | 092529 | 397163 | 3111 | 380349 | 25765 | LAMA4 | 112769 | 230538 | 11049 | 230538 | 30677 | SH3TC2 | 169247 | 512049 | 18987 | 421860 | 35614 |
| CAPN3 | 092529 | 638141 | 3112 | N/A | | LAMA4 | 112769 | 522006 | 11050 | 429488 | 30678 | SH3TC2 | 169247 | 513604 | 18988 | 423111 | 35615 |
| CAPN3 | 092529 | 397200 | 3113 | 380384 | 25766 | LAMA4 | 112769 | 389463 | 11051 | 374114 | 30679 | SH3TC2 | 169247 | 511307 | 18989 | 421420 | 35616 |
| CAPN3 | 092529 | 569827 | 3114 | 454379 | 25767 | LAMA4 | 112769 | 424408 | 11052 | 416470 | 30680 | SH3TC2 | 169247 | 513340 | 18990 | N/A | |
| CAPN3 | 092529 | 567071 | 3115 | 456607 | 25768 | LAMA4 | 112769 | 604740 | 11053 | N/A | | SH3TC2 | 169247 | 503071 | 18991 | N/A | |
| CAPN3 | 092529 | 337571 | 3116 | 336840 | 25769 | LAMA4 | 112769 | 521693 | 11054 | N/A | | SH3TC2 | 169247 | 511949 | 18992 | N/A | |
| CAPN3 | 092529 | 569136 | 3117 | 455254 | 25770 | LAMA4 | 112769 | 519245 | 11055 | N/A | | SH3TC2 | 169247 | 504091 | 18993 | N/A | |
| CAPN3 | 092529 | 561817 | 3118 | 456575 | 25771 | LAMA4 | 112769 | 523765 | 11056 | 427837 | 30681 | SHANK1 | 161681 | 391813 | 18994 | 375689 | 35617 |
| CAPN3 | 092529 | 565173 | 3119 | N/A | | LAMA4 | 112769 | 521187 | 11057 | N/A | | SHANK1 | 161681 | 293441 | 18995 | 293441 | 35618 |
| CAPN3 | 092529 | 397204 | 3120 | 380387 | 25772 | LAMA4 | 112769 | 521732 | 11058 | 427865 | 30682 | SHANK1 | 161681 | 391814 | 18996 | 375690 | 35619 |
| CAPN3 | 092529 | 565559 | 3121 | 457878 | 25773 | LAMA4 | 112769 | 368640 | 11059 | 357629 | 30683 | SHANK1 | 161681 | 359082 | 18997 | 351984 | 35620 |
| CAPN3 | 092529 | 565274 | 3122 | 457759 | 25774 | LAMA4 | 112769 | 521398 | 11060 | 430336 | 30684 | SHANK1 | 161681 | 483981 | 18998 | N/A | |
| CAPN3 | 092529 | 564503 | 3123 | 457898 | 25775 | LAMA4 | 112769 | 518842 | 11061 | N/A | | SHANK1 | 161681 | 468654 | 18999 | 469719 | 35621 |
| CAPN3 | 092529 | 466222 | 3124 | N/A | | LAMA4 | 112769 | 524032 | 11062 | N/A | | SHANK1 | 161681 | 461154 | 19000 | N/A | |
| CAPN3 | 092529 | 562199 | 3125 | N/A | | LAMA4 | 112769 | 423735 | 11063 | N/A | | SHANK1 | 161681 | 483128 | 19001 | N/A | |
| CAPN3 | 092529 | 567817 | 3126 | 456514 | 25776 | LAMA4 | 112769 | 519932 | 11064 | 428583 | 30685 | SHANK2 | 162105 | 608988 | 19002 | 476264 | 35622 |
| CAPN3 | 092529 | 568153 | 3127 | 454937 | 25777 | LAMA4 | 112769 | 431543 | 11065 | 412136 | 30686 | SHANK2 | 162105 | 618363 | 19003 | 482553 | 35623 |
| CAPN3 | 092529 | 356316 | 3128 | 348667 | 25778 | LAMA4 | 112769 | 243219 | 11066 | 243219 | 30687 | SHANK2 | 162105 | 425049 | 19004 | 392674 | 35624 |
| CAPN3 | 092529 | 318023 | 3129 | 326281 | 25779 | LAMA4 | 112769 | 521690 | 11067 | 430415 | 30688 | SHANK2 | 162105 | 498519 | 19005 | N/A | |
| CAPN5 | 149260 | 531028 | 3130 | 467244 | 25780 | LAMA4 | 112769 | 368638 | 11068 | 357627 | 30689 | SHANK2 | 162105 | 468619 | 19006 | 483920 | 35625 |
| CAPN5 | 149260 | 278559 | 3131 | 278559 | 25781 | LAMA4 | 112769 | 453937 | 11069 | 398226 | 30690 | SHANK2 | 162105 | 470759 | 19007 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAPN5 | 149260 | 527066 | 3132 | 435894 | 25782 | LAMA4 | 112769 | 455073 | 11070 | 408604 | 30691 | SHANK2 | 162105 | 409530 | 19008 | 387324 | 35626 |
| CAPN5 | 149260 | 529629 | 3133 | 432332 | 25783 | LAMB1 | 091136 | 472714 | 11071 | N/A | | SHANK2 | 162105 | 412252 | 19009 | 414876 | 35627 |
| CAPN5 | 149260 | 456580 | 3134 | 409996 | 25784 | LAMB1 | 091136 | 393561 | 11072 | 377191 | 30692 | SHANK2 | 162105 | 606715 | 19010 | N/A | |
| CAPN5 | 149260 | 533889 | 3135 | N/A | | LAMB1 | 091136 | 222399 | 11073 | 222399 | 30693 | SHANK2 | 162105 | 449833 | 19011 | 399423 | 35628 |
| CAPN5 | 149260 | 527129 | 3136 | N/A | | LAMB1 | 091136 | 474380 | 11074 | N/A | | SHANK2 | 162105 | 357171 | 19012 | 349694 | 35629 |
| CAPN9 | 135773 | 271971 | 3137 | 271971 | 25785 | LAMB1 | 091136 | 468518 | 11075 | N/A | | SHANK2 | 162105 | 482659 | 19013 | N/A | |
| CAPN9 | 135773 | 354537 | 3138 | 346538 | 25786 | LAMB1 | 091136 | 491196 | 11076 | N/A | | SHANK2 | 162105 | 458632 | 19014 | 390636 | 35630 |
| CAPN9 | 135773 | 480004 | 3139 | N/A | | LAMB1 | 091136 | 470995 | 11077 | N/A | | SHANK2 | 162105 | 460048 | 19015 | N/A | |
| CAPN9 | 135773 | 366666 | 3140 | 355626 | 25787 | LAMB1 | 091136 | 468999 | 11078 | N/A | | SHANK2 | 162105 | 445654 | 19016 | N/A | |
| CAPZB | 077549 | 264203 | 3141 | 264203 | 25788 | LAMB1 | 091136 | 476039 | 11079 | N/A | | SHANK2 | 162105 | 426687 | 19017 | 391570 | 35631 |
| CAPZB | 077549 | 375144 | 3142 | 364286 | 25789 | LAMB1 | 091136 | 479448 | 11080 | N/A | | SHANK2 | 162105 | 449116 | 19018 | 394939 | 35632 |
| CAPZB | 077549 | 375142 | 3143 | 364284 | 25790 | LAMB1 | 091136 | 393560 | 11081 | 377190 | 30694 | SHANK2 | 162105 | 601538 | 19019 | 469689 | 35633 |
| CAPZB | 077549 | 433834 | 3144 | 401010 | 25791 | LAMB1 | 091136 | 439976 | 11082 | 412686 | 30695 | SHANK2 | 162105 | 338508 | 19020 | 345193 | 35634 |
| CAPZB | 077549 | 264202 | 3145 | 264202 | 25792 | LAMB1 | 091136 | 393559 | 11083 | 377189 | 30696 | SHANK2 | 162105 | 424924 | 19021 | 402944 | 35635 |
| CAPZB | 077549 | 459967 | 3146 | N/A | | LAMB2 | 172037 | 467506 | 11084 | N/A | | SHANK2 | 162105 | 409161 | 19022 | 386491 | 35636 |
| CAPZB | 077549 | 457768 | 3147 | N/A | | LAMB2 | 172037 | 418109 | 11085 | 388325 | 30697 | SHANK3 | 251322 | 414786 | 19023 | N/A | |
| CAPZB | 077549 | 489607 | 3148 | N/A | | LAMB2 | 172037 | 484713 | 11086 | N/A | | SHANK3 | 251322 | 445220 | 19024 | 489407 | 35637 |
| CAPZB | 077549 | 482808 | 3149 | N/A | | LAMB2 | 172037 | 305544 | 11087 | 307156 | 30698 | SHANK3 | 251322 | 262795 | 19025 | 489147 | 35638 |
| CA12 | 074410 | 178638 | 3150 | 178638 | 25793 | LAMB2 | 172037 | 498377 | 11088 | N/A | | SHANK3 | 283243 | 635818 | 19026 | 490818 | 35639 |
| CA12 | 074410 | 344366 | 3151 | 343088 | 25794 | LAMB2 | 172037 | 469665 | 11089 | N/A | | SHC3 | 148082 | 375835 | 19027 | 364995 | 35640 |
| CA12 | 074410 | 422263 | 3152 | 403028 | 25795 | LAMB2 | 172037 | 477225 | 11090 | N/A | | SHC3 | 148082 | 375831 | 19028 | 364991 | 35641 |
| CA12 | 074410 | 560666 | 3153 | N/A | | LAMB2 | 172037 | 480640 | 11091 | N/A | | SHC4 | 185634 | 332408 | 19029 | 329668 | 35642 |
| CA12 | 074410 | 558287 | 3154 | N/A | | LAMB2 | 172037 | 538659 | 11092 | N/A | | SHC4 | 185634 | 396535 | 19030 | 379786 | 35643 |
| CA12 | 074410 | 560293 | 3155 | N/A | | LAMB2 | 172037 | 542580 | 11093 | N/A | | SHC4 | 185634 | 537958 | 19031 | 443300 | 35644 |
| CA14 | 118298 | 369111 | 3156 | 358107 | 25796 | LAMB2 | 172037 | 462930 | 11094 | N/A | | SHC4 | 185634 | 557797 | 19032 | 453344 | 35645 |
| CA14 | 118298 | 582010 | 3157 | N/A | | LAMB2 | 172037 | 464891 | 11095 | N/A | | SHC4 | 185634 | 558220 | 19033 | 453397 | 35646 |
| CA14 | 118298 | 607652 | 3158 | N/A | | LAMB2 | 172037 | 483057 | 11096 | N/A | | SHC4 | 185634 | 559289 | 19034 | N/A | |
| CA14 | 118298 | 483993 | 3159 | 475869 | 25797 | LAMB2 | 172037 | 486298 | 11097 | N/A | | SHF | 138606 | 560540 | 19035 | 453370 | 35647 |
| CA14 | 118298 | 607082 | 3160 | 475238 | 25798 | LAMB2 | 172037 | 477701 | 11098 | N/A | | SHF | 138606 | 290894 | 19036 | 290894 | 35648 |
| CA2 | 104267 | 285379 | 3161 | 285379 | 25799 | LAMB2 | 172037 | 493571 | 11099 | N/A | | SHF | 138606 | 560734 | 19037 | 453168 | 35649 |
| CA2 | 104267 | 520127 | 3162 | 428443 | 25800 | LAMB2 | 172037 | 488638 | 11100 | N/A | | SHF | 138606 | 458022 | 19038 | 411530 | 35650 |
| CA2 | 104267 | 520996 | 3163 | N/A | | LAMB2 | 172037 | 483321 | 11101 | N/A | | SHF | 138606 | 558294 | 19039 | 454034 | 35651 |
| CA2 | 104267 | 518231 | 3164 | N/A | | LAMB2 | 172037 | 494831 | 11102 | 444751 | 30699 | SHF | 138606 | 561239 | 19040 | 453676 | 35652 |
| CA2 | 104267 | 522742 | 3165 | 428947 | 25801 | LAMP5 | 125869 | 427562 | 11103 | 406360 | 30700 | SHF | 138606 | 560471 | 19041 | 453260 | 35653 |
| CA4 | 167434 | 300900 | 3166 | 300900 | 25802 | LAMP5 | 125869 | 246070 | 11104 | 246070 | 30701 | SHF | 138606 | 559566 | 19042 | 452726 | 35654 |
| CA4 | 167434 | 585705 | 3167 | N/A | | LAPTM4B | 104341 | 445593 | 11105 | 402301 | 30702 | SHF | 138606 | 558685 | 19043 | 453827 | 35655 |
| CA4 | 167434 | 591725 | 3168 | 466964 | 25803 | LAPTM4B | 104341 | 521545 | 11106 | 428409 | 30703 | SHF | 138606 | 561091 | 19044 | N/A | |
| CA4 | 167434 | 586876 | 3169 | 467465 | 25804 | LAPTM4B | 104341 | 517924 | 11107 | 429868 | 30704 | SHF | 138606 | 561278 | 19045 | 453986 | 35656 |
| CA4 | 167434 | 590203 | 3170 | 465837 | 25805 | LAPTM4B | 104341 | 619747 | 11108 | 482533 | 30705 | SHISA6 | 188803 | 441885 | 19046 | 390084 | 35657 |
| CA4 | 167434 | 587265 | 3171 | 464757 | 25806 | LARP6 | 166173 | 299213 | 11109 | 299213 | 30706 | SHISA6 | 188803 | 432116 | 19047 | 388659 | 35658 |
| CA8 | 178538 | 317995 | 3172 | 314407 | 25807 | LARP6 | 166173 | 559316 | 11110 | 467334 | 30707 | SHISA6 | 188803 | 409168 | 19048 | 387157 | 35659 |
| CA8 | 178538 | 524872 | 3173 | N/A | | LARP6 | 166173 | 560052 | 11111 | N/A | | SHISA6 | 188803 | 343478 | 19049 | 477331 | 35660 |
| CA8 | 178538 | 528666 | 3174 | N/A | | LARP6 | 166173 | 344870 | 11112 | 343869 | 30708 | SHISA7 | 187902 | 376325 | 19050 | 365503 | 35661 |
| CA8 | 178538 | 529918 | 3175 | N/A | | LARP6 | 166173 | 559140 | 11113 | 453551 | 30709 | SHISA7 | 187902 | 416792 | 19051 | 401307 | 35662 |
| CARMIL1 | 079691 | 461945 | 3176 | 489403 | 25808 | LARS2 | 011376 | 265537 | 11114 | 265537 | 30710 | SHISA8 | 234965 | 457093 | 19052 | 389964 | 35663 |
| CARMIL1 | 079691 | 329474 | 3177 | 331983 | 25809 | LARS2 | 011376 | 415258 | 11115 | 408576 | 30711 | SHISA8 | 234965 | 621082 | 19053 | 481203 | 35664 |
| CARMIL1 | 079691 | 497227 | 3178 | N/A | | LARS2 | 011376 | 431023 | 11116 | 406611 | 30712 | SHROOM2 | 146950 | 380913 | 19054 | 370299 | 35665 |
| CARMIL1 | 079691 | 635618 | 3179 | 489114 | 25810 | LARS2 | 011376 | 414984 | 11117 | 412893 | 30713 | SHROOM2 | 146950 | 493668 | 19055 | N/A | |
| CARMIL1 | 079691 | 476458 | 3180 | N/A | | LARS2 | 011376 | 430399 | 11118 | 401388 | 30714 | SHROOM2 | 146950 | 452575 | 19056 | 406724 | 35666 |
| CARNS1 | 172508 | 525907 | 3181 | N/A | | LARS2 | 011376 | 467936 | 11119 | N/A | | SHROOM2 | 146950 | 418909 | 19057 | 415229 | 35667 |
| CARNS1 | 172508 | 529925 | 3182 | N/A | | LARS2 | 011376 | 485461 | 11120 | N/A | | SHROOM3 | 138771 | 296043 | 19058 | 296043 | 35668 |
| CARNS1 | 172508 | 531040 | 3183 | 431670 | 25811 | LARS2 | 011376 | 474585 | 11121 | N/A | | SHROOM3 | 138771 | 497440 | 19059 | N/A | |
| CARNS1 | 172508 | 531958 | 3184 | N/A | | LBH | 213626 | 395323 | 11122 | 378733 | 30715 | SHROOM3 | 138771 | 466541 | 19060 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CARNS1 | 172508 | 307823 | 3185 | 308268 | 25812 | LBH | 213626 | 412933 | 11123 | 392167 | 30716 | SHROOM3 | 138771 | 469923 | 19061 | N/A | |
| CARNS1 | 172508 | 531388 | 3186 | N/A | | LBH | 213626 | 464412 | 11124 | N/A | | SHROOM3 | 138771 | 490690 | 19062 | N/A | |
| CARNS1 | 172508 | 445895 | 3187 | 389009 | 25813 | LBH | 213626 | 406087 | 11125 | 385409 | 30717 | SHROOM3 | 138771 | 481002 | 19063 | N/A | |
| CASP12 | 204403 | 613512 | 3188 | 482745 | 25814 | LBH | 213626 | 404397 | 11126 | 384443 | 30718 | SHROOM3 | 138771 | 485780 | 19064 | N/A | |
| CASP12 | 204403 | 458137 | 3189 | 421408 | 25815 | LBH | 213626 | 401506 | 11127 | 385703 | 30719 | SHROOM3 | 138771 | 484236 | 19065 | N/A | |
| CASP12 | 204403 | 375726 | 3190 | 424038 | 25816 | LBH | 213626 | 467242 | 11128 | N/A | | SHROOM3 | 138771 | 486758 | 19066 | N/A | |
| CASP12 | 204403 | 447913 | 3191 | 426427 | 25817 | LBH | 213626 | 407930 | 11129 | 386106 | 30720 | SHROOM3 | 138771 | 473602 | 19067 | N/A | |
| CASP12 | 204403 | 446862 | 3192 | 425652 | 25818 | LBH | 213626 | 484150 | 11130 | N/A | | SHROOM4 | 158352 | 289292 | 19068 | 289292 | 35669 |
| CASP12 | 204403 | 441710 | 3193 | 423970 | 25819 | LBX1 | 138136 | 370193 | 11131 | 359212 | 30721 | SHROOM4 | 158352 | 483955 | 19069 | N/A | |
| CASP12 | 204403 | 433738 | 3194 | 427437 | 25820 | LCAT | 213398 | 264005 | 11132 | 264005 | 30722 | SHROOM4 | 158352 | 460112 | 19070 | 421450 | 35670 |
| CASP12 | 204403 | 448103 | 3195 | 423899 | 25821 | LCAT | 213398 | 573538 | 11133 | 463220 | 30723 | SHROOM4 | 158352 | 484922 | 19071 | N/A | |
| CASP12 | 204403 | 417998 | 3196 | 424963 | 25822 | LCAT | 213398 | 570369 | 11134 | 459014 | 30724 | SHROOM4 | 158352 | 376020 | 19072 | 365188 | 35671 |
| CASP12 | 204403 | 494737 | 3197 | 421815 | 25823 | LCAT | 213398 | 570980 | 11135 | 464651 | 30725 | SHTN1 | 187164 | 615301 | 19073 | 480109 | 35672 |
| CASP12 | 204403 | 508062 | 3198 | 426566 | 25824 | LCAT | 213398 | 575467 | 11136 | 460653 | 30726 | SHTN1 | 187164 | 497044 | 19074 | N/A | |
| CASP12 | 204403 | 422698 | 3199 | 427128 | 25825 | LCAT | 213398 | 576450 | 11137 | 458141 | 30727 | SHTN1 | 187164 | 392901 | 19075 | 376635 | 35673 |
| CASP3 | 164305 | 393585 | 3200 | 377210 | 25826 | LCAT | 213398 | 570396 | 11138 | 459291 | 30728 | SHTN1 | 187164 | 490615 | 19076 | N/A | |
| CASP3 | 164305 | 308394 | 3201 | 311032 | 25827 | LCAT | 213398 | 573846 | 11139 | N/A | | SHTN1 | 187164 | 260777 | 19077 | 260777 | 35674 |
| CASP3 | 164305 | 523916 | 3202 | 428929 | 25828 | LCAT | 213398 | 575277 | 11140 | N/A | | SHTN1 | 187164 | 392903 | 19078 | 376636 | 35675 |
| CASP3 | 164305 | 517513 | 3203 | 428372 | 25829 | LCN8 | 204001 | 480597 | 11141 | N/A | | SHTN1 | 187164 | 355371 | 19079 | 347532 | 35676 |
| CASP3 | 164305 | 393588 | 3204 | 377213 | 25830 | LCN8 | 204001 | 479767 | 11142 | N/A | | SIAH2 | 181788 | 312960 | 19080 | 322457 | 35677 |
| CASP3 | 164305 | 447121 | 3205 | 407142 | 25831 | LCN8 | 204001 | 482893 | 11143 | N/A | | SIAH2 | 181788 | 482706 | 19081 | 417619 | 35678 |
| CASP4 | 196954 | 525116 | 3206 | N/A | | LCN8 | 204001 | 371688 | 11144 | 360753 | 30729 | SIAH2 | 181788 | 472885 | 19082 | N/A | |
| CASP4 | 196954 | 444739 | 3207 | 388566 | 25832 | LCN8 | 204001 | 612714 | 11145 | 482512 | 30730 | SIAH3 | 215475 | 400405 | 19083 | 383256 | 35679 |
| CASP4 | 196954 | 393150 | 3208 | 376857 | 25833 | LCORL | 178177 | 635767 | 11146 | 490600 | 30731 | SIDT1 | 072858 | 264852 | 19084 | 264852 | 35680 |
| CASP4 | 196954 | 533252 | 3209 | 432879 | 25834 | LCORL | 178177 | 326877 | 11147 | 317566 | 30732 | SIDT1 | 072858 | 491730 | 19085 | N/A | |
| CASP4 | 196954 | 529565 | 3210 | N/A | | LCORL | 178177 | 637787 | 11148 | 490873 | 30733 | SIDT1 | 072858 | 483946 | 19086 | N/A | |
| CASP4 | 196954 | 530309 | 3211 | N/A | | LCORL | 178177 | 510451 | 11149 | 423489 | 30734 | SIDT1 | 072858 | 488390 | 19087 | N/A | |
| CASP4 | 196954 | 533730 | 3212 | N/A | | LCORL | 178177 | 510121 | 11150 | N/A | | SIDT1 | 072858 | 480746 | 19088 | N/A | |
| CASP4 | 196954 | 534356 | 3213 | N/A | | LCORL | 178177 | 382224 | 11151 | 371659 | 30735 | SIDT1 | 072858 | 468728 | 19089 | N/A | |
| CASP4 | 196954 | 529183 | 3214 | N/A | | LCORL | 178177 | 512376 | 11152 | N/A | | SIDT1 | 072858 | 463226 | 19090 | N/A | |
| CASP4 | 196954 | 524843 | 3215 | N/A | | LCORL | 178177 | 382226 | 11153 | 371661 | 30736 | SIDT1 | 072858 | 465803 | 19091 | N/A | |
| CASP4 | 196954 | 531333 | 3216 | N/A | | LDAH | 118961 | 403006 | 11154 | 384267 | 30737 | SIDT1 | 072858 | 492863 | 19092 | N/A | |
| CASP4 | 196954 | 417440 | 3217 | 401673 | 25835 | LDAH | 118961 | 381090 | 11155 | 370480 | 30738 | SIDT1 | 072858 | 481891 | 19093 | N/A | |
| CASP4 | 196954 | 531546 | 3218 | N/A | | LDAH | 118961 | 470099 | 11156 | N/A | | SIDT1 | 072858 | 498152 | 19094 | N/A | |
| CASP9 | 132906 | 546424 | 3219 | 449584 | 25836 | LDAH | 118961 | 237822 | 11157 | 237822 | 30739 | SIDT1 | 072858 | 393830 | 19095 | 377416 | 35681 |
| CASP9 | 132906 | 333868 | 3220 | 330237 | 25837 | LDAH | 118961 | 626491 | 11158 | 487592 | 30740 | SIK3 | 160584 | 488337 | 19096 | N/A | |
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| CASP9 | 132906 | 424908 | 3223 | 408691 | 25840 | LDAH | 118961 | 402479 | 11161 | 385951 | 30743 | SIK3 | 160584 | 454905 | 19099 | 392849 | 35684 |
| CASP9 | 132906 | 375890 | 3224 | 365051 | 25841 | LDAH | 118961 | 419825 | 11162 | 414710 | 30744 | SIK3 | 160584 | 465421 | 19100 | N/A | |
| CASP9 | 132906 | 474305 | 3225 | 449216 | 25842 | LDAH | 118961 | 619656 | 11163 | 483067 | 30745 | SIK3 | 160584 | 415541 | 19101 | 392761 | 35685 |
| CASP9 | 132906 | 447522 | 3226 | 396540 | 25843 | LDAH | 118961 | 541941 | 11164 | 440570 | 30746 | SIK3 | 160584 | 446921 | 19102 | 390442 | 35686 |
| CASP9 | 132906 | 440484 | 3227 | 411304 | 25844 | LDAH | 118961 | 440866 | 11165 | 400340 | 30747 | SIK3 | 160584 | 480468 | 19103 | N/A | |
| CASP9 | 132906 | 546969 | 3228 | N/A | | LDAH | 118961 | 435420 | 11166 | 388635 | 30748 | SIK3 | 160584 | 480222 | 19104 | N/A | |
| CASP9 | 132906 | 469637 | 3229 | 480785 | 25845 | LDB2 | 169744 | 515064 | 11167 | 422552 | 30749 | SIK3 | 160584 | 413553 | 19105 | 414347 | 35687 |
| CASQ2 | 118729 | 261448 | 3230 | 261448 | 25846 | LDB2 | 169744 | 441778 | 11168 | 392089 | 30750 | SIK3 | 160584 | 472648 | 19106 | N/A | |
| CASQ2 | 118729 | 488931 | 3231 | N/A | | LDB2 | 169744 | 304523 | 11169 | 306772 | 30751 | SIK3 | 160584 | 497049 | 19107 | N/A | |
| CATSPERG | 099338 | 410018 | 3232 | 387057 | 25847 | LDB2 | 169744 | 509803 | 11170 | N/A | | SIK3 | 160584 | 485363 | 19108 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CATSPERG | 099338 | 409235 | 3233 | 386962 | 25848 | LDB2 | 169744 | 502640 | 11171 | 423963 | 30752 | SIPA1L1 | 197555 | 553453 | 19109 | N/A | |
| CATSPERG | 099338 | 312265 | 3234 | 311314 | 25849 | LDB2 | 169744 | 507464 | 11172 | 425754 | 30753 | SIPA1L1 | 197555 | 555989 | 19110 | N/A | |
| CATSPERG | 099338 | 471517 | 3235 | 468028 | 25850 | LDB2 | 169744 | 508918 | 11173 | 424770 | 30754 | SIPA1L1 | 197555 | 556408 | 19111 | N/A | |
| CATSPERG | 099338 | 475343 | 3236 | 467947 | 25851 | LDB2 | 169744 | 512345 | 11174 | 424676 | 30755 | SIPA1L1 | 197555 | 554126 | 19112 | N/A | |
| CATSPERG | 099338 | 409410 | 3237 | 386950 | 25852 | LDB2 | 169744 | 503153 | 11175 | N/A | | SIPA1L1 | 197555 | 556780 | 19113 | N/A | |
| CATSPERG | 099338 | 477793 | 3238 | N/A | | LDB2 | 169744 | 504886 | 11176 | N/A | | SIPA1L1 | 197555 | 554362 | 19114 | N/A | |
| CATSPERG | 099338 | 466060 | 3239 | N/A | | LDB2 | 169744 | 506732 | 11177 | 421767 | 30756 | SIPA1L1 | 197555 | 555652 | 19115 | N/A | |
| CATSPERG | 099338 | 412458 | 3240 | 395093 | 25853 | LDB2 | 169744 | 503829 | 11178 | N/A | | SIPA1L1 | 197555 | 557151 | 19116 | 452080 | 35688 |
| CATSPERG | 099338 | 475646 | 3241 | N/A | | LDB2 | 169744 | 508804 | 11179 | N/A | | SIPA1L1 | 197555 | 557469 | 19117 | N/A | |
| CATSPERG | 099338 | 488473 | 3242 | N/A | | LDB2 | 169744 | 513457 | 11180 | N/A | | SIPA1L1 | 197555 | 557712 | 19118 | N/A | |
| CATSPERG | 099338 | 467739 | 3243 | N/A | | LDB2 | 169744 | 510825 | 11181 | N/A | | SIPA1L1 | 197555 | 381232 | 19119 | 370630 | 35689 |
| CATSPERG | 099338 | 489693 | 3244 | 470225 | 25854 | LDB2 | 169744 | 504189 | 11182 | N/A | | SIPA1L1 | 197555 | 555818 | 19120 | 450832 | 35690 |
| CATSPERG | 099338 | 470292 | 3245 | N/A | | LDB3 | 122367 | 623056 | 11183 | 485500 | 30757 | SIPA1L1 | 197555 | 358550 | 19121 | 351352 | 35691 |
| CATSPERG | 099338 | 585424 | 3246 | N/A | | LDB3 | 122367 | 372066 | 11184 | 361136 | 30758 | SIPA1L1 | 197555 | 537413 | 19122 | 440682 | 35692 |
| CATSPERG | 099338 | 492088 | 3247 | N/A | | LDB3 | 122367 | 361373 | 11185 | 355296 | 30759 | SIPA1L1 | 197555 | 555066 | 19123 | 452450 | 35693 |
| CAV1 | 105974 | 341049 | 3248 | 339191 | 25855 | LDB3 | 122367 | 623007 | 11186 | 485389 | 30760 | SIPA1L1 | 197555 | 554960 | 19124 | N/A | |
| CAV1 | 105974 | 393470 | 3249 | 377113 | 25856 | LDB3 | 122367 | 372056 | 11187 | 361126 | 30761 | SIPA1L1 | 197555 | 554874 | 19125 | N/A | |
| CAV1 | 105974 | 451122 | 3250 | 409541 | 25857 | LDB3 | 122367 | 263066 | 11188 | 263066 | 30762 | SIPA1L1 | 197555 | 556959 | 19126 | N/A | |
| CAV1 | 105974 | 489856 | 3251 | N/A | | LDB3 | 122367 | 477489 | 11189 | 485538 | 30763 | SIPA1L2 | 116991 | 366630 | 19127 | 355589 | 35694 |
| CAV1 | 105974 | 405348 | 3252 | 384348 | 25858 | LDB3 | 122367 | 429277 | 11190 | 401437 | 30764 | SIPA1L2 | 116991 | 308942 | 19128 | 309102 | 35695 |
| CAV1 | 105974 | 456473 | 3253 | 389033 | 25859 | LDB3 | 122367 | 542786 | 11191 | 438866 | 30765 | SIPA1L2 | 116991 | 486472 | 19129 | N/A | |
| CAV1 | 105974 | 393468 | 3254 | 377111 | 25860 | CNMD | 136110 | 448904 | 11192 | 388576 | 30766 | SIPA1L2 | 116991 | 495863 | 19130 | N/A | |
| CAV1 | 105974 | 393467 | 3255 | 377110 | 25861 | CNMD | 136110 | 377962 | 11193 | 367198 | 30767 | SIPA1L2 | 116991 | 494056 | 19131 | N/A | |
| CAV1 | 105974 | 614113 | 3256 | 479447 | 25862 | CNMD | 136110 | 431550 | 11194 | 396035 | 30768 | SIPA1L2 | 116991 | 262861 | 19132 | 262861 | 35696 |
| CAV2 | 105971 | 490906 | 3257 | N/A | | LECT2 | 145826 | 522943 | 11195 | 429618 | 30769 | SIPA1L3 | 105738 | 222345 | 19133 | 222345 | 35697 |
| CAV2 | 105971 | 460222 | 3258 | N/A | | LECT2 | 145826 | 471827 | 11196 | N/A | | SIPA1L3 | 105738 | 599644 | 19134 | N/A | |
| CAV2 | 105971 | 477018 | 3259 | N/A | | LECT2 | 145826 | 274507 | 11197 | 274507 | 30770 | SIPA1L3 | 105738 | 476317 | 19135 | N/A | |
| CAV2 | 105971 | 467035 | 3260 | N/A | | LECT2 | 145826 | 512872 | 11198 | 427012 | 30771 | SIPA1L3 | 105738 | 595982 | 19136 | N/A | |
| CAV2 | 105971 | 484871 | 3261 | N/A | | LECT2 | 145826 | 514447 | 11199 | 421123 | 30772 | SIPA1L3 | 105738 | 595384 | 19137 | 468981 | 35698 |
| CAV2 | 105971 | 485561 | 3262 | N/A | | LENG9 | 274495 | 614111 | 11200 | 483600 | 30773 | SIPA1L3 | 105738 | 601222 | 19138 | N/A | |
| CAV2 | 105971 | 472470 | 3263 | N/A | | LENG9 | 275183 | 611161 | 11201 | 479355 | 30774 | SIPA1L3 | 105738 | 594553 | 19139 | N/A | |
| CAV2 | 105971 | 498493 | 3264 | N/A | | LENG9 | 273574 | 622419 | 11202 | 477636 | 30775 | SIPA1L3 | 105738 | 601881 | 19140 | N/A | |
| CAV2 | 105971 | 478226 | 3265 | N/A | | LENG9 | 278312 | 622643 | 11203 | 478498 | 30776 | SIPA1L3 | 105738 | 600919 | 19141 | N/A | |
| CAV2 | 105971 | 462876 | 3266 | N/A | | LFNG | 106003 | 402506 | 11204 | 385764 | 30777 | SIPA1L3 | 105738 | 595495 | 19142 | N/A | |
| CAV2 | 105971 | 465451 | 3267 | N/A | | LFNG | 106003 | 402045 | 11205 | 384786 | 30778 | SIPA1L3 | 105738 | 601054 | 19143 | 472734 | 35699 |
| CAV2 | 105971 | 222693 | 3268 | 222693 | 25863 | LFNG | 106003 | 222725 | 11206 | 222725 | 30779 | SIPA1L3 | 105738 | 596403 | 19144 | N/A | |
| CAV2 | 105971 | 343213 | 3269 | 345679 | 25864 | LFNG | 106003 | 359574 | 11207 | 352579 | 30780 | SIRPA | 198053 | 622179 | 19145 | 478763 | 35700 |
| CAV2 | 105971 | 393480 | 3270 | 377120 | 25865 | LFNG | 106003 | 493850 | 11208 | N/A | | SIRPA | 198053 | 356025 | 19146 | 348307 | 35701 |
| CAV2 | 105971 | 495841 | 3271 | N/A | | LFNG | 106003 | 338732 | 11209 | 343095 | 30781 | SIRPA | 198053 | 358771 | 19147 | 351621 | 35702 |
| CBFA2T3 | 129993 | 327483 | 3272 | 332122 | 25866 | LFNG | 106003 | 614382 | 11210 | 483986 | 30782 | SIRPA | 198053 | 400068 | 19148 | 382941 | 35703 |
| CBFA2T3 | 129993 | 268679 | 3273 | 268679 | 25867 | LGALS3 | 131981 | 553493 | 11211 | 451526 | 30783 | SIX4 | 100625 | 216513 | 19149 | 216513 | 35704 |
| CBFA2T3 | 129993 | 563856 | 3274 | N/A | | LGALS3 | 131981 | 254301 | 11212 | 254301 | 30784 | SIX4 | 100625 | 554079 | 19150 | N/A | |
| CBFA2T3 | 129993 | 563920 | 3275 | N/A | | LGALS3 | 131981 | 553755 | 11213 | N/A | | SIX4 | 100625 | 556952 | 19151 | 450761 | 35705 |
| CBFA2T3 | 129993 | 566868 | 3276 | 464125 | 25868 | LGALS3 | 131981 | 554715 | 11214 | 451381 | 30785 | SKAP2 | 005020 | 345317 | 19152 | 005587 | 35706 |
| CBFA2T3 | 129993 | 569464 | 3277 | 454851 | 25869 | LGALS3 | 131981 | 556438 | 11215 | N/A | | SKAP2 | 005020 | 489977 | 19153 | N/A | |
| CBFA2T3 | 129993 | 569443 | 3278 | 457410 | 25870 | LGALS3 | 131981 | 556322 | 11216 | N/A | | SKAP2 | 005020 | 468712 | 19154 | N/A | |
| CBFA2T3 | 129993 | 562719 | 3279 | 456717 | 25871 | LGALS3 | 131981 | 556263 | 11217 | N/A | | SKAP2 | 005020 | 495802 | 19155 | N/A | |
| CBFA2T3 | 129993 | 563640 | 3280 | 454872 | 25872 | LGI2 | 153012 | 382114 | 11218 | 371548 | 30786 | SKAP2 | 005020 | 432747 | 19156 | 408163 | 35707 |
| CBFA2T3 | 129993 | 564416 | 3281 | 454609 | 25873 | LGI2 | 153012 | 512108 | 11219 | 426254 | 30787 | SKAP2 | 005020 | 490456 | 19157 | N/A | |
| CBFA2T3 | 129993 | 570046 | 3282 | 456102 | 25874 | LGI4 | 153902 | 310123 | 11220 | 312273 | 30788 | SKAP2 | 005020 | 497511 | 19158 | N/A | |
| CBFB | 067955 | 561924 | 3283 | 462273 | 25875 | LGI4 | 153902 | 392225 | 11221 | 376059 | 30789 | SKAP2 | 005020 | 481204 | 19159 | N/A | |
| CBFB | 067955 | 290858 | 3284 | 290858 | 25876 | LGI4 | 153902 | 493050 | 11222 | N/A | | SKAP2 | 005020 | 487720 | 19160 | N/A | |
| CBFB | 067955 | 564034 | 3285 | 456637 | 25877 | LGI4 | 153902 | 587780 | 11223 | 467044 | 30790 | SKOR1 | 188779 | 341418 | 19161 | 343200 | 35708 |
| CBFB | 067955 | 412916 | 3286 | 415151 | 25878 | LGI4 | 153902 | 591840 | 11224 | N/A | | SKOR1 | 188779 | 554240 | 19162 | 451193 | 35709 |
| CBFB | 067955 | 565389 | 3287 | 462932 | 25879 | LGI4 | 153902 | 593248 | 11225 | N/A | | SKOR1 | 188779 | 554054 | 19163 | 452361 | 35710 |
| CBFB | 067955 | 563939 | 3288 | 462148 | 25880 | LGI4 | 153902 | 591633 | 11226 | 467784 | 30791 | SKOR1 | 188779 | 380035 | 19164 | 369374 | 35711 |
| CBFB | 067955 | 567947 | 3289 | N/A | | LGI4 | 153902 | 473160 | 11227 | N/A | | SKOR2 | 215474 | 425639 | 19165 | 414750 | 35712 |
| CBFB | 067955 | 566281 | 3290 | N/A | | LGI4 | 153902 | 592346 | 11228 | N/A | | SKOR2 | 215474 | 400404 | 19166 | 383255 | 35713 |
| CBFB | 067955 | 568858 | 3291 | N/A | | LGR5 | 139292 | 266674 | 11229 | 266674 | 30792 | SKOR2 | 215474 | 620245 | 19167 | 483333 | 35714 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBLB | 114423 | 394030 | 3292 | 377598 | 25881 | LGR5 | 139292 | 550851 | 11230 | N/A | | SLC12A2 | 064651 | 262461 | 19168 | 262461 | 35715 |
| CBLB | 114423 | 264122 | 3293 | 264122 | 25882 | LGR5 | 139292 | 536515 | 11231 | 443033 | 30793 | SLC12A2 | 064651 | 509205 | 19169 | 427109 | 35716 |
| CBLB | 114423 | 476370 | 3294 | N/A | | LGR5 | 139292 | 540815 | 11232 | 441035 | 30794 | SLC12A2 | 064651 | 343225 | 19170 | 340878 | 35717 |
| CBLB | 114423 | 407712 | 3295 | 384170 | 25883 | LGR5 | 139292 | 549015 | 11233 | N/A | | SLC12A2 | 064651 | 504416 | 19171 | N/A | |
| CBLB | 114423 | 403724 | 3296 | 384816 | 25884 | LGR5 | 139292 | 547310 | 11234 | N/A | | SLC12A2 | 064651 | 509616 | 19172 | N/A | |
| CBLB | 114423 | 405772 | 3297 | 384938 | 25885 | LGR6 | 133067 | 367278 | 11235 | 356247 | 30795 | SLC12A2 | 064651 | 507791 | 19173 | N/A | |
| CBLB | 114423 | 438603 | 3298 | 409750 | 25886 | LGR6 | 133067 | 255432 | 11236 | 255432 | 30796 | SLC12A2 | 064651 | 502849 | 19174 | N/A | |
| CBLB | 114423 | 447441 | 3299 | 400949 | 25887 | LGR6 | 133067 | 487787 | 11237 | 422143 | 30797 | SLC12A2 | 064651 | 628403 | 19175 | 486323 | 35718 |
| CBLB | 114423 | 443752 | 3300 | 393906 | 25888 | LGR6 | 133067 | 423542 | 11238 | 402284 | 30798 | SLC12A3 | 070915 | 566786 | 19176 | 457552 | 35719 |
| CBLN1 | 102924 | 219197 | 3301 | 219197 | 25889 | LGR6 | 133067 | 439764 | 11239 | 387869 | 30799 | SLC12A3 | 070915 | 438926 | 19177 | 402152 | 35720 |
| CBLN1 | 102924 | 564786 | 3302 | 455718 | 25890 | LGR6 | 133067 | 503519 | 11240 | N/A | | SLC12A3 | 070915 | 563236 | 19178 | 456149 | 35721 |
| CBLN1 | 102924 | 536749 | 3303 | 444651 | 25891 | LGR6 | 133067 | 308543 | 11241 | N/A | | SLC12A3 | 070915 | 262502 | 19179 | 262502 | 35722 |
| CBLN2 | 141668 | 585159 | 3304 | 463771 | 25892 | LGR6 | 133067 | 506931 | 11242 | N/A | | SLC12A3 | 070915 | 569002 | 19180 | N/A | |
| CBLN2 | 141668 | 269503 | 3305 | 269503 | 25893 | LHFPL6 | 183722 | 379589 | 11243 | 368908 | 30800 | SLC12A3 | 070915 | 563352 | 19181 | N/A | |
| CBLN2 | 141668 | 581425 | 3306 | N/A | | LHFPL6 | 183722 | 495922 | 11244 | N/A | | SLC12A4 | 124067 | 316341 | 19182 | 318557 | 35723 |
| CBLN2 | 141668 | 584764 | 3307 | 464490 | 25894 | LHFPL2 | 145685 | 515007 | 11245 | 425906 | 30801 | SLC12A4 | 124067 | 572037 | 19183 | 461403 | 35724 |
| CBLN2 | 141668 | 583651 | 3308 | N/A | | LHFPL2 | 145685 | 502722 | 11246 | N/A | | SLC12A4 | 124067 | 541864 | 19184 | 438334 | 35725 |
| CBLN2 | 141668 | 581073 | 3309 | 462632 | 25895 | LHFPL2 | 145685 | 503686 | 11247 | N/A | | SLC12A4 | 124067 | 576616 | 19185 | 458902 | 35726 |
| CBLN2 | 141668 | 580889 | 3310 | N/A | | LHFPL2 | 145685 | 512759 | 11248 | N/A | | SLC12A4 | 124067 | 570802 | 19186 | N/A | |
| CBLN2 | 141668 | 583570 | 3311 | N/A | | LHFPL2 | 145685 | 510949 | 11249 | N/A | | SLC12A4 | 124067 | 537830 | 19187 | 445962 | 35727 |
| CBLN2 | 141668 | 582667 | 3312 | N/A | | LHFPL2 | 145685 | 515349 | 11250 | N/A | | SLC12A4 | 124067 | 570616 | 19188 | 463148 | 35728 |
| CBLN3 | 139899 | 267406 | 3313 | 267406 | 25896 | LHFPL2 | 145685 | 514587 | 11251 | N/A | | SLC12A4 | 124067 | 575857 | 19189 | 464660 | 35729 |
| CBLN3 | 139899 | 555436 | 3314 | 450935 | 25897 | LHFPL2 | 145685 | 380345 | 11252 | 369702 | 30802 | SLC12A4 | 124067 | 573023 | 19190 | N/A | |
| CBS | 160200 | 461686 | 3315 | N/A | | LHFPL3 | 187416 | 424859 | 11253 | 393128 | 30803 | SLC12A4 | 124067 | 576513 | 19191 | N/A | |
| CBS | 160200 | 398158 | 3316 | 381225 | 25898 | LHFPL3 | 187416 | 401970 | 11254 | 385374 | 30804 | SLC12A4 | 124067 | 572476 | 19192 | N/A | |
| CBS | 160200 | 398165 | 3317 | 381231 | 25899 | LHX1 | 274577 | 634033 | 11255 | N/A | | SLC12A4 | 124067 | 574665 | 19193 | N/A | |
| CBS | 160200 | 359624 | 3318 | 352643 | 25900 | LHX1 | 274577 | 620305 | 11256 | 484449 | 30805 | SLC12A4 | 124067 | 572766 | 19194 | N/A | |
| CBS | 160200 | 352178 | 3319 | 344460 | 25901 | LHX1 | 274577 | 631483 | 11257 | N/A | | SLC12A4 | 124067 | 573702 | 19195 | N/A | |
| CBS | 160200 | 451248 | 3320 | 402823 | 25902 | LHX1 | 274577 | 631517 | 11258 | N/A | | SLC12A4 | 124067 | 576377 | 19196 | 458975 | 35730 |
| CBS | 160200 | 462349 | 3321 | N/A | | LHX1 | 274577 | 633397 | 11259 | 488248 | 30806 | SLC12A4 | 124067 | 571299 | 19197 | 464168 | 35731 |
| CBS | 160200 | 491776 | 3322 | N/A | | LHX1 | 273706 | 619297 | 11260 | N/A | | SLC12A4 | 124067 | 572010 | 19198 | N/A | |
| CBS | 160200 | 458223 | 3323 | 408014 | 25903 | LHX1 | 273706 | 614239 | 11261 | 477829 | 30807 | SLC12A4 | 124067 | 576462 | 19199 | N/A | |
| CBS | 160200 | 430013 | 3324 | 405929 | 25904 | LHX1 | 273706 | 619939 | 11262 | N/A | | SLC12A4 | 124067 | 422611 | 19200 | 395983 | 35732 |
| CBS | 160200 | 496485 | 3325 | N/A | | LHX1 | 273706 | 616237 | 11263 | N/A | | SLC12A5 | 124140 | 454036 | 19201 | 387694 | 35733 |
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| CBS | 160200 | 465732 | 3329 | N/A | | LIMD1 | 144791 | 465039 | 11267 | N/A | | SLC12A5 | 124140 | 413737 | 19205 | 487291 | 35736 |
| CBS | 160200 | 488526 | 3330 | N/A | | LIMD1 | 144791 | 440097 | 11268 | 394537 | 30810 | SLC12A5 | 124140 | 626695 | 19206 | N/A | |
| CBS | 160200 | 478709 | 3331 | N/A | | LIMD1 | 144791 | 273317 | 11269 | 273317 | 30811 | SLC12A5 | 124140 | 608944 | 19207 | 476885 | 35737 |
| CBWD6 | 215126 | 382436 | 3332 | 484049 | 25906 | LIMD1 | 144791 | 474665 | 11270 | N/A | | SLC12A5 | 124140 | 622711 | 19208 | N/A | |
| CBWD6 | 215126 | 611553 | 3333 | N/A | | LIMS2 | 072163 | 426981 | 11271 | 397253 | 30812 | SLC12A5 | 124140 | 629054 | 19209 | N/A | |
| CBWD6 | 215126 | 494538 | 3334 | 484231 | 25907 | LIMS2 | 072163 | 469300 | 11272 | N/A | | SLC12A5 | 124140 | 625683 | 19210 | N/A | |
| CBWD6 | 215126 | 617917 | 3335 | N/A | | LIMS2 | 072163 | 494613 | 11273 | N/A | | SLC12A5 | 124140 | 626937 | 19211 | 485953 | 35738 |
| CBWD6 | 215126 | 613125 | 3336 | N/A | | LIMS2 | 072163 | 409286 | 11274 | 386252 | 30813 | SLC12A5 | 124140 | 616202 | 19212 | 478369 | 35739 |
| CBWD6 | 215126 | 610358 | 3337 | N/A | | LIMS2 | 072163 | 409754 | 11275 | 386345 | 30814 | SLC12A5 | 124140 | 243964 | 19213 | 243964 | 35740 |
| CBWD6 | 215126 | 622791 | 3338 | N/A | | LIMS2 | 072163 | 476932 | 11276 | N/A | | SLC12A5 | 124140 | 627290 | 19214 | 487449 | 35741 |
| CBWD6 | 215126 | 486387 | 3339 | 480837 | 25908 | LIMS2 | 072163 | 324938 | 11277 | 326888 | 30815 | SLC12A5 | 124140 | 372315 | 19215 | N/A | |
| CBWD6 | 215126 | 617722 | 3340 | N/A | | LIMS2 | 072163 | 484252 | 11278 | N/A | | SLC12A5 | 124140 | 539566 | 19216 | 446091 | 35742 |
| CBWD6 | 215126 | 457288 | 3341 | N/A | | LIMS2 | 072163 | 466410 | 11279 | N/A | | SLC12A5 | 124140 | 636324 | 19217 | N/A | |
| CBWD6 | 215126 | 467791 | 3342 | 480830 | 25909 | LIMS2 | 072163 | 409455 | 11280 | 386383 | 30816 | SLC12A5 | 124140 | 637831 | 19218 | N/A | |
| CBWD6 | 215126 | 490294 | 3343 | N/A | | LIMS2 | 072163 | 355119 | 11281 | 347240 | 30817 | SLC12A5 | 124140 | 637863 | 19219 | N/A | |
| CBWD6 | 215126 | 610377 | 3344 | N/A | | LIMS2 | 072163 | 409808 | 11282 | 386637 | 30818 | SLC12A5 | 124140 | 608594 | 19220 | N/A | |
| CBWD6 | 215126 | 620776 | 3345 | 478412 | 25910 | LIMS2 | 072163 | 410011 | 11283 | 387002 | 30819 | SLC12A5 | 124140 | 626144 | 19221 | N/A | |
| CBWD6 | 215126 | 613716 | 3346 | 482804 | 25911 | LIMS2 | 072163 | 410038 | 11284 | 386570 | 30820 | SLC12A5 | 124140 | 628413 | 19222 | N/A | |
| CBWD6 | 215126 | 617933 | 3347 | 481300 | 25912 | LIMS2 | 072163 | 545738 | 11285 | 443794 | 30821 | SLC12A5 | 124140 | 637437 | 19223 | 490442 | 35743 |
| CBWD6 | 215126 | 377391 | 3348 | 366608 | 25913 | LIMS2 | 072163 | 413578 | 11286 | 388611 | 30822 | SLC12A5 | 124140 | 616933 | 19224 | 477569 | 35744 |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CCDC13 | 244607 | 472921 | 3358 | N/A | | LINCMD1 | 225613 | 418518 | 11296 | N/A | | SLC12A8 | 221955 | 485954 | 19234 | N/A | |
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| CCDC146 | 135205 | 461259 | 3367 | N/A | | LINC00844 | 237949 | 432535 | 11305 | N/A | | SLC13A5 | 141485 | 574580 | 19243 | N/A | |
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| CCDC146 | 135205 | 464021 | 3369 | N/A | | LINC00963 | 204054 | 444184 | 11307 | N/A | | SLC13A5 | 141485 | 381074 | 19245 | 370464 | 35754 |
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| CCDC146 | 135205 | 488998 | 3371 | N/A | | LINC00963 | 204054 | 419300 | 11309 | N/A | | SLC13A5 | 141485 | 570687 | 19247 | 460037 | 35756 |
| CCDC152 | 198865 | 361970 | 3372 | 354888 | 25921 | LINC00963 | 204054 | 423918 | 11310 | N/A | | SLC13A5 | 141485 | 572727 | 19248 | N/A | |
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| CCDC155 | 161609 | 594043 | 3383 | 469435 | 25928 | LINC00963 | 204054 | 608272 | 11321 | N/A | | SLC14A1 | 141469 | 415427 | 19259 | 412309 | 35765 |
| CCDC155 | 161609 | 600570 | 3384 | 470819 | 25929 | LINC00963 | 204054 | 453213 | 11322 | N/A | | SLC14A1 | 141469 | 535474 | 19260 | 441998 | 35766 |
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| CCDC155 | 161609 | 593631 | 3386 | N/A | | LINC00963 | 204054 | 608669 | 11324 | N/A | | SLC14A1 | 141469 | 588179 | 19262 | 467898 | 35768 |
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| CCDC155 | 161609 | 596419 | 3388 | N/A | | LINC01032 | 234871 | 451690 | 11326 | N/A | | SLC14A1 | 141469 | 436407 | 19264 | 390637 | 35770 |
| CCDC175 | 151838 | 553317 | 3389 | N/A | | LINC01158 | 233639 | 413121 | 11327 | N/A | | SLC14A1 | 141469 | 589891 | 19265 | 466093 | 35771 |
| CCDC175 | 151838 | 537690 | 3390 | 453940 | 25930 | LINC01158 | 233639 | 443988 | 11328 | N/A | | SLC14A1 | 141469 | 590246 | 19266 | 468763 | 35772 |
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| CCDC175 | 151838 | 556996 | 3392 | N/A | | LINC01158 | 233639 | 458253 | 11330 | N/A | | SLC14A1 | 141469 | 586142 | 19268 | 470476 | 35773 |
| CCDC175 | 151838 | 281581 | 3393 | 452964 | 25931 | LINC01158 | 233639 | 454729 | 11331 | N/A | | SLC14A1 | 141469 | 589700 | 19269 | 465044 | 35774 |
| CCDC180 | 197816 | 472746 | 3394 | N/A | | LINC01208 | 223715 | 434969 | 11332 | N/A | | SLC14A1 | 141469 | 590377 | 19270 | 465150 | 35775 |
| CCDC180 | 197816 | 494917 | 3395 | N/A | | LINC01208 | 223715 | 421034 | 11333 | N/A | | SLC14A1 | 141469 | 591642 | 19271 | N/A | |
| CCDC180 | 197816 | 460482 | 3396 | N/A | | LINC01515 | 228065 | 433152 | 11334 | N/A | | SLC14A1 | 141469 | 586854 | 19272 | N/A | |
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| CCDC180 | 197816 | 483504 | 3402 | N/A | | LINC01515 | 228065 | 595269 | 11340 | N/A | | SLC15A2 | 163406 | 489711 | 19278 | 417085 | 35780 |
| CCDC180 | 197816 | 526038 | 3403 | N/A | | LINC01515 | 228065 | 598092 | 11341 | N/A | | SLC15A2 | 163406 | 295605 | 19279 | 295605 | 35781 |
| CCDC180 | 197816 | 534189 | 3404 | N/A | | LINC01515 | 228065 | 618687 | 11342 | N/A | | SLC15A2 | 163406 | 469013 | 19280 | 418704 | 35782 |
| CCDC180 | 197816 | 530551 | 3405 | N/A | | LINC01515 | 228065 | 601389 | 11343 | N/A | | SLC15A2 | 163406 | 489886 | 19281 | N/A | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CCDC61 | 104983 | 596687 | 3410 | 469524 | 25935 | LINC01515 | 228065 | 629716 | 11348 | N/A | | SLC16A10 | 112394 | 439288 | 19286 | 387501 | 35784 |
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| CCDC61 | 104983 | 601763 | 3413 | N/A | | LINC01515 | 228065 | 596743 | 11351 | N/A | | SLC16A10 | 112394 | 368850 | 19289 | 357843 | 35786 |
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| CCDC80 | 091986 | 439685 | 3416 | 411814 | 25939 | LINC01515 | 283079 | 634651 | 11354 | N/A | | SLC17A4 | 146039 | 439485 | 19292 | 391345 | 35789 |
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| CCDC80 | 091986 | 461431 | 3418 | 420123 | 25941 | LINC01515 | 283079 | 635412 | 11356 | N/A | | SLC17A7 | 104888 | 221485 | 19294 | 221485 | 35791 |
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| CCDC88A | 115355 | 336838 | 3424 | 338728 | 25943 | LINC01515 | 283079 | 634292 | 11362 | N/A | | SLC19A1 | 173638 | 567670 | 19300 | 457278 | 35795 |
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| CCK | 187094 | 334681 | 3438 | 335657 | 25953 | LINGO1 | 169783 | 561030 | 11376 | 453853 | 30832 | SLC1A1 | 106688 | 490167 | 19314 | N/A | |
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| CCK | 187094 | 484359 | 3441 | N/A | | LINGO1 | 169783 | 567726 | 11379 | 454465 | 30835 | SLC1A4 | 115902 | 471551 | 19317 | N/A | |
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| CCKBR | 110148 | 532396 | 3447 | N/A | | LINGO1 | 169783 | 563316 | 11385 | 457101 | 30841 | SLC1A6 | 105143 | 600144 | 19323 | 471038 | 35810 |
| CCM2L | 101331 | 262659 | 3448 | 262659 | 25961 | LINGO1 | 169783 | 567605 | 11386 | N/A | | SLC1A6 | 105143 | 598504 | 19324 | 471781 | 35811 |
| CCM2L | 101331 | 452892 | 3449 | 392448 | 25962 | LINGO1 | 169783 | 568951 | 11387 | N/A | | SLC1A6 | 105143 | 544886 | 19325 | 446175 | 35812 |
| CCND1 | 110092 | 227507 | 3450 | 227507 | 25963 | LINGO1 | 169783 | 564066 | 11388 | N/A | | SLC1A6 | 105143 | 596697 | 19326 | N/A | |
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| CCND1 | 110092 | 536559 | 3452 | 438482 | 25964 | LINGO2 | 174482 | 493941 | 11390 | N/A | | SLC1A6 | 105143 | 599636 | 19328 | 472837 | 35814 |
| CCND1 | 110092 | 535993 | 3453 | N/A | | LINGO2 | 174482 | 613945 | 11391 | 479634 | 30843 | SLC1A6 | 105143 | 595863 | 19329 | 469551 | 35815 |
| CCND1 | 110092 | 545484 | 3454 | N/A | | LINGO2 | 174482 | 308675 | 11392 | 310126 | 30844 | SLC1A6 | 105143 | 601761 | 19330 | 471129 | 35816 |
| CCND1 | 110092 | 542367 | 3455 | N/A | | LIPG | 101670 | 577628 | 11393 | 463835 | 30845 | SLC1A6 | 105143 | 594383 | 19331 | 472133 | 35817 |
| CCND2 | 118971 | 261254 | 3456 | 261254 | 25965 | LIPG | 101670 | 583083 | 11394 | 463077 | 30846 | SLC20A1 | 144136 | 272542 | 19332 | 272542 | 35818 |
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| CCNH | 134480 | 505587 | 3460 | N/A | | LIPG | 101670 | 579750 | 11398 | 462480 | 30850 | SLC20A1 | 144136 | 456264 | 19336 | 403763 | 35821 |
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| CCNH | 134480 | 508855 | 3462 | 426454 | 25967 | LITAF | 189067 | 571688 | 11400 | 459533 | 30851 | SLC20A1 | 144136 | 480984 | 19338 | N/A | |
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| CCNH | 134480 | 504115 | 3466 | N/A | | LITAF | 189067 | 571459 | 11404 | 459603 | 30855 | SLC22A15 | 163393 | 369502 | 19342 | 358514 | 35824 |
| CCNH | 134480 | 513499 | 3467 | N/A | | LITAF | 189067 | 575426 | 11405 | 459094 | 30856 | SLC22A15 | 163393 | 481127 | 19343 | N/A | |
| CCNH | 134480 | 510020 | 3468 | N/A | | LITAF | 189067 | 573332 | 11406 | 460873 | 30857 | SLC22A23 | 137266 | 436008 | 19344 | 410245 | 35825 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CD101 | 134256 | 369470 | 3470 | 358482 | 25970 | LITAF | 189067 | 576036 | 11408 | 461667 | 30859 | SLC22A23 | 137266 | 497691 | 19346 | 417737 | 35827 |
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| CD27 | 139193 | 541233 | 3475 | N/A | | LITAF | 189067 | 571976 | 11413 | 460133 | 30864 | SLC22A23 | 137266 | 467177 | 19351 | 418985 | 35831 |
| CD33 | 105383 | 436584 | 3476 | 403331 | 25973 | LITAF | 189067 | 574703 | 11414 | 459913 | 30865 | SLC22A23 | 137266 | 467144 | 19352 | N/A | |
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| CD9 | 010278 | 540891 | 3524 | N/A | | TEX52 | 283297 | 637658 | 11462 | 489863 | 30896 | SLC25A29 | 197119 | 556868 | 19400 | 451808 | 35862 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDADC1 | 102543 | 496061 | 3528 | 434135 | 26007 | PRSS51 | 253649 | 523024 | 11466 | N/A | | SLC25A29 | 197119 | 553574 | 19404 | N/A | |
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| CDC42EP1 | 128283 | 249014 | 3545 | 249014 | 26018 | AC012349.1 | 254254 | 518662 | 11483 | N/A | | SLC25A3 | 075415 | 551123 | 19421 | 449009 | 35872 |
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| CDC42EP3 | 163171 | 295324 | 3549 | 295324 | 26022 | AL451060.1 | 226251 | 431307 | 11487 | N/A | | SLC25A3 | 075415 | 548480 | 19425 | N/A | |
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| CDH1 | 039068 | 261769 | 3564 | 261769 | 26033 | LINC02112 | 249781 | 511616 | 11502 | N/A | | SLC26A5 | 170615 | 445809 | 19440 | 396833 | 35883 |
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| CDH1 | 039068 | 567320 | 3572 | N/A | | C3orf67 | 163689 | 486145 | 11510 | 421046 | 30899 | SLC26A5 | 170615 | 393723 | 19448 | 377324 | 35891 |
| CDH1 | 039068 | 565810 | 3573 | N/A | | C3orf67 | 163689 | 470454 | 11511 | 419245 | 30900 | SLC26A5 | 170615 | 487407 | 19449 | N/A | |
| CDH1 | 039068 | 562118 | 3574 | N/A | | C3orf67 | 163689 | 484535 | 11512 | 419949 | 30901 | SLC26A5 | 170615 | 432958 | 19450 | 389733 | 35892 |
| CDH1 | 039068 | 612417 | 3575 | 478360 | 26038 | C3orf67 | 163689 | 460459 | 11513 | 417917 | 30902 | SLC26A5 | 170615 | 354356 | 19451 | 346325 | 35893 |
| CDH1 | 039068 | 621016 | 3576 | 480664 | 26039 | C3orf67 | 163689 | 295966 | 11514 | 295966 | 30903 | SLC26A8 | 112053 | 490799 | 19452 | 417638 | 35894 |
| CDH1 | 039068 | 611625 | 3577 | 481063 | 26040 | C3orf67 | 163689 | 482387 | 11515 | 417122 | 30904 | SLC26A8 | 112053 | 466805 | 19453 | N/A | |
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| CDH10 | 040731 | 502921 | 3579 | N/A | | C3orf67 | 163689 | 495572 | 11517 | 417881 | 30906 | SLC26A8 | 112053 | 355574 | 19455 | 347778 | 35896 |
| CDH10 | 040731 | 510477 | 3580 | 425653 | 26042 | C3orf67 | 163689 | 472469 | 11518 | 417271 | 30907 | SLC26A8 | 112053 | 465492 | 19456 | 418107 | 35897 |
| CDH10 | 040731 | 503958 | 3581 | N/A | | C3orf67 | 163689 | 479931 | 11519 | 419028 | 30908 | SLC26A8 | 112053 | 486155 | 19457 | N/A | |
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| CDH11 | 140937 | 268603 | 3583 | 268603 | 26044 | C3orf67 | 163689 | 471288 | 11521 | 417639 | 30910 | SLC26A8 | 112053 | 480663 | 19459 | 420488 | 35899 |
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| CDH11 | 140937 | 619158 | 3586 | 484650 | 26046 | BX890604.1 | 205664 | 469903 | 11524 | N/A | | SLC27A6 | 113396 | 395266 | 19462 | 378684 | 35902 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDH11 | 140937 | 569128 | 3587 | N/A | | BX890604.1 | 205664 | 483854 | 11525 | N/A | | SLC27A6 | 113396 | 506176 | 19463 | 421024 | 35903 |
| CDH11 | 140937 | 567934 | 3588 | 455779 | 26047 | BX890604.1 | 205664 | 475317 | 11526 | N/A | | SLC2A10 | 197496 | 359271 | 19464 | 352216 | 35904 |
| CDH11 | 140937 | 569624 | 3589 | N/A | | BX890604.1 | 205664 | 425492 | 11527 | N/A | | SLC2A10 | 197496 | 486000 | 19465 | 478679 | 35905 |
| CDH11 | 140937 | 562998 | 3590 | 455420 | 26048 | BX890604.1 | 205664 | 471090 | 11528 | N/A | | SLC2A10 | 197496 | 611837 | 19466 | N/A | |
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| CDH11 | 140937 | 562712 | 3592 | 455120 | 26050 | BX890604.1 | 205664 | 490920 | 11530 | N/A | | SLC2A13 | 151229 | 465517 | 19468 | N/A | |
| CDH11 | 140937 | 562882 | 3593 | 455697 | 26051 | AL512625.3 | 234665 | 586625 | 11531 | N/A | | SLC2A13 | 151229 | 505338 | 19469 | N/A | |
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| CDH11 | 140937 | 568340 | 3595 | N/A | | AL512625.3 | 234665 | 445604 | 11533 | N/A | | SLC2A3 | 059804 | 075120 | 19471 | 075120 | 35908 |
| CDH11 | 140937 | 565210 | 3596 | N/A | | AL512625.3 | 234665 | 438699 | 11534 | N/A | | SLC2A3 | 059804 | 543435 | 19472 | N/A | |
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| CDH11 | 140937 | 563255 | 3598 | N/A | | AL512625.3 | 234665 | 612590 | 11536 | N/A | | SLC2A3 | 059804 | 469295 | 19474 | N/A | |
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| CDH11 | 140937 | 569783 | 3600 | N/A | | KRTAP10-1 | 215455 | 400375 | 11538 | 383226 | 30911 | SLC2A3 | 059804 | 490763 | 19476 | N/A | |
| CDH13 | 140945 | 539548 | 3601 | 442225 | 26053 | KRTAP10-10 | 221859 | 380095 | 11539 | 369438 | 30912 | SLC2A3 | 059804 | 495813 | 19477 | N/A | |
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| CDH13 | 140945 | 569455 | 3603 | N/A | | KRTAP10-12 | 189169 | 400365 | 11541 | 383216 | 30914 | SLC2A3 | 059804 | 544936 | 19479 | 441496 | 35910 |
| CDH13 | 140945 | 567445 | 3604 | 456297 | 26054 | KRTAP10-12 | 189169 | 618832 | 11542 | 482575 | 30915 | SLC2A3 | 059804 | 476634 | 19480 | N/A | |
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| CDH13 | 140945 | 567109 | 3607 | 479395 | 26055 | KRTAP10-3 | 212935 | 391620 | 11545 | 375478 | 30917 | SLC2A4 | 181856 | 572485 | 19483 | 461086 | 35912 |
| CDH13 | 140945 | 268613 | 3608 | 268613 | 26056 | KRTAP10-4 | 215454 | 400374 | 11546 | 383225 | 30918 | SLC2A4 | 181856 | 571308 | 19484 | 459864 | 35913 |
| CDH13 | 140945 | 569144 | 3609 | 457914 | 26057 | KRTAP10-4 | 215454 | 622352 | 11547 | 484068 | 30919 | SLC2A4 | 181856 | 570783 | 19485 | 459056 | 35914 |
| CDH13 | 140945 | 562601 | 3610 | 455781 | 26058 | KRTAP10-4 | 215454 | 616689 | 11548 | 481165 | 30920 | SLC2A4 | 181856 | 424875 | 19486 | 396887 | 35915 |
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| CDH13 | 140945 | 565636 | 3612 | 456491 | 26060 | KRTAP10-6 | 188155 | 400368 | 11550 | 383219 | 30922 | SLC30A3 | 115194 | 482990 | 19488 | N/A | |
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| CDH13 | 140945 | 428848 | 3614 | 394557 | 26062 | KRTAP10-8 | 187766 | 334662 | 11552 | 335565 | 30924 | SLC30A3 | 115194 | 445870 | 19490 | 388219 | 35917 |
| CDH15 | 129910 | 521087 | 3615 | N/A | | KRTAP10-9 | 221837 | 397911 | 11553 | 381009 | 30925 | SLC30A3 | 115194 | 432351 | 19491 | 414320 | 35918 |
| CDH15 | 129910 | 524089 | 3616 | N/A | | KRTAP10-9 | 221837 | 484861 | 11554 | N/A | | SLC30A3 | 115194 | 426924 | 19492 | 393545 | 35919 |
| CDH15 | 129910 | 289746 | 3617 | 289746 | 26063 | KRTAP10-9 | 221837 | 616529 | 11555 | 477523 | 30926 | SLC30A3 | 115194 | 424577 | 19493 | 403959 | 35920 |
| CDH19 | 071991 | 262150 | 3618 | 262150 | 26064 | LONRF2 | 170500 | 393437 | 11556 | 377086 | 30927 | SLC30A3 | 115194 | 486309 | 19494 | N/A | |
| CDH19 | 071991 | 579658 | 3619 | 463085 | 26065 | LONRF2 | 170500 | 409647 | 11557 | 386823 | 30928 | SLC30A3 | 115194 | 450118 | 19495 | 403912 | 35921 |
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| CDH2 | 170558 | 399380 | 3624 | 382312 | 26070 | LOXL2 | 134013 | 518878 | 11562 | 427826 | 30932 | SLC32A1 | 101438 | 217420 | 19500 | 217420 | 35925 |
| CDH2 | 170558 | 418492 | 3625 | 411360 | 26071 | LOXL2 | 134013 | 522446 | 11563 | N/A | | SLC35D1 | 116704 | 235345 | 19501 | 235345 | 35926 |
| CDH2 | 170558 | 430882 | 3626 | 412120 | 26072 | LOXL2 | 134013 | 519809 | 11564 | N/A | | SLC35F1 | 196376 | 360388 | 19502 | 353557 | 35927 |
| CDH2 | 170558 | 413878 | 3627 | 414269 | 26073 | LOXL2 | 134013 | 520925 | 11565 | N/A | | SLC35F1 | 196376 | 621341 | 19503 | 484738 | 35928 |
| CDH23 | 107736 | 224721 | 3628 | 224721 | 26074 | LOXL2 | 134013 | 518472 | 11566 | N/A | | SLC35F4 | 151812 | 556826 | 19504 | 452086 | 35929 |
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| CDH23 | 107736 | 475158 | 3636 | N/A | | LPAR1 | 198121 | 374430 | 11574 | 363552 | 30939 | SLC38A1 | 111371 | 398637 | 19512 | 381634 | 35934 |
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| CDH23 | 107736 | 398788 | 3638 | 381768 | 26082 | LPAR1 | 198121 | 441240 | 11576 | 401810 | 30941 | SLC38A1 | 111371 | 439706 | 19514 | 398142 | 35936 |
| CDH23 | 107736 | 622827 | 3639 | 483211 | 26083 | LPAR1 | 198121 | 541779 | 11577 | 445697 | 30942 | SLC38A1 | 111371 | 546893 | 19515 | 447853 | 35937 |
| CDH23 | 107736 | 398842 | 3640 | 381822 | 26084 | LPCAT2 | 087253 | 262134 | 11578 | 262134 | 30943 | SLC38A1 | 111371 | 552197 | 19516 | 449756 | 35938 |
| CDH23 | 107736 | 398809 | 3641 | 381789 | 26085 | LPCAT2 | 087253 | 566911 | 11579 | N/A | | SLC38A1 | 111371 | 548979 | 19517 | N/A | |
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| CDH26 | 124215 | 497614 | 3645 | N/A | | LPCAT2 | 087253 | 566375 | 11583 | N/A | | SLC38A1 | 111371 | 546519 | 19521 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDH26 | 124215 | 244049 | 3646 | 244049 | 26088 | LPCAT2 | 087253 | 565056 | 11584 | N/A | | SLC38A1 | 111371 | 612161 | 19522 | 478907 | 35940 |
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| CDH4 | 280641 | 625686 | 3651 | 486568 | 26093 | LPCAT4 | 176454 | 563240 | 11589 | N/A | | SLC38A10 | 157637 | 542075 | 19527 | N/A | |
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| CDH7 | 081138 | 397968 | 3657 | 381058 | 26099 | LPCAT4 | 176454 | 617710 | 11595 | 478003 | 30947 | SLC38A10 | 157637 | 540233 | 19533 | N/A | |
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| CDH8 | 150394 | 577730 | 3659 | 462018 | 26100 | LPL | 175445 | 524029 | 11597 | 428237 | 30949 | SLC38A5 | 017483 | 619100 | 19535 | 478807 | 35948 |
| CDH8 | 150394 | 585315 | 3660 | 463266 | 26101 | LPL | 175445 | 522701 | 11598 | 428557 | 30950 | SLC38A5 | 017483 | 497336 | 19536 | N/A | |
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| CDH8 | 150394 | 580044 | 3664 | N/A | | LPL | 175445 | 523696 | 11602 | N/A | | SLC38A5 | 017483 | 440085 | 19540 | 402988 | 35950 |
| CDH8 | 150394 | 577536 | 3665 | N/A | | LPP | 145012 | 448637 | 11603 | 393602 | 30953 | SLC38A5 | 017483 | 441948 | 19541 | 407258 | 35951 |
| CDH8 | 150394 | 584337 | 3666 | 463511 | 26104 | LPP | 145012 | 416784 | 11604 | 410340 | 30954 | SLC38A5 | 017483 | 413668 | 19542 | 403976 | 35952 |
| CDH8 | 150394 | 582242 | 3667 | N/A | | LPP | 145012 | 430340 | 11605 | 397166 | 30955 | SLC38A5 | 017483 | 416711 | 19543 | 389644 | 35953 |
| CDH8 | 150394 | 583382 | 3668 | 462976 | 26105 | LPP | 145012 | 414139 | 11606 | 392667 | 30956 | SLC38A5 | 017483 | 488083 | 19544 | 483716 | 35954 |
| CDH8 | 150394 | 584966 | 3669 | N/A | | LPP | 145012 | 454789 | 11607 | 394257 | 30957 | SLC38A5 | 017483 | 429543 | 19545 | 416948 | 35955 |
| CDH8 | 150394 | 577228 | 3670 | N/A | | LPP | 145012 | 426274 | 11608 | 397017 | 30958 | SLC38A5 | 017483 | 620913 | 19546 | 481291 | 35956 |
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| CDHR1 | 148600 | 623527 | 3673 | 485478 | 26107 | LPP | 145012 | 618621 | 11611 | 482617 | 30961 | SLC38A7 | 103042 | 219320 | 19549 | 219320 | 35959 |
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| CDK14 | 058091 | 446790 | 3687 | 401603 | 26118 | LRCH1 | 136141 | 311191 | 11625 | 308493 | 30966 | SLC38A7 | 103042 | 564964 | 19563 | N/A | |
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| CDK14 | 058091 | 406263 | 3689 | 385034 | 26120 | LRCH1 | 136141 | 389798 | 11627 | 374448 | 30967 | SLC39A12 | 148482 | 377371 | 19565 | 366588 | 35969 |
| CDK14 | 058091 | 431029 | 3690 | 387794 | 26121 | LRCH1 | 136141 | 389797 | 11628 | 374447 | 30968 | SLC39A12 | 148482 | 539911 | 19566 | 440445 | 35970 |
| CDK14 | 058091 | 478540 | 3691 | N/A | | LRCH1 | 136141 | 463929 | 11629 | 417121 | 30969 | SLC39A12 | 148482 | 377369 | 19567 | 366586 | 35971 |
| CDK14 | 058091 | 487145 | 3692 | N/A | | LRCH1 | 136141 | 478412 | 11630 | 419256 | 30970 | SLC41A1 | 133065 | 367137 | 19568 | 356105 | 35972 |
| CDK14 | 058091 | 460493 | 3693 | N/A | | LRIG1 | 144749 | 273261 | 11631 | 273261 | 30971 | SLC41A1 | 133065 | 468057 | 19569 | N/A | |
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| CDK15 | 138395 | 451080 | 3695 | 389831 | 26123 | LRIG1 | 144749 | 496559 | 11633 | N/A | | SLC41A1 | 133065 | 484000 | 19571 | N/A | |
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| CDK15 | 138395 | 493754 | 3697 | N/A | | LRIG1 | 144749 | 491821 | 11635 | N/A | | SLC43A2 | 278550 | 612931 | 19573 | 483848 | 35974 |
| CDK15 | 138395 | 260967 | 3698 | 260967 | 26125 | LRIG1 | 144749 | 497721 | 11636 | N/A | | SLC43A2 | 278550 | 382147 | 19574 | 371582 | 35975 |
| CDK15 | 138395 | 488419 | 3699 | N/A | | LRIG1 | 144749 | 498287 | 11637 | N/A | | SLC43A2 | 278550 | 632441 | 19575 | N/A | |
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| CDK15 | 138395 | 466337 | 3703 | N/A | | LRIG1 | 282243 | 633161 | 11641 | 488182 | 30974 | SLC43A2 | 278550 | 633994 | 19579 | 488706 | 35976 |
| CDK16 | 102225 | 517997 | 3704 | N/A | | LRIG1 | 282243 | 632666 | 11642 | N/A | | SLC43A2 | 278550 | 634196 | 19580 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDK16 | 102225 | 517479 | 3705 | N/A | | LRIG1 | 282243 | 632591 | 11643 | N/A | | SLC43A2 | 278550 | 633255 | 19581 | 487944 | 35977 |
| CDK16 | 102225 | 457458 | 3706 | 405798 | 26128 | LRIG1 | 282243 | 631562 | 11644 | N/A | | SLC43A2 | 278550 | 631603 | 19582 | 487841 | 35978 |
| CDK16 | 102225 | 522883 | 3707 | 431085 | 26129 | LRIG1 | 282243 | 631537 | 11645 | N/A | | SLC43A2 | 278550 | 632084 | 19583 | N/A | |
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| CDK16 | 102225 | 357227 | 3709 | 349762 | 26131 | LRIG1 | 282243 | 631476 | 11647 | N/A | | SLC43A2 | 167703 | 301335 | 19585 | 301335 | 35980 |
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| CDK16 | 102225 | 462827 | 3723 | 430824 | 26140 | LRP1B | 168702 | 389484 | 11661 | 374135 | 30981 | SLC43A3 | 134802 | 395124 | 19599 | 378556 | 35987 |
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| CDK2 | 123374 | 554619 | 3757 | N/A | | LRRC3B | 179796 | 469437 | 11695 | N/A | | SLC4A4 | 080493 | 351898 | 19633 | 307349 | 36014 |
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| CDK2 | 123374 | 556656 | 3759 | N/A | | LRRC4C | 148948 | 278198 | 11697 | 278198 | 31007 | SLC4A4 | 080493 | 638464 | 19635 | 492496 | 36016 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CDK5RAP2 | 136861 | 360190 | 3764 | 353317 | 26162 | LRRC4C | 148948 | 534577 | 11702 | N/A | | SLC4A7 | 033867 | 419036 | 19640 | 411031 | 36020 |
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| CDKL1 | 100490 | 534267 | 3784 | 435044 | 26172 | LRRC7 | 033122 | 441830 | 11722 | N/A | | SLC5A11 | 158865 | 564125 | 19660 | N/A | |
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| CDKL1 | 100490 | 356146 | 3786 | N/A | | LRRK2 | 188906 | 416796 | 11724 | 398726 | 31025 | SLC5A11 | 158865 | 569520 | 19662 | 454732 | 36037 |
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| CDKN1A | 124762 | 244741 | 3794 | 244741 | 26174 | LRRTM4 | 176204 | 409911 | 11732 | 387228 | 31030 | SLC5A4 | 100191 | 266086 | 19670 | 266086 | 36044 |
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| CDKN1A | 124762 | 478800 | 3796 | N/A | | LRRTM4 | 176204 | 409093 | 11734 | 386357 | 31032 | SLC5A7 | 115665 | 264047 | 19672 | 264047 | 36046 |
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| CDKN1A | 124762 | 615513 | 3799 | 482768 | 26177 | LRRTM4 | 176204 | 456154 | 11737 | 408722 | 31035 | SLC6A12 | 111181 | 359674 | 19675 | 352702 | 36049 |
| CDKN1A | 124762 | 448526 | 3800 | 409259 | 26178 | LRRTM4 | 176204 | 491242 | 11738 | N/A | | SLC6A12 | 111181 | 545058 | 19676 | N/A | |
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| CDYL | 153046 | 328908 | 3805 | 330512 | 26180 | LSM5 | 106355 | 409292 | 11743 | 386814 | 31040 | SLC6A12 | 111181 | 544782 | 19681 | N/A | |
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| CDYL | 153046 | 343762 | 3812 | 340908 | 26184 | LSM5 | 106355 | 480956 | 11750 | N/A | | SLC6A12 | 111181 | 537826 | 19688 | N/A | |
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| CDYL2 | 166446 | 563890 | 3816 | 455111 | 26187 | LTBP2 | 119681 | 556690 | 11754 | 451477 | 31048 | SLC6A13 | 010379 | 539668 | 19692 | N/A | |
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| CDYL2 | 166446 | 562753 | 3820 | N/A | | LTK | 062524 | 263800 | 11758 | 263800 | 31051 | SLC6A13 | 010379 | 546319 | 19696 | 444606 | 36056 |
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| CEMIP | 103888 | 220244 | 3822 | 220244 | 26190 | LTK | 062524 | 561619 | 11760 | 458111 | 31052 | SLC6A13 | 010379 | 534887 | 19698 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CEMIP | 103888 | 559966 | 3827 | N/A | | LURAP1L | 153714 | 489107 | 11765 | N/A | | SLC6A7 | 011083 | 230671 | 19703 | 230671 | 36061 |
| CEP126 | 110318 | 263468 | 3828 | 263468 | 26195 | LY6E | 160932 | 517503 | 11766 | 428427 | 31056 | SLC6A7 | 011083 | 524041 | 19704 | 428200 | 36062 |
| CEP126 | 110318 | 532529 | 3829 | 433643 | 26196 | LY6E | 160932 | 292494 | 11767 | 292494 | 31057 | SLC6A7 | 011083 | 513403 | 19705 | N/A | |
| CEP126 | 110318 | 532077 | 3830 | 437014 | 26197 | LY6E | 160932 | 429120 | 11768 | 414307 | 31058 | SLC7A1 | 139514 | 380752 | 19706 | 370128 | 36063 |
| CEP76 | 101624 | 590143 | 3831 | 464760 | 26198 | LY6E | 160932 | 521699 | 11769 | 427915 | 31059 | SLC7A1 | 139514 | 473577 | 19707 | N/A | |
| CEP76 | 101624 | 262127 | 3832 | 262127 | 26199 | LY6E | 160932 | 520531 | 11770 | 430131 | 31060 | SLC7A1 | 139514 | 450494 | 19708 | 390092 | 36064 |
| CEP76 | 101624 | 423709 | 3833 | 403074 | 26200 | LY6E | 160932 | 520466 | 11771 | 428572 | 31061 | SLC7A10 | 130876 | 253188 | 19709 | 253188 | 36065 |
| CEP76 | 101624 | 589490 | 3834 | N/A | | LY6E | 160932 | 521003 | 11772 | 428169 | 31062 | SLC7A10 | 130876 | 590490 | 19710 | N/A | |
| CEP76 | 101624 | 587666 | 3835 | 464911 | 26201 | LY6E | 160932 | 522528 | 11773 | 428365 | 31063 | SLC7A10 | 130876 | 590036 | 19711 | 465421 | 36066 |
| CEP76 | 101624 | 593250 | 3836 | 466689 | 26202 | LY6E | 160932 | 523971 | 11774 | 428159 | 31064 | SLC7A10 | 130876 | 587064 | 19712 | 466876 | 36067 |
| CEP76 | 101624 | 591034 | 3837 | 467361 | 26203 | LY6E | 160932 | 519611 | 11775 | 430796 | 31065 | SLC7A10 | 130876 | 592596 | 19713 | 466410 | 36068 |
| CEP76 | 101624 | 585751 | 3838 | 467224 | 26204 | LY6E | 160932 | 521182 | 11776 | 430770 | 31066 | SLC7A11 | 151012 | 509248 | 19714 | 424046 | 36069 |
| CEP76 | 101624 | 592660 | 3839 | N/A | | LY6E | 160932 | 519546 | 11777 | 428467 | 31067 | SLC7A11 | 151012 | 280612 | 19715 | 280612 | 36070 |
| CEP76 | 101624 | 589875 | 3840 | N/A | | LY6E | 160932 | 523847 | 11778 | 430700 | 31068 | SLC7A14 | 013293 | 231706 | 19716 | 231706 | 36071 |
| CEP76 | 101624 | 587929 | 3841 | 466833 | 26205 | LY6E | 160932 | 522024 | 11779 | 428442 | 31069 | SLC7A14 | 013293 | 466168 | 19717 | N/A | |
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| CEPT1 | 134255 | 498239 | 3843 | N/A | | LY6E | 278032 | 633898 | 11781 | 488311 | 31070 | SLC7A3 | 165349 | 298085 | 19719 | 298085 | 36073 |
| CEPT1 | 134255 | 480324 | 3844 | N/A | | LY6E | 278032 | 619718 | 11782 | 482517 | 31071 | SLC7A5 | 103257 | 565644 | 19720 | 454323 | 36074 |
| CEPT1 | 134255 | 476865 | 3845 | N/A | | LY6E | 278032 | 632424 | 11783 | 488421 | 31072 | SLC7A5 | 103257 | 261622 | 19721 | 261622 | 36075 |
| CEPT1 | 134255 | 357172 | 3846 | 349696 | 26206 | LY6E | 278032 | 632519 | 11784 | 488443 | 31073 | SLC7A5 | 103257 | 563489 | 19722 | N/A | |
| CEPT1 | 134255 | 460443 | 3847 | N/A | | LY6E | 278032 | 633934 | 11785 | 488115 | 31074 | SLC8A1 | 183023 | 406785 | 19723 | 383886 | 36076 |
| CEPT1 | 134255 | 478042 | 3848 | N/A | | LY6E | 278032 | 632812 | 11786 | 488556 | 31075 | SLC8A1 | 183023 | 407929 | 19724 | 386116 | 36077 |
| CEPT1 | 134255 | 473474 | 3849 | N/A | | LY6E | 278032 | 632516 | 11787 | 487664 | 31076 | SLC8A1 | 183023 | 403092 | 19725 | 384763 | 36078 |
| CEPT1 | 134255 | 467362 | 3850 | N/A | | LY6E | 278032 | 632232 | 11788 | 488743 | 31077 | SLC8A1 | 183023 | 405901 | 19726 | 385678 | 36079 |
| CEPT1 | 134255 | 483427 | 3851 | N/A | | LY6E | 278032 | 631568 | 11789 | 488891 | 31078 | SLC8A1 | 183023 | 402441 | 19727 | 385188 | 36080 |
| CEPT1 | 134255 | 545121 | 3852 | 441980 | 26207 | LY6E | 278032 | 632902 | 11790 | 488121 | 31079 | SLC8A1 | 183023 | 405269 | 19728 | 385535 | 36081 |
| CEPT1 | 134255 | 615636 | 3853 | 477632 | 26208 | LY6E | 278032 | 632978 | 11791 | 488414 | 31080 | SLC8A1 | 183023 | 408028 | 19729 | 384908 | 36082 |
| CERCAM | 167123 | 420034 | 3854 | 402508 | 26209 | LY6E | 278032 | 632618 | 11792 | 487700 | 31081 | SLC8A1 | 183023 | 455476 | 19730 | 389330 | 36083 |
| CERCAM | 167123 | 372842 | 3855 | 361933 | 26210 | LY6E | 278032 | 633551 | 11793 | 488627 | 31082 | SLC8A1 | 183023 | 448531 | 19731 | 398575 | 36084 |
| CERCAM | 167123 | 447915 | 3856 | 402928 | 26211 | LY6E | 278032 | 633451 | 11794 | 488559 | 31083 | SLC8A1 | 183023 | 417271 | 19732 | 412560 | 36085 |
| CERCAM | 167123 | 420512 | 3857 | 416676 | 26212 | LY6E | 278032 | 631680 | 11795 | N/A | | SLC8A1 | 183023 | 332839 | 19733 | 332931 | 36086 |
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| CERCAM | 167123 | 493788 | 3859 | N/A | | LYPD1 | 150551 | 345008 | 11797 | 340563 | 31085 | SLC8A1-AS1 | 227028 | 599740 | 19735 | N/A | |
| CERCAM | 167123 | 411852 | 3860 | 403766 | 26214 | LYPD1 | 150551 | 449209 | 11798 | 396651 | 31086 | SLC8A1-AS1 | 227028 | 628471 | 19736 | N/A | |
| CERCAM | 167123 | 483737 | 3861 | N/A | | LYPD6 | 187123 | 334166 | 11799 | 334463 | 31087 | SLC8A1-AS1 | 227028 | 631142 | 19737 | N/A | |
| CERCAM | 167123 | 463535 | 3862 | N/A | | LYPD6 | 187123 | 418762 | 11800 | 396855 | 31088 | SLC8A1-AS1 | 227028 | 627210 | 19738 | N/A | |
| CERCAM | 167123 | 483893 | 3863 | N/A | | LYPD6 | 187123 | 414420 | 11801 | 392286 | 31089 | SLC8A1-AS1 | 227028 | 631330 | 19739 | N/A | |
| CERCAM | 167123 | 487001 | 3864 | N/A | | LYPD6 | 187123 | 392854 | 11802 | 376594 | 31090 | SLC8A1-AS1 | 227028 | 627538 | 19740 | N/A | |
| CERCAM | 167123 | 472858 | 3865 | N/A | | LYPD6 | 187123 | 409381 | 11803 | 386413 | 31091 | SLC8A1-AS1 | 227028 | 630783 | 19741 | N/A | |
| CERCAM | 167123 | 613052 | 3866 | 478713 | 26215 | LYPD6B | 150556 | 473800 | 11804 | N/A | | SLC8A1-AS1 | 227028 | 626098 | 19742 | N/A | |
| CERCAM | 167123 | 612334 | 3867 | 481729 | 26216 | LYPD6B | 150556 | 409642 | 11805 | 387077 | 31092 | SLC8A1-AS1 | 227028 | 630006 | 19743 | N/A | |
| CERKL | 188452 | 410087 | 3868 | 386725 | 26217 | LYPD6B | 150556 | 409876 | 11806 | 386479 | 31093 | SLC8A1-AS1 | 227028 | 418854 | 19744 | N/A | |
| CERKL | 188452 | 409440 | 3869 | 387080 | 26218 | LYPD6B | 150556 | 409029 | 11807 | 386650 | 31094 | SLC8A1-AS1 | 227028 | 439606 | 19745 | N/A | |
| CERKL | 188452 | 374969 | 3870 | 364108 | 26219 | LYPD6B | 150556 | 480545 | 11808 | N/A | | SLC8A1-AS1 | 227028 | 629157 | 19746 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CERKL | 188452 | 452174 | 3871 | 409198 | 26220 | LYPD6B | 150556 | 473975 | 11809 | N/A | | SLC8A1-AS1 | 227028 | 599268 | 19747 | N/A | |
| CERKL | 188452 | 339098 | 3872 | 341159 | 26221 | LYPD6B | 150556 | 437627 | 11810 | 388361 | 31095 | SLC8A1-AS1 | 227028 | 597385 | 19748 | N/A | |
| CERKL | 188452 | 374970 | 3873 | 364109 | 26222 | LYPD6B | 150556 | 450639 | 11811 | 412070 | 31096 | SLC8A1-AS1 | 227028 | 625234 | 19749 | N/A | |
| CERKL | 188452 | 374967 | 3874 | 364106 | 26223 | LYPD6B | 150556 | 442722 | 11812 | 410840 | 31097 | SLC8A1-AS1 | 227028 | 631204 | 19750 | N/A | |
| CERKL | 188452 | 494398 | 3875 | N/A | | LYPD6B | 150556 | 498249 | 11813 | N/A | | SLC8A1-AS1 | 227028 | 629180 | 19751 | N/A | |
| CERKL | 188452 | 421817 | 3876 | 411466 | 26224 | LYPD6B | 150556 | 280115 | 11814 | 280115 | 31098 | SLC8A1-AS1 | 227028 | 625324 | 19752 | N/A | |
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| CERKL | 188452 | 466715 | 3878 | N/A | | LYRM1 | 102897 | 568663 | 11816 | 454826 | 31099 | SLC8A1-AS1 | 227028 | 601679 | 19754 | N/A | |
| CERKL | 188452 | 460319 | 3879 | N/A | | LYRM1 | 102897 | 412082 | 11817 | 396868 | 31100 | SLC8A1-AS1 | 227028 | 627219 | 19755 | N/A | |
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| CERKL | 188452 | 497337 | 3881 | N/A | | LYRM1 | 102897 | 569023 | 11819 | 454551 | 31102 | SLC8A1-AS1 | 227028 | 596532 | 19757 | N/A | |
| CERS4 | 090661 | 561008 | 3882 | 453796 | 26225 | LYRM1 | 102897 | 568820 | 11820 | 454890 | 31103 | SLC8A1-AS1 | 227028 | 599956 | 19758 | N/A | |
| CERS4 | 090661 | 558268 | 3883 | 453388 | 26226 | LYRM1 | 102897 | 562740 | 11821 | 454759 | 31104 | SLC8A1-AS1 | 227028 | 597170 | 19759 | N/A | |
| CERS4 | 090661 | 558331 | 3884 | 452753 | 26227 | LYRM1 | 102897 | 567954 | 11822 | 457333 | 31105 | SLC8A1-AS1 | 227028 | 629329 | 19760 | N/A | |
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| CERS4 | 090661 | 559490 | 3886 | N/A | | LYRM1 | 102897 | 439021 | 11824 | 407883 | 31107 | SLC8A1-AS1 | 227028 | 625381 | 19762 | N/A | |
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| CERS4 | 090661 | 559336 | 3889 | 453815 | 26231 | LYZL4 | 157093 | 441172 | 11827 | 387897 | 31110 | SLC8A1-AS1 | 227028 | 610721 | 19765 | N/A | |
| CERS4 | 090661 | 600912 | 3890 | N/A | | LYZL4 | 157093 | 470991 | 11828 | N/A | | SLC8A1-AS1 | 227028 | 598247 | 19766 | N/A | |
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| CERS4 | 090661 | 558501 | 3892 | N/A | | MAATS1 | 183833 | 273390 | 11830 | 273390 | 31111 | SLC8A1-AS1 | 227028 | 435515 | 19768 | N/A | |
| CERS4 | 090661 | 560412 | 3893 | 452920 | 26232 | MAATS1 | 183833 | 482573 | 11831 | 419520 | 31112 | SLC8A1-AS1 | 227028 | 625780 | 19769 | N/A | |
| CERS4 | 090661 | 558877 | 3894 | 454122 | 26233 | MAATS1 | 183833 | 463700 | 11832 | 419489 | 31113 | SLC8A1-AS1 | 227028 | 620276 | 19770 | N/A | |
| CERS4 | 090661 | 557925 | 3895 | N/A | | MAATS1 | 183833 | 482927 | 11833 | 418601 | 31114 | SLC8A1-AS1 | 227028 | 611583 | 19771 | N/A | |
| CERS4 | 090661 | 558302 | 3896 | N/A | | MAATS1 | 183833 | 488533 | 11834 | N/A | | SLC8A1-AS1 | 227028 | 427354 | 19772 | N/A | |
| CERS4 | 090661 | 599275 | 3897 | N/A | | MAATS1 | 183833 | 469659 | 11835 | N/A | | SLC8A1-AS1 | 227028 | 413479 | 19773 | N/A | |
| CFAP161 | 156206 | 560091 | 3898 | 453414 | 26234 | MAATS1 | 183833 | 475093 | 11836 | 419972 | 31115 | SLC8A1-AS1 | 227028 | 619351 | 19774 | N/A | |
| CFAP161 | 156206 | 561216 | 3899 | 454135 | 26235 | MAATS1 | 183833 | 483134 | 11837 | N/A | | SLC8A1-AS1 | 227028 | 417875 | 19775 | N/A | |
| CFAP161 | 156206 | 286732 | 3900 | 286732 | 26236 | MAATS1 | 183833 | 498167 | 11838 | 419554 | 31116 | SLC8A2 | 118160 | 236877 | 19776 | 236877 | 36088 |
| CFAP20 | 070761 | 262498 | 3901 | 262498 | 26237 | MAATS1 | 183833 | 461322 | 11839 | N/A | | SLC8A2 | 118160 | 542837 | 19777 | 437536 | 36089 |
| CFAP20 | 070761 | 562622 | 3902 | N/A | | MAATS1 | 183833 | 470948 | 11840 | N/A | | SLC8A2 | 118160 | 539381 | 19778 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CFAP20 | 070761 | 564150 | 3903 | N/A | | MAATS1 | 183833 | 482995 | 11841 | N/A | | SLC8A2 | 118160 | 600576 | 19779 | N/A | |
| CFAP20 | 070761 | 562443 | 3904 | N/A | | MAATS1 | 183833 | 472117 | 11842 | N/A | | SLC8A2 | 118160 | 601757 | 19780 | N/A | |
| CFAP20 | 070761 | 565880 | 3905 | 455220 | 26238 | MAATS1 | 183833 | 496010 | 11843 | N/A | | SLC8A2 | 118160 | 594353 | 19781 | 472233 | 36090 |
| CFAP20 | 070761 | 567092 | 3906 | N/A | | MAATS1 | 183833 | 475543 | 11844 | N/A | | SLC8A2 | 118160 | 597014 | 19782 | 472208 | 36091 |
| CFAP20 | 070761 | 567660 | 3907 | N/A | | MAF | 178573 | 569649 | 11845 | 455097 | 31117 | SLC8A3 | 100678 | 356921 | 19783 | 349392 | 36092 |
| CFAP221 | 163075 | 295220 | 3908 | 295220 | 26239 | MAF | 178573 | 326043 | 11846 | 327048 | 31118 | SLC8A3 | 100678 | 494208 | 19784 | 436332 | 36093 |
| CFAP221 | 163075 | 463985 | 3909 | 470662 | 26240 | MAF | 178573 | 393350 | 11847 | 377019 | 31119 | SLC8A3 | 100678 | 381269 | 19785 | 370669 | 36094 |
| CFAP221 | 163075 | 413057 | 3910 | 391760 | 26241 | MAFF | 185022 | 624676 | 11848 | N/A | | SLC8A3 | 100678 | 216568 | 19786 | 216568 | 36095 |
| CFAP221 | 163075 | 442513 | 3911 | 409912 | 26242 | MAFF | 185022 | 338483 | 11849 | 345393 | 31120 | SLC8A3 | 100678 | 394330 | 19787 | 377863 | 36096 |
| CFAP221 | 163075 | 594033 | 3912 | 470784 | 26243 | MAFF | 185022 | 441709 | 11850 | 391589 | 31121 | SLC8A3 | 100678 | 534137 | 19788 | 436688 | 36097 |
| CFAP221 | 163075 | 413369 | 3913 | 393222 | 26244 | MAFF | 185022 | 417948 | 11851 | 416493 | 31122 | SLC8A3 | 100678 | 528359 | 19789 | 433531 | 36098 |
| CFAP221 | 163075 | 598644 | 3914 | 472563 | 26245 | MAFF | 185022 | 407965 | 11852 | 384094 | 31123 | SLC8A3 | 100678 | 533541 | 19790 | 437103 | 36099 |
| CFAP221 | 163075 | 594371 | 3915 | 470283 | 26246 | MAFF | 185022 | 538999 | 11853 | 441482 | 31124 | SLC8A3 | 100678 | 533899 | 19791 | N/A | |
| CFAP221 | 163075 | 488358 | 3916 | N/A | | MAFF | 185022 | 426621 | 11854 | 388882 | 31125 | SLC8A3 | 100678 | 357887 | 19792 | 350560 | 36100 |
| CFAP221 | 163075 | 475569 | 3917 | N/A | | MAFF | 185022 | 538320 | 11855 | 442060 | 31126 | SLC8B1 | 089060 | 552014 | 19793 | 447091 | 36101 |
| CFAP221 | 163075 | 594141 | 3918 | 472069 | 26247 | MAG | 105695 | 600291 | 11856 | 470772 | 31127 | SLC8B1 | 089060 | 552565 | 19794 | N/A | |
| CFAP221 | 163075 | 597189 | 3919 | N/A | | MAG | 105695 | 392213 | 11857 | 376048 | 31128 | SLC8B1 | 089060 | 550672 | 19795 | 448758 | 36102 |
| CFAP221 | 163075 | 599827 | 3920 | 471092 | 26248 | MAG | 105695 | 361922 | 11858 | 355234 | 31129 | SLC8B1 | 089060 | 550047 | 19796 | 447585 | 36103 |
| CFAP221 | 163075 | 443972 | 3921 | 413299 | 26249 | MAG | 105695 | 595791 | 11859 | 473125 | 31130 | SLC8B1 | 089060 | 549069 | 19797 | 449519 | 36104 |
| CFAP221 | 163075 | 600951 | 3922 | 471998 | 26250 | MAG | 105695 | 597035 | 11860 | 473245 | 31131 | SLC8B1 | 089060 | 546737 | 19798 | 450081 | 36105 |
| CFAP221 | 163075 | 434869 | 3923 | 399793 | 26251 | MAG | 105695 | 537831 | 11861 | 440695 | 31132 | SLC8B1 | 089060 | 553238 | 19799 | N/A | |
| CFAP221 | 163075 | 464578 | 3924 | N/A | | MAG | 105695 | 593348 | 11862 | N/A | | SLC8B1 | 089060 | 551230 | 19800 | N/A | |
| CFAP43 | 197748 | 457071 | 3925 | 394274 | 26252 | MAG | 105695 | 597162 | 11863 | N/A | | SLC8B1 | 089060 | 548477 | 19801 | N/A | |
| CFAP43 | 197748 | 434629 | 3926 | 391364 | 26253 | MAG | 105695 | 600291 | 11864 | 470772 | 31133 | SLC8B1 | 089060 | 549181 | 19802 | 448703 | 36106 |
| CFAP43 | 197748 | 479392 | 3927 | N/A | | MAG | 105695 | 392213 | 11865 | 376048 | 31134 | SLC8B1 | 089060 | 549605 | 19803 | 448749 | 36107 |
| CFAP43 | 197748 | 278064 | 3928 | 278064 | 26254 | MAG | 105695 | 361922 | 11866 | 355234 | 31135 | SLC8B1 | 089060 | 552613 | 19804 | 447502 | 36108 |
| CFAP43 | 197748 | 369720 | 3929 | 358734 | 26255 | MAG | 105695 | 595791 | 11867 | 473125 | 31136 | SLC8B1 | 089060 | 548186 | 19805 | 449448 | 36109 |
| CFAP43 | 197748 | 369719 | 3930 | 358733 | 26256 | MAG | 105695 | 597035 | 11868 | 473245 | 31137 | SLC8B1 | 089060 | 549372 | 19806 | 447972 | 36110 |
| CFAP43 | 197748 | 357060 | 3931 | 349568 | 26257 | MAG | 105695 | 537831 | 11869 | 440695 | 31138 | SLC8B1 | 089060 | 548518 | 19807 | N/A | |
| CFAP46 | 171811 | 368586 | 3932 | 357575 | 26258 | MAG | 105695 | 593348 | 11870 | N/A | | SLC8B1 | 089060 | 202831 | 19808 | 202831 | 36111 |
| CFAP46 | 171811 | 639072 | 3933 | 491877 | 26259 | MAG | 105695 | 597162 | 11871 | N/A | | SLC9A3 | 066230 | 264938 | 19809 | 264938 | 36112 |
| CFAP46 | 171811 | 448925 | 3934 | 417039 | 26260 | MAGI3 | 081026 | 369617 | 11872 | 358630 | 31139 | SLC9A3 | 066230 | 514375 | 19810 | 422983 | 36113 |
| CFAP46 | 171811 | 476633 | 3935 | N/A | | MAGI3 | 081026 | 307546 | 11873 | 304604 | 31140 | SLC9A3 | 066230 | 507407 | 19811 | N/A | |
| CFAP46 | 171811 | 417862 | 3936 | N/A | | MAGI3 | 081026 | 369615 | 11874 | 358628 | 31141 | SLC9A3 | 281861 | 628307 | 19812 | 486364 | 36114 |
| CFAP46 | 171811 | 486104 | 3937 | N/A | | MAGI3 | 081026 | 369611 | 11875 | 358624 | 31142 | SLC9A3 | 281861 | 626862 | 19813 | 486297 | 36115 |
| CFAP46 | 171811 | 466834 | 3938 | N/A | | MAGI3 | 081026 | 486456 | 11876 | N/A | | SLC9A9 | 181804 | 316549 | 19814 | 320246 | 36116 |
| CFAP46 | 171811 | 368585 | 3939 | 357574 | 26261 | MAGI3 | 081026 | 477955 | 11877 | N/A | | SLC9A9 | 181804 | 483124 | 19815 | N/A | |
| CFAP46 | 171811 | 475340 | 3940 | N/A | | MAGT1 | 102158 | 358075 | 11878 | 354649 | 31143 | SLC9A9 | 181804 | 474727 | 19816 | 419090 | 36117 |
| CFAP53 | 172361 | 398545 | 3941 | 381553 | 26262 | MAGT1 | 102158 | 618282 | 11879 | 480732 | 31144 | SLC9A9 | 181804 | 474151 | 19817 | 418627 | 36118 |
| CFAP70 | 156042 | 462684 | 3942 | N/A | | MAGT1 | 102158 | 476168 | 11880 | N/A | | SLC9A9 | 181804 | 498717 | 19818 | N/A | |
| CFAP70 | 156042 | 495161 | 3943 | N/A | | MAGT1 | 102158 | 373336 | 11881 | 362433 | 31145 | SLCO2B1 | 137491 | 526660 | 19819 | N/A | |
| CFAP70 | 156042 | 433268 | 3944 | 409527 | 26263 | MAGT1 | 102158 | 610432 | 11882 | 478379 | 31146 | SLCO2B1 | 137491 | 531713 | 19820 | 432889 | 36119 |
| CFAP70 | 156042 | 493787 | 3945 | N/A | | MAK | 111837 | 313243 | 11883 | 313021 | 31147 | SLCO2B1 | 137491 | 289575 | 19821 | 289575 | 36120 |
| CFAP70 | 156042 | 340329 | 3946 | 343650 | 26264 | MAK | 111837 | 474039 | 11884 | 476067 | 31148 | SLCO2B1 | 137491 | 532236 | 19822 | 434112 | 36121 |
| CFAP70 | 156042 | 355577 | 3947 | 347781 | 26265 | MAK | 111837 | 354489 | 11885 | 346484 | 31149 | SLCO2B1 | 137491 | 531756 | 19823 | N/A | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CHORDC1 | 110172 | 457199 | 4073 | 401080 | 26342 | MASP1 | 127241 | 337774 | 12011 | 336792 | 31233 | SNED1 | 162804 | 493358 | 19949 | N/A | |
| CHORDC1 | 110172 | 529726 | 4074 | 436632 | 26343 | MASP1 | 127241 | 468121 | 12012 | N/A | | SNED1 | 162804 | 401644 | 19950 | 384789 | 36207 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHORDC1 | 110172 | 525317 | 4075 | 436945 | 26344 | MASP1 | 127241 | 480349 | 12013 | N/A | | SNED1 | 162804 | 431690 | 19951 | 401865 | 36208 |
| CHORDC1 | 110172 | 533772 | 4076 | 434040 | 26345 | MASP1 | 127241 | 296280 | 12014 | 296280 | 31234 | SNED1 | 162804 | 420591 | 19952 | 394324 | 36209 |
| CHORDC1 | 110172 | 530765 | 4077 | 431929 | 26346 | MASP1 | 127241 | 392472 | 12015 | 376264 | 31235 | SNED1 | 162804 | 469006 | 19953 | N/A | |
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| CHORDC1 | 110172 | 529402 | 4079 | 432019 | 26348 | MASP1 | 127241 | 169293 | 12017 | 169293 | 31236 | SNED1 | 162804 | 466618 | 19955 | N/A | |
| CHORDC1 | 110172 | 533739 | 4080 | N/A | | MASP1 | 127241 | 392470 | 12018 | 376262 | 31237 | SNED1 | 162804 | 491761 | 19956 | N/A | |
| CHRD | 090539 | 356534 | 4081 | 348930 | 26349 | MASP1 | 127241 | 483719 | 12019 | N/A | | SNED1 | 162804 | 342631 | 19957 | 342992 | 36210 |
| CHRD | 090539 | 204604 | 4082 | 204604 | 26350 | MASP1 | 127241 | 460839 | 12020 | N/A | | SNHG5 | 203875 | 623163 | 19958 | N/A | |
| CHRD | 090539 | 448472 | 4083 | 408624 | 26351 | MASP1 | 127241 | 490558 | 12021 | N/A | | SNHG5 | 203875 | 623901 | 19959 | N/A | |
| CHRD | 090539 | 420973 | 4084 | 392794 | 26352 | MASP1 | 127241 | 392475 | 12022 | 376267 | 31238 | SNHG5 | 203875 | 589187 | 19960 | N/A | |
| CHRD | 090539 | 460627 | 4085 | N/A | | MASP1 | 127241 | 465015 | 12023 | N/A | | SNHG5 | 203875 | 622963 | 19961 | N/A | |
| CHRD | 090539 | 450923 | 4086 | 408972 | 26353 | MASP1 | 127241 | 439271 | 12024 | 412021 | 31239 | SNHG5 | 203875 | 623650 | 19962 | N/A | |
| CHRD | 090539 | 348986 | 4087 | 334036 | 26354 | MASP1 | 127241 | 425937 | 12025 | 409047 | 31240 | SNHG5 | 203875 | 624128 | 19963 | N/A | |
| CHRD | 090539 | 470150 | 4088 | N/A | | MATN1 | 162510 | 373765 | 12026 | 362870 | 31241 | SNHG5 | 203875 | 587692 | 19964 | N/A | |
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| CHRD | 090539 | 485883 | 4091 | N/A | | MATN4 | 124159 | 372756 | 12029 | 361842 | 31242 | SNHG5 | 203875 | 435947 | 19967 | N/A | |
| CHRD | 090539 | 482805 | 4092 | N/A | | MATN4 | 124159 | 372754 | 12030 | 361840 | 31243 | SNHG5 | 203875 | 624295 | 19968 | N/A | |
| CHRD | 090539 | 486066 | 4093 | N/A | | MATN4 | 124159 | 360607 | 12031 | 353819 | 31244 | SNHG5 | 203875 | 625175 | 19969 | N/A | |
| CHRD | 090539 | 461684 | 4094 | N/A | | MATN4 | 124159 | 353917 | 12032 | 243983 | 31245 | SNHG5 | 203875 | 623910 | 19970 | N/A | |
| CHRD | 090539 | 482014 | 4095 | N/A | | MATN4 | 124159 | 537548 | 12033 | 440328 | 31246 | SNHG5 | 203875 | 428833 | 19971 | N/A | |
| CHRD | 090539 | 461120 | 4096 | N/A | | MBOAT1 | 172197 | 324607 | 12034 | 324944 | 31247 | SNHG5 | 203875 | 453754 | 19972 | N/A | |
| CHRD | 090539 | 464833 | 4097 | N/A | | MBOAT2 | 143797 | 305997 | 12035 | 302177 | 31248 | SNHG5 | 203875 | 420199 | 19973 | N/A | |
| CHRM1 | 168539 | 306960 | 4098 | 306490 | 26355 | MBOAT2 | 143797 | 471753 | 12036 | 419573 | 31249 | SNHG5 | 203875 | 414002 | 19974 | N/A | |
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| CHRM3 | 133019 | 468573 | 4101 | N/A | | MBOAT2 | 143797 | 486484 | 12039 | N/A | | SNHG5 | 203875 | 431043 | 19977 | N/A | |
| CHRM3 | 133019 | 492335 | 4102 | N/A | | MBOAT2 | 143797 | 494760 | 12040 | N/A | | SNHG5 | 203875 | 433843 | 19978 | N/A | |
| CHRM3 | 133019 | 481779 | 4103 | N/A | | MBOAT2 | 143797 | 477073 | 12041 | 420114 | 31250 | SNHG5 | 203875 | 425170 | 19979 | N/A | |
| CHRM3 | 133019 | 255380 | 4104 | 255380 | 26358 | MBOAT2 | 143797 | 474341 | 12042 | N/A | | SNTB1 | 172164 | 395601 | 19980 | 378965 | 36211 |
| CHRM3 | 133019 | 487470 | 4105 | N/A | | MBOAT2 | 143797 | 462696 | 12043 | 417409 | 31251 | SNTB1 | 172164 | 517992 | 19981 | 431124 | 36212 |
| CHRM3 | 133019 | 448020 | 4106 | 404764 | 26359 | MBOAT2 | 143797 | 460786 | 12044 | N/A | | SNTB1 | 172164 | 519177 | 19982 | N/A | |
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| CHRNA3 | 080644 | 559002 | 4108 | N/A | | MBOAT7 | 278519 | 621455 | 12046 | 477891 | 31253 | SNTB1 | 172164 | 520717 | 19984 | 429292 | 36213 |
| CHRNA3 | 080644 | 559658 | 4109 | 452896 | 26361 | MBOAT7 | 278519 | 612053 | 12047 | 482884 | 31254 | SNX22 | 157734 | 557789 | 19985 | N/A | |
| CHRNA3 | 080644 | 348639 | 4110 | 267951 | 26362 | MBOAT7 | 278322 | 621612 | 12048 | 478088 | 31255 | SNX22 | 157734 | 325881 | 19986 | 323435 | 36214 |
| CHRNA3 | 080644 | 326828 | 4111 | 315602 | 26363 | MBOAT7 | 278322 | 611602 | 12049 | 482369 | 31256 | SNX22 | 157734 | 561334 | 19987 | N/A | |
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| CHRNA3 | 080644 | 561128 | 4113 | N/A | | MBOAT7 | 277733 | 621875 | 12051 | 478041 | 31258 | SNX22 | 157734 | 560607 | 19989 | N/A | |
| CHRNA3 | 080644 | 559080 | 4114 | 453993 | 26364 | MBOAT7 | 277733 | 621146 | 12052 | 481758 | 31259 | SNX22 | 157734 | 560945 | 19990 | N/A | |
| CHRNA3 | 080644 | 559941 | 4115 | N/A | | MBOAT7 | 277733 | 612567 | 12053 | 483526 | 31260 | SNX22 | 157734 | 560997 | 19991 | N/A | |
| CHST1 | 175264 | 308064 | 4116 | 309270 | 26365 | MBOAT7 | 276935 | 617012 | 12054 | 484199 | 31261 | SNX33 | 173548 | 308527 | 19992 | 311427 | 36216 |
| CHST1 | 175264 | 533673 | 4117 | N/A | | MBOAT7 | 276935 | 610862 | 12055 | 481119 | 31262 | SNX33 | 173548 | 569152 | 19993 | 455436 | 36217 |
| CHST1 | 175264 | 531322 | 4118 | N/A | | MBOAT7 | 276935 | 622772 | 12056 | N/A | | SOAT1 | 057252 | 367619 | 19994 | 356591 | 36218 |
| CHST10 | 115526 | 264249 | 4119 | 264249 | 26366 | MBOAT7 | 276935 | 613056 | 12057 | N/A | | SOAT1 | 057252 | 426956 | 19995 | 411309 | 36219 |
| CHST10 | 115526 | 409701 | 4120 | 387309 | 26367 | MBOAT7 | 276935 | 616849 | 12058 | 484102 | 31263 | SOAT1 | 057252 | 540564 | 19996 | 445315 | 36220 |
| CHST10 | 115526 | 484382 | 4121 | N/A | | MBOAT7 | 276935 | 620231 | 12059 | 477618 | 31264 | SOAT1 | 057252 | 539888 | 19997 | 441356 | 36221 |
| CHST10 | 115526 | 409046 | 4122 | 387121 | 26368 | MBOAT7 | 276935 | 615450 | 12060 | N/A | | SOBP | 112320 | 317357 | 19998 | 318900 | 36222 |
| CHST10 | 115526 | 420858 | 4123 | 405922 | 26369 | MBOAT7 | 276935 | 618692 | 12061 | N/A | | SOBP | 112320 | 477448 | 19999 | N/A | |
| CHST10 | 115526 | 448989 | 4124 | 387977 | 26370 | MBOAT7 | 276935 | 611939 | 12062 | N/A | | SOBP | 112320 | 494935 | 20000 | N/A | |
| CHST10 | 115526 | 421474 | 4125 | 407525 | 26371 | MBOAT7 | 276935 | 615263 | 12063 | N/A | | SOBP | 112320 | 618129 | 20001 | 478366 | 36223 |
| CHST10 | 115526 | 418201 | 4126 | 416831 | 26372 | MBOAT7 | 276935 | 621905 | 12064 | N/A | | SOCS2 | 120833 | 340600 | 20002 | 339428 | 36224 |
| CHST10 | 115526 | 435960 | 4127 | 395643 | 26373 | MBOAT7 | 276935 | 619104 | 12065 | N/A | | SOCS2 | 120833 | 549206 | 20003 | 448815 | 36225 |
| CHST10 | 115526 | 485085 | 4128 | N/A | | MBOAT7 | 276935 | 614279 | 12066 | 480894 | 31265 | SOCS2 | 120833 | 536696 | 20004 | 442898 | 36226 |
| CHST10 | 115526 | 487860 | 4129 | N/A | | MBOAT7 | 125505 | 437868 | 12067 | 404915 | 31266 | SOCS2 | 120833 | 548091 | 20005 | 447902 | 36227 |
| CHST10 | 115526 | 466583 | 4130 | N/A | | MBOAT7 | 125505 | 338624 | 12068 | 344377 | 31267 | SOCS2 | 120833 | 549122 | 20006 | 447161 | 36228 |
| CHST11 | 171310 | 550711 | 4131 | N/A | | MBOAT7 | 125505 | 245615 | 12069 | 245615 | 31268 | SOCS2 | 120833 | 548537 | 20007 | 448709 | 36229 |
| CHST11 | 171310 | 547956 | 4132 | 449093 | 26374 | MBOAT7 | 125505 | 494142 | 12070 | N/A | | SOCS2 | 120833 | 549887 | 20008 | 448611 | 36230 |
| CHST11 | 171310 | 549260 | 4133 | 450004 | 26375 | MBOAT7 | 125505 | 449249 | 12071 | 406794 | 31269 | SOCS2 | 120833 | 551556 | 20009 | 449227 | 36231 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHST11 | 171310 | 303694 | 4134 | 305725 | 26376 | MBOAT7 | 125505 | 391754 | 12072 | 375634 | 31270 | SOCS2 | 120833 | 547229 | 20010 | 473902 | 36232 |
| CHST11 | 171310 | 546689 | 4135 | 448678 | 26377 | MBOAT7 | 125505 | 495279 | 12073 | 472209 | 31271 | SOCS2 | 120833 | 551883 | 20011 | 474805 | 36233 |
| CHST11 | 171310 | 549016 | 4136 | 449095 | 26378 | MBOAT7 | 125505 | 414665 | 12074 | 388250 | 31272 | SOCS2 | 120833 | 549510 | 20012 | 474888 | 36234 |
| CHST12 | 136213 | 258711 | 4137 | 258711 | 26379 | MBOAT7 | 125505 | 453320 | 12075 | 410320 | 31273 | SOCS2 | 120833 | 622746 | 20013 | 481249 | 36235 |
| CHST12 | 136213 | 432336 | 4138 | 411207 | 26380 | MBOAT7 | 125505 | 464098 | 12076 | N/A | | SOD1 | 142168 | 270142 | 20014 | 270142 | 36236 |
| CHST12 | 136213 | 313156 | 4139 | N/A | | MBOAT7 | 125505 | 474910 | 12077 | N/A | | SOD1 | 142168 | 389995 | 20015 | 374645 | 36237 |
| CHST12 | 136213 | 618655 | 4140 | 481912 | 26381 | MBOAT7 | 125505 | 491216 | 12078 | N/A | | SOD1 | 142168 | 476106 | 20016 | N/A | |
| CHST15 | 182022 | 346248 | 4141 | 333947 | 26382 | MBOAT7 | 125505 | 495968 | 12079 | N/A | | SOD1 | 142168 | 470944 | 20017 | N/A | |
| CHST15 | 182022 | 628426 | 4142 | 485905 | 26383 | MBOAT7 | 125505 | 431666 | 12080 | 410503 | 31274 | SOD3 | 109610 | 598411 | 20018 | 472134 | 36238 |
| CHST15 | 182022 | 476765 | 4143 | N/A | | MBOAT7 | 273592 | 614745 | 12081 | N/A | | SOD3 | 109610 | 593742 | 20019 | N/A | |
| CHST15 | 182022 | 462406 | 4144 | 487014 | 26384 | MBOAT7 | 273592 | 619855 | 12082 | 484954 | 31275 | SOD3 | 109610 | 382120 | 20020 | 371554 | 36239 |
| CHST15 | 182022 | 435907 | 4145 | 402394 | 26385 | MBOAT7 | 273592 | 610921 | 12083 | N/A | | SORBS2 | 154556 | 319471 | 20021 | 322182 | 36240 |
| CHST5 | 135702 | 336257 | 4146 | 338783 | 26386 | MBOAT7 | 273592 | 614760 | 12084 | N/A | | SORBS2 | 154556 | 449407 | 20022 | 397262 | 36241 |
| CHST5 | 135702 | 565039 | 4147 | 454375 | 26387 | MBOAT7 | 273592 | 618899 | 12085 | 480531 | 31276 | SORBS2 | 154556 | 355634 | 20023 | 347852 | 36242 |
| CHST8 | 124302 | 591231 | 4148 | 467012 | 26388 | MBOAT7 | 273592 | 616653 | 12086 | N/A | | SORBS2 | 154556 | 393528 | 20024 | 377162 | 36243 |
| CHST8 | 124302 | 438847 | 4149 | 393879 | 26389 | MBOAT7 | 273592 | 617324 | 12087 | 478623 | 31277 | SORBS2 | 154556 | 478461 | 20025 | N/A | |
| CHST8 | 124302 | 604556 | 4150 | N/A | | MBOAT7 | 273592 | 619692 | 12088 | N/A | | SORBS2 | 154556 | 319454 | 20026 | 321983 | 36244 |
| CHST8 | 124302 | 262622 | 4151 | 262622 | 26390 | MBOAT7 | 273592 | 617095 | 12089 | 482316 | 31278 | SORBS2 | 154556 | 498125 | 20027 | N/A | |
| CHST8 | 124302 | 434302 | 4152 | 392604 | 26391 | MBOAT7 | 273592 | 616410 | 12090 | N/A | | SORBS2 | 154556 | 480146 | 20028 | N/A | |
| CHST9 | 154080 | 618847 | 4153 | 480991 | 26392 | MBOAT7 | 273592 | 618614 | 12091 | N/A | | SORBS2 | 154556 | 451974 | 20029 | 401818 | 36245 |
| CHST9 | 154080 | 581714 | 4154 | 462852 | 26393 | MBOAT7 | 273592 | 611302 | 12092 | N/A | | SORBS2 | 154556 | 438278 | 20030 | 389995 | 36246 |
| CHST9 | 154080 | 580774 | 4155 | 464655 | 26394 | MBOAT7 | 273592 | 620371 | 12093 | 479760 | 31279 | SORBS2 | 154556 | 487184 | 20031 | N/A | |
| CHSY1 | 131873 | 254190 | 4156 | 254190 | 26395 | MBOAT7 | 275118 | 615872 | 12094 | 481141 | 31280 | SORBS2 | 154556 | 445625 | 20032 | 391940 | 36247 |
| CHSY1 | 131873 | 543813 | 4157 | N/A | | MBOAT7 | 275118 | 615282 | 12095 | 483987 | 31281 | SORBS2 | 154556 | 487836 | 20033 | N/A | |
| CHSY1 | 131873 | 560766 | 4158 | N/A | | MBOAT7 | 275118 | 613746 | 12096 | 484933 | 31282 | SORBS2 | 154556 | 495932 | 20034 | N/A | |
| CHSY1 | 131873 | 561414 | 4159 | N/A | | MBOAT7 | 275118 | 610768 | 12097 | N/A | | SORBS2 | 154556 | 490562 | 20035 | N/A | |
| CHSY1 | 131873 | 561143 | 4160 | N/A | | MBOAT7 | 275118 | 621334 | 12098 | 483561 | 31283 | SORBS2 | 154556 | 492104 | 20036 | N/A | |
| CHSY1 | 131873 | 559384 | 4161 | N/A | | MBOAT7 | 275118 | 619670 | 12099 | 479750 | 31284 | SORBS2 | 154556 | 490779 | 20037 | N/A | |
| CHSY3 | 198108 | 305031 | 4162 | 302629 | 26396 | MBOAT7 | 275118 | 612092 | 12100 | 482357 | 31285 | SORBS2 | 154556 | 492810 | 20038 | N/A | |
| CHSY3 | 198108 | 507545 | 4163 | N/A | | MBOAT7 | 275118 | 619844 | 12101 | 480282 | 31286 | SORBS2 | 154556 | 476311 | 20039 | N/A | |
| CHTF18 | 127586 | 464728 | 4164 | N/A | | MBOAT7 | 275118 | 612519 | 12102 | 479717 | 31287 | SORBS2 | 154556 | 466289 | 20040 | N/A | |
| CHTF18 | 127586 | 262315 | 4165 | 262315 | 26397 | MBOAT7 | 275118 | 621649 | 12103 | N/A | | SORBS2 | 154556 | 485380 | 20041 | N/A | |
| CHTF18 | 127586 | 570058 | 4166 | N/A | | MBOAT7 | 275118 | 621527 | 12104 | N/A | | SORBS2 | 154556 | 470685 | 20042 | N/A | |
| CHTF18 | 127586 | 563545 | 4167 | 456998 | 26398 | MBOAT7 | 275118 | 611912 | 12105 | N/A | | SORBS2 | 154556 | 494140 | 20043 | N/A | |
| CHTF18 | 127586 | 479976 | 4168 | N/A | | MBOAT7 | 275118 | 621865 | 12106 | N/A | | SORBS2 | 154556 | 445343 | 20044 | 399048 | 36248 |
| CHTF18 | 127586 | 455171 | 4169 | 406252 | 26399 | MBOAT7 | 274194 | 613506 | 12107 | 478965 | 31288 | SORBS2 | 154556 | 439914 | 20045 | 408909 | 36249 |
| CHTF18 | 127586 | 440239 | 4170 | 399111 | 26400 | MBOAT7 | 274194 | 617656 | 12108 | 481864 | 31289 | SORBS2 | 154556 | 444771 | 20046 | 410483 | 36250 |
| CHTF18 | 127586 | 471202 | 4171 | N/A | | MBOAT7 | 274194 | 617772 | 12109 | 480575 | 31290 | SORBS2 | 154556 | 430503 | 20047 | 405349 | 36251 |
| CHTF18 | 127586 | 491530 | 4172 | N/A | | MBOAT7 | 277025 | 618378 | 12110 | 482252 | 31291 | SORBS2 | 154556 | 450341 | 20048 | 415680 | 36252 |
| CHTF18 | 127586 | 426047 | 4173 | 412015 | 26401 | MBOAT7 | 277025 | 619745 | 12111 | 481544 | 31292 | SORBS2 | 154556 | 445115 | 20049 | 397664 | 36253 |
| CHTF18 | 127586 | 484349 | 4174 | N/A | | MBOAT7 | 277025 | 611239 | 12112 | 481947 | 31293 | SORBS2 | 154556 | 457247 | 20050 | 398335 | 36254 |
| CHTF18 | 127586 | 569270 | 4175 | 454679 | 26402 | MBOAT7 | 277923 | 619842 | 12113 | 481455 | 31294 | SORBS2 | 154556 | 456596 | 20051 | 410967 | 36255 |
| CHTF18 | 127586 | 567620 | 4176 | N/A | | MBOAT7 | 277923 | 618826 | 12114 | 483839 | 31295 | SORBS2 | 154556 | 425679 | 20052 | 415637 | 36256 |
| CHTF18 | 127586 | 565787 | 4177 | N/A | | MBOAT7 | 277923 | 620311 | 12115 | 478522 | 31296 | SORBS2 | 154556 | 439049 | 20053 | 416464 | 36257 |
| CHTF18 | 127586 | 461268 | 4178 | N/A | | MBP | 197971 | 382582 | 12116 | 372025 | 31297 | SORBS2 | 154556 | 451958 | 20054 | 405092 | 36258 |
| CHTF18 | 127586 | 493715 | 4179 | N/A | | MBP | 197971 | 490319 | 12117 | N/A | | SORBS2 | 154556 | 444781 | 20055 | 396183 | 36259 |
| CHTF18 | 127586 | 498439 | 4180 | N/A | | MBP | 197971 | 585201 | 12118 | 462734 | 31298 | SORBS2 | 154556 | 414724 | 20056 | 403417 | 36260 |
| CHTF18 | 127586 | 564940 | 4181 | N/A | | MBP | 197971 | 397875 | 12119 | 380973 | 31299 | SORBS2 | 154556 | 419063 | 20057 | 408504 | 36261 |
| CHTF18 | 127586 | 631357 | 4182 | 486314 | 26403 | MBP | 197971 | 397866 | 12120 | 380964 | 31300 | SORBS2 | 154556 | 393523 | 20058 | 377158 | 36262 |
| CHTF18 | 127586 | 317063 | 4183 | 313029 | 26404 | MBP | 197971 | 397865 | 12121 | 380963 | 31301 | SORBS2 | 154556 | 420158 | 20059 | 410233 | 36263 |
| CIPC | 198894 | 361786 | 4184 | 355319 | 26405 | MBP | 197971 | 527041 | 12122 | 435243 | 31302 | SORBS2 | 154556 | 421639 | 20060 | 405646 | 36264 |
| CIPC | 198894 | 555437 | 4185 | 451997 | 26406 | MBP | 197971 | 359645 | 12123 | 352667 | 31303 | SORBS2 | 154556 | 493709 | 20061 | N/A | |
| CIPC | 198894 | 556863 | 4186 | N/A | | MBP | 197971 | 528160 | 12124 | 436830 | 31304 | SORBS2 | 154556 | 457934 | 20062 | 405314 | 36265 |
| CIPC | 198894 | 555611 | 4187 | 450972 | 26407 | MBP | 197971 | 577755 | 12125 | 462780 | 31305 | SORBS2 | 154556 | 431902 | 20063 | 405432 | 36266 |
| CIPC | 198894 | 554658 | 4188 | 451522 | 26408 | MBP | 197971 | 527975 | 12126 | 431267 | 31306 | SORBS2 | 154556 | 435480 | 20064 | 415166 | 36267 |
| CIPC | 198894 | 557115 | 4189 | 452589 | 26409 | MBP | 197971 | 578715 | 12127 | N/A | | SORBS2 | 154556 | 415274 | 20065 | 415392 | 36268 |
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| CIT | 122966 | 392521 | 4192 | 376306 | 26412 | MBP | 197971 | 531144 | 12130 | 431335 | 31309 | SORBS2 | 154556 | 428330 | 20068 | 402328 | 36271 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CIT | 122966 | 261833 | 4193 | 261833 | 26413 | MBP | 197971 | 583474 | 12131 | 462758 | 31310 | SORBS2 | 154556 | 421420 | 20069 | 393258 | 36272 |
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| CIT | 122966 | 537607 | 4196 | N/A | | MBP | 197971 | 580402 | 12134 | 462223 | 31313 | SORBS2 | 154556 | 478249 | 20072 | N/A | |
| CIT | 122966 | 544872 | 4197 | N/A | | MBP | 197971 | 579129 | 12135 | 463780 | 31314 | SORBS2 | 154556 | 452351 | 20073 | 412447 | 36273 |
| CIT | 122966 | 469414 | 4198 | N/A | | MBP | 197971 | 578193 | 12136 | 463405 | 31315 | SORBS2 | 154556 | 429056 | 20074 | 390162 | 36274 |
| CIT | 122966 | 538073 | 4199 | N/A | | MBP | 197971 | 397868 | 12137 | N/A | | SORBS2 | 154556 | 463104 | 20075 | N/A | |
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| CIT | 122966 | 544800 | 4201 | N/A | | MBP | 197971 | 581179 | 12139 | N/A | | SORBS2 | 154556 | 476878 | 20077 | N/A | |
| CIT | 122966 | 543239 | 4202 | N/A | | MBP | 197971 | 580473 | 12140 | N/A | | SORBS2 | 154556 | 462661 | 20078 | N/A | |
| CIT | 122966 | 536008 | 4203 | N/A | | MBP | 197971 | 582282 | 12141 | N/A | | SORBS2 | 154556 | 469627 | 20079 | N/A | |
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| CIT | 122966 | 536325 | 4205 | 443199 | 26415 | MBP | 197971 | 483025 | 12143 | 442393 | 31318 | SORBS2 | 154556 | 418609 | 20081 | 397482 | 36276 |
| CIT | 122966 | 546026 | 4206 | 446105 | 26416 | MBP | 197971 | 493623 | 12144 | 436951 | 31319 | SORBS2 | 154556 | 448662 | 20082 | 409158 | 36277 |
| CIT | 122966 | 541841 | 4207 | N/A | | MBP | 197971 | 585216 | 12145 | N/A | | SORBS2 | 154556 | 437304 | 20083 | 396008 | 36278 |
| CIT | 122966 | 488203 | 4208 | N/A | | MBP | 197971 | 484548 | 12146 | N/A | | SORBS2 | 154556 | 284776 | 20084 | 284776 | 36279 |
| CIT | 122966 | 539413 | 4209 | N/A | | MBP | 197971 | 583118 | 12147 | N/A | | SORBS3 | 120896 | 522037 | 20085 | N/A | |
| CIT | 122966 | 612548 | 4210 | 482318 | 26417 | MBP | 197971 | 578873 | 12148 | 463137 | 31320 | SORBS3 | 120896 | 523941 | 20086 | N/A | |
| CKMT1B | 237289 | 453782 | 4211 | 413999 | 26418 | MBP | 197971 | 467108 | 12149 | N/A | | SORBS3 | 120896 | 240123 | 20087 | 240123 | 36280 |
| CKMT1B | 237289 | 437924 | 4212 | 391900 | 26419 | MBP | 197971 | 459948 | 12150 | 435322 | 31321 | SORBS3 | 120896 | 517500 | 20088 | 429723 | 36281 |
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| CKMT1B | 237289 | 449946 | 4215 | 416467 | 26420 | MBP | 197971 | 583266 | 12153 | N/A | | SORBS3 | 120896 | 520563 | 20091 | 428102 | 36282 |
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| CKMT1B | 237289 | 411560 | 4223 | N/A | | MBP | 197971 | 493247 | 12161 | N/A | | SORBS3 | 120896 | 523900 | 20099 | 431128 | 36283 |
| CKMT1B | 237289 | 300283 | 4224 | 300283 | 26426 | MBP | 197971 | 583798 | 12162 | 463164 | 31326 | SORBS3 | 120896 | 523965 | 20100 | 429764 | 36284 |
| CKMT1B | 237289 | 627381 | 4225 | 486477 | 26427 | MBP | 197971 | 355994 | 12163 | 348273 | 31327 | SORBS3 | 120896 | 521554 | 20101 | N/A | |
| CLASRP | 104859 | 221455 | 4226 | 221455 | 26428 | MCAM | 076706 | 264036 | 12164 | 264036 | 31328 | SORBS3 | 120896 | 522721 | 20102 | 429479 | 36285 |
| CLASRP | 104859 | 391953 | 4227 | 375815 | 26429 | MCAM | 076706 | 528533 | 12165 | N/A | | SORBS3 | 120896 | 523348 | 20103 | 428678 | 36286 |
| CLASRP | 104859 | 592056 | 4228 | N/A | | MCAM | 076706 | 525586 | 12166 | N/A | | SORBS3 | 120896 | 517962 | 20104 | 428327 | 36287 |
| CLASRP | 104859 | 591410 | 4229 | 465750 | 26430 | MCAM | 076706 | 524940 | 12167 | N/A | | SORBS3 | 120896 | 520207 | 20105 | N/A | |
| CLASRP | 104859 | 391952 | 4230 | 375814 | 26431 | MCAM | 076706 | 528976 | 12168 | N/A | | SORBS3 | 120896 | 519127 | 20106 | N/A | |
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| CLASRP | 104859 | 588936 | 4232 | 465562 | 26432 | MCAM | 076706 | 529257 | 12170 | N/A | | SORCS3 | 156395 | 393176 | 20108 | 376876 | 36289 |
| CLASRP | 104859 | 544944 | 4233 | 438702 | 26433 | MCAM | 076706 | 529295 | 12171 | N/A | | SORCS3 | 156395 | 369699 | 20109 | 358713 | 36290 |
| CLASRP | 104859 | 587112 | 4234 | 466371 | 26434 | MCAM | 076706 | 530006 | 12172 | N/A | | SOS1 | 115904 | 426016 | 20110 | 387784 | 36291 |
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| CLASRP | 104859 | 585432 | 4236 | N/A | | MCAM | 076706 | 528502 | 12174 | N/A | | SOS1 | 115904 | 469581 | 20112 | N/A | |
| CLASRP | 104859 | 585615 | 4237 | N/A | | MCAM | 076706 | 529686 | 12175 | N/A | | SOS1 | 115904 | 474390 | 20113 | N/A | |
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| CLASRP | 104859 | 587472 | 4239 | N/A | | MCAM | 076706 | 525555 | 12177 | N/A | | SOS1 | 115904 | 461545 | 20115 | N/A | |
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| CLASRP | 104859 | 588070 | 4241 | N/A | | MCAM | 076706 | 530144 | 12179 | N/A | | SOS1 | 115904 | 402219 | 20117 | 384675 | 36294 |
| CLCN1 | 188037 | 343257 | 4242 | 339867 | 26436 | MCAM | 076706 | 526992 | 12180 | N/A | | SOX10 | 100146 | 427770 | 20118 | 414853 | 36295 |
| CLCN1 | 188037 | 432192 | 4243 | 395949 | 26437 | MCC | 171444 | 302475 | 12181 | 305617 | 31329 | SOX10 | 100146 | 470555 | 20119 | N/A | |
| CLCN1 | 188037 | 455478 | 4244 | 400027 | 26438 | MCC | 171444 | 515367 | 12182 | 421615 | 31330 | SOX10 | 100146 | 360880 | 20120 | 354130 | 36296 |
| CLCN1 | 188037 | 495612 | 4245 | N/A | | MCC | 171444 | 408903 | 12183 | 386227 | 31331 | SOX10 | 100146 | 446929 | 20121 | 399777 | 36297 |
| CLCN3 | 109572 | 511092 | 4246 | 425160 | 26439 | MCC | 171444 | 624689 | 12184 | 485492 | 31332 | SOX10 | 100146 | 396884 | 20122 | 380093 | 36298 |
| CLCN3 | 109572 | 513761 | 4247 | 424603 | 26440 | MCC | 171444 | 514701 | 12185 | 485220 | 31333 | SOX13 | 143842 | 367203 | 20123 | N/A | |
| CLCN3 | 109572 | 347613 | 4248 | 261514 | 26441 | MCC | 171444 | 502648 | 12186 | N/A | | SOX13 | 143842 | 534185 | 20124 | N/A | |
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| CLCN3 | 109572 | 512813 | 4250 | 425823 | 26443 | MCC | 171444 | 506605 | 12188 | N/A | | SOX13 | 143842 | 367204 | 20126 | 356172 | 36299 |
| CLCN3 | 109572 | 506924 | 4251 | N/A | | MCC | 171444 | 511847 | 12189 | N/A | | SOX13 | 143842 | 525442 | 20127 | 433595 | 36300 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CLCN3 | 109572 | 502998 | 4253 | N/A | | MCL1 | 143384 | 369026 | 12191 | 358022 | 31334 | SOX13 | 143842 | 272193 | 20129 | N/A | |
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| CLCN3 | 109572 | 613795 | 4255 | 478336 | 26446 | MCL1 | 143384 | 307940 | 12193 | 309973 | 31335 | SOX13 | 143842 | 525258 | 20131 | N/A | |
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| CLCN5 | 171365 | 376088 | 4257 | 365256 | 26448 | MCTP1 | 175471 | 514040 | 12195 | N/A | | SOX2 | 181449 | 325404 | 20133 | 323588 | 36304 |
| CLCN5 | 171365 | 376091 | 4258 | 365259 | 26449 | MCTP1 | 175471 | 515393 | 12196 | 424126 | 31337 | SOX6 | 110693 | 316399 | 20134 | 324948 | 36305 |
| CLCN5 | 171365 | 482218 | 4259 | 476732 | 26450 | MCTP1 | 175471 | 429576 | 12197 | 391639 | 31338 | SOX6 | 110693 | 528252 | 20135 | 432134 | 36306 |
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| CLDN11 | 013297 | 064724 | 4264 | 064724 | 26454 | MCTP1 | 175471 | 512425 | 12202 | 431075 | 31342 | SOX6 | 110693 | 531297 | 20140 | N/A | |
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| CLDN11 | 013297 | 489485 | 4267 | N/A | | MCTP1 | 175471 | 503301 | 12205 | 425515 | 31345 | SOX6 | 110693 | 533870 | 20143 | N/A | |
| CLDN11 | 013297 | 468358 | 4268 | N/A | | MCTP1 | 175471 | 507214 | 12206 | 424936 | 31346 | SOX6 | 110693 | 533658 | 20144 | N/A | |
| CLDN11 | 013297 | 471373 | 4269 | N/A | | MCTP1 | 175471 | 514780 | 12207 | 421543 | 31347 | SOX6 | 110693 | 526673 | 20145 | 434892 | 36311 |
| CLDN11 | 013297 | 477531 | 4270 | N/A | | MCTP1 | 175471 | 512568 | 12208 | N/A | | SOX6 | 110693 | 529469 | 20146 | 432596 | 36312 |
| CLDN11 | 013297 | 488989 | 4271 | N/A | | MCTP1 | 175471 | 510732 | 12209 | 422219 | 31348 | SOX6 | 110693 | 525835 | 20147 | N/A | |
| CLDN11 | 013297 | 480067 | 4272 | N/A | | MCTP1 | 175471 | 513695 | 12210 | N/A | | SOX6 | 110693 | 524520 | 20148 | N/A | |
| CLEC2L | 236279 | 422142 | 4273 | 390661 | 26456 | MCTP1 | 175471 | 505465 | 12211 | 422317 | 31349 | SOX6 | 110693 | 525259 | 20149 | N/A | |
| CLEC2L | 236279 | 521281 | 4274 | 428508 | 26457 | MCTP1 | 175471 | 513857 | 12212 | N/A | | SOX6 | 110693 | 396356 | 20150 | 379644 | 36313 |
| CLEC2L | 236279 | 520413 | 4275 | N/A | | MDFI | 112559 | 432027 | 12213 | 413226 | 31350 | SOX8 | 005513 | 293894 | 20151 | 293894 | 36314 |
| CLEC7A | 172243 | 353231 | 4276 | 266456 | 26458 | MDFI | 112559 | 419164 | 12214 | 393881 | 31351 | SOX8 | 005513 | 566034 | 20152 | N/A | |
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| CLEC7A | 172243 | 529761 | 4278 | 432876 | 26459 | MDFI | 112559 | 441667 | 12216 | 406600 | 31353 | SP5 | 204335 | 375281 | 20154 | 364430 | 36316 |
| CLEC7A | 172243 | 298523 | 4279 | 298523 | 26460 | MDFI | 112559 | 230321 | 12217 | 230321 | 31354 | SP5 | 204335 | 487037 | 20155 | N/A | |
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| CLEC7A | 172243 | 304084 | 4281 | 302569 | 26462 | MDFI | 112559 | 446650 | 12219 | 411829 | 31356 | SPAG5 | 076382 | 582175 | 20157 | N/A | |
| CLEC7A | 172243 | 465100 | 4282 | 436923 | 26463 | MDFI | 112559 | 435476 | 12220 | 403587 | 31357 | SPAG5 | 076382 | 321765 | 20158 | 323300 | 36317 |
| CLEC7A | 172243 | 349926 | 4283 | 344723 | 26464 | MDFI | 112559 | 471092 | 12221 | N/A | | SPAG5 | 076382 | 582076 | 20159 | 466061 | 36318 |
| CLEC7A | 172243 | 533022 | 4284 | 431461 | 26465 | MDGA1 | 112139 | 434837 | 12222 | 402584 | 31358 | SPAG5 | 076382 | 580676 | 20160 | N/A | |
| CLEC7A | 172243 | 531192 | 4285 | 434392 | 26466 | MDGA1 | 112139 | 373401 | 12223 | N/A | | SPAG5 | 076382 | 581133 | 20161 | N/A | |
| CLEC7A | 172243 | 528799 | 4286 | N/A | | MDGA1 | 112139 | 505425 | 12224 | 422042 | 31359 | SPAG5 | 076382 | 580682 | 20162 | N/A | |
| CLEC7A | 172243 | 310002 | 4287 | 312089 | 26467 | MDGA1 | 112139 | 503419 | 12225 | N/A | | SPAG5 | 076382 | 577259 | 20163 | N/A | |
| CLEC7A | 172243 | 525605 | 4288 | 434954 | 26468 | MDGA1 | 112139 | 418178 | 12226 | 393330 | 31360 | SPAG5 | 076382 | 580406 | 20164 | N/A | |
| CLIC5 | 112782 | 185206 | 4289 | 185206 | 26469 | MDGA1 | 112139 | 502298 | 12227 | 425911 | 31361 | SPAG5 | 076382 | 378976 | 20165 | 466021 | 36319 |
| CLIC5 | 112782 | 487396 | 4290 | N/A | | MDGA1 | 112139 | 510077 | 12228 | N/A | | SPAG5 | 076382 | 578230 | 20166 | 464280 | 36320 |
| CLIC5 | 112782 | 339561 | 4291 | 344165 | 26470 | MDGA1 | 112139 | 478143 | 12229 | N/A | | SPAG5 | 076382 | 580083 | 20167 | 464474 | 36321 |
| CLIC5 | 112782 | 484572 | 4292 | N/A | | MDGA1 | 112139 | 515437 | 12230 | 421510 | 31362 | SPAG5 | 076382 | 584206 | 20168 | 463095 | 36322 |
| CLIC5 | 112782 | 486570 | 4293 | N/A | | MDGA1 | 112139 | 508399 | 12231 | 427645 | 31363 | SPAG5 | 076382 | 580567 | 20169 | 464400 | 36323 |
| CLIC5 | 112782 | 476852 | 4294 | N/A | | MDGA2 | 139915 | 399232 | 12232 | 382178 | 31364 | SPAG5 | 076382 | 578479 | 20170 | 462663 | 36324 |
| CLIC5 | 112782 | 464137 | 4295 | N/A | | MDGA2 | 139915 | 357362 | 12233 | 349925 | 31365 | SPAG5 | 076382 | 536674 | 20171 | 444223 | 36325 |
| CLIC5 | 112782 | 544153 | 4296 | 439195 | 26471 | MDGA2 | 139915 | 557238 | 12234 | 452593 | 31366 | SPAG9 | 008294 | 262013 | 20172 | 262013 | 36326 |
| CLIC6 | 159212 | 360731 | 4297 | 353959 | 26472 | MDGA2 | 139915 | 557516 | 12235 | N/A | | SPAG9 | 008294 | 509724 | 20173 | N/A | |
| CLIC6 | 159212 | 349499 | 4298 | 290332 | 26473 | MDGA2 | 139915 | 555521 | 12236 | N/A | | SPAG9 | 008294 | 510283 | 20174 | 423165 | 36327 |
| CLK1 | 013441 | 321356 | 4299 | 326830 | 26474 | MDGA2 | 139915 | 554762 | 12237 | 450827 | 31367 | SPAG9 | 008294 | 505279 | 20175 | 426900 | 36328 |
| CLK1 | 013441 | 461981 | 4300 | N/A | | MDGA2 | 139915 | 482848 | 12238 | 434991 | 31368 | SPAG9 | 008294 | 357122 | 20176 | 349636 | 36329 |
| CLK1 | 013441 | 464454 | 4301 | N/A | | MDGA2 | 139915 | 486952 | 12239 | 452515 | 31369 | SPAG9 | 008294 | 506500 | 20177 | N/A | |
| CLK1 | 013441 | 432425 | 4302 | 400487 | 26475 | MDGA2 | 139915 | 472499 | 12240 | N/A | | SPAG9 | 008294 | 513746 | 20178 | 423346 | 36330 |
| CLK1 | 013441 | 473565 | 4303 | N/A | | MDGA2 | 139915 | 426342 | 12241 | 405456 | 31370 | SPAG9 | 008294 | 511312 | 20179 | N/A | |
| CLK1 | 013441 | 472679 | 4304 | N/A | | MED12L | 144893 | 469768 | 12242 | N/A | | SPAG9 | 008294 | 513906 | 20180 | 430205 | 36331 |
| CLK1 | 013441 | 409769 | 4305 | 386358 | 26476 | MED12L | 144893 | 422248 | 12243 | 403308 | 31371 | SPAG9 | 008294 | 514613 | 20181 | N/A | |
| CLK1 | 013441 | 409403 | 4306 | 386875 | 26477 | MED12L | 144893 | 309237 | 12244 | 310760 | 31372 | SPAG9 | 008294 | 505173 | 20182 | N/A | |
| CLK1 | 013441 | 434813 | 4307 | 394734 | 26478 | MED12L | 144893 | 474524 | 12245 | 417235 | 31373 | SPAG9 | 008294 | 514205 | 20183 | N/A | |
| CLK1 | 013441 | 461326 | 4308 | N/A | | MED12L | 144893 | 273432 | 12246 | 273432 | 31374 | SPAG9 | 008294 | 506483 | 20184 | N/A | |
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| CLK1 | 013441 | 492793 | 4310 | N/A | | MED12L | 144893 | 491549 | 12248 | N/A | | SPAG9 | 008294 | 515685 | 20186 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLK1 | 013441 | 481641 | 4311 | N/A | | MED12L | 144893 | 468305 | 12249 | N/A | | SPAG9 | 008294 | 513547 | 20187 | N/A | |
| CLK1 | 013441 | 482590 | 4312 | N/A | | MED12L | 144893 | 488092 | 12250 | N/A | | SPAG9 | 008294 | 511795 | 20188 | 429343 | 36332 |
| CLK1 | 013441 | 621181 | 4313 | 479484 | 26479 | MEF2C | 081189 | 504921 | 12251 | 421925 | 31376 | SPAG9 | 008294 | 576492 | 20189 | N/A | |
| CLMN | 165959 | 298912 | 4314 | 298912 | 26480 | MEF2C | 081189 | 340208 | 12252 | 340874 | 31377 | SPAG9 | 008294 | 510855 | 20190 | 426061 | 36333 |
| CLMN | 165959 | 557215 | 4315 | N/A | | MEF2C | 081189 | 424173 | 12253 | 389610 | 31378 | SPAG9 | 008294 | 511987 | 20191 | N/A | |
| CLMN | 165959 | 557696 | 4316 | N/A | | MEF2C | 081189 | 637481 | 12254 | 490354 | 31379 | SPAG9 | 008294 | 502329 | 20192 | N/A | |
| CLMN | 165959 | 556454 | 4317 | N/A | | MEF2C | 081189 | 636998 | 12255 | 490630 | 31380 | SPAG9 | 008294 | 618113 | 20193 | 484908 | 36334 |
| CLMN | 165959 | 556441 | 4318 | 452305 | 26481 | MEF2C | 081189 | 623674 | 12256 | 487430 | 31381 | SPARC | 113140 | 231061 | 20194 | 231061 | 36335 |
| CLMN | 165959 | 556416 | 4319 | N/A | | MEF2C | 081189 | 437473 | 12257 | 396219 | 31382 | SPARC | 113140 | 520687 | 20195 | N/A | |
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| CLMN | 165959 | 553733 | 4322 | 451189 | 26484 | MEF2C | 081189 | 510942 | 12260 | 422390 | 31385 | SPARC | 113140 | 521569 | 20198 | 428119 | 36337 |
| CLMP | 166250 | 448775 | 4323 | 405577 | 26485 | MEF2C | 081189 | 506554 | 12261 | 425636 | 31386 | SPARC | 113140 | 524277 | 20199 | N/A | |
| CLMP | 166250 | 530371 | 4324 | N/A | | MEF2C | 081189 | 637732 | 12262 | 490241 | 31387 | SPARC | 113140 | 539687 | 20200 | 444998 | 36338 |
| CLMP | 166250 | 527977 | 4325 | N/A | | MEF2C | 081189 | 514015 | 12263 | 424606 | 31388 | SPARC | 113140 | 521327 | 20201 | N/A | |
| CLMP | 166250 | 529128 | 4326 | N/A | | MEF2C | 081189 | 629612 | 12264 | 486554 | 31389 | SPARC | 113140 | 522348 | 20202 | 429152 | 36339 |
| CLSTN2 | 158258 | 458420 | 4327 | 402460 | 26486 | MEF2C | 081189 | 636143 | 12265 | N/A | | SPARCL1 | 152583 | 282470 | 20203 | 282470 | 36340 |
| CLSTN2 | 158258 | 511524 | 4328 | N/A | | MEF2C | 081189 | 636294 | 12266 | 490473 | 31390 | SPARCL1 | 152583 | 503414 | 20204 | 422903 | 36341 |
| CLSTN3 | 139182 | 541953 | 4329 | 443959 | 26487 | MEF2C | 081189 | 627659 | 12267 | 486490 | 31391 | SPARCL1 | 152583 | 541496 | 20205 | 445678 | 36342 |
| CLSTN3 | 139182 | 266546 | 4330 | 266546 | 26488 | MEF2C | 081189 | 508569 | 12268 | 423597 | 31392 | SPARCL1 | 152583 | 509407 | 20206 | 423483 | 36343 |
| CLSTN3 | 139182 | 541667 | 4331 | N/A | | MEF2C | 081189 | 627170 | 12269 | 487157 | 31393 | SPARCL1 | 152583 | 434434 | 20207 | 416971 | 36344 |
| CLSTN3 | 139182 | 545663 | 4332 | 442612 | 26489 | MEF2C | 081189 | 627717 | 12270 | 486932 | 31394 | SPARCL1 | 152583 | 535835 | 20208 | 438188 | 36345 |
| CLSTN3 | 139182 | 535452 | 4333 | 443468 | 26490 | MEF2C | 081189 | 503554 | 12271 | 487437 | 31395 | SPARCL1 | 152583 | 512317 | 20209 | 423448 | 36346 |
| CLSTN3 | 139182 | 534830 | 4334 | 443490 | 26491 | MEF2C | 081189 | 626391 | 12272 | 487184 | 31396 | SPARCL1 | 152583 | 543631 | 20210 | 444832 | 36347 |
| CLSTN3 | 139182 | 539982 | 4335 | 442801 | 26492 | MEF2C | 081189 | 628656 | 12273 | 487311 | 31397 | SPARCL1 | 152583 | 458304 | 20211 | 406251 | 36348 |
| CLSTN3 | 139182 | 537408 | 4336 | 440679 | 26493 | MEF2C | 081189 | 510980 | 12274 | N/A | | SPARCL1 | 152583 | 418378 | 20212 | 414856 | 36349 |
| CLSTN3 | 139182 | 538933 | 4337 | N/A | | MEF2C | 081189 | 515715 | 12275 | N/A | | SPATA13 | 228741 | 439928 | 20213 | N/A | |
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| CLSTN3 | 139182 | 535668 | 4339 | N/A | | MEF2C | 081189 | 506716 | 12277 | 423656 | 31399 | SPATA13 | 182957 | 466831 | 20215 | N/A | |
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| CLSTN3 | 139182 | 541770 | 4341 | N/A | | MEF2C | 081189 | 631026 | 12279 | 485972 | 31400 | SPATA13 | 182957 | 474317 | 20217 | N/A | |
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| CLSTN3 | 139182 | 331148 | 4343 | N/A | | MEF2C | 081189 | 507984 | 12281 | 424331 | 31402 | SPATA13 | 182957 | 494772 | 20219 | 477296 | 36353 |
| CLSTN3 | 139182 | 535313 | 4344 | N/A | | MEF2C | 081189 | 502983 | 12282 | 427163 | 31403 | SPATA13 | 182957 | 399949 | 20220 | 382830 | 36354 |
| CLVS2 | 146352 | 275162 | 4345 | 275162 | 26494 | MEF2C | 081189 | 508610 | 12283 | 426442 | 31404 | SPATA13 | 182957 | 409126 | 20221 | 386471 | 36355 |
| CLVS2 | 146352 | 368438 | 4346 | 357423 | 26495 | MEF2C | 081189 | 636541 | 12284 | 489865 | 31405 | SPATA13 | 182957 | 454083 | 20222 | 397498 | 36356 |
| NAT8 | 144035 | 272425 | 4347 | 272425 | 26496 | MEF2C | 081189 | 637372 | 12285 | N/A | | SPATA13 | 182957 | 488060 | 20223 | 477304 | 36357 |
| CMTM5 | 166091 | 359320 | 4348 | 352270 | 26497 | MEF2C | 081189 | 636517 | 12286 | N/A | | SPATA13 | 182957 | 343003 | 20224 | 343631 | 36358 |
| CMTM5 | 166091 | 339180 | 4349 | 344819 | 26498 | MEF2C | 081189 | 503075 | 12287 | 426465 | 31406 | SPATA13 | 182957 | 382108 | 20225 | 371542 | 36359 |
| CMTM5 | 166091 | 342473 | 4350 | 344160 | 26499 | MEF2C | 081189 | 637506 | 12288 | N/A | | SPATA9 | 145757 | 477715 | 20226 | 427257 | 36360 |
| CMTM5 | 166091 | 397227 | 4351 | 380404 | 26500 | MEF2C | 081189 | 637754 | 12289 | N/A | | SPATA9 | 145757 | 477047 | 20227 | N/A | |
| CMTM5 | 166091 | 553750 | 4352 | N/A | | MEF2C | 081189 | 637531 | 12290 | N/A | | SPATA9 | 145757 | 316087 | 20228 | 325491 | 36361 |
| CMTM5 | 166091 | 555731 | 4353 | 451514 | 26501 | MEF2C | 081189 | 511086 | 12291 | N/A | | SPATA9 | 145757 | 274432 | 20229 | 274432 | 36362 |
| CMTM5 | 166091 | 382809 | 4354 | 372259 | 26502 | MEF2C | 081189 | 635898 | 12292 | 490525 | 31407 | SPATA9 | 145757 | 379990 | 20230 | N/A | |
| CMTM5 | 166091 | 555487 | 4355 | N/A | | MEF2C | 081189 | 509373 | 12293 | 427309 | 31408 | SPATA9 | 145757 | 489917 | 20231 | 420883 | 36363 |
| CMTM8 | 170293 | 458535 | 4356 | 412934 | 26503 | MEF2C | 081189 | 515093 | 12294 | N/A | | SPATC1 | 186583 | 377470 | 20232 | 366690 | 36364 |
| CMTM8 | 170293 | 307526 | 4357 | 307741 | 26504 | MEF2C | 081189 | 509349 | 12295 | N/A | | SPATC1 | 186583 | 447830 | 20233 | 387613 | 36365 |
| CNDP1 | 150656 | 358821 | 4358 | 351682 | 26505 | MEF2C | 081189 | 636336 | 12296 | N/A | | SPECC1 | 128487 | 472876 | 20234 | N/A | |
| CNDP1 | 150656 | 585136 | 4359 | N/A | | MEF2C | 081189 | 637048 | 12297 | N/A | | SPECC1 | 128487 | 395527 | 20235 | 378898 | 36366 |
| CNDP1 | 150656 | 582365 | 4360 | 462096 | 26506 | MEF2C | 081189 | 637801 | 12298 | N/A | | SPECC1 | 128487 | 583482 | 20236 | 463006 | 36367 |
| CNDP1 | 150656 | 584316 | 4361 | 463807 | 26507 | MEF2C | 081189 | 629847 | 12299 | N/A | | SPECC1 | 128487 | 583528 | 20237 | 461918 | 36368 |
| CNDP1 | 150656 | 584004 | 4362 | N/A | | MEF2C | 081189 | 637663 | 12300 | N/A | | SPECC1 | 128487 | 583463 | 20238 | 464489 | 36369 |
| CNDP1 | 150656 | 578498 | 4363 | N/A | | MEF2C | 081189 | 636061 | 12301 | N/A | | SPECC1 | 128487 | 578321 | 20239 | 462266 | 36370 |
| CNDP1 | 150656 | 582461 | 4364 | N/A | | MEF2C | 081189 | 635837 | 12302 | N/A | | SPECC1 | 128487 | 582604 | 20240 | 464639 | 36371 |
| CNIH3 | 143786 | 471578 | 4365 | N/A | | MEF2C | 081189 | 503955 | 12303 | N/A | | SPECC1 | 128487 | 413167 | 20241 | N/A | |
| CNIH3 | 143786 | 483512 | 4366 | N/A | | MEF2C | 081189 | 637231 | 12304 | N/A | | SPECC1 | 128487 | 395529 | 20242 | 378900 | 36372 |
| CNIH3 | 143786 | 498126 | 4367 | N/A | | MEF2C | 081189 | 636349 | 12305 | N/A | | SPECC1 | 128487 | 261503 | 20243 | 261503 | 36373 |
| CNIH3 | 143786 | 496372 | 4368 | N/A | | MEF2C | 081189 | 637167 | 12306 | N/A | | SPECC1 | 128487 | 581973 | 20244 | 464341 | 36374 |
| CNIH3 | 143786 | 470602 | 4369 | N/A | | MEF2C-AS1 | 248309 | 511100 | 12307 | N/A | | SPECC1 | 128487 | 580934 | 20245 | 461944 | 36375 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CNIH3 | 143786 | 498382 | 4370 | N/A | | MEF2C-AS1 | 248309 | 514794 | 12308 | N/A | | SPECC1 | 128487 | 582063 | 20246 | N/A | |
| CNIH3 | 143786 | 478120 | 4371 | N/A | | MEF2C-AS1 | 248309 | 512585 | 12309 | N/A | | SPECC1 | 128487 | 579688 | 20247 | N/A | |
| CNIH3 | 143786 | 481095 | 4372 | N/A | | MEF2C-AS1 | 248309 | 513704 | 12310 | N/A | | SPECC1 | 128487 | 395530 | 20248 | 378901 | 36376 |
| CNIH3 | 143786 | 470788 | 4373 | N/A | | MEF2C-AS1 | 248309 | 514011 | 12311 | N/A | | SPECC1 | 128487 | 467722 | 20249 | 463130 | 36377 |
| CNIH3 | 143786 | 489556 | 4374 | N/A | | MEF2C-AS1 | 248309 | 509179 | 12312 | N/A | | SPECC1 | 128487 | 395522 | 20250 | 378893 | 36378 |
| CNIH3 | 143786 | 496277 | 4375 | N/A | | MEF2C-AS1 | 248309 | 514092 | 12313 | N/A | | SPECC1 | 128487 | 395525 | 20251 | 378896 | 36379 |
| CNIH3 | 143786 | 492470 | 4376 | N/A | | MEF2C-AS1 | 248309 | 511876 | 12314 | N/A | | SPECC1 | 128487 | 581399 | 20252 | 462471 | 36380 |
| CNIH3 | 143786 | 479227 | 4377 | N/A | | MEF2C-AS1 | 248309 | 508718 | 12315 | N/A | | SPECC1 | 128487 | 582226 | 20253 | 462092 | 36381 |
| CNIH3 | 143786 | 272133 | 4378 | 272133 | 26508 | MEF2C-AS1 | 248309 | 514158 | 12316 | N/A | | SPECC1 | 128487 | 584527 | 20254 | 463799 | 36382 |
| CNKSR3 | 153721 | 607772 | 4379 | 475915 | 26509 | MEF2C-AS1 | 248309 | 506665 | 12317 | N/A | | SPECC1 | 128487 | 578153 | 20255 | 462987 | 36383 |
| CNKSR3 | 153721 | 433165 | 4380 | N/A | | MEF2C-AS1 | 248309 | 639552 | 12318 | N/A | | SPECC1 | 128487 | 492188 | 20256 | N/A | |
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| CNKSR3 | 153721 | 424998 | 4382 | 393225 | 26511 | MEF2C-AS1 | 248309 | 514571 | 12320 | N/A | | SPEG | 072195 | 498378 | 20258 | N/A | |
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| CNP | 173786 | 393892 | 4384 | 377470 | 26512 | MEG8 | 225746 | 553584 | 12322 | N/A | | SPEG | 072195 | 403148 | 20260 | 383902 | 36386 |
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| CNP | 173786 | 592446 | 4387 | N/A | | MEG8 | 225746 | 553465 | 12325 | N/A | | SPEG | 072195 | 452101 | 20263 | 406530 | 36389 |
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| CNP | 173786 | 589772 | 4391 | 466807 | 26517 | MEG8 | 225746 | 638012 | 12329 | N/A | | SPEG | 072195 | 409595 | 20267 | 387344 | 36392 |
| CNP | 173786 | 585452 | 4392 | 468471 | 26518 | MEG8 | 225746 | 556720 | 12330 | N/A | | SPEG | 072195 | 497065 | 20268 | N/A | |
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| CNR1 | 118432 | 369499 | 4401 | 358511 | 26524 | MEG8 | 225746 | 423708 | 12339 | N/A | | SPEG | 072195 | 396689 | 20277 | 379920 | 36395 |
| CNR1 | 118432 | 549890 | 4402 | 446819 | 26525 | MEG8 | 225746 | 442197 | 12340 | N/A | | SPEG | 072195 | 485069 | 20278 | N/A | |
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| CNR1 | 118432 | 551417 | 4406 | 446702 | 26529 | MEG8 | 225746 | 614605 | 12344 | N/A | | SPHK2 | 063176 | 245222 | 20282 | 245222 | 36398 |
| CNTFR | 122756 | 351266 | 4407 | 242338 | 26530 | MEGF10 | 145794 | 503335 | 12345 | 423354 | 31409 | SPHK2 | 063176 | 601712 | 20283 | 471180 | 36399 |
| CNTFR | 122756 | 378980 | 4408 | 368265 | 26531 | MEGF10 | 145794 | 508365 | 12346 | 423195 | 31410 | SPHK2 | 063176 | 600537 | 20284 | 470092 | 36400 |
| CNTFR | 122756 | 417345 | 4409 | 388082 | 26532 | MEGF10 | 145794 | 418761 | 12347 | 416284 | 31411 | SPHK2 | 063176 | 598088 | 20285 | 469158 | 36401 |
| CNTFR | 122756 | 610543 | 4410 | 480451 | 26533 | MEGF10 | 145794 | 274473 | 12348 | 274473 | 31412 | SPHK2 | 063176 | 426514 | 20286 | 410044 | 36402 |
| CNTN2 | 184144 | 640352 | 4411 | 491080 | 26534 | MEGF10 | 145794 | 515002 | 12349 | N/A | | SPHK2 | 063176 | 597434 | 20287 | 471111 | 36403 |
| CNTN2 | 184144 | 638378 | 4412 | 492617 | 26535 | MEGF10 | 145794 | 506709 | 12350 | N/A | | SPHK2 | 063176 | 601704 | 20288 | 469448 | 36404 |
| CNTN2 | 184144 | 331830 | 4413 | 330633 | 26536 | MEGF10 | 145794 | 510513 | 12351 | N/A | | SPHK2 | 063176 | 593308 | 20289 | 470679 | 36405 |
| CNTN2 | 184144 | 636809 | 4414 | N/A | | MEGF10 | 145794 | 510828 | 12352 | N/A | | SPHK2 | 063176 | 599033 | 20290 | N/A | |
| CNTN2 | 184144 | 640428 | 4415 | 491474 | 26537 | MEGF10 | 145794 | 507158 | 12353 | N/A | | SPHK2 | 063176 | 599748 | 20291 | 471205 | 36406 |
| CNTN2 | 184144 | 532366 | 4416 | 491665 | 26538 | MEGF10 | 145794 | 515622 | 12354 | N/A | | SPHK2 | 063176 | 599029 | 20292 | 472983 | 36407 |
| CNTN2 | 184144 | 639302 | 4417 | 491671 | 26539 | MEGF11 | 157890 | 409699 | 12355 | 386908 | 31413 | SPHK2 | 063176 | 598574 | 20293 | N/A | |
| CNTN2 | 184144 | 639971 | 4418 | 491959 | 26540 | MEGF11 | 157890 | 288745 | 12356 | 288745 | 31414 | SPHK2 | 063176 | 340932 | 20294 | 341091 | 36408 |
| CNTN2 | 184144 | 640326 | 4419 | 492495 | 26541 | MEGF11 | 157890 | 395614 | 12357 | 378976 | 31415 | SPHKAP | 153820 | 392056 | 20295 | 375909 | 36409 |
| CNTN2 | 184144 | 639015 | 4420 | N/A | | MEGF11 | 157890 | 478721 | 12358 | N/A | | SPHKAP | 153820 | 344657 | 20296 | 339886 | 36410 |
| CNTN2 | 184144 | 530117 | 4421 | N/A | | MEGF11 | 157890 | 490495 | 12359 | 456118 | 31416 | SPHKAP | 153820 | 490603 | 20297 | N/A | |
| CNTN2 | 184144 | 638928 | 4422 | N/A | | MEGF11 | 157890 | 489275 | 12360 | 478311 | 31417 | SPOCK3 | 196104 | 357154 | 20298 | 349677 | 36411 |
| CNTN2 | 184144 | 639023 | 4423 | N/A | | MEGF11 | 157890 | 562154 | 12361 | 483007 | 31418 | SPOCK3 | 196104 | 357545 | 20299 | 350153 | 36412 |
| CNTN2 | 184144 | 481872 | 4424 | N/A | | MEGF11 | 157890 | 493192 | 12362 | N/A | | SPOCK3 | 196104 | 504953 | 20300 | 425570 | 36413 |
| CNTN2 | 184144 | 636312 | 4425 | 489754 | 26542 | MEGF11 | 157890 | 478590 | 12363 | N/A | | SPOCK3 | 196104 | 511531 | 20301 | 423421 | 36414 |
| CNTN2 | 184144 | 639831 | 4426 | N/A | | MEGF11 | 157890 | 564573 | 12364 | 477691 | 31419 | SPOCK3 | 196104 | 506886 | 20302 | 420920 | 36415 |
| CNTN2 | 184144 | 639503 | 4427 | N/A | | MEGF11 | 157890 | 455812 | 12365 | 401400 | 31420 | SPOCK3 | 196104 | 535728 | 20303 | 441396 | 36416 |
| CNTN2 | 184144 | 639122 | 4428 | 491982 | 26543 | MEGF11 | 157890 | 484618 | 12366 | N/A | | SPOCK3 | 196104 | 510741 | 20304 | 426716 | 36417 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CNTN2 | 184144 | 530594 | 4429 | N/A | | MEGF11 | 157890 | 474398 | 12367 | N/A | | SPOCK3 | 196104 | 502330 | 20305 | 423606 | 36418 |
| CNTN2 | 184144 | 638449 | 4430 | N/A | | MEGF11 | 157890 | 469917 | 12368 | N/A | | SPOCK3 | 196104 | 511905 | 20306 | 425712 | 36419 |
| CNTN2 | 184144 | 638980 | 4431 | N/A | | MEGF11 | 157890 | 422354 | 12369 | 414475 | 31421 | SPOCK3 | 196104 | 512681 | 20307 | 426318 | 36420 |
| CNTN2 | 184144 | 639156 | 4432 | N/A | | MEGF11 | 277848 | 615799 | 12370 | N/A | | SPOCK3 | 196104 | 511269 | 20308 | 425502 | 36421 |
| CNTN2 | 184144 | 527340 | 4433 | N/A | | MEGF11 | 277848 | 612969 | 12371 | N/A | | SPOCK3 | 196104 | 507370 | 20309 | 424677 | 36422 |
| CNTN2 | 184144 | 525433 | 4434 | N/A | | MEGF11 | 277848 | 618218 | 12372 | N/A | | SPOCK3 | 196104 | 502821 | 20310 | 424980 | 36423 |
| CNTN2 | 184144 | 639843 | 4435 | 491680 | 26544 | MEGF11 | 277848 | 617841 | 12373 | N/A | | SPOCK3 | 196104 | 505187 | 20311 | 422170 | 36424 |
| CNTN2 | 184144 | 636641 | 4436 | N/A | | MEGF11 | 277848 | 614417 | 12374 | 480105 | 31422 | SPOCK3 | 196104 | 512648 | 20312 | 426177 | 36425 |
| CNTN2 | 184144 | 638577 | 4437 | 492457 | 26545 | MEGF11 | 277848 | 621793 | 12375 | N/A | | SPOCK3 | 196104 | 510403 | 20313 | 423176 | 36426 |
| CNTN2 | 184144 | 638715 | 4438 | N/A | | MEGF11 | 277848 | 615866 | 12376 | 478094 | 31423 | SPOCK3 | 196104 | 515143 | 20314 | 425859 | 36427 |
| CNTN2 | 184144 | 639788 | 4439 | N/A | | MEGF11 | 277848 | 614717 | 12377 | 480614 | 31424 | SPOCK3 | 196104 | 511226 | 20315 | 424674 | 36428 |
| CNTN2 | 184144 | 638050 | 4440 | N/A | | MEGF11 | 277848 | 622356 | 12378 | 488336 | 31425 | SPOCK3 | 196104 | 507086 | 20316 | 420928 | 36429 |
| CNTN2 | 184144 | 639354 | 4441 | N/A | | MEGF11 | 277848 | 613422 | 12379 | N/A | | SPOCK3 | 196104 | 502741 | 20317 | 422336 | 36430 |
| CNTN2 | 184144 | 640227 | 4442 | N/A | | MEGF11 | 277848 | 614563 | 12380 | N/A | | SPOCK3 | 196104 | 509854 | 20318 | 423367 | 36431 |
| CNTN2 | 184144 | 640714 | 4443 | N/A | | MEGF11 | 277848 | 620966 | 12381 | N/A | | SPOCK3 | 196104 | 515316 | 20319 | 426995 | 36432 |
| CNTN3 | 113805 | 263665 | 4444 | 263665 | 26546 | MEGF11 | 277848 | 614471 | 12382 | N/A | | SPOCK3 | 196104 | 506697 | 20320 | 424168 | 36433 |
| CNTN3 | 113805 | 477856 | 4445 | N/A | | MEI4 | 269964 | 602452 | 12383 | 473370 | 31426 | SPOCK3 | 196104 | 512042 | 20321 | 425407 | 36434 |
| CNTN4 | 144619 | 422330 | 4446 | 408594 | 26547 | MEIS1 | 143995 | 496248 | 12384 | N/A | | SPOCK3 | 196104 | 421836 | 20322 | 411344 | 36435 |
| CNTN4 | 144619 | 427741 | 4447 | 396719 | 26548 | MEIS1 | 143995 | 560281 | 12385 | 454209 | 31427 | SPOCK3 | 196104 | 541354 | 20323 | 444789 | 36436 |
| CNTN4 | 144619 | 455083 | 4448 | 390560 | 26549 | MEIS1 | 143995 | 491706 | 12386 | N/A | | SPON1 | 262655 | 576479 | 20324 | 460236 | 36437 |
| CNTN4 | 144619 | 418658 | 4449 | 396010 | 26550 | MEIS1 | 143995 | 272369 | 12387 | 272369 | 31428 | SPON1 | 262655 | 591785 | 20325 | N/A | |
| CNTN4 | 144619 | 490876 | 4450 | N/A | | MEIS1 | 143995 | 488550 | 12388 | 475161 | 31429 | SPON2 | 159674 | 290902 | 20326 | 290902 | 36438 |
| CNTN4 | 144619 | 397461 | 4451 | 380602 | 26551 | MEIS1 | 143995 | 490726 | 12389 | N/A | | SPON2 | 159674 | 509697 | 20327 | N/A | |
| CNTN4 | 144619 | 438282 | 4452 | N/A | | MEIS1 | 143995 | 398506 | 12390 | 381518 | 31430 | SPON2 | 159674 | 507466 | 20328 | N/A | |
| CNTN4 | 144619 | 430505 | 4453 | N/A | | MEIS1 | 143995 | 495021 | 12391 | 440571 | 31431 | SPON2 | 159674 | 503765 | 20329 | 424542 | 36439 |
| CNTN4 | 144619 | 434053 | 4454 | 404085 | 26552 | MEIS1 | 143995 | 409622 | 12392 | N/A | | SPON2 | 159674 | 504909 | 20330 | N/A | |
| CNTN4 | 144619 | 480113 | 4455 | N/A | | MEIS1 | 143995 | 437869 | 12393 | 397418 | 31432 | SPON2 | 159674 | 512888 | 20331 | N/A | |
| CNTN4 | 144619 | 473058 | 4456 | N/A | | MEIS1 | 143995 | 466811 | 12394 | N/A | | SPON2 | 159674 | 512150 | 20332 | N/A | |
| CNTN4 | 144619 | 473173 | 4457 | N/A | | MEIS1 | 143995 | 498705 | 12395 | N/A | | SPON2 | 159674 | 515004 | 20333 | 425871 | 36440 |
| CNTN4 | 144619 | 397459 | 4458 | 380600 | 26553 | MEIS1 | 143995 | 606455 | 12396 | N/A | | SPON2 | 159674 | 502483 | 20334 | 422516 | 36441 |
| CNTN4 | 144619 | 473845 | 4459 | 422120 | 26554 | MEIS1 | 143995 | 475239 | 12397 | N/A | | SPON2 | 159674 | 514490 | 20335 | 421634 | 36442 |
| CNTN4 | 144619 | 475817 | 4460 | N/A | | MEIS1 | 143995 | 409517 | 12398 | N/A | | SPON2 | 159674 | 509233 | 20336 | 421379 | 36443 |
| CNTN4 | 144619 | 484686 | 4461 | N/A | | MEIS1 | 143995 | 542964 | 12399 | N/A | | SPON2 | 159674 | 511679 | 20337 | 423414 | 36444 |
| CNTN4 | 144619 | 427331 | 4462 | 413642 | 26555 | MEIS1 | 143995 | 450027 | 12400 | N/A | | SPON2 | 159674 | 511672 | 20338 | 421858 | 36445 |
| CNTN5 | 149972 | 525047 | 4463 | N/A | | MEIS2 | 134138 | 561208 | 12401 | 453793 | 31433 | SPON2 | 159674 | 506266 | 20339 | N/A | |
| CNTN5 | 149972 | 528727 | 4464 | N/A | | MEIS2 | 134138 | 338564 | 12402 | 341400 | 31434 | SPON2 | 159674 | 504871 | 20340 | N/A | |
| CNTN5 | 149972 | 527185 | 4465 | 433575 | 26556 | MEIS2 | 134138 | 397624 | 12403 | 380749 | 31435 | SPON2 | 159674 | 502657 | 20341 | N/A | |
| CNTN5 | 149972 | 528682 | 4466 | 436185 | 26557 | MEIS2 | 134138 | 560702 | 12404 | N/A | | SPON2 | 159674 | 400762 | 20342 | N/A | |
| CNTN5 | 149972 | 524871 | 4467 | 435637 | 26558 | MEIS2 | 134138 | 314177 | 12405 | 326296 | 31436 | SPON2 | 159674 | 505653 | 20343 | N/A | |
| CNTN5 | 149972 | 418526 | 4468 | 393229 | 26559 | MEIS2 | 134138 | 559085 | 12406 | 453390 | 31437 | SPON2 | 159674 | 515553 | 20344 | N/A | |
| CNTN5 | 149972 | 530458 | 4469 | N/A | | MEIS2 | 134138 | 560570 | 12407 | 453481 | 31438 | SPON2 | 159674 | 510542 | 20345 | N/A | |
| CNTN5 | 149972 | 525236 | 4470 | N/A | | MEIS2 | 134138 | 557796 | 12408 | 452693 | 31439 | SPON2 | 159674 | 617421 | 20346 | 483599 | 36446 |
| CNTN5 | 149972 | 527682 | 4471 | N/A | | MEIS2 | 134138 | 397620 | 12409 | 380745 | 31440 | SPON2 | 159674 | 431380 | 20347 | 394832 | 36447 |
| CNTN5 | 149972 | 524560 | 4472 | N/A | | MEIS2 | 134138 | 424352 | 12410 | 404185 | 31441 | SPP1 | 118785 | 237623 | 20348 | 237623 | 36448 |
| CNTN5 | 149972 | 619298 | 4473 | 478120 | 26560 | MEIS2 | 134138 | 559972 | 12411 | N/A | | SPP1 | 118785 | 395080 | 20349 | 378517 | 36449 |
| CNTN5 | 149972 | 279463 | 4474 | 279463 | 26561 | MEIS2 | 134138 | 561264 | 12412 | N/A | | SPP1 | 118785 | 504310 | 20350 | N/A | |
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| CNTNAP4 | 152910 | 622250 | 4476 | 477698 | 26563 | MEIS2 | 134138 | 559371 | 12414 | N/A | | SPP1 | 118785 | 509334 | 20352 | N/A | |
| CNTNAP4 | 152910 | 471618 | 4477 | N/A | | MEIS2 | 134138 | 557992 | 12415 | N/A | | SPP1 | 118785 | 508233 | 20353 | 422973 | 36450 |
| CNTNAP4 | 152910 | 463177 | 4478 | N/A | | MEIS2 | 134138 | 558643 | 12416 | N/A | | SPP1 | 118785 | 360804 | 20354 | 354042 | 36451 |
| CNTNAP4 | 152910 | 478060 | 4479 | 418741 | 26564 | MEIS2 | 134138 | 559561 | 12417 | 453497 | 31442 | SPP1 | 118785 | 509659 | 20355 | N/A | |
| CNTNAP4 | 152910 | 476707 | 4480 | 417628 | 26565 | MEIS2 | 134138 | 559408 | 12418 | N/A | | SPP1 | 118785 | 508002 | 20356 | N/A | |
| CNTNAP4 | 152910 | 619533 | 4481 | N/A | | MEIS2 | 134138 | 607277 | 12419 | 475899 | 31443 | SPP1 | 118785 | 505146 | 20357 | N/A | |
| CNTNAP4 | 152910 | 377504 | 4482 | 439733 | 26566 | MEIS2 | 134138 | 561163 | 12420 | N/A | | SPP1 | 118785 | 614857 | 20358 | 477824 | 36452 |
| CNTNAP4 | 152910 | 307431 | 4483 | 306893 | 26567 | MEIS2 | 134138 | 606653 | 12421 | 475660 | 31444 | SPRED3 | 188766 | 587013 | 20359 | 467540 | 36453 |
| CNTNAP5 | 155052 | 423939 | 4484 | N/A | | MEIS2 | 134138 | 561422 | 12422 | N/A | | SPRED3 | 188766 | 586301 | 20360 | 466568 | 36454 |
| CNTNAP5 | 155052 | 431078 | 4485 | 399013 | 26568 | MEIS2 | 134138 | 560617 | 12423 | 452874 | 31445 | SPRED3 | 188766 | 587947 | 20361 | 467532 | 36455 |
| CNTNAP5 | 155052 | 470921 | 4486 | N/A | | MEIS2 | 134138 | 558313 | 12424 | 453782 | 31446 | SPRED3 | 188766 | 338502 | 20362 | 345405 | 36456 |
| COBL | 106078 | 431948 | 4487 | 413498 | 26569 | MEIS2 | 134138 | 560697 | 12425 | 452770 | 31447 | SPRED3 | 188766 | 587564 | 20363 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COBL | 106078 | 445054 | 4488 | 401204 | 26570 | MEIS2 | 134138 | 559129 | 12426 | N/A | | SPRED3 | 188766 | 586958 | 20364 | 465713 | 36457 |
| COBL | 106078 | 265136 | 4489 | 265136 | 26571 | MEIS2 | 134138 | 340545 | 12427 | 339549 | 31448 | SPRED3 | 188766 | 590962 | 20365 | N/A | |
| COBL | 106078 | 462395 | 4490 | N/A | | MEIS3 | 105419 | 561204 | 12428 | N/A | | SPSB4 | 175093 | 310546 | 20366 | 311609 | 36458 |
| COBL | 106078 | 452534 | 4491 | 405059 | 26572 | MEIS3 | 105419 | 441740 | 12429 | 388667 | 31449 | SPSB4 | 175093 | 508126 | 20367 | 422034 | 36459 |
| COBL | 106078 | 395540 | 4492 | 378910 | 26573 | MEIS3 | 105419 | 331559 | 12430 | 333552 | 31450 | SPSB4 | 175093 | 508828 | 20368 | N/A | |
| COBL | 106078 | 441453 | 4493 | 399500 | 26574 | MEIS3 | 105419 | 560245 | 12431 | 453757 | 31451 | SPSB4 | 175093 | 507895 | 20369 | N/A | |
| COBL | 106078 | 632460 | 4494 | 488001 | 26575 | MEIS3 | 105419 | 561096 | 12432 | 453934 | 31452 | SPTB | 070182 | 556626 | 20370 | 451752 | 36460 |
| COBL | 106078 | 449281 | 4495 | 391864 | 26576 | MEIS3 | 105419 | 561293 | 12433 | 453307 | 31453 | SPTB | 070182 | 342835 | 20371 | N/A | |
| COBL | 106078 | 395542 | 4496 | 378912 | 26577 | MEIS3 | 105419 | 560253 | 12434 | N/A | | SPTB | 070182 | 553938 | 20372 | 451324 | 36461 |
| COL11A1 | 060718 | 370096 | 4497 | 359114 | 26578 | MEIS3 | 105419 | 558555 | 12435 | 454073 | 31454 | SPTB | 070182 | 556227 | 20373 | N/A | |
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| COL11A1 | 060718 | 639098 | 4499 | N/A | | MEIS3 | 105419 | 607695 | 12437 | 475941 | 31456 | SPTB | 070182 | 389720 | 20375 | 374370 | 36463 |
| COL11A1 | 060718 | 470170 | 4500 | N/A | | MEIS3 | 105419 | 559338 | 12438 | 453249 | 31457 | SPTB | 070182 | 542694 | 20376 | N/A | |
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| COL11A1 | 060718 | 465209 | 4502 | N/A | | MEIS3 | 105419 | 607330 | 12440 | N/A | | SPTBN2 | 173898 | 533211 | 20378 | 432568 | 36465 |
| COL11A1 | 060718 | 461720 | 4503 | N/A | | MEIS3 | 105419 | 561040 | 12441 | N/A | | SPTBN2 | 173898 | 529997 | 20379 | 433593 | 36466 |
| COL11A1 | 060718 | 475980 | 4504 | N/A | | MERTK | 153208 | 295408 | 12442 | 295408 | 31459 | SPTBN2 | 173898 | 528051 | 20380 | N/A | |
| COL11A1 | 060718 | 427239 | 4505 | 408640 | 26581 | MERTK | 153208 | 409780 | 12443 | 387277 | 31460 | SPTBN2 | 173898 | 530775 | 20381 | N/A | |
| COL11A1 | 060718 | 447608 | 4506 | 410177 | 26582 | MERTK | 153208 | 439966 | 12444 | 402129 | 31461 | SPTBN2 | 173898 | 532650 | 20382 | N/A | |
| COL11A1 | 060718 | 353414 | 4507 | 302551 | 26583 | MERTK | 153208 | 473065 | 12445 | N/A | | SPTBN2 | 173898 | 532902 | 20383 | N/A | |
| COL11A1 | 060718 | 358392 | 4508 | 351163 | 26584 | MERTK | 153208 | 449344 | 12446 | 412660 | 31462 | SPTBN2 | 173898 | 530665 | 20384 | N/A | |
| COL11A2 | 223699 | 425729 | 4509 | 408123 | 26585 | MERTK | 153208 | 421804 | 12447 | 389152 | 31463 | SPTBN2 | 173898 | 527010 | 20385 | 433631 | 36467 |
| COL11A2 | 223699 | 496849 | 4510 | N/A | | MERTK | 153208 | 616902 | 12448 | 482824 | 31464 | SPTBN2 | 173898 | 309996 | 20386 | 311489 | 36468 |
| COL11A2 | 223699 | 452044 | 4511 | 416619 | 26586 | METRN | 103260 | 568223 | 12449 | 455068 | 31465 | SPTBN2 | 173898 | 617502 | 20387 | 482000 | 36469 |
| COL11A2 | 223699 | 435763 | 4512 | 396587 | 26587 | METRN | 103260 | 570132 | 12450 | 456647 | 31466 | SPTBN2 | 173898 | 611817 | 20388 | 480692 | 36470 |
| COL11A2 | 223699 | 552134 | 4513 | 449320 | 26588 | METRN | 103260 | 219542 | 12451 | 219542 | 31467 | SPTY2D1 | 179119 | 336349 | 20389 | 337991 | 36471 |
| COL11A2 | 223699 | 551413 | 4514 | 448715 | 26589 | METRN | 103260 | 567076 | 12452 | 459900 | 31468 | SPTY2D1 | 179119 | 536336 | 20390 | N/A | |
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| COL11A2 | 235708 | 496392 | 4516 | N/A | | METRN | 103260 | 568415 | 12454 | 457702 | 31469 | SRC | 197122 | 497734 | 20392 | N/A | |
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| COL11A2 | 235708 | 447741 | 4518 | 400813 | 26592 | METTL7A | 185432 | 550502 | 12456 | 450239 | 31471 | SRC | 197122 | 373567 | 20394 | 362668 | 36473 |
| COL11A2 | 235708 | 552473 | 4519 | 446870 | 26593 | METTL7A | 185432 | 547104 | 12457 | 447542 | 31472 | SRC | 197122 | 373558 | 20395 | 362659 | 36474 |
| COL11A2 | 235708 | 549885 | 4520 | 448931 | 26594 | METTL7A | 185432 | 550097 | 12458 | 448286 | 31473 | SRC | 197122 | 472968 | 20396 | N/A | |
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| COL11A2 | 206290 | 433947 | 4524 | 388108 | 26598 | METTL9 | 197006 | 358154 | 12462 | 350874 | 31476 | SRC | 197122 | 477475 | 20400 | N/A | |
| COL11A2 | 206290 | 549836 | 4525 | 448701 | 26599 | METTL9 | 197006 | 396014 | 12463 | 379335 | 31477 | SRC | 197122 | 493775 | 20401 | N/A | |
| COL11A2 | 206290 | 549491 | 4526 | 450084 | 26600 | METTL9 | 197006 | 562379 | 12464 | 457311 | 31478 | SRC | 197122 | 358208 | 20402 | 350941 | 36475 |
| COL11A2 | 232541 | 443138 | 4527 | 404513 | 26601 | METTL9 | 197006 | 570074 | 12465 | 456345 | 31479 | SRCIN1 | 273608 | 615049 | 20403 | 480869 | 36476 |
| COL11A2 | 232541 | 447855 | 4528 | 415296 | 26602 | METTL9 | 197006 | 562961 | 12466 | 454239 | 31480 | SRCIN1 | 273608 | 631564 | 20404 | 488014 | 36477 |
| COL11A2 | 232541 | 434780 | 4529 | 408523 | 26603 | METTL9 | 197006 | 568826 | 12467 | 455285 | 31481 | SRCIN1 | 273608 | 632724 | 20405 | 488440 | 36478 |
| COL11A2 | 232541 | 486982 | 4530 | N/A | | METTL9 | 197006 | 569290 | 12468 | 455720 | 31482 | SRCIN1 | 273608 | 631905 | 20406 | N/A | |
| COL11A2 | 227801 | 383087 | 4531 | 372565 | 26604 | METTL9 | 197006 | 564733 | 12469 | N/A | | SRCIN1 | 273608 | 631691 | 20407 | N/A | |
| COL11A2 | 227801 | 443125 | 4532 | 402987 | 26605 | METTL9 | 197006 | 615720 | 12470 | 480710 | 31483 | SRCIN1 | 273608 | 631684 | 20408 | 488254 | 36479 |
| COL11A2 | 227801 | 451040 | 4533 | 398170 | 26606 | METTL9 | 284548 | 640479 | 12471 | 491241 | 31484 | SRCIN1 | 273608 | 631897 | 20409 | N/A | |
| COL11A2 | 227801 | 439039 | 4534 | 410284 | 26607 | METTL9 | 284548 | 640441 | 12472 | 492687 | 31485 | SRCIN1 | 273608 | 613116 | 20410 | N/A | |
| COL11A2 | 227801 | 549811 | 4535 | 449275 | 26608 | METTL9 | 284548 | 639291 | 12473 | N/A | | SRCIN1 | 273608 | 632117 | 20411 | 487679 | 36480 |
| COL11A2 | 227801 | 551542 | 4536 | 447864 | 26609 | METTL9 | 284548 | 638803 | 12474 | 491526 | 31486 | SRCIN1 | 277363 | 617146 | 20412 | 484715 | 36481 |
| COL11A2 | 204248 | 374708 | 4537 | 363840 | 26610 | METTL9 | 284548 | 638391 | 12475 | 492407 | 31487 | SRCIN1 | 277363 | 621492 | 20413 | 483931 | 36482 |
| COL11A2 | 204248 | 477772 | 4538 | N/A | | METTL9 | 284548 | 640147 | 12476 | 491618 | 31488 | SRCIN1 | 277363 | 622190 | 20414 | 479718 | 36483 |
| COL11A2 | 204248 | 457788 | 4539 | 405520 | 26611 | METTL9 | 284548 | 638433 | 12477 | 491636 | 31489 | SRCIN1 | 277363 | 622519 | 20415 | N/A | |
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| COL11A2 | 204248 | 341947 | 4541 | 339915 | 26613 | METTL9 | 284548 | 638363 | 12479 | 492569 | 31491 | SRCIN1 | 277363 | 613927 | 20417 | 477811 | 36484 |
| COL11A2 | 204248 | 361917 | 4542 | 355123 | 26614 | METTL9 | 284548 | 638474 | 12480 | 492256 | 31492 | SRCIN1 | 277363 | 621275 | 20418 | N/A | |
| COL11A2 | 230930 | 448717 | 4543 | 408627 | 26615 | METTL9 | 284548 | 638846 | 12481 | N/A | | SRCIN1 | 277363 | 612208 | 20419 | N/A | |
| COL11A2 | 230930 | 494246 | 4544 | N/A | | MFAP3L | 198948 | 393704 | 12482 | 377307 | 31493 | SRCIN1 | 277363 | 612431 | 20420 | 478342 | 36485 |
| COL11A2 | 230930 | 438711 | 4545 | 398256 | 26616 | MFAP3L | 198948 | 361618 | 12483 | 354583 | 31494 | SRGAP1 | 196935 | 355086 | 20421 | 347198 | 36486 |
| COL11A2 | 230930 | 452937 | 4546 | 406347 | 26617 | MFAP3L | 198948 | 512698 | 12484 | 422791 | 31495 | SRGAP1 | 196935 | 537556 | 20422 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COL11A2 | 230930 | 551758 | 4547 | 447062 | 26618 | MFAP3L | 198948 | 502832 | 12485 | 423722 | 31496 | SRGAP1 | 196935 | 543397 | 20423 | 437948 | 36487 |
| COL11A2 | 230930 | 550998 | 4548 | 450046 | 26619 | MFAP3L | 198948 | 507601 | 12486 | 423802 | 31497 | SRGAP1 | 196935 | 542381 | 20424 | N/A | |
| COL12A1 | 111799 | 425443 | 4549 | 399812 | 26620 | MFAP3L | 198948 | 393702 | 12487 | 377305 | 31498 | SRGAP1 | 196935 | 537585 | 20425 | N/A | |
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| COL12A1 | 111799 | 345356 | 4551 | 305147 | 26622 | MFAP3L | 198948 | 504999 | 12489 | 425303 | 31500 | SRGAP1 | 196935 | 631006 | 20427 | 485752 | 36488 |
| COL12A1 | 111799 | 416123 | 4552 | 412864 | 26623 | MFAP3L | 198948 | 506764 | 12490 | 426247 | 31501 | SRGN | 122862 | 462445 | 20428 | N/A | |
| COL12A1 | 111799 | 483888 | 4553 | 421216 | 26624 | MFAP3L | 198948 | 510306 | 12491 | 423549 | 31502 | SRGN | 122862 | 242465 | 20429 | 242465 | 36489 |
| COL12A1 | 111799 | 511023 | 4554 | N/A | | MFAP3L | 198948 | 514683 | 12492 | N/A | | SRPX | 101955 | 378533 | 20430 | 367794 | 36490 |
| COL12A1 | 111799 | 493109 | 4555 | 423423 | 26625 | MFF | 168958 | 423098 | 12493 | 390165 | 31503 | SRPX | 101955 | 479015 | 20431 | N/A | |
| COL12A1 | 111799 | 419671 | 4556 | 393217 | 26626 | MFF | 168958 | 304593 | 12494 | 304898 | 31504 | SRPX | 101955 | 461865 | 20432 | N/A | |
| COL12A1 | 111799 | 474564 | 4557 | N/A | | MFF | 168958 | 476924 | 12495 | N/A | | SRPX | 101955 | 432886 | 20433 | 411165 | 36491 |
| COL12A1 | 111799 | 486533 | 4558 | N/A | | MFF | 168958 | 489696 | 12496 | N/A | | SRPX | 101955 | 544439 | 20434 | 440758 | 36492 |
| COL12A1 | 111799 | 615798 | 4559 | 483232 | 26627 | MFF | 168958 | 353339 | 12497 | 302037 | 31505 | SRPX | 101955 | 538295 | 20435 | 445034 | 36493 |
| COL13A1 | 197467 | 479733 | 4560 | 430089 | 26628 | MFF | 168958 | 354503 | 12498 | 346498 | 31506 | SRRM4 | 139767 | 267260 | 20436 | 267260 | 36494 |
| COL13A1 | 197467 | 398978 | 4561 | 381949 | 26629 | MFF | 168958 | 530359 | 12499 | 431725 | 31507 | SRRM4 | 139767 | 545224 | 20437 | N/A | |
| COL13A1 | 197467 | 354547 | 4562 | 346553 | 26630 | MFF | 168958 | 531278 | 12500 | 432447 | 31508 | SRRM4 | 139767 | 537597 | 20438 | N/A | |
| COL13A1 | 197467 | 357811 | 4563 | 350463 | 26631 | MFF | 168958 | 409565 | 12501 | 386964 | 31509 | SRRM4 | 139767 | 641899 | 20439 | 493188 | 36495 |
| COL13A1 | 197467 | 520267 | 4564 | 428057 | 26632 | MFF | 168958 | 452930 | 12502 | 415996 | 31510 | SRSF3 | 112081 | 613941 | 20440 | 484891 | 36496 |
| COL13A1 | 197467 | 517713 | 4565 | 430061 | 26633 | MFF | 168958 | 409616 | 12503 | 386641 | 31511 | SRSF3 | 112081 | 620242 | 20441 | N/A | |
| COL13A1 | 197467 | 522165 | 4566 | 428342 | 26634 | MFF | 168958 | 460756 | 12504 | N/A | | SRSF3 | 112081 | 339436 | 20442 | N/A | |
| COL13A1 | 197467 | 520133 | 4567 | 430173 | 26635 | MFF | 168958 | 337110 | 12505 | 338412 | 31512 | SRSF3 | 112081 | 373715 | 20443 | 362820 | 36497 |
| COL13A1 | 197467 | 484990 | 4568 | N/A | | MFF | 168958 | 525195 | 12506 | 436920 | 31513 | SRSF3 | 112081 | 477442 | 20444 | 436036 | 36498 |
| COL13A1 | 197467 | 398975 | 4569 | 381947 | 26636 | MFF | 168958 | 470090 | 12507 | N/A | | SRSF3 | 112081 | 620941 | 20445 | 482833 | 36499 |
| COL13A1 | 197467 | 456019 | 4570 | 388774 | 26637 | MFF | 168958 | 534203 | 12508 | 435354 | 31514 | SRSF3 | 112081 | 620389 | 20446 | N/A | |
| COL13A1 | 197467 | 518052 | 4571 | N/A | | MFF | 168958 | 524634 | 12509 | 436289 | 31515 | SRSF3 | 112081 | 614136 | 20447 | N/A | |
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| COL13A1 | 197467 | 398969 | 4573 | 381941 | 26638 | MFF | 168958 | 436237 | 12511 | 411386 | 31517 | SSH1 | 084112 | 546433 | 20449 | 447629 | 36501 |
| COL15A1 | 204291 | 467052 | 4574 | N/A | | MFF | 168958 | 443428 | 12512 | 391829 | 31518 | SSH1 | 084112 | 551165 | 20450 | 448824 | 36502 |
| COL15A1 | 204291 | 471477 | 4575 | N/A | | MFF | 168958 | 418961 | 12513 | 407547 | 31519 | SSH1 | 084112 | 326470 | 20451 | 326107 | 36503 |
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| COL18A1 | 182871 | 400337 | 4579 | 383191 | 26641 | MFF | 168958 | 476262 | 12517 | N/A | | SSH1 | 084112 | 546697 | 20455 | 446652 | 36505 |
| COL18A1 | 182871 | 355480 | 4580 | 347665 | 26642 | MFF | 168958 | 477362 | 12518 | N/A | | SSH1 | 084112 | 546812 | 20456 | N/A | |
| COL18A1 | 182871 | 342220 | 4581 | 339118 | 26643 | MFF | 168958 | 392059 | 12519 | 375912 | 31521 | SSTR1 | 139874 | 267377 | 20457 | 267377 | 36506 |
| COL18A1 | 182871 | 459895 | 4582 | N/A | | MFGE8 | 140545 | 558018 | 12520 | 452734 | 31522 | SSTR2 | 180616 | 579323 | 20458 | N/A | |
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| COL18A1 | 182871 | 473212 | 4584 | N/A | | MFGE8 | 140545 | 268150 | 12522 | 268150 | 31524 | ST13 | 100380 | 216218 | 20460 | 216218 | 36508 |
| COL18A1 | 182871 | 359759 | 4585 | 352798 | 26645 | MFGE8 | 140545 | 566497 | 12523 | 456281 | 31525 | ST13 | 100380 | 480048 | 20461 | N/A | |
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| COL1A2 | 164692 | 497316 | 4602 | N/A | | MFHAS1 | 147324 | 520091 | 12540 | N/A | | ST18 | 147488 | 517456 | 20478 | N/A | |
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| COL1A2 | 164692 | 481570 | 4605 | N/A | | MFSD2A | 168389 | 372809 | 12543 | 361895 | 31532 | ST18 | 147488 | 521119 | 20481 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| COL22A1 | 169436 | 487854 | 4622 | N/A | | MGAT3 | 128268 | 429402 | 12560 | 416226 | 31541 | ST3GAL5 | 115525 | 639867 | 20498 | N/A | |
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| COL25A1 | 188517 | 494183 | 4630 | 437131 | 26659 | MGAT4C | 182050 | 602941 | 12568 | N/A | | ST3GAL5 | 115525 | 639311 | 20506 | 491398 | 36527 |
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| COL4A1 | 187498 | 375820 | 4639 | 364979 | 26667 | MGAT4C | 283530 | 636211 | 12577 | 489618 | 31554 | ST3GAL5 | 115525 | 640453 | 20515 | N/A | |
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| COL4A5 | 188153 | 477429 | 4644 | N/A | | MGAT4C | 283530 | 637470 | 12582 | N/A | | ST3GAL5 | 115525 | 639184 | 20520 | 492305 | 36536 |
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| COL4A5 | 188153 | 361603 | 4646 | 354505 | 26671 | MGAT5B | 167889 | 301618 | 12584 | 301618 | 31557 | ST3GAL5 | 115525 | 640992 | 20522 | 492753 | 36538 |
| COL4A5 | 188153 | 470339 | 4647 | N/A | | MGAT5B | 167889 | 569840 | 12585 | 456037 | 31558 | ST3GAL5 | 115525 | 640425 | 20523 | 492459 | 36539 |
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| COL4A5 | 188153 | 505728 | 4649 | 424137 | 26672 | MGAT5B | 167889 | 374998 | 12587 | N/A | | ST3GAL5 | 115525 | 640295 | 20525 | 491027 | 36541 |
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| COL4A5 | 188153 | 515658 | 4652 | 423520 | 26673 | MGAT5B | 167889 | 563627 | 12590 | N/A | | ST3GAL5 | 115525 | 638484 | 20528 | 492635 | 36544 |
| COL4A5 | 188153 | 504541 | 4653 | 424845 | 26674 | MGAT5B | 167889 | 563153 | 12591 | N/A | | ST3GAL5 | 115525 | 638542 | 20529 | 492468 | 36545 |
| COL5A1 | 130635 | 371817 | 4654 | 360882 | 26675 | MGAT5B | 167889 | 568598 | 12592 | N/A | | ST3GAL5 | 115525 | 639820 | 20530 | 491802 | 36546 |
| COL5A1 | 130635 | 464187 | 4655 | N/A | | MGLL | 074416 | 434178 | 12593 | 402798 | 31562 | ST3GAL5 | 115525 | 640024 | 20531 | 491238 | 36547 |
| COL5A1 | 130635 | 469093 | 4656 | N/A | | MGLL | 074416 | 496306 | 12594 | 417060 | 31563 | ST3GAL5 | 115525 | 640222 | 20532 | 492035 | 36548 |
| COL5A1 | 130635 | 463925 | 4657 | N/A | | MGLL | 074416 | 476682 | 12595 | N/A | | ST3GAL5 | 115525 | 638178 | 20533 | 492103 | 36549 |
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| COL5A3 | 080573 | 264828 | 4662 | 264828 | 26678 | MGLL | 074416 | 479967 | 12600 | N/A | | ST3GAL5 | 115525 | 639608 | 20538 | 492473 | 36554 |
| COL5A3 | 080573 | 461214 | 4663 | N/A | | MGLL | 074416 | 493611 | 12601 | 417689 | 31567 | ST3GAL5 | 115525 | 639541 | 20539 | 492280 | 36555 |
| COL6A1 | 142156 | 361866 | 4664 | 355180 | 26679 | MGLL | 074416 | 476654 | 12602 | N/A | | ST3GAL5 | 115525 | 639945 | 20540 | 492866 | 36556 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COL6A1 | 142156 | 492851 | 4665 | N/A | | MGLL | 074416 | 494830 | 12603 | 417489 | 31568 | ST3GAL5 | 115525 | 638956 | 20541 | 492097 | 36557 |
| COL6A1 | 142156 | 466285 | 4666 | N/A | | MGLL | 074416 | 265052 | 12604 | 265052 | 31569 | ST3GAL5 | 115525 | 639981 | 20542 | 491172 | 36558 |
| COL6A1 | 142156 | 463060 | 4667 | N/A | | MGLL | 074416 | 398104 | 12605 | 381176 | 31570 | ST3GAL5 | 115525 | 640903 | 20543 | 491443 | 36559 |
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| COLEC12 | 158270 | 580242 | 4681 | N/A | | MGST1 | 008394 | 535309 | 12619 | 438308 | 31578 | ST3GAL5 | 115525 | 639690 | 20557 | 491917 | 36570 |
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| COQ10B | 115520 | 263960 | 4692 | 263960 | 26691 | MIAT | 225783 | 421867 | 12630 | N/A | | ST5 | 166444 | 313726 | 20568 | 319678 | 36576 |
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| COQ10B | 115520 | 488445 | 4694 | N/A | | MIAT | 225783 | 440347 | 12632 | N/A | | ST5 | 166444 | 526099 | 20570 | 436808 | 36578 |
| COQ10B | 115520 | 409010 | 4695 | 387223 | 26693 | MIAT | 225783 | 450203 | 12633 | N/A | | ST5 | 166444 | 527540 | 20571 | N/A | |
| CORIN | 145244 | 273857 | 4696 | 273857 | 26694 | MIAT | 225783 | 430483 | 12634 | N/A | | ST5 | 166444 | 532162 | 20572 | N/A | |
| CORIN | 145244 | 508498 | 4697 | 425597 | 26695 | MIAT | 225783 | 439738 | 12635 | N/A | | ST5 | 166444 | 534278 | 20573 | 433349 | 36579 |
| CORIN | 145244 | 502252 | 4698 | 424212 | 26696 | MIAT | 225783 | 422403 | 12636 | N/A | | ST5 | 166444 | 524513 | 20574 | N/A | |
| CORIN | 145244 | 505909 | 4699 | 425401 | 26697 | MIAT | 225783 | 436238 | 12637 | N/A | | ST5 | 166444 | 530438 | 20575 | 436802 | 36580 |
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| CORIN | 145244 | 505754 | 4701 | N/A | | MIAT | 225783 | 455640 | 12639 | N/A | | ST5 | 166444 | 526062 | 20577 | 433043 | 36581 |
| CORIN | 145244 | 504584 | 4702 | 423216 | 26698 | MIAT | 225783 | 451141 | 12640 | N/A | | ST5 | 166444 | 532871 | 20578 | N/A | |
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| CORIN | 145244 | 610355 | 4706 | 484087 | 26699 | MIAT | 225783 | 620145 | 12644 | N/A | | ST5 | 166444 | 530559 | 20582 | N/A | |
| CORO1C | 110880 | 261401 | 4707 | 261401 | 26700 | MIAT | 225783 | 616213 | 12645 | N/A | | ST5 | 166444 | 533020 | 20583 | 433588 | 36582 |
| CORO1C | 110880 | 541030 | 4708 | 438341 | 26701 | MIAT | 225783 | 613780 | 12646 | N/A | | ST5 | 166444 | 526837 | 20584 | N/A | |
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| CORO1C | 110880 | 549384 | 4710 | N/A | | MIAT | 225783 | 419237 | 12648 | N/A | | ST5 | 166444 | 532734 | 20586 | 433793 | 36584 |
| CORO1C | 110880 | 421578 | 4711 | 415554 | 26703 | MIAT | 225783 | 449717 | 12649 | N/A | | ST5 | 166444 | 530593 | 20587 | 437096 | 36585 |
| CORO1C | 110880 | 550542 | 4712 | 448130 | 26704 | MIAT | 225783 | 453023 | 12650 | N/A | | ST5 | 166444 | 528527 | 20588 | 431580 | 36586 |
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| CORO1C | 110880 | 549387 | 4714 | N/A | | MICAL2 | 133816 | 526065 | 12652 | 435270 | 31586 | ST5 | 166444 | 533425 | 20590 | N/A | |
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| CORO1C | 110880 | 547361 | 4716 | N/A | | MICAL2 | 133816 | 256194 | 12654 | 256194 | 31587 | ST5 | 166444 | 528196 | 20592 | 431564 | 36589 |
| CORO1C | 110880 | 552871 | 4717 | 449658 | 26706 | MICAL2 | 133816 | 531732 | 12655 | N/A | | ST5 | 166444 | 527510 | 20593 | 434701 | 36590 |
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| CORO1C | 110880 | 547170 | 4723 | N/A | | MICAL2 | 133816 | 533389 | 12661 | 433357 | 31593 | ST5 | 166444 | 526126 | 20599 | 436760 | 36594 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CORO1C | 110880 | 551059 | 4724 | N/A | | MICAL2 | 133816 | 528931 | 12662 | N/A | | ST5 | 166444 | 526221 | 20600 | N/A | |
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| CORO2B | 103647 | 261861 | 4728 | 261861 | 26715 | MICAL2 | 133816 | 524730 | 12666 | N/A | | ST5 | 166444 | 534783 | 20604 | N/A | |
| CORO2B | 103647 | 566799 | 4729 | 454783 | 26716 | MICAL2 | 133816 | 533219 | 12667 | N/A | | ST5 | 166444 | 533681 | 20605 | 434935 | 36597 |
| CORO2B | 103647 | 540068 | 4730 | 446250 | 26717 | MICAL2 | 133816 | 529562 | 12668 | N/A | | ST5 | 166444 | 526241 | 20606 | 433346 | 36598 |
| CORO2B | 103647 | 543950 | 4731 | 443819 | 26718 | MICAL2 | 133816 | 526475 | 12669 | N/A | | ST5 | 166444 | 530959 | 20607 | 433008 | 36599 |
| CORO6 | 167549 | 469090 | 4732 | N/A | | MICAL2 | 133816 | 525075 | 12670 | N/A | | ST5 | 166444 | 533580 | 20608 | 431332 | 36600 |
| CORO6 | 167549 | 345068 | 4733 | 344562 | 26719 | MICAL2 | 133816 | 525216 | 12671 | N/A | | ST5 | 166444 | 526155 | 20609 | 431139 | 36601 |
| CORO6 | 167549 | 459686 | 4734 | N/A | | MICAL2 | 133816 | 534563 | 12672 | N/A | | ST5 | 166444 | 534248 | 20610 | 432872 | 36602 |
| CORO6 | 167549 | 580212 | 4735 | 463723 | 26720 | MICAL2 | 133816 | 525979 | 12673 | N/A | | ST5 | 166444 | 527347 | 20611 | 431673 | 36603 |
| CORO6 | 167549 | 579388 | 4736 | N/A | | MICAL2 | 133816 | 526672 | 12674 | N/A | | ST5 | 166444 | 533016 | 20612 | 434332 | 36604 |
| CORO6 | 167549 | 467534 | 4737 | N/A | | MICAL2 | 133816 | 525618 | 12675 | N/A | | ST5 | 166444 | 527516 | 20613 | 431990 | 36605 |
| CORO6 | 167549 | 480954 | 4738 | 464621 | 26721 | MICAL2 | 133816 | 530021 | 12676 | N/A | | ST5 | 166444 | 527473 | 20614 | 435228 | 36606 |
| CORO6 | 167549 | 584969 | 4739 | 462627 | 26722 | MICAL2 | 133816 | 526604 | 12677 | N/A | | ST5 | 166444 | 530938 | 20615 | 436748 | 36607 |
| CORO6 | 167549 | 577909 | 4740 | N/A | | MICAL2 | 133816 | 525444 | 12678 | N/A | | ST5 | 166444 | 533471 | 20616 | 434930 | 36608 |
| CORO6 | 167549 | 492276 | 4741 | 464396 | 26723 | MICAL2 | 133816 | 379612 | 12679 | 368932 | 31594 | ST5 | 166444 | 524757 | 20617 | 435925 | 36609 |
| CORO6 | 167549 | 584602 | 4742 | 468235 | 26724 | MICAL2 | 133816 | 342902 | 12680 | 344894 | 31595 | ST5 | 166444 | 527392 | 20618 | 435180 | 36610 |
| CORO6 | 167549 | 388767 | 4743 | 373419 | 26725 | MICAL2 | 133816 | 537344 | 12681 | 441689 | 31596 | ST5 | 166444 | 526828 | 20619 | 435562 | 36611 |
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| COTL1 | 103187 | 564057 | 4746 | 457033 | 26727 | MICALCL | 133808 | 256186 | 12684 | 256186 | 31598 | ST5 | 166444 | 531578 | 20622 | 436154 | 36614 |
| COTL1 | 103187 | 561707 | 4747 | N/A | | MID1 | 101871 | 380779 | 12685 | 370156 | 31599 | ST5 | 166444 | 531237 | 20623 | N/A | |
| COTL1 | 103187 | 564662 | 4748 | N/A | | MID1 | 101871 | 380780 | 12686 | 370157 | 31600 | ST5 | 166444 | 531640 | 20624 | N/A | |
| COTL1 | 103187 | 567786 | 4749 | 480117 | 26728 | MID1 | 101871 | 380785 | 12687 | 370162 | 31601 | ST5 | 166444 | 528452 | 20625 | N/A | |
| COX6B2 | 160471 | 588572 | 4750 | 467959 | 26729 | MID1 | 101871 | 380787 | 12688 | 370164 | 31602 | ST5 | 166444 | 626808 | 20626 | 486899 | 36615 |
| COX6B2 | 160471 | 326529 | 4751 | 320672 | 26730 | MID1 | 101871 | 380782 | 12689 | 370159 | 31603 | ST6GAL2 | 144057 | 361686 | 20627 | 355273 | 36616 |
| COX6B2 | 160471 | 593184 | 4752 | 467266 | 26731 | MID1 | 101871 | 479925 | 12690 | N/A | | ST6GAL2 | 144057 | 409382 | 20628 | 386942 | 36617 |
| COX6B2 | 160471 | 590900 | 4753 | 467128 | 26732 | MID1 | 101871 | 413894 | 12691 | 391154 | 31604 | ST6GAL2 | 144057 | 361803 | 20629 | 355386 | 36618 |
| COX6B2 | 160471 | 589879 | 4754 | N/A | | MID1 | 101871 | 423614 | 12692 | 387771 | 31605 | ST6GAL2 | 144057 | 409087 | 20630 | 387332 | 36619 |
| COX6B2 | 160471 | 588586 | 4755 | N/A | | MID1 | 101871 | 453318 | 12693 | 414521 | 31606 | ST6GAL2 | 144057 | 419159 | 20631 | 395581 | 36620 |
| COX6B2 | 160471 | 586191 | 4756 | N/A | | MID1 | 101871 | 610939 | 12694 | 483707 | 31607 | ST6GALNAC3 | 184005 | 328299 | 20632 | 329214 | 36621 |
| COX6B2 | 160471 | 589467 | 4757 | 476768 | 26733 | MID1 | 101871 | 616003 | 12695 | 484712 | 31608 | ST6GALNAC3 | 184005 | 464140 | 20633 | N/A | |
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| COX6B2 | 160471 | 587854 | 4759 | N/A | | MID2 | 080561 | 451923 | 12697 | 410730 | 31610 | ST6GALNAC5 | 117069 | 477717 | 20635 | 417583 | 36623 |
| CPE | 109472 | 513982 | 4760 | 424830 | 26734 | MID2 | 080561 | 262843 | 12698 | 262843 | 31611 | ST6GALNAC5 | 117069 | 480428 | 20636 | N/A | |
| CPE | 109472 | 402744 | 4761 | 386104 | 26735 | MID2 | 080561 | 443968 | 12699 | 413976 | 31612 | ST6GALNAC5 | 117069 | 318803 | 20637 | 436263 | 36624 |
| CPE | 109472 | 480404 | 4762 | 427629 | 26736 | MID2 | 080561 | 474517 | 12700 | N/A | | ST6GALNAC5 | 117069 | 496845 | 20638 | N/A | |
| CPE | 109472 | 431967 | 4763 | 416601 | 26737 | MIDN | 167470 | 586757 | 12701 | 466895 | 31613 | ST6GALNAC5 | 117069 | 488940 | 20639 | N/A | |
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| CPLX2 | 145920 | 359546 | 4765 | 352544 | 26739 | MIDN | 167470 | 591302 | 12703 | N/A | | STAB2 | 136011 | 549474 | 20641 | 449282 | 36626 |
| CPLX2 | 145920 | 506642 | 4766 | N/A | | MIDN | 167470 | 586843 | 12704 | 466835 | 31615 | STAB2 | 136011 | 549798 | 20642 | N/A | |
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| CPLX2 | 145920 | 393745 | 4769 | 377346 | 26742 | MIR136 | 207942 | 385207 | 12707 | N/A | | STAB2 | 136011 | 552777 | 20645 | 446629 | 36627 |
| CPLX2 | 145920 | 512824 | 4770 | 425973 | 26743 | MIR31HG | 171889 | 304425 | 12708 | N/A | | STAC | 144681 | 273183 | 20646 | 273183 | 36628 |
| CPLX2 | 145920 | 514150 | 4771 | 423612 | 26744 | MIR346 | 199104 | 362234 | 12709 | N/A | | STAC | 144681 | 457375 | 20647 | 393713 | 36629 |
| CPLX2 | 145920 | 502265 | 4772 | 424305 | 26745 | MIR34C | 207562 | 384831 | 12710 | N/A | | STAC | 144681 | 427486 | 20648 | 397521 | 36630 |
| CPLX2 | 145920 | 515025 | 4773 | 425284 | 26746 | MIR3671 | 265996 | 580455 | 12711 | N/A | | STAC | 144681 | 434649 | 20649 | 398403 | 36631 |
| CPLX2 | 145920 | 515094 | 4774 | 421825 | 26747 | MIR384 | 283242 | 638003 | 12712 | N/A | | STAC | 144681 | 476388 | 20650 | N/A | |
| CPLX3 | 213578 | 395018 | 4775 | 378464 | 26748 | MIR646HG | 228340 | 426753 | 12713 | N/A | | STAC | 144681 | 486143 | 20651 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CPM | 135678 | 546556 | 4776 | 447051 | 26749 | MIR646HG | 228340 | 428772 | 12714 | N/A | | STAC | 144681 | 473452 | 20652 | N/A | |
| CPM | 135678 | 551897 | 4777 | 447455 | 26750 | MIR646HG | 228340 | 431181 | 12715 | N/A | | STAC | 144681 | 465064 | 20653 | N/A | |
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| CPM | 135678 | 546373 | 4779 | 447255 | 26752 | MIR646HG | 228340 | 439507 | 12717 | N/A | | STAC2 | 141750 | 584501 | 20655 | 463299 | 36633 |
| CPM | 135678 | 546912 | 4780 | N/A | | MIR646HG | 228340 | 457508 | 12718 | N/A | | STAG3 | 066923 | 426455 | 20656 | 400359 | 36634 |
| CPM | 135678 | 548954 | 4781 | 446799 | 26753 | MIR646HG | 228340 | 458422 | 12719 | N/A | | STAG3 | 066923 | 394018 | 20657 | 377586 | 36635 |
| CPM | 135678 | 551728 | 4782 | 446573 | 26754 | MIR646HG | 228340 | 432910 | 12720 | N/A | | STAG3 | 066923 | 416412 | 20658 | 409283 | 36636 |
| CPM | 135678 | 547134 | 4783 | 450400 | 26755 | MIR646HG | 228340 | 437035 | 12721 | N/A | | STAG3 | 066923 | 317296 | 20659 | 319318 | 36637 |
| CPM | 135678 | 547924 | 4784 | N/A | | MIR646HG | 228340 | 421257 | 12722 | N/A | | STAG3 | 066923 | 422690 | 20660 | 407884 | 36638 |
| CPM | 135678 | 548262 | 4785 | 449911 | 26756 | MIR646HG | 228340 | 427820 | 12723 | N/A | | STAG3 | 066923 | 496157 | 20661 | N/A | |
| CPM | 135678 | 549781 | 4786 | 448078 | 26757 | MIR6723 | 278791 | 621981 | 12724 | N/A | | STAG3 | 066923 | 439782 | 20662 | 397067 | 36639 |
| CPM | 135678 | 549691 | 4787 | N/A | | MIR7-3HG | 176840 | 317292 | 12725 | N/A | | STAG3 | 066923 | 482546 | 20663 | N/A | |
| CPM | 135678 | 338356 | 4788 | 339157 | 26758 | MIR7-3HG | 176840 | 586721 | 12726 | N/A | | STAG3 | 066923 | 459699 | 20664 | N/A | |
| CPNE4 | 196353 | 617767 | 4789 | 478878 | 26759 | MIR7-3HG | 176840 | 592709 | 12727 | N/A | | STAG3 | 066923 | 491498 | 20665 | N/A | |
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| CPNE4 | 196353 | 505881 | 4791 | 425506 | 26761 | MIR7-3HG | 176840 | 589639 | 12729 | N/A | | STAG3 | 066923 | 477469 | 20667 | N/A | |
| CPNE4 | 196353 | 511604 | 4792 | 423811 | 26762 | MIR7-3HG | 176840 | 591008 | 12730 | N/A | | STAG3 | 066923 | 476057 | 20668 | N/A | |
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| CPNE4 | 196353 | 505331 | 4796 | N/A | | MIR7-3HG | 176840 | 589368 | 12734 | N/A | | STAG3 | 066923 | 492674 | 20672 | N/A | |
| CPNE4 | 196353 | 506687 | 4797 | N/A | | MIR9-3HG | 255571 | 536780 | 12735 | N/A | | STAG3 | 066923 | 620100 | 20673 | 484098 | 36642 |
| CPNE4 | 196353 | 505957 | 4798 | 421394 | 26764 | MIR9-3HG | 255571 | 560008 | 12736 | N/A | | STAG3 | 066923 | 615138 | 20674 | 477973 | 36643 |
| CPNE4 | 196353 | 514999 | 4799 | 427561 | 26765 | MIR9-3HG | 255571 | 561327 | 12737 | N/A | | STAMBPL1 | 138134 | 371926 | 20675 | 360994 | 36644 |
| CPNE4 | 196353 | 502818 | 4800 | 421646 | 26766 | MIR9-3HG | 255571 | 560663 | 12738 | N/A | | STAMBPL1 | 138134 | 371927 | 20676 | 360995 | 36645 |
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| CPNE7 | 178773 | 532500 | 4806 | N/A | | MIR9-3HG | 255571 | 558982 | 12744 | N/A | | STARD13 | 133121 | 255486 | 20682 | 255486 | 36649 |
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| CPNE7 | 178773 | 568977 | 4808 | 455086 | 26772 | MIR9-3HG | 255571 | 546186 | 12746 | N/A | | STARD13 | 133121 | 491333 | 20684 | N/A | |
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| CPNE7 | 178773 | 526232 | 4810 | 434886 | 26773 | MKX | 150051 | 460919 | 12748 | 452751 | 31618 | STARD13 | 133121 | 487412 | 20686 | N/A | |
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| CPNE8 | 139117 | 538596 | 4814 | 439237 | 26775 | MLC1 | 100427 | 311597 | 12752 | 310375 | 31622 | STARD8 | 130052 | 488088 | 20690 | N/A | |
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| CPNE8 | 139117 | 551855 | 4819 | N/A | | MLYCD | 103150 | 262430 | 12757 | 262430 | 31625 | STAT2 | 170581 | 556539 | 20695 | N/A | |
| CPNE8 | 139117 | 550863 | 4820 | 447761 | 26777 | MLYCD | 103150 | 569024 | 12758 | N/A | | STAT2 | 170581 | 314128 | 20696 | 315768 | 36657 |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CREB3L2 | 182158 | 330387 | 4844 | 329140 | 26796 | MMP2 | 087245 | 566564 | 12782 | 461915 | 31644 | STC2 | 113739 | 520593 | 20720 | N/A | |
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| CREB3L2 | 182158 | 458726 | 4847 | 388917 | 26799 | MNS1 | 138587 | 260453 | 12785 | 260453 | 31646 | STC2 | 113739 | 519511 | 20723 | N/A | |
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| CREB3L2 | 182158 | 616381 | 4850 | 478432 | 26801 | MOBP | 168314 | 428261 | 12788 | 401312 | 31648 | STEAP3 | 115107 | 409811 | 20726 | 386510 | 36673 |
| CREB3L2 | 182158 | 620715 | 4851 | 478809 | 26802 | MOBP | 168314 | 420739 | 12789 | 400491 | 31649 | STEAP3 | 115107 | 393107 | 20727 | 376819 | 36674 |
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| CRIPT | 119878 | 486447 | 4863 | N/A | | MOG | 236561 | 419309 | 12801 | 395005 | 31660 | STIP1 | 168439 | 355603 | 20739 | N/A | |
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| CRISPLD1 | 121005 | 519798 | 4866 | N/A | | MOG | 236561 | 419274 | 12804 | 411489 | 31663 | STK17B | 081320 | 606789 | 20742 | 475843 | 36683 |
| CRISPLD1 | 121005 | 520277 | 4867 | 430504 | 26812 | MOG | 236561 | 442244 | 12805 | 391516 | 31664 | STK17B | 081320 | 420683 | 20743 | 399755 | 36684 |
| CRISPLD1 | 121005 | 523524 | 4868 | 430105 | 26813 | MOG | 236561 | 457090 | 12806 | 415883 | 31665 | STK17B | 081320 | 449152 | 20744 | 413289 | 36685 |
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| CRLF1 | 006016 | 596360 | 4882 | N/A | | MOG | 204655 | 483013 | 12820 | 418090 | 31674 | STK19 | 234947 | 459769 | 20758 | N/A | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| CRY1 | 008405 | 550633 | 4896 | N/A | | MOG | 234623 | 462016 | 12834 | N/A | | STK19 | 204344 | 479644 | 20772 | N/A | |
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| CRYAB | 109846 | 524660 | 4898 | 432454 | 26833 | MOG | 234623 | 489187 | 12836 | N/A | | STK19 | 204344 | 492583 | 20774 | N/A | |
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| CRYAB | 109846 | 525823 | 4900 | 435411 | 26835 | MOG | 234623 | 427061 | 12838 | 395304 | 31687 | STK19 | 204344 | 473983 | 20776 | N/A | |
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| CRYAB | 109846 | 527950 | 4902 | 437149 | 26837 | MOG | 234623 | 430264 | 12840 | 403058 | 31689 | STK19 | 204344 | 463823 | 20778 | N/A | |
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| CRYAB | 109846 | 531198 | 4904 | 434247 | 26839 | MOG | 234623 | 442629 | 12842 | 399240 | 31691 | STK19 | 204344 | 519179 | 20780 | 454870 | 36697 |
| CRYAB | 109846 | 528961 | 4905 | 435960 | 26840 | MOG | 234623 | 417635 | 12843 | 401457 | 31692 | STK19 | 204344 | 466336 | 20781 | N/A | |
| CRYAB | 109846 | 527899 | 4906 | 436089 | 26841 | MOG | 234623 | 470893 | 12844 | N/A | | STK19 | 204344 | 471028 | 20782 | N/A | |
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| CRYAB | 109846 | 528628 | 4910 | 432182 | 26845 | MOG | 234096 | 428719 | 12848 | 397723 | 31695 | STK19 | 204344 | 490822 | 20786 | N/A | |
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| CRYAB | 109846 | 616970 | 4912 | 483554 | 26847 | MOG | 234096 | 450851 | 12850 | 392661 | 31697 | STK19 | 236250 | 438256 | 20788 | 391798 | 36699 |
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| CRYBA2 | 163499 | 295728 | 4916 | 295728 | 26849 | MOG | 234096 | 415546 | 12854 | 404149 | 31701 | STK19 | 236250 | 464830 | 20792 | N/A | |
| CRYBA2 | 163499 | 453769 | 4917 | 395120 | 26850 | MOG | 234096 | 449096 | 12855 | 391898 | 31702 | STK19 | 236250 | 472631 | 20793 | N/A | |
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| CRYBG3 | 080200 | 389622 | 4919 | 374273 | 26851 | MOG | 234096 | 477504 | 12857 | N/A | | STK19 | 236250 | 486636 | 20795 | N/A | |
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| CRYBG3 | 080200 | 485253 | 4921 | N/A | | MOG | 234096 | 477366 | 12859 | N/A | | STK19 | 236250 | 468547 | 20797 | N/A | |
| CRYL1 | 165475 | 480748 | 4922 | 479908 | 26853 | MOG | 234096 | 548017 | 12860 | 448732 | 31703 | STK19 | 236250 | 550656 | 20798 | 447097 | 36700 |
| CRYL1 | 165475 | 382812 | 4923 | 372262 | 26854 | MOG | 237834 | 488730 | 12861 | N/A | | STK19 | 206342 | 478304 | 20799 | N/A | |
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| CRYM | 103316 | 574448 | 4925 | 459982 | 26856 | MOG | 237834 | 439884 | 12863 | 398394 | 31705 | STK19 | 206342 | 383327 | 20801 | 372817 | 36702 |
| CRYM | 103316 | 570401 | 4926 | 460820 | 26857 | MOG | 237834 | 473784 | 12864 | N/A | | STK19 | 206342 | 497879 | 20802 | N/A | |
| CRYM | 103316 | 219599 | 4927 | 219599 | 26858 | MOG | 237834 | 383521 | 12865 | 373013 | 31706 | STK19 | 206342 | 469629 | 20803 | N/A | |
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| CRYM | 103316 | 576703 | 4929 | 460126 | 26859 | MOG | 237834 | 444952 | 12867 | 400564 | 31708 | STK19 | 206342 | 468702 | 20805 | N/A | |
| CRYM | 103316 | 571666 | 4930 | N/A | | MOG | 237834 | 400669 | 12868 | 383510 | 31709 | STK19 | 206342 | 490657 | 20806 | N/A | |
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| CRYM | 103316 | 543948 | 4934 | 440227 | 26862 | MOG | 237834 | 479627 | 12872 | N/A | | STK19 | 206342 | 547578 | 20810 | 448123 | 36704 |
| CRYM | 283922 | 639469 | 4935 | 492884 | 26863 | MOG | 237834 | 494392 | 12873 | N/A | | STK19 | 226033 | 496606 | 20811 | N/A | |
| CRYM | 283922 | 639312 | 4936 | 491775 | 26864 | MOG | 237834 | 550849 | 12874 | 449683 | 31713 | STK19 | 226033 | 444147 | 20812 | 399915 | 36705 |
| CRYM | 283922 | 639592 | 4937 | 490961 | 26865 | MOG | 230885 | 427289 | 12875 | 414489 | 31714 | STK19 | 226033 | 431383 | 20813 | 403479 | 36706 |
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| CRYM | 283922 | 640031 | 4940 | 491052 | 26867 | MOG | 230885 | 472743 | 12878 | N/A | | STK19 | 226033 | 523972 | 20816 | 429285 | 36707 |
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| CRYM | 283922 | 638961 | 4944 | N/A | | MOG | 230885 | 457626 | 12882 | 402139 | 31719 | STK19 | 226033 | 465734 | 20820 | N/A | |
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| CRYM-AS1 | 189149 | 444326 | 4947 | N/A | | MOG | 230885 | 440073 | 12885 | 407143 | 31722 | STK19 | 226033 | 549916 | 20823 | 446725 | 36708 |

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| CRYM-AS1 | 189149 | 637983 | 4948 | N/A | | MOG | 230885 | 493966 | 12886 | N/A | | STK3 | 104375 | 517832 | 20824 | N/A | |
| CSF1R | 182578 | 504875 | 4949 | 422212 | 26870 | MOG | 230885 | 478704 | 12887 | N/A | | STK3 | 104375 | 419617 | 20825 | 390500 | 36709 |
| CSF1R | 182578 | 286301 | 4950 | 286301 | 26871 | MOG | 230885 | 551993 | 12888 | 446871 | 31723 | STK3 | 104375 | 523601 | 20826 | 429744 | 36710 |
| CSF1R | 182578 | 509861 | 4951 | N/A | | MOG | 232641 | 411455 | 12889 | 387448 | 31724 | STK3 | 104375 | 520440 | 20827 | N/A | |
| CSF1R | 182578 | 515068 | 4952 | 427545 | 26872 | MOG | 232641 | 434870 | 12890 | 395146 | 31725 | STK3 | 104375 | 518582 | 20828 | N/A | |
| CSF1R | 182578 | 515239 | 4953 | N/A | | MOG | 232641 | 450634 | 12891 | 400681 | 31726 | STK3 | 104375 | 523159 | 20829 | N/A | |
| CSF1R | 182578 | 513609 | 4954 | N/A | | MOG | 232641 | 431084 | 12892 | 406627 | 31727 | STK3 | 104375 | 518165 | 20830 | 428014 | 36711 |
| CSF1R | 182578 | 502660 | 4955 | N/A | | MOG | 232641 | 453271 | 12893 | 402247 | 31728 | STK3 | 104375 | 518627 | 20831 | N/A | |
| CSF1R | 182578 | 511344 | 4956 | 421174 | 26873 | MOG | 232641 | 459677 | 12894 | 420250 | 31729 | STK3 | 104375 | 522924 | 20832 | N/A | |
| CSF1R | 182578 | 543093 | 4957 | 445282 | 26874 | MOG | 232641 | 452744 | 12895 | 389022 | 31730 | STK3 | 104375 | 521649 | 20833 | 429369 | 36712 |
| CSMD1 | 183117 | 335551 | 4958 | 334828 | 26875 | MOG | 232641 | 400668 | 12896 | 383509 | 31731 | STK3 | 104375 | 520053 | 20834 | N/A | |
| CSMD1 | 183117 | 400186 | 4959 | 383047 | 26876 | MOG | 232641 | 429153 | 12897 | 390785 | 31732 | STK3 | 104375 | 521768 | 20835 | N/A | |
| CSMD1 | 183117 | 602723 | 4960 | 473617 | 26877 | MOG | 232641 | 495495 | 12898 | N/A | | STK3 | 104375 | 520653 | 20836 | N/A | |
| CSMD1 | 183117 | 635120 | 4961 | 489225 | 26878 | MOG | 232641 | 497130 | 12899 | N/A | | STK3 | 104375 | 424861 | 20837 | 428167 | 36713 |
| CSMD1 | 183117 | 520002 | 4962 | 430733 | 26879 | MOG | 232641 | 425569 | 12900 | N/A | | STK3 | 104375 | 523567 | 20838 | N/A | |
| CSMD1 | 183117 | 602557 | 4963 | 473359 | 26880 | MOG | 232641 | 495080 | 12901 | N/A | | STK3 | 104375 | 523960 | 20839 | N/A | |
| CSMD1 | 183117 | 519623 | 4964 | N/A | | MOG | 232641 | 639922 | 12902 | 491870 | 31733 | STK3 | 104375 | 519420 | 20840 | 428295 | 36714 |
| CSMD1 | 183117 | 523062 | 4965 | N/A | | MOG | 137345 | 400691 | 12903 | 383528 | 31734 | STK3 | 104375 | 617590 | 20841 | 482260 | 36715 |
| CSMD1 | 183117 | 520561 | 4966 | N/A | | MOG | 137345 | 383631 | 12904 | 373127 | 31735 | STK32A | 169302 | 306304 | 20842 | N/A | |
| CSMD1 | 183117 | 523387 | 4967 | N/A | | MOG | 137345 | 359539 | 12905 | 352534 | 31736 | STK32A | 169302 | 397936 | 20843 | 381030 | 36716 |
| CSMD1 | 183117 | 523488 | 4968 | N/A | | MOG | 137345 | 400687 | 12906 | 383525 | 31737 | STK32A | 169302 | 503975 | 20844 | N/A | |
| CSMD1 | 183117 | 520451 | 4969 | N/A | | MOG | 137345 | 400688 | 12907 | 383526 | 31738 | STK32A | 169302 | 626951 | 20845 | 487441 | 36717 |
| CSMD1 | 183117 | 521646 | 4970 | N/A | | MOG | 137345 | 383630 | 12908 | 373126 | 31739 | STK32A | 169302 | 398523 | 20846 | 381535 | 36718 |
| CSMD1 | 183117 | 524177 | 4971 | N/A | | MOG | 137345 | 259891 | 12909 | 259891 | 31740 | STK32A | 169302 | 503384 | 20847 | N/A | |
| CSMD1 | 183117 | 520630 | 4972 | N/A | | MOG | 137345 | 415631 | 12910 | 394156 | 31741 | STK32A | 169302 | 515832 | 20848 | N/A | |
| CSMD1 | 183117 | 519090 | 4973 | N/A | | MOG | 137345 | 442444 | 12911 | 414146 | 31742 | STK32A | 169302 | 506091 | 20849 | N/A | |
| CSMD1 | 183117 | 518151 | 4974 | N/A | | MOG | 137345 | 461235 | 12912 | N/A | | STK32A | 169302 | 510953 | 20850 | N/A | |
| CSMD1 | 183117 | 537824 | 4975 | 441462 | 26881 | MOG | 137345 | 484234 | 12913 | N/A | | STK32B | 152953 | 282908 | 20851 | 282908 | 36719 |
| CSMD1 | 183117 | 335551 | 4976 | 334828 | 26882 | MOG | 137345 | 492471 | 12914 | N/A | | STK32B | 152953 | 512018 | 20852 | 422820 | 36720 |
| CSMD1 | 183117 | 400186 | 4977 | 383047 | 26883 | MOG | 137345 | 465504 | 12915 | N/A | | STK32B | 152953 | 512636 | 20853 | 423209 | 36721 |
| CSMD1 | 183117 | 602723 | 4978 | 473617 | 26884 | MOG | 137345 | 547083 | 12916 | 449213 | 31743 | STK32B | 152953 | 510398 | 20854 | 420984 | 36722 |
| CSMD1 | 183117 | 635120 | 4979 | 489225 | 26885 | MORF4L2 | 123562 | 360458 | 12917 | 353643 | 31744 | STK32B | 152953 | 513705 | 20855 | N/A | |
| CSMD1 | 183117 | 520002 | 4980 | 430733 | 26886 | MORF4L2 | 123562 | 441076 | 12918 | 391969 | 31745 | STK32B | 152953 | 505508 | 20856 | N/A | |
| CSMD1 | 183117 | 602557 | 4981 | 473359 | 26887 | MORF4L2 | 123562 | 434230 | 12919 | 413664 | 31746 | STK32B | 152953 | 511959 | 20857 | N/A | |
| CSMD1 | 183117 | 519623 | 4982 | N/A | | MORF4L2 | 123562 | 418819 | 12920 | 393283 | 31747 | STK32B | 152953 | 508728 | 20858 | N/A | |
| CSMD1 | 183117 | 523062 | 4983 | N/A | | MORF4L2 | 123562 | 442614 | 12921 | 400938 | 31748 | STK33 | 130413 | 473980 | 20859 | N/A | |
| CSMD1 | 183117 | 520561 | 4984 | N/A | | MORF4L2 | 123562 | 492116 | 12922 | N/A | | STK33 | 130413 | 486305 | 20860 | N/A | |
| CSMD1 | 183117 | 523387 | 4985 | N/A | | MORF4L2 | 123562 | 422355 | 12923 | 408607 | 31749 | STK33 | 130413 | 447869 | 20861 | 416750 | 36723 |
| CSMD1 | 183117 | 523488 | 4986 | N/A | | MORF4L2 | 123562 | 474653 | 12924 | N/A | | STK33 | 130413 | 315204 | 20862 | 320754 | 36724 |
| CSMD1 | 183117 | 520451 | 4987 | N/A | | MORF4L2 | 123562 | 467755 | 12925 | N/A | | STK33 | 130413 | 396672 | 20863 | 379905 | 36725 |
| CSMD1 | 183117 | 521646 | 4988 | N/A | | MORF4L2 | 123562 | 498064 | 12926 | N/A | | STK33 | 130413 | 358872 | 20864 | 351743 | 36726 |
| CSMD1 | 183117 | 524177 | 4989 | N/A | | MORF4L2 | 123562 | 488331 | 12927 | N/A | | STK33 | 130413 | 444064 | 20865 | 415688 | 36727 |
| CSMD1 | 183117 | 520630 | 4990 | N/A | | MORF4L2 | 123562 | 422154 | 12928 | 394417 | 31750 | STK33 | 130413 | 534493 | 20866 | 436418 | 36728 |
| CSMD1 | 183117 | 519090 | 4991 | N/A | | MORF4L2 | 123562 | 433176 | 12929 | 415476 | 31751 | STK33 | 130413 | 526517 | 20867 | N/A | |
| CSMD1 | 183117 | 518151 | 4992 | N/A | | MORF4L2 | 123562 | 451301 | 12930 | 410532 | 31752 | STK33 | 130413 | 524760 | 20868 | 436905 | 36729 |
| CSMD1 | 183117 | 537824 | 4993 | 441462 | 26888 | MORF4L2 | 123562 | 423833 | 12931 | 416120 | 31753 | STK33 | 130413 | 418597 | 20869 | 391362 | 36730 |
| CSMD2 | 121904 | 241312 | 4994 | 241312 | 26889 | MPND | 008382 | 262966 | 12932 | 262966 | 31754 | STK33 | 130413 | 422559 | 20870 | 411510 | 36731 |
| CSMD2 | 121904 | 465819 | 4995 | N/A | | MPND | 008382 | 359935 | 12933 | 353015 | 31755 | STK33 | 130413 | 457885 | 20871 | 403599 | 36732 |
| CSMD2 | 121904 | 373380 | 4996 | 362478 | 26890 | MPND | 008382 | 599840 | 12934 | 471735 | 31756 | STK33 | 130413 | 532336 | 20872 | N/A | |
| CSMD2 | 121904 | 489419 | 4997 | N/A | | MPND | 008382 | 594716 | 12935 | 470987 | 31757 | STK33 | 130413 | 431279 | 20873 | 397569 | 36733 |
| CSMD2 | 121904 | 373377 | 4998 | 362475 | 26891 | MPND | 008382 | 596722 | 12936 | 471715 | 31758 | STK33 | 130413 | 454443 | 20874 | 397874 | 36734 |
| CSMD2 | 121904 | 338325 | 4999 | 340311 | 26892 | MPND | 008382 | 597036 | 12937 | 471189 | 31759 | STK33 | 130413 | 526360 | 20875 | 432822 | 36735 |
| CSMD2 | 121904 | 471438 | 5000 | N/A | | MPND | 008382 | 601877 | 12938 | 469230 | 31760 | STK38L | 211455 | 541191 | 20876 | 437856 | 36736 |
| CSMD2 | 121904 | 373388 | 5001 | 362486 | 26893 | MPND | 008382 | 594162 | 12939 | 469057 | 31761 | STK38L | 211455 | 389032 | 20877 | 373684 | 36737 |
| CSMD2 | 121904 | 373381 | 5002 | 362479 | 26894 | MPP6 | 105926 | 432190 | 12940 | 395859 | 31762 | STK38L | 211455 | 545470 | 20878 | 439457 | 36738 |
| CSMD2 | 121904 | 619121 | 5003 | 483463 | 26895 | MPP6 | 105926 | 222644 | 12941 | 222644 | 31763 | STK38L | 211455 | 544367 | 20879 | 445898 | 36739 |
| CSPG4 | 173546 | 308508 | 5004 | 312506 | 26896 | MPP6 | 105926 | 409761 | 12942 | 386262 | 31764 | STK38L | 211455 | 539863 | 20880 | N/A | |
| CSPG4 | 173546 | 308508 | 5005 | 312506 | 26897 | MPP6 | 105926 | 396475 | 12943 | 379737 | 31765 | STK38L | 211455 | 434385 | 20881 | N/A | |
| CSPG5 | 114646 | 456150 | 5006 | 392096 | 26898 | MPP6 | 105926 | 430180 | 12944 | 391020 | 31766 | STK38L | 211455 | 540996 | 20882 | 443838 | 36740 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSPG5 | 114646 | 383738 | 5007 | 373244 | 26899 | MPP6 | 105926 | 426450 | 12945 | 400515 | 31767 | STK38L | 211455 | 546286 | 20883 | 443456 | 36741 |
| CSPG5 | 114646 | 264723 | 5008 | 264723 | 26900 | MPP6 | 105926 | 472674 | 12946 | N/A | | STK38L | 211455 | 543246 | 20884 | 442253 | 36742 |
| CSPG5 | 114646 | 465441 | 5009 | N/A | | MPP6 | 105926 | 464384 | 12947 | 473560 | 31768 | STK38L | 211455 | 544969 | 20885 | 440279 | 36743 |
| CSPG5 | 114646 | 610462 | 5010 | 478923 | 26901 | MPP6 | 105926 | 625307 | 12948 | 487215 | 31769 | STK38L | 211455 | 407753 | 20886 | 385174 | 36744 |
| CSRNP1 | 144655 | 273153 | 5011 | 273153 | 26902 | MPP7 | 150054 | 375732 | 12949 | 364884 | 31770 | STK38L | 211455 | 536093 | 20887 | 443961 | 36745 |
| CSRNP1 | 144655 | 514182 | 5012 | 422532 | 26903 | MPP7 | 150054 | 496637 | 12950 | 473899 | 31771 | STK38L | 211455 | 543992 | 20888 | N/A | |
| CSRNP3 | 178662 | 421875 | 5013 | 412081 | 26904 | MPP7 | 150054 | 375719 | 12951 | 364871 | 31772 | STMN4 | 015592 | 350889 | 20889 | 342538 | 36746 |
| CSRNP3 | 178662 | 409664 | 5014 | 386278 | 26905 | MPP7 | 150054 | 441595 | 12952 | 398319 | 31773 | STMN4 | 015592 | 519997 | 20890 | 428474 | 36747 |
| CSRNP3 | 178662 | 464503 | 5015 | N/A | | MPP7 | 150054 | 481244 | 12953 | N/A | | STMN4 | 015592 | 265770 | 20891 | 265770 | 36748 |
| CSRNP3 | 178662 | 342316 | 5016 | 344042 | 26906 | MPP7 | 150054 | 474731 | 12954 | N/A | | STMN4 | 015592 | 523048 | 20892 | 428428 | 36749 |
| CSRNP3 | 178662 | 409420 | 5017 | 387195 | 26907 | MPP7 | 150054 | 474682 | 12955 | N/A | | STMN4 | 015592 | 519614 | 20893 | 430699 | 36750 |
| CSRNP3 | 178662 | 314499 | 5018 | 318258 | 26908 | MPP7 | 150054 | 337532 | 12956 | 337907 | 31774 | STMN4 | 015592 | 522908 | 20894 | 430389 | 36751 |
| CSRP1 | 159176 | 367306 | 5019 | 356275 | 26909 | MPPED1 | 186732 | 417669 | 12957 | 388137 | 31775 | STMN4 | 015592 | 522750 | 20895 | N/A | |
| CSRP1 | 159176 | 533402 | 5020 | N/A | | MPPED1 | 186732 | 334209 | 12958 | 335568 | 31776 | STON1 | 243244 | 484110 | 20896 | N/A | |
| CSRP1 | 159176 | 527662 | 5021 | N/A | | MPPED1 | 186732 | 447567 | 12959 | 401378 | 31777 | STON1 | 243244 | 404752 | 20897 | 385273 | 36752 |
| CSRP1 | 159176 | 532313 | 5022 | N/A | | MPPED1 | 186732 | 465861 | 12960 | N/A | | STON1 | 243244 | 406226 | 20898 | 384615 | 36753 |
| CSRP1 | 159176 | 531916 | 5023 | 432110 | 26910 | MPPED1 | 186732 | 480239 | 12961 | N/A | | STON1 | 243244 | 444932 | 20899 | 399868 | 36754 |
| CSRP1 | 159176 | 532460 | 5024 | 434147 | 26911 | MPPED1 | 186732 | 443721 | 12962 | 400686 | 31778 | STON2 | 140022 | 555447 | 20900 | 450857 | 36755 |
| CSRP1 | 159176 | 526256 | 5025 | 483864 | 26912 | MPZ | 158887 | 463290 | 12963 | 431538 | 31779 | STON2 | 140022 | 553821 | 20901 | 450577 | 36756 |
| CSRP1 | 159176 | 533432 | 5026 | 436792 | 26913 | MPZ | 158887 | 533357 | 12964 | 432943 | 31780 | STON2 | 140022 | 555284 | 20902 | N/A | |
| CSRP1 | 159176 | 530120 | 5027 | N/A | | MPZ | 158887 | 491222 | 12965 | 431441 | 31781 | STON2 | 140022 | 267540 | 20903 | 267540 | 36757 |
| CSRP1 | 159176 | 526723 | 5028 | 436491 | 26914 | MPZ | 158887 | 526189 | 12966 | 488104 | 31782 | STON2 | 140022 | 556280 | 20904 | N/A | |
| CSRP1 | 159176 | 526317 | 5029 | N/A | | MPZ | 158887 | 476410 | 12967 | N/A | | STON2 | 140022 | 555226 | 20905 | N/A | |
| CSRP1 | 159176 | 524951 | 5030 | 437218 | 26915 | MPZ | 158887 | 488271 | 12968 | N/A | | STON2 | 140022 | 557055 | 20906 | 450990 | 36758 |
| CSRP1 | 159176 | 458271 | 5031 | N/A | | MRAP2 | 135324 | 257776 | 12969 | 257776 | 31783 | STON2 | 140022 | 554710 | 20907 | 451383 | 36759 |
| CSRP1 | 159176 | 527573 | 5032 | N/A | | MRGPRF | 172935 | 309099 | 12970 | 309782 | 31784 | STON2 | 140022 | 614646 | 20908 | 477736 | 36760 |
| CSRP1 | 159176 | 529975 | 5033 | N/A | | MRGPRF | 172935 | 320913 | 12971 | 323414 | 31785 | STOX2 | 173320 | 513034 | 20909 | 422118 | 36761 |
| CSRP1 | 159176 | 533188 | 5034 | N/A | | MRGPRF | 172935 | 441623 | 12972 | 403660 | 31786 | STOX2 | 173320 | 511250 | 20910 | N/A | |
| CSRP1 | 159176 | 471596 | 5035 | N/A | | MRLN | 227877 | 628562 | 12973 | 488429 | 31787 | STOX2 | 173320 | 308497 | 20911 | 311257 | 36762 |
| CSRP1 | 159176 | 481851 | 5036 | N/A | | MRLN | 227877 | 430431 | 12974 | 488299 | 31788 | STOX2 | 173320 | 512520 | 20912 | 425388 | 36763 |
| CSRP1 | 159176 | 340006 | 5037 | 345079 | 26916 | MRLN | 227877 | 414264 | 12975 | 488748 | 31789 | STOX2 | 173320 | 506529 | 20913 | 426209 | 36764 |
| CSTA | 121552 | 264474 | 5038 | 264474 | 26917 | MRLN | 227877 | 594536 | 12976 | 488584 | 31790 | STRAP | 023734 | 541731 | 20914 | 445693 | 36765 |
| CSTA | 121552 | 479204 | 5039 | 418891 | 26918 | MRLN | 227877 | 598384 | 12977 | N/A | | STRAP | 023734 | 025399 | 20915 | 025399 | 36766 |
| CSTF2T | 177613 | 331173 | 5040 | 332444 | 26919 | MRLN | 227877 | 600486 | 12978 | N/A | | STRAP | 023734 | 419869 | 20916 | 392270 | 36767 |
| LINC01933 | 254226 | 524295 | 5041 | N/A | | MRLN | 227877 | 602051 | 12979 | 488673 | 31791 | STRAP | 023734 | 536737 | 20917 | N/A | |
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| LINC01933 | 254226 | 518431 | 5043 | N/A | | MRLN | 227877 | 612853 | 12981 | N/A | | STRAP | 023734 | 539887 | 20919 | N/A | |
| LINC01933 | 254226 | 523605 | 5044 | N/A | | MRLN | 227877 | 621566 | 12982 | N/A | | STRC | 242866 | 450892 | 20920 | 401513 | 36769 |
| CTH | 116761 | 464926 | 5045 | N/A | | MRLN | 227877 | 629130 | 12983 | N/A | | STRC | 242866 | 471703 | 20921 | N/A | |
| CTH | 116761 | 370938 | 5046 | 359976 | 26920 | MRM2 | 122687 | 467199 | 12984 | N/A | | STRC | 242866 | 448437 | 20922 | N/A | |
| CTH | 116761 | 346806 | 5047 | 311554 | 26921 | MRM2 | 122687 | 242257 | 12985 | 242257 | 31793 | STRC | 242866 | 485556 | 20923 | N/A | |
| CTH | 116761 | 482383 | 5048 | N/A | | MRM2 | 122687 | 486040 | 12986 | N/A | | STRC | 242866 | 428650 | 20924 | 415991 | 36770 |
| CTH | 116761 | 411986 | 5049 | 413407 | 26922 | MRM2 | 122687 | 407040 | 12987 | 384423 | 31794 | STRC | 242866 | 440125 | 20925 | 394866 | 36771 |
| CTNNA3 | 183230 | 433211 | 5050 | 389714 | 26923 | MRM2 | 122687 | 440306 | 12988 | 392343 | 31795 | STRC | 242866 | 460952 | 20926 | N/A | |
| CTNNA3 | 183230 | 373735 | 5051 | N/A | | MRPL18 | 112110 | 476826 | 12989 | N/A | | STRC | 242866 | 493750 | 20927 | N/A | |
| CTNNA3 | 183230 | 494580 | 5052 | 477144 | 26924 | MRPL18 | 112110 | 479638 | 12990 | N/A | | STRC | 242866 | 455136 | 20928 | 394755 | 36772 |
| CTNNA3 | 183230 | 330298 | 5053 | 330570 | 26925 | MRPL18 | 112110 | 367034 | 12991 | 356001 | 31796 | STRC | 242866 | 483250 | 20929 | N/A | |
| CTNNA3 | 183230 | 545309 | 5054 | 441444 | 26926 | MRPL18 | 112110 | 480842 | 12992 | N/A | | STRC | 242866 | 470279 | 20930 | N/A | |
| CTSL | 135047 | 343150 | 5055 | 345344 | 26927 | MSI1 | 135097 | 257552 | 12993 | 257552 | 31797 | STRC | 242866 | 432436 | 20931 | 407303 | 36773 |
| CTSL | 135047 | 340342 | 5056 | 365061 | 26928 | MSI1 | 135097 | 546985 | 12994 | 446710 | 31798 | STRC | 242866 | 541030 | 20932 | 440413 | 36774 |
| CTSL | 135047 | 375894 | 5057 | N/A | | MSI1 | 135097 | 546622 | 12995 | N/A | | STRIP2 | 128578 | 249344 | 20933 | 249344 | 36775 |
| CTSL | 135047 | 495822 | 5058 | N/A | | MSMO1 | 052802 | 261507 | 12996 | 261507 | 31799 | STRIP2 | 128578 | 435494 | 20934 | 392393 | 36776 |
| CTSL | 135047 | 342020 | 5059 | 340470 | 26929 | MSMO1 | 052802 | 507013 | 12997 | 425241 | 31800 | STRIP2 | 128578 | 465033 | 20935 | N/A | |
| CTSL | 135047 | 482054 | 5060 | N/A | | MSMO1 | 052802 | 393766 | 12998 | 377361 | 31801 | STRN | 115808 | 263918 | 20936 | 263918 | 36777 |
| CTSS | 163131 | 368985 | 5061 | 357981 | 26930 | MSMO1 | 052802 | 504317 | 12999 | 423633 | 31802 | STRN | 115808 | 495595 | 20937 | N/A | |
| CTSS | 163131 | 472977 | 5062 | 475176 | 26931 | MSMO1 | 052802 | 505270 | 13000 | 425112 | 31803 | STRN | 115808 | 379213 | 20938 | 368513 | 36778 |
| CTSS | 163131 | 607427 | 5063 | 475557 | 26932 | MSRA | 175806 | 317173 | 13001 | 313921 | 31804 | STX17 | 136874 | 259400 | 20939 | 259400 | 36779 |
| CTSS | 163131 | 448301 | 5064 | 408414 | 26933 | MSRA | 175806 | 441698 | 13002 | 410912 | 31805 | STX17 | 136874 | 529340 | 20940 | 434323 | 36780 |
| CTSS | 163131 | 483930 | 5065 | 475812 | 26934 | MSRA | 175806 | 518255 | 13003 | 429461 | 31806 | STX17 | 136874 | 533696 | 20941 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CTSS | 163131 | 480760 | 5066 | N/A | | MSRA | 175806 | 521209 | 13004 | 435644 | 31807 | STX17 | 136874 | 531035 | 20942 | 433694 | 36781 |
| CTTNBP2 | 077063 | 160373 | 5067 | 160373 | 26935 | MSRA | 175806 | 522907 | 13005 | 428214 | 31808 | STX17 | 136874 | 525342 | 20943 | 433701 | 36782 |
| CTTNBP2 | 077063 | 446636 | 5068 | 389576 | 26936 | MSRA | 175806 | 528246 | 13006 | 436839 | 31809 | STX17 | 136874 | 524405 | 20944 | 436666 | 36783 |
| CTTNBP2 | 077063 | 441556 | 5069 | 397678 | 26937 | MSRA | 175806 | 523637 | 13007 | N/A | | STX17 | 136874 | 525640 | 20945 | 435981 | 36784 |
| CTTNBP2 | 077063 | 445366 | 5070 | 389491 | 26938 | MSRA | 175806 | 382490 | 13008 | 371930 | 31810 | STX17 | 136874 | 534052 | 20946 | 433484 | 36785 |
| CTTNBP2 | 077063 | 435233 | 5071 | 395925 | 26939 | MSRA | 175806 | 521686 | 13009 | 427725 | 31811 | STX17 | 136874 | 526607 | 20947 | 434547 | 36786 |
| CTTNBP2 | 077063 | 482124 | 5072 | N/A | | MSRA | 175806 | 517594 | 13010 | N/A | | STX17 | 136874 | 525579 | 20948 | N/A | |
| CTTNBP2 | 077063 | 416239 | 5073 | 406142 | 26940 | MSX2 | 120149 | 239243 | 13011 | 239243 | 31812 | STX17 | 136874 | 525847 | 20949 | N/A | |
| CTTNBP2 | 077063 | 467088 | 5074 | N/A | | MSX2 | 120149 | 507785 | 13012 | 427425 | 31813 | STX17 | 136874 | 529385 | 20950 | N/A | |
| CTTNBP2 | 077063 | 434890 | 5075 | 396014 | 26941 | MT-CO1 | 198804 | 361624 | 13013 | 354499 | 31814 | STXBP2 | 076944 | 593535 | 20951 | 470313 | 36787 |
| CTTNBP2 | 077063 | 487820 | 5076 | N/A | | MT-ND4 | 198886 | 361381 | 13014 | 354961 | 31815 | STXBP2 | 076944 | 597467 | 20952 | N/A | |
| CTTNBP2 | 077063 | 454375 | 5077 | 405831 | 26942 | MT2A | 125148 | 561491 | 13015 | 456804 | 31816 | STXBP2 | 076944 | 595950 | 20953 | 471161 | 36788 |
| CTTNBP2 | 077063 | 412853 | 5078 | 393373 | 26943 | MT2A | 125148 | 567300 | 13016 | N/A | | STXBP2 | 076944 | 595181 | 20954 | N/A | |
| CTXN1 | 178531 | 318978 | 5079 | 313226 | 26944 | MT2A | 125148 | 562017 | 13017 | N/A | | STXBP2 | 076944 | 441779 | 20955 | 413606 | 36789 |
| CTXN3 | 205279 | 379445 | 5080 | 368758 | 26945 | MT2A | 125148 | 245185 | 13018 | 245185 | 31817 | STXBP2 | 076944 | 599905 | 20956 | N/A | |
| CTXN3 | 205279 | 514851 | 5081 | N/A | | MT2A | 125148 | 563985 | 13019 | N/A | | STXBP2 | 076944 | 221283 | 20957 | 221283 | 36790 |
| CTXN3 | 205279 | 395322 | 5082 | 378732 | 26946 | MT3 | 087250 | 561640 | 13020 | 455353 | 31818 | STXBP2 | 076944 | 597068 | 20958 | 471327 | 36791 |
| CTXN3 | 205279 | 620385 | 5083 | 482081 | 26947 | MT3 | 087250 | 565838 | 13021 | 455980 | 31819 | STXBP2 | 076944 | 414284 | 20959 | 409471 | 36792 |
| CUL7 | 044090 | 265348 | 5084 | 265348 | 26948 | MT3 | 087250 | 200691 | 13022 | 200691 | 31820 | STXBP2 | 076944 | 599737 | 20960 | 471585 | 36793 |
| CUL7 | 044090 | 478630 | 5085 | N/A | | MT3 | 087250 | 566451 | 13023 | N/A | | STXBP2 | 076944 | 599648 | 20961 | N/A | |
| CUL7 | 044090 | 535468 | 5086 | 438788 | 26949 | MT3 | 087250 | 570176 | 13024 | 457164 | 31821 | STXBP2 | 076944 | 594221 | 20962 | N/A | |
| CX3CL1 | 006210 | 006053 | 5087 | 006053 | 26950 | MT3 | 087250 | 566576 | 13025 | N/A | | STXBP2 | 076944 | 595861 | 20963 | N/A | |
| CX3CL1 | 006210 | 563383 | 5088 | 456830 | 26951 | MTCH1 | 137409 | 373616 | 13026 | 362718 | 31822 | STXBP2 | 076944 | 600702 | 20964 | 471737 | 36794 |
| CX3CL1 | 006210 | 564948 | 5089 | 457996 | 26952 | MTCH1 | 137409 | 373627 | 13027 | 362730 | 31823 | STXBP2 | 076944 | 599400 | 20965 | 473040 | 36795 |
| CX3CL1 | 006210 | 565912 | 5090 | 464114 | 26953 | MTCH1 | 137409 | 471737 | 13028 | N/A | | STXBP2 | 076944 | 593854 | 20966 | N/A | |
| CX3CR1 | 168329 | 399220 | 5091 | 382166 | 26954 | MTCH1 | 137409 | 418541 | 13029 | 399187 | 31824 | STXBP2 | 076944 | 595800 | 20967 | N/A | |
| CX3CR1 | 168329 | 435290 | 5092 | 394960 | 26955 | MTCH1 | 137409 | 460219 | 13030 | 419739 | 31825 | STXBP2 | 076944 | 599558 | 20968 | N/A | |
| CX3CR1 | 168329 | 412814 | 5093 | 408835 | 26956 | MTCH1 | 137409 | 492754 | 13031 | N/A | | STXBP2 | 076944 | 601061 | 20969 | N/A | |
| CX3CR1 | 168329 | 541347 | 5094 | 439140 | 26957 | MTCH2 | 109919 | 539759 | 13032 | N/A | | STXBP2 | 076944 | 602355 | 20970 | 473406 | 36796 |
| CX3CR1 | 168329 | 542107 | 5095 | 444928 | 26958 | MTCH2 | 109919 | 302503 | 13033 | 303222 | 31826 | STXBP2 | 076944 | 599278 | 20971 | N/A | |
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| CXCL12 | 107562 | 374429 | 5097 | 363551 | 26960 | MTCH2 | 109919 | 525649 | 13035 | N/A | | STXBP3 | 116266 | 483586 | 20973 | N/A | |
| CXCL12 | 107562 | 395793 | 5098 | 379139 | 26961 | MTCH2 | 109919 | 530428 | 13036 | 432043 | 31827 | STXBP3 | 116266 | 469338 | 20974 | N/A | |
| CXCL12 | 107562 | 374426 | 5099 | 363548 | 26962 | MTCH2 | 109919 | 533571 | 13037 | N/A | | STXBP3 | 116266 | 370008 | 20975 | 359025 | 36798 |
| CXCL12 | 107562 | 343575 | 5100 | 339913 | 26963 | MTFP1 | 242114 | 266263 | 13038 | 266263 | 31828 | STXBP3 | 116266 | 486601 | 20976 | N/A | |
| CXCL12 | 107562 | 395794 | 5101 | 379140 | 26964 | MTFP1 | 242114 | 614920 | 13039 | N/A | | STXBP3 | 116266 | 485167 | 20977 | N/A | |
| CXCL12 | 107562 | 496375 | 5102 | N/A | | MTFP1 | 242114 | 355143 | 13040 | 347267 | 31829 | STXBP3 | 116266 | 495245 | 20978 | N/A | |
| CXCL12 | 107562 | 488591 | 5103 | N/A | | MTFP1 | 242114 | 412752 | 13041 | 393954 | 31830 | STXBP3 | 116266 | 472099 | 20979 | N/A | |
| CXCL12 | 107562 | 395795 | 5104 | 379141 | 26965 | MTFP1 | 242114 | 407550 | 13042 | 383926 | 31831 | SULF2 | 196562 | 479472 | 20980 | N/A | |
| CXCL14 | 145824 | 512158 | 5105 | 423783 | 26966 | MTFP1 | 242114 | 629597 | 13043 | 487369 | 31832 | SULF2 | 196562 | 359930 | 20981 | 353007 | 36799 |
| CXCL14 | 145824 | 337225 | 5106 | 337065 | 26967 | MTHFD1L | 120254 | 367321 | 13044 | 356290 | 31833 | SULF2 | 196562 | 479970 | 20982 | N/A | |
| CXCL5 | 163735 | 296027 | 5107 | 296027 | 26968 | MTHFD1L | 120254 | 367307 | 13045 | 356276 | 31834 | SULF2 | 196562 | 484875 | 20983 | 418290 | 36800 |
| CXCR4 | 121966 | 409817 | 5108 | 386884 | 26969 | MTHFD1L | 120254 | 367308 | 13046 | 356277 | 31835 | SULF2 | 196562 | 495544 | 20984 | 417894 | 36801 |
| CXCR4 | 121966 | 241393 | 5109 | 241393 | 26970 | MTHFD1L | 120254 | 441122 | 13047 | 407070 | 31836 | SULF2 | 196562 | 467815 | 20985 | 418442 | 36802 |
| CXCR4 | 121966 | 466288 | 5110 | N/A | | MTHFD1L | 120254 | 423867 | 13048 | 400776 | 31837 | SULF2 | 196562 | 433632 | 20986 | N/A | |
| CXorf36 | 147113 | 398000 | 5111 | 381086 | 26971 | MTHFD1L | 120254 | 421497 | 13049 | N/A | | SULF2 | 196562 | 465769 | 20987 | N/A | |
| CXorf36 | 147113 | 477281 | 5112 | N/A | | MTHFD1L | 120254 | 478643 | 13050 | N/A | | SULF2 | 196562 | 474450 | 20988 | N/A | |
| CXorf36 | 147113 | 377934 | 5113 | 367168 | 26972 | MTHFD1L | 120254 | 420192 | 13051 | 395158 | 31838 | SULF2 | 196562 | 463221 | 20989 | N/A | |
| CXorf36 | 147113 | 492138 | 5114 | N/A | | MTHFD1L | 120254 | 453602 | 13052 | 391022 | 31839 | SULF2 | 196562 | 437955 | 20990 | 410026 | 36803 |
| CXXC4 | 168772 | 394767 | 5115 | 378248 | 26973 | MTHFD1L | 120254 | 450635 | 13053 | 399804 | 31840 | SULF2 | 196562 | 478766 | 20991 | N/A | |
| CXXC4 | 168772 | 466963 | 5116 | N/A | | MTHFD1L | 120254 | 618312 | 13054 | 479539 | 31841 | SURF2 | 148291 | 371964 | 20992 | 361032 | 36804 |
| CXXC4 | 168772 | 515509 | 5117 | N/A | | MTHFD1L | 120254 | 611279 | 13055 | 478253 | 31842 | SURF2 | 148291 | 495524 | 20993 | N/A | |
| CYB5A | 166347 | 340533 | 5118 | 341625 | 26974 | MTHFD2L | 163738 | 429519 | 13056 | 391327 | 31843 | SURF2 | 148291 | 486887 | 20994 | N/A | |
| CYB5A | 166347 | 580678 | 5119 | N/A | | MTHFD2L | 163738 | 490698 | 13057 | N/A | | SURF2 | 281024 | 630633 | 20995 | 487370 | 36805 |
| CYB5A | 166347 | 299438 | 5120 | 299438 | 26975 | MTHFD2L | 163738 | 475291 | 13058 | N/A | | SURF2 | 281024 | 627396 | 20996 | N/A | |
| CYB5A | 166347 | 494131 | 5121 | 436461 | 26976 | MTHFD2L | 163738 | 429335 | 13059 | 409391 | 31844 | SURF2 | 281024 | 626704 | 20997 | N/A | |
| CYB5A | 166347 | 583418 | 5122 | N/A | | MTHFD2L | 163738 | 423607 | 13060 | 387614 | 31845 | SUSD5 | 173705 | 309558 | 20998 | 308727 | 36806 |
| CYB5A | 166347 | 397914 | 5123 | 381011 | 26977 | MTHFD2L | 163738 | 461101 | 13061 | N/A | | SUSD5 | 173705 | 412539 | 20999 | 406475 | 36807 |
| CYB5A | 166347 | 579064 | 5124 | N/A | | MTHFD2L | 163738 | 359107 | 13062 | 352012 | 31846 | SUSD6 | 100647 | 342745 | 21000 | 344424 | 36808 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYCS | 172115 | 305786 | 5125 | 307786 | 26978 | MTHFD2L | 163738 | 325278 | 13063 | 321984 | 31847 | SUSD6 | 100647 | 553497 | 21001 | N/A | |
| CYCS | 172115 | 409409 | 5126 | 386270 | 26979 | MTHFD2L | 163738 | 484725 | 13064 | N/A | | SUSD6 | 100647 | 556993 | 21002 | N/A | |
| CYCS | 172115 | 409764 | 5127 | 387279 | 26980 | MTHFD2L | 163738 | 492183 | 13065 | N/A | | SV2B | 185518 | 545111 | 21003 | 443243 | 36809 |
| CYCS | 172115 | 413447 | 5128 | 416479 | 26981 | MTHFD2L | 163738 | 461856 | 13066 | N/A | | SV2B | 185518 | 394232 | 21004 | 377779 | 36810 |
| CYFIP2 | 055163 | 616178 | 5129 | 479719 | 26982 | MTHFD2L | 163738 | 465255 | 13067 | N/A | | SV2B | 185518 | 557410 | 21005 | 450992 | 36811 |
| CYFIP2 | 055163 | 620254 | 5130 | 479968 | 26983 | MTHFD2L | 163738 | 490128 | 13068 | N/A | | SV2B | 185518 | 557291 | 21006 | N/A | |
| CYFIP2 | 055163 | 522463 | 5131 | 428009 | 26984 | MTHFD2L | 163738 | 395759 | 13069 | 379108 | 31848 | SV2B | 185518 | 553727 | 21007 | N/A | |
| CYFIP2 | 055163 | 435847 | 5132 | 403793 | 26985 | MTHFD2L | 163738 | 433372 | 13070 | 405692 | 31849 | SV2B | 185518 | 330276 | 21008 | 332818 | 36812 |
| CYFIP2 | 055163 | 522637 | 5133 | 428079 | 26986 | MTHFSD | 103248 | 360900 | 13071 | 354152 | 31850 | SV2C | 122012 | 502798 | 21009 | 423541 | 36813 |
| CYFIP2 | 055163 | 521420 | 5134 | 430904 | 26987 | MTHFSD | 103248 | 625049 | 13072 | N/A | | SV2C | 122012 | 322285 | 21010 | 316983 | 36814 |
| CYFIP2 | 055163 | 622696 | 5135 | N/A | | MTHFSD | 103248 | 546093 | 13073 | 438761 | 31851 | SV2C | 122012 | 506257 | 21011 | N/A | |
| CYFIP2 | 055163 | 617629 | 5136 | 480605 | 26988 | MTHFSD | 103248 | 634347 | 13074 | 489295 | 31852 | SVEP1 | 165124 | 374469 | 21012 | 363593 | 36815 |
| CYFIP2 | 055163 | 611075 | 5137 | 479376 | 26989 | MTHFSD | 103248 | 543303 | 13075 | 444003 | 31853 | SVEP1 | 165124 | 476205 | 21013 | N/A | |
| CYFIP2 | 055163 | 611925 | 5138 | 478058 | 26990 | MTHFSD | 103248 | 381214 | 13076 | 370612 | 31854 | SVEP1 | 165124 | 467821 | 21014 | N/A | |
| CYFIP2 | 055163 | 618329 | 5139 | 484819 | 26991 | MTHFSD | 103248 | 566050 | 13077 | 456910 | 31855 | SVEP1 | 165124 | 374461 | 21015 | 363585 | 36816 |
| CYFIP2 | 055163 | 518456 | 5140 | N/A | | MTHFSD | 103248 | 567539 | 13078 | 454593 | 31856 | SVEP1 | 165124 | 401783 | 21016 | 384917 | 36817 |
| CYFIP2 | 055163 | 621516 | 5141 | 479211 | 26992 | MTHFSD | 103248 | 562096 | 13079 | N/A | | SVIL | 197321 | 375400 | 21017 | 364549 | 36818 |
| CYFIP2 | 055163 | 518511 | 5142 | N/A | | MTHFSD | 103248 | 562940 | 13080 | 456652 | 31857 | SVIL | 197321 | 355867 | 21018 | 348128 | 36819 |
| CYFIP2 | 055163 | 520942 | 5143 | N/A | | MTHFSD | 103248 | 566469 | 13081 | 455940 | 31858 | SVIL | 197321 | 632315 | 21019 | 488171 | 36820 |
| CYFIP2 | 055163 | 520960 | 5144 | 482739 | 26993 | MTHFSD | 103248 | 569000 | 13082 | 454807 | 31859 | SVIL | 197321 | 460007 | 21020 | N/A | |
| CYFIP2 | 055163 | 518555 | 5145 | N/A | | MTHFSD | 103248 | 568798 | 13083 | 455262 | 31860 | SVIL | 197321 | 482607 | 21021 | N/A | |
| CYFIP2 | 055163 | 520424 | 5146 | N/A | | MTHFSD | 103248 | 562994 | 13084 | 456628 | 31861 | SVIL | 197321 | 474106 | 21022 | N/A | |
| CYFIP2 | 055163 | 522892 | 5147 | N/A | | MTHFSD | 103248 | 561522 | 13085 | 454429 | 31862 | SVIL | 197321 | 491872 | 21023 | N/A | |
| CYFIP2 | 055163 | 523383 | 5148 | N/A | | MTHFSD | 103248 | 564364 | 13086 | 458104 | 31863 | SVIL | 197321 | 464984 | 21024 | N/A | |
| CYFIP2 | 055163 | 524058 | 5149 | N/A | | MTHFSD | 103248 | 568037 | 13087 | 480673 | 31864 | SVIL | 197321 | 483758 | 21025 | N/A | |
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| CYGB | 161544 | 293230 | 5153 | 293230 | 26994 | MTRF1 | 120662 | 379480 | 13091 | 368793 | 31867 | SVIL | 197321 | 375398 | 21029 | 364547 | 36821 |
| CYGB | 161544 | 586160 | 5154 | N/A | | MTRF1 | 120662 | 473492 | 13092 | N/A | | SVOP | 166111 | 610966 | 21030 | 479104 | 36822 |
| CYGB | 161544 | 589342 | 5155 | 466448 | 26995 | MTRF1 | 120662 | 379477 | 13093 | 368790 | 31868 | SVOP | 166111 | 551211 | 21031 | N/A | |
| CYGB | 161544 | 590175 | 5156 | 464817 | 26996 | MTRF1 | 120662 | 239852 | 13094 | 481161 | 31869 | SVOP | 166111 | 550436 | 21032 | 447583 | 36823 |
| CYGB | 161544 | 589145 | 5157 | 468559 | 26997 | MTRF1 | 120662 | 480434 | 13095 | 482339 | 31870 | SVOP | 166111 | 546618 | 21033 | 447275 | 36824 |
| CYP27A1 | 135929 | 494263 | 5158 | N/A | | MTRF1 | 120662 | 452359 | 13096 | 399279 | 31871 | SVOP | 166111 | 548229 | 21034 | N/A | |
| CYP27A1 | 135929 | 258415 | 5159 | 258415 | 26998 | MTRF1 | 120662 | 497679 | 13097 | 484414 | 31872 | SWAP70 | 133789 | 447399 | 21035 | 399056 | 36825 |
| CYP27A1 | 135929 | 445971 | 5160 | 404945 | 26999 | MTRF1 | 120662 | 492827 | 13098 | N/A | | SWAP70 | 133789 | 318950 | 21036 | 315630 | 36826 |
| CYP27A1 | 135929 | 466602 | 5161 | N/A | | MTRF1 | 120662 | 498245 | 13099 | N/A | | SWAP70 | 133789 | 526358 | 21037 | 431768 | 36827 |
| CYP27A1 | 135929 | 411688 | 5162 | 392671 | 27000 | MTRF1 | 120662 | 430347 | 13100 | 400031 | 31873 | SWAP70 | 133789 | 531814 | 21038 | N/A | |
| CYP2D6 | 100197 | 360124 | 5163 | 353241 | 27001 | MTRNR2L6 | 282017 | 633925 | 13101 | 488809 | 31874 | SWAP70 | 133789 | 524817 | 21039 | N/A | |
| CYP2D6 | 100197 | 360608 | 5164 | 353820 | 27002 | MTRNR2L6 | 270672 | 604952 | 13102 | 473686 | 31875 | SWAP70 | 133789 | 534662 | 21040 | 435587 | 36828 |
| CYP2D6 | 100197 | 488442 | 5165 | N/A | | MTRNR2L8 | 255823 | 536684 | 13103 | 439666 | 31876 | SWAP70 | 133789 | 534562 | 21041 | 433824 | 36829 |
| CYP2D6 | 100197 | 359033 | 5166 | 351927 | 27003 | MTSS1 | 170873 | 378017 | 13104 | 367256 | 31877 | SYAP1 | 169895 | 380155 | 21042 | 369500 | 36830 |
| CYP2D6 | 100197 | 389970 | 5167 | 374620 | 27004 | MTSS1 | 170873 | 518547 | 13105 | 429064 | 31878 | SYAP1 | 169895 | 495743 | 21043 | N/A | |
| CYP2D6 | 275211 | 625976 | 5168 | 487214 | 27005 | MTSS1 | 170873 | 520771 | 13106 | N/A | | SYCP1 | 198765 | 369522 | 21044 | 358535 | 36831 |
| CYP2D6 | 275211 | 615454 | 5169 | 479867 | 27006 | MTSS1 | 170873 | 519168 | 13107 | 428685 | 31879 | SYCP1 | 198765 | 455987 | 21045 | 410011 | 36832 |
| CYP2D6 | 275211 | 628592 | 5170 | N/A | | MTSS1 | 170873 | 325064 | 13108 | 322804 | 31880 | SYCP1 | 198765 | 369518 | 21046 | 358531 | 36833 |
| CYP2D6 | 275211 | 612990 | 5171 | 483677 | 27007 | MTSS1 | 170873 | 431961 | 13109 | 393606 | 31881 | SYCP1 | 198765 | 477215 | 21047 | N/A | |
| CYP2D6 | 272532 | 607853 | 5172 | 476021 | 27008 | MTSS1 | 170873 | 523587 | 13110 | N/A | | SYCP1 | 198765 | 468191 | 21048 | N/A | |
| CYP2D6 | 272532 | 619390 | 5173 | 483245 | 27009 | MTSS1 | 170873 | 524090 | 13111 | 428319 | 31882 | SYCP1 | 198765 | 482717 | 21049 | N/A | |
| CYP2D6 | 280905 | 630793 | 5174 | 487281 | 27010 | MTSS1 | 170873 | 523179 | 13112 | 428348 | 31883 | SYCP1 | 198765 | 493377 | 21050 | N/A | |
| CYP2D6 | 280905 | 630716 | 5175 | 486094 | 27011 | MTSS1 | 170873 | 520094 | 13113 | N/A | | SYCP1 | 198765 | 477590 | 21051 | N/A | |
| CYP2D6 | 280905 | 625898 | 5176 | 487558 | 27012 | MTSS1 | 170873 | 522722 | 13114 | N/A | | SYCP1 | 198765 | 618516 | 21052 | 480997 | 36834 |
| CYP2D6 | 280905 | 626412 | 5177 | N/A | | MTSS1 | 170873 | 522118 | 13115 | 428145 | 31884 | SYCP1 | 198765 | 613524 | 21053 | 482532 | 36835 |
| CYP2D6 | 280905 | 629640 | 5178 | 486619 | 27013 | MTSS1 | 170873 | 519226 | 13116 | N/A | | SYN3 | 185666 | 358763 | 21054 | 351614 | 36836 |
| CYP2D6 | 282966 | 635505 | 5179 | 488991 | 27014 | MTSS1 | 170873 | 522162 | 13117 | 429752 | 31885 | SYN3 | 185666 | 483062 | 21055 | N/A | |
| CYP2D6 | 282966 | 634240 | 5180 | 489231 | 27015 | MTSS1 | 170873 | 529463 | 13118 | N/A | | SYN3 | 185666 | 467095 | 21056 | N/A | |
| CYP2D6 | 282966 | 635201 | 5181 | N/A | | MTSS1 | 170873 | 519671 | 13119 | N/A | | SYN3 | 185666 | 461446 | 21057 | N/A | |
| CYP2D6 | 282966 | 634653 | 5182 | 489103 | 27016 | MTSS1 | 170873 | 524243 | 13120 | N/A | | SYN3 | 185666 | 459990 | 21058 | N/A | |
| CYP2D6 | 282966 | 635028 | 5183 | 489144 | 27017 | MTSS1 | 170873 | 472084 | 13121 | N/A | | SYN3 | 185666 | 468922 | 21059 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYP2D6 | 283284 | 636910 | 5184 | 490065 | 27018 | MTTP | 138823 | 513404 | 13122 | 424972 | 31886 | SYN3 | 185666 | 462268 | 21060 | N/A | |
| CYP2D6 | 283284 | 638004 | 5185 | 489906 | 27019 | MTTP | 138823 | 505142 | 13123 | 425987 | 31887 | SYN3 | 185666 | 467824 | 21061 | N/A | |
| CYP2D6 | 283284 | 636361 | 5186 | 489990 | 27020 | MTTP | 138823 | 506883 | 13124 | 426755 | 31888 | SYN3 | 185666 | 472027 | 21062 | N/A | |
| CYP2D6 | 283284 | 635910 | 5187 | N/A | | MTTP | 138823 | 515141 | 13125 | 425642 | 31889 | SYN3 | 185666 | 441821 | 21063 | 395794 | 36837 |
| CYP2D6 | 283284 | 637987 | 5188 | 490398 | 27021 | MTTP | 138823 | 504724 | 13126 | 422667 | 31890 | SYN3 | 185666 | 412575 | 21064 | 388582 | 36838 |
| CYP2J2 | 134716 | 371204 | 5189 | 360247 | 27022 | MTTP | 138823 | 511610 | 13127 | 422178 | 31891 | SYN3 | 185666 | 619146 | 21065 | 477861 | 36839 |
| CYP2J2 | 134716 | 492633 | 5190 | N/A | | MTTP | 138823 | 505094 | 13128 | 422782 | 31892 | SYN3 | 185666 | 332840 | 21066 | 330219 | 36840 |
| CYP2J2 | 134716 | 466095 | 5191 | N/A | | MTTP | 138823 | 511045 | 13129 | 427679 | 31893 | SYNDIG1 | 101463 | 376862 | 21067 | 366058 | 36841 |
| CYP2J2 | 134716 | 469406 | 5192 | N/A | | MTTP | 138823 | 265517 | 13130 | 265517 | 31894 | SYNDIG1 | 101463 | 482637 | 21068 | N/A | |
| CYP2J2 | 134716 | 468257 | 5193 | N/A | | MTTP | 138823 | 422897 | 13131 | 407350 | 31895 | SYNDIG1L | 183379 | 554823 | 21069 | 450439 | 36842 |
| CYP7B1 | 172817 | 523954 | 5194 | N/A | | MTTP | 138823 | 457717 | 13132 | 400821 | 31896 | SYNDIG1L | 183379 | 554953 | 21070 | 451519 | 36843 |
| CYP7B1 | 172817 | 310193 | 5195 | 310721 | 27023 | MVP | 013364 | 563915 | 13133 | 455819 | 31897 | SYNDIG1L | 183379 | 331628 | 21071 | 331474 | 36844 |
| CYR61 | 142871 | 451137 | 5196 | 398736 | 27024 | MVP | 013364 | 357402 | 13134 | 349977 | 31898 | SYNJ2 | 078269 | 355585 | 21072 | 347792 | 36845 |
| CYR61 | 142871 | 480413 | 5197 | N/A | | MVP | 013364 | 566859 | 13135 | 455741 | 31899 | SYNJ2 | 078269 | 640338 | 21073 | 492532 | 36846 |
| CYSTM1 | 120306 | 261811 | 5198 | 261811 | 27025 | MVP | 013364 | 563096 | 13136 | N/A | | SYNJ2 | 078269 | 367113 | 21074 | 356080 | 36847 |
| CYSTM1 | 120306 | 509589 | 5199 | N/A | | MVP | 013364 | 566066 | 13137 | 455186 | 31900 | SYNJ2 | 078269 | 638626 | 21075 | 492369 | 36848 |
| CYSTM1 | 120306 | 504227 | 5200 | N/A | | MVP | 013364 | 562463 | 13138 | 457734 | 31901 | SYNJ2 | 078269 | 449320 | 21076 | 411202 | 36849 |
| CYSTM1 | 120306 | 509789 | 5201 | N/A | | MVP | 013364 | 563558 | 13139 | 454825 | 31902 | SYNJ2 | 078269 | 640569 | 21077 | N/A | |
| CYYR1 | 166265 | 299340 | 5202 | 299340 | 27026 | MVP | 013364 | 565830 | 13140 | N/A | | SYNJ2 | 078269 | 485863 | 21078 | 436657 | 36850 |
| CYYR1 | 166265 | 400043 | 5203 | 382918 | 27027 | MVP | 013364 | 569887 | 13141 | 455532 | 31903 | SYNJ2 | 078269 | 367112 | 21079 | N/A | |
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| C21orf91 | 154642 | 400559 | 5205 | 383404 | 27029 | MVP | 013364 | 570234 | 13143 | 456291 | 31905 | SYNPR | 163630 | 478456 | 21081 | N/A | |
| C21orf91 | 154642 | 400558 | 5206 | 383403 | 27030 | MVP | 013364 | 566252 | 13144 | 457685 | 31906 | SYNPR | 163630 | 478300 | 21082 | 418994 | 36852 |
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| C21orf91 | 154642 | 482915 | 5209 | N/A | | MVP | 013364 | 563123 | 13147 | 458583 | 31907 | SYNPR | 163630 | 496889 | 21085 | N/A | |
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| KIAA1549L | 110427 | 321505 | 5214 | 315295 | 27036 | MXD1 | 059728 | 435990 | 13152 | 410672 | 31910 | SYNPR | 163630 | 498449 | 21090 | 420383 | 36856 |
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| KIAA0556 | 047578 | 573850 | 5223 | N/A | | MXD4 | 123933 | 515378 | 13161 | N/A | | SYT12 | 173227 | 393946 | 21099 | 377520 | 36863 |
| KIAA0556 | 047578 | 562207 | 5224 | N/A | | MXD4 | 123933 | 510822 | 13162 | 421209 | 31916 | SYT12 | 173227 | 525457 | 21100 | 431400 | 36864 |
| KIAA0556 | 047578 | 568622 | 5225 | N/A | | MXRA8 | 162576 | 474033 | 13163 | N/A | | SYT12 | 173227 | 527043 | 21101 | 435316 | 36865 |
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| C2orf80 | 188674 | 428015 | 5229 | 408378 | 27045 | MXRA8 | 162576 | 473097 | 13167 | N/A | | SYT12 | 173227 | 525149 | 21105 | N/A | |
| C2orf80 | 188674 | 453017 | 5230 | 397144 | 27046 | MXRA8 | 162576 | 478517 | 13168 | N/A | | SYT14 | 143469 | 367019 | 21106 | 355986 | 36867 |
| C2orf80 | 188674 | 423952 | 5231 | 413016 | 27047 | MXRA8 | 162576 | 476718 | 13169 | N/A | | SYT14 | 143469 | 637265 | 21107 | 489897 | 36868 |
| C2orf80 | 188674 | 449053 | 5232 | 397281 | 27048 | MXRA8 | 162576 | 464351 | 13170 | N/A | | SYT14 | 143469 | 637945 | 21108 | 489671 | 36869 |
| C10orf90 | 154493 | 424927 | 5233 | 411609 | 27049 | MXRA8 | 162576 | 460473 | 13171 | N/A | | SYT14 | 143469 | 472886 | 21109 | 418901 | 36870 |
| C10orf90 | 154493 | 480379 | 5234 | 474753 | 27050 | MXRA8 | 162576 | 342753 | 13172 | 344998 | 31920 | SYT14 | 143469 | 399639 | 21110 | 445837 | 36871 |
| C10orf90 | 154493 | 356858 | 5235 | 349318 | 27051 | MYBPC1 | 196091 | 547405 | 13173 | 448175 | 31921 | SYT14 | 143469 | 367015 | 21111 | 355982 | 36872 |
| C10orf90 | 154493 | 432642 | 5236 | 405995 | 27052 | MYBPC1 | 196091 | 452455 | 13174 | 400908 | 31922 | SYT14 | 143469 | 534859 | 21112 | 442891 | 36873 |
| C10orf90 | 154493 | 368674 | 5237 | N/A | | MYBPC1 | 196091 | 547627 | 13175 | N/A | | SYT14 | 143469 | 629778 | 21113 | 486230 | 36874 |
| C10orf90 | 154493 | 488181 | 5238 | 474558 | 27053 | MYBPC1 | 196091 | 392934 | 13176 | 376665 | 31923 | SYT14 | 143469 | 537238 | 21114 | 437423 | 36875 |
| C10orf90 | 154493 | 463082 | 5239 | 474615 | 27054 | MYBPC1 | 196091 | 547509 | 13177 | 447362 | 31924 | SYT16 | 139973 | 554138 | 21115 | N/A | |
| C10orf90 | 154493 | 284694 | 5240 | 284694 | 27055 | MYBPC1 | 196091 | 361685 | 13178 | 354845 | 31925 | SYT16 | 139973 | 636344 | 21116 | N/A | |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TMEM131L | 121210 | 409663 | 5241 | 386574 | 27056 | MYBPC1 | 196091 | 550501 | 13179 | N/A | | SYT16 | 139973 | 636133 | 21117 | 490266 | 36876 |
| TMEM131L | 121210 | 445960 | 5242 | 413054 | 27057 | MYBPC1 | 196091 | 549145 | 13180 | 447660 | 31926 | SYT16 | 139973 | 554436 | 21118 | N/A | |
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| TMEM131L | 121210 | 462540 | 5244 | N/A | | MYBPC1 | 196091 | 545503 | 13182 | 440034 | 31928 | SYT16 | 139973 | 555409 | 21120 | 451035 | 36878 |
| TMEM131L | 121210 | 240487 | 5245 | 240487 | 27059 | MYBPC1 | 196091 | 536007 | 13183 | 446128 | 31929 | SYT16 | 139973 | 430451 | 21121 | 394700 | 36879 |
| TMEM131L | 121210 | 509565 | 5246 | N/A | | MYBPC1 | 196091 | 541119 | 13184 | 442847 | 31930 | SYT17 | 103528 | 570264 | 21122 | 456790 | 36880 |
| TMEM131L | 121210 | 497247 | 5247 | N/A | | MYBPC1 | 196091 | 361466 | 13185 | 354849 | 31931 | SYT17 | 103528 | 566261 | 21123 | 454335 | 36881 |
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| DAB1 | 173406 | 371236 | 5249 | 360280 | 27060 | MYBPC1 | 196091 | 550270 | 13187 | 449702 | 31933 | SYT17 | 103528 | 568115 | 21125 | 456009 | 36883 |
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| DAB1 | 173406 | 371232 | 5252 | 360276 | 27062 | MYBPC1 | 196091 | 548834 | 13190 | N/A | | SYT17 | 103528 | 562274 | 21128 | N/A | |
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| DAB1 | 173406 | 371230 | 5254 | 360274 | 27064 | MYBPC1 | 196091 | 548298 | 13192 | N/A | | SYT17 | 103528 | 568433 | 21130 | 456915 | 36887 |
| DAB1 | 173406 | 489267 | 5255 | N/A | | MYBPC1 | 196091 | 548532 | 13193 | N/A | | SYT2 | 143858 | 367267 | 21131 | 356236 | 36888 |
| DAB1 | 173406 | 473821 | 5256 | N/A | | MYBPC1 | 196091 | 549608 | 13194 | N/A | | SYT2 | 143858 | 367268 | 21132 | 356237 | 36889 |
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| DAB1 | 173406 | 414851 | 5258 | 387581 | 27065 | MYCL | 116990 | 397332 | 13196 | 380494 | 31935 | SYT3 | 213023 | 338916 | 21134 | 340914 | 36891 |
| DAB1 | 173406 | 420954 | 5259 | 395296 | 27066 | MYCL | 116990 | 372816 | 13197 | 361903 | 31936 | SYT3 | 213023 | 600079 | 21135 | 469398 | 36892 |
| DACH1 | 276644 | 613252 | 5260 | 482245 | 27067 | MYCL | 116990 | 372815 | 13198 | 361902 | 31937 | SYT3 | 213023 | 593901 | 21136 | 468982 | 36893 |
| DACH1 | 276644 | 619232 | 5261 | 482797 | 27068 | MYCL | 116990 | 450953 | 13199 | 434375 | 31938 | SYT3 | 213023 | 595117 | 21137 | N/A | |
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| DACT2 | 164488 | 366796 | 5264 | 355761 | 27071 | MYH11 | 276480 | 632764 | 13202 | N/A | | SYT4 | 132872 | 586678 | 21140 | N/A | |
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| DAO | 110887 | 548052 | 5270 | N/A | | MYH11 | 276480 | 632632 | 13208 | N/A | | SYT4 | 132872 | 591820 | 21146 | N/A | |
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| DAO | 110887 | 547122 | 5273 | 448095 | 27079 | MYH11 | 133392 | 396324 | 13211 | 379616 | 31943 | SYT7 | 011347 | 539246 | 21149 | 438171 | 36901 |
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| DAO | 110887 | 549215 | 5275 | 449248 | 27081 | MYH11 | 133392 | 573908 | 13213 | N/A | | SYT7 | 011347 | 539008 | 21151 | 439694 | 36903 |
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| DAPK1 | 196730 | 358077 | 5278 | 350785 | 27083 | MYH11 | 133392 | 576164 | 13216 | N/A | | SYT7 | 011347 | 535826 | 21154 | 437720 | 36906 |
| DAPK1 | 196730 | 472284 | 5279 | 417076 | 27084 | MYH11 | 133392 | 571275 | 13217 | N/A | | SYT7 | 011347 | 540831 | 21155 | N/A | |
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| DAPK1 | 196730 | 495182 | 5281 | N/A | | MYH11 | 133392 | 570785 | 13219 | N/A | | TANC1 | 115183 | 263635 | 21157 | 263635 | 36908 |
| DAPK1 | 196730 | 408954 | 5282 | 386135 | 27085 | MYH11 | 133392 | 571910 | 13220 | N/A | | TANC1 | 115183 | 464096 | 21158 | N/A | |
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| DAPK1 | 196730 | 496522 | 5284 | N/A | | MYH14 | 105357 | 598205 | 13222 | 472543 | 31947 | TANC1 | 115183 | 470074 | 21160 | N/A | |
| DAPK1 | 196730 | 472344 | 5285 | N/A | | MYH14 | 105357 | 599920 | 13223 | 469573 | 31948 | TANC1 | 115183 | 496406 | 21161 | N/A | |
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| DAPK1 | 196730 | 489291 | 5287 | 417746 | 27087 | MYH14 | 105357 | 596571 | 13225 | 472819 | 31950 | TAOK2 | 149930 | 543033 | 21163 | 440336 | 36910 |
| DAPK1 | 196730 | 463069 | 5288 | N/A | | MYH14 | 105357 | 595016 | 13226 | N/A | | TAOK2 | 149930 | 279394 | 21164 | 279394 | 36911 |
| DAPK1 | 196730 | 475804 | 5289 | N/A | | MYH14 | 105357 | 597072 | 13227 | N/A | | TAOK2 | 149930 | 416441 | 21165 | 393048 | 36912 |
| DAPK1 | 196730 | 495281 | 5290 | N/A | | MYH14 | 105357 | 425460 | 13228 | 407879 | 31951 | TAOK2 | 149930 | 566552 | 21166 | N/A | |
| DAPK1 | 196730 | 494010 | 5291 | N/A | | MYH14 | 105357 | 376970 | 13229 | 366169 | 31952 | TAOK2 | 149930 | 570844 | 21167 | N/A | |
| DAPK1 | 196730 | 466188 | 5292 | N/A | | MYH14 | 105357 | 262269 | 13230 | 262269 | 31953 | TAOK3 | 135090 | 419821 | 21168 | 416374 | 36913 |
| DAPK1 | 196730 | 497743 | 5293 | N/A | | MYH14 | 105357 | 440075 | 13231 | 406273 | 31954 | TAOK3 | 135090 | 392533 | 21169 | 376317 | 36914 |
| DAPK1 | 196730 | 468482 | 5294 | N/A | | MYH6 | 197616 | 356287 | 13232 | 348634 | 31955 | TAOK3 | 135090 | 543709 | 21170 | N/A | |
| DAPK1 | 196730 | 622514 | 5295 | 484267 | 27088 | MYH6 | 197616 | 557461 | 13233 | N/A | | TAOK3 | 135090 | 537305 | 21171 | N/A | |
| DAPK1 | 196730 | 469640 | 5296 | 418885 | 27089 | MYH6 | 197616 | 405093 | 13234 | 386041 | 31956 | TAOK3 | 135090 | 536979 | 21172 | 441932 | 36915 |
| DAPK2 | 035664 | 559007 | 5297 | 453639 | 27090 | MYLIP | 007944 | 356840 | 13235 | 349298 | 31957 | TAOK3 | 135090 | 537952 | 21173 | 443834 | 36916 |
| DAPK2 | 035664 | 457488 | 5298 | 408277 | 27091 | MYLIP | 007944 | 349606 | 13236 | 008686 | 31958 | TAOK3 | 135090 | 537569 | 21174 | N/A | |
| DAPK2 | 035664 | 559731 | 5299 | N/A | | MYO10 | 145555 | 513610 | 13237 | 421280 | 31959 | TAOK3 | 135090 | 540561 | 21175 | 443487 | 36917 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAPK2 | 035664 | 558064 | 5300 | 453101 | 27092 | MYO10 | 145555 | 515803 | 13238 | 425051 | 31960 | TAOK3 | 135090 | 537822 | 21176 | 439620 | 36918 |
| DAPK2 | 035664 | 557867 | 5301 | N/A | | MYO10 | 145555 | 505695 | 13239 | 421170 | 31961 | TAOK3 | 135090 | 536584 | 21177 | N/A | |
| DAPK2 | 035664 | 612884 | 5302 | 484390 | 27093 | MYO10 | 145555 | 513882 | 13240 | 421309 | 31962 | TAOK3 | 135090 | 538601 | 21178 | 437389 | 36919 |
| DAPK2 | 035664 | 558076 | 5303 | N/A | | MYO10 | 145555 | 506343 | 13241 | N/A | | TAOK3 | 135090 | 535570 | 21179 | 443465 | 36920 |
| DAPK2 | 035664 | 558482 | 5304 | N/A | | MYO10 | 145555 | 512061 | 13242 | N/A | | TAOK3 | 135090 | 541186 | 21180 | 438820 | 36921 |
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| DAPK2 | 035664 | 561162 | 5306 | 453284 | 27094 | MYO10 | 145555 | 508318 | 13244 | N/A | | TAOK3 | 135090 | 542902 | 21182 | 440315 | 36923 |
| DAPK2 | 035664 | 559306 | 5307 | 452970 | 27095 | MYO10 | 145555 | 511972 | 13245 | N/A | | TAOK3 | 135090 | 542532 | 21183 | 441071 | 36924 |
| DAPK2 | 035664 | 261891 | 5308 | 261891 | 27096 | MYO10 | 145555 | 502436 | 13246 | 426783 | 31963 | TAOK3 | 135090 | 541786 | 21184 | 442541 | 36925 |
| DAPK2 | 035664 | 558069 | 5309 | 453235 | 27097 | MYO10 | 145555 | 507288 | 13247 | 426664 | 31964 | TAOK3 | 135090 | 539872 | 21185 | 438766 | 36926 |
| SLC6A3 | 142319 | 270349 | 5310 | 270349 | 27098 | MYO10 | 145555 | 274203 | 13248 | 274203 | 31965 | TAOK3 | 135090 | 542692 | 21186 | N/A | |
| SLC6A3 | 142319 | 512002 | 5311 | N/A | | MYO16 | 041515 | 251041 | 13249 | 251041 | 31966 | TBC1D1 | 065882 | 508802 | 21187 | 423651 | 36927 |
| SLC6A3 | 142319 | 511750 | 5312 | N/A | | MYO16 | 041515 | 357550 | 13250 | 350160 | 31967 | TBC1D1 | 065882 | 261439 | 21188 | 261439 | 36928 |
| SLC6A3 | 276996 | 621716 | 5313 | 479597 | 27099 | MYO16 | 041515 | 467639 | 13251 | N/A | | TBC1D1 | 065882 | 402522 | 21189 | 383994 | 36929 |
| SLC6A3 | 276996 | 626610 | 5314 | N/A | | MYO16 | 041515 | 375857 | 13252 | N/A | | TBC1D1 | 065882 | 446803 | 21190 | 396877 | 36930 |
| SLC6A3 | 276996 | 630314 | 5315 | N/A | | MYO16 | 041515 | 482793 | 13253 | N/A | | TBC1D1 | 065882 | 491553 | 21191 | N/A | |
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| DBH | 123454 | 263611 | 5317 | 263611 | 27101 | MYO16 | 041515 | 457511 | 13255 | 401633 | 31969 | TBC1D1 | 065882 | 513936 | 21193 | 425655 | 36932 |
| DCBLD1 | 164465 | 528138 | 5318 | N/A | | MYO16 | 282848 | 634397 | 13256 | 489329 | 31970 | TBC1D1 | 065882 | 509761 | 21194 | N/A | |
| DCBLD1 | 164465 | 525483 | 5319 | N/A | | MYO16 | 282848 | 634615 | 13257 | 488923 | 31971 | TBC1D1 | 065882 | 443855 | 21195 | 397640 | 36933 |
| DCBLD1 | 164465 | 533950 | 5320 | N/A | | MYO16 | 282848 | 634825 | 13258 | 489279 | 31972 | TBC1D1 | 065882 | 421339 | 21196 | 410167 | 36934 |
| DCBLD1 | 164465 | 528162 | 5321 | N/A | | MYO16 | 282848 | 635050 | 13259 | 488918 | 31973 | TBC1D1 | 065882 | 469803 | 21197 | N/A | |
| DCBLD1 | 164465 | 296955 | 5322 | 296955 | 27102 | MYO16 | 282848 | 634250 | 13260 | N/A | | TBC1D1 | 065882 | 511238 | 21198 | N/A | |
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| DCBLD1 | 164465 | 533453 | 5324 | N/A | | MYO16 | 282848 | 634599 | 13262 | N/A | | TBC1D1 | 065882 | 407365 | 21200 | N/A | |
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| DCC | 187323 | 442544 | 5330 | 389140 | 27105 | MYO1D | 176658 | 580547 | 13268 | N/A | | TBC1D4 | 136111 | 377636 | 21206 | 366863 | 36936 |
| DCC | 187323 | 578080 | 5331 | 463699 | 27106 | MYO1D | 176658 | 581059 | 13269 | N/A | | TBC1D4 | 136111 | 478591 | 21207 | N/A | |
| DCC | 187323 | 580024 | 5332 | N/A | | MYO1D | 176658 | 582217 | 13270 | N/A | | TBC1D4 | 136111 | 493487 | 21208 | N/A | |
| DCC | 187323 | 582875 | 5333 | 463131 | 27107 | MYO1D | 176658 | 623444 | 13271 | N/A | | TBC1D4 | 136111 | 413735 | 21209 | 396932 | 36937 |
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| DCC | 187323 | 579349 | 5335 | 464277 | 27109 | MYO1D | 176658 | 577252 | 13273 | 464346 | 31977 | TBC1D4 | 136111 | 377625 | 21211 | 366852 | 36938 |
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| DCC | 187323 | 579666 | 5337 | N/A | | MYO1D | 176658 | 584232 | 13275 | N/A | | TBC1D5 | 131374 | 253692 | 21213 | 253692 | 36940 |
| DCC | 187323 | 582595 | 5338 | N/A | | MYO1D | 176658 | 583611 | 13276 | N/A | | TBC1D5 | 131374 | 429383 | 21214 | 398127 | 36941 |
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| DCC | 187323 | 581580 | 5341 | 464582 | 27111 | MYO7A | 137474 | 409709 | 13279 | 386331 | 31979 | TBC1D5 | 131374 | 429924 | 21217 | 411925 | 36943 |
| DCC | 187323 | 578949 | 5342 | 463766 | 27112 | MYO7A | 137474 | 409893 | 13280 | 386689 | 31980 | TBC1D5 | 131374 | 465884 | 21218 | N/A | |
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| DCC | 187323 | 579702 | 5345 | N/A | | MYO7A | 137474 | 481328 | 13283 | N/A | | TBC1D5 | 131374 | 412981 | 21221 | 414250 | 36946 |
| DCC | 187323 | 577224 | 5346 | N/A | | MYO7A | 137474 | 458169 | 13284 | 417017 | 31983 | TBC1D5 | 131374 | 428355 | 21222 | 387395 | 36947 |
| DCC | 187323 | 412726 | 5347 | 397322 | 27114 | MYO7A | 137474 | 467137 | 13285 | N/A | | TBC1D5 | 131374 | 425944 | 21223 | 399967 | 36948 |
| DCLK1 | 133083 | 360631 | 5348 | 353846 | 27115 | MYO7A | 137474 | 605744 | 13286 | N/A | | TBC1D5 | 131374 | 430169 | 21224 | 411780 | 36949 |
| DCLK1 | 133083 | 379893 | 5349 | 369223 | 27116 | MYO7A | 137474 | 526863 | 13287 | N/A | | TBC1D5 | 131374 | 445294 | 21225 | 410596 | 36950 |
| DCLK1 | 133083 | 255448 | 5350 | 255448 | 27117 | MYO7A | 137474 | 481532 | 13288 | N/A | | TBC1D5 | 131374 | 414349 | 21226 | 393882 | 36951 |
| DCLK1 | 133083 | 477664 | 5351 | N/A | | MYO7A | 137474 | 620575 | 13289 | 477640 | 31984 | TBC1D5 | 131374 | 443499 | 21227 | N/A | |
| DCLK1 | 133083 | 486239 | 5352 | N/A | | MYOT | 120729 | 239926 | 13290 | 239926 | 31985 | TBC1D5 | 131374 | 443386 | 21228 | N/A | |
| DCLK1 | 133083 | 460982 | 5353 | N/A | | MYOT | 120729 | 421631 | 13291 | 391185 | 31986 | TBC1D5 | 131374 | 497531 | 21229 | N/A | |
| DCLK1 | 133083 | 379892 | 5354 | 369222 | 27118 | MYOT | 120729 | 511625 | 13292 | N/A | | TBC1D5 | 131374 | 444756 | 21230 | N/A | |
| DCLK1 | 133083 | 615680 | 5355 | 484452 | 27119 | MYOT | 120729 | 509812 | 13293 | N/A | | TBC1D5 | 131374 | 507877 | 21231 | 424998 | 36952 |
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| DCUN1D3 | 188215 | 563934 | 5357 | 454762 | 27121 | MYOT | 120729 | 511254 | 13295 | N/A | | TBC1D5 | 131374 | 434420 | 21233 | 414159 | 36954 |
| DCX | 077279 | 635795 | 5358 | 489635 | 27122 | MYOT | 120729 | 503748 | 13296 | N/A | | TBC1D5 | 131374 | 486224 | 21234 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DCX | 077279 | 636035 | 5359 | 490614 | 27123 | MYOT | 120729 | 508938 | 13297 | N/A | | TBC1D5 | 131374 | 444471 | 21235 | 396850 | 36955 |
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| DCX | 077279 | 637570 | 5361 | 490878 | 27125 | MYRF | 124920 | 278836 | 13299 | 278836 | 31988 | TBC1D5 | 131374 | 481396 | 21237 | N/A | |
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| DCX | 077279 | 371993 | 5368 | 361061 | 27132 | MYRIP | 170011 | 444716 | 13306 | 398665 | 31991 | TBCEL | 154114 | 284259 | 21244 | 284259 | 36958 |
| DDHD1 | 100523 | 395606 | 5369 | 378970 | 27133 | MYRIP | 170011 | 302541 | 13307 | 301972 | 31992 | TBCEL | 154114 | 528512 | 21245 | 431803 | 36959 |
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| DDHD1 | 100523 | 555400 | 5374 | N/A | | MYRIP | 170011 | 459828 | 13312 | N/A | | TBCEL | 154114 | 530362 | 21250 | N/A | |
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| DDIT3 | 175197 | 547303 | 5379 | 447188 | 27138 | MYT1 | 196132 | 328439 | 13317 | 327465 | 31999 | TBL1X | 101849 | 415293 | 21255 | 407069 | 36967 |
| DDIT3 | 175197 | 551116 | 5380 | 448665 | 27139 | MYT1 | 196132 | 610671 | 13318 | N/A | | TBL1X | 101849 | 217964 | 21256 | 217964 | 36968 |
| DDIT3 | 175197 | 623876 | 5381 | N/A | | MYT1 | 196132 | 622439 | 13319 | 480510 | 32000 | TBL1X | 101849 | 422314 | 21257 | 415508 | 36969 |
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| DDIT4L | 145358 | 513992 | 5390 | 427040 | 27146 | MYT1L | 186487 | 399157 | 13328 | 382111 | 32008 | TBR1 | 136535 | 477804 | 21266 | N/A | |
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| DDR2 | 162733 | 446985 | 5395 | 400309 | 27151 | MYT1L | 186487 | 490585 | 13333 | N/A | | TBXAS1 | 059377 | 425687 | 21271 | 388736 | 36976 |
| DDR2 | 162733 | 415555 | 5396 | 391310 | 27152 | MYT1L | 186487 | 485547 | 13334 | N/A | | TBXAS1 | 059377 | 474763 | 21272 | N/A | |
| DDR2 | 162733 | 367922 | 5397 | 356899 | 27153 | MYT1L | 186487 | 485348 | 13335 | N/A | | TBXAS1 | 059377 | 481440 | 21273 | N/A | |
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| DDR2 | 162733 | 433757 | 5400 | 396864 | 27156 | MYT1L | 186487 | 460585 | 13338 | N/A | | TBXAS1 | 059377 | 448866 | 21276 | 402536 | 36979 |
| DDX3Y | 067048 | 360160 | 5401 | 353284 | 27157 | NAA20 | 173418 | 334982 | 13339 | 335636 | 32011 | TBXAS1 | 059377 | 422328 | 21277 | 415892 | 36980 |
| DDX3Y | 067048 | 454054 | 5402 | 398953 | 27158 | NAA20 | 173418 | 484480 | 13340 | N/A | | TBXAS1 | 059377 | 492560 | 21278 | N/A | |
| DDX3Y | 067048 | 336079 | 5403 | 336725 | 27159 | NAA20 | 173418 | 310450 | 13341 | 311027 | 32012 | TBXAS1 | 059377 | 455353 | 21279 | 391567 | 36981 |
| DDX3Y | 067048 | 493363 | 5404 | N/A | | NAA20 | 173418 | 463154 | 13342 | N/A | | TBXAS1 | 059377 | 458722 | 21280 | 411274 | 36982 |
| DDX3Y | 067048 | 440554 | 5405 | 400377 | 27160 | NAA20 | 173418 | 480550 | 13343 | N/A | | TBXAS1 | 059377 | 411653 | 21281 | 411326 | 36983 |
| DDX3Y | 067048 | 469101 | 5406 | N/A | | NAA20 | 173418 | 398602 | 13344 | 381603 | 32013 | TBXAS1 | 059377 | 476637 | 21282 | N/A | |
| DDX3Y | 067048 | 472510 | 5407 | N/A | | NAA20 | 173418 | 481837 | 13345 | N/A | | TBXAS1 | 059377 | 462275 | 21283 | N/A | |
| DDX3Y | 067048 | 463199 | 5408 | N/A | | NAB2 | 166886 | 300131 | 13346 | 300131 | 32014 | TBXAS1 | 059377 | 414041 | 21284 | 412710 | 36984 |
| DDX3Y | 067048 | 495478 | 5409 | N/A | | NAB2 | 166886 | 555857 | 13347 | N/A | | TBXAS1 | 059377 | 469630 | 21285 | N/A | |
| DDX49 | 105671 | 247003 | 5410 | 247003 | 27161 | NAB2 | 166886 | 342556 | 13348 | 341491 | 32015 | TBXAS1 | 059377 | 494876 | 21286 | N/A | |
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| DDX49 | 105671 | 599373 | 5412 | N/A | | NAB2 | 166886 | 554839 | 13350 | N/A | | TCEAL2 | 184905 | 476749 | 21288 | N/A | |
| DDX49 | 105671 | 594021 | 5413 | 470440 | 27162 | NAF1 | 145414 | 509434 | 13351 | 427518 | 32016 | TCEAL2 | 184905 | 329035 | 21289 | 332359 | 36986 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DDX49 | 105671 | 601803 | 5418 | N/A | | NAF1 | 145414 | 502973 | 13356 | N/A | | TCEAL7 | 182916 | 332431 | 21294 | 329794 | 36991 |
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| DDX49 | 105671 | 596502 | 5422 | N/A | | NAMA | 271086 | 604258 | 13360 | N/A | | TCERG1L | 176769 | 483040 | 21298 | N/A | |
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| DHDDS | 117682 | 436153 | 5571 | 405604 | 27241 | NDRG1 | 104419 | 523642 | 13509 | N/A | | TFAP2A | 137203 | 486038 | 21447 | N/A | |
| DHDDS | 117682 | 529688 | 5572 | N/A | | NDRG1 | 104419 | 522665 | 13510 | N/A | | TFAP2B | 008196 | 344788 | 21448 | 342252 | 37102 |
| DHDDS | 117682 | 530781 | 5573 | 433491 | 27242 | NDRG1 | 104419 | 517331 | 13511 | N/A | | TFAP2B | 008196 | 393655 | 21449 | 377265 | 37103 |
| DHDDS | 117682 | 531955 | 5574 | N/A | | NDRG1 | 104419 | 522377 | 13512 | 429380 | 32110 | TFAP2B | 008196 | 489228 | 21450 | N/A | |
| DHDDS | 117682 | 525410 | 5575 | N/A | | NDRG1 | 104419 | 521664 | 13513 | N/A | | TFRC | 072274 | 426789 | 21451 | 414015 | 37104 |
| DHDDS | 117682 | 430232 | 5576 | 397584 | 27243 | NDRG1 | 104419 | 520230 | 13514 | 428345 | 32111 | TFRC | 072274 | 420415 | 21452 | 390133 | 37105 |
| DHDDS | 117682 | 431933 | 5577 | 399781 | 27244 | NDRG1 | 104419 | 518010 | 13515 | N/A | | TFRC | 072274 | 360110 | 21453 | 353224 | 37106 |
| DHDDS | 117682 | 416052 | 5578 | 393961 | 27245 | NDRG1 | 104419 | 518480 | 13516 | 428802 | 32112 | TFRC | 072274 | 392396 | 21454 | 376197 | 37107 |
| DHFR | 228716 | 439211 | 5579 | 396308 | 27246 | NDRG1 | 104419 | 519228 | 13517 | 429994 | 32113 | TFRC | 072274 | 463047 | 21455 | N/A | |
| DHFR | 228716 | 505337 | 5580 | 426474 | 27247 | NDRG1 | 104419 | 519580 | 13518 | 429272 | 32114 | TFRC | 072274 | 475593 | 21456 | N/A | |
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| DHFR | 228716 | 513048 | 5583 | N/A | | NDRG1 | 104419 | 521544 | 13521 | 429524 | 32117 | TFRC | 072274 | 482479 | 21459 | N/A | |
| DHFR | 228716 | 508282 | 5584 | N/A | | NDRG1 | 104419 | 517745 | 13522 | N/A | | TFRC | 072274 | 465288 | 21460 | N/A | |
| DHFR | 228716 | 513314 | 5585 | N/A | | NDRG1 | 104419 | 518094 | 13523 | N/A | | TFRC | 072274 | 477148 | 21461 | N/A | |
| DIRAS2 | 165023 | 375765 | 5586 | 364919 | 27250 | NDRG1 | 104419 | 522738 | 13524 | 428991 | 32118 | TFRC | 072274 | 464368 | 21462 | N/A | |
| DIRAS2 | 165023 | 636786 | 5587 | 490457 | 27251 | NDRG1 | 104419 | 523892 | 13525 | 430171 | 32119 | TFRC | 072274 | 491658 | 21463 | N/A | |
| DIRAS2 | 165023 | 637905 | 5588 | 490853 | 27252 | NDRG1 | 104419 | 523931 | 13526 | N/A | | TFRC | 072274 | 421258 | 21464 | 402839 | 37108 |
| DISP2 | 140323 | 267889 | 5589 | 267889 | 27253 | NDRG1 | 104419 | 537882 | 13527 | 437443 | 32120 | TFRC | 072274 | 464011 | 21465 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DISP2 | 140323 | 559721 | 5590 | N/A | | NDRG2 | 165795 | 298687 | 13528 | 298687 | 32121 | TG | 042832 | 523901 | 21466 | 427871 | 37109 |
| DISP2 | 140323 | 558623 | 5591 | N/A | | NDRG2 | 165795 | 350792 | 13529 | 344620 | 32122 | TG | 042832 | 220616 | 21467 | 220616 | 37110 |
| DISP2 | 140323 | 561261 | 5592 | N/A | | NDRG2 | 165795 | 556716 | 13530 | N/A | | TG | 042832 | 520769 | 21468 | N/A | |
| DISP3 | 204624 | 423056 | 5593 | N/A | | NDRG2 | 165795 | 557633 | 13531 | 450835 | 32123 | TG | 042832 | 523756 | 21469 | 428628 | 37111 |
| DISP3 | 204624 | 294484 | 5594 | 294484 | 27254 | NDRG2 | 165795 | 554104 | 13532 | 452216 | 32124 | TG | 042832 | 518097 | 21470 | N/A | |
| DISP3 | 204624 | 304391 | 5595 | 303400 | 27255 | NDRG2 | 165795 | 555158 | 13533 | 452038 | 32125 | TG | 042832 | 518505 | 21471 | 429605 | 37112 |
| DIXDC1 | 150764 | 529225 | 5596 | 434130 | 27256 | NDRG2 | 165795 | 553503 | 13534 | 452306 | 32126 | TG | 042832 | 519178 | 21472 | 430523 | 37113 |
| DIXDC1 | 150764 | 440460 | 5597 | 394352 | 27257 | NDRG2 | 165795 | 397853 | 13535 | 380951 | 32127 | TG | 042832 | 518058 | 21473 | 429164 | 37114 |
| DIXDC1 | 150764 | 528399 | 5598 | N/A | | NDRG2 | 165795 | 360463 | 13536 | 353649 | 32128 | TG | 042832 | 519543 | 21474 | 430430 | 37115 |
| DIXDC1 | 150764 | 614104 | 5599 | 479434 | 27258 | NDRG2 | 165795 | 556147 | 13537 | 451712 | 32129 | TG | 042832 | 520197 | 21475 | N/A | |
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| DIXDC1 | 150764 | 526418 | 5604 | N/A | | NDRG2 | 165795 | 298684 | 13542 | 298684 | 32134 | TG | 042832 | 522797 | 21480 | 430087 | 37116 |
| DKK4 | 104371 | 220812 | 5605 | 220812 | 27260 | NDRG2 | 165795 | 555650 | 13543 | N/A | | TG | 042832 | 518108 | 21481 | 429761 | 37117 |
| DLC1 | 164741 | 276297 | 5606 | 276297 | 27261 | NDRG2 | 165795 | 397844 | 13544 | 380943 | 32135 | TG | 042832 | 522996 | 21482 | N/A | |
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| DLC1 | 164741 | 510318 | 5608 | N/A | | NDRG2 | 165795 | 553593 | 13546 | 452117 | 32137 | TG | 042832 | 521107 | 21484 | 430161 | 37118 |
| DLC1 | 164741 | 512044 | 5609 | 422595 | 27263 | NDRG2 | 165795 | 553793 | 13547 | N/A | | TG | 042832 | 522691 | 21485 | N/A | |
| DLC1 | 164741 | 520226 | 5610 | 428028 | 27264 | NDRG2 | 165795 | 556008 | 13548 | 451966 | 32138 | TGFB2 | 092969 | 366930 | 21486 | 355897 | 37119 |
| DLC1 | 164741 | 521730 | 5611 | N/A | | NDRG2 | 165795 | 557416 | 13549 | N/A | | TGFB2 | 092969 | 366929 | 21487 | 355896 | 37120 |
| DLC1 | 164741 | 513883 | 5612 | N/A | | NDRG2 | 165795 | 635386 | 13550 | 489341 | 32139 | TGFB2 | 092969 | 488793 | 21488 | N/A | |
| DLC1 | 164741 | 510250 | 5613 | N/A | | NDRG2 | 165795 | 556366 | 13551 | 452413 | 32140 | TGFB2 | 092969 | 479322 | 21489 | N/A | |
| DLC1 | 164741 | 509922 | 5614 | N/A | | NDRG2 | 165795 | 556974 | 13552 | 452362 | 32141 | TGFB3 | 119699 | 556507 | 21490 | N/A | |
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| DLC1 | 164741 | 506171 | 5617 | N/A | | NDRG2 | 165795 | 553867 | 13555 | 450691 | 32143 | TGFB3 | 119699 | 555193 | 21493 | N/A | |
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| DLC1 | 164741 | 517868 | 5620 | 473289 | 27268 | NDRG2 | 165795 | 555695 | 13558 | 451353 | 32146 | TGFB3 | 119699 | 554980 | 21496 | N/A | |
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| DLC1 | 164741 | 517333 | 5622 | N/A | | NDRG2 | 165795 | 557182 | 13560 | 450545 | 32148 | TGFBR2 | 163513 | 359013 | 21498 | 351905 | 37124 |
| DLC1 | 164741 | 529018 | 5623 | N/A | | NDRG2 | 165795 | 555733 | 13561 | 452482 | 32149 | TH | 180176 | 381178 | 21499 | 370571 | 37125 |
| DLG1 | 075711 | 346964 | 5624 | 345731 | 27270 | NDRG2 | 165795 | 555384 | 13562 | 451094 | 32150 | TH | 180176 | 381175 | 21500 | 370567 | 37126 |
| DLG1 | 075711 | 469371 | 5625 | N/A | | NDRG2 | 165795 | 554094 | 13563 | 452278 | 32151 | TH | 180176 | 352909 | 21501 | 325951 | 37127 |
| DLG1 | 075711 | 419354 | 5626 | 407531 | 27271 | NDRG2 | 165795 | 366204 | 13564 | N/A | | TH | 180176 | 324155 | 21502 | 325831 | 37128 |
| DLG1 | 075711 | 452595 | 5627 | 398939 | 27272 | NDRG2 | 165795 | 553741 | 13565 | N/A | | TH | 180176 | 479437 | 21503 | N/A | |
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| DLG1 | 075711 | 448528 | 5629 | 391732 | 27274 | NDRG2 | 165795 | 553567 | 13567 | N/A | | TH | 180176 | 412076 | 21505 | 403546 | 37130 |
| DLG1 | 075711 | 443183 | 5630 | 396658 | 27275 | NDRG2 | 165795 | 557305 | 13568 | N/A | | TH | 180176 | 461172 | 21506 | N/A | |
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| DLG1 | 075711 | 392382 | 5632 | 376187 | 27277 | NDRG2 | 165795 | 553442 | 13570 | 450493 | 32152 | TH | 180176 | 469226 | 21508 | N/A | |
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| DLG1 | 075711 | 470629 | 5634 | N/A | | NDRG2 | 165795 | 553784 | 13572 | 451059 | 32154 | THBS2 | 186340 | 366787 | 21510 | 355751 | 37133 |
| DLG1 | 075711 | 419227 | 5635 | 396768 | 27278 | NDRG2 | 165795 | 557149 | 13573 | 452592 | 32155 | THBS2 | 186340 | 488355 | 21511 | N/A | |
| DLG1 | 075711 | 392381 | 5636 | 376186 | 27279 | NDRG2 | 165795 | 555142 | 13574 | 450513 | 32156 | THBS2 | 186340 | 461848 | 21512 | N/A | |
| DLG1 | 075711 | 471733 | 5637 | N/A | | NDRG2 | 165795 | 555767 | 13575 | 452053 | 32157 | THBS2 | 186340 | 472733 | 21513 | N/A | |
| DLG1 | 075711 | 493937 | 5638 | N/A | | NDRG2 | 165795 | 554531 | 13576 | 451302 | 32158 | THBS2 | 186340 | 435791 | 21514 | 398928 | 37134 |
| DLG1 | 075711 | 447466 | 5639 | 398702 | 27280 | NDRG2 | 165795 | 557264 | 13577 | 451471 | 32159 | THBS2 | 186340 | 617924 | 21515 | 482784 | 37135 |
| DLG1 | 075711 | 477312 | 5640 | N/A | | NDRG2 | 165795 | 557676 | 13578 | 452548 | 32160 | THBS4 | 113296 | 513310 | 21516 | N/A | |
| DLG1 | 075711 | 453607 | 5641 | 412579 | 27281 | NDRG2 | 165795 | 556924 | 13579 | 450504 | 32161 | THBS4 | 113296 | 510218 | 21517 | N/A | |
| DLG1 | 075711 | 456699 | 5642 | 396474 | 27282 | NDRG2 | 165795 | 556329 | 13580 | 452262 | 32162 | THBS4 | 113296 | 350881 | 21518 | 339730 | 37136 |
| DLG1 | 075711 | 392380 | 5643 | 376185 | 27283 | NDRG2 | 165795 | 554379 | 13581 | 450929 | 32163 | THBS4 | 113296 | 511733 | 21519 | 422298 | 37137 |
| DLG1 | 075711 | 485409 | 5644 | N/A | | NDRG2 | 165795 | 554398 | 13582 | 451185 | 32164 | THBS4 | 113296 | 515510 | 21520 | N/A | |
| DLG1 | 075711 | 419553 | 5645 | 414189 | 27284 | NDRG2 | 165795 | 554472 | 13583 | 451348 | 32165 | THBS4 | 113296 | 504720 | 21521 | N/A | |
| DLG1 | 075711 | 469073 | 5646 | N/A | | NDRG2 | 165795 | 554483 | 13584 | 451472 | 32166 | THBS4 | 113296 | 511888 | 21522 | N/A | |
| DLG1 | 075711 | 436682 | 5647 | 393771 | 27285 | NDRG2 | 165795 | 555657 | 13585 | 452247 | 32167 | THSD7B | 144229 | 472720 | 21523 | 473349 | 37138 |
| DLG1 | 075711 | 486877 | 5648 | N/A | | NDRG2 | 165795 | 557616 | 13586 | 451414 | 32168 | THSD7B | 144229 | 409968 | 21524 | 387145 | 37139 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DLG1 | 075711 | 412364 | 5649 | 390403 | 27286 | NDRG2 | 165795 | 557274 | 13587 | 452344 | 32169 | THSD7B | 144229 | 485379 | 21525 | N/A | |
| DLG1 | 075711 | 434148 | 5650 | 400169 | 27287 | NDRG2 | 165795 | 556457 | 13588 | 450852 | 32170 | THSD7B | 144229 | 480352 | 21526 | N/A | |
| DLG1 | 075711 | 357674 | 5651 | 350303 | 27288 | NDRG2 | 165795 | 556688 | 13589 | 451981 | 32171 | THSD7B | 144229 | 413152 | 21527 | 413841 | 37140 |
| DLG4 | 132535 | 489885 | 5652 | N/A | | NDRG2 | 165795 | 553862 | 13590 | N/A | | THSD7B | 144229 | 272643 | 21528 | 272643 | 37141 |
| DLG4 | 132535 | 399506 | 5653 | 382425 | 27289 | NDRG2 | 165795 | 557669 | 13591 | N/A | | THYN1 | 151500 | 392595 | 21529 | 376374 | 37142 |
| DLG4 | 132535 | 302955 | 5654 | 307471 | 27290 | NDRG2 | 165795 | 557113 | 13592 | N/A | | THYN1 | 151500 | 341541 | 21530 | 341657 | 37143 |
| DLG4 | 132535 | 399510 | 5655 | 382428 | 27291 | NDRG2 | 165795 | 553900 | 13593 | N/A | | THYN1 | 151500 | 392594 | 21531 | 376373 | 37144 |
| DLG4 | 132535 | 491753 | 5656 | 467897 | 27292 | NDRG2 | 165795 | 557318 | 13594 | N/A | | THYN1 | 151500 | 352327 | 21532 | 341452 | 37145 |
| DLG4 | 132535 | 485100 | 5657 | 460625 | 27293 | NDRG2 | 165795 | 554561 | 13595 | 451163 | 32172 | THYN1 | 151500 | 531135 | 21533 | N/A | |
| DLG4 | 132535 | 451807 | 5658 | 407918 | 27294 | NDRG2 | 165795 | 554419 | 13596 | 452179 | 32173 | THYN1 | 151500 | 533975 | 21534 | N/A | |
| DLG4 | 132535 | 447163 | 5659 | 388122 | 27295 | NDRG2 | 165795 | 553563 | 13597 | 451541 | 32174 | THYN1 | 151500 | 533781 | 21535 | N/A | |
| DLG4 | 132535 | 486626 | 5660 | 465720 | 27296 | NDRG2 | 165795 | 554489 | 13598 | 452302 | 32175 | THYN1 | 151500 | 525677 | 21536 | N/A | |
| DLG4 | 132535 | 493294 | 5661 | 465789 | 27297 | NDRG2 | 165795 | 556561 | 13599 | 450825 | 32176 | TIMP3 | 100234 | 266085 | 21537 | 266085 | 37146 |
| DLGAP2 | 274161 | 620101 | 5662 | 478085 | 27298 | NDRG2 | 165795 | 554893 | 13600 | 450450 | 32177 | TIPARP | 163659 | 486483 | 21538 | 418757 | 37147 |
| DLGAP2 | 274161 | 633183 | 5663 | 488195 | 27299 | NDRG2 | 165795 | 554833 | 13601 | 452458 | 32178 | TIPARP | 163659 | 295924 | 21539 | 295924 | 37148 |
| DLGAP2 | 274161 | 632909 | 5664 | N/A | | NDRG2 | 165795 | 554415 | 13602 | 452274 | 32179 | TIPARP | 163659 | 461166 | 21540 | 420612 | 37149 |
| DLGAP2 | 274161 | 633560 | 5665 | N/A | | NDRG2 | 165795 | 557167 | 13603 | N/A | | TIPARP | 163659 | 473702 | 21541 | 419982 | 37150 |
| DLGAP2 | 274161 | 632284 | 5666 | N/A | | NDRG2 | 165795 | 397858 | 13604 | 380956 | 32180 | TIPARP | 163659 | 481853 | 21542 | 418829 | 37151 |
| DLGAP2 | 274161 | 633014 | 5667 | N/A | | NDRG2 | 165795 | 397856 | 13605 | 380954 | 32181 | TIPARP | 163659 | 495891 | 21543 | 420141 | 37152 |
| DLGAP2 | 274161 | 620226 | 5668 | 483427 | 27300 | NDST3 | 164100 | 394488 | 13606 | N/A | | TIPARP | 163659 | 542783 | 21544 | 438345 | 37153 |
| DLGAP2 | 282318 | 633645 | 5669 | 488273 | 27301 | NDST3 | 164100 | 296499 | 13607 | 296499 | 32182 | TLCD1 | 160606 | 292090 | 21545 | 292090 | 37154 |
| DLGAP2 | 282318 | 633447 | 5670 | 488705 | 27302 | NDST4 | 138653 | 264363 | 13608 | 264363 | 32183 | TLCD1 | 160606 | 581236 | 21546 | 468670 | 37155 |
| DLGAP2 | 282318 | 631606 | 5671 | N/A | | NDST4 | 138653 | 504854 | 13609 | 423218 | 32184 | TLCD1 | 160606 | 394933 | 21547 | 378391 | 37156 |
| DLGAP2 | 282318 | 633079 | 5672 | 487701 | 27303 | NDST4 | 138653 | 514570 | 13610 | N/A | | TLCD1 | 160606 | 580518 | 21548 | 466264 | 37157 |
| DLGAP2 | 282318 | 631949 | 5673 | N/A | | NDST4 | 138653 | 613194 | 13611 | 483949 | 32185 | TLE4 | 106829 | 376552 | 21549 | 365735 | 37158 |
| DLGAP2 | 282318 | 632589 | 5674 | 488020 | 27304 | NEAT1 | 245532 | 499732 | 13612 | N/A | | TLE4 | 106829 | 461758 | 21550 | 417906 | 37159 |
| DLGAP2 | 282152 | 633655 | 5675 | 487728 | 27305 | NEAT1 | 245532 | 501122 | 13613 | N/A | | TLE4 | 106829 | 470872 | 21551 | 417245 | 37160 |
| DLGAP2 | 282152 | 633162 | 5676 | 488908 | 27306 | NEAT1 | 245532 | 601801 | 13614 | N/A | | TLE4 | 106829 | 435650 | 21552 | 415423 | 37161 |
| DLGAP2 | 282103 | 632928 | 5677 | N/A | | NEAT1 | 245532 | 612303 | 13615 | N/A | | TLE4 | 106829 | 414465 | 21553 | 397822 | 37162 |
| DLGAP2 | 282103 | 633950 | 5678 | N/A | | NEAT1 | 245532 | 616315 | 13616 | N/A | | TLE4 | 106829 | 376537 | 21554 | 365720 | 37163 |
| DLGAP2 | 282103 | 633407 | 5679 | N/A | | NECAB1 | 123119 | 417640 | 13617 | 387380 | 32186 | TLE4 | 106829 | 462803 | 21555 | 417715 | 37164 |
| DLGAP2 | 198010 | 637795 | 5680 | 489774 | 27307 | NECAB1 | 123119 | 522729 | 13618 | N/A | | TLE4 | 106829 | 376524 | 21556 | N/A | |
| DLGAP2 | 198010 | 522092 | 5681 | N/A | | NECAB1 | 123119 | 523962 | 13619 | N/A | | TLE4 | 106829 | 476523 | 21557 | N/A | |
| DLGAP2 | 198010 | 520816 | 5682 | N/A | | NECAB1 | 123119 | 521954 | 13620 | N/A | | TLE4 | 106829 | 376525 | 21558 | N/A | |
| DLGAP2 | 198010 | 577187 | 5683 | N/A | | NECAB1 | 123119 | 522820 | 13621 | 428953 | 32187 | TLE4 | 106829 | 265284 | 21559 | 265284 | 37165 |
| DLGAP2 | 198010 | 421627 | 5684 | 400258 | 27308 | NECAB1 | 123119 | 521366 | 13622 | 428632 | 32188 | TLE4 | 106829 | 425506 | 21560 | 412567 | 37166 |
| DLGAP2 | 198010 | 524139 | 5685 | N/A | | NECTIN3 | 177707 | 491525 | 13623 | 418691 | 32189 | TLE4 | 106829 | 485159 | 21561 | N/A | |
| DLGAP2 | 198010 | 578839 | 5686 | N/A | | NECTIN3 | 177707 | 461477 | 13624 | 418327 | 32190 | TLE4 | 106829 | 466428 | 21562 | N/A | |
| DLGAP2 | 198010 | 520524 | 5687 | N/A | | NECTIN3 | 177707 | 485303 | 13625 | 418070 | 32191 | TLE4 | 106829 | 428713 | 21563 | 409313 | 37167 |
| DLGAP2 | 198010 | 522989 | 5688 | N/A | | NECTIN3 | 177707 | 319792 | 13626 | 321514 | 32192 | TLE4 | 106829 | 455913 | 21564 | N/A | |
| DLGAP2 | 198010 | 522626 | 5689 | N/A | | NECTIN3 | 177707 | 486596 | 13627 | 417572 | 32193 | TLE4 | 106829 | 496853 | 21565 | N/A | |
| DLGAP2 | 198010 | 520901 | 5690 | 430563 | 27309 | NECTIN3 | 177707 | 493615 | 13628 | 420579 | 32194 | TLE4 | 106829 | 474519 | 21566 | N/A | |
| DLGAP2 | 198010 | 522499 | 5691 | 488645 | 27310 | NECTIN3 | 177707 | 488016 | 13629 | N/A | | TLE4 | 106829 | 483597 | 21567 | N/A | |
| DLGAP2 | 198010 | 524065 | 5692 | N/A | | NECTIN3 | 177707 | 470618 | 13630 | N/A | | TLE4 | 106829 | 490347 | 21568 | 417844 | 37168 |
| DLGAP2 | 198010 | 518530 | 5693 | 488445 | 27311 | NECTIN3 | 177707 | 481766 | 13631 | 420479 | 32195 | TLE4 | 106829 | 493163 | 21569 | N/A | |
| DLGAP2 | 198010 | 612087 | 5694 | 484215 | 27312 | NECTIN3 | 177707 | 478327 | 13632 | N/A | | TLE4 | 106829 | 463431 | 21570 | N/A | |
| DLGAP4 | 080845 | 373913 | 5695 | 363023 | 27313 | NECTIN3 | 177707 | 485506 | 13633 | 419829 | 32196 | TLE4 | 106829 | 495170 | 21571 | N/A | |
| DLGAP4 | 080845 | 373907 | 5696 | 363014 | 27314 | NEDD4 | 069869 | 508871 | 13634 | 422455 | 32197 | TLE4 | 106829 | 467142 | 21572 | 418409 | 37169 |
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| DLGAP4 | 080845 | 482872 | 5698 | 480166 | 27316 | NEDD4 | 069869 | 338963 | 13636 | 345530 | 32199 | TLE4 | 106829 | 417836 | 21574 | 400334 | 37171 |
| DLGAP4 | 080845 | 495241 | 5699 | 484696 | 27317 | NEDD4 | 069869 | 508342 | 13637 | 424827 | 32200 | TLE4 | 106829 | 478290 | 21575 | N/A | |
| DLGAP4 | 080845 | 491207 | 5700 | N/A | | NEDD4 | 069869 | 435532 | 13638 | 410613 | 32201 | TLE4 | 106829 | 376544 | 21576 | 365727 | 37172 |
| DLGAP4 | 080845 | 482037 | 5701 | N/A | | NEDD4 | 069869 | 506154 | 13639 | 422705 | 32202 | TLE6 | 104953 | 246112 | 21577 | 246112 | 37173 |
| DLGAP4 | 080845 | 340491 | 5702 | 345700 | 27318 | NEDD4 | 069869 | 502612 | 13640 | 424471 | 32203 | TLE6 | 104953 | 453329 | 21578 | 411783 | 37174 |
| DLGAP4 | 080845 | 479220 | 5703 | N/A | | NEDD4 | 069869 | 514893 | 13641 | N/A | | TLE6 | 104953 | 482627 | 21579 | 467126 | 37175 |
| DLGAP4 | 080845 | 489701 | 5704 | 419311 | 27319 | NEDD4 | 069869 | 507063 | 13642 | 421047 | 32204 | TLE6 | 104953 | 468176 | 21580 | N/A | |
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| DLGAP4 | 080845 | 478910 | 5706 | N/A | | NEDD4 | 069869 | 508075 | 13644 | N/A | | TLE6 | 104953 | 591953 | 21582 | N/A | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DLGAP4 | 080845 | 477195 | 5708 | N/A | | NEDD4L | 049759 | 356462 | 13646 | 348847 | 32205 | TLE6 | 104953 | 474207 | 21584 | N/A | |
| DLGAP4 | 080845 | 401952 | 5709 | 384954 | 27320 | NEDD4L | 049759 | 400345 | 13647 | 383199 | 32206 | TLE6 | 104953 | 497878 | 21585 | N/A | |
| DLGAP4 | 080845 | 339266 | 5710 | 341633 | 27321 | NEDD4L | 049759 | 589054 | 13648 | 465669 | 32207 | TLE6 | 104953 | 469572 | 21586 | N/A | |
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| DMD | 198947 | 378723 | 5712 | 367997 | 27322 | NEDD4L | 049759 | 382850 | 13650 | 372301 | 32209 | TLL1 | 038295 | 509505 | 21588 | 422692 | 37178 |
| DMD | 198947 | 358062 | 5713 | 350765 | 27323 | NEDD4L | 049759 | 256830 | 13651 | 256830 | 32210 | TLL1 | 038295 | 507499 | 21589 | 426082 | 37179 |
| DMD | 198947 | 378677 | 5714 | 367948 | 27324 | NEDD4L | 049759 | 590694 | 13652 | N/A | | TLL1 | 038295 | 504560 | 21590 | 421732 | 37180 |
| DMD | 198947 | 357033 | 5715 | 354923 | 27325 | NEDD4L | 049759 | 591989 | 13653 | N/A | | TLL1 | 038295 | 513213 | 21591 | 422937 | 37181 |
| DMD | 198947 | 378702 | 5716 | 367974 | 27326 | NEDD4L | 049759 | 591579 | 13654 | N/A | | TLL1 | 038295 | 506144 | 21592 | 423748 | 37182 |
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| DMD | 198947 | 634285 | 5723 | N/A | | NEDD4L | 049759 | 357895 | 13661 | 350569 | 32213 | TLR4 | 136869 | 355622 | 21599 | 363089 | 37187 |
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| DMD | 198947 | 471779 | 5726 | 417075 | 27331 | NEDD4L | 049759 | 588494 | 13664 | 466789 | 32216 | TM2D2 | 169490 | 456845 | 21602 | 391674 | 37188 |
| DMD | 198947 | 488902 | 5727 | N/A | | NEDD4L | 049759 | 588066 | 13665 | N/A | | TM2D2 | 169490 | 456397 | 21603 | 416050 | 37189 |
| DMD | 198947 | 493412 | 5728 | 417725 | 27332 | NEDD4L | 049759 | 431212 | 13666 | 389406 | 32217 | TM2D2 | 169490 | 397070 | 21604 | 380260 | 37190 |
| DMD | 198947 | 420596 | 5729 | 399897 | 27333 | NEDD4L | 049759 | 586268 | 13667 | 467072 | 32218 | TM2D2 | 169490 | 522434 | 21605 | N/A | |
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| DMD | 198947 | 288447 | 5731 | 288447 | 27335 | NEDD4L | 049759 | 585323 | 13669 | N/A | | TM2D2 | 169490 | 521060 | 21607 | N/A | |
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| DMD | 198947 | 472266 | 5735 | N/A | | NEDD4L | 049759 | 590020 | 13673 | N/A | | TM2D2 | 169490 | 520152 | 21611 | 428203 | 37193 |
| DMD | 198947 | 463609 | 5736 | N/A | | NEDD4L | 049759 | 587881 | 13674 | 468332 | 32221 | TM4SF1 | 169908 | 305366 | 21612 | 304277 | 37194 |
| DMD | 198947 | 378707 | 5737 | 367979 | 27337 | NEDD4L | 049759 | 589167 | 13675 | N/A | | TM4SF1 | 169908 | 472441 | 21613 | 417084 | 37195 |
| DMD | 198947 | 343523 | 5738 | 340057 | 27338 | NEDD4L | 049759 | 590638 | 13676 | N/A | | TM4SF1 | 169908 | 493348 | 21614 | 419426 | 37196 |
| DMD | 198947 | 541735 | 5739 | 444119 | 27339 | NEDD4L | 049759 | 585970 | 13677 | N/A | | TM4SF1 | 169908 | 493298 | 21615 | 418025 | 37197 |
| DMD | 198947 | 359836 | 5740 | 352894 | 27340 | NEDD4L | 049759 | 587246 | 13678 | N/A | | TMC1 | 165091 | 297784 | 21616 | 297784 | 37198 |
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| DMGDH | 132837 | 255189 | 5743 | 255189 | 27343 | NEDD4L | 049759 | 588712 | 13681 | N/A | | TMC1 | 165091 | 486417 | 21619 | N/A | |
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| DMGDH | 132837 | 518707 | 5751 | N/A | | NEFM | 104722 | 221166 | 13689 | 221166 | 32227 | TMC3-AS1 | 259343 | 558086 | 21627 | N/A | |
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| DNAH5 | 039139 | 265104 | 5755 | 265104 | 27351 | NEFM | 104722 | 433454 | 13693 | 412295 | 32229 | TMC7 | 170537 | 568469 | 21631 | N/A | |
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| DNAH5 | 039139 | 512443 | 5757 | N/A | | NEGR1 | 172260 | 357731 | 13695 | 350364 | 32231 | TMC7 | 170537 | 561963 | 21633 | N/A | |
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| DNAH6 | 115423 | 476689 | 5759 | N/A | | NEGR1 | 172260 | 474357 | 13697 | N/A | | TMEM100 | 166292 | 575734 | 21635 | 465638 | 37204 |
| DNAH6 | 115423 | 468661 | 5760 | N/A | | NEGR1 | 172260 | 478526 | 13698 | N/A | | TMEM100 | 166292 | 571679 | 21636 | 459290 | 37205 |
| DNAH6 | 115423 | 237449 | 5761 | 237449 | 27352 | NEGR1 | 172260 | 467479 | 13699 | N/A | | TMEM100 | 166292 | 575685 | 21637 | N/A | |
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| DNAJA1 | 086061 | 495015 | 5766 | N/A | | NEK2 | 117650 | 540251 | 13704 | 440237 | 32235 | TMEM108 | 144868 | 393130 | 21642 | 376838 | 37207 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DNAJA1 | 086061 | 465677 | 5767 | N/A | | NEK4 | 114904 | 233027 | 13705 | 233027 | 32236 | TMEM108 | 144868 | 514894 | 21643 | 422072 | 37208 |
| DNAJA4 | 140403 | 394855 | 5768 | 378324 | 27355 | NEK4 | 114904 | 383721 | 13706 | 373227 | 32237 | TMEM108 | 144868 | 512662 | 21644 | 427447 | 37209 |
| DNAJA4 | 140403 | 489435 | 5769 | 438263 | 27356 | NEK4 | 114904 | 461689 | 13707 | 419666 | 32238 | TMEM108 | 144868 | 512137 | 21645 | 426301 | 37210 |
| DNAJA4 | 140403 | 440911 | 5770 | 395191 | 27357 | NEK4 | 114904 | 493199 | 13708 | N/A | | TMEM108 | 144868 | 511555 | 21646 | 422196 | 37211 |
| DNAJA4 | 140403 | 423642 | 5771 | 407136 | 27358 | NEK4 | 114904 | 487068 | 13709 | 420231 | 32239 | TMEM108 | 144868 | 508711 | 21647 | 424897 | 37212 |
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| DNAJA4 | 140403 | 394852 | 5774 | 378321 | 27361 | NELL1 | 165973 | 298925 | 13712 | 298925 | 32242 | TMEM108 | 144868 | 511388 | 21650 | N/A | |
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| DNAJA4 | 140403 | 446172 | 5776 | 413499 | 27363 | NELL1 | 165973 | 532434 | 13714 | 437170 | 32244 | TMEM123 | 152558 | 398136 | 21652 | 381204 | 37216 |
| DNAJA4 | 140403 | 485075 | 5777 | N/A | | NELL1 | 165973 | 528046 | 13715 | N/A | | TMEM123 | 152558 | 532161 | 21653 | 435331 | 37217 |
| DNAJA4 | 140403 | 493321 | 5778 | N/A | | NELL1 | 165973 | 527873 | 13716 | N/A | | TMEM123 | 152558 | 528969 | 21654 | 434976 | 37218 |
| DNAJA4 | 140403 | 480425 | 5779 | N/A | | NELL1 | 165973 | 529595 | 13717 | N/A | | TMEM123 | 152558 | 529492 | 21655 | N/A | |
| DNAJB1 | 132002 | 254322 | 5780 | 254322 | 27364 | NELL1 | 165973 | 524738 | 13718 | N/A | | TMEM123 | 152558 | 525577 | 21656 | N/A | |
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| DNAJB1 | 132002 | 601533 | 5787 | 471798 | 27371 | NEO1 | 067141 | 560262 | 13725 | 453317 | 32247 | TMEM130 | 166448 | 416379 | 21663 | 413163 | 37224 |
| DNAJB1 | 132002 | 598692 | 5788 | 472886 | 27372 | NEO1 | 067141 | 558964 | 13726 | 453200 | 32248 | TMEM130 | 166448 | 339375 | 21664 | 341256 | 37225 |
| DNAJB1 | 132002 | 596075 | 5789 | 471603 | 27373 | NEO1 | 067141 | 558485 | 13727 | N/A | | TMEM130 | 166448 | 450876 | 21665 | 390200 | 37226 |
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| DNAJB6 | 105993 | 429029 | 5808 | 397556 | 27386 | NEU4 | 204099 | 476542 | 13746 | N/A | | TMEM144 | 164124 | 505189 | 21684 | 421289 | 37237 |
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| DNAJB6 | 105993 | 459889 | 5812 | 488263 | 27389 | NEU4 | 204099 | 404257 | 13750 | 385149 | 32262 | TMEM144 | 164124 | 512481 | 21688 | 424659 | 37241 |
| DNAJB6 | 105993 | 488001 | 5813 | N/A | | NEU4 | 204099 | 391969 | 13751 | 375830 | 32263 | TMEM144 | 164124 | 504569 | 21689 | 422082 | 37242 |
| DNAJB6 | 105993 | 443280 | 5814 | 396267 | 27390 | NEU4 | 204099 | 325935 | 13752 | 320318 | 32264 | TMEM144 | 164124 | 509278 | 21690 | 425815 | 37243 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DNAJB6 | 105993 | 441291 | 5815 | 415201 | 27391 | NEU4 | 204099 | 435934 | 13753 | 412688 | 32265 | TMEM144 | 164124 | 514558 | 21691 | 426211 | 37244 |
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| DOCK8 | 107099 | 479404 | 5942 | 417082 | 27454 | NHSL1 | 135540 | 533765 | 13880 | 434958 | 32358 | TMEM255B | 184497 | 498692 | 21818 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DOCK8 | 107099 | 487230 | 5943 | 418318 | 27455 | NHSL1 | 135540 | 479393 | 13881 | N/A | | TMEM255B | 184497 | 467169 | 21819 | N/A | |
| DOCK8 | 107099 | 382341 | 5944 | N/A | | NHSL1 | 135540 | 534376 | 13882 | N/A | | TMEM266 | 169758 | 388942 | 21820 | 373594 | 37329 |
| DOCK8 | 107099 | 483757 | 5945 | 417691 | 27456 | NHSL1 | 135540 | 468095 | 13883 | N/A | | TMEM266 | 169758 | 484722 | 21821 | 435049 | 37330 |
| DOCK8 | 107099 | 478380 | 5946 | N/A | | NHSL2 | 204131 | 373677 | 13884 | N/A | | TMEM266 | 169758 | 559079 | 21822 | N/A | |
| DOCK8 | 107099 | 469391 | 5947 | 419438 | 27457 | NHSL2 | 204131 | 623354 | 13885 | N/A | | TMEM266 | 169758 | 561302 | 21823 | 453957 | 37331 |
| DOCK8 | 107099 | 495184 | 5948 | N/A | | NHSL2 | 204131 | 510661 | 13886 | 424079 | 32359 | TMEM266 | 169758 | 558249 | 21824 | N/A | |
| DOCK8 | 107099 | 474772 | 5949 | N/A | | NHSL2 | 204131 | 639939 | 13887 | 492082 | 32360 | TMEM44 | 145014 | 392432 | 21825 | 376227 | 37332 |
| DOCK8 | 107099 | 382331 | 5950 | 371768 | 27458 | NHSL2 | 204131 | 632230 | 13888 | 487835 | 32361 | TMEM44 | 145014 | 432352 | 21826 | 409963 | 37333 |
| DOCK8 | 107099 | 382329 | 5951 | 371766 | 27459 | NHSL2 | 204131 | 631375 | 13889 | 488715 | 32362 | TMEM44 | 145014 | 477651 | 21827 | N/A | |
| DOCK8 | 107099 | 493666 | 5952 | N/A | | NHSL2 | 204131 | 631833 | 13890 | N/A | | TMEM44 | 145014 | 381975 | 21828 | 371402 | 37334 |
| DOCK8 | 107099 | 462618 | 5953 | N/A | | NHSL2 | 204131 | 633930 | 13891 | 488668 | 32363 | TMEM44 | 145014 | 347147 | 21829 | 333355 | 37335 |
| DOCK8 | 107099 | 453981 | 5954 | 408464 | 27460 | NID1 | 116962 | 366595 | 13892 | 355554 | 32364 | TMEM44 | 145014 | 476750 | 21830 | N/A | |
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| DOK6 | 206052 | 582172 | 5956 | N/A | | NINJ2 | 171840 | 305108 | 13894 | 307552 | 32366 | TMEM44 | 145014 | 452358 | 21832 | 414333 | 37337 |
| DOK6 | 206052 | 584435 | 5957 | N/A | | NINJ2 | 171840 | 397265 | 13895 | 380435 | 32367 | TMEM44 | 145014 | 429560 | 21833 | 403053 | 37338 |
| DOK6 | 206052 | 582992 | 5958 | 462984 | 27462 | NINJ2 | 171840 | 542920 | 13896 | 438831 | 32368 | TMEM44 | 145014 | 419280 | 21834 | 414077 | 37339 |
| DOK6 | 206052 | 577609 | 5959 | N/A | | NINJ2 | 171840 | 433832 | 13897 | 415158 | 32369 | TMEM44 | 145014 | 467284 | 21835 | N/A | |
| DOPEY2 | 142197 | 270190 | 5960 | 270190 | 27463 | NINJ2 | 171840 | 537416 | 13898 | N/A | | TMEM44 | 145014 | 494894 | 21836 | N/A | |
| DOPEY2 | 142197 | 399151 | 5961 | 382104 | 27464 | NIPAL4 | 172548 | 435489 | 13899 | 406456 | 32370 | TMEM44 | 145014 | 330115 | 21837 | 328300 | 37340 |
| DOPEY2 | 142197 | 492760 | 5962 | N/A | | NIPAL4 | 172548 | 311946 | 13900 | 311687 | 32371 | TMEM44 | 145014 | 430601 | 21838 | 390186 | 37341 |
| DOPEY2 | 142197 | 463668 | 5963 | N/A | | NIPAL4 | 172548 | 521390 | 13901 | N/A | | TMEM51 | 171729 | 376014 | 21839 | 365182 | 37342 |
| DPF3 | 205683 | 556509 | 5964 | 450518 | 27465 | NIPAL4 | 172548 | 519150 | 13902 | 430810 | 32372 | TMEM51 | 171729 | 451326 | 21840 | 412298 | 37343 |
| DPF3 | 205683 | 557704 | 5965 | N/A | | NIPAL4 | 172548 | 519946 | 13903 | N/A | | TMEM51 | 171729 | 400796 | 21841 | 383600 | 37344 |
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| DPF3 | 205683 | 381216 | 5967 | 370614 | 27467 | NKAIN2 | 188580 | 368416 | 13905 | 357401 | 32373 | TMEM51 | 171729 | 376008 | 21843 | 365176 | 37346 |
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| DPF3 | 205683 | 555781 | 5973 | N/A | | NKAIN3 | 185942 | 523367 | 13911 | N/A | | TMEM63A | 196187 | 474478 | 21849 | N/A | |
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| DPF3 | 205683 | 555469 | 5976 | N/A | | NKAIN4 | 101198 | 370313 | 13914 | 359336 | 32380 | TMEM63A | 196187 | 487817 | 21852 | N/A | |
| DPF3 | 205683 | 541685 | 5977 | 441640 | 27469 | NKAIN4 | 101198 | 370316 | 13915 | 359340 | 32381 | TMEM63A | 196187 | 537914 | 21853 | 445237 | 37350 |
| DPF3 | 205683 | 610283 | 5978 | 479526 | 27470 | NKAIN4 | 101198 | 466885 | 13916 | N/A | | TMEM88B | 205116 | 378821 | 21854 | 455099 | 37351 |
| DPF3 | 205683 | 614862 | 5979 | 481992 | 27471 | NKAIN4 | 101198 | 470246 | 13917 | N/A | | TMEM98 | 006042 | 394642 | 21855 | 378138 | 37352 |
| DPP10 | 175497 | 436732 | 5980 | 391092 | 27472 | NKAIN4 | 101198 | 370307 | 13918 | 359330 | 32382 | TMEM98 | 006042 | 579849 | 21856 | 463245 | 37353 |
| DPP10 | 175497 | 410059 | 5981 | 386565 | 27473 | NKAIN4 | 101198 | 370317 | 13919 | 359341 | 32383 | TMEM98 | 006042 | 395149 | 21857 | 398446 | 37354 |
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| DPP10 | 175497 | 393146 | 5985 | 376854 | 27475 | NKD1 | 140807 | 268459 | 13923 | 268459 | 32384 | TMEM98 | 006042 | 439138 | 21861 | 406394 | 37357 |
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| DPP10 | 175497 | 310323 | 5987 | 309066 | 27477 | NKD1 | 140807 | 566396 | 13925 | N/A | | TMEM98 | 006042 | 583120 | 21863 | N/A | |
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| DPP10 | 175497 | 429914 | 5989 | 408535 | 27478 | NKIRAS2 | 168256 | 307641 | 13927 | 303580 | 32386 | TMOD1 | 136842 | 375175 | 21865 | 364318 | 37360 |
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| DPP10 | 175497 | 473362 | 5992 | N/A | | NKIRAS2 | 168256 | 485789 | 13930 | 466135 | 32389 | TMPRSS5 | 166682 | 540540 | 21868 | 437761 | 37363 |
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| DPY19L1 | 173852 | 310974 | 5994 | 308695 | 27481 | NKIRAS2 | 168256 | 393880 | 13932 | 377458 | 32391 | TMPRSS5 | 166682 | 545579 | 21870 | 441104 | 37365 |
| DPY19L1 | 173852 | 428054 | 5995 | 412745 | 27482 | NKIRAS2 | 168256 | 393881 | 13933 | 377459 | 32392 | TMPRSS5 | 166682 | 538955 | 21871 | 445528 | 37366 |
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| DPY19L1 | 173852 | 462134 | 5998 | N/A | | NKIRAS2 | 168256 | 491638 | 13936 | 465588 | 32394 | TMPRSS5 | 166682 | 545265 | 21874 | N/A | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DPY19L1 | 173852 | 612226 | 6001 | 478865 | 27484 | NKIRAS2 | 168256 | 393879 | 13939 | N/A | | TMPRSS5 | 166682 | 538770 | 21877 | 445502 | 37370 |
| DPY19L2 | 177990 | 324472 | 6002 | 315988 | 27485 | NKRF | 186416 | 371527 | 13940 | 360582 | 32397 | TMPRSS5 | 166682 | 538091 | 21878 | 440976 | 37371 |
| DPY19L2 | 177990 | 541911 | 6003 | N/A | | NKRF | 186416 | 304449 | 13941 | 304803 | 32398 | TMTC1 | 133687 | 256062 | 21879 | 256062 | 37372 |
| DPY19L2 | 177990 | 413230 | 6004 | N/A | | NKRF | 186416 | 487600 | 13942 | N/A | | TMTC1 | 133687 | 551659 | 21880 | 448112 | 37373 |
| DPY19L2 | 177990 | 439061 | 6005 | 437474 | 27486 | NKRF | 186416 | 542113 | 13943 | 442308 | 32399 | TMTC1 | 133687 | 552618 | 21881 | 449043 | 37374 |
| DPY19L2 | 177990 | 306389 | 6006 | 445878 | 27487 | NKX2-2 | 125820 | 377142 | 13944 | 366347 | 32400 | TMTC1 | 133687 | 552925 | 21882 | N/A | |
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| DPY19L4 | 156162 | 522422 | 6011 | 428762 | 27491 | NLGN3 | 196338 | 536169 | 13949 | 445298 | 32404 | TMTC1 | 133687 | 546582 | 21887 | N/A | |
| DPY19L4 | 156162 | 520774 | 6012 | 430162 | 27492 | NLGN3 | 196338 | 612180 | 13950 | 479877 | 32405 | TMTC4 | 125247 | 376234 | 21888 | 365408 | 37377 |
| DPY19L4 | 156162 | 414645 | 6013 | 389630 | 27493 | NLGN4Y | 165246 | 471252 | 13951 | N/A | | TMTC4 | 125247 | 342624 | 21889 | 343871 | 37378 |
| DPY19L4 | 156162 | 519353 | 6014 | 428041 | 27494 | NLGN4Y | 165246 | 382872 | 13952 | 372325 | 32406 | TMTC4 | 125247 | 328767 | 21890 | 365409 | 37379 |
| DPY19L4 | 156162 | 519176 | 6015 | 430417 | 27495 | NLGN4Y | 165246 | 355905 | 13953 | 348169 | 32407 | TMTC4 | 125247 | 489713 | 21891 | N/A | |
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| DPY19L4 | 156162 | 523020 | 6017 | 429785 | 27497 | NLGN4Y | 165246 | 476359 | 13955 | N/A | | TMTC4 | 125247 | 478272 | 21893 | N/A | |
| DPY19L4 | 156162 | 522669 | 6018 | 429711 | 27498 | NLGN4Y | 165246 | 481089 | 13956 | N/A | | TMTC4 | 125247 | 496511 | 21894 | N/A | |
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| DPYD | 188641 | 474241 | 6020 | N/A | | NLGN4Y | 165246 | 413217 | 13958 | 412638 | 32410 | TMTC4 | 125247 | 480433 | 21896 | N/A | |
| DPYD | 188641 | 306031 | 6021 | 307107 | 27500 | NLN | 123213 | 380985 | 13959 | 370372 | 32411 | TMTC4 | 125247 | 423847 | 21897 | 398400 | 37381 |
| DPYD | 188641 | 460019 | 6022 | N/A | | NLN | 123213 | 502464 | 13960 | 423214 | 32412 | TMTC4 | 125247 | 475272 | 21898 | 419613 | 37382 |
| DPYSL3 | 113657 | 398514 | 6023 | 381526 | 27501 | NLN | 123213 | 514991 | 13961 | 422822 | 32413 | TNC | 041982 | 481475 | 21899 | N/A | |
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| DPYSL3 | 113657 | 508042 | 6028 | N/A | | NLN | 123213 | 509935 | 13966 | 426959 | 32415 | TNC | 041982 | 534839 | 21904 | 443469 | 37386 |
| DPYSL3 | 113657 | 519672 | 6029 | N/A | | NLN | 123213 | 507201 | 13967 | N/A | | TNC | 041982 | 635336 | 21905 | 489385 | 37387 |
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| DPYSL4 | 151640 | 338492 | 6032 | 339850 | 27506 | NNT | 112992 | 512422 | 13970 | 421886 | 32417 | TNC | 041982 | 498724 | 21908 | N/A | |
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| DRD1 | 184845 | 393752 | 6037 | 377353 | 27508 | NNT | 112992 | 506893 | 13975 | N/A | | TNFAIP6 | 123610 | 243347 | 21913 | 243347 | 37392 |
| DRD2 | 149295 | 346454 | 6038 | 278597 | 27509 | NNT | 112992 | 503651 | 13976 | 421674 | 32422 | TNFAIP6 | 123610 | 460812 | 21914 | N/A | |
| DRD2 | 149295 | 362072 | 6039 | 354859 | 27510 | NNT | 112992 | 513390 | 13977 | N/A | | TNFRSF13C | 159958 | 291232 | 21915 | 291232 | 37393 |
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| DRD2 | 149295 | 542968 | 6041 | 442172 | 27512 | NOL3 | 140939 | 565560 | 13979 | 457732 | 32424 | TNFRSF19 | 127863 | 464735 | 21917 | N/A | |
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| DRD2 | 149295 | 540600 | 6043 | N/A | | NOL3 | 140939 | 568086 | 13981 | N/A | | TNFRSF19 | 127863 | 382263 | 21919 | 371698 | 37396 |
| DRD2 | 149295 | 535984 | 6044 | N/A | | NOL3 | 140939 | 564992 | 13982 | 457720 | 32426 | TNFRSF19 | 127863 | 403372 | 21920 | 385408 | 37397 |
| DRD2 | 149295 | 539420 | 6045 | N/A | | NOL3 | 140939 | 564053 | 13983 | 457243 | 32427 | TNFSF9 | 125657 | 245817 | 21921 | 245817 | 37398 |
| DRD2 | 149295 | 543292 | 6046 | 438419 | 27514 | NOL3 | 140939 | 565645 | 13984 | N/A | | TNK2 | 061938 | 416152 | 21922 | 398614 | 37399 |
| DRD2 | 149295 | 542616 | 6047 | 441474 | 27515 | NOL3 | 140939 | 568199 | 13985 | N/A | | TNK2 | 061938 | 381916 | 21923 | 371341 | 37400 |
| DSCAML1 | 177103 | 527706 | 6048 | 434335 | 27516 | NOL3 | 140939 | 566871 | 13986 | 455808 | 32428 | TNK2 | 061938 | 333602 | 21924 | 329425 | 37401 |
| DSCAML1 | 177103 | 321322 | 6049 | 315465 | 27517 | NOL3 | 140939 | 568503 | 13987 | N/A | | TNK2 | 061938 | 420716 | 21925 | N/A | |
| DSCAML1 | 177103 | 525836 | 6050 | 436387 | 27518 | NOL3 | 140939 | 563258 | 13988 | 463698 | 32429 | TNK2 | 061938 | 428187 | 21926 | 392546 | 37402 |
| DTX4 | 110042 | 532982 | 6051 | 434055 | 27519 | NOL3 | 140939 | 568146 | 13989 | 454598 | 32430 | TNK2 | 061938 | 495247 | 21927 | N/A | |
| DTX4 | 110042 | 227451 | 6052 | 227451 | 27520 | NOL3 | 140939 | 564860 | 13990 | 463685 | 32431 | TNK2 | 061938 | 464041 | 21928 | N/A | |
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| DTX4 | 110042 | 527475 | 6054 | N/A | | NOS1 | 089250 | 317775 | 13992 | 320758 | 32433 | TNK2 | 061938 | 481865 | 21930 | N/A | |
| DUS3L | 141994 | 590343 | 6055 | 466351 | 27521 | NOS1 | 089250 | 338101 | 13993 | 337459 | 32434 | TNK2 | 061938 | 424563 | 21931 | 390435 | 37404 |
| DUS3L | 141994 | 320699 | 6056 | 315558 | 27522 | NOS1 | 089250 | 549189 | 13994 | N/A | | TNK2 | 061938 | 478623 | 21932 | N/A | |
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| DUS3L | 141994 | 309061 | 6058 | 311977 | 27523 | NOS1 | 089250 | 618760 | 13996 | 477999 | 32435 | TNK2 | 061938 | 489628 | 21934 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DUS3L | 141994 | 589841 | 6059 | N/A | | NOS1 | 089250 | 344089 | 13997 | 339862 | 32436 | TNK2 | 061938 | 478715 | 21935 | N/A | |
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| DUS3L | 141994 | 593229 | 6064 | N/A | | NOTCH3 | 074181 | 595514 | 14002 | 470661 | 32439 | TNK2 | 061938 | 468819 | 21940 | N/A | |
| DUS3L | 141994 | 590110 | 6065 | 465369 | 27526 | NOTCH3 | 074181 | 597756 | 14003 | 468879 | 32440 | TNK2 | 061938 | 447060 | 21941 | 393707 | 37408 |
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| DUSP16 | 111266 | 539940 | 6073 | 443039 | 27531 | NPL | 135838 | 488424 | 14011 | N/A | | TNNI1 | 159173 | 556362 | 21949 | 451776 | 37416 |
| DUSP16 | 111266 | 541207 | 6074 | 441250 | 27532 | NPL | 135838 | 460690 | 14012 | N/A | | TNNI1 | 159173 | 622580 | 21950 | 477578 | 37417 |
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| DUSP16 | 280962 | 626413 | 6077 | 487512 | 27534 | NPL | 135838 | 479721 | 14015 | N/A | | TNR | 116147 | 263525 | 21953 | 263525 | 37420 |
| DUSP16 | 280962 | 628303 | 6078 | 487034 | 27535 | NPL | 135838 | 471010 | 14016 | N/A | | TNS1 | 079308 | 171887 | 21954 | 171887 | 37421 |
| DUSP16 | 280962 | 630190 | 6079 | N/A | | NPL | 135838 | 367553 | 14017 | 356524 | 32446 | TNS1 | 079308 | 446688 | 21955 | 394171 | 37422 |
| DUSP16 | 280962 | 626461 | 6080 | 485919 | 27536 | NPL | 135838 | 460179 | 14018 | N/A | | TNS1 | 079308 | 490566 | 21956 | N/A | |
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| DUSP16 | 280962 | 627160 | 6082 | N/A | | NPL | 135838 | 258317 | 14020 | 258317 | 32448 | TNS1 | 079308 | 430930 | 21958 | 406016 | 37424 |
| DUSP22 | 112679 | 603296 | 6083 | 474082 | 27538 | NPL | 135838 | 367554 | 14021 | 356525 | 32449 | TNS1 | 079308 | 480416 | 21959 | N/A | |
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| DUSP22 | 112679 | 604988 | 6098 | N/A | | NPY1R | 164128 | 512819 | 14036 | 421618 | 32461 | TNS1 | 079308 | 615025 | 21974 | 480559 | 37434 |
| DUSP26 | 133878 | 256261 | 6099 | 256261 | 27549 | NPY1R | 164128 | 504790 | 14037 | 427564 | 32462 | TNS3 | 136205 | 428457 | 21975 | 387990 | 37435 |
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| DYRK1B | 281320 | 631090 | 6115 | 486377 | 27563 | NR4A1 | 123358 | 553200 | 14053 | 456776 | 32473 | TOM1L1 | 141198 | 574744 | 21991 | N/A | |
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| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DYRK1B | 281320 | 625438 | 6118 | 487313 | 27566 | NR4A1 | 123358 | 549102 | 14056 | N/A | | TOM1L1 | 141198 | 445275 | 21994 | 408958 | 37449 |
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| DYRK1B | 281320 | 626964 | 6121 | 486913 | 27568 | NR4A1 | 123358 | 550763 | 14059 | 449858 | 32476 | TOM1L1 | 141198 | 576932 | 21997 | 461876 | 37452 |
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| DYRK4 | 010219 | 539701 | 6124 | 441996 | 27571 | NR4A1 | 123358 | 562373 | 14062 | 455399 | 32479 | TOM1L1 | 141198 | 536554 | 22000 | 443099 | 37455 |
| DYRK4 | 010219 | 537719 | 6125 | 444842 | 27572 | NR4A1 | 123358 | 548733 | 14063 | N/A | | TOM1L1 | 141198 | 571319 | 22001 | 458219 | 37456 |
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| DYRK4 | 010219 | 541024 | 6136 | N/A | | NR4A2 | 153234 | 426264 | 14074 | 389986 | 32485 | TOM1L1 | 141198 | 574318 | 22012 | 467227 | 37463 |
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| DYSF | 135636 | 409762 | 6140 | 387137 | 27577 | NR4A2 | 153234 | 409108 | 14078 | 386993 | 32489 | TOX2 | 124191 | 372999 | 22016 | 362090 | 37467 |
| DYSF | 135636 | 409582 | 6141 | 386547 | 27578 | NR4A2 | 153234 | 429376 | 14079 | 410952 | 32490 | TOX2 | 124191 | 358131 | 22017 | 350849 | 37468 |
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| DYSF | 135636 | 410020 | 6149 | 386881 | 27586 | NRBF2 | 148572 | 277746 | 14087 | 277746 | 32498 | TP53INP2 | 078804 | 374810 | 22025 | 363943 | 37474 |
| DYSF | 135636 | 410041 | 6150 | 386617 | 27587 | NRBF2 | 148572 | 435510 | 14088 | 397502 | 32499 | TP53INP2 | 078804 | 374809 | 22026 | 363942 | 37475 |
| DYSF | 135636 | 461565 | 6151 | N/A | | NRCAM | 091129 | 351718 | 14089 | 325269 | 32500 | TP53INP2 | 078804 | 451665 | 22027 | 395784 | 37476 |
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| DYSF | 135636 | 493767 | 6154 | N/A | | NRCAM | 091129 | 445634 | 14092 | 398174 | 32503 | TP73 | 078900 | 604074 | 22030 | 475143 | 37479 |
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| DYSF | 135636 | 487180 | 6157 | N/A | | NRCAM | 091129 | 417701 | 14095 | 390421 | 32504 | TP73 | 078900 | 604479 | 22033 | 474322 | 37482 |
| DYSF | 135636 | 468173 | 6158 | N/A | | NRCAM | 091129 | 489800 | 14096 | N/A | | TP73 | 078900 | 378285 | 22034 | 367534 | 37483 |
| DZANK1 | 089091 | 476058 | 6159 | 479439 | 27588 | NRCAM | 091129 | 442580 | 14097 | 390868 | 32505 | TP73 | 078900 | 378280 | 22035 | 367529 | 37484 |
| DZANK1 | 089091 | 377630 | 6160 | 366857 | 27589 | NRCAM | 091129 | 419936 | 14098 | 397544 | 32506 | TP73 | 078900 | 378288 | 22036 | 367537 | 37485 |
| DZANK1 | 089091 | 357236 | 6161 | 349774 | 27590 | NRCAM | 091129 | 456431 | 14099 | 408203 | 32507 | TP73 | 078900 | 603364 | 22037 | N/A | |
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| DZANK1 | 089091 | 329494 | 6169 | 328866 | 27597 | NREP | 134986 | 509025 | 14107 | 426834 | 32514 | TPCN1 | 186815 | 552542 | 22045 | 446767 | 37490 |
| DZIP1L | 158163 | 327532 | 6170 | 332148 | 27598 | NREP | 134986 | 379671 | 14108 | 368993 | 32515 | TPCN1 | 186815 | 428632 | 22046 | N/A | |
| DZIP1L | 158163 | 486487 | 6171 | 417228 | 27599 | NREP | 134986 | 257435 | 14109 | 257435 | 32516 | TPCN1 | 186815 | 548465 | 22047 | 448561 | 37491 |
| DZIP1L | 158163 | 488595 | 6172 | N/A | | NREP | 134986 | 446294 | 14110 | 402965 | 32517 | TPCN1 | 186815 | 546781 | 22048 | 449564 | 37492 |
| DZIP1L | 158163 | 469243 | 6173 | 419486 | 27600 | NREP | 134986 | 395634 | 14111 | 378996 | 32518 | TPCN1 | 186815 | 551127 | 22049 | N/A | |
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| DZIP1L | 158163 | 490472 | 6176 | N/A | | NREP | 134986 | 509979 | 14114 | 423320 | 32520 | TPCN1 | 186815 | 547955 | 22052 | 448010 | 37493 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DZIP1L | 158163 | 467030 | 6177 | 420600 | 27601 | NREP | 134986 | 450761 | 14115 | 416617 | 32521 | TPCN1 | 186815 | 546907 | 22053 | N/A | |
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| EBF1 | 164330 | 519890 | 6182 | N/A | | NREP | 134986 | 508870 | 14120 | 427149 | 32526 | TPCN1 | 186815 | 552897 | 22058 | 449944 | 37497 |
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| EBF1 | 164330 | 518323 | 6186 | N/A | | NREP | 134986 | 503429 | 14124 | N/A | | TPCN1 | 186815 | 552985 | 22062 | 447569 | 37501 |
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| EBF1 | 164330 | 517373 | 6188 | 428020 | 27608 | NREP | 134986 | 507032 | 14126 | 422514 | 32529 | TPCN1 | 186815 | 551096 | 22064 | 447263 | 37503 |
| EBF1 | 164330 | 522192 | 6189 | N/A | | NREP | 134986 | 513684 | 14127 | N/A | | TPCN1 | 186815 | 551099 | 22065 | 447181 | 37504 |
| EBF1 | 164330 | 523464 | 6190 | N/A | | NREP | 134986 | 447165 | 14128 | 408839 | 32530 | TPM3 | 143549 | 368533 | 22066 | 357521 | 37505 |
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| EBF1 | 164330 | 622875 | 6192 | 477809 | 27609 | NRG1 | 157168 | 519301 | 14130 | 429582 | 32532 | TPM3 | 143549 | 469717 | 22068 | N/A | |
| EBF2 | 221818 | 520164 | 6193 | 430241 | 27610 | NRG1 | 157168 | 520407 | 14131 | 434640 | 32533 | TPM3 | 143549 | 330188 | 22069 | 339035 | 37506 |
| EBF2 | 221818 | 408929 | 6194 | 386178 | 27611 | NRG1 | 157168 | 523534 | 14132 | 429067 | 32534 | TPM3 | 143549 | 341485 | 22070 | 341653 | 37507 |
| EBF2 | 221818 | 517825 | 6195 | N/A | | NRG1 | 157168 | 517967 | 14133 | N/A | | TPM3 | 143549 | 341372 | 22071 | 339378 | 37508 |
| EBF2 | 221818 | 535548 | 6196 | 437909 | 27612 | NRG1 | 157168 | 523320 | 14134 | N/A | | TPM3 | 143549 | 328159 | 22072 | 357520 | 37509 |
| EBF3 | 108001 | 368648 | 6197 | 357637 | 27613 | NRG1 | 157168 | 631040 | 14135 | 486375 | 32535 | TPM3 | 143549 | 509409 | 22073 | 426521 | 37510 |
| EBF3 | 108001 | 355311 | 6198 | 347463 | 27614 | NRG1 | 157168 | 523079 | 14136 | 430120 | 32536 | TPM3 | 143549 | 271850 | 22074 | 271850 | 37511 |
| EBF3 | 108001 | 440978 | 6199 | 387543 | 27615 | NRG1 | 157168 | 356819 | 14137 | 349275 | 32537 | TPM3 | 143549 | 312970 | 22075 | N/A | |
| EBF4 | 088881 | 449079 | 6200 | 405003 | 27616 | NRG1 | 157168 | 521670 | 14138 | 428828 | 32538 | TPM3 | 143549 | 513769 | 22076 | N/A | |
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| EBF4 | 088881 | 342725 | 6202 | 345030 | 27617 | NRG1 | 157168 | 405005 | 14140 | 384620 | 32540 | TPM3 | 143549 | 368331 | 22078 | 357517 | 37513 |
| EBF4 | 088881 | 609451 | 6203 | 477023 | 27618 | NRG1 | 157168 | 518206 | 14141 | 432052 | 32541 | TPM3 | 143549 | 323144 | 22079 | 357518 | 37514 |
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| ECD | 122882 | 494307 | 6211 | 475102 | 27621 | NRG1 | 157168 | 539990 | 14149 | 439276 | 32547 | TPM3 | 143549 | 515609 | 22087 | 426306 | 37517 |
| ECD | 122882 | 372979 | 6212 | 362070 | 27622 | NRG1 | 157168 | 614767 | 14150 | 483727 | 32548 | TPM3 | 143549 | 611659 | 22088 | 480520 | 37518 |
| ECD | 122882 | 484976 | 6213 | 433778 | 27623 | NRG2 | 158458 | 289422 | 14151 | 289422 | 32549 | TPM4 | 167460 | 589897 | 22089 | 466158 | 37519 |
| ECD | 122882 | 454759 | 6214 | 395786 | 27624 | NRG2 | 158458 | 361474 | 14152 | 354910 | 32550 | TPM4 | 167460 | 344824 | 22090 | 345230 | 37520 |
| ECD | 122882 | 430082 | 6215 | 401566 | 27625 | NRG2 | 158458 | 340391 | 14153 | 342660 | 32551 | TPM4 | 167460 | 586499 | 22091 | 468246 | 37521 |
| ECD | 122882 | 453402 | 6216 | 391367 | 27626 | NRG2 | 158458 | 289409 | 14154 | 289409 | 32552 | TPM4 | 167460 | 586833 | 22092 | 467087 | 37522 |
| ECD | 122882 | 413026 | 6217 | 416288 | 27627 | NRG2 | 158458 | 358522 | 14155 | 351323 | 32553 | TPM4 | 167460 | 588507 | 22093 | 467558 | 37523 |
| ECD | 122882 | 610256 | 6218 | N/A | | NRG2 | 158458 | 378238 | 14156 | 367483 | 32554 | TPM4 | 167460 | 300933 | 22094 | 300933 | 37524 |
| ECE1 | 117298 | 415912 | 6219 | 405088 | 27628 | NRG2 | 158458 | 519478 | 14157 | N/A | | TPM4 | 167460 | 587201 | 22095 | N/A | |
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| ECE1 | 117298 | 531334 | 6221 | N/A | | NRG2 | 158458 | 541337 | 14159 | 444235 | 32555 | TPM4 | 167460 | 590180 | 22097 | N/A | |
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| ECE1 | 117298 | 436918 | 6223 | 388439 | 27631 | NRG3 | 185737 | 404547 | 14161 | 384796 | 32557 | TPM4 | 167460 | 592138 | 22099 | 466654 | 37527 |
| ECE1 | 117298 | 264205 | 6224 | 264205 | 27632 | NRG3 | 185737 | 372142 | 14162 | 361215 | 32558 | TPM4 | 167460 | 588032 | 22100 | 467319 | 37528 |
| ECE1 | 117298 | 526194 | 6225 | N/A | | NRG3 | 185737 | 602794 | 14163 | 473669 | 32559 | TPM4 | 167460 | 586193 | 22101 | N/A | |
| ECE1 | 117298 | 470394 | 6226 | N/A | | NRG3 | 185737 | 555784 | 14164 | 451858 | 32560 | TPM4 | 167460 | 591645 | 22102 | N/A | |
| ECE1 | 117298 | 528294 | 6227 | N/A | | NRG3 | 185737 | 404576 | 14165 | 385804 | 32561 | TPM4 | 167460 | 592822 | 22103 | 468010 | 37529 |
| ECE1 | 117298 | 473505 | 6228 | 431856 | 27633 | NRG3 | 185737 | 556918 | 14166 | 451376 | 32562 | TPM4 | 167460 | 591226 | 22104 | N/A | |
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| ECE1 | 117298 | 527991 | 6230 | 432860 | 27635 | NRG3 | 185737 | 545131 | 14168 | 441201 | 32564 | TPT1 | 133112 | 530705 | 22106 | 431872 | 37531 |
| ECE1 | 117298 | 463334 | 6231 | N/A | | NRGN | 154146 | 284292 | 14169 | 284292 | 32565 | TPT1 | 133112 | 379056 | 22107 | 368345 | 37532 |
| ECHDC2 | 121310 | 371522 | 6232 | 360577 | 27636 | NRGN | 154146 | 412681 | 14170 | 399591 | 32566 | TPT1 | 133112 | 528619 | 22108 | 433091 | 37533 |
| ECHDC2 | 121310 | 460612 | 6233 | N/A | | NRIP3 | 175352 | 309166 | 14171 | 310205 | 32567 | TPT1 | 133112 | 529421 | 22109 | N/A | |
| ECHDC2 | 121310 | 539680 | 6234 | N/A | | NRIP3 | 175352 | 534759 | 14172 | 435785 | 32568 | TPT1 | 133112 | 484604 | 22110 | N/A | |
| ECHDC2 | 121310 | 479183 | 6235 | N/A | | NRIP3 | 175352 | 531142 | 14173 | 432002 | 32569 | TPT1 | 133112 | 533567 | 22111 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECHDC2 | 121310 | 543419 | 6236 | N/A | | NRIP3 | 175352 | 531090 | 14174 | 432451 | 32570 | TPT1 | 133112 | 490277 | 22112 | N/A | |
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| ECHDC2 | 121310 | 371520 | 6238 | 360575 | 27637 | NRK | 123572 | 243300 | 14176 | 434830 | 32572 | TPT1 | 133112 | 379060 | 22114 | 368350 | 37535 |
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| ECHDC2 | 121310 | 498544 | 6240 | N/A | | NRK | 123572 | 428173 | 14178 | 438378 | 32574 | TPT1 | 133112 | 309246 | 22116 | 339051 | 37537 |
| ECHDC2 | 121310 | 476477 | 6241 | 446190 | 27639 | NRK | 123572 | 540278 | 14179 | 438148 | 32575 | TPT1 | 133112 | 527226 | 22117 | 433738 | 37538 |
| ECHDC2 | 121310 | 479593 | 6242 | N/A | | NRXN1 | 179915 | 625672 | 14180 | 485887 | 32576 | TPT1 | 133112 | 442760 | 22118 | N/A | |
| ECHDC2 | 121310 | 467988 | 6243 | 441962 | 27640 | NRXN1 | 179915 | 406316 | 14181 | 384311 | 32577 | TPT1 | 133112 | 616577 | 22119 | 477781 | 37539 |
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| ECHDC2 | 121310 | 486170 | 6245 | N/A | | NRXN1 | 179915 | 634764 | 14183 | N/A | | TRA2B | 136527 | 492417 | 22121 | N/A | |
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| ECHDC2 | 121310 | 492992 | 6250 | N/A | | NRXN1 | 179915 | 404971 | 14188 | 385142 | 32581 | TRA2B | 136527 | 487615 | 22126 | N/A | |
| ECHDC2 | 121310 | 480312 | 6251 | N/A | | NRXN1 | 179915 | 634412 | 14189 | N/A | | TRA2B | 136527 | 456380 | 22127 | 416887 | 37543 |
| ECHDC2 | 121310 | 544531 | 6252 | N/A | | NRXN1 | 179915 | 342183 | 14190 | 341184 | 32582 | TRA2B | 136527 | 382191 | 22128 | 371626 | 37544 |
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| ECHDC2 | 121310 | 542552 | 6255 | 438535 | 27642 | NRXN1 | 179915 | 637906 | 14193 | 490198 | 32585 | TRA2B | 136527 | 493864 | 22131 | N/A | |
| ECHDC2 | 121310 | 474789 | 6256 | N/A | | NRXN1 | 179915 | 484192 | 14194 | N/A | | TRA2B | 136527 | 477939 | 22132 | N/A | |
| ECHDC2 | 121310 | 536120 | 6257 | 439264 | 27643 | NRXN1 | 179915 | 401669 | 14195 | 385017 | 32586 | TRA2B | 136527 | 471134 | 22133 | N/A | |
| EDEM1 | 134109 | 434243 | 6258 | 393659 | 27644 | NRXN1 | 179915 | 630656 | 14196 | 486993 | 32587 | TRA2B | 136527 | 480461 | 22134 | N/A | |
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| EDEM1 | 134109 | 465369 | 6260 | N/A | | NRXN1 | 179915 | 628364 | 14198 | 485815 | 32588 | TRABD2B | 269113 | 606738 | 22136 | 476820 | 37546 |
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| EDIL3 | 164176 | 296591 | 6265 | 296591 | 27648 | NRXN1 | 179915 | 636736 | 14203 | N/A | | TRAF4 | 076604 | 262395 | 22141 | 262395 | 37550 |
| EDIL3 | 164176 | 380138 | 6266 | 369483 | 27649 | NRXN1 | 179915 | 636298 | 14204 | N/A | | TRAF4 | 076604 | 478021 | 22142 | 464097 | 37551 |
| EDIL3 | 164176 | 510271 | 6267 | N/A | | NRXN1 | 179915 | 331040 | 14205 | 489573 | 32591 | TRAF4 | 076604 | 461195 | 22143 | N/A | |
| EDIL3 | 164176 | 507663 | 6268 | N/A | | NRXN1 | 179915 | 625320 | 14206 | 486253 | 32592 | TRAF4 | 076604 | 498540 | 22144 | N/A | |
| EDNRB | 136160 | 377211 | 6269 | 366416 | 27650 | NRXN1 | 179915 | 636818 | 14207 | N/A | | TRAF4 | 076604 | 422344 | 22145 | 415789 | 37552 |
| EDNRB | 136160 | 334286 | 6270 | 335311 | 27651 | NRXN1 | 179915 | 635834 | 14208 | N/A | | TRAF4 | 076604 | 586813 | 22146 | 466306 | 37553 |
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| SLC13A1 | 081800 | 194130 | 6273 | 194130 | 27654 | NRXN1 | 179915 | 474354 | 14211 | N/A | | TRAF4 | 076604 | 262396 | 22149 | 262396 | 37555 |
| SLC13A1 | 081800 | 427975 | 6274 | 388403 | 27655 | NRXN1 | 179915 | 462791 | 14212 | N/A | | TRAF4 | 076604 | 475329 | 22150 | 464583 | 37556 |
| SLC13A1 | 081800 | 439260 | 6275 | 401417 | 27656 | NRXN1 | 179915 | 495871 | 14213 | 486185 | 32593 | TRAF4 | 076604 | 584944 | 22151 | 465164 | 37557 |
| SLC13A1 | 081800 | 539873 | 6276 | 441309 | 27657 | NRXN1 | 179915 | 636342 | 14214 | N/A | | TRAF4 | 076604 | 473421 | 22152 | 468107 | 37558 |
| EFEMP1 | 115380 | 394555 | 6277 | 378058 | 27658 | NRXN1 | 179915 | 637207 | 14215 | N/A | | TRAF4 | 076604 | 454852 | 22153 | 396602 | 37559 |
| EFEMP1 | 115380 | 635671 | 6278 | 489578 | 27659 | NRXN1 | 179915 | 637653 | 14216 | N/A | | TRAF4 | 076604 | 578917 | 22154 | N/A | |
| EFEMP1 | 115380 | 355426 | 6279 | 347596 | 27660 | NRXN1 | 179915 | 638037 | 14217 | 490210 | 32594 | TRAF4 | 076604 | 469529 | 22155 | N/A | |
| EFEMP1 | 115380 | 634374 | 6280 | 489183 | 27661 | NRXN1 | 179915 | 637459 | 14218 | N/A | | TRAF4 | 076604 | 580073 | 22156 | N/A | |
| EFEMP1 | 115380 | 438672 | 6281 | 392055 | 27662 | NRXN1 | 179915 | 637021 | 14219 | N/A | | TRAF4 | 076604 | 618771 | 22157 | 481248 | 37560 |
| EFEMP1 | 115380 | 452161 | 6282 | N/A | | NRXN1 | 179915 | 637605 | 14220 | N/A | | TRAF5 | 082512 | 462410 | 22158 | N/A | |
| EFEMP1 | 115380 | 439193 | 6283 | 408195 | 27663 | NRXN1 | 179915 | 626249 | 14221 | 485723 | 32595 | TRAF5 | 082512 | 488428 | 22159 | N/A | |
| EFEMP1 | 115380 | 440439 | 6284 | 398345 | 27664 | NRXN1 | 179915 | 628515 | 14222 | 486544 | 32596 | TRAF5 | 082512 | 494355 | 22160 | N/A | |
| EFEMP1 | 115380 | 429909 | 6285 | 389319 | 27665 | NRXN1 | 179915 | 625891 | 14223 | 489108 | 32597 | TRAF5 | 082512 | 261464 | 22161 | 261464 | 37561 |
| EFEMP1 | 115380 | 452337 | 6286 | 399480 | 27666 | NRXN1 | 179915 | 628761 | 14224 | N/A | | TRAF5 | 082512 | 367004 | 22162 | 355971 | 37562 |
| EFEMP1 | 115380 | 421664 | 6287 | 405686 | 27667 | NRXN1 | 179915 | 630431 | 14225 | N/A | | TRAF5 | 082512 | 473385 | 22163 | N/A | |
| EFEMP1 | 115380 | 480016 | 6288 | N/A | | NRXN1 | 179915 | 627198 | 14226 | 487268 | 32598 | TRAF5 | 082512 | 336184 | 22164 | 336825 | 37563 |
| EFEMP1 | 115380 | 424207 | 6289 | 398387 | 27668 | NRXN1 | 179915 | 637472 | 14227 | N/A | | TRDN | 186439 | 334268 | 22165 | 333984 | 37564 |
| EFEMP1 | 115380 | 497698 | 6290 | N/A | | NRXN1 | 179915 | 405581 | 14228 | 385310 | 32599 | TRDN | 186439 | 628709 | 22166 | 486095 | 37565 |
| EFHC2 | 183690 | 343571 | 6291 | N/A | | NRXN1 | 179915 | 636066 | 14229 | 490017 | 32600 | TRDN | 186439 | 361029 | 22167 | 354307 | 37566 |
| EFHC2 | 183690 | 420999 | 6292 | 404232 | 27669 | NRXN1 | 179915 | 637511 | 14230 | 490494 | 32601 | TRDN | 186439 | 542443 | 22168 | 437684 | 37567 |
| EFHD1 | 115468 | 409613 | 6293 | 386556 | 27670 | NRXN1 | 179915 | 626899 | 14231 | 485912 | 32602 | TRDN | 186439 | 422596 | 22169 | 406768 | 37568 |
| EFHD1 | 115468 | 264059 | 6294 | 264059 | 27671 | NRXN1 | 179915 | 496792 | 14232 | 487165 | 32603 | TRDN | 186439 | 546248 | 22170 | 439281 | 37569 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EFHD1 | 115468 | 442845 | 6295 | 395119 | 27672 | NRXN1 | 179915 | 637679 | 14233 | N/A | | TREH | 118094 | 264029 | 22171 | 264029 | 37570 |
| EFHD1 | 115468 | 409708 | 6296 | 386243 | 27673 | NRXN1 | 179915 | 635310 | 14234 | N/A | | TREH | 118094 | 613915 | 22172 | 477923 | 37571 |
| EFHD1 | 115468 | 427698 | 6297 | 401073 | 27674 | NRXN1 | 179915 | 637006 | 14235 | N/A | | TREH | 118094 | 397925 | 22173 | 381020 | 37572 |
| EFHD1 | 115468 | 410095 | 6298 | 386685 | 27675 | NRXN1 | 179915 | 638060 | 14236 | N/A | | TREH | 118094 | 531295 | 22174 | N/A | |
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| EFHD2 | 142634 | 375980 | 6300 | 365147 | 27677 | NRXN1 | 179915 | 635126 | 14238 | N/A | | TREM2 | 095970 | 373122 | 22176 | 362214 | 37573 |
| EFHD2 | 142634 | 445566 | 6301 | 395153 | 27678 | NRXN1 | 179915 | 636104 | 14239 | N/A | | TREM2 | 095970 | 373113 | 22177 | 362205 | 37574 |
| EFNA5 | 184349 | 505499 | 6302 | N/A | | NRXN1 | 179915 | 447773 | 14240 | N/A | | TREM2 | 095970 | 338469 | 22178 | 342651 | 37575 |
| EFNA5 | 184349 | 611503 | 6303 | 484681 | 27679 | NRXN1 | 179915 | 637975 | 14241 | N/A | | TRHDE | 072657 | 548156 | 22179 | N/A | |
| EFNA5 | 184349 | 333274 | 6304 | 328777 | 27680 | NRXN1 | 179915 | 416262 | 14242 | N/A | | TRHDE | 072657 | 261180 | 22180 | 261180 | 37576 |
| EFNA5 | 184349 | 510359 | 6305 | N/A | | NRXN1 | 179915 | 637368 | 14243 | N/A | | TRHDE | 072657 | 547300 | 22181 | 447822 | 37577 |
| EFNA5 | 184349 | 504941 | 6306 | N/A | | NRXN1 | 179915 | 611589 | 14244 | 483634 | 32604 | TRHDE | 072657 | 552503 | 22182 | N/A | |
| EFNA5 | 184349 | 509503 | 6307 | 426989 | 27681 | NRXN1 | 179915 | 406859 | 14245 | 385681 | 32605 | TRHDE | 072657 | 549138 | 22183 | N/A | |
| EFNB3 | 108947 | 226091 | 6308 | 226091 | 27682 | NRXN1 | 179915 | 402717 | 14246 | 385434 | 32606 | TRHDE | 072657 | 549401 | 22184 | N/A | |
| EFR3B | 084710 | 401432 | 6309 | 386082 | 27683 | NRXN2 | 110076 | 464307 | 14247 | N/A | | TRHDE | 072657 | 549922 | 22185 | N/A | |
| EFR3B | 084710 | 403714 | 6310 | 384081 | 27684 | NRXN2 | 110076 | 301894 | 14248 | 301894 | 32607 | TRIL | 255690 | 539664 | 22186 | 479256 | 37578 |
| EFR3B | 084710 | 402191 | 6311 | 385832 | 27685 | NRXN2 | 110076 | 377551 | 14249 | 366774 | 32608 | TRIM15 | 227147 | 421984 | 22187 | 413961 | 37579 |
| EFR3B | 084710 | 405108 | 6312 | 384454 | 27686 | NRXN2 | 110076 | 377559 | 14250 | 366782 | 32609 | TRIM15 | 227147 | 423220 | 22188 | 400174 | 37580 |
| EFR3B | 084710 | 264719 | 6313 | 264719 | 27687 | NRXN2 | 110076 | 409571 | 14251 | 386416 | 32610 | TRIM15 | 227147 | 476225 | 22189 | N/A | |
| EGF | 138798 | 509793 | 6314 | 424316 | 27688 | NRXN2 | 110076 | 475737 | 14252 | N/A | | TRIM15 | 227147 | 478964 | 22190 | N/A | |
| EGF | 138798 | 265171 | 6315 | 265171 | 27689 | NRXN2 | 110076 | 423049 | 14253 | 407374 | 32611 | TRIM15 | 227147 | 548732 | 22191 | 449583 | 37581 |
| EGF | 138798 | 503392 | 6316 | 421384 | 27690 | NRXN2 | 110076 | 467055 | 14254 | N/A | | TRIM15 | 233599 | 431059 | 22192 | 403221 | 37582 |
| EGF | 138798 | 502723 | 6317 | N/A | | NRXN2 | 110076 | 487484 | 14255 | N/A | | TRIM15 | 233599 | 426765 | 22193 | 389858 | 37583 |
| EGF | 138798 | 504633 | 6318 | N/A | | NRXN2 | 110076 | 486057 | 14256 | N/A | | TRIM15 | 233599 | 490570 | 22194 | N/A | |
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| EGF | 138798 | 541061 | 6320 | N/A | | NRXN2 | 110076 | 442300 | 14258 | 388971 | 32612 | TRIM15 | 233599 | 548653 | 22196 | 447232 | 37584 |
| EGF | 138798 | 511228 | 6321 | N/A | | NRXN2 | 110076 | 417749 | 14259 | 411271 | 32613 | TRIM15 | 233599 | 550400 | 22197 | 447500 | 37585 |
| EGF | 138798 | 509996 | 6322 | N/A | | NRXN2 | 110076 | 437746 | 14260 | 412211 | 32614 | TRIM15 | 235905 | 429524 | 22198 | 409605 | 37586 |
| EGF | 138798 | 544918 | 6323 | N/A | | NRXN2 | 110076 | 466324 | 14261 | N/A | | TRIM15 | 235905 | 424597 | 22199 | 403836 | 37587 |
| EGF | 138798 | 537316 | 6324 | N/A | | NRXN2 | 110076 | 265459 | 14262 | 265459 | 32615 | TRIM15 | 235905 | 493180 | 22200 | N/A | |
| EGF | 138798 | 540840 | 6325 | N/A | | NRXN3 | 021645 | 634499 | 14263 | 488920 | 32616 | TRIM15 | 235905 | 496657 | 22201 | N/A | |
| EGFR | 146648 | 459688 | 6326 | N/A | | NRXN3 | 021645 | 554738 | 14264 | 450683 | 32617 | TRIM15 | 235905 | 552676 | 22202 | 449686 | 37588 |
| EGFR | 146648 | 463948 | 6327 | N/A | | NRXN3 | 021645 | 635466 | 14265 | 489551 | 32618 | TRIM15 | 235905 | 550702 | 22203 | 448772 | 37589 |
| EGFR | 146648 | 450046 | 6328 | 413354 | 27691 | NRXN3 | 021645 | 556088 | 14266 | N/A | | TRIM15 | 137384 | 259930 | 22204 | 259930 | 37590 |
| EGFR | 146648 | 485503 | 6329 | N/A | | NRXN3 | 021645 | 553363 | 14267 | 451754 | 32619 | TRIM15 | 137384 | 427952 | 22205 | 392768 | 37591 |
| EGFR | 146648 | 638463 | 6330 | 492462 | 27692 | NRXN3 | 021645 | 553631 | 14268 | 451947 | 32620 | TRIM15 | 137384 | 492678 | 22206 | N/A | |
| EGFR | 146648 | 454757 | 6331 | 395243 | 27693 | NRXN3 | 021645 | 554719 | 14269 | 451648 | 32621 | TRIM15 | 137384 | 479020 | 22207 | N/A | |
| EGFR | 146648 | 455089 | 6332 | 415559 | 27694 | NRXN3 | 021645 | 556496 | 14270 | N/A | | TRIM15 | 137384 | 550969 | 22208 | 447725 | 37592 |
| EGFR | 146648 | 342916 | 6333 | 342376 | 27695 | NRXN3 | 021645 | 634266 | 14271 | N/A | | TRIM15 | 204610 | 376694 | 22209 | 365884 | 37593 |
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| EGLN3 | 129521 | 553215 | 6338 | 447470 | 27700 | NRXN3 | 021645 | 555387 | 14276 | 451393 | 32626 | TRIM15 | 235960 | 427091 | 22214 | 411683 | 37597 |
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| EGLN3 | 129521 | 551935 | 6343 | N/A | | NT5DC2 | 168268 | 463947 | 14281 | 418780 | 32628 | TRIM15 | 224145 | 430090 | 22219 | 398224 | 37600 |
| EGLN3 | 129521 | 548285 | 6344 | N/A | | NT5DC2 | 168268 | 479024 | 14282 | N/A | | TRIM15 | 224145 | 440260 | 22220 | 402326 | 37601 |
| EGLN3 | 129521 | 546681 | 6345 | N/A | | NT5DC2 | 168268 | 307076 | 14283 | 302468 | 32629 | TRIM15 | 224145 | 469125 | 22221 | N/A | |
| EGLN3 | 129521 | 464521 | 6346 | N/A | | NT5DC2 | 168268 | 422318 | 14284 | 406933 | 32630 | TRIM15 | 224145 | 473556 | 22222 | N/A | |
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| EGR1 | 120738 | 239938 | 6348 | 239938 | 27703 | NT5DC2 | 168268 | 459839 | 14286 | 419547 | 32631 | TRIM15 | 224145 | 552836 | 22224 | 449617 | 37603 |
| EGR3 | 179388 | 317216 | 6349 | 318057 | 27704 | NT5DC2 | 168268 | 492555 | 14287 | 419774 | 32632 | TRIM15 | 235259 | 414873 | 22225 | 415480 | 37604 |
| EGR3 | 179388 | 522910 | 6350 | 430310 | 27705 | NT5DC2 | 168268 | 469616 | 14288 | N/A | | TRIM15 | 235259 | 425255 | 22226 | 391673 | 37605 |
| EGR3 | 179388 | 519492 | 6351 | 429370 | 27706 | NT5DC2 | 168268 | 466112 | 14289 | N/A | | TRIM15 | 235259 | 485505 | 22227 | N/A | |
| EGR3 | 179388 | 524088 | 6352 | N/A | | NT5DC2 | 168268 | 478091 | 14290 | N/A | | TRIM15 | 235259 | 479130 | 22228 | N/A | |
| EGR3 | 179388 | 518773 | 6353 | N/A | | NT5DC2 | 168268 | 489316 | 14291 | 417269 | 32633 | TRIM15 | 235259 | 552062 | 22229 | 448307 | 37606 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EHD3 | 013016 | 322054 | 6354 | 327116 | 27707 | NT5DC2 | 168268 | 486792 | 14292 | N/A | | TRIM2 | 109654 | 491446 | 22230 | N/A | |
| EIF2AK3 | 172071 | 419748 | 6355 | 408325 | 27708 | NT5DC2 | 168268 | 471522 | 14293 | 418583 | 32634 | TRIM2 | 109654 | 441616 | 22231 | 400879 | 37607 |
| EIF2AK3 | 172071 | 303236 | 6356 | 307235 | 27709 | NT5DC2 | 168268 | 487779 | 14294 | N/A | | TRIM2 | 109654 | 437508 | 22232 | 415812 | 37608 |
| EIF2AK3 | 172071 | 415570 | 6357 | 412076 | 27710 | NT5DC2 | 168268 | 490681 | 14295 | N/A | | TRIM2 | 109654 | 496978 | 22233 | N/A | |
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| EIF2AK3 | 172071 | 478003 | 6359 | N/A | | NT5E | 135318 | 257770 | 14297 | 257770 | 32636 | TRIM2 | 109654 | 494872 | 22235 | 488229 | 37609 |
| EIF2AK3 | 172071 | 477083 | 6360 | N/A | | NT5E | 135318 | 416334 | 14298 | 414674 | 32637 | TRIM2 | 109654 | 338700 | 22236 | 339659 | 37610 |
| EIF2S3 | 130741 | 253039 | 6361 | 253039 | 27711 | NT5E | 135318 | 437581 | 14299 | 387630 | 32638 | TRIM2 | 109654 | 632856 | 22237 | 487836 | 37611 |
| EIF2S3 | 130741 | 487075 | 6362 | N/A | | NT5E | 135318 | 369651 | 14300 | 358665 | 32639 | TRIM2 | 109654 | 502281 | 22238 | 488602 | 37612 |
| EIF2S3 | 130741 | 423068 | 6363 | 391383 | 27712 | NTF3 | 185652 | 535299 | 14301 | N/A | | TRIM2 | 109654 | 482578 | 22239 | 487750 | 37613 |
| EIF2S3 | 130741 | 460032 | 6364 | N/A | | NTF3 | 185652 | 423158 | 14302 | 397297 | 32640 | TRIM2 | 109654 | 433687 | 22240 | 400375 | 37614 |
| EIF2S3 | 130741 | 457332 | 6365 | N/A | | NTF3 | 185652 | 543548 | 14303 | N/A | | TRIM2 | 109654 | 460908 | 22241 | 488751 | 37615 |
| EIF4A3 | 141543 | 269349 | 6366 | 269349 | 27713 | NTF3 | 185652 | 331010 | 14304 | 328738 | 32641 | TRIM26 | 230230 | 493978 | 22242 | N/A | |
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| EIF4A3 | 141543 | 576573 | 6369 | N/A | | NTM | 182667 | 436745 | 14307 | 409221 | 32642 | TRIM26 | 230230 | 436219 | 22245 | 390258 | 37618 |
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| EIF4A3 | 141543 | 570837 | 6371 | N/A | | NTM | 182667 | 550167 | 14309 | 448104 | 32643 | TRIM26 | 230230 | 451189 | 22247 | 393753 | 37620 |
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| EIF4A3 | 141543 | 575957 | 6373 | N/A | | NTM | 182667 | 463395 | 14311 | N/A | | TRIM26 | 230230 | 435387 | 22249 | 405923 | 37622 |
| ELAVL2 | 107105 | 380110 | 6374 | 369453 | 27715 | NTM | 182667 | 498764 | 14312 | N/A | | TRIM26 | 230230 | 475230 | 22250 | N/A | |
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| ELAVL2 | 107105 | 423281 | 6377 | 391757 | 27718 | NTM | 182667 | 479431 | 14315 | N/A | | TRIM26 | 231002 | 415923 | 22253 | 415755 | 37624 |
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| ELAVL3 | 196361 | 592218 | 6385 | N/A | | NTM | 182667 | 457381 | 14323 | 387984 | 32648 | TRIM26 | 231641 | 432326 | 22261 | 407876 | 37631 |
| ELAVL4 | 162374 | 371827 | 6386 | 360892 | 27725 | NTM | 182667 | 483174 | 14324 | N/A | | TRIM26 | 231641 | 438384 | 22262 | 416737 | 37632 |
| ELAVL4 | 162374 | 463650 | 6387 | N/A | | NTM | 182667 | 496198 | 14325 | N/A | | TRIM26 | 231641 | 464955 | 22263 | N/A | |
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| ELAVL4 | 162374 | 371824 | 6389 | 360889 | 27727 | NTM | 182667 | 427481 | 14327 | 416320 | 32650 | TRIM26 | 231641 | 419401 | 22265 | 405710 | 37634 |
| ELAVL4 | 162374 | 371823 | 6390 | 360888 | 27728 | NTM | 182667 | 374791 | 14328 | 363923 | 32651 | TRIM26 | 231641 | 481596 | 22266 | N/A | |
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| ELAVL4 | 162374 | 371819 | 6392 | 360884 | 27730 | NTN1 | 065320 | 436734 | 14330 | 389375 | 32653 | TRIM26 | 231641 | 424124 | 22268 | 400655 | 37636 |
| ELAVL4 | 162374 | 494555 | 6393 | N/A | | NTN4 | 074527 | 343702 | 14331 | 340998 | 32654 | TRIM26 | 234127 | 480999 | 22269 | N/A | |
| ELAVL4 | 162374 | 492299 | 6394 | N/A | | NTN4 | 074527 | 344911 | 14332 | 339436 | 32655 | TRIM26 | 234127 | 437089 | 22270 | 395491 | 37637 |
| ELAVL4 | 162374 | 474675 | 6395 | N/A | | NTN4 | 074527 | 538383 | 14333 | 444432 | 32656 | TRIM26 | 234127 | 454678 | 22271 | 410446 | 37638 |
| ELAVL4 | 162374 | 448907 | 6396 | 399939 | 27731 | NTN4 | 074527 | 553059 | 14334 | 447292 | 32657 | TRIM26 | 234127 | 453195 | 22272 | 391879 | 37639 |
| ELF2 | 109381 | 379549 | 6397 | 368867 | 27732 | NTN4 | 074527 | 550074 | 14335 | N/A | | TRIM26 | 234127 | 416596 | 22273 | 413673 | 37640 |
| ELF2 | 109381 | 379550 | 6398 | 368868 | 27733 | NTN4 | 074527 | 552603 | 14336 | N/A | | TRIM26 | 234127 | 418026 | 22274 | 387530 | 37641 |
| ELF2 | 109381 | 514606 | 6399 | N/A | | NTN4 | 074527 | 547980 | 14337 | 447594 | 32658 | TRIM26 | 234127 | 434785 | 22275 | 400920 | 37642 |
| ELF2 | 109381 | 504314 | 6400 | N/A | | NTNG1 | 162631 | 370074 | 14338 | 359091 | 32659 | TRIM26 | 234127 | 487829 | 22276 | N/A | |
| ELF2 | 109381 | 514577 | 6401 | N/A | | NTNG1 | 162631 | 370068 | 14339 | 359085 | 32660 | TRIM26 | 137313 | 463977 | 22277 | N/A | |
| ELF2 | 109381 | 512627 | 6402 | 426087 | 27734 | NTNG1 | 162631 | 294649 | 14340 | N/A | | TRIM26 | 137313 | 383607 | 22278 | 373102 | 37643 |
| ELF2 | 109381 | 515489 | 6403 | N/A | | NTNG1 | 162631 | 370067 | 14341 | 359084 | 32661 | TRIM26 | 137313 | 327357 | 22279 | 331131 | 37644 |
| ELF2 | 109381 | 511006 | 6404 | N/A | | NTNG1 | 162631 | 462149 | 14342 | N/A | | TRIM26 | 137313 | 396558 | 22280 | 379806 | 37645 |
| ELF2 | 109381 | 511184 | 6405 | 421278 | 27735 | NTNG1 | 162631 | 370076 | 14343 | N/A | | TRIM26 | 137313 | 412755 | 22281 | 390908 | 37646 |
| ELF2 | 109381 | 420916 | 6406 | 397796 | 27736 | NTNG1 | 162631 | 370066 | 14344 | 359083 | 32662 | TRIM26 | 137313 | 419171 | 22282 | 412165 | 37647 |
| ELF2 | 109381 | 510408 | 6407 | 426997 | 27737 | NTNG1 | 162631 | 370065 | 14345 | 359082 | 32663 | TRIM26 | 137313 | 427612 | 22283 | 405526 | 37648 |
| ELF2 | 109381 | 358635 | 6408 | 351458 | 27738 | NTNG1 | 162631 | 477948 | 14346 | N/A | | TRIM26 | 137313 | 461313 | 22284 | N/A | |
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| ELMO1 | 155849 | 396045 | 6412 | 379360 | 27742 | NTNG2 | 196358 | 490694 | 14350 | N/A | | TRIM26 | 234046 | 427535 | 22288 | 398545 | 37651 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ELMO1 | 155849 | 310758 | 6413 | 312185 | 27743 | NTNG2 | 196358 | 483055 | 14351 | N/A | | TRIM26 | 234046 | 423901 | 22289 | 395820 | 37652 |
| ELMO1 | 155849 | 396040 | 6414 | 379355 | 27744 | NTNG2 | 196358 | 372179 | 14352 | 361252 | 32667 | TRIM26 | 234046 | 444979 | 22290 | 403395 | 37653 |
| ELMO1 | 155849 | 442504 | 6415 | 406952 | 27745 | NTSR1 | 101188 | 370501 | 14353 | 359532 | 32668 | TRIM26 | 234046 | 415789 | 22291 | 407035 | 37654 |
| ELMO1 | 155849 | 497024 | 6416 | N/A | | NTSR1 | 101188 | 482259 | 14354 | N/A | | TRIM26 | 234046 | 447942 | 22292 | 396089 | 37655 |
| ELMO1 | 155849 | 487843 | 6417 | N/A | | NTSR2 | 169006 | 306928 | 14355 | 303686 | 32669 | TRIM26 | 234046 | 477353 | 22293 | N/A | |
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| ELMO1 | 155849 | 472359 | 6421 | N/A | | NUDC | 090273 | 484772 | 14359 | N/A | | TRIM26 | 226060 | 456093 | 22297 | 406707 | 37658 |
| ELMO1 | 155849 | 433246 | 6422 | 413108 | 27748 | NUDCD3 | 015676 | 355451 | 14360 | 347626 | 32673 | TRIM26 | 226060 | 438785 | 22298 | 397048 | 37659 |
| ELMO1 | 155849 | 487336 | 6423 | N/A | | NUDCD3 | 015676 | 487118 | 14361 | N/A | | TRIM26 | 226060 | 415966 | 22299 | 402684 | 37660 |
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| ELMO1 | 155849 | 455119 | 6425 | 406610 | 27750 | NUDCD3 | 015676 | 475952 | 14363 | N/A | | TRIM26 | 226060 | 429583 | 22301 | 393827 | 37662 |
| ELMO1 | 155849 | 455879 | 6426 | 416090 | 27751 | NUDCD3 | 015676 | 338427 | 14364 | N/A | | TRIM26 | 226060 | 486529 | 22302 | N/A | |
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| ELMO1 | 155849 | 453399 | 6428 | 391734 | 27752 | NUDCD3 | 015676 | 472246 | 14366 | N/A | | TRIM26 | 228881 | 439094 | 22304 | 389203 | 37664 |
| ELMO1 | 155849 | 445322 | 6429 | 397857 | 27753 | NUDCD3 | 015676 | 464812 | 14367 | N/A | | TRIM26 | 228881 | 456770 | 22305 | 415328 | 37665 |
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| ELMO2 | 062598 | 372176 | 6433 | 361249 | 27756 | NUDT4 | 173598 | 337179 | 14371 | 338352 | 32674 | TRIM26 | 228881 | 484938 | 22309 | N/A | |
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| ELMO2 | 062598 | 464448 | 6436 | N/A | | NUDT4 | 173598 | 549992 | 14374 | 449552 | 32677 | TRIM5 | 132256 | 380034 | 22312 | 369373 | 37670 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| ELOVL1 | 066322 | 470968 | 6493 | N/A | | NWD1 | 188039 | 438489 | 14431 | 400248 | 32719 | TP53I11 | 175274 | 308212 | 22369 | 309532 | 37712 |
| ELOVL1 | 066322 | 487209 | 6494 | N/A | | NWD1 | 188039 | 552788 | 14432 | 447224 | 32720 | TP53I11 | 175274 | 627720 | 22370 | 486799 | 37713 |
| ELOVL1 | 066322 | 470769 | 6495 | N/A | | NWD1 | 188039 | 379808 | 14433 | 369136 | 32721 | TRPC3 | 138741 | 264811 | 22371 | 264811 | 37714 |
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| ELOVL1 | 066322 | 465321 | 6501 | N/A | | NXN | 167693 | 571281 | 14439 | N/A | | TRPC6 | 137672 | 344327 | 22377 | 340913 | 37720 |
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| ELOVL1 | 066322 | 496932 | 6503 | N/A | | NXN | 167693 | 537628 | 14441 | 446446 | 32726 | TRPC6 | 137672 | 348423 | 22379 | 343672 | 37722 |
| ELOVL1 | 066322 | 621943 | 6504 | 477602 | 27789 | NXN | 167693 | 574018 | 14442 | N/A | | TRPC6 | 137672 | 360497 | 22380 | 353687 | 37723 |
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| ELOVL5 | 012660 | 465983 | 6509 | N/A | | NXN | 167693 | 576991 | 14447 | N/A | | TRPC7 | 069018 | 378459 | 22385 | 367720 | 37725 |
| ELOVL5 | 012660 | 486973 | 6510 | N/A | | NXN | 167693 | 571080 | 14448 | N/A | | TRPC7 | 069018 | 352189 | 22386 | 330322 | 37726 |
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| ELOVL5 | 012660 | 370918 | 6512 | 359956 | 27794 | NXN | 281300 | 629250 | 14450 | N/A | | TRPC7 | 069018 | 513104 | 22388 | 426070 | 37728 |
| ELOVL5 | 012660 | 542638 | 6513 | 440728 | 27795 | NXN | 281300 | 627182 | 14451 | 485936 | 32727 | TRPC7 | 069018 | 509288 | 22389 | N/A | |
| ELOVL7 | 164181 | 508821 | 6514 | 424123 | 27796 | NXNL2 | 130045 | 487646 | 14452 | N/A | | TRPC7 | 069018 | 503275 | 22390 | 421571 | 37729 |
| ELOVL7 | 164181 | 505959 | 6515 | 421043 | 27797 | NXNL2 | 130045 | 375855 | 14453 | 365015 | 32728 | TRPM2 | 142185 | 300482 | 22391 | 300482 | 37730 |
| ELOVL7 | 164181 | 504455 | 6516 | 425127 | 27798 | NXNL2 | 130045 | 478686 | 14454 | N/A | | TRPM2 | 142185 | 431901 | 22392 | 393982 | 37731 |
| ELOVL7 | 164181 | 511799 | 6517 | 424081 | 27799 | NXNL2 | 130045 | 375854 | 14455 | 365014 | 32729 | TRPM2 | 142185 | 397928 | 22393 | 381023 | 37732 |
| ELOVL7 | 164181 | 507047 | 6518 | 426400 | 27800 | NXNL2 | 130045 | 618633 | 14456 | 480855 | 32730 | TRPM2 | 142185 | 397932 | 22394 | 381026 | 37733 |
| ELOVL7 | 164181 | 514809 | 6519 | 422602 | 27801 | NXPE3 | 144815 | 495842 | 14457 | 418381 | 32731 | TRPM2 | 142185 | 300481 | 22395 | 300481 | 37734 |
| ELOVL7 | 164181 | 425382 | 6520 | 402634 | 27802 | NXPE3 | 144815 | 273347 | 14458 | 273347 | 32732 | TRPM2 | 142185 | 498430 | 22396 | N/A | |
| EME2 | 197774 | 568449 | 6521 | 457353 | 27803 | NXPE3 | 144815 | 474165 | 14459 | 419667 | 32733 | TRPM2 | 142185 | 490982 | 22397 | N/A | |
| EME2 | 197774 | 570069 | 6522 | N/A | | NXPE3 | 144815 | 491511 | 14460 | 417485 | 32734 | TRPM2 | 142185 | 621064 | 22398 | 477514 | 37735 |
| EME2 | 197774 | 561564 | 6523 | N/A | | NXPE3 | 144815 | 487830 | 14461 | N/A | | TRPV3 | 167723 | 381913 | 22399 | 371338 | 37736 |
| EME2 | 197774 | 565326 | 6524 | N/A | | NXPE3 | 144815 | 477909 | 14462 | 418369 | 32735 | TRPV3 | 167723 | 577016 | 22400 | 460856 | 37737 |
| EME2 | 197774 | 561903 | 6525 | 457966 | 27804 | NXPE3 | 144815 | 616286 | 14463 | 478069 | 32736 | TRPV3 | 167723 | 301365 | 22401 | 301365 | 37738 |
| EME2 | 197774 | 564182 | 6526 | 456946 | 27805 | NYAP2 | 144460 | 636099 | 14464 | 490942 | 32737 | TRPV3 | 167723 | 571139 | 22402 | 458187 | 37739 |
| EMILIN2 | 132205 | 254528 | 6527 | 254528 | 27806 | NYAP2 | 144460 | 272907 | 14465 | 272907 | 32738 | TRPV3 | 167723 | 573539 | 22403 | 458239 | 37740 |
| EMILIN2 | 132205 | 308080 | 6528 | N/A | | NYX | 188937 | 342595 | 14466 | 340328 | 32739 | TRPV3 | 167723 | 576742 | 22404 | 461518 | 37741 |
| EMILIN2 | 132205 | 583776 | 6529 | N/A | | NYX | 188937 | 378220 | 14467 | 367465 | 32740 | TRPV3 | 167723 | 572519 | 22405 | 460215 | 37742 |
| EML5 | 165521 | 554922 | 6530 | 451998 | 27807 | NYX | 188937 | 486842 | 14468 | N/A | | TRPV3 | 167723 | 571005 | 22406 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EML5 | 165521 | 553973 | 6531 | N/A | | OAT | 065154 | 368845 | 14469 | 357838 | 32741 | TRPV3 | 167723 | 575865 | 22407 | N/A | |
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| ENAH | 154380 | 483952 | 6547 | N/A | | OLFM1 | 130558 | 252854 | 14485 | 252854 | 32748 | TRPV6 | 276971 | 632149 | 22423 | N/A | |
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| ENPP1 | 197594 | 486853 | 6560 | N/A | | OLFM2 | 105088 | 593091 | 14498 | 465809 | 32760 | TSC22D3 | 157514 | 315660 | 22436 | 314655 | 37757 |
| ENPP1 | 197594 | 360971 | 6561 | 354238 | 27827 | OLFM2 | 105088 | 590410 | 14499 | N/A | | TSC22D3 | 157514 | 372383 | 22437 | 361458 | 37758 |
| ENPP1 | 197594 | 513998 | 6562 | 422424 | 27828 | OLFM3 | 118733 | 338858 | 14500 | 345192 | 32761 | TSC22D3 | 157514 | 372384 | 22438 | 361459 | 37759 |
| ENPP1 | 197594 | 459624 | 6563 | N/A | | OLFM3 | 118733 | 465523 | 14501 | N/A | | TSC22D3 | 157514 | 372382 | 22439 | 361457 | 37760 |
| ENPP2 | 136960 | 259486 | 6564 | 259486 | 27829 | OLFM3 | 118733 | 370103 | 14502 | 359121 | 32762 | TSC22D3 | 157514 | 506081 | 22440 | 427427 | 37761 |
| ENPP2 | 136960 | 427067 | 6565 | 403315 | 27830 | OLFM3 | 118733 | 462354 | 14503 | N/A | | TSC22D3 | 157514 | 514426 | 22441 | 421016 | 37762 |
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| ENPP2 | 136960 | 522167 | 6567 | 429476 | 27831 | OLFM3 | 118733 | 536598 | 14505 | 443471 | 32763 | TSC22D3 | 157514 | 503515 | 22443 | 422060 | 37764 |
| ENPP2 | 136960 | 522826 | 6568 | 428291 | 27832 | OLIG1 | 184221 | 382348 | 14506 | 371785 | 32764 | TSC22D3 | 157514 | 514897 | 22444 | 427199 | 37765 |
| ENPP2 | 136960 | 075322 | 6569 | 075322 | 27833 | OLIG1 | 184221 | 426947 | 14507 | 414840 | 32765 | TSC22D3 | 157514 | 480691 | 22445 | 425155 | 37766 |
| ENPP2 | 136960 | 518109 | 6570 | N/A | | OLIG1 | 184221 | 498799 | 14508 | N/A | | TSC22D3 | 157514 | 510887 | 22446 | 422636 | 37767 |
| ENPP2 | 136960 | 520066 | 6571 | 428304 | 27834 | OLIG2 | 205927 | 382357 | 14509 | 371794 | 32766 | TSC22D3 | 157514 | 502650 | 22447 | 424653 | 37768 |
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| ENPP6 | 164303 | 505644 | 6577 | N/A | | ONECUT1 | 169856 | 305901 | 14515 | 302630 | 32772 | TSHZ2 | 182463 | 371497 | 22453 | 360552 | 37774 |
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| ENTPD2 | 054179 | 312665 | 6580 | 312494 | 27840 | ONECUT1 | 169856 | 570208 | 14518 | 476168 | 32774 | TSHZ2 | 182463 | 626626 | 22456 | 487408 | 37777 |
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| EPB41L1 | 088367 | 430276 | 6585 | 404341 | 27844 | OPALIN | 197430 | 393871 | 14523 | 377449 | 32778 | TSPAN11 | 110900 | 535215 | 22461 | 445503 | 37781 |
| EPB41L1 | 088367 | 373950 | 6586 | 363061 | 27845 | OPALIN | 197430 | 536387 | 14524 | 445125 | 32779 | TSPAN11 | 110900 | 261177 | 22462 | 261177 | 37782 |
| EPB41L1 | 088367 | 628415 | 6587 | 487049 | 27846 | OPALIN | 197430 | 419479 | 14525 | 398025 | 32780 | TSPAN14 | 108219 | 429989 | 22463 | 396270 | 37783 |
| EPB41L1 | 088367 | 452261 | 6588 | 413262 | 27847 | OPALIN | 197430 | 393870 | 14526 | 377448 | 32781 | TSPAN14 | 108219 | 481124 | 22464 | 418195 | 37784 |
| EPB41L1 | 088367 | 447825 | 6589 | 396366 | 27848 | OPHN1 | 079482 | 355520 | 14527 | 347710 | 32782 | TSPAN14 | 108219 | 372157 | 22465 | 361230 | 37785 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| EPB41L1 | 088367 | 338074 | 6592 | 337168 | 27851 | OPHN1 | 079482 | 486068 | 14530 | N/A | | TSPAN14 | 108219 | 372158 | 22468 | 361231 | 37787 |
| EPB41L1 | 088367 | 373941 | 6593 | 363052 | 27852 | OPHN1 | 079482 | 491714 | 14531 | N/A | | TSPAN14 | 108219 | 341863 | 22469 | 344076 | 37788 |
| EPB41L1 | 088367 | 451082 | 6594 | 406464 | 27853 | OPLAH | 178814 | 618853 | 14532 | 480476 | 32783 | TSPAN14 | 108219 | 372156 | 22470 | 361229 | 37789 |
| EPB41L1 | 088367 | 454226 | 6595 | 388281 | 27854 | OPLAH | 178814 | 527993 | 14533 | N/A | | TSPAN14 | 108219 | 265450 | 22471 | N/A | |
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| EPB41L1 | 088367 | 479336 | 6597 | N/A | | OPLAH | 178814 | 567871 | 14535 | 481640 | 32784 | TSPAN15 | 099282 | 373290 | 22473 | 362387 | 37791 |
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| EPB41L4B | 095203 | 374566 | 6601 | 363694 | 27859 | OPTC | 188770 | 448911 | 14539 | 399491 | 32788 | TSPAN15 | 099282 | 490083 | 22477 | N/A | |
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| EPHA3 | 044524 | 336596 | 6603 | 337451 | 27861 | OSBP | 110048 | 525357 | 14541 | 432399 | 32790 | TSPAN15 | 099282 | 459981 | 22479 | N/A | |
| EPHA3 | 044524 | 452448 | 6604 | 399926 | 27862 | OSBP | 110048 | 528903 | 14542 | N/A | | TSPAN15 | 099282 | 470508 | 22480 | N/A | |
| EPHA3 | 044524 | 494014 | 6605 | 419190 | 27863 | OSBPL10 | 144645 | 396556 | 14543 | 379804 | 32791 | TSPAN18 | 157570 | 533786 | 22481 | 433592 | 37793 |
| EPHA4 | 116106 | 469354 | 6606 | N/A | | OSBPL10 | 144645 | 429492 | 14544 | 416078 | 32792 | TSPAN18 | 157570 | 533202 | 22482 | 434625 | 37794 |
| EPHA4 | 116106 | 472696 | 6607 | N/A | | OSBPL10 | 144645 | 438237 | 14545 | 406124 | 32793 | TSPAN18 | 157570 | 533080 | 22483 | 433362 | 37795 |
| EPHA4 | 116106 | 409854 | 6608 | 386276 | 27864 | OSBPL10 | 144645 | 469557 | 14546 | N/A | | TSPAN18 | 157570 | 520358 | 22484 | 429993 | 37796 |
| EPHA4 | 116106 | 409938 | 6609 | 386829 | 27865 | OSBPL10 | 144645 | 467598 | 14547 | N/A | | TSPAN18 | 157570 | 520999 | 22485 | 427942 | 37797 |
| EPHA4 | 116106 | 424339 | 6610 | 408145 | 27866 | OSBPL10 | 144645 | 472175 | 14548 | N/A | | TSPAN18 | 157570 | 520837 | 22486 | 430343 | 37798 |
| EPHA4 | 116106 | 495693 | 6611 | N/A | | OSBPL10 | 144645 | 479396 | 14549 | N/A | | TSPAN18 | 157570 | 518429 | 22487 | 429020 | 37799 |
| EPHA4 | 116106 | 443796 | 6612 | 395917 | 27867 | OSBPL10 | 144645 | 490009 | 14550 | N/A | | TSPAN18 | 157570 | 519051 | 22488 | N/A | |
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| EPHA4 | 116106 | 434266 | 6618 | 404089 | 27872 | OSBPL10 | 144645 | 466604 | 14556 | N/A | | TSPAN2 | 134198 | 369516 | 22494 | 358529 | 37801 |
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| EPHA6 | 080224 | 470610 | 6620 | 420598 | 27874 | OSBPL10 | 144645 | 479173 | 14558 | N/A | | TSPAN2 | 134198 | 491992 | 22496 | N/A | |
| EPHA6 | 080224 | 389672 | 6621 | 374323 | 27875 | OSBPL10 | 144645 | 452791 | 14559 | N/A | | TSPAN2 | 134198 | 433172 | 22497 | 415256 | 37803 |
| EPHA6 | 080224 | 506569 | 6622 | 425132 | 27876 | OSBPL10 | 144645 | 465626 | 14560 | N/A | | TSPAN5 | 168785 | 508798 | 22498 | 421808 | 37804 |
| EPHA6 | 080224 | 503760 | 6623 | 421260 | 27877 | OSBPL3 | 070882 | 313367 | 14561 | 315410 | 32795 | TSPAN5 | 168785 | 305798 | 22499 | 307701 | 37805 |
| EPHA6 | 080224 | 477384 | 6624 | 419470 | 27878 | OSBPL3 | 070882 | 409863 | 14562 | 386429 | 32796 | TSPAN5 | 168785 | 505184 | 22500 | 423916 | 37806 |
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| EPHA6 | 080224 | 502694 | 6627 | 423950 | 27881 | OSBPL3 | 070882 | 409759 | 14565 | 386325 | 32799 | TSPAN5 | 168785 | 509168 | 22503 | N/A | |
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| EPHB1 | 154928 | 467013 | 6629 | N/A | | OSBPL3 | 070882 | 409555 | 14567 | 386990 | 32800 | TSPAN5 | 168785 | 511651 | 22505 | 426248 | 37809 |
| EPHB1 | 154928 | 472904 | 6630 | N/A | | OSBPL3 | 070882 | 396429 | 14568 | 379706 | 32801 | TSPAN5 | 168785 | 511800 | 22506 | 422548 | 37810 |
| EPHB1 | 154928 | 467708 | 6631 | N/A | | OSBPL3 | 070882 | 409069 | 14569 | 386953 | 32802 | TSPAN5 | 168785 | 507167 | 22507 | N/A | |
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| EPHB1 | 154928 | 482618 | 6633 | 420338 | 27884 | OSBPL3 | 070882 | 461835 | 14571 | N/A | | TSPAN6 | 000003 | 496771 | 22509 | N/A | |
| EPHB1 | 154928 | 398015 | 6634 | 381097 | 27885 | OSBPL3 | 070882 | 415162 | 14572 | 407829 | 32803 | TSPAN6 | 000003 | 494424 | 22510 | N/A | |
| EPHB1 | 154928 | 488154 | 6635 | N/A | | OSBPL3 | 070882 | 441059 | 14573 | 403374 | 32804 | TSPAN6 | 000003 | 612152 | 22511 | 482130 | 37812 |
| EPHB1 | 154928 | 497173 | 6636 | 419688 | 27886 | OSBPL3 | 070882 | 415952 | 14574 | 411249 | 32805 | TSPAN6 | 000003 | 614008 | 22512 | 482894 | 37813 |
| EPHB1 | 154928 | 473867 | 6637 | 417216 | 27887 | OTUD6B | 155100 | 285420 | 14575 | 285420 | 32806 | TSPOAP1 | 005379 | 581692 | 22513 | N/A | |
| EPHB1 | 154928 | 474732 | 6638 | 418352 | 27888 | OTUD6B | 155100 | 522894 | 14576 | 428528 | 32807 | TSPOAP1 | 005379 | 581675 | 22514 | 462518 | 37814 |
| EPHB1 | 154928 | 493838 | 6639 | 419574 | 27889 | OTUD6B | 155100 | 524027 | 14577 | N/A | | TSPOAP1 | 005379 | 268893 | 22515 | 268893 | 37815 |
| EPHB1 | 154928 | 488992 | 6640 | N/A | | OTUD6B | 155100 | 404789 | 14578 | 384190 | 32808 | TSPOAP1 | 005379 | 578511 | 22516 | N/A | |
| EPHB4 | 196411 | 360620 | 6641 | 353833 | 27890 | OTUD6B | 155100 | 617869 | 14579 | 483706 | 32809 | TSPOAP1 | 005379 | 343736 | 22517 | 345824 | 37816 |
| EPHB4 | 196411 | 358173 | 6642 | 350896 | 27891 | OTUD6B | 155100 | 615618 | 14580 | 481196 | 32810 | TSPOAP1 | 005379 | 577871 | 22518 | N/A | |
| EPHB4 | 196411 | 487222 | 6643 | N/A | | OTUD6B-AS1 | 253738 | 522817 | 14581 | N/A | | TSPOAP1 | 005379 | 580669 | 22519 | 462822 | 37817 |
| EPHB4 | 196411 | 492403 | 6644 | N/A | | OTUD6B-AS1 | 253738 | 524003 | 14582 | N/A | | TSPOAP1 | 005379 | 582679 | 22520 | 462710 | 37818 |
| EPHB4 | 196411 | 478459 | 6645 | N/A | | OXSR1 | 172939 | 492714 | 14583 | N/A | | TSPOAP1 | 005379 | 578486 | 22521 | N/A | |
| EPHB4 | 196411 | 467515 | 6646 | N/A | | OXSR1 | 172939 | 446845 | 14584 | 415851 | 32811 | TSPOAP1 | 005379 | 585149 | 22522 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPHB4 | 196411 | 477446 | 6647 | N/A | | OXSR1 | 172939 | 311806 | 14585 | 311713 | 32812 | TSPOAP1 | 005379 | 583624 | 22523 | N/A | |
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| EPHB4 | 196411 | 616502 | 6650 | 482702 | 27892 | OXSR1 | 172939 | 467900 | 14588 | N/A | | TSTD2 | 136925 | 375172 | 22526 | 364315 | 37820 |
| EPN1 | 063245 | 270460 | 6651 | 270460 | 27893 | P2RY1 | 169860 | 305097 | 14589 | 304767 | 32814 | TSTD2 | 136925 | 375165 | 22527 | 364308 | 37821 |
| EPN1 | 063245 | 085079 | 6652 | 085079 | 27894 | P2RY12 | 169313 | 302632 | 14590 | 307259 | 32815 | TSTD2 | 136925 | 375163 | 22528 | N/A | |
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| EPN1 | 063245 | 586194 | 6655 | N/A | | P4HA1 | 122884 | 373008 | 14593 | 362099 | 32817 | TTC23L | 205838 | 506758 | 22531 | N/A | |
| EPN1 | 063245 | 589704 | 6656 | 466593 | 27896 | P4HA1 | 122884 | 464310 | 14594 | N/A | | TTC23L | 205838 | 505624 | 22532 | 422188 | 37822 |
| EPN1 | 063245 | 587937 | 6657 | N/A | | P4HA1 | 122884 | 440381 | 14595 | 414464 | 32818 | TTC23L | 205838 | 508722 | 22533 | 424418 | 37823 |
| EPS15 | 085832 | 371730 | 6658 | 360795 | 27897 | P4HA1 | 122884 | 394890 | 14596 | 378353 | 32819 | TTC23L | 205838 | 508377 | 22534 | N/A | |
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| EPS15 | 085832 | 486505 | 6660 | N/A | | P4HA2 | 072682 | 401867 | 14598 | 384999 | 32821 | TTC23L | 205838 | 502674 | 22536 | 425242 | 37824 |
| EPS15 | 085832 | 478657 | 6661 | N/A | | P4HA2 | 072682 | 379086 | 14599 | 368379 | 32822 | TTC23L | 205838 | 610313 | 22537 | 484792 | 37825 |
| EPS15 | 085832 | 493793 | 6662 | N/A | | P4HA2 | 072682 | 166534 | 14600 | 166534 | 32823 | TTC23L | 205838 | 638320 | 22538 | 491000 | 37826 |
| EPS15 | 085832 | 371727 | 6663 | N/A | | P4HA2 | 072682 | 360568 | 14601 | 353772 | 32824 | TTC28 | 100154 | 397906 | 22539 | 381003 | 37827 |
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| ERBB3 | 065361 | 549061 | 6668 | 449138 | 27901 | P4HA2 | 072682 | 431054 | 14606 | 391257 | 32826 | TTC28 | 100154 | 490475 | 22544 | N/A | |
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| ERBB3 | 065361 | 550869 | 6671 | 448671 | 27904 | P4HA2 | 072682 | 453286 | 14609 | 413542 | 32829 | TTC32 | 183891 | 402414 | 22547 | 385708 | 37831 |
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| ERBB3 | 065361 | 546884 | 6673 | N/A | | P4HA2 | 072682 | 418055 | 14611 | 403883 | 32831 | TTC32 | 183891 | 495698 | 22549 | N/A | |
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| ERBB3 | 065361 | 551176 | 6679 | N/A | | P4HA2 | 072682 | 379100 | 14617 | 368394 | 32834 | TTLL3 | 214021 | 459758 | 22555 | N/A | |
| ERBB3 | 065361 | 549205 | 6680 | N/A | | P4HA2 | 072682 | 379104 | 14618 | 368398 | 32835 | TTLL3 | 214021 | 417065 | 22556 | 408128 | 37838 |
| ERBB3 | 065361 | 550828 | 6681 | 482073 | 27909 | P4HA2-AS1 | 237714 | 417667 | 14619 | N/A | | TTLL3 | 214021 | 439814 | 22557 | 394481 | 37839 |
| ERBB3 | 065361 | 550070 | 6682 | 448946 | 27910 | PACS2 | 179364 | 430725 | 14620 | 393524 | 32836 | TTLL3 | 214021 | 418745 | 22558 | 400462 | 37840 |
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| ERBB3 | 065361 | 553131 | 6684 | 449129 | 27911 | PACS2 | 179364 | 447393 | 14622 | 393559 | 32838 | TTLL3 | 214021 | 427220 | 22560 | 395912 | 37842 |
| ERBB3 | 065361 | 548709 | 6685 | N/A | | PACS2 | 179364 | 547217 | 14623 | 449525 | 32839 | TTLL3 | 214021 | 426895 | 22561 | 392549 | 37843 |
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| ERBB3 | 065361 | 552691 | 6687 | N/A | | PACS2 | 179364 | 546915 | 14625 | 447229 | 32840 | TTLL3 | 214021 | 431204 | 22563 | 398996 | 37845 |
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| ERBB4 | 178568 | 484594 | 6690 | N/A | | PACS2 | 179364 | 547903 | 14628 | N/A | | TTLL3 | 214021 | 483051 | 22566 | N/A | |
| ERBB4 | 178568 | 260943 | 6691 | 260943 | 27915 | PACS2 | 179364 | 551743 | 14629 | N/A | | TTLL3 | 214021 | 310252 | 22567 | 312148 | 37848 |
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| ERBB4 | 178568 | 435846 | 6694 | 405564 | 27916 | PACS2 | 179364 | 551801 | 14632 | N/A | | TTLL3 | 214021 | 474948 | 22570 | 473376 | 37850 |
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| ERBB4 | 178568 | 402597 | 6696 | 385565 | 27917 | PAFAH1B1 | 007168 | 576586 | 14634 | 461087 | 32841 | TTLL3 | 214021 | 443148 | 22572 | 398097 | 37852 |
| ERBIN | 112851 | 284037 | 6697 | 284037 | 27918 | PAFAH1B1 | 007168 | 397195 | 14635 | 380378 | 32842 | TTLL3 | 214021 | 383827 | 22573 | 373338 | 37853 |
| ERBIN | 112851 | 380943 | 6698 | 370330 | 27919 | PAFAH1B1 | 007168 | 575477 | 14636 | N/A | | TTLL3 | 214021 | 473661 | 22574 | 430051 | 37854 |
| ERBIN | 112851 | 507490 | 6699 | N/A | | PAFAH1B1 | 007168 | 572915 | 14637 | N/A | | TTLL3 | 214021 | 455274 | 22575 | 409632 | 37855 |
| ERBIN | 112851 | 416865 | 6700 | 397833 | 27920 | PAFAH1B1 | 007168 | 570400 | 14638 | 460258 | 32843 | TTLL3 | 214021 | 438141 | 22576 | 409246 | 37856 |
| ERBIN | 112851 | 380938 | 6701 | 370325 | 27921 | PAFAH1B1 | 007168 | 571289 | 14639 | N/A | | TTLL3 | 214021 | 430793 | 22577 | 403874 | 37857 |
| ERBIN | 112851 | 511297 | 6702 | 422766 | 27922 | PAFAH1B1 | 007168 | 574816 | 14640 | N/A | | TTLL3 | 214021 | 602338 | 22578 | N/A | |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ERBIN | 112851 | 515185 | 6706 | N/A | | PAFAH1B1 | 007168 | 571495 | 14644 | N/A | | TTLL3 | 214021 | 471058 | 22582 | 473314 | 37858 |
| ERBIN | 112851 | 511671 | 6707 | 425728 | 27925 | PAFAH1B1 | 007168 | 610190 | 14645 | N/A | | TTLL3 | 214021 | 493241 | 22583 | N/A | |
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| ERBIN | 112851 | 512354 | 6709 | 423959 | 27926 | PAGR1 | 280789 | 320330 | 14647 | 326519 | 32845 | TTLL5 | 119685 | 286650 | 22585 | 286650 | 37860 |
| ERBIN | 112851 | 505822 | 6710 | N/A | | PAK5 | 101349 | 378423 | 14648 | 367679 | 32846 | TTLL5 | 119685 | 298832 | 22586 | 298832 | 37861 |
| ERBIN | 112851 | 509946 | 6711 | N/A | | PAK5 | 101349 | 353224 | 14649 | 322957 | 32847 | TTLL5 | 119685 | 556173 | 22587 | N/A | |
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| ERC2 | 187672 | 460849 | 6719 | 417445 | 27929 | PAM | 145730 | 508060 | 14657 | N/A | | TTLL5 | 119685 | 554510 | 22595 | 451946 | 37863 |
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| ERC2 | 187672 | 477381 | 6725 | N/A | | PAM | 145730 | 511839 | 14663 | 426448 | 32855 | TTLL5 | 119685 | 556685 | 22601 | N/A | |
| ERC2 | 187672 | 472917 | 6726 | N/A | | PAM | 145730 | 511477 | 14664 | 421823 | 32856 | TTLL5 | 119685 | 556977 | 22602 | 451917 | 37865 |
| ERC2 | 187672 | 612797 | 6727 | 483127 | 27931 | PAM | 145730 | 506006 | 14665 | 423611 | 32857 | TTLL5 | 119685 | 556265 | 22603 | N/A | |
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| ERGIC1 | 113719 | 523366 | 6739 | N/A | | PAM | 145730 | 505372 | 14677 | N/A | | TTTY14 | 176728 | 610801 | 22615 | N/A | |
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| ERMN | 136541 | 397283 | 6745 | 380453 | 27942 | PANX2 | 073150 | 159647 | 14683 | 159647 | 32867 | TTTY15 | 233864 | 417071 | 22621 | N/A | |
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| ERMN | 136541 | 420317 | 6748 | 398149 | 27945 | PAQR4 | 162073 | 318782 | 14686 | 321804 | 32870 | TTYH3 | 136295 | 400376 | 22624 | 383227 | 37869 |
| ERMN | 136541 | 411762 | 6749 | 389595 | 27946 | PAQR4 | 162073 | 293978 | 14687 | 293978 | 32871 | TTYH3 | 136295 | 403167 | 22625 | 385015 | 37870 |
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| ERMN | 136541 | 409925 | 6751 | 387325 | 27948 | PAQR4 | 162073 | 572687 | 14689 | 459418 | 32873 | TTYH3 | 136295 | 498454 | 22627 | N/A | |
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| ESRRB | 119715 | 512784 | 6753 | 424992 | 27950 | PAQR6 | 160781 | 492619 | 14691 | N/A | | TUBA8 | 183785 | 426208 | 22629 | 407624 | 37872 |
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| ESRRB | 119715 | 507951 | 6755 | N/A | | PAQR6 | 160781 | 335852 | 14693 | 338330 | 32876 | TUBA8 | 183785 | 330423 | 22631 | 333326 | 37874 |
| ESRRB | 119715 | 380887 | 6756 | 370270 | 27952 | PAQR6 | 160781 | 340183 | 14694 | 341926 | 32877 | TUBA8 | 183785 | 416740 | 22632 | 412646 | 37875 |
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| ESRRB | 119715 | 611036 | 6759 | N/A | | PAQR6 | 160781 | 468632 | 14697 | N/A | | TUBB2B | 137285 | 473006 | 22635 | N/A | |
| ESRRB | 119715 | 509242 | 6760 | 422488 | 27954 | PAQR6 | 160781 | 480773 | 14698 | N/A | | TUBB4A | 104833 | 264071 | 22636 | 264071 | 37878 |
| ERRFI1 | 116285 | 474874 | 6761 | 466958 | 27955 | PAQR6 | 160781 | 470198 | 14699 | N/A | | TUBB4A | 104833 | 594276 | 22637 | 472481 | 37879 |
| ERRFI1 | 116285 | 377482 | 6762 | 366702 | 27956 | PAQR6 | 160781 | 475507 | 14700 | N/A | | TUBB4A | 104833 | 594075 | 22638 | 469936 | 37880 |
| ERRFI1 | 116285 | 467067 | 6763 | 465100 | 27957 | PAQR6 | 160781 | 623241 | 14701 | 485607 | 32879 | TUBB4A | 104833 | 600216 | 22639 | 470983 | 37881 |
| ERRFI1 | 116285 | 469499 | 6764 | 466454 | 27958 | PAQR6 | 160781 | 613336 | 14702 | 479864 | 32880 | TUBB4A | 104833 | 595324 | 22640 | 469560 | 37882 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ERRFI1 | 116285 | 487559 | 6765 | 467030 | 27959 | PAQR6 | 160781 | 356983 | 14703 | 349474 | 32881 | TUBB4A | 104833 | 601152 | 22641 | 471320 | 37883 |
| ESRRG | 196482 | 366940 | 6766 | 355907 | 27960 | PAQR6 | 160781 | 540423 | 14704 | 443167 | 32882 | TUBB4A | 104833 | 598006 | 22642 | 472795 | 37884 |
| ESRRG | 196482 | 366937 | 6767 | 355904 | 27961 | PAQR6 | 160781 | 612424 | 14705 | 482685 | 32883 | TUBB4A | 104833 | 596291 | 22643 | 471880 | 37885 |
| ESRRG | 196482 | 408911 | 6768 | 386171 | 27962 | PARD3 | 148498 | 374789 | 14706 | 363921 | 32884 | TUBB4A | 104833 | 597686 | 22644 | 472375 | 37886 |
| ESRRG | 196482 | 360012 | 6769 | 353108 | 27963 | PARD3 | 148498 | 374788 | 14707 | 363920 | 32885 | TUBB4A | 104833 | 596926 | 22645 | 468843 | 37887 |
| ESRRG | 196482 | 361395 | 6770 | 354584 | 27964 | PARD3 | 148498 | 346874 | 14708 | 340591 | 32886 | TUBB4A | 104833 | 594290 | 22646 | 471503 | 37888 |
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| ESRRG | 196482 | 359162 | 6772 | 352077 | 27966 | PARD3 | 148498 | 350537 | 14710 | 311986 | 32888 | TUBB4A | 104833 | 598635 | 22648 | 470627 | 37890 |
| ESRRG | 196482 | 493603 | 6773 | 419594 | 27967 | PARD3 | 148498 | 374790 | 14711 | 363922 | 32889 | TULP3 | 078246 | 540184 | 22649 | 444110 | 37891 |
| ESRRG | 196482 | 463665 | 6774 | 418629 | 27968 | PARD3 | 148498 | 466092 | 14712 | N/A | | TULP3 | 078246 | 544943 | 22650 | 442631 | 37892 |
| ESRRG | 196482 | 487276 | 6775 | 419155 | 27969 | PARD3 | 148498 | 374776 | 14713 | 363908 | 32890 | TULP3 | 078246 | 538354 | 22651 | 437899 | 37893 |
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| ESRRG | 196482 | 488947 | 6785 | N/A | | PARD3B | 116117 | 471958 | 14723 | N/A | | TUSC3 | 104723 | 382020 | 22661 | 371450 | 37901 |
| ESRRG | 196482 | 459825 | 6786 | N/A | | PARD3B | 116117 | 358768 | 14724 | 351618 | 32900 | TUSC3 | 104723 | 515859 | 22662 | 420829 | 37902 |
| ESRRG | 196482 | 616180 | 6787 | 481528 | 27976 | PARD3B | 116117 | 351153 | 14725 | 317261 | 32901 | TUSC3 | 104723 | 506802 | 22663 | 425777 | 37903 |
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| ESRRG | 196482 | 361525 | 6789 | 355225 | 27978 | PARD3B | 116117 | 489565 | 14727 | N/A | | TUSC3 | 104723 | 509380 | 22665 | 423426 | 37905 |
| ESYT2 | 117868 | 251527 | 6790 | 251527 | 27979 | PARD3B | 116117 | 465890 | 14728 | N/A | | TUSC3 | 104723 | 503731 | 22666 | 424544 | 37906 |
| ESYT2 | 117868 | 275418 | 6791 | 275418 | 27980 | PARD3B | 116117 | 494482 | 14729 | N/A | | TUSC3 | 104723 | 507400 | 22667 | N/A | |
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| ESYT2 | 117868 | 497111 | 6794 | N/A | | PARD3B | 116117 | 614500 | 14732 | 481918 | 32904 | TUSC3 | 104723 | 508446 | 22670 | N/A | |
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| ETF1 | 120705 | 499810 | 6796 | 421288 | 27982 | PARD6G | 178184 | 353265 | 14734 | 343144 | 32906 | TUSC3 | 104723 | 511342 | 22672 | N/A | |
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| ETF1 | 120705 | 503014 | 6798 | 422203 | 27984 | PARD6G | 178184 | 463384 | 14736 | 466076 | 32908 | TWISTNB | 105849 | 462263 | 22674 | N/A | |
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| ETF1 | 120705 | 503183 | 6801 | N/A | | PARD6G-AS1 | 267270 | 589574 | 14739 | N/A | | TXLNGY | 131002 | 447520 | 22677 | N/A | |
| ETF1 | 120705 | 572514 | 6802 | 461082 | 27986 | PARD6G-AS1 | 267270 | 588226 | 14740 | N/A | | TXLNGY | 131002 | 445715 | 22678 | N/A | |
| ETF1 | 120705 | 507939 | 6803 | 425689 | 27987 | PARD6G-AS1 | 267270 | 585422 | 14741 | N/A | | TXLNGY | 131002 | 538014 | 22679 | N/A | |
| ETF1 | 120705 | 514005 | 6804 | N/A | | PARM1 | 169116 | 513238 | 14742 | 424276 | 32909 | TXLNGY | 131002 | 447202 | 22680 | N/A | |
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| KIAA1217 | 120549 | 460373 | 6816 | N/A | | PATJ | 132849 | 635137 | 14754 | 489159 | 32916 | TXNIP | 265972 | 425134 | 22692 | 396322 | 37910 |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KIAA1217 | 120549 | 376452 | 6820 | 365635 | 28000 | PATJ | 132849 | 316485 | 14758 | 326199 | 32919 | TXNL4A | 141759 | 592957 | 22696 | 465493 | 37914 |
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| ETNPPL | 164089 | 296486 | 6822 | 296486 | 28002 | PAX2 | 075891 | 553492 | 14760 | N/A | | TXNL4A | 141759 | 585769 | 22698 | 466266 | 37916 |
| ETNPPL | 164089 | 411864 | 6823 | 392269 | 28003 | PAX2 | 075891 | 355243 | 14761 | 347385 | 32921 | TXNL4A | 141759 | 586612 | 22699 | N/A | |
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| ETNPPL | 164089 | 510706 | 6825 | 423240 | 28005 | PAX2 | 075891 | 554363 | 14763 | N/A | | TXNL4A | 141759 | 591711 | 22701 | 468493 | 37918 |
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| ETS1 | 134954 | 526145 | 6833 | 433500 | 28011 | PAX3 | 135903 | 350526 | 14771 | 343052 | 32929 | TYMS | 176890 | 584122 | 22709 | N/A | |
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| ETS1 | 134954 | 525404 | 6838 | N/A | | PAX3 | 135903 | 555548 | 14776 | N/A | | U2AF1 | 160201 | 464750 | 22714 | 420672 | 37925 |
| ETS1 | 134954 | 527676 | 6839 | N/A | | PAX3 | 135903 | 409828 | 14777 | 386817 | 32933 | U2AF1 | 160201 | 475639 | 22715 | N/A | |
| ETS1 | 134954 | 535549 | 6840 | 441430 | 28015 | PAX3 | 135903 | 258387 | 14778 | 258387 | 32934 | U2AF1 | 160201 | 380276 | 22716 | 369629 | 37926 |
| ETV1 | 006468 | 430479 | 6841 | 405327 | 28016 | PAX6 | 007372 | 606377 | 14779 | 480026 | 32935 | U2AF1 | 160201 | 291552 | 22717 | 291552 | 37927 |
| ETV1 | 006468 | 405192 | 6842 | 385381 | 28017 | PAX6 | 007372 | 640368 | 14780 | 492024 | 32936 | U2AF1 | 160201 | 486519 | 22718 | 489632 | 37928 |
| ETV1 | 006468 | 405358 | 6843 | 384085 | 28018 | PAX6 | 007372 | 638914 | 14781 | 492315 | 32937 | U2AF1 | 160201 | 463599 | 22719 | N/A | |
| ETV1 | 006468 | 403527 | 6844 | 384138 | 28019 | PAX6 | 007372 | 419022 | 14782 | 404100 | 32938 | U2AF1 | 160201 | 496462 | 22720 | N/A | |
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| ETV1 | 006468 | 403685 | 6847 | 385686 | 28022 | PAX6 | 007372 | 379109 | 14785 | 368403 | 32941 | UAP1 | 117143 | 367926 | 22723 | 356903 | 37930 |
| ETV1 | 006468 | 493831 | 6848 | N/A | | PAX6 | 007372 | 379129 | 14786 | 368424 | 32942 | UAP1 | 117143 | 476240 | 22724 | N/A | |
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| ETV1 | 006468 | 438956 | 6850 | 393078 | 28023 | PAX6 | 007372 | 638685 | 14788 | 492316 | 32944 | UAP1 | 117143 | 367924 | 22726 | 356901 | 37932 |
| ETV1 | 006468 | 476720 | 6851 | N/A | | PAX6 | 007372 | 379107 | 14789 | 368401 | 32945 | UAP1 | 117143 | 474728 | 22727 | N/A | |
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| ETV1 | 006468 | 476355 | 6854 | N/A | | PAX6 | 007372 | 640975 | 14792 | 491872 | 32948 | UBASH3B | 154127 | 284273 | 22730 | 284273 | 37934 |
| ETV1 | 006468 | 421381 | 6855 | 391043 | 28025 | PAX6 | 007372 | 638963 | 14793 | 491948 | 32949 | UBASH3B | 154127 | 525711 | 22731 | N/A | |
| ETV1 | 006468 | 431887 | 6856 | 410819 | 28026 | PAX6 | 007372 | 638965 | 14794 | 492769 | 32950 | UBASH3B | 154127 | 526386 | 22732 | N/A | |
| ETV1 | 006468 | 460438 | 6857 | N/A | | PAX6 | 007372 | 241001 | 14795 | 241001 | 32951 | UBASH3B | 154127 | 530917 | 22733 | N/A | |
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| ETV1 | 006468 | 485475 | 6860 | N/A | | PAX6 | 007372 | 639548 | 14798 | 491944 | 32953 | UBASH3B | 154127 | 526493 | 22736 | N/A | |
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| ETV1 | 006468 | 399357 | 6863 | 382293 | 28030 | PAX6 | 007372 | 639386 | 14801 | 492658 | 32956 | UBB | 170315 | 302182 | 22739 | 304697 | 37936 |
| ETV3 | 117036 | 326786 | 6864 | 327316 | 28031 | PAX6 | 007372 | 638696 | 14802 | 492756 | 32957 | UBB | 170315 | 577640 | 22740 | 463156 | 37937 |
| ETV3 | 117036 | 460850 | 6865 | N/A | | PAX6 | 007372 | 638755 | 14803 | 492181 | 32958 | UBB | 170315 | 535788 | 22741 | 437475 | 37938 |
| ETV3 | 117036 | 368192 | 6866 | 357175 | 28032 | PAX6 | 007372 | 470027 | 14804 | N/A | | UBB | 170315 | 578649 | 22742 | N/A | |
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| ETV4 | 175832 | 393664 | 6868 | 377273 | 28034 | PAX6 | 007372 | 533333 | 14806 | N/A | | UBB | 170315 | 395837 | 22744 | 379178 | 37940 |
| ETV4 | 175832 | 545954 | 6869 | 440023 | 28035 | PAX6 | 007372 | 640613 | 14807 | 492587 | 32960 | UBB | 170315 | 578706 | 22745 | 464510 | 37941 |
| ETV4 | 175832 | 545089 | 6870 | 441749 | 28036 | PAX6 | 007372 | 423822 | 14808 | 388132 | 32961 | UBB | 170315 | 614404 | 22746 | 478771 | 37942 |
| ETV4 | 175832 | 591713 | 6871 | 465718 | 28037 | PAX6 | 007372 | 639061 | 14809 | 491324 | 32962 | UBC | 150991 | 536769 | 22747 | 441543 | 37943 |
| ETV4 | 175832 | 586826 | 6872 | 468636 | 28038 | PAX6 | 007372 | 640766 | 14810 | 491214 | 32963 | UBC | 150991 | 538617 | 22748 | 443053 | 37944 |
| ETV4 | 175832 | 590236 | 6873 | N/A | | PAX6 | 007372 | 640963 | 14811 | 492397 | 32964 | UBC | 150991 | 339647 | 22749 | 344818 | 37945 |
| ETV4 | 175832 | 585508 | 6874 | N/A | | PAX6 | 007372 | 471303 | 14812 | N/A | | UBC | 150991 | 541272 | 22750 | 440205 | 37946 |
| ETV4 | 175832 | 587151 | 6875 | N/A | | PAX6 | 007372 | 379111 | 14813 | 368406 | 32965 | UBC | 150991 | 540351 | 22751 | 442800 | 37947 |
| ETV4 | 175832 | 586764 | 6876 | 466673 | 28039 | PAX6 | 007372 | 639950 | 14814 | 491862 | 32966 | UBC | 150991 | 541645 | 22752 | 445337 | 37948 |
| ETV4 | 175832 | 538265 | 6877 | 443846 | 28040 | PAX6 | 007372 | 464174 | 14815 | N/A | | UBC | 150991 | 535131 | 22753 | 439492 | 37949 |
| ETV5 | 244405 | 306376 | 6878 | 306894 | 28041 | PAX6 | 007372 | 494377 | 14816 | N/A | | UBC | 150991 | 544481 | 22754 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ETV5 | 244405 | 434744 | 6879 | 413755 | 28042 | PAX6 | 007372 | 638250 | 14817 | 491365 | 32967 | UBC | 150991 | 546271 | 22755 | 438289 | 37950 |
| ETV5 | 244405 | 480706 | 6880 | N/A | | PAX6 | 007372 | 379123 | 14818 | 368418 | 32968 | UBC | 150991 | 540700 | 22756 | 441238 | 37951 |
| ETV5 | 244405 | 433149 | 6881 | 399707 | 28043 | PAX6 | 007372 | 640038 | 14819 | N/A | | UBC | 150991 | 535859 | 22757 | 437452 | 37952 |
| ETV5 | 244405 | 489830 | 6882 | N/A | | PAX6 | 007372 | 524853 | 14820 | 431585 | 32969 | UBC | 150991 | 536661 | 22758 | N/A | |
| ETV5 | 244405 | 484223 | 6883 | N/A | | PAX6 | 007372 | 640872 | 14821 | 491065 | 32970 | UBC | 150991 | 542416 | 22759 | 441556 | 37953 |
| ETV5 | 244405 | 472868 | 6884 | N/A | | PAX6 | 007372 | 639394 | 14822 | 492177 | 32971 | UBC | 150991 | 546120 | 22760 | 438394 | 37954 |
| ETV5 | 244405 | 440773 | 6885 | 389707 | 28044 | PAX6 | 007372 | 640735 | 14823 | N/A | | UBE2B | 119048 | 265339 | 22761 | 265339 | 37955 |
| ETV5 | 244405 | 421809 | 6886 | 412171 | 28045 | PAX6 | 007372 | 639109 | 14824 | 491904 | 32972 | UBE2B | 119048 | 510021 | 22762 | 425237 | 37956 |
| ETV5 | 244405 | 413301 | 6887 | 405157 | 28046 | PAX6 | 007372 | 638853 | 14825 | 491280 | 32973 | UBE2B | 119048 | 511807 | 22763 | N/A | |
| ETV5 | 244405 | 422039 | 6888 | 388737 | 28047 | PAX6 | 007372 | 640460 | 14826 | 492802 | 32974 | UBE2B | 119048 | 506787 | 22764 | 426364 | 37957 |
| ETV5 | 244405 | 476890 | 6889 | N/A | | PAX6 | 007372 | 638913 | 14827 | N/A | | UBE2B | 119048 | 507277 | 22765 | 425137 | 37958 |
| ETV5 | 244405 | 475484 | 6890 | N/A | | PAX6 | 007372 | 638802 | 14828 | 492437 | 32975 | UBE2B | 119048 | 504431 | 22766 | N/A | |
| ETV5 | 244405 | 495808 | 6891 | N/A | | PAX6 | 007372 | 638346 | 14829 | 491267 | 32976 | UBE2B | 119048 | 499038 | 22767 | N/A | |
| EVA1A | 115363 | 490746 | 6892 | N/A | | PAX6 | 007372 | 530373 | 14830 | N/A | | UBE2B | 119048 | 503080 | 22768 | N/A | |
| EVA1A | 115363 | 485891 | 6893 | N/A | | PAX6 | 007372 | 379115 | 14831 | 368410 | 32977 | UBE2QL1 | 215218 | 399816 | 22769 | 382713 | 37959 |
| EVA1A | 115363 | 393913 | 6894 | 377490 | 28048 | PAX6 | 007372 | 639006 | 14832 | 491210 | 32978 | UBE4A | 110344 | 252108 | 22770 | 252108 | 37960 |
| EVA1A | 115363 | 410113 | 6895 | 386435 | 28049 | PAX6 | 007372 | 639054 | 14833 | N/A | | UBE4A | 110344 | 431736 | 22771 | 387362 | 37961 |
| EVA1A | 115363 | 410010 | 6896 | 386835 | 28050 | PAX6 | 007372 | 640335 | 14834 | 492808 | 32979 | UBE4A | 110344 | 545354 | 22772 | 438918 | 37962 |
| EVA1A | 115363 | 410071 | 6897 | 386930 | 28051 | PAX6 | 007372 | 638762 | 14835 | 491517 | 32980 | UCP2 | 175567 | 310473 | 22773 | 312029 | 37963 |
| EVA1A | 115363 | 432649 | 6898 | 398249 | 28052 | PAX6 | 007372 | 438681 | 14836 | 404356 | 32981 | UCP2 | 175567 | 536983 | 22774 | 441147 | 37964 |
| EVA1A | 115363 | 452003 | 6899 | 388105 | 28053 | PAX6 | 007372 | 638878 | 14837 | 492081 | 32982 | UCP2 | 175567 | 544615 | 22775 | 439951 | 37965 |
| EVA1A | 115363 | 486696 | 6900 | N/A | | PAX6 | 007372 | 639943 | 14838 | 491229 | 32983 | UCP2 | 175567 | 545212 | 22776 | 439706 | 37966 |
| EVA1A | 115363 | 486489 | 6901 | N/A | | PAX6 | 007372 | 640431 | 14839 | 491779 | 32984 | UCP2 | 175567 | 545562 | 22777 | N/A | |
| EVA1A | 115363 | 233712 | 6902 | 233712 | 28054 | PAX6 | 007372 | 532916 | 14840 | N/A | | UCP2 | 175567 | 543714 | 22778 | N/A | |
| EXOSC4 | 178896 | 316052 | 6903 | 315476 | 28055 | PAX6 | 007372 | 531910 | 14841 | N/A | | UCP2 | 175567 | 539764 | 22779 | 438230 | 37967 |
| EXOSC4 | 178896 | 525936 | 6904 | 432661 | 28056 | PAX6 | 007372 | 639034 | 14842 | 491679 | 32985 | UCP2 | 175567 | 542615 | 22780 | N/A | |
| EXOSC4 | 178896 | 527954 | 6905 | 436539 | 28057 | PAX6 | 007372 | 640172 | 14843 | N/A | | UCP2 | 175567 | 541027 | 22781 | N/A | |
| EXPH5 | 110723 | 265843 | 6906 | 265843 | 28058 | PAX6 | 007372 | 640684 | 14844 | 491492 | 32986 | UCP2 | 175567 | 539330 | 22782 | N/A | |
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| EXPH5 | 110723 | 526312 | 6908 | 432683 | 28060 | PAX6 | 007372 | 640242 | 14846 | 492409 | 32988 | UFL1 | 014123 | 369278 | 22784 | 358283 | 37968 |
| EXPH5 | 110723 | 533052 | 6909 | 446434 | 28061 | PAX6 | 007372 | 455099 | 14847 | 397384 | 32989 | UFSP2 | 109775 | 514247 | 22785 | 423599 | 37969 |
| EXPH5 | 110723 | 524840 | 6910 | 482691 | 28062 | PAX6 | 007372 | 530714 | 14848 | N/A | | UFSP2 | 109775 | 264689 | 22786 | 264689 | 37970 |
| EXPH5 | 110723 | 531386 | 6911 | 433909 | 28063 | PAX6 | 007372 | 534353 | 14849 | N/A | | UFSP2 | 109775 | 510206 | 22787 | N/A | |
| EXTL2 | 162694 | 370113 | 6912 | 359131 | 28064 | PAX6 | 007372 | 533156 | 14850 | N/A | | UFSP2 | 109775 | 510755 | 22788 | 421133 | 37971 |
| EXTL2 | 162694 | 370114 | 6913 | 359132 | 28065 | PAX6 | 007372 | 639920 | 14851 | 492111 | 32990 | UFSP2 | 109775 | 511485 | 22789 | 425855 | 37972 |
| EXTL2 | 162694 | 450240 | 6914 | 403363 | 28066 | PAX6 | 007372 | 534390 | 14852 | N/A | | UFSP2 | 109775 | 509180 | 22790 | 423657 | 37973 |
| EXTL2 | 162694 | 416479 | 6915 | 392255 | 28067 | PAX6 | 007372 | 527769 | 14853 | N/A | | UFSP2 | 109775 | 502428 | 22791 | 424419 | 37974 |
| EXTL2 | 162694 | 494907 | 6916 | N/A | | PAX6 | 007372 | 532175 | 14854 | N/A | | UFSP2 | 109775 | 502282 | 22792 | N/A | |
| EXTL2 | 162694 | 480774 | 6917 | N/A | | PAX6 | 007372 | 525535 | 14855 | 436365 | 32991 | UFSP2 | 109775 | 505357 | 22793 | 423108 | 37975 |
| EXTL2 | 162694 | 535414 | 6918 | 444385 | 28068 | PAX6 | 007372 | 640251 | 14856 | N/A | | UGGT2 | 102595 | 376747 | 22794 | 365938 | 37976 |
| EYA1 | 104313 | 388742 | 6919 | 373394 | 28069 | PAX6 | 007372 | 638278 | 14857 | N/A | | UGGT2 | 102595 | 462472 | 22795 | N/A | |
| EYA1 | 104313 | 465115 | 6920 | 428391 | 28070 | PAX6 | 007372 | 640617 | 14858 | N/A | | UGGT2 | 102595 | 476866 | 22796 | N/A | |
| EYA1 | 104313 | 340726 | 6921 | 342626 | 28071 | PAX6 | 007372 | 639203 | 14859 | N/A | | UGGT2 | 102595 | 491509 | 22797 | N/A | |
| EYA1 | 104313 | 303824 | 6922 | 303221 | 28072 | PAX6 | 007372 | 640819 | 14860 | N/A | | UGGT2 | 102595 | 463054 | 22798 | N/A | |
| EYA1 | 104313 | 388741 | 6923 | 373393 | 28073 | PAXBP1 | 159086 | 331923 | 14861 | 328992 | 32992 | UGGT2 | 102595 | 465196 | 22799 | N/A | |
| EYA1 | 104313 | 388743 | 6924 | 373395 | 28074 | PAXBP1 | 159086 | 466846 | 14862 | N/A | | UGGT2 | 102595 | 461329 | 22800 | N/A | |
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| EYA1 | 104313 | 419131 | 6926 | 410176 | 28075 | PAXBP1 | 159086 | 497873 | 14864 | N/A | | UGGT2 | 102595 | 376712 | 22802 | 365902 | 37977 |
| EYA1 | 104313 | 493349 | 6927 | 428517 | 28076 | PAXBP1 | 159086 | 290178 | 14865 | 290178 | 32994 | UGGT2 | 102595 | 376714 | 22803 | 365904 | 37978 |
| EYA1 | 104313 | 422295 | 6928 | N/A | | PAXBP1 | 159086 | 445049 | 14866 | 408048 | 32995 | UGGT2 | 102595 | 621375 | 22804 | 482021 | 37979 |
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| EYS | 188107 | 503581 | 6930 | 424243 | 28078 | PAXBP1 | 159086 | 472588 | 14868 | N/A | | UGGT2 | 102595 | 638479 | 22806 | 491729 | 37981 |
| EYS | 188107 | 370621 | 6931 | 359655 | 28079 | PAXBP1 | 159086 | 464256 | 14869 | N/A | | UGT8 | 174607 | 310836 | 22807 | 311648 | 37982 |
| EYS | 188107 | 398580 | 6932 | 381585 | 28080 | PAXBP1 | 263141 | 573680 | 14870 | 458892 | 32997 | UGT8 | 174607 | 507710 | 22808 | 421446 | 37983 |
| EYS | 188107 | 486069 | 6933 | N/A | | PAXBP1 | 263141 | 575821 | 14871 | N/A | | UGT8 | 174607 | 394511 | 22809 | 378019 | 37984 |
| EYS | 188107 | 330816 | 6934 | N/A | | PAXBP1 | 263141 | 611190 | 14872 | N/A | | UNC13C | 137766 | 260323 | 22810 | 260323 | 37985 |
| EYS | 188107 | 370615 | 6935 | N/A | | PAXBP1 | 263141 | 575419 | 14873 | N/A | | UNC13C | 137766 | 561210 | 22811 | N/A | |
| EYS | 188107 | 447127 | 6936 | N/A | | PAXBP1 | 263141 | 574159 | 14874 | 458262 | 32998 | UNC13C | 137766 | 559093 | 22812 | 453018 | 37986 |
| EYS | 188107 | 393380 | 6937 | 377042 | 28081 | PBX3 | 167081 | 428092 | 14875 | 397903 | 32999 | UNC13C | 137766 | 539562 | 22813 | 443886 | 37987 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYS | 188107 | 342421 | 6938 | 341818 | 28082 | PBX3 | 167081 | 491160 | 14876 | N/A | | UNC13C | 137766 | 560537 | 22814 | 456350 | 37988 |
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| F3 | 117525 | 478217 | 6943 | N/A | | PBX3 | 167081 | 373482 | 14881 | 362581 | 33002 | UNC5D | 156687 | 287272 | 22819 | 287272 | 37993 |
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| FA2H | 103089 | 219368 | 6946 | 219368 | 28086 | PBX3 | 167081 | 373487 | 14884 | 362586 | 33005 | UNC5D | 156687 | 474634 | 22822 | N/A | |
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| FAM107B | 065809 | 468492 | 6981 | 420444 | 28112 | PC | 173599 | 393960 | 14919 | 377532 | 33021 | USP28 | 048028 | 003302 | 22857 | 003302 | 38015 |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FAM114A1 | 197712 | 515037 | 6997 | 424115 | 28123 | PKD1 | 008710 | 486339 | 14935 | N/A | | USP37 | 135913 | 454775 | 22873 | 393662 | 38029 |
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| FAM117A | 121104 | 505159 | 7008 | N/A | | PKD1 | 008710 | 474088 | 14946 | N/A | | USP4 | 114316 | 265560 | 22884 | 265560 | 38034 |
| FAM117A | 121104 | 506156 | 7009 | 421412 | 28129 | PKD1 | 008710 | 475889 | 14947 | N/A | | USP4 | 114316 | 483212 | 22885 | N/A | |
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| RETREG1 | 154153 | 510362 | 7040 | 425089 | 28146 | PCSK7 | 160613 | 320934 | 14978 | 325917 | 33045 | UTY | 183878 | 474365 | 22916 | N/A | |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| FAM167A | 154319 | 284486 | 7057 | 284486 | 28155 | PCDH1 | 156453 | 503492 | 14995 | 424667 | 33053 | VAMP1 | 139190 | 538970 | 22933 | N/A | |
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| FAM167A | 154319 | 528897 | 7061 | 436655 | 28157 | PCDH1 | 156453 | 357517 | 14999 | N/A | | VAT1L | 171724 | 563850 | 22937 | N/A | |
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| FAM167A | 154319 | 528111 | 7063 | N/A | | PCDH1 | 156453 | 514773 | 15001 | 424163 | 33057 | VAV2 | 160293 | 371850 | 22939 | 360916 | 38066 |
| FAM171B | 144369 | 304698 | 7064 | 304108 | 28159 | PCDH15 | 150275 | 373965 | 15002 | 363076 | 33058 | VAV2 | 160293 | 371851 | 22940 | 360917 | 38067 |
| FAM171B | 144369 | 612606 | 7065 | 478477 | 28160 | PCDH15 | 150275 | 616114 | 15003 | 483745 | 33059 | VAV2 | 160293 | 486113 | 22941 | N/A | |
| TOGARAM2 | 189350 | 401723 | 7066 | 384897 | 28161 | PCDH15 | 150275 | 621708 | 15004 | 484454 | 33060 | VAV2 | 160293 | 472905 | 22942 | N/A | |
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| TOGARAM2 | 189350 | 379558 | 7068 | 368876 | 28163 | PCDH15 | 150275 | 618301 | 15006 | 482780 | 33062 | VCAN | 038427 | 265077 | 22944 | 265077 | 38069 |
| TOGARAM2 | 189350 | 465300 | 7069 | N/A | | PCDH15 | 150275 | 476074 | 15007 | N/A | | VCAN | 038427 | 503923 | 22945 | N/A | |
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| TOGARAM2 | 189350 | 475900 | 7072 | N/A | | PCDH15 | 150275 | 617271 | 15010 | 478076 | 33065 | VCAN | 038427 | 513984 | 22948 | 426715 | 38072 |
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| FAM196A | 188916 | 424811 | 7074 | 428730 | 28166 | PCDH15 | 150275 | 409834 | 15012 | 386693 | 33067 | VCAN | 038427 | 515397 | 22950 | N/A | |
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| FAM198B | 164125 | 585682 | 7076 | 465976 | 28168 | PCDH15 | 150275 | 613657 | 15014 | 482794 | 33069 | VCAN | 038427 | 507162 | 22952 | N/A | |
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| FAM198B | 164125 | 592586 | 7080 | 465491 | 28172 | PCDH15 | 150275 | 395430 | 15018 | 378818 | 33073 | VGLL4 | 144560 | 273038 | 22956 | 273038 | 38076 |
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| FAM19A1 | 183662 | 491017 | 7087 | N/A | | PCDH15 | 150275 | 320301 | 15025 | 322604 | 33079 | VGLL4 | 144560 | 418000 | 22963 | 394439 | 38083 |
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| FAM20A | 108950 | 226094 | 7092 | N/A | | PCDH15 | 150275 | 617051 | 15030 | 484703 | 33084 | VGLL4 | 144560 | 419541 | 22968 | 395557 | 38088 |
| FAM20A | 108950 | 592554 | 7093 | 468308 | 28182 | PCDH15 | 150275 | 614895 | 15031 | 478512 | 33085 | VGLL4 | 144560 | 437722 | 22969 | 393100 | 38089 |
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| FAM222B | 173065 | 584059 | 7110 | 464019 | 28193 | PCDHA1 | 204970 | 504120 | 15048 | 420840 | 33101 | VIP | 146469 | 367243 | 22986 | 356212 | 38099 |
| FAM222B | 173065 | 579381 | 7111 | 464291 | 28194 | PCDHA3 | 255408 | 522353 | 15049 | 429808 | 33102 | VIP | 146469 | 431366 | 22987 | 410356 | 38100 |
| FAM222B | 173065 | 341217 | 7112 | 343115 | 28195 | PCDHA3 | 255408 | 532566 | 15050 | 434086 | 33103 | VIPR2 | 106018 | 262178 | 22988 | 262178 | 38101 |
| FAM222B | 173065 | 577376 | 7113 | 464355 | 28196 | PCGF5 | 180628 | 496708 | 15051 | N/A | | VIPR2 | 106018 | 377633 | 22989 | 366860 | 38102 |
| FAM222B | 173065 | 577682 | 7114 | 463278 | 28197 | PCGF5 | 180628 | 490164 | 15052 | N/A | | VIPR2 | 106018 | 402066 | 22990 | 384497 | 38103 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FAM222B | 173065 | 581229 | 7115 | 464299 | 28198 | PCGF5 | 180628 | 336126 | 15053 | 337500 | 33104 | VIPR2 | 106018 | 421760 | 22991 | 402690 | 38104 |
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| FAM222B | 173065 | 582059 | 7118 | 462251 | 28201 | PCK1 | 124253 | 467047 | 15056 | N/A | | VIT | 205221 | 497382 | 22994 | 417874 | 38107 |
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| FAM222B | 173065 | 581407 | 7121 | 462419 | 28204 | PCK1 | 124253 | 498194 | 15059 | N/A | | VIT | 205221 | 401530 | 22997 | 385658 | 38110 |
| FAM43A | 185112 | 329759 | 7122 | 371397 | 28205 | PCK1 | 124253 | 470051 | 15060 | N/A | | VIT | 205221 | 464309 | 22998 | 419251 | 38111 |
| FAM46A | 112773 | 412306 | 7123 | 401884 | 28206 | PCK1 | 124253 | 485958 | 15061 | N/A | | VIT | 205221 | 389975 | 22999 | 374625 | 38112 |
| FAM46A | 112773 | 369754 | 7124 | 358769 | 28207 | PCP2 | 174788 | 598935 | 15062 | 472761 | 33108 | VMP1 | 062716 | 588915 | 23000 | N/A | |
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| FAM46A | 112773 | 369756 | 7126 | 358771 | 28209 | PCP4 | 183036 | 328619 | 15064 | 329403 | 33110 | VMP1 | 062716 | 593168 | 23002 | 465972 | 38114 |
| FAM46A | 112773 | 423467 | 7127 | 404872 | 28210 | PCP4 | 183036 | 462224 | 15065 | 433172 | 33111 | VMP1 | 062716 | 586245 | 23003 | 466579 | 38115 |
| FAM46C | 183508 | 369448 | 7128 | 358458 | 28211 | PCP4 | 183036 | 468717 | 15066 | N/A | | VMP1 | 062716 | 585847 | 23004 | 465947 | 38116 |
| FAM49B | 153310 | 519824 | 7129 | 429150 | 28212 | PCP4 | 183036 | 467565 | 15067 | N/A | | VMP1 | 062716 | 587945 | 23005 | 466413 | 38117 |
| FAM49B | 153310 | 522746 | 7130 | 428117 | 28213 | PCSK6 | 140479 | 558864 | 15068 | 452839 | 33112 | VMP1 | 062716 | 588131 | 23006 | N/A | |
| FAM49B | 153310 | 523509 | 7131 | 429802 | 28214 | PCSK6 | 140479 | 558951 | 15069 | 453771 | 33113 | VMP1 | 062716 | 589823 | 23007 | 466198 | 38118 |
| FAM49B | 153310 | 401979 | 7132 | 384880 | 28215 | PCSK6 | 140479 | 611716 | 15070 | 482760 | 33114 | VMP1 | 062716 | 592106 | 23008 | 467093 | 38119 |
| FAM49B | 153310 | 519110 | 7133 | 429078 | 28216 | PCSK6 | 140479 | 398185 | 15071 | 381246 | 33115 | VMP1 | 062716 | 591315 | 23009 | 466511 | 38120 |
| FAM49B | 153310 | 523288 | 7134 | N/A | | PCSK6 | 140479 | 559499 | 15072 | N/A | | VMP1 | 062716 | 587259 | 23010 | 465397 | 38121 |
| FAM49B | 153310 | 522250 | 7135 | 429978 | 28217 | PCSK6 | 140479 | 618548 | 15073 | 479496 | 33116 | VMP1 | 062716 | 592619 | 23011 | 465911 | 38122 |
| FAM49B | 153310 | 517654 | 7136 | 430674 | 28218 | PCSK6 | 140479 | 557794 | 15074 | N/A | | VMP1 | 062716 | 591877 | 23012 | 467350 | 38123 |
| FAM49B | 153310 | 519540 | 7137 | 429499 | 28219 | PCSK6 | 140479 | 632686 | 15075 | 487813 | 33117 | VMP1 | 062716 | 591782 | 23013 | N/A | |
| FAM49B | 153310 | 522941 | 7138 | 430433 | 28220 | PCSK6 | 140479 | 558433 | 15076 | N/A | | VMP1 | 062716 | 588617 | 23014 | N/A | |
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| FAM49B | 153310 | 521223 | 7144 | N/A | | PCSK6 | 140479 | 560902 | 15082 | N/A | | VPS37B | 139722 | 543590 | 23020 | N/A | |
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| FAM49B | 153310 | 518283 | 7146 | 430694 | 28223 | PCSK6 | 140479 | 615296 | 15084 | 478081 | 33122 | VSIG2 | 019102 | 403470 | 23022 | 385013 | 38128 |
| FAM49B | 153310 | 523993 | 7147 | 429074 | 28224 | PCSK6 | 140479 | 621185 | 15085 | 483048 | 33123 | VSIG8 | 243284 | 368100 | 23023 | 357080 | 38129 |
| FAM49B | 153310 | 520254 | 7148 | 430127 | 28225 | PCSK6 | 140479 | 558154 | 15086 | N/A | | VSNL1 | 163032 | 404666 | 23024 | 384014 | 38130 |
| FAM49B | 153310 | 519020 | 7149 | 429659 | 28226 | PCSK6 | 140479 | 559417 | 15087 | 452997 | 33124 | VSNL1 | 163032 | 457525 | 23025 | 405511 | 38131 |
| FAM49B | 153310 | 518167 | 7150 | 427994 | 28227 | PCSK6 | 140479 | 331826 | 15088 | 332052 | 33125 | VSNL1 | 163032 | 295156 | 23026 | 295156 | 38132 |
| FAM49B | 153310 | 517672 | 7151 | 430434 | 28228 | PCYT1B | 102230 | 379145 | 15089 | 368440 | 33126 | VSNL1 | 163032 | 451533 | 23027 | 390124 | 38133 |
| FAM49B | 153310 | 519070 | 7152 | 429860 | 28229 | PCYT1B | 102230 | 356768 | 15090 | 349211 | 33127 | VSNL1 | 163032 | 483921 | 23028 | N/A | |
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| FAM49B | 153310 | 518344 | 7154 | N/A | | PCYT1B | 102230 | 496020 | 15092 | 436562 | 33129 | VSTM2B | 187135 | 335523 | 23030 | 335038 | 38135 |
| FAM49B | 153310 | 523514 | 7155 | N/A | | PDC | 116703 | 391997 | 15093 | 375855 | 33130 | VTN | 109072 | 226218 | 23031 | 226218 | 38136 |
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| FAM49B | 153310 | 615041 | 7157 | 483964 | 28231 | PDE1A | 115252 | 435564 | 15095 | 410309 | 33132 | VTN | 109072 | 542029 | 23033 | 440439 | 38137 |
| FAM49B | 153310 | 639004 | 7158 | 492779 | 28232 | PDE1A | 115252 | 409365 | 15096 | 386767 | 33133 | VWA5A | 110002 | 456829 | 23034 | 407726 | 38138 |
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| FAM53A | 174137 | 489363 | 7160 | 419044 | 28234 | PDE1A | 115252 | 482538 | 15098 | N/A | | VWA5A | 110002 | 449321 | 23036 | 404683 | 38140 |
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| FAM53A | 174137 | 308132 | 7165 | 310057 | 28238 | PDE1A | 115252 | 358139 | 15103 | 350858 | 33136 | VWA5B2 | 145198 | 497229 | 23041 | N/A | |
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| FAM84A | 162981 | 295092 | 7173 | 295092 | 28246 | PDE1A | 115252 | 351439 | 15111 | 309269 | 33140 | GALNT17 | 185274 | 498380 | 23049 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FAM84A | 162981 | 331243 | 7174 | 330681 | 28247 | PDE1A | 115252 | 358139 | 15112 | 350858 | 33141 | GALNT17 | 185274 | 447516 | 23050 | 392019 | 38147 |
| FAM84A | 162981 | 497769 | 7175 | N/A | | PDE1B | 123360 | 243052 | 15113 | 243052 | 33142 | GALNT17 | 185274 | 467723 | 23051 | N/A | |
| FAM84A | 162981 | 464947 | 7176 | N/A | | PDE1B | 123360 | 611899 | 15114 | 478185 | 33143 | GALNT17 | 185274 | 618959 | 23052 | 479090 | 38148 |
| FAM89A | 182118 | 366654 | 7177 | 355614 | 28248 | PDE1B | 123360 | 548855 | 15115 | N/A | | TMEM270 | 175877 | 320531 | 23053 | 316775 | 38149 |
| FAM89A | 182118 | 494111 | 7178 | N/A | | PDE1B | 123360 | 550285 | 15116 | 447354 | 33144 | TMEM270 | 175877 | 426490 | 23054 | 403621 | 38150 |
| FAM89A | 182118 | 466258 | 7179 | N/A | | PDE1B | 123360 | 538346 | 15117 | 442559 | 33145 | WDR17 | 150627 | 508596 | 23055 | 422763 | 38151 |
| FAM8A4P | 232730 | 435433 | 7180 | N/A | | PDE1B | 123360 | 394277 | 15118 | N/A | | WDR17 | 150627 | 509792 | 23056 | N/A | |
| FAM92B | 153789 | 539556 | 7181 | 443411 | 28249 | PDE1B | 123360 | 550620 | 15119 | 448519 | 33146 | WDR17 | 150627 | 280190 | 23057 | 280190 | 38152 |
| FAM92B | 153789 | 618669 | 7182 | 478373 | 28250 | PDE1B | 123360 | 542335 | 15120 | N/A | | WDR17 | 150627 | 507824 | 23058 | 422200 | 38153 |
| FAM92B | 153789 | 629253 | 7183 | 487117 | 28251 | PDE1B | 123360 | 552774 | 15121 | N/A | | WDR17 | 150627 | 513261 | 23059 | 427502 | 38154 |
| FAR2 | 064763 | 551451 | 7184 | 450117 | 28252 | PDE1C | 154678 | 396193 | 15122 | 379496 | 33147 | WDR17 | 150627 | 505894 | 23060 | 426847 | 38155 |
| FAR2 | 064763 | 536681 | 7185 | 443291 | 28253 | PDE1C | 154678 | 396191 | 15123 | 379494 | 33148 | WDR17 | 150627 | 443118 | 23061 | 426985 | 38156 |
| FAR2 | 064763 | 549080 | 7186 | N/A | | PDE1C | 154678 | 321453 | 15124 | 318105 | 33149 | WDR17 | 150627 | 508773 | 23062 | N/A | |
| FAR2 | 064763 | 547411 | 7187 | N/A | | PDE1C | 154678 | 396184 | 15125 | 379487 | 33150 | WDR45B | 141580 | 392325 | 23063 | 376139 | 38157 |
| FAR2 | 064763 | 550541 | 7188 | N/A | | PDE1C | 154678 | 479980 | 15126 | N/A | | WDR45B | 141580 | 572583 | 23064 | 461488 | 38158 |
| FAR2 | 064763 | 182377 | 7189 | 182377 | 28254 | PDE1C | 154678 | 396182 | 15127 | 379485 | 33151 | WDR45B | 141580 | 576517 | 23065 | 460297 | 38159 |
| FAR2 | 064763 | 547116 | 7190 | 449349 | 28255 | PDE1C | 154678 | 478736 | 15128 | N/A | | WDR45B | 141580 | 573656 | 23066 | N/A | |
| FAR2 | 064763 | 552137 | 7191 | 449436 | 28256 | PDE1C | 154678 | 482681 | 15129 | N/A | | WDR45B | 141580 | 571835 | 23067 | N/A | |
| FAR2 | 064763 | 551193 | 7192 | 449187 | 28257 | PDE1C | 154678 | 464881 | 15130 | N/A | | WDR45B | 141580 | 573616 | 23068 | 458738 | 38160 |
| FAR2 | 064763 | 547759 | 7193 | 447467 | 28258 | PDE1C | 154678 | 396189 | 15131 | 379492 | 33152 | WDR45B | 141580 | 577774 | 23069 | N/A | |
| FARP1 | 152767 | 595437 | 7194 | 471242 | 28259 | PDE1C | 154678 | 495221 | 15132 | N/A | | WDR45B | 141580 | 571767 | 23070 | N/A | |
| FARP1 | 152767 | 600648 | 7195 | N/A | | PDE3A | 172572 | 359062 | 15133 | 351957 | 33153 | WDR45B | 141580 | 571817 | 23071 | 461355 | 38161 |
| FARP1 | 152767 | 319562 | 7196 | 322926 | 28260 | PDE3A | 172572 | 542675 | 15134 | N/A | | WDR45B | 141580 | 574828 | 23072 | N/A | |
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| FARP1 | 152767 | 376581 | 7198 | 365765 | 28262 | PDE3B | 152270 | 282096 | 15136 | 282096 | 33154 | WDR49 | 174776 | 476376 | 23074 | N/A | |
| FARP1 | 152767 | 598389 | 7199 | 469712 | 28263 | PDE3B | 152270 | 455098 | 15137 | 388644 | 33155 | WDR49 | 174776 | 472600 | 23075 | 419130 | 38163 |
| FARP1 | 152767 | 601361 | 7200 | N/A | | PDE3B | 152270 | 534317 | 15138 | N/A | | WDR49 | 174776 | 479765 | 23076 | 419749 | 38164 |
| FARP1 | 152767 | 595817 | 7201 | N/A | | PDE3B | 152270 | 532740 | 15139 | N/A | | WDR49 | 174776 | 493061 | 23077 | 418539 | 38165 |
| FARP1 | 152767 | 427404 | 7202 | N/A | | PDE3B | 152270 | 525439 | 15140 | N/A | | WDR49 | 174776 | 460448 | 23078 | 417090 | 38166 |
| FARP1 | 152767 | 601656 | 7203 | N/A | | PDE4D | 113448 | 340635 | 15141 | 345502 | 33156 | WDR49 | 174776 | 466760 | 23079 | 418718 | 38167 |
| FARP1 | 152767 | 602015 | 7204 | N/A | | PDE4D | 113448 | 636120 | 15142 | 490821 | 33157 | WDR49 | 174776 | 488012 | 23080 | 419917 | 38168 |
| FARP1 | 152767 | 598698 | 7205 | N/A | | PDE4D | 113448 | 360047 | 15143 | 353152 | 33158 | WDR49 | 174776 | 471198 | 23081 | N/A | |
| FARP1 | 152767 | 599151 | 7206 | N/A | | PDE4D | 113448 | 507116 | 15144 | 424852 | 33159 | WDR66 | 158023 | 288912 | 23082 | 288912 | 38169 |
| FARP1 | 152767 | 601762 | 7207 | N/A | | PDE4D | 113448 | 358923 | 15145 | 351800 | 33160 | WDR66 | 158023 | 397454 | 23083 | 380595 | 38170 |
| FARP1 | 152767 | 595366 | 7208 | N/A | | PDE4D | 113448 | 317118 | 15146 | 321739 | 33161 | WDR66 | 158023 | 540779 | 23084 | N/A | |
| FARP1 | 152767 | 596545 | 7209 | N/A | | PDE4D | 113448 | 503258 | 15147 | 425605 | 33162 | WDR66 | 158023 | 546044 | 23085 | N/A | |
| FARP1 | 152767 | 602272 | 7210 | N/A | | PDE4D | 113448 | 405755 | 15148 | 384806 | 33163 | WDR66 | 158023 | 543211 | 23086 | N/A | |
| FARP1 | 152767 | 598346 | 7211 | N/A | | PDE4D | 113448 | 515011 | 15149 | N/A | | WDR66 | 158023 | 535257 | 23087 | N/A | |
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| FARP1 | 152767 | 596613 | 7213 | N/A | | PDE4D | 113448 | 505453 | 15151 | 421013 | 33165 | WDR66 | 158023 | 428465 | 23089 | N/A | |
| FARP1 | 152767 | 601853 | 7214 | N/A | | PDE4D | 113448 | 309641 | 15152 | 308485 | 33166 | WDR66 | 158023 | 545988 | 23090 | N/A | |
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| FARP1 | 152767 | 596467 | 7216 | N/A | | PDE4D | 113448 | 502575 | 15154 | 425917 | 33167 | WFDC1 | 103175 | 568638 | 23092 | 456920 | 38172 |
| FARP1 | 152767 | 595380 | 7217 | N/A | | PDE4D | 113448 | 621323 | 15155 | N/A | | WFDC1 | 103175 | 613603 | 23093 | 481580 | 38173 |
| FARP1 | 152767 | 601133 | 7218 | N/A | | PDE4D | 113448 | 515324 | 15156 | N/A | | WFDC1 | 103175 | 567056 | 23094 | N/A | |
| FARP1 | 152767 | 593990 | 7219 | N/A | | PDE4D | 113448 | 514231 | 15157 | N/A | | WFDC1 | 103175 | 622779 | 23095 | N/A | |
| FARP1 | 152767 | 594657 | 7220 | N/A | | PDE4D | 113448 | 512069 | 15158 | N/A | | WFS1 | 109501 | 503569 | 23096 | 423337 | 38174 |
| FARP1 | 152767 | 457431 | 7221 | N/A | | PDE4D | 113448 | 509368 | 15159 | 423555 | 33168 | WFS1 | 109501 | 506588 | 23097 | N/A | |
| FARP1 | 152767 | 599040 | 7222 | N/A | | PDE4D | 113448 | 509355 | 15160 | N/A | | WFS1 | 109501 | 226760 | 23098 | 226760 | 38175 |
| FARP1 | 152767 | 602263 | 7223 | N/A | | PDE4D | 113448 | 504624 | 15161 | N/A | | WFS1 | 109501 | 507765 | 23099 | N/A | |
| FARP1 | 152767 | 601009 | 7224 | 472346 | 28264 | PDE4D | 113448 | 506024 | 15162 | N/A | | WFS1 | 109501 | 506362 | 23100 | 424103 | 38176 |
| FARP1 | 152767 | 593548 | 7225 | N/A | | PDE4D | 113448 | 506510 | 15163 | N/A | | WFS1 | 109501 | 513395 | 23101 | N/A | |
| FARP1 | 152767 | 490389 | 7226 | N/A | | PDE4D | 113448 | 511382 | 15164 | N/A | | WIF1 | 156076 | 286574 | 23102 | 286574 | 38177 |
| FARP1 | 152767 | 600190 | 7227 | N/A | | PDE4D | 113448 | 505507 | 15165 | 425910 | 33169 | WIF1 | 156076 | 543094 | 23103 | 439024 | 38178 |
| FARP1 | 152767 | 457029 | 7228 | N/A | | PDE4D | 113448 | 514552 | 15166 | 421829 | 33170 | WIF1 | 156076 | 546001 | 23104 | 442063 | 38179 |
| FARP1 | 152767 | 423063 | 7229 | 410930 | 28265 | PDE4D | 113448 | 515835 | 15167 | 424281 | 33171 | WIPI1 | 070540 | 592645 | 23105 | 465695 | 38180 |
| FARP1 | 152767 | 596256 | 7230 | 469365 | 28266 | PDE4D | 113448 | 546160 | 15168 | 442734 | 33172 | WIPI1 | 070540 | 262139 | 23106 | 262139 | 38181 |
| FARP1 | 152767 | 597777 | 7231 | N/A | | PDE4D | 113448 | 638939 | 15169 | 492052 | 33173 | WIPI1 | 070540 | 589459 | 23107 | N/A | |
| FARP1 | 152767 | 594346 | 7232 | N/A | | PDE5A | 138735 | 354960 | 15170 | 347046 | 33174 | WIPI1 | 070540 | 589316 | 23108 | 465470 | 38182 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FARP1 | 152767 | 600380 | 7233 | N/A | | PDE5A | 138735 | 264805 | 15171 | 264805 | 33175 | WIPI1 | 070540 | 585393 | 23109 | 465557 | 38183 |
| FARP1 | 152767 | 597596 | 7234 | N/A | | PDE5A | 138735 | 503412 | 15172 | 425810 | 33176 | WIPI1 | 070540 | 546360 | 23110 | 437345 | 38184 |
| FARP1 | 152767 | 627049 | 7235 | 486285 | 28267 | PDE5A | 138735 | 512494 | 15173 | N/A | | WIPI1 | 070540 | 590402 | 23111 | N/A | |
| FAT1 | 083857 | 441802 | 7236 | 406229 | 28268 | PDE5A | 138735 | 509612 | 15174 | N/A | | WIPI1 | 070540 | 591744 | 23112 | 466270 | 38185 |
| FAT1 | 083857 | 500085 | 7237 | N/A | | PDE5A | 138735 | 513594 | 15175 | N/A | | WIPI1 | 070540 | 587731 | 23113 | N/A | |
| FAT1 | 083857 | 512772 | 7238 | 424157 | 28269 | PDE5A | 138735 | 512450 | 15176 | N/A | | WIPI1 | 070540 | 591494 | 23114 | N/A | |
| FAT1 | 083857 | 507105 | 7239 | 423801 | 28270 | PDE5A | 138735 | 512739 | 15177 | N/A | | WIPI1 | 070540 | 586815 | 23115 | N/A | |
| FAT1 | 083857 | 509537 | 7240 | 421003 | 28271 | PDE5A | 138735 | 502912 | 15178 | N/A | | WLS | 116729 | 354777 | 23116 | 346829 | 38186 |
| FAT1 | 083857 | 509927 | 7241 | 420869 | 28272 | PDE5A | 138735 | 508914 | 15179 | N/A | | WLS | 116729 | 262348 | 23117 | 262348 | 38187 |
| FAT1 | 083857 | 507662 | 7242 | N/A | | PDE5A | 138735 | 420633 | 15180 | 416309 | 33177 | WLS | 116729 | 370976 | 23118 | 360015 | 38188 |
| FAT1 | 083857 | 512347 | 7243 | N/A | | PDE5A | 138735 | 394439 | 15181 | 377957 | 33178 | WLS | 116729 | 498615 | 23119 | N/A | |
| FAT1 | 083857 | 503253 | 7244 | N/A | | PDE7A | 205268 | 401827 | 15182 | 385632 | 33179 | WLS | 116729 | 491811 | 23120 | N/A | |
| FAT1 | 083857 | 508035 | 7245 | N/A | | PDE7A | 205268 | 379419 | 15183 | 368730 | 33180 | WLS | 116729 | 497187 | 23121 | N/A | |
| FAT1 | 083857 | 509647 | 7246 | 423736 | 28273 | PDE7A | 205268 | 396642 | 15184 | 379881 | 33181 | WLS | 116729 | 534713 | 23122 | 431552 | 38189 |
| FAT1 | 083857 | 614102 | 7247 | 479573 | 28274 | PDE7A | 205268 | 522220 | 15185 | N/A | | WLS | 116729 | 533537 | 23123 | 433690 | 38190 |
| FAT2 | 086570 | 520200 | 7248 | 429678 | 28275 | PDE7A | 205268 | 518667 | 15186 | N/A | | WLS | 116729 | 530486 | 23124 | 433111 | 38191 |
| FAT2 | 086570 | 261800 | 7249 | 261800 | 28276 | PDE7A | 205268 | 519231 | 15187 | N/A | | WLS | 116729 | 370973 | 23125 | 360012 | 38192 |
| FAT3 | 165323 | 525166 | 7250 | 432586 | 28277 | PDE7A | 205268 | 523253 | 15188 | 430262 | 33182 | WLS | 116729 | 471243 | 23126 | 436196 | 38193 |
| FAT3 | 165323 | 528921 | 7251 | N/A | | PDE7A | 205268 | 519626 | 15189 | N/A | | WLS | 116729 | 491076 | 23127 | 433188 | 38194 |
| FAT3 | 165323 | 533797 | 7252 | 436399 | 28278 | PDE7B | 171408 | 308191 | 15190 | 310661 | 33183 | WLS | 116729 | 527864 | 23128 | 433867 | 38195 |
| FAT3 | 165323 | 489716 | 7253 | N/A | | PDE7B | 171408 | 446774 | 15191 | 403732 | 33184 | WLS | 116729 | 370971 | 23129 | 360010 | 38196 |
| FAT3 | 165323 | 469900 | 7254 | N/A | | PDE7B | 171408 | 615259 | 15192 | 482117 | 33185 | WNT6 | 115596 | 233948 | 23130 | 233948 | 38197 |
| FAT3 | 165323 | 409404 | 7255 | 387040 | 28279 | PDE8A | 073417 | 310298 | 15193 | 311453 | 33186 | WNT6 | 115596 | 486233 | 23131 | N/A | |
| FAT3 | 282908 | 634703 | 7256 | 489369 | 28280 | PDE8A | 073417 | 557957 | 15194 | 453808 | 33187 | WNT7A | 154764 | 285018 | 23132 | 285018 | 38198 |
| FAT3 | 282908 | 634649 | 7257 | 489343 | 28281 | PDE8A | 073417 | 339708 | 15195 | 340679 | 33188 | WNT7A | 154764 | 489346 | 23133 | N/A | |
| FAT3 | 282908 | 634625 | 7258 | N/A | | PDE8A | 073417 | 478717 | 15196 | 432309 | 33189 | WNT7A | 154764 | 497808 | 23134 | N/A | |
| FAT3 | 282908 | 634743 | 7259 | 488913 | 28282 | PDE8A | 073417 | 485596 | 15197 | 431976 | 33190 | WNT7B | 188064 | 339464 | 23135 | 341032 | 38199 |
| FAT3 | 282908 | 634894 | 7260 | N/A | | PDE8A | 073417 | 559742 | 15198 | 452907 | 33191 | WNT7B | 188064 | 409496 | 23136 | 386546 | 38200 |
| FAT3 | 282908 | 634756 | 7261 | N/A | | PDE8A | 073417 | 559086 | 15199 | 454094 | 33192 | WNT7B | 188064 | 410089 | 23137 | 386781 | 38201 |
| FBLN2 | 163520 | 404922 | 7262 | 384169 | 28283 | PDE8A | 073417 | 560789 | 15200 | N/A | | WNT7B | 188064 | 410058 | 23138 | 387217 | 38202 |
| FBLN2 | 163520 | 295760 | 7263 | 295760 | 28284 | PDE8A | 073417 | 557819 | 15201 | N/A | | WNT7B | 188064 | 428540 | 23139 | 392750 | 38203 |
| FBLN2 | 163520 | 465610 | 7264 | 420164 | 28285 | PDE8A | 073417 | 558543 | 15202 | N/A | | WSCD1 | 179314 | 563763 | 23140 | N/A | |
| FBLN2 | 163520 | 492059 | 7265 | 420042 | 28286 | PDE8A | 073417 | 557954 | 15203 | N/A | | WSCD1 | 179314 | 573619 | 23141 | 461865 | 38204 |
| FBLN2 | 163520 | 477845 | 7266 | N/A | | PDE8A | 073417 | 561105 | 15204 | N/A | | WSCD1 | 179314 | 572764 | 23142 | N/A | |
| FBLN2 | 163520 | 295761 | 7267 | 295761 | 28287 | PDE8A | 073417 | 561374 | 15205 | N/A | | WSCD1 | 179314 | 574946 | 23143 | 460825 | 38205 |
| FBLN2 | 163520 | 421373 | 7268 | 399224 | 28288 | PDE8A | 073417 | 560333 | 15206 | N/A | | WSCD1 | 179314 | 573634 | 23144 | 460396 | 38206 |
| FBN1 | 166147 | 316623 | 7269 | 325527 | 28289 | PDE8A | 073417 | 561024 | 15207 | N/A | | WSCD1 | 179314 | 576083 | 23145 | 460041 | 38207 |
| FBN1 | 166147 | 559133 | 7270 | 453958 | 28290 | PDE8A | 073417 | 394553 | 15208 | 378056 | 33193 | WSCD1 | 179314 | 574232 | 23146 | 458374 | 38208 |
| FBN1 | 166147 | 561429 | 7271 | N/A | | PDE8B | 113231 | 505926 | 15209 | 425720 | 33194 | WSCD1 | 179314 | 571973 | 23147 | 458527 | 38209 |
| FBN1 | 166147 | 560720 | 7272 | N/A | | PDE8B | 113231 | 340978 | 15210 | 345446 | 33195 | WSCD1 | 179314 | 576233 | 23148 | 461642 | 38210 |
| FBN1 | 166147 | 537463 | 7273 | 440294 | 28291 | PDE8B | 113231 | 346042 | 15211 | 330428 | 33196 | WSCD1 | 179314 | 571494 | 23149 | 458339 | 38211 |
| FBN1 | 166147 | 560820 | 7274 | N/A | | PDE8B | 113231 | 264917 | 15212 | 264917 | 33197 | WSCD1 | 179314 | 576947 | 23150 | 460428 | 38212 |
| FBN1 | 166147 | 560355 | 7275 | 453901 | 28292 | PDE8B | 113231 | 342343 | 15213 | 345646 | 33198 | WSCD1 | 179314 | 317744 | 23151 | 323087 | 38213 |
| FBN1 | 166147 | 558230 | 7276 | N/A | | PDE8B | 113231 | 333194 | 15214 | 331336 | 33199 | WSCD1 | 179314 | 539421 | 23152 | 446032 | 38214 |
| FBN2 | 138829 | 508053 | 7277 | 424571 | 28293 | PDE8B | 113231 | 502945 | 15215 | 426200 | 33200 | WSCD2 | 075035 | 547525 | 23153 | 448047 | 38215 |
| FBN2 | 138829 | 507835 | 7278 | 426839 | 28294 | PDE8B | 113231 | 503963 | 15216 | 422861 | 33201 | WSCD2 | 075035 | 552195 | 23154 | N/A | |
| FBN2 | 138829 | 508989 | 7279 | 425596 | 28295 | PDE8B | 113231 | 505283 | 15217 | 423461 | 33202 | WSCD2 | 075035 | 550529 | 23155 | N/A | |
| FBN2 | 138829 | 511489 | 7280 | N/A | | PDE9A | 160191 | 335512 | 15218 | 335242 | 33203 | WSCD2 | 075035 | 551106 | 23156 | N/A | |
| FBN2 | 138829 | 502468 | 7281 | 424753 | 28296 | PDE9A | 160191 | 470987 | 15219 | N/A | | WSCD2 | 075035 | 551638 | 23157 | 446744 | 38216 |
| FBN2 | 138829 | 514742 | 7282 | N/A | | PDE9A | 160191 | 291539 | 15220 | 291539 | 33204 | WSCD2 | 075035 | 546401 | 23158 | N/A | |
| FBN2 | 138829 | 262464 | 7283 | 262464 | 28297 | PDE9A | 160191 | 490803 | 15221 | N/A | | WSCD2 | 075035 | 332082 | 23159 | 331933 | 38217 |
| FBN2 | 138829 | 619499 | 7284 | 482132 | 28298 | PDE9A | 160191 | 486902 | 15222 | N/A | | WSCD2 | 075035 | 551057 | 23160 | N/A | |
| FBXL21 | 164616 | 495672 | 7285 | N/A | | PDE9A | 160191 | 380328 | 15223 | 369685 | 33205 | WSCD2 | 075035 | 551734 | 23161 | N/A | |
| FBXL21 | 164616 | 635168 | 7286 | N/A | | PDE9A | 160191 | 495521 | 15224 | N/A | | WSCD2 | 075035 | 546811 | 23162 | N/A | |
| FBXL21 | 164616 | 475169 | 7287 | N/A | | PDE9A | 160191 | 398232 | 15225 | 381287 | 33206 | WSCD2 | 075035 | 549903 | 23163 | 447272 | 38218 |
| FBXL21 | 164616 | 472159 | 7288 | N/A | | PDE9A | 160191 | 462571 | 15226 | N/A | | WSCD2 | 075035 | 547185 | 23164 | N/A | |
| FBXL21 | 164616 | 467490 | 7289 | N/A | | PDE9A | 160191 | 398234 | 15227 | 381289 | 33207 | WSCD2 | 075035 | 546629 | 23165 | N/A | |
| FBXL21 | 164616 | 297158 | 7290 | N/A | | PDE9A | 160191 | 398236 | 15228 | 381291 | 33208 | WWC1 | 113645 | 265293 | 23166 | 265293 | 38219 |
| FBXL21 | 164616 | 478939 | 7291 | N/A | | PDE9A | 160191 | 468805 | 15229 | N/A | | WWC1 | 113645 | 521089 | 23167 | 427772 | 38220 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FBXL21 | 164616 | 498734 | 7292 | N/A | | PDE9A | 160191 | 328862 | 15230 | 328699 | 33209 | WWC1 | 113645 | 523043 | 23168 | N/A | |
| FBXO24 | 106336 | 461079 | 7293 | 419587 | 28299 | PDE9A | 160191 | 335440 | 15231 | 335365 | 33210 | WWC1 | 113645 | 519859 | 23169 | N/A | |
| FBXO24 | 106336 | 498195 | 7294 | N/A | | PDE9A | 160191 | 398225 | 15232 | 381281 | 33211 | WWC1 | 113645 | 393895 | 23170 | 377473 | 38221 |
| FBXO24 | 106336 | 241071 | 7295 | 241071 | 28300 | PDE9A | 160191 | 497805 | 15233 | N/A | | WWC1 | 113645 | 519659 | 23171 | N/A | |
| FBXO24 | 106336 | 488079 | 7296 | 418814 | 28301 | PDE9A | 160191 | 398229 | 15234 | 381285 | 33212 | WWC1 | 113645 | 517425 | 23172 | N/A | |
| FBXO24 | 106336 | 474649 | 7297 | N/A | | PDE9A | 160191 | 398227 | 15235 | 381283 | 33213 | WWC1 | 113645 | 524228 | 23173 | 429339 | 38222 |
| FBXO24 | 106336 | 465843 | 7298 | 419602 | 28302 | PDE9A | 160191 | 460989 | 15236 | N/A | | WWC1 | 113645 | 517646 | 23174 | N/A | |
| FBXO24 | 106336 | 466053 | 7299 | 417179 | 28303 | PDE9A | 160191 | 467403 | 15237 | N/A | | WWC1 | 113645 | 624315 | 23175 | N/A | |
| FBXO24 | 106336 | 468962 | 7300 | 420239 | 28304 | PDE9A | 160191 | 349112 | 15238 | 344730 | 33214 | WWC1 | 113645 | 518334 | 23176 | N/A | |
| FBXO24 | 106336 | 427939 | 7301 | 416558 | 28305 | PDE9A | 160191 | 398224 | 15239 | 381280 | 33215 | WWC1 | 113645 | 524093 | 23177 | N/A | |
| FBXO32 | 156804 | 517956 | 7302 | 428205 | 28306 | PDE9A | 160191 | 467162 | 15240 | N/A | | WWC1 | 113645 | 524038 | 23178 | 428084 | 38223 |
| FBXO32 | 156804 | 524000 | 7303 | N/A | | PDE9A | 160191 | 495343 | 15241 | N/A | | WWC1 | 113645 | 522140 | 23179 | N/A | |
| FBXO32 | 156804 | 287396 | 7304 | N/A | | PDE9A | 160191 | 489319 | 15242 | N/A | | WWC1 | 113645 | 521391 | 23180 | N/A | |
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| FBXO32 | 156804 | 521719 | 7306 | N/A | | PDE9A | 160191 | 460905 | 15244 | N/A | | WWC2 | 151718 | 403733 | 23182 | 384222 | 38224 |
| FBXO32 | 156804 | 520511 | 7307 | N/A | | PDE9A | 160191 | 472401 | 15245 | N/A | | WWC2 | 151718 | 508614 | 23183 | 423238 | 38225 |
| FBXW5 | 159069 | 487794 | 7308 | 485109 | 28308 | PDGFC | 145431 | 502773 | 15246 | 422464 | 33216 | WWC2 | 151718 | 513834 | 23184 | 425054 | 38226 |
| FBXW5 | 159069 | 325285 | 7309 | 313034 | 28309 | PDGFC | 145431 | 274071 | 15247 | 274071 | 33217 | WWC2 | 151718 | 448232 | 23185 | 398577 | 38227 |
| FBXW5 | 159069 | 483559 | 7310 | N/A | | PDGFC | 145431 | 504672 | 15248 | N/A | | WWC2 | 151718 | 427431 | 23186 | 393342 | 38228 |
| FBXW5 | 159069 | 459905 | 7311 | N/A | | PDGFC | 145431 | 506880 | 15249 | 424600 | 33218 | WWC2 | 151718 | 438543 | 23187 | 413521 | 38229 |
| FBXW5 | 159069 | 480818 | 7312 | N/A | | PDGFC | 145431 | 422544 | 15250 | 410048 | 33219 | WWC2 | 151718 | 504005 | 23188 | 427569 | 38230 |
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| FBXW9 | 132004 | 587296 | 7316 | 465854 | 28313 | PDGFC | 145431 | 513664 | 15254 | N/A | | XIST | 229807 | 434839 | 23192 | N/A | |
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| FCHSD2 | 137478 | 409418 | 7328 | 386722 | 28322 | PDGFRA | 134853 | 461294 | 15266 | N/A | | XRRA1 | 166435 | 530562 | 23204 | 436390 | 38233 |
| FCHSD2 | 137478 | 409263 | 7329 | 386903 | 28323 | PDGFRA | 134853 | 507536 | 15267 | N/A | | XRRA1 | 166435 | 340360 | 23205 | 339918 | 38234 |
| FCHSD2 | 137478 | 458644 | 7330 | 402972 | 28324 | PDGFRA | 134853 | 257290 | 15268 | 257290 | 33230 | XRRA1 | 166435 | 321448 | 23206 | 319303 | 38235 |
| FCHSD2 | 137478 | 409853 | 7331 | 386314 | 28325 | PDGFRA | 134853 | 508170 | 15269 | 425648 | 33231 | XRRA1 | 166435 | 531849 | 23207 | 433431 | 38236 |
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| FDFT1 | 079459 | 525283 | 7339 | 433985 | 28332 | PDGFRA | 134853 | 507536 | 15277 | N/A | | XRRA1 | 166435 | 528219 | 23215 | 435662 | 38240 |
| FDFT1 | 079459 | 525607 | 7340 | 432551 | 28333 | PDGFRB | 113721 | 261799 | 15278 | 261799 | 33237 | XRRA1 | 166435 | 526047 | 23216 | N/A | |
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| FDFT1 | 079459 | 525900 | 7342 | 434714 | 28335 | PDGFRB | 113721 | 520579 | 15280 | 430026 | 33238 | XRRA1 | 166435 | 533598 | 23218 | N/A | |
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| FDFT1 | 079459 | 525954 | 7348 | 491537 | 28338 | PDGFRB | 113721 | 517957 | 15286 | 430715 | 33240 | XYLT1 | 103489 | 261381 | 23224 | 261381 | 38242 |
| FDFT1 | 079459 | 531733 | 7349 | N/A | | PDGFRB | 113721 | 517660 | 15287 | N/A | | XYLT1 | 103489 | 575674 | 23225 | N/A | |
| FDFT1 | 079459 | 531249 | 7350 | N/A | | PDGFRB | 113721 | 523456 | 15288 | N/A | | XYLT1 | 103489 | 568226 | 23226 | N/A | |

| FDFT1 | 079459 | 532266 | 7351 | 435900 | 28339 | PDK3 | 067992 | 379162 | 15289 | 368460 | 33241 | XYLT1 | 103489 | 563403 | 23227 | N/A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDFT1 | 079459 | 528643 | 7352 | 431649 | 28340 | PDK3 | 067992 | 441463 | 15290 | 387536 | 33242 | YBX2 | 006047 | 007699 | 23228 | 007699 | 38243 |
| FDFT1 | 079459 | 525777 | 7353 | 436069 | 28341 | PDK3 | 067992 | 493226 | 15291 | N/A | | YBX2 | 006047 | 571834 | 23229 | N/A | |
| FDFT1 | 079459 | 528729 | 7354 | N/A | | PDLIM3 | 154553 | 284770 | 15292 | 284770 | 33243 | YBX2 | 006047 | 571485 | 23230 | N/A | |
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| FDFT1 | 079459 | 623368 | 7356 | 485229 | 28342 | PDLIM3 | 154553 | 284771 | 15294 | 284771 | 33244 | YBX2 | 006047 | 570720 | 23232 | N/A | |
| FDFT1 | 079459 | 538689 | 7357 | 444248 | 28343 | PDLIM3 | 154553 | 514308 | 15295 | N/A | | YBX2 | 006047 | 570627 | 23233 | N/A | |
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| FDFT1 | 079459 | 615631 | 7359 | 481481 | 28345 | PDLIM3 | 154553 | 512293 | 15297 | 421972 | 33246 | YES1 | 176105 | 577961 | 23235 | 464380 | 38245 |
| FDFT1 | 079459 | 622850 | 7360 | 484122 | 28346 | PDLIM3 | 154553 | 504011 | 15298 | N/A | | YES1 | 176105 | 584307 | 23236 | 462468 | 38246 |
| FEM1C | 145780 | 274457 | 7361 | 274457 | 28347 | PDLIM3 | 154553 | 504355 | 15299 | N/A | | YES1 | 176105 | 314574 | 23237 | 324740 | 38247 |
| FERMT1 | 101311 | 478194 | 7362 | N/A | | PDLIM3 | 154553 | 512380 | 15300 | N/A | | YES1 | 176105 | 577611 | 23238 | N/A | |
| FERMT1 | 101311 | 217289 | 7363 | 217289 | 28348 | PDLIM3 | 154553 | 515261 | 15301 | N/A | | YES1 | 176105 | 581960 | 23239 | N/A | |
| FERMT1 | 101311 | 378844 | 7364 | 368121 | 28349 | PDLIM3 | 154553 | 620787 | 15302 | 481771 | 33247 | YIPF5 | 145817 | 274496 | 23240 | 274496 | 38248 |
| FERMT1 | 101311 | 536936 | 7365 | 441063 | 28350 | PDLIM3 | 154553 | 284767 | 15303 | 284767 | 33248 | YIPF5 | 145817 | 448443 | 23241 | 397704 | 38249 |
| FEZF2 | 153266 | 486811 | 7366 | 418589 | 28351 | PDLIM3 | 154553 | 629667 | 15304 | 486107 | 33249 | YIPF5 | 145817 | 513112 | 23242 | 425422 | 38250 |
| FEZF2 | 153266 | 283268 | 7367 | 283268 | 28352 | PDLIM4 | 131435 | 253754 | 15305 | 253754 | 33250 | YIPF5 | 145817 | 519064 | 23243 | 429777 | 38251 |
| FEZF2 | 153266 | 475839 | 7368 | 418804 | 28353 | PDLIM4 | 131435 | 463615 | 15306 | N/A | | YIPF5 | 145817 | 522203 | 23244 | 428715 | 38252 |
| FGD3 | 127084 | 375482 | 7369 | 364631 | 28354 | PDLIM4 | 131435 | 474421 | 15307 | N/A | | YIPF5 | 145817 | 508754 | 23245 | N/A | |
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| FGD3 | 127084 | 494669 | 7371 | N/A | | PDLIM4 | 131435 | 418373 | 15309 | 411753 | 33252 | YIPF7 | 177752 | 510035 | 23247 | N/A | |
| FGD3 | 127084 | 467786 | 7372 | 432310 | 28355 | PDLIM4 | 131435 | 484620 | 15310 | N/A | | YIPF7 | 177752 | 502794 | 23248 | N/A | |
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| FGD3 | 127084 | 488407 | 7374 | N/A | | PDZD3 | 172367 | 527308 | 15312 | N/A | | YIPF7 | 177752 | 332990 | 23250 | 332772 | 38255 |
| FGD3 | 127084 | 416701 | 7375 | 413833 | 28356 | PDZD3 | 172367 | 526279 | 15313 | N/A | | ZBTB16 | 109906 | 335953 | 23251 | 338157 | 38256 |
| FGD3 | 127084 | 337352 | 7376 | 336914 | 28357 | PDZD3 | 172367 | 527951 | 15314 | N/A | | ZBTB16 | 109906 | 541602 | 23252 | N/A | |
| FGD4 | 139132 | 534526 | 7377 | 449273 | 28358 | PDZD3 | 172367 | 525131 | 15315 | 434559 | 33253 | ZBTB16 | 109906 | 544220 | 23253 | 437716 | 38257 |
| FGD4 | 139132 | 550091 | 7378 | N/A | | PDZD3 | 172367 | 534790 | 15316 | N/A | | ZBTB16 | 109906 | 535700 | 23254 | 443013 | 38258 |
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| FGD4 | 139132 | 472289 | 7380 | 434356 | 28360 | PDZD3 | 172367 | 527028 | 15318 | N/A | | ZBTB16 | 109906 | 539918 | 23256 | 445047 | 38260 |
| FGD4 | 139132 | 494275 | 7381 | N/A | | PDZD3 | 172367 | 531114 | 15319 | 431164 | 33254 | ZBTB16 | 109906 | 545851 | 23257 | N/A | |
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| FGD4 | 139132 | 427716 | 7385 | 394487 | 28363 | PDZD3 | 172367 | 528730 | 15323 | N/A | | ZBTB21 | 173276 | 310826 | 23261 | 308759 | 38262 |
| FGD4 | 139132 | 473513 | 7386 | N/A | | PDZD3 | 172367 | 322712 | 15324 | 327107 | 33257 | ZBTB21 | 173276 | 398499 | 23262 | 381512 | 38263 |
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| FGD4 | 139132 | 479023 | 7388 | N/A | | PDZD7 | 186862 | 474125 | 15326 | 474447 | 33258 | ZBTB21 | 173276 | 465968 | 23264 | N/A | |
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| FGD4 | 139132 | 583694 | 7390 | 462623 | 28366 | PDZD7 | 186862 | 370215 | 15328 | 359234 | 33260 | ZBTB21 | 173276 | 449949 | 23266 | 395186 | 38266 |
| FGD4 | 139132 | 525053 | 7391 | 433666 | 28367 | PDZD7 | 186862 | 476306 | 15329 | N/A | | ZBTB21 | 173276 | 398497 | 23267 | 381510 | 38267 |
| FGD4 | 139132 | 494977 | 7392 | 434062 | 28368 | PDZD7 | 186862 | 470414 | 15330 | 474831 | 33261 | ZBTB46 | 130584 | 245663 | 23268 | 245663 | 38268 |
| FGD6 | 180263 | 343958 | 7393 | 344446 | 28369 | PDZD7 | 186862 | 619208 | 15331 | 480489 | 33262 | ZBTB46 | 130584 | 460757 | 23269 | N/A | |
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| FGD6 | 180263 | 546711 | 7396 | 450342 | 28372 | PDZRN4 | 165966 | 298919 | 15334 | 298919 | 33265 | ZBTB46 | 130584 | 395104 | 23272 | 378536 | 38270 |
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| FGD6 | 180263 | 550368 | 7399 | N/A | | PEA15 | 162734 | 368077 | 15337 | 357056 | 33267 | ZCCHC24 | 165424 | 372333 | 23275 | 361408 | 38273 |
| FGF13 | 129682 | 315930 | 7400 | 322390 | 28375 | PEA15 | 162734 | 368076 | 15338 | 357055 | 33268 | ZDHHC14 | 175048 | 414563 | 23276 | 410713 | 38274 |
| FGF13 | 129682 | 305414 | 7401 | 303391 | 28376 | PEA15 | 162734 | 488858 | 15339 | N/A | | ZDHHC14 | 175048 | 359775 | 23277 | 352821 | 38275 |
| FGF13 | 129682 | 441825 | 7402 | 409276 | 28377 | PEBP4 | 134020 | 256404 | 15340 | 256404 | 33269 | ZDHHC14 | 175048 | 518214 | 23278 | 428211 | 38276 |
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| FGF13 | 129682 | 455663 | 7405 | 406916 | 28380 | PEG3 | 198300 | 326441 | 15343 | 326581 | 33271 | ZDHHC14 | 175048 | 340347 | 23281 | 345721 | 38277 |
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| FGF13 | 129682 | 421460 | 7407 | 388688 | 28382 | PEG3 | 198300 | 598410 | 15345 | 473190 | 33272 | ZDHHC14 | 175048 | 517432 | 23283 | N/A | |
| FGF3 | 186895 | 334134 | 7408 | 334122 | 28383 | PEG3 | 198300 | 593695 | 15346 | 472402 | 33273 | ZDHHC14 | 175048 | 422910 | 23284 | N/A | |
| FGF5 | 138675 | 312465 | 7409 | 311697 | 28384 | PEG3 | 198300 | 599534 | 15347 | 472395 | 33274 | ZDHHC2 | 104219 | 262096 | 23285 | 262096 | 38278 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FGF5 | 138675 | 456523 | 7410 | 398353 | 28385 | PEG3 | 198300 | 599577 | 15348 | 469486 | 33275 | ZDHHC2 | 104219 | 523132 | 23286 | 430804 | 38279 |
| FGF5 | 138675 | 380628 | 7411 | N/A | | PEG3 | 198300 | 600833 | 15349 | 470467 | 33276 | ZDHHC2 | 104219 | 522184 | 23287 | 430317 | 38280 |
| FGF5 | 138675 | 507780 | 7412 | 423903 | 28386 | PEG3 | 198300 | 596261 | 15350 | N/A | | ZDHHC2 | 104219 | 517334 | 23288 | N/A | |
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| FGFBP3 | 174721 | 311575 | 7414 | 339067 | 28387 | PEG3 | 198300 | 594389 | 15352 | 469144 | 33277 | ZDHHC23 | 184307 | 498275 | 23290 | 417840 | 38282 |
| FGFR1 | 077782 | 397091 | 7415 | 380280 | 28388 | PENK | 181195 | 517415 | 15353 | 430268 | 33278 | ZDHHC23 | 184307 | 478793 | 23291 | 420251 | 38283 |
| FGFR1 | 077782 | 532791 | 7416 | 432972 | 28389 | PENK | 181195 | 520589 | 15354 | N/A | | ZDHHC23 | 184307 | 491556 | 23292 | 420292 | 38284 |
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| FGFR1 | 077782 | 397113 | 7418 | 380302 | 28390 | PENK | 181195 | 451791 | 15356 | 400894 | 33280 | ZDHHC23 | 184307 | 488129 | 23294 | N/A | |
| FGFR1 | 077782 | 356207 | 7419 | 348537 | 28391 | PENK | 181195 | 523274 | 15357 | N/A | | ZDHHC23 | 184307 | 496083 | 23295 | 417579 | 38286 |
| FGFR1 | 077782 | 335922 | 7420 | 337247 | 28392 | PENK | 181195 | 518974 | 15358 | 428012 | 33281 | ZEB2 | 169554 | 639389 | 23296 | 492572 | 38287 |
| FGFR1 | 077782 | 326324 | 7421 | 327229 | 28393 | PENK | 181195 | 523051 | 15359 | 429326 | 33282 | ZEB2 | 169554 | 638087 | 23297 | 490673 | 38288 |
| FGFR1 | 077782 | 526570 | 7422 | N/A | | PENK | 181195 | 518770 | 15360 | 430592 | 33283 | ZEB2 | 169554 | 638007 | 23298 | 490723 | 38289 |
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| FGFR1 | 077782 | 531196 | 7424 | 434800 | 28395 | PER1 | 179094 | 317276 | 15362 | 314420 | 33284 | ZEB2 | 169554 | 637045 | 23300 | 490141 | 38291 |
| FGFR1 | 077782 | 397108 | 7425 | 380297 | 28396 | PER1 | 179094 | 581082 | 15363 | 462064 | 33285 | ZEB2 | 169554 | 636820 | 23301 | N/A | |
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| FGFR1 | 077782 | 487647 | 7428 | 435254 | 28397 | PER1 | 179094 | 585284 | 15366 | N/A | | ZEB2 | 169554 | 638128 | 23304 | 490934 | 38293 |
| FGFR1 | 077782 | 466021 | 7429 | N/A | | PER1 | 179094 | 579098 | 15367 | N/A | | ZEB2 | 169554 | 636471 | 23305 | 490317 | 38294 |
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| FGFR1 | 077782 | 524528 | 7431 | N/A | | PER1 | 179094 | 578950 | 15369 | N/A | | ZEB2 | 169554 | 419938 | 23307 | 394777 | 38296 |
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| FGFR1 | 077782 | 530701 | 7433 | N/A | | PER1 | 179094 | 583559 | 15371 | 463369 | 33288 | ZEB2 | 169554 | 636732 | 23309 | 490175 | 38298 |
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| FGFR1 | 077782 | 470826 | 7435 | N/A | | PER1 | 179094 | 585095 | 15373 | N/A | | ZEB2 | 169554 | 539609 | 23311 | 443792 | 38300 |
| FGFR1 | 077782 | 496296 | 7436 | N/A | | PER1 | 179094 | 577424 | 15374 | N/A | | ZEB2 | 169554 | 558170 | 23312 | 454157 | 38301 |
| FGFR1 | 077782 | 527203 | 7437 | N/A | | PER1 | 179094 | 579203 | 15375 | N/A | | ZEB2 | 169554 | 303660 | 23313 | 302501 | 38302 |
| FGFR1 | 077782 | 533668 | 7438 | 434869 | 28398 | PER1 | 179094 | 578223 | 15376 | N/A | | ZEB2 | 169554 | 637873 | 23314 | 489701 | 38303 |
| FGFR1 | 077782 | 525001 | 7439 | 434712 | 28399 | PER1 | 179094 | 579065 | 15377 | N/A | | ZEB2 | 169554 | 427902 | 23315 | 395496 | 38304 |
| FGFR1 | 077782 | 532386 | 7440 | N/A | | PER1 | 179094 | 581703 | 15378 | 463385 | 33290 | ZEB2 | 169554 | 637267 | 23316 | 490293 | 38305 |
| FGFR1 | 077782 | 474970 | 7441 | N/A | | PER1 | 179094 | 577253 | 15379 | 462546 | 33291 | ZEB2 | 169554 | 392861 | 23317 | 376601 | 38306 |
| FGFR1 | 077782 | 526742 | 7442 | 433569 | 28400 | PER1 | 179094 | 584202 | 15380 | 463661 | 33292 | ZEB2 | 169554 | 497268 | 23318 | N/A | |
| FGFR1 | 077782 | 529552 | 7443 | 435283 | 28401 | PET100 | 229833 | 594797 | 15381 | 470539 | 33293 | ZEB2 | 169554 | 431672 | 23319 | 475267 | 38307 |
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| FGFR1 | 077782 | 530568 | 7445 | 434473 | 28403 | PET100 | 229833 | 456958 | 15383 | 392303 | 33294 | ZEB2 | 169554 | 465308 | 23321 | 487476 | 38309 |
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| FGFR1 | 077782 | 397090 | 7447 | N/A | | PET100 | 229833 | 601406 | 15385 | 470935 | 33295 | ZEB2 | 169554 | 472146 | 23323 | N/A | |
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| FGFR1 | 077782 | 480571 | 7451 | N/A | | PEX5L | 114757 | 263962 | 15389 | 263962 | 33298 | ZEB2 | 169554 | 435831 | 23327 | 400993 | 38311 |
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| FGFR1 | 077782 | 619564 | 7454 | 484553 | 28409 | PEX5L | 114757 | 476138 | 15392 | 420555 | 33301 | ZEB2 | 169554 | 630572 | 23330 | 486346 | 38313 |
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| FGFR2 | 066468 | 478859 | 7457 | 474011 | 28412 | PEX5L | 114757 | 464614 | 15395 | 417270 | 33303 | ZEB2 | 169554 | 637591 | 23333 | N/A | |
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| FGFR2 | 066468 | 369060 | 7460 | 358056 | 28415 | PEX5L | 114757 | 461537 | 15398 | N/A | | ZEB2 | 169554 | 470879 | 23336 | 475329 | 38316 |
| FGFR2 | 066468 | 604236 | 7461 | 474109 | 28416 | PEX5L | 114757 | 496721 | 15399 | 418746 | 33305 | ZEB2 | 169554 | 629520 | 23337 | 486240 | 38317 |
| FGFR2 | 066468 | 369059 | 7462 | 358055 | 28417 | PEX5L | 114757 | 491640 | 15400 | 419790 | 33306 | ZEB2 | 169554 | 636445 | 23338 | 490851 | 38318 |
| FGFR2 | 066468 | 467584 | 7463 | N/A | | PEX5L | 114757 | 469198 | 15401 | 417438 | 33307 | ZEB2 | 169554 | 625161 | 23339 | N/A | |
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| FGFR2 | 066468 | 346997 | 7465 | 263451 | 28419 | PEX5L | 114757 | 487198 | 15403 | N/A | | ZEB2 | 169554 | 475115 | 23341 | N/A | |
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| FGFR2 | 066468 | 360144 | 7467 | 353262 | 28421 | PEX5L | 114757 | 392649 | 15405 | 376420 | 33309 | ZFAND2A | 178381 | 401903 | 23343 | 386031 | 38321 |
| FGFR2 | 066468 | 369056 | 7468 | 358052 | 28422 | PFKFB4 | 114268 | 232375 | 15406 | 232375 | 33310 | ZFAND2A | 178381 | 397083 | 23344 | 380273 | 38322 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| FGFR3 | 068078 | 260795 | 7484 | 260795 | 28434 | PFKM | 152556 | 549003 | 15422 | 449835 | 33319 | ZFAND6 | 086666 | 559157 | 23360 | 454152 | 38332 |
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| FGFR3 | 068078 | 469068 | 7488 | N/A | | PFKM | 152556 | 340802 | 15426 | 345771 | 33323 | ZFAND6 | 086666 | 560470 | 23364 | 455515 | 38336 |
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| FGFR3 | 068078 | 412135 | 7490 | 412903 | 28438 | PFKM | 152556 | 546755 | 15428 | 450173 | 33325 | ZFAND6 | 086666 | 559835 | 23366 | 453291 | 38338 |
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| FGGY | 172456 | 582567 | 7493 | 463260 | 28441 | PFKM | 152556 | 548288 | 15431 | 448018 | 33328 | ZFAND6 | 086666 | 560392 | 23369 | 455146 | 38341 |
| FGGY | 172456 | 413489 | 7494 | 406607 | 28442 | PFKM | 152556 | 359794 | 15432 | 352842 | 33329 | ZFAND6 | 086666 | 560976 | 23370 | 453710 | 38342 |
| FGGY | 172456 | 634606 | 7495 | 489030 | 28443 | PFKM | 152556 | 547066 | 15433 | 448318 | 33330 | ZFAND6 | 086666 | 558272 | 23371 | 456973 | 38343 |
| FGGY | 172456 | 474476 | 7496 | N/A | | PFKM | 152556 | 546964 | 15434 | N/A | | ZFAND6 | 086666 | 558390 | 23372 | 453308 | 38344 |
| FGGY | 172456 | 462744 | 7497 | N/A | | PFKM | 152556 | 548720 | 15435 | N/A | | ZFAND6 | 086666 | 557793 | 23373 | N/A | |
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| FGGY | 172456 | 495718 | 7499 | N/A | | PFKM | 152556 | 551548 | 15437 | N/A | | ZFAND6 | 086666 | 558087 | 23375 | 453888 | 38346 |
| FGGY | 172456 | 583635 | 7500 | N/A | | PFKM | 152556 | 551485 | 15438 | 448315 | 33332 | ZFAND6 | 086666 | 558724 | 23376 | 452625 | 38347 |
| FGGY | 172456 | 303721 | 7501 | 305922 | 28445 | PFKM | 152556 | 551339 | 15439 | 448253 | 33333 | ZFAND6 | 086666 | 561017 | 23377 | N/A | |
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| FGGY | 172456 | 635297 | 7504 | 489549 | 28448 | PFKM | 152556 | 549022 | 15442 | 446805 | 33336 | ZFAND6 | 086666 | 616533 | 23380 | 478129 | 38349 |
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| FGGY | 172456 | 635156 | 7506 | 489417 | 28450 | PFKM | 152556 | 546465 | 15444 | 446519 | 33338 | ZFHX4 | 091656 | 521891 | 23382 | 430497 | 38351 |
| FGGY | 172456 | 424725 | 7507 | 489345 | 28451 | PFKM | 152556 | 547148 | 15445 | N/A | | ZFHX4 | 091656 | 517683 | 23383 | N/A | |
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| FGGY | 172456 | 476939 | 7514 | N/A | | PFKM | 152556 | 629846 | 15452 | 486196 | 33342 | ZFHX4 | 091656 | 523625 | 23390 | 431101 | 38357 |
| FGGY | 172456 | 472783 | 7515 | N/A | | PFKP | 067057 | 607886 | 15453 | 477128 | 33343 | ZFHX4 | 091656 | 524290 | 23391 | N/A | |
| FGGY | 172456 | 471169 | 7516 | N/A | | PFKP | 067057 | 381125 | 15454 | 370517 | 33344 | ZFHX4 | 091656 | 519536 | 23392 | 430375 | 38358 |
| FGGY | 172456 | 480847 | 7517 | N/A | | PFKP | 067057 | 495715 | 15455 | N/A | | ZFHX4 | 091656 | 522409 | 23393 | N/A | |
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| FHDC1 | 137460 | 260008 | 7519 | 260008 | 28455 | PFKP | 067057 | 421751 | 15457 | N/A | | ZFP36L1 | 185650 | 439696 | 23395 | 388402 | 38360 |
| FHL3 | 183386 | 485803 | 7520 | N/A | | PFKP | 067057 | 407806 | 15458 | 385880 | 33346 | ZFP36L1 | 185650 | 336440 | 23396 | 337386 | 38361 |
| FHL3 | 183386 | 373016 | 7521 | 362107 | 28456 | PFKP | 067057 | 415005 | 15459 | 408858 | 33347 | ZFP36L1 | 185650 | 557086 | 23397 | 450784 | 38362 |
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| FHL3 | 183386 | 477194 | 7523 | N/A | | PFKP | 067057 | 460445 | 15461 | N/A | | ZFP36L1 | 185650 | 553375 | 23399 | 452119 | 38364 |
| FHL3 | 183386 | 483132 | 7524 | N/A | | PFKP | 067057 | 413079 | 15462 | 387871 | 33349 | ZNF385C | 187595 | 496039 | 23400 | N/A | |
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| FHL5 | 112214 | 541107 | 7527 | 442357 | 28459 | PGGHG | 142102 | 474221 | 15465 | N/A | | ZNF385C | 187595 | 453355 | 23403 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FHOD3 | 134775 | 257209 | 7528 | 257209 | 28460 | PGGHG | 142102 | 409548 | 15466 | 387185 | 33352 | ZNF385C | 187595 | 618554 | 23404 | 480744 | 38366 |
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| FILIP1L | 168386 | 476723 | 7541 | N/A | | PGM5 | 154330 | 587852 | 15479 | N/A | | ZNF423 | 102935 | 563137 | 23417 | 455588 | 38377 |
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| FILIP1L | 168386 | 354552 | 7543 | 346560 | 28471 | PGM5 | 154330 | 496758 | 15481 | N/A | | ZNF423 | 102935 | 535559 | 23419 | 442321 | 38379 |
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| FILIP1L | 168386 | 398326 | 7548 | 381371 | 28476 | PGR | 082175 | 534780 | 15486 | 432352 | 33364 | ZNF462 | 148143 | 277225 | 23424 | 277225 | 38384 |
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| FILIP1L | 168386 | 383694 | 7550 | 373192 | 28477 | PGR | 082175 | 263463 | 15488 | 263463 | 33366 | ZNF462 | 148143 | 480607 | 23426 | N/A | |
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| FKBP4 | 004478 | 001008 | 7553 | 001008 | 28479 | PGR | 082175 | 619228 | 15491 | 482698 | 33368 | ZNF462 | 148143 | 497489 | 23429 | N/A | |
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| FKBP4 | 004478 | 540260 | 7555 | N/A | | PHACTR2-AS1 | 235740 | 450575 | 15493 | N/A | | ZNF462 | 148143 | 471032 | 23431 | N/A | |
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| FKBP4 | 004478 | 539181 | 7558 | 438491 | 28482 | PHF10 | 130024 | 480008 | 15496 | N/A | | ZNF462 | 148143 | 482115 | 23434 | N/A | |
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| FKBP4 | 004478 | 630279 | 7560 | 486800 | 28484 | PHF10 | 130024 | 612128 | 15498 | 479515 | 33372 | ZNF521 | 198795 | 361524 | 23436 | 354794 | 38389 |
| FKBP5 | 096060 | 357266 | 7561 | 349811 | 28485 | PHF10 | 130024 | 621772 | 15499 | 484117 | 33373 | ZNF521 | 198795 | 584787 | 23437 | 463000 | 38390 |
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| FLNB | 136068 | 475487 | 7585 | N/A | | PHKA2 | 044446 | 469485 | 15523 | N/A | | ZNF804B | 182348 | 611114 | 23461 | 478506 | 38404 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLNB | 136068 | 484981 | 7586 | N/A | | PHKA2 | 044446 | 473597 | 15524 | N/A | | ZNF831 | 124203 | 637017 | 23462 | 490240 | 38405 |
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| FLRT2 | 185070 | 557419 | 7590 | N/A | | PHKA2 | 044446 | 464455 | 15528 | N/A | | ZFPM1 | 179588 | 562417 | 23466 | N/A | |
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| FLRT2 | 185070 | 555398 | 7592 | N/A | | PHKG1 | 164776 | 446428 | 15530 | 389721 | 33388 | ZFPM1 | 179588 | 563351 | 23468 | 484216 | 38409 |
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| FMO3 | 007933 | 530212 | 7618 | N/A | | PIEZO2 | 154864 | 582937 | 15556 | 462187 | 33405 | ZFY | 067646 | 443793 | 23494 | 388814 | 38424 |
| FMO3 | 007933 | 534514 | 7619 | N/A | | PIEZO2 | 154864 | 302079 | 15557 | 303316 | 33406 | ZFY | 067646 | 449237 | 23495 | 393908 | 38425 |
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| FNDC3B | 075420 | 415807 | 7624 | 411242 | 28522 | PIEZO2 | 154864 | 581680 | 15562 | N/A | | ZIC1 | 152977 | 282928 | 23500 | 282928 | 38428 |
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| FNDC3B | 075420 | 416957 | 7628 | 389094 | 28525 | PIEZO2 | 154864 | 583325 | 15566 | 462560 | 33412 | ZIC2 | 043355 | 490085 | 23504 | N/A | |
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| FNDC3B | 075420 | 483344 | 7632 | N/A | | PIGA | 165195 | 333590 | 15570 | 369820 | 33415 | ZIC3 | 156925 | 287538 | 23508 | 287538 | 38430 |
| FNDC3B | 075420 | 494000 | 7633 | N/A | | PIGA | 165195 | 635631 | 15571 | N/A | | ZIC3 | 156925 | 370606 | 23509 | 359638 | 38431 |
| FNDC3B | 075420 | 490832 | 7634 | N/A | | PIGA | 165195 | 542278 | 15572 | 442653 | 33416 | ZIC3 | 156925 | 478471 | 23510 | N/A | |
| FOLH1 | 086205 | 458311 | 7635 | N/A | | PIGA | 165195 | 635045 | 15573 | N/A | | ZIC4 | 174963 | 383075 | 23511 | 372553 | 38432 |
| FOLH1 | 086205 | 256999 | 7636 | 256999 | 28527 | PIGA | 165195 | 635598 | 15574 | 489207 | 33417 | ZIC4 | 174963 | 472749 | 23512 | N/A | |
| FOLH1 | 086205 | 356696 | 7637 | 349129 | 28528 | PIGA | 165195 | 637626 | 15575 | 489928 | 33418 | ZIC4 | 174963 | 494569 | 23513 | N/A | |
| FOLH1 | 086205 | 525826 | 7638 | 434928 | 28529 | PIGA | 165195 | 638131 | 15576 | 490483 | 33419 | ZIC4 | 174963 | 493664 | 23514 | N/A | |
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| FOLH1 | 086205 | 533034 | 7640 | 431463 | 28531 | PIGA | 165195 | 634582 | 15578 | 489540 | 33421 | ZIC4 | 174963 | 473123 | 23516 | 420775 | 38434 |
| FOLH1 | 086205 | 532018 | 7641 | N/A | | PIGA | 165195 | 482148 | 15579 | 489528 | 33422 | ZIC4 | 174963 | 463850 | 23517 | N/A | |
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| FOLH1 | 086205 | 529646 | 7644 | N/A | | PIGA | 165195 | 463173 | 15582 | N/A | | ZIC4 | 174963 | 491672 | 23520 | 418277 | 38435 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FOLH1 | 086205 | 533510 | 7645 | 436569 | 28532 | PIGA | 165195 | 635480 | 15583 | N/A | | ZIC4 | 174963 | 475502 | 23521 | N/A | |
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| FOLH1 | 086205 | 529648 | 7647 | 431263 | 28534 | PIGA | 165195 | 474662 | 15585 | N/A | | ZIC4 | 174963 | 484586 | 23523 | 418343 | 38437 |
| FOLH1 | 086205 | 343844 | 7648 | 344086 | 28535 | PIGA | 165195 | 637799 | 15586 | N/A | | ZIC4 | 174963 | 463250 | 23524 | 419727 | 38438 |
| FOSB | 125740 | 585836 | 7649 | 467497 | 28536 | PIGA | 165195 | 634484 | 15587 | N/A | | ZIC4 | 174963 | 464144 | 23525 | N/A | |
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| FOSB | 125740 | 353609 | 7651 | 245919 | 28538 | PIGH | 100564 | 561272 | 15589 | 453759 | 33427 | ZIC4 | 174963 | 525172 | 23527 | 435509 | 38440 |
| FOSB | 125740 | 591858 | 7652 | 466530 | 28539 | PIGH | 100564 | 216452 | 15590 | 216452 | 33428 | ZIC5 | 139800 | 267294 | 23528 | 267294 | 38441 |
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| FOSB | 125740 | 590335 | 7654 | 465068 | 28541 | PIGH | 100564 | 559118 | 15592 | N/A | | ZKSCAN1 | 106261 | 482979 | 23530 | N/A | |
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| FOSB | 125740 | 587358 | 7660 | N/A | | PIGH | 100564 | 559581 | 15598 | 453733 | 33435 | ZMAT4 | 165061 | 297737 | 23536 | 297737 | 38448 |
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| FOXA1 | 129514 | 250448 | 7666 | 250448 | 28550 | PIGS | 087111 | 395346 | 15604 | 378755 | 33438 | ZMAT4 | 165061 | 522623 | 23542 | 429068 | 38452 |
| FOXA1 | 129514 | 545425 | 7667 | N/A | | PIGS | 087111 | 308360 | 15605 | 309430 | 33439 | ZMAT4 | 165061 | 523823 | 23543 | N/A | |
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| FOXA1 | 129514 | 557418 | 7670 | N/A | | PIGS | 087111 | 577620 | 15608 | N/A | | ZNF10 | 256223 | 248211 | 23546 | 248211 | 38455 |
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| FOXA2 | 125798 | 377115 | 7672 | 366319 | 28553 | PIGS | 087111 | 580968 | 15610 | N/A | | ZNF10 | 256223 | 540927 | 23548 | N/A | |
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| FOXG1 | 176165 | 636893 | 7675 | N/A | | PIGS | 087111 | 577594 | 15613 | N/A | | ZNF10 | 256223 | 426665 | 23551 | 393814 | 38457 |
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| FOXG1 | 176165 | 637817 | 7677 | N/A | | PIGS | 087111 | 584413 | 15615 | N/A | | ZNF10 | 256223 | 537119 | 23553 | N/A | |
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| FOXP4 | 137166 | 373063 | 7683 | 362154 | 28556 | PIH1D3 | 080572 | 336387 | 15621 | 337757 | 33446 | ZNF124 | 196418 | 491848 | 23559 | N/A | |
| FOXP4 | 137166 | 409208 | 7684 | 386958 | 28557 | PIH1D3 | 080572 | 535523 | 15622 | 441930 | 33447 | ZNF131 | 172262 | 503599 | 23560 | N/A | |
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| FREM1 | 164946 | 497634 | 7703 | N/A | | PIK3R1 | 145675 | 518292 | 15641 | N/A | | ZNF131 | 172262 | 507231 | 23579 | N/A | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| FRMPD1 | 070601 | 539465 | 7752 | 444411 | 28602 | PITPNM3 | 091622 | 262483 | 15690 | 262483 | 33489 | ZNF331 | 130844 | 512387 | 23628 | 421728 | 38513 |
| FRMPD1 | 070601 | 359927 | 7753 | 439868 | 28603 | PITPNM3 | 091622 | 576664 | 15691 | N/A | | ZNF331 | 130844 | 511567 | 23629 | 426127 | 38514 |
| FRMPD2 | 170324 | 635925 | 7754 | N/A | | PITPNM3 | 091622 | 572795 | 15692 | N/A | | ZNF331 | 130844 | 514022 | 23630 | 422471 | 38515 |
| FRMPD2 | 170324 | 637395 | 7755 | 490362 | 28604 | PITPNM3 | 091622 | 575201 | 15693 | 458901 | 33490 | ZNF331 | 130844 | 505949 | 23631 | 427532 | 38516 |
| FRMPD2 | 170324 | 636244 | 7756 | 490201 | 28605 | PIWIL1 | 125207 | 245255 | 15694 | 245255 | 33491 | ZNF331 | 130844 | 513265 | 23632 | 426458 | 38517 |
| FRMPD2 | 170324 | 474573 | 7757 | N/A | | PIWIL1 | 125207 | 546060 | 15695 | 442086 | 33492 | ZNF331 | 130844 | 502616 | 23633 | 422586 | 38518 |
| FRMPD2 | 170324 | 374201 | 7758 | 363317 | 28606 | PIWIL1 | 125207 | 539400 | 15696 | 440677 | 33493 | ZNF331 | 130844 | 504493 | 23634 | 425517 | 38519 |
| FRMPD2 | 170324 | 305531 | 7759 | 307079 | 28607 | PIWIL1 | 125207 | 539995 | 15697 | 439096 | 33494 | ZNF331 | 130844 | 505426 | 23635 | 424929 | 38520 |
| FRMPD2 | 170324 | 491130 | 7760 | N/A | | PIWIL1 | 125207 | 533956 | 15698 | 444353 | 33495 | ZNF331 | 130844 | 449416 | 23636 | 393817 | 38521 |
| FRMPD2 | 170324 | 463706 | 7761 | N/A | | PIWIL1 | 125207 | 542723 | 15699 | 438582 | 33496 | ZNF404 | 176222 | 587539 | 23637 | 466051 | 38522 |
| FRMPD2 | 170324 | 477710 | 7762 | N/A | | PIWIL1 | 125207 | 540672 | 15700 | N/A | | ZNF404 | 176222 | 588094 | 23638 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| FRRS1 | 156869 | 287474 | 7771 | 287474 | 28611 | PIWIL1 | 275051 | 631528 | 15709 | N/A | | ZNF546 | 187187 | 596894 | 23647 | 470423 | 38527 |
| FRRS1 | 156869 | 489209 | 7772 | N/A | | PIWIL1 | 275051 | 631714 | 15710 | N/A | | ZNF546 | 187187 | 593687 | 23648 | N/A | |
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| FSTL4 | 053108 | 507112 | 7797 | N/A | | PKMYT1 | 127564 | 574385 | 15735 | 458943 | 33517 | ZNF585A | 196967 | 588354 | 23673 | 466185 | 38547 |
| FSTL4 | 053108 | 514998 | 7798 | N/A | | PKMYT1 | 127564 | 574730 | 15736 | 460868 | 33518 | ZNF585A | 196967 | 356958 | 23674 | 349440 | 38548 |
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| FSTL5 | 168843 | 511170 | 7804 | N/A | | PKMYT1 | 127564 | 572059 | 15742 | 458842 | 33524 | ZNF703 | 183779 | 331569 | 23680 | 332325 | 38554 |
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| FTH1 | 167996 | 529191 | 7806 | 431659 | 28631 | PKMYT1 | 127564 | 570649 | 15744 | N/A | | ZNF711 | 147180 | 276123 | 23682 | 276123 | 38556 |
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| FTH1 | 167996 | 534180 | 7811 | 434403 | 28636 | PKNOX2 | 165495 | 298282 | 15749 | 298282 | 33526 | ZNF736 | 234444 | 606716 | 23687 | N/A | |
| FTH1 | 167996 | 526640 | 7812 | 433321 | 28637 | PKNOX2 | 165495 | 559662 | 15750 | N/A | | ZNF736 | 234444 | 438373 | 23688 | 391083 | 38558 |
| FTH1 | 167996 | 532601 | 7813 | 435111 | 28638 | PKNOX2 | 165495 | 557814 | 15751 | N/A | | ZNF736 | 234444 | 488621 | 23689 | N/A | |
| FTH1 | 167996 | 534719 | 7814 | N/A | | PKNOX2 | 165495 | 527238 | 15752 | 431599 | 33527 | ZNF736 | 234444 | 423484 | 23690 | 400852 | 38559 |
| FTH1 | 167996 | 533138 | 7815 | N/A | | PKNOX2 | 165495 | 561399 | 15753 | N/A | | ZNF736 | 234444 | 355095 | 23691 | 347210 | 38560 |
| FTH1 | 167996 | 529548 | 7816 | 436947 | 28639 | PKNOX2 | 165495 | 532623 | 15754 | 434377 | 33528 | ZNF84 | 198040 | 543758 | 23692 | 437949 | 38561 |
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| FTL | 087086 | 331825 | 7818 | 366525 | 28641 | PKNOX2 | 165495 | 558729 | 15756 | N/A | | ZNF84 | 198040 | 438628 | 23694 | 387416 | 38563 |
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| FXYD1 | 266964 | 592818 | 7820 | N/A | | PKNOX2 | 165495 | 558705 | 15758 | 453374 | 33530 | ZNF84 | 198040 | 539098 | 23696 | N/A | |
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| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FXYD1 | 266964 | 455515 | 7822 | 393611 | 28644 | PKNOX2 | 165495 | 526955 | 15760 | N/A | | ZNF84 | 198040 | 536123 | 23698 | 445958 | 38565 |
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| FXYD1 | 266964 | 588081 | 7826 | 467727 | 28647 | PKP3 | 184363 | 528036 | 15764 | 434110 | 33534 | ZNF84 | 198040 | 542358 | 23702 | N/A | |
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| FXYD7 | 221946 | 270310 | 7831 | 270310 | 28651 | PKP3 | 184363 | 524646 | 15769 | N/A | | ZNF84 | 198040 | 392319 | 23707 | 376133 | 38571 |
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| FXYD7 | 221946 | 588265 | 7833 | 465784 | 28652 | PKP3 | 184363 | 525642 | 15771 | 436847 | 33537 | ZNHIT1 | 106400 | 305105 | 23709 | 304593 | 38573 |
| FZD7 | 155760 | 286201 | 7834 | 286201 | 28653 | PLA2G16 | 176485 | 323646 | 15772 | 320337 | 33538 | ZNHIT1 | 106400 | 461205 | 23710 | N/A | |
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| FZD9 | 188763 | 344575 | 7836 | 345785 | 28655 | PLA2G16 | 176485 | 540943 | 15774 | 442576 | 33539 | ZNHIT1 | 106400 | 485387 | 23712 | N/A | |
| FZR1 | 105325 | 441788 | 7837 | 410369 | 28656 | PLA2G16 | 176485 | 544269 | 15775 | N/A | | ZNRD1 | 224859 | 446493 | 23713 | 399966 | 38574 |
| FZR1 | 105325 | 588327 | 7838 | N/A | | PLA2G16 | 176485 | 415826 | 15776 | 389124 | 33540 | ZNRD1 | 224859 | 455948 | 23714 | 402198 | 38575 |
| FZR1 | 105325 | 591290 | 7839 | 467967 | 28657 | PLA2G16 | 176485 | 639271 | 15777 | 492682 | 33541 | ZNRD1 | 224859 | 481657 | 23715 | N/A | |
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| FZR1 | 105325 | 592214 | 7842 | N/A | | PLA2G4A | 116711 | 466600 | 15780 | N/A | | ZNRD1 | 224859 | 451875 | 23718 | 387914 | 38577 |
| FZR1 | 105325 | 586212 | 7843 | N/A | | PLA2G4E | 188089 | 399518 | 15781 | 382434 | 33544 | ZNRD1 | 235443 | 471263 | 23719 | N/A | |
| FZR1 | 105325 | 588084 | 7844 | N/A | | PLA2G4E | 188089 | 547930 | 15782 | N/A | | ZNRD1 | 235443 | 437507 | 23720 | 412369 | 38578 |
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| GAB1 | 109458 | 262994 | 7846 | 262994 | 28661 | PLA2G5 | 127472 | 486277 | 15784 | N/A | | ZNRD1 | 235443 | 465992 | 23722 | N/A | |
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| GAB1 | 109458 | 507334 | 7854 | N/A | | PLA2G7 | 146070 | 274793 | 15792 | 274793 | 33546 | ZNRD1 | 235176 | 477956 | 23730 | N/A | |
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| GAB1 | 109458 | 508833 | 7857 | N/A | | PLAG1 | 181690 | 522009 | 15795 | N/A | | ZNRD1 | 236808 | 420100 | 23733 | 410530 | 38587 |
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| GAB2 | 033327 | 340149 | 7859 | 343959 | 28668 | PLAG1 | 181690 | 429357 | 15797 | 416537 | 33550 | ZNRD1 | 236808 | 444027 | 23735 | 396661 | 38589 |
| GAB2 | 033327 | 361507 | 7860 | 354952 | 28669 | PLAG1 | 181690 | 519027 | 15798 | N/A | | ZNRD1 | 236808 | 476397 | 23736 | N/A | |
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| GAB2 | 033327 | 528886 | 7863 | 433762 | 28670 | PLAT | 104368 | 352041 | 15801 | 270188 | 33553 | ZNRD1 | 206502 | 383613 | 23739 | 373108 | 38591 |
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| GAB2 | 033327 | 534823 | 7865 | N/A | | PLAT | 104368 | 429710 | 15803 | 407861 | 33555 | ZNRD1 | 206502 | 400659 | 23741 | 383500 | 38593 |
| GABARAPL1 | 139112 | 539408 | 7866 | 443122 | 28672 | PLAT | 104368 | 524009 | 15804 | 429401 | 33556 | ZNRD1 | 206502 | 476699 | 23742 | N/A | |
| GABARAPL1 | 139112 | 542722 | 7867 | 438029 | 28673 | PLAT | 104368 | 522812 | 15805 | N/A | | ZNRD1 | 236949 | 485907 | 23743 | N/A | |
| GABARAPL1 | 139112 | 545859 | 7868 | 444108 | 28674 | PLAT | 104368 | 521042 | 15806 | 429542 | 33557 | ZNRD1 | 236949 | 437373 | 23744 | 410127 | 38594 |
| GABARAPL1 | 139112 | 266458 | 7869 | 266458 | 28675 | PLAT | 104368 | 524261 | 15807 | N/A | | ZNRD1 | 236949 | 431032 | 23745 | 416599 | 38595 |
| GABARAPL1 | 139112 | 421801 | 7870 | 411256 | 28676 | PLAT | 104368 | 521647 | 15808 | N/A | | ZNRD1 | 236949 | 433264 | 23746 | 393236 | 38596 |
| GABARAPL1 | 139112 | 544284 | 7871 | 439734 | 28677 | PLAT | 104368 | 520523 | 15809 | 428797 | 33558 | ZNRD1 | 236949 | 432545 | 23747 | 405264 | 38597 |
| GABARAPL1 | 139112 | 545047 | 7872 | 441165 | 28678 | PLAT | 104368 | 521694 | 15810 | 429801 | 33559 | ZNRD1 | 236949 | 459084 | 23748 | N/A | |
| GABARAPL1 | 139112 | 541453 | 7873 | 446297 | 28679 | PLCB1 | 182621 | 637919 | 15811 | 490862 | 33560 | ZNRD1 | 233795 | 481680 | 23749 | N/A | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GABARAPL1 | 139112 | 543602 | 7874 | 445857 | 28680 | PLCB1 | 182621 | 625874 | 15812 | 486301 | 33561 | ZNRD1 | 233795 | 417275 | 23750 | 397636 | 38598 |
| GABARAPL1 | 139112 | 540424 | 7875 | 443720 | 28681 | PLCB1 | 182621 | 630495 | 15813 | 486655 | 33562 | ZNRD1 | 233795 | 444794 | 23751 | 407364 | 38599 |
| GABARAPL1 | 139112 | 537201 | 7876 | 444055 | 28682 | PLCB1 | 182621 | 378641 | 15814 | 367908 | 33563 | ZNRD1 | 233795 | 442585 | 23752 | 394779 | 38600 |
| GABARAPL1 | 139112 | 545887 | 7877 | 444186 | 28683 | PLCB1 | 182621 | 338037 | 15815 | 338185 | 33564 | ZNRD1 | 233795 | 412396 | 23753 | 396922 | 38601 |
| GABARAPL1 | 139112 | 541960 | 7878 | 445709 | 28684 | PLCB1 | 182621 | 629992 | 15816 | 486531 | 33565 | ZNRD1 | 233795 | 484119 | 23754 | N/A | |
| GABARAPL1 | 139112 | 539289 | 7879 | N/A | | PLCB1 | 182621 | 636319 | 15817 | 490455 | 33566 | ZNRD1 | 066379 | 471008 | 23755 | N/A | |
| GABARAPL1 | 139112 | 546017 | 7880 | 446456 | 28685 | PLCB1 | 182621 | 626161 | 15818 | N/A | | ZNRD1 | 066379 | 332435 | 23756 | 331111 | 38602 |
| GABARAPL1 | 139112 | 535576 | 7881 | 444738 | 28686 | PLCB1 | 182621 | 404098 | 15819 | 384001 | 33567 | ZNRD1 | 066379 | 376782 | 23757 | 365978 | 38603 |
| GABARAPL1 | 139112 | 539170 | 7882 | 444209 | 28687 | PLCB1 | 182621 | 378637 | 15820 | 367904 | 33568 | ZNRD1 | 066379 | 359374 | 23758 | 352333 | 38604 |
| GABARAPL1 | 139112 | 545290 | 7883 | 437451 | 28688 | PLCB1 | 182621 | 630757 | 15821 | N/A | | ZNRD1 | 066379 | 376785 | 23759 | 365981 | 38605 |
| GABARAPL1 | 139112 | 629504 | 7884 | 486133 | 28689 | PLCB1 | 182621 | 637204 | 15822 | 490771 | 33569 | ZNRD1 | 066379 | 463141 | 23760 | N/A | |
| GABBR1 | 237112 | 425097 | 7885 | 411286 | 28690 | PLCB1 | 182621 | 636825 | 15823 | N/A | | ZNRF1 | 186187 | 335325 | 23761 | 335091 | 38606 |
| GABBR1 | 237112 | 446436 | 7886 | 394528 | 28691 | PLCB1 | 182621 | 635830 | 15824 | N/A | | ZNRF1 | 186187 | 320619 | 23762 | 323362 | 38607 |
| GABBR1 | 237112 | 443440 | 7887 | 399318 | 28692 | PLCB1 | 182621 | 636784 | 15825 | N/A | | ZNRF1 | 186187 | 566250 | 23763 | 456168 | 38608 |
| GABBR1 | 237112 | 466282 | 7888 | N/A | | PLCB1 | 182621 | 626114 | 15826 | N/A | | ZNRF1 | 186187 | 567962 | 23764 | 455601 | 38609 |
| GABBR1 | 237112 | 492358 | 7889 | N/A | | PLCB1 | 182621 | 628900 | 15827 | N/A | | ZNRF1 | 186187 | 564320 | 23765 | N/A | |
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| GABBR1 | 237112 | 493150 | 7891 | N/A | | PLCB1 | 182621 | 637000 | 15829 | N/A | | ZNRF1 | 186187 | 579084 | 23767 | N/A | |
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| GABBR1 | 237112 | 497560 | 7894 | N/A | | PLCB1 | 182621 | 487210 | 15832 | 431704 | 33572 | ZNRF1 | 186187 | 568494 | 23770 | N/A | |
| GABBR1 | 237112 | 472409 | 7895 | N/A | | PLCB1 | 182621 | 494924 | 15833 | N/A | | ZNRF1 | 186187 | 568844 | 23771 | N/A | |
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| GABBR1 | 237112 | 551140 | 7897 | 448654 | 28694 | PLCB1 | 182621 | 439627 | 15835 | 391162 | 33573 | ZP2 | 103310 | 574002 | 23773 | 460971 | 38613 |
| GABBR1 | 204681 | 355973 | 7898 | 348248 | 28695 | PLCB1 | 182621 | 628239 | 15836 | 487544 | 33574 | ZP2 | 103310 | 573114 | 23774 | N/A | |
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| GABBR1 | 204681 | 377034 | 7903 | 366233 | 28700 | PLCB1 | 182621 | 637254 | 15841 | N/A | | ZP2 | 284588 | 639836 | 23779 | N/A | |
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| GABBR1 | 204681 | 494877 | 7905 | 419061 | 28701 | PLCB1 | 182621 | 617005 | 15843 | 477664 | 33579 | ZP2 | 284588 | 640539 | 23781 | N/A | |
| GABBR1 | 204681 | 488334 | 7906 | N/A | | PLCB1 | 182621 | 612075 | 15844 | 479997 | 33580 | ZSCAN29 | 140265 | 396976 | 23782 | 380174 | 38616 |
| GABBR1 | 204681 | 486434 | 7907 | N/A | | PLCE1 | 138193 | 371380 | 15845 | 360431 | 33581 | ZSCAN29 | 140265 | 566849 | 23783 | 457835 | 38617 |
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| GABBR1 | 204681 | 494634 | 7910 | N/A | | PLCE1 | 138193 | 371385 | 15848 | 360438 | 33583 | ZSCAN29 | 140265 | 570181 | 23786 | 454548 | 38620 |
| GABBR1 | 204681 | 477029 | 7911 | N/A | | PLCH1 | 114805 | 494598 | 15849 | 419100 | 33584 | ZSCAN29 | 140265 | 561661 | 23787 | 458119 | 38621 |
| GABBR1 | 204681 | 485508 | 7912 | 417663 | 28702 | PLCH1 | 114805 | 460012 | 15850 | 417502 | 33585 | ZSCAN29 | 140265 | 563508 | 23788 | N/A | |
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| GABBR1 | 204681 | 467259 | 7914 | N/A | | PLCH1 | 114805 | 340059 | 15852 | 345988 | 33587 | ZSCAN30 | 186814 | 333206 | 23790 | 329738 | 38623 |
| GABBR1 | 204681 | 462632 | 7915 | 419755 | 28704 | PLCH1 | 114805 | 469040 | 15853 | N/A | | ZSCAN30 | 186814 | 420878 | 23791 | 392371 | 38624 |
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| GABBR1 | 204681 | 376977 | 7917 | 366176 | 28706 | PLCH2 | 276429 | 627854 | 15855 | 487140 | 33589 | ZSCAN30 | 186814 | 589178 | 23793 | 465046 | 38625 |
| GABBR1 | 206511 | 383638 | 7918 | 373134 | 28707 | PLCH2 | 276429 | 626246 | 15856 | 486186 | 33590 | ZSCAN30 | 186814 | 588448 | 23794 | 470677 | 38626 |
| GABBR1 | 206511 | 383636 | 7919 | 373132 | 28708 | PLCH2 | 276429 | 627279 | 15857 | N/A | | ZSCAN30 | 186814 | 601405 | 23795 | 472179 | 38627 |
| GABBR1 | 206511 | 383637 | 7920 | 373133 | 28709 | PLCH2 | 276429 | 625637 | 15858 | N/A | | ZSCAN30 | 186814 | 592278 | 23796 | 470443 | 38628 |
| GABBR1 | 206511 | 466873 | 7921 | N/A | | PLCH2 | 276429 | 627778 | 15859 | N/A | | ZSCAN30 | 186814 | 592598 | 23797 | 468180 | 38629 |
| GABBR1 | 206511 | 473906 | 7922 | N/A | | PLCH2 | 276429 | 620687 | 15860 | 481938 | 33591 | ZSCAN30 | 186814 | 592211 | 23798 | 467308 | 38630 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GABBR1 | 206511 | 490214 | 7923 | N/A | | PLCH2 | 149527 | 609981 | 15861 | 476436 | 33592 | ZSCAN30 | 186814 | 588832 | 23799 | N/A | |
| GABBR1 | 206511 | 486760 | 7924 | N/A | | PLCH2 | 149527 | 449969 | 15862 | 397289 | 33593 | ZSCAN30 | 186814 | 610712 | 23800 | 480152 | 38631 |
| GABBR1 | 206511 | 476629 | 7925 | N/A | | PLCH2 | 149527 | 419816 | 15863 | 389803 | 33594 | ZSCAN30 | 186814 | 639929 | 23801 | 491237 | 38632 |
| GABBR1 | 206511 | 495153 | 7926 | N/A | | PLCH2 | 149527 | 343889 | 15864 | N/A | | ZSWIM6 | 130449 | 252744 | 23802 | 252744 | 38633 |
| GABBR1 | 206511 | 383639 | 7927 | 373135 | 28710 | PLCH2 | 149527 | 278878 | 15865 | 278878 | 33595 | ZYG11A | 203995 | 371532 | 23803 | 360587 | 38634 |
| GABBR1 | 206511 | 483838 | 7928 | N/A | | PLCH2 | 149527 | 473964 | 15866 | N/A | | ZYG11A | 203995 | 371528 | 23804 | 360583 | 38635 |
| GABBR1 | 206511 | 475370 | 7929 | N/A | | PLCH2 | 149527 | 462379 | 15867 | N/A | | ZYG11A | 203995 | 612017 | 23805 | 482761 | 38636 |
| GABBR1 | 206511 | 551423 | 7930 | 449342 | 28711 | PLCH2 | 149527 | 378486 | 15868 | 367747 | 33596 | ZYX | 159840 | 322764 | 23806 | 324422 | 38637 |
| GABBR1 | 232569 | 439457 | 7931 | 406066 | 28712 | PLCL1 | 115896 | 428675 | 15869 | 402861 | 33597 | ZYX | 159840 | 449630 | 23807 | 413467 | 38638 |
| GABBR1 | 232569 | 452300 | 7932 | 408938 | 28713 | PLCL1 | 115896 | 435320 | 15870 | 410488 | 33598 | ZYX | 159840 | 468083 | 23808 | N/A | |
| GABBR1 | 232569 | 419674 | 7933 | 399861 | 28714 | PLCL1 | 115896 | 487695 | 15871 | 457588 | 33599 | ZYX | 159840 | 457235 | 23809 | 400537 | 38639 |
| GABBR1 | 232569 | 481198 | 7934 | N/A | | PLCL1 | 115896 | 625084 | 15872 | N/A | | ZYX | 159840 | 354434 | 23810 | 346417 | 38640 |
| GABBR1 | 232569 | 491396 | 7935 | N/A | | PLCL1 | 115896 | 472193 | 15873 | N/A | | ZYX | 159840 | 392910 | 23811 | 376642 | 38641 |
| GABBR1 | 232569 | 477417 | 7936 | N/A | | PLCL1 | 115896 | 437704 | 15874 | 414138 | 33600 | ZYX | 159840 | 477373 | 23812 | N/A | |
| GABBR1 | 232569 | 486592 | 7937 | N/A | | PLCXD3 | 182836 | 377801 | 15875 | 367032 | 33601 | ZYX | 159840 | 436448 | 23813 | 411230 | 38642 |
| GABBR1 | 232569 | 449163 | 7938 | 411263 | 28715 | PLCXD3 | 182836 | 328457 | 15876 | 333751 | 33602 | ZYX | 159840 | 446634 | 23814 | 403714 | 38643 |
| | | | | | | | | | | | | ZYX | 159840 | 497119 | 23815 | N/A | |

## III. METHODS FOR ISOLATING AND PROFILING NUCLEI FROM A CELL TYPE

**[0063]** Many issues of human biology may be investigated productively in defined cell populations. For example, an understanding of molecular events associated with human neurodegenerative events may be gained through longitudinal studies of a variety of cell types in significant numbers from human samples due to the genetic complexities of these conditions (Burguière, E., et al. (2015) Curr Opin Neurobiol 30, 59–65.; Hinz, et al. (2017) Cold Spring Harb Perspect Biol 9, a023705; Vorstman, et al. (2017) Nat Rev Genet 18, 362–376, each of which is hereby incorporated by reference herein in its entirety), the probabilistic nature of neuronal cell loss (Clarke, et al. (2000). Nature 406, 195–199 and Clarke, et al. (2005) Brain Research Bulletin 65, 59–67, each of which is hereby incorporated by reference herein in its entirety), and the variable impacts of aging on both disease onset and progression (Corrada, et al. (2010) Ann. Neurol. 67, 114–121 and Niccoli, et al. (2012) Current Biology 22, R741–R752, each of which is hereby incorporated by reference herein in its entirety). Given these considerations, the methodology herein was developed to determine precisely the molecular properties of defined brain cell types and that is sufficiently robust to employ postmortem tissue from common brain tissue banks without requiring transgenic animals.

**[0064]** The cellular profiling technique described herein was developed as an approach for cell type specific analysis that takes advantage of the unique complement of nuclear-localized and nuclear associated proteins within each cell type to enable robust and reproducible studies of defined cell types in the mammalian brain. The cellular profiling technique described herein allows for cell-type specific gene expression profiling of mouse, rat, and human post-mortem brains and these methods may be extended to any organ or tissue sample.

**[0065]** Comparative studies of data generated from the cellular profiling technique described herein from rodent and human brain cell types reveal evolutionary divergence of gene expression

profiles from classically defined, highly conserved cerebellar cell types (D'Angelo, E. (2013) Handbook of the Cerebellum and Cerebellar Disorders, (Dordrecht: Springer Netherlands), pp. 765–791; Eccles, J.C. (1967) The Cerebellum as a Neuronal Machine (Berlin/Heidelberg/ New York: Springer); Llinas, R.R. (1969). Neurobiology of Cerebellar Evolution and Development (Chicago: American Medical Association); each of which is hereby incorporated by reference herein in its entirety). Data show also that molecular mechanisms of brain aging unfold differently in each human cell type. Finally, the data show robust, molecular phenotypes indicating a shared external event may be identified in control postmortem human brains. Correlative studies of human genetic and clinical data with expression and epigenetic studies using the cellular profiling technique described herein will provide insight into additional, yet unrecognized molecular characteristics of human brain function and dysfunction.

**[0066]** Transgenic mice expressing an EGFP-L10a ribosomal protein fusion under the control of cell-type specific drivers were previously developed in Doyle, et al. (2008) Cell 135, 749–762 and Heiman, et al. (2008) Cell 135, 738–748, each of which is hereby incorporated by reference herein in its entirety. Using these five transgenic animal lines developed for use in the TRAP method, EGFP+ nuclei (Kriaucionis, et al. (2009) Science 324, 929–930 and Mellén, M., et al. (2012) Cell 151, 1417–1430, each of which is hereby incorporated by reference in its entirety) were purified from specific cell types by gene expression using the TRAP methodology or by epigenetic characteristics after using fluorescence activated cell sorting (FACS). Previous studies have established that nuclear RNA profiles are also unique to each cell type, and that they are informative regarding cell function (Deal, et al. (2011) Nat Protoc 6, 56–68; Henry et al., Nucleic Acids Res. 2012 Oct;40(19):9691-704; Mo, et al. (2015) Neuron 86, 1369–1384; Steiner, et al. (2012) Genome Res 22, 766–777; each of which is hereby incorporated by reference herein in its entirety).

**[0067]** An important limitation of methods for cell-type specific molecular profiling developed previously to the cellular profiling technique described herein is that they require the use of transgenic animals to genetically target cell types of interest. To overcome this limitation, cell type specific expression of nuclear and endoplasmic reticulum proteins was investigated in order to purify and characterize nuclei from specific cell types in a broad range of species, including human postmortem brain samples.

**[0068]** In some embodiments of the present invention, nuclei were prepared from wild-type or transgenic tissue, fixed using formaldehyde, stained with fluorescent antibodies that are specific to a given cell type in the brain region of interest, sorted by flow cytometry (e.g. FACs), and then analyzed using RNAseq for discovery of species, cell type, or environmental specific expression profile characteristics.

**[0069]** The cellular profiling technique described herein may be applied to nuclei from any cell type or tissues associated with a particular disease, disorder, or condition. For example, nuclei from cells types that originate in basal ganglia tissue including: striatonigral medium-sized spiny neurons (MSNs), striatopallidal MSNs (caudate and accumbens), striatal cholinergic interneurons, subthalamic nucleus, dopaminergic neurons, and bed nucleus of the stria terminalis (BNST) neurons. For example, nuclei from cell types that originate in thalamus tissue including: thalamocortical neurons, thalamostriatal neurons, and thalamic reticular nucleus neurons. For example, nuclei from cell types that originate in cortex tissue including: entorhinal cortex layer 2/3 neurons, fast-spiking cortical interneurons, and layer 2/3 pyramidal cells from pre-frontal cortex tissue. For example, nuclei from cell types that originate in hippocampus tissue including cornu ammonis region 1 (CA1), cornu ammonis region 2 (CA2), cornu ammonis region 3 (CA3), and dentate gyrus cells.

**[0070]** The cell types may also be associated with the following tissues: medial habenula (cholinergic projection neurons to interpeduncular nucleus), brain stem (upper motor neurons), spinal cord (lower motor neurons), or all tissues (various classes of interneurons, astrocytes and oligodendrocytes). Cell types in human brains may also be associated with neurodegenerative conditions, such as ataxias, Parkinson's disease, Alzheimer's disease, and amyotrophic lateral sclerosis (ALS). For example, Purkinje cells, granule cells, Bergmann glia, basket/stellate cells, and cerebellar deep nuclei associated with ataxias are profiled. Substantia nigra ventral tegmental area (VTA) dopaminergic neurons associated with Parkinson's disease or layer 2/3 entorhincortex, CA1 hippocampus, CA2/3 hippocampus neurons associated with Alzheimer disease may also be profiled. Alternatively, brain stem and spinal cord motor neurons associated with ALS are profiled.

*A. Sorting cell types using the nuclear transcriptome*

**[0071]** Nuclei may be sorted using antibodies, RNA probes, or DNA probes specific to endoplasmic reticulum (ER) protein, membrane proteins synthesized in the ER, or nuclear transcripts. To enrich for ER transcripts translated near the nuclear membrane, a polyA pulldown of nuclear transcripts may be performed. In some embodiments, nuclei originating from a cell type of interest were isolated from tissues of transgenic mice that had been previously profiled using the TRAP method to compare the cellular identity results from each technique. The profiling results for the transgenic animals developed for use with the TRAP method were based on the fact that the GFP-tagged ribosomal subunit is assembled in the nucleolus. Alternatively, the tissue that is the source of the nuclei to be sorted is dervied from a wild-type mammal, such as a human, a non-human primate, a mouse, or a rat.

[0072] FIG. 1 provides an embodiment of a sorting method that may be used with the cellular profiling technique described herein, which is also referred to as the NETSseq™ technique or INSPECTION™. "A" represents the cell type of interest, and "B" represents nuclei of the cell type of interest in FIG. 1.

[0073] In some embodiments, the strategy for isolating 3 cell types from the cerebellum in mice includes antibody-binding using Itpr1 (Inositol 1,4,5-Trisphosphate Receptor Type 1; an intracellular receptor of the endoplasmic reticulum (ER)) as a target to label Purkinje cells, NeuN (a gene encoded by a member of the RNA-binding Fox protein family; NeuN is a neronal antigen commonly used as a biomarker of neurons) as a target to label granule cells, and Gfap (Glial Fibrillary Acidic Protein; one of the major intermediate filament proteins of mature astrocytes used to distinguis astrocytes from glial cells) as a target to label glia to confirm the presence of these types of cells in the sample. Then, a combination of results for Itpr1 and NeuN may be used to isolate all 3 populations. Alternatively, nuclei from granule cells of wild-type mice may be sorted as positive for Itpr (Itpr+) and NeuN (NeuN+) and negative for Olig2 (Olig2-) and Sorcs3 (Sorcs3-). Nuclei from purkinkje cells may be sorted as Itpr1+ and NeuN+. Nuclei from basket cells may be identified as Sorcs3+ and medium NeuN-. Nuclei from astrocytes may be identified as Sorcs3- and NeuN-

[0074] Alternatively, Neuronal Differentiation 1 or Neurod1 (Neurod1+) may be used to sort granule cells; Purkinje Cell Protein 2 or Pcp2 (Pcp2+) may be used to sort Purkinje cells; Septin 4 or Sept4 (Sept4+) may be used to sort Bergmann glia; Collagen Beta(1-O)Galactosyltransferase 2 or Glt25d2, also known as Colgalt2, (Glt25d2+) was used to sort corticopontine pyramidal cells; and Neurotensin Receptor 1 or Ntsr1 (Ntsr+) was used to sort coticothalamic pyramidal cells. In some embodiments, the following nuclear transcripts may be used to identify the nuclei of each cell type: Alpha-2-Macroglobulin (A2m) for Sept4-positive cells (Bergmann glia), Pde1a and Colgalt2 for Colgalt2-postive cells (corticopontine pyramidal), Pde1a and Heparan Sulfate-Glucosamine 3-Sulfotransferase 4 (Hs3st4) for Excit-positive cells (excitatory neurons), Pde1a and Hs3st4 for Ntsr1-positive cells (corticothalamic pyramidal), Aristaless Related Homeobox (Arx) and Parvalbumin (Pvalb) for PV-positive cells (parvalbumin interneurons), Vasoactive Intestinal Peptide (Vip) for VIP-positive cells (VIP interneurons), Solute Carrier Family 9 Member A3 (Slc9a3) for Pcp2-positive cells (Purkinje), and Grin2c for NeuroD1-postive cells (granule).

[0075] In some embodiments, the nuclei of dopaminergic neurons from mice were sorted using forkhead Box A1 (FoxA1) and dopamine transporter solute carrier family 6 member 3 (Dat, also known as Slc6a3). Dopaminergic neurons are observed to be postive for both FoxA1 and Dat. In some embodiments, additional markers of dopaminergic neurons that may be used

for sorting include: tyrosine hydrolase (TH), forkhead box A2 (FoxA2), and dopamine receptor 2 (Drd2).

**[0076]** In some embodiments, downregulated genes in a sorted nuclei population may also be used as evidence of the identity of the cell type of the nuclei. For example, dopamine receptor D1 (Drd1) and glutamate decarboxylase (Gad) are not known to be expressed in dopaminergic neurons and therefore should be downregulated in a sorted population of nuclei from dopaminergic neurons.

**[0077]** In some embodiments, Wolframin ER Transmembrane Glycoprotein (Wfs1) and B-Cell CLL/Lymphoma 11B (Ctip2, also known as Bcl11b) may be used to sort nuclei of cortical cell types layer 2/3 pyramidal neurons and layer 5 and 6 pyramidal neurons from mice, respectively. In some embodiments, ETS Variant 1 (Etv1, also known as ER81) may be used to sort for nuclei of layer 5 pyramidal neurons. Etv1 had been previously observed to label both corticostriatal neurons, cortocopontine neurons, and potential others in layer 5 of the cortex. In some embodiments, Wfs1 may be used as a marker for Carbonic Anhydrase 1 (CA1)-positive neurons and Purkinje Cell Protein 4 (Pcp4) may be used as a marker for Carbonic Anhydrase 1 (CA2)-positive dentate gyrus.

**[0078]** In some embodiments, Solute Carrier Family 18 Member A3 (VaChT, also known as Slc18a3), Chondrolectin (Chodl), and Estrogen Related Receptor Beta (EsrrB) may be used as markers for nuclei from brainstem motor neurons in mice. Affinity labels specific to VaChT and ErrB label the motor neurons specifically, and Chodl labels everything except for these neurons. The antibody specific to Chodl may be replaced with one that directly labels the brainstem motor neurons.

**[0079]** In some embodiments, rat nuclei are sorted using at least one membrane protein or nuclear associated transcript. For example, nuclei from granule cells may be identified as Itpr negative (Itpr-), Olig2 negative (Olig2-), Sorcs negative (Sorcs-), and NeuN positive (NeuN+). Nuclei from purkinje cells may be identified as Itpr positive (Itpr+) and NeuN+. Nuclei from basket cells may be identified as Itpr+ and medium NeuN negative (med NeuN-). Nuclei from astrocytes may be identified as Sorcs3 positive (Sorcs3+) and med NeuN-. Nuclei from mature oligodendrocytes may be identified as Sorcs3- and NeuN-. Nuclei from a combination of mature oligodendrocytes and OPCs may be identified as Olig2 positive (Olig2+) and high NeuN negative (high NeuN-).

**[0080]** In some embodimentss, nuclei from purkinje cells derived from human samples may be identified as Itpr+ and Id2 positive (Id2+) or as FoxP4 positive (FoxP4+) and Itpr1+. In some embodiments, the nuclei of granule cells from human samples were identified as FoxP4+ and NeuN+. In some embodiments, nuclei from mature oligodendrocytes and OPCs may be

differentiated by the level of expression of Olig2. For example, low levels of expression of Olig2 (Olig2+ low) identify the nuclei as mature oligodendrocytes, and high levels of expression of Olig2 (Olig2+ high) identify the nuclei as OPCs.

**[0081]** The nuclei sorting strategies described herein may be applied to any species.

*B. Profiling cell types in the sorted nuclei of different species*

**[0082]** The genes expressed in each cell type define their function, their responses to internal and external cues, and their evolution across species. The cellular profiling technique described herein was demonstrated to be useful for highly accurate, cell-type specific gene expression profiling of neurons and glia from mouse, rat, and human brains.

**[0083]** In Mo, et al. (2015) Neuron 86, 1369–1384, which is hereby incorporated by reference herein in its entirety, nuclei from transgenic mice expressing a tagged nuclear membrane protein through a Cre-loxP system were profiled using RNAseq. Comparison of the RNAseq profiles of nuclei isolated from cell types in transgenic animals and wild type animals from different sources provides evidence that nuclear RNA profiles may be used to determine cellular identity and to measure the relatedness of different cell types. In some embodiments, the transgenic animal may express enhanced GFP (EGFP/L10a fusion protein) in the targeted cell type. In some embodiments, hieracrchical clustering from RNAseq results from nuclei sorted and characterized in Mo et al. and using the cellular profiling technique described herein provides groupings by cell types such as interneurons (e.g., VIP interneurons and parvalbumin interneurons) versus pyramidal cells (e.g., corticopyramidal, corticothalamic, and excitory).

**[0084]** Even classically defined, uniform cerebellar cell types are observed to differ between species by expression of hundreds of orthologous genes, and continued expression of human granule cell expressed genes were also commonly observed in other regions of the mouse brain. In fact, nuclear RNA profiles are sensitive enough to distinguish among different subtypes of neurons, such as mature oligodendrocytes (also referred to as conticopontine pyramidal neurons), and oligodendrocyte progenitor cells or OPCs (also referred to as corticothalamic pyramidal neurons).

**1. Differences in the RNA profile in sorted nuclei from mice**

**[0085]** In some embodiments, gene expression was analyzed by RNAseq to create a RNA profile. In some embodiments, results were normalized to the average expression across all samples for each gene. For example, the log2 fold change in RNAseq results from the nuclei purified by FACS for granule cells, purkinje cells, Bergmann glia, oligodendrocytes, and OPCs may be compared to the normalized RNAseq results for the 250 most variable genes across nuclei from all cell types. In mice, the most variable genes may be selected from 1700047M11Rik, 3110039M20Rik, 2410124H12Rik, 8030451O07Rik, 9530059O14Rik,

A230077H06Rik, A2m, A730036I17Rik, Aass, Acsm5, Actbl2, Adra2b, Afp, Aqp4, Arhgap25, Arx, Atp13a4, Atp1a2, Atp2a3, B230209E15Rik, B3gnt5, Barhl2, Bcl11b, Btbd17, Cacng3, Camk1g, Camkv, Car8, Casp12, Casq2, Cbln2, Cbln3, Cckbr, Cd70, Cd9, Cdc42ep1, Cdh19, Chrm1, Chrm3, Chsy3, Clic6, Cml5, Cnpy1, Cobl, Col1a2, Col4a5, Col6a1, Colgalt2, Corin, Coro6, Cpne7, Crym, Csta1, Ctxn3, Cxcl14, Cxcl5, Cxcr4, Cyp27a1, Cyp2j9, D430019H16Rik, Ddn, Ddx3y, Dlgap2, Dlx4os, Dlx6os1, Dmp1, E030003E18Rik, Ebf1, Ebf2, Ebf3, Ednrb, Egfr, Egr3, Eif2s3y, Elfn1, Emp2, En2, Enc1, Etnppl, Eva1a, F3, Fam107b, Fam19a1, Fat2, Fbln2, Fezf2, Fgd3, Flrt2, Folh1, Foxg1, Frem1, Gabra6, Galnt14, Gas1, Gda, Gdf10, Gja1, Gjb6, Gjc3, Gli1, Gli3, Glt25d2, Gm11549, Gm266, Gm5083, Gm5089, Gm5468, Gm5607, Gm8179, Gpr37l1, Grik1, Grm5, Hepacam, Hes3, Hs3st2, Hs3st4, Htr2a, Icam5, Icosl, Il22, Iltifb, Irx1, Irx2, Irx5, Itih3, Itpripl2, Kank1, Kcnc2, Kcnf1, Kcnj10, Kcnj16, Kcnj4, Kcnq5, Kcnt2, Kcnv1, Kctd12b, Kdm5d, Lama2, Lamp5, Lcat, Ldb2, Lfng, Lgr6, Lhx1, Lhx1os, Lhx5, Linc-md1, Lrrc7, Lyzl4, Mal2, March1, Megf10, Meis2, Mertk, Metrn, Mgst1, Miat, Mlc1, Mmp14, Mpped1, Msx2, Mybpc1, Myh6, Neto1, Nid1, Nkx2-2, Npr3, Npy1r, Nrgn, Nrk, Ntsr2, Nup62cl, Oprd1, P2ry1, Paqr6, Pax3, Pcsk6, Pde1a, Pde5a, Pdgfd, Pdzph1, Pih1h3b, Pkp3, Pla2g7, Plekhd1, Plekho2, Plpp3, Plscr1, Plscr4, Ppp1r17, Prkag3, Procr, Prr5, Ptk2b, Ptpn5, Ptprz1, Rab11fip1, Rab27b, Robo3, Rtn4rl2, Rxfp1, S1pr1, Scube1, Sdc4, Serpinh1, Skor2, Slc14a1, Slc1a3, Slc24a4, Slc2a10, Slc2a4, Slc30a3, Slc39a12, Slc6a7, Slc7a10, Slc9a3, Slco4c1, Smpx, Sod3, Sparc, Stac, Stk17b, Stk32a, Sycp1, Syt10, Tbr1, Tex36, Tlcd1, Tlr3, Tmem132b, Tmem179, Tmem200a, Tnc, Tox3, Tril, Trim30a, Trp53cor1, Ttpa, Uty, Vip, Vsig2, Vstm2b, Wif1, Zfp385c, Zfp831, Zic1, Zic2, Zic3, Zic4, and Zic5 or others identified herein.

**[0086]** In mice, genes whose expression may be used as markers to identify granule cells or their nuclei include genes that have the greatest change in expression compared to normalized expression in unsorted nuclei include: 2510003B16Rik, 4930449E18Rik, 6430548M08Rik, 6530403H02Rik, 9230112J17Rik, Ablim1, Ablim3, Ackr1, Adamts18, Adcy1, Airn, Ak4, Als2, Atp1a1, Atp2b3, Barhl2, Bcl2l15, Boc, Brinp1, Bsn, Btg1, C130030K03Rik, Cacna1c, Cacna1e, Cacna2d1, Cadm3, Cadps2, Calb2, Caln1, Camk4, Camkk2, Car10, Car15, Car4, Cbln1, Cbln3, Ccdc120, Cd300a, Cdh15, Cdh7, Cdh8, Celf4, Cerkl, Cers6, Chgb, Chn2, Chrd, Cnksr2, Cnnm4, Cntn6, Cntnap1, Cntnap4, Cplx2, Crhr1, Crtam, Dab2ip, Des, Dgkd, Diras2, Dlgap3, Dpp6, Dpysl4, Dusp5, Eif4e3, Epb41, Epb41l4b, Epha3, Erc1, Ets2, Etv1, Exph5, Faap20, Fam135b, Fat2, Fgf14, Fzd7, Gabra6, Gabrb3, Gabrd, Galnt13, Gap43, Ggact, Gm2694, Gm7854, Gm9899, Gm996, Golga7b, Gprc5c, Grik2, Grin2a, Grin2c, Grm4, Ica1l, Igfbp5, Il16, Il20rb, Inadl, Itga7, Jph3, Jph4, Kank2, Kbtbd11, Kcnc1, Kcnd2, Kcnh1, Kcnip4, Kcnj12, Kcnj6, Kcnk1, Kcnk10, Kcnk12, Kcnk3, Kcnk9, Kcnt1, Khnyn, Kif26b, Lgi1, Lhfp, Lin7a, Lrrc3b, Lurap1, Maml3, Mapk11, Mapk12, Marveld2, Mctp1, Mir670, Mmp24, Mpp4, Msra, Ndrg3,

Ndst3, Nedd4l, Negr1, Neto2, Neurl1a, Neurod1, Nhsl2, Nrep, Nrip2, Nrn1, Ntn4, Nxn, Olfm1, Olfm3, Pagr1a, Panx2, Pclo, Pcsk2, Pde10a, Pde3b, Pgm2l1, Pkib, Plch2, Plcl2, Plcxd3, Pld5, Ppargc1b, Ppfia4, Pqlc3, Prkce, Prr16, Prss52, Ptchd1, Ptpn22, Pxylp1, Rab15, Rab37, Ralyl, Rapgef4, Rbfox1, Rbfox3, Rcan3, Reln, Rims1, Rims2, Rims3, Rnf112, Rnf152, Ror1, Rps6ka1, Rtn4r, Rtn4rl1, Ryr2, Scn2a1, Sel1l3, Sema4f, Sergef, Sgpp2, Sgsm1, Sh3gl2, Shf, Shisa8, Sidt1, Slc16a10, Slc17a7, Slc25a22, Slc29a4, Slc2a13, Slc35f3, Slc8a2, Slc9a5, Slit3, Slitrk4, Snap25, Snrk, Specc1, Speg, Sphkap, Sptb, St3gal5, Stap2, Stmn2, Stxbp1, Stxbp5l, Sv2b, Svep1, Svop, Syndig1l, Syt1, Syt12, Syt4, Tas2r143, Tbata, Tbc1d8, Tenm1, Tesc, Tiam1, Tll1, Tmem163, Tmem178, Tmem181c-ps, Tmem266, Tmem56, Tmem63c, Tmtc4, Trhde, Ubtd2, Unc13c, Uncx, Usp3, Vat1l, Vsnl1, Wscd2, Xkr6, Xkr7, Zdhhc2, Zfp385b, and Zic2.

**[0087]** In mice, genes whose expression may be used as markers to identify purkinje or their nuclei include that that have the greatest change in expression compared to normalized expression in unsorted nuclei include: 1190002N15Rik, 1700008O03Rik, 1700124L16Rik, 2410124H12Rik, 9530052E02Rik, 9530059O14Rik, A330050F15Rik, Abhd3, Adam23, Adamts3, Adgrl2, Aff1, Ank1, Ankrd33b, Ankrd53, Anks1b, Apip, Arap1, Arhgap20, Arhgap26, Arhgef33, Arntl, Atl2, Atp2a3, Atp2b2, Atp6ap1l, Atp6v1b1, Atrnl1, Auts2, B3gnt5, Baiap2, Bcl11a, Bean1, Brinp2, Bzrap1, Cacna1a, Cacna1g, Cacna2d2, Calb1, Camk2a, Car7, Car8, Casq2, Ccdc107, Ccdc85a, Cck, Cds1, Cep126, Cep76, Clec2l, Clic6, Clstn3, Cntn3, Cntnap5b, Cntnap5c, Col18a1, Corin, Cpeb1, Cpne9, Csta1, Cyth3, D430036J16Rik, Dach1, Dagla, Defb23, Dgkg, Dgkh, Dgkz, Dlg2, Dlx4os, Dmd, Dner, Doc2b, Dpp10, Ebf1, Ebf2, Ece1, Etl4, Fam107b, Fam117a, Fam174b, Fam184b, Fam21, Fam78b, Far2, Fbxl21, Fgd3, Fhl5, Flt3, Fmnl1, Foxp2, Foxp4, Frmpd3, Gabbr2, Garnl3, Gfra2, Gm14169, Gm5083, Gm5803, Gng13, Gpr63, Grid2, Grid2ip, Grik1, Grip1, Grm1, H2-D1, Heatr5a, Hes3, Homer3, Hpcal1, Hrh2, Hspa12a, Htr1b, Icmt, Id2, Ifngr2, Il22, Iltifb, Inpp4a, Inpp5a, Itga3, Itpka, Itpr1, Kalrn, Kcnab1, Kcnab2, Kcnh7, Kcnip1, Kcnma1, Kctd12, Kitl, Ksr2, L3mbtl1, Large, Ldhd, Lhx1, Lhx1os, Lhx5, Linc-md1, Lpcat4, Lrfn5, Lrp8, Lrrfip1, Lsmem1, Magoh, Mcemp1, Mdfi, Mir124a-1hg, Mir138-1, Mir3470b, Mtss1, Myh10, Myo10, Nefh, Nefm, Nek2, Nell1, Nexn, Ninl, Nkiras2, Npr1, Nr2f2, Nrk, Nsg1, Nup93, Ociad2, Orai2, Paxbp1, Pcp2, Pcp4, Pde2a, Pde5a, Pde9a, Pih1h3b, Plcb3, Plekhd1, Plekhd1os, Plpp6, Plxdc1, Pnpla3, Polr1b, Ppp1r17, Ppp4r4, Prkag3, Prkcg, Prkg1, Prmt8, Psd2, Ptchd4, Ptprr, Rab43, Rbms1, Reep2, Retn, Rgs8, Rmdn3, Rnf19b, Rreb1, Rtel1, Ryr1, Scn4b, Serinc2, Sestd1, Sh2d4b, Shank1, Shisa6, Skor2, Slc16a9, Slc1a6, Slc20a1, Slc9a3, Smpx, Snhg11, Sorl1, Sos1, Sox5os3, Sptan1, Sptbn2, Stac, Steap2, Stil, Stk17b, Strip2, Strn3, Stxbp2, Svil, Sycp1, Syndig1, Syt7, Tenm4, Tex261, Thy1, Tm6sf1, Tmem255a, Trabd2b, Trpc3, Tspan11, Ttll5, Tuba8, Unc5d, Vax2, Vwa5b2, Ywhah, Zbtb46, Zfand4, Zfp385a, Zfp385c, and Znhit1.

**[0088]** In mice, genes whose expression may be used as markers to identify basket cells or their nuclei include that that have the greatest change in expression compared to normalized expression in unsorted nuclei include: 1700024F13Rik, 1700080N15Rik, 9530026P05Rik, A530058N18Rik, Acot10, Adamts15, Adamts16, Adamts2, Adarb2, Adgrl3, Adrb2, Agl, AI504432, Aldh18a1, Aldh1l2, Aldob, Ankrd13b, Ar, Arl4a, Arl4c, Arrdc1, Asgr1, Asic2, Asl, Asns, Atp1b1, Atp2b1, Bex1, Bhlhe22, Btbd11, Bzw2, C1qtnf4, Cabp1, Cacna1b, Cacna1d, Cacna2d3, Cacng2, Camk1g, Camk2n1, Cars, Ccdc136, Ccdc74a, Cd59a, Cdkl1, Cebpb, Cep70, Cgn, Chac1, Chchd7, Chd3os, Chst1, Chst9, Clmp, Cnpy1, Cnr1, Cntn4, Coro6, Cryba2, Csmd1, Csrnp3, Cx3cl1, Cyld, Cyp4x1, Cyp7b1, Dnah11, Dock7, Efna5, Elavl4, Elmod1, Eml5, Enpp1, Ephb2, Erc2, Esrrg, Fam84a, Fev, Fgf13, Flrt2, Frmd3, Fuca2, Gabra1, Gabrg2, Gad1, Gad2, Galnt18, Gars, Gdpd5, Gfra4, Gjd2, Glce, Gldc, Gm11780, Gm14204, Gm15631, Gm15663, Gm2762, Gpr12, Gprasp2, Grb10, Gria3, Grid1, Grik3, Grin2d, Grm8, H2afz, H2-Bl, Haus4, Hcn1, Heew1, Hnrnpa0, Hpca, Hpcal4, Hunk, Igsf3, Inhba, Inpp4b, Kcna2, Kcnab3, Kcns2, Kirrel, Kirrel3, Kit, Klhl33, Lamb1, Lrrc38, Lsm11, Ly6e, Lypd6, Maged1, Man2a1, March11, Mgat4c, Mgat5, Mir193b, Mir384, Mkx, Mpp7, Msantd4, Mtfp1, Mthfd2, Myo16, Myrip, Myt1l, Nap1l2, Nars, Ndn, Nefl, Neurod2, Neurod6, Nln, Nmt2, Nos1, Nos1ap, Nrxn3, Ntn1, Osbpl10, Osbpl5, Pam, Parm1, Penk, Pfkp, Pgrmc1, Phactr2, Phf24, Phyhip, Pja1, Pkp4, Pla2g4e, Plch1, Plcxd2, Plppr4, Plvap, Plxna4, Plxnc1, Pnck, Ppp1cc, Prdm8, Prkcd, Prrg3, Ptchd2, Purb, Rab10os, Rab3c, Rai2, Rasgrf1, Rasl10b, Rec8, Ret, Rmst, Rora, Rph3a, Rpl15, Scn9a, Sdk2, Sema3e, Serpini1, Sesn2, Sez6, Sgk1, Sgtb, Shank3, Skor1, Slc12a5, Slc19a2, Slc1a4, Slc24a3, Slc2a3, Slc32a1, Slc4a8, Slc6a7, Slc7a1, Slc7a3, Snph, Socs2, Sod2, Sorbs2, Sorcs3, Sp5, Stac2, Stard5, Stc2, Syt13, Tbc1d30, Tbc1d4, Tfap2a, Tfap2b, Tmem117, Tmem132e, Tmem151b, Tmem169, Tmem25, Tram1l1, Trib3, Trim67, Tro, Trpc5, Trpc7, Tspyl4, Ttc39b, Ttc9, Unc5c, Usp1, Vmn2r2, Wasf1, Wbscr17, Wfs1, Xkr4, Zbtb18, Zcchc16, and Zfp423.

**[0089]** In mice, genes whose expression may be used as markers to identify astrocytes or their nuclei include genes that have the greatest change in expression compared to normalized expression in unsorted nuclei include: 1700066O22Rik, 2810032G03Rik, 3110082J24Rik, 9330188P03Rik, A2m, A330033J07Rik, Abi3bp, Acot11, Acsbg1, Actr3b, Adra1a, AI464131, Akt2, Aldh1l1, Alms1-ps2, Apoe, Aqp4, Arrb1, Atp13a4, Atp1a2, Atp1b2, AU022751, Axl, Baalc, Bcar3, Btbd17, Cables1, Cacnb1, Cacng5, Cacng8, Camk1, Camk2g, Caskin1, Cbs, Ccdc190, Ccdc78, Cd70, Cdc42ep1, Cdc42ep4, Cdh22, Cdh4, Celrr, Clcn2, Clu, Cml5, Cmya5, Cnn3, Cpne2, Ctxn3, Cxcl14, Cyp2d22, Cyp4f14, D330050G23Rik, Dao, Ddah1, Ddo, Dmp1, E030003E18Rik, Ednrb, Efhd2, Efnb2, Egfr, Elmo2, Elovl2, Emid1, Erich5, Etnppl, Etv4, Eva1a, F830045P16Rik, Fads2, Fam107a, Fam173a, Fam20a, Fam43a, Fam92b, Fgd6, Fgfr3, Frem1, Frmpd1, Fxyd1, Fxyd7, Fzd1, Gabra2, Gabra4, Gabrb1, Gareml, Gas2l3, Gdf10, Gja1,

Gjb6, Gli1, Gli2, Glipr2, Gm5089, Gm6277, Gpr153, Greb1l, Gria1, Gsap, Gstm1, Hif3a, Hk2, Hopx, Hrh1, Htra3, Icosl, Id4, Igdcc3, Igdcc4, Itih3, Itpkb, Kifc3, Klf15, Lama2, Lcat, Lfng, Lgi4, Lgr6, Lrig1, Lrp3, Lrrc8a, Man1c1, Map2k6, Mertk, Metrn, Mfge8, Micalcl, Mir3093, Mir6375, Mir6390, Mlc1, Mmd2, Mpp6, Mro, Msi1, Msx2, Mt1, Mt2, Mt3, Mxra8, Mybpc1, N4bp3, Nat8, Nbl1, Ndrg2, Nhsl1, Nkain4, Nr1d1, Ntsr2, Nudt14, Nwd1, Oplah, Paqr6, Paqr8, Pax3, Pbxip1, Pde8b, Pdlim4, Phf21b, Phka1, Phkg1, Phyhd1, Pitpnc1, Pitpnm2, Pla2g7, Plce1, Plekho2, Plpp3, Plscr4, Pltp, Plxnb1, Pnky, Pnpla7, Por, Ppm1m, Prex2, Proca1, Prodh, Prr5, Ptch1, Ptch2, Pxmp2, Pyroxd2, Rab34, Rab36, Ramp2, Rasl11a, Rbm24, Rdh5, Rfx2, Rfx4, Rgl1, Rgma, Rpph1, Rpusd3, Rras, S1pr1, Sdc4, Sfxn1, Sfxn5, Sh3pxd2b, Shisa9, Sirpa, Slc12a4, Slc13a5, Slc1a2, Slc1a3, Slc25a18, Slc27a1, Slc38a1, Slc38a3, Slc39a12, Slc41a1, Slc4a4, Slc7a10, Slc8b1, Slco4a1, Smad3, Smim23, Sned1, Sod3, Sox9, Sparc, Sparcl1, Stk32a, Synpo2, Syt10, Tapbpl, Tcf7l1, Tmem198b, Tnc, Tom1l1, Traf1, Trib2, Tril, Trp53cor1, Ttll3, Ttll8, Ttyh1, Ttyh3, Ucp2, Vim, Wwc1, Zfp467, Zfp641, Zic1, Zic4, and Zim1.

**[0090]** In mice, genes whose expression may be used as markers to identify oligodendrocytes or their nuclei include that that have the greatest change in expression compared to normalized expression in unsorted nuclei include: 1500015L24Rik, 1700063D05Rik, 4930474G06Rik, 4933413G19Rik, 5031410I06Rik, 5031439G07Rik, 5430431A17Rik, 9330111N05Rik, 9330117O12Rik, A230001M10Rik, A330049N07Rik, Aatk, Abca8a, Adamtsl4, Adap1, Adipor2, Agpat4, Ankub1, Ano4, Apod, Arc, Arhgap23, Arhgef10, Arl4d, Arrdc2, Arrdc3, Arsg, Aspa, Asphd1, B3galt5, Bche, Bcl2l1, Bicd2, Bin1, Bpgm, C030029H02Rik, C630043F03Rik, Car14, Car2, Carns1, Ccdc152, Cep110, Cdh19, Cdk18, Cdk19, Cep97, Cers2, Chdh, Cldn11, Cnp, Cntn2, Cpm, Cpox, Creb5, Cryab, Cyp2j12, D16Ertd472e, D1Ertd622e, D7Ertd443e, Daam2, Ddit4, Ddr1, Degs1, Depdc7, Dnajb2, Dock10, Dock5, Dpy19l1, Dusp26, Edil3, Efnb3, Elovl7, Endod1, Enpp2, Enpp4, Erbb2ip, Erbb3, Ermn, Fa2h, Fam134b, Fam46a, Fbxo32, Fbxw15, Folh1, Frmd4b, Fth1, Gab1, Galnt5, Galnt6, Gatm, Gbp11, Gjb1, Gjc2, Glul, Gm10471, Gm1979, Gm21671, Gm5535, Gm5862, Gm7361, Gm9895, Gng11, Gng8, Gpr37, Gpt, Grm3, Gstm7, Hapln2, Hebp1, I730030J21Rik, Il33, Inf2, Insc, Josd2, Kcnj2, Kcnk13, Kctd13, Kctd3, Kif13b, Klhl2, Klk6, Kndc1, Lap3, Larp6, Lipa, Litaf, Lrrc8b, Lzts2, Mag, Mal, Map6d1, Map7, Mast3, Mast4, Mboat1, Mbp, Mcam, Mobp, Mog, Myo1d, Myrf, Ndrg1, Neat1, Nfe2l3, Nhlrc4, Nipal4, Nkain1, Nkain2, Nmral1, Olfml1, Opalin, Osbpl7, Pacrg, Pacs2, Pak7, Pde4b, Pde8a, Pex5l, Phlpp1, Piga, Pigz, Pik3c2b, Pim3, Pip4k2a, Pkd2l1, Pla2g16, Plcl1, Plekhg3, Plekhh1, Plp1, Pls1, Plxnb3, Ppfibp2, Ppp1r14a, Prickle2, Prima1, Prox1, Prr18, Prr5l, Prrg1, Psat1, Pstpip2, Ptgds, Ptma, Ptprd, Qdpr, Rasgrp3, Rcbtb1, Rffl, Rhob, Rhou, Rnf220, Rnf7, Rtn4, S1pr5, Sall1, Sccpdh, Sec11c, Sec14l5, Serpinb1a, Sez6l2, Sgk2, Sh3tc2, Shisa4, Shtn1, Slain1, Slc12a2, Slc25a13, Slc38a2, Slc48a1, Slc7a15, Smad7, Sox2ot, Speer4a, Spg20,

St18, St6galnac3, Stmn1, Stmn4, Stxbp6, Synj2, Sytl2, Tbc1d5, Thumpd1, Tmeff1, Tmeff2, Tmem125, Tmem151a, Tmem229a, Tmem258, Tmem63a, Tmem88b, Tmem98, Tmprss5, Tnfaip6, Tnni1, Tppp, Trf, Trim36, Trim59, Tspan2, Ttll7, Tubb4a, Ugt8a, Usp31, Usp54, Vmp1, Xaf1, and Zdhhc20.

**[0091]** In mice, genes whose expression may be used as markers to identify oligodendrocyte progenitor cells (OPCs) or their nuclei include that that have the greatest change in expression compared to normalized expression in unsorted nuclei include: 1700086L19Rik, 1810041L15Rik, 5730559C18Rik, 6330403K07Rik, 8030451O07Rik, A230077H06Rik, A730017C20Rik, Abcg2, Abhd2, Abtb2, Adam12, Adm, Alcam, Amz1, Arhgap24, Asap3, Ascl1, B3gat2, B9d1, Basp1, Bcas1, Bmp4, Brinp3, C1ql1, C1ql2, Cacng4, Calcrl, Cav1, Cav2, Ccnd1, Cd200, Cdh13, Cdh24, Cdo1, Cfap20, Chadl, Chst11, Chst2, Chst3, Chst5, Cobl, Col11a2, Col27a1, Csgalnact1, Csnk2a2, Cspg4, Cspg5, Ctxn1, Cysrt1, Dbpht2, Dcc, Dpm3, Dpysl3, Dscam, Ebf4, Eid2b, Elfn1, Elfn2, Enpp6, Epb41l2, Epn2, Eya1, Fam19a2, Fam3c, Fam89a, Fbn2, Fdps, Fhl3, Frrs1, Ftsj2, Fzd9, G0s2, Galnt3, Gfpt2, Gfra1, Gng4, Grm5, Gsx1, H2-K1, Has2, Hip1r, Hrk, Ick, Ifitm7, Igfbp3, Itga9, Itpr2, Kcnh5, Kcnh8, Khdrbs3, Klhl5, Lbh, Lhfpl3, Limd1, Lims2, Lmcd1, Lpcat2, Lrfn2, Lrrc4c, Lrrtm4, Marcks, Matn1, Matn4, Mex3b, Mfsd2a, Miat, Mir17, Mmp15, Mmp16, Mmp2, Mycl, Myt1, Ncan, Neto1, Neu4, Nova1, Nxph1, Olfm2, Olig2, Opcml, Oprl1, Pcdh15, Pcdh17, Pcdh7, Pdgfra, Pdzd2, Pfn2, Phlda1, Pmepa1, Ppfibp1, Ppp2r2b, Prr36, Prss23, Prss48, Ptgfrn, Ptpro, Pxdc1, Qpct, Rapgef3, Rasgef1b, Rcn1, Rep15, Rgcc, Rin2, Rlbp1, Rnd2, Rnf122, Rpl13, Rprm, S100a3, S100a4, S1pr2, Sapcd2, Scel, Scrg1, Sema3d, Sema5a, Sema5b, Serpine2, Sertm1, Sh3bp4, Sh3rf1, Slc1a1, Slc22a23, Slc35f1, Slc44a5, Slitrk3, Slitrk5, Slitrk6, Snhg5, Snx1, Snx22, Sox10, Sox4, Sox6, Spry4, Sstr1, Sulf2, Susd5, Tac1, Tes, Tgfa, Tmem100, Tmem132b, Tmem176b, Tnr, Tns3, Tox3, Tspan6, Vash1, Vcan, Vmn1r55, Vpreb1, Vstm2b, Vwc2, Xylt1, Zc3hav1l, Zdhhc23, Zfp365, and Zfp488.

**[0092]** In some embodiments, one, two, three, or more, including sets, subsets of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 25, 30, 40, 50 or more markers listed may be used to identify nuclei of any one or more of granule cells, basket cells, astrocytes, oligodendrocytes, and OPCs from any of humans, mice, rats, or non-human primates. Hierarchical clustering may be used to visualize the degree of similarity among RNAseq profiles.

**2. Differences in the RNA profile in sorted nuclei from rats**

**[0093]** In some embodiments, nuclei from rat tissue are sorted into groups of nuclei from granule cells, purkinje cells, basket cells, astrocytes, oligodendrocytes, and OPCs. A gene that is differentially expressed compared to the normalized expression across granule cells, purkinje cells, astrocytes, oligodendrocytes, and OPCs may be used as a marker. For example, expression

or lack of expression of at least one of the differentially expressed genes selected from: AABR07001623.1, AABR07001734.1, AABR07006310.1, AABR07006713.1, AABR07006713.2, AABR07006727.1, AABR07013140.1, AABR07026032.2, AABR07030473.1, AABR07030880.1, AABR07046961.1, AABR07047823.1, AABR07049491.1, AABR07052897.1, AABR07058658.1, AABR07061428.1, AABR07070161.1, AABR07070161.6, AABR07070578.1, Abi3, Aqp9, Arhgef26, Arhgef33, Arl4a, B3gnt5, Bgn, C1ql1, C1ql2, Cacng5, Cadps2, Calb1, Calb2, Car4, Car8, Cav1, Cbln1, Ccnd1, Cdh15, Cdk2, Cep76, Cldn11, Clmp, Col12a1, Col5a3, Cspg4, Cyp2d5, Enpp1, Ermn, Fam107b, Fam89a, Fat2, Gabra6, Gabrd, Gdf10, Gjd2, Gldc, Gli1, Gpr37, Gpr63, Grm8, Hapln2, Hpcal4, Id4, Il16, Itga7, Itga9, Itih3, Itpr1, Kcnh1, Kcnj12, Klk6, Lama3, Lfng, Lgi4, Lims2, Lypd6, Mag, Mal, March11, Mobp, Mog, Msx2, Mt2A, Nkain4, Opalin, Pdgfra, Plch1, Plk2, Plxdc1, Pmel, Pou3f2, Ppfibp1, Ppp1r17, Prr5l, Prrt2, Qdpr, Rasgrp3, Rbfox3, RGD1561557, RGD1561849, Rlbp1, Ryr1, S1pr1, Scara3, Selplg, Serpine2, Slc1a6, Slc25a18, Slc5a11, Slc7a10, Slc9a3, Snx22, Sorcs3, Sv2b, Tesc, Tmem255b, Tmem63a, Tmem88b, Tnc, and Zfp385c and may be used as a species specific and cell type specific marker.

**[0094]** In rats, genes whose expression may be used as markers to identify granule cells or their nuclei include significantly enriched expression of Fat2 and Rbfox3compared to normalized expression in unsorted nuclei. Genes that may be used as markers to identify purkinje cells or their nuclei include significantly enriched expression of Car8 and Calb1. Genes that may be used as markers to identify Bergmann glia or their nuclei include significantly enriched expression of Aldh1L1 and Slc1a3. Genes that may be used as markers to identify oligodendroctyes (corticopontine pyramidal cells) or their nuclei include significantly enriched expression of Colgalt2. Genes that may be used as markers to identify Bergmann glia or their nuclei include significantly enriched expression of Hs3st4 was observed to be specific to corticothalamic pyramidal cells, while Pde1a and Csmd1 were observed to be expressed in oligodendrocytes and OPCs (both cortical pyramidal cell types).

**[0095]** In some embodiments, expression of Itih3 may be used as a marker of both Bergmann glia, a type of astrocyte, and non-Bergmann glia astrocytes of the cerebellum. Additional markers for the nuclei of the 6 cell types may include: Tescalcin (Tesc) for granule cell nuclei, Carbonic Anhydrase 8 (Car8) for purkinje cell nuclei, March11 for basket cell nuclei, Inter-Alpha-Trypsin Inhibitor Heavy Chain 3 (Itih3) for astrocyte nuclei, Mog for oligodendrocyte nuclei, and Platelet Derived Growth Factor Receptor Alpha (Pdgfra) for oligodendrocyte progenitor cell nuclei.

**[0096]** In some embodiments, the Allen Mouse Brain Atlas *in situ* hybridization database was used to analyze the localization of the markers to confirm cell type.

[0097] In some embodiments, one, two, three, or more, including sets, subsets of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 25, 30, 40, 50 or more markers listed may be used to identify nuclei of any one or more of granule cells, basket cells, astrocytes, oligodendrocytes, and OPCs from any of humans, mice, rats, or non-human primates. Hierarchical clustering may be used to visualize the degree of similarity among RNAseq profiles.

**3. Differences in the RNA profile in sorted nuclei from humans**

[0098] Analysis of samples from sixteen human postmortem brains revealed that the specific molecular consequences of aging, gender, autolysis time of the tissue sample, and stress differ between cell types, although in each case, expression of genes involved in synapse development and maintenance was diminished. A robust and cell-type specific molecular pathway was indicative of a pathophysiological response occurred in the brains of three of sixteen donors. Cerebellar granule cells the three brain samples were observed to exhibit robust induction of a set of 224 genes containing many immediate early genes and were enriched for GO categories (protein folding/refolding, apoptosis, transcriptional response to stress, response to external stimuli, ATPase activity, etc..) indicating an acute response to some external influence; yet no shared clinical conditions were apparent for these donors. As stated in the Examples, no correlation with autolysis time and no induction of glial markers indicative of stroke or brain damage has been evident. Although activity dependent gene expression changes have been characterized extensively in cultured mouse granule cells, the response identified in these three human samples was overlapping but distinctive. Results herein guideposts for experimental investigation of model systems or iPS cells aimed at identification of signals that elicited these responses in the human brain. The molecular profiling using the cellular profiling technique described herein can be applied to any species and provides an avenue for investigation of molecular events associated with human cell type function and dysfunction.

[0099] In some embodiments, increased expression for Rbfox3 and Fat2 may be used as markers for nuclei from granule cells in humans. Alternatively, increased expression for March11 may be used as a marker for nuclei from basket/stellate cells in humans. Alternatively, increased expression for Aldh1a1 and Slc1a3 may be used as markers for nuclei astrocytes in humans. Alternatively, increased expression for Mog may be used as a marker for mature oligodendrocytes. Alternateivly, increased expression for Pdgfra and chondroitin sulfate proteoglycan 4 (Cspg4) may be used as markers for OPCs.

[00100] In some embodiments, one, two, three, or more, including sets, subsets of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 25, 30, 40, 50 or more markers listed may be used to identify nuclei of any one or more of granule cells, basket cells, astrocytes, oligodendrocytes, and

OPCs from any of humans, mice, rats, or non-human primates. Hierarchical clustering may be used to visualize the degree of similarity among RNAseq profiles.

**[00101]**

*C. Directly defining human cell types*

**[00102]** The cellular profiling technique described herein may be also used independently of the cell types that have been characterized in mice because there are differences between neurons from mouse and human, and there may be human-specific neuronal subtypes. Putative cell-type specific genes for sorting were identified by examining the transcriptional profile of unsorted nuclei from a region of interest. In mice, chromosomal associated transcripts (CATs) and polyA+ transcripts that were observed to be expressed at low levels in unsorted nuclei were often expressed at high levels in one or a few cell types. The differences between species were explored for different cell types, and the findings were supported by in situ hybridization and immunofluorescence. Human nuclear RNAs from specific cell types were profiled using the same strategy in the context of cellular profiling method described herein.

IV. COMPARATIVE ANALYSIS OF NUCLEAR PROFILES

**[00103]** The isolation and transcription profiling nuclei of multiple cell types from mice, rats, and humans are described herein. For example, the cell types originate in basal ganglia, thalamus, cerebellum, or hippocampus tissue. Cell types that originate in the cerebellum include: Purkinje cells, granule cells, Bergmann glia, basket/stellate cells, astrocytes, oligodendrocytes, and cerebellar deep nuclei cells. These samples were sequenced for analysis to determine differences between individuals and across species. In some embodiments, results are validated by *in situ* hybridization on tissue slices.

**[00104]** The driving force for development of an accurate and efficient nongenetic method for characterization of the molecular properties of defined CNS cell types is to enable direct investigation of human biology. Major differences are observed between gene expression in the same cell type between mice and humans. Given the tremendous explosion of studies identifying the genetic causes of human disease and the astounding demonstrations in both animal models and humans that these can include lesions that involve simple changes in gene dosage, exploration of details of cell types in normal and affected brains is imperative. Therefore, comparative analysis of data obtained in experimental systems using the cellular profiling technique described herein showing human cell type specific characteristics will advance understanding of the large variety of human disorders that impact CNS circuits.

**[00105]** A recent evolutionary model (Arendt, D. (2008). Nat Rev Genet 9, 868–882 and Arendt, et al. (2016) Nat Rev Genet 17, 744–757, each of which are hereby incorporated by reference herein in its entirety) was a helpful consensus definition of cell type for consideration

of the data generated using the cellular profiling technique described herein. According to this model, the specific characteristics of homologous cell types can vary as long as they remain defined by a distinctive, shared regulatory apparatus. For example, Purkinje cell, granule cell, or astrocyte gene expression profiles can vary between species, or even in individual cells of a type, without losing their cell type identity. This definition accommodates both functional changes in cell types between species and altered expression of genes within the cell type due to mutations in cis-regulatory sequences. The data herein documents major differences in the expression of orthologous genes in each cell type between rodent and human brains. Hundreds of these differences are cell-type specific and, in granule neurons, most of these genes remain expressed in other regions of the brain. These data demonstrate that the fine-tuned biochemistry of homologous human and mouse CNS cell types differs significantly.

**[00106]** The results presented here contribute two major insights into mammalian brain evolution. First, while they are consistent with previous published examples of cis-regulatory sequence divergence as a mechanism of evolution (Maricic, et al. (2012) Molecular Biology and Evolution 30, 844–852; Prud'homme, et al. (2006) Nature 440, 1050–1053; Weyer et al., Mol Biol Evol. 2016 Feb; 33(2): 316–322, 2015; each of which is hereby incorporated by reference herein in its entirety), the lack of highly enriched GO categories for most of the cell specific events documented herein suggests strongly that regulatory changes are major drivers of phenotypic variation between homologous cell types in mammalian brain. This is consistent with the evolutionary model presented above, since it allows substantial evolution of the functional properties of the cell while maintaining the core regulatory complex (CoRC) that defines a given cell type (Arendt, et al. (2016) Nat Rev Genet 17, 744–757, which is hereby incorporated by reference herein in its entirety). Second, the expression differences documented herein are large, and the analysis was restricted to high confidence orthologous genes. The data complement a previous study of progenitor cells that reported substantive changes in the expression of human genes that lack mouse orthologues (Florio et al, Science. 2015 Mar 27;347(6229):1465-70, which is hereby incorporated by reference herein in its entirety). If taken together, these datasets predict that the expressed differences between mouse and human cell types are extensive, cell-type specific, and phenotypically important.

**[00107]** In certain embodiments of profiling human samples using the methods herein, the correlation coefficients were between samples (r=0.98 – 1.0) indicating that the results are extremely reproducible, and that that the impact of autolysis time on the expression profile of nuclear RNAs is minor. Initial indications that gender and age impact gene expression differently in CNS cell types indicated that the cellular profiling technique described herein is sufficiently accurate for detailed investigation of both sexually dimorphic human behaviors and the aging of

specific brain circuitry. For example, comparative analysis of human brains by cellular profiling technique described herein provides insight into the impacts of aging on cell types that are selectively vulnerable into late-onset human disorders.

*A. Identifying cell type specific functions differing among species*

**[00108]** While the organization of the cells in the cerebellum is similar between mouse and human, many differences remain. For example, Purkinje cells are much more spread out and NeuN- cells are expanded in the Purkinje layer in human cells compared to mouse cells, which is evidence that the human cerebellum has a different organization compared to mouse. Additionally, the size of Purkinje cell bodies and nuclei are bigger in human compared to mouse. In some embodiments, RNAseq may be used to compare gene expression between species to identify specifies specific markers. For example, protein tyrosine kinase 2 beta (Ptk2b), solute carrier family 43 member 2 (Slc43a2), glutamate ionotropic receptor kainate type subunit 3 (Grik3), Itpr1, protocadherin 9 (Pcdh9), and RAS guanyl releasing ptotein 1 (Rasgrp1) nuclei from granule, stellate, and glia cells may be used to differentiate between human and mice nuclei. Because the cerebellum is one of the most conserved brain structures across species, more structural and molecular differences are more likely to be observed in other brain regions.

**[00109]** Although heterogeneity may be shown between samples from the same species, the genes most specific to each cell type in different species may be used as unique markers of the cell types. In some embodiments, expression of more than one gene may be used to identify a particular cell type. Genes differentially expressed compared to normalized expression across all cell types, such as granule cells, purkinje cells, astroctyes, oligodendrocytes, and OPCs, may be eliminated from analysis to identify at least one marker for the cell type of interest.

**[00110]** In some embodiments, the most specific genes are calculated using the algorithm for the Specificity Index (SI) as described herein. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of granule cells derived from human samples are Cadps2, Reln, Synpr, Galnt5, Ccm2l, Srrm4, Tmem266, Cckbr, Cerkl, Chn2, Grik2, Mal2, Fat2, Adamts16, Lcn8, Fstl5, Tll1, Vsnl1, Rit2, Slc8a2, Slc17a7, Zp2, Tspan18, Fgf5, Prag1, Slc6a7, Rims1, Cdh7, L1cam, Mical2, Ptk2b, Kcnh1, Arhgap29, Cdk15, Pde3b, Itga4, Etv1, Tmem178, Chgb, Col13a1, Rnf152, Kcnk1, Il16, Sstr2, Als2, Barhl1, Scn2a, Cbln1, Dusp5, Ndst3, Lurap1l, Kcnj12, Snai2, Ifnlr1, Neurod1, Cdyl2, Ppp1r1c, Jkamp, Neurl1a, Trhde, Mfsd9, Xkr7, Barhl2, Cbln3, Uncx, Ptchd1, Cblb, Runx1t1, Sphkap, Gabra6, Coro2a, Bmper, Dkk4, Camk4, Unc13c, Trp53i11, Ephb1, Glb1l3, Mdga1, Kcnc1, Tmem252, Mpp7, Hipk4, Tmem51, Cacnb3, Cyb5a, Tmem2, 6430573F11Rik, Rasgrp1, Rab37, Adarb1, Svop, Pgm5, Mthfd1l, Cdh15, Vwc2, Disp2, Tspan15, Slc26a5, and Lhfp. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of granule cells derived from mouse samples are Gabra6, Grin2c, Fat2,

Cadps2, Ptpn22, Chn2, Neurod1, Calb2, Trhde, Il16, Ppfia4, Cbln1, Sidt1, Tmem266, Gabrd, Reln, Kcnj12, Gprc5c, Rims3, Tll1, Cbln3, Olfm3, Slc17a7, Chgb, Kcnh1, Cdh15, Barhl2, Dusp5, Kcnc1, Camk4, Des, Cerkl, Svep1, Unc5c, Slc8a2, Cacna2d1, Pxylp1, Ptchd1, Sel1l3, Rtn4r, Cacna1e, Patj, Atp2b3, Marveld2, Kcnk10, Rab15, Rapgef4, Rims1, Tmem178, Ak4, Lin7a, Igfbp5, Tesc, Neurl1a, Vat1l, Msra, Vsnl1, Rps6ka1, Lhfp, Kcnk3, Ryr2, Exph5, Kif26b, Adamts18, Cntnap4, Tspan18, Mmp24, Cdh8, Ablim3, Cadm3, Ntf3, Pld5, Syndig1l, Galnt15, Etv1, Sh2d1a, Scn2a, Panx2, Speg, Bsn, Rnf112, Il20rb, Slc16a10, Ntn4, Adcy1, Mapk12, Boc, Syt12, Fstl5, Tead4, Clcn1, Pde3b, Pgm2l1, Tmtc4, Abcc8, Olfm1, Nedd4l, Lurap1, Krt24, and Als2. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of granule cells derived from rat samples are Tesc, Itga7, Rbfox3, AABR07013140.1, Calb2, Kcnh1, Cdh15, AABR07030880.1, Prrt2, Gabrd, Il16, Scara3, Cbln1, AABR07026032.2, Cadps2, Sv2b, Fat2, Gabra6, Car4, Kcnj12, Nrep, AABR07043098.3, Rtn4r, Shisa8, Sel1l3, Grb7, Rgl3, Dusp5, Chn2, Lamp5, Pagr1, Cemip, Gprc5c, Shf, Wdr66, Tmem44, Reln, Tll1, Slc17a7, Pax6, Capn1, Calhm3, AABR07043098.1, Camk4, Selm, Sema3g, LOC100360491, Diras2, Agbl2, Mctp1, Mvp, Tmem51, Vsnl1, Plk5, Mrgprf, LOC100910401, Ak4, Wscd2, Grin2a, Cfap74, Rnf39, Cbln3, Fzd7, Golga7b, AABR07033679.1, Ptpn22, Grin2c, Ablim1, Kcnk1, Arpp21, C1rl, Zscan30, Maf, Rtn4rl1, Barhl2, Kcnk12, Actl6b, AABR07053850.1, Sdc1, Camkk2, Nudcd3, Ccdc155, Cbfa2t3, AABR07037151.1, Etv1, Jph3, Itga11, Rnf182, RGD1560784, Plcxd3, Ablim3, Rims1, Nyx, Unc5c, AABR07034445.1, AABR07025051.3, Kcnk10, Kcnk3, Nol3, and Als2.

**[00111]** For example, the most specific genes (ordered by decreasing specificity) in the nuclei of purkinje cells derived from mouse samples are Car8, Calb1, Arhgef33, Atp2a3, Itpr1, Ppp1r17, Slc1a6, Slc9a3, Trpc3, Casq2, Clic6, Plekhd1, Ryr1, Cacna1g, Pcp2, Sycp1, Pde5a, Tspan11, Gpr63, Nell1, Cep76, Bcl11a, Grid2ip, Htr1b, Pet100, Strip2, Plxdc1, Skor2, Dagla, Garnl3, Itpka, Myo10, Gng13, Kcnip1, Trabd2b, Rnf207, Scn4b, Arhgap20, Grip1, Pde9a, Ppp4r4, Cck, Ebf1, Bean1, Tuba8, Smpx, Ebf2, Slc19a1, Ccdc85a, Flt3, Camk2a, Sh2d4b, Homer3, Stk17b, Clec2l, Hrh2, Ksr2, Chtf18, Vax2, Foxp4, Ankrd33b, Cpne9, Corin, Il22, Prkag3, Cep126, Slc20a1, Akain1, Nrk, Pih1h3b, Inpp5a, Lhx1, Sptbn2, Paxbp1, Dner, Doc2b, Tspoap1, Gfra2, Fhl5, Dmd, Kcnab2, Serinc2, Car7, Dnah6, Prmt8, Prkcg, Mdfi, Dgkh, Fam117a, Nek2, Fmnl1, Atl2, Cfap161, Lin28b, Cacna2d2, Ptchd4, Pkp3, Shank1, Grid2, Nefh. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of purkinje cells derived from rat samples are: Arhgef33, Car8, Slc1a6, Calb1, Ppp1r17, Itpr1, Zfp385c, Ryr1, AABR07030473.1, Slc9a3, AABR07006713.1, AABR07006713.2, RGD1561557, Gpr63, AABR07049491.1, AABR07006727.1, Plxdc1, Cep76, Fam107b, B3gnt5, Far2, AC108261.1, Grid2ip, AABR07072628.1, Kcnip1, AABR07006724.1, Trpc3, Phka2, Car7, Fam117a, Hes3,

Casq2, Dgkh, Arhgap26, Trabd2b, Nell1, Bcl11a, Col18a1, LOC100125362, Ptchd4, Camk2a, Dyrk4, Kitlg, Kcnab1, Nxnl2, Ltk, LOC689927, AABR07056156.1, Cpne8, Htr1b, AABR07033570.1, Icmt, AABR07047598.1, Cstf2t, Grik1, Itpka, LOC100910996, Hpcal1, Efna5, Myo10, Rgs8, Skor2, Il22, Slc12a3, Cpne9, AABR07007980.2, Cacna1g, Doc2b, Sptbn2, LOC108351705, AABR07035926.1, AABR07037943.1, Pcp2, AABR07061860.1, AABR07024820.1, Impg1, Nkiras2, Krtap12-2, Tmem123, AABR07044009.1, Ptprr, Homer3, Garnl3, Sos1, Kcnab1, Cntn3, LOC304725, Stk17b, AABR07047604.1, Zdhhc23, Scn4b, AC126640.1, Pde9a, Ptprb, Prkcg, Pcp4, AABR07056374.1, Fstl4, Ppp4r4, and Nup93.

**[00112]** For example, the most specific genes (ordered by decreasing specificity) in the nuclei of basket cells derived from human samples are: Bhlhe22, March11, Kit, Tfap2b, Clmp, Lbx1, Slc38a5, Frmd3, Btbd11, Lipg, Rab3b, Lrrc38, Galnt14, Cnr1, Tcerg1l, Cbln2, Siah3, Stac2, Scgn, Rspo1, Lmcd1, Lpl, Adra1b, Gad2, Chrna3, Socs2, Trpc6, Kcna3, Syn3, Eml5, Nefl, Fam84a, Trpc5, KIAA1644, Hrh3, Disp3, Tfap2a, Gjd2, Adamts2, Sorcs3, Ptprk, Timp3, Gjb4, Ehd3, Cxcl12, Actc1, Pnma2, Fam43a, Adam11, Dact2, Rgs16, Slc5a8, Exph5, Cfap221, Myo16, Megf10, Cacna1d, Pax2, Efna5, Plch1, Gabrg2, Prrt4, Itga5, Sp5, Nefm, Grik3, Cx3cl1, Fbxo24, Lect2, Nefh, Efnb3, Grk3, Mpz, Syt2, Scrt1, Cdc42ep3, Trim67, Grin2b, Rab3c, Plxna4, Fzd8, Elmod1, Smim17, Slc8a3, Nrip3, Plekhg5, Arl4a, Grm8, Cntnap5a, Maats1, Loxl2, Arap3, Dcx, Nyap2, Skor1, Pvalb, Ppm1j, Slc5a4a, Tmem132e, and Cygb. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of basket cells derived from mouse samples are: Adamts15, March11, Tfap2b, Socs2, Penk, Bhlhe22, Plch1, Adamts16, Adrb2, Frmd3, Clmp, Cacna2d3, Trpc7, Galnt18, Tbc1d4, Asgr1, Kit, Tfap2a, Fam84a, Gjd2, Grik3, Lrrc38, Chst9, Flrt2, Chac1, Grm8, Esrrg, Slc6a7, Pla2g4e, Stac2, Cabp1, Phf24, Camk1g, Btbd11, Stc2, Sorcs3, Lamb1, Trpc5, Coro6, Slc32a1, Kirrel, Cdkl1, Chst1, Asns, Sp5, Cryba2, Aldh1l2, Kcnab3, Tg, Plxna4, Prkcd, Cgn, Tcte1, Trim67, Osbpl10, Serpini1, Slc7a1, Gpr22, Cntn4, Skor1, Slc7a3, Atp1b1, Kcna2, Cebpb, Parm1, Dock7, Eml5, Cnih3, Asic2, Hpcal4, Adamts2, Masp1, Plxnc1, Gabrg2, Mtfp1, Ntn1, Ret, Zfp423, Nln, Man2a1, Neurod6, Grin2d, Angptl3, Cnr1, Tmem132e, Apcdd1, Rasgrf1, Hcn1, Scnn1g, Ly6e, Pax2, Rab3c, Rph3a, Rai2, Gad2, Mpp7, Arl4a, Igsf3, Tmem179, and Sorbs2. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of basket cells derived from rat samples are: Plch1, AABR07001734.1, Lypd6, Lama3, March11, Gldc, Grm8, AABR07047823.1, AABR07001623.1, Gjd2, Arl4a, AABR07070578.1, Hpcal4, AABR07061428.1, Col12a1, Enpp1, Sorcs3, Clmp, Plk2, Arhgef26, RGD1561667, Asic2, AABR07026472.1, AC124896.1, Trpc5, AABR07052084.1, AABR07059478.1, Kit, Nt5dc2, AABR07041885.1, Hcn1, Skor1, Prdm8, Phf24, Esrrg, Grik3, Bhlhe22, Mir346, Tmem200a, AABR07003600.7, Scn9a, Inpp4b, Ace, Kcna2, Adra1d, Slc32a1, Cntnap4, Grid1, Trpc7, Begain, AABR07049535.3, Frmpd4,

Tfap2b, Cnr1, AABR07054088.3, Zcchc16, Trpv6, Grb10, Pax2, Nrxn3, Tyms, Grid1, Myt1l, Disp3, AABR07063359.1, Btn1a1, Rn60_10_0565.6, AABR07041972.1, Osbpl10, Six4, Mir384, Tbc1d4, Cabp1, AABR07003600.2, AABR07057590.1, Adrb2, Cacna1d, Plxnc1, Dusp22, Hecw1, Gdpd4, rno-mir-344a-1, Lgi2, AABR07060291.2, Adarb2, Angpt1, Rspo4, Rn50_7_1158.3, Dcx, AABR07065531.31, Onecut1, Mkx, Rgs4, Kcnc2, Hgf, Fgf13, Itga8, AABR07070578.2, Apcdd1, and Trim15.

**[00113]** For example, the most specific genes (ordered by decreasing specificity) in the nuclei of astrocytes derived from human samples are: S1pr1, Gja1, Lgi4, Efemp1, Etnppl, Aqp4, Rgma, Lgr6, Lcat, Tril, Serpini2, Pgghg, Slc1a3, Gfap, Aldh1a1, Pla2g5, Fxyd1, Wdr49, Gli1, Nfatc4, Scara3, Slc4a4, Lama2, Cdc42ep4, Gabrg3, P2ry1, Gabra2, Colec12, Mlc1, Slc7a11, Aldh1l1, Sox9, Lgals3, Mgst1, Gatsl3, Ahnak, Pipox, Rhoj, Arhgef26, Arhgef28, Srpx, Mt3, Atp1a2, Fxyd7, Lfng, Lamb2, Gdf10, F3, Sdc4, Hspb1, Hes1, Slc12a4, Mertk, C3, AI464131, Id4, Vit, Fjx1, Ccdc80, Adora2b, Ryr3, Mfge8, Plekho2, Elovl2, Fam179a, Cebpb, Acss1, Slc13a5, Ednrb, Pltp, Il33, Tlr4, Fam198b, Isyna1, Glis3, Dao, Fgfr3, Ncan, Msx2, Spatc1, Pdgfrb, Tubb2b, Fat3, Fam167a, Col22a1, Tcf7l1, Ndrg2, Nhsl1, Ddit4l, Pbxip1, Rasl12, Sh3bp2, Aplnr, Robo3, Rubcnl, Rab34, Gtf2a1l, Fgfr2, Kank2, and Rfx4. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of astrocytes derived from mouse samples are: Gdf10, Slc1a3, Fxyd1, Dao, A2m, Lfng, Lgi4, Mybpc1, Cdc42ep4, Slco4a1, Fam20a, Lcat, Acot11, Vim, Nwd1, S1pr1, Tnc, Rbm24, Acsbg1, Ntsr2, Prex2, Cables1, Gli1, Etnppl, Pla2g7, Phkg1, Nhsl1, Slc14a1, Plekho2, Gjb6, Plce1, Itih3, Sdc4, Mertk, Prr5, Sparcl1, Id4, Mlc1, Pax3, Gpr153, Abi3bp, Pltp, Fxyd7, Rpusd3, Aqp4, Igdcc3, Fgfr3, Mt3, Atp1a2, Gabrb1, Ndrg2, Ucp2, Plpp3, Frem1, Elovl2, Gli2, Efhd2, Zic4, Oplah, Cxcl14, Mfge8, Sox9, Atp13a4, AI464131, Pdlim4, Rfx4, Traf1, Dmp1, Gabra4, Gja1, Etv4, Map2k6, Wwc1, Syt10, Sparc, Tril, Slc25a18, Aldh1l1, Eva1a, Mxra8, Lgr6, Rgma, Egfr, Slc39a12, Slc8b1, Glipr2, Axl, Aass, Hk2, Itpkb, Ramp2, Pyroxd2, Gabra2, Tcf7l1, Garem2, Wnt6, Dfna5, Fam92b, Plxnb1, and Vamp1. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of astrocytes derived from rat samples are: AABR07070161.1, Itih3, Gdf10, Gli1, Slc25a18, Nkain4, Tnc, Msx2, S1pr1, Slc7a10, Aqp9, Mt2A, Lgi4, Pou3f2, Id4, Cacng5, Cyp2d5, AABR07058658.1, AABR07070161.6, Lfng, AABR07070161.3, Fam107a, Nat8f3, Ctxn3, Aldh1l1, Entpd2, Rbm24, Slc1a3, Mlc1, Cxcl14, Hif3a, Fxyd1, Acsbg1, AABR07070161.7, Notch3, Il33, Nwd1, Cdc42ep4, Samd9l, Gabrb1, Plpp3, Cxcr4, Rgma, Itm2a, Ednrb, Pdlim4, Sgca, Sncaip, Prodh1, Agt, Slc14a1, AABR07032343.1, AABR07035782.1, Marc1, Fgfr3, AABR07070161.5, AC109886.1, Prr5, Aqp4, Plekho2, AABR07035780.2, Sh2b2, F3, Sparcl1, Eva1a, Pltp, Gfap, Cyp2d4, Crlf1, Sdc4, Sod3, Dao, Chst1, AABR07001555.1, AABR07063346.1, Mpp6, Ptch2, AABR07031767.1, AC105604.1, Grin2b, Pygm, Etnppl, Slc15a2, Casp4, Gria1, Slc4a4,

Camk2g, Cbs, AABR07035175.1, Ntsr2, Gja1, Aspg, Sfxn5, Ccbe1, Ahnak, Gramd3, Ndrg2, Mt3, Shroom3, and Myh11.

**[00114]** For example, the most specific genes (ordered by decreasing specificity) in the nuclei of oligodendrocytes derived from mouse samples are: Klk6, Mog, Gldn, Cndp1, Gm20425, Tmem98, Slc5a11, Mag, Cams1, Gpr37, Cdk18, Hhatl, Anln, Enpp2, Folh1, Sec14l5, Myrf, Plp1, Mal, Gjb1, Itga2, Cpm, Plpp2, Cntn2, Ermn, Opalin, Abca8b, Lpar1, Pld1, Sall1, Cercam, Dock5, Pi16, Man2a1, Pex5l, Tmem63a, Tmem125, Gipr, Sh3tc2, D7Ertd443e, Kel, Ldb3, Ccdc152, Cldn11, Synj2, Lrp2, Ninj2, Psrc1, Ndrg1, Actn2, Sgk2, Trim59, Plekhg3, Larp6, Slc45a3, Cnp, Col4a5, Pde8a, Rhobtb1, D16Ertd472e, Qdpr, Enpp6, Rhou, Sema3c, Gsn, Cyr61, Capn3, Hoxd1, Frmd4b, Tmem144, Galnt6, Pkmyt1, Fbxo32, Pla2g16, Dpyd, Sh3gl3, Prima1, Rasal1, Fa2h, Fam124a, Treh, Paqr4, Azgp1, Plekhh1, Dapk2, Knop1, Sema3b, Elovl1, Shroom4, Car2, Necab1, Aspa, Gab1, Kif6, Hhip, Ugt8a, Iqgap1, Map6d1, Eln, and Pllp. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of oligodendrocytes derived from mouse samples are: Gpr37, Pex5l, Hapln2, Apod, Ermn, Prr5l, Aspa, Efnb3, Anln, Mog, Plp1, Plekhh1, Tmem63a, Il33, D7Ertd443e, Sec14l5, Carns1, Tnfaip6, Galnt6, Galnt5, Ndrg1, Cldn11, Gjc2, Pla2g16, Fth1, Opalin, Car2, Dock5, Gm20425, Sall1, Pkd2l1, Kcnk13, Ppp1r14a, Gatm, Serpinb1a, Pde8a, Tnni1, Glul, Tmprss5, Nipal4, Trim59, Mal, Slc12a2, Qdpr, Litaf, Gjb1, Edil3, Pls1, Mboat1, St6galnac3, Gng11, Enpp2, Cpm, Pstpip2, Trim36, Klk6, Myo1d, Tmem98, Synj2, 4933413G19Rik, Mag, Insc, Pigh, Pik3c2b, Ninj2, Trpv3, Car14, Tmem125, Map7, Cdk18, Depdc7, Aatk, Myrf, Cnp, Stmn4, Chdh, Nek4, Frmd4b, Ugt8a, Palm2, Arsg, Ccdc152, Efemp1, Piga, Rftn1, Itgb4, Emilin2, Enpp4, Nkain2, Adamtsl4, Hcn2, Plxnb3, Dpy19l1, Arhgap23, Prima1, Gipr, Sh3tc2, Tubb4a, Map6d1, and Kctd13. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of oligodendrocytes derived from rat samples are: Gpr37, Pex5l, Hapln2, Apod, Ermn, Prr5l, Aspa, Efnb3, Anln, Mog, Plp1, Plekhh1, Tmem63a, Il33, D7Ertd443e, Sec14l5, Carns1, Tnfaip6, Galnt6, Galnt5, Ndrg1, Cldn11, Gjc2, Pla2g16, Fth1, Opalin, Car2, Dock5, Gm20425, Sall1, Pkd2l1, Kcnk13, Ppp1r14a, Gatm, Serpinb1a, Pde8a, Tnni1, Glul, Tmprss5, Nipal4, Trim59, Mal, Slc12a2, Qdpr, Litaf, Gjb1, Edil3, Pls1, Mboat1, St6galnac3, Gng11, Enpp2, Cpm, Pstpip2, Trim36, Klk6, Myo1d, Tmem98, Synj2, 4933413G19Rik, Mag, Insc, Pigh, Pik3c2b, Ninj2, Trpv3, Car14, Tmem125, Map7, Cdk18, Depdc7, Aatk, Myrf, Cnp, Stmn4, Chdh, Nek4, Frmd4b, Ugt8a, Palm2, Arsg, Ccdc152, Efemp1, Piga, Rftn1, Itgb4, Emilin2, Enpp4, Nkain2, Adamtsl4, Hcn2, Plxnb3, Dpy19l1, Arhgap23, Prima1, Gipr, Sh3tc2, Tubb4a, Map6d1, Kctd13, Mog, Opalin, Mobp, Tmem63a, AABR07006310.1, Hapln2, Klk6, Qdpr, Selplg, Cldn11, Mal, Ermn, AABR07046961.1, Abi3, Gpr37, Tmem88b, Rasgrp3, Prr5l, Slc5a11, Mag, LOC100362909, Tmem176b, LOC100302465, Cx3cr1, Ctss, Carns1, Tmem125, Tmem176a,

Sec14l5, Tf, C1qb, Apod, S1pr5, Rn60_5_1374.5, Plp1, Insc, Mbp, Pls1, Tmem98, Anln, Ndrg1, Pafah1B1, Pex5l, LOC361016, Galnt6, Trim36, AABR07017693.1, Gpatch4, Plekhg3, Hamp, Csf1r, Gjc2, Car14, Trim59, AABR07053870.1, Gpr84, Plekhh1, Ghr, Kndc1, Slco2b1, Cd74, Aspa, Trpv3, AABR07008030.1, Aplp1, Tgfbr2, Gjb1, Ptp4a3, Prima1, Pik3c2b, AABR07036035.1, Sall1, Plpp2, Pld4, Fam102b, Cd33, Cdkn1a, Nkd1, Elovl7, Piga, Inf2, Blnk, Enpp4, Il18, Spata13, Mettl7a, Inpp5d, Myrf, Gjc3, Trim2, AABR07012039.1, AABR07033887.1, Enpp2, Pacs2, C1qa, Trem2, Slc45a3, Hhip, Anxa3, and AABR07022098.1.

**[00115]** For example, the most specific genes (ordered by decreasing specificity) in the nuclei of OPCs derived from human samples are: Fermt1, Lims2, C1ql1, Sstr1, Olig1, Bambi, Usp43, B3gnt7, Pdgfra, C1ql2, Olig2, Fmo3, Cspg5, Galr1, Gpc2, Fibin, Cspg4, Col11a1, Bche, Col9a1, Afap1l2, Cldn1, Plpp4, Sox13, Plat, Neu4, D630023F18Rik, Col20a1, Pxylp1, Asic4, Spsb4, Prelp, Gpr34, Best3, Stk32b, Akr1c14, Susd5, Ophn1, Mmp16, Sulf2, Prkg2, Tns3, B3galt4, Fgfbp3, Nkain3, Ntn1, Ascl1, Sema5a, Hrasls, Gal3st4, Ebf4, Tmem132d, Nt5e, Jag1, Megf11, Ildr2, Plppr1, Dcc, Ntn4, Sox6, Cacng4, Pxdn, Sapcd2, Tnk2, Slc43a3, Adamts6, Vsig8, Itm2a, Marcksl1, Alk, Smoc1, Cacna2d3, Tm4sf1, Bgn, Pdgfc, Atp2c2, Aldh1a3, Prrx1, Meis3, Cxxc4, Cd27, Sema3c, Adamts17, Akr1c20, Arhgap10, Crispld2, Sipa1l2, Ppp1r36, Gng12, Syt17, Midn, Gadd45a, Khdrbs3, Thbs4, Vipr2, Ccnd1, Iffo1, Atoh8, Exosc4, and Pde7b. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of OPCs derived from mouse samples are: Neu4, C1ql1, Ppfibp1, 3110035E14Rik, Pdgfra, Rgcc, Susd5, Itga9, Tes, Rprm, Rep15, Cspg4, Matn4, Amz1, 1810041L15Rik, Pxdc1, Tox3, Sh3bp4, Elfn1, Galnt3, Lmcd1, Serpine2, C1ql2, Neto1, Grm5, Mmp2, Col11a2, Sema3d, Lims2, Cav1, Sapcd2, Rcn1, Ptpro, Ccnd1, Ptgfrn, Ncan, 5730559C18Rik, Lpcat2, Olig2, Fhl3, Tspan6, Rin2, Ascl1, Basp1, Pmepa1, Fzd9, Fam114a1, Abhd2, Ctxn1, Cspg5, Cfap20, Vwc2, Cdo1, Cdh13, Marcks, Gsx1, Sertm1, Slc1a1, Matn1, Has2, Lama4, Mycl, Klhl5, Kcnh5, Kcnh8, Sema5a, Enpp6, Slc5a7, Cav2, Lbh, Adm, Adam12, S100a4, Mfsd2a, Igfbp3, Midn, Asap3, Prkg2, Rlbp1, Abcg2, Vstm2b, Dock6, Fbn1, Frrs1, Khdrbs3, Slitrk6, Chst11, Ptpn14, Dpysl3, Slc44a5, Eya1, Sox6, Phox2a, Col11a1, Swap70, Fam89a, Mrm2, Lypd1, Shisa7, and Pcdh17. For example, the most specific genes (ordered by decreasing specificity) in the nuclei of OPCs derived from rat samples are: Fam89a, Pdgfra, RGD1561849, Rlbp1, Ccnd1, Tmem255b, C1ql1, Bgn, Itga9, Ppfibp1, Snx22, Col5a3, Pmel, Cav1, Serpine2, Cspg4, Lims2, AABR07052897.1, C1ql2, Cdk2, AABR07010022.1, Cacng4, Matn4, AABR07049948.1, Susd5, Prkg2, Pxdc1, RGD1566029, AABR07003304.1, Sapcd2, Cspg5, Mmp15, Rgcc, Slc22a6, Sema5b, Qprt, Pnlip, Slc6a12, RGD1311892, AABR07003306.1, AABR07044671.1, Rbpjl, Chst5, Traf4, Sox6, Cox6b2, Pcdh15, Cd101, Xylt1, AABR07003304.2, Calcrl, Col1a1, Lama4, Elfn1, Ampd3, Fam212b, Slc6a13, Sstr1, Sema3d, AC141997.1, Cpne7, Ptgfrn, Wbscr28, Ryr3, Gpsm2, Neto1, Chst11,

Slc22a8, Pstpip2, AABR07044668.1, Bcas1, Igf2, Lbh, Olfm2, Ndnf, Vstm2b, AABR07058656.1, Rep15, Vtn, Eln, Ramp1, Pmepa1, Gpnmb, Ptpro, Limd1, Cdh13, Nrxn2, Mgp, Myt1, Marcks, LOC100362216, AABR07043601.4, LOC102553018, Masp1, Sulf2, Tle6, Fam114a1, Tmem100, Ccnd2, and Rasgef1b.

**[00116]** In some embodiments, the specificity rank was observed to be more conserved between mouse and rat than mouse and human. In some embodiments, Geno Ontology (GO) analysis may be performed for genes considered specific for each cell type or species to determine whether the genes fuction in the same pathway. In some embodiments, changes in expression of cell type or species-specific markers are observed in alternative family members in a given cell type. For example, Pde1c may be used for mouse cell types in the cerebellum or the nuclei thereof and Pde1a expression may be used for human cell types in the cerebellum or the nuclei thereof.

**[00117]** In some embodiments, differences in expression levels of protein tyrosine kinase 2 beta (Ptk2b), solute carrier family 43 member 2 (Slc43a2), glutamate ionotropic receptor kainate type subunit 3 (Grik3), Itpr1, protocadherin 9 (Pcdh9), and Ras guanyl releasing protein 1 (Rasgrp1) are used to differentiate between nuclei from granule, glia, and basket/stellate cells derived from humans and mice.

*B. Analyzing cell type specific and species-specific gene expression of cross-species analysis*

**[00118]** In some embodiments, the most variable genes are identified from a comparison of the RNAseq results from sorted nuclei from each cell type compared to normalized RNAseq results across the three species. In some embodiments, cell type specific and species specific genes may be identified by the genes having either or both of the largest variation among cell types and the largest variation among analyzed species. In some embodiments, genes observed to have the most variation in expression among species may be further differentiated by cell type. For example, nuclei may have greater differentiation among species than among cell types. In some embodiments, hierarchical clustering may be used to observe the degree of separation provided by each component of variation.

**[00119]** In some embodiments, Pcsk2, Pcsk6, and Pcsk8 are used to catergorize nuclei by both cell type and species. Alternatively, Pcsk1 and Pcsk3 are used to categorize nuclei by cell type.

**[00120]** In some embodiments, nuclear structure may be compared to differences across each cell type in gene expression regulation or in disease susceptibility.

*C. Effects of clinical attributes in human samples*

**[00121]** In some embodiments, differences in the profiles of nuclei due to clinical attributes may be analyzed to identify markers of the attribute. For example, profile differences were observed in different periods of autolysis time, gender, age, and stress.

**[00122]** Autolysis was observed to only have minor effects on gene expression in previous studies. (Gupta et al., 2012, BMC Genomics 13, 26, which is hereby incorporated by reference herein in its entirety). In some embodiments, expression of at least four genes in the sorted nuclei may be used to define granule cells derived from human samples at varying stages of autolysis. In some embodiments, expression of at least one gene may be used to define basket/stellate cells or glia derived from human samples at varying stages of autolysis. In some embodiments, the level of expression of kinesin family member 19 (Kif19) may be measured to determine autolysis time. For example, a higer level of expression of Kif19 indicates a higher autolysis time, and a lower level of expression of Kif19 indicates a lower autolysis time. The level of expression may be compared to normalized expression across all samples. In some embodiments, a higher level of expression of FosB proto-oncogene, AP-1 transcription factor subunit (FosB) indicates an intermediate autolysis time of between about 5 hours and about 24 hours.

**[00123]** Gender-specific and cell-type specific gene expression may also be identified to determine the effects of gender on gene expression. Xist is a gene on the X-chromosome that is involved in X-chromosome inactivation and expressed exclusively in females. Next, we analyzed whether gender affects gene expression in specific cell types. Tsix, the gene running antisense to Xist, was observed to be expressed only in glia of females. This is an example of gender-specific and cell-type specific gene expression.

**[00124]** In some embodiments, the profiles for nuclei isolated from male and female samples may be compared to determine gender-specific markers. For example, an increase in expression of KDM5D, RPS4Y1, ZFY, DDX3Y, TTTY15, TTTY14, USP9Y, UTY, GYG2P1, NLGN4Y, TXLNGY, LINC00278, PRKY, and/or TTTY10 compared to normalized expression across unsorted nuclei may be used as markers for nuclei from male samples. Further, a decrease in expression of ZFX, PUDP, KDM5C, LOC389906, PIN4, MTRNR2L8, MTRNR2L6, COL4A1, DHFR, LOC101929541, TSIX, MIR6723, and/or XIST may be used as markers for nuclei from female samples. In some embodiments, expression results are further analyzed to identify cell-type and gender-specific markers. For example, increased expression of long intergenic non-protein coding RNA 278 (LINC00278) may be used to differentiate glia from male samples from glia from female samples. Further, an increase in expression of family with sequence similarity 8 member A4, psuedogene (Fam8a4p), arylsulfatase D pseudogene 1 (Arsdp1), and Gyg2p1 compared to normalized expression across unsorted nuclei may be used as markers for nuclei from stellate cells derived from male samples.

**[00125]** To determine whether age effects cell types uniformly, differentially expressed genes may be identified among samples from humans of varying ages. In some embodiments, differences in expression of the following genes in the nuclei: ABCC10, ACAP3, ACHE,

ATF6B, ATP6V0B, CACNA2D3, CUL7, DNAJB5, EGR1, FZR1, GBAP1, GPR107, GRK5, KCTD21-AS1, KLHL22, LINC00499, LINGO2, LOC100132077, LOC100506990, LOC101927592, MIR9-3HG, MPND, MTRF1, POLR2J3, PPP6R2, PRSS55, PTMS, RNF17, SNAI3-AS1, SPHK2, ST3GAL2, TAOK2, TRDN, WASH7P, ZFPM1, ZNF404, ZNF496, ZNF580, ZNF585A, ZNF607, ZNF84, and ZSCAN29 may be used to determine the age of a subject from which a sample was derived.

**[00126]** In some embodiments, further analysis of the profiles may provide age specific and cell type specific markers. For example, differential expression of the following genes: KCNQ3, SCHLAP1, UGGT2, PLXDC2, ITGB5, DCLK1, AQP7, PTPN3, FAT1, CMTM8, FARP1, PIP4K2A, NEDD4, CATSPERG, LOC101926, 941, WWC2, MPP6, SDK1, NAB2, NTNG2, LMNTD2, PLCH2, PTPRJ, MRAP2, PTMS, CDH23, SYT7, SPRED3, PLXNA1, GRK5, ZYX, FGF3, LINC01544, PCYT1B, RHBG, HCN2, ACAP3, MGAT3, C1orf61, SURF2, AHRR, FAM131A, CHGB, PLXNA4, ACHE, DYRK1B, CDK5R2, GDPD5, ZNF703, FHDC1, LOC101927, 078, CREB3L2, AP1S3, DYSF, MAMSTR, KIAA0895L, TP73, PDE3A, LINC00963, ELAVL3, TTYH3, HPN, PTPRE, SLC17A7, GRIN2C, PXN, TMEM130, LRPAP1, GRM4, STEAP3, CHRD, SBNO2, ZDHHC23, GACAT2, MAP6D1, FAM53A, KIAA1549L, SLC38A7, CDK16, CALY, LPCAT4, SLC25A6, SRCIN1, ELMO1, GRAMD4, RIMS3, CPLX2, PIP5K1C, SDC3, CBLN3, PDZD7, VWA5B2, ZNF219, FAM212B, RASIP1, GYS1, ATP6V0B, NKD1, ST3GAL2, PTK7, ACOT7, ATXN7L2, DAO, SYT12, ADAM19, HIP1, GABBR1, SYT3, TP53INP2, KCNK3, TPM4, RNF152, KCNK10, EPB41L1, ABCC10, NAV2, ERGIC1, BAD, KIF3B, RAI2, XKR7, PTK2B, CHST12, TRIM67, DHDDS, NUMBL, KCND3, LRRC1, RAB37, KCNIP2, RAB6B, PC, TCEAL2, MEG8, FMNL3, MAPK4, DGCR5, REEP1, GTPBP2, KIF26B, NRXN2, ZNRF1, C14orf132, FLNB, EFR3B, RBFOX3, PPP2R2C, KLHDC4, PILRA, CLSTN3, CABIN1, NHSL2, LYRM1, KCNA2, SLC38A10, DGKA, TMEM266, FAM135B, ATP2B2, TMEM163, UNC5B, TPM3, MICAL2, GNAO1, GABBR2, KCNK1, USP4, TEX2, PRKAG2, APBA2, SUSD6, HDHD2, NAA20, CRIPT, KNTC1, RPS6KA5, PHF10, PCGF5, DPY19L4, APH1B, ZNF546, ABCA17P, CDH26, CBWD6, ZNF736, CFAP70, UBE4A, TTC32, CFAP53, PXDNL, CPVL, GLIPR1, COL25A1, MTHFD2L, LSM5, LOC100505, 715, NR3C2, TOM1L1, ANKRD42, SLC8A1, -AS1, ATAD2, GAB1, CCDC146, ELMOD1, CFAP74, C1orf146, P4HA2, RANBP3L, OTUD6B, -AS1, EYS, ALS2CR11, LECT1, BHLHE40 -AS1, STAB2, PXYLP1, LOC101929, 710, LINC00499, RHOBTB3, CRYBG3, NPY6R, RGS20, C2orf73, YIPF7, BUB1B, CFAP43, LOC102724, 623, LRRC69, STK3, CLIC5, CACNA2D3, C2orf27A, LOC105378, 385, BEST3, EPHA6, LOC100506, 393, MEF2C, GTSCR1, ELOVL2, SPATA9, PLSCR4, GCK, LINC01032, MEF2C-AS1, BMS1P21, CASP12, CLMP, ERBIN, TMC3-AS1, CXXC4, DCBLD1, GSTO2,

PLOD2, P4HA2-AS1, TTC23L, CPLX3, SOX13, PRDM1, RSPO2, TSG1, MIR31HG, CTB-12O2.1, PLCH1, JAML, SEMA3G, LOC101928, 203, GLRA1, SYT16, SYN3, ARHGAP32, MIR646HG, ALCAM, SCGN, LINC01515, and LOC101929415 compared to normalized expression across samples of varying age may be used as markers to identify granule cells.

**[00127]** For example, differential expression of the following genes: ACER3, ACSS3, ADAMTS2, ADAMTS9, ADAMTSL3, ADD2, ADGRL3, AKAP13, ALOX5, ALS2CR11, ARHGEF10L, ARHGEF6, ASIC1, ASIC2, ATP6V0B, BMP3, BTBD11, C11orf87, C14orf1, C4orf22, C9orf135, CA7, CACNA1D, CACNA2D3, CACNB4, CADM3, CADPS, CALR, CDK15, CFAP46, CLSTN3, CNTN3, CPNE8, CYYR1, DBH, DCC, DDO, DGKH, DISP3, DLG1, DLG4, DMGDH, DNAH6, DNER, E2F3, ECHDC2, ELOVL2, ENPP1, EPHB1, ERC2, FAM135B, FAM46C, FBXL21, FGF5, FHOD3, FKBP5, FRMPD4, GABBR2, GALNT18, GAP43, GBAP1, GDF11, GPR161, GPR63, GREB1, HCN4, HECTD2-AS1, IQSEC3, KCNA4, KIF26B, KRT222, LACTB2-AS1, LHFPL3, LINC00457, LINC00499, LINC01158, LOC105377448, LOC285692, LOC653602, LPCAT4, MARC2, MARCH11, MASP1, MEGF10, MTHFSD, MYRIP, NHS, NOS1, NPL, NPY6R, NTNG1, NXNL2, PAQR6, PARM1, PCP4, PEBP4, PHACTR2-AS1, PHKA1, PLPPR4, PLXNA4, PRKCG, RGMB, RNF212, RNF215, RORA, RPH3A, RPS6KA5, SCN2B, SEPSECS, SEPSECS-AS1, SHANK1, SHANK2, SLC12A5, SLC17A4, SLC25A29, SLC26A8, SLC35F4, SLC8A3, SPARCL1, SPHK2, SPON2, ST6GAL2, ST6GALNAC5, STAT5A, STK33, SV2C, SYT17, TEX9, TFAP2B, THSD7B, TMEM178B, TRAF5, TRIM67, TTC23L, TUNAR, UBASH3B, UNC5D, ZNF124, and ZYG11A compared to normalized expression across samples of varying age may be used as markers to identify basket cells.

**[00128]** For example, differential expression of the following genes: ADAMTS7, ANKRD33B, AOX1, C1orf95, CACNG4, CACNG8, CAPN9, CRTAC1, DACH1, EFHD2, EGF, ETS1, FRAS1, IMPA2, LINC00499, LINC00844, LINC01208, LOC101927078, LOC102724360, PKDCC, PLXNA4, PRR5, RHCG, ROBO2, SEMA5B, SHROOM2, SLIT2, TRDN, TXNIP, VWA5A, and WNT7B compared to normalized expression across samples of varying age may be used as markers to identify glia.

**[00129]** In some embodiments, gene expression in nuclei

*D. Selecting markers and targets*

**[00130]** In some embodiments, analysis of altered expression associated with sorted nuclei occurs between gene orthologs among different species. For example, expression of 1:1 orthologs are compared to ensure that results are due to altered expression rather than differences in gene annotation among species.

**[00131]** In some embodiments, further analysis may be performed to ensure that altered expression is not due to differences in annotation among species. For example, only genes having a 1:1 ortholog may be used to determine expression levels. Analysis may be additionally limited to genes greater than 1kb in length and/or having a less than 2-fold difference in length among species, such as mouse, rat, and human. In some embodiments, a cell type specific gene or species specific gene may be selected from the 250 most variable genes across mouse, rat, and human nuclei including: 1810041L15Rik, 2810459M11Rik, 3110035E14Rik, A2m, Adamts15, Adra1a, AI593442, Aldh1a1, Anln, Apcdd1, Apod, Aqp4, Arhgef33, Ascl1, Asgr1, Aspa, Atp1a2, Atp2a3, B3gnt5, B3gnt7, Bcl11a, Bhlhe22, C1ql1, C1ql2, Cacna1g, Cacng4, Calb1, Camk1g, Car8, Cams1, Casq2, Cbln2, Ccdc152, Ccdc180, Ccnd2, Cd82, Cd9, Cdh19, Cdhr1, Cldn11, Clec7a, Clmn, Cmtm5, Cntn3, Cntnap5a, Cobl, Col5a3, Col6a1, Cpm, Cryab, Cspg4, Csrp1, D7Ertd443e, Ddx3y, Dock5, Dpy19l2, Ebf2, Echdc2, Efna5, Enpp2, Erbb3, Ermn, Etnppl, Fa2h, Fam46a, Fgfr2, Flrt2, Fmo3, Folh1, Foxh1, Fsip2, Fxyd1, Fxyd7, Gad2, Gal3st1, Galnt5, Galnt6, Galr1, Gdf10, Gfap, Gja1, Gjb1, Gjc2, Gldn, Gli1, Glp2r, Glul, Gm136, Gnb3, Gng11, Gpr37, Gpr37l1, Gpr63, Gpx2, Gramd3, Grb14, Gria3, Grik3, Grm1, Grm5, Gsn, Hapln2, Hepacam, Hhatl, Hspa1b, Htr1b, Id4, Igsf11, Il22, Il33, Insc, Itgb8, Itih3, Itpr1, Kcnc2, Kcnj10, Kif19a, Kit, Kitl, Klk6, Leng9, Lfng, Lgi4, Lims2, Mag, Mak, Mal, March11, Marcksl1, Mcam, Mff, Mfge8, Mlc1, Mog, mt-Co1, mt-Nd4, Mybpc1, Myot, Myrf, Ndrg1, Nell1, Neto1, Neu4, Ninj2, Nkx2-2, Notch1, Nrk, Olig1, Olig2, Opalin, Pax3, Pcp2, Pdc, Pdgfra, Pdzd3, Penk, Pex5l, Pgghg, Phyhip, Pkp3, Pla2g16, Plch1, Plekhd1, Plekhg3, Pllp, Plp1, Plpp3, Plpp4, Plscr1, Plxnb3, Pmp2, Pmp22, Ppfibp1, Ppp1r14a, Ppp1r17, Prex1, Prex2, Prima1, Prkcg, Prr5, Prrg3, Prrx1, Ptchd4, Ptprk, Ptprz1, Pttg1, Pvalb, Pxdc1, Qk, Rapgef3, Rassf2, Rbp2, Rbpjl, Rgcc, Rgma, Ryr1, S100b, S1pr1, Sall1, Sec14l5, Serpine2, Shisa6, Skor2, Slc1a3, Slc1a6, Slc26a3, Slc32a1, Slc4a4, Slc5a11, Slc9a3, Slitrk6, Socs2, Sorcs3, Sox10, Sox2, Sox6, Sox8, Stag3, Stk32a, Sulf2, Susd5, Tceal7, Tfap2b, Thbs2, Tmem125, Tmem132d, Tmem63a, Tmem98, Tnc, Tnfrsf13c, Tns3, Trabd2b, Tril, Trpc3, Trpc7, Tshb, Tspan11, Tspan2, Tuba8, Tubb2b, Txnip, Ube2b, Ugt8a, Upp1, Vstm2b, Wfdc1, Xrra1, Zcchc24, Zeb2, and Zfp36l1.

V. MODULATING IDENTIFIED TARGETS

**[00132]** In some embodiments, at least one gene selected from one of Tables 2-4 is associated with at least one disease, disorder, or condition. A gene or expression thereof associated with a disease disorder or condition may also be referred to as a disease target. In some embodiments, a method of treating the disease, disorder, condition comprises using a therapeutic modality to modulate expression of the disease target. In some embodiments, the therapeutic modality targets at least one transcript selected from Tables 2-4. In some embodiments, the therapeutic modality targets at least one protein selected from Tables 2-4. In some embodiments, the therapeutic

modality is pharmaceutical composition such as a small molecule drug or an RNA interference (RNAi) molecule (such as siRNA), gene therapy, or cell therapy.

VI. DEFINITIONS

**[00133]** The following is a non-limiting list of term definitions.

**[00134]** As used herein, the term "about," as applied to one or more values of interest, refers to a value that is similar to a stated reference value. In certain embodiments, the term "approximately" or "about" refers to a range of values that fall within 25%, 20%, 19%, 18%, 17%, 16%, 15%, 14%, 13%, 12%, 11%, 10%, 9%, 8%, 7%, 6%, 5%, 4%, 3%, 2%, 1%, 0.9%, 0.8%, 0.7%, 0.6%, 0.5%, 0.4%, 0.3%, 0.2%, 0.1%, or less in either direction (greater than or less than) of the stated reference value unless otherwise stated or otherwise evident from the context (except where such number would exceed 100% of a possible value).

**[00135]** As used herein, the term "antibody" refers to an immunoglobulin molecule capable of specific binding to a target, such as a polynucleotide, polypeptide, protein etc., through at least one antigen recognition site, located in the variable region of the immunoglobulin molecule. The term "antibody" encompasses not only intact (e.g., full-length) polyclonal or monoclonal antibodies, but also antigen-binding fragments thereof (such as Fab, Fab', F(ab')2, Fv), single chain (scFv), mutants thereof, fusion proteins comprising an antibody portion, humanized antibodies, chimeric antibodies, diabodies, linear antibodies, single chain antibodies, multispecific antibodies (e.g., bispecific antibodies) and any other modified configuration of the immunoglobulin molecule that comprises an antigen recognition site of the required specificity, including glycosylation variants of antibodies, amino acid sequence variants of antibodies, and covalently modified antibodies. An antibody includes an antibody of any class, such as IgD, IgE, IgG, IgA, or IgM (or sub-class thereof), and the antibody need not be of any particular class.

**[00136]** As used herein, the term "cell specific profiling" refers to using the nuclear transcriptome to accurately define cellular identity.

**[00137]** As used herein, the term "chromosomal associated transcript (CAT)" refers to transcripts held at the chromosome while being synthesized.

**[00138]** As used herein, the term "diseased tissue" or "diseased sample" refers to a sample taken from a subject experiencing a disease state.

**[00139]** As used herein, the term "DNA probe" or "RNA probe" refers to a fragment of DNA or RNA (usually 100–1000 bases long) which hybridizes to nucleotide sequences that are complementary to the sequence of the probe. The probe may be radioactively, fluorescently, or chemically (e.g. biotin) labeled for visualization.

**[00140]** As used herein, the term "drug target" or "targets for therapeutics" refers to a nucleotide sequence that may be acted on by a drug or therapeutic to modulate gene expression in a cell type.

**[00141]** As used herein, the term "factor" refers to a nucleotide sequence that is hybridized by a DNA or RNA probe or is specifically bound by an antibody to allow accurate sorting of nuclei of a particular cell type.

**[00142]** As used herein, the term "gene expression" or "expression" refers to the level of one or more of the following events: (1) production of an RNA template from a DNA sequence (*e.g.*, by transcription); (2) processing of an RNA transcript (*e.g.*, by splicing, editing, 5′ cap formation, and/or 3′ end processing); (3) translation of an RNA into a polypeptide or protein; (4) folding of a polypeptide or protein; and (5) post-translational modification of a polypeptide or protein.

**[00143]** As used herein, the term "cellular profiling technique" refers to non-genetic methodology for molecular profiling of a population of a cell type in post-mortem tissue.

**[00144]** As used herein, the term "polyA transcript" refers to a chain of adenine nucleotides that is added to a messenger RNA (mRNA) molecule during RNA processing to increase the stability of the molecule.

**[00145]** As used herein, the term "label" refers to one or more markers, signals, or moieties which are attached, incorporated, or associated with another entity, which markers, signals or moieties are readily detected by methods known in the art including radiography, fluorescence, chemiluminescence, enzymatic activity, absorbance, and the like. Detectable affinity labels include radioisotopes, fluorophores, chromophores, enzymes, dyes, metal ions, ligands such as biotin, avidin, streptavidin and haptens, quantum dots, and the like. Detectable affinity labels may be located at any position in the entity with which they are attached, incorporated or associated. For example, when attached, incorporated in or associated with a peptide or protein, they may be within the amino acids, the peptides, or proteins, or located at the N- or C- termini.

**[00146]** As used herein, the term "most specific gene(s)" refers to a gene(s) having a lower Specificity Index (SI) value compared to the SI value of other analyzed genes, which is calculated using the algorithm described in Example 1.

**[00147]** As used herein, the term "tissue sample" refers to an aliquot or portion taken from a source and provided for analysis or processing. In some embodiments, a sample is from a biological source such as a tissue, cell, or component part (e.g. a body fluid, including but not limited to blood, mucus, lymphatic fluid, synovial fluid, cerebrospinal fluid, saliva, amniotic fluid, amniotic cord blood, urine, vaginal fluid, and semen). In some embodiments, a sample may be or comprise a homogenate, lysate, or extract prepared from a whole organism or a subset of its tissues, cells or component parts, or a fraction or portion thereof, including but not limited to, for

example, plasma, serum, spinal fluid, lymph fluid, the external sections of the skin, respiratory, intestinal, and genitourinary tracts, tears, saliva, milk, blood cells, tumors, organs. In some embodiments, a sample is a or comprises a medium, such as a nutrient broth or gel, which may contain cellular components, such as proteins or nucleic acid molecule. In some embodiments, a sample is subjected to one or more processing (e.g., separation, purification, etc.) steps to prepare a sample for analysis or other use.

**[00148]** As used herein, the term "transgenic animal" refers to an animal having a foreign gene inserted into its genome.

**[00149]** As used herein, the term "translating ribosomal affinity purification (TRAP)" refers to the method that defines the molecular signature of diverse cell types in a single tissue derived from a transgenic animal.

**[00150]** Described herein are methods for molecular profiling of a population of a cell type in post-mortem tissue. The details of one or more embodiments of the invention are set forth in the accompanying description below. Although any materials and methods similar or equivalent to those described herein can be used in the practice or testing of the present invention, the preferred materials and methods are now described. Other features, objects and advantages of the invention will be apparent from the description. In the description, the singular forms also include the plural unless the context clearly dictates otherwise. Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. In the case of conflict, the present description will control.

**[00151]** The present invention is further illustrated by the following non-limiting examples.

## EXAMPLES

### Example 1. Experimental procedures

**[00152]** The following experimental procedures were used to perform the experiments described in Examples 2-23 herein.

*A. Buffer preparation*

**[00153]** The buffers were prepared as described in Kriaucionis et al., Science, 324 (5929): 929-930 (2009). RNase free water was used if included in Buffer involved in the protocol for isolating RNA, otherwise MilliQ water was used.

**[00154]** Buffer A used in the examples herein is 60% iodixanol (Optiprep, Sigma-Aldrich, St. Louis, MO; Catalog no. D1556-250ML). Buffer A was kept covered in foil until used. Buffer B as used in the examples herein contains 900 mM KCl, 30mM $MgCl_2$, 120mM Tricine-KOH (pH 7.8). Buffers A and B were stored at room temperature (RT).

**[00155]** Buffer C used in the examples herein contained 50% iodixanol (5 volumes Buffer A and 1 volume Buffer B), 0.5mM spermidine, 0.15mM spermine, EDTA-free protease inhibitor cocktail (Roche Holding AG, Basel, Switzerland; distributed by Sigma-Aldrich, St. Louis, MO; Catalog no. 11836170001), 1mM DTT, and 200 units/mL Superasin (Thermo Fisher Scientific, Waltham, MA; Catalog no. AM2696). Buffer D used in the examples herein contained 0.25M sucrose, 150mM KCl, 5mM $MgCl_2$, 20mM Tricine-KOH (pH 7.8), 0.5mM spermidine, 0.15mM spermine, EDTA-free protease inhibitor cocktail, 50 µL of 1mM DTT, 200 units/mL Superasin, and 400 units/mL RNasin (Promega, Madison, WI; Catalog no. N2515).

**[00156]** Buffer E used in the examples herein contained 27% iodixanol (1.174 volume Buffer C to 1 volume Buffer D). Wash/Block buffer used for analysis in the examples herein contained 3% BSA in PBS with 0.05% TritonX-100; BSA obtained from Jackson ImmunoResearch Laboratories, Inc., Code no. 001-000-162. The Wash buffer for RNA used in the examples herein contained 50ng/mL RNase-free BSA in PBS, with 0.05% TritonX-100, 1mM DTT, and 100 units/mL of Superasin. The Block buffer for RNA used in the examples herein contained the Wash buffer for RNA supplemented with an additional 50 ng/mL BSA. The Cushion buffer used in the examples herein contained 500 µL of Buffer D, 250 µL of 50% Glycerol, and 5 µL of 10% NP-40.

*B. Nuclei isolation*

**[00157]** Nuclei isolation was adapted from the protocol described in previous publications (Kriaucionis, et al. (2009) Science 324, 929–930 and Mellén, et al. (2012) Cell 151, 1417–1430, each of which is hereby incorporated by reference herein in its entirety). For mouse experiments, cortex and cerebella were dissected as described previously. All tissue from C57BL/6J animals were flash frozen using liquid nitrogen. Tissue from mice developed for use in the bacTRAP method were freshly dissected and directly used for homogenization. Rat and human tissue were obtained frozen. All frozen tissues were thawed on ice for a minimum of 30 minutes before use. To isolate nuclei, fresh or thawed tissue were transferred to 5mL of homogenization medium (0.25 M sucrose, 150 mM KCl, 5 mM MgCl2, 20 mM Tricine pH 7.8, 0.15 mM spermine, 0.5 mM spermidine, EDTA-free protease inhibitor cocktail, 1mM DTT, 20U/mL Superase-In RNase inhibitor, 40U/mL RNasin ribonuclease inhibitor). Tissue were homogenized by 30 strokes of loose (A) followed by 30 strokes of tight (B) glass dounce. Homogenate was supplemented with 4.6mL of a 50% iodixanol solution (50% Iodixanol/Optiprep, 150 mM KCl, 5 mM MgCl2, 20 mM Tricine pH 7.8, 0.15 mM spermine, 0.5 mM spermidine, EDTA-free protease inhibitor cocktail, 1mM DTT, 20U/mL Superase-In RNase inhibitor, 40U/mL RNasin ribonuclease inhibitor), and laid on a 27% iodixanol cushion. Nuclei were pelleted by centrifugation 30 min, 10,000 rpm, 4°C in swinging bucket rotor (SW41) in a Beckman Coulter XL-70 ultracentrifuge.

For mouse, rat, and human cytoplasmic fractions, 175uL of the top layer was added to 175uL QIAGEN® Buffer RLT and stored at -80°C. The nuclear pellet was resuspended in homogenization buffer.

*C. Antibodies*

**[00158]** Primary and secondary antibodies were diluted in Block Buffer. Secondary antibodies were purchased from Life Technologies or Jackson Immunoresearch and were used at 1:500 dilution. Primary antibodies and the dilution factors are shown in Table 5. In the Table, NeuN stands for Neuronal Nuclei Antigen, Itpr stands for Inositol 1,4,5-Trisphosphate Receptor Type 1, Sorcs3 stands for Sortilin Related VPS10 Domain Containing Receptor 3, EEAT1 stands for Excitatory Amino Acid Transporter 1, and Olig2 stands for Oligodendrocyte Transcription Factor 2.

**Table 5. Antibodies**

| Antigen | Species | Vendor | Cat. # | Dilution |
|---|---|---|---|---|
| NeuN | Rabbit | Abcam | ab177487 | 1:250 |
| NeuN | Mouse | Millipore | MAB377 | 1:250 |
| Itpr1 | Mouse | Abcam | ab190239 | 1:500 |
| Sorcs3 | Goat | Thermo | PA5-48023 | 1:250 |
| EEAT1 | Rabbit | Abcam | ab416 | 1:250 |
| Olig2 | Goat | R&D | AF2418 | 1:250 |

**[00159]** The cell type specificities for antibodies used for isolating all cell types are shown in Table 6. Unless indicated, NeuN refers to the rabbit antibody.

**Table 6. Antibody Specificities**

| | Granule | Purkinje | Basket | Astrocyte | Oligodendrocytes (progenitor & mature) |
|---|---|---|---|---|---|
| **Mouse** | Itpr1, Sorcs3, Olig2, NeuN | Itpr1, NeuN | Sorcs3, NeuN | EEAT1, NeuN (mouse) | Olig2, NeuN |
| **Rat** | Itpr1, Sorcs3, Olig2 | Itpr1, NeuN | Itpr1, NeuN | Sorcs3, NeuN | Olig2 (progenitors only), NeuN, Sorcs3 |
| **Human** | Itpr1, NeuN (also used for glia cells) | Not applicable | Itpr1, NeuN (also used for glia cells) | Itpr1, Olig2, NeuN | Olig2, NeuN |

*D. Nuclei fixation and staining*

**[00160]** After isolation, nuclei were fixed by adding formaldehyde (formaldehyde without methanol; Electron Microscopy Sciences, Hatfield, PA; Catalog no. 15710) to 1% final concentration and incubated at room temperature for 8 minutes with gentle rotation. The formaldehyde was quenched by adding glycine to a final concentration of 125 mM. The sample was incubated at room temperature for 5 minutes with gentle rotation. The sample was spun for 4 minutes at 1000g in 4°C to pellet the nuclei. The supernatant was poured out and the pellet was resuspended in Buffer D. The sample was again spun for 4 minutes at 1000g at 4°C. The supernatant was poured out, and the pellet was resuspended in wash buffer (PBS, 0.05% TritonX-100, 50ng/mL BSA, 1mM DTT, 10U/uL Superase-In RNase Inhibitor). The nuclei were

then transferred to a new tube, and then spun for 4 minutes at 1000g at 4°C. The supernatant was poured out, and the nuclei were resuspended in block buffer and allowed to block with gentle rotation at room temperature (RT) for 30 minutes. Antibodies were added to nuclei in block buffer and incubated at RT for 1 hour with gentle rotation. Alternatively, this incubation step was performed at 4°C overnight (O/N).

**[00161]** A small aliquot of the nuclei was taken at this stage to be used as an unstained control for flow cytometry. The nuclei were pelleted for 3 minutes at 1000g at 4°C and washed with wash buffer (PBS, 0.05% TritonX-100, 50ng/mL BSA, 1mM DTT, 10U/uL Superase-In RNase Inhibitor). This was repeated two more times. Following the last wash, a 1:500 dilution of the appropriate secondary antibodies in block buffer was added. The nuclei were covered with foil and incubated at RT for 30 minutes with gentle rotation. Following the incubation, the nuclei were pelleted for 3 minutes at 1000g at 4°C and washed with wash buffer. This was repeated two more times. The pellet was then resuspended in an appropriate amount of block buffer for analysis or sorting. If immediate analysis was not planned, the nuclei were stored on ice.

*E. Flow cytometry analysis/sorting*

**[00162]** DyeCycle™ Ruby (dcRuby) (Thermo Fisher Scientific, Waltham, MA; Catalog no. V10273) was added to samples: 1-2 µL per mouse cerebellum and 5-7 µL for 200 mg of human tissue, which was based on the number of nuclei in the sample, volume of buffer, and whether the nuclei were from mouse or human. Variation in the concentration of dcRuby was allowed depending on the voltage on the flow cytometer.

**[00163]** Prior to flow cytometry, nuclei were co-stained with DyeCycle™ Ruby to a 20µM final concentration. Nuclei were analyzed using a BD LSRII (BD Biosciences, San Jose, CA, USA) flow cytometer using the 488nm, 561nm, and 640nm lasers. Nuclei were sorted using a BD FACS Aria cell sorter using the 488nm, 561nm, and 635/640nm lasers. All samples were first gated using DyeCycle™ Ruby to determine singlets. Analysis was performed using FACS Diva (BD) or FlowJo software. QIAGEN® Buffer RLT (unfixed samples) or QIAGEN® Buffer PKD (fixed samples) were added to the sorted nuclei and the samples were stored at -80°C.

**[00164]** Following sorting, the nuclei were stored for RNA isolation. For storage, proteinase K digestion buffer (QIAGEN® AllPrep® FFPE RNA kit, QIAGEN®, Catalog no. 80234) was added to the sorted nuclei and the resulting mixture was stored at -80°C.

**[00165]** Measurements of forward-scattered light (FSC) were plotted against measurements of side-scattered light (SSC), and gating was performed on the general scatter. The dcRuby intensity was plotted linearly and voltage was adjusted for singlets. Singlets were gated. The samples were plotted based on the colors used and populations were gated based on expected

staining pattern. The percentage of the gated population was compared to the expected percentage of the cell type of interest.

*F. RNA and DNA isolation and purification*

**[00166]** The QIAGEN® AllPrep® FFPE kit was utilized to isolate both DNA and RNA from the same sample. Isolation was performed according to the kit protocol, except for the following modification: prior to the 80°C heating step, the RNA was incubated at 65°C for 30 minutes and then 70°C for an additional 30 minutes.

**[00167]** RNA from cytoplasmic fractions or fresh nuclei were purified using the QIAGEN® RNeasy® Micro kit with on-column DNase digestion. RNA from fixed nuclei were purified using the protocol QIAGEN® RNeasy® FFPE kit with the following modifications – after Proteinase K digestion, RNA was spun at max speed for 15 minutes. The supernatant was removed and incubated at 65°C for 30 minutes, 70°C for 30 minutes, and 80°C for 15 minutes. An on-column DNase digestion was performed in place of the in-solution DNAase digestion. RNA quantity was determined using the QUBIT® RNA HS Assay kit and RNA quality was determined using Agilent 2100 Bioanalyzer with RNA 6000 Pico chips.

**[00168]** Purified DNA and RNA were quantified using QUBIT® (Thermo Fisher Scientific, Waltham, MA; Catalog no. Q32854 and Q32855). Purified RNA samples were also run on AGILENT® Bioanalyzer chip (Agilent Technologies, Santa Clara, CA; Catalog no. 5067-1513) for quantification and sizing. DNA was stored at -20°C and used for sequencing or epigenetic analysis. RNA was stored at -80°C and used for cDNA synthesis.

*G. cDNA production using Nugen Ovation® RNAseq V2 kit and library production*

**[00169]** cDNA was generated from purified nuclear RNA using the Nugen Ovation® RNAseq V2 kit according to the kit protocol. The final cDNA was purified using the QIAGEN® MinElute® Reaction Cleanup Kit (Catalog no. 28206) according to the Nugen Ovation® RNAseq V2 kit protocol. cDNA quality was assessed using an AGILENT® TapeStation using a D1000 ScreenTape (Agilent Technologies; Santa Clara, CA; Catalog no. 5067-5582, ScreenTape Catalog no. 5067-5583). A 1:40 dilution of the cDNA was prepared for qPCR and enrichment or depletion of expected markers was checked. The cDNA was quantified using NanoDrop™.

**[00170]** Libraries were prepared using the Illumina TruSeq DNA LT Library Preparation Kit or the NEBNext Ultra DNA Library Prep Kit for Illumina with NEBNext Multiplex Oligos for Illumina. The quality of the libraries was assessed using the Agilent 2200 TapeStation system with D1000 High Sensitivity ScreenTapes. Libraries were sequenced at The Rockefeller University Genomics Resource Center on the Illumina HiSeq 2500 machine to obtain 50bp single-end reads or on the Illumina NextSeq 500 to obtain 75bp paired-end reads. All datasets have been deposited in GEO: accession-numbers-pending.

*H. Oxidative bisulfite (oxBS) conversion reaction*

**[00171]** Genomic DNA (gDNA) is isolated from sorted nuclei as described in the User Guide for the TrueMethyl® Whole Genome Kit from Cambridge Epigenetix Limited.

*I. Immunofluorescence*

**[00172]** Mice were deeply anesthetized and transcardially perfused with phosphate buffered saline (PBS) followed by 4% formaldehyde (w/v) in PBS. Brains were dissected and post-fixed overnight at 4°C, cryoprotected in 30% sucrose in PBS, OCT TissueTeck embedded, and cut with a Leica CM3050 S cryostat into 20µm sections that were directly mounted on slides. Slides were stored at -20°C. Antigen retrieval was performed by immersing slides into sodium citrate buffer (10mM sodium citrate, 0.05% Tween 20, pH 6.0) at 95-100°C and simmering for 10 minutes in the microwave. The slides were cooled to room temperature and then washed with PBS. Immunofluorescence was performed by blocking for 30 minutes in IF Block Buffer (3% BSA in PBS with 0.1% TritonX-100), incubated with primary antibody overnight, washed 3 times with PBS, incubated with secondary antibody for one hour, washed with PBS, stained with DAPI solution (1ug/mL in PBS) for 15 minutes, washed two times with PBS, and cover-slipped with Prolong Diamond mounting media. For some samples, Tyramide signal amplification was performed as follows: slides were incubated with secondary antibody conjugated to horseradish peroxidase for 1 hour, washed 3 times with PBS, incubated with Cy3 in Amplification Buffer from the TSA Cyanine 3 detection kit for 10 minutes, washed with PBS, and DAPI stained as above. All steps were performed at room temperature. Slides were imaged on a Zeiss LSM700 confocal microscope using the same acquisition settings for mouse and human slides. Brightness and contrast adjustments were made in ImageJ post-acquisition with the same adjustments applied to mouse and human images. In addition to the antibodies listed above for nuclei staining, the following primary antibodies in Table 7 were used for immunostaining.

**[00173]** In Table 7, GFAP stands for Glial Fibrillary Acidic Protein, Mog stands for Myelin Oligodendrocyte Glycoprotein, Mag stands for Myelin Associated Glycoprotein, Pde1a stands for Phosphodiesterase 1A and Pde1c stands for Phosphodiesterase 1C.

**Table 7. Primary antibodies**

| Antigen | Species | Vendor | Cat. # | Dilution | Antigen | Species | Vendor | Cat. # | Dilution |
|---|---|---|---|---|---|---|---|---|---|
| GFAP | Goat | Abcam | ab53554 | 1:500 | Pde1a | Goat | Acris | TA311317 | 1:200 |
| Mog | Goat | Thermo | PA5-47319 | 1:500 | Pde1c | Rabbit | Santa Cruz | sc-376474 | 1:200 |
| Mag | Rabbit | Cell Signaling | 9043S | 1:500 | | | | | |

**[00174]** Antibodies described herein may be produced, tested, and/or characterized using a variety of methods. Such methods may be used to determine a variety of characteristics that may

include, but are not limited to, antibody affinity; specificity; and activity (e.g. activation or inhibition of cellular signaling pathways, or other cellular or biological activities).

**[00175]** Once an antibody molecule of the present disclosure has been produced by an animal, a cell line, chemically synthesized, or recombinantly expressed, it can be purified (i.e., isolated) by any method known in the art for the purification of an immunoglobulin or polypeptide molecule, for example, by chromatography (e.g., ion exchange, affinity, particularly by affinity for the specific antigen, Protein A, and sizing column chromatography), centrifugation, differential solubility, or by any other standard technique for the purification of proteins. In addition, the antibodies of the present disclosure or fragments thereof can be fused to heterologous polypeptide sequences described herein or otherwise known in the art, to facilitate purification.

**[00176]** The affinity between an antibody and a target or ligand (such as an antigen used to generate a given antibody) may be measured in terms of KD using one or more binding assays known in the art. Depending on the desired target for a given antibody, varying KD values may be desirable. High affinity antibodies typically form ligand bonds with a KD of about $10^{-5}$ M or less, e.g. about $10^{-6}$ M or less, about $10^{-7}$ M or less, about $10^{-8}$ M or less, about $10^{-9}$ M or less, about $10^{-10}$ M or less, about $10^{-11}$ M or less or about $10^{-12}$ M or less.

*J. DNA and RNA probes*

**[00177]** Alternatively or used in conjunction to antibodies, RNA and DNA probes may be designed and produced according to David et al. Biotechniques 30, 769-772, 2001 using polymerase chain reaction (PCR) to produce antisense fragments of the region of interest in the genome.

*K. Real time PCR and primer list*

**[00178]** Independent RNA samples were purified from the cytoplasmic fraction from mouse and human cerebellum, and purified RNA was converted to cDNA and amplified using the Nugen Ovation® RNAseq System V2 as described above. Quantitative real-time PCR was performed using TAQMAN® probes and LIGHTCYCLER® 480 Probe Master mix on a LIGHTCYCLER® 480II system (Roche). Two biological replicates were used for both mouse and human, and three technical replicates were performed for each biological replicate. Cq values were calculated using second derivative maximum method in the LIGHTCYCLER® 480 software. Normalization was performed with the delta Cq method with the geometric mean of three housekeeping genes: Actin Beta (Actb), Glyceraldehyde-3-Phosphate Dehydrogenase (GAPDH), and RNA Polymerase II Subunit A (Polr2a). Technical replicates were averaged (arithmetic mean) before performing statistical analysis using a two-tailed t-test assuming equal variance. Primers are listed in Table 8. In Table 8, and as used herein, the genes referred to are

Actb, GAPDH, Polr2a, Von Willebrand Factor C Domain Containing 2 (Vwc2), Coiled-Coil Domain Containing 175 (Ccdc175), Clavesin 2 (Clvs2), Pde1a, Pde1c, Endothelin Converting Enzyme 1 (Ece1), CNKSR Family Member 3 (Cnksr3). Also given in the Table are the mouse and human IDs from Integrated DNA Technologies (IDT) and Thermo Fisher (Thermo).

**Table 8. Primers**

| Gene | Mouse Source | Mouse ID | Mouse Exons | Human Source | Human ID | Mouse Exons |
|---|---|---|---|---|---|---|
| Actb | IDT | Mm.PT.58.33257376.gs | 4-5 | IDT | Hs.PT.56a.41086380.g | 4 |
| Gapdh | Thermo | Mm03302249_g1 | 7-7 | IDT | Hs.PT.58.589810.g | 10-10 |
| Polr2a | IDT | Mm.PT.58.10668225.g | 27-28 | IDT | Hs.PT.58.1609228.g | 27-28 |
| Vwc2 | IDT | Mm.PT.58.28838117 | 3-4 | IDT | Hs.PT.58.4006889 | 3-4 |
| Ccdc175 | IDT | Mm.PT.56a.30819491 | 19-20 | IDT | Hs.PT.58.40158488 | 19-20 |
| Clvs2 | IDT | Mm.PT.58.29272566 | 4-5 | IDT | Hs.PT.58.28152553 | 4-5 |
| Pde1a | IDT | Mm.PT.58.9352231 | 13-14 | IDT | Hs.PT.58.25631488 | 13-14 |
| Pde1c | IDT | Mm.PT.58.12812140 | 11-12 | Thermo | Hs01095682_m1 | 12-13 |
| Ece1 | IDT | Mm.PT.58.41658219 | 19-20 | IDT | Hs.PT.58.19105582 | 18-20 |
| Cnksr3 | IDT | Mm.PT.58.14312874 | 12-13 | IDT | Hs.PT.58.19494243 | 12-13 |

*L. Software used for analysis*

**[00179]** Data processing steps made use of Linux tools in addition to custom perl scripts. In addition to standard Linux commands (e.g. awk, cut, sort, uniq), the following packages were used: Trim Galore! (v0.4.1) for adapter trimming of ATACseq samples, STAR (v2.4.2a) and Bowtie2 (v2.1.0) for read alignment, SAMtools (v0.1.19-44428cd) for indexing and removal of duplicates, igvtools (v2.3.32) for generating files for browser visualization, and featureCounts (v1.5.2) for read summerization. Data analysis was performed using R Studio (v 1.0.143, R: v3.4.0). In addition to base R (for data wrangling, Pearson correlations, hierarchical clustering, etc.) and custom R functions, use of the following packages was extensive: tidyverse (v1.1.1, which contains ggplot2, reshape2, etc.) for data wrangling and visualization, DESeq2 (v1.16.1) for raw count normalization, differential expression analysis, and principle components analysis, gplots (v3.0.1) and pheatmap (v1.0.8) for heatmaps, RColorBrewer (v1.1-2) for color palettes, and clusterProfiler (v3.4.3) for GO analysis.

*M. ATACseq library construction and sequencing*

**[00180]** Nuclei from mouse, rat and human cerebellum were isolated as described above, and 50,000 were washed in ice-cold PBS. ATACseq libraries were prepared as described previously in Buenrostro, et al. (2013). Nat Methods 10, 1213–1218 and Buenrostro, et al. (2015). Curr Protoc Mol Biol 109, 21.29.1–.29.9, both of which are hereby incorporated by reference in their entireties, with the following modifications from Chen, et al. (2016). Nature Methods. 13(12):1013-1024, which is hereby incorporated by reference in its entirety: nuclei were resuspended in ice cold lysis buffer, omitting incubation step on ice and centrifuged. Libraries were generated using the Nextera DNA Library Preparation Kit. Transposition reaction was

performed for 30 minutes at 37°C using Tn5 transposase from Nextera. 200μL of a reverse-crosslinked solution (50 mM Tris–Cl, 1 mM EDTA, 1% SDS, 0.2 M NaCl, 5 ng/ml proteinase K) was added and the mixture was incubated at 65°C at 1000rpm shaking in a heat block overnight, then purified with QIAGEN® MINELUTE® kit.DNA fragments were purified and size selected using AMPure XP beads to yield 100-700bp fragments. ATACseq libraries from mouse and human cerebellum were sequenced on the Illumina HiSeq2500 to obtain 50bp paired-end reads, and libraries generated from rat cerebellum were sequenced on Illumina NextSeq500 to obtain 75bp paired-ended reads. All libraries were sequenced to yield at least 55M reads per sample.

*N. ATACseq read mapping and visualization*

**[00181]** Adapter sequences were trimmed and reads were filtered depending on quality using Trim Galore! (trim_galore --stringency 3 --fastqc --paired *_R1_2.fastq.gz *_R2_2.fastq.gz). Reads that passed the filter were aligned using Bowtie2 (Langmead, et al. (2012). Nat Methods 9, 357–359, which is hereby incorporated by reference herein in its entirety) to hg38, mm10 or custom rat genome. Duplicate reads were removed using SAMtools (Li, et al. (2009) Bioinformatics 25, 2078–2079, which is hereby incorporated by reference herein in its entirety). For data visualization, tdf files were generated using igvtools.

*O. RNAseq read mapping, visualization, and read summarization*

**[00182]** RNAseq reads were aligned using STAR (Dobin, et al. (2013). Bioinformatics 29, 15–21, which is hereby incorporated by reference herein in its entirety) and genome assemblies from ENSEMBL. In addition to default STAR parameters, the following parameters were used for single end (--outFilterMismatchNmax 999 --outFilterScoreMinOverLread 0 --outFilterMatchNminOverLread 0 --outFilterMatchNmin 35 --outFilterMismatchNoverLmax 0.05) and paired-end data (--outFilterMismatchNmax 999 --alignMatesGapMax 1000000 --outFilterScoreMinOverLread 0 --outFilterMatchNminOverLread 0 --outFilterMatchNmin 60 --outFilterMismatchNoverLmax 0.05). Aligned bam files were converted to tdf format for visualization using igvtools. Raw counts were generated using featureCounts (Liao, et al. (2014) Bioinformatics 30, 923–930, which is hereby incorporated by reference herein in its entirety). Refseq or ENSEMBL gene model annotations for whole genes were downloaded using the UCSC Table Browser tool. Refseq (Zhao, et al. (2015). BMC Genomics 16, 97, which is hereby incorporated by reference herein in its entirety) annotations were used. ENSEMBL was chosen for annotation for within species comparisons. For comparative analysis across species, ENSEMBL annotation was used for all species in order to match the list of orthologous transcripts obtained from ENSEMBL. The following parameters were used in addition in addition to the default in featureCounts: for paired-end data, fragments are counted instead of

reads (-p), chimeric fragments are not counted (-C). For comparative analysis across species, reads are allowed to be assigned to more than one matched metafeature (-O) in order to avoid problems when genes overlap in one species but not in another. For within-species comparisons, reads that map to more than one matched meta-feature are not counted (default). Annotations are shown in Table 9.

**Table 9. Genome/Gene Annotations**

| Purpose | Program | Species | Annotations | Source | Genome |
|---|---|---|---|---|---|
| Genome alignment | STAR/Bowtie2 | Mouse | ENSEMBL | ENSEMBL | mm10 |
| Genome alignment | STAR/Bowtie2 | Rat | ENSEMBL | ENSEMBL | rn6 |
| Genome alignment | STAR/Bowtie2 | Human | ENSEMBL | ENSEMBL | hg38 |
| Read quantification | featureCounts | Mouse | Refseq | UCSC | mm10 |
| Read quantification | featureCounts | Rat | ENSEMBL | UCSC | rn6 |
| Read quantification | featureCounts | Human | Refseq | UCSC | hg38 |
| Ortholog read quantification | featureCounts | Mouse | ENSEMBL | ENSEMBL | mm10 |
| Ortholog read quantification | featureCounts | Rat | ENSEMBL | ENSEMBL | rn6 |
| Ortholog read quantification | featureCounts | Human | ENSEMBL | ENSEMBL | hg38 |

*P. Generation of Ortholog Annotations*

**[00183]** The method for generating annotations for mouse, rat, and human orthologs, and mouse-human high confidence orthologs may be summarized as follows: 1) ortholog annotation across species were downloaded from ENSEMBL BioMart (release 88), 2) filtered to include only: high confidence pairs (ENSEMBL ortholog confidence = 0), 1:1 orthologs (transcript that is annotated to be orthologous to more than one transcript in another species), genes greater than 1kb in total length (including untranslated regions), and genes that change by less than 2-fold in length across species. For each gene, the longest orthologous transcript was used for annotation.

**[00184]** Because the rat genome is incompletely annotated, almost 3,000 more genes were identified as orthologous between mouse and human, than among genes that are orthologous among mouse, human, and rat.

*Q. Gene count normalization, differential expression analysis, and principle components analysis*

**[00185]** Raw gene count tables were loaded into R and differential expression analysis was performed using DESeq2 (Love, et al. (2014). Genome Biology 15, 550, which is hereby incorporated by reference herein in its entirety). For age and autolysis time, numerical covariates were used for modeling. Statistically significant genes were defined as having an adjusted p-value of less than 0.01. Fold change cutoffs were not used unless otherwise noted. The rlog function was used to generate normalized counts for downstream analysis (e.g. heatmaps, clustering). The plotPCA function was used to perform principle components analysis. No methods were used to remove batch effects clustering based on expected biology was observed throughout, and never by batch. For example, clustering was observed by cell type between

Egfp+ and nuclei sorted using cellular profiling technique described herein despite numerous differences: date of preparation, tissue state (fresh vs. flash frozen and thawed), nuclei state (unfixed vs. fixed), nuclei processing (none vs. antibody stained), library prep kits (Illumina vs. NEB), sequencer (HiSeq 2500 vs NextSeq 500), and read type (50bp single end vs. 75bp paired end).

*R. Hierarchical Clustering*

**[00186]** Hierarchical clustering was performed using normalized gene counts produced by the rlog function from DESeq2 (Love, et al. (2014) Genome Biology 15, 550, which is hereby incorporated by reference herein in its entirety). Unless specified, the top 250 most variable genes across samples, as computed by the rowVars function, were used for clustering. Default parameters (Euclidean distance and complete linkage) were used with the dist and hclust functions to produce clusters.

*S. Specificity Index Algorithm*

**[00187]** The specificity index (SI) algorithm was previously developed to find genes that are specific in a dataset of interest as compared to other datasets (Dougherty, et al. (2010) Nucleic Acids Res 38, 4218–4230, which is hereby incorporated by reference herein in its entirety). Because the algorithm in Dougherty was designed for microarray data, it was adapted to accept RNAseq data as input. A feature was added that incorporates information from biological replicates for calculations. Fpkms were calculated from raw counts to avoid biases toward long genes, and genes less than 1kb were excluded to avoid biases from extremely short genes. Next, fpkm values were logged, and log10(fpkm) values were bottomed out at -2 to avoid biases from long, non-expressed genes. To take into account sample replicates, the mean and standard deviation were calculated for all genes within a cell type.

**[00188]** SI values are calculated as described previously, but instead of using mean gene expression values as input, sample were randomly selected from a normal distribution with the mean and standard deviation of gene expression. This process was performed 1000 times and final ranks were averaged across all iterations. For analysis of the distribution of highly specific genes in the mouse cerebellum, images for each gene from the Allen Mouse Brain Atlas (Lein, et al. (2007) Nature 445, 168–176, which is hereby incorporated by reference herein in its entirety) were examined. Genes that were not in the Atlas at the time of analysis, or genes that showed no staining in any region of the brain were excluded from analysis. The percentage of genes showing proper distribution for the cell type analyzed were calculated and presented herein.

*T. GO analysis*

**[00189]** Significant differentially expressed genes were split into up- and down-regulated (or mouse and human enriched) genes and gene ontology enrichment analysis for granule cells,

basket cells, and glia was performed using clusterProfiler (Yu, et al. (2012) Journal of Integrative Biology 16, 284–287, which is hereby incorporated by reference herein in its entirety). Significant ontologies were defined as having a q-value of less than 0.01 (default). GO analysis results including significant ontologies were gathered for the three domains (biological process (BP), molecular function (MF), cellular component). For simplicity of visualization, only biological process ontologies were used. Additionally, when many ontologies were found, the simplify function was used to remove redundant terms for visualization. Network based enrichment maps were generated using the enrichMap function. To simplify visualization of the enrichment maps, groups of related ontologies were summarized into one label.

**Example 2. Defining cellular identity using nuclear transcriptomes**

**[00190]** Nuclei may be sorted using antibodies specific to constitutive endoplasmic reticulum (ER) proteins or membrane proteins synthesized in the ER. First nuclear RNA was isolated from GFP+ nuclei as described in Example 1. To enrich for ER transcripts translated near the nuclear membrane in wild-type mice, a polyA pulldown of nuclear transcripts was performed. Most of these transcripts were not observed to be nuclear but were fully mature nucleic acid transcripts being translated in the ER surrounding the nucleus. Not all transcripts for membrane proteins are found in this nuclear polyA+ fraction, but knowledge of the ones that are synthesized proximal to the nucleus resulted in a dramatic increase in the number of factors that can be targets for nuclei labeling. After performing immunofluoresce, staining was observed in the ER around the nucleus, which confirms that a nucleus may be labeled using an antibody against a membrane protein.

**[00191]** The intial strategy for isolating 3 cell types from the cerebellum included antibody-binding using Itpr1 (Inositol 1,4,5-Trisphosphate Receptor Type 1; an intracellular receptor of the endoplasmic reticulum (ER)) as a target to label Purkinje cells, NeuN (a gene encoded by a member of the RNA-binding FOX protein family; NeuN is a neronal antigen commonly used as a biomarker of neurons) as a target to label granule cells, and GFAP (Glial Fibrillary Acidic Protein; one of the major intermediate filament proteins of mature astrocytes used to distinguis astrocytes from glial cells) as a target to label glia to confirm the presence of these types of cell in the sample. Then, a combination of results for Itpr1 and NeuN was used to isolate all 3 populations.

**[00192]** Nuclei originating from a cell type of interest were isolated from tissues of transgenic mice that had been previously profiled using the TRAP method to determine whether the nuclear transcriptome may be used to accurately define cellular identity. The profiling results for the transgenic animals developed for use with the TRAP method were based on the fact that the

GFP-tagged ribosomal subunit is assembled in the nucleolus. Using immunofluorescense, GFP was observed to be distributed primarily in the cytoplasm of tissue slices of cerebellum tissue from a transgenic animal with Purkinje cell protein 2 (pcp2)-GFP expressed exclusively in Purkinje cells, but was also observed in one spot (the nucleolus) in the nucleus. Further, staining results showed the isolated nuclei from the cerebellum of the pcp2-GFP animals to be labeled with DAPI, and one out of the seven nuclei was observed to be a Purkinje nucleus (GFP+).

**Example 3. Using flow cytometry to profile cells derived from transgenic animals developed for use in the TRAP method**

**[00193]** Flow cytometry results for EGFP+ nuclei from each of the five cell lines derived form transgenic animals developed for use in the TRAP method is shown in Table 10.

**Table 10. FACS purification results**

| Region | Cell Type | BAC Driver | Strain | Gender | Percentage |
|---|---|---|---|---|---|
| Cerebellum | Granule | NeuroD1 | JP241 | Female | 91.1% |
| Cerebellum | Granule | NeuroD1 | JP241 | Female | 90.5% |
| Cerebellum | Granule | NeuroD1 | JP241 | Female | 90.5% |
| Cerebellum | Purkinje | Pcp2 | DR168 | Both | 0.54% |
| Cerebellum | Purkinje | Pcp2 | DR168 | Both | 0.39% |
| Cerebellum | Purkinje | Pcp2 | DR168 | Both | 0.32% |
| Cerebellum | Purkinje | Pcp2 | DR168 | Both | 0.36% |
| Cerebellum | Bergmann Glia | Sept4 | DS152 | Male | 1.92% |
| Cerebellum | Bergmann Glia | Sept4 | DS152 | Male | 1.85% |
| Cerebellum | Bergmann Glia | Sept4 | DS152 | Male | 1.84% |
| Cerebellum | Bergmann Glia | Sept4 | DS152 | Male | 1.91% |
| Cortex | Corticopontine Pyramidal | Glt25d2 | DU9 | Female | 0.99% |
| Cortex | Corticopontine Pyramidal | Glt25d2 | DU9 | Female | 1.68% |
| Cortex | Corticopontine Pyramidal | Glt25d2 | DU9 | Female | 1.33% |
| Cortex | Corticothalamic Pyramidal | Ntsr1 | TS16 | Female | 2.33% |
| Cortex | Corticothalamic Pyramidal | Ntsr1 | TS16 | Female | 3.15% |
| Cortex | Corticothalamic Pyramidal | Ntsr1 | TS16 | Female | 2.94% |

**[00194]** Additional flow cytometry was performed on the nuclei isolated from 5 different transgenic mouse lines that had been previously profiled using the TRAP method. From the prior profile generated by the TRAP method, Purkinje Cell Protein 2 (Pcp2) was targeted to identify nuclei originating from Purkinje cells, and about 0.4% of the nuclei were observed to be Pcp2 positive. Neurod1 (Neuronal Differentiation 1) was targeted to identify nuclei originating from granule cells, and about 91% of the nuclei were observed to be Neurod1 positive. Sept4 (Septin 4) was targeted to identify nuclei originating from Bergmann glia, and about 2% of the nuclei were observed to be Sept4 positive. Glt25d2 or Colgalt2 (Collagen Beta(1-O)Galactosyltransferase 2) was targeted to identify nuclei originating from layer 5 cortical-pontine pyramidal neurons, and about 0.5% of the nuclei were observed to be Glt25d2 positive. Neurotensin Receptor 1 (Ntsr1) was targeted to identify nuclei originating from layer 6

corticothalamic projecting pyramidal neurons, and about 1.8% of the nuclei were observed to be Ntsr1 positive.

**[00195]** Values in Table 10 were based on a conservative gating of positive populations for sorting during flow cytometry, while the percentages in the previous paragraph were based on less conservative analysis of the flow data.

**Example 4. Profile expression of cell lines derived from transgenic animals developed for use in the TRAP method**

**[00196]** To determine whether nuclear RNA profiles are sensitive enough to distinguish among different subtypes of neurons, RNAseq was used to generate nuclear expression profiles from FACS purified EGFP+ nuclei from transgenic mouse lines expressing the EGFP-L10a ribosomal fusion protein separately targeted to five different cell types – cerebellar Purkinje cells, granule cells, Bergmann glia, corticopontine pyramidal neurons, or corticothalamic pyramidal neurons. Neurod1, Pcp2, and Sept4 were known to drive expression in granule cells, Purkinje cells, and Bergmann glia of the cerebellum, respectively. Colgalt2 (alternatively referred to as Glt25d2) and Ntsr1 were known to drive expression in corticopontine and corticothalamic pyramidal cells of the cortex. The known markers were confirmed to be specific for the nuclei of each cell type.

**[00197]** Table 11 provides a summary of nuclear RNAseq datasets from the transgenic mice developed for use in the TRAP method.

**Table 11. Summary of nuclear RNAseq datasets**

| Marker | NeuroD1 | Pcp2 | Sept4 | Glt25d2 | Ntsr1 |
|---|---|---|---|---|---|
| Cell Type (abbreviation) | Granule cells (Granule) | Purkinje cells (Purkinje) | Bergmann glia (Glia) | Corticopontine pyramidal (Oligo) | Corticothalamic pyramidal (OPC) |
| Location | Cerebellum | Cerebellum | Cerebellum | Cortex | Cortex |
| Percentage of nuclei | 95% | 0.1% | 1-2% | 0.5% | 2-3% |
| Replicates | 3 | 4 | 4 | 3 | 3 |

**[00198]** Hierarchical clustering of nuclear RNAseq data was performed for the nuclei of the five cell types presented in Table 11. Additionally, three published nuclear RNAseq datasets from Mo et al. (Neuron 2015) were included in the hierarchical clustering: excitatory neurons from Camk2a-cre animals (labeled excit), PV interneurons from PV-cre animals (labeled pv), and VIP interneurons from VIP-cre animals (labeled vip). The pyramidal neurons were observed to be clustered together.

**[00199]** Expression calculated by RNAseq results was normalized to the average expression across all samples for each gene. The log2 fold change in RNAseq results from the nuclei purified by FACS for each of the five cell types compared to the normalized RNAseq results for the 250 most variable genes are shown in Table 12. The log2 change in expression was

calculated for 3 replicates for the nuclei from each cell type. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value across nuclei from all cell types analyzed, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 12. Log2 fold change of expression of the 250 most variable genes across all samples**

| | Log2 Fold Change in Expression (by cell type) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Granule | | | Purkinje | | | | Glia | | | | Oligo | | | OPC | | |
| Gene | | | | | | | | | | | | | | | | | |
| 1700047M11Rik | -0.62 | -2.99 | -2.2 | -2.19 | -1.75 | -0.31 | -1.25 | 6.9 | 6.9 | 6.46 | 6.31 | -2.87 | -1.1 | -1.28 | -1.32 | -1.2 | -2.35 |
| 3110039M20Rik | -3.65 | -3.24 | -3.64 | -3.19 | -3.41 | -3.23 | -3.39 | -3.59 | -3.46 | -3.44 | -3.51 | 3.33 | 3.64 | 3.87 | 4.08 | 4.11 | 4.02 |
| 2410124H12Rik | -2.58 | -2.07 | -2.58 | 8.84 | 8.64 | 9.21 | 8.21 | 0.42 | -2.28 | -2.26 | -2.37 | -1.89 | -1.58 | -2.03 | -0.36 | 0.19 | -1.18 |
| 8030451O07Rik | -2.98 | -3.12 | -2.98 | -2.39 | -2.66 | -0.71 | -2.64 | -2.89 | -2.72 | -2.7 | -2.8 | 3.8 | 2.88 | 3.86 | 1.49 | 1.71 | 0.93 |
| 9530059O14Rik | -3.52 | -2.76 | -3.68 | 3.29 | 3.14 | 3.36 | 3.09 | -3.85 | -3.5 | -3.75 | -3.8 | 2.06 | 1.73 | 2.12 | 0.87 | 0.68 | 0.85 |
| A230077H06Rik | -2.64 | -3.47 | -3.35 | -2.82 | -1.94 | -2.29 | -2.18 | -3.28 | -3.13 | -3.11 | -2.72 | 2.57 | 2.64 | 2.87 | 0.89 | 0.89 | 0.68 |
| A2m | -2.8 | -0.99 | -2.35 | -0.05 | -0.04 | 0.55 | 0.09 | 9.35 | 9.52 | 9.77 | 9.67 | -1.41 | -2.37 | -1.91 | -2.96 | -2.86 | -3.13 |
| A730036I17Rik | 0.12 | 0.46 | -2.07 | 5.83 | 5.85 | 5.86 | 5.57 | -1.11 | -1.79 | -1.77 | -1.87 | 0.42 | -0.32 | -2.21 | -1.42 | -1.32 | 0.01 |
| Aass | -2.31 | -3.05 | -2.87 | -1.17 | -0.43 | -0.6 | -0.12 | 5.41 | 6.18 | 6.68 | 5.61 | 0.3 | 0.52 | -1.32 | -1.67 | -1.97 | -2.31 |
| Acsm5 | -1.95 | -2.12 | -1.95 | -1.28 | -0.54 | -0.21 | -1.57 | 6.77 | 7.89 | 7.43 | 7.34 | -1.08 | -2.09 | -1.23 | -1.25 | -1.14 | -1.45 |
| Actbl2 | -1.69 | -1.85 | -1.69 | -1 | -1.32 | -1.06 | -1.29 | 7.18 | 6.67 | 7.16 | 5.73 | -1.72 | -1.82 | -1.83 | -0.97 | -0.86 | -1.17 |
| Adra2b | -1.7 | -1.85 | -1.69 | 4.51 | 6.18 | 6.2 | 5.16 | -1.6 | -1.43 | -1.41 | -1.5 | -1.73 | 1.75 | -1.83 | -1 | -0.9 | 0.58 |
| Afp | -1.42 | -1.58 | -1.41 | 6.44 | 6.19 | 6.27 | 6.61 | -1.31 | -1.1 | -1.07 | -1.19 | -1.45 | -1.55 | -1.56 | -0.67 | -0.56 | -0.87 |
| Aqp4 | 0.13 | -0.52 | -0.75 | -2.36 | -1.2 | -0.97 | -0.89 | 5.81 | 6.1 | 5.82 | 6.36 | -0.61 | 0.01 | -0.35 | -2.45 | -2.19 | -2.17 |
| Arhgap25 | -2.01 | -2.35 | -2.41 | -2.97 | -2.15 | -1.83 | -1.74 | -0.83 | -2.8 | -2.46 | -2.34 | 3.17 | 1.78 | 2.24 | 4.63 | 4.55 | 4.48 |
| Arx | -2.19 | -2.35 | -2.18 | 2.21 | -1.83 | -1.6 | -1.81 | -2.09 | -1.9 | -1.88 | -1.98 | -2.22 | 0.47 | -2.33 | -1.52 | -1.43 | -0.71 |
| Atp13a4 | -2.53 | -0.42 | -2.89 | -1.06 | -0.7 | -0.3 | -0.53 | 6.36 | 5.86 | 6.12 | 6.29 | -1.87 | -0.62 | -1.72 | -1.01 | -1.58 | -1.24 |
| Atp1a2 | -0.99 | -0.57 | -1.69 | -2.85 | -1.78 | -2.01 | -2.09 | 6.15 | 6.62 | 6.58 | 7.29 | 0.13 | -0.84 | -0.72 | -1.85 | -2.25 | -1.88 |
| Atp2a3 | 0.18 | 0.54 | 0.44 | 7.15 | 7.32 | 7.28 | 7.66 | 1.37 | 0.54 | 1.32 | 0.9 | -3.65 | -2.55 | -3.72 | -2.11 | -2.37 | -2.7 |
| B230209E15Rik | -3.56 | -3.95 | -3.98 | 0.28 | 0.71 | 0.61 | 0.54 | -3.68 | -3.26 | -3.64 | -3.33 | 3.78 | 3.26 | 3.43 | 3.45 | 3.5 | 3.38 |
| B3gnt5 | -0.94 | -1.11 | -2.46 | 6.27 | 6.33 | 5.6 | 5.64 | 1.13 | -0.2 | 1.51 | 0.99 | -0.31 | -0.16 | -2.86 | -1.12 | -1.41 | -1.58 |
| Barhl2 | 4.96 | 5.98 | 5.26 | -0.58 | -0.97 | -0.65 | 1.27 | 1.81 | 1.21 | 4.08 | 2.94 | -2.25 | -2.34 | -2.35 | 0.05 | -1.47 | -1.74 |
| Bcl11b | -3.39 | -3.72 | -2.42 | -1.51 | -1.41 | -1.59 | -1.34 | -3.01 | -3.26 | -3.24 | -2.99 | 3.33 | 2.94 | 3.33 | 2.99 | 2.91 | 2.79 |
| Btbd17 | 0.62 | 0.75 | 0.21 | -1.78 | -2.77 | -2.54 | -2.11 | 5.27 | 5.84 | 5.46 | 5.46 | -3.12 | -0.51 | -1.36 | -1.75 | -1.16 | -1.24 |
| Cacng3 | -0.91 | -3.2 | -4 | -3.25 | -2.83 | -2.25 | -2.88 | -3.67 | -3.71 | -3.69 | -3.75 | 4 | 3.62 | 4.05 | 3.07 | 3.01 | 3 |
| Camk1g | -1.58 | -2.95 | -2.36 | -2.93 | -3.17 | -2.97 | -3.15 | -3.37 | -2.76 | -2.74 | -3.29 | 2.96 | 2.98 | 3.14 | 0.98 | 0.72 | 0.33 |
| Camkv | -2.9 | -3.63 | -3.52 | -3.03 | -3.27 | -3.08 | -2.79 | -3.07 | -3.32 | -3.3 | -0.23 | 2.19 | 2.85 | 2.41 | 2.11 | 2.05 | 2.25 |
| Car8 | 0.24 | 0.61 | 0.05 | 7.76 | 6.99 | 7.72 | 7.86 | 0.52 | 1.18 | 1.73 | 1.21 | -2.65 | -3.24 | -1.78 | -3.27 | -2.61 | -2.95 |
| Casp12 | -1.17 | -0.68 | -1.69 | -1.28 | -0.06 | -0.86 | -0.83 | 5.25 | 5.13 | 5.62 | 5.34 | 2.41 | -1.36 | -1.02 | -0.73 | 0.48 | 0.01 |
| Casq2 | -0.62 | 0.27 | -1.18 | 7.08 | 6.93 | 7.27 | 7.03 | 1.4 | -0.51 | -0.02 | 0.15 | -3.84 | -3.2 | -3.06 | -1.25 | -1.9 | -1.98 |
| Cbln2 | -2.98 | -3.12 | -2.97 | -2.38 | -2.65 | -2.43 | -2.63 | -2.89 | -2.72 | -2.7 | -0.78 | 1.98 | 2.26 | 1.92 | 0.95 | 1.65 | 1.09 |
| Cbln3 | 5.83 | 6.65 | 6.72 | 0.86 | 1.97 | 2.1 | 1.47 | 3.71 | 3.26 | 4.06 | 4.02 | -3.97 | -3.49 | -3.8 | -3.56 | -3.49 | -3.33 |
| Cckbr | -3.75 | -3.26 | -3.48 | -3.35 | -3.55 | -2.97 | -3.17 | 0.23 | -0.4 | -0.84 | -1.17 | 2.94 | 3.06 | 3.1 | 2.86 | 2.95 | 2.99 |
| Cd70 | 2.34 | -2.35 | -2.18 | -1.55 | 0.35 | -0.56 | -0.29 | 6.44 | 5.51 | 6.72 | 6.66 | -2.22 | -1.55 | -2.33 | -1.52 | -1.42 | -1.7 |
| Cd9 | -2.1 | -3.44 | -2.09 | -1.73 | -1.68 | -3.2 | -1.65 | 7.18 | 7.87 | 8.03 | 7.61 | 1.33 | 0.21 | 0.64 | -1.19 | -2.06 | -1.15 |
| Cdc42ep1 | -0.64 | 1.99 | -1.25 | -2.01 | -2.3 | -2.06 | -2.27 | 5.13 | 5.88 | 6.11 | 5.71 | -1.61 | -2.15 | -2.78 | -1.98 | -0.97 | -2.16 |
| Cdh19 | -2.17 | -1.88 | -2.74 | -0.72 | -1.47 | -0.2 | -0.17 | 5.93 | 6.62 | 5.95 | 5.77 | 0.58 | 0.79 | 0.08 | -2.07 | -0.91 | -1.26 |
| Chrm1 | -3.42 | -3.34 | -3.71 | -3.28 | -3.11 | -2.88 | -2.41 | -3.34 | -1.94 | -2.68 | -2.99 | 2.79 | 3.18 | 2.88 | 3.02 | 2.99 | 3.2 |
| Chrm3 | -1.32 | -0.96 | -2.16 | -3.02 | -3.15 | -2.76 | -2.65 | -3.58 | -3.6 | -3.28 | -2.83 | 3.23 | 2.34 | 2.98 | 2.98 | 3.14 | 3.23 |
| Chsy3 | -3.34 | -3.77 | -3.69 | -2.39 | -2.35 | -1.74 | -1.86 | -3.17 | -3.02 | -1.58 | -3.57 | 3.61 | 2.95 | 3.49 | 3.44 | 3.66 | 3.69 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clic6 | 0.32 | -0.16 | -1.77 | 6.67 | 6.57 | 7.14 | 6.33 | -1.27 | 0.66 | -0.41 | -0.35 | -0.66 | -2.11 | -1.54 | -2.08 | -1.52 | -2.92 |
| Cml5 | -2.31 | -1.74 | -2.3 | -1.66 | -1.94 | -0.7 | -1.92 | 6.87 | 7.06 | 7.34 | 7.13 | -0.25 | -1.69 | -2.45 | -1.63 | -1.53 | -1.81 |
| Cnpy1 | 5.29 | 5.38 | 5.54 | -0.56 | -0.1 | 0.51 | 0.62 | 4.32 | 4.48 | 4.27 | 4.01 | -2.88 | -2.46 | -2.99 | -2.96 | -1.9 | -2.26 |
| Cobl | -2.3 | -3.21 | -2.61 | -2.36 | -2.19 | -2.09 | -2.31 | -3.14 | -3.33 | -3.48 | -3.26 | 3.85 | 3.78 | 4.23 | 2.89 | 3.06 | 2.62 |
| Col1a2 | -2.48 | -2.66 | -3.01 | -1.68 | -1.08 | 0.09 | -2.01 | 5.31 | 5.23 | 5.55 | 5.59 | 3.34 | 1.56 | 0.85 | -1.64 | -2.29 | -1.44 |
| Col4a5 | -2.98 | -2.19 | -2.7 | 3.94 | 4.08 | 4 | 3.82 | 2.59 | 2.85 | 2.31 | 2.77 | 0.58 | 0.27 | -0.95 | -0.93 | -2.08 | -2.25 |
| Col6a1 | -2.81 | -0.42 | -3.25 | -2.71 | -2.05 | -2.75 | -2.94 | -3.18 | -3.02 | -3.01 | -1.6 | 2.93 | 3.27 | 2.87 | 2.93 | 2.65 | 3.08 |
| Colgalt2 | -3.22 | -3.3 | -3.64 | -2.3 | -2.3 | -2.27 | -2.4 | 1.98 | 1.9 | 1.95 | 1.72 | 5.27 | 5.16 | 5.37 | -0.84 | -0.85 | -0.66 |
| Corin | -0.8 | -1.36 | -2.1 | 5.71 | 5.7 | 5.91 | 5.53 | -2.04 | -1.08 | -1.97 | 0.16 | -1.36 | -1.43 | -1.39 | -1.54 | -1.4 | -2.04 |
| Coro6 | -1.16 | -3.84 | -3.76 | 0.68 | 0.57 | 0.48 | 1.01 | -3.72 | -3.29 | -3.6 | -3.66 | 2.02 | 2.16 | 1.88 | -0.29 | -1.09 | -1.13 |
| Cpne7 | -3.14 | -2.81 | -3.14 | -2.33 | -2.32 | -1.79 | -1.2 | -2.58 | -2.67 | -3.01 | -2.73 | 1.9 | 2.83 | 2.51 | 1.3 | 1.23 | 1.18 |
| Crym | -3.25 | -2.95 | -2.78 | -2.68 | -2.38 | -2.1 | -2.92 | -3.16 | -3 | -2.98 | -3.07 | 3.98 | 4.01 | 4.06 | 4.28 | 4.3 | 4.19 |
| Csta1 | 0.79 | -2.34 | 0.52 | 6.35 | 5.83 | 6.19 | 6.07 | -2.96 | -0.68 | -2.76 | -1.85 | -1.33 | -1.12 | -0.29 | -1.19 | -1.53 | -1.13 |
| Ctxn3 | 0.22 | -1.98 | -0.04 | -2.5 | -0.85 | -2.55 | -1.71 | 5.53 | 5.32 | 6.08 | 5.13 | -1.61 | -1.15 | -2.14 | 1.01 | 0.95 | 1.62 |
| Cxcl14 | -3.23 | -2.63 | -1.8 | -2.66 | -2.92 | -2.07 | -2.33 | 3.67 | 4.22 | 3.93 | 4.59 | -1.27 | -0.28 | 0.11 | -0.8 | -2.54 | -1.8 |
| Cxcl5 | -0.88 | -1.95 | -1.79 | -1.15 | -1.46 | -1.21 | -1.43 | 6.37 | 6.19 | 4.89 | 4.19 | -1.83 | -1.92 | -0.55 | 0.05 | -1.01 | 0.85 |
| Cxcr4 | -2.01 | -1.4 | -2.01 | -1.4 | -1.66 | -1.44 | -1.64 | 5.66 | 4.95 | 6.7 | 7.52 | -2.05 | 1.06 | -2.15 | -1.37 | -0.14 | -1.54 |
| Cyp27a1 | -2.29 | -3.02 | -2.86 | 5.25 | 5.43 | 5.22 | 5.08 | 1.27 | 0.03 | 2 | 1.09 | 0.16 | -1.58 | -2.09 | -2.22 | -1.31 | -2.4 |
| Cyp2j9 | -1.54 | -3.54 | -2.34 | -0.8 | -2.11 | 0.51 | -0.66 | 7.77 | 8.43 | 8.05 | 8.42 | -1.64 | -0.66 | -1.09 | -2.32 | -2.57 | -2.56 |
| D430019H 16Rik | -2.93 | -2.81 | -2.62 | -2.22 | -2.55 | -2.28 | -1.21 | -3.27 | -3.12 | -3.1 | -2.71 | 2.39 | 2.98 | 3.23 | 2.77 | 3.02 | 2.88 |
| Ddn | -3.04 | -3.17 | -3.03 | -2.45 | -2.72 | -2.5 | -2.7 | -2.95 | -2.79 | -2.77 | -2.86 | 1.54 | 2.39 | 1.85 | 3.34 | 3.31 | 3.11 |
| Ddx3y | -3.5 | -3.61 | -3.76 | 2.13 | 2.25 | 1.66 | 2.46 | 3.94 | 3.14 | 3.67 | 3.3 | -3.78 | -3.83 | -3.83 | -2.9 | -2.24 | -2.8 |
| Dlgap2 | -3.15 | -3.89 | -3.66 | -1.12 | -1.23 | -1.02 | -1.31 | -3.89 | -4.04 | -3.96 | -3.88 | 2.59 | 2.07 | 2.65 | 2.29 | 2.27 | 2.34 |
| Dlx4os | -0.68 | -1.54 | 1.18 | 5.5 | 5.88 | 5.72 | 5.37 | 1.87 | -2.39 | -2.37 | -2.47 | -2.06 | -2.79 | -1.8 | 0.45 | 0.62 | 1.53 |
| Dlx6os1 | -2.17 | -3.15 | -3.01 | -1.75 | -1.7 | -1.81 | -2.68 | -2.4 | -2.76 | -2.74 | -2.83 | 1.5 | 1.34 | 2.2 | -1.27 | 0.47 | 0.16 |
| Dmp1 | -2.89 | -1.58 | -2.88 | -1.43 | -1.81 | -2.3 | -1.32 | 6.91 | 6.83 | 7.37 | 6.73 | 0.8 | -3.01 | 0.39 | -0.25 | -2.12 | -1.16 |
| E030003E 18Rik | -3.25 | -3.58 | -3.24 | -1.48 | -1.81 | -1.09 | -2.18 | 5.27 | 4.7 | 5.38 | 4.57 | 1.54 | 1.6 | 1.77 | -0.13 | 0.37 | -0.57 |
| Ebf1 | 3.07 | 2.93 | 2.55 | 6.1 | 5.65 | 6.17 | 5.55 | -1.4 | -0.25 | -1.2 | -0.74 | -0.46 | -0.79 | -1.1 | -2.9 | -2.99 | -2.9 |
| Ebf2 | -0.86 | -2.2 | -1.25 | 6.5 | 6.35 | 6.76 | 6.13 | 0.45 | 0.14 | 1.04 | -0.17 | -0.12 | -0.8 | -0.03 | -2.36 | -2.6 | -1.47 |
| Ebf3 | 0.46 | -1.99 | 0.7 | 5.27 | 5.19 | 5.23 | 5.22 | 0.44 | -0.42 | -0.96 | 0.26 | 0.06 | -0.18 | -1.42 | -1.46 | -2.68 | -2.38 |
| Ednrb | -2.41 | -1.31 | -2.06 | -2.56 | -1.17 | -2.01 | -1.65 | 7.99 | 8.28 | 8.28 | 8.63 | -1.72 | -1.09 | -0.85 | -1.4 | -2.02 | -1.48 |
| Egfr | -2.9 | -2.59 | -2.5 | -3.03 | -2.94 | -2.21 | -2.15 | 4 | 3.78 | 4.25 | 3.82 | 0.87 | -0.82 | -0.61 | -0.7 | 0.47 | 0.59 |
| Egr3 | -2.89 | -3.44 | -3.32 | -2.17 | -1.48 | -2.83 | -3.01 | -3.25 | -3.09 | -3.07 | -3.16 | 2.31 | 3.02 | 2.48 | 2.69 | 3.3 | 3.39 |
| Eif2s3y | -3.93 | -3.98 | -3.73 | 2.7 | 2.92 | 2.67 | 3.04 | 3.51 | 3.23 | 3.93 | 2.86 | -3.94 | -3.97 | -3.98 | -3.25 | -3.53 | -3.7 |
| Elfn1 | -2.78 | -2.95 | -3.05 | -2.93 | -1.59 | -1.8 | -2.33 | -2.67 | -2.2 | -2.74 | -2.85 | 3.36 | 2.82 | 4.02 | 0.17 | -0.14 | -0.3 |
| Emp2 | -1.62 | -2.6 | -2.14 | -1.24 | -1.24 | -0.2 | -0.77 | 5.46 | 5.12 | 4.95 | 5.37 | -1.32 | -3.31 | -0.78 | -0.29 | 0.1 | -0.59 |
| En2 | 4.67 | 5.17 | 5.02 | 0.06 | 0.88 | 0.17 | 1.32 | 3.06 | 3.5 | 3 | 3.89 | -2.76 | -2.84 | -2.85 | -2.07 | -1.98 | -1.49 |
| Enc1 | -2.15 | -2.98 | -2.79 | -2.61 | -2.91 | -3.16 | -3.32 | -3.52 | -3.39 | -3.38 | -3.45 | 2.7 | 3.25 | 3 | 2.78 | 3.24 | 3.18 |
| Etnppl | 0.92 | -3.15 | -1.54 | -2.86 | -0.47 | -1.89 | -2.17 | 7.33 | 7.3 | 6.62 | 7.46 | -2.26 | -1.11 | -0.84 | -1.47 | -1.33 | -2.03 |
| Eva1a | -3.44 | -2.68 | -3.43 | -1.61 | -1.1 | 0.05 | -0.78 | 6.26 | 5.46 | 5.7 | 5.47 | 0.45 | -0.51 | 0.81 | -1.57 | -1.43 | -1.83 |
| F3 | -2.6 | -3.9 | -4.03 | -2.62 | -2.25 | -2.86 | -2.14 | 6.66 | 7.01 | 7.57 | 7.39 | 1.31 | -0.04 | 0.22 | -0.47 | -0.68 | -1.21 |
| Fam107b | 1.1 | 1.18 | 0.74 | 5.97 | 5.57 | 6.23 | 5.9 | -2.54 | 0.31 | -0.07 | -0.51 | -1.69 | -2.04 | -1.69 | -2.66 | -2.78 | -2.5 |
| Fam19a1 | -3.32 | -3.65 | -3.6 | -1.74 | -1.76 | -1.43 | -1.5 | -3.25 | -3.39 | -2.26 | -2.12 | 5.06 | 4.36 | 5.09 | 1.48 | 1.72 | 1.36 |
| Fat2 | 6.74 | 7.11 | 7.14 | 0.45 | 0.51 | 1.17 | 0.88 | 2.25 | 1.78 | 2.7 | 2.22 | -1.97 | -2.75 | -2.44 | -2.44 | -2.15 | -1.64 |
| Fbln2 | -2.62 | -2.48 | -3.11 | -1.42 | -1.81 | -2.58 | -2.78 | -3.03 | -2.29 | -2.85 | -2.94 | 1.17 | 2.18 | 1.96 | 2.85 | 2.58 | 2.74 |
| Fezf2 | -2.84 | -2.98 | -2.83 | -2.24 | -2.51 | -2.29 | -2.49 | -2.75 | -2.58 | -2.56 | -2.65 | 3.1 | 3.94 | 3.54 | 2.5 | 2.52 | 2.3 |
| Fgd3 | -3.56 | -3.63 | -1.45 | 4.52 | 4.27 | 4.54 | 4.19 | -2.23 | -2.09 | -2.53 | -2.48 | -1.14 | -0.14 | -0.7 | -1.7 | -1.56 | -2.55 |
| Flrt2 | -2.72 | -3.91 | -3.83 | -2.17 | -2.12 | -1.9 | -2.26 | -3.49 | -2.25 | -1.96 | -2.52 | 2.91 | 2.71 | 3.07 | 3.43 | 3.69 | 3.49 |
| Folh1 | 0.34 | -3.14 | -2.54 | -3.11 | -0.95 | 1.25 | -0.59 | 8.44 | 7.91 | 7.9 | 7.57 | 0 | -1.44 | -0.83 | -3.08 | -2.99 | -2.36 |
| Foxg1 | -3.33 | -3.06 | -3.32 | -2.78 | -3.04 | -2.83 | -3.02 | -3.25 | -3.1 | -3.08 | -3.16 | 2.66 | 2.83 | 2.7 | 2.99 | 3.25 | 3.06 |
| Frem1 | -1.23 | -0.74 | -2.48 | -2.1 | -2.09 | -1.67 | -1.97 | 4.85 | 4.71 | 4.54 | 4.41 | -0.16 | 0.09 | 0.13 | -2.53 | -1.69 | -1.99 |
| Gabra6 | 7.01 | 7.08 | 7.52 | 1.09 | 2.13 | 1.79 | 1.72 | 3.55 | 3.09 | 3.46 | 3.66 | -3.78 | -3.83 | -3.54 | -3.25 | -2.63 | -2.94 |
| Galnt14 | -2.29 | -3.02 | -3.33 | -1.39 | -1.17 | -0.5 | -1.19 | -2.65 | -3.95 | -3.38 | -3.57 | 3.2 | 2.97 | 3.25 | 0.47 | 0.64 | 0.25 |
| Gas1 | -2.56 | -3.27 | -3.11 | -2.49 | -0.94 | -1.82 | -1.66 | 6.99 | 7.31 | 7.56 | 7.4 | -0.91 | -1.07 | -1.09 | -1.71 | -2.36 | -0.93 |
| Gda | -1.49 | -1.95 | -2.4 | -2.7 | -2.23 | -2.29 | -1.93 | -3.68 | -3.38 | -2.94 | -2.62 | 3.19 | 3.22 | 3.64 | 3.78 | 3.86 | 3.96 |
| Gdf10 | -0.34 | -0.83 | -0.59 | -3.39 | -2.66 | -1.11 | -1.88 | 9.43 | 9.69 | 10.04 | 9.95 | -2.08 | -2.61 | -3.66 | -2.5 | -2.11 | -2.73 |
| Gja1 | -2.54 | -2.96 | -2.38 | -0.77 | -1.66 | -1.22 | -1.82 | 8.38 | 8.84 | 9.06 | 9.06 | 0.36 | -0.42 | -1.59 | -1.69 | -1.79 | -1.78 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gjb6 | -3.04 | -2.46 | -0.96 | -3.33 | -2.28 | -1.03 | -2.4 | 6.97 | 6.6 | 7.11 | 6.96 | 0.96 | 0.75 | 0.2 | -2.81 | -1.87 | -1.95 |
| Gjc3 | -1.5 | -1.23 | -0.56 | -1.47 | -1.07 | -1.29 | -1.36 | 7.86 | 7.96 | 8.03 | 7.82 | -1.2 | -1.72 | -0.9 | -2.41 | -2.42 | -1.98 |
| Gli1 | -2.36 | -1.06 | -0.79 | -1.72 | -2 | -1.77 | -1.97 | 5.82 | 6.3 | 6.05 | 5.39 | -2.39 | -2.48 | -1.34 | -1.69 | -1.59 | -1.87 |
| Gli3 | -3.13 | -3.65 | -2.04 | -1.19 | -1.84 | -0.59 | -1.25 | 6.35 | 5.79 | 6.39 | 5.21 | 0.47 | -0.57 | -0.17 | -1.24 | -1.55 | -1.26 |
| Glt25d2 | -3.33 | -3.45 | -2.9 | 3.96 | 4.21 | 3.8 | 3.79 | -3.25 | -2.6 | -3.08 | -2.69 | 2.66 | 0.95 | 1.69 | 1.93 | 1.49 | 2.02 |
| Gm11549 | -3.08 | -3.22 | -3.08 | -2.5 | -2.77 | -2.55 | -2.74 | -3 | -2.24 | -2.81 | -2.9 | 3.46 | 3.35 | 3.22 | 4.11 | 4.53 | 4.35 |
| Gm266 | -2.29 | -2.46 | -1.52 | -1.66 | 0.58 | -1.71 | 0.19 | 6.31 | 5.65 | 6.23 | 4.89 | -2.32 | -1.69 | -1.25 | -0.61 | 0.53 | -1.8 |
| Gm5083 | -2.64 | 0.35 | 0.66 | 8.14 | 7.82 | 7.37 | 7.8 | -2.54 | -1.55 | -2.32 | 0.83 | -2.67 | -2.77 | -0.35 | -1.95 | -0.89 | -2.14 |
| Gm5089 | 1.21 | 1.23 | 1.53 | -1.5 | -1.26 | -0.98 | -0.84 | 5.3 | 4.88 | 5.12 | 5.1 | 0.13 | -1.22 | -1.64 | -1.45 | -1.06 | -2.14 |
| Gm5468 | -3.09 | -2.79 | -3.47 | -1.77 | -1.95 | -3.01 | -1.92 | -3.4 | -3.26 | -2.46 | -2.35 | 2.65 | 2.34 | 2.23 | 4.28 | 4.34 | 4.52 |
| Gm5607 | -2.96 | -3.49 | -3.37 | -2.84 | -1.76 | -2.31 | -1.93 | 3.49 | 3.44 | 3.75 | 3.93 | -1.2 | -1.71 | 0.33 | -1.3 | -2.1 | -2.06 |
| Gm8179 | -2.09 | -3.69 | -3.01 | -2.29 | -1.48 | 0.32 | -1.44 | -3.54 | -3.41 | -3.39 | -3.46 | 3.46 | 2.37 | 3.28 | 3.01 | 3.03 | 2.79 |
| Gpr37l1 | -0.67 | -0.8 | -1.02 | -0.04 | 0.73 | 0.32 | 0.46 | 7.4 | 7.37 | 7.49 | 8.1 | -2.75 | -2.53 | -3.31 | -3.3 | -3.21 | -3.22 |
| Grik1 | -2.49 | -2.75 | -2.59 | 4.78 | 4.31 | 4.85 | 4.5 | -3.37 | -2.77 | -1.61 | -2.54 | -1.2 | -0.56 | 0.23 | -1.81 | -1.62 | -1.77 |
| Grm5 | -2.95 | -3.04 | -2.52 | -2.72 | -3.2 | -2.54 | -2.82 | -2.12 | -3 | -2.41 | -1.51 | 3.92 | 3.4 | 3.88 | 2.82 | 3.04 | 2.97 |
| Hepacam | -1.02 | -1.05 | -2.29 | -2.37 | -2.32 | -2.08 | -1.75 | 6.43 | 6.54 | 7.01 | 7.02 | -0.61 | -0.69 | -1.09 | -2.08 | -1.73 | -2.13 |
| Hes3 | -1.33 | -1.42 | -2.03 | 6.39 | 6.46 | 6.58 | 6.89 | -2.9 | -1.63 | -1.6 | -2.8 | -0.73 | -0.8 | -0.81 | -1.56 | -0.93 | -2.52 |
| Hs3st2 | -1.35 | -2.3 | -1.67 | -2.95 | -3.12 | -2.21 | -3 | -3.81 | -3.3 | -3.4 | -2.6 | 3.43 | 2.91 | 3.39 | 3.41 | 3.29 | 3.11 |
| Hs3st4 | -1.83 | -2.44 | -3.01 | -2.54 | -2.86 | -2.93 | -2.83 | -2.94 | -2.51 | -3.58 | -3.76 | 2.06 | 1.83 | 2.39 | 5.07 | 5.24 | 5.32 |
| Htr2a | -3.62 | -3.21 | -2.85 | -2.33 | -2.67 | -1.17 | -1.49 | -2.95 | -2.75 | -3.01 | -3.49 | 2.72 | 3.13 | 3.24 | 1.43 | 1.96 | 0.91 |
| Icam5 | -2.06 | -3.39 | -3.26 | -2.71 | -2.42 | -2.76 | -2.95 | -3.19 | -3.03 | -3.01 | -3.1 | 2.7 | 3.38 | 2.97 | 3.04 | 2.85 | 2.79 |
| Icosl | -0.14 | -3.08 | -1.26 | -2.31 | -1.16 | -0.8 | -2.56 | 4.73 | 5.78 | 5.62 | 6.01 | 0.44 | -0.13 | -3.05 | -0.68 | -0.88 | -1.74 |
| Il22 | -1.83 | -1.12 | -1.82 | 6.23 | 6.67 | 5.84 | 6.76 | 0.21 | -1.55 | -1.53 | 1.32 | -1.86 | -1.96 | -1.97 | -1.13 | -1.02 | -1.33 |
| Iltifb | 0.2 | 1.08 | -0.28 | 7.43 | 7.47 | 6.43 | 7.24 | -2.27 | -0.68 | -0.27 | -2.16 | -1.17 | -2.5 | -2.51 | -1.68 | -0.53 | -0.37 |
| Irx1 | -0.62 | -1.8 | -1.63 | -0.94 | -1.26 | -1 | 1.01 | 6.28 | 6.97 | 6.68 | 5.97 | -1.67 | -1.76 | -1.77 | -0.91 | -0.8 | -1.11 |
| Irx2 | -1.3 | -1.45 | -1.3 | -0.59 | -0.91 | -0.65 | -0.89 | 5.89 | 5 | 4.5 | 7.92 | -1.33 | -1.42 | -1.43 | -0.56 | -0.45 | -0.76 |
| Irx5 | -1.26 | -1.43 | -1.25 | -0.55 | -0.86 | -0.61 | -0.84 | 6.78 | 5.39 | 5.31 | 5.12 | -1.29 | -1.4 | -1.4 | -0.52 | -0.42 | -0.72 |
| Itih3 | -1.03 | -1.71 | -3.09 | -2.47 | -1.34 | -0.72 | -0.85 | 7.36 | 7.97 | 7.78 | 7.8 | -1.69 | -1.23 | -3.23 | -2.44 | -2.34 | -2.62 |
| Itpripl2 | -2.59 | -2.74 | -0.75 | -1.96 | -2.24 | -2.01 | -0.97 | 3.72 | 5.54 | 4.53 | 5.63 | 3.16 | 1.08 | 0.47 | -1.06 | -0.93 | -0.81 |
| Kank1 | -1.2 | -2.76 | -3.47 | 3.64 | 3.72 | 3.91 | 3.61 | 3.67 | 3.34 | 3.2 | 3.16 | -1.44 | -1.6 | -1.05 | -1.86 | -1.9 | -2.07 |
| Kcnc2 | -3.06 | -3.94 | -3.28 | -1.63 | -1.69 | -1.76 | -2.05 | -3.64 | -3.83 | -3.42 | -2.45 | 2.35 | 2.04 | 2.47 | 1.53 | 1.91 | 1.67 |
| Kcnf1 | -3.17 | -3.3 | -2.69 | -2.6 | -2.87 | -2.65 | -2.85 | -3.09 | -2.93 | -2.91 | -3 | 2.64 | 3.57 | 3.04 | 3.15 | 3.53 | 3.5 |
| Kcnj10 | -0.43 | -1.24 | -0.8 | -1.92 | -1.35 | -1.41 | -1.69 | 7.22 | 7.44 | 7.58 | 7.74 | -1.81 | -1.54 | -2.32 | -1.87 | -2.23 | -2.87 |
| Kcnj16 | -2.65 | -3.22 | -2.82 | -2.63 | -1.85 | -2.05 | -1.26 | 8.02 | 8.42 | 9.13 | 8.66 | -0.18 | -1.47 | -1.8 | -0.62 | -0.94 | -0.92 |
| Kcnj4 | -3.25 | -2.97 | -3.25 | -2.08 | -2.96 | -2.75 | -2.02 | -1.92 | -3.02 | -1.29 | -3.09 | 2.64 | 2.99 | 2.59 | 2.8 | 3.08 | 3.11 |
| Kcnq5 | -1.99 | -2.99 | -2.33 | -2.94 | -2.91 | -2.45 | -2.7 | -2.84 | -2.85 | -3.07 | -3.45 | 3.98 | 3.21 | 3.95 | 1.78 | 2.14 | 1.96 |
| Kcnt2 | -3.04 | -3.97 | -3.7 | -2.8 | -2.59 | -2.8 | -2.71 | -3.1 | -3.68 | -3.41 | -3.26 | 3.83 | 3.56 | 3.86 | 3.87 | 4.16 | 4.02 |
| Kcnv1 | -2.9 | -1.6 | -3.33 | -2.79 | -3.05 | -2.84 | -3.02 | -3.26 | -2.59 | -3.09 | -3.17 | 3.39 | 3.09 | 3.39 | 4.45 | 5.1 | 4.73 |
| Kctd12b | -2.28 | -2.44 | -2.27 | -1.64 | -0.48 | -1.69 | 0.46 | 6.46 | 6.53 | 4.27 | 5.81 | 1.51 | -0.88 | -2.41 | -1.61 | 0.15 | -0.84 |
| Kdm5d | -3.67 | -3.61 | -3.88 | 1.75 | 1.7 | 2.17 | 2.34 | 3.03 | 3.26 | 3.79 | 3.43 | -3.89 | -3.74 | -3.59 | -3.52 | -2.77 | -3.31 |
| Lama2 | -2.78 | -2.52 | -3.46 | -1.63 | -0.66 | -0.75 | -1.15 | 5.63 | 5.46 | 5.81 | 5.14 | 0.88 | -0.63 | -0.05 | -1.08 | -0.77 | -0.96 |
| Lamp5 | -0.76 | -3.68 | -0.6 | -2.6 | -2.91 | -3.15 | -1.97 | -3.52 | -2.98 | -3.37 | -3.45 | 3.64 | 3.93 | 3.58 | 2.65 | 2.86 | 2.66 |
| Lcat | -1.74 | -0.24 | -0.91 | -2.33 | -1.59 | -2.14 | -1.07 | 6.63 | 7.33 | 7.06 | 7.6 | -1.79 | -2.6 | -2.88 | -1.33 | -1.32 | -1.74 |
| Ldb2 | -1.15 | -1.3 | -1.47 | -2.82 | -2.85 | -2.73 | -2.74 | -2.52 | -3.71 | -3.56 | -2.82 | 3.92 | 3.54 | 4.08 | 2.66 | 2.95 | 3.03 |
| Lfng | -1.33 | -3.04 | -2.88 | -2.25 | -0.38 | -1.5 | -1.78 | 6.67 | 6.99 | 7.17 | 7.03 | -0.1 | -0.59 | -2.06 | -2.21 | -2.12 | -2.4 |
| Lgr6 | -2.01 | -1.32 | -3.31 | 0.85 | -1.13 | -1.69 | -1.45 | 6.89 | 6.65 | 7.07 | 7.39 | -2.06 | -1.53 | -2.97 | -1.25 | -0.31 | -0.77 |
| Lhx1 | 3.35 | 4.51 | 3.83 | 4.89 | 4.82 | 4.54 | 4.98 | 1.4 | 0.21 | -0.71 | -1.65 | -2.59 | -2.68 | -2.69 | -1.91 | -1.82 | -2.09 |
| Lhx1os | 4.03 | 3.81 | 3.8 | 7.59 | 7.08 | 7.22 | 7.24 | -0.59 | -0.66 | 0.73 | -2.7 | -3.44 | -3.52 | -3.52 | -2.8 | -2.7 | -2.37 |
| Lhx5 | -1.29 | -0.67 | 0.73 | 5.36 | 5.06 | 4.62 | 5.17 | -1.14 | 2.77 | 2.28 | -0.51 | -0.9 | -1.05 | -0.76 | -0.62 | -0.48 | -1.38 |
| Linc-md1 | -2.34 | 0.53 | -2.33 | 8.05 | 7.97 | 7.74 | 7.98 | -1.4 | -2.04 | -2.01 | -2.12 | -0.26 | -2.47 | -1.73 | 0 | -1.55 | -1.83 |
| Lrrc7 | -2.15 | -2.36 | -1.95 | -2.49 | -2.54 | -2.24 | -2.57 | -3.33 | -3.2 | -3.22 | -3.46 | 3.49 | 2.95 | 3.6 | 3.14 | 3.22 | 3.16 |
| Lyzl4 | -0.09 | -0.84 | -1.73 | -2.74 | -3.43 | -3.25 | -3 | -3.26 | -2.6 | -3.46 | -3.17 | 3.57 | 3.11 | 3.89 | 3.44 | 2.9 | 2.41 |
| Mal2 | -3.22 | -2.95 | -3.21 | -3.04 | -2.32 | -2.81 | -2.66 | -1.2 | -2.93 | -2.11 | -3.02 | 2.95 | 3.51 | 3.05 | 3.24 | 3.86 | 3.55 |
| March1 | -3.03 | -3.16 | -3.46 | -2.38 | -2.12 | -1.84 | -2.14 | -2.85 | -2.61 | -2.6 | -2.16 | 3.33 | 2.88 | 3.4 | 3.41 | 3.57 | 3.53 |
| Megf10 | -0.89 | -0.08 | -1.93 | -2.23 | -1.27 | -1.01 | -1.29 | 5.87 | 5.43 | 6.03 | 5.97 | -0.26 | -0.76 | -0.61 | -1.82 | -2.06 | -1.66 |
| Meis2 | -1.84 | -3.74 | -3.52 | -2.43 | -2.47 | -2.09 | -2.37 | -2.99 | -3.3 | -2.75 | -2.87 | 4.23 | 3.8 | 4.29 | 4.23 | 4.44 | 4.53 |
| Mertk | -2.35 | -2.89 | -2.5 | -2.14 | -2.44 | -1.49 | -1.39 | 5.43 | 4.91 | 5.19 | 4.92 | 1.77 | 0.93 | 0.94 | -2.53 | -2.06 | -1.73 |
| Metrn | -0.86 | -1.32 | -0.85 | -1.19 | -2.34 | -2.11 | -0.72 | 6.38 | 6.28 | 6.18 | 5.89 | -2.08 | 0.03 | -2.83 | -1.15 | -1.93 | -2.21 |
| Mgst1 | -1.37 | -1.61 | -2.53 | -1.88 | -1.34 | -0.48 | -0.8 | 5.66 | 6.39 | 7.26 | 7.27 | 0.89 | -0.79 | -1.01 | -1.85 | -1.76 | -1.16 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Miat | -2.51 | -2.92 | -4.04 | -3.57 | -3.15 | -3.85 | -3.22 | -4.02 | -2.09 | -3.96 | -3.99 | 3.13 | 3.03 | 3.17 | 2.84 | 2.66 | 2.91 |
| Mlc1 | 0.19 | -2.12 | -0.65 | -1.5 | -0.6 | -1.58 | -1.55 | 6.67 | 7.29 | 6.95 | 7.65 | -2.87 | -1.88 | -1.73 | -2.97 | -2.88 | -3.14 |
| Mmp14 | -2.16 | -2.92 | -2.15 | -1.33 | -0.12 | 1.33 | 0.07 | 5.36 | 5.53 | 4.96 | 5.93 | 0.31 | -0.79 | -1.66 | -2.11 | -2.02 | -1.53 |
| Mpped1 | -3.91 | -3.96 | -3.53 | -3.22 | -2.78 | -2.5 | -2.64 | -2.06 | -3.3 | -3.77 | -3.57 | 3.81 | 3.53 | 3.74 | 3.2 | 3.11 | 3.24 |
| Msx2 | -2.75 | -0.55 | -2.74 | -0.76 | 0.35 | -0.83 | 1.38 | 5.54 | 5.77 | 6.65 | 6.09 | -1.44 | -1.15 | -2.28 | -0.35 | -1.1 | 0.04 |
| Mybpc1 | -3.03 | -2.68 | -2.85 | -2.39 | -2.62 | -2.21 | -2.39 | 4.96 | 4.98 | 5.24 | 4.53 | -0.54 | -0.74 | -1.28 | -1.73 | -2.23 | -1.43 |
| Myh6 | -1.01 | -2.79 | -2.63 | -2 | -2.29 | -1.21 | -0.67 | 5.42 | 4.96 | 6 | 5.48 | -0.18 | -0.34 | -0.17 | -1.1 | -1.88 | -2.15 |
| Neto1 | -3.04 | -3.3 | -4.08 | -3.52 | -4 | -2.21 | -3.22 | -2.49 | -3.55 | -3.63 | -3.31 | 4.08 | 3.71 | 4.08 | 4.29 | 4.47 | 4.32 |
| Nid1 | -0.48 | -2.75 | -2.56 | -1.47 | -1.07 | -0.01 | -2.1 | 5.3 | 5.27 | 5.97 | 5.32 | 1.89 | -0.04 | 0.21 | -0.7 | -0.86 | -1.28 |
| Nkx2-2 | -0.39 | -1.46 | -1.24 | 1.22 | -0.76 | -1.5 | -0.73 | 5 | 5.88 | 4.37 | 6.17 | -2.1 | -2.2 | 0.06 | -1.42 | -1.33 | -1.59 |
| Npr3 | -2.56 | -3.22 | -3.06 | -2 | -2.7 | -2.43 | -1.87 | -3.39 | -2.45 | -2.75 | -3.3 | 4.91 | 4.69 | 4.67 | 3.37 | 3.55 | 3.79 |
| Npy1r | -2.49 | -3.51 | -3.4 | -0.48 | -1.36 | -1.99 | -0.74 | -3.33 | -2.7 | -3.16 | -3.25 | 1.67 | 1.89 | 1.85 | 2.62 | 3.15 | 3.36 |
| Nrgn | -3.46 | -3.57 | -3.46 | -2.95 | -2.38 | -2.99 | -3.17 | -3.39 | -2.78 | -3.23 | -2.87 | 2.49 | 2.89 | 2.84 | 3.02 | 2.71 | 2.8 |
| Nrk | -1.88 | -0.43 | -0.33 | 7.87 | 7.64 | 7.31 | 7.48 | -0.27 | -0.49 | -0.17 | -1.43 | -1.39 | -2.21 | -1.34 | -1.2 | -1.62 | -2.4 |
| Ntsr2 | -1.18 | -3.62 | -3.5 | -2.41 | -2.4 | -1.42 | -2.37 | 5.58 | 5.46 | 5.49 | 6.12 | -0.83 | 0.11 | -0.54 | -1.48 | -1.87 | -2.24 |
| Nup62cl | 0.12 | -2.48 | -1.53 | 6.5 | 6.67 | 6.42 | 6.33 | -0.91 | -2.02 | -2 | -0.38 | -2.35 | -0.92 | -2.45 | 0.93 | 0.54 | 0.37 |
| Oprd1 | -3.39 | -3.5 | -2.97 | -2.27 | -2.26 | -1.96 | -1.75 | -3.31 | -2.34 | -2.65 | -2.19 | 2.25 | 2.39 | 2.89 | 2.38 | 2.16 | 2.17 |
| P2ry1 | 0.41 | -3.3 | -0.74 | -2.55 | -1.27 | -0.71 | -2.81 | 5.38 | 6.44 | 6.19 | 5.93 | 0.73 | -1.81 | -1.83 | -1.04 | -0.42 | 0.01 |
| Paqr6 | -1.31 | -1.98 | -2.48 | -1.84 | -2.13 | -1.89 | -0.38 | 6.76 | 5.77 | 6.34 | 6.38 | -2.52 | -1.5 | -0.95 | -1.81 | -1.72 | -0.21 |
| Pax3 | -0.92 | -2.42 | 0.2 | -2.02 | -1.08 | 0.89 | -1.94 | 9.17 | 8.98 | 9.69 | 8.75 | -2.24 | -2.96 | -2 | -1.2 | -0.8 | -1.79 |
| Pcsk6 | -1.66 | -2.09 | -2.44 | 4.47 | 4.38 | 4.64 | 4.38 | 3.08 | 3.08 | 3.06 | 3.12 | -1.72 | -2.43 | -1.61 | -1.72 | -2.07 | -2.11 |
| Pde1a | -2.33 | -3.37 | -3.3 | -2.47 | -2.15 | -2.83 | -2.62 | -3 | -3.58 | -2.1 | -3.69 | 4.29 | 3.71 | 4.27 | 4.01 | 4.21 | 4.22 |
| Pde5a | -1.72 | -1.71 | -2.38 | 4.89 | 4.54 | 4.93 | 4.74 | -2.91 | -1.89 | -2.42 | -0.47 | 0.02 | -1.18 | -1.23 | -2.19 | -2.08 | -1.88 |
| Pdgfd | -1.65 | -2.29 | -2.3 | 0.32 | -0.83 | 0.37 | -0.56 | 5.57 | 5.35 | 5.62 | 5.4 | 2.41 | -0.03 | -0.05 | -1.61 | -1.71 | -1.39 |
| Pdzph1 | -1.13 | -1.9 | -1.36 | 5.35 | 5.2 | 5.86 | 5.48 | -1.53 | -1.26 | -1.69 | -1.38 | -2.12 | -1.33 | -1.86 | -1.21 | -0.56 | -0.62 |
| Pih1h3b | -0.92 | 0.61 | -1.93 | 8.06 | 7.83 | 8.09 | 7.41 | -2.54 | -2.35 | -2.33 | -2.43 | -0.76 | -1.12 | -2.12 | -0.48 | -0.89 | -2.14 |
| Pkp3 | -0.14 | -1.86 | -1.69 | 5.9 | 6.57 | 6.66 | 6.79 | -1.6 | 0.32 | -1.38 | -1.49 | -0.75 | -1.82 | -1.83 | -0.97 | -0.87 | -1.18 |
| Pla2g7 | -1.36 | -1.74 | -1.76 | -2.5 | -1.74 | -1.63 | -2.05 | 6.14 | 6.52 | 6.82 | 7.16 | -0.4 | -1.11 | -0.6 | -2.46 | -1.87 | -1.96 |
| Plekhd1 | -1.03 | -0.41 | -0.97 | 5.51 | 5.35 | 5.56 | 5.43 | 0.18 | -0.21 | -0.76 | -1.5 | -1.57 | -2.29 | -2.3 | -2.61 | -2.31 | -2.65 |
| Plekho2 | -0.01 | 0.12 | -0.5 | -2.1 | -0.41 | -1.22 | -0.44 | 5.92 | 5.77 | 5.53 | 5.41 | -1.06 | -2.98 | -0.41 | -2.06 | -1.94 | -1.61 |
| Plpp3 | -2.3 | -3.08 | -2.36 | -2.26 | -2.83 | -2.01 | -2.19 | 6.9 | 6.86 | 7.38 | 7.29 | 0.46 | -0.4 | -0.57 | -2.04 | -1.62 | -1.7 |
| Plscr1 | -2.56 | -2.72 | -2.55 | -1.92 | -2.2 | 0.11 | -1.36 | 6.83 | 7.21 | 6.18 | 7 | 1.84 | 0.98 | -2.04 | -0.43 | -0.84 | -2.07 |
| Plscr4 | -1.22 | -3.82 | -2.13 | -1.27 | -0.66 | -1.24 | -0.71 | 7.3 | 6.59 | 6.99 | 6.69 | -0.11 | 0.13 | -0.32 | -1.11 | -1.68 | -0.85 |
| Ppp1r17 | 0.41 | 1.4 | 0.3 | 7.02 | 6.72 | 6.77 | 6.83 | 1.89 | 1.23 | 2.02 | 1.22 | -3.43 | -3.5 | -3.51 | -2.79 | -1.59 | -2.97 |
| Prkag3 | -1.98 | -2.15 | -1.97 | 6.98 | 5.99 | 6.04 | 5.86 | -1.88 | -1.69 | 0.3 | -1.77 | 0.62 | 2.59 | -2.12 | -1.3 | -1.2 | -0.42 |
| Procr | -0.11 | -1.82 | 0.3 | 6.43 | 5.71 | 6.23 | 5.82 | -1.56 | 0.77 | -1.35 | -1.46 | -1.69 | -0.85 | -1.79 | -0.95 | -0.84 | -1.15 |
| Prr5 | -2.89 | -1.59 | -2.88 | -1.6 | -0.8 | -2.38 | -1.93 | 5.31 | 4.73 | 4.47 | 4.54 | -1.24 | -2.18 | -2.99 | -2.3 | -2.21 | -2.47 |
| Ptk2b | -3.04 | -3.53 | -2.99 | -1.34 | -1.25 | -1.33 | -1.38 | -1.52 | -3.78 | -3.29 | -3.29 | 3.42 | 3.28 | 3.61 | 2.8 | 2.85 | 2.83 |
| Ptpn5 | -2.49 | -2.34 | -1.79 | -3.27 | -3.02 | -3.31 | -3.21 | -3.97 | -3.29 | -3.53 | -3.17 | 2.7 | 2.91 | 2.88 | 2.42 | 2.33 | 2.35 |
| Ptprz1 | -2.08 | -1.9 | -1.95 | -2.52 | -2.22 | -2.03 | -2.25 | 5.61 | 5.67 | 5.77 | 5.64 | -1.09 | -0.54 | -0.44 | -1.39 | -1.32 | -1.47 |
| Rab11fip1 | -0.47 | -2.58 | -1.25 | 5.58 | 5.16 | 5.38 | 5.15 | 0.78 | -2.14 | 0.54 | -0.12 | -2.45 | -1.87 | 0.19 | -0.81 | -1.67 | -1.94 |
| Rab27b | -1.52 | -3.63 | -3.38 | -2.44 | -2.3 | -1.64 | -2.88 | -2.39 | -2.26 | -3.48 | -2.84 | 3.18 | 3.13 | 3.24 | 1.88 | 2.19 | 2.05 |
| Robo3 | -3.27 | -3.39 | -2.82 | -2.72 | -2.43 | -2.77 | -2.4 | -3.19 | -3.04 | -2.49 | -3.1 | 3.3 | 3.62 | 3.17 | 2.86 | 2.76 | 1.77 |
| Rtn4rl2 | -2.89 | -3.03 | -2.88 | -2.28 | -1.89 | -0.79 | -2.53 | -2.79 | -2.62 | -2.6 | -2.7 | 3.54 | 3.47 | 3.99 | 0.91 | 1.16 | -0.15 |
| Rxfp1 | -3.55 | -2.28 | -3.54 | -3.06 | -1.92 | -3.1 | -1.89 | -2.82 | -3.34 | -2.89 | -1.76 | 3.77 | 3.02 | 3.29 | 2.25 | 2.54 | 2.59 |
| S1pr1 | -1.93 | -1.33 | -2.32 | -2.18 | -1.53 | -0.28 | -1.82 | 8.26 | 7.76 | 8.58 | 8.08 | -0.67 | -0.84 | -2.9 | -2.36 | -1.8 | -1.81 |
| Scube1 | -0.78 | -3.51 | -3.68 | -2.47 | -2.24 | -2.53 | -2.77 | -3.31 | -1.56 | -1.94 | -3.56 | 3.04 | 3.08 | 3.75 | 2.41 | 2.24 | 2.28 |
| Sdc4 | -0.68 | -1.36 | -0.61 | -0.08 | -0.58 | -0.84 | -0.88 | 7.1 | 6.87 | 7.34 | 7 | -0.78 | -1.24 | -1.11 | -2.99 | -2.56 | -2.88 |
| Serpinh1 | -2.61 | -2.77 | -1.92 | -1.07 | -2.25 | -1.14 | -1.42 | 6.14 | 6.4 | 6.42 | 6.25 | 1.38 | -0.92 | -0.93 | -0.49 | -1.84 | -0.76 |
| Skor2 | -1.02 | -0.75 | -2.03 | 9.62 | 9.31 | 9.36 | 9.2 | -2.62 | -1.65 | -2.41 | -1.28 | -2.76 | -2.2 | -1.03 | -1.11 | -1.93 | -1.37 |
| Slc14a1 | -2.32 | -2.96 | -1.24 | -2.33 | -1.09 | -0.82 | -2.28 | 8.6 | 8.67 | 8.81 | 9 | -0.08 | -1.11 | -2.51 | -2.92 | -1.75 | -2.52 |
| Slc1a3 | -0.86 | -0.84 | -1.04 | -2.52 | -1.36 | -1.3 | -1.72 | 6.89 | 7.07 | 7.21 | 7.43 | -0.41 | -1.2 | -1.09 | -1.38 | -1.54 | -1.93 |
| Slc24a4 | -3.11 | -3.39 | -1.46 | -2.56 | -2.16 | -1.45 | -1.9 | -3.15 | -2.1 | -2.64 | -2.89 | 3.41 | 3.28 | 3.64 | 2.76 | 2.61 | 2.7 |
| Slc2a10 | -1.59 | -1.65 | -3.06 | -0.57 | -1.03 | -0.25 | -1.56 | 6.94 | 8.16 | 8.38 | 8.52 | -0.45 | -2 | -1.61 | -1.62 | -1.49 | -2.58 |
| Slc2a4 | -1.92 | -2.08 | -1.91 | -1.26 | 0.81 | -1.32 | -1.54 | 6.66 | 6.71 | 6.3 | 6.26 | 0.14 | -2.05 | -2.06 | -1.22 | -1.12 | -1.43 |
| Slc30a3 | -2.25 | -0.72 | -3.07 | -2.03 | -1.93 | -3 | -3.17 | -3.39 | -3.25 | -3.23 | -3.31 | 1.93 | 2.53 | 2.13 | 1.02 | 1.33 | 0.59 |
| Slc39a12 | -3.1 | -2.64 | -2.23 | -1.99 | -1.59 | -0.45 | -1.3 | 7.09 | 6.36 | 6.99 | 6.32 | -0.12 | 0.09 | -0.7 | -0.29 | -0.63 | -0.54 |
| Slc6a7 | -3.12 | -3.56 | -2.63 | -2.38 | -2.31 | -2.15 | -1.78 | -3.66 | -2.92 | -1.46 | -3.6 | 2.69 | 2.81 | 2.72 | 2.29 | 2.04 | 2.21 |
| Slc7a10 | -0.49 | -2.87 | 0.07 | -2.6 | -1.37 | -1.26 | -1.86 | 5.18 | 5.25 | 5.47 | 5.34 | -2.73 | -2.07 | -0.83 | -1.46 | -2.48 | -1.17 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Slc9a3 | 0.06 | -1.78 | -1.55 | 6.3 | 5.74 | 6.04 | 5.97 | -0.91 | -2.32 | -2.63 | -0.21 | -1.18 | -1.76 | -0.35 | -2.01 | -2.02 | -1.94 |
| Slco4c1 | -2.1 | -3.29 | -2.87 | -2.48 | -2.47 | -2.18 | -2.44 | -2.08 | -2.56 | -2.84 | -2.95 | 3.52 | 3.65 | 3.67 | 3.66 | 3.74 | 3.75 |
| Smpx | -1.6 | -3.15 | -2.78 | 5.51 | 5.06 | 5.24 | 5.02 | 0.01 | 0.4 | 2 | -1.05 | 0.34 | -1 | -0.68 | -0.83 | 0.34 | -0.22 |
| Sod3 | -0.17 | -1.88 | -2.31 | -1.51 | -1.12 | -1.1 | -2.54 | 5.57 | 4.73 | 6.18 | 5.58 | -0.63 | -2.11 | -1.62 | -0.98 | -0.49 | -1.25 |
| Sparc | -0.16 | -1.34 | -1.02 | -0.16 | 0.41 | -0.35 | -0.06 | 5.75 | 6.59 | 6.09 | 7.02 | 0.29 | -0.45 | -1.35 | -2.42 | -3.2 | -2.73 |
| Stac | -0.42 | -2.17 | -2.73 | 6.25 | 6.2 | 6.5 | 5.85 | -3.36 | -2.69 | -3.46 | -3.26 | 1.83 | 1.46 | 1.44 | -2.18 | -1.21 | -1.17 |
| Stk17b | -0.87 | -1.16 | -1.89 | 4.47 | 4.47 | 4.32 | 4.39 | 2.05 | 1.74 | 1.41 | 2.15 | 0.52 | 0.79 | 0.15 | -2.58 | -2.35 | -2.02 |
| Stk32a | -1.75 | -3.56 | -2.78 | -1.83 | -1.31 | -1.02 | -1.55 | 6.44 | 6.07 | 5.9 | 5.51 | -0.71 | 0.01 | 0.89 | -1.59 | -1.88 | -2.55 |
| Sycp1 | -1.38 | -1.98 | -2.69 | 7.86 | 7.73 | 8.13 | 7.87 | -1.72 | 0.47 | -1.14 | -2.56 | -1.87 | -2.5 | -2.51 | -1.22 | -1.37 | -1.22 |
| Syt10 | -3.36 | -2.78 | -2.52 | -2.54 | -1.59 | -2.32 | -2.3 | 4.59 | 4.56 | 4.47 | 4.52 | -0.2 | -0.04 | -0.22 | 1.74 | 1.93 | 2.22 |
| Tbr1 | -3.07 | -1.2 | -1.46 | -0.91 | -2.71 | -2.45 | -2.35 | -3.38 | -3.24 | -3.22 | -3.3 | 2.26 | 2.05 | 1.9 | 4.35 | 4.48 | 4.31 |
| Tex36 | -1.92 | -0.36 | -1.91 | -0.11 | 0.5 | -1.32 | -0.48 | 6.48 | 7.29 | 4.54 | 7.49 | -0.52 | -2.05 | -1.2 | -1.23 | -1.12 | -1.43 |
| Tlcd1 | 0.04 | -3.19 | -0.04 | -2.45 | -0.93 | -1.02 | -2.05 | 4.92 | 5.48 | 5.32 | 5.98 | -1.53 | -2.06 | 0 | -1.68 | -1.56 | -1.92 |
| Tlr3 | -0.83 | 0.39 | -3 | -2.89 | -2.26 | -1.95 | -1.03 | 6.19 | 6.34 | 5.75 | 6.41 | 0.36 | 0.75 | -0.4 | -1.54 | -1.71 | -1.39 |
| Tmem132b | -2.99 | -3.75 | -3.71 | -2.39 | -2.4 | -2.19 | -2.29 | -3.01 | -2.49 | -1.41 | -2.35 | 2.8 | 2.5 | 2.87 | 2.51 | 2.62 | 2.74 |
| Tmem179 | -1.56 | -1.37 | -2.47 | -2.26 | -3.33 | -2.32 | -2.33 | -3.51 | -3.38 | -3.37 | -3.44 | 1.95 | 2.34 | 2.26 | 1.73 | 1.68 | 1.81 |
| Tmem200a | -3.26 | -2.79 | -2.49 | -2.13 | -2.29 | -2.2 | -2.33 | -2.69 | -1.51 | -2.13 | -2.95 | 4.59 | 4.02 | 4.63 | 0.66 | 1.36 | 0.58 |
| Tnc | -3.7 | -1.99 | -2.11 | -1.04 | -1.81 | -1.74 | -1.07 | 6.99 | 6.45 | 6.78 | 6.47 | -0.5 | -1.62 | -3.23 | -1.8 | -1.89 | -1.04 |
| Tox3 | -3.17 | -2.98 | -3.02 | -1.75 | -1.46 | -2.05 | -1.28 | -3.25 | -3.64 | -2.42 | -3.68 | 3.07 | 2.89 | 3.18 | 1.28 | 1.73 | 1.8 |
| Tril | -0.3 | -0.9 | -1.45 | -2.45 | -1.18 | -1.58 | -2.53 | 7.36 | 7.65 | 7.9 | 8.19 | -1.6 | -1.95 | -1.38 | -2.41 | -3.19 | -2.01 |
| Trim30a | -1.53 | -1.65 | -1.85 | -0.9 | -0.98 | -0.78 | -0.67 | -0.38 | -0.06 | 0.26 | 1.78 | 1.87 | 0.43 | 0.75 | 5.84 | 7.25 | 6.61 |
| Trp53cor1 | -2 | -2.81 | -2.65 | -1.16 | -1.54 | -2.07 | -1.03 | 6.81 | 6.13 | 5.53 | 5.84 | -0.32 | -0.59 | -0.12 | -1.99 | -0.46 | -0.88 |
| Ttpa | -2.62 | -3.26 | -3.11 | 0.87 | 0.92 | 0.4 | -0.38 | 5.11 | 5.15 | 5.18 | 5.04 | -0.74 | -1.66 | -2.77 | -2.5 | -0.9 | -0.43 |
| Uty | -3.8 | -3.75 | -3.8 | 2.74 | 2.95 | 2.84 | 2.84 | 3.75 | 3.14 | 3.31 | 3 | -3.31 | -3.44 | -3.2 | -3.21 | -3 | -3.37 |
| Vip | -2.37 | -2.52 | -2.36 | -1.74 | -1.2 | -1.79 | -1.99 | -2.27 | -2.08 | -2.06 | -2.16 | 1.44 | 2.04 | -0.09 | 0.15 | 1.04 | 0.87 |
| Vsig2 | -3.19 | -3.31 | -3.18 | -2.61 | -2.88 | -2.66 | -2.86 | -0.74 | -2.94 | -2.92 | -3.01 | 3.93 | 3.57 | 4.2 | 3.69 | 3.64 | 3.6 |
| Vstm2b | -3.04 | -2.93 | -3.42 | -2.91 | -2.67 | -2.03 | -1.83 | -2.94 | -3.21 | -3.19 | -3.27 | 2.61 | 2.78 | 2.53 | 0.93 | 1.07 | 0.54 |
| Wif1 | -2.64 | -3.11 | -2.94 | -2.22 | -0.5 | -0.87 | -1.2 | 4.52 | 5.33 | 5.85 | 5.73 | -2.44 | -1.86 | -2.23 | 1.95 | 2.32 | 2.12 |
| Zfp385c | -1.41 | -0.14 | -0.28 | 5.69 | 5.8 | 6.35 | 5.65 | -0.56 | -1.71 | -0.5 | -0.49 | -2.64 | -1.48 | -1.76 | -2.38 | -2.26 | -1.41 |
| Zfp831 | -3.7 | -3.53 | -3.7 | -2.25 | -3.49 | -2.12 | -2.4 | -3.09 | -1.6 | -1.64 | -0.11 | 3.58 | 3.54 | 3.6 | 3.57 | 3.61 | 3.61 |
| Zic1 | 3.69 | 3.86 | 3.86 | 0.22 | 0.16 | 0.03 | 0.16 | 4.28 | 4.27 | 4.39 | 4.54 | 0.41 | -2.13 | -1.29 | -2.62 | -2.51 | -3.27 |
| Zic2 | 3.14 | 3.59 | 3.58 | -1.09 | -0.43 | -0.86 | -0.16 | 3.98 | 4.06 | 4.26 | 4.25 | 0.64 | -0.97 | -1.67 | -1.77 | -1.64 | -2.38 |
| Zic3 | 2.22 | 1.69 | 2.53 | -1.63 | -1.9 | -0.15 | 0.61 | 4.43 | 4.87 | 4.86 | 5.26 | -1.54 | -0.9 | -1.68 | -1.6 | -1.51 | -1.78 |
| Zic4 | 2.90 | 2.82 | 2.69 | -0.22 | -0.88 | -0.71 | -0.58 | 4.55 | 5.33 | 5.14 | 6.17 | 0.33 | -1.94 | -0.68 | -2.78 | -2.04 | -2.38 |
| Zic5 | 3.13 | 3.07 | 2.89 | -0.69 | -1.11 | -1.26 | -0.48 | 4.67 | 4.61 | 3.90 | 5.00 | -0.37 | -1.50 | -1.28 | -1.16 | -1.03 | -2.18 |

**[00200]** The log2 fold change in expression from the RNAseq results for the same 250 most variable genes genes as found in Table 12 for the RNAseq data from Mo, et al. (2015) Neuron 86, 1369–1384, which is hereby incorporated by reference herein in its entirety, compared the normalized expression for nuclei from all cell types analyzed are shown in Table 13. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value across nuclei from all cell types analyzed, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 13. Log2 fold expression change for samples from Mo et al.**

| | Log2 fold change in expression | | | | | | | Log2 fold change in expression | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cell Type | excitory | | pv | | vip | | Gene | excitory | | pv | | vip | |
| Gene | | | | | | | | | | | | | |
| 1700047M11Rik | -1.55 | -0.54 | -1.79 | -0.79 | 0.15 | -0.65 | Itpripl2 | -1.48 | -2.29 | -1.99 | -1.83 | -0.35 | -0.13 |
| 2410124H12Rik | -2.1 | -1.81 | -2.94 | -2.22 | -2.77 | -2.5 | Kank1 | -1.92 | -1.89 | -1.86 | -1.72 | -1.45 | -2.03 |
| 3110039M20Rik | 2.25 | 2.33 | 2.14 | 2.12 | 2.95 | 2.91 | Kcnc2 | 2.07 | 1.68 | 4.46 | 3.93 | 3.3 | 3.33 |
| 8030451O07Rik | 0.55 | 0.2 | 2.73 | 2.43 | 3.99 | 4.02 | Kcnf1 | 2.95 | 2.59 | 0.17 | 1.32 | 2.64 | 2.99 |
| 9530059O14Rik | 1.87 | 1.95 | 0.43 | 0.28 | -0.42 | -0.44 | Kcnj10 | -1.23 | -1.38 | -2.08 | -0.94 | -1.29 | -1.61 |
| A230077H06Rik | 2.87 | 3 | 4.46 | 4.25 | 2.72 | 3.11 | Kcnj16 | -1.53 | -1.21 | -3.07 | -2.17 | -1.67 | -2.18 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A2m | -3.03 | -3.41 | -3.47 | -3.67 | -1.63 | -2.86 | Kcnj4 | 2.9 | 2.85 | 2.26 | 2.28 | 0.77 | 0.33 |
| A730036I17Rik | -2.27 | -1.17 | -2.42 | -0.67 | -1.79 | -1.9 | Kcnq5 | 2.85 | 2.57 | 1.39 | 1.16 | 2.66 | 2.86 |
| Aass | -1.4 | -1.26 | -0.49 | -0.48 | -1.58 | -1.7 | Kcnt2 | 2.7 | 2.61 | -0.85 | -0.71 | 4.01 | 3.99 |
| Acsm5 | -2.15 | -0.94 | -1.52 | -2.55 | -2.7 | -1.73 | Kcnv1 | 3.49 | 3.54 | -0.42 | 0.33 | 0.31 | 0.23 |
| Actbl2 | -1.88 | -1.1 | -2.04 | -2.27 | -0.65 | -0.54 | Kctd12b | -0.72 | -1.44 | -1.95 | -1.56 | -1.55 | -1.44 |
| Adra2b | -0.47 | 0.01 | -1.21 | -1.51 | -2.39 | -2.18 | Kdm5d | 1.72 | 1.82 | 1.57 | 1.35 | 1.89 | 2.16 |
| Afp | -1.6 | -1.7 | -1.76 | -1.98 | -0.84 | -1.9 | Lama2 | -0.8 | -0.7 | -2.22 | -1.89 | -0.43 | -0.44 |
| Aqp4 | -1.44 | -1.52 | -2.07 | -1.69 | -0.87 | -2.16 | Lamp5 | 3.37 | 3.22 | 0.63 | 1.44 | 0.64 | 0.37 |
| Arhgap25 | 2.7 | 3.22 | -0.94 | -0.67 | -0.35 | -0.92 | Lcat | -0.95 | -1.21 | -1.83 | -1.76 | -0.65 | -0.54 |
| Arx | 0.47 | 0.63 | 6.84 | 7.06 | 5.38 | 4.94 | Ldb2 | 2.5 | 2.23 | -0.07 | 0.08 | 1.35 | 1.37 |
| Atp13a4 | -0.71 | -0.61 | -1.81 | -1.75 | -1.49 | -1.77 | Lfng | -0.69 | -1.29 | -1.26 | -1.43 | 0.11 | -0.67 |
| Atp1a2 | -0.55 | -0.67 | -1.87 | -1.33 | -1.09 | -1.72 | Lgr6 | -0.68 | -2.11 | -1.18 | -1.66 | -1.57 | -1.85 |
| Atp2a3 | -2.94 | -2.75 | -3.12 | -2.39 | -3.5 | -2.89 | Lhx1 | -2.74 | -2.82 | -2.87 | -1.8 | -3.16 | -2.99 |
| B230209E15Rik | 1.33 | 1.39 | -0.16 | -0.51 | 0.18 | 0.2 | Lhx1os | -3.14 | -3.24 | -2.34 | -3.08 | -3.63 | -3.78 |
| B3gnt5 | -2.52 | -2.5 | -3.09 | -2.99 | -1.87 | -2.35 | Lhx5 | -2.82 | -2.36 | -2.97 | -3.17 | -3.28 | -2.6 |
| Barhl2 | -2.4 | -2.5 | -2.55 | -2.18 | -2.9 | -2.7 | Linc-md1 | -2.53 | -2.63 | -1 | -1.37 | -2.49 | -2.2 |
| Bcl11b | 1.92 | 2.13 | 2.69 | 2.58 | 0.02 | 0.25 | Lrrc7 | 2.37 | 2.25 | 0.77 | 0.71 | 1.88 | 1.94 |
| Btbd17 | -0.25 | -0.21 | -1.58 | -1.21 | -0.47 | -1.55 | Lyzl4 | 2.91 | 2.79 | -0.11 | 0.31 | 1.14 | 1.21 |
| Cacng3 | 3.77 | 3.73 | 1.36 | 1.38 | 1.59 | 1.56 | Mal2 | 2.19 | 2.26 | 0.34 | 0.83 | 1.73 | 1.96 |
| Camk1g | 3.21 | 3.59 | 2.52 | 2.74 | 4.19 | 3.92 | Megf10 | -1.99 | -1.66 | -2.15 | -2.03 | 0.13 | 0.25 |
| Camkv | 3.39 | 3.38 | 2.46 | 2.55 | 3.4 | 3.09 | Meis2 | 2.97 | 2.92 | -0.48 | -0.19 | 0.08 | -0.45 |
| Car8 | -2.99 | -2.81 | -3.22 | -3.15 | -3.52 | -3.66 | Mertk | -0.61 | -0.46 | -0.12 | -0.23 | -0.27 | -0.87 |
| Casp12 | -0.62 | -1.12 | -3.05 | -3.24 | -3.36 | -3.18 | Metrn | -1.16 | -2.02 | -0.87 | -0.37 | -0.5 | -0.23 |
| Casq2 | -3.26 | -2.99 | -2.53 | -3.5 | -0.23 | -0.05 | Mgst1 | -1.09 | -2.19 | -2.88 | -1.51 | -1.44 | -1.79 |
| Cbln2 | 3.03 | 2.57 | 1.03 | 1.78 | 5.01 | 4.96 | Miat | 4.15 | 4.18 | 2.49 | 2.71 | 2.96 | 3.07 |
| Cbln3 | -3.54 | -3.1 | -2.71 | -3.19 | -2.88 | -3.59 | Mlc1 | -0.53 | -1.05 | -1.47 | -0.73 | -0.57 | -0.94 |
| Cckbr | 2.87 | 2.83 | 1.64 | 1.86 | -0.47 | -0.93 | Mmp14 | -0.89 | -0.84 | -1.27 | -1.41 | -0.8 | -1.5 |
| Cd70 | -2.38 | -2.48 | -1.39 | -2.13 | -0.67 | -1.3 | Mpped1 | 3.44 | 3.48 | 3.55 | 3.37 | 0.53 | 0.24 |
| Cd9 | -2.19 | -2.41 | -2.41 | -1.95 | -1.68 | -1.9 | Msx2 | -1.96 | -0.29 | -3.07 | -2.21 | -1.67 | -2.7 |
| Cdc42ep1 | -1.11 | -1.45 | -0.82 | -0.32 | 0.72 | 0.36 | Mybpc1 | -1.5 | -1.44 | 2.09 | 1.86 | 2.53 | 2.86 |
| Cdh19 | -1.77 | -1.5 | -2.72 | -2.85 | -1.51 | -1.77 | Myh6 | -0.8 | -0.52 | -1.05 | -1.3 | 0.38 | -0.17 |
| Chrm1 | 3.21 | 3.34 | 1.78 | 2.23 | 2.31 | 2.16 | Neto1 | 2.36 | 2.38 | 1.78 | 1.74 | 1.56 | 1.58 |
| Chrm3 | 2.43 | 2.15 | 0.87 | 0.67 | 2.57 | 2.74 | Nid1 | -1.55 | -1.62 | -2.58 | -2.11 | -1.46 | -1.33 |
| Chsy3 | 2.23 | 2.06 | 0.81 | 0.5 | 1.95 | 2.06 | Nkx2-2 | -1.03 | -1.17 | -2.41 | -1.59 | -0.33 | -1.47 |
| Clic6 | -2.36 | -2.19 | -1.78 | -1.44 | -2.77 | -2.37 | Npr3 | 2.74 | 2.64 | 0.35 | 0.7 | -0.77 | -0.91 |
| Cml5 | -0.17 | -0.68 | -1.98 | -1.58 | -0.84 | -1.22 | Npy1r | 2.63 | 2.67 | -1.06 | -0.81 | 4.2 | 4.21 |
| Cnpy1 | -3.04 | -3.38 | -2.61 | -2.55 | -3.69 | -3.03 | Nrgn | 4.32 | 4 | 2.17 | 3.24 | 2.03 | 1.74 |
| Cobl | 3.73 | 3.62 | -0.12 | 0.38 | 1.12 | 1.12 | Nrk | -2.45 | -2.76 | -3.32 | -2.3 | -2.03 | -2.27 |
| Col1a2 | -1.89 | -0.89 | -1.68 | -1.49 | -2.02 | -1.23 | Ntsr2 | 0.57 | 0.27 | -0.99 | -0.45 | 1.23 | 0.49 |
| Col4a5 | -2.02 | -2.07 | -1.84 | -1.8 | -2.62 | -2.78 | Nup62cl | -1.79 | -1.48 | -2.66 | -1.61 | -2.47 | -2.81 |
| Col6a1 | 3.87 | 3.75 | 1.06 | 1.31 | 0.45 | -0.4 | Oprd1 | 2.53 | 2.6 | 4.79 | 4.91 | -0.04 | -0.44 |
| Colgalt2 | 0.5 | 0.59 | -1.11 | -1.05 | -0.3 | -0.21 | P2ry1 | -2.52 | -2.64 | -1.99 | -1.83 | 0.1 | 0.26 |
| Corin | -1.98 | -1.88 | 0.48 | 0.72 | -0.95 | -0.89 | Paqr6 | -0.04 | -0.53 | -0.91 | -0.91 | -0.65 | -1.51 |
| Coro6 | 2.58 | 2.79 | 4.87 | 4.38 | 1.25 | 0.87 | Pax3 | -2.45 | -3.57 | -2.89 | -3.43 | -3.12 | -2.85 |
| Cpne7 | 2.53 | 2.66 | -0.03 | 0.8 | 5.44 | 5.37 | Pcsk6 | -2.69 | -2.66 | -2.58 | -2.48 | -1.04 | -0.88 |
| Crym | 3.08 | 3.32 | -0.27 | 0.26 | 0.18 | -0.11 | Pde1a | 3 | 2.93 | 0.01 | 0.2 | 0.43 | 0.18 |
| Csta1 | -1.12 | -1.19 | -1.13 | -1.65 | -2.13 | -1.37 | Pde5a | -1.7 | -1.76 | 1.77 | 1.47 | 1.63 | 1.52 |
| Ctxn3 | -0.15 | -0.84 | -2.96 | -2.03 | -3.07 | -2.27 | Pdgfd | -2.27 | -2.19 | -2.06 | -1.84 | -1.86 | -2.4 |
| Cxcl14 | -0.11 | -0.02 | -1.39 | -0.57 | 5.05 | 4.85 | Pdzph1 | 0.02 | -0.09 | -1.32 | -1.82 | -0.29 | -0.46 |
| Cxcl5 | -1.98 | -0.77 | -1.34 | -0.62 | -1.1 | -1.54 | Pih1h3b | -1.77 | -1.38 | -2.39 | -2.67 | -1.86 | -1.92 |
| Cxcr4 | -1.44 | -1.57 | -1.64 | -1.53 | -0.58 | -0.33 | Pkp3 | -0.97 | -1.98 | -2.04 | -2.27 | -1.24 | -2.19 |
| Cyp27a1 | -3.04 | -2.28 | -0.55 | 0.08 | -0.91 | -1.05 | Pla2g7 | -1.9 | -1.7 | 0.47 | 0.44 | -1.36 | -1.43 |
| Cyp2j9 | -2.25 | -1.8 | -2.55 | -1.94 | -1.36 | -1.45 | Plekhd1 | -2.75 | -2.67 | 0.74 | 0.71 | 0.1 | 0.44 |
| D430019H16Rik | 3.56 | 3.29 | 0.92 | 1.4 | 1.33 | 1.04 | Plekho2 | -1.38 | -0.95 | -1.77 | -1.51 | -0.85 | -1.57 |
| Ddn | 3.31 | 3.09 | 2.4 | 2.98 | 1.96 | 1.71 | Plpp3 | -0.92 | -1.05 | -2.19 | -1.51 | 0.1 | 0.01 |
| Ddx3y | 1.23 | 1.22 | 1.07 | 1.1 | 1.58 | 1.5 | Plscr1 | -1.4 | -1.54 | -2.9 | -2.23 | -1.28 | -2.12 |
| Dlgap2 | 3.16 | 2.89 | 3.64 | 2.96 | 2.07 | 2.22 | Plscr4 | -1.49 | -1.36 | -2.61 | -3.15 | -2.05 | -1.93 |
| Dlx4os | 0.17 | -0.48 | -3 | -2.71 | -2.87 | -3.13 | Ppp1r17 | -3.13 | -3.23 | -3.02 | -3.26 | -2.83 | -2.55 |
| Dlx6os1 | -0.46 | 0.44 | 4.73 | 4.42 | 6.7 | 6.77 | Prkag3 | -2.17 | -1.49 | -2.33 | -1.88 | -2.7 | -1.32 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dmp1 | -1.85 | -1.58 | -1.85 | -1.43 | -1.01 | -0.57 | Procr | -1.84 | -1.94 | -1.15 | -2.23 | -2.37 | -2.15 |
| E030003E18Rik | 0.21 | 0.33 | -2.09 | -1.95 | -1.84 | -2.53 | Prr5 | -0.29 | -0.51 | 1.61 | 1.8 | 3.03 | 2.79 |
| Ebf1 | -2.91 | -2.96 | -2.72 | -2.66 | -3.1 | -2.94 | Ptk2b | 3.11 | 3.28 | -0.18 | 0.46 | 0.58 | 0.71 |
| Ebf2 | -2.38 | -1.82 | -3.04 | -2.75 | -2.6 | -2.93 | Ptpn5 | 3.31 | 3.42 | 2.33 | 2.27 | 3.27 | 3.2 |
| Ebf3 | -2.83 | -1.8 | -2.36 | -2.55 | -0.89 | -0.91 | Ptprz1 | -1.89 | -1.82 | -1.02 | -1.04 | 2.1 | 2.17 |
| Ednrb | -1.79 | -1.86 | -2.2 | -1.51 | -1.71 | -2.36 | Rab11fip1 | -0.77 | -0.62 | -1.45 | -1.57 | -1.99 | -1.1 |
| Egfr | -1.67 | -1.58 | -1.56 | -1.46 | 4.41 | 4.52 | Rab27b | 1.85 | 1.81 | 2.21 | 2.04 | 2.41 | 2.76 |
| Egr3 | 3.98 | 4.13 | 0.71 | 1.79 | 2.04 | 1.88 | Robo3 | 4.83 | 4.38 | 1.63 | 1.77 | 1 | 0.53 |
| Eif2s3y | 1.45 | 1.44 | 1.27 | 1.27 | 1.85 | 1.87 | Rtn4rl2 | 4.58 | 4.69 | 1.81 | 2.13 | 0.92 | -0.05 |
| Elfn1 | 1.82 | 1.65 | 1.64 | 1.86 | 5.5 | 5.48 | Rxfp1 | 2.73 | 2.92 | -0.47 | -0.3 | 3.88 | 3.93 |
| Emp2 | -1.3 | -1.25 | -2.59 | -1.65 | 0.9 | 0.99 | S1pr1 | -1.71 | -1.51 | -2.07 | -1.47 | -1.95 | -2.21 |
| En2 | -2.9 | -2.99 | -2.52 | -2.78 | -2.4 | -3.17 | Scube1 | 4.64 | 4.2 | 0.61 | 1.14 | 0.81 | 0.16 |
| Enc1 | 4.03 | 4 | 1.1 | 2.17 | 2.18 | 2.03 | Sdc4 | -2.04 | -1.87 | -2.27 | -1.92 | -1.61 | -2.01 |
| Etnppl | -1.15 | -0.87 | -1.83 | -1.12 | -1.62 | -1.93 | Serpinh1 | -0.7 | -1.89 | -1.69 | -1.63 | -1.24 | -1.34 |
| Eva1a | -1.01 | -1.21 | -0.68 | -0.42 | -0.99 | -1.51 | Skor2 | -2.92 | -3.02 | -3.08 | -1.92 | -2.6 | -1.8 |
| F3 | -1.74 | -1.51 | -1.86 | -1.8 | -0.18 | -0.28 | Slc14a1 | -2.05 | -1.71 | -2.28 | -1.57 | -1.45 | -2.1 |
| Fam107b | -2.55 | -2.31 | -2.76 | -3.05 | 0.1 | 0.05 | Slc1a3 | -1.58 | -1.6 | -2.56 | -1.97 | -1.73 | -2 |
| Fam19a1 | 3.43 | 3.16 | 1.1 | 1.15 | 0.23 | -0.1 | Slc24a4 | 3.71 | 3.57 | 0.47 | 0.76 | 0.2 | -0.29 |
| Fat2 | -3.2 | -3.01 | -2.49 | -3.17 | -3.82 | -3.87 | Slc2a10 | -1.27 | -2.22 | -2.56 | -1.88 | -2.32 | -2.31 |
| Fbln2 | 2.93 | 2.65 | -1.34 | -0.38 | 5.38 | 5.19 | Slc2a4 | -0.76 | -1.4 | -2.27 | -0.23 | -2.64 | -1.69 |
| Fezf2 | 3.33 | 3.36 | 1.43 | 2.33 | 0.68 | -0.33 | Slc30a3 | 4.31 | 4.11 | 3.33 | 3.22 | 2.6 | 2.24 |
| Fgd3 | -0.42 | -0.95 | 2.86 | 2.6 | 1.97 | 2.16 | Slc39a12 | -0.99 | -0.93 | -2.54 | -2.71 | -1.76 | -2.35 |
| Flrt2 | 1.94 | 1.63 | 1.09 | 1.01 | 2.16 | 2.01 | Slc6a7 | 2.47 | 2.61 | 2.6 | 2.46 | 2.44 | 2.23 |
| Folh1 | -1.89 | -1.7 | -2.97 | -1.98 | -1.59 | -2.28 | Slc7a10 | 0.22 | 0.02 | -0.2 | -0.32 | 0.15 | -0.03 |
| Foxg1 | 2.89 | 2.84 | 2.31 | 2.54 | 3.13 | 2.75 | Slc9a3 | -0.81 | -0.85 | -1.76 | -1.65 | -0.28 | -0.1 |
| Frem1 | -0.12 | -0.37 | -2.75 | -2.49 | 2.66 | 3.01 | Slco4c1 | 1.46 | 1.36 | 0.6 | 0.52 | 1.18 | 1.15 |
| Gabra6 | -3.87 | -3.92 | -2.97 | -3.68 | -3.66 | -4.02 | Smpx | -1.46 | -2.34 | -2.5 | -1.83 | -2.05 | -2.43 |
| Galnt14 | 2.28 | 2.12 | 1.65 | 1.39 | 4.03 | 4.18 | Sod3 | -0.49 | -0.8 | -1.47 | -0.97 | -0.22 | -0.39 |
| Gas1 | -1.79 | -1.93 | -1.11 | -0.74 | 0.2 | 0.03 | Sparc | -2.02 | -2.03 | -2.38 | -1.9 | -2.36 | -2.22 |
| Gda | 2.69 | 2.48 | -0.31 | 0.12 | 0.47 | 0.5 | Stac | -0.87 | -0.78 | -2.81 | -2.66 | -0.11 | 0.35 |
| Gdf10 | -3.14 | -2.66 | -2.37 | -1.6 | -1.27 | -1.58 | Stk17b | -2.18 | -2.24 | -3.03 | -2.74 | -2.5 | -2.91 |
| Gja1 | -2.37 | -2.43 | -3.18 | -2.52 | -1.99 | -2.6 | Stk32a | -1.46 | -1.64 | -2.09 | -1.96 | 1.31 | 1.54 |
| Gjb6 | -0.65 | -0.73 | -1.93 | -1.25 | -1.27 | -1.59 | Sycp1 | -0.94 | -1.02 | -1.13 | -3.46 | -1.7 | -1.64 |
| Gjc3 | -2.16 | -2.35 | -2.54 | -1.87 | -1.67 | -2 | Syt10 | -0.21 | -0.27 | -3.16 | -3.19 | 0.3 | 0.37 |
| Gli1 | -0.64 | -0.22 | -1.09 | -0.96 | 1.24 | 1.1 | Tbr1 | 3 | 2.87 | 0.12 | 1.06 | 0.69 | 0.23 |
| Gli3 | -0.55 | -0.68 | -1.22 | -1.12 | -0.86 | -1.31 | Tex36 | -1.27 | -2.21 | -2.27 | -2.5 | -1.98 | -2.42 |
| Glt25d2 | 0.16 | 0.44 | -0.91 | -1.05 | -1.77 | -2.1 | Tlcd1 | -0.48 | -0.34 | -0.8 | -0.58 | -0.51 | -0.57 |
| Gm11549 | 3.13 | 2.79 | -0.02 | 0.86 | 0.61 | 0.51 | Tlr3 | -2.12 | -1.89 | -1.6 | -1.02 | -1.33 | -1.21 |
| Gm266 | -1 | -0.38 | -2.63 | -1.01 | -0.29 | -1.77 | Tmem132b | 2.3 | 2.26 | 1.95 | 1.71 | 2.3 | 2.42 |
| Gm5083 | -2.83 | -1.37 | -2.99 | -3.2 | -1.07 | -1.69 | Tmem179 | 2.79 | 2.66 | 3.05 | 3.18 | 2.95 | 2.94 |
| Gm5089 | -2.04 | -2.39 | -2.26 | -1.87 | -1.68 | -2.2 | Tmem200a | 2.1 | 1.96 | 0.48 | 0.53 | 2.86 | 3 |
| Gm5468 | 2.74 | 2.82 | -0.73 | -0.19 | 2.09 | 2.4 | Tnc | -0.21 | -0.44 | -1.75 | -1.27 | 0.4 | 0.12 |
| Gm5607 | -1.23 | -0.86 | 3.22 | 3.17 | 3.9 | 3.88 | Tox3 | 2.2 | 2.09 | 4.44 | 4.03 | 1.03 | 0.97 |
| Gm8179 | 3.3 | 2.99 | 1.03 | 0.95 | 0.65 | 0.62 | Tril | -1.53 | -1.56 | -1.81 | -0.79 | -1.17 | -1.32 |
| Gpr37l1 | -1.46 | -2.36 | -2.23 | -1.6 | -1.43 | -1.9 | Trim30a | -2.56 | -2.98 | -3.04 | -2.05 | -2.17 | -3.19 |
| Grik1 | -0.35 | -0.61 | 1.85 | 1.62 | 1.93 | 1.96 | Trp53cor1 | -0.97 | -1.47 | -1.38 | -0.8 | -0.75 | -1.32 |
| Grm5 | 1.79 | 1.66 | 1.57 | 1.26 | 1.18 | 1.33 | Tspa | -1.41 | -1.3 | 0.19 | 0.37 | -1.18 | -0.98 |
| Hepacam | -0.74 | -0.72 | -1.96 | -1.19 | -0.51 | -0.67 | Uty | 1.01 | 0.9 | 1.21 | 0.89 | 1.15 | 1.16 |
| Hes3 | -1.2 | -1.77 | 1.31 | 1.24 | -1.84 | -2.99 | Vip | -0.3 | 0.73 | 0.14 | 0.56 | 8.04 | 7.9 |
| Hs3st2 | 2.67 | 2.81 | -0.13 | 0.13 | 2.21 | 2.46 | Vsig2 | 3.35 | 3.37 | 0.35 | 1.05 | -0.17 | -0.26 |
| Hs3st4 | 3.39 | 3.25 | 0.23 | 0.02 | 1.2 | 1.25 | Vstm2b | 3.08 | 3.17 | 4.4 | 4.34 | 2.82 | 3.19 |
| Htr2a | 3.38 | 3.04 | 3.1 | 2.81 | 1.75 | 2.05 | Wif1 | -2.86 | -2.58 | 0.94 | 1 | -2.51 | -1.82 |
| Icam5 | 4.24 | 3.93 | 1.32 | 1.48 | 1.88 | 1.31 | Zfp385c | -0.62 | -1.68 | -0.25 | -0.27 | -1.84 | -1.81 |
| Icosl | -1.4 | -1.7 | -2.75 | -1.86 | 1.32 | 1.61 | Zfp831 | 3.08 | 2.85 | -0.08 | 0.42 | 0.1 | -0.25 |
| Il22 | -1.15 | -0.79 | -2.18 | -1.68 | -2.55 | -1.57 | Zic1 | -3.04 | -3.14 | -3.06 | -2.85 | -2.64 | -3.33 |
| Iltifb | -1.85 | -1.98 | -2.72 | -2.95 | -3.08 | -2.87 | Zic2 | -2.61 | -3.19 | -2.49 | -2.46 | -2.64 | -3.14 |
| Irx1 | -1.82 | -1.92 | -1.98 | -2.21 | -1.61 | -2.13 | Zic3 | -1.74 | -2.53 | -1.94 | -2.8 | -2.04 | -2.73 |
| Irx2 | -1.48 | -1.57 | -1.62 | -1.84 | -1.98 | -1.77 | Zic4 | -2.61 | -2.94 | -3.26 | -2.9 | -3.06 | -2.97 |
| Irx5 | -1.45 | -1.54 | -1.59 | -1.81 | -1.94 | -1.73 | Zic5 | -2.83 | -2.92 | -1.81 | -2.7 | -2.85 | -3.1 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Itih3 | -0.87 | -0.28 | -1.83 | -1.44 | -0.82 | -0.91 | | 1.88 | 1.82 | 0.48 | 0.18 | 1.91 | 1.98 |

**[00201]** Additional cell-type specific nuclear transcripts were identified from genes that were observed to have increased expression: Alpha-2-Macroglobulin (A2m) for Sept4-positive cells (Bergmann glia), Pde1a and Colgalt2 for Colgalt2-postive cells (corticopontine pyramidal), Pde1a and Heparan Sulfate-Glucosamine 3-Sulfotransferase 4 (Hs3st4) for Excit-positive cells (excitatory neurons), Pde1a and Hs3st4 for Ntsr1-positive cells (corticothalamic pyramidal), Aristaless Related Homeobox (Arx) and Parvalbumin (Pvalb) for PV-positive cells (parvalbumin interneurons), Vasoactive Intestinal Peptide (Vip) for VIP-positive cells (VIP interneurons), Solute Carrier Family 9 Member A3 (Slc9a3) for Pcp2-positive cells (Purkinje), and Grin2c for NeuroD1-postive cells (granule). Results in the Examples herein provide evidence that nuclear RNA is sufficient to define cell types.

**[00202]** Hierarchical clustering was performed using the genes above across these eight cell types to determine whether nuclear RNA profiles can group the samples based on expected biology. Clustering occurred not only by cell type but also by groups of related cell types. For example, the two classes of interneurons (VIP and PV) clustered with each other, while three types of pyramidal cells (corticopontine and corticothalamic from the data herein and all excitatory from Mo et. al.) clustered together. The robustness of this clustering, even across samples prepared using different methods and from different labs, indicates the utility of nuclear RNA profiles for specifying cellular identity, and for measuring the relatedness of different types of cells.

**Example 5. Developing a method for isolating specific nuclei from wild-type animals**

**[00203]** Previous cell profiling techniques required breeding a disease model in a transgenic animal. Some disease models are difficult to breed, and a study of aging would require maintaining specific transgenic strains for years. Such methods were not adaptable to organisms where transgenesis is difficult or unethical, such as humans. Therefore, there is a need to develop a generalizable method that enable molecular studies of defined cell types in wild-type animals.

**[00204]** FIG. 2A shows a sort of nuclei from mouse cerebellum using the strategy described in Example 2. Itpr1 is on the x-axis, and NeuN is on the y-axis. The Itpr1+ population was the nuclei of Purkinje cells, and the NeuN+ population was the nuclei of glia. The NeuN+/Itpr1- nuclei (largest group) represent granule cells.

**[00205]** FIG. 2B shows gene expression profiling from RNAseq data comparing the groups of Purkinje nuclear RNA from transgenic animals from a GFP sort to Itpr1+ nuclei sorted with the cellular profiling technique described herein. Pcp4 is a Purkinje marker, which was observed to be enriched in the Pcp2-GFP+ nuclei and the wildtype (WT) Itpr1+ nuclei compared to

cerebellar unsorted nuclei (Pcp2 uns and WT uns). Calb2 is a granule cell marker, which was observed to be enriched in the unsorted samples (Pcp2 unsorted and WT unsorted) compared to the sorted Purkinje nuclei (Pcp2-GFP+ or WT Itpr1+).

**[00206]** Table 14 provides Pearson correlations showing that the number of Purkinje nuclei from GFP and antibody sorts are highly correlated (R=0.99).

**Table 14. Pearson correlations**

| Driver | Pcp2 uns | Pcp2- GFP+ | WT uns | WT Itpr+ |
|---|---|---|---|---|
| Pcp2 uns | 1.00 | 0.93 | 0.99 | 0.95 |
| Pcp2- GFP+ | | 1.00 | 0.92 | 0.99 |
| WT uns | | | 1.00 | 0.94 |
| WT Itpr+ | | | | 1.00 |

**[00207]** Antibodies specific to these factors will result in an increase in the number of cell types expressing these factors to be isolated.

**[00208]** Dopaminergic neurons in the midbrain were also stained by a combination of two antibodies: one against transcription factor FoxA1 and the other was against the membrane localized dopamine transporter (DAT). Staining against FoxA1 was observed in the nucleus of dopaminergic neurons. Staining against DAT was observed primarily in axons, although at high magnification, it was also observed in cell bodies, likely being synthesized in the endoplasmic reticulum.

**[00209]** Nuclei staining and sorting for dopaminergic neuronal nuclei by flow cytometry is shown in FIG. 3A. The double positive (DP) population (positive for FoxA1 and DAT) was isolated for RNAseq analysis. FIG. 3B compares RNAseq tracks from unsorted midbrain nuclei and sorted dopaminergic nuclei. The dopaminergic nuclei were observed to be positive for known markers - Solute Carrier Family 6 Member 3 (DAT, also known as Slc6a3), Tyrosine Hydroxylase (TH), Forkhead Box A1 (FoxA1), Forkhead Box A2 (FoxA2), and Dopamine Receptor D2 (Drd2). Meanwhile, genes that are known to not be expressed in these neurons (Drd1 and Glutamate Decarboxylase (Gad)) were observed to be depleted in the unsorted population. Therefore, dopaminergic neurons were observed to be successfully isolated in mice. This strategy can also be used for human samples.

**[00210]** Wolframin ER Transmembrane Glycoprotein (Wfs1) and B-Cell CLL/Lymphoma 11B (Ctip2, also known as Bcl11b) were observed from staining to be putative markers for cortical cell types layer 2/3 pyramidal neurons and layer 5 and 6 pyramidal neurons, respectively. Another putative marker for cortical cell types observed from staining was ETS Variant 1 (Etv1, also known as ER81), which labels layer 5 pyramidal neurons. Etv1 has been previously observed to label both corticostriatal neurons, cortocopontine neurons, and potential others in layer 5 of the cortex. Two putative markers for the hypocampus were also identified by staining:

Wfs1 for Carbonic Anhydrase 1 (CA1)-positive neurons and Purkinje Cell Protein 4 (Pcp4) for Carbonic Anhydrase 1 (CA2)-positive dentate gyrus.

**[00211]** Putative markers for brainstem motor neurons were observed to be Solute Carrier Family 18 Member A3 (VaChT, also known as Slc18a3), Chondrolectin (Chodl), and EsrrB. Antibodies specific for the 3 genes VaChT, Chodl, and ErrB were observed by *in situ* hybridization to label this population of neurons in the brain stem. The Allen Brain Atlas gene expression database was used as reference. VaChT and ErrB label the motor neurons specifically, and Chodl labels everything except for these neurons. The antibody specific to Chodl may be replaced with one that directly labels the brainstem motor neurons.

**Example 6. Applying antibody-sorting methods to nuclei from wild-type mice**

**[00212]** To determine whether the cellular profiling technique described herein could be used productively for cell type specific studies in wild-type animals, the cellular profiling technique described herein was applied to processed tissue from the mouse cerebellum, a structure that is composed of several classically defined neuronal and glial cell types that exhibit unique morphology and distribution.

**[00213]** Candidate antibodies specificities were chosen from expression profiles from each cell type generated from data obtained from transgenic animals developed for use in the TRAP method expressing an EGFP/L10a fusion protein (Dougherty, et al. (2010) Nucleic Acids Res 38, 4218–4230 and Doyle, et al. (2008) Cell 135, 749–762, each of which is hereby incorporated by reference herein in its entirety). Data were collected from three neuronal cell types (granule, Purkinje, and basket) and two glial cell types (astrocytes and oligodendrocytes) in the cerebellum of wild-type mice.

**[00214]** Immunofluorescence staining was performed on the five distinct cell types in the cerebellum using a similar strategy to that applied to the cells from transgenic animals. The specificities of antibodies used for each cell type to confirm differences among the nuclei were NeuN for granule cells, Itpr1 for Purkinje cells, Sorcs3 for basket cells, Gfap labels for the cell bodies and process of astrocytes, and MOG labels for the cell bodies and process of oligodendrocytes.

**[00215]** To sort, a combination of at least two antibodies was used: NeuN (a splicing factor localized at euchromatin inside the nucleus), which labels neuronal nuclei, and cell-type specific antibodies: Itpr1, an endoplasmic reticulum membrane protein localized at the nuclear membrane, and basket cell marker Sorcs3 and astrocyte marker Eeat1 (also referred to as Glast), which are two cellular membrane proteins labeled in the nuclear membrane. Antibodies against the oligodendrocyte marker and transcription factor Olig2 showed labeling in euchromatin.

**[00216]** In cerebellar tissue, NeuN has been known in the art to label the nuclei of granule neurons, but not Purkinje and basket neurons, or glia. Immunofluorescence results on tissue sections using NeuN confirmed this result. However, staining of nuclei using NeuN revealed that while basket cells, astrocytes, and oligodendrocytes nuclei have lower levels of NeuN as expected, Purkinje nuclei unexpectedly were observed to have elevated levels. This is not due to spectral overlap from the Purkinje specific marker because confocal imaging revealed bright expression of NeuN in Purkinje nuclei in euchromatin – the expected distribution for a splicing factor. Therefore, the exposure of NeuN epitopes was observed to be different in isolated nuclei and tissue sections.

**[00217]** To isolate nuclei from oligodendrocytes, an antibody against the transcription factor Olig2 was used. Immunofluorescence was used to confirm the effectiveness of these antibodies. To isolate nuclei from granule cells, NeuN was used in addition to a combination of Itpr1, Sorcs3, and Olig2 to remove contaminating nuclei from other cell types. Nuclei were counterstained with DAPI, which is also a marker for heterochromatin. FACS results are shown in Table 15.

**Table 15. FACS results for samples from wild-type mice**

| Cell Type | Population | Percentage of Population |
|---|---|---|
| Granule | Itpr1- Olig2- Sorcs3- NeuN+ | 90.5% |
| Purkinje | Itpr1+ NeuN+ | 0.1% |
| Basket | Itpr1+ med NeuN- | 3.03% |
| Astrocytes | Sorcs3+ med NeuN- | 1.94% |
| Oligodendrocytes | Sorcs3- NeuN- | 1.95% |

**[00218]** Therefore, the sorting strategy used for isolation of nuclei in cell types from the transgenic animals developed for use with the TRAP method was observed to also be effective in nuclei from the same cell types in wild-type mice.

**Example 7. Correlation of results from different cell sorting methods**

**[00219]** Results were analyzed at a genome-wide level by computing the pairwise Pearson's correlation coefficient (r) of normalized gene expression as shown in Table 16 among the GFP+ sorted nuclei samples from animals developed for use in the TRAP method and nuclei samples sorted using the cellular profiling technique described herein. ".g" samples were the GFP+ sorted samples from animals developed for use with the TRAP method, and ".a" samples sorted by the cellular profiling technique described herein.

**Table 16. Pearson's correlation values**

| | Granule.g | | | Purkinje.g | | | | Bglia.g | | | | Granule.a | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gra | 1.00 | 0.97 | 0.98 | 0.85 | 0.85 | 0.86 | 0.86 | 0.79 | 0.80 | 0.80 | 0.79 | 0.95 | 0.96 | 0.98 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.97 | 1.00 | 0.97 | 0.84 | 0.84 | 0.84 | 0.85 | 0.78 | 0.79 | 0.79 | 0.79 | 0.95 | 0.95 | 0.97 |
| | 0.98 | 0.97 | 1.00 | 0.83 | 0.84 | 0.84 | 0.85 | 0.78 | 0.79 | 0.79 | 0.79 | 0.95 | 0.95 | 0.97 |
| Purkinje.g | 0.85 | 0.84 | 0.83 | 1.00 | 0.98 | 0.98 | 0.99 | 0.78 | 0.79 | 0.79 | 0.78 | 0.85 | 0.85 | 0.85 |
| | 0.85 | 0.84 | 0.84 | 0.98 | 1.00 | 0.99 | 0.99 | 0.79 | 0.80 | 0.80 | 0.79 | 0.86 | 0.85 | 0.85 |
| | 0.86 | 0.84 | 0.84 | 0.98 | 0.99 | 1.00 | 0.99 | 0.79 | 0.80 | 0.79 | 0.79 | 0.86 | 0.86 | 0.86 |
| | 0.86 | 0.85 | 0.85 | 0.99 | 0.99 | 0.99 | 1.00 | 0.79 | 0.80 | 0.79 | 0.79 | 0.86 | 0.86 | 0.86 |
| Bglia.g | 0.79 | 0.78 | 0.78 | 0.78 | 0.79 | 0.79 | 0.79 | 1.00 | 0.95 | 0.94 | 0.94 | 0.80 | 0.79 | 0.81 |
| | 0.80 | 0.79 | 0.79 | 0.79 | 0.80 | 0.80 | 0.80 | 0.95 | 1.00 | 0.95 | 0.96 | 0.81 | 0.80 | 0.81 |
| | 0.80 | 0.79 | 0.79 | 0.79 | 0.80 | 0.79 | 0.79 | 0.94 | 0.95 | 1.00 | 0.95 | 0.81 | 0.80 | 0.81 |
| | 0.79 | 0.79 | 0.79 | 0.78 | 0.79 | 0.79 | 0.79 | 0.94 | 0.96 | 0.95 | 1.00 | 0.80 | 0.79 | 0.81 |
| Granule.a | 0.95 | 0.95 | 0.95 | 0.85 | 0.86 | 0.86 | 0.86 | 0.80 | 0.81 | 0.81 | 0.80 | 1.00 | 0.97 | 0.97 |
| | 0.96 | 0.95 | 0.95 | 0.85 | 0.85 | 0.86 | 0.86 | 0.79 | 0.80 | 0.80 | 0.79 | 0.97 | 1.00 | 0.97 |
| | 0.98 | 0.97 | 0.97 | 0.85 | 0.85 | 0.86 | 0.86 | 0.81 | 0.81 | 0.81 | 0.81 | 0.97 | 0.97 | 1.00 |
| Purkinje.a | 0.82 | 0.80 | 0.80 | 0.96 | 0.96 | 0.96 | 0.97 | 0.76 | 0.76 | 0.76 | 0.75 | 0.85 | 0.84 | 0.83 |
| | 0.81 | 0.79 | 0.79 | 0.95 | 0.95 | 0.95 | 0.96 | 0.75 | 0.75 | 0.76 | 0.74 | 0.84 | 0.84 | 0.82 |
| | 0.88 | 0.87 | 0.87 | 0.96 | 0.96 | 0.96 | 0.96 | 0.79 | 0.79 | 0.79 | 0.78 | 0.88 | 0.88 | 0.89 |
| Basket.a | 0.91 | 0.90 | 0.90 | 0.89 | 0.89 | 0.89 | 0.89 | 0.81 | 0.82 | 0.81 | 0.81 | 0.91 | 0.91 | 0.92 |
| | 0.89 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.79 | 0.80 | 0.80 | 0.79 | 0.91 | 0.91 | 0.90 |
| | 0.89 | 0.88 | 0.88 | 0.88 | 0.89 | 0.89 | 0.89 | 0.80 | 0.81 | 0.81 | 0.79 | 0.91 | 0.91 | 0.90 |
| Astrocyte.a | 0.80 | 0.79 | 0.79 | 0.76 | 0.77 | 0.77 | 0.77 | 0.91 | 0.92 | 0.91 | 0.91 | 0.81 | 0.80 | 0.83 |
| | 0.78 | 0.77 | 0.77 | 0.77 | 0.77 | 0.78 | 0.77 | 0.91 | 0.91 | 0.90 | 0.91 | 0.81 | 0.80 | 0.82 |
| Oligo.all.a | 0.85 | 0.84 | 0.84 | 0.82 | 0.83 | 0.83 | 0.83 | 0.84 | 0.85 | 0.85 | 0.84 | 0.86 | 0.86 | 0.87 |
| Oligo.a | 0.82 | 0.81 | 0.80 | 0.81 | 0.81 | 0.82 | 0.82 | 0.83 | 0.84 | 0.83 | 0.83 | 0.85 | 0.84 | 0.84 |
| | 0.81 | 0.80 | 0.80 | 0.80 | 0.81 | 0.81 | 0.81 | 0.82 | 0.83 | 0.83 | 0.82 | 0.84 | 0.84 | 0.83 |
| OPC.a | 0.82 | 0.80 | 0.80 | 0.81 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.82 | 0.85 | 0.84 | 0.84 |
| | 0.82 | 0.80 | 0.80 | 0.81 | 0.82 | 0.82 | 0.82 | 0.83 | 0.83 | 0.83 | 0.82 | 0.85 | 0.84 | 0.84 |

| | Purkinje.a | | | Basket.a | | | Astrocyte.a | | Oligo.all.a | Oligo.a | | OPC.a | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Granule.g | 0.82 | 0.81 | 0.88 | 0.91 | 0.89 | 0.89 | 0.80 | 0.78 | 0.85 | 0.82 | 0.81 | 0.82 | 0.82 | |
| | 0.80 | 0.79 | 0.87 | 0.90 | 0.88 | 0.88 | 0.79 | 0.77 | 0.84 | 0.81 | 0.80 | 0.80 | 0.80 | |
| | 0.80 | 0.79 | 0.87 | 0.90 | 0.88 | 0.88 | 0.79 | 0.77 | 0.84 | 0.80 | 0.80 | 0.80 | 0.80 | |
| Purkinje.g | 0.96 | 0.95 | 0.96 | 0.89 | 0.88 | 0.88 | 0.76 | 0.77 | 0.82 | 0.81 | 0.80 | 0.81 | 0.81 | |
| | 0.96 | 0.95 | 0.96 | 0.89 | 0.89 | 0.89 | 0.77 | 0.77 | 0.83 | 0.81 | 0.81 | 0.82 | 0.82 | |
| | 0.96 | 0.95 | 0.96 | 0.89 | 0.89 | 0.89 | 0.77 | 0.78 | 0.83 | 0.82 | 0.81 | 0.82 | 0.82 | |
| | 0.97 | 0.96 | 0.96 | 0.89 | 0.89 | 0.89 | 0.77 | 0.77 | 0.83 | 0.82 | 0.81 | 0.82 | 0.82 | |
| Bglia.g | 0.76 | 0.75 | 0.79 | 0.81 | 0.79 | 0.80 | 0.91 | 0.91 | 0.84 | 0.83 | 0.82 | 0.83 | 0.83 | |
| | 0.76 | 0.75 | 0.79 | 0.82 | 0.80 | 0.81 | 0.92 | 0.91 | 0.85 | 0.84 | 0.83 | 0.83 | 0.83 | |
| | 0.76 | 0.76 | 0.79 | 0.81 | 0.80 | 0.81 | 0.91 | 0.90 | 0.85 | 0.83 | 0.83 | 0.83 | 0.83 | |
| | 0.75 | 0.74 | 0.78 | 0.81 | 0.79 | 0.79 | 0.91 | 0.91 | 0.84 | 0.83 | 0.82 | 0.82 | 0.82 | |
| Granule.a | 0.85 | 0.84 | 0.88 | 0.91 | 0.91 | 0.91 | 0.81 | 0.81 | 0.86 | 0.85 | 0.84 | 0.85 | 0.85 | |
| | 0.84 | 0.84 | 0.88 | 0.91 | 0.91 | 0.91 | 0.80 | 0.80 | 0.86 | 0.84 | 0.84 | 0.84 | 0.84 | |
| | 0.83 | 0.82 | 0.89 | 0.92 | 0.90 | 0.90 | 0.83 | 0.82 | 0.87 | 0.84 | 0.83 | 0.84 | 0.84 | |
| Purkinje | 1.00 | 0.98 | 0.96 | 0.88 | 0.88 | 0.88 | 0.76 | 0.77 | 0.82 | 0.81 | 0.81 | 0.82 | 0.83 | |
| | 0.98 | 1.00 | 0.95 | 0.87 | 0.87 | 0.88 | 0.76 | 0.77 | 0.81 | 0.81 | 0.81 | 0.82 | 0.83 | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.96 | 0.95 | 1.00 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.86 | 0.84 | 0.83 | 0.85 | 0.85 | |
| Basket.a | 0.88 | 0.87 | 0.92 | 1.00 | 0.99 | 0.99 | 0.82 | 0.81 | 0.88 | 0.85 | 0.84 | 0.87 | 0.87 | |
| | 0.88 | 0.87 | 0.92 | 0.99 | 1.00 | 0.99 | 0.80 | 0.80 | 0.86 | 0.85 | 0.84 | 0.86 | 0.87 | |
| | 0.88 | 0.88 | 0.92 | 0.99 | 0.99 | 1.00 | 0.80 | 0.80 | 0.87 | 0.85 | 0.84 | 0.86 | 0.87 | |
| Astrocyte.a | 0.76 | 0.76 | 0.80 | 0.82 | 0.80 | 0.80 | 1.00 | 0.97 | 0.86 | 0.83 | 0.83 | 0.83 | 0.84 | |
| | 0.77 | 0.77 | 0.80 | 0.81 | 0.80 | 0.80 | 0.97 | 1.00 | 0.85 | 0.84 | 0.83 | 0.84 | 0.84 | |
| Oligo.all.a | 0.82 | 0.81 | 0.86 | 0.88 | 0.86 | 0.87 | 0.86 | 0.85 | 1.00 | 0.97 | 0.96 | 0.94 | 0.94 | |
| Oligo.a | 0.81 | 0.81 | 0.84 | 0.85 | 0.85 | 0.85 | 0.83 | 0.84 | 0.97 | 1.00 | 0.98 | 0.92 | 0.92 | |
| | 0.81 | 0.81 | 0.83 | 0.84 | 0.84 | 0.84 | 0.83 | 0.83 | 0.96 | 0.98 | 1.00 | 0.91 | 0.91 | |
| OPC.a | 0.82 | 0.82 | 0.85 | 0.87 | 0.86 | 0.86 | 0.83 | 0.84 | 0.94 | 0.92 | 0.91 | 1.00 | 0.96 | |
| | 0.83 | 0.83 | 0.85 | 0.87 | 0.87 | 0.87 | 0.84 | 0.84 | 0.94 | 0.92 | 0.91 | 0.96 | 1.00 | |

**[00220]** From this analysis, the correlation between different cell types in the cerebellum was observed to be high: r=0.91-0.94, and the correlation across biological replicates was observed to be very high: r=0.98-1. For the gene expression profiles from the EGFP-L10a labeled nuclei from granule cells, Purkinje cells, and Bergmann glia, very high correlations were observed between the genetically defined cell types and cellular profiling defined cell types: r=0.98 for granule cells, r=0.99 for Purkinje cells, and r=0.96-0.97 between Bergmann glia purified from Sept4/EGFP-L10a animals and astrocytes purified by the cellular profiling technique described herein. Since Bergmann glia are a subpopulation of cerebellar astrocytes, it makes sense that these two datasets are not perfectly correlated with each other.

**[00221]** Hierarchical clustering of the samples reveals clustering according to known biology. For example, in the first split, neuronal and glial samples were separated from each other. At the second split, the five cell types separate from each other regardless of whether the nuclei were purified using genetic labeling or antibody labeling. Taken together, results herein demonstrate that the cellular profiling technique described herein allows cell-type specific gene expression profiling in mice without the requirement for transgenic animals.

## Example 8. Antibody-based sorting of cell types in rats

**[00222]** Nuclei were isolated from rat cerebellum, fixed, and stained using the same antibodies used in mice, and the results were analyzed by flow cytometry. FACS results are shown in Table 17 for nuclei samples from Sprague Dawley rats.

**Table 17. FACS results for samples from Sprague Dawley rats**

| Cell Type | Population | Gender | Percentage |
|---|---|---|---|
| Granule | Itpr1- Olig2- Sorcs3- NeuN+ | Male | 89.700% |
| Granule | Itpr1- Olig2- Sorcs3- NeuN+ | Female | 90.100% |

| | | | |
|---|---|---|---|
| Purkinje | Itpr1+ NeuN+ | Male | 0.096% |
| Purkinje | Itpr1+ NeuN+ | Female | 0.089% |
| Basket | Itpr1+ med NeuN- | Male | 2.750% |
| Basket | Itpr1+ med NeuN- | Female | 2.390% |
| Astrocytes | Sorcs3+ med NeuN- | Male | 3.140% |
| Astrocytes | Sorcs3+ med NeuN- | Female | 2.870% |
| Oligodendrocytes - Mature | Sorcs3- NeuN- | Male | 2.250% |
| Oligodendrocytes - Mature | Sorcs3- NeuN- | Female | 2.170% |
| Oligodendrocytes - Precursor + Mature | Olig2+ High NeuN- | Male | 0.400% |
| Oligodendrocytes - Precursor + Mature | Olig2+ High NeuN- | Female | 0.420% |
| Cytoplasmic | - | Male | - |
| Cytoplasmic | - | Female | - |

**[00223]** The staining profiles of rat nuclei resembled those of mice. Although there were differences, for example, in the rat cerebellum, NeuN staining resulted in more distinct positive and negative populations than was evident in the mouse cerebellum. As a result, additional populations of nuclei were revealed by flow cytometry analysis, and these were isolated and characterized by RNAseq. Nuclei were isolated from basket cells, astrocytes, and oligodendrocytes by staining with antibodies specific to Sorcs3 and NeuN. This flexibility allowed for purification of all six cell types using four methods of staining. For cell types that were isolated from more than one type of staining, the population identified by RNAseq to be most enriched for known markers and depleted for markers of other cerebellar cell types was chosen.

**[00224]** To determine the group of genes that are specific to each of the rat cell types, differential gene expression analysis (DESeq2) was performed as described in Example 1 to compare the nuclear expression profile for each cell type to unsorted cerebellar nuclei. The log2 fold change in expression for 120 differentially expressed genes (adjusted $p < 0.01$, fold change > 2) between the normalized RNAseq results from the nuclei of the six cells types compared to the RNAseq results for the sorted nuclei from each individual cell type is shown in Table 18. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value across nuclei from all cell types analyzed, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed. Two replicate samples of nuclei from each cell type was analyzed.

**Table 18. Log2 fold change of gene expression in rat nuclei**

| | Log2 fold change in expression | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cell Type** | **granule** | | **purkinje** | | **basket** | | **astocyte** | | **oligo** | | **opc** | |
| **Gene** | | | | | | | | | | | | |
| AABR07001623.1 | -0.64 | -0.53 | -0.42 | -0.64 | 2.32 | 1.15 | 1.30 | -0.53 | -0.42 | -0.64 | -0.53 | -0.42 |
| AABR07001734.1 | -0.72 | -1.26 | 0.64 | 0.81 | 1.53 | 1.18 | 0.85 | 0.22 | -0.77 | -0.84 | -1.41 | -0.23 |
| AABR07006310.1 | -0.34 | -0.33 | -0.64 | -0.94 | -0.33 | 0.12 | -0.72 | 0.05 | 2.25 | 1.70 | -0.93 | 0.12 |
| AABR07006713.1 | -0.64 | -0.56 | 1.88 | 2.18 | -0.56 | -0.48 | 0.52 | -0.56 | -0.48 | -0.64 | -0.19 | -0.48 |
| AABR07006713.2 | -0.33 | -0.66 | 1.76 | 2.15 | -0.50 | -0.29 | 0.34 | 0.07 | -0.88 | -0.44 | -0.07 | -1.15 |
| AABR07006727.1 | -0.47 | -0.38 | 1.83 | 2.39 | -0.38 | -0.56 | -0.07 | -0.38 | -0.56 | -0.47 | -0.38 | -0.56 |
| AABR07013140.1 | 2.02 | 1.94 | -0.44 | -0.51 | -0.40 | -0.58 | -0.71 | -0.86 | -0.44 | -0.71 | 0.46 | 0.22 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AABR07026032.2 | 1.67 | 2.33 | -0.65 | -0.37 | -0.21 | -0.08 | -0.94 | -0.21 | 0.07 | -0.94 | -0.57 | -0.08 |
| AABR07030473.1 | -0.76 | -0.82 | 1.87 | 1.75 | 0.43 | 0.65 | -0.47 | -0.13 | -0.78 | -1.01 | -0.82 | 0.11 |
| AABR07030880.1 | 1.76 | 1.89 | -0.53 | -0.90 | 0.18 | -0.02 | -0.52 | -0.59 | 0.31 | -0.90 | -1.20 | 0.51 |
| AABR07046961.1 | -1.10 | -1.11 | -1.10 | -0.91 | -0.27 | -0.45 | 0.55 | 0.21 | 1.78 | 1.53 | 0.48 | 0.38 |
| AABR07047823.1 | -0.36 | 0.02 | -1.24 | -1.15 | 1.91 | 1.20 | 1.08 | 0.63 | -0.74 | -0.36 | -0.77 | -0.23 |
| AABR07049491.1 | -0.38 | -0.45 | 2.00 | 2.25 | -0.45 | -0.21 | -0.38 | -0.45 | -0.39 | -0.38 | -0.45 | -0.70 |
| AABR07052897.1 | -0.46 | -0.67 | -0.57 | -0.46 | -0.67 | -0.57 | -0.46 | -0.67 | 0.19 | 0.30 | 2.12 | 1.93 |
| AABR07058658.1 | -1.32 | -0.35 | -0.55 | -1.32 | 0.14 | 0.15 | 1.59 | 1.95 | 0.34 | -0.10 | 0.21 | -0.74 |
| AABR07061428.1 | -1.02 | -0.93 | -1.10 | -1.02 | 1.70 | 1.37 | 0.52 | -0.14 | 0.57 | 0.23 | -0.93 | 0.74 |
| AABR07070161.1 | -1.04 | -0.81 | -0.81 | -1.04 | 0.20 | 0.32 | 1.64 | 1.98 | 0.21 | -0.56 | -0.51 | 0.41 |
| AABR07070161.6 | -0.40 | -0.79 | -0.29 | -0.40 | -0.79 | 0.49 | 2.40 | 1.55 | -0.29 | -0.40 | -0.79 | -0.29 |
| AABR07070578.1 | -0.90 | -0.15 | -0.69 | 0.10 | 1.55 | 1.16 | 1.25 | 0.89 | -1.30 | -1.29 | -0.48 | -0.14 |
| Abi3 | -0.36 | 0.08 | -0.77 | -1.02 | -0.11 | -0.42 | -0.36 | -0.21 | 2.20 | 1.89 | -0.34 | -0.57 |
| Aqp9 | -0.93 | -0.54 | -0.55 | -1.07 | 0.13 | -0.08 | 1.97 | 1.93 | 0.07 | -0.20 | 0.11 | -0.85 |
| Arhgef26 | -1.01 | -0.70 | -1.34 | -1.33 | 1.28 | 1.28 | 0.91 | 1.01 | 0.00 | -0.57 | -0.20 | 0.66 |
| Arhgef33 | -0.55 | -0.66 | 2.12 | 1.99 | -0.60 | -0.49 | -0.66 | -0.43 | -0.04 | -0.70 | -0.22 | 0.25 |
| Arl4a | -0.61 | -1.62 | 0.04 | 0.68 | 1.51 | 1.33 | 0.61 | 0.20 | 0.28 | -0.09 | -0.79 | -1.54 |
| B3gnt5 | -0.71 | -0.23 | 2.13 | 2.01 | -0.51 | -0.50 | -0.44 | -0.23 | -0.50 | -0.71 | -0.51 | 0.21 |
| Bgn | -0.50 | -0.61 | -0.97 | -0.58 | -0.20 | -0.33 | 0.69 | 0.49 | -0.30 | -1.28 | 1.54 | 2.04 |
| C1ql1 | -0.96 | -0.78 | -0.91 | -0.96 | -0.36 | -0.07 | 0.92 | 0.81 | -0.23 | -0.73 | 1.38 | 1.89 |
| C1ql2 | -0.90 | -0.82 | -0.98 | -0.90 | 0.53 | -0.01 | 0.35 | 0.58 | -0.39 | -0.90 | 1.53 | 1.92 |
| Cacng5 | -0.69 | -0.67 | -0.92 | -0.69 | 0.21 | 0.44 | 2.12 | 1.65 | 0.12 | 0.01 | -0.67 | -0.92 |
| Cadps2 | 1.51 | 2.04 | -0.96 | -1.22 | -0.16 | -0.54 | -0.62 | -0.25 | 0.58 | -0.91 | 0.50 | 0.03 |
| Calb1 | -0.77 | -0.58 | 2.13 | 2.03 | -0.48 | -0.13 | -0.31 | -0.17 | 0.02 | -0.60 | -0.52 | -0.63 |
| Calb2 | 1.90 | 1.91 | -0.49 | -0.80 | -0.61 | -1.03 | 0.31 | 0.45 | -0.10 | -0.98 | -0.30 | -0.26 |
| Car4 | 2.01 | 1.38 | -1.82 | 0.10 | -0.74 | -0.07 | 0.38 | 0.32 | -0.17 | -0.80 | -0.47 | -0.10 |
| Car8 | -0.30 | -0.62 | 1.86 | 2.19 | -0.85 | -0.71 | -0.36 | -0.57 | -0.43 | -0.54 | 0.01 | 0.32 |
| Cav1 | -0.98 | -0.92 | -0.69 | -0.80 | -0.92 | -0.32 | 0.46 | 0.63 | 0.47 | -0.40 | 1.50 | 1.97 |
| Cbln1 | 2.13 | 1.78 | -1.11 | -0.66 | -0.58 | -0.69 | 0.00 | -0.08 | 0.39 | -0.06 | -0.45 | -0.66 |
| Ccnd1 | -0.87 | -0.95 | -0.43 | -0.61 | -0.83 | -0.65 | 0.27 | 0.78 | 0.38 | -0.66 | 1.62 | 1.95 |
| Cdh15 | 2.06 | 1.93 | -1.28 | -0.36 | 0.06 | -0.20 | -0.16 | -0.22 | -0.27 | -0.90 | -0.17 | -0.49 |
| Cdk2 | -0.54 | -0.80 | -0.98 | -0.86 | -1.31 | -0.47 | 0.64 | 0.71 | 0.60 | -0.15 | 1.36 | 1.81 |
| Cep76 | -0.55 | -0.49 | 2.10 | 2.09 | -0.59 | -0.62 | -0.42 | -0.32 | -0.15 | -0.77 | 0.01 | -0.28 |
| Cldn11 | -0.99 | -1.14 | -0.82 | -1.06 | -0.66 | -0.43 | 0.56 | 0.15 | 1.75 | 1.51 | 0.64 | 0.50 |
| Clmp | -0.94 | -0.83 | -1.42 | -1.23 | 1.39 | 1.14 | 1.16 | 0.97 | -0.26 | -0.37 | -0.02 | 0.40 |
| Col12a1 | -0.85 | -0.19 | -1.06 | -1.65 | 1.23 | 1.64 | 0.64 | 0.54 | -0.16 | -0.86 | -0.13 | 0.84 |
| Col5a3 | -0.72 | -0.62 | -1.04 | -1.30 | -0.48 | -0.30 | 0.62 | 0.95 | 0.08 | -0.50 | 1.61 | 1.70 |
| Cspg4 | -1.18 | -1.11 | -1.13 | -1.00 | -0.44 | -0.38 | 0.68 | 0.73 | 0.66 | 0.26 | 1.35 | 1.56 |
| Cyp2d5 | -0.68 | -0.27 | -0.19 | -1.32 | 0.30 | -0.07 | 1.88 | 1.92 | 0.21 | -0.28 | -0.50 | -1.00 |
| Enpp1 | -1.40 | -0.79 | -0.86 | -1.17 | 1.59 | 1.55 | -0.27 | 0.02 | 0.54 | -0.23 | 0.02 | 0.98 |
| Ermn | -0.37 | -0.74 | -0.47 | -0.68 | -0.72 | -0.59 | 0.86 | -0.77 | 1.99 | 1.85 | -0.22 | -0.16 |
| Fam107b | -0.63 | -0.37 | 2.15 | 1.90 | -0.18 | 0.00 | -0.13 | -0.20 | -0.17 | -1.00 | -0.96 | -0.41 |
| Fam89a | -0.69 | -0.28 | -1.02 | -0.61 | -0.41 | -0.65 | 0.56 | 0.95 | -0.65 | -0.73 | 1.85 | 1.69 |
| Fat2 | 1.72 | 2.01 | -1.21 | -1.00 | -0.44 | -0.22 | -0.04 | -0.26 | 0.64 | -0.87 | -0.10 | -0.23 |
| Gabra6 | 1.98 | 1.90 | -0.45 | -0.31 | -0.25 | -0.39 | -0.31 | -0.58 | 0.51 | -0.29 | -0.42 | -1.41 |
| Gabrd | 1.94 | 1.93 | -0.18 | -0.46 | -0.42 | -0.13 | -0.28 | -0.16 | 0.46 | -1.02 | -0.47 | -1.22 |
| Gdf10 | -0.44 | -1.20 | -0.43 | -0.85 | 0.34 | 0.57 | 1.72 | 1.81 | 0.34 | -0.11 | -0.61 | -1.14 |
| Gjd2 | -0.24 | 0.33 | -1.06 | -1.16 | 1.31 | 1.35 | 1.17 | 0.39 | -0.35 | -0.76 | -1.52 | 0.53 |
| Gldc | -1.06 | -0.64 | -1.05 | -0.76 | 1.44 | 1.48 | 0.71 | 0.75 | -0.88 | -0.91 | 0.00 | 0.92 |
| Gli1 | -1.09 | -0.76 | -0.83 | -1.09 | 0.23 | 0.58 | 1.68 | 1.77 | 0.45 | -0.42 | -0.76 | 0.25 |
| Gpr37 | -0.98 | -1.15 | -0.31 | -1.11 | -0.72 | -0.33 | 0.49 | 0.49 | 2.10 | 1.36 | 0.06 | 0.11 |
| Gpr63 | -0.85 | -0.67 | 1.94 | 2.14 | -0.05 | -0.15 | -0.60 | -0.36 | 0.18 | -0.32 | -0.72 | -0.54 |
| Grm8 | -0.84 | -0.47 | -0.66 | -0.90 | 1.68 | 1.62 | 0.40 | 0.64 | -0.72 | -1.22 | -0.35 | 0.82 |
| Hapln2 | -0.76 | -1.26 | -1.22 | -1.02 | 0.17 | 0.30 | 0.87 | 0.43 | 1.66 | 1.50 | -0.40 | -0.26 |
| Hpcal4 | -1.01 | -0.84 | -0.69 | -1.01 | 1.25 | 1.59 | 0.91 | 0.96 | -0.13 | -0.55 | -1.10 | 0.63 |
| Id4 | -1.30 | -0.76 | 0.13 | 0.60 | 0.05 | -0.07 | 1.52 | 2.04 | 0.02 | -0.42 | -1.07 | -0.75 |
| Il16 | 1.46 | 1.87 | -1.25 | -1.24 | 0.20 | -0.56 | -0.03 | -0.02 | 0.42 | -0.42 | 0.65 | -1.08 |
| Itga7 | 1.69 | 1.88 | -1.64 | -0.73 | -0.05 | -0.34 | 0.34 | 0.56 | -0.29 | -0.58 | -0.24 | -0.59 |
| Itga9 | -0.70 | -0.67 | -0.98 | -1.06 | -0.88 | -0.63 | 0.37 | 0.59 | -0.02 | 0.51 | 1.75 | 1.73 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Itih3 | -0.95 | -0.87 | -1.19 | -0.95 | 0.43 | 0.27 | 1.80 | 1.78 | 0.20 | 0.23 | -0.28 | -0.45 |
| Itpr1 | -0.42 | -0.13 | 2.13 | 1.96 | -0.16 | 0.02 | -0.48 | -0.60 | -0.33 | -1.10 | -0.64 | -0.25 |
| Kcnh1 | 1.81 | 1.95 | -1.21 | -0.98 | -0.35 | -0.86 | 0.10 | 0.34 | 0.00 | -0.71 | 0.01 | -0.11 |
| Kcnj12 | 1.92 | 1.74 | -0.31 | -0.62 | -0.93 | -0.87 | -0.53 | -0.82 | 0.16 | -0.73 | 0.19 | 0.80 |
| Klk6 | -0.82 | -0.78 | -1.01 | -0.82 | -0.43 | 0.03 | 0.89 | 0.54 | 1.97 | 1.48 | -0.78 | -0.28 |
| Lama3 | -0.45 | -1.07 | -0.63 | 0.03 | 1.66 | 1.70 | 0.59 | 0.26 | -1.27 | -0.90 | -0.56 | 0.65 |
| Lfng | -1.07 | -1.54 | -0.92 | 0.19 | 0.02 | 0.24 | 1.59 | 1.51 | 0.53 | -0.03 | 0.55 | -1.08 |
| Lgi4 | -0.05 | -0.09 | -1.43 | -1.54 | -0.18 | -0.09 | 1.69 | 1.72 | 0.47 | 0.30 | -0.18 | -0.62 |
| Lims2 | -0.87 | -0.70 | -1.05 | -0.68 | -0.52 | -0.76 | 0.55 | 1.08 | -0.16 | -0.28 | 1.76 | 1.64 |
| Lypd6 | -0.69 | -0.62 | -0.88 | -0.47 | 1.60 | 1.87 | 0.12 | 0.01 | -0.57 | -0.87 | -0.70 | 1.23 |
| Mag | -0.54 | -0.62 | -1.36 | -1.41 | -0.58 | -0.42 | 0.47 | 0.39 | 1.82 | 1.37 | 0.47 | 0.42 |
| Mal | -0.85 | -0.82 | -1.22 | -1.38 | 0.14 | -0.16 | 0.46 | 0.10 | 1.75 | 1.63 | 0.44 | -0.09 |
| March11 | -0.67 | -0.37 | -0.04 | 0.31 | 1.74 | 1.44 | -0.16 | 0.04 | -1.28 | -1.79 | 0.34 | 0.45 |
| Mobp | -1.01 | -0.93 | -1.41 | -1.05 | -0.39 | -0.11 | 0.73 | 0.18 | 1.72 | 1.39 | 0.41 | 0.48 |
| Mog | -1.14 | -0.58 | -0.84 | -0.88 | -0.41 | -0.53 | 0.47 | 0.03 | 2.05 | 1.69 | 0.34 | -0.19 |
| Msx2 | -0.79 | -1.14 | -0.58 | -0.32 | 0.29 | -0.05 | 2.02 | 1.95 | -0.13 | -0.32 | -0.22 | -0.70 |
| Mt2A | -0.54 | -0.43 | -0.64 | -0.54 | 0.49 | -0.17 | 1.92 | 2.14 | -0.64 | -0.54 | -0.43 | -0.64 |
| Nkain4 | -1.00 | -1.11 | -1.34 | -0.87 | 0.17 | 0.42 | 1.61 | 1.79 | 0.32 | -0.09 | -0.19 | 0.28 |
| Opalin | -1.14 | -0.31 | -1.20 | -1.14 | -0.35 | -0.39 | 0.31 | 0.18 | 1.91 | 1.59 | 0.04 | 0.50 |
| Pdgfra | -0.69 | -0.90 | -0.97 | -0.79 | -0.27 | -0.14 | 0.62 | 0.88 | -0.38 | -0.82 | 1.67 | 1.81 |
| Plch1 | -0.89 | -1.11 | -0.73 | -0.60 | 1.56 | 1.73 | 0.64 | 0.38 | -0.37 | -0.74 | -0.78 | 0.92 |
| Plk2 | -1.00 | -0.99 | -1.54 | -1.00 | 1.35 | 1.04 | 0.83 | 0.90 | -0.13 | -0.51 | 0.07 | 0.97 |
| Plxdc1 | -0.67 | -0.80 | 1.95 | 2.09 | -0.56 | -0.11 | 0.24 | -0.03 | -0.12 | -0.67 | -0.57 | -0.75 |
| Pmel | -0.02 | -0.91 | -1.24 | -0.84 | -0.58 | -0.65 | 0.68 | 0.88 | 0.00 | -0.65 | 1.64 | 1.68 |
| Pou3f2 | -0.64 | -0.03 | -1.06 | -1.00 | 0.18 | -0.70 | 1.78 | 1.95 | -0.50 | -0.64 | 0.09 | 0.58 |
| Ppfibp1 | -0.85 | -0.85 | -1.27 | -1.16 | -0.36 | -0.24 | 0.60 | 0.64 | 0.27 | -0.12 | 1.58 | 1.75 |
| Ppp1r17 | 0.12 | 0.43 | 1.74 | 1.95 | -0.71 | -1.03 | -1.06 | -0.29 | 0.16 | -0.36 | 0.08 | -1.03 |
| Prr5l | -0.51 | -0.51 | -1.10 | -1.09 | -0.62 | -0.66 | 0.73 | 0.34 | 1.86 | 1.65 | 0.43 | -0.52 |
| Prrt2 | 1.55 | 1.95 | -1.55 | -0.56 | -0.08 | -0.22 | 0.12 | 0.29 | -0.80 | -0.99 | 0.51 | -0.22 |
| Qdpr | -1.30 | -0.43 | -0.92 | -0.39 | -0.19 | -0.55 | 0.00 | 0.20 | 2.16 | 1.73 | -0.02 | -0.29 |
| Rasgrp3 | -0.75 | -0.45 | -1.01 | -1.15 | -0.19 | -0.36 | 0.89 | 0.56 | 1.83 | 1.64 | -0.29 | -0.71 |
| Rbfox3 | 1.96 | 1.72 | -1.66 | -0.65 | -0.52 | -0.46 | 0.06 | -0.31 | -0.27 | -0.35 | 0.48 | 0.00 |
| RGD1561557 | -0.47 | -0.76 | 1.91 | 2.27 | -0.04 | -0.39 | -0.11 | -0.40 | -0.39 | -0.47 | -0.76 | -0.39 |
| RGD1561849 | -0.70 | -0.69 | -1.27 | -0.84 | -0.29 | -0.20 | 0.83 | 0.84 | -0.53 | -0.51 | 1.68 | 1.68 |
| Rlbp1 | -0.62 | -0.21 | -0.88 | -1.03 | -0.51 | -0.69 | 0.65 | 0.76 | -0.69 | -0.37 | 1.75 | 1.83 |
| Ryr1 | -0.43 | -0.67 | 1.91 | 2.27 | -0.36 | -0.37 | -0.21 | -0.34 | -0.49 | -0.72 | 0.02 | -0.62 |
| S1pr1 | -0.81 | -0.62 | -1.13 | -1.07 | 0.51 | 0.47 | 1.55 | 1.71 | 0.59 | 0.16 | -1.14 | -0.21 |
| Scara3 | 1.82 | 1.65 | -1.80 | -0.67 | -0.43 | -0.50 | 0.18 | -0.41 | 0.42 | -0.53 | -0.14 | 0.41 |
| Selplg | -0.79 | -0.52 | -0.85 | 0.30 | 0.21 | 0.09 | -0.43 | -0.52 | 2.35 | 1.52 | -0.52 | -0.85 |
| Serpine2 | -0.97 | -1.08 | -1.01 | -1.13 | -0.48 | -0.16 | 0.94 | 0.66 | 0.06 | 0.02 | 1.35 | 1.79 |
| Slc1a6 | -0.46 | -0.39 | 2.17 | 2.03 | -0.27 | -0.56 | -0.63 | -0.44 | -0.30 | -0.84 | -0.24 | -0.06 |
| Slc25a18 | -0.50 | -0.72 | -1.95 | -0.13 | 0.01 | -0.19 | 1.81 | 1.74 | -0.07 | 0.07 | -0.22 | 0.14 |
| Slc5a11 | -1.08 | -1.53 | -0.27 | 0.02 | -0.76 | -0.51 | 0.71 | -0.03 | 1.84 | 1.53 | -0.37 | 0.45 |
| Slc7a10 | -0.42 | 0.34 | -0.98 | -1.19 | -0.11 | -0.34 | 1.77 | 2.08 | -0.05 | -0.28 | -0.01 | -0.81 |
| Slc9a3 | -0.23 | -0.71 | 1.92 | 2.04 | -1.09 | -0.92 | -0.13 | -0.26 | 0.33 | -0.04 | -0.42 | -0.48 |
| Snx22 | -1.27 | -0.59 | -1.14 | -1.27 | -0.07 | 0.35 | 0.64 | 0.62 | -0.28 | -0.17 | 1.57 | 1.61 |
| Sorcs3 | -0.73 | -0.64 | -0.91 | -1.11 | 1.42 | 1.41 | 0.17 | 0.43 | -0.79 | -1.14 | 0.76 | 1.13 |
| Sv2b | 1.71 | 1.84 | -1.13 | -0.94 | -0.10 | -0.40 | 0.49 | 0.02 | 0.46 | -0.37 | -0.28 | -1.30 |
| Tesc | 1.60 | 1.90 | -1.21 | -1.41 | -0.06 | 0.06 | -0.33 | -0.01 | 0.01 | -1.06 | 0.14 | 0.37 |
| Tmem255b | -1.24 | -0.09 | -0.67 | -0.12 | -0.51 | -0.49 | 0.55 | 0.93 | -0.76 | -0.98 | 1.86 | 1.53 |
| Tmem63a | -0.79 | -0.81 | -1.29 | -0.88 | -0.26 | -0.60 | 0.77 | 0.48 | 1.71 | 1.74 | 0.17 | -0.24 |
| Tmem88b | -0.31 | -0.75 | -1.30 | -1.23 | -0.75 | -0.37 | 0.64 | 0.35 | 1.85 | 1.48 | -0.13 | 0.53 |
| Tnc | -1.21 | -1.14 | -0.49 | -1.39 | 0.00 | 0.34 | 1.89 | 1.34 | 0.27 | -0.32 | 0.10 | 0.61 |
| Zfp385c | -0.51 | -0.91 | 1.62 | 2.03 | 0.54 | 0.37 | 0.09 | -0.16 | -1.12 | -0.96 | -0.50 | -0.50 |

**[00225]** A general enrichment was observed in Table 18 for known markers for each cell type and a depletion for markers for all other cell types. Nuclear expression of Fat2 and Rbfox3 was observed to be significantly enriched in granule cells. Nuclear expression of Car8 and Calb1 was

observed to be specific to purkinje cells. Nuclear expression of Aldh1L1 and Slc1a3 was observed to be specific to bergmann glia. Nuclear expression of Colgalt2 was observed to be specific to corticopontine pyramidal cells. Nuclear expression of Hs3st4 was observed to be specific to corticothalamic pyramidal cells, while Pde1a and Csmd1 were observed to be expressed in both cortical pyramidal cell types. In addition to the 120 genes in Table 18, the data also identified 700 to 1,600 expressed genes that are significantly enriched in each of the rat cell types.

**[00226]** Genes were also identified that are most specific for each cell type by implementing an updated version of the specificity index (SI) algorithm (Dougherty, et al. (2010) Nucleic Acids Res 38, 4218–4230, which is hereby incorporated by reference herein in its entirety). An advantage of the SI is that it can identify specifically expressed genes even in cell types that are very abundant in the region of interest (e.g. cerebellar granule cells).

**[00227]** To validate both the cell-type specific rat data and the updated SI algorithm, the expression of genes identified as being specific to each cell type were confirmed using the Allen Mouse Brain Atlas *in situ* hybridization database. For the top 20 most specific genes calculated by the SI algorithm in Example 1 for all cell types, labeling was observed specifically in the defined cell type on average 93% of the time. Percentages of top 20 SI genes with Allen Mouse Brain Atlas images that showed expected distribution for each cell type were: granule 93%, Purkinje 100%, basket 85%, astrocyte 93%, oligodendrocyte 100%, and OPC 80%. Distribution of the astrocyte-specific gene Itih3 was also observed to be characteristic of both Bergmann glia, a type of astrocyte, and non-Bergmann glia astrocytes of the cerebellum. The following genes were chosen as additional markers for the nuclei of the 6 cell types: Tescalcin (Tesc) for granule cell nuclei, Carbonic Anhydrase 8 (Car8) for Purkinje cell nuclei, March11 for basket cell nuclei, Inter-Alpha-Trypsin Inhibitor Heavy Chain 3 (Itih3) for astrocyte nuclei, Mog for oligodendrocyte nuclei, and Platelet Derived Growth Factor Receptor Alpha (Pdgfra) for oligodendrocyte progenitor nuclei.

**[00228]** These results demonstrate that the cellular profiling technique described herein is a generalizable method that can easily be adapted for use in any species.

**Example 9. Identifying and comparing the most specific genes in each species**

**[00229]** To gain insight into cell-type specific functions that have changed across species, the specificity index for all genes in each species was calculated. The 100 most specific genes for each species is shown for each cell type in Tables 19-24. A lower SI value indiciates a gene expressed more specifically in one species over another.

**[00230]** Table 19 provides the the 100 most specific genes measured by the specificity index (SI) as described in Example 1 for granule cells in human, rat, and mouse samples.

**Table 19. 100 most specific genes measured by SI for each species in granule cells**

| Rank | Human | SI | Rat | SI | Mouse | SI |
|---|---|---|---|---|---|---|
| 1 | Cadps2 | 64.6 | Tesc | 27.0 | Gabra6 | 16.0 |
| 2 | Reln | 112.8 | Itga7 | 36.6 | Grin2c | 17.3 |
| 3 | Synpr | 113.6 | Rbfox3 | 39.2 | Fat2 | 25.2 |
| 4 | Galnt5 | 114.2 | AABR07013140.1 | 43.4 | Cadps2 | 31.0 |
| 5 | Ccm2l | 163.1 | Calb2 | 53.8 | Ptpn22 | 35.2 |
| 6 | Srrm4 | 176.1 | Kcnh1 | 55.8 | Chn2 | 52.6 |
| 7 | Tmem266 | 178.5 | Cdh15 | 60.5 | Neurod1 | 58.7 |
| 8 | Cckbr | 209.9 | AABR07030880.1 | 77.6 | Calb2 | 63.1 |
| 9 | Cerkl | 213.3 | Prrt2 | 91.0 | Trhde | 64.3 |
| 10 | Chn2 | 241.0 | Gabrd | 99.8 | Il16 | 70.6 |
| 11 | Grik2 | 243.5 | Il16 | 104.7 | Ppfia4 | 71.8 |
| 12 | Mal2 | 244.1 | Scara3 | 119.2 | Cbln1 | 78.2 |
| 13 | Fat2 | 248.1 | Cbln1 | 120.8 | Sidt1 | 82.2 |
| 14 | Adamts16 | 264.1 | AABR07026032.2 | 128.9 | Tmem266 | 86.6 |
| 15 | Lcn8 | 265.2 | Cadps2 | 131.5 | Gabrd | 88.3 |
| 16 | Fstl5 | 272.9 | Sv2b | 133.5 | Reln | 89.2 |
| 17 | Tll1 | 274.1 | Fat2 | 138.6 | Kcnj12 | 95.9 |
| 18 | Vsnl1 | 276.9 | Gabra6 | 146.0 | Gprc5c | 98.8 |
| 19 | Rit2 | 284.7 | Car4 | 155.4 | Rims3 | 103.9 |
| 20 | Slc8a2 | 299.5 | Kcnj12 | 172.1 | Tll1 | 105.4 |
| 21 | Slc17a7 | 307.5 | Nrep | 175.8 | Cbln3 | 105.8 |
| 22 | Zp2 | 331.6 | AABR07043098.3 | 182.4 | Olfm3 | 113.7 |
| 23 | Tspan18 | 334.6 | Rtn4r | 187.8 | Slc17a7 | 115.8 |
| 24 | Fgf5 | 351.5 | Shisa8 | 188.7 | Chgb | 120.7 |
| 25 | Prag1 | 356.2 | Sel1l3 | 189.4 | Kcnh1 | 122.2 |
| 26 | Slc6a7 | 371.1 | Grb7 | 196.2 | Cdh15 | 124.2 |
| 27 | Rims1 | 375.5 | Rgl3 | 200.3 | Barhl2 | 124.5 |
| 28 | Cdh7 | 378.6 | Dusp5 | 207.6 | Dusp5 | 124.7 |
| 29 | L1cam | 379.3 | Chn2 | 218.3 | Kcnc1 | 130.3 |
| 30 | Mical2 | 388.1 | Lamp5 | 221.3 | Camk4 | 132.3 |
| 31 | Ptk2b | 390.3 | Pagr1 | 221.3 | Des | 138.2 |
| 32 | Kcnh1 | 402.0 | Cemip | 223.2 | Cerkl | 140.2 |
| 33 | Arhgap29 | 404.9 | Gprc5c | 225.6 | Svep1 | 142.8 |
| 34 | Cdk15 | 410.7 | Shf | 233.9 | Uncx | 143.7 |
| 35 | Pde3b | 414.1 | Wdr66 | 234.9 | Slc8a2 | 151.4 |
| 36 | Itga4 | 416.5 | Tmem44 | 240.1 | Cacna2d1 | 152.0 |
| 37 | Etv1 | 425.6 | Reln | 245.4 | Pxylp1 | 155.9 |
| 38 | Tmem178 | 426.5 | Tll1 | 258.2 | Ptchd1 | 163.2 |
| 39 | Chgb | 429.8 | Slc17a7 | 258.2 | Sel1l3 | 167.7 |
| 40 | Col13a1 | 431.0 | Pax6 | 258.7 | Rtn4r | 183.3 |
| 41 | Rnf152 | 444.4 | Capn1 | 259.9 | Cacna1e | 185.3 |
| 42 | Kcnk1 | 449.5 | Calhm3 | 263.7 | Patj | 187.1 |
| 43 | Il16 | 450.0 | AABR07043098.1 | 270.3 | Atp2b3 | 188.1 |
| 44 | Sstr2 | 463.9 | Camk4 | 283.7 | Marveld2 | 191.7 |
| 45 | Als2 | 464.2 | Selm | 284.5 | Kcnk10 | 195.2 |
| 46 | Barhl1 | 464.5 | Sema3g | 285.7 | Rab15 | 195.9 |
| 47 | Scn2a | 466.8 | LOC100360491 | 287.3 | Rapgef4 | 198.4 |

| 48 | Cbln1 | 471.6 | Diras2 | 292.9 | Rims1 | 208.6 |
|---|---|---|---|---|---|---|
| 49 | Dusp5 | 471.7 | Agbl2 | 303.2 | Tmem178 | 216.5 |
| 50 | Ndst3 | 477.7 | Mctp1 | 310.5 | Ak4 | 219.6 |
| 51 | Lurap1l | 481.0 | Mvp | 312.7 | Lin7a | 220.8 |
| 52 | Kcnj12 | 491.9 | Tmem51 | 312.9 | Igfbp5 | 229.0 |
| 53 | Snai2 | 501.7 | Vsnl1 | 322.6 | Tesc | 233.4 |
| 54 | Ifnlr1 | 503.3 | Plk5 | 328.1 | Neurl1a | 234.0 |
| 55 | Neurod1 | 514.3 | Mrgprf | 329.2 | Vat1l | 236.3 |
| 56 | Cdyl2 | 521.2 | LOC100910401 | 337.4 | Msra | 236.4 |
| 57 | Ppp1r1c | 524.2 | Ak4 | 342.1 | Vsnl1 | 237.2 |
| 58 | Jkamp | 526.0 | Wscd2 | 350.2 | Rps6ka1 | 238.8 |
| 59 | Neurl1a | 529.6 | Grin2a | 360.2 | Lhfp | 239.9 |
| 60 | Trhde | 539.3 | Cfap74 | 363.1 | Kcnk3 | 241.1 |
| 61 | Mfsd9 | 543.0 | Rnf39 | 376.2 | Ryr2 | 243.4 |
| 62 | Xkr7 | 550.6 | Cbln3 | 385.9 | Exph5 | 248.3 |
| 63 | Barhl2 | 564.0 | Fzd7 | 387.2 | Kif26b | 249.8 |
| 64 | Cbln3 | 572.1 | Golga7b | 389.4 | Adamts18 | 261.7 |
| 65 | Uncx | 577.0 | AABR07033679.1 | 392.9 | Cntnap4 | 263.7 |
| 66 | Ptchd1 | 584.0 | Ptpn22 | 394.9 | Tspan18 | 276.0 |
| 67 | Cblb | 596.7 | Grin2c | 394.9 | Mmp24 | 278.7 |
| 68 | Runx1t1 | 599.3 | Ablim1 | 400.9 | Cdh8 | 280.9 |
| 69 | Sphkap | 603.8 | Kcnk1 | 401.5 | Ablim3 | 282.7 |
| 70 | Gabra6 | 603.9 | Arpp21 | 408.5 | Cadm3 | 290.3 |
| 71 | Coro2a | 611.9 | C1rl | 413.8 | Ntf3 | 301.2 |
| 72 | Bmper | 618.4 | Zscan30 | 418.0 | Pld5 | 305.0 |
| 73 | Dkk4 | 618.7 | Maf | 431.7 | Syndig1l | 307.7 |
| 74 | Camk4 | 620.4 | Rtn4rl1 | 433.7 | Galnt15 | 308.4 |
| 75 | Unc13c | 620.8 | Barhl2 | 437.6 | Etv1 | 310.1 |
| 76 | Trp53i11 | 624.3 | Kcnk12 | 441.8 | Sh2d1a | 311.9 |
| 77 | Ephb1 | 625.0 | Actl6b | 441.8 | Scn2a | 314.5 |
| 78 | Glb1l3 | 626.9 | AABR07053850.1 | 448.3 | Panx2 | 325.0 |
| 79 | Mdga1 | 627.5 | Sdc1 | 462.0 | Speg | 329.4 |
| 80 | Kcnc1 | 633.0 | Camkk2 | 470.8 | Bsn | 335.6 |
| 81 | Tmem252 | 639.3 | Nudcd3 | 477.6 | Rnf112 | 335.9 |
| 82 | Mpp7 | 642.2 | Ccdc155 | 490.3 | Il20rb | 343.3 |
| 83 | Hipk4 | 644.6 | Cbfa2t3 | 490.3 | Slc16a10 | 345.5 |
| 84 | Tmem51 | 651.0 | AABR07037151.1 | 494.1 | Ntn4 | 349.9 |
| 85 | Cacnb3 | 665.3 | Etv1 | 499.3 | Adcy1 | 354.5 |
| 86 | Cyb5a | 674.5 | Jph3 | 502.6 | Mapk12 | 357.3 |
| 87 | Tmem2 | 676.2 | Itga11 | 511.4 | Boc | 357.5 |
| 88 | 6430573F11Rik | 677.3 | Rnf182 | 520.8 | Syt12 | 358.6 |
| 89 | Rasgrp1 | 680.8 | RGD1560784 | 521.9 | Fstl5 | 359.7 |
| 90 | Rab37 | 685.8 | Plcxd3 | 529.7 | Tead4 | 360.2 |
| 91 | Adarb1 | 686.4 | Ablim3 | 543.8 | Clcn1 | 366.2 |
| 92 | Svop | 690.5 | Rims1 | 548.4 | Pde3b | 366.2 |
| 93 | Pgm5 | 694.1 | Nyx | 550.9 | Pgm2l1 | 367.9 |
| 94 | Mthfd1l | 694.4 | Uncx | 551.3 | Tmtc4 | 368.9 |
| 95 | Cdh15 | 695.6 | AABR07034445.1 | 553.6 | Abcc8 | 370.2 |
| 96 | Vwc2 | 696.0 | AABR07025051.3 | 556.7 | Olfm1 | 372.1 |
| 97 | Disp2 | 701.0 | Kcnk10 | 557.2 | Nedd4l | 372.6 |
| 98 | Tspan15 | 713.3 | Kcnk3 | 560.6 | Lurap1 | 379.7 |
| 99 | Slc26a5 | 716.3 | Nol3 | 562.3 | Krt24 | 384.2 |
| 100 | Lhfp | 723.0 | Als2 | 563.2 | Als2 | 385.7 |

**[00231]** Table 20 provides the the 100 most specific genes measured by the specificity index (SI) for purkinje cells in human, rat, and mouse samples.

**Table 20. 100 most specific genes measured by SI for each species in purkinje cells**

| Rank | Rat | SI | Mouse | SI |
|---|---|---|---|---|
| 1 | Arhgef33 | 6.0 | Car8 | 5.4 |
| 2 | Car8 | 9.0 | Calb1 | 9.8 |
| 3 | Slc1a6 | 13.0 | Arhgef33 | 10.2 |
| 4 | Calb1 | 25.8 | Atp2a3 | 11.2 |
| 5 | Ppp1r17 | 26.5 | Itpr1 | 16.4 |
| 6 | Itpr1 | 27.2 | Ppp1r17 | 20.6 |
| 7 | Zfp385c | 28.0 | Slc1a6 | 21.1 |
| 8 | Ryr1 | 28.6 | Slc9a3 | 25.4 |
| 9 | AABR07030473.1 | 35.6 | Trpc3 | 30.4 |
| 10 | Slc9a3 | 40.4 | Casq2 | 37.4 |
| 11 | AABR07006713.1 | 45.6 | Clic6 | 40.2 |
| 12 | AABR07006713.2 | 49.2 | Plekhd1 | 41.6 |
| 13 | RGD1561557 | 63.9 | Ryr1 | 44.4 |
| 14 | Gpr63 | 64.5 | Cacna1g | 48.0 |
| 15 | AABR07049491.1 | 70.2 | Pcp2 | 50.5 |
| 16 | AABR07006727.1 | 71.4 | Sycp1 | 51.8 |
| 17 | Plxdc1 | 71.8 | Pde5a | 51.8 |
| 18 | Cep76 | 72.5 | Tspan11 | 52.7 |
| 19 | Fam107b | 77.0 | Gpr63 | 53.5 |
| 20 | B3gnt5 | 81.8 | Nell1 | 58.2 |
| 21 | Far2 | 82.4 | Cep76 | 60.4 |
| 22 | AC108261.1 | 85.2 | Bcl11a | 61.2 |
| 23 | Grid2ip | 85.9 | Grid2ip | 63.8 |
| 24 | AABR07072628.1 | 90.2 | Htr1b | 66.6 |
| 25 | Kcnip1 | 95.9 | Pet100 | 68.6 |
| 26 | AABR07006724.1 | 96.2 | Strip2 | 73.4 |
| 27 | Trpc3 | 96.8 | Plxdc1 | 76.2 |
| 28 | Phka2 | 100.3 | Skor2 | 77.0 |
| 29 | Car7 | 100.7 | Dagla | 78.0 |
| 30 | Fam117a | 103.0 | Garnl3 | 82.2 |
| 31 | Hes3 | 106.8 | Itpka | 83.1 |
| 32 | Casq2 | 107.0 | Myo10 | 83.6 |
| 33 | Dgkh | 109.5 | Gng13 | 84.6 |
| 34 | Arhgap26 | 112.8 | Kcnip1 | 85.0 |
| 35 | Trabd2b | 114.4 | Trabd2b | 87.5 |
| 36 | Nell1 | 115.7 | Rnf207 | 106.0 |
| 37 | Bcl11a | 116.3 | Scn4b | 108.8 |
| 38 | Col18a1 | 125.9 | Arhgap20 | 113.4 |
| 39 | LOC100125362 | 126.5 | Grip1 | 118.4 |
| 40 | Ptchd4 | 129.8 | Pde9a | 118.5 |
| 41 | Camk2a | 132.5 | Ppp4r4 | 119.9 |
| 42 | Dyrk4 | 132.5 | Cck | 120.0 |
| 43 | Kitlg | 132.6 | Ebf1 | 121.2 |
| 44 | Kcnab1 | 135.5 | Bean1 | 124.5 |
| 45 | Nxnl2 | 135.7 | Tuba8 | 124.5 |
| 46 | Ltk | 137.8 | Smpx | 126.1 |
| 47 | LOC689927 | 138.2 | Ebf2 | 126.2 |
| 48 | AABR07056156.1 | 141.0 | Slc19a1 | 126.5 |
| 49 | Cpne8 | 142.1 | Ccdc85a | 128.4 |
| 50 | Htr1b | 144.4 | Flt3 | 129.9 |
| 51 | AABR07033570.1 | 145.8 | Camk2a | 133.9 |
| 52 | Icmt | 147.6 | Sh2d4b | 142.2 |

| | | | | |
|---|---|---|---|---|
| 53 | AABR07047598.1 | 150.8 | Homer3 | 144.5 |
| 54 | Cstf2t | 156.3 | Stk17b | 151.6 |
| 55 | Grik1 | 157.6 | Clec2l | 158.1 |
| 56 | Itpka | 159.9 | Hrh2 | 160.7 |
| 57 | LOC100910996 | 163.9 | Ksr2 | 161.6 |
| 58 | Hpcal1 | 165.7 | Chtf18 | 161.6 |
| 59 | Efna5 | 176.1 | Vax2 | 162.5 |
| 60 | Myo10 | 177.8 | Foxp4 | 162.9 |
| 61 | Rgs8 | 180.8 | Ankrd33b | 166.6 |
| 62 | Skor2 | 182.8 | Cpne9 | 179.2 |
| 63 | Il22 | 183.8 | Corin | 179.6 |
| 64 | Slc12a3 | 186.2 | Il22 | 179.8 |
| 65 | Cpne9 | 188.8 | Prkag3 | 180.8 |
| 66 | AABR07007980.2 | 197.7 | Cep126 | 180.9 |
| 67 | Cacna1g | 198.1 | Slc20a1 | 182.2 |
| 68 | Doc2b | 198.6 | Akain1 | 185.2 |
| 69 | Sptbn2 | 199.3 | Nrk | 190.6 |
| 70 | LOC108351705 | 207.0 | Pih1h3b | 194.0 |
| 71 | AABR07035926.1 | 209.4 | Inpp5a | 195.2 |
| 72 | AABR07037943.1 | 209.5 | Lhx1 | 196.1 |
| 73 | Pcp2 | 209.5 | Sptbn2 | 196.3 |
| 74 | AABR07061860.1 | 214.6 | Paxbp1 | 203.4 |
| 75 | AABR07024820.1 | 214.9 | Dner | 206.2 |
| 76 | Impg1 | 215.2 | Doc2b | 210.0 |
| 77 | Nkiras2 | 216.4 | Tspoap1 | 210.7 |
| 78 | Krtap12-2 | 217.7 | Gfra2 | 212.9 |
| 79 | Tmem123 | 218.4 | Fhl5 | 214.7 |
| 80 | AABR07044009.1 | 219.9 | Dmd | 215.1 |
| 81 | Ptprr | 221.2 | Kcnab2 | 220.3 |
| 82 | Homer3 | 221.3 | Serinc2 | 220.4 |
| 83 | Garnl3 | 226.4 | Car7 | 230.8 |
| 84 | Sos1 | 228.3 | Dnah6 | 232.8 |
| 85 | Kcnab1 | 230.1 | Prmt8 | 240.0 |
| 86 | Cntn3 | 231.2 | Prkcg | 241.0 |
| 87 | LOC304725 | 236.5 | Mdfi | 243.4 |
| 88 | Stk17b | 236.6 | Dgkh | 244.9 |
| 89 | AABR07047604.1 | 239.1 | Fam117a | 252.5 |
| 90 | Zdhhc23 | 241.9 | Nek2 | 254.9 |
| 91 | Scn4b | 242.1 | Fmnl1 | 259.3 |
| 92 | AC126640.1 | 246.4 | Atl2 | 263.6 |
| 93 | Pde9a | 247.2 | Cfap161 | 263.8 |
| 94 | Ptprb | 251.5 | Lin28b | 267.2 |
| 95 | Prkcg | 257.7 | Cacna2d2 | 267.6 |
| 96 | Pcp4 | 258.1 | Ptchd4 | 269.5 |
| 97 | AABR07056374.1 | 259.1 | Pkp3 | 272.9 |
| 98 | Fstl4 | 262.8 | Shank1 | 278.3 |
| 99 | Ppp4r4 | 262.9 | Grid2 | 278.3 |
| 100 | Nup93 | 264.5 | Nefh | 284.1 |

**[00232]** Table 21 provides the the 100 most specific genes measured by the specificity index (SI) for basket cells in human, rat, and mouse samples.

**Table 21. 100 most specific genes measured by SI for each species in basket cells**

| Rank | Human | SI | Rat | SI | Mouse | SI |
|---|---|---|---|---|---|---|
| 1 | Bhlhe22 | 44.1 | Plch1 | 74.3 | Adamts15 | 16.6 |
| 2 | March11 | 45.9 | AABR07001734.1 | 145.0 | March11 | 22.6 |
| 3 | Kit | 66.8 | Lypd6 | 176.5 | Tfap2b | 29.8 |
| 4 | Tfap2b | 67.1 | Lama3 | 186.5 | Socs2 | 32.1 |

| 5 | Clmp | 72.3 | March11 | 193.2 | Penk | 33.4 |
|---|---|---|---|---|---|---|
| 6 | Lbx1 | 78.4 | Gldc | 194.7 | Bhlhe22 | 56.7 |
| 7 | Slc38a5 | 81.8 | Grm8 | 252.4 | Plch1 | 57.5 |
| 8 | Frmd3 | 92.1 | AABR07047823.1 | 267.2 | Adamts16 | 71.3 |
| 9 | Btbd11 | 103.9 | AABR07001623.1 | 286.7 | Adrb2 | 75.4 |
| 10 | Lipg | 119.4 | Gjd2 | 302.4 | Frmd3 | 77.6 |
| 11 | Rab3b | 154.7 | Arl4a | 334.9 | Clmp | 79.4 |
| 12 | Lrrc38 | 175.1 | AABR07070578.1 | 358.6 | Cacna2d3 | 83.7 |
| 13 | Galnt14 | 186.6 | Hpcal4 | 379.1 | Trpc7 | 84.8 |
| 14 | Cnr1 | 188.6 | AABR07061428.1 | 382.7 | Galnt18 | 99.9 |
| 15 | Tcerg1l | 190.6 | Col12a1 | 384.5 | Tbc1d4 | 104.5 |
| 16 | Cbln2 | 202.0 | Enpp1 | 384.9 | Asgr1 | 106.4 |
| 17 | Siah3 | 208.1 | Sorcs3 | 402.3 | Kit | 106.8 |
| 18 | Stac2 | 220.0 | Clmp | 458.9 | Tfap2a | 123.2 |
| 19 | Scgn | 230.8 | Plk2 | 462.7 | Fam84a | 123.8 |
| 20 | Rspo1 | 233.5 | Arhgef26 | 464.3 | Gjd2 | 124.1 |
| 21 | Lmcd1 | 247.4 | RGD1561667 | 465.7 | Grik3 | 126.0 |
| 22 | Lpl | 248.4 | Asic2 | 518.6 | Lrrc38 | 132.2 |
| 23 | Adra1b | 255.4 | AABR07026472.1 | 520.8 | Chst9 | 137.5 |
| 24 | Gad2 | 256.6 | AC124896.1 | 525.2 | Flrt2 | 138.0 |
| 25 | Chrna3 | 258.7 | Trpc5 | 560.0 | Chac1 | 138.1 |
| 26 | Socs2 | 270.2 | AABR07052084.1 | 577.8 | Grm8 | 140.0 |
| 27 | Trpc6 | 278.1 | AABR07059478.1 | 580.5 | Esrrg | 143.4 |
| 28 | Kcna3 | 294.7 | Kit | 589.1 | Slc6a7 | 147.4 |
| 29 | Syn3 | 302.1 | Nt5dc2 | 596.7 | Pla2g4e | 149.4 |
| 30 | Eml5 | 344.4 | AABR07041885.1 | 610.5 | Stac2 | 149.7 |
| 31 | Nefl | 346.5 | Hcn1 | 624.7 | Cabp1 | 151.1 |
| 32 | Fam84a | 353.0 | Skor1 | 630.9 | Phf24 | 155.2 |
| 33 | Trpc5 | 363.0 | Prdm8 | 701.1 | Camk1g | 161.8 |
| 34 | KIAA1644 | 373.4 | Phf24 | 702.1 | Btbd11 | 161.8 |
| 35 | Hrh3 | 376.1 | Esrrg | 704.7 | Stc2 | 172.0 |
| 36 | Disp3 | 378.7 | Grik3 | 706.3 | Sorcs3 | 172.5 |
| 37 | Tfap2a | 433.3 | Bhlhe22 | 720.2 | Lamb1 | 175.7 |
| 38 | Gjd2 | 436.7 | Mir346 | 736.2 | Trpc5 | 201.1 |
| 39 | Adamts2 | 437.1 | Tmem200a | 742.7 | Coro6 | 209.7 |
| 40 | Sorcs3 | 446.6 | AABR07003600.7 | 753.8 | Slc32a1 | 217.8 |
| 41 | Ptprk | 454.0 | Scn9a | 755.6 | Kirrel | 227.8 |
| 42 | Timp3 | 464.6 | Inpp4b | 764.8 | Cdkl1 | 231.3 |
| 43 | Gjb4 | 481.4 | Ace | 773.3 | Chst1 | 231.7 |
| 44 | Ehd3 | 481.7 | Kcna2 | 776.0 | Asns | 236.3 |
| 45 | Cxcl12 | 496.9 | Adra1d | 792.2 | Sp5 | 240.7 |
| 46 | Actc1 | 510.1 | Slc32a1 | 799.8 | Cyba2 | 241.2 |
| 47 | Pnma2 | 511.8 | Cntnap4 | 820.3 | Aldh1l2 | 241.4 |
| 48 | Fam43a | 512.8 | Grid1 | 851.2 | Kcnab3 | 245.8 |
| 49 | Adam11 | 516.7 | Trpc7 | 853.3 | Tg | 253.4 |
| 50 | Dact2 | 522.4 | Begain | 864.8 | Plxna4 | 253.9 |
| 51 | Rgs16 | 524.5 | AABR07049535.3 | 921.5 | Prkcd | 260.1 |
| 52 | Slc5a8 | 527.5 | Frmpd4 | 925.2 | Cgn | 260.1 |
| 53 | Exph5 | 532.6 | Tfap2b | 925.4 | Tcte1 | 262.3 |
| 54 | Cfap221 | 540.5 | Cnr1 | 931.9 | Trim67 | 264.0 |
| 55 | Myo16 | 553.4 | AABR07054088.3 | 988.5 | Osbpl10 | 267.4 |
| 56 | Megf10 | 555.8 | Zcchc16 | 990.2 | Serpini1 | 286.7 |
| 57 | Cacna1d | 557.6 | Trpv6 | 1002.2 | Slc7a1 | 286.8 |
| 58 | Pax2 | 566.6 | Grb10 | 1006.5 | Gpr22 | 293.5 |
| 59 | Efna5 | 575.9 | Pax2 | 1040.2 | Cntn4 | 294.7 |
| 60 | Plch1 | 576.2 | Nrxn3 | 1055.5 | Skor1 | 298.0 |
| 61 | Gabrg2 | 580.3 | Tyms | 1062.3 | Slc7a3 | 300.2 |
| 62 | Prrt4 | 591.2 | Grid1 | 1083.5 | Atp1b1 | 309.4 |
| 63 | Itga5 | 591.5 | Myt1l | 1088.5 | Kcna2 | 318.7 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 64 | Sp5 | 593.2 | Disp3 | 1090.4 | Cebpb | 331.8 |
| 65 | Nefm | 599.4 | AABR07063359.1 | 1093.8 | Parm1 | 340.9 |
| 66 | Grik3 | 601.6 | Btn1a1 | 1105.1 | Dock7 | 342.3 |
| 67 | Cx3cl1 | 607.8 | Rn60_10_0565.6 | 1119.6 | Eml5 | 343.5 |
| 68 | Fbxo24 | 613.6 | AABR07041972.1 | 1141.2 | Cnih3 | 355.4 |
| 69 | Lect2 | 615.7 | Osbpl10 | 1155.3 | Asic2 | 358.1 |
| 70 | Nefh | 617.0 | Six4 | 1156.4 | Hpcal4 | 361.8 |
| 71 | Efnb3 | 621.8 | Mir384 | 1164.1 | Adamts2 | 363.9 |
| 72 | Grk3 | 631.3 | Tbc1d4 | 1170.8 | Masp1 | 364.0 |
| 73 | Mpz | 646.3 | Cabp1 | 1177.4 | Plxnc1 | 368.6 |
| 74 | Syt2 | 648.4 | AABR07003600.2 | 1178.2 | Gabrg2 | 368.7 |
| 75 | Scrt1 | 666.5 | AABR07057590.1 | 1204.1 | Mtfp1 | 370.8 |
| 76 | Cdc42ep3 | 670.5 | Adrb2 | 1204.5 | Ntn1 | 373.5 |
| 77 | Trim67 | 670.8 | Cacna1d | 1205.2 | Ret | 377.7 |
| 78 | Grin2b | 683.8 | Plxnc1 | 1213.6 | Zfp423 | 378.3 |
| 79 | Rab3c | 684.3 | Dusp22 | 1214.0 | Nln | 386.1 |
| 80 | Plxna4 | 691.0 | Hecw1 | 1217.7 | Man2a1 | 386.3 |
| 81 | Fzd8 | 708.3 | Gdpd4 | 1224.6 | Neurod6 | 392.1 |
| 82 | Elmod1 | 719.1 | rno-mir-344a-1 | 1234.3 | Grin2d | 396.4 |
| 83 | Smim17 | 728.0 | Lgi2 | 1236.7 | Angptl3 | 404.5 |
| 84 | Slc8a3 | 730.9 | AABR07060291.2 | 1242.9 | Cnr1 | 405.7 |
| 85 | Nrip3 | 745.4 | Adarb2 | 1277.7 | Tmem132e | 405.9 |
| 86 | Plekhg5 | 755.1 | Angpt1 | 1293.0 | Apcdd1 | 428.5 |
| 87 | Arl4a | 762.5 | Rspo4 | 1309.9 | Rasgrf1 | 445.7 |
| 88 | Grm8 | 775.9 | Rn50_7_1158.3 | 1318.3 | Hcn1 | 453.2 |
| 89 | Cntnap5a | 784.2 | Dcx | 1338.4 | Scnn1g | 459.4 |
| 90 | Maats1 | 803.4 | AABR07065531.31 | 1338.5 | Ly6e | 462.4 |
| 91 | Loxl2 | 805.6 | Onecut1 | 1338.7 | Pax2 | 462.6 |
| 92 | Arap3 | 810.3 | Mkx | 1367.1 | Rab3c | 469.8 |
| 93 | Dcx | 825.0 | Rgs4 | 1374.8 | Rph3a | 473.7 |
| 94 | Nyap2 | 837.7 | Kcnc2 | 1403.0 | Rai2 | 475.5 |
| 95 | Skor1 | 844.3 | Hgf | 1404.5 | Gad2 | 475.7 |
| 96 | Pvalb | 846.0 | Fgf13 | 1408.7 | Mpp7 | 477.2 |
| 97 | Ppm1j | 848.4 | Itga8 | 1410.0 | Arl4a | 483.3 |
| 98 | Slc5a4a | 851.9 | AABR07070578.2 | 1421.3 | Igsf3 | 486.3 |
| 99 | Tmem132e | 852.0 | Apcdd1 | 1434.5 | Tmem179 | 502.4 |
| 100 | Cygb | 874.9 | Trim15 | 1449.8 | Sorbs2 | 506.1 |

**[00233]** Table 22 provides the the 100 most specific genes measured by the specificity index (SI) for astrocytes in human, rat, and mouse samples.

**Table 22. 100 most specific genes measured by SI for each species in astrocytes**

| Rank | Human | SI | Rat | SI | Mouse | SI |
|---|---|---|---|---|---|---|
| 1 | S1pr1 | 57.5 | AABR07070161.1 | 23.8 | Gdf10 | 9.0 |
| 2 | Gja1 | 127.7 | Itih3 | 25.4 | Slc1a3 | 14.8 |
| 3 | Lgi4 | 141.6 | Gdf10 | 37.4 | Fxyd1 | 18.8 |
| 4 | Efemp1 | 142.2 | Gli1 | 50.6 | Dao | 19.2 |
| 5 | Etnppl | 163.0 | Slc25a18 | 75.8 | A2m | 21.8 |
| 6 | Aqp4 | 170.3 | Nkain4 | 96.0 | Lfng | 23.3 |
| 7 | Rgma | 170.3 | Tnc | 105.4 | Lgi4 | 23.6 |
| 8 | Lgr6 | 176.2 | Msx2 | 108.8 | Mybpc1 | 27.6 |
| 9 | Lcat | 179.9 | S1pr1 | 117.4 | Cdc42ep4 | 29.0 |
| 10 | Tril | 181.4 | Slc7a10 | 120.6 | Slco4a1 | 29.8 |
| 11 | Serpini2 | 181.6 | Aqp9 | 127.8 | Fam20a | 33.0 |
| 12 | Pgghg | 192.3 | Mt2A | 139.2 | Lcat | 33.4 |
| 13 | Slc1a3 | 198.8 | Lgi4 | 140.0 | Acot11 | 33.8 |
| 14 | Gfap | 208.4 | Pou3f2 | 142.7 | Vim | 36.2 |
| 15 | Aldh1a1 | 219.0 | Id4 | 143.4 | Nwd1 | 36.2 |

| 16 | Pla2g5 | 222.3 | Cacng5 | 145.2 | S1pr1 | 38.8 |
|---|---|---|---|---|---|---|
| 17 | Fxyd1 | 228.9 | Cyp2d5 | 146.4 | Tnc | 42.4 |
| 18 | Wdr49 | 244.4 | AABR07058658.1 | 147.0 | Rbm24 | 43.3 |
| 19 | Gli1 | 248.8 | AABR07070161.6 | 148.4 | Acsbg1 | 43.6 |
| 20 | Nfatc4 | 249.7 | Lfng | 158.0 | Ntsr2 | 45.0 |
| 21 | Scara3 | 251.9 | AABR07070161.3 | 165.5 | Prex2 | 47.2 |
| 22 | Slc4a4 | 255.7 | Fam107a | 169.5 | Cables1 | 47.4 |
| 23 | Lama2 | 255.8 | Nat8f3 | 171.2 | Gli1 | 55.2 |
| 24 | Cdc42ep4 | 260.4 | Ctxn3 | 173.3 | Etnppl | 56.8 |
| 25 | Gabrg3 | 263.9 | Aldh1l1 | 184.8 | Pla2g7 | 63.6 |
| 26 | P2ry1 | 273.0 | Entpd2 | 188.5 | Phkg1 | 64.0 |
| 27 | Gabra2 | 274.6 | Rbm24 | 218.2 | Nhsl1 | 69.9 |
| 28 | Colec12 | 276.1 | Slc1a3 | 221.2 | Slc14a1 | 74.5 |
| 29 | Mlc1 | 280.6 | Mlc1 | 223.3 | Plekho2 | 75.4 |
| 30 | Slc7a11 | 285.4 | Cxcl14 | 224.2 | Gjb6 | 76.2 |
| 31 | Aldh1l1 | 312.5 | Hif3a | 232.5 | Plce1 | 76.4 |
| 32 | Sox9 | 314.6 | Fxyd1 | 235.7 | Itih3 | 79.2 |
| 33 | Lgals3 | 323.2 | Acsbg1 | 242.4 | Sdc4 | 83.0 |
| 34 | Mgst1 | 323.4 | AABR07070161.7 | 254.2 | Mertk | 83.0 |
| 35 | Gatsl3 | 339.8 | Notch3 | 267.2 | Prr5 | 101.7 |
| 36 | Ahnak | 341.2 | Il33 | 271.9 | Sparcl1 | 102.9 |
| 37 | Pipox | 364.0 | Nwd1 | 273.5 | Id4 | 103.3 |
| 38 | Rhoj | 376.4 | Cdc42ep4 | 295.3 | Mlc1 | 105.8 |
| 39 | Arhgef26 | 393.6 | Samd9l | 296.6 | Pax3 | 106.2 |
| 40 | Arhgef28 | 397.4 | Gabrb1 | 300.9 | Gpr153 | 106.8 |
| 41 | Srpx | 400.0 | Plpp3 | 305.7 | Abi3bp | 111.5 |
| 42 | Mt3 | 404.0 | Cxcr4 | 308.9 | Pltp | 115.9 |
| 43 | Atp1a2 | 414.4 | Rgma | 309.7 | Fxyd7 | 119.1 |
| 44 | Fxyd7 | 415.7 | Itm2a | 311.7 | Rpusd3 | 120.4 |
| 45 | Lfng | 416.9 | Ednrb | 311.8 | Aqp4 | 121.0 |
| 46 | Lamb2 | 422.3 | Pdlim4 | 325.1 | Igdcc3 | 122.6 |
| 47 | Gdf10 | 426.5 | Sgca | 327.4 | Fgfr3 | 122.6 |
| 48 | F3 | 439.4 | Sncaip | 333.7 | Mt3 | 123.0 |
| 49 | Sdc4 | 441.6 | Prodh1 | 336.7 | Atp1a2 | 128.8 |
| 50 | Hspb1 | 449.9 | Agt | 348.6 | Gabrb1 | 129.0 |
| 51 | Hes1 | 451.9 | Slc14a1 | 350.2 | Ndrg2 | 129.9 |
| 52 | Slc12a4 | 453.2 | AABR07032343.1 | 351.5 | Ucp2 | 130.9 |
| 53 | Mertk | 457.0 | AABR07035782.1 | 356.5 | Plpp3 | 131.9 |
| 54 | C3 | 477.4 | Marc1 | 360.7 | Frem1 | 134.2 |
| 55 | AI464131 | 480.5 | Fgfr3 | 360.7 | Elovl2 | 141.3 |
| 56 | Id4 | 481.7 | AABR07070161.5 | 368.5 | Gli2 | 143.6 |
| 57 | Vit | 483.1 | AC109886.1 | 368.8 | Efhd2 | 144.8 |
| 58 | Fjx1 | 483.1 | Prr5 | 371.1 | Zic4 | 147.8 |
| 59 | Ccdc80 | 495.9 | Aqp4 | 383.9 | Oplah | 149.6 |
| 60 | Adora2b | 498.3 | Plekho2 | 388.7 | Cxcl14 | 150.0 |
| 61 | Ryr3 | 503.0 | AABR07035780.2 | 393.0 | Mfge8 | 154.3 |
| 62 | Mfge8 | 506.7 | Sh2b2 | 393.0 | Sox9 | 154.8 |
| 63 | Plekho2 | 510.4 | F3 | 415.7 | Atp13a4 | 155.0 |
| 64 | Elovl2 | 510.7 | Sparcl1 | 423.3 | AI464131 | 156.0 |
| 65 | Fam179a | 514.1 | Eva1a | 425.7 | Pdlim4 | 157.0 |
| 66 | Cebpb | 514.9 | Pltp | 425.8 | Rfx4 | 167.4 |
| 67 | Acss1 | 520.1 | Gfap | 427.0 | Traf1 | 168.9 |
| 68 | Slc13a5 | 530.2 | Cyp2d4 | 428.3 | Dmp1 | 171.7 |
| 69 | Ednrb | 533.0 | Crlf1 | 458.7 | Gabra4 | 172.8 |
| 70 | Pltp | 536.7 | Sdc4 | 477.1 | Gja1 | 173.3 |
| 71 | Il33 | 541.5 | Sod3 | 480.6 | Etv4 | 175.3 |
| 72 | Tlr4 | 561.8 | Dao | 482.7 | Map2k6 | 176.4 |
| 73 | Fam198b | 568.0 | Chst1 | 492.9 | Wwc1 | 177.2 |
| 74 | Isyna1 | 570.9 | AABR07001555.1 | 504.1 | Syt10 | 177.4 |

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|---|---|---|---|---|---|---|
| 75 | Glis3 | 575.8 | AABR07063346.1 | 504.2 | Sparc | 177.6 |
| 76 | Dao | 577.5 | Mpp6 | 507.6 | Tril | 178.1 |
| 77 | Fgfr3 | 577.9 | Ptch2 | 509.2 | Slc25a18 | 184.1 |
| 78 | Ncan | 579.8 | AABR07031767.1 | 522.7 | Aldh1l1 | 185.4 |
| 79 | Msx2 | 580.5 | AC105604.1 | 537.0 | Eva1a | 186.6 |
| 80 | Spatc1 | 582.3 | Grin2b | 537.6 | Mxra8 | 187.1 |
| 81 | Pdgfrb | 585.9 | Pygm | 547.1 | Lgr6 | 190.6 |
| 82 | Tubb2b | 587.6 | Etnppl | 558.8 | Rgma | 191.5 |
| 83 | Fat3 | 592.8 | Slc15a2 | 586.7 | Egfr | 197.6 |
| 84 | Fam167a | 593.1 | Casp4 | 588.1 | Slc39a12 | 198.8 |
| 85 | Col22a1 | 605.2 | Gria1 | 589.6 | Slc8b1 | 200.0 |
| 86 | Tcf7l1 | 611.9 | Slc4a4 | 598.0 | Glipr2 | 200.6 |
| 87 | Ndrg2 | 614.1 | Camk2g | 599.5 | Axl | 201.7 |
| 88 | Nhsl1 | 617.4 | Cbs | 603.8 | Aass | 202.3 |
| 89 | Ddit4l | 622.4 | AABR07035175.1 | 612.4 | Hk2 | 205.0 |
| 90 | Pbxip1 | 627.8 | Ntsr2 | 630.0 | Itpkb | 217.6 |
| 91 | Rasl12 | 633.6 | Gja1 | 649.2 | Ramp2 | 226.7 |
| 92 | Sh3bp2 | 641.8 | Aspg | 650.3 | Pyroxd2 | 227.8 |
| 93 | Aplnr | 646.7 | Sfxn5 | 664.4 | Gabra2 | 230.8 |
| 94 | Robo3 | 655.7 | Ccbe1 | 665.0 | Tcf7l1 | 232.2 |
| 95 | Rubcnl | 660.6 | Ahnak | 675.9 | Garem2 | 232.4 |
| 96 | Rab34 | 663.3 | Gramd3 | 677.4 | Wnt6 | 232.6 |
| 97 | Gtf2a1l | 665.6 | Ndrg2 | 682.1 | Dfna5 | 234.6 |
| 98 | Fgfr2 | 669.5 | Mt3 | 695.1 | Fam92b | 236.3 |
| 99 | Kank2 | 673.4 | Shroom3 | 708.7 | Plxnb1 | 238.0 |
| 100 | Rfx4 | 680.3 | Myh11 | 709.7 | Vamp1 | 239.3 |

**[00234]** Table 23 provides the the 100 most specific genes measured by the specificity index (SI) for oligodendrocytes in human, rat, and mouse samples.

**Table 23. 100 most specific genes measured by SI for each species in oligodendrocytes**

| Rank | Human | SI | Rat | SI | Mouse | SI |
|---|---|---|---|---|---|---|
| 1 | Klk6 | 46.1 | Mog | 51.6 | Gpr37 | 26.2 |
| 2 | Mog | 46.9 | Opalin | 60.4 | Pex5l | 28.8 |
| 3 | Gldn | 53.3 | Mobp | 62.8 | Hapln2 | 38.6 |
| 4 | Cndp1 | 61.5 | Tmem63a | 65.0 | Apod | 42.8 |
| 5 | Gm20425 | 64.6 | AABR07006310.1 | 76.5 | Ermn | 45.6 |
| 6 | Tmem98 | 73.2 | Hapln2 | 93.3 | Prr5l | 49.8 |
| 7 | Slc5a11 | 80.3 | Klk6 | 101.0 | Aspa | 57.4 |
| 8 | Mag | 80.3 | Qdpr | 101.5 | Efnb3 | 57.4 |
| 9 | Carns1 | 87.2 | Selplg | 110.6 | Anln | 59.2 |
| 10 | Gpr37 | 91.8 | Cldn11 | 111.9 | Mog | 63.0 |
| 11 | Cdk18 | 98.2 | Mal | 112.9 | Plp1 | 63.2 |
| 12 | Hhatl | 101.9 | Ermn | 113.1 | Plekhh1 | 67.7 |
| 13 | Anln | 107.8 | AABR07046961.1 | 113.4 | Tmem63a | 72.8 |
| 14 | Enpp2 | 114.4 | Abi3 | 122.8 | Il33 | 77.7 |
| 15 | Folh1 | 134.1 | Gpr37 | 126.0 | D7Ertd443e | 79.4 |
| 16 | Sec14l5 | 135.6 | Tmem88b | 133.2 | Sec14l5 | 81.8 |
| 17 | Myrf | 138.4 | Rasgrp3 | 137.6 | Carns1 | 92.8 |
| 18 | Plp1 | 160.3 | Prr5l | 138.4 | Tnfaip6 | 101.2 |
| 19 | Mal | 176.8 | Slc5a11 | 141.9 | Galnt6 | 101.4 |
| 20 | Gjb1 | 186.0 | Mag | 146.4 | Galnt5 | 102.6 |
| 21 | Itga2 | 189.8 | LOC100362909 | 150.9 | Ndrg1 | 103.5 |
| 22 | Cpm | 192.6 | Tmem176b | 157.1 | Cldn11 | 104.5 |
| 23 | Plpp2 | 212.3 | LOC100302465 | 157.2 | Gjc2 | 106.0 |
| 24 | Cntn2 | 214.9 | Cx3cr1 | 157.3 | Pla2g16 | 107.2 |
| 25 | Ermn | 215.9 | Ctss | 160.2 | Fth1 | 115.0 |
| 26 | Opalin | 227.7 | Carns1 | 172.2 | Opalin | 117.4 |

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|---|---|---|---|---|---|---|
| 27 | Abca8b | 247.1 | Tmem125 | 174.1 | Car2 | 120.0 |
| 28 | Lpar1 | 256.3 | Tmem176a | 175.1 | Dock5 | 122.0 |
| 29 | Pld1 | 256.8 | Sec14l5 | 180.4 | Gm20425 | 122.1 |
| 30 | Sall1 | 274.5 | Tf | 183.4 | Sall1 | 122.2 |
| 31 | Cercam | 278.1 | C1qb | 188.6 | Pkd2l1 | 125.4 |
| 32 | Dock5 | 286.4 | Apod | 194.8 | Kcnk13 | 126.3 |
| 33 | Pi16 | 288.8 | S1pr5 | 195.5 | Ppp1r14a | 127.8 |
| 34 | Man2a1 | 296.5 | Rn60_5_1374.5 | 198.4 | Gatm | 128.6 |
| 35 | Pex5l | 298.2 | Plp1 | 211.2 | Serpinb1a | 138.0 |
| 36 | Tmem63a | 321.4 | Insc | 215.2 | Pde8a | 144.8 |
| 37 | Tmem125 | 321.7 | Mbp | 217.2 | Tnni1 | 145.2 |
| 38 | Gipr | 321.7 | Pls1 | 224.1 | Glul | 147.3 |
| 39 | Sh3tc2 | 331.4 | Tmem98 | 232.3 | Tmprss5 | 150.4 |
| 40 | D7Ertd443e | 364.8 | Anln | 234.5 | Nipal4 | 151.2 |
| 41 | Kel | 365.2 | Ndrg1 | 240.0 | Trim59 | 151.2 |
| 42 | Ldb3 | 371.4 | Pafah1B1 | 248.8 | Mal | 151.3 |
| 43 | Ccdc152 | 377.2 | Pex5l | 249.9 | Slc12a2 | 151.3 |
| 44 | Cldn11 | 383.2 | LOC361016 | 250.0 | Qdpr | 156.9 |
| 45 | Synj2 | 385.8 | Galnt6 | 253.9 | Litaf | 160.3 |
| 46 | Lrp2 | 401.5 | Trim36 | 258.7 | Gjb1 | 160.3 |
| 47 | Ninj2 | 405.0 | AABR07017693.1 | 262.2 | Edil3 | 162.6 |
| 48 | Psrc1 | 406.3 | Gpatch4 | 271.2 | Pls1 | 166.8 |
| 49 | Ndrg1 | 406.3 | Plekhg3 | 274.9 | Mboat1 | 167.0 |
| 50 | Actn2 | 409.5 | Hamp | 281.3 | St6galnac3 | 168.0 |
| 51 | Sgk2 | 412.8 | Csf1r | 293.7 | Gng11 | 173.1 |
| 52 | Trim59 | 423.5 | Gjc2 | 295.1 | Enpp2 | 178.6 |
| 53 | Plekhg3 | 432.5 | Car14 | 295.7 | Cpm | 180.2 |
| 54 | Larp6 | 434.5 | Trim59 | 297.5 | Pstpip2 | 181.9 |
| 55 | Slc45a3 | 438.4 | AABR07053870.1 | 299.1 | Trim36 | 186.4 |
| 56 | Cnp | 444.0 | Gpr84 | 300.0 | Klk6 | 188.7 |
| 57 | Col4a5 | 446.8 | Plekhh1 | 302.4 | Myo1d | 189.6 |
| 58 | Pde8a | 449.1 | Ghr | 310.7 | Tmem98 | 192.2 |
| 59 | Rhobtb1 | 464.7 | Kndc1 | 311.3 | Synj2 | 197.4 |
| 60 | D16Ertd472e | 479.6 | Slco2b1 | 316.5 | 4933413G19Rik | 197.8 |
| 61 | Qdpr | 482.2 | Cd74 | 323.5 | Mag | 200.1 |
| 62 | Enpp6 | 483.0 | Aspa | 323.5 | Insc | 200.3 |
| 63 | Rhou | 484.6 | Trpv3 | 327.0 | Pigh | 201.6 |
| 64 | Sema3c | 487.5 | AABR07008030.1 | 335.2 | Pik3c2b | 204.7 |
| 65 | Gsn | 489.1 | Aplp1 | 336.1 | Ninj2 | 206.0 |
| 66 | Cyr61 | 491.6 | Tgfbr2 | 345.9 | Trpv3 | 209.8 |
| 67 | Capn3 | 501.9 | Gjb1 | 346.6 | Car14 | 213.4 |
| 68 | Hoxd1 | 504.8 | Ptp4a3 | 347.0 | Tmem125 | 220.7 |
| 69 | Frmd4b | 507.5 | Prima1 | 347.3 | Map7 | 220.8 |
| 70 | Tmem144 | 509.9 | Pik3c2b | 347.6 | Cdk18 | 221.6 |
| 71 | Galnt6 | 510.0 | AABR07036035.1 | 359.6 | Depdc7 | 223.7 |
| 72 | Pkmyt1 | 515.5 | Sall1 | 371.4 | Aatk | 227.4 |
| 73 | Fbxo32 | 527.0 | Pipp2 | 373.1 | Myrf | 227.8 |
| 74 | Pla2g16 | 531.3 | Pld4 | 375.5 | Cnp | 232.2 |
| 75 | Dpyd | 534.7 | Fam102b | 380.4 | Stmn4 | 232.6 |
| 76 | Sh3gl3 | 540.0 | Cd33 | 381.2 | Chdh | 237.7 |
| 77 | Prima1 | 544.8 | Cdkn1a | 383.3 | Nek4 | 244.3 |
| 78 | Rasal1 | 545.0 | Nkd1 | 383.4 | Frmd4b | 250.7 |
| 79 | Fa2h | 549.9 | Elovl7 | 384.3 | Ugt8a | 253.3 |
| 80 | Fam124a | 556.2 | Piga | 384.7 | Palm2 | 256.3 |
| 81 | Treh | 562.6 | Inf2 | 385.2 | Arsg | 258.0 |
| 82 | Paqr4 | 568.8 | Blnk | 386.1 | Ccdc152 | 258.1 |
| 83 | Azgp1 | 573.6 | Enpp4 | 387.5 | Efemp1 | 258.4 |
| 84 | Plekhh1 | 586.8 | Il18 | 394.1 | Piga | 261.4 |
| 85 | Dapk2 | 588.8 | Spata13 | 398.7 | Rftn1 | 262.5 |

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|---|---|---|---|---|---|---|
| 86 | Knop1 | 589.4 | Mettl7a | 401.6 | Itgb4 | 263.0 |
| 87 | Sema3b | 590.9 | Inpp5d | 402.1 | Emilin2 | 263.6 |
| 88 | Elovl1 | 593.8 | Myrf | 402.3 | Enpp4 | 263.7 |
| 89 | Shroom4 | 611.7 | Gjc3 | 404.5 | Nkain2 | 265.5 |
| 90 | Car2 | 615.4 | Trim2 | 419.0 | Adamtsl4 | 268.0 |
| 91 | Necab1 | 616.2 | AABR07012039.1 | 431.2 | Hcn2 | 272.8 |
| 92 | Aspa | 620.2 | AABR07033887.1 | 431.8 | Plxnb3 | 273.8 |
| 93 | Gab1 | 623.3 | Enpp2 | 432.4 | Dpy19l1 | 274.9 |
| 94 | Kif6 | 637.3 | Pacs2 | 432.4 | Arhgap23 | 276.5 |
| 95 | Hhip | 644.8 | C1qa | 435.7 | Prima1 | 280.8 |
| 96 | Ugt8a | 648.8 | Trem2 | 441.0 | Gipr | 281.5 |
| 97 | Iqgap1 | 653.5 | Slc45a3 | 441.1 | Sh3tc2 | 284.0 |
| 98 | Map6d1 | 656.7 | Hhip | 447.3 | Tubb4a | 285.4 |
| 99 | Eln | 658.9 | Anxa3 | 450.9 | Map6d1 | 285.8 |
| 100 | Pilp | 662.4 | AABR07022098.1 | 451.6 | Kctd13 | 286.9 |

**[00235]** Table 24 provides the the 100 most specific genes measured by the specificity index (SI) for OPCs in human, rat, and mouse samples.

**Table 24. 100 most specific genes measured by SI for each species in OPCs**

| Rank | Human | SI | Rat | SI | Mouse | SI |
|---|---|---|---|---|---|---|
| 1 | Fermt1 | 102.7 | Fam89a | 22.2 | Neu4 | 5.4 |
| 2 | Lims2 | 151.6 | Pdgfra | 57.3 | C1ql1 | 16.4 |
| 3 | C1ql1 | 191.5 | RGD1561849 | 78.4 | Ppfibp1 | 25.6 |
| 4 | Sstr1 | 232.5 | Rlbp1 | 80.4 | 3110035E14Rik | 28.2 |
| 5 | Olig1 | 233.0 | Ccnd1 | 81.8 | Pdgfra | 29.0 |
| 6 | Bambi | 238.9 | Tmem255b | 94.6 | Rgcc | 35.4 |
| 7 | Usp43 | 254.1 | C1ql1 | 102.0 | Susd5 | 37.2 |
| 8 | B3gnt7 | 258.0 | Bgn | 110.2 | Itga9 | 50.2 |
| 9 | Pdgfra | 305.9 | Itga9 | 114.3 | Tes | 52.6 |
| 10 | C1ql2 | 311.3 | Ppfibp1 | 119.3 | Rprm | 55.6 |
| 11 | Olig2 | 311.7 | Snx22 | 123.4 | Rep15 | 59.5 |
| 12 | Fmo3 | 316.6 | Col5a3 | 127.1 | Cspg4 | 82.7 |
| 13 | Cspg5 | 351.8 | Pmel | 137.6 | Matn4 | 84.2 |
| 14 | Galr1 | 353.8 | Cav1 | 146.7 | Amz1 | 94.8 |
| 15 | Gpc2 | 374.2 | Serpine2 | 153.4 | 1810041L15Rik | 103.0 |
| 16 | Fibin | 400.1 | Cspg4 | 155.4 | Pxdc1 | 106.0 |
| 17 | Cspg4 | 407.8 | Lims2 | 168.2 | Tox3 | 109.6 |
| 18 | Col11a1 | 428.5 | AABR07052897.1 | 177.0 | Sh3bp4 | 115.3 |
| 19 | Bche | 434.9 | C1ql2 | 189.5 | Elfn1 | 117.8 |
| 20 | Col9a1 | 451.3 | Cdk2 | 193.4 | Galnt3 | 121.9 |
| 21 | Afap1l2 | 475.4 | AABR07010022.1 | 195.6 | Lmcd1 | 123.8 |
| 22 | Cldn1 | 475.7 | Cacng4 | 197.2 | Serpine2 | 124.4 |
| 23 | Plpp4 | 476.0 | Matn4 | 202.8 | C1ql2 | 131.0 |
| 24 | Sox13 | 484.6 | AABR07049948.1 | 203.2 | Neto1 | 140.6 |
| 25 | Plat | 492.1 | Susd5 | 214.6 | Grm5 | 141.2 |
| 26 | Neu4 | 517.4 | Prkg2 | 215.3 | Mmp2 | 145.0 |
| 27 | D630023F18Rik | 517.4 | Pxdc1 | 219.9 | Col11a2 | 155.3 |
| 28 | Col20a1 | 545.7 | RGD1566029 | 225.7 | Sema3d | 157.6 |
| 29 | Pxylp1 | 555.5 | AABR07003304.1 | 248.3 | Lims2 | 160.3 |
| 30 | Asic4 | 559.7 | Sapcd2 | 262.0 | Cav1 | 186.5 |
| 31 | Spsb4 | 562.5 | Cspg5 | 263.0 | Sapcd2 | 187.0 |
| 32 | Prelp | 584.2 | Mmp15 | 267.8 | Rcn1 | 191.6 |
| 33 | Gpr34 | 596.3 | Rgcc | 295.4 | Ptpro | 201.9 |
| 34 | Best3 | 598.0 | Slc22a6 | 298.1 | Ccnd1 | 205.9 |
| 35 | Stk32b | 600.2 | Sema5b | 306.6 | Ptgfrn | 207.0 |
| 36 | Akr1c14 | 600.2 | Qprt | 307.6 | Ncan | 210.5 |
| 37 | Susd5 | 604.3 | Pnlip | 309.2 | 5730559C18Rik | 210.6 |

| 38 | Ophn1 | 607.5 | Slc6a12 | 312.6 | Lpcat2 | 239.8 |
|---|---|---|---|---|---|---|
| 39 | Mmp16 | 613.8 | RGD1311892 | 315.7 | Olig2 | 247.2 |
| 40 | Sulf2 | 629.8 | AABR07003306.1 | 316.5 | Fhl3 | 248.8 |
| 41 | Prkg2 | 630.9 | AABR07044671.1 | 319.5 | Tspan6 | 260.3 |
| 42 | Tns3 | 635.8 | Rbpjl | 324.7 | Rin2 | 265.0 |
| 43 | B3galt4 | 640.7 | Chst5 | 348.3 | Ascl1 | 267.2 |
| 44 | Fgfbp3 | 643.2 | Traf4 | 352.3 | Basp1 | 273.1 |
| 45 | Nkain3 | 648.2 | Sox6 | 359.3 | Pmepa1 | 279.3 |
| 46 | Ntn1 | 663.5 | Cox6b2 | 360.5 | Fzd9 | 280.1 |
| 47 | Ascl1 | 677.9 | Pcdh15 | 362.2 | Fam114a1 | 281.9 |
| 48 | Sema5a | 689.3 | Cd101 | 371.9 | Abhd2 | 285.7 |
| 49 | Hrasls | 692.5 | Xylt1 | 372.0 | Ctxn1 | 294.4 |
| 50 | Gal3st4 | 710.2 | AABR07003304.2 | 374.2 | Cspg5 | 295.7 |
| 51 | Ebf4 | 717.7 | Calcrl | 379.6 | Cfap20 | 296.7 |
| 52 | Tmem132d | 723.2 | Col1a1 | 387.2 | Vwc2 | 311.3 |
| 53 | Nt5e | 729.2 | Lama4 | 388.6 | Cdo1 | 318.0 |
| 54 | Jag1 | 739.1 | Elfn1 | 388.8 | Cdh13 | 325.1 |
| 55 | Megf11 | 744.4 | Ampd3 | 391.3 | Marcks | 338.1 |
| 56 | Ildr2 | 749.1 | Fam212b | 422.4 | Gsx1 | 342.0 |
| 57 | Plppr1 | 754.8 | Slc6a13 | 428.6 | Sertm1 | 342.1 |
| 58 | Dcc | 768.5 | Sstr1 | 438.3 | Slc1a1 | 345.6 |
| 59 | Ntn4 | 768.7 | Sema3d | 442.1 | Matn1 | 349.0 |
| 60 | Sox6 | 769.4 | AC141997.1 | 449.4 | Has2 | 351.8 |
| 61 | Cacng4 | 775.0 | Cpne7 | 463.5 | Lama4 | 353.2 |
| 62 | Pxdn | 776.4 | Ptgfrn | 474.4 | Mycl | 358.0 |
| 63 | Sapcd2 | 777.9 | Wbscr28 | 489.9 | Klhl5 | 358.7 |
| 64 | Tnk2 | 798.9 | Ryr3 | 500.5 | Kcnh5 | 372.5 |
| 65 | Slc43a3 | 803.9 | Gpsm2 | 503.1 | Kcnh8 | 382.4 |
| 66 | Adamts6 | 807.1 | Neto1 | 507.6 | Sema5a | 385.3 |
| 67 | Vsig8 | 813.6 | Chst11 | 510.1 | Enpp6 | 386.3 |
| 68 | Itm2a | 816.8 | Slc22a8 | 512.0 | Slc5a7 | 392.1 |
| 69 | Marcksl1 | 816.9 | Pstpip2 | 520.2 | Cav2 | 396.0 |
| 70 | Alk | 835.0 | AABR07044668.1 | 524.1 | Lbh | 404.3 |
| 71 | Smoc1 | 835.8 | Bcas1 | 525.4 | Adm | 413.2 |
| 72 | Cacna2d3 | 848.6 | Igf2 | 527.8 | Adam12 | 414.2 |
| 73 | Tm4sf1 | 853.5 | Lbh | 528.3 | S100a4 | 416.2 |
| 74 | Bgn | 863.3 | Olfm2 | 531.1 | Mfsd2a | 425.5 |
| 75 | Pdgfc | 870.5 | Ndnf | 534.1 | Igfbp3 | 431.9 |
| 76 | Atp2c2 | 871.7 | Vstm2b | 537.2 | Midn | 433.5 |
| 77 | Aldh1a3 | 871.8 | AABR07058656.1 | 548.8 | Asap3 | 436.2 |
| 78 | Prrx1 | 881.5 | Rep15 | 549.5 | Prkg2 | 437.4 |
| 79 | Meis3 | 887.1 | Vtn | 555.5 | Rlbp1 | 445.0 |
| 80 | Cxxc4 | 891.0 | Eln | 565.4 | Abcg2 | 445.1 |
| 81 | Cd27 | 905.0 | Ramp1 | 566.8 | Vstm2b | 448.6 |
| 82 | Sema3e | 908.3 | Pmepa1 | 568.8 | Dock6 | 469.2 |
| 83 | Adamts17 | 908.4 | Gpnmb | 571.7 | Fbn1 | 471.8 |
| 84 | Akr1c20 | 916.6 | Ptpro | 572.9 | Frrs1 | 472.3 |
| 85 | Arhgap10 | 925.8 | Limd1 | 590.0 | Khdrbs3 | 483.8 |
| 86 | Crispld2 | 926.6 | Cdh13 | 590.2 | Slitrk6 | 490.0 |
| 87 | Sipa1l2 | 941.5 | Nrxn2 | 590.7 | Chst11 | 496.4 |
| 88 | Ppp1r36 | 946.5 | Mgp | 597.2 | Ptpn14 | 498.3 |
| 89 | Gng12 | 947.1 | Myt1 | 597.4 | Dpysl3 | 500.6 |
| 90 | Syt17 | 955.8 | Marcks | 600.0 | Slc44a5 | 501.3 |
| 91 | Midn | 964.5 | LOC100362216 | 600.7 | Eya1 | 501.7 |
| 92 | Gadd45a | 965.5 | AABR07043601.4 | 601.9 | Sox6 | 503.8 |
| 93 | Khdrbs3 | 969.5 | LOC102553018 | 609.8 | Phox2a | 504.8 |
| 94 | Thbs4 | 971.6 | Masp1 | 623.4 | Col11a1 | 506.2 |
| 95 | Vipr2 | 971.8 | Sulf2 | 627.7 | Swap70 | 510.3 |
| 96 | Ccnd1 | 978.9 | Tle6 | 628.9 | Fam89a | 514.6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 97 | Iffo1 | 981.5 | Fam114a1 | 629.9 | Mrm2 | 515.3 |
| 98 | Atoh8 | 988.8 | Tmem100 | 633.1 | Lypd1 | 517.5 |
| 99 | Exosc4 | 989.8 | Ccnd2 | 635.5 | Shisa7 | 519.5 |
| 100 | Pde7b | 992.5 | Rasgef1b | 640.5 | Pcdh17 | 519.7 |

**[00236]** The rank of the 100 most specific genes was compared for each cell type in mouse with their ranks in rat or human as shown in Table 25.

**Table 25. Comparision of the ranking of the top 100 most specific genes in mice**

| | Astrocytes | | Basket | | Granule | | Oligodendrocytes | | OPC | | Purkinje |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mouse | rat | human | rat | human | rat | human | rat | human | rat | human | rat |
| 1 | 1 | 47 | 264 | 4357 | 15 | 70 | 45 | 10 | 600 | 27 | 1 |
| 2 | 12 | 13 | 2 | 2 | 37 | 265 | 26 | 35 | 1 | 3 | 6 |
| 3 | 20 | 17 | 126 | 4 | 7 | 13 | 29 | 104 | 13 | 227 | 2 |
| 4 | 28 | 76 | 23 | 26 | 6 | 1 | 20 | 142 | 6 | 852 | 5 |
| 5 | 1722 | 1090 | 204 | 8824 | 64 | 2253 | 8 | 25 | 7 | 9 | 11 |
| 6 | 23 | 45 | 15 | 1 | 34 | 10 | 5 | 143 | 50 | 990 | 16 |
| 7 | 3 | 3 | 1 | 60 | 35 | 55 | 105 | 92 | 18 | 37 | 4 |
| 8 | 1308 | 3783 | 293 | 4383 | 3 | 379 | 8863 | 7340 | 5 | 206 | 9 |
| 9 | 21 | 24 | 328 | 972 | 111 | 60 | 37 | 13 | 4703 | 2538 | 29 |
| 10 | 522 | 6650 | 372 | 8 | 11 | 43 | 3 | 2 | 7430 | 510 | 22 |
| 11 | 133 | 4139 | 100 | 5 | 46 | 102 | 42 | 18 | 34 | 404 | 8235 |
| 12 | 673 | 9 | 389 | 5538 | 24 | 48 | 38 | 84 | 11 | 17 | 103 |
| 13 | 106 | 111 | 114 | 3927 | 134 | 108 | 6 | 36 | 37 | 2309 | 3 |
| 14 | 40 | 5048 | 167 | 124 | 20 | 7 | 6435 | 8267 | 28 | 393 | 39 |
| 15 | 1460 | 740 | 175 | 110 | 9 | 256 | 10 | 40 | 32 | 8158 | 13 |
| 16 | 6 | 1 | 78 | 862 | 27 | 2 | 49 | 16 | 31 | 394 | 104 |
| 17 | 11 | 792 | 30 | 3 | 19 | 52 | 12 | 9 | 205 | 215 | 3873 |
| 18 | 13 | 4842 | 77 | 37 | 31 | 198 | 581 | 6889 | 167 | 176 | 299 |
| 19 | 15 | 163 | 295 | 32 | 354 | 290 | 51 | 71 | 56 | 842 | 23 |
| 20 | 72 | 1332 | 5 | 38 | 51 | 17 | 297 | 8969 | 988 | 376 | 21 |
| 21 | 206 | 212 | 7 | 66 | 21 | 64 | 28 | 48 | 1363 | 5522 | 27 |
| 22 | 78 | 130 | 38 | 12 | 309 | 118 | 25 | 44 | 10 | 942 | 10 |
| 23 | 10 | 19 | 3822 | 8712 | 30 | 21 | 50 | 282 | 36 | 10 | 17 |
| 24 | 43 | 5 | 251 | 243 | 114 | 39 | 121 | 74 | 46 | 556 | 35 |
| 25 | 116 | 9402 | 5703 | 261 | 2 | 32 | 140 | 504 | 135 | 532 | 41 |
| 26 | 49 | 567 | 3 | 88 | 4 | 95 | 1 | 26 | 343 | 406 | 115 |
| 27 | 409 | 88 | 142 | 210 | 28 | 63 | 71 | 90 | 677 | 1507 | 8 |
| 28 | 19 | 1960 | 2328 | 10814 | 17 | 49 | 44 | 32 | 30 | 170 | 32 |
| 29 | 48 | 63 | 376 | 8814 | 530 | 80 | 9 | 5 | 8 | 2 | 84 |
| 30 | 80 | 277 | 265 | 18 | 63 | 74 | 21 | 30 | 24 | 3271 | 70 |
| 31 | 1427 | 3174 | 24 | 105 | 1754 | 6156 | 3939 | 3733 | 17 | 63 | 30 |
| 32 | 2 | 1242 | 25 | 940 | 173 | 9 | 216 | 5681 | 168 | 178 | 18 |
| 33 | 135 | 53 | 73 | 9 | 83 | 112 | 143 | 103 | 25 | 218 | 28 |
| 34 | 34 | 49 | 440 | 546 | 23 | 65 | 147 | 728 | 4 | 96 | 12 |
| 35 | 36 | 334 | 5797 | 7520 | 116 | 20 | 5801 | 1381 | 40 | 245 | 7 |
| 36 | 42 | 119 | 8 | 40 | 88 | 625 | 127 | 58 | 67 | 2759 | 259 |
| 37 | 7 | 56 | 107 | 1145 | 163 | 9842 | 5690 | 3895 | 19 | 732 | 85 |
| 38 | 8 | 29 | 36 | 33 | 112 | 66 | 426 | 532 | 1642 | 7662 | 265 |
| 39 | 154 | 229 | 64 | 1009 | 14 | 220 | 122 | 5578 | 179 | 11 | 194 |
| 40 | 6269 | 8709 | 37 | 170 | 40 | 215 | 43 | 484 | 4013 | 1426 | 90 |
| 41 | 91 | 857 | 247 | 195 | 181 | 1702 | 39 | 52 | 367 | 1584 | 87 |
| 42 | 39 | 70 | 61 | 10523 | 361 | 179 | 18 | 19 | 284 | 102 | 4308 |
| 43 | 71 | 44 | 1388 | 7060 | 195 | 585 | 189 | 578 | 868 | 47 | 142 |
| 44 | 5262 | 6687 | 4638 | 1390 | 796 | 7672 | 7 | 61 | 649 | 5147 | 1343 |
| 45 | 27 | 6 | 291 | 64 | 25 | 160 | 65 | 20 | 110 | 7420 | 187 |
| 46 | 46 | 77 | 3908 | 7424 | 438 | 570 | 135 | 129 | 4851 | 776 | 111 |
| 47 | 844 | 4527 | 9153 | 1207 | 106 | 610 | 480 | 216 | 92 | 1597 | 57 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | 121 | 42 | 163 | 258 | 120 | 27 | 16 | 8691 | 342 | 283 | 2074 |
| 49 | 107 | 43 | 42 | 4247 | 227 | 38 | 9461 | 275 | 403 | 1115 | 160 |
| 50 | 35 | 117 | 86 | 80 | 33 | 202 | 88 | 422 | 52 | 13 | 290 |
| 51 | 111 | 87 | 322 | 1772 | 283 | 139 | 3729 | 5037 | 80 | 1307 | 26 |
| 52 | 2510 | 866 | 315 | 111 | 194 | 152 | 117 | 14 | 160 | 561 | 176 |
| 53 | 14 | 510 | 686 | 361 | 5 | 6832 | 184 | 22 | 2295 | 1371 | 135 |
| 54 | 7903 | 961 | 147 | 77 | 142 | 59 | 1791 | 7297 | 98 | 571 | 76 |
| 55 | 245 | 64 | 20 | 7121 | 424 | 4012 | 35 | 1865 | 114 | 531 | 2751 |
| 56 | 119 | 129 | 1007 | 10147 | 539 | 174 | 2 | 1 | 3540 | 649 | 583 |
| 57 | 142 | 669 | 1368 | 1201 | 97 | 18 | 304 | 121 | 4627 | 3243 | 72 |
| 58 | 902 | 552 | 46 | 208 | 92 | 1645 | 46 | 6 | 416 | 1204 | 175 |
| 59 | 609 | 529 | 719 | 684 | 655 | 100 | 229 | 45 | 379 | 1053 | 358 |
| 60 | 16 | 619 | 10 | 95 | 44 | 187 | 19 | 386 | 253 | 211 | 54 |
| 61 | 463 | 62 | 2364 | 7818 | 2380 | 239 | 11 | 7 | 39 | 610 | 380 |
| 62 | 262 | 32 | 194 | 159 | 191 | 687 | 31 | 3559 | 93 | 7046 | 64 |
| 63 | 3965 | 276 | 99 | 277 | 6504 | 756 | 136 | 228 | 262 | 1118 | 108 |
| 64 | 38 | 55 | 7929 | 3329 | 857 | 126 | 79 | 400 | 1654 | 380 | 51 |
| 65 | 29 | 152 | 128 | 4321 | 2183 | 3867 | 94 | 47 | 753 | 311 | 9464 |
| 66 | 139 | 100 | 1010 | 448 | 900 | 23 | 48 | 248 | 145 | 48 | 92 |
| 67 | #### | 6607 | 486 | 30 | 128 | 199 | 22 | 259 | 556 | 5275 | 192 |
| 68 | 3210 | 2430 | 187 | 851 | 362 | 10149 | 17 | 38 | 6616 | 2501 | 388 |
| 69 | 415 | 101 | 16 | 144 | 75 | 148 | 134 | 246 | 61 | 3906 | 37 |
| 70 | 32 | 2 | 12 | 113 | 818 | 426 | 264 | 11 | 154 | 207 | 4697 |
| 71 | 335 | 3239 | 113 | 39 | 1712 | 234 | 34 | 1146 | 378 | 3535 | 74 |
| 72 | 74 | 200 | 8240 | 1044 | 1593 | 325 | 854 | 141 | 3172 | 601 | 166 |
| 73 | 221 | 127 | 143 | 1623 | 5608 | 8368 | 83 | 17 | 5945 | 3157 | 59 |
| 74 | 8281 | 3977 | 97 | 61 | 4575 | 2835 | 72 | 56 | 3107 | 3621 | 236 |
| 75 | 164 | 249 | 633 | 9775 | 93 | 37 | 418 | 1483 | 9799 | 6801 | 102 |
| 76 | 144 | 10 | 402 | 2003 | 2534 | 2970 | 9635 | 6045 | 289 | 91 | 44 |
| 77 | 4 | 643 | 281 | 330 | 119 | 47 | 8154 | 7468 | 300 | 355 | 1030 |
| 78 | 22 | 31 | 355 | 279 | 3891 | 2291 | 318 | 69 | 15 | 41 | 1554 |
| 79 | 31 | 5791 | 2634 | 502 | 174 | 3874 | 123 | 96 | 3 | 4330 | 140 |
| 80 | 1740 | 691 | 69 | 4200 | 108 | 792 | 392 | 295 | 7959 | 208 | 153 |
| 81 | 143 | 8 | 162 | 8045 | 160 | 435 | 5860 | 11188 | 100 | 287 | 323 |
| 82 | 59 | 7 | 193 | 849 | 1940 | 933 | 155 | 43 | 113 | 3334 | 158 |
| 83 | 4611 | 727 | 208 | 3878 | 1184 | 135 | 2751 | 6855 | 2299 | 1195 | 42 |
| 84 | 1295 | 1264 | 72 | 14 | 7925 | 9944 | 27 | 2119 | 2774 | 3890 | 4391 |
| 85 | 311 | 1401 | 151 | 99 | 228 | 1966 | 709 | 9289 | 1524 | 93 | 56 |
| 86 | 3028 | 597 | 119 | 11044 | 50 | 5724 | 7658 | 7379 | 1734 | 681 | 101 |
| 87 | 62 | 250 | 245 | 3903 | 1118 | 1458 | 197 | 4043 | 59 | 135 | 9072 |
| 88 | 277 | 439 | 82 | 191 | 336 | 1032 | 24 | 288 | 147 | 169 | 33 |
| 89 | 1222 | 558 | 3237 | 9174 | 100 | 16 | 226 | 1471 | 538 | 318 | 31 |
| 90 | 607 | 151 | 2576 | 346 | 1207 | 5396 | 6314 | 10145 | 254 | 145 | 136 |
| 91 | 1329 | 796 | 31 | 58 | 1556 | 2075 | 493 | 303 | 701 | 3045 | 489 |
| 92 | 180 | 762 | 170 | 79 | 6095 | 35 | 668 | 170 | 26 | 60 | 69 |
| 93 | 89 | 27 | 285 | 272 | 1122 | 1884 | 58 | 1538 | 7641 | 4408 | 2335 |
| 94 | 88 | 86 | 311 | 1523 | 677 | 8020 | 169 | 226 | 720 | 18 | 201 |
| 95 | 96 | 115 | 127 | 24 | 311 | 143 | 81 | 77 | 387 | 3902 | 95 |
| 96 | 962 | 4060 | 172 | 10414 | 379 | 3235 | 154 | 37 | 2 | 374 | 19 |
| 97 | 426 | 166 | 11 | 87 | 71 | 842 | 432 | 39 | 1932 | 5835 | 120 |
| 98 | 155 | 3563 | 2531 | 157 | 290 | 4104 | 201 | 761 | 209 | 348 | 156 |
| 99 | 340 | 288 | 299 | 1962 | 5142 | 8316 | 182 | 98 | 75 | 122 | 82 |
| 100 | 5745 | 1281 | 1498 | 1174 | 109 | 45 | 4319 | 6562 | 699 | 411 | 122 |

**[00237]** The specificity rank was observed to be more conserved between mouse and rat than mouse and human.

**Example 10. Determining the extent that cell-type specific genes vary across species**

**[00238]** To explore further the extent to which cell-type specific genes change across species, the comparative analysis was focused on the data from mouse and human nuclei samples because the annotation of the rat genome is less complete. By excluding rat genes, the number of high confidence orthologs that could be used for comparison increased from 11,443 to 14,273 by filtering the ENSEMBL orthologs.

**[00239]** Furthermore, to focus on differentially expressed genes that are most likely to impact cellular function, genes were selected that passed a stringent adjusted p-value cutoff of <0.01, that changed by at least 4-fold between species, and that are expressed at significant levels in each cell type (average number of counts > 400 and fpkm>0). The number that were left after filtering for expression levels (baseMean > 50, log10(fpkm) > 0), and the number that were left after filtering for genes that are differentially expressed across all cell types between mouse and human were broken down into human and mouse enriched genes as shown in Table 26.

**Table 26. Enriched genes**

| Cell Type | p<0.01 fc>4 | baseMean>50 $log_{10}$(rpkm)>0 | Exclude general species genes | Human enriched | Mouse enriched |
|---|---|---|---|---|---|
| Granule | 1776 | 710 | 202 | 74 | 128 |
| Basket | 2372 | 823 | 236 | 103 | 133 |
| Astrocyte | 1570 | 778 | 293 | 117 | 176 |
| Oligo | 1326 | 667 | 182 | 104 | 78 |
| OPC | 1013 | 490 | 133 | 73 | 60 |

**[00240]** According to Table 26, between 490 and 823 genes were identified that are mouse- or human-enriched in these cell types.

**[00241]** To identify cell-type and species differences rather than general differences between mouse and human, genes that were observed to be differentially expressed in all cell types analyzed (adjusted p <0.01, fold change > 2) were removed from the analysis. Filtering in this way yielded between 133 and 293 cell-type and species specific differentially expressed genes that were approximately equally distributed between those enriched in mouse and those enriched in human.

**[00242]** To confirm these data, the abundance of granule cell neurons relative to all other cell types in the cerebellum allowed two types of validation that could not be obtained for less abundant cell types: first, in addition to assaying the expression of nascent nuclear RNAs, the expression of mature cytoplasmic RNAs was examined; second, given the high fraction of granule cell genomes present in cerebellar nuclear preparations, chromatin accessibility was assessed using unsorted cerebellar nuclei. Since previous studies have demonstrated that ATACseq peaks are typically found in the promoters and gene bodies of expressed genes and severely reduced or absent from genes that are not expressed (Buenrostro, et al. (2013) Nat Methods 10, 1213–1218; Mo, et al. (2015) Neuron 86, 1369–1384; Su, et al. (2017) Nat.

Neurosci. 20, 476–483, each of which is hereby incorporated by reference herein in its entirety), ATACseq data from mouse, rat and human cerebellar nuclei was used to confirm the expression data.

**[00243]** As expected, protein coding genes that were identified as expressed in the data from the cellular profiling technique described herein from all three species were accompanied by the presence of spliced cytoplasmic mRNAs, and ATACseq peaks were evident in their promoters and gene bodies. For example, the housekeeping gene Gapdh and the granule-specific gene Etv1 are strongly expressed in granule cells of mouse, rat, and human. As expected, the presence of nuclear RNA, cytoplasmic RNA, and ATACseq peaks over these genes were observed. But for the human-enriched genes Clvs2 and Vwc2, while these three independent measures of active expression were present in the human data, no expression or chromatin accessibility was evident in the mouse data. Conversely, for the mouse-enriched genes Cnksr3 and Ece1, nuclear and cytoplasmic RNA expression and ATACseq peaks were observed in the mouse data, but not the human data. As expected, expression of these genes in rat was similar to a mouse, although low levels of the human-enriched genes Clvs2 and Vwc2 were observed to be present in rats.

**[00244]** Two additional features of expression between mouse and human were identified. Changes in expression may involve more than one gene at a given genomic interval. For example, in the locus containing G Protein-Coupled Receptor 135 (Gpr135), Trans-L-3-Hydroxyproline Dehydratase (L3hypdh), JNK1/MAPK8-Associated Membrane Protein (Jkamp), Ccdc175, and Reticulon 1 (Rtn1), all five genes were expressed in human granule cells as revealed by nuclear and cytoplasmic gene expression and the presence of ATACseq peaks in FIG. 4. Jkamp, L3hypdh, and Gpr135 were also observed to be expressed in mouse and rat, as supported by the presence of promoter DNA accessibility sites shown by the ATACseq peaks, but were expressed at much lower levels relative to their human orthologs. Rtn1 was observed to be expressed at a lower level in mice than in rats and humans, although different patterns of ATACseq peaks were observed for each sample. In mouse and rat, Ccdc175 was not observed to be expressed and no ATACseq peaks were observed. This indicates that the genes in this region form two distinct domains – one containing Rtn1 and the other containing Gpr135, L3hypdh, Jkamp, and Ccdc175. Gpr135, L3hypdh, and Jkamp are equally accessible to ATACseq in the rodent data. Therefore, the reduced nuclear and cytoplasmic RNA levels of these genes was likely due to changes in chromatin structure of the neighboring and non-expressed gene, Ccdc175.

**[00245]** A second feature of the expression between mouse and human data showed that changes sometimes involve expression of alternative family members in a given cell type. For instance, the Pde1 gene family contains the three calcium and calmodulin-dependent

phosphodiesterase Pde1a, Pde1b, and Pde1c. These enzymes catalyze the hydrolysis of cAMP or cGMP, and play important roles in modulation of neuronal activity. ATACseq was used to confirm that mouse granule cells mouse express only Pde1c, whereas granule cells from human express high levels of Pde1a and low levels of Pde1c. These results matched previous findings that Pde1a is expressed in the human but not mouse cerebellum in Loughney, K., & Ferguson, K. (1996) Phosphodiesterase inhibitors (pp. 1-19); Loughney, et al. (1996) J Biol Chem 271, 796–806; and Sonnenburg, et al. (1993) J Biol Chem 268, 645–652; each of which is herby incorporated by reference herein in its entirety. Since Pde1a preferentially hydrolyzes cGMP while Pde1c hydrolyzes both cAMP and cGMP with equal efficiencies (Takimoto, E. (2009) Circ. Res. 105, 931–933, which is hereby incorporated by reference herein in its entirety), these differences may result in slightly different biochemical consequences in mouse and human cerebellum.

**[00246]** To confirm the presence or absence of these mRNAs in the mouse brain, publicly available gene expression data from the Allen Mouse Brain Atlas and GENSAT Project (Gong, et al. (2003) Nature 425, 917–925; Lein, et al. (2007) Nature 445, 168–176, each of which is herby incorporated by reference herein in its entirety) was analyzed. These data confirmed expression in the granule layer of the cerebellum for granule-specific marker Etv1 and the mouse-enriched genes Cnksr3, Ece1, and Pde1c, and the absence of expression of the human-enriched genes Ccdc175, Clvs2, Vwc2, and Pde1a. Interestingly, while Clvs2 and Pde1a are absent from the cerebellum, they are expressed in other regions in the mouse brain, suggesting that alterations in cell specific regulatory sequences might underlie these species differences (Carroll, S.B. (2005) PLoS Biol 3, e245; Carroll, S.B. (2008) Cell 134(11), 25–36; each of which is hereby incorporated by reference herein in its entirety). Ece1 expression is also observed in the Purkinje layer of the cerebellum. Expression of the human enriched genes Ccdc175, Clvs2, Vwc2, and Pde1a was observed in the mouse brain. No staining was detected in any region for Ccdc175 and Vwc2. Strong staining of Clvs2 was observed in the dentate gyrus and of Pde1a in layers 5 and 6 of the cortex and CA1-3 of the hippocampus.

**[00247]** To further validate the data, qPCR was used to determine the relative expression of mouse- and human-enriched genes. qPCR analysis of gene expression was performed for housekeeping, human enriched, and mouse enriched genes using human and mouse cerebellar cytoplasmic cDNA. Two biological replicates, each with three technical replicates were used for each species. Expression was normalized to the arithmetic mean of expression from the three housekeeping genes. Fold change was calculated relative to expression in the human XK sample. p-values were calculated using two-tailed students t-test assuming unequal variance with the mean normalized values for the biological replicates (technical replicates averaged), and are as

follows: 1) housekeeping genes - Actb=0.334, Gapdh=0.141, and Polr2a=0.109; 2) human-enriched genes - Clvs2=0.0195, Vwc2=0.0161, and Pde1a=0.00086; and mouse-enriched gene - Pde1c=0.0696. p-values could not be calculated for Ccdc175, Cnksr3, and Ece1 because all technical replicates of at least one biological replicate failed to amplify.

**[00248]** In all but one case, the qPCR results confirmed the RNAseq and ATACseq data. In the outlier case, Pde1c showed no significant changes in expression between mouse and human. To understand this discrepancy, expression of Pde1a and Pde1c was assayed in mouse and human cerebellar sections by immunofluorescence. Staining was performed at least two times each using sections from two separate mice and two human donors. NeuN was the marker for granule cells. Consistent with the RNAseq and ATACseq data, both Pde1c and Pde1a members were observed to be primarily localized in the granule layer, with Pde1c expression predominant in mouse and Pde1a expression predominant in human cerebellum. Mouse cerebellum showed Pde1c specifically in granule cells and background labeling for Pde1a, while human cerebellum showed Pde1a specifically in granule cells and background labeling for Pde1c.

**[00249]** To understand whether these genes might reflect changes in expression that occur independently, or transcriptional programs that are altered between species, Gene Ontology (GO) analysis was performed for the ten categories of species-specific genes. Four groups of genes resulted in significant GO groups: human-enriched astrocyte, human-enriched oligodendrocyte, human-enriched OPC, and mouse-enriched granule genes. The remaining 6 gene sets were not observed to have any significantly associated GO categories suggesting that species differences in these cell types contribute to a wide range of pathways and functions. GO analysis of human-enriched genes from astrocytes, oligodendrocytes, or OPCs revealed that these genes are involved in cellular structure, size regulation, and nervous system function, potentially reflecting known differences in morphology between mouse and human glial cells. Granule cell mouse-enriched genes are involved in nervous system function and the metabolism of polysaccharides that may play a role in cell-cell interactions.

**[00250]** Taken together, these data demonstrate that cellular profiling technique described herein can be employed with nuclei to accurately assess cell-type specific gene expression in rodent and human brains, and gene expression in the nervous system. Gene expression in the brain was observed to be highly conserved in specific cell types across species. Accordingly, most abundant and cell specific markers of well-characterized cell types were observed to be shared between the rodent and human brain. Despite this shared identity, there were a significant number of genes in each cell type whose expression was not conserved between species. This group of genes does not generally conform to known GO categories, and in many cases their expression is found in other brain regions. Cell type and species-specific expression can reflect

altered regulation of adjacent genes within a locus, or selective expression of functionally related yet distinct members of a given gene family. Although the consequences of these gene expression changes will have to be interrogated in future studies, the data herein demonstrate that functionally important differences in gene expression in specific CNS cell types occur between species and suggest that they may result in important differences in the biochemical functions of rodent and human cell types.

**Example 11. Comparing the nuclear transcriptome of mice and humans**

**[00251]** Immunofluorescence was used to determine whether sorting resulted in pure populations in human samples. The nuclear structure was observed to be quite different between the three populations, and the nuclei in each of the populations was different in size. NEUN+ granule neurons were observed to be small and highly heterochromatic. The size of NEUN- nuclei was observed to be mixed between larger nuclei likely from Bergmann glia and smaller nuclei likely from oligodendrocytes. ITPR1+ nuclei were observed to be bigger and more euchromatic than the nuclei in the other two groups. FIG. 6 shows flow cytometry sorting results to approximate the size of the nuclei with the combination of forward-scattered light (FSC) and side-scattered light (SSC). (DP =double positive). These results show that nuclei from different cell types are distinct in nuclear structure, which may result in differences across each cell type in gene expression regulation or in disease susceptibility.

**[00252]** Although, heterogeneity of nuclei sorted from two different human subjects (Person 1 and Person 2) was observed in the flow cytometry results in FIG. 5A and FIG. 5B, respectively. Species specific markers may be identified to differentiate nuclei from different cell types.

**[00253]** FIG. 7A, FIG. 7B, FIG. 7C, and FIG. 7D provides flow cytometry results for 4 different staining strategies for human cerebellar nuclei developed from strategies used to sort nuclei in mice. FIG. 7A shows flow cytometry results from gating with Itpr1 and Id2 for purkinje cells, i.e., Itpr+ and Id2+. FIG. 7B shows gating with Forkhead Box P4 (FoxP4) and Itpr1 for purkinje cells, i.e., FoxP4+ and Itpr+. FIG. 7C shows gating with NeuN and Itpr1 for granule cells using the same sorting strategy used in mice, i.e. Itpr- and NeuN+. FIG. 7D shows gating with Foxp4 and NeuN. The lightest gray population in all four staining strategies provided the same population of nuclei as shown by gene expression profiling from RNAseq that is shown in Table 37.

**[00254]** Gene expression profiles from RNAseq results from mouse and human sorted nuclei are shown in Examples 15 and 17, respectively. The granule cell nuclei population in Table 37 of Example 17 was observed to have a similar profile to the granule cells from a mouse, as shown in Table 31 of Example 15. The glia nuclei population in Table 37 was observed to have a

similar profile to the glia from a mouse (Tables 33 and 34). The basket nuclei population from human samples in Table 37 was observed to have a similar profile to basket/stellate cells from mice in Table 32. These similarities were particularly noticeable in the RNAseq results for Rbfox3 (also known as NeuN), Fat2, Ryanodine Receptor 1 (Ryr1), Pvalb, Glutathione S-Transferase Mu 1 (Gstm1), and Pleiotrophin (Ptn).

**[00255]** In constrast, significant variations were observed bewteen a mouse and a human in the RNAseq data in Tables 31-34 and 37 for Protein Tyrosine Kinase 2 Beta (Ptk2b), Solute Carrier Family 43 Member 2 (Slc43a2), Glutamate Ionotropic Receptor Kainate Type Subunit 3 (Grik3), Itpr1, Protocadherin 9 (Pcdh9), and RAS Guanyl Releasing Protein 1 (Rasgrp1)-positive nuclei from granule, basket/stellate, and glia cells.

**[00256]** Hierarchical clustering (first by species, and then by cell type) of nuclear RNAseq data from the top 500 genes that contribute to the greatest variation between the samples, hence best differentiate one sample from another showed some groups of genes that differentiate between cell types and other groups of genes that differentiate between species. This analysis reveals genes that are conserved and divergent between mice and human.

**[00257]** A principle component analysis of the mouse and human cerebellar samples allows visualization of clustering by cell type and by species. The first principle component (x-axis) represents the largest variation between the samples, and the second principle component represents the second largest source of variation between the samples and how they separate by cell type. The analysis herein showed that cell type contributes to X% of the variance between samples while species contributes to Y% of the variance between samples.

**Example 12. Identifying cell type and species-specific genes from cross-species comparisons**

**[00258]** Given the high quality of the cell specific expression profiles described above, the extent of gene expression changes between species in these cerebellar cell types was analyzed. To ensure that the results reflected altered expression rather than differences in annotation between species, the analysis was limited to high confidence 1:1 orthologs between mouse, rat, and human. To define ortholog annotations for mouse, rat, and human genes, ortholog annotation across species were downloaded from ENSEMBL (304,147 transcripts vs. 19,197 genes), and filtered to include only: high confidence pairs (76,172 transcripts vs 14,541 genes)→ 1:1 orthologs (67,522 transcripts vs.13,242 genes)→ genes greater than 1kb in total length and that change by less than 2-fold in length across species (30,497 transcripts vs. 11,443 genes). For each gene, the longest orthologous transcript was used for annotation resulting in 11,443 transcripts and 11,443 genes.

**[00259]** The log2 fold change in expression for the 250 most variable genes across mouse, rat, and human nuclei between the normalized RNAseq results from the nuclei of the seven cells types compared to the RNAseq results for the sorted nuclei from each individual cell type is shown in Table 27. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value across nuclei from all cell types analyzed, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed. Two replicate samples of nuclei from each cell type was analyzed.

**Table 27. Log2 fold change of expression for nuclei from rat samples**

| Cell types | Granule | | Purkinje | | Basket | | Astrocytes | | Oligodendrocytes | | Oligodendrocytes & OPCs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gene | Log2 fold change in expression | | | | | | | | | | | |
| 1810041L15Rik | 1.19 | 0.19 | -2.21 | -1.89 | 1.56 | 1.79 | 2.87 | 3.64 | 2.42 | 4 | 8.39 | 6 |
| 2810459M11Rik | -1.87 | -2.02 | -2.3 | -2.18 | -1.68 | -1.65 | 0.16 | -0.23 | -1.76 | -2.52 | 1.47 | 1.23 |
| 3110035E14Rik | -2.28 | -2.15 | -3.05 | -2.71 | -1.63 | -0.98 | 0.71 | 0.86 | -2.04 | -1.72 | 4.07 | 4.27 |
| A2m | -2.89 | -2.47 | -1.33 | -1.55 | -2.91 | -2.17 | -0.7 | 0.49 | -2.38 | -2.03 | -2.43 | -2.81 |
| Adamts15 | 0.23 | -1.13 | -1.44 | -1.21 | 3.42 | 3.8 | 2.77 | 2.98 | -0.48 | 0.17 | 1.13 | 2.4 |
| Adra1a | -1.04 | -1.28 | -2.07 | -1.83 | -1.2 | -0.87 | 1.55 | 1.61 | -0.71 | -0.62 | 1.01 | 1.17 |
| AI593442 | -1.5 | -2.54 | 3.52 | 3.57 | -0.43 | -1.32 | 0.27 | -0.85 | -2.36 | -2.38 | -0.52 | -0.77 |
| Aldh1a1 | -2.46 | -1.56 | -2.11 | -1.98 | -2.49 | -1.2 | 0.95 | 0.1 | 0.35 | 0.64 | -1.51 | -2 |
| Anln | 1.19 | 1.14 | -2.07 | -2.13 | -0.76 | -0.79 | 0.82 | -0.1 | 3.91 | 3.88 | 0.28 | -1.69 |
| Apcdd1 | -1.48 | -2.27 | -2.44 | -2.42 | 1.69 | 1.42 | 0.36 | -0.22 | -1.54 | -1.82 | -0.47 | 0.39 |
| Apod | -0.76 | -0.56 | -0.92 | -1.05 | 0.31 | 0.76 | 2.53 | 2.03 | 4.94 | 5.15 | 2.74 | 2 |
| Aqp4 | -1.01 | -1.27 | -1.73 | -1.54 | 1.06 | 1.03 | 4.34 | 3.59 | 1.55 | 2.08 | 1.26 | -0.24 |
| Arhgef33 | -1.65 | -1.97 | 7.41 | 7.38 | -2.03 | -2.29 | -2.43 | -2.2 | -1.67 | -2.04 | -1.3 | -0.78 |
| Ascl1 | -1.85 | -1.35 | -1.96 | -2.09 | -0.81 | -0.22 | -1.32 | 1.34 | -2.16 | -1.75 | 1.51 | -0.46 |
| Asgr1 | -2.55 | -2.24 | -2.24 | -2.38 | 1.46 | 1.14 | 0.35 | 1.83 | -1.33 | -0.74 | -2.62 | 0.28 |
| Aspa | -1.4 | -2.09 | -1.62 | -1.63 | -0.99 | -0.87 | 0.13 | -0.99 | 3.66 | 3.02 | 1.59 | 0.26 |
| Atp1a2 | -2.63 | -2.39 | -2.36 | -2.34 | 0.41 | 0.43 | 3.29 | 3.34 | 0.36 | 0.38 | 2.43 | 2.45 |
| Atp2a3 | -0.3 | -0.36 | 5.82 | 5.86 | -0.73 | -0.79 | -1.15 | -0.17 | 0.68 | 0.28 | -0.1 | -0.55 |
| B3gnt5 | -2.93 | -2.34 | 2.81 | 2.77 | -2.95 | -2.94 | -2.76 | -2.88 | -3.11 | -2.86 | -2.98 | -2.14 |
| B3gnt7 | 1.65 | 1.97 | -1.88 | -1.4 | -0.66 | 0.34 | 1.43 | 1.25 | 0.46 | -0.92 | 3.59 | 3.78 |
| Bcl11a | -0.01 | -0.03 | 6.76 | 6.55 | -1.16 | -1.58 | -1.72 | -0.69 | -0.94 | -0.97 | -0.19 | -0.97 |
| Bhlhe22 | -1.16 | -2.23 | -1.69 | -2.35 | 2.83 | 2.54 | 1.27 | 1.01 | -0.49 | -1.41 | -2.2 | 0.49 |
| C1ql1 | -1.82 | -1.57 | -2.26 | -2.78 | -0.6 | -0.49 | 2.24 | 2.65 | -1.27 | -1.69 | 5.84 | 5.17 |
| C1ql2 | -1.41 | -1.52 | -1.51 | -1.65 | 1.62 | 0.8 | 0.71 | 1.14 | -0.24 | -1.31 | 3.86 | 5.15 |
| Cacna1g | 1.48 | 1.57 | 4.57 | 4.75 | 1.7 | 1.72 | -0.09 | 0 | -1.26 | -1.4 | -0.56 | 0.06 |
| Cacng4 | -2.16 | -2.25 | -2.84 | -2.83 | -1.48 | -1.11 | 1.64 | 1.71 | -0.89 | -1.19 | 3.54 | 3.52 |
| Calb1 | -1.69 | -1.98 | 6.9 | 6.88 | -1.64 | -0.74 | -1.37 | -1.39 | -0.98 | -1.25 | -1.82 | -2.29 |
| Camk1g | -0.11 | 0.82 | -1.54 | -1.44 | 4.12 | 4.13 | 3.71 | 4.04 | 1.26 | 1.32 | 3.78 | 3.72 |
| Car8 | -1.15 | -1.57 | 7.24 | 7.51 | -2.22 | -1.99 | -2.17 | -2.03 | -1.78 | -1.82 | -0.12 | 0.3 |
| Carns1 | -2.58 | -2 | -1.77 | -2.42 | -1.17 | -1.87 | 0.19 | 0.96 | 3.57 | 3.56 | -2.64 | -2.18 |
| Casq2 | 0.81 | 0.5 | 5.41 | 5.45 | -1.44 | -1.32 | -1.27 | -0.32 | -1.25 | -0.8 | 0.17 | -0.97 |
| Cbln2 | -1.07 | -1.18 | -1.18 | -1.3 | -0.13 | 0.48 | -1.42 | -1.36 | -1.37 | -0.98 | -0.2 | 0.06 |
| Ccdc152 | -0.11 | -1.44 | -1.43 | -1.75 | -1.3 | -2.08 | 0.09 | -0.09 | 2.34 | 2.01 | -2.16 | -1.06 |
| Ccdc180 | -0.2 | -0.25 | -0.69 | -0.98 | -0.83 | -1.52 | -1.27 | -0.77 | -1.36 | -0.77 | -0.16 | -1.38 |
| Ccnd2 | -1.11 | -1.18 | -1.02 | -1.36 | -1.32 | -1.41 | -0.59 | -0.31 | -1.07 | -0.07 | 2.05 | 2.15 |
| Cd82 | 1.13 | 0.88 | 0.33 | 0.15 | -0.48 | -0.57 | 1.08 | 1.32 | 3.61 | 3.73 | 1.52 | -0.35 |
| Cd9 | -1.96 | -1.73 | -2.23 | -1.7 | -1.07 | -0.97 | 1.56 | 1.66 | 2.43 | 2.77 | 3.24 | 3.83 |
| Cdh19 | -1.46 | -1.5 | -1.45 | -1.7 | -1.97 | -1.48 | -0.52 | -0.78 | 2.23 | 2.09 | -1.4 | -1.54 |
| Cdhr1 | -0.19 | -2.09 | -0.82 | -1.68 | -2.01 | -0.41 | 0.24 | -0.32 | -1.76 | -0.78 | 3.02 | 3.03 |
| Cldn11 | -1.76 | -2.05 | -1.6 | -2.35 | -0.98 | -0.54 | 1.09 | 0.47 | 5.2 | 5.34 | 2.29 | 1.33 |
| Clec7a | 2.43 | 0.82 | 0.43 | 0.58 | 1.29 | -1.02 | -0.53 | -1.33 | 1.63 | 0.16 | -1.11 | 0.17 |
| Clmn | -2.26 | -2.39 | 2.76 | 2.65 | -1.47 | -1.64 | 0.85 | 0.89 | 2.55 | 2.48 | 0.71 | -0.59 |
| Cmtm5 | -2.78 | -2.07 | -2.83 | -2.89 | -0.11 | 0.35 | 3.59 | 4.14 | 4.36 | 4.51 | 3.44 | 2.62 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cntn3 | -1.77 | -1.79 | 3.87 | 3.83 | -1.85 | -1.55 | -0.17 | -0.69 | -2.16 | -2.45 | -1.07 | -0.8 |
| Cntnap5a | 0.76 | 0.43 | 2.79 | 2.7 | -1.23 | -1.29 | -1.44 | -0.91 | -1 | -0.79 | -0.18 | -0.78 |
| Cobl | -1.52 | -1.82 | -0.99 | -0.93 | -2.02 | -2.09 | -1.32 | -1.27 | 1.99 | 1.59 | 0.9 | 1.1 |
| Col5a3 | -1.13 | -1.13 | -2.29 | -2.52 | -1.14 | -0.73 | 1.25 | 2.22 | -0.44 | -0.88 | 4.74 | 4.54 |
| Col6a1 | -0.41 | -1.72 | 3.91 | -0.81 | -0.47 | -1.01 | -0.69 | 0.87 | -1.24 | -1.73 | 2.16 | 0.49 |
| Cpm | -0.66 | -0.78 | -1.35 | -1.57 | -0.98 | -0.9 | 0.38 | 0.21 | 3.39 | 3.66 | 3.05 | 2.33 |
| Cryab | -2.69 | -2.42 | -2.77 | -2.3 | -1.48 | -2.01 | 0.42 | -0.24 | 2.78 | 2.45 | 1.63 | 1.45 |
| Cspg4 | -2.17 | -2.1 | -2.09 | -2.16 | -0.71 | -0.62 | 1.57 | 2.19 | 1.8 | 1.26 | 4.68 | 4.86 |
| Csrp1 | -1.99 | -1.59 | -2.37 | -2.35 | -0.98 | -0.69 | 2.1 | 2.29 | 3.63 | 3.69 | 1.28 | -0.43 |
| D7Ertd443e | -1.36 | -1.65 | 0.31 | 0.08 | -1.35 | -1.2 | -1.08 | -1.52 | 3.92 | 3.76 | 0.24 | -0.85 |
| Ddx3y | 1.49 | -2.38 | 2.03 | -2.53 | 1.64 | -2.96 | 1.4 | -2.46 | 2.15 | -2.56 | 2.16 | -2.88 |
| Dock5 | -1.2 | -1.34 | -1.92 | -1.31 | -0.99 | -0.82 | 0.91 | 0.2 | 3.71 | 3.64 | 1.89 | -0.52 |
| Dpy19l2 | -1 | -1.28 | -1.23 | -1.53 | -1.84 | -1.42 | -1.65 | -1.31 | -0.84 | -0.65 | -0.66 | -1.68 |
| Ebf2 | 0.49 | 0 | 4.96 | 4.73 | -0.5 | -0.28 | -0.16 | 0.03 | -0.36 | -0.28 | 0.95 | 0.92 |
| Echdc2 | -2.05 | -2.44 | -2.44 | -1.65 | -1.98 | -1.33 | -1.98 | -2.51 | -2.76 | -2.6 | -2.27 | -2.47 |
| Efna5 | -0.72 | -0.48 | 2.57 | 2.59 | -0.71 | -0.88 | -0.8 | -0.81 | -2.29 | -1.55 | -0.98 | -1.54 |
| Enpp2 | -2.15 | -2.12 | -1.57 | -1.12 | -0.36 | -0.07 | 1.33 | 0.94 | 3.9 | 3.99 | 1.3 | 1.39 |
| Erbb3 | -1.1 | -1.58 | -2.59 | -2.33 | -1.51 | -1.23 | -0.31 | 0.55 | 2.92 | 2.65 | 3.12 | 2.67 |
| Ermn | -2.61 | -1.56 | -1.55 | -2.43 | -0.87 | -0.32 | 1.24 | -1.16 | 4.52 | 4.42 | -1.34 | -0.23 |
| Etnppl | -0.93 | 0.43 | -1.47 | -1.66 | -0.01 | -0.68 | 3.06 | 2.73 | 1.11 | 1.34 | 0.09 | -1.68 |
| Fa2h | -1.94 | -2.17 | -2 | -2.28 | -1.22 | -0.94 | 0.67 | -0.02 | 3.65 | 3.62 | 1.81 | 2.38 |
| Fam46a | -1.39 | -1.55 | -2.11 | -2.24 | 0.36 | 0.04 | -1.27 | -2.3 | 1.01 | 1.05 | -1.5 | -0.08 |
| Fgfr2 | -2.49 | -2.54 | -2.18 | -3.01 | 0.38 | 0.32 | 1.92 | 2.05 | 3.52 | 3.5 | 1.18 | 0.76 |
| Flrt2 | -1.36 | -1.25 | -1.31 | -1.5 | 1.93 | 1.87 | -0.14 | 0.06 | -2.38 | -1.74 | 1.23 | 1.67 |
| Fmo3 | -0.52 | -0.5 | -1.01 | -1.23 | -1.54 | -1.51 | -1.06 | -1.19 | -0.96 | -1.73 | -0.54 | -0.76 |
| Folh1 | -1.98 | -1.65 | -0.42 | -0.59 | -0.52 | -0.29 | 2.44 | 2.04 | 2.44 | 2.17 | 0.87 | 1.26 |
| Foxh1 | 2.18 | 2.29 | 3.51 | 3.05 | 2.67 | 2.39 | 2.1 | 2.45 | 0.57 | 0.29 | 1.32 | 1.11 |
| Fsip2 | -0.42 | -0.71 | -1.48 | -1.69 | -1.52 | -1.49 | -1.87 | -1.78 | -1.36 | -0.65 | -0.18 | -0.83 |
| Fxyd1 | 2.44 | 1.78 | -2.6 | -1.44 | 0.62 | 0.83 | 4.27 | 5.25 | 0.58 | 0.86 | 1.8 | 0.25 |
| Fxyd7 | 3.03 | 3.49 | -0.76 | -0.74 | -0.52 | -0.03 | 3.25 | 4.03 | -0.44 | 0.31 | 1.14 | 1.6 |
| Gad2 | -1.77 | -1.95 | 2.11 | 1.85 | 2.84 | 2.8 | 1.71 | 1.51 | -0.77 | -0.93 | 1.59 | 2.36 |
| Gal3st1 | -0.87 | -1.35 | -1.8 | -1.44 | -1.34 | -1.17 | 0.94 | 1.84 | 3.42 | 3.92 | 4.71 | 3.49 |
| Galnt5 | -1.52 | -1.16 | -2.13 | -1.37 | -2.24 | -2.85 | -1.45 | -1.47 | 2.16 | 2.25 | -1.33 | -1.71 |
| Galnt6 | -0.78 | -0.48 | -0.86 | -1.39 | -1.71 | -0.68 | 0.62 | -0.26 | 4.15 | 4.13 | 0.92 | 0.72 |
| Galr1 | -0.5 | -1.12 | -0.88 | -1.58 | -2.22 | -1.23 | -1.13 | -1.41 | -0.53 | 0.25 | -0.64 | -1.61 |
| Gdf10 | -0.65 | -1.82 | -1.07 | -1.76 | 1.37 | 1.91 | 4.69 | 4.91 | 0.64 | 0.47 | -1.33 | -2.28 |
| Gfap | -0.66 | -1.04 | -1.65 | -1.02 | 0.97 | 1.07 | 4.31 | 4.76 | 1.91 | 2.86 | 3.03 | 0.26 |
| Gja1 | -2.41 | -1.54 | -2.28 | -1.84 | 0.38 | 1.13 | 3.61 | 3.7 | 1.49 | 1.93 | 1.63 | 1.5 |
| Gjb1 | -0.95 | -1.14 | -0.73 | -1.59 | -2.2 | 0.35 | 0.83 | -0.37 | 3.97 | 3.8 | 0.05 | 2.09 |
| Gjc2 | 0.35 | -0.11 | -2.31 | -0.2 | -0.17 | 0.83 | 1.36 | 1.42 | 4.07 | 4.66 | 1.47 | 0.68 |
| Gldn | -0.7 | -0.62 | -0.9 | -0.8 | 0.6 | 0.12 | -1.34 | -0.86 | -1.55 | -1.5 | -1.27 | -1.55 |
| Gli1 | -1.52 | -1.43 | -2.48 | -1.86 | 0.67 | 0.87 | 3.84 | 4.12 | -0.02 | -0.69 | -1.38 | -0.34 |
| Glp2r | -1.23 | -1.74 | -1.93 | -2.27 | -1.99 | -2.06 | -1.81 | -1.02 | -2.02 | -2.48 | -1.09 | -0.49 |
| Glul | -1.82 | -2.14 | -1.95 | -2.16 | -0.6 | -0.49 | 2.04 | 2.31 | 3.18 | 3.28 | 1.16 | -0.18 |
| Gm136 | -1.2 | -0.95 | -1.57 | -0.08 | 0.51 | 0.28 | 0.33 | 1.28 | -0.9 | 0.02 | -1.16 | -0.41 |
| Gnb3 | 2.45 | 0.53 | -0.36 | 0.05 | 2.16 | 1.76 | 1.43 | 1.06 | -1.65 | 0.74 | 0.56 | 1.13 |
| Gng11 | -1.12 | -0.35 | -1.22 | -1.35 | -1.14 | -1.13 | -0.7 | -1.41 | -1.41 | -1.02 | -1.19 | -1.36 |
| Gpr37 | -0.75 | -1.26 | -0.37 | -1.48 | -0.47 | -0.15 | 1.49 | 1.51 | 5.01 | 4.93 | 1.03 | 0.2 |
| Gpr37l1 | -2.4 | -2.53 | -2.27 | -2.95 | -0.56 | -0.17 | 3.14 | 3.57 | 0 | 0.02 | 3.64 | 2.54 |
| Gpr63 | -0.91 | -1.26 | 4.72 | 4.71 | -0.1 | 0.42 | -1.15 | -1.14 | 0.44 | 0.21 | -1.37 | -0.78 |
| Gpx2 | 0.63 | 0.63 | -1.22 | -1.01 | -1.8 | -1.78 | -0.69 | 0.26 | -1.5 | -1.66 | -1.18 | 0.62 |
| Gramd3 | -2.44 | -2.82 | -2.7 | -2.89 | -0.28 | -0.17 | 2.42 | 2.39 | 0.91 | 0.94 | 0.83 | 0.42 |
| Grb14 | -0.58 | -0.8 | 2.06 | 1.95 | 1.42 | 1.47 | 0.64 | 0.9 | 2.39 | 2.85 | 2.34 | 2.3 |
| Gria3 | -2.79 | -2.97 | 2.31 | 1.97 | 2.18 | 2.13 | 1.13 | 0.51 | -1.3 | -1.09 | -0.06 | 0.8 |
| Grik3 | -1.75 | -1.94 | -2.31 | -2.34 | 3.39 | 3.41 | 1.97 | 2.17 | -0.63 | -0.23 | 1.43 | 2.09 |
| Grm1 | 0.14 | 0.29 | 2.75 | 2.65 | 1.42 | 1.42 | 0.29 | -0.15 | -1.5 | -1.57 | -1.83 | -0.84 |
| Grm5 | -1.39 | -1.63 | -1.61 | -1.75 | -2.06 | -1.96 | -0.49 | -0.46 | -2.09 | -1.98 | 1.26 | 1.52 |
| Gsn | -1.82 | -1.74 | -1.42 | -1.21 | -1.32 | -1.21 | 0.29 | 0.38 | 2.98 | 3.23 | 2.56 | 1.84 |
| Hapln2 | -2.36 | -1.58 | -2.48 | -2.93 | 0.38 | 0.73 | 1.04 | 0.6 | 4.18 | 4.03 | -0.9 | -1.21 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hepacam | -2.77 | -2.52 | -3.05 | -3.04 | -0.87 | -0.69 | 2.01 | 1.88 | 2.82 | 2.56 | 1.87 | 1.42 |
| Hhatl | -2.58 | -2.99 | 2.42 | 2.43 | -2.61 | -2.92 | -1.52 | -0.27 | 1.48 | 0.8 | -2.07 | -1.58 |
| Hspa1b | -1.47 | -0.8 | -1.59 | -1.73 | -1.51 | -1.49 | -1.86 | -0.61 | -1.8 | -1.37 | -1.56 | -1.75 |
| Htr1b | -0.08 | -1.18 | 4.23 | 5.25 | -1.1 | -0.1 | 2.14 | 1.21 | -0.02 | -0.97 | 0.36 | 0.06 |
| Id4 | -2.25 | -1.51 | 0.03 | 1.48 | 0.02 | -0.25 | 3.58 | 4.42 | -0.6 | -0.31 | -2.33 | -2.03 |
| Igsf11 | -1.58 | -0.84 | -2.78 | -2.73 | -1.06 | -0.49 | 1.95 | 1.8 | 2.78 | 2.86 | 1.04 | 0.91 |
| Il22 | -0.77 | -1.68 | 4.05 | 5.14 | -1.59 | -0.3 | -1.29 | -1.2 | -1.21 | -1.46 | -0.89 | -0.7 |
| Il33 | -0.54 | -0.81 | -1.67 | -1.54 | 0.2 | 0.29 | 3.83 | 3.88 | 0.96 | -0.09 | 0.88 | 1.05 |
| Insc | -0.48 | -0.94 | -1.82 | -1.79 | -0.95 | -1 | 1.22 | 0.09 | 5.42 | 4.97 | 1.19 | 0.71 |
| Itgb8 | -1.56 | -2.55 | -2.62 | -2.28 | -1.41 | -1.01 | 1.25 | 0.6 | 2.17 | 1.83 | 0.98 | 1.88 |
| Itih3 | -1.4 | -1.47 | -2.24 | -2.21 | 1.69 | 1.84 | 6.54 | 5.13 | 0.94 | 1.1 | -0.54 | -0.74 |
| Itpr1 | -0.01 | 0.29 | 6.26 | 6.3 | 0.39 | 0.27 | -0.86 | -1.08 | -1.06 | -1.25 | -0.74 | -0.79 |
| Kcnc2 | -1 | -1.16 | -1.29 | -0.78 | 4.91 | 4.87 | 4.54 | 4.32 | 2.04 | 2.37 | 2.79 | 3.62 |
| Kcnj10 | -1.79 | -2.13 | -2.15 | -2.04 | -1.61 | -1.66 | 1.01 | 1.22 | 1.94 | 2.05 | 1.68 | 1.08 |
| Kif19a | 1.99 | 1.96 | -1.73 | -1.56 | 4.46 | 4.08 | 3.78 | 4.21 | 1.24 | 1.28 | 1.91 | 2.65 |
| Kit | -2.25 | -2.35 | -3.05 | -2.92 | 3.32 | 3.34 | 2.35 | 2.19 | -0.14 | 0.04 | 0.62 | 1.03 |
| Kitl | -1.86 | -2.4 | 4.43 | 4.38 | -1.83 | -2.04 | 0.59 | -0.01 | 1.38 | 0.26 | -1.23 | -1.88 |
| Klk6 | -1.22 | -1.13 | -2.29 | -0.94 | -0.26 | 0.31 | 2.67 | 1.7 | 4.92 | 5.14 | -1.35 | -0.68 |
| Leng9 | -3.11 | -2.96 | -2.08 | -3.3 | -2.97 | -2.88 | -2.71 | -2.86 | -2.52 | -2.17 | -3.35 | -2.54 |
| Lfng | -0.53 | -1.88 | -1.53 | 1.21 | 1.77 | 1.87 | 5.85 | 5.13 | 2.09 | 1.3 | 3.28 | -1.5 |
| Lgi4 | 1.39 | 1.37 | -1.7 | -2.01 | 1.29 | 1.45 | 4.7 | 5.11 | 2.14 | 2.45 | 1.14 | -0.31 |
| Lims2 | -0.59 | -0.85 | -1.53 | -1.57 | -1.14 | -0.83 | 1.81 | 2.61 | 0.17 | 0.48 | 4.75 | 4.69 |
| Mag | -0.16 | -0.77 | -2.36 | -2.4 | -0.55 | -0.24 | 1.57 | 1.32 | 5.86 | 5.98 | 2.06 | 1.33 |
| Mak | -0.79 | -1.04 | -1.8 | -1.45 | -1.89 | -1.81 | -2.21 | -0.88 | -1.56 | -1.21 | 0.07 | -1.47 |
| Mal | -1.88 | -1.62 | -2.33 | -2.89 | -0.06 | -0.15 | -0.09 | -0.56 | 4.13 | 3.91 | 0.72 | -0.35 |
| March11 | -0.99 | -0.72 | 0.38 | 0.2 | 3.41 | 3.46 | -0.85 | -0.41 | -1.94 | -2.35 | 0.55 | 0.97 |
| Marcksl1 | -1.21 | -2.27 | -2.26 | -2.39 | -1.26 | -1.61 | -1.74 | -1.66 | -0.37 | -0.77 | -2.23 | -1.92 |
| Mcam | -2.49 | -2.1 | -3.02 | -2.95 | -1.82 | -1.9 | -1 | -0.27 | 2.63 | 2.94 | 1.2 | 1.11 |
| Mff | -2.83 | -2.4 | -2.99 | -3.14 | -2.86 | -2.65 | -3.05 | -2.68 | -2.88 | -2.25 | -3.34 | -2.93 |
| Mfge8 | -1.34 | -1.25 | -1.75 | -2.07 | -0.81 | -0.77 | 2.24 | 2.62 | 0.59 | 0.6 | 2.95 | 2.84 |
| Mlc1 | -0.81 | -1.45 | -1.63 | -1.12 | 0.68 | 1.02 | 4.24 | 4.36 | 0.84 | 1.38 | 0.12 | -1.05 |
| Mog | -1.17 | -0.58 | -0.83 | -1.31 | -0.18 | -0.01 | 1.09 | 0.11 | 5.52 | 5.43 | 1.22 | 0.23 |
| mt-Co1 | -1.48 | -0.89 | -1.53 | -0.89 | -1.19 | -0.92 | -0.81 | -1.42 | 0.89 | 0.89 | -0.57 | -0.87 |
| mt-Nd4 | -2.72 | -2.54 | -2.72 | -2.79 | -2.68 | -2.62 | -2.66 | -2.99 | -1.75 | -1.73 | -2.3 | -2.41 |
| Mybpc1 | -0.36 | -0.78 | 0.96 | 0.03 | -1.33 | -0.9 | 0.72 | 0.95 | -0.21 | -0.03 | 0.61 | -0.72 |
| Myot | -0.7 | -0.47 | -1.55 | -1.72 | -2.05 | -2.03 | -2.37 | -1.8 | -2.32 | -1.91 | -1.12 | -2.27 |
| Myrf | -1.83 | -2.06 | -0.01 | 0.18 | -0.84 | -0.35 | 1 | 0.98 | 4.6 | 4.51 | 3.25 | 2.55 |
| Ndrg1 | -0.92 | -1.79 | -1.71 | -1.5 | -0.83 | -0.6 | 1.23 | 0.88 | 4.09 | 4.36 | 0.42 | 0.81 |
| Nell1 | -0.39 | -0.57 | 4.77 | 4.64 | -1.15 | -1.12 | 0.6 | 0.18 | 0.13 | 0.28 | -0.05 | -0.95 |
| Neto1 | -0.64 | -0.45 | -0.7 | -0.46 | -0.91 | -1.21 | 0.73 | 0.89 | -1.31 | -0.58 | 4.06 | 4.1 |
| Neu4 | -1.77 | -1.89 | -1.89 | -2.02 | -1.81 | -1.1 | -1.59 | -0.25 | -2.09 | -1.67 | 1.94 | 0.51 |
| Ninj2 | -0.69 | -0.68 | -1.91 | -1.4 | -1.49 | -1.11 | 0.14 | 0.07 | 3.91 | 3.87 | 2.6 | 2.42 |
| Nkx2-2 | -2.42 | -2.87 | -2.87 | -2.96 | -2.19 | -1.78 | 1.18 | 1.97 | 1.1 | 1.08 | 0.95 | 1.14 |
| Notch1 | -0.9 | -1.7 | -1.64 | -2.33 | -0.45 | -0.45 | 2.45 | 3.22 | 1.02 | 0.85 | 4.05 | 3.5 |
| Nrk | -1.07 | -1.27 | 6.94 | 6.45 | -2.31 | -2.72 | -1.92 | -2.62 | -2.36 | -1.82 | -0.82 | -1.91 |
| Olig1 | -1.87 | -2.01 | -1.42 | -2.59 | -1.9 | -0.88 | 0.47 | 0.93 | 2.28 | 2.24 | 2.57 | 3.4 |
| Olig2 | -1.49 | -1.23 | -2.18 | -2.15 | -0.91 | -0.54 | 0.83 | 1.2 | 3.18 | 3.23 | 3.43 | 4.06 |
| Opalin | -2.14 | -0.68 | -2.47 | -2.45 | -0.88 | -0.69 | 0.2 | -0.11 | 5.59 | 5.32 | -0.03 | 1.09 |
| Pax3 | -1.45 | -1.75 | -2.64 | -2.42 | -0.56 | -0.35 | 2.3 | 2.24 | -0.92 | -0.24 | 1.44 | 1.38 |
| Pcp2 | -1.72 | -1.14 | 4.57 | 4.71 | -1 | -0.96 | -0.62 | -1.73 | -0.29 | 0.28 | 0.37 | -1.51 |
| Pdc | -0.04 | 0.21 | 2.05 | 1.59 | 0.76 | 0.57 | 0.06 | 0.18 | -0.12 | -0.97 | -0.36 | -0.28 |
| Pdgfra | -1.1 | -1.69 | -2.13 | -1.65 | -0.2 | 0.01 | 1.69 | 2.44 | -1.22 | -1.23 | 6.44 | 6.13 |
| Pdzd3 | 4.91 | 4.97 | 0.85 | 0.46 | 2.29 | 1.45 | 2.89 | 3.99 | 2.26 | 4.11 | 2.79 | 1.46 |
| Penk | 0.67 | 1.36 | -0.57 | -2.04 | 3.69 | 3.35 | 2.94 | 2.86 | 1.15 | 1.08 | -1 | -0.14 |
| Pex5l | -2.01 | -2.16 | -2.63 | -2.82 | 0.5 | 0.29 | 0.92 | 0.37 | 3.92 | 3.71 | 0.42 | -0.43 |
| Pgghg | -1.37 | -1.53 | -1.52 | -0.86 | -0.5 | -0.46 | 2.66 | 3.05 | 2.47 | 1.05 | 3.36 | 1.9 |
| Phyhip | -0.59 | -1.22 | -2.38 | -2.95 | -0.79 | -0.81 | -2.15 | -1.47 | -2.43 | -1.94 | -2.58 | -2.38 |
| Pkp3 | -1.53 | -0.89 | 5.36 | 4.98 | -1.57 | -1.54 | -0.51 | -0.4 | -1.85 | -1.43 | -0.01 | -1.8 |
| Pla2g16 | -1.56 | -2.13 | -2.68 | -2.44 | 0.09 | 0.26 | 1.3 | 1.29 | 2.8 | 3.34 | 1.7 | -0.59 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Plch1 | -1.69 | -1.97 | -1.6 | -1.73 | 3.43 | 3.71 | 0.27 | 0.18 | -1.39 | -1.46 | -1.53 | 1.3 |
| Plekhd1 | -1.75 | -2.05 | 3.4 | 3.19 | 1.77 | 1.53 | 1.21 | 0.88 | -0.96 | -0.66 | -2.23 | -1.15 |
| Plekhg3 | -1.08 | -1.69 | -2.42 | -2.39 | -1.7 | -1.47 | 0.18 | -0.06 | 3.51 | 3.52 | 1.23 | 1.43 |
| Plip | -1.48 | -1.28 | -0.94 | -1.59 | -1.27 | -0.93 | 0.68 | 0.79 | 3.25 | 3.14 | 3.75 | 3.3 |
| Plp1 | -1.76 | -1.53 | -2.27 | -1.65 | -0.92 | -0.66 | 1.05 | 0.33 | 4.27 | 4.26 | 1.37 | 1.18 |
| Plpp3 | -2.77 | -2.31 | -2.19 | -2.17 | -0.13 | 0.17 | 3.13 | 3.05 | 0.56 | 0.68 | 1.34 | 1.13 |
| Plpp4 | 1.23 | 1.26 | -2.03 | -2.3 | -1.14 | -1.41 | 0.01 | -0.19 | -1.96 | -1.77 | 2.12 | 2.74 |
| Plscr1 | -1.78 | -0.8 | -2.4 | -0.13 | -2.33 | -2.31 | -1.51 | -1.26 | -2.16 | -1.65 | -0.37 | -1.18 |
| Plxnb3 | -2.49 | -2.86 | -3 | -2.95 | -1.72 | -0.48 | 1.83 | 2.32 | 2.8 | 2.62 | 3.31 | 2.69 |
| Pmp2 | -1.43 | -1.56 | -1.55 | 0.43 | -1.46 | -1.44 | -1.09 | -1.76 | -0.54 | -1.33 | -0.66 | -0.93 |
| Pmp22 | -2.6 | -2.54 | -2.93 | -2.01 | -1.12 | -1.11 | 1.06 | 0.82 | 2.25 | 2.1 | 1.46 | 1.91 |
| Ppfibp1 | -0.68 | -0.8 | -1.72 | -1.78 | 0.09 | 0.25 | 1.32 | 1.89 | 0.81 | 0.68 | 5.09 | 4.84 |
| Ppp1r14a | -1.05 | -1.41 | 1.49 | 0.53 | 0.01 | -0.67 | 0.84 | 0.97 | 4.59 | 4.73 | 3.24 | 1.07 |
| Ppp1r17 | 1.41 | 1.42 | 5.37 | 5.5 | -1.32 | -1.29 | -2.07 | -0.78 | 0.93 | 0.31 | 0.57 | -1.56 |
| Prex1 | -1.86 | -2.03 | -1.98 | -2.06 | -0.91 | -0.61 | 2.11 | 2.83 | 2.14 | 2.18 | 2.55 | 2.33 |
| Prex2 | -1.79 | -2.05 | -2.63 | -2.6 | 0.59 | 0.66 | 2.88 | 2.9 | 1.85 | 1.8 | 1.62 | 1.08 |
| Prima1 | -1.14 | -1.84 | -2.13 | -2.2 | -1.17 | -1.19 | 1.27 | 0.63 | 3.65 | 3.82 | 1.08 | 0.94 |
| Prkcg | -2.07 | -2.09 | 4.48 | 4.47 | 2.4 | 2.48 | 0.77 | 0.84 | -1.25 | -1.19 | -1.24 | 0.26 |
| Ptr5 | -1.02 | -1.28 | -2.45 | -2.15 | 1.08 | 1.36 | 4.22 | 4.78 | 0.44 | 0.17 | 3.06 | 2.2 |
| Prrg3 | -1.59 | -1.92 | -2.68 | -2.76 | -2.63 | -2.27 | -2.58 | -2.54 | -2.54 | -2.15 | -1.88 | -2.5 |
| Prrx1 | -0.93 | -1.1 | -1.35 | -2 | -0.63 | -0.62 | 1.38 | 1.02 | -1.4 | -1.06 | 1.55 | 2.31 |
| Ptchd4 | 0.7 | 0.53 | 4.27 | 4.12 | -0.45 | -0.67 | -0.6 | -1.26 | -1.96 | -2.06 | -1.61 | -1.26 |
| Ptprk | -1.87 | -2.1 | -2.37 | -2.62 | 1.78 | 1.84 | -0.64 | -0.74 | 0.14 | 0.16 | 0.93 | 1.33 |
| Ptprz1 | -2.77 | -2.64 | -1.77 | -2.28 | 0.95 | 1.03 | 1.57 | 1.28 | -1.32 | -1.37 | 2.05 | 2.41 |
| Pttg1 | 0.38 | -2.17 | -1.86 | -2.7 | -2.52 | -2.5 | -2.18 | -1.72 | -1.91 | -2.4 | -1.58 | 0.62 |
| Pvalb | -1.97 | -1.65 | 2.42 | 2.95 | 3.11 | 3.09 | 2.27 | 2.41 | -0.42 | 0.04 | -1.54 | 1.08 |
| Pxdc1 | -1.68 | -1.66 | 0.41 | 1.68 | 0.1 | -0.46 | 1.23 | 1.53 | -0.6 | -0.89 | 4.35 | 4.39 |
| Qk | -3.06 | -2.98 | -3.15 | -3.15 | -2.98 | -2.84 | -1.96 | -1 | -0.8 | -0.42 | -1.41 | -1.73 |
| Rapgef3 | -1.67 | -1.99 | -2.88 | -2.39 | -0.45 | -0.47 | 1.81 | 2.08 | 3.11 | 2.91 | 3.98 | 3.49 |
| Rassf2 | -2.79 | -2.82 | -2.82 | -3.04 | -0.94 | -0.71 | 1.95 | 2.28 | 1.86 | 1.87 | 1.03 | 0.18 |
| Rbp2 | -0.55 | -0.35 | -1.2 | -1.1 | -1.55 | -1.87 | -1.18 | -2.22 | -1.52 | -1.08 | -0.57 | -1.27 |
| Rbpjl | -0.29 | -0.85 | -1.05 | -0.88 | -0.93 | -0.17 | 2.53 | 3.13 | 3.54 | 3.75 | 5.03 | 4.91 |
| Rgcc | -2.1 | -2.5 | -0.38 | -1.75 | -1.16 | -1 | 1.15 | 0.89 | -0.67 | 0.12 | 2.53 | 3.09 |
| Rgma | 0.42 | -0.44 | -2.24 | -2.1 | 0.36 | 0.55 | 3.84 | 3.87 | 1.69 | 1.76 | 1.72 | 1.02 |
| Ryr1 | -0.83 | -1.28 | 4.88 | 6.48 | -1.06 | -0.61 | -1.36 | -1.31 | -1.35 | -1.43 | -0.29 | -1.41 |
| S100b | -1.92 | -1.95 | -2.41 | -1.27 | -1.36 | -0.33 | 2.45 | 2.5 | 2.47 | 2.84 | -1.3 | 0.4 |
| S1pr1 | -1.5 | -1.68 | -2.67 | -2.38 | 1.66 | 1.58 | 5.41 | 5.46 | 1.26 | 1.47 | -2.64 | -0.82 |
| Sall1 | -1.45 | -1.87 | -2.16 | -2.32 | -0.85 | -0.6 | 0.42 | -0.1 | 4.11 | 3.86 | 0.86 | 0.89 |
| Sec14l5 | -1.19 | -1.39 | -1.41 | -1.51 | -1.39 | -1.28 | 0.22 | -0.25 | 3.53 | 3.35 | 0.69 | -1.87 |
| Serpine2 | -2 | -2.03 | -2.41 | -2.57 | -1.01 | -0.92 | 1.35 | 1.3 | -0.85 | -0.09 | 3.79 | 3.81 |
| Shisa6 | -2.56 | -2.75 | 3.71 | 3.72 | 2.31 | 2.34 | 0.98 | 1.36 | -1.38 | -1.14 | 0.96 | 1.03 |
| Skor2 | 0.35 | 0.15 | 7.17 | 6.26 | -1.51 | -1.74 | -1.67 | -0.93 | -1.45 | -2.46 | -1.38 | -1.24 |
| Slc1a3 | -2.31 | -2.8 | -2.96 | -3 | 0.14 | 0.51 | 3.28 | 3.19 | 1.2 | 1.09 | 0.35 | 0.17 |
| Slc1a6 | -2.02 | -2.38 | 4.33 | 4.24 | -1.94 | -2.53 | -2.64 | -2.58 | -2.26 | -2.2 | -1.96 | -1.95 |
| Slc26a3 | -0.7 | -0.67 | -0.74 | -0.08 | -0.83 | -0.97 | -1.03 | -0.69 | -1.54 | -1.37 | -0.13 | -1.18 |
| Slc32a1 | -1.37 | -1.88 | 1.69 | 2.07 | 3.5 | 3.22 | 2.42 | 1.78 | -0.49 | 0.68 | -2.05 | 0.22 |
| Slc4a4 | 1.7 | 1.95 | -2.56 | -2.39 | -0.06 | 0.1 | 3.03 | 2.85 | 0.14 | 0.29 | -0.33 | -1.75 |
| Slc5a11 | -1.51 | -2.17 | -0.76 | -0.36 | -1.14 | -1.03 | 0.95 | -0.09 | 4.19 | 4.32 | -0.39 | 0.57 |
| Slc9a3 | -1.13 | -1.66 | 6.68 | 6.81 | -2.33 | -2.5 | -1.32 | -0.78 | -0.23 | -0.55 | -0.97 | -2.23 |
| Slitrk6 | -1.62 | -1.73 | -1.73 | -1.86 | -1.65 | -1.63 | 1.32 | -0.35 | 4.02 | 3.92 | 1.54 | 2.06 |
| Socs2 | -2.24 | -2.35 | 0.3 | 0.04 | 3.43 | 3 | 1.79 | 1.3 | 0.61 | 0.18 | -0.38 | 1.22 |
| Sorcs3 | -1.54 | -1.89 | -2.4 | -2.56 | 3.06 | 3.04 | -0.4 | -0.16 | -2.46 | -2.18 | 1.13 | 1.7 |
| Sox10 | -2.29 | -2.29 | -2.79 | -2.32 | -1.36 | -1.62 | 0.57 | 0.82 | 2.6 | 2.72 | 3.21 | 3.03 |
| Sox2 | -2.45 | -2.11 | -2.55 | -2.67 | -1.68 | -1.65 | 1.23 | 0.45 | 2.38 | 2.36 | 0.55 | 0.7 |
| Sox6 | -2.63 | -2.66 | -2.63 | -2.92 | -1.17 | -0.91 | 1.66 | 1.55 | -1.23 | -1.28 | 2.89 | 3.26 |
| Sox8 | -2.26 | -2.76 | -2.38 | -2.28 | -1.31 | -0.86 | 1.03 | 0.94 | 2.81 | 2.8 | 2.57 | 2.43 |
| Stag3 | -2.41 | -2.75 | -2.36 | -2.86 | -2.45 | -2.66 | -2.3 | -2.57 | -1.78 | -2.89 | -3.01 | -2.68 |
| Stk32a | -2.57 | -2.47 | -2.58 | -2.83 | -0.85 | -0.5 | 2.36 | 2.02 | -0.65 | -0.38 | 1.9 | 1.99 |
| Sulf2 | -1.68 | -1.86 | -2.41 | -2.64 | -0.4 | -0.91 | 1.07 | 1.09 | 1.99 | 1.71 | 3.51 | 3.6 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Susd5 | -0.99 | -1.02 | -1.65 | -1.55 | -1.32 | -1.67 | 0.55 | 1.15 | -1.52 | -0.81 | 3.65 | 3.85 |
| Tceal7 | -1.46 | -0.36 | -1.57 | -1.01 | -0.22 | -1.47 | -1.17 | -1.76 | -1.77 | -1.36 | -1.54 | -1.72 |
| Tfap2b | -0.01 | -0.31 | -1.49 | -1.7 | 3.88 | 4.08 | 2.84 | 2.81 | 0.11 | 0.68 | -0.5 | 1.62 |
| Thbs2 | -0.08 | -0.15 | -0.7 | -0.94 | -0.48 | -0.52 | -0.53 | 0.7 | -1.22 | 0.63 | 1.5 | 1.59 |
| Tmem125 | -0.83 | -1.74 | -1.73 | -1.87 | -0.88 | -1.63 | 1.19 | -0.53 | 5.17 | 6.33 | -0.95 | 1.41 |
| Tmem132d | -0.47 | -0.67 | 2.04 | 2.07 | -1.42 | -1.4 | 0.02 | 0.36 | -1.45 | -1.2 | 2.96 | 3.08 |
| Tmem63a | -1.3 | -1.61 | -2 | -1.85 | -0.8 | -0.96 | 0.81 | 0.25 | 3.82 | 4.16 | 0.02 | -0.68 |
| Tmem98 | -1.28 | -1.11 | -1.87 | -1.27 | -1.09 | -1.13 | 1.02 | -0.2 | 3.93 | 4.2 | 2.23 | -0.19 |
| Tnc | -1.46 | -1.08 | -0.3 | -2.19 | 1.81 | 1.92 | 4.93 | 4.56 | 1.08 | 0.67 | 1.94 | 2.06 |
| Tnfrsf13c | -1.8 | -1.92 | -1.91 | -2.05 | -1.83 | -1.81 | -2.17 | -2.11 | -0.14 | -0.97 | -1.89 | -2.07 |
| Tns3 | -1.12 | -1.52 | -1.94 | -2.45 | -1.37 | -1.07 | 1.48 | 1.47 | 2.19 | 2.38 | 3.19 | 3.07 |
| Trabd2b | -0.13 | -0.19 | 5.23 | 6.9 | -0.5 | -0.85 | -0.62 | -0.67 | -1.49 | -1.5 | 0.25 | 0.44 |
| Tril | -1.54 | -1.72 | -2.84 | -1.78 | -0.28 | -0.24 | 3.54 | 3.6 | 0.75 | 0.34 | 4.03 | 3.63 |
| Trpc3 | -2.35 | -2.37 | 6.43 | 6.09 | 1.13 | 0.98 | 1.94 | 1.4 | -0.99 | -1.21 | -1.19 | 0.17 |
| Trpc7 | -0.9 | -0.88 | 1.04 | 0.86 | 3.85 | 3.74 | 2.17 | 2.28 | 0.32 | 0.61 | 0.44 | 1.91 |
| Tshb | -1.96 | -2.08 | 0.55 | 0.2 | -1.99 | -0.64 | -0.54 | -1.12 | 2.99 | 2.73 | -2.04 | 1.44 |
| Tspan11 | -0.91 | -0.82 | 2.89 | 2.89 | -1.8 | -2.1 | 0.43 | 0.02 | -1.88 | -2.65 | 2.37 | 2.18 |
| Tspan2 | -1.46 | -1.6 | 2.28 | 2.19 | -0.88 | -0.59 | 0.79 | 0.54 | 4.2 | 4.19 | 2.77 | 3.08 |
| Tuba8 | 0.61 | -0.36 | 4.24 | 4.29 | 2.15 | 1.64 | 1.6 | 2.44 | -0.13 | 0.21 | -0.48 | 0.97 |
| Tubb2b | -2.38 | -2.03 | -2.48 | -2.6 | -0.95 | -1.09 | 1.25 | 1.33 | 1.37 | 2.46 | 2.62 | 2.12 |
| Txnip | -2.28 | -1.48 | -2.4 | -2.85 | 0.17 | -0.41 | 1.18 | 0.92 | 3.71 | 3.72 | 2.75 | 2.05 |
| Ube2b | -2.67 | -2.45 | -2.62 | -2.63 | -2.92 | -2.75 | -3.03 | -2.59 | -3 | -2.81 | -2.95 | -3.01 |
| Ugt8a | -2.09 | -2.14 | -1.72 | -2.23 | -0.18 | 0.01 | 0.37 | -0.47 | 3.01 | 3.07 | 1.31 | 1.17 |
| Upp1 | -0.63 | -1.51 | -2.09 | -2.22 | -0.98 | -0.65 | 1.65 | 0.49 | -0.92 | -1.21 | -0.33 | -0.49 |
| Vstm2b | -2.23 | -0.18 | -1.26 | -1.24 | 0.33 | -0.04 | -0.12 | 0.19 | -2.58 | -2.1 | 2.44 | 2.15 |
| Wfdc1 | -0.97 | -0.59 | 3.43 | 3.16 | 3.72 | 3.91 | 0.85 | 1.81 | -1.21 | 0.02 | -0.75 | 2.01 |
| Xrra1 | -1.26 | -1.14 | -1.77 | -1.68 | -1.15 | -1.28 | -1.54 | -1.29 | -1.19 | -0.79 | -1.26 | -0.45 |
| Zcchc24 | -1.92 | -2.07 | -2.53 | -2.71 | -0.92 | -0.46 | 2.29 | 2.96 | 2.65 | 2.78 | 4.36 | 3.62 |
| Zeb2 | -3.05 | -2.13 | -2.14 | -1.92 | -1.28 | -1.03 | 1.26 | 1.19 | 3.01 | 3.04 | 1.58 | 1.66 |
| Zfp36l1 | 0.18 | -2.41 | -2.4 | -1.94 | -1.48 | -1.19 | 0.82 | 1.18 | 1.04 | 0.41 | 1.6 | 1.36 |

**[00260]** The log2 fold change in expression for the 250 most variable genes across mouse, rat, and human nuclei between the normalized RNAseq results from the nuclei of the seven cells types compared to the RNAseq results for the sorted nuclei from each individual cell type is shown in Table 28. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value across nuclei from all cell types analyzed, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed. Two replicate samples of nuclei from each cell type was analyzed.

**Table 28. Log2 fold change in expression for nuclei from mouse samples**

| **Cell type** | **Granule** | | | **Purkinje** | | | **Basket** | | | **Astrocytes** | | **Oligo** | | **OPCs** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Replicate | 861 | 862 | 996 | 327 | 329 | 639 | 640 | 859 | 860 | 993 | 994 | 855 | 856 | 857 | 858 |
| 3110035E14Rik | -2.30 | -0.70 | -1.74 | -1.70 | -1.46 | -1.41 | -0.51 | -0.68 | -1.09 | -2.44 | -2.36 | 0.95 | 0.21 | 4.34 | 4.46 |
| 1810041L15Rik | -2.34 | -2.52 | -2.21 | -2.10 | -1.78 | -0.67 | -1.99 | -1.76 | -1.89 | -2.53 | -2.23 | -0.98 | -1.48 | 2.72 | 2.53 |
| 2810459M11Rik | -2.01 | -1.23 | -1.91 | -1.48 | 0.01 | -0.78 | -2.12 | -1.52 | -1.58 | 1.25 | 0.90 | -1.06 | -2.04 | 1.31 | 0.63 |
| A2m | 0.71 | -0.85 | 0.73 | -0.60 | -0.30 | -0.28 | -0.71 | -1.59 | -1.65 | 5.43 | 5.45 | -0.89 | -0.28 | -1.64 | -1.44 |
| Adamts15 | -1.30 | -1.09 | -1.23 | -0.90 | -1.53 | -0.02 | 4.30 | 4.17 | 4.24 | -0.76 | 0.50 | -1.42 | -1.73 | -0.89 | -1.68 |
| Adra1a | -1.45 | -1.88 | -1.23 | -1.04 | -0.94 | -1.73 | -1.49 | -1.61 | -1.96 | 3.26 | 3.77 | -0.90 | -0.89 | 1.94 | 1.93 |
| AI593442 | -0.21 | -1.44 | -1.50 | 3.52 | 3.41 | 2.83 | 2.43 | 2.43 | 2.72 | -1.53 | -0.83 | -1.68 | -0.59 | 0.62 | 1.10 |
| Aldh1a1 | -0.11 | -2.77 | 0.23 | -1.22 | -0.89 | -0.07 | -0.68 | -0.38 | -2.07 | 4.35 | 4.78 | 1.65 | 1.69 | 1.32 | 2.02 |
| Anln | -0.51 | -0.50 | -0.79 | -0.01 | -0.10 | -1.21 | -1.23 | -1.11 | -1.14 | -1.43 | -1.06 | 3.86 | 4.03 | 0.07 | 0.18 |
| Apcdd1 | -0.61 | -2.01 | -0.49 | -1.58 | -1.85 | -1.18 | 1.99 | 1.87 | 1.79 | 0.07 | -0.37 | -0.99 | -1.77 | 0.02 | -0.61 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apod | -2.02 | -2.36 | -1.40 | -2.36 | -2.57 | -2.25 | -1.94 | -2.44 | -2.02 | -0.73 | -0.49 | 2.81 | 2.93 | -0.55 | -0.61 |
| Aqp4 | -0.18 | -0.84 | -0.39 | -1.56 | -1.33 | 0.15 | -0.60 | -0.88 | -0.56 | 3.93 | 3.85 | 0.47 | 0.60 | -2.11 | -1.21 |
| Arhgef33 | -1.92 | -1.77 | -1.87 | 6.78 | 6.81 | 6.28 | -1.11 | -1.54 | -1.33 | 0.42 | 0.41 | -1.75 | -1.66 | -2.04 | -2.03 |
| Ascl1 | -0.70 | -2.20 | -2.17 | -0.39 | -0.80 | -0.59 | 0.65 | 0.64 | 0.24 | 1.45 | 0.46 | -1.15 | -0.71 | 3.36 | 2.93 |
| Asgr1 | -2.54 | -1.07 | -2.46 | -1.86 | -1.23 | -2.56 | 1.34 | 2.02 | 1.76 | -2.40 | -2.17 | -2.39 | -1.97 | -0.04 | -1.75 |
| Aspa | -2.08 | -2.16 | -1.86 | -1.28 | -1.01 | -1.44 | -2.23 | -1.89 | -2.11 | 0.35 | 0.39 | 4.71 | 4.67 | 2.27 | 2.44 |
| Atp1a2 | -1.21 | -1.25 | -0.92 | -2.55 | -2.65 | -1.09 | -1.39 | -1.77 | -1.76 | 4.43 | 4.42 | 0.12 | 0.07 | 1.83 | 1.66 |
| Atp2a3 | -1.32 | -1.66 | -2.00 | 7.64 | 7.26 | 6.62 | -1.64 | -1.99 | -1.68 | -2.25 | -1.63 | -0.65 | -1.57 | -1.94 | -1.89 |
| B3gnt5 | -1.34 | -1.27 | -2.04 | 2.76 | 3.11 | 2.02 | -0.05 | -0.31 | 0.10 | -1.35 | -1.03 | -0.46 | -0.08 | 1.15 | 0.66 |
| B3gnt7 | -1.23 | -1.55 | -2.09 | -1.99 | -1.10 | -2.19 | -2.24 | -0.79 | -1.07 | -2.03 | -2.06 | -1.01 | -0.78 | -0.25 | 0.17 |
| Bcl11a | -0.56 | -0.87 | -1.49 | 5.76 | 5.60 | 5.16 | -0.60 | -0.01 | -0.31 | -1.90 | -1.37 | -0.61 | -0.31 | -0.71 | -0.92 |
| Bhlhe22 | -1.49 | 1.13 | -0.15 | -0.83 | -0.91 | -0.68 | 2.99 | 3.48 | 3.73 | -1.28 | -2.40 | -1.27 | -1.92 | -0.66 | -0.49 |
| C1ql1 | -1.32 | -1.53 | -2.03 | -1.71 | -0.99 | -1.74 | -1.01 | -1.17 | -1.11 | -0.86 | 0.39 | 0.15 | -0.99 | 4.35 | 4.16 |
| C1ql2 | -1.79 | -1.07 | -1.72 | -0.07 | -0.60 | -1.82 | -1.24 | -1.18 | -0.82 | -1.66 | -1.69 | -0.93 | 0.05 | 3.86 | 3.12 |
| Cacna1g | -0.44 | -0.33 | 0.35 | 3.85 | 3.63 | 3.89 | -0.49 | -0.44 | -0.50 | -1.89 | -1.16 | -1.53 | -2.05 | -1.14 | -0.70 |
| Cacng4 | -1.91 | -2.05 | -1.82 | -1.66 | -1.86 | -1.57 | -0.43 | -0.38 | -0.51 | 2.45 | 2.81 | -0.18 | -0.78 | 3.35 | 3.42 |
| Calb1 | 0.54 | 0.42 | -0.48 | 5.59 | 7.47 | 7.10 | -0.93 | -1.70 | -1.01 | -1.31 | -1.62 | -1.50 | -1.68 | -2.10 | -1.92 |
| Camk1g | -2.25 | -2.20 | -1.50 | -2.15 | -1.51 | 0.34 | 2.86 | 2.80 | 2.69 | -2.35 | -2.77 | -1.45 | -2.39 | -1.24 | 0.59 |
| Car8 | -1.82 | -1.74 | -2.36 | 8.03 | 7.72 | 6.68 | -1.24 | -2.01 | -1.92 | -2.43 | -2.46 | -1.62 | -1.56 | 0.43 | 0.31 |
| Carns1 | -2.15 | -0.65 | -1.16 | -1.60 | -0.92 | -0.69 | -1.42 | -1.59 | -1.05 | -0.62 | -0.73 | 3.38 | 3.78 | 1.10 | 0.06 |
| Casq2 | -1.15 | -1.75 | -2.23 | 6.55 | 5.98 | 6.25 | -1.24 | -1.38 | -1.45 | 0.93 | 0.66 | -0.29 | -0.08 | -1.58 | -0.90 |
| Cbln2 | -1.45 | -0.60 | -1.38 | -1.28 | -1.10 | 0.98 | -1.53 | -0.23 | -1.53 | -1.32 | -1.35 | -0.45 | -1.35 | -0.26 | 0.24 |
| Ccdc152 | -2.20 | -2.97 | -1.66 | -0.60 | -0.84 | -1.28 | -2.44 | -2.76 | -1.06 | 1.83 | 1.92 | 3.74 | 3.87 | -2.21 | -0.48 |
| Ccdc180 | -1.40 | -1.53 | -1.97 | -0.74 | -0.54 | -2.02 | -2.16 | -1.71 | -1.66 | -1.88 | -1.69 | -1.03 | -0.85 | -1.43 | -1.55 |
| Ccnd2 | -1.68 | -1.93 | -2.46 | -0.85 | -0.55 | -1.26 | 0.61 | 1.20 | 0.99 | -2.95 | -2.17 | -1.33 | -1.33 | -0.39 | 0.62 |
| Cd82 | -2.16 | -1.41 | -2.29 | -1.82 | -1.53 | -2.68 | -2.59 | -2.03 | -2.01 | -1.88 | -2.40 | 2.55 | 2.71 | 0.73 | 0.96 |
| Cd9 | -1.85 | -2.21 | -2.06 | -2.25 | -1.89 | -2.64 | -2.30 | -2.35 | -1.94 | 1.54 | 0.94 | 2.16 | 2.45 | 3.02 | 3.07 |
| Cdh19 | -0.84 | -1.44 | -0.71 | -1.19 | -0.94 | -1.39 | -0.29 | -1.34 | -0.89 | 3.36 | 4.10 | 5.06 | 5.79 | 4.56 | 4.07 |
| Cdhr1 | -1.87 | -1.81 | -0.94 | -2.19 | -0.98 | -2.38 | -1.97 | -0.67 | -0.62 | -1.06 | -1.11 | -1.32 | -1.38 | -1.51 | 1.34 |
| Cldn11 | -2.42 | -1.66 | -2.12 | -2.03 | -1.31 | -1.97 | -2.25 | -2.16 | -2.29 | -1.56 | -2.35 | 5.02 | 5.31 | 3.56 | 3.03 |
| Clec7a | -1.42 | -1.37 | -1.34 | -0.31 | -1.04 | -1.44 | -1.50 | -1.45 | -0.69 | -1.28 | 0.12 | -0.36 | -1.31 | -1.15 | -1.39 |
| Clmn | -2.46 | -2.67 | -2.36 | 2.92 | 3.14 | 2.53 | -2.61 | -2.71 | -2.76 | 2.20 | 2.40 | 2.53 | 2.67 | 0.81 | 0.79 |
| Cmtm5 | -1.31 | -1.06 | -1.27 | -1.54 | -1.48 | -2.13 | -2.69 | -2.54 | -2.28 | 3.59 | 3.72 | 2.42 | 2.79 | 1.08 | 1.50 |
| Cntn3 | -2.21 | -1.99 | -1.91 | 4.75 | 4.25 | 3.77 | 2.77 | 2.59 | 2.78 | -2.19 | -1.75 | 1.59 | 1.77 | 1.18 | 1.05 |
| Cntnap5a | -1.54 | -1.64 | -1.82 | 2.79 | 2.49 | 2.42 | -1.71 | -0.92 | -1.42 | -2.15 | -1.56 | -1.46 | -1.32 | -1.65 | -1.61 |
| Cobl | -2.73 | -2.86 | -2.74 | -1.64 | -1.13 | 0.17 | -1.61 | -1.83 | -1.67 | -3.11 | -2.60 | 2.45 | 2.33 | 2.67 | 2.81 |
| Col5a3 | -1.69 | -2.14 | -2.48 | -2.06 | -1.50 | -2.37 | -2.15 | -1.82 | -1.96 | 2.42 | 2.57 | -0.61 | -0.77 | 1.58 | 1.63 |
| Col6a1 | -2.37 | -1.50 | -2.46 | -1.86 | -1.58 | -0.22 | -2.01 | -0.70 | -1.21 | -2.91 | -2.93 | -1.79 | -2.10 | -2.82 | -2.19 |
| Cpm | -1.91 | -1.91 | -1.86 | -1.18 | -0.82 | -1.77 | -1.53 | -1.13 | -1.40 | -2.10 | -2.06 | 3.73 | 3.65 | 2.03 | 1.94 |
| Cryab | -1.46 | -1.83 | -1.49 | -2.52 | -2.32 | -2.99 | -3.02 | -2.34 | -1.90 | -0.21 | 0.18 | 3.00 | 3.07 | 1.61 | 1.46 |
| Cspg4 | -1.64 | -1.89 | -2.11 | -2.29 | -1.99 | -2.34 | -1.02 | -1.36 | -1.33 | -1.76 | -0.87 | 0.35 | 0.38 | 3.61 | 3.62 |
| Csrp1 | -1.79 | -1.84 | -1.79 | -0.94 | -0.78 | -1.52 | -2.12 | -2.14 | -1.77 | 3.33 | 3.44 | 2.98 | 2.97 | 0.73 | 1.25 |
| D7Ertd443e | -2.00 | -1.97 | -2.48 | -1.30 | -1.22 | -0.61 | -2.23 | -1.88 | -1.75 | -1.66 | -0.83 | 4.84 | 4.69 | 2.01 | 2.27 |
| Ddx3y | 1.94 | 2.23 | -2.92 | 2.53 | 0.73 | 2.27 | -2.88 | 2.14 | 2.17 | -2.41 | -2.90 | 2.74 | 2.72 | 2.58 | 2.55 |
| Dock5 | -2.14 | -2.24 | -1.93 | -0.88 | -0.60 | -1.14 | -2.25 | -2.33 | -1.97 | -1.07 | -0.50 | 3.37 | 3.43 | 0.20 | 0.04 |
| Dpy19l2 | -1.57 | -1.44 | -2.00 | -0.25 | -0.04 | -1.67 | -1.82 | -1.33 | -1.49 | -1.72 | -1.15 | -0.32 | -0.20 | -0.83 | -0.84 |
| Ebf2 | -1.08 | -1.53 | -2.18 | 5.10 | 4.81 | 4.58 | -1.38 | -0.95 | -0.83 | -0.49 | 0.05 | -0.22 | -0.01 | -0.68 | -0.92 |
| Echdc2 | 0.86 | 1.15 | 0.28 | -0.41 | -0.17 | -1.56 | 0.30 | 0.64 | 0.52 | -0.93 | 0.36 | -0.95 | -1.46 | -1.35 | -1.28 |
| Efna5 | -1.34 | -1.36 | -1.41 | 2.65 | 2.47 | 2.57 | 3.31 | 2.98 | 3.11 | -1.19 | -1.28 | -1.13 | -1.18 | -1.59 | -1.46 |
| Enpp2 | -1.93 | -1.81 | -1.59 | -0.69 | -0.58 | -0.41 | -1.11 | -1.54 | -1.13 | -1.92 | -1.44 | 4.97 | 4.93 | 3.37 | 3.36 |
| Erbb3 | -1.94 | -1.40 | -1.42 | -1.21 | -0.96 | -2.15 | -2.42 | -1.89 | -2.05 | -2.72 | -2.20 | 3.17 | 3.49 | 2.48 | 3.00 |
| Ermn | -0.02 | -1.09 | -1.47 | -0.58 | -0.34 | -2.01 | -1.62 | -1.03 | -1.61 | -2.45 | -2.22 | 5.69 | 5.67 | 2.63 | 2.25 |
| Etnppl | -1.33 | -0.62 | 0.32 | -1.50 | -1.89 | -0.27 | -0.51 | -1.20 | -1.85 | 4.88 | 4.77 | 1.39 | 1.04 | -0.19 | -0.73 |
| Fa2h | 0.62 | 0.10 | 0.27 | -1.59 | -1.50 | -1.40 | -2.05 | -1.87 | -1.94 | -1.97 | -2.13 | 3.79 | 3.68 | 2.50 | 2.29 |
| Fam46a | -2.38 | -1.51 | -1.81 | -2.22 | -1.42 | -1.15 | -2.00 | -1.62 | -0.92 | -2.25 | -0.47 | 3.58 | 3.33 | 2.47 | 2.11 |
| Fgfr2 | -1.29 | -1.18 | -1.83 | -1.94 | -1.09 | -1.77 | -2.43 | -1.55 | -1.44 | 2.95 | 2.51 | 2.88 | 2.95 | 0.92 | 0.88 |
| Flrt2 | -2.33 | -2.70 | -2.58 | -0.14 | -0.08 | 0.32 | 3.47 | 3.09 | 3.29 | -2.18 | -1.40 | -0.54 | -0.24 | 0.64 | 0.83 |
| Fmo3 | 0.22 | -1.14 | -1.72 | 0.48 | 0.11 | -1.86 | -2.44 | -0.75 | -0.97 | -0.49 | -0.22 | 0.72 | 0.21 | -0.32 | -0.02 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Folh1 | -0.81 | -1.86 | -0.99 | -1.24 | -0.99 | -1.38 | -1.92 | -2.37 | -2.57 | 3.04 | 3.76 | 4.35 | 4.54 | 0.68 | 0.91 |
| Foxh1 | -2.61 | -2.57 | -2.86 | -2.78 | -2.63 | -2.41 | -2.68 | -2.64 | -2.14 | -2.81 | -2.84 | -2.01 | -1.33 | -2.71 | -2.00 |
| Fsip2 | -1.26 | -1.51 | -2.88 | -1.40 | -1.35 | -1.94 | -1.80 | -1.39 | -1.26 | -2.84 | -1.24 | -1.17 | -1.76 | -1.66 | -0.96 |
| Fxyd1 | -1.67 | -0.83 | -0.64 | -1.74 | -2.04 | -1.71 | -2.10 | -2.25 | -2.30 | 5.16 | 5.67 | -1.45 | 0.33 | -2.16 | -1.78 |
| Fxyd7 | -2.20 | -1.62 | -1.12 | -1.04 | 0.06 | -0.98 | -1.80 | -2.05 | -1.67 | 3.96 | 3.16 | -2.31 | -1.86 | -0.88 | -0.32 |
| Gad2 | -2.05 | -2.08 | -2.22 | 2.04 | 1.74 | 1.78 | 2.50 | 2.47 | 2.52 | -2.09 | -2.37 | -1.62 | -1.72 | -1.81 | -0.78 |
| Gal3st1 | -1.68 | -1.91 | -2.29 | -0.67 | -0.77 | 0.08 | -1.44 | -1.33 | -1.30 | -1.52 | -1.46 | 3.72 | 3.74 | 3.67 | 3.23 |
| Galnt5 | -1.68 | -1.37 | -1.56 | -0.22 | -0.09 | -1.33 | -1.47 | -1.50 | -1.14 | -1.62 | -1.45 | 5.74 | 5.65 | 2.87 | 2.74 |
| Galnt6 | -0.54 | -0.56 | -2.00 | -0.86 | -0.76 | -1.55 | -1.69 | -0.39 | -0.56 | -2.03 | -1.04 | 4.60 | 4.68 | 2.53 | 2.26 |
| Galr1 | 0.54 | 0.76 | 0.29 | -0.08 | 0.46 | -1.39 | -0.57 | -1.61 | -0.82 | -1.60 | 0.06 | 1.51 | 1.93 | 0.79 | 0.14 |
| Gdf10 | 1.03 | 0.71 | 0.85 | -1.54 | -0.80 | -1.35 | -0.55 | -0.60 | -1.64 | 5.78 | 5.79 | -0.73 | -0.67 | -0.86 | -1.61 |
| Gfap | -1.80 | -1.53 | -2.11 | -0.46 | -0.99 | -1.54 | -2.03 | -1.75 | -1.47 | 1.91 | 1.61 | -1.27 | -1.18 | -0.96 | -1.64 |
| Gja1 | -1.29 | -1.32 | -0.65 | -0.84 | -0.88 | -0.26 | -1.63 | -1.02 | -1.33 | 3.93 | 3.83 | 0.54 | 0.25 | -0.66 | -0.51 |
| Gjb1 | -1.20 | -1.13 | -1.69 | -1.29 | -0.42 | -1.60 | -2.20 | -1.85 | -0.95 | -1.94 | -1.66 | 3.26 | 3.84 | 1.50 | 1.05 |
| Gjc2 | -1.66 | -2.32 | -1.92 | -1.78 | -1.91 | -1.80 | -0.99 | -1.45 | -0.45 | -1.16 | -2.05 | 3.48 | 3.83 | 2.00 | 1.90 |
| Gldn | -0.82 | -0.40 | -0.58 | 0.61 | 0.25 | -0.67 | -0.93 | -0.29 | -0.46 | -1.16 | -0.52 | -0.03 | -1.22 | -0.58 | -0.66 |
| Gli1 | -1.14 | -0.72 | 0.09 | -0.95 | -0.61 | -2.37 | -1.95 | -0.79 | -1.18 | 4.92 | 5.16 | -0.79 | -0.12 | -0.92 | -0.74 |
| Glp2r | 3.65 | 3.73 | 3.82 | 4.68 | 4.90 | 3.13 | -0.06 | -0.58 | -0.85 | 3.03 | 3.34 | 2.74 | 3.33 | 2.76 | 2.49 |
| Glul | -0.99 | -1.15 | -1.83 | -2.38 | -2.37 | -1.80 | -2.41 | -2.33 | -2.46 | 1.38 | 1.70 | 3.31 | 3.53 | 0.42 | 0.27 |
| Gm136 | -1.52 | -1.46 | -2.36 | -1.38 | -0.92 | -2.82 | -2.28 | -2.03 | -2.08 | -2.69 | -1.36 | -1.78 | -2.72 | -1.83 | -1.94 |
| Gnb3 | -1.99 | -1.52 | -2.18 | -2.06 | -1.48 | -2.02 | -1.88 | -1.64 | -2.08 | -2.54 | -2.15 | -2.11 | -2.57 | -1.95 | -2.23 |
| Gng11 | 1.46 | -0.20 | -1.42 | -1.32 | -1.14 | -1.52 | -1.57 | -0.33 | -0.39 | 3.61 | 3.19 | 5.37 | 5.74 | 3.01 | 4.52 |
| Gpr37 | -1.98 | -1.37 | -2.32 | -2.19 | -1.81 | -2.02 | -2.35 | -2.10 | -2.51 | -0.14 | 0.43 | 6.04 | 6.36 | 2.59 | 2.85 |
| Gpr37l1 | -1.67 | -1.50 | -2.05 | -0.47 | 0.12 | -0.30 | -2.20 | -2.87 | -2.32 | 3.07 | 2.48 | -1.11 | -1.43 | 1.56 | 1.57 |
| Gpr63 | -0.13 | -0.79 | -0.41 | 4.79 | 4.58 | 4.54 | 0.76 | 0.44 | 0.55 | 0.02 | -0.35 | -0.25 | -0.60 | -0.05 | -0.23 |
| Gpx2 | -2.15 | -1.17 | -1.12 | -1.98 | -1.79 | -2.18 | -2.23 | -0.62 | -2.23 | -2.02 | -2.05 | -1.02 | -1.47 | -1.89 | -1.57 |
| Gramd3 | -1.82 | -2.10 | -1.83 | -1.94 | -1.95 | -1.96 | -2.22 | -2.25 | -2.11 | 2.89 | 2.99 | 1.94 | 1.80 | 1.76 | 1.56 |
| Grb14 | -1.83 | -2.10 | -1.61 | 1.49 | 1.71 | 1.35 | 0.20 | 0.26 | 0.31 | -2.61 | -2.45 | 3.26 | 3.19 | 2.56 | 2.43 |
| Gria3 | -2.85 | -2.94 | -3.11 | 3.02 | 2.61 | 2.27 | 2.70 | 2.53 | 2.62 | -2.75 | -2.97 | -1.81 | -2.22 | 0.68 | 0.60 |
| Grik3 | -2.29 | -2.64 | -2.33 | -2.11 | -2.13 | -0.01 | 2.87 | 2.64 | 2.62 | -2.33 | -2.47 | -1.14 | -1.10 | 0.98 | 0.90 |
| Grm1 | 1.50 | 1.49 | 1.29 | 3.30 | 3.09 | 2.58 | 1.79 | 1.53 | 1.63 | -2.59 | -2.16 | -2.21 | -2.38 | -2.68 | -2.60 |
| Grm5 | -1.30 | -1.34 | -1.52 | -0.90 | -0.43 | 1.84 | -0.64 | -0.28 | -0.35 | -1.50 | -1.48 | 0.25 | -0.14 | 3.84 | 3.94 |
| Gsn | -2.38 | -2.33 | -2.45 | -2.12 | -1.26 | -2.59 | -2.35 | -1.79 | -1.66 | -0.45 | -1.00 | 3.08 | 3.62 | 2.85 | 2.96 |
| Hapln2 | -2.37 | -2.50 | -2.00 | -2.59 | -1.73 | -1.26 | -0.59 | -0.91 | -0.56 | -1.79 | -1.55 | 3.73 | 3.69 | -0.73 | -0.22 |
| Hepacam | -1.75 | -1.64 | -1.46 | -2.68 | -2.62 | -1.84 | -1.94 | -2.53 | -2.58 | 3.68 | 3.73 | 3.12 | 3.15 | 1.40 | 1.64 |
| Hhatl | -1.57 | -2.10 | -1.96 | 1.12 | 1.42 | 0.98 | -2.82 | -2.05 | -2.18 | -0.73 | -0.16 | 1.26 | 1.63 | -0.68 | -0.04 |
| Hspa1b | -1.20 | -1.84 | -1.09 | -1.70 | -1.50 | -1.91 | -0.89 | -1.26 | -0.89 | -1.74 | -1.78 | 0.08 | -1.05 | 0.05 | -1.86 |
| Htr1b | -1.44 | -1.40 | -1.37 | 5.67 | 4.23 | 5.79 | -1.52 | -1.48 | -0.76 | -0.45 | -1.34 | -1.31 | -1.35 | -1.18 | -0.11 |
| Id4 | 1.40 | -0.67 | -1.05 | -0.03 | 0.92 | 0.30 | -1.08 | -1.95 | -0.72 | 4.98 | 4.12 | -0.69 | -0.76 | -1.25 | -2.16 |
| Igsf11 | -1.44 | -2.33 | -1.65 | -2.04 | -2.05 | -1.36 | -2.28 | -2.55 | -2.57 | 2.34 | 2.75 | 3.45 | 3.25 | 1.84 | 1.43 |
| Il22 | -1.96 | -0.85 | -1.22 | 5.89 | 5.31 | 3.94 | 2.12 | 2.73 | 2.34 | -1.82 | -1.86 | -1.82 | -1.19 | -1.68 | -1.29 |
| Il33 | -1.68 | -1.90 | -2.44 | 0.14 | -0.42 | -1.23 | -1.73 | -1.25 | -1.42 | -1.56 | -1.53 | 4.72 | 4.70 | 1.85 | 2.76 |
| Insc | -1.35 | -1.12 | -1.57 | -1.11 | -1.52 | -1.69 | -1.91 | -1.41 | -1.30 | -1.57 | -0.88 | 4.98 | 4.84 | 2.57 | 2.47 |
| Itgb8 | -1.41 | -1.96 | -1.76 | -2.48 | -2.45 | -1.19 | -1.40 | -1.68 | -1.60 | 2.23 | 2.35 | 2.87 | 2.82 | 2.52 | 2.57 |
| Itih3 | -0.76 | 0.38 | -0.09 | -1.87 | -1.44 | -2.28 | -1.40 | -1.50 | -0.97 | 6.46 | 6.34 | 1.54 | 1.58 | 0.26 | 0.89 |
| Itpr1 | -1.40 | -1.45 | -1.11 | 5.48 | 5.02 | 5.10 | 0.12 | -0.19 | -0.15 | -1.06 | -1.07 | -1.00 | -1.31 | -1.18 | -1.00 |
| Kcnc2 | -1.35 | -1.86 | -2.15 | 0.07 | 0.06 | 2.06 | -1.98 | -0.18 | -1.74 | -1.15 | -1.35 | -1.00 | -1.28 | 1.42 | 1.69 |
| Kcnj10 | -1.50 | -1.40 | -1.68 | -2.65 | -2.62 | -2.48 | -2.37 | -2.45 | -2.56 | 3.16 | 3.07 | 2.71 | 2.71 | 1.64 | 1.49 |
| Kif19a | -0.62 | -1.02 | -0.41 | -1.78 | -2.25 | -2.86 | -2.45 | -2.28 | -1.84 | 1.47 | 1.08 | -1.65 | -1.56 | 1.03 | 1.35 |
| Kit | -1.48 | -1.68 | -1.79 | -1.60 | -1.36 | -1.34 | 3.58 | 3.44 | 3.48 | -1.68 | -1.57 | 0.31 | 0.34 | 0.90 | 1.09 |
| Kitl | -1.67 | -1.31 | -1.46 | 5.60 | 5.71 | 4.10 | -1.13 | -1.08 | -1.07 | 3.16 | 3.49 | -1.39 | -1.12 | -1.55 | -1.62 |
| Klk6 | -1.56 | -2.51 | -1.69 | -0.60 | -0.01 | -1.40 | -1.91 | -0.77 | -1.32 | -2.43 | -1.19 | 2.55 | 3.05 | -1.13 | -1.00 |
| Leng9 | 1.57 | 1.44 | 0.05 | 2.70 | 2.84 | 1.33 | 0.67 | 1.40 | 1.37 | 0.85 | 1.47 | 2.10 | 2.19 | 1.47 | 1.61 |
| Lfng | -1.35 | -2.59 | -1.58 | -1.43 | -1.41 | -1.54 | -2.69 | -1.97 | -2.02 | 4.64 | 4.59 | -0.35 | -0.60 | -0.90 | -1.03 |
| Lgi4 | -0.73 | -1.20 | -1.45 | -2.43 | -2.22 | -1.88 | -2.20 | -2.06 | -3.08 | 4.55 | 4.50 | -0.50 | -0.79 | -1.98 | -2.42 |
| Lims2 | -1.66 | -1.56 | -1.72 | -0.79 | -0.59 | -1.58 | -1.03 | -1.38 | -1.24 | -1.26 | -2.01 | 1.95 | 2.17 | 3.71 | 3.55 |
| Mag | -0.60 | -3.06 | -2.49 | -2.37 | -1.90 | -1.99 | -2.36 | -2.84 | -2.50 | -1.50 | -2.57 | 4.87 | 5.13 | 2.78 | 2.76 |
| Mak | -1.30 | -2.28 | -2.06 | -1.45 | -1.07 | -2.13 | -1.33 | -0.81 | -1.31 | 0.06 | 0.56 | -0.86 | -0.63 | -0.49 | -0.74 |
| Mal | -1.41 | -2.34 | -2.30 | -2.74 | -1.52 | -1.41 | -2.14 | -2.43 | -2.33 | -2.42 | -2.53 | 4.25 | 4.31 | 2.53 | 2.81 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| March11 | -0.38 | -0.93 | -0.66 | 0.85 | 0.86 | 1.40 | 4.33 | 4.00 | 4.21 | -1.98 | -1.84 | -1.33 | -1.61 | -1.02 | -1.77 |
| Marcksl1 | -0.52 | -0.44 | -2.00 | -1.53 | -1.25 | -1.81 | -1.66 | -1.83 | -0.93 | 1.91 | -0.41 | -0.44 | 1.03 | 0.23 | 0.75 |
| Mcam | 0.78 | 0.89 | 0.16 | 0.58 | 1.71 | -0.91 | -2.50 | -2.34 | -2.09 | -2.27 | -2.96 | 3.89 | 4.44 | 3.12 | 3.36 |
| Mff | 1.58 | 1.68 | 1.22 | 1.91 | 1.47 | 1.51 | 1.85 | 1.92 | 2.01 | 0.78 | 0.78 | 2.17 | 2.20 | 1.55 | 1.23 |
| Mfge8 | -1.37 | -1.31 | -1.43 | -1.33 | -1.50 | -1.88 | -2.63 | -2.08 | -2.62 | 3.48 | 3.41 | -0.88 | -0.47 | 0.43 | 0.66 |
| Mlc1 | -0.06 | 0.56 | -0.43 | -1.60 | -1.13 | -1.23 | -1.83 | -1.53 | -1.32 | 5.14 | 4.42 | 0.42 | -0.16 | -2.62 | -1.54 |
| Mog | -2.20 | -1.55 | -1.84 | -2.18 | -0.87 | -1.92 | -1.27 | -1.21 | -1.55 | -2.23 | -2.75 | 5.21 | 5.25 | 3.42 | 2.78 |
| mt-Co1 | -0.81 | -1.91 | -1.66 | -2.41 | -2.45 | -2.37 | -2.59 | -2.02 | -1.76 | -2.54 | -2.26 | -0.79 | -0.92 | -1.48 | -1.28 |
| mt-Nd4 | -0.86 | -1.43 | -1.56 | -1.74 | -1.75 | -2.20 | -2.31 | -1.95 | -1.41 | -2.18 | -1.54 | -0.42 | -0.05 | -0.87 | -0.89 |
| Mybpc1 | 1.07 | -0.34 | 1.30 | -0.41 | -0.11 | -0.74 | -0.39 | -1.08 | -1.25 | 5.64 | 8.71 | 0.30 | 0.21 | 1.28 | 1.65 |
| Myot | -0.80 | -0.88 | -1.82 | 0.33 | 0.26 | -1.16 | -1.45 | -0.62 | -0.69 | -1.11 | -0.77 | -1.11 | -1.17 | -0.67 | -0.61 |
| Myrf | -2.72 | -2.31 | -2.00 | -1.05 | -1.16 | -1.15 | -2.33 | -1.22 | -2.18 | -1.55 | -2.78 | 3.14 | 3.23 | 1.61 | 1.48 |
| Ndrg1 | -1.96 | -2.34 | -1.80 | -1.81 | -2.56 | -2.04 | -2.56 | -1.92 | -1.39 | -2.06 | -2.67 | 3.79 | 3.75 | 1.27 | 1.47 |
| Nell1 | -1.38 | -1.44 | -2.04 | 5.37 | 5.43 | 4.59 | -1.37 | -0.98 | -1.33 | -1.52 | -1.03 | -1.15 | -1.02 | -0.99 | -0.99 |
| Neto1 | -2.23 | -1.55 | -2.32 | -0.77 | -0.72 | 1.69 | -0.09 | -0.39 | -0.02 | -0.12 | -1.66 | 0.79 | 0.25 | 4.78 | 4.81 |
| Neu4 | -0.98 | -0.91 | -2.10 | -0.99 | -1.80 | -2.20 | 1.83 | 1.12 | 0.67 | -1.44 | -1.49 | 3.23 | 2.53 | 6.68 | 7.15 |
| Ninj2 | -1.54 | -1.64 | -2.03 | -1.05 | -1.16 | -2.04 | -1.73 | -1.67 | -1.64 | -1.95 | -1.81 | 3.91 | 4.15 | 3.06 | 2.93 |
| Nkx2-2 | -2.17 | -2.00 | -2.07 | -0.56 | -0.82 | -2.46 | -2.39 | -1.03 | -1.42 | 3.53 | 4.19 | 2.48 | 2.82 | 3.14 | 3.49 |
| Notch1 | -1.69 | -1.69 | -1.32 | -1.40 | -1.41 | -1.51 | -1.42 | -1.44 | -1.55 | 3.42 | 2.85 | -1.28 | -0.90 | 1.58 | 1.47 |
| Nrk | -1.10 | -0.92 | -1.03 | 6.91 | 6.30 | 5.61 | -1.14 | -0.83 | -0.82 | -0.09 | 0.07 | -0.68 | -0.33 | -0.67 | -0.50 |
| Olig1 | -1.51 | -1.44 | -2.25 | -1.39 | -1.90 | -1.55 | -0.88 | -1.03 | -0.43 | -2.60 | -1.92 | 3.38 | 3.45 | 3.28 | 3.43 |
| Olig2 | -2.33 | -2.13 | -2.94 | -1.39 | -1.17 | -1.88 | -2.43 | -1.58 | -1.79 | -2.36 | -2.21 | 2.80 | 2.16 | 3.64 | 3.32 |
| Opalin | -1.05 | -2.20 | -2.27 | -2.26 | -1.61 | -1.96 | -2.36 | -2.66 | -2.27 | -3.13 | -2.88 | 5.76 | 5.77 | 3.97 | 3.49 |
| Pax3 | -1.15 | -1.97 | -1.17 | -1.86 | -1.73 | -2.29 | -0.35 | -0.49 | -0.32 | 3.87 | 3.97 | -0.81 | -1.06 | 1.59 | 1.57 |
| Pcp2 | -0.25 | -0.76 | -0.10 | 5.21 | 4.67 | 6.46 | 0.25 | -1.10 | -0.21 | 0.51 | 0.23 | 0.49 | 0.14 | -1.15 | -1.67 |
| Pdc | -1.23 | -1.82 | -2.87 | -1.26 | -1.67 | -2.21 | -2.46 | -2.64 | -1.67 | -0.21 | -2.25 | -1.67 | -2.85 | -1.63 | -2.34 |
| Pdgfra | -2.50 | -2.23 | -2.57 | -2.33 | -2.01 | -2.87 | -0.51 | -0.93 | -1.01 | -2.63 | -2.42 | 0.63 | -0.48 | 4.48 | 4.76 |
| Pdzd3 | -1.99 | -1.33 | -0.88 | -1.15 | -1.63 | -2.02 | -1.12 | -1.44 | -2.07 | -1.20 | -1.89 | -1.20 | -1.89 | -1.02 | -1.96 |
| Penk | -1.69 | -0.89 | -0.19 | -1.68 | -2.30 | 1.99 | 4.23 | 4.99 | 4.95 | -0.27 | -2.09 | 0.06 | -0.27 | 0.20 | -0.28 |
| Pex5l | -1.76 | -1.88 | -1.73 | -2.13 | -2.11 | -0.22 | -0.94 | -1.06 | -0.99 | -1.50 | -1.32 | 4.71 | 4.50 | 2.00 | 1.80 |
| Pgghg | -0.53 | -1.81 | -1.44 | -1.65 | -1.98 | -1.58 | -1.94 | -1.16 | -1.22 | 3.25 | 3.19 | -1.35 | 0.03 | 1.26 | 1.91 |
| Phyhip | 2.41 | 1.76 | 2.88 | -1.27 | -1.94 | 0.36 | 2.80 | 2.52 | 2.33 | -0.18 | -0.27 | -1.65 | -0.77 | -1.37 | -1.46 |
| Pkp3 | 0.22 | -0.23 | -0.75 | 5.60 | 5.12 | 5.70 | -0.99 | -0.62 | -0.45 | -1.80 | -0.38 | -0.31 | 0.55 | 0.59 | 0.12 |
| Pla2g16 | -2.37 | -2.18 | -1.88 | -1.96 | -1.67 | -2.27 | -2.37 | -2.32 | -2.28 | 1.57 | 1.51 | 3.86 | 3.95 | 1.33 | 1.10 |
| Plch1 | -1.68 | -2.04 | -2.10 | -0.22 | -0.14 | 0.42 | 3.87 | 3.67 | 3.72 | -1.63 | -1.05 | -1.21 | -1.59 | -2.20 | -2.02 |
| Plekhd1 | -2.32 | -2.41 | -2.71 | 4.87 | 4.87 | 4.18 | 1.26 | 1.24 | 1.05 | -2.44 | -2.25 | -1.09 | -1.73 | -1.09 | -1.76 |
| Plekhg3 | 0.08 | 0.39 | 0.40 | -1.70 | -1.28 | -1.89 | -2.25 | -2.09 | -2.35 | -2.33 | -2.37 | 3.56 | 3.67 | 1.76 | 1.99 |
| Pllp | -1.38 | -1.69 | -1.63 | -1.72 | -1.65 | -1.68 | -1.53 | -1.36 | -1.45 | -1.18 | -1.30 | 2.83 | 2.89 | 2.45 | 2.53 |
| Plp1 | -1.92 | -1.95 | -1.53 | -1.88 | -1.63 | -1.73 | -1.82 | -1.97 | -1.95 | -1.17 | -1.01 | 4.80 | 4.84 | 3.25 | 3.07 |
| Plpp3 | -1.12 | -2.03 | -1.17 | -2.02 | -1.79 | -2.02 | -1.98 | -1.97 | -1.95 | 4.14 | 4.08 | 0.41 | 0.54 | 1.45 | 1.68 |
| Plpp4 | -2.56 | -2.22 | -2.39 | -1.61 | -1.47 | -0.83 | 3.10 | 2.94 | 2.90 | -0.25 | -0.51 | -0.29 | -0.98 | 3.24 | 3.41 |
| Plscr1 | -0.10 | -0.68 | -0.71 | -1.73 | -0.97 | -1.78 | -1.52 | -1.61 | -2.34 | 4.30 | 4.29 | -1.78 | -1.59 | 1.27 | -0.48 |
| Plxnb3 | -2.65 | -2.75 | -1.97 | -2.81 | -2.41 | -2.31 | -2.19 | -2.46 | -2.29 | 2.27 | 1.98 | 3.98 | 3.78 | 3.07 | 2.69 |
| Pmp2 | -1.13 | -1.81 | -1.77 | -1.66 | -0.58 | -1.88 | -1.94 | -1.89 | -1.94 | -1.71 | -1.74 | -0.43 | -1.74 | -1.56 | -1.09 |
| Pmp22 | -1.14 | -0.91 | -1.54 | -1.90 | -1.68 | -2.28 | -1.97 | -1.78 | -2.08 | 2.92 | 3.09 | 2.50 | 2.33 | 0.95 | 0.63 |
| Ppfibp1 | -2.49 | -2.08 | -2.66 | -2.20 | -2.01 | -2.12 | -0.64 | -1.33 | -1.11 | -0.88 | -0.75 | 0.63 | 0.27 | 4.72 | 4.78 |
| Ppp1r14a | -2.81 | -1.94 | -1.31 | -1.56 | -2.04 | -1.86 | -2.10 | -1.61 | -2.54 | -2.31 | -2.35 | 2.84 | 2.44 | -0.17 | 0.05 |
| Ppp1r17 | -1.43 | -1.17 | -2.34 | 4.86 | 4.47 | 4.45 | -1.97 | -0.74 | -1.26 | -1.07 | -1.71 | -0.56 | -0.76 | -1.46 | -1.32 |
| Prex1 | -1.53 | -2.02 | -2.07 | -2.06 | -1.91 | -1.69 | -1.82 | -2.16 | -2.17 | 3.14 | 2.73 | 0.86 | 0.80 | 1.35 | 1.20 |
| Prex2 | -0.86 | -1.70 | -1.22 | -1.99 | -2.17 | -1.59 | -1.99 | -2.39 | -2.32 | 3.72 | 3.88 | -1.73 | -1.61 | -0.28 | -0.41 |
| Prima1 | -1.61 | -2.49 | -2.05 | -1.87 | -1.54 | -2.03 | -2.91 | -2.24 | -2.23 | -1.68 | -2.26 | 3.14 | 3.13 | 1.73 | 1.62 |
| Prkcg | -2.29 | -1.47 | -1.95 | 3.69 | 3.63 | 3.45 | 1.97 | 1.98 | 1.98 | -1.21 | -1.32 | -2.30 | -2.05 | -1.06 | -1.26 |
| Prr5 | -1.57 | -1.66 | -1.40 | -0.82 | -1.13 | -0.55 | -0.93 | -0.90 | -1.02 | 4.39 | 4.48 | -1.03 | -1.26 | -1.50 | 0.70 |
| Prrg3 | 1.20 | 1.20 | 1.11 | -1.24 | -1.33 | 0.91 | 2.48 | 2.19 | 2.28 | -1.39 | -1.63 | -1.15 | -1.16 | 1.32 | 1.88 |
| Prrx1 | -1.48 | -2.08 | -1.36 | -1.29 | -1.13 | -1.69 | -1.70 | -2.07 | -1.76 | 3.10 | 2.97 | -0.46 | -0.81 | 1.82 | 1.93 |
| Ptchd4 | 1.66 | 1.58 | 1.41 | 4.16 | 3.75 | 3.73 | 1.55 | 1.33 | 1.50 | 0.24 | 0.47 | -1.96 | -1.87 | -1.37 | -1.10 |
| Ptprk | -2.34 | -2.55 | -2.42 | -1.92 | -1.88 | -1.45 | 2.58 | 2.40 | 2.52 | -2.05 | -1.90 | 2.68 | 2.43 | 1.67 | 1.71 |
| Ptprz1 | -1.60 | -1.99 | -1.77 | -2.94 | -2.96 | -2.27 | 1.88 | 1.66 | 1.77 | 2.67 | 2.83 | -1.00 | -1.49 | 2.04 | 2.06 |
| Pttg1 | 2.97 | 0.89 | 0.10 | 2.50 | 2.55 | 2.93 | 2.46 | 3.34 | 3.49 | 2.04 | 2.04 | 4.21 | 4.17 | 2.17 | 2.47 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pvalb | -2.10 | -2.19 | -2.71 | 2.82 | 2.66 | 2.53 | 2.39 | 2.52 | 2.26 | -1.21 | -1.78 | -2.30 | -1.27 | -1.87 | -2.26 |
| Pxdc1 | -1.28 | -1.86 | -2.31 | -1.66 | -2.65 | -1.26 | -1.29 | -0.74 | -1.63 | -2.49 | -2.53 | -0.15 | -1.11 | 3.90 | 3.56 |
| Qk | -0.36 | -0.29 | -0.43 | -1.11 | -1.21 | -1.06 | -0.09 | -0.26 | -0.16 | 2.29 | 2.65 | 3.43 | 3.43 | 2.91 | 2.77 |
| Rapgef3 | -2.41 | -2.59 | -2.66 | -2.27 | -1.78 | -1.27 | -2.14 | -2.22 | -2.22 | 0.15 | -0.72 | 2.04 | 2.15 | 2.26 | 2.71 |
| Rassf2 | -1.72 | -2.31 | -1.93 | -0.18 | -0.28 | -1.70 | -2.32 | -2.33 | -2.15 | 2.66 | 2.86 | 3.46 | 3.48 | 1.74 | 2.03 |
| Rbp2 | -1.12 | -1.58 | -1.53 | -0.93 | -0.36 | -1.39 | -1.94 | -2.09 | -1.25 | -1.86 | -1.91 | -1.86 | -1.49 | -0.90 | -1.60 |
| Rbpjl | -0.86 | -0.78 | -1.95 | -1.83 | -0.69 | -1.77 | -1.12 | -0.30 | -0.52 | -1.88 | -1.92 | 0.11 | -0.19 | 2.05 | 2.82 |
| Rgcc | -1.26 | -0.42 | 0.35 | -1.28 | -0.55 | -1.52 | -1.31 | -2.03 | -1.73 | -1.95 | -2.28 | -0.43 | -0.71 | 3.39 | 3.34 |
| Rgma | -0.60 | -0.54 | 0.11 | -1.48 | -1.41 | -1.16 | -1.96 | -1.66 | -1.47 | 4.14 | 3.88 | 1.62 | 1.46 | 0.99 | 1.16 |
| Ryr1 | -2.32 | -2.18 | -2.79 | 4.50 | 4.53 | 4.51 | -1.14 | -1.11 | -1.21 | -2.27 | -2.24 | -1.68 | -1.76 | -1.72 | -1.87 |
| S100b | -1.55 | -0.99 | -1.86 | -1.33 | -1.07 | -0.69 | -1.59 | -2.10 | -2.32 | 1.91 | 1.81 | 0.03 | 0.50 | 1.01 | 1.17 |
| Stpr1 | -0.38 | 1.20 | 0.35 | -2.05 | -2.59 | -0.74 | -1.28 | -1.28 | -2.01 | 6.26 | 5.73 | -0.10 | -0.26 | -1.93 | 0.55 |
| Sall1 | -1.46 | -1.19 | -2.13 | -1.29 | -0.97 | -1.50 | -1.59 | -1.24 | -1.23 | -2.72 | -1.88 | 3.59 | 3.22 | 0.75 | 0.81 |
| Sec14l5 | -1.69 | -1.71 | -1.81 | -1.14 | -0.87 | -1.73 | -1.30 | -1.61 | -1.51 | -1.75 | -1.70 | 4.53 | 4.37 | 1.83 | 1.63 |
| Serpine2 | -2.21 | -2.14 | -2.33 | -2.02 | -1.37 | -1.63 | -1.05 | -1.80 | -1.29 | 1.92 | 2.05 | 0.63 | -0.02 | 3.76 | 3.90 |
| Shisa6 | -2.95 | -3.04 | -3.02 | 3.83 | 3.53 | 3.12 | 2.46 | 2.13 | 2.23 | -1.87 | -1.74 | -2.05 | -2.31 | -0.65 | -0.95 |
| Skor2 | -0.04 | 0.02 | -1.04 | 6.47 | 7.18 | 5.92 | -0.90 | 0.30 | -0.08 | -1.85 | -1.29 | -0.12 | -0.04 | -0.88 | -0.58 |
| Slc1a3 | -0.20 | -1.10 | -0.57 | -1.87 | -1.98 | -2.07 | -1.72 | -2.28 | -1.87 | 4.59 | 5.19 | 0.73 | 0.57 | -0.12 | 0.09 |
| Slc1a6 | 0.45 | 0.69 | 0.35 | 5.78 | 5.57 | 4.60 | 1.26 | 1.19 | 1.53 | -0.34 | -1.04 | -0.34 | -0.52 | 0.86 | 0.28 |
| Slc26a3 | -2.11 | -2.15 | -2.59 | -1.21 | -1.20 | -2.47 | -2.36 | -1.67 | -1.65 | -2.44 | -1.92 | -1.77 | -1.54 | -1.96 | -1.90 |
| Slc32a1 | -0.54 | -1.77 | -1.52 | 2.08 | 2.50 | 1.59 | 3.01 | 3.52 | 3.63 | -2.06 | -2.54 | -0.78 | -0.85 | -1.88 | -0.75 |
| Slc4a4 | 2.49 | 2.42 | 2.43 | -1.94 | -1.86 | -1.08 | -1.19 | -2.32 | -2.18 | 4.19 | 4.36 | -0.03 | -0.32 | -1.04 | -1.10 |
| Slc5a11 | -1.43 | -1.66 | -2.18 | -1.17 | -1.02 | -1.94 | -1.00 | -0.94 | -0.97 | -1.04 | -1.36 | 1.72 | 1.65 | -0.70 | -0.45 |
| Slc9a3 | -0.76 | -0.76 | -1.62 | 6.99 | 6.23 | 6.06 | -0.69 | -0.69 | -1.02 | -0.99 | -0.41 | 0.34 | 0.39 | -0.54 | -0.85 |
| Slitrk6 | -1.42 | -1.96 | -1.32 | -1.83 | -0.45 | -0.78 | -0.65 | -0.38 | -2.08 | -1.87 | -1.90 | -1.23 | -1.91 | 3.21 | 3.39 |
| Socs2 | -1.47 | -1.10 | -1.55 | 0.45 | 0.20 | 0.59 | 4.10 | 4.04 | 4.18 | -2.48 | -2.06 | -0.48 | -0.65 | -1.04 | -1.26 |
| Sorcs3 | -2.81 | -2.82 | -2.96 | -1.94 | -2.03 | -1.55 | 3.81 | 3.70 | 3.76 | -2.36 | -2.02 | 0.99 | 0.98 | 1.68 | 1.64 |
| Sox10 | -2.72 | -1.86 | -2.64 | -2.18 | -2.50 | -3.21 | -2.04 | -1.83 | -2.41 | -2.73 | -3.15 | 3.04 | 3.07 | 3.05 | 3.00 |
| Sox2 | -2.42 | -2.75 | -2.73 | -1.51 | -2.00 | -2.45 | -2.51 | -2.21 | -2.25 | 0.09 | 1.26 | 1.77 | 2.68 | 2.41 | 1.63 |
| Sox6 | -1.56 | -2.08 | -1.76 | -1.27 | -0.99 | -1.89 | -0.97 | -1.35 | -1.32 | 2.64 | 3.07 | 0.59 | 0.12 | 3.99 | 4.08 |
| Sox8 | -2.11 | -2.40 | -2.02 | -1.60 | -0.98 | -2.69 | -1.49 | -1.92 | -2.73 | 2.14 | 2.13 | 2.09 | 2.42 | 2.94 | 2.43 |
| Stag3 | -2.03 | -1.90 | -2.35 | -1.26 | -0.88 | -0.69 | 1.12 | 0.71 | 1.01 | -0.24 | -0.22 | -0.48 | -0.83 | 0.81 | -1.28 |
| Stk32a | -1.32 | -1.98 | -1.20 | -1.64 | -1.55 | -1.66 | -1.46 | -1.72 | -2.06 | 3.50 | 3.90 | -0.28 | -0.42 | 2.23 | 2.27 |
| Sulf2 | -1.27 | -1.67 | -2.27 | -1.39 | -1.20 | -0.10 | -1.02 | -0.81 | -1.11 | -1.52 | -1.44 | 2.05 | 1.84 | 2.52 | 2.42 |
| Susd5 | -1.42 | -1.58 | -2.76 | -1.01 | -1.31 | -2.32 | -0.72 | -1.14 | -0.95 | -2.55 | -1.85 | -0.15 | -0.40 | 4.07 | 4.19 |
| Tceal7 | -1.85 | -0.43 | -1.77 | -1.67 | -0.21 | -1.25 | -1.93 | -1.27 | -1.32 | -1.71 | -1.75 | -0.26 | -0.64 | -0.84 | -0.75 |
| Tfap2b | -1.70 | -1.47 | -2.36 | -1.56 | -1.54 | 0.01 | 2.95 | 2.99 | 3.17 | -2.77 | -2.28 | -1.74 | -1.70 | -1.38 | -1.22 |
| Thbs2 | -0.93 | -1.87 | -2.46 | -2.35 | -1.22 | -2.89 | -2.20 | -1.51 | -1.13 | -0.32 | 0.67 | 1.16 | 2.04 | -1.95 | -0.94 |
| Tmem | -2.29 | -2.36 | -2.80 | 2.07 | 2.06 | 1.14 | -1.55 | -1.75 | -1.88 | -2.49 | -1.98 | 2.68 | 2.62 | 2.95 | 3.00 |
| Tmem | -1.92 | -1.73 | -1.66 | -1.33 | -0.96 | -1.39 | -2.06 | -2.05 | -1.69 | -0.59 | -0.50 | 4.37 | 4.47 | 1.64 | 2.20 |
| Tmem125 | -1.40 | -1.34 | -0.87 | -1.15 | -0.87 | -2.05 | -2.10 | -1.05 | -2.10 | -1.20 | -1.92 | 4.30 | 4.28 | 2.68 | 1.95 |
| Tmem98 | -1.89 | -2.45 | -2.42 | -1.80 | -1.02 | -2.53 | -1.69 | -1.34 | -1.07 | -2.20 | -1.82 | 3.23 | 3.19 | 1.16 | 1.06 |
| Tnc | 0.24 | -1.35 | -0.18 | -0.87 | -0.66 | -1.73 | -1.47 | -1.78 | -2.01 | 6.16 | 5.00 | -1.69 | -1.70 | -0.75 | -0.04 |
| Tnfrsf13c | -0.78 | -0.09 | -0.65 | -2.02 | -0.71 | -1.69 | -1.40 | -1.34 | -1.40 | -2.06 | -1.51 | -1.07 | 0.73 | 0.77 | 0.81 |
| Tns3 | -2.19 | -2.18 | -2.11 | -2.54 | -2.28 | -1.81 | -2.42 | -2.50 | -2.54 | 1.57 | 1.80 | 1.37 | 1.20 | 2.84 | 2.65 |
| Trabd2b | -2.09 | -1.93 | -2.70 | 6.27 | 5.47 | 5.86 | -1.51 | -2.14 | -1.69 | 0.98 | 0.72 | -1.32 | -1.48 | -1.90 | -0.20 |
| Tril | -0.28 | -0.67 | -1.38 | -2.59 | -2.77 | -1.04 | -1.84 | -2.28 | -1.91 | 4.10 | 3.69 | -0.66 | 0.02 | 2.94 | 1.41 |
| Trpc3 | -2.04 | -2.32 | -2.29 | 6.07 | 5.61 | 5.07 | 0.89 | 0.77 | 0.95 | -1.74 | -1.91 | -1.62 | -1.88 | -0.27 | -0.84 |
| Trpc7 | -1.92 | -1.96 | -2.21 | 0.40 | 0.76 | 1.35 | 3.71 | 3.62 | 3.70 | -2.06 | -2.04 | -0.82 | -1.18 | -1.90 | -2.03 |
| Tshb | 0.91 | 0.82 | -0.22 | 3.91 | 3.49 | 3.63 | -1.01 | 0.12 | 0.41 | -1.68 | -0.28 | 3.42 | 3.75 | 2.99 | 1.90 |
| Tspan11 | -2.50 | -2.65 | -2.53 | 4.06 | 4.14 | 2.78 | -2.04 | -1.54 | -1.75 | -2.30 | -1.67 | -1.68 | -1.67 | -0.68 | -0.59 |
| Tspan2 | -0.95 | -1.04 | -1.06 | 2.65 | 2.39 | 2.26 | -1.95 | -1.81 | -1.53 | -2.44 | -1.00 | 4.18 | 4.15 | 2.91 | 2.89 |
| Tuba8 | -2.05 | -2.74 | -3.23 | 2.29 | 2.32 | 1.93 | 0.52 | 0.41 | 0.34 | -2.77 | -2.94 | -2.76 | -2.62 | -2.64 | -2.75 |
| Tubb2b | -2.35 | -2.69 | -2.66 | -1.11 | -1.12 | -2.11 | -2.43 | -1.24 | -1.13 | 2.12 | 2.19 | -1.31 | -0.91 | 1.33 | 1.70 |
| Txnip | -0.72 | -2.92 | -2.61 | -2.51 | -2.31 | -2.49 | -2.74 | -2.50 | -2.23 | 0.98 | 0.21 | 0.25 | 0.51 | 0.25 | -0.54 |
| Ube2b | 1.88 | 1.78 | 1.32 | 2.05 | 2.26 | 2.29 | 2.06 | 1.95 | 2.06 | 1.18 | 1.10 | 2.10 | 2.23 | 1.39 | 1.44 |
| Ugt8a | -2.28 | -2.57 | -2.24 | 0.49 | 0.55 | 0.47 | -1.55 | -1.81 | -1.66 | -2.40 | -2.60 | 4.14 | 4.12 | 2.86 | 2.80 |
| Upp1 | -1.53 | -2.32 | -2.29 | -0.98 | -1.38 | -0.92 | -2.44 | -1.58 | -1.64 | -1.33 | -1.74 | -0.82 | -1.38 | -1.12 | -1.22 |
| Vstm2b | -2.48 | -2.28 | -2.97 | -2.74 | -2.77 | -0.65 | 0.33 | 0.48 | 0.37 | -2.53 | -2.81 | -1.10 | -0.54 | 2.17 | 1.99 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wfdc1 | -2.82 | -2.79 | -2.55 | -1.21 | -0.42 | -1.55 | -1.63 | -1.32 | -2.20 | 0.70 | 1.51 | -2.48 | -1.40 | -1.71 | -1.72 |
| Xrra1 | -1.41 | -0.94 | -1.06 | -0.92 | -1.56 | -1.10 | -1.54 | -1.16 | -1.04 | -0.53 | 0.48 | -1.25 | -1.91 | -1.92 | -1.70 |
| Zcchc24 | -2.41 | -2.29 | -2.05 | -2.88 | -2.90 | -2.38 | -2.11 | -2.56 | -2.43 | 2.57 | 2.70 | 1.24 | 0.82 | 1.76 | 1.82 |
| Zeb2 | -1.99 | -2.01 | -1.89 | -1.54 | -1.67 | -2.13 | -2.13 | -2.33 | -2.43 | 2.77 | 2.97 | 3.13 | 3.10 | 2.72 | 2.55 |
| Zfp36l1 | -2.01 | -2.24 | -1.49 | -1.16 | -1.33 | -2.49 | -2.00 | -1.67 | -0.93 | 2.09 | 1.80 | -1.15 | -1.36 | 2.35 | 1.82 |

**[00261]** Examination of the first eight principle components, Proprotein Convertase Subtilisin/Kexin Type 1 (PCSK1, also known as PC1) through Proprotein Convertase Subtilisin/Kexin Type 8 (PCSK8, also known as (Pc1 through Pc8), which collectively account for 90.5% of the variability across all samples, revealed that expression of Pc1 and Proprotein Convertase Subtilisin/Kexin Type 3 (PCSK3, also known as PC3) categorize samples by cell type, while Pc2, Proprotein Convertase Subtilisin/Kexin Type 6 (PCSK6, also known as PC6), and PC8 split samples by species. The other principle components organize samples by both cell type and species. Because Pc1 and Pc3 account for 47% of the variability across samples, while Pc2, PCc6, and Pc8 account for only 22% of variability, the most important differences between the profiles were determined to result from cell-type specific expressed genes that are shared among species. However, it is apparent that genome-wide quantitative differences in expression profiles between species should also be considered when assessing the functional properties of a given cell type in different species.

**[00262]** Hierarchical clustering was used to explore the similarities and differences across species of mouse, rat, and human cell-type specific datasets based on expression in all genes outside of the 250 most variable genes revealed clustering primarily by species. However, when clustering was performed using only the 250 most variable genes across species, clustering was observed to occur primarily by cell type.

**Example 13. Profiling three cell types from sixteen post-mortem human brains**

**[00263]** Given the genetic heterogeneity of human populations, the variations in human tissue processing times, and the difficulties cited in previous studies of total RNAs isolated from human tissue (McCall, et al. (2016) Am. J. Hum. Genet. 99, 624–635.; Webster, M.J. (2006). Functional Genomics and Proteomics in the Clinical Neurosciences, (Elsevier), pp. 3–14, each of which is hereby incorporated by reference herein in its entirety), sources of variability across samples from different individuals were also of interest to assess whether the changes that are observed in a disease are caused by the disease itself or are a result of variability across individuals. To better understand the source of this variability, the cellular profiling technique described herein was used to analyze cell-type specific gene expression in an additional 14 human brain samples. In total, samples were obtained from 16 control donors, roughly equally split between genders (7 males and 9 females), and across ages (4 individuals each in the following age groups: 20-30, 40-50, 60-70, 80-90 years). All samples were obtained from unaffected subjects that received a

neuropathological diagnosis of "normal adult brain". Table 29 provides additional details regarding each donor.

**Table 29. Donor details**

| ID | Tissue | Gender | Age (years) | Race/Ethnicity | Autolysis (hours) | Neuropathy Diagnosis | Cause of Death |
|---|---|---|---|---|---|---|---|
| XK | frozen | male | 23 | Caucasian/White | 19.5 | Normal brain | Gunshot wounds |
| TM | frozen | female | 23 | Black/African American | 10.5 | Normal brain | Pulmonary thromboembolus |
| WO | frozen | female | 25 | Black/African American | 10 | Normal brain | Gunshot wounds |
| WC | frozen | male | 27 | Caucasian/White | 19.1 | Normal brain | Multiple blunt trauma injuries - motor vehicle accident |
| WI | frozen | female | 42 | Hispanic/Latino and Caucasian/White | 16.5 | Normal brain | Complications of Myxoid heart disease |
| PK | frozen | female | 44 | Hispanic/Latino and Caucasian/White | 14.8 | Normal brain | Cardiac problems |
| VM | frozen | male | 45 | Hispanic/Latino and Caucasian/White | 15.5 | Normal brain | Cardiomegaly, hypertensive type |
| WL | frozen | male | 46 | Hispanic/Latino and Caucasian/White | 13.5 | Normal brain | Coronary artery thrombosis |
| SG | frozen | male | 63 | Caucasian/White | 12 | Normal brain | Atherosclerotic and hypertensive heart disease |
| OR | frozen | female | 64 | Caucasian/White | 8 | Normal brain | Ruptured atherosclerotic abdominal aortic aneurysm |
| LT | frozen | male | 65 | Caucasian/White | 10.5 | Normal brain | Myocardial infarction |
| ZH | frozen | female | 65 | Caucasian/White | 19.4 | Normal brain | Hypertensive and arteriosclerotic cardiovascular disease |
| KO | frozen | female | 82 | Caucasian/White | 5.5 | Normal brain | Congestive heart failure, emphysema |
| KQ | frozen | female | 83 | Caucasian/White | 13 | Normal brain | Renal failure |
| KE | frozen | male | 84 | Caucasian/White | 24 | Normal brain | Dissecting abdominal aortic aneurysm |
| AI | frozen | female | 89 | Caucasian/White | 5.13 | Normal brain | Lung cancer |
| AW | fixed | male | 25 | Black/African American | 22.5 | Normal brain | Satus asthmaticus; asthma |
| AI | fixed | female | 89 | Caucasian/White | 5.13 | Normal brain | Lung cancer |

**[00264]** Nuclei were isolated from all 16 samples and stained using antibodies against ITPR1 and NEUN to purify the nuclei from three different cell types in a single sort: granule cells, basket cells, and total glia. Table 30 provides the percentages of each cell type from FACS analysis of the nuclei.

**Table 30. FACS results**

| Cell Type | Population | Individual | Percentage | Cell Type | Population | Individual | Percentage |
|---|---|---|---|---|---|---|---|
| Granule | Itpr1 - NeuN+ | TM | 87.10% | Basket | Itpr1+ NeuN- | OR | 0.70% |
| Granule | Itpr1 - NeuN+ | WC | 77.90% | Basket | Itpr1+ NeuN- | SG | 0.49% |
| Granule | Itpr1 - NeuN+ | WO | 89.80% | Basket | Itpr1+ NeuN- | ZH | 0.95% |
| Granule | Itpr1 - NeuN+ | VM | 94.20% | Basket | Itpr1+ NeuN- | LT | 0.52% |
| Granule | Itpr1 - NeuN+ | WI | 89.50% | Basket | Itpr1+ NeuN- | KO | 1.61% |
| Granule | Itpr1 - NeuN+ | WL | 91.00% | Basket | Itpr1+ NeuN- | KE | 0.42% |
| Granule | Itpr1 - NeuN+ | OR | 92.10% | Basket | Itpr1+ NeuN- | KQ | 1.04% |
| Granule | Itpr1 - NeuN+ | SG | 92.90% | Basket | Itpr1+ NeuN- | AI | 0.83% |
| Granule | Itpr1 - NeuN+ | ZH | 93.30% | Glia | Itpr1 - NeuN- | TM | 8.24% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Granule | Itpr1- NeuN+ | LT | 93.10% | Glia | Itpr1- NeuN- | VM | 3.19% |
| Granule | Itpr1- NeuN+ | KO | 90.80% | Glia | Itpr1- NeuN- | WI | 4.84% |
| Granule | Itpr1- NeuN+ | KE | 91.60% | Glia | Itpr1- NeuN- | WL | 4.49% |
| Granule | Itpr1- NeuN+ | KQ | 92.20% | Glia | Itpr1- NeuN- | OR | 3.44% |
| Granule | Itpr1- NeuN+ | AI | 93.10% | Glia | Itpr1- NeuN- | SG | 2.44% |
| Basket | Itpr1+ NeuN- | TM | 0.78% | Glia | Itpr1- NeuN- | ZH | 3.87% |
| Basket | Itpr1+ NeuN- | WC | 1.21% | Glia | Itpr1- NeuN- | LT | 3.56% |
| Basket | Itpr1+ NeuN- | WO | 0.69% | Glia | Itpr1- NeuN- | KO | 2.43% |
| Basket | Itpr1+ NeuN- | VM | 0.48% | Glia | Itpr1- NeuN- | KE | 2.95% |
| Basket | Itpr1+ NeuN- | WI | 1.15% | Glia | Itpr1- NeuN- | KQ | 2.42% |
| Basket | Itpr1+ NeuN- | WL | 0.48% | Glia | Itpr1- NeuN- | AI | 2.60% |

**[00265]** Although the staining pattern varied slightly between samples, the ITPR1- NEUN+ population containing granule cells, the ITPR1+ NEUN- population containing basket cells, and the ITPR1- NEUN- population containing total glia were easily distinguishable. The only exceptions were the glial populations from individuals WC and WO in which the ITPR1- NEUN- population did not separate well from the ITPR1- NEUN+ population. Gene expression analysis of these two samples revealed that the sorts failed to effectively separate granule cells from glia, and the samples were excluded from further analysis. RNAseq was used to analyze the 46 human datasets: 16 from granule cells, 16 from basket cells, and 14 from glia.

**[00266]** The cellular profiling technique described herein was observed to reduce variability caused by differences in cell type composition, which reduced overall variability. Little variability was observed across samples analyzed herein because in a normal analysis of whole tissue, variability is due to both differences in tissue composition and variability in each cell type.

**[00267]** As shown in Examples 8-14, RNAseq analysis of these datasets demonstrated the high purity of each nuclei sample, as each sample was enriched for the appropriate markers for that cell type, and depleted for markers of other cerebellar cell types. For example, only samples from female individuals expressed the X-inactive specific transcript (XIST), while only samples from males expressed Y chromosome genes, such as Lysine Demethylase 5D (KDM5D). Additionally, pairwise Pearson correlation coefficients between biological replicates for each cell type were observed to be between 0.98 and 1 (FIG. 8). These data demonstrated that despite small differences between individuals in the abundance of each cell type, the cell-type specific human expression data obtained by the cellular profiling technique described herein is reproducible.

**Example 14. Summarizing differences in cell-type specific nuclear RNA profiles between mice and humans**

**[00268]** Gene expression profiles were produced for each of the five cerebellar cell types (granule, Purkinje, basket, astrocyte, and oligodendrocyte) in mice and humans by isolating RNA from the sorted nuclei and performing RNAseq.

**[00269]** Tables 31-34 show differences in gene expression between mouse and human. To focus on differentially expressed genes that are most likely to impact cellular function, genes with an adjusted p-value < 10E-5 that changed by at least 4-fold between species, and that are expressed at significant levels in each cell type (average number of normalized counts/DEseq2 baseMean > 400 and log2(fpkm) > 0). Between 119 and 410 genes that are mouse- or human-enriched were observed. To identify cell-type and species differences rather than general differences between mouse and human, genes that are differentially expressed (adjusted p < 10e-5 and fold change > 2) between mouse and human in all cell types analyzed were removed from the analysis. Filtering in this way yielded between 67 and 277 cell-type and species specific differentially expressed genes that were approximately equally distributed between those enriched in mouse and those enriched in human.

**[00270]** The log2 fold change for markers of granule cells in sorted nuclei from human granule cells compared to the normalized RNAseq results from the nuclei of granule cells from mice are shown in Table 31. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value for the nuclei of granule cells from mice analyzed, and a positive value indicates increased expresssion compared to the normalized value for the nuclei of granule cells from mice analyzed.

**Table 31. Log2 fold change of expression in granule cells**

| Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change |
|---|---|---|---|---|---|---|---|
| Nectin3 | 11.56 | Slc44a5 | 5.20 | St3gal5 | 3.52 | Lrfn2 | -4.63 |
| Ybx3 | 9.24 | Eml1 | 5.08 | Rasa3 | 3.52 | Agbl3 | -4.67 |
| Cdh8 | 9.22 | D930015E06Rik | 5.01 | Nxn | 3.47 | Spag16 | -4.68 |
| Plppr4 | 9.14 | Mcc | 4.99 | Pcdh9 | 3.37 | Itga9 | -4.70 |
| Cnksr3 | 8.88 | Slc1a3 | 4.97 | Pde4d | 3.19 | Col13a1 | -4.71 |
| Chst15 | 8.82 | Abca8b | 4.96 | Them4 | -3.14 | Dkk3 | -4.76 |
| Heg1 | 8.58 | Gpc6 | 4.96 | BC003331 | -3.17 | Fnbp1l | -4.86 |
| Tbata | 8.56 | Ptpn22 | 4.95 | Flt3 | -3.29 | Prkd3 | -4.87 |
| Sema6d | 8.51 | Aifm3 | 4.91 | Tgfbr1 | -3.33 | Rapgef5 | -4.87 |
| Wnt7a | 8.46 | Cux2 | 4.90 | Trpm2 | -3.38 | Zcwpw1 | -4.89 |
| Mbp | 8.40 | Mapk12 | 4.79 | Chd11 | -3.40 | Kank1 | -4.90 |
| Ptprt | 8.19 | Fgd4 | 4.76 | Wdsub1 | -3.42 | Ddah1 | -4.91 |
| Osbpl3 | 8.06 | Slc9a9 | 4.72 | Nin | -3.44 | Slc25a13 | -4.94 |
| Fyco1 | 8.06 | Hs3st5 | 4.70 | Dpy19l1 | -3.45 | Cdk15 | -4.95 |
| Ece1 | 7.99 | Lgi3 | 4.69 | Tpm4 | -3.46 | Ppp1r16b | -5.01 |
| Yes1 | 7.84 | Bcl2l15 | 4.67 | Cdk14 | -3.46 | Sh3pxd2b | -5.06 |
| Trps1 | 7.75 | Parp8 | 4.62 | Khdrbs3 | -3.49 | Epha4 | -5.12 |
| Ttyh2 | 7.44 | Utm | 4.61 | Slc1a4 | -3.51 | Zfp618 | -5.13 |
| Ncam2 | 7.35 | Stk3 | 4.59 | Slc35f4 | -3.57 | Sncaip | -5.17 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Epha3 | 7.24 | Phf21b | 4.55 | Shroom3 | -3.60 | Glis1 | -5.19 |
| Adamts10 | 7.21 | Etv6 | 4.54 | Ptprb | -3.62 | Fggy | -5.22 |
| Pls3 | 7.03 | Diaph2 | 4.49 | Lingo2 | -3.62 | Frem1 | -5.24 |
| Ncald | 6.96 | Sipa1l2 | 4.49 | Cflar | -3.65 | Pacsin2 | -5.33 |
| Clstn2 | 6.94 | Fmn1 | 4.46 | Glra2 | -3.67 | Cdh11 | -5.40 |
| Ano3 | 6.93 | Dcc | 4.41 | Slc36a1 | -3.67 | Dok6 | -5.47 |
| Prom1 | 6.83 | Tesc | 4.34 | Tubb4a | -3.75 | Slc26a5 | -5.58 |
| Daam2 | 6.75 | Scn9a | 4.28 | Pam | -3.77 | Arhgap29 | -5.71 |
| Ntn4 | 6.74 | Tshz3 | 4.25 | Palld | -3.78 | Map3k21 | -5.78 |
| Arhgap10 | 6.71 | Slc29a4 | 4.24 | Rnf43 | -3.78 | Slc41a3 | -5.78 |
| Kank2 | 6.71 | Btbd11 | 4.23 | Skap2 | -3.78 | Hacl1 | -5.80 |
| Tgfbr3 | 6.59 | Lrrtm4 | 4.22 | Ctdspl | -3.78 | Kcnh7 | -5.80 |
| Mitf | 6.55 | Ttyh1 | 4.20 | Rnls | -3.78 | Colgalt2 | -5.93 |
| Cgnl1 | 6.55 | Dgkz | 4.15 | Ell2 | -3.82 | Spats2l | -6.06 |
| Cdh4 | 6.47 | Brinp2 | 4.06 | Crtac1 | -3.84 | Mal2 | -6.09 |
| Kcnb2 | 6.44 | Rasgef1b | 4.05 | Tenm3 | -3.87 | Sgcz | -6.32 |
| Ephb2 | 6.27 | Slc24a3 | 4.05 | Slc16a9 | -3.89 | Nkain2 | -6.45 |
| Fgf13 | 6.20 | Mpp6 | 4.04 | Vipr1 | -3.90 | Iqsec3 | -6.66 |
| Rgl3 | 6.19 | Lgr5 | 4.03 | Acmsd | -3.97 | Dab1 | -6.67 |
| D630045J12Rik | 6.11 | Cdc14b | 3.98 | Mob3b | -3.99 | Stac | -6.71 |
| Vipr2 | 6.09 | Kcnq3 | 3.95 | Ankrd6 | -4.01 | Sh3gl3 | -7.10 |
| Angpt1 | 5.93 | Kcnip3 | 3.94 | Rai14 | -4.03 | Adamts16 | -7.23 |
| Tmem150c | 5.86 | Dpysl4 | 3.93 | Gpsm2 | -4.09 | Rasgrp1 | -7.36 |
| Gria1 | 5.84 | Gpsm1 | 3.87 | Lima1 | -4.09 | Pde5a | -7.79 |
| Dpp10 | 5.76 | Timp3 | 3.78 | Mel | -4.12 | Clip4 | -7.83 |
| Fat3 | 5.74 | Tango2 | 3.75 | Gatm | -4.14 | Basp1 | -7.85 |
| Bmp5 | 5.55 | Ltbp2 | 3.69 | Gk5 | -4.19 | Ifit2 | -8.21 |
| Ptchd4 | 5.48 | Plec | 3.69 | Cdh10 | -4.23 | Galnt5 | -8.22 |
| Pard3 | 5.48 | Tmtc4 | 3.68 | Antxr1 | -4.23 | Cobl | -8.89 |
| Frmpd4 | 5.38 | Syn3 | 3.65 | Sfmbt2 | -4.38 | Meis2 | -8.97 |
| Pxylp1 | 5.37 | Mmd2 | 3.65 | Cep112 | -4.39 | Clvs2 | -9.10 |
| Man2a1 | 5.35 | Tecpr1 | 3.61 | Zdhhc15 | -4.57 | Pde1a | -10.26 |
| Nfatc2 | 5.33 | Hcfc2 | 3.60 | Epb41l5 | -4.62 | Vwc2 | -10.39 |
| Inpp4b | 5.23 | Gramd4 | 3.54 | Efna5 | -4.62 | | |

**[00271]** Granule cell markers RNA Binding Protein, Fox-1 Homolog 3 (Rbfox3, also known as NeuN) and FAT Atypical Cadherin 2 (Fat2) were observed to be highly expressed in granule cells and were not observed to be significantly expressed in the other four cell types. Genes having greater value of the log2 fold change in expression between nuclei of granule cells in humans and mice would be more effective as a marker for nuclei from human granule cells.

**[00272]** The log2 fold change in expression in sorted nuclei from human basket cells compared to the normalized expression results for the sorted nuclei from mice basket cells are shown in Table 32. Negative values indicate reduced expression in the nuclei of the human basket cells compared to the normalized value for nuclei from mice basket cells, and a positive value indicates increased expresssion compared to the normalized value from nuclei from mice basket cells.

**Table 32. Log2 fold change of expression in basket cells**

| Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change |
|---|---|---|---|---|---|---|---|
| Cntn3 | 7.56 | Chl1 | 4.12 | Appl2 | -2.93 | Sema5a | -4.05 |
| Luzp2 | 7.28 | Pld5 | 4.12 | St6gal2 | -2.95 | Runx2 | -4.07 |
| Plpp4 | 6.83 | Rsrp1 | 4.09 | Ccdc138 | -3.01 | Capn5 | -4.07 |
| Gldc | 6.62 | Osbpl10 | 4.05 | Phyhipl | -3.01 | Ehd3 | -4.13 |
| Mpp7 | 6.43 | Adamtsl1 | 3.98 | Faim2 | -3.03 | Cep112 | -4.13 |
| Slc6a7 | 6.39 | Sla | 3.98 | Fam65b | -3.07 | Mamdc2 | -4.17 |
| Ccdc88c | 6.24 | Brinp3 | 3.98 | Nefh | -3.07 | Kitl | -4.19 |
| Mkx | 6.18 | Peli1 | 3.98 | Gsap | -3.08 | Tub | -4.24 |
| Gng12 | 6.16 | Caln1 | 3.98 | Epb41l5 | -3.10 | Ift122 | -4.25 |
| Prom1 | 6.14 | Farp1 | 3.95 | Grk4 | -3.10 | Ak4 | -4.39 |
| Syt4 | 6.14 | Trpc7 | 3.91 | Dnaja4 | -3.11 | Mob3b | -4.40 |
| Nkain1 | 6.03 | Ipcef1 | 3.91 | Itgav | -3.11 | Scrg1 | -4.45 |
| Ust | 6.02 | Tle4 | 3.90 | Wdpcp | -3.11 | Adcyap1r1 | -4.51 |
| Arhgef26 | 6.01 | Sema4a | 3.83 | Camk2b | -3.11 | Tnfrsf19 | -4.55 |
| Adamts15 | 5.97 | Pfkp | 3.79 | Atp1a1 | -3.14 | Prkd3 | -4.59 |
| Trpm2 | 5.95 | Pcsk5 | 3.79 | Pappa | -3.16 | Abca6 | -4.61 |
| Vav2 | 5.84 | Serpini1 | 3.78 | Rgmb | -3.16 | Pde9a | -4.61 |
| Nrp2 | 5.84 | Blm | 3.76 | Amotl1 | -3.17 | Map3k20 | -4.64 |
| Ar | 5.81 | Cnpy1 | 3.76 | Qsox1 | -3.17 | Kalrn | -4.65 |
| Lrrc7 | 5.79 | Hacd1 | 3.74 | Traf5 | -3.18 | Col26a1 | -4.69 |
| Rit2 | 5.75 | Ntn1 | 3.68 | Angpt1 | -3.18 | Basp1 | -4.80 |
| Fyco1 | 5.73 | Gpr171 | 3.66 | Hpcal4 | -3.20 | Cmya5 | -4.85 |
| Lrrc1 | 5.73 | Gdpd5 | 3.65 | Arhgef33 | -3.21 | Susd1 | -4.88 |
| Lrtm1 | 5.71 | Dpp10 | 3.65 | Sidt1 | -3.21 | Cdh22 | -4.88 |
| Cacna1e | 5.69 | Etl4 | 3.62 | Ntng1 | -3.23 | Fam19a2 | -4.93 |
| Lingo2 | 5.67 | Cachd1 | 3.61 | Eml1 | -3.26 | Fam135b | -4.93 |
| Atp11c | 5.65 | Phf24 | 3.60 | Fut10 | -3.27 | Ap1s3 | -4.96 |
| Lrrtm4 | 5.62 | Mfsd4a | 3.56 | Lzts3 | -3.28 | Rin2 | -5.03 |
| Dcc | 5.41 | Rasa3 | 3.55 | Kcnip1 | -3.30 | Tns1 | -5.09 |
| Kcnip3 | 5.39 | Dgkq | 3.54 | Cntfr | -3.33 | Abca9 | -5.20 |
| Adamts3 | 5.37 | Rreb1 | 3.54 | Sh3rf1 | -3.36 | Ccdc146 | -5.28 |
| Notch3 | 5.25 | Smad3 | 3.52 | Itga9 | -3.39 | Zfp804b | -5.28 |
| Cdh4 | 5.24 | Cxxc4 | 3.50 | Col23a1 | -3.39 | Thsd7b | -5.34 |
| Pgr | 5.24 | Tmx1 | 3.50 | Lrrk2 | -3.39 | Garnl3 | -5.34 |
| L3mbtl4 | 5.23 | Arhgef37 | 3.47 | Psd3 | -3.40 | Clstn2 | -5.36 |
| Lats2 | 5.21 | Rdh10 | 3.45 | Sfmbt2 | -3.40 | Iqca | -5.39 |
| Sdk2 | 5.15 | Pcsk6 | 3.41 | Coro2b | -3.41 | Cemip | -5.42 |
| Ntn4 | 5.11 | Nrcam | 3.38 | Tanc1 | -3.44 | Rhbdl2 | -5.42 |
| Chchd7 | 5.10 | Prkca | 3.37 | Spg20 | -3.46 | Bazla | -5.46 |
| Sphkap | 5.10 | Cotl1 | 3.37 | Mgll | -3.46 | Antxr1 | -5.46 |
| Ebf4 | 5.04 | Dok6 | 3.37 | Gpsm2 | -3.47 | Kcnb1 | -5.46 |
| D930015E06Rik | 4.97 | Igsf9b | 3.34 | Slc12a8 | -3.48 | Mei1 | -5.52 |
| Tmem47 | 4.94 | Abtb2 | 3.30 | Plekhh1 | -3.48 | Exph5 | -5.54 |
| Dab1 | 4.90 | Shc4 | 3.25 | Ptprf | -3.49 | Spag16 | -5.57 |
| Chrna7 | 4.87 | Zkscan2 | 3.24 | Slc25a13 | -3.51 | Golm1 | -5.60 |
| Frmd6 | 4.86 | Arhgap10 | 3.24 | Tgfbr1 | -3.52 | Epb41l4b | -5.73 |
| Ivd | 4.78 | Cdh11 | 3.23 | Wwc2 | -3.54 | Ptprb | -5.76 |
| Foxo1 | 4.76 | Kcnt1 | 3.20 | Tubb4a | -3.55 | Pkd1l1 | -5.84 |
| Prickle2 | 4.74 | Ccdc15 | 3.19 | Unc5a | -3.55 | Spats2l | -5.86 |
| Fah | 4.59 | Pparg | 3.19 | Arhgef10l | -3.57 | Wdsub1 | -5.88 |
| Mbp | 4.56 | Kcnc1 | 3.18 | Jph4 | -3.58 | Unc5d | -5.97 |
| Chst9 | 4.51 | Arhgef2 | 3.17 | Efhc1 | -3.61 | Arsg | -6.00 |
| Cacna2d3 | 4.46 | Kirrel3 | 3.16 | Hhip | -3.61 | Ano5 | -6.01 |
| Trpc3 | 4.46 | Eaf2 | 3.15 | Cobll1 | -3.64 | Slc13a3 | -6.02 |
| Sh3rf3 | 4.45 | Mei4 | 3.12 | Slc22a4 | -3.65 | 1810041L15Rik | -6.05 |
| St6gal1 | 4.44 | Tmem2 | 3.12 | Tcerg1l | -3.66 | Galntl6 | -6.08 |
| Inhba | 4.28 | Tgfbr3 | 3.09 | Ccnd2 | -3.69 | Adra1b | -6.08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Tmem196 | 4.24 | Scn9a | 3.07 | Rnf213 | -3.70 | Ky | -6.16 |
| Prtg | 4.23 | Fndc3b | 3.06 | Ttc28 | -3.71 | Timp2 | -6.16 |
| Bcat1 | 4.23 | Zfp385b | 3.01 | Pdzrn3 | -3.73 | Lrfn2 | -6.23 |
| Tmtc1 | 4.20 | Pcdh9 | 2.96 | Klhl5 | -3.73 | Galnt14 | -6.26 |
| Ano3 | 4.19 | Vsnl1 | 2.90 | Ano4 | -3.83 | Smoc2 | -6.33 |
| Rarb | 4.17 | Vldlr | 2.76 | Slc35f4 | -3.89 | Maats1 | -6.38 |
| Cdh1 | 4.17 | Ica1l | -2.76 | Stard13 | -3.89 | Gramd3 | -6.56 |
| Zdhhc2 | 4.17 | Atp8a2 | -2.76 | Gucy1a3 | -3.89 | Bean1 | -6.66 |
| Cstf2 | 4.16 | Klhl3 | -2.79 | Cdon | -3.92 | Slc37a1 | -7.30 |
| Ablim1 | 4.16 | Il15 | -2.85 | Trim66 | -3.92 | Tctex1d1 | -7.80 |
| Vegfa | 4.15 | Ubxn2b | -2.90 | Vcan | -4.02 | Siah3 | -8.02 |
| Ddo | 4.14 | Tarbp1 | -2.93 | Rab3b | -4.04 | Lmcd1 | -8.36 |

**[00273]** Basket cell markers Sorcs3 and Membrane Associated Ring-CH-Type Finger 11 (March11) were observed to be enriched in basket cells and were not observed to be significantly expressed in the other four cell types.

**[00274]** The log2 fold change in expression in sorted nuclei from human astrocytes compared to the normalized expression results for the sorted nuclei from mice astrocytes are shown in Table 33. Negative values indicate reduced expression in the nuclei of the human astrocytes compared to the normalized value for nuclei from mice astrocytes, and a positive value indicates increased expresssion compared to the normalized value from nuclei from mice astrocytes.

**Table 33. Log2 fold change of expression in astrocytes**

| Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change |
|---|---|---|---|---|---|---|---|
| Pla2g7 | 11.22 | Adam11 | 5.06 | Matn2 | -4.71 | Pdzd2 | -6.14 |
| Folh1 | 10.51 | Plekhg1 | 5.04 | Alk | -4.72 | Ntng1 | -6.17 |
| Cdh19 | 10.00 | Plcb4 | 5.02 | St8sia1 | -4.74 | Sh3bp2 | -6.18 |
| Mybpc1 | 9.98 | Zfp467 | 4.98 | Crmp1 | -4.76 | Masp1 | -6.19 |
| Slco4a1 | 9.10 | Fam234b | 4.79 | Ppp4r4 | -4.81 | Lrp1b | -6.19 |
| Syt10 | 8.56 | Tspan15 | 4.71 | Snca | -4.82 | Prkcq | -6.22 |
| Nwd1 | 8.15 | Kcnj3 | 4.60 | Cemip | -4.86 | Adamtsl1 | -6.24 |
| Itih3 | 8.13 | Gdf10 | 4.59 | Slc7a11 | -4.93 | Sntb1 | -6.28 |
| Adgra1 | 8.06 | Irak2 | 4.58 | Vav3 | -4.94 | Adamtsl3 | -6.31 |
| Eva1a | 7.73 | Gas2l3 | 4.58 | Rftn1 | -4.95 | Prkar1b | -6.33 |
| Gpr153 | 7.50 | Slc14a1 | 4.56 | Dscam | -4.95 | Ryr3 | -6.38 |
| Micalcl | 7.14 | Whrn | 4.54 | Ldb2 | -4.98 | Asb18 | -6.38 |
| Ttll8 | 6.94 | Pde7b | 4.51 | Galnt13 | -4.99 | Dlgap2 | -6.40 |
| Fam20a | 6.92 | Slc7a10 | 4.46 | Pde8a | -5.01 | Dgkg | -6.42 |
| Slc14a2 | 6.89 | Tsc22d3 | 4.44 | Pde1a | -5.02 | Shtn1 | -6.46 |
| Luzp2 | 6.83 | Mfn1 | 4.42 | Arhgef28 | -5.10 | Aif1l | -6.55 |
| Rgs7bp | 6.36 | Arrb1 | 4.38 | Fstl5 | -5.14 | Pdzrn3 | -6.60 |
| Cdc42ep1 | 6.11 | Gsap | 4.36 | Dpp6 | -5.17 | Inpp5d | -6.62 |
| Cmtm5 | 6.03 | Gjb6 | 4.35 | Pde5a | -5.21 | Scn3a | -6.63 |
| Plce1 | 5.98 | Dok5 | 4.34 | Fmnl3 | -5.23 | Frmpd2 | -6.73 |
| Afap1l2 | 5.95 | Clmn | 4.27 | Fam135b | -5.23 | Lmo3 | -6.75 |
| Gpld1 | 5.94 | Man1c1 | 4.22 | Rgs6 | -5.23 | Mrvi1 | -6.77 |
| Adamts20 | 5.77 | Cdh22 | 4.21 | Plxdc2 | -5.25 | Tmem108 | -6.79 |
| Ntsr2 | 5.73 | Ppm1h | 4.19 | Syt17 | -5.29 | Col22a1 | -6.80 |
| Ddo | 5.68 | Cacng7 | 4.15 | Apcdd1 | -5.32 | Nrg3 | -6.84 |
| Drp2 | 5.67 | Actr3b | 4.11 | Dcc | -5.37 | Tub | -6.90 |
| Frmpd1 | 5.62 | Stox2 | 4.07 | Elmo1 | -5.45 | Grm5 | -6.91 |
| Igdcc4 | 5.62 | Rgs7 | -4.17 | Plch1 | -5.53 | Kcnt2 | -7.14 |
| Tmc7 | 5.59 | Dner | -4.36 | Angpt1 | -5.55 | Trim66 | -7.15 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Prickle1 | 5.44 | Slc25a13 | -4.48 | Rerg | -5.57 | Il17d | -7.38 |
| Cspg5 | 5.43 | Fam171b | -4.54 | Dock2 | -5.58 | Mal | -7.43 |
| Rarb | 5.43 | Fgf14 | -4.55 | Grik3 | -5.66 | Lrrc7 | -7.50 |
| Plcb1 | 5.38 | Pik3c2b | -4.56 | Efemp1 | -5.70 | Vat1l | -7.54 |
| Kcnip3 | 5.30 | Rnf144b | -4.59 | Gas6 | -5.73 | Fam198b | -7.57 |
| Grhl1 | 5.26 | Mdfic | -4.60 | Etl4 | -5.79 | Fign | -7.80 |
| Col9a3 | 5.19 | Sh3bgrl2 | -4.61 | Faim2 | -5.81 | Lrrtm4 | -7.84 |
| Stard8 | 5.18 | Pcsk5 | -4.67 | Ncan | -5.85 | Lmo2 | -8.08 |
| Tnc | 5.17 | 2900011O08Rik | -4.68 | Lama4 | -5.87 | Rgcc | -8.10 |
| Chst8 | 5.15 | Dab2 | -4.69 | Lrrc3b | -5.89 | Smtn | -8.25 |
| Efhd1 | 5.07 | Srpx | -4.71 | Ndrg4 | -5.97 | C3 | -8.27 |
| | | | | | | Ccnd2 | -8.81 |

**[00275]** Aldehyde Dehydrogenase 1 Family Member L1 (Aldh1L1) and Slc1a3 was observed to be enriched in astrocytes and were not observed to be significantly expressed in the other four cell types. The log2 fold change in expression in sorted nuclei from human oligodendrocytes compared to the normalized expression results for the sorted nuclei from mice oligodendrocytes are shown in Table 34. Negative values indicate reduced expression in the nuclei of the human oligodendrocytes compared to the normalized value for nuclei from mice oligodendrocytes, and a positive value indicates increased expresssion compared to the normalized value from nuclei from mice oligodendrocytes.

**Table 34. Log2 fold change of expression in oligodendrocytes**

| Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change |
|---|---|---|---|---|---|---|---|
| Kcnk13 | 8.44 | Gdpd5 | 4.81 | Rgcc | -5.04 | Plppr1 | -5.73 |
| Il33 | 8.23 | Rcbtb1 | 4.77 | Atp2b4 | -5.04 | Ajap1 | -5.74 |
| Pkd2l1 | 7.46 | Epha4 | 4.63 | L3mbtl4 | -5.05 | Tcf15 | -5.75 |
| Insc | 7.39 | Adamts20 | 4.59 | Slc35d2 | -5.06 | Rai14 | -5.78 |
| Rtkn2 | 7.16 | Tle1 | 4.57 | Cpne2 | -5.09 | Ppp2r2b | -5.84 |
| Efnb3 | 6.88 | Arsg | 4.53 | Myh11 | -5.10 | Necab1 | -5.85 |
| Asah2 | 6.77 | Arhgef28 | 4.49 | Fbxl7 | -5.12 | Man2a1 | -5.94 |
| Kndc1 | 6.76 | Cacna2d1 | -4.35 | Shroom4 | -5.14 | Hhatl | -5.96 |
| Galnt5 | 6.61 | Pld5 | -4.41 | Syndig1 | -5.18 | Grb10 | -6.14 |
| Cobll1 | 6.60 | Dlc1 | -4.52 | Galnt15 | -5.24 | Vstm2b | -6.18 |
| Pls1 | 6.36 | Ttll11 | -4.53 | Prune2 | -5.26 | Hs3st5 | -6.23 |
| Adamtsl4 | 6.36 | Rhobtb1 | -4.62 | Fam196b | -5.28 | Lrp2 | -6.35 |
| Tenm2 | 6.31 | Arfgef3 | -4.62 | Glra2 | -5.31 | Ephx1 | -6.41 |
| Pter | 6.08 | Capn3 | -4.63 | Snph | -5.32 | Pde1a | -6.51 |
| Mbp | 6.03 | Suclg2 | -4.64 | Cemip | -5.33 | Colgalt2 | -6.54 |
| Pla2g4a | 6.01 | Piezo2 | -4.77 | Aass | -5.34 | Itga2 | -6.55 |
| Rnf43 | 6.01 | Dpysl5 | -4.80 | Kcnh8 | -5.35 | D630003M21Rik | -6.78 |
| Fah | 5.99 | Ttl | -4.81 | Slc39a11 | -5.37 | Fam124a | -6.98 |
| Bfsp2 | 5.68 | Col9a2 | -4.88 | Prex2 | -5.41 | Eln | -7.10 |
| Il18 | 5.26 | Ak5 | -4.97 | Cntnap4 | -5.42 | Baiap2 | -7.30 |
| Kcnq3 | 5.25 | Dock2 | -4.98 | Mcf2l | -5.46 | Hpn | -7.35 |
| Jph1 | 5.20 | Tyms | -5.01 | Shisa7 | -5.48 | Clip4 | -7.42 |
| Shroom3 | 5.19 | Col18a1 | -5.01 | Slc13a3 | -5.67 | Cd22 | -7.54 |
| Sez6l2 | 5.04 | Pde5a | -5.01 | Whrn | -5.68 | Zic4 | -7.65 |
| Skap2 | 4.94 | L3mbtl1 | -5.02 | Trim66 | -5.69 | Gldn | -9.14 |

**[00276]** The log2 fold change for gene expression of differentially expressed genes in nuclei from human OPCs compared to normalized gene expression for OPCs in mice nuclei is shown in

Table 35. Negative values indicate a reduced gene expression in the nuclei of human OPCs, and positive values indicate increased gene expression in the nuclei of human OPCs compared to nuclei from mice OPCs.

**Table 35. Log2 fold change of expression in OPCs**

| Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change | Gene | Log2 fold change |
|---|---|---|---|---|---|---|---|
| Tes | 7.74 | Prr16 | 5.27 | Etl4 | -4.67 | Ntng1 | -5.85 |
| Lpcat2 | 7.58 | Synpr | 5.26 | Hecw1 | -4.68 | Kcnip4 | -5.86 |
| 1810041L15Rik | 7.01 | Sdc2 | 5.24 | Golm1 | -4.76 | Slc25a43 | -5.90 |
| Eya1 | 6.66 | Sulf1 | 5.10 | Htr2c | -4.84 | Nos1 | -5.91 |
| Fli1 | 6.60 | Nkain2 | 5.09 | Rgmb | -4.90 | Apcdd1 | -5.95 |
| Scel | 6.32 | Tenm2 | 5.07 | 9030617O03Rik | -4.98 | Chst9 | -6.01 |
| Foxp2 | 6.27 | Arhgap24 | 5.06 | Atp13a4 | -5.05 | Tmem132c | -6.01 |
| Mro | 6.15 | Nedd4l | 4.89 | Pou6f2 | -5.09 | Snph | -6.07 |
| Angpt1 | 5.97 | Kndc1 | 4.88 | Dgkg | -5.17 | Egfr | -6.26 |
| Rgs20 | 5.64 | Mbp | 4.66 | Col15a1 | -5.22 | Ankrd55 | -6.29 |
| Bfsp2 | 5.64 | Neu4 | 4.63 | Pde5a | -5.36 | Cacng2 | -6.30 |
| Nrg1 | 5.57 | Plekhg1 | 4.58 | Cemip | -5.40 | Ano5 | -6.38 |
| Rorb | 5.56 | Fmn1 | 4.52 | Ccdc146 | -5.41 | Cmya5 | -6.54 |
| Kcnk13 | 5.56 | Cobll1 | 4.50 | Acacb | -5.42 | Scn9a | -6.84 |
| Enpp6 | 5.52 | Kcnb2 | 4.46 | Dab1 | -5.44 | Crispld1 | -6.87 |
| Nkain1 | 5.31 | Sel1l3 | -4.47 | Cdkl1 | -5.57 | Thbs2 | -7.56 |
| Epha4 | 5.28 | Fgfr1 | -4.64 | Apod | -5.65 | | |

**[00277]** Olig2 and Mog were observed to be enriched in both mature oligodendrocytes and oligodendrocyte progenitor cells (OPCs) and were not observed to be significantly expressed in the other four cell types. Hierarchical clustering of nuclear RNAseq profiles from all cerebellar cell types confirmed that the oligodendrocyte lineage splits into two groups, mature oligodendrocytes and OPCs, with the set of all oligodendrocytes clustering with mature oligodendrocytes.

**Example 15. Identifying factors that impact human cell-type specific gene expression**

**[00278]** A main reason for development of the cellular profiling technique described herein was to enable direct examination of human cell-type specific expression and its relationship to biological and clinical factors that might influence cellular function. Although the characterized nuclei were obtained from normal cerebellar samples, differences in gender, age, and the time between death and tissue preservation (autolysis time) may influence the expression data. Table 36 provides the number of genes observed to significantly change (adjusted p-value < 0.01, baseMean > 50) in the nuclei as a result of autolysis, gender, and age.

**Table 36. Number of genes with significantly changed expression**

| | All | Granule | Basket | Glia |
|---|---|---|---|---|
| Autolysis | 12 | 4 | 1 | 1 |
| Gender | 27 | 15 | 35 | 25 |
| Age | 42 | 274 | 139 | 31 |

**[00279]** Age was observed to affect significant changes in expression in the most genes.

**Example 16. Applying antibody-based sorting of cell types to post-mortem human tissue**

**[00280]** Imbred animals have been used previously for these types of studies, but heterogenetity has been observed across human individuals. To determine whether the cellular profiling technique described herein was effective for analysis of cell types in the human brain, post-mortem human cerebellar tissue from two donors (codes XK and PK), then isolated and stained nuclei using the cell-type specific antibodies defined previously. FACS of granule, basket, all glial, astrocyte, mature oligodendrocyte, and oligodendrocyte progenitor cell (OPC) nuclei from the cerebellum of the two individuals (XK and PK) was performed. Percentage of population in each gate is indicated in Table 37.

**Table 37. FACS results for post-mortem human tissue**

| Cell Type | Population | Individual | Percentage |
|---|---|---|---|
| Granule | Itpr1- NeuN+ | XK | 91.40% |
| Basket | Itpr1+ NeuN- | XK | 0.85% |
| Glia | Itpr1- NeuN- | XK | 3.36% |
| Astrocytes | Itpr1- Olig2- NeuN- | XK | 3.05% |
| Oligodendrocytes - Mature | Olig2+ Low | XK | 1.18% |
| Oligodendrocytes - Precursors | Olig2+ High | XK | 0.40% |
| Cytoplasmic | - | XK | - |
| Granule | Itpr1- NeuN+ | PK | 92.00% |
| Basket | Itpr1+ NeuN- | PK | 0.75% |
| Glia | Itpr1- NeuN- | PK | 3.58% |
| Astrocytes | Itpr1- Olig2- NeuN- | PK | 1.33% |
| Oligodendrocytes - Mature | Olig2+ Low | PK | 3.07% |
| Oligodendrocytes - Precursors | Olig2+ High | PK | 0.23% |
| Cytoplasmic | - | PK | - |

**[00281]** Further analysis of the expression profiling from the results in Table 37 revealed two distinct populations: OLIG2+ low nuclei coming from mature oligodendrocytes and OLIG2+ high nuclei come from both oligodendrocyte precursor cells (OPCs) and mature oligodendrocytes.

**[00282]** After further flow cytometry analysis of oligodendrocytes, the OLIG2+ population appeared subdividable based on its level. Approximately 20% of all OLIG2+ nuclei have high levels of OLIG2 (High) while 80% have lower levels (Low).

**[00283]** Although the profile of stained human cerebellar nuclei was generally similar to rodent data, there were differences. For example, the conditions used to sort granule and basket neurons, astrocytes, oligodendrocytes, and OPCs were directly transferrable to human postmortem tissue, whereas those used to sort mouse and rat Purkinje cell nuclei were not successful for isolation of human Purkinje cell nuclei. Slight differences in staining were

observed between the two postmortem human samples: in XK the oligodendrocyte and OPC populations were well separated, whereas they are more difficult to distinguish in individual PK.

**[00284]** To assess whether these differences would prevent cell type specific analysis of human postmortem samples, gene expression of nuclei isolated from five cell types (granule, basket, astrocyte, oligodendrocyte, OPC) was analyzed in these two individual brains using RNAseq. Examination of known markers from each of these cell types established that relevant cell specific markers were enriched for each cell type and depleted from the other cell types.

**[00285]** The log2 fold change between the normalized RNAseq results from the nuclei of unsorted nuclei from mice, rat, and human samples compared to the RNAseq results for the sorted nuclei from granule cells, basket cells, astrocytes, oligodendrocytes, and OPCs cells from 2 human samples are shown in Table 38. Negative values indicate reduced expression in the nuclei of the cell type compared to the normalized value across nuclei from all cell types analyzed, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed. Table 38 shows the RNAseq results for the 250 most differentially expressed genes across all species for 2 post-mortem human samples.

**Table 38. Log2 fold change in expression in 2 post-mortem human samples**

| | Log2 fold change of expression in XK | | | | | Log2 fold change of expression in PK | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gene** | **Granule** | **Basket** | **Astro** | **Oligo** | **OPC** | **Granule** | **Basket** | **Astro** | **Oligo** | **OPC** |
| A2m | 2.41 | 1.36 | 3.86 | 0.99 | 0.66 | 2.65 | 1.44 | 2.45 | 2.57 | 2.73 |
| Adamts15 | -2.61 | -0.51 | -0.64 | -0.72 | -1.50 | -2.43 | -0.26 | -2.45 | -1.26 | -0.92 |
| Adra1a | -2.41 | -2.40 | 3.14 | -0.23 | 2.91 | -2.23 | -1.26 | 4.46 | 2.68 | 3.83 |
| AI593442 | 0.83 | 2.50 | -1.57 | -1.63 | -2.32 | 0.21 | 2.32 | -2.05 | -2.04 | -2.20 |
| Aldh1a1 | -1.90 | -0.45 | 4.81 | 0.15 | -0.88 | -1.96 | 0.39 | 7.46 | -0.34 | -1.84 |
| Anln | -2.38 | -1.95 | -2.05 | 4.71 | -0.26 | -1.90 | -1.04 | -2.06 | 3.84 | 0.36 |
| Apcdd1 | -2.35 | -1.62 | 3.37 | 1.71 | 4.22 | -2.40 | -1.00 | 4.50 | 3.52 | 4.55 |
| Apod | -3.07 | -1.83 | -2.15 | 3.12 | 3.18 | -2.92 | -1.94 | -2.83 | 3.28 | 4.01 |
| Aqp4 | -3.01 | -1.95 | 2.79 | -1.84 | -2.37 | -2.01 | -0.63 | 3.97 | -0.68 | -2.69 |
| Arhgef33 | 0.21 | 1.04 | 0.48 | -1.25 | -0.66 | -0.01 | 0.87 | 0.74 | -0.48 | -1.03 |
| Ascl1 | -2.03 | -2.17 | 0.41 | 1.89 | 3.80 | -2.08 | -2.05 | 3.36 | 4.11 | 4.87 |
| Asgr1 | 1.53 | 2.81 | 3.77 | 1.12 | 3.31 | 2.43 | 4.46 | 2.58 | 0.65 | 3.71 |
| Aspa | -2.60 | -2.42 | 0.96 | 3.46 | -1.94 | -2.00 | -0.89 | 2.42 | 3.37 | 1.79 |
| Atp1a2 | -3.04 | -2.46 | 2.88 | -2.44 | 0.94 | -2.94 | -1.05 | 4.37 | 0.75 | 1.71 |
| Atp2a3 | -1.80 | -0.11 | -1.03 | -0.43 | -0.93 | -1.54 | 0.20 | -1.32 | -1.79 | -1.02 |
| B3gnt5 | 2.23 | 2.79 | 3.43 | 0.75 | -0.09 | 2.60 | 2.96 | 1.15 | 2.28 | 2.34 |
| B3gnt7 | -1.95 | -0.60 | -0.07 | 2.42 | 5.26 | -2.00 | -0.38 | -2.02 | 3.98 | 5.95 |
| Bcl11a | -2.16 | -0.08 | -1.62 | -1.37 | -0.99 | -2.32 | -0.52 | -2.02 | -0.60 | -0.22 |
| Bhlhe22 | -2.29 | 4.50 | 1.94 | 0.45 | -0.57 | -0.70 | 4.65 | -2.36 | 0.79 | -2.26 |
| C1ql1 | -1.66 | -2.24 | -1.40 | 0.37 | 4.31 | -2.13 | -1.86 | -0.60 | 2.85 | 4.35 |
| C1ql2 | -1.58 | -1.73 | -1.29 | -1.33 | 5.46 | -1.63 | -1.60 | -1.65 | 3.45 | 3.83 |
| C2orf72 | -0.17 | 2.68 | 2.49 | 2.83 | 4.01 | -1.10 | 2.57 | 4.69 | 3.25 | 3.71 |
| C8orf46 | -0.49 | -0.08 | 0.85 | 2.85 | 1.66 | -0.55 | -0.03 | 2.12 | 3.31 | 3.44 |
| Cacna1g | -2.86 | -0.09 | -1.63 | -1.49 | -0.21 | -2.64 | -1.13 | -3.21 | -0.52 | 0.22 |
| Cacng4 | -2.92 | -1.09 | 1.58 | -0.37 | 3.35 | -2.99 | -0.66 | 2.57 | 2.29 | 3.70 |
| Calb1 | -1.05 | 1.28 | -1.13 | -1.82 | -1.41 | -0.74 | 1.14 | -0.08 | -0.48 | -1.21 |
| Camk1g | -1.48 | 0.55 | -1.86 | -2.41 | -2.30 | -0.10 | 1.40 | -2.52 | -2.18 | -2.40 |
| Car8 | -0.67 | -1.26 | -1.71 | -1.20 | 1.97 | -0.68 | -2.91 | 0.09 | 0.62 | 1.56 |
| Carns1 | -0.92 | -0.05 | -0.15 | 5.08 | 1.53 | -1.37 | 0.67 | -0.90 | 5.63 | 3.11 |
| Casq2 | -1.41 | -0.49 | -2.05 | -0.96 | -0.99 | -1.11 | -0.50 | -2.52 | -0.87 | -2.39 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cbln2 | -1.24 | 5.79 | 1.69 | 2.28 | 1.55 | -0.42 | 7.34 | 4.37 | 2.12 | -1.20 |
| Ccdc152 | -0.49 | -0.03 | 1.92 | 4.77 | -0.08 | -0.55 | 0.69 | 2.25 | 3.43 | 2.24 |
| Ccdc180 | 3.52 | 3.48 | 2.82 | 2.78 | 3.11 | 3.12 | 3.25 | 3.46 | 3.44 | 3.37 |
| Ccnd2 | -2.30 | 3.76 | 3.20 | -1.64 | 2.71 | -2.17 | 4.06 | 3.55 | 3.24 | 4.31 |
| Cd82 | -2.45 | -2.44 | -0.47 | 3.52 | 4.42 | -2.33 | -1.69 | -0.51 | 2.75 | 2.70 |
| Cd9 | -2.66 | -2.72 | 0.59 | 3.09 | 2.05 | -2.17 | -2.17 | 1.33 | 1.89 | 1.23 |
| Cdh19 | -2.44 | -2.51 | -2.34 | 3.25 | -0.53 | -2.85 | -1.92 | -2.86 | 2.50 | 1.26 |
| Cdhr1 | -0.93 | 4.68 | 1.09 | 3.02 | 1.04 | -1.29 | 3.82 | 2.46 | 4.17 | 4.19 |
| Cldn11 | -2.94 | -2.13 | 0.42 | 4.50 | -0.81 | -2.85 | -1.85 | 1.38 | 2.79 | 0.23 |
| Clec7a | -1.21 | 0.43 | 10.56 | 1.18 | 1.38 | -1.25 | 0.97 | 2.78 | -1.26 | -1.17 |
| Clmn | -3.08 | -2.35 | -0.82 | 2.88 | -1.27 | -3.21 | -2.22 | -0.80 | 2.22 | -0.31 |
| Cnnm5 | -2.87 | -2.44 | -1.92 | 0.30 | -0.60 | -2.89 | -2.87 | -0.39 | 1.79 | 0.75 |
| Cntn3 | -2.51 | -2.47 | -1.79 | -1.52 | 1.81 | -2.53 | -2.26 | -1.18 | 0.68 | 1.91 |
| Cntnap5a | -2.16 | 4.27 | 0.75 | 0.18 | 2.67 | -2.04 | 4.40 | -1.68 | 2.26 | 3.37 |
| Cobl | 2.98 | -1.71 | -0.27 | 4.05 | 3.26 | 2.78 | -1.15 | 0.19 | 4.00 | 3.74 |
| Col5a3 | -2.44 | -0.81 | 3.56 | 0.85 | 3.37 | -2.04 | -0.19 | 3.09 | 0.82 | 2.66 |
| Col6a1 | 2.85 | 3.11 | 2.76 | 3.48 | 2.62 | 2.23 | 2.77 | 3.54 | 2.57 | 3.35 |
| Cpm | -1.87 | -2.19 | -0.51 | 3.99 | 0.06 | -1.79 | -1.49 | -0.77 | 3.15 | 0.97 |
| Cryab | 1.42 | 0.27 | 1.05 | 3.91 | -1.31 | 1.36 | 0.66 | 2.77 | 3.93 | 1.88 |
| Cspg4 | -1.04 | -2.06 | -1.06 | -1.04 | 3.65 | -1.18 | -1.96 | 1.83 | 2.85 | 4.10 |
| Csrp1 | -2.74 | -2.27 | 1.46 | 2.02 | -0.46 | -2.70 | -2.10 | 2.33 | 1.82 | 0.03 |
| D7Ertd443e | -2.77 | -1.25 | -1.26 | 4.86 | 2.99 | -2.91 | -0.87 | -1.99 | 4.25 | 3.80 |
| Ddx3y | 0.89 | 1.06 | 1.36 | 1.69 | 0.90 | -2.85 | -2.63 | -2.87 | -3.09 | -3.04 |
| Dock5 | -2.58 | -2.02 | 2.11 | 4.77 | 0.92 | -2.35 | -1.12 | 3.09 | 4.05 | 0.87 |
| Dpy19l2 | 3.23 | 4.93 | 1.87 | 0.84 | 4.99 | 3.17 | 4.75 | 0.42 | 3.13 | 4.45 |
| Ebf2 | -1.85 | -2.39 | -1.00 | -0.23 | -0.79 | -1.76 | -1.74 | -1.99 | -1.64 | -1.41 |
| Echdc2 | 3.68 | 3.01 | 3.72 | 1.22 | 3.45 | 3.14 | 2.67 | 3.64 | 2.55 | 3.38 |
| Efna5 | 2.31 | 3.69 | -0.13 | -2.00 | -1.62 | 1.26 | 3.52 | -2.28 | -1.34 | -2.95 |
| Enpp2 | -3.16 | -1.20 | -2.64 | 3.57 | -0.53 | -3.10 | -1.25 | -3.29 | 3.16 | 0.49 |
| Erbb3 | -1.74 | -0.32 | 0.27 | 2.98 | 2.63 | -1.53 | -0.70 | -0.31 | 3.43 | 2.22 |
| Ermn | -1.03 | -2.26 | -2.00 | 5.41 | -1.92 | -0.30 | -1.27 | -2.44 | 4.04 | 1.87 |
| Etnppl | -2.06 | -1.77 | 3.56 | -1.04 | -0.87 | -1.64 | -1.36 | 4.68 | -2.31 | -1.82 |
| Fa2h | -1.41 | -2.44 | -1.69 | 3.82 | 1.65 | -2.35 | -1.81 | -1.54 | 3.21 | 2.20 |
| Fam46a | 2.20 | -2.32 | 4.19 | -1.29 | 1.64 | 2.15 | -0.44 | 4.17 | 2.28 | 3.67 |
| Fgfr2 | -3.05 | -2.83 | 2.84 | 2.78 | -2.01 | -3.25 | -1.63 | 3.67 | 1.97 | -0.45 |
| Flrt2 | -3.08 | 3.26 | 0.41 | -1.63 | 2.09 | -2.69 | 3.01 | -2.89 | 1.93 | 3.04 |
| Fmo3 | -1.13 | -0.98 | 1.07 | 2.39 | 6.18 | -1.21 | -1.00 | 0.78 | 6.05 | 8.59 |
| Folh1 | -3.04 | -2.23 | -2.45 | 4.57 | -2.77 | -3.25 | -1.45 | -3.25 | 3.85 | 1.11 |
| Foxh1 | 2.19 | 1.78 | 1.91 | -0.80 | 1.73 | 2.31 | 1.48 | 2.06 | -0.11 | 0.55 |
| Fsip2 | 2.31 | 4.18 | 3.53 | 4.22 | 3.88 | 3.08 | 4.64 | 4.04 | 3.91 | 4.58 |
| Fxyd1 | -2.23 | -2.40 | 2.43 | 0.51 | -0.30 | -1.58 | -1.95 | 3.01 | -0.43 | -2.18 |
| Fxyd7 | -1.93 | -1.90 | 3.07 | -0.78 | 0.34 | -1.77 | -1.38 | 3.20 | -0.65 | -1.88 |
| Gad2 | -2.78 | 4.02 | 0.22 | -1.66 | -2.40 | -2.43 | 4.13 | -2.30 | -1.48 | -2.97 |
| Gal3st1 | -2.77 | -1.52 | -2.22 | 1.10 | -1.25 | -2.61 | -1.47 | -2.33 | 1.51 | 1.16 |
| Galnt5 | 4.41 | -1.44 | 1.19 | -1.28 | 2.73 | 5.32 | -1.16 | 0.08 | 0.33 | -0.94 |
| Galnt6 | -1.80 | -1.34 | -1.82 | 2.72 | -1.25 | -2.12 | -1.38 | -1.90 | 3.05 | -0.64 |
| Galr1 | -2.37 | 0.00 | -1.44 | 1.58 | 4.83 | -0.90 | -0.84 | -1.94 | 5.66 | 7.65 |
| Gdf10 | -2.59 | -2.34 | 2.65 | -1.29 | -1.13 | -2.63 | -1.92 | 2.74 | -0.51 | -1.85 |
| Gfap | -2.78 | -1.96 | 3.97 | -1.81 | 0.03 | -2.21 | -1.27 | 4.28 | 0.74 | 1.43 |
| Gja1 | -2.60 | -2.34 | 3.59 | -0.45 | -1.32 | -2.08 | -0.52 | 3.80 | -0.63 | -2.89 |
| Gjb1 | -2.35 | -1.26 | -1.45 | 4.60 | 2.11 | -0.65 | -0.58 | -1.60 | 3.31 | 0.02 |
| Gjc2 | -1.03 | -0.99 | -1.72 | 2.19 | 2.77 | -1.65 | -1.74 | -2.00 | 0.76 | -2.34 |
| Gldn | -1.53 | -0.27 | 2.48 | 9.37 | 0.28 | -1.51 | 0.90 | -0.29 | 5.65 | 2.75 |
| Gli1 | 0.44 | -0.83 | 2.86 | -0.73 | -0.55 | 0.41 | -1.04 | 4.76 | -0.98 | -2.04 |
| Glp2r | -2.75 | -2.29 | -1.99 | -1.26 | -0.66 | -2.53 | -1.80 | -2.45 | -2.44 | -1.83 |
| Glul | -1.90 | -1.71 | 2.11 | 2.13 | -0.55 | -1.14 | -0.75 | 3.79 | 2.18 | 0.35 |
| Gm136 | 2.77 | 3.74 | 3.36 | 2.23 | 1.81 | 3.02 | 3.90 | 4.40 | 3.58 | 4.21 |
| Gnb3 | 3.39 | 4.09 | 0.67 | -0.35 | 1.45 | 3.14 | 3.73 | 1.88 | 1.41 | 1.14 |
| Gng11 | -1.29 | -1.43 | 0.99 | -1.05 | -0.95 | 0.00 | -1.30 | 2.01 | -1.34 | -1.25 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gpr37 | -2.52 | -3.22 | -1.98 | 4.85 | -0.68 | -2.93 | -1.74 | -3.19 | 2.70 | -0.47 |
| Gpr37l1 | -2.04 | -2.04 | 1.65 | 0.88 | 2.47 | -2.14 | -1.30 | 3.10 | 1.80 | 2.70 |
| Gpr63 | -2.62 | -0.49 | -1.62 | -1.83 | -0.90 | -2.96 | -1.46 | -1.87 | -1.76 | -1.17 |
| Gpx2 | 3.29 | 3.11 | 2.80 | 3.10 | 3.40 | 3.71 | 3.28 | 4.46 | 4.05 | 3.00 |
| Gramd3 | -2.95 | 2.52 | 0.90 | 1.57 | 0.98 | -2.99 | 1.82 | 2.25 | 2.09 | 2.41 |
| Grb14 | -2.22 | -2.20 | -1.97 | -2.35 | -2.22 | -2.58 | -2.36 | -2.54 | -2.02 | -2.63 |
| Gria3 | -3.12 | 2.38 | -0.89 | -0.68 | 1.21 | -3.02 | 2.36 | -1.79 | 0.80 | 1.56 |
| Grik3 | -3.18 | 2.77 | 0.74 | -1.49 | 1.37 | -3.18 | 2.85 | 1.54 | 0.44 | 1.42 |
| Grm1 | 1.03 | 2.32 | -0.68 | -2.27 | -2.98 | 1.13 | 2.07 | -1.96 | -2.22 | -3.10 |
| Grm5 | -1.58 | -1.68 | 3.29 | 1.40 | 3.53 | -1.61 | -1.15 | 3.72 | 2.82 | 3.92 |
| Gsn | -2.00 | -2.33 | 2.05 | 4.20 | 2.19 | -2.22 | -1.63 | 1.52 | 2.49 | 1.03 |
| Hapln2 | 0.41 | 1.73 | 0.78 | 3.25 | -0.98 | 0.22 | 1.70 | 0.56 | 2.98 | 1.23 |
| Hepacam | -3.19 | -2.84 | 2.06 | 2.98 | 0.65 | -2.70 | -1.80 | 3.28 | 2.63 | 1.63 |
| Hhatl | -1.39 | -1.36 | 2.34 | 8.76 | 0.31 | -1.25 | -0.10 | 3.39 | 5.15 | 1.44 |
| Hspa1b | 2.20 | 3.24 | 8.76 | 5.40 | 6.45 | 3.24 | 3.50 | 1.56 | 1.27 | 0.52 |
| Htr1b | -1.24 | -1.38 | -0.94 | -1.00 | -0.88 | -1.29 | -1.25 | -1.30 | -1.29 | -1.20 |
| Id4 | -0.56 | -2.55 | 2.72 | -1.22 | -1.47 | 1.25 | -0.58 | 3.53 | -0.37 | -2.38 |
| Igsf11 | -1.91 | -2.07 | 1.35 | 2.67 | -0.37 | -1.34 | -0.79 | 1.60 | 1.64 | 0.57 |
| Il22 | -1.75 | 1.98 | -1.44 | 0.49 | -1.38 | -1.80 | 0.54 | -1.82 | 0.12 | -1.70 |
| Il33 | -2.08 | -2.26 | 2.09 | -0.83 | -1.59 | -1.99 | -1.67 | 3.67 | -1.36 | 0.56 |
| Insc | 0.59 | -2.21 | -0.62 | -1.20 | 0.22 | -0.44 | -1.78 | -0.66 | -0.81 | 0.87 |
| Itgb8 | -2.85 | -2.42 | 1.33 | 1.91 | 2.88 | -3.17 | -1.78 | 2.21 | 2.34 | 2.84 |
| Itih3 | -0.95 | -1.14 | -1.71 | -2.00 | -1.62 | -1.55 | -1.98 | -0.49 | -2.04 | -2.28 |
| Itpr1 | -1.85 | 0.63 | -1.29 | -1.70 | -2.17 | -1.80 | -0.03 | -1.37 | -1.59 | -1.34 |
| Kcnc2 | -2.39 | -0.02 | -1.21 | -1.09 | -1.15 | -2.27 | -0.22 | -2.97 | -2.52 | -2.67 |
| Kcnj10 | -2.18 | -2.58 | 2.11 | 3.23 | 2.38 | -2.43 | -1.29 | 3.09 | 2.66 | 2.33 |
| Kiaa1644 | -1.40 | 1.86 | 0.88 | -2.16 | -2.15 | -1.50 | 2.78 | -2.86 | -1.95 | -2.21 |
| Kif19a | -1.73 | -2.27 | -1.37 | -1.12 | -0.42 | -2.48 | -1.41 | -0.09 | 0.25 | 0.15 |
| Kit | -3.23 | 3.60 | 0.01 | -1.09 | 0.23 | -2.93 | 3.64 | -2.11 | -0.35 | -0.64 |
| Kitl | -3.12 | 1.96 | 1.64 | -2.53 | -2.65 | -2.84 | 1.95 | 1.84 | -2.06 | -2.65 |
| Klk6 | -2.36 | -0.93 | -0.73 | 7.59 | -0.94 | -1.91 | -0.23 | -1.13 | 4.87 | 0.81 |
| Leng9 | 0.00 | -0.23 | 2.39 | 2.70 | 2.40 | 0.95 | 0.56 | 0.63 | 0.19 | 0.84 |
| Lfng | -1.63 | -2.14 | 2.80 | -0.97 | -0.80 | -1.08 | -1.65 | 2.77 | -1.71 | -2.40 |
| Lgi4 | -2.39 | -2.54 | 3.54 | 1.63 | -1.96 | -1.99 | -1.72 | 4.07 | 0.60 | -2.35 |
| Lims2 | -3.14 | -2.00 | -2.29 | -0.06 | 3.86 | -2.67 | -2.41 | -2.47 | 2.89 | 3.73 |
| Mag | -2.74 | -2.16 | -2.22 | 4.46 | -0.79 | -2.97 | -1.36 | -2.41 | 4.79 | 2.41 |
| Mak | 3.71 | 3.16 | 2.58 | 2.09 | 2.87 | 3.91 | 3.32 | 3.56 | 3.00 | 3.69 |
| Mal | -2.84 | -2.57 | 1.76 | 5.43 | 2.66 | -2.76 | -1.37 | 2.55 | 4.79 | 3.19 |
| March11 | -1.83 | 4.42 | 0.50 | -1.87 | -2.54 | -1.93 | 4.23 | -3.13 | -1.61 | -2.11 |
| Marcksl1 | 1.55 | 2.26 | 2.02 | 4.82 | 4.50 | 1.48 | 1.85 | 1.78 | 3.76 | 4.56 |
| Mcam | 0.45 | -0.41 | -0.87 | 1.32 | 1.96 | 0.50 | -1.08 | -1.96 | 1.46 | 0.45 |
| Mff | 0.80 | 0.77 | 0.51 | 1.28 | 0.83 | 1.05 | 0.79 | 1.33 | 1.27 | 1.52 |
| Mfge8 | -1.73 | -2.18 | 3.64 | 2.95 | 0.98 | -1.70 | -1.64 | 4.40 | 0.96 | 0.04 |
| Mlc1 | -2.26 | -2.15 | 3.43 | -0.67 | -1.19 | -1.32 | -1.41 | 4.45 | -1.63 | -0.94 |
| Mog | -2.53 | -2.69 | -2.16 | 4.30 | -1.38 | -2.81 | -1.68 | -2.61 | 4.03 | 0.91 |
| mt-Co1 | 2.94 | 3.32 | 1.79 | 2.88 | 2.79 | 3.88 | 4.61 | 3.85 | 5.43 | 4.54 |
| mt-Nd4 | 3.62 | 3.90 | 3.53 | 4.81 | 4.63 | 4.91 | 7.50 | 4.65 | 6.23 | 7.28 |
| Mybpc1 | -2.18 | -1.80 | -1.23 | -0.85 | -1.22 | -1.66 | -0.95 | -1.08 | -2.14 | -1.65 |
| Myot | 3.17 | 2.62 | 2.75 | 4.10 | 4.61 | 3.03 | 2.90 | 2.57 | 3.36 | 3.44 |
| Myrf | -1.61 | -1.46 | -1.85 | 3.71 | -0.77 | -1.96 | -0.99 | -1.29 | 4.02 | 1.17 |
| Ndrg1 | -3.13 | -0.72 | 0.71 | 4.48 | 2.96 | -2.28 | -0.34 | 1.48 | 3.30 | 1.92 |
| Nell1 | -1.82 | -1.49 | -0.68 | -0.86 | 1.11 | -1.52 | -1.29 | -1.58 | 0.48 | 1.11 |
| Neto1 | -2.79 | -2.45 | -1.87 | 0.86 | 2.37 | -2.83 | -2.60 | -2.85 | 2.81 | 3.38 |
| Neu4 | -1.96 | -2.10 | -0.45 | 0.07 | 3.45 | -1.01 | -1.97 | -0.32 | 2.79 | 3.83 |
| Ninj2 | -1.94 | -0.97 | -0.57 | 3.23 | 0.66 | -1.85 | -1.31 | -1.14 | 2.41 | -0.03 |
| Nkx2-2 | -2.92 | -2.74 | 2.51 | 2.93 | 3.70 | -2.95 | -2.62 | 2.29 | 1.32 | 1.39 |
| Notch1 | -2.76 | -2.66 | 0.87 | 0.05 | 2.69 | -3.09 | -2.44 | 2.22 | 1.69 | 2.12 |
| Nrk | -2.87 | -2.18 | 2.06 | -0.29 | -0.52 | -1.46 | -0.80 | 3.49 | -1.59 | -1.20 |
| Olig1 | -2.09 | -2.65 | -0.84 | 3.55 | 4.71 | -2.58 | -1.55 | -2.59 | 2.55 | 3.62 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Olig2 | -2.27 | -2.95 | -1.16 | 4.16 | 5.20 | -2.57 | -2.53 | -2.90 | 3.56 | 4.31 |
| Opalin | -2.78 | -2.54 | -1.08 | 5.29 | 2.73 | -2.28 | -1.03 | -2.18 | 5.00 | 1.78 |
| Pax3 | -2.05 | -2.66 | 2.92 | -0.57 | 2.55 | -2.26 | -1.70 | 4.08 | 1.79 | 3.10 |
| Pcp2 | -1.74 | -1.16 | -0.36 | 0.84 | 0.25 | -1.81 | -1.98 | -2.73 | -2.33 | -2.64 |
| Pdc | 2.65 | 2.93 | 1.60 | 1.96 | 5.97 | 3.00 | 2.87 | 0.74 | 1.70 | 1.71 |
| Pdgfra | -2.12 | -1.63 | -0.94 | 1.02 | 4.77 | -1.60 | -1.28 | -1.97 | 3.68 | 5.24 |
| Pdzd3 | -0.09 | -1.92 | -1.48 | -0.24 | -1.42 | -0.18 | -1.12 | -0.77 | -1.84 | -0.59 |
| Penk | -1.96 | -1.59 | -1.57 | -2.20 | -1.49 | -2.49 | -2.46 | -2.51 | -1.46 | -2.40 |
| Pex5l | -2.56 | -0.46 | -0.67 | 3.35 | 1.42 | -2.65 | -0.46 | -0.38 | 3.17 | 1.78 |
| Pgghg | -2.11 | -2.22 | 4.45 | -1.27 | 1.58 | -2.15 | -1.62 | 3.35 | -1.67 | -1.55 |
| Phyhip | 2.84 | 3.78 | 0.56 | -1.80 | 2.33 | 2.24 | 3.40 | 1.10 | 1.43 | -0.37 |
| Pkp3 | -0.52 | -1.87 | -0.02 | -0.09 | -1.35 | -1.06 | -1.73 | -1.09 | -1.78 | -1.68 |
| Pla2g16 | -1.14 | -1.56 | 0.86 | 3.61 | -0.06 | -0.83 | -1.03 | 1.23 | 2.77 | 0.75 |
| Plch1 | -1.51 | 4.35 | 2.55 | -0.52 | -0.73 | -1.76 | 4.00 | 2.93 | -0.94 | -1.67 |
| Plekhd1 | 1.47 | 3.20 | 0.43 | -2.37 | -2.40 | 0.45 | 2.91 | -2.29 | -1.58 | -2.65 |
| Plekhg3 | 0.41 | -2.15 | 0.10 | 3.81 | 1.29 | -0.18 | -1.49 | -0.09 | 2.34 | 1.31 |
| Pllp | -2.33 | -2.69 | -2.41 | 3.43 | 2.91 | -2.22 | -1.60 | -2.70 | 2.98 | 3.09 |
| Plp1 | -1.44 | -0.64 | -2.18 | 3.38 | -1.12 | -1.05 | -0.39 | -1.39 | 2.94 | 0.79 |
| Plpp3 | -3.04 | -1.43 | 2.24 | 1.27 | 1.60 | -2.75 | -1.70 | 3.26 | 1.64 | 2.15 |
| Plpp4 | -2.72 | -2.34 | -0.50 | 0.45 | 3.55 | -1.82 | -1.48 | -0.47 | 2.69 | 3.61 |
| Plscr1 | 1.91 | 3.22 | 3.21 | 0.29 | 2.00 | 2.64 | 3.63 | 1.59 | 1.55 | 3.28 |
| Plxnb3 | -0.44 | -2.33 | -0.24 | 1.42 | -0.20 | -0.62 | -2.17 | 1.73 | 2.86 | 2.00 |
| Pmp2 | -0.82 | -1.03 | 2.73 | 7.15 | 6.88 | -0.40 | 1.29 | 5.89 | 7.26 | 7.23 |
| Pmp22 | -2.04 | -2.68 | 1.23 | 3.34 | 2.40 | -1.95 | -1.73 | 2.49 | 2.74 | 1.75 |
| Ppfibp1 | -2.73 | -2.15 | -1.44 | 2.96 | 1.84 | -2.53 | -1.59 | -1.83 | 2.64 | 2.73 |
| Ppp1r14a | -2.22 | -1.90 | -1.24 | 3.87 | 1.45 | -1.99 | -0.43 | -1.80 | 3.62 | 3.55 |
| Ppp1r17 | -0.65 | -2.01 | -2.53 | 1.60 | -0.22 | -1.62 | -2.78 | -0.88 | 1.58 | 1.05 |
| Prex1 | -3.30 | -2.72 | 2.75 | 2.26 | 1.13 | -3.15 | -1.87 | 3.05 | 2.17 | 2.34 |
| Prex2 | -3.07 | -0.31 | 3.06 | 2.25 | 2.39 | -3.15 | -0.81 | 3.36 | 2.03 | 2.57 |
| Prima1 | 1.17 | -0.57 | 1.41 | 3.97 | 0.08 | 0.75 | -1.03 | 1.71 | 2.93 | 1.14 |
| Prkcg | -3.31 | 2.38 | -0.69 | -2.45 | -0.83 | -2.72 | 2.30 | -2.41 | -1.38 | -0.57 |
| Prr5 | -2.07 | 0.39 | 1.24 | -1.36 | -1.19 | -1.92 | 0.08 | 2.39 | -2.03 | -1.70 |
| Ptrg3 | 0.78 | 0.83 | 4.51 | 4.67 | 4.51 | 1.33 | 1.82 | 0.98 | 0.80 | 1.18 |
| Prrx1 | -0.87 | -2.28 | 2.61 | -0.21 | 3.56 | -2.53 | -2.13 | 3.09 | 3.14 | 4.46 |
| Ptchd4 | -1.96 | 2.17 | -1.08 | -2.66 | -2.40 | -2.25 | 2.11 | -3.03 | -2.71 | -3.03 |
| Ptprk | -3.02 | 3.05 | -0.27 | 2.24 | 0.48 | -3.13 | 3.27 | -0.50 | 1.60 | 0.96 |
| Ptprz1 | -3.08 | 0.57 | 0.72 | -0.97 | 2.44 | -2.82 | 0.48 | 1.74 | 1.79 | 3.10 |
| Ptta1 | -1.72 | -0.90 | -1.53 | 0.35 | -2.33 | -2.01 | -2.66 | -2.32 | -2.02 | -2.62 |
| Pvalb | -2.69 | 3.17 | -0.09 | -2.29 | -2.31 | -2.74 | 2.81 | -2.76 | -0.55 | -1.84 |
| Pxdc1 | -2.14 | -1.59 | 1.57 | 0.50 | 1.98 | -1.44 | -0.42 | 1.41 | 2.10 | 3.10 |
| Qk | -1.35 | 0.30 | 2.02 | 3.33 | 2.10 | -1.04 | 0.60 | 2.17 | 2.58 | 2.25 |
| Rapgef3 | -2.15 | -1.31 | 1.14 | 3.22 | 0.93 | -2.57 | -0.73 | 2.17 | 2.45 | 0.29 |
| Rassf2 | -0.45 | -2.43 | 0.90 | 2.03 | 0.80 | -1.05 | -1.86 | 1.53 | 1.88 | 1.30 |
| Rbp2 | 3.10 | 4.06 | 2.78 | 2.44 | 3.23 | 3.38 | 3.82 | 4.93 | 4.26 | 4.27 |
| Rbpj1 | -1.78 | -1.39 | -1.38 | -0.01 | -0.58 | -1.24 | -1.80 | -1.07 | -1.85 | 1.19 |
| Rgcc | -2.71 | -1.82 | 3.45 | 3.46 | 2.67 | -2.92 | -1.44 | 3.69 | 3.08 | 2.72 |
| Rgma | -3.15 | -2.86 | 1.50 | -1.67 | -1.38 | -2.78 | -2.25 | 3.11 | -2.17 | -1.88 |
| Ryr1 | -0.51 | 3.88 | 2.16 | -0.89 | 0.17 | -0.52 | 3.98 | -0.35 | -0.13 | 0.53 |
| S100b | -2.84 | -2.35 | 3.12 | 3.41 | 2.58 | -3.01 | -1.80 | 3.36 | 2.53 | 1.93 |
| S1pr1 | -2.31 | -1.39 | 3.17 | -1.99 | -2.39 | -2.77 | -1.30 | 5.33 | -1.03 | -1.95 |
| Sall1 | -2.25 | -2.14 | 1.98 | 4.65 | 1.19 | -2.70 | -1.13 | 1.35 | 4.40 | 2.70 |
| Sec14l5 | -0.57 | -0.07 | -0.37 | 4.65 | -0.46 | -0.79 | 0.46 | 0.01 | 3.72 | 0.39 |
| Serpine2 | -2.58 | -0.89 | 2.34 | -0.66 | 1.38 | -2.88 | -0.19 | 4.15 | 2.08 | 2.47 |
| Shisa6 | -3.31 | 2.04 | 0.23 | -2.18 | -1.75 | -3.24 | 1.94 | 0.86 | -1.28 | -0.62 |
| Skor2 | -1.74 | -1.05 | -0.04 | -0.78 | -1.17 | -2.05 | -0.81 | -2.37 | -2.36 | -2.24 |
| Slc1a3 | -3.01 | -2.31 | 3.60 | 1.34 | 0.51 | -2.90 | -0.86 | 4.60 | 1.57 | 1.22 |
| Slc1a6 | 0.42 | 0.81 | -0.88 | -1.49 | -1.92 | 0.38 | 0.98 | -2.28 | -1.39 | -1.06 |
| Slc26a3 | 2.32 | 2.47 | 7.99 | 6.23 | 5.77 | 2.96 | 2.83 | 3.07 | 2.63 | 2.59 |
| Slc32a1 | -2.78 | 2.32 | -1.54 | -1.84 | -1.70 | -2.81 | 1.64 | -2.25 | -1.73 | -2.75 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Slc4a4 | 0.50 | -2.75 | 3.17 | -1.65 | -2.15 | 0.56 | -1.84 | 3.40 | -2.46 | -2.57 |
| Slc5a11 | -1.31 | -0.76 | 0.30 | 7.86 | 0.54 | -1.46 | -0.56 | -0.87 | 4.64 | 1.51 |
| Slc9a3 | -1.15 | -1.58 | -1.67 | -0.93 | -1.58 | -0.48 | -1.58 | -0.02 | -0.99 | -1.49 |
| Slitrk6 | 3.16 | -1.94 | -1.50 | -1.54 | 1.70 | 3.66 | -1.15 | -0.26 | 2.71 | 4.04 |
| Socs2 | -2.41 | 2.72 | -1.54 | -0.93 | -0.77 | -2.46 | 3.10 | -1.25 | -2.46 | -2.37 |
| Sorcs3 | -2.79 | 3.68 | 0.56 | 0.21 | 2.21 | -2.54 | 3.88 | -2.07 | 1.08 | 2.33 |
| Sox10 | 0.30 | 0.19 | -1.32 | 2.37 | 2.74 | -0.09 | 0.55 | 0.92 | 4.44 | 4.74 |
| Sox2 | -2.61 | -1.27 | 3.23 | 4.07 | 4.33 | -2.24 | -1.17 | 4.05 | 3.95 | 4.09 |
| Sox6 | -2.80 | -2.46 | 1.64 | 0.72 | 3.53 | -2.68 | -1.95 | 2.13 | 2.68 | 3.94 |
| Sox8 | -2.80 | -2.37 | 1.00 | 3.60 | 2.23 | -2.51 | -2.22 | 1.18 | 2.59 | 2.37 |
| Stag3 | 4.19 | 3.01 | 3.18 | 4.59 | 3.98 | 4.26 | 3.50 | 4.05 | 4.13 | 4.32 |
| Stk32a | -2.24 | -2.59 | 2.86 | 0.49 | 3.14 | -2.17 | -1.40 | 3.71 | 2.45 | 3.72 |
| Sulf2 | -2.64 | 1.55 | -1.54 | -0.29 | 3.18 | -2.55 | 0.56 | -2.34 | 2.48 | 3.48 |
| Susd5 | -0.39 | 0.94 | -0.94 | 1.31 | 3.55 | -0.16 | 1.13 | -0.58 | 2.78 | 3.58 |
| Tceal7 | 2.95 | 3.03 | 3.95 | 4.01 | 4.71 | 3.35 | 2.90 | 2.14 | 3.93 | 2.05 |
| Tfap2b | -3.00 | 4.27 | 0.56 | -2.53 | -0.23 | -3.03 | 4.14 | -1.26 | -0.41 | 0.08 |
| Thbs2 | -2.31 | -1.08 | 2.27 | 4.41 | 4.32 | -2.37 | -0.40 | 2.42 | 4.46 | 4.37 |
| Tmem125 | -1.10 | -0.88 | -1.49 | 6.09 | -0.57 | -1.85 | -1.12 | -1.87 | 2.71 | -1.04 |
| Tmem132d | -2.17 | -2.32 | -1.26 | -0.05 | 3.41 | -1.90 | -1.83 | -2.54 | 2.02 | 3.33 |
| Tmem63a | -1.69 | -1.10 | 0.54 | 3.69 | -1.49 | -1.72 | -0.63 | 1.90 | 3.72 | 0.14 |
| Tmem98 | -0.31 | -2.16 | 1.38 | 5.10 | -0.89 | -0.06 | -1.37 | 1.08 | 4.56 | 1.05 |
| Tnc | -2.88 | -2.98 | 1.48 | -0.74 | -0.92 | -2.47 | -2.43 | 1.17 | -1.19 | -0.17 |
| Tnfrsf13c | 2.29 | 2.17 | 6.91 | 5.64 | 5.16 | 2.16 | 2.56 | 2.18 | 1.70 | 2.34 |
| Tns3 | -0.95 | -2.56 | 2.26 | -0.22 | 3.18 | -0.80 | -2.36 | 2.08 | 1.17 | 3.02 |
| Trabd2b | -2.47 | -0.95 | -0.47 | -0.60 | 0.21 | -2.26 | -1.29 | -0.50 | -0.06 | -0.82 |
| Tril | -2.31 | -2.70 | 2.89 | -1.05 | 0.04 | -2.37 | -1.71 | 3.19 | -0.59 | 0.37 |
| Trpc3 | -3.25 | -1.84 | -0.98 | -2.17 | 0.27 | -3.35 | -2.36 | -1.73 | -0.26 | 1.17 |
| Trpc7 | -2.19 | 0.47 | -1.20 | -1.48 | -1.35 | -1.86 | 0.70 | -2.16 | -1.71 | -2.09 |
| Tshb | -2.14 | -1.76 | -1.84 | -1.89 | -1.78 | -2.19 | -2.15 | -2.20 | -1.65 | -2.10 |
| Tspan11 | 0.28 | 0.70 | 1.39 | -1.67 | 0.99 | 0.15 | 0.22 | 3.74 | 1.47 | 2.72 |
| Tspan2 | -2.96 | -3.35 | -2.38 | -2.13 | -2.41 | -2.63 | -2.65 | -3.10 | -1.33 | -2.20 |
| Tuba8 | 0.92 | 1.20 | -0.70 | -2.06 | 0.89 | 0.41 | 0.99 | -0.85 | -0.63 | -0.67 |
| Tubb2b | -0.31 | -0.45 | 4.05 | -1.44 | 4.03 | -0.62 | 0.50 | 3.82 | 1.62 | 0.90 |
| Txnip | -0.03 | -1.79 | 2.51 | 2.45 | 2.28 | 1.77 | -1.29 | 2.32 | 2.84 | 3.25 |
| Ube2b | 1.08 | 0.52 | 0.59 | 1.08 | -0.08 | 1.24 | 0.86 | 0.38 | 0.40 | 0.25 |
| Ugt8a | -1.09 | -1.48 | -1.94 | 3.83 | 1.77 | -1.30 | -1.52 | -1.15 | 2.84 | 1.63 |
| Upp1 | 3.95 | 5.09 | 3.54 | -0.04 | 1.73 | 3.95 | 4.50 | 2.99 | 2.13 | 3.73 |
| Vstm2b | 2.04 | 0.41 | 0.02 | 4.35 | 4.22 | 2.53 | 0.86 | -0.99 | 3.35 | 3.37 |
| Wfdc1 | -2.94 | -0.50 | 3.60 | -0.63 | 2.28 | -1.99 | -1.62 | 4.45 | 1.32 | 2.29 |
| Xrra1 | 3.12 | 2.91 | 3.26 | 3.87 | 3.29 | 3.33 | 3.08 | 3.28 | 3.22 | 3.00 |
| Zcchc24 | -3.21 | -2.59 | 1.32 | 2.51 | 3.14 | -3.16 | -2.14 | 1.58 | 2.50 | 3.08 |
| Zeb2 | -3.40 | -3.14 | 1.72 | 2.88 | 1.47 | -3.39 | -2.03 | 1.85 | 2.78 | 1.95 |
| Zfp36l1 | -2.48 | -0.30 | 4.35 | -1.90 | 3.68 | -2.08 | -0.02 | 4.68 | 2.67 | 4.00 |

**[00286]** RBFOX3 (also known as NeuN) and FAT2 were observed to be significantly enriched in granule cells for both samples. MARCH11 was observed to be significantly enriched in basket cells from both samples. ALDH1L1 and SLC1A3 were observed to be significantly enriched in astrocytes from both samples. Olig2 was observed to be significantly enriched in oligodendrocytes and OPCs from both samples. MOG was observed to be significantly enriched in oligodendrocytes from both samples. PDGFRA was observed to be significantly enriched in OPCs from both samples. Only Olig2+ High nuclei express genes such as Pdgfra and Chondroitin Sulfate Proteoglycan 4 (Cspg4) that mark oligodendrocyte precursor cells (OPCs). Olig2+ Low nuclei were from mature oligodendrocytes, while Olig2+ High nuclei were from a

mixture of mature oligodendrocytes and immature OPCs. In all cases, high expression of markers only in the expected cell type was observed. Therefore, Olig2 (all oligodendrocytes), Pdgra and Cspg4 (OPCs), Mag and Mog (mature oligodendrocytes) were identified as effective for performing cellular profiling technique described herein.

**[00287]** These results highlight the utility of the cellular profiling technique described herein for identification of unexpected subpopulations as a result of its highly quantitative nature. Heterogeneity in the results may be used to identify biomarkers in patients. For example, heterogeneity may be able to predict how different individuals respond to drugs or identify therapeutic targets.

**Example 17. Correlation between the RNAseq results for each sample**

**[00288]** Table 39 shows Pearson coefficients between the 2 post-mortem human samples, XK and PK for each cell type.

**Table 39. Pearson coefficients between XK and PK samples**

| | granule | | basket | | astrocyte | | oligo | | opc | |
|---|---|---|---|---|---|---|---|---|---|---|
| | xk | pk | xk | pk | xk | pk | xk | pk | xk | pk |
| xk.granule | 1.00 | 0.99 | 0.96 | 0.97 | 0.94 | 0.94 | 0.93 | 0.95 | 0.93 | 0.94 |
| pk.granule | 0.99 | 1.00 | 0.96 | 0.97 | 0.94 | 0.94 | 0.93 | 0.95 | 0.93 | 0.94 |
| xk.basket | 0.96 | 0.96 | 1.00 | 0.99 | 0.94 | 0.94 | 0.93 | 0.95 | 0.94 | 0.94 |
| pk.basket | 0.97 | 0.97 | 0.99 | 1.00 | 0.95 | 0.95 | 0.94 | 0.96 | 0.94 | 0.95 |
| xk.astrocyte | 0.94 | 0.94 | 0.94 | 0.95 | 1.00 | 0.97 | 0.94 | 0.95 | 0.94 | 0.94 |
| pk.astrocyte | 0.94 | 0.94 | 0.94 | 0.95 | 0.97 | 1.00 | 0.93 | 0.95 | 0.94 | 0.95 |
| xk.oligo | 0.93 | 0.93 | 0.93 | 0.94 | 0.94 | 0.93 | 1.00 | 0.97 | 0.95 | 0.95 |
| pk.oligo | 0.95 | 0.95 | 0.95 | 0.96 | 0.95 | 0.95 | 0.97 | 1.00 | 0.96 | 0.97 |
| xk.opc | 0.93 | 0.93 | 0.94 | 0.94 | 0.94 | 0.94 | 0.95 | 0.96 | 1.00 | 0.96 |
| pk.opc | 0.94 | 0.94 | 0.94 | 0.95 | 0.94 | 0.95 | 0.95 | 0.97 | 0.96 | 1.00 |

**[00289]** FIG. 9 provides a dot plot showing pairwise Pearson's correlation coefficient for each sample, broken down by cell type to compare results among human, rat, and mouse samples. Calculation of pairwise Pearson correlation coefficient across the ten datasets revealed that the two neuronal cell types (granule and basket) were highly correlated between samples (r=0.99 for both), while the glial data had slightly lower correlations (r=0.96-0.97). Furthermore, hierarchical clustering revealed separation by cell type, indicating that the variation across cell types is stronger than variation among individual samples. The range of correlation coefficients between the samples for the same cell type across species was observed to be similar to clustering for cell types isolated from the same species, suggesting that both cell type and species are important properties of the expression profiles.

**Example 18. Determining effects of autolysis on human cell-type specific gene expression**

**[00290]** Prior literature how shown that autolysis time, defined as the time between death and when the tissue is frozen, does not correlate with RNA quality and has only minor effects on gene expression (Gupta et al., 2012, BMC Genomics13, 26, which is hereby incorporated by reference herein in its entirety). Because post-mortem human samples have been previously observed to vary widely in autolysis time, the effect of autolysis time on gene expression in the nuclear samples from the 16 human subjects previously characterized to determine whether clinical attributes affect gene expression.

**[00291]** The shortest autolysis time among the samples was 5.13 hours and the longest autolysis time among the samples was 24 hours as shown in Table 40.

**Table 40. Autolysis time in human samples**

| Sample | Autolysis (h) | Sample | Autolysis (h) |
|---|---|---|---|
| XK | 19.5 | SG | 12 |
| TM | 10.5 | OR | 8 |
| WO | 10 | LT | 10.5 |
| WC | 19.1 | ZH | 19.4 |
| WI | 16.5 | KO | 5.5 |
| PK | 14.8 | KQ | 13 |
| VM | 15.5 | KE | 24 |
| WL | 13.5 | AI | 5.13 |

**[00292]** Only a few genes were observed have significantly altered expression with autolysis time: 12 across all post-mortem human tissue samples, four in granule cells, one in basket cells, and one in glia. The log2 fold change for differentially expressed genes across the human samples with differing autolysis times. Table 41 provides analysis of differentially expressed genes (adjusted p <0.01, baseMean > 50) due to autolysis time across all samples.

**Table 41. Differentially expressed genes across all human samples**

| Gene | baseMean | log2FoldChange | p-value | p-adj |
|---|---|---|---|---|
| NPAS4 | 509.499 | 0.901 | 1.31E-18 | 2.72E-14 |
| FOSB | 128.225 | 0.748 | 5.09E-16 | 3.51E-12 |
| EGR1 | 470.894 | 0.469 | 1.58E-11 | 8.18E-08 |
| NR4A1 | 374.351 | 0.403 | 1.08E-10 | 4.46E-07 |
| FOS | 369.433 | 0.373 | 5.78E-07 | 1.10E-03 |
| HSPA1A | 967.333 | 0.336 | 9.07E-08 | 2.35E-04 |
| PPP1R15A | 79.021 | 0.272 | 1.36E-08 | 4.02E-05 |
| NR4A3 | 552.102 | 0.242 | 5.85E-07 | 1.10E-03 |
| DNAJB1 | 383.949 | 0.216 | 8.56E-07 | 1.48E-03 |
| BCAS2 | 321.395 | 0.183 | 2.91E-06 | 3.61E-03 |
| LINC01515 | 262.569 | -0.283 | 2.96E-06 | 3.61E-03 |
| MIR6723 | 5535.414 | -0.733 | 8.02E-17 | 8.30E-13 |

**[00293]** Npas4 was observed to have the greatest fold change in expression across nuclei compared to normalized expression in unsorted nuclei from the same samples.

**[00294]** Table 42 provides the genes in granule cells that are differentially expressed (adjusted p <0.01, fold change > 2) compared to normalized expression across human samples with differing autolysis times.

**Table 42. Differentially expressed genes in granule cells**

| Gene | baseMean | log2 Fold Change | p-value | p-adj |
|---|---|---|---|---|
| NPAS4 | 1337.014 | 0.925 | 2.46E-10 | 3.93E-06 |
| FOSB | 305.432 | 0.827 | 9.37E-09 | 4.98E-05 |
| FOS | 689.775 | 0.812 | 1.06E-09 | 8.49E-06 |
| EGR1 | 1085.415 | 0.505 | 2.32E-06 | 9.24E-03 |

**[00295]** The four genes observed to be differentially expressed in the nuclei of granule cells were also differentially expressed in unsorted nuclei from all samples as shown in Table 42.

**[00296]** Inhibin Beta A Subunit (Inhba) was observed to be the only gene in the nuclei of basket cells being differentially expressed (baseMean: 6.673; $\log_2$ Fold Change: 0.466; p-value: 1.15E-08; padj: 2.18E-04).

**[00297]** Only Kinesin Family Member 19 (Kif19) in glia (baseMean: 126.311, $\log_2$ Fold Change: -0.160, p-value: 7.76E-09, padj: 1.25E-04) was observed to change linearly with autolysis time. Additional genes, such as FosB Proto-Oncogene, AP-1 Transcription Factor Subunit (FosB) (p-adj = 3.51E-12), were observed to have increased expression with intermediate autolysis times in all 3 cell types (FIG. 10).

**Example 19. Determining effects of gender on human cell-type specific gene expression**

**[00298]** To examine the effect of gender on the expression probile, gene expression was compared among samples from males and females to identify genes that are differentially expressed (adjusted p-value < 0.01, baseMean > 50). As expected, a majority of gender-specific genes identified herein resided on the X or Y chromosomes, with expression of X-chromosome genes enriched in female samples and Y-chromosome genes enriched in male samples. Twenty-seven genes exhibiting gender specific differential expression (adjusted p-value < 0.01, baseMean > 50) in males compared to females are shown in Table 43.

**Table 43. Genes exhibiting gender specific differential expression**

| Gene | baseMean | log2 Fold Change | p-value | p-adj |
|---|---|---|---|---|
| KDM5D | 920.33 | 9.42 | 0 | 0 |
| RPS4Y1 | 252.82 | 9.37 | 5.16E-198 | 1.01E-194 |
| ZFY | 329.53 | 8.81 | 0 | 0 |
| DDX3Y | 187.3 | 8.67 | 2.67E-152 | 4.82E-149 |
| TTTY15 | 213.46 | 8.33 | 1.07E-234 | 2.57E-231 |
| TTTY14 | 6136.13 | 8.05 | 0 | 0 |
| USP9Y | 1725.45 | 7.99 | 0 | 0 |
| UTY | 3612.95 | 7.89 | 0 | 0 |
| GYG2P1 | 65.6 | 7.28 | 6.25E-26 | 7.51E-23 |
| NLGN4Y | 4612.32 | 7.19 | 0 | 0 |
| TXLNGY | 383.6 | 7.1 | 3.04E-258 | 8.23E-255 |

| | | | | |
|---|---|---|---|---|
| LINC00278 | 342.2 | 6.37 | 3.61E-28 | 4.59E-25 |
| PRKY | 87.03 | 4.71 | 1.26E-29 | 1.81E-26 |
| TTTY10 | 547.65 | 4.57 | 9.79E-233 | 2.12E-229 |
| ZFX | 1438.28 | -0.54 | 5.98E-06 | 4.17E-03 |
| PUDP | 502.81 | -0.57 | 4.51E-11 | 4.64E-08 |
| KDM5C | 726.02 | -0.66 | 1.44E-11 | 1.56E-08 |
| LOC389906 | 288.35 | -0.68 | 4.34E-09 | 4.09E-06 |
| PIN4 | 334.45 | -0.73 | 2.61E-08 | 2.35E-05 |
| MTRNR2L8 | 621.81 | -1.78 | 2.21E-07 | 1.77E-04 |
| MTRNR2L6 | 123.59 | -1.78 | 8.09E-07 | 6.03E-04 |
| COL4A1 | 51.32 | -1.83 | 1.63E-07 | 1.36E-04 |
| DHFR | 699.43 | -1.91 | 5.75E-07 | 4.44E-04 |
| LOC101929541 | 63.31 | -2.02 | 1.78E-10 | 1.75E-07 |
| TSIX | 60.52 | -3.88 | 3.49E-28 | 4.59E-25 |
| MIR6723 | 603.22 | -5.15 | 3.27E-14 | 3.73E-11 |
| XIST | 20369.6 | -10.61 | 0 | 0 |

**[00299]** Seven of these genes are located on the X chromosome, 14 are on Y, and 6 are on autosomes. In some cases, gender-specific genes can be more differentially expressed in some cell types than in others. For example, Long Intergenic Non-Protein Coding RNA 278 (LINC00278) was observed to be male-enriched, and was even more differentially expressed in glia than in granule or basket cells. Further, expression of Protein Kinase, Y-Linked, Pseudogene (Prky) was observed to be highest in granule cells, at intermediate levels in glia, and low in basket cells.

**[00300]** In contrast, Glycogenin 2 Pseudogene 1 (GYG2P1) was identified as a male-enriched gene across all samples ($p = 3.74E-42$), although it was more male-enriched in basket cells than granule cells and glia. This is not due to mis-mapped reads from duplication because Glycogenin 2 (GYG2) was significantly expressed only in glia and does not exhibit gender-specific expression. Examination of the Y chromosome locus containing GYG2P1 revealed male-specific basket cell expression across a large region, including GYG2P1 and approximately 300kb downstream. The nearby genes testis-specific transcript Y 15 (Tty15) and Ubiquitin Specific Peptidase 9, Y-Linked (Usp9y) were also male-enriched but were not observed to be cell type specific in results form glia, basket, and granule cells. Additionally, Y-Linked Zinc Finger Protein (Zfy) and KDM5D were also observed to be male-enriched but not cell-type specific, and XIST was observed to be female-enriched in Table 43 but not cell-type specific among glia, basket, and granule cells. Genes that exhibit gender and cell-type specific expression in both glia and granule cells were also evident. Results herein provide a potential source of sexually dimorphic, cell specific function in the mammalian brain.

**[00301]** Transcription was observed only in males and only in stellate/basket cells for genes: Family With Sequence Similarity 8 Member A4, Pseudogene (Fam8a4p), Arylsulfatase D Pseudogene 1 (Arsdp1), and Gyg2p1.

**[00302]** Therefore, gender specific gene expression was observed to confirm the known gender of the individual, and cell-type specific gender-specific gene expression was also observed.

**Example 20. Determining effects of age on human cell-type specific gene expression**

**[00303]** A fundamental question in aging research is whether aging occurs uniformly across the brain, or whether some cell types are more susceptible to the effects of aging than others. To address this issue, the effects of age on gene expression in each of the three cerebellar cell types was examined. DESeq2 (Love, et al. (2014) Genome Biology 15, 550, which is hereby incorporated by reference herein in its entirety) was used as described in Example 1 to identify genes that were differentially expressed (adjusted p <0.01, fold change > 2) with age in all samples, or specifically in granule cells, basket cells, or glia. Two hundred seventy-four genes with differential expression were identified in granule cells, 139 in basket cells, 31 in glia, and 42 across all samples regardless of cell type.

**[00304]** The RNAseq results for the 274 genes in granule cells with significantly altered expression with age are shown in Table 44. The log2 fold change for the sorted nuclei from granule cells from each human sample compared to the normalized expression of sorted nuclei from granule cells from all samples are shown in Table 44. Negative values indicate reduced expression in the nuclei of the subject compared to the normalized value across nuclei from all samples, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 44. Log2 fold change of expression for genes in granule cells**

| | Log2 fold change of expression | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Subject** | **xk** | **tm** | **wo** | **wc** | **wi** | **pk** | **vm** | **wl** | **sg** | **or** | **lt** | **zh** | **ko** | **kq** | **ke** | **ai** |
| **Gene** | | | | | | | | | | | | | | | | |
| KCNQ3 | 0.51 | 0.04 | 1.63 | 1.08 | 2.20 | 0.45 | 0.22 | -1.07 | -0.86 | -0.27 | 0.32 | 0.38 | -1.32 | -1.06 | -1.25 | -1.02 |
| SCHLAP1 | 2.39 | 0.66 | 0.21 | 1.22 | -0.53 | 1.63 | 0.58 | -0.67 | -0.78 | -0.87 | -0.21 | -0.55 | -0.97 | -0.72 | -0.89 | -0.47 |
| UGGT2 | 2.15 | 1.34 | 0.92 | 1.19 | 0.12 | 0.86 | -0.14 | -0.04 | -1.01 | -1.41 | -0.32 | 0.71 | -1.06 | -1.64 | -1.41 | -0.25 |
| PLXDC2 | 2.02 | 0.67 | 0.77 | 0.92 | -0.86 | 0.60 | 1.26 | -0.08 | -1.01 | -0.90 | -0.78 | 0.34 | -0.29 | -0.98 | -1.05 | -0.63 |
| ITGB5 | 1.83 | -0.09 | 1.42 | 0.98 | 0.27 | 0.10 | -0.11 | -0.36 | -0.10 | -0.13 | -0.26 | -0.81 | -0.92 | -0.23 | -0.51 | -1.06 |
| DCLK1 | 0.88 | 0.31 | 0.72 | 0.38 | 0.39 | 0.01 | 1.69 | 0.45 | -0.46 | -0.34 | 0.04 | 0.58 | -1.90 | -1.02 | -0.30 | -1.43 |
| AQP7 | 0.63 | 0.60 | 1.17 | 0.67 | 0.65 | -0.14 | -0.57 | 0.49 | 0.06 | -0.17 | 0.16 | -0.08 | -1.01 | -0.89 | -0.54 | -1.03 |
| PTPN3 | 1.18 | 0.53 | 0.69 | 0.75 | -0.01 | 0.44 | 0.43 | -0.14 | 0.01 | -0.57 | 0.14 | 0.10 | -0.69 | -1.22 | -0.31 | -1.31 |
| FAT1 | 1.31 | 0.45 | 0.40 | 0.67 | 0.51 | 0.21 | 1.45 | -0.06 | -1.00 | 0.16 | -1.22 | 0.10 | -1.10 | -1.05 | -0.27 | -0.56 |
| CMTM8 | 0.99 | 1.66 | 1.02 | 0.25 | 0.61 | -0.31 | -0.75 | 0.17 | -0.82 | 0.03 | -0.69 | -0.56 | -0.12 | -0.95 | -0.37 | -0.16 |
| FARP1 | 1.10 | 0.52 | 0.53 | 0.56 | 0.68 | -0.03 | -0.61 | 0.56 | -0.46 | -0.38 | 0.52 | 0.34 | -1.06 | -0.42 | -0.98 | -0.86 |
| PIP4K2A | 0.64 | 0.67 | 0.60 | 0.36 | 0.12 | 0.34 | 0.52 | 0.51 | -0.15 | -0.78 | 0.11 | 0.35 | -0.98 | -1.10 | -0.55 | -0.67 |
| NEDD4 | 0.95 | 0.11 | 0.40 | 0.58 | -0.53 | 0.57 | 0.95 | 0.43 | -0.48 | -0.78 | -0.04 | 0.43 | -0.85 | -0.79 | -0.65 | -0.29 |
| CATSPERG | 0.05 | 0.70 | 1.02 | 1.01 | 0.20 | -0.26 | 0.10 | 0.20 | 0.04 | -0.12 | -0.12 | -0.15 | -1.02 | -0.53 | 0.00 | -1.11 |
| LOC101926941 | 0.36 | 0.43 | 0.77 | 0.90 | -0.07 | -0.69 | 0.25 | 0.66 | -0.05 | -0.36 | -0.32 | 0.76 | -0.76 | -0.81 | 0.05 | -1.12 |
| WWC2 | 1.00 | 0.47 | 0.37 | 0.66 | 0.21 | 0.18 | 0.58 | 0.49 | -0.12 | -0.42 | -0.73 | -0.19 | -1.06 | -0.26 | -1.07 | -0.12 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPP6 | 1.17 | -0.12 | 0.28 | 0.70 | 0.42 | 0.04 | 0.04 | -0.12 | 0.32 | -0.61 | -0.41 | 0.18 | -0.70 | -0.61 | -0.51 | -0.08 |
| SDK1 | 0.04 | 0.64 | 0.81 | 0.34 | 0.56 | 0.33 | 0.35 | 0.05 | 0.16 | -0.25 | -0.37 | 0.40 | -1.45 | -0.71 | -0.74 | -0.17 |
| NAB2 | 0.22 | 0.22 | 0.92 | 0.53 | 0.46 | -0.16 | -0.01 | -0.04 | -0.08 | 0.40 | -0.19 | 0.02 | -0.60 | -0.61 | -0.19 | -0.88 |
| NTNG2 | 0.29 | -0.18 | 1.32 | 0.57 | -0.19 | 0.00 | -0.01 | 0.09 | 0.41 | -0.62 | 0.17 | 0.49 | -0.90 | -0.47 | -0.30 | -0.67 |
| LMNTD2 | 0.36 | 0.86 | 0.48 | 0.36 | 0.34 | 0.07 | -0.20 | 0.05 | -0.01 | 0.10 | -0.21 | -0.44 | -0.89 | -0.41 | 0.11 | -0.57 |
| PLCH2 | 0.24 | 0.83 | 0.78 | 0.81 | 0.23 | -0.24 | -0.36 | 0.02 | -0.35 | 0.41 | -0.10 | -0.47 | -0.55 | 0.04 | -0.30 | -0.98 |
| PTPRJ | 0.33 | 0.30 | 0.90 | 0.55 | 0.38 | -0.18 | 0.28 | -0.06 | -0.01 | -0.23 | -0.07 | 0.46 | -0.84 | -0.79 | -0.15 | -0.88 |
| MRAP2 | 0.48 | 0.58 | 0.41 | 0.12 | 0.22 | 0.29 | 0.56 | 0.24 | -0.47 | -0.17 | 0.18 | 0.39 | -1.09 | -0.84 | -0.34 | -0.55 |
| PTMS | 0.22 | 0.53 | 1.38 | 0.66 | 0.25 | -0.13 | -0.27 | -0.38 | -0.23 | 0.04 | -0.52 | -0.35 | 0.26 | -0.02 | -0.59 | -0.86 |
| CDH23 | 0.24 | 0.28 | 0.91 | 0.63 | 0.24 | 0.03 | 0.14 | -0.05 | -0.30 | 0.26 | -0.19 | 0.20 | -0.83 | -0.79 | -0.20 | -0.56 |
| SYT7 | 0.51 | 0.41 | 0.86 | 0.51 | 0.23 | -0.16 | -0.11 | 0.05 | 0.07 | 0.21 | -0.39 | -0.15 | -0.45 | -0.20 | -0.30 | -1.10 |
| SPRED3 | 0.25 | 0.66 | 0.51 | 0.65 | 0.00 | -0.37 | 0.19 | 0.41 | 0.23 | -0.28 | -0.35 | -0.09 | -0.77 | -0.15 | 0.03 | -0.92 |
| PLXNA1 | 0.05 | 0.18 | 0.98 | 0.67 | 0.54 | -0.49 | -0.16 | 0.03 | -0.17 | 0.12 | -0.15 | 0.23 | -0.46 | -0.35 | -0.28 | -0.74 |
| GRK5 | 0.61 | 0.19 | 0.66 | 0.63 | 0.01 | 0.24 | 0.16 | -0.14 | -0.27 | -0.19 | 0.06 | 0.19 | -0.55 | -0.66 | -0.05 | -0.89 |
| ZYX | 0.28 | 0.07 | 1.28 | 0.86 | 0.09 | -0.14 | -0.37 | -0.05 | -0.08 | -0.02 | -0.22 | -0.33 | -0.34 | -0.71 | -0.06 | -0.25 |
| FGF3 | 0.06 | 0.09 | 0.66 | 0.59 | 0.22 | 0.40 | -0.11 | 0.27 | 0.05 | 0.31 | -0.32 | -0.18 | -0.75 | -0.52 | -0.27 | -0.50 |
| LINC01544 | 0.49 | 0.96 | 0.35 | 0.25 | 0.16 | 0.37 | -0.48 | 0.12 | -0.43 | 0.03 | 0.00 | -0.25 | -0.67 | -0.63 | -0.08 | -0.19 |
| PCYT1B | 0.69 | 0.45 | 0.38 | 0.25 | 0.18 | 0.16 | 0.13 | -0.04 | -0.32 | -0.14 | 0.22 | -0.32 | -0.46 | -0.65 | -0.42 | -0.10 |
| RHBG | 0.72 | 0.33 | 0.42 | 0.34 | 0.12 | 0.01 | -0.04 | 0.14 | 0.05 | 0.67 | -0.03 | -0.49 | -0.70 | -0.53 | 0.00 | -1.02 |
| HCN2 | 0.16 | 0.39 | 1.02 | 0.39 | 0.03 | -0.20 | -0.10 | -0.20 | -0.14 | 0.15 | -0.14 | -0.18 | 0.08 | -0.41 | -0.45 | -0.41 |
| ACAP3 | 0.10 | 0.42 | 0.95 | 0.71 | 0.34 | -0.17 | -0.24 | -0.14 | -0.11 | 0.27 | -0.57 | -0.26 | -0.28 | -0.32 | -0.28 | -0.43 |
| MGAT3 | 0.18 | 0.50 | 0.87 | 0.69 | 0.19 | -0.27 | -0.34 | -0.01 | -0.06 | 0.28 | -0.29 | -0.22 | -0.30 | -0.40 | -0.11 | -0.71 |
| C1orf61 | 0.45 | 0.39 | 0.68 | 0.55 | -0.02 | -0.06 | 0.09 | -0.02 | -0.02 | -0.05 | -0.08 | -0.03 | -0.66 | -0.26 | 0.00 | -0.95 |
| SURF2 | 0.27 | 0.23 | 0.85 | 0.61 | -0.31 | -0.13 | 0.17 | -0.07 | -0.07 | -0.19 | -0.06 | -0.25 | -0.27 | 0.00 | -0.20 | -0.57 |
| AHRR | 0.25 | 0.30 | 0.22 | 0.36 | 0.32 | 0.44 | 0.37 | -0.19 | -0.04 | -0.12 | -0.26 | -0.24 | -0.17 | -0.35 | -0.41 | -0.47 |
| FAM131A | 0.16 | 0.36 | 1.02 | 0.28 | 0.24 | -0.57 | 0.31 | -0.10 | -0.21 | -0.05 | -0.28 | 0.17 | -0.14 | -0.22 | -0.31 | -0.67 |
| CHGB | 0.19 | -0.02 | 0.47 | 0.20 | 0.43 | -0.07 | 1.03 | -0.03 | 0.07 | 0.01 | -0.18 | 0.21 | -0.79 | -0.66 | -0.23 | -0.64 |
| PLXNA4 | 0.19 | 0.13 | 0.43 | 0.46 | 0.62 | 0.03 | 0.00 | 0.14 | -0.04 | 0.12 | 0.06 | 0.41 | -0.93 | -0.37 | -0.17 | -1.09 |
| ACHE | 0.08 | 0.43 | 0.84 | 0.38 | 0.15 | -0.14 | -0.07 | -0.23 | 0.01 | 0.17 | -0.24 | 0.00 | -0.09 | -0.54 | -0.28 | -0.47 |
| DYRK1B | 0.26 | 0.44 | 0.83 | 0.77 | -0.06 | -0.13 | -0.22 | -0.16 | -0.10 | 0.07 | -0.27 | -0.53 | -0.03 | -0.18 | -0.25 | -0.43 |
| CDK5R2 | 0.03 | 0.15 | 1.04 | 0.36 | 0.10 | 0.15 | 0.17 | -0.12 | 0.15 | -0.18 | -0.34 | -0.17 | -0.32 | -0.32 | -0.06 | -0.64 |
| GDPD5 | 0.24 | 0.45 | 0.68 | 0.55 | -0.10 | -0.34 | 0.09 | 0.11 | -0.04 | 0.23 | -0.14 | 0.08 | -0.38 | -0.45 | -0.18 | -0.80 |
| ZNF703 | 0.07 | 0.22 | 0.80 | 0.57 | -0.09 | 0.21 | -0.08 | 0.01 | -0.12 | -0.09 | -0.30 | -0.10 | -0.13 | -0.07 | -0.15 | -0.75 |
| FHDC1 | 0.53 | 0.00 | 0.64 | 0.36 | 0.08 | -0.11 | 0.30 | 0.08 | -0.50 | -0.01 | 0.00 | 0.59 | -0.91 | -0.23 | -0.42 | -0.41 |
| LOC101927078 | 0.34 | 0.54 | 0.31 | 0.85 | -0.03 | -0.08 | -0.09 | -0.35 | -0.13 | -0.27 | -0.01 | 0.20 | -0.56 | -0.14 | -0.38 | -0.23 |
| CREB3L2 | 0.24 | -0.02 | 0.95 | 0.11 | 0.32 | 0.02 | 0.16 | -0.17 | -0.03 | -0.14 | 0.25 | 0.31 | -0.52 | -0.71 | -0.07 | -0.70 |
| AP1S3 | 0.52 | -0.18 | 0.80 | 0.14 | -0.01 | 0.10 | 0.30 | -0.06 | 0.16 | -0.01 | 0.12 | 0.12 | -0.55 | -0.52 | -0.21 | -0.72 |
| DYSF | 0.89 | -0.42 | 0.48 | 0.55 | -0.39 | 0.22 | 0.17 | 0.23 | -0.29 | -0.15 | 0.04 | 0.30 | -0.59 | -0.60 | -0.15 | -0.31 |
| MAMSTR | 0.27 | 0.73 | 0.47 | 0.26 | 0.00 | 0.05 | -0.30 | 0.16 | -0.15 | -0.08 | -0.34 | -0.05 | -0.07 | -0.26 | 0.04 | -0.72 |
| KIAA0895L | 0.42 | 0.24 | 0.40 | 0.64 | 0.17 | -0.04 | 0.10 | 0.00 | -0.03 | 0.16 | -0.32 | 0.03 | -0.24 | -0.46 | -0.14 | -0.93 |
| TP73 | 0.13 | 0.13 | 0.95 | 0.38 | -0.06 | 0.41 | -0.08 | 0.03 | -0.30 | -0.15 | 0.01 | -0.14 | -0.34 | -0.21 | -0.09 | -0.68 |
| PDE3A | 0.44 | 0.42 | 0.05 | 0.04 | 0.30 | 0.00 | 0.66 | 0.36 | -0.10 | -0.42 | 0.01 | 0.43 | -0.84 | -0.78 | -0.11 | -0.44 |
| LINC00963 | -0.16 | 0.27 | 0.54 | 0.52 | 0.11 | 0.11 | 0.03 | -0.06 | -0.19 | 0.17 | -0.06 | -0.01 | -0.39 | -0.05 | -0.37 | -0.46 |
| ELAVL3 | 0.11 | 0.34 | 0.94 | 0.56 | -0.04 | -0.02 | -0.17 | -0.17 | -0.12 | 0.11 | -0.16 | -0.14 | -0.13 | -0.20 | -0.20 | -0.70 |
| TTYH3 | 0.19 | 0.49 | 0.69 | 0.53 | 0.09 | -0.18 | -0.33 | -0.09 | 0.03 | 0.47 | -0.28 | -0.12 | -0.13 | -0.15 | -0.28 | -0.91 |
| HPN | 0.30 | 0.29 | 0.64 | 0.49 | 0.16 | -0.14 | -0.25 | -0.21 | -0.15 | 0.20 | -0.05 | -0.16 | -0.51 | 0.09 | -0.13 | -0.58 |
| PTPRE | 0.41 | 0.45 | 0.27 | 0.46 | 0.15 | 0.08 | 0.00 | -0.04 | -0.11 | -0.13 | -0.09 | 0.14 | -0.58 | -0.35 | -0.15 | -0.50 |
| SLC17A7 | 0.32 | 0.32 | 0.47 | -0.02 | 0.31 | 0.20 | 0.17 | 0.10 | 0.20 | 0.20 | -0.22 | 0.01 | -0.41 | -0.55 | 0.00 | -1.08 |
| GRIN2C | 0.16 | 0.46 | 0.81 | 0.58 | 0.17 | -0.37 | -0.25 | 0.02 | -0.20 | 0.24 | -0.31 | -0.18 | -0.10 | -0.32 | -0.15 | -0.53 |
| PXN | 0.34 | 0.61 | 0.47 | 0.38 | -0.19 | 0.16 | -0.17 | 0.07 | -0.06 | 0.14 | -0.18 | -0.33 | -0.18 | -0.30 | 0.02 | -0.80 |
| TMEM130 | 0.37 | 0.19 | 0.81 | 0.46 | -0.19 | 0.07 | -0.04 | 0.00 | -0.10 | 0.12 | -0.09 | -0.47 | -0.26 | -0.22 | -0.17 | -0.47 |
| LRPAP1 | 0.23 | 0.35 | 0.95 | 0.36 | -0.03 | -0.12 | -0.39 | -0.11 | -0.04 | 0.21 | 0.01 | -0.15 | -0.13 | -0.21 | -0.16 | -0.78 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GRM4 | 0.02 | 0.14 | 0.97 | 0.57 | 0.02 | 0.24 | -0.15 | -0.28 | -0.17 | -0.07 | -0.07 | 0.05 | -0.43 | -0.30 | -0.29 | -0.25 |
| STEAP3 | 0.37 | 0.66 | 0.39 | 0.44 | -0.34 | 0.04 | -0.05 | 0.23 | -0.28 | 0.18 | -0.06 | -0.51 | -0.37 | -0.38 | 0.00 | -0.33 |
| CHRD | 0.60 | -0.17 | 0.64 | 0.61 | 0.04 | -0.03 | -0.15 | -0.05 | -0.16 | 0.18 | -0.17 | -0.27 | -0.15 | -0.33 | -0.11 | -0.48 |
| SBNO2 | 0.02 | 0.15 | 0.85 | 0.43 | 0.09 | 0.10 | -0.05 | -0.23 | -0.21 | 0.12 | -0.23 | -0.11 | -0.10 | -0.16 | -0.36 | -0.31 |
| ZDHHC23 | 0.33 | -0.17 | 0.44 | 0.16 | 0.50 | 0.07 | -0.06 | 0.40 | 0.00 | 0.05 | -0.36 | 0.22 | -0.48 | -0.44 | -0.10 | -0.55 |
| GACAT2 | 0.53 | 0.55 | 0.04 | 0.33 | -0.26 | 0.04 | 0.24 | 0.12 | 0.05 | -0.11 | 0.26 | -0.43 | -0.19 | -0.43 | -0.28 | -0.45 |
| MAP6D1 | 0.26 | -0.01 | 0.80 | 0.50 | -0.02 | -0.08 | -0.17 | 0.12 | 0.06 | 0.24 | -0.07 | -0.25 | -0.30 | -0.32 | -0.07 | -0.69 |
| FAM53A | 0.50 | 0.11 | 0.61 | 0.10 | 0.10 | -0.43 | 0.10 | 0.17 | -0.21 | -0.07 | -0.02 | 0.17 | -0.27 | -0.30 | -0.21 | -0.35 |
| KIAA1549L | 0.47 | 0.45 | -0.04 | 0.02 | 0.05 | 0.40 | 0.46 | 0.18 | -0.11 | -0.26 | 0.11 | -0.08 | -0.76 | -0.26 | -0.02 | -0.61 |
| SLC38A7 | 0.18 | 0.50 | 0.45 | 0.33 | 0.14 | -0.20 | -0.24 | 0.05 | 0.04 | 0.42 | -0.15 | -0.29 | -0.44 | -0.06 | -0.28 | -0.46 |
| CDK16 | 0.09 | 0.26 | 0.73 | 0.73 | -0.04 | -0.30 | -0.01 | -0.10 | -0.15 | 0.08 | -0.15 | -0.07 | -0.26 | -0.24 | -0.17 | -0.40 |
| CALY | 0.00 | 0.45 | 0.50 | 0.12 | 0.63 | -0.06 | -0.13 | 0.03 | 0.02 | 0.07 | -0.13 | 0.04 | -0.38 | -0.38 | 0.00 | -0.78 |
| LPCAT4 | 0.39 | 0.14 | 0.74 | 0.74 | -0.10 | -0.07 | -0.26 | -0.06 | -0.01 | -0.05 | -0.22 | -0.42 | 0.14 | -0.35 | -0.10 | -0.53 |
| SLC25A6 | 0.40 | 0.43 | 0.41 | 0.48 | 0.14 | -0.43 | 0.09 | -0.02 | -0.17 | 0.25 | -0.33 | -0.35 | -0.20 | 0.02 | -0.19 | -0.51 |
| SRCIN1 | 0.24 | 0.42 | 0.65 | 0.48 | 0.02 | -0.06 | -0.24 | 0.00 | -0.12 | 0.21 | -0.18 | -0.27 | -0.17 | -0.20 | -0.16 | -0.60 |
| ELMO1 | 0.37 | 0.35 | 0.10 | 0.07 | 0.46 | 0.19 | 0.34 | -0.01 | -0.11 | -0.34 | -0.02 | 0.31 | -0.68 | -0.33 | -0.17 | -0.53 |
| GRAMD4 | 0.02 | 0.44 | 0.48 | 0.35 | 0.18 | -0.21 | 0.00 | 0.03 | 0.06 | -0.01 | -0.05 | 0.12 | -0.44 | -0.54 | -0.09 | -0.32 |
| RIMS3 | 0.16 | 0.28 | 0.58 | 0.21 | 0.10 | -0.33 | 0.33 | 0.20 | -0.17 | 0.20 | -0.09 | 0.09 | -0.19 | -0.35 | -0.17 | -0.84 |
| CPLX2 | 0.11 | 0.42 | 0.78 | 0.42 | 0.18 | -0.21 | -0.14 | -0.03 | -0.22 | 0.01 | -0.16 | -0.09 | -0.42 | -0.04 | -0.23 | -0.37 |
| PIP5K1C | 0.21 | 0.41 | 0.75 | 0.34 | 0.24 | -0.24 | -0.28 | -0.04 | -0.17 | 0.18 | -0.33 | 0.11 | -0.07 | -0.10 | -0.23 | -0.76 |
| SDC3 | 0.15 | 0.14 | 0.42 | 0.38 | 0.26 | 0.16 | -0.02 | -0.02 | 0.22 | 0.34 | -0.17 | -0.34 | -0.47 | -0.35 | -0.04 | -0.65 |
| CBLN3 | 0.48 | 0.06 | 0.50 | 0.32 | 0.05 | -0.13 | -0.02 | 0.19 | 0.09 | 0.37 | -0.03 | -0.18 | -0.43 | -0.66 | 0.01 | -0.62 |
| PDZD7 | 0.32 | 0.60 | 0.39 | 0.21 | -0.12 | 0.05 | -0.28 | -0.01 | 0.20 | 0.24 | -0.03 | -0.09 | -0.22 | -0.45 | -0.02 | -0.78 |
| VWA5B2 | 0.24 | 0.65 | 0.41 | 0.38 | 0.10 | -0.22 | -0.12 | 0.14 | -0.21 | 0.13 | -0.52 | -0.19 | -0.07 | -0.16 | 0.00 | -0.57 |
| ZNF219 | 0.27 | 0.62 | 0.59 | 0.16 | 0.10 | -0.18 | -0.31 | 0.10 | -0.07 | -0.04 | -0.34 | 0.06 | 0.03 | -0.35 | -0.07 | -0.57 |
| FAM212B | 0.46 | 0.38 | 0.49 | 0.45 | -0.02 | -0.07 | -0.20 | 0.00 | -0.43 | -0.11 | -0.27 | 0.05 | 0.01 | -0.05 | -0.13 | -0.56 |
| RASIP1 | 0.19 | 0.27 | 0.53 | 0.10 | 0.08 | 0.09 | -0.13 | 0.11 | -0.16 | 0.22 | -0.12 | -0.01 | -0.46 | -0.22 | -0.06 | -0.43 |
| GYS1 | 0.04 | 0.28 | 0.72 | 0.39 | 0.23 | -0.39 | 0.24 | -0.13 | -0.11 | -0.06 | -0.31 | 0.17 | -0.15 | -0.19 | -0.22 | -0.52 |
| ATP6V0B | 0.49 | -0.23 | 0.43 | 0.39 | 0.31 | -0.09 | -0.06 | 0.02 | -0.04 | 0.15 | 0.07 | -0.04 | -0.09 | -0.66 | -0.15 | -0.50 |
| NKD1 | 0.42 | 0.56 | 0.36 | 0.59 | -0.35 | -0.32 | 0.03 | -0.11 | 0.04 | -0.05 | 0.07 | -0.31 | -0.16 | -0.25 | 0.05 | -0.55 |
| ST3GAL2 | 0.24 | 0.34 | 0.60 | 0.38 | 0.15 | -0.03 | -0.35 | -0.03 | 0.00 | 0.22 | -0.15 | -0.23 | -0.06 | -0.33 | -0.13 | -0.62 |
| PTK7 | 0.30 | 0.30 | 0.25 | 0.57 | -0.13 | 0.03 | -0.05 | 0.08 | -0.03 | -0.07 | -0.08 | -0.15 | -0.17 | -0.18 | 0.06 | -0.74 |
| ACOT7 | 0.16 | 0.45 | 0.66 | 0.42 | 0.08 | -0.37 | -0.24 | -0.05 | -0.03 | 0.19 | -0.11 | -0.09 | -0.17 | -0.20 | -0.06 | -0.66 |
| ATXN7L2 | 0.11 | 0.45 | 0.53 | 0.34 | 0.17 | -0.22 | -0.14 | 0.01 | -0.07 | 0.19 | -0.26 | -0.26 | -0.17 | -0.28 | 0.05 | -0.43 |
| DAO | 0.06 | 0.47 | 0.43 | 0.09 | 0.10 | 0.10 | 0.23 | 0.01 | 0.17 | -0.26 | -0.21 | 0.19 | -0.32 | -0.46 | -0.19 | -0.40 |
| SYT12 | 0.36 | 0.38 | 0.28 | 0.41 | 0.03 | -0.30 | -0.12 | 0.13 | 0.12 | 0.32 | -0.14 | -0.12 | -0.29 | -0.16 | -0.16 | -0.75 |
| ADAM19 | 0.02 | 0.32 | 0.46 | 0.42 | 0.35 | -0.10 | -0.02 | -0.19 | -0.12 | -0.04 | 0.01 | 0.25 | -0.16 | -0.55 | -0.18 | -0.47 |
| HIP1 | 0.03 | 0.12 | 0.79 | 0.54 | -0.03 | 0.19 | -0.13 | -0.32 | -0.11 | -0.09 | -0.03 | 0.02 | -0.11 | -0.33 | -0.25 | -0.28 |
| GABBR1 | 0.19 | 0.10 | 0.68 | 0.40 | 0.06 | 0.00 | -0.04 | -0.02 | -0.02 | 0.00 | -0.20 | -0.11 | -0.09 | -0.35 | -0.09 | -0.52 |
| SYT3 | 0.29 | 0.00 | 0.57 | 0.40 | -0.01 | 0.10 | 0.20 | -0.07 | 0.07 | -0.16 | -0.28 | -0.14 | -0.02 | -0.35 | -0.06 | -0.54 |
| TP53INP2 | 0.24 | 0.21 | 0.33 | 0.08 | 0.25 | -0.24 | 0.37 | -0.09 | 0.00 | -0.07 | -0.04 | 0.25 | -0.28 | -0.15 | -0.30 | -0.58 |
| KCNK3 | 0.15 | 0.46 | 0.47 | 0.48 | 0.04 | -0.18 | -0.16 | 0.10 | -0.11 | 0.00 | -0.39 | 0.03 | -0.22 | 0.02 | -0.08 | -0.61 |
| TPM4 | 0.16 | 0.16 | 0.52 | 0.32 | 0.15 | 0.16 | -0.15 | 0.02 | 0.01 | 0.02 | -0.09 | -0.01 | -0.32 | -0.27 | -0.19 | -0.48 |
| RNF152 | 0.39 | 0.43 | 0.13 | 0.06 | 0.18 | 0.24 | -0.04 | 0.10 | -0.05 | -0.10 | -0.04 | 0.02 | -0.35 | -0.56 | 0.09 | -0.51 |
| KCNK10 | 0.59 | 0.38 | 0.08 | 0.38 | -0.42 | -0.02 | -0.02 | 0.35 | -0.20 | -0.03 | 0.01 | -0.07 | -0.34 | -0.35 | 0.09 | -0.43 |
| EPB41L1 | 0.40 | 0.39 | 0.26 | 0.09 | -0.02 | 0.10 | 0.06 | 0.10 | 0.03 | 0.14 | -0.01 | -0.31 | -0.14 | -0.31 | -0.09 | -0.69 |
| ABCC10 | 0.23 | 0.31 | 0.45 | 0.35 | 0.07 | -0.37 | 0.05 | 0.13 | -0.07 | 0.29 | -0.44 | -0.09 | -0.10 | -0.11 | -0.23 | -0.46 |
| NAV2 | 0.25 | 0.37 | 0.44 | 0.10 | 0.08 | 0.00 | 0.03 | 0.16 | -0.08 | -0.16 | 0.00 | 0.01 | -0.50 | -0.21 | -0.01 | -0.48 |
| ERGIC1 | 0.12 | 0.40 | 0.54 | 0.40 | 0.11 | -0.25 | -0.14 | -0.03 | -0.11 | 0.07 | -0.06 | 0.00 | -0.03 | -0.25 | -0.07 | -0.72 |
| BAD | 0.23 | 0.46 | 0.42 | 0.32 | -0.01 | -0.23 | -0.21 | 0.12 | -0.15 | 0.21 | -0.11 | -0.20 | 0.00 | -0.12 | -0.19 | -0.53 |
| KIF3B | 0.12 | 0.14 | 0.45 | 0.18 | -0.05 | 0.39 | 0.01 | 0.04 | -0.01 | 0.06 | 0.04 | 0.04 | -0.24 | -0.42 | -0.15 | -0.60 |
| RAI2 | 0.43 | 0.39 | 0.26 | 0.17 | -0.04 | 0.00 | 0.16 | 0.15 | -0.22 | -0.40 | -0.07 | 0.20 | -0.47 | -0.28 | 0.05 | -0.33 |
| XKR7 | 0.11 | 0.37 | 0.52 | 0.34 | 0.13 | 0.25 | -0.13 | -0.11 | -0.01 | -0.25 | -0.27 | -0.21 | -0.20 | -0.04 | -0.06 | -0.45 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTK2B | 0.14 | 0.27 | 0.50 | 0.19 | 0.17 | -0.01 | 0.00 | 0.02 | -0.05 | 0.04 | 0.02 | -0.04 | -0.38 | -0.39 | -0.05 | -0.46 |
| CHST12 | 0.07 | 0.50 | 0.46 | 0.36 | 0.02 | -0.22 | 0.16 | -0.17 | -0.31 | -0.11 | -0.04 | 0.14 | -0.24 | -0.02 | -0.17 | -0.43 |
| TRIM67 | 0.59 | 0.35 | 0.20 | 0.28 | 0.04 | 0.09 | -0.16 | -0.14 | 0.12 | -0.06 | -0.29 | -0.11 | -0.19 | -0.29 | 0.03 | -0.45 |
| DHDDS | 0.45 | 0.08 | 0.33 | 0.18 | -0.05 | 0.22 | -0.01 | 0.10 | 0.02 | 0.16 | -0.02 | -0.20 | -0.38 | -0.16 | -0.08 | -0.64 |
| NUMBL | 0.17 | 0.49 | 0.52 | 0.13 | -0.13 | 0.36 | -0.14 | 0.07 | -0.02 | -0.11 | -0.44 | -0.20 | -0.23 | 0.01 | -0.24 | -0.25 |
| KCND3 | 0.24 | 0.45 | 0.21 | 0.17 | 0.07 | 0.09 | -0.04 | 0.16 | -0.13 | -0.03 | -0.12 | 0.10 | -0.49 | -0.19 | -0.08 | -0.42 |
| LRRC1 | 0.41 | 0.30 | 0.19 | 0.08 | 0.33 | 0.08 | 0.03 | -0.01 | -0.43 | -0.17 | -0.09 | 0.32 | -0.03 | -0.37 | -0.38 | -0.27 |
| RAB37 | 0.27 | 0.24 | 0.64 | 0.15 | 0.16 | 0.03 | -0.16 | -0.10 | -0.07 | -0.11 | -0.14 | -0.01 | -0.16 | -0.35 | -0.15 | -0.23 |
| KCNIP2 | 0.23 | 0.34 | 0.59 | 0.39 | -0.01 | 0.00 | -0.22 | -0.10 | 0.01 | -0.11 | -0.31 | -0.22 | -0.06 | -0.17 | -0.04 | -0.32 |
| RAB6B | 0.22 | 0.13 | 0.48 | 0.38 | 0.09 | -0.16 | -0.07 | -0.07 | 0.03 | 0.05 | -0.08 | 0.11 | -0.31 | -0.34 | -0.15 | -0.32 |
| PC | 0.10 | 0.36 | 0.51 | 0.31 | 0.09 | -0.38 | -0.14 | 0.13 | -0.01 | 0.17 | -0.05 | -0.03 | -0.12 | -0.35 | -0.09 | -0.48 |
| TCEAL2 | -0.10 | 0.21 | 0.50 | 0.12 | 0.34 | 0.04 | 0.29 | 0.08 | -0.25 | -0.14 | -0.13 | 0.00 | -0.20 | -0.13 | -0.50 | -0.14 |
| MEG8 | 0.33 | 0.19 | 0.39 | 0.27 | 0.01 | -0.13 | -0.04 | 0.10 | 0.10 | 0.16 | -0.07 | -0.17 | -0.29 | -0.16 | -0.01 | -0.67 |
| FMNL3 | 0.12 | 0.15 | 0.50 | 0.38 | 0.14 | -0.39 | 0.15 | 0.05 | -0.12 | -0.01 | 0.01 | 0.06 | -0.14 | -0.35 | -0.05 | -0.48 |
| MAPK4 | 0.49 | 0.38 | 0.05 | 0.15 | 0.10 | -0.03 | -0.11 | 0.06 | -0.03 | 0.12 | -0.14 | 0.09 | -0.31 | -0.31 | -0.19 | -0.31 |
| DGCR5 | 0.12 | 0.24 | 0.29 | 0.20 | 0.21 | 0.00 | 0.01 | 0.05 | 0.03 | -0.04 | -0.12 | 0.32 | -0.42 | -0.17 | -0.24 | -0.50 |
| REEP1 | 0.30 | 0.22 | 0.41 | 0.22 | 0.05 | -0.06 | -0.14 | -0.01 | 0.11 | -0.05 | 0.04 | 0.02 | -0.29 | -0.36 | 0.05 | -0.50 |
| GTPBP2 | 0.26 | 0.29 | 0.30 | 0.30 | 0.17 | -0.11 | 0.09 | -0.07 | -0.02 | 0.04 | -0.30 | -0.23 | -0.09 | 0.00 | -0.02 | -0.60 |
| KIF26B | 0.39 | 0.19 | -0.03 | 0.29 | 0.03 | 0.09 | 0.13 | 0.23 | -0.22 | -0.08 | 0.07 | 0.04 | -0.53 | -0.04 | -0.10 | -0.46 |
| NRXN2 | 0.13 | 0.39 | 0.51 | 0.27 | 0.08 | -0.10 | -0.22 | 0.00 | -0.04 | 0.08 | -0.26 | -0.14 | -0.08 | -0.23 | -0.03 | -0.37 |
| ZNRF1 | 0.16 | 0.20 | 0.31 | 0.24 | 0.13 | -0.12 | 0.03 | 0.15 | -0.02 | -0.05 | -0.16 | 0.27 | -0.29 | -0.42 | -0.01 | -0.43 |
| C14orf132 | 0.20 | 0.33 | 0.43 | 0.29 | 0.06 | -0.15 | -0.35 | 0.12 | -0.03 | 0.13 | -0.09 | -0.12 | -0.18 | -0.11 | -0.11 | -0.42 |
| FLNB | 0.43 | 0.34 | 0.08 | 0.14 | 0.04 | 0.10 | -0.07 | -0.01 | -0.13 | -0.18 | 0.15 | 0.09 | -0.24 | -0.23 | -0.03 | -0.47 |
| EFR3B | 0.22 | 0.26 | 0.28 | 0.21 | 0.11 | -0.15 | 0.10 | 0.02 | -0.08 | 0.10 | -0.15 | 0.13 | -0.23 | -0.20 | -0.01 | -0.60 |
| RBFOX3 | 0.01 | 0.42 | 0.32 | 0.20 | 0.17 | 0.05 | -0.03 | -0.05 | -0.12 | 0.09 | -0.20 | 0.03 | -0.35 | -0.05 | -0.11 | -0.38 |
| PPP2R2C | 0.17 | 0.47 | 0.30 | 0.40 | 0.01 | -0.28 | -0.06 | -0.01 | -0.24 | 0.00 | -0.22 | 0.08 | -0.28 | -0.15 | 0.01 | -0.21 |
| KLHDC4 | 0.19 | 0.38 | 0.35 | 0.34 | 0.16 | -0.09 | -0.09 | -0.15 | -0.20 | 0.11 | -0.14 | -0.30 | -0.13 | -0.03 | -0.30 | -0.11 |
| PILRA | 0.20 | 0.34 | 0.30 | 0.07 | 0.03 | 0.06 | -0.03 | 0.21 | 0.15 | -0.02 | -0.03 | -0.35 | -0.44 | -0.16 | 0.08 | -0.39 |
| CLSTN3 | 0.13 | 0.01 | 0.46 | 0.39 | -0.10 | 0.07 | 0.11 | -0.08 | -0.17 | 0.05 | -0.10 | 0.09 | -0.12 | -0.35 | -0.11 | -0.27 |
| CABIN1 | 0.11 | 0.19 | 0.43 | 0.24 | -0.01 | -0.05 | -0.10 | 0.07 | 0.07 | 0.18 | 0.06 | -0.16 | -0.24 | -0.45 | -0.01 | -0.34 |
| NHSL2 | 0.23 | 0.36 | 0.11 | 0.13 | 0.04 | 0.11 | 0.03 | 0.07 | -0.05 | -0.09 | -0.03 | -0.01 | -0.34 | -0.22 | 0.06 | -0.41 |
| LYRM1 | 0.13 | 0.30 | 0.32 | 0.37 | 0.12 | -0.20 | -0.07 | -0.11 | 0.01 | 0.08 | -0.02 | -0.22 | -0.21 | -0.29 | -0.15 | -0.05 |
| KCNA2 | 0.39 | 0.03 | 0.24 | 0.10 | -0.05 | 0.04 | -0.03 | 0.25 | 0.12 | 0.08 | -0.15 | -0.07 | -0.13 | -0.13 | -0.13 | -0.56 |
| SLC38A10 | 0.17 | 0.32 | 0.40 | 0.24 | 0.09 | -0.10 | 0.01 | -0.14 | -0.17 | 0.01 | -0.22 | -0.14 | -0.03 | -0.04 | -0.14 | -0.25 |
| DGKA | 0.25 | 0.26 | 0.19 | 0.31 | -0.13 | -0.07 | 0.20 | 0.05 | -0.11 | 0.01 | -0.20 | -0.11 | -0.31 | -0.05 | -0.02 | -0.27 |
| TMEM266 | 0.14 | 0.26 | 0.25 | 0.40 | -0.04 | -0.04 | -0.24 | 0.12 | 0.04 | 0.03 | -0.04 | -0.08 | -0.32 | -0.17 | -0.05 | -0.25 |
| FAM135B | 0.31 | 0.05 | 0.12 | 0.30 | 0.20 | 0.00 | 0.11 | -0.06 | -0.15 | -0.10 | 0.04 | 0.08 | -0.33 | -0.27 | -0.10 | -0.18 |
| ATP2B2 | 0.31 | 0.24 | 0.30 | 0.15 | 0.18 | -0.14 | -0.17 | 0.01 | -0.02 | 0.11 | -0.23 | -0.01 | -0.23 | -0.01 | -0.11 | -0.38 |
| TMEM163 | 0.15 | 0.08 | 0.27 | 0.18 | 0.16 | 0.06 | 0.15 | 0.02 | -0.03 | -0.37 | 0.01 | 0.23 | -0.18 | -0.34 | -0.12 | -0.28 |
| UNC5B | 0.20 | 0.35 | 0.23 | 0.16 | 0.00 | -0.01 | -0.09 | 0.11 | -0.20 | 0.13 | -0.23 | 0.10 | -0.22 | -0.18 | -0.01 | -0.33 |
| TPM3 | 0.17 | 0.05 | 0.26 | 0.30 | 0.06 | 0.01 | -0.09 | 0.05 | -0.04 | 0.00 | 0.12 | 0.08 | -0.21 | -0.34 | -0.06 | -0.37 |
| MICAL2 | 0.09 | 0.28 | 0.38 | 0.13 | -0.01 | 0.02 | -0.22 | 0.11 | 0.02 | 0.04 | 0.02 | -0.06 | -0.20 | -0.20 | 0.00 | -0.40 |
| GNAO1 | 0.14 | 0.30 | 0.19 | 0.08 | 0.13 | -0.09 | 0.22 | 0.02 | -0.13 | -0.09 | -0.11 | 0.10 | -0.19 | -0.17 | -0.07 | -0.31 |
| GABBR2 | 0.16 | 0.33 | 0.15 | 0.14 | 0.08 | 0.03 | 0.02 | 0.09 | -0.14 | -0.09 | -0.07 | 0.05 | -0.35 | -0.12 | 0.03 | -0.30 |
| KCNK1 | 0.27 | 0.38 | 0.09 | 0.13 | 0.17 | -0.06 | -0.14 | 0.01 | -0.03 | -0.16 | 0.09 | -0.08 | -0.18 | -0.22 | -0.09 | -0.18 |
| USP4 | 0.20 | 0.23 | 0.24 | 0.13 | 0.03 | 0.02 | -0.05 | 0.08 | -0.11 | 0.02 | -0.04 | -0.03 | -0.35 | -0.13 | 0.02 | -0.28 |
| TEX2 | 0.20 | 0.25 | 0.12 | 0.18 | 0.08 | -0.22 | 0.04 | 0.11 | -0.02 | 0.00 | 0.08 | 0.02 | -0.20 | -0.26 | 0.01 | -0.39 |
| PRKAG2 | 0.04 | 0.30 | 0.17 | 0.00 | 0.20 | 0.18 | 0.04 | -0.05 | -0.08 | -0.06 | 0.02 | 0.03 | -0.24 | -0.19 | -0.06 | -0.29 |
| APBA2 | 0.01 | 0.10 | 0.21 | 0.21 | -0.04 | 0.01 | 0.12 | 0.03 | -0.09 | -0.05 | -0.04 | 0.05 | -0.15 | -0.21 | -0.04 | -0.12 |
| SUSD6 | 0.10 | 0.16 | 0.12 | 0.13 | 0.05 | -0.07 | -0.06 | 0.05 | -0.06 | 0.05 | -0.01 | 0.03 | -0.10 | -0.09 | -0.08 | -0.24 |
| HDHD2 | -0.18 | -0.05 | -0.30 | -0.20 | -0.02 | 0.00 | -0.01 | 0.09 | 0.02 | -0.02 | 0.14 | -0.07 | 0.04 | 0.21 | 0.11 | 0.25 |
| NAA20 | -0.23 | -0.24 | -0.20 | -0.07 | -0.12 | 0.05 | -0.02 | 0.00 | 0.11 | -0.08 | 0.18 | -0.02 | 0.22 | 0.11 | 0.17 | 0.14 |
| CRIPT | -0.06 | -0.35 | -0.30 | -0.29 | -0.24 | 0.15 | 0.06 | -0.03 | 0.11 | 0.15 | 0.17 | -0.03 | 0.26 | 0.05 | -0.02 | 0.37 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KNTC1 | -0.06 | -0.06 | -0.26 | -0.30 | -0.15 | 0.03 | 0.02 | -0.09 | -0.06 | -0.06 | -0.07 | 0.06 | 0.27 | 0.22 | 0.14 | 0.39 |
| RPS6KA5 | -0.25 | -0.17 | -0.43 | -0.31 | -0.13 | 0.25 | 0.13 | -0.01 | 0.07 | -0.05 | 0.10 | 0.02 | 0.17 | 0.17 | 0.08 | 0.37 |
| PHF10 | -0.25 | -0.45 | -0.32 | -0.13 | -0.09 | 0.12 | 0.18 | 0.03 | 0.13 | 0.05 | -0.01 | -0.01 | 0.20 | 0.16 | 0.07 | 0.32 |
| PCGF5 | -0.27 | -0.12 | -0.38 | -0.15 | 0.00 | -0.06 | 0.05 | -0.02 | 0.11 | -0.22 | 0.02 | 0.17 | 0.06 | 0.17 | 0.08 | 0.55 |
| DPY19L4 | -0.05 | -0.26 | -0.40 | -0.36 | -0.02 | 0.05 | -0.05 | 0.06 | 0.03 | -0.06 | 0.26 | 0.01 | 0.37 | -0.07 | 0.18 | 0.30 |
| APH1B | -0.08 | -0.37 | -0.44 | -0.29 | -0.23 | 0.21 | 0.12 | 0.05 | 0.06 | 0.03 | 0.20 | -0.09 | 0.36 | 0.18 | 0.26 | 0.03 |
| ZNF546 | -0.04 | -0.23 | -0.47 | -0.29 | -0.13 | 0.11 | 0.01 | 0.02 | 0.09 | -0.02 | 0.09 | -0.04 | 0.13 | 0.39 | 0.09 | 0.28 |
| ABCA17P | -0.38 | -0.14 | -0.18 | -0.15 | -0.10 | 0.03 | -0.10 | -0.03 | -0.01 | -0.16 | 0.25 | -0.04 | 0.35 | 0.09 | 0.19 | 0.38 |
| CDH26 | -0.26 | -0.15 | -0.47 | -0.26 | -0.01 | 0.23 | 0.06 | -0.04 | 0.00 | -0.02 | -0.11 | 0.23 | 0.09 | 0.07 | 0.19 | 0.45 |
| CBWD6 | -0.09 | -0.26 | -0.25 | -0.19 | -0.19 | 0.03 | -0.12 | 0.20 | 0.04 | -0.07 | -0.05 | -0.30 | 0.42 | 0.11 | 0.26 | 0.46 |
| ZNF736 | -0.05 | -0.32 | -0.46 | -0.26 | -0.11 | 0.07 | 0.10 | 0.02 | 0.08 | -0.16 | 0.11 | -0.04 | 0.10 | 0.24 | 0.02 | 0.65 |
| CFAP70 | -0.09 | -0.30 | -0.40 | -0.20 | -0.35 | 0.07 | 0.17 | -0.10 | 0.05 | -0.13 | 0.31 | 0.02 | 0.08 | 0.29 | 0.08 | 0.51 |
| UBE4A | -0.02 | -0.14 | -0.49 | -0.43 | -0.01 | -0.17 | -0.19 | 0.09 | 0.03 | 0.15 | 0.02 | -0.03 | 0.25 | 0.43 | 0.23 | 0.29 |
| TTC32 | -0.24 | -0.23 | -0.61 | -0.36 | 0.05 | 0.08 | 0.05 | 0.14 | 0.14 | -0.10 | 0.28 | -0.07 | 0.23 | -0.02 | 0.22 | 0.44 |
| CFAP53 | -0.57 | -0.14 | -0.14 | 0.02 | -0.25 | -0.12 | 0.01 | -0.17 | 0.06 | -0.02 | 0.08 | -0.06 | 0.23 | 0.66 | 0.02 | 0.37 |
| PXDNL | -0.45 | -0.21 | -0.19 | -0.16 | -0.32 | 0.07 | 0.14 | 0.04 | -0.11 | -0.04 | 0.02 | -0.02 | 0.41 | 0.58 | -0.22 | 0.46 |
| CPVL | -0.17 | -0.32 | -0.52 | -0.27 | -0.34 | 0.24 | 0.24 | -0.11 | -0.08 | 0.13 | 0.16 | 0.03 | -0.03 | 0.43 | 0.07 | 0.55 |
| GLIPR1 | -0.25 | -0.27 | -0.48 | -0.09 | -0.23 | 0.13 | 0.14 | -0.12 | -0.04 | -0.17 | -0.07 | 0.20 | 0.25 | 0.56 | -0.05 | 0.47 |
| COL25A1 | -0.34 | -0.13 | -0.77 | -0.36 | 0.00 | 0.19 | 0.30 | -0.09 | 0.10 | -0.07 | 0.16 | -0.04 | 0.15 | 0.25 | 0.22 | 0.43 |
| MTHFD2L | -0.24 | -0.24 | -0.65 | -0.42 | -0.05 | 0.30 | 0.06 | 0.10 | -0.03 | -0.06 | 0.12 | 0.17 | -0.02 | 0.36 | -0.03 | 0.63 |
| LSM5 | -0.18 | -0.36 | -0.28 | -0.12 | 0.04 | -0.30 | 0.01 | -0.06 | 0.13 | 0.02 | 0.15 | -0.21 | 0.69 | -0.14 | 0.22 | 0.39 |
| LOC100505715 | -0.22 | -0.38 | -0.35 | -0.57 | 0.04 | 0.19 | -0.03 | 0.00 | 0.23 | -0.07 | 0.21 | 0.03 | 0.04 | 0.51 | 0.20 | 0.17 |
| NR3C2 | -0.27 | -0.20 | -0.61 | -0.44 | -0.14 | 0.08 | 0.18 | 0.05 | 0.08 | -0.17 | -0.04 | 0.40 | 0.14 | 0.20 | 0.17 | 0.56 |
| TOM1L1 | -0.28 | 0.03 | -0.62 | -0.42 | -0.07 | 0.01 | -0.06 | 0.10 | -0.05 | -0.14 | -0.10 | 0.12 | 0.32 | 0.35 | 0.21 | 0.62 |
| ANKRD42 | -0.07 | -0.11 | -0.61 | -0.33 | -0.10 | -0.35 | 0.24 | -0.21 | 0.07 | -0.06 | -0.10 | 0.28 | 0.52 | 0.09 | 0.15 | 0.58 |
| SLC8A1-AS1 | -0.30 | -0.38 | -0.18 | -0.26 | -0.19 | 0.14 | 0.05 | -0.14 | -0.14 | 0.32 | -0.24 | -0.19 | 0.70 | 0.62 | -0.11 | 0.32 |
| ATAD2 | 0.02 | -0.52 | -0.41 | -0.36 | -0.50 | 0.03 | 0.11 | 0.03 | 0.14 | -0.09 | 0.09 | 0.19 | 0.64 | 0.16 | 0.14 | 0.32 |
| GAB1 | -0.61 | 0.04 | -0.36 | -0.39 | 0.18 | -0.05 | -0.30 | -0.09 | -0.08 | -0.01 | 0.06 | 0.09 | 0.58 | 0.42 | -0.01 | 0.53 |
| CCDC146 | -0.28 | -0.16 | -0.43 | -0.24 | -0.20 | 0.04 | -0.03 | 0.01 | 0.09 | -0.21 | -0.18 | -0.02 | 0.34 | 0.59 | -0.03 | 0.72 |
| ELMOD1 | -0.14 | -0.43 | -0.42 | -0.47 | 0.12 | 0.02 | 0.20 | -0.35 | 0.05 | -0.23 | 0.10 | 0.14 | 0.50 | 0.12 | 0.22 | 0.55 |
| CFAP74 | -0.28 | -0.14 | -0.04 | -0.79 | -0.01 | 0.00 | -0.50 | -0.28 | 0.41 | 0.10 | 0.32 | -0.07 | 0.25 | 0.50 | 0.15 | 0.36 |
| C1orf146 | -0.05 | -0.29 | -0.41 | -0.37 | -0.18 | 0.14 | -0.01 | 0.01 | 0.21 | -0.20 | -0.18 | -0.02 | 0.22 | 0.64 | 0.04 | 0.45 |
| P4HA2 | -0.40 | -0.35 | 0.07 | -0.56 | 0.05 | -0.47 | -0.04 | -0.11 | 0.29 | 0.31 | -0.08 | -0.04 | 0.58 | 0.44 | 0.15 | 0.16 |
| RANBP3L | -0.14 | -0.17 | -0.64 | -0.38 | -0.20 | 0.34 | -0.06 | -0.18 | 0.08 | -0.14 | 0.05 | 0.14 | 0.14 | 0.68 | 0.09 | 0.39 |
| OTUD6B-AS1 | -0.31 | -0.46 | -0.50 | -0.28 | -0.12 | -0.13 | 0.03 | 0.40 | 0.07 | -0.16 | 0.03 | 0.20 | 0.50 | -0.11 | 0.40 | 0.44 |
| EYS | -0.39 | -0.47 | -0.38 | -0.12 | -0.30 | 0.26 | 0.11 | 0.02 | 0.07 | -0.18 | 0.00 | -0.12 | 0.26 | 0.58 | -0.01 | 0.66 |
| ALS2CR11 | -0.13 | -0.40 | -0.61 | -0.18 | -0.44 | 0.16 | 0.29 | -0.25 | 0.00 | -0.17 | 0.25 | -0.05 | 0.17 | 0.49 | 0.28 | 0.59 |
| LECT1 | -0.24 | -0.19 | -0.59 | -0.17 | -0.19 | 0.07 | -0.02 | 0.04 | 0.03 | -0.27 | 0.15 | -0.03 | 0.66 | 0.44 | -0.25 | 0.53 |
| BHLHE40-AS1 | -0.56 | -0.21 | -0.15 | -0.33 | 0.05 | -0.33 | -0.11 | -0.02 | -0.06 | 0.14 | -0.03 | 0.23 | 0.27 | 0.25 | 0.37 | 0.49 |
| STAB2 | -0.22 | -0.62 | -0.03 | -0.14 | -0.27 | 0.18 | -0.22 | -0.09 | -0.03 | -0.07 | 0.02 | 0.09 | 0.18 | 0.26 | 0.65 | 0.32 |
| PXYLP1 | -0.68 | -0.34 | 0.12 | -0.62 | 0.15 | -0.22 | -0.35 | -0.14 | 0.29 | 0.49 | -0.17 | 0.35 | 0.42 | 0.38 | 0.03 | 0.28 |
| LOC101929710 | -0.44 | 0.00 | -0.56 | -0.46 | -0.16 | -0.02 | 0.13 | -0.26 | 0.12 | -0.09 | 0.20 | 0.04 | -0.02 | 0.78 | 0.07 | 0.69 |
| LINC00499 | 0.02 | -0.18 | -0.68 | -0.62 | -0.42 | 0.02 | 0.24 | -0.01 | 0.07 | 0.10 | -0.15 | 0.07 | 0.53 | 0.50 | 0.12 | 0.41 |
| RHOBTB3 | -0.19 | 0.05 | -0.60 | -0.77 | -0.26 | 0.05 | 0.03 | 0.21 | -0.11 | -0.15 | -0.19 | -0.10 | 0.65 | 0.30 | 0.11 | 0.96 |
| CRYBG3 | -0.12 | -0.28 | -0.68 | -0.51 | -0.26 | 0.05 | 0.37 | 0.03 | 0.25 | -0.30 | -0.27 | 0.01 | 0.49 | 0.47 | 0.09 | 0.67 |
| NPY6R | -0.27 | -0.11 | -0.88 | -0.26 | -0.32 | -0.01 | 0.07 | -0.07 | 0.16 | -0.03 | 0.16 | 0.12 | 0.69 | 0.17 | 0.05 | 0.54 |
| RGS20 | -0.36 | -0.32 | -0.27 | -0.42 | 0.04 | 0.15 | -0.29 | -0.45 | 0.21 | 0.03 | 0.11 | 0.08 | 0.76 | 0.65 | -0.16 | 0.23 |
| C2orf73 | -0.17 | 0.03 | -0.81 | -0.76 | -0.26 | 0.30 | 0.04 | 0.00 | 0.05 | 0.14 | -0.03 | -0.03 | 0.11 | 0.61 | 0.40 | 0.39 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YIPF7 | -0.27 | -0.09 | -0.73 | -0.39 | -0.23 | 0.12 | -0.02 | 0.12 | 0.06 | -0.10 | -0.16 | -0.24 | 0.87 | 0.66 | -0.10 | 0.50 |
| BUB1B | -0.24 | -0.36 | -0.57 | -0.56 | 0.08 | 0.09 | -0.24 | 0.18 | 0.08 | -0.08 | 0.13 | 0.00 | -0.05 | 0.75 | 0.32 | 0.47 |
| CFAP43 | -0.25 | 0.07 | -0.74 | -0.55 | -0.22 | 0.17 | -0.07 | -0.16 | 0.06 | -0.09 | 0.11 | -0.28 | 0.47 | 0.76 | -0.03 | 0.77 |
| LOC102724623 | -0.27 | -0.29 | -0.34 | -0.37 | 0.01 | 0.32 | -0.33 | -0.39 | 0.29 | -0.40 | 0.40 | -0.39 | 0.11 | 0.18 | 0.48 | 1.00 |
| LRRC69 | -0.38 | -0.01 | -0.46 | -0.49 | -0.34 | 0.14 | 0.01 | -0.19 | 0.04 | -0.17 | -0.05 | 0.28 | 1.02 | 0.35 | -0.09 | 0.33 |
| STK3 | -0.28 | -0.22 | 0.00 | -0.23 | -0.16 | -0.14 | -0.01 | -0.57 | -0.23 | -0.23 | -0.27 | 0.03 | -0.15 | 0.51 | 0.91 | 1.03 |
| CLIC5 | -0.17 | 0.17 | -0.54 | -0.29 | -0.47 | -0.17 | -0.26 | -0.17 | 0.10 | -0.02 | -0.06 | 0.26 | 0.76 | 0.51 | -0.19 | 0.54 |
| CACNA2D3 | -0.12 | -0.55 | -0.88 | -0.35 | -0.47 | 0.44 | -0.17 | -0.23 | 0.79 | 0.08 | -0.13 | 0.15 | 0.25 | 0.65 | -0.17 | 0.72 |
| C2orf27A | -0.09 | -0.99 | -0.35 | -0.42 | -0.26 | 0.19 | 0.18 | -0.03 | 0.11 | -0.13 | 0.27 | -0.03 | 0.56 | 0.01 | 0.09 | 0.89 |
| LOC105378385 | -0.27 | -0.45 | -0.85 | -0.39 | -0.40 | 0.46 | 0.37 | -0.27 | 0.37 | -0.09 | -0.04 | -0.13 | 0.33 | 1.15 | 0.17 | 0.06 |
| BEST3 | -0.02 | -0.63 | -0.62 | -0.54 | -0.04 | -0.12 | -0.33 | -0.09 | 0.22 | 0.11 | 0.46 | -0.03 | -0.05 | 0.86 | 0.20 | 0.62 |
| EPHA6 | -0.02 | -0.23 | -0.93 | -0.91 | -0.75 | 0.08 | 0.10 | 0.18 | 0.49 | -0.04 | -0.03 | 0.18 | -0.04 | 0.70 | 0.39 | 0.84 |
| LOC100506393 | -0.23 | -0.56 | -0.35 | -0.29 | -0.42 | 0.27 | -0.04 | 0.03 | -0.41 | -0.26 | -0.08 | 0.23 | 0.58 | 0.65 | 0.26 | 0.62 |
| MEF2C | -0.46 | -0.49 | -1.00 | -0.82 | 0.37 | 0.05 | 0.46 | 0.01 | 0.01 | -0.37 | -0.04 | 0.48 | 0.21 | 0.49 | 0.27 | 0.83 |
| GTSCR1 | -0.21 | -0.15 | -1.11 | -0.17 | -0.32 | -0.23 | -0.18 | -0.64 | 0.26 | 0.52 | 0.26 | 0.56 | 0.16 | 0.65 | 0.25 | 0.35 |
| ELOVL2 | 0.10 | -0.37 | -0.75 | -0.70 | -0.51 | 0.09 | 0.17 | -0.11 | 0.22 | -0.23 | 0.08 | -0.28 | 0.91 | 0.80 | 0.18 | 0.41 |
| SPATA9 | -0.19 | -0.35 | -0.66 | -0.41 | -0.59 | 0.24 | 0.21 | -0.26 | 0.17 | -0.14 | -0.03 | -0.10 | 0.78 | 0.46 | 0.18 | 0.69 |
| PLSCR4 | -0.62 | -0.54 | -0.42 | -0.71 | 0.51 | -0.16 | -0.74 | 0.44 | -0.46 | 0.32 | 0.09 | 0.69 | -0.14 | 0.84 | 0.38 | 0.50 |
| GCK | -0.51 | -0.10 | -0.60 | -0.41 | -0.01 | 0.05 | -0.14 | -0.09 | 0.16 | 0.38 | 0.15 | -0.58 | 0.21 | 0.96 | 0.43 | 0.10 |
| LINC01032 | -0.02 | -0.16 | -0.95 | -0.51 | -0.96 | 0.24 | 0.18 | -0.08 | 0.06 | -0.13 | -0.30 | 0.07 | 0.46 | 1.27 | 0.10 | 0.75 |
| MEF2C-AS1 | -0.47 | -0.34 | -0.72 | -0.60 | -0.07 | 0.05 | 0.00 | 0.02 | 0.04 | -0.29 | -0.01 | 0.17 | 0.78 | 0.26 | 0.27 | 0.90 |
| BMS1P21 | -0.14 | -0.84 | -0.74 | -0.32 | 0.25 | -0.35 | -0.31 | -0.06 | 0.29 | -0.23 | -0.26 | 1.08 | 0.17 | 0.50 | 0.49 | 0.46 |
| CASP12 | -0.31 | -0.88 | -1.20 | -0.22 | 0.15 | -0.34 | 0.56 | -0.12 | -0.07 | -0.04 | 0.37 | 0.62 | 0.32 | 0.19 | 0.08 | 0.87 |
| CLMP | -0.09 | -0.21 | -0.79 | -0.47 | -0.11 | 0.21 | -0.11 | -0.53 | -0.02 | 0.06 | -0.34 | -0.06 | 0.58 | 1.50 | 0.30 | 0.09 |
| ERBIN | -0.50 | -0.62 | -0.20 | -0.49 | 0.47 | -0.39 | -0.22 | -0.43 | 0.22 | 0.13 | 0.13 | 0.23 | 0.11 | 0.38 | 0.54 | 0.64 |
| TMC3-AS1 | -0.32 | -0.20 | -0.86 | -0.64 | -0.40 | -0.45 | 0.17 | 0.14 | -0.04 | -0.01 | 0.02 | 0.13 | 0.58 | 0.86 | 0.01 | 1.02 |
| CXXC4 | -0.14 | -0.80 | -0.27 | -1.37 | 0.18 | 0.01 | -0.24 | -0.02 | -0.20 | 0.16 | 0.27 | 0.06 | 0.88 | 0.35 | 0.46 | 0.66 |
| DCBLD1 | 0.09 | -0.56 | -0.61 | -0.81 | -0.36 | -0.57 | 0.30 | 0.11 | 0.29 | -0.32 | -0.39 | -0.11 | 0.64 | 0.76 | 0.54 | 0.99 |
| GSTO2 | -0.10 | -0.66 | -0.83 | 0.03 | -0.31 | 0.00 | -0.40 | -0.65 | 0.34 | 0.10 | 0.81 | 0.20 | 0.65 | 0.14 | -0.30 | 0.98 |
| PLOD2 | -0.46 | -0.44 | -0.76 | -0.98 | 0.07 | -0.26 | -0.31 | 0.14 | 0.20 | 0.45 | 0.22 | 0.60 | 0.12 | 0.67 | 0.17 | 0.56 |
| P4HA2-AS1 | -0.61 | -0.66 | -0.45 | -0.84 | 0.10 | -0.13 | 0.04 | -0.03 | 0.42 | 0.04 | 0.48 | 0.14 | 0.74 | 0.43 | 0.08 | 0.25 |
| TTC23L | -0.30 | -0.33 | -0.84 | -0.64 | -0.42 | 0.19 | 0.13 | -0.26 | 0.10 | 0.05 | -0.32 | 0.00 | 0.74 | 1.20 | 0.16 | 0.54 |
| CPLX3 | -0.69 | -0.20 | -0.07 | -0.48 | -0.41 | -0.93 | -0.18 | 0.47 | -0.42 | 0.03 | 0.26 | 0.31 | 0.03 | 0.82 | -0.07 | 1.55 |
| SOX13 | -0.72 | -0.31 | -0.18 | -0.24 | -0.04 | -0.49 | -0.59 | -0.29 | 0.16 | 0.16 | 0.44 | -0.08 | 1.08 | 0.65 | 0.05 | 0.39 |
| PRDM1 | -0.78 | -1.04 | -0.22 | -0.71 | 0.57 | -0.57 | -0.28 | 0.56 | 0.50 | 0.03 | -0.19 | -0.40 | 0.56 | 0.29 | 0.73 | 0.95 |
| RSPO2 | -0.40 | -0.48 | -0.18 | -0.19 | -0.29 | -0.51 | -0.26 | -0.51 | 0.08 | 0.28 | 0.07 | 0.17 | -0.21 | 0.94 | 0.78 | 0.72 |
| TSG1 | -0.29 | -0.49 | -0.96 | -0.62 | -0.91 | 0.38 | 0.45 | -0.18 | 0.24 | -0.11 | -0.30 | -0.14 | 0.55 | 1.28 | 0.18 | 0.90 |
| MIR31HG | -0.23 | -0.97 | -0.89 | -1.13 | 0.79 | -0.45 | -0.08 | -0.80 | 0.07 | 0.78 | -0.15 | 0.24 | 0.29 | 0.91 | 0.81 | 0.82 |
| CTB-12O2.1 | -0.52 | -0.50 | -0.46 | -0.26 | -0.46 | -0.42 | -0.19 | -0.51 | 0.58 | -0.28 | -0.54 | -0.05 | 1.14 | 0.70 | 0.93 | 0.84 |
| PLCH1 | -0.18 | -0.64 | -0.51 | -0.29 | -0.35 | -0.52 | -0.14 | -0.26 | -0.28 | -0.34 | -0.10 | 0.77 | 1.00 | 0.25 | -0.06 | 1.66 |
| JAML | -0.04 | -0.59 | -0.81 | -0.34 | -0.71 | -0.59 | -0.31 | -0.06 | -0.05 | 0.13 | -0.21 | 0.03 | 1.45 | 0.59 | 0.84 | 0.67 |
| SEMA3G | -1.33 | -0.20 | -0.18 | -0.61 | -0.18 | -0.58 | -0.78 | 0.00 | 0.12 | 0.40 | 0.29 | -0.58 | 1.18 | 1.41 | 0.04 | 1.02 |
| LOC101928203 | -0.69 | -0.54 | -0.59 | -0.87 | -0.49 | 0.16 | 0.09 | -0.16 | 0.24 | -0.28 | 0.45 | -0.09 | 1.43 | 0.70 | 0.18 | 0.44 |
| GLRA1 | -0.76 | -0.46 | -0.53 | -0.74 | -0.21 | -0.44 | -0.43 | -0.54 | 0.55 | -0.20 | -0.40 | 0.13 | 1.32 | 0.77 | 1.05 | 0.92 |
| SYT16 | -1.18 | -1.10 | -0.98 | -0.12 | -0.33 | -0.63 | -0.11 | 0.16 | 0.48 | -0.08 | 0.05 | 0.91 | 1.03 | 0.88 | 0.47 | 0.55 |
| SYN3 | -0.56 | -1.54 | -0.61 | -0.89 | 0.11 | -0.67 | -0.08 | -0.27 | 1.06 | -0.82 | 0.68 | 1.24 | -0.21 | 1.21 | 0.77 | 0.57 |
| ARHGAP32 | -1.79 | -0.75 | -0.55 | -1.21 | 0.05 | -0.41 | 0.14 | -0.83 | 0.99 | 1.09 | 0.53 | -0.33 | 1.04 | 0.61 | 0.58 | 0.85 |
| MIR646HG | -0.70 | -0.77 | -0.75 | -0.67 | -0.56 | -0.62 | 0.25 | 0.25 | -0.50 | 1.54 | -0.62 | 0.33 | 0.41 | 1.84 | -0.17 | 0.73 |
| ALCAM | -1.52 | -0.55 | -1.28 | -1.18 | 0.91 | -0.07 | -1.13 | -0.01 | -0.74 | 1.98 | -0.12 | 0.48 | -0.17 | 1.56 | 0.64 | 1.22 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCGN | -1.04 | -0.64 | -0.61 | -0.93 | -0.59 | -0.72 | 0.04 | 0.06 | -0.59 | 0.11 | 0.20 | -0.43 | 2.24 | 1.81 | -0.54 | 1.62 |
| LINC01515 | -0.43 | -0.30 | -0.08 | 0.17 | -0.47 | -0.22 | -0.22 | -0.31 | -0.27 | -0.58 | -0.35 | -0.21 | -0.23 | -0.58 | -0.47 | 4.54 |
| LOC101929415 | -1.11 | -1.00 | -1.02 | -0.88 | -0.95 | -1.07 | -1.03 | -0.31 | 1.71 | 0.87 | 0.89 | -0.17 | 1.50 | 1.48 | 1.33 | -0.23 |

**[00305]** RNAseq results for the differentially expressed (adjusted p <0.01, baseMean > 50) genes in granule cells across all samples is shown in Table 45.

**Table 45. Differentially expressed genes in granule cells across all samples**

| Gene | baseMean | Log2 Change | p-value | padj | Gene | base Mean | Log2 Change | p-value | p-adj |
|---|---|---|---|---|---|---|---|---|---|
| RBFOX3 | 50345.918 | -0.011 | 1.05E-05 | 1.36E-03 | DYSF | 356.876 | -0.020 | 1.67E-04 | 8.53E-03 |
| GRM4 | 34287.674 | -0.018 | 1.39E-05 | 1.67E-03 | NKD1 | 352.577 | -0.016 | 2.09E-04 | 9.74E-03 |
| KCND3 | 21782.620 | -0.014 | 2.56E-08 | 1.47E-05 | TTYH3 | 348.038 | -0.019 | 1.85E-04 | 9.08E-03 |
| EPHA6 | 19340.255 | 0.023 | 3.39E-05 | 3.08E-03 | PTPN3 | 344.790 | -0.041 | 4.05E-12 | 1.58E-08 |
| MICAL2 | 17163.764 | -0.010 | 1.50E-04 | 7.94E-03 | TP73 | 341.504 | -0.020 | 3.97E-06 | 7.81E-04 |
| ATP2B2 | 16799.649 | -0.010 | 8.11E-05 | 5.36E-03 | CBWD6 | 336.598 | 0.012 | 1.96E-04 | 9.32E-03 |
| NHSL2 | 13970.170 | -0.011 | 1.55E-06 | 4.00E-04 | LRRC1 | 324.253 | -0.014 | 1.07E-04 | 6.33E-03 |
| TMEM163 | 13633.070 | -0.010 | 1.19E-04 | 6.72E-03 | TCEAL2 | 303.853 | -0.013 | 1.18E-04 | 6.72E-03 |
| NAV2 | 13031.701 | -0.014 | 8.29E-08 | 3.79E-05 | KCNQ3 | 303.479 | -0.064 | 1.73E-06 | 4.35E-04 |
| TMEM266 | 12010.373 | -0.010 | 4.59E-05 | 3.68E-03 | PDZD7 | 303.201 | -0.016 | 1.11E-04 | 6.46E-03 |
| GABBR2 | 11930.254 | -0.009 | 4.67E-06 | 8.52E-04 | FARP1 | 300.108 | -0.037 | 1.03E-07 | 4.55E-05 |
| PDE3A | 10097.415 | -0.020 | 1.86E-04 | 9.12E-03 | GLIPR1 | 295.278 | 0.014 | 5.84E-05 | 4.30E-03 |
| KCNK1 | 8298.470 | -0.009 | 1.63E-05 | 1.86E-03 | GACAT2 | 293.355 | -0.018 | 3.45E-06 | 7.25E-04 |
| ELMO1 | 7802.455 | -0.017 | 1.09E-05 | 1.39E-03 | TTC32 | 292.733 | 0.014 | 6.31E-05 | 4.50E-03 |
| GNAO1 | 7579.076 | -0.009 | 4.24E-06 | 8.14E-04 | PTMS | 286.939 | -0.026 | 1.50E-04 | 7.94E-03 |
| NRXN2 | 7570.331 | -0.012 | 3.97E-05 | 3.37E-03 | COL25A1 | 284.956 | 0.014 | 1.59E-04 | 8.26E-03 |
| KIF26B | 7517.804 | -0.012 | 3.53E-05 | 3.14E-03 | LYRM1 | 280.842 | -0.011 | 1.99E-04 | 9.41E-03 |
| RPS6KA5 | 7326.044 | 0.011 | 4.54E-05 | 3.66E-03 | CFAP74 | 279.177 | 0.017 | 8.30E-05 | 5.43E-03 |
| FAM135B | 7266.658 | -0.010 | 4.86E-06 | 8.54E-04 | STEAP3 | 277.625 | -0.018 | 1.31E-05 | 1.57E-03 |
| PTK2B | 6597.329 | -0.014 | 2.75E-08 | 1.47E-05 | PXN | 276.469 | -0.019 | 4.62E-06 | 8.52E-04 |
| NR3C2 | 6543.803 | 0.015 | 8.86E-06 | 1.26E-03 | AQP7 | 272.393 | -0.042 | 7.30E-13 | 3.78E-09 |
| SUSD6 | 6401.317 | -0.006 | 6.73E-05 | 4.75E-03 | OTUD6B-AS1 | 271.278 | 0.017 | 9.85E-06 | 1.33E-03 |
| PRKAG2 | 6026.090 | -0.009 | 3.19E-05 | 2.98E-03 | CALY | 269.823 | -0.017 | 1.02E-04 | 6.14E-03 |
| CPLX2 | 5765.403 | -0.017 | 2.01E-06 | 4.65E-04 | CTB-12O2.1 | 267.774 | 0.035 | 4.91E-10 | 6.27E-07 |
| GABBR1 | 5382.344 | -0.015 | 1.50E-06 | 4.00E-04 | SLC38A10 | 262.838 | -0.010 | 9.57E-05 | 5.92E-03 |
| DGCR5 | 5322.686 | -0.013 | 1.12E-05 | 1.40E-03 | DPY19L4 | 259.504 | 0.012 | 9.07E-05 | 5.73E-03 |
| CHGB | 5041.537 | -0.022 | 1.36E-04 | 7.51E-03 | GTPBP2 | 257.879 | -0.012 | 1.52E-04 | 7.99E-03 |
| MAPK4 | 4866.091 | -0.013 | 5.42E-07 | 1.83E-04 | ZNF546 | 247.108 | 0.012 | 2.62E-05 | 2.64E-03 |
| APBA2 | 4762.326 | -0.006 | 1.59E-04 | 8.25E-03 | YIPF7 | 244.173 | 0.020 | 4.95E-05 | 3.86E-03 |
| RAB37 | 4690.790 | -0.013 | 7.45E-07 | 2.27E-04 | ANKRD42 | 242.006 | 0.016 | 6.32E-05 | 4.50E-03 |
| SRCIN1 | 4017.605 | -0.017 | 1.05E-06 | 3.01E-04 | ATAD2 | 239.267 | 0.016 | 2.83E-05 | 2.71E-03 |
| PPP2R2C | 4002.023 | -0.011 | 2.02E-04 | 9.51E-03 | CHRD | 237.780 | -0.018 | 1.78E-05 | 2.00E-03 |
| RNF152 | 3798.987 | -0.014 | 5.37E-06 | 9.17E-04 | CFAP70 | 234.603 | 0.013 | 7.67E-05 | 5.17E-03 |
| C14orf132 | 3786.072 | -0.012 | 6.94E-05 | 4.86E-03 | ZNF219 | 231.429 | -0.016 | 5.87E-05 | 4.30E-03 |
| TPM4 | 3655.275 | -0.015 | 2.87E-09 | 3.19E-06 | CREB3L2 | 231.412 | -0.021 | 1.17E-04 | 6.72E-03 |
| PCGF5 | 3061.297 | 0.011 | 4.21E-05 | 3.46E-03 | ALCAM | 229.200 | 0.057 | 1.77E-04 | 8.81E-03 |
| KIAA1549L | 2987.063 | -0.017 | 3.81E-05 | 3.29E-03 | RGS20 | 223.121 | 0.020 | 7.17E-06 | 1.09E-03 |
| CLSTN3 | 2943.629 | -0.011 | 7.03E-05 | 4.88E-03 | CHST12 | 220.202 | -0.014 | 9.19E-05 | 5.78E-03 |
| CBLN3 | 2714.596 | -0.017 | 4.95E-05 | 3.86E-03 | LINC01032 | 218.152 | 0.026 | 1.63E-04 | 8.35E-03 |
| EFR3B | 2684.868 | -0.012 | 2.81E-05 | 2.71E-03 | CFAP43 | 211.635 | 0.021 | 2.61E-05 | 2.64E-03 |
| ERGIC1 | 2501.561 | -0.014 | 7.49E-05 | 5.13E-03 | CDK5R2 | 209.638 | -0.021 | 5.82E-06 | 9.82E-04 |
| SLC17A7 | 2381.760 | -0.019 | 3.13E-05 | 2.97E-03 | GLRA1 | 209.467 | 0.044 | 4.84E-16 | 7.52E-12 |
| CABIN1 | 2325.960 | -0.011 | 1.52E-04 | 7.99E-03 | PLOD2 | 209.111 | 0.029 | 3.55E-09 | 3.44E-06 |
| HIP1 | 2298.351 | -0.015 | 1.02E-04 | 6.14E-03 | CXXC4 | 207.138 | 0.028 | 3.60E-06 | 7.27E-04 |
| SYT7 | 2297.082 | -0.025 | 1.04E-08 | 8.07E-06 | CDH26 | 206.569 | 0.012 | 1.87E-04 | 9.14E-03 |
| DHDDS | 2267.496 | -0.014 | 6.86E-06 | 1.07E-03 | SCHLAP1 | 198.829 | -0.060 | 7.72E-07 | 2.31E-04 |
| EPB41L1 | 2266.476 | -0.014 | 1.81E-06 | 4.38E-04 | PLCH2 | 196.686 | -0.027 | 6.04E-06 | 9.98E-04 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EYS | 2247.457 | 0.017 | 8.38E-06 | 1.23E-03 | VWA5B2 | 195.922 | -0.016 | 8.40E-05 | 5.43E-03 |
| KCNK10 | 2220.881 | -0.014 | 1.73E-04 | 8.66E-03 | PLSCR4 | 195.390 | 0.025 | 2.07E-04 | 9.68E-03 |
| CDH23 | 2139.153 | -0.026 | 2.33E-08 | 1.39E-05 | DCBLD1 | 192.305 | 0.028 | 4.71E-06 | 8.52E-04 |
| FLNB | 2129.312 | -0.012 | 1.64E-05 | 1.86E-03 | ABCC10 | 180.066 | -0.014 | 2.15E-04 | 9.90E-03 |
| KIAA0895L | 1941.088 | -0.020 | 3.43E-08 | 1.72E-05 | LINC01544 | 179.445 | -0.023 | 4.04E-06 | 7.85E-04 |
| XKR7 | 1857.510 | -0.014 | 6.50E-06 | 1.05E-03 | LOC100505715 | 175.345 | 0.015 | 1.99E-05 | 2.14E-03 |
| UNC5B | 1829.248 | -0.010 | 5.12E-05 | 3.92E-03 | FHDC1 | 174.815 | -0.021 | 1.69E-04 | 8.55E-03 |
| KCNA2 | 1738.999 | -0.010 | 1.97E-04 | 9.36E-03 | P4HA2 | 174.500 | 0.017 | 5.12E-05 | 3.92E-03 |
| DCLK1 | 1729.006 | -0.045 | 1.33E-04 | 7.36E-03 | NPY6R | 171.099 | 0.020 | 3.06E-06 | 6.52E-04 |
| PLXNA4 | 1698.038 | -0.021 | 7.97E-05 | 5.29E-03 | LINC01515 | 170.511 | 0.091 | 1.23E-04 | 6.92E-03 |
| PTPRE | 1697.110 | -0.019 | 6.95E-13 | 3.78E-09 | FAM212B | 169.731 | -0.016 | 4.76E-05 | 3.77E-03 |
| PILRA | 1657.001 | -0.011 | 1.92E-04 | 9.28E-03 | SYT16 | 167.452 | 0.045 | 5.39E-11 | 1.40E-07 |
| ELAVL3 | 1635.882 | -0.019 | 5.97E-06 | 9.97E-04 | TTC23L | 166.748 | 0.030 | 7.76E-08 | 3.65E-05 |
| TEX2 | 1535.488 | -0.009 | 1.69E-04 | 8.55E-03 | KNTC1 | 166.001 | 0.011 | 3.23E-05 | 2.98E-03 |
| CACNA2D3 | 1429.407 | 0.022 | 8.87E-05 | 5.65E-03 | ELOVL2 | 165.967 | 0.024 | 3.17E-05 | 2.98E-03 |
| MIR31HG | 1405.114 | 0.034 | 2.59E-06 | 5.76E-04 | FAM131A | 165.672 | -0.022 | 3.05E-05 | 2.91E-03 |
| CPVL | 1345.623 | 0.014 | 8.67E-05 | 5.54E-03 | CLMP | 164.996 | 0.027 | 6.91E-05 | 4.86E-03 |
| PC | 1333.761 | -0.013 | 1.40E-04 | 7.59E-03 | ATP6V0B | 163.595 | -0.016 | 1.38E-04 | 7.52E-03 |
| HDHD2 | 1305.106 | 0.008 | 7.66E-05 | 5.17E-03 | LOC102724623 | 161.233 | 0.021 | 1.16E-04 | 6.71E-03 |
| PTPRJ | 1260.812 | -0.027 | 1.47E-07 | 6.33E-05 | STK3 | 156.730 | 0.022 | 2.13E-04 | 9.87E-03 |
| GRK5 | 1235.398 | -0.025 | 6.59E-09 | 5.81E-06 | CASP12 | 153.275 | 0.027 | 1.10E-04 | 6.43E-03 |
| TRIM67 | 1160.185 | -0.014 | 8.80E-06 | 1.26E-03 | PLXDC2 | 152.928 | -0.054 | 2.97E-06 | 6.41E-04 |
| PIP5K1C | 1157.473 | -0.017 | 1.01E-04 | 6.13E-03 | GTSCR1 | 151.570 | 0.024 | 2.79E-05 | 2.71E-03 |
| GRIN2C | 1149.100 | -0.019 | 1.89E-05 | 2.10E-03 | PLCH1 | 150.075 | 0.036 | 7.00E-07 | 2.22E-04 |
| ADAM19 | 1129.783 | -0.015 | 2.33E-05 | 2.40E-03 | SDC3 | 146.412 | -0.017 | 9.34E-05 | 5.84E-03 |
| C1orf61 | 1128.395 | -0.022 | 2.16E-08 | 1.34E-05 | SLC25A6 | 145.952 | -0.017 | 6.49E-05 | 4.61E-03 |
| ZNRF1 | 1032.971 | -0.012 | 3.93E-05 | 3.36E-03 | PXYLP1 | 144.017 | 0.019 | 2.09E-04 | 9.74E-03 |
| TOM1L1 | 1029.393 | 0.016 | 5.37E-06 | 9.17E-04 | TSG1 | 142.981 | 0.034 | 4.72E-06 | 8.52E-04 |
| MEF2C | 1008.824 | 0.024 | 2.82E-05 | 2.71E-03 | CPLX3 | 142.821 | 0.031 | 7.62E-05 | 5.17E-03 |
| GDPD5 | 1000.940 | -0.021 | 2.38E-07 | 9.73E-05 | ITGB5 | 142.534 | -0.050 | 8.33E-11 | 1.85E-07 |
| RAB6B | 998.297 | -0.013 | 2.00E-06 | 4.65E-04 | PLXNA1 | 141.224 | -0.025 | 9.56E-06 | 1.32E-03 |
| RHOBTB3 | 971.326 | 0.019 | 1.26E-04 | 7.09E-03 | PRDM1 | 139.036 | 0.031 | 3.52E-05 | 3.14E-03 |
| REEP1 | 946.662 | -0.012 | 2.11E-05 | 2.24E-03 | CRYBG3 | 137.285 | 0.020 | 8.36E-05 | 5.43E-03 |
| GAB1 | 945.797 | 0.017 | 1.10E-05 | 1.39E-03 | C2orf27A | 137.080 | 0.022 | 3.56E-05 | 3.14E-03 |
| MTHFD2L | 880.484 | 0.015 | 1.69E-04 | 8.55E-03 | BMS1P21 | 135.301 | 0.027 | 5.39E-05 | 4.06E-03 |
| NUMBL | 858.624 | -0.014 | 6.30E-05 | 4.50E-03 | LSM5 | 134.670 | 0.015 | 1.43E-04 | 7.67E-03 |
| TPM3 | 847.801 | -0.010 | 5.02E-05 | 3.90E-03 | PTK7 | 134.378 | -0.016 | 4.11E-05 | 3.43E-03 |
| FAT1 | 845.279 | -0.041 | 2.55E-05 | 2.60E-03 | NEDD4 | 134.199 | -0.034 | 1.00E-05 | 1.33E-03 |
| CRIPT | 839.761 | 0.011 | 9.82E-05 | 6.04E-03 | BHLHE40-AS1 | 131.914 | 0.018 | 3.28E-09 | 3.39E-06 |
| MEG8 | 817.575 | -0.013 | 4.34E-05 | 3.53E-03 | LECT1 | 130.818 | 0.017 | 1.03E-04 | 6.14E-03 |
| ST3GAL2 | 815.630 | -0.016 | 1.64E-05 | 1.86E-03 | BAD | 128.868 | -0.014 | 1.89E-04 | 9.18E-03 |
| TMC3-AS1 | 774.822 | 0.028 | 1.35E-08 | 9.56E-06 | SEMA3G | 127.065 | 0.042 | 5.98E-07 | 1.98E-04 |
| KLHDC4 | 731.377 | -0.011 | 1.03E-04 | 6.14E-03 | DYRK1B | 126.604 | -0.021 | 1.89E-05 | 2.10E-03 |
| ZNF736 | 718.113 | 0.013 | 9.54E-05 | 5.92E-03 | ZDHHC23 | 125.799 | -0.018 | 1.38E-04 | 7.51E-03 |
| SLC8A1-AS1 | 701.507 | 0.016 | 1.01E-04 | 6.11E-03 | BUB1B | 123.089 | 0.021 | 1.53E-06 | 4.00E-04 |
| LOC101929710 | 701.122 | 0.019 | 3.54E-06 | 7.27E-04 | RANBP3L | 122.662 | 0.017 | 7.41E-05 | 5.12E-03 |
| KIF3B | 693.982 | -0.014 | 6.69E-06 | 1.07E-03 | FGF3 | 121.486 | -0.024 | 5.08E-07 | 1.76E-04 |
| CDK16 | 692.677 | -0.017 | 9.52E-06 | 1.32E-03 | NTNG2 | 118.478 | -0.028 | 1.70E-04 | 8.55E-03 |
| PIP4K2A | 692.212 | -0.035 | 1.57E-10 | 2.72E-07 | SPRED3 | 117.627 | -0.025 | 9.79E-06 | 1.33E-03 |
| CCDC146 | 686.609 | 0.017 | 3.86E-06 | 7.69E-04 | CMTM8 | 115.497 | -0.039 | 8.39E-06 | 1.23E-03 |
| SDK1 | 675.822 | -0.029 | 6.84E-06 | 1.07E-03 | LOC101927078 | 115.074 | -0.021 | 1.17E-05 | 1.45E-03 |
| TMEM130 | 662.918 | -0.018 | 7.33E-07 | 2.27E-04 | SPATA9 | 113.520 | 0.025 | 1.21E-06 | 3.36E-04 |
| RIMS3 | 661.640 | -0.017 | 2.72E-05 | 2.71E-03 | TP53INP2 | 107.962 | -0.015 | 1.50E-04 | 7.94E-03 |
| MRAP2 | 651.226 | -0.027 | 4.10E-07 | 1.57E-04 | JAML | 105.142 | 0.038 | 1.35E-08 | 9.56E-06 |
| LPCAT4 | 643.659 | -0.017 | 1.44E-04 | 7.70E-03 | LRRC69 | 103.255 | 0.021 | 5.85E-05 | 4.30E-03 |
| KCNK3 | 611.309 | -0.015 | 5.76E-05 | 4.29E-03 | PCYT1B | 100.865 | -0.023 | 1.49E-08 | 9.72E-06 |
| USP4 | 606.876 | -0.009 | 7.33E-06 | 1.10E-03 | GRAMD4 | 93.623 | -0.017 | 1.04E-05 | 1.36E-03 |
| RAI2 | 599.661 | -0.014 | 1.94E-05 | 2.13E-03 | NAB2 | 92.518 | -0.028 | 4.15E-07 | 1.57E-04 |
| ABCA17P | 597.623 | 0.012 | 1.95E-06 | 4.65E-04 | LINC00499 | 92.305 | 0.019 | 6.23E-05 | 4.50E-03 |

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|---|---|---|---|---|---|---|---|---|---|
| SYN3 | 571.141 | 0.045 | 9.43E-06 | 1.32E-03 | P4HA2-AS1 | 92.247 | 0.030 | 6.73E-09 | 5.81E-06 |
| DAO | 564.826 | -0.015 | 1.26E-06 | 3.42E-04 | LOC101929415 | 87.551 | 0.094 | 1.86E-11 | 5.79E-08 |
| WWC2 | 562.806 | -0.032 | 3.14E-08 | 1.62E-05 | ATXN7L2 | 86.354 | -0.016 | 1.71E-04 | 8.58E-03 |
| FMNL3 | 542.089 | -0.013 | 9.36E-05 | 5.84E-03 | SLC38A7 | 83.233 | -0.017 | 1.60E-04 | 8.28E-03 |
| APH1B | 539.205 | 0.012 | 1.95E-04 | 9.32E-03 | SBNO2 | 82.451 | -0.018 | 7.46E-05 | 5.13E-03 |
| ACOT7 | 526.573 | -0.016 | 1.32E-04 | 7.34E-03 | C2orf73 | 82.230 | 0.020 | 1.95E-04 | 9.32E-03 |
| MGAT3 | 523.255 | -0.022 | 1.77E-06 | 4.38E-04 | LOC101926941 | 81.438 | -0.032 | 2.11E-04 | 9.78E-03 |
| LOC105378385 | 510.612 | 0.022 | 2.07E-04 | 9.68E-03 | MIR646HG | 79.857 | 0.054 | 9.90E-06 | 1.33E-03 |
| GYS1 | 499.337 | -0.016 | 6.00E-05 | 4.35E-03 | ACHE | 78.961 | -0.021 | 6.49E-06 | 1.05E-03 |
| BEST3 | 490.054 | 0.023 | 1.70E-07 | 7.15E-05 | LOC100506393 | 75.008 | 0.024 | 4.89E-06 | 8.54E-04 |
| SYT12 | 489.549 | -0.015 | 7.02E-05 | 4.88E-03 | GSTO2 | 74.993 | 0.029 | 1.09E-04 | 6.43E-03 |
| UGGT2 | 480.980 | -0.057 | 2.64E-06 | 5.77E-04 | ZNF703 | 73.641 | -0.021 | 1.52E-05 | 1.79E-03 |
| CATSPERG | 464.091 | -0.033 | 1.50E-08 | 9.72E-06 | SCGN | 72.334 | 0.075 | 7.18E-09 | 5.87E-06 |
| ZYX | 460.598 | -0.024 | 2.12E-05 | 2.24E-03 | C1orf146 | 71.399 | 0.017 | 1.14E-04 | 6.65E-03 |
| MAP6D1 | 456.730 | -0.018 | 3.62E-05 | 3.18E-03 | FAM53A | 71.116 | -0.018 | 4.23E-05 | 3.46E-03 |
| DGKA | 453.066 | -0.010 | 3.68E-05 | 3.21E-03 | HPN | 69.661 | -0.019 | 1.53E-04 | 8.02E-03 |
| UBE4A | 446.905 | 0.014 | 1.13E-06 | 3.20E-04 | LOC101928203 | 69.012 | 0.043 | 4.88E-10 | 6.27E-07 |
| MEF2C-AS1 | 436.410 | 0.026 | 1.22E-10 | 2.36E-07 | SOX13 | 67.867 | 0.031 | 4.91E-07 | 1.73E-04 |
| PHF10 | 429.336 | 0.011 | 2.04E-05 | 2.19E-03 | AHRR | 67.783 | -0.022 | 2.66E-08 | 1.47E-05 |
| LRPAP1 | 421.084 | -0.018 | 1.07E-04 | 6.33E-03 | RASIP1 | 66.766 | -0.016 | 4.03E-05 | 3.40E-03 |
| CFAP53 | 416.274 | 0.014 | 5.43E-05 | 4.08E-03 | SURF2 | 65.825 | -0.022 | 1.27E-05 | 1.55E-03 |
| ACAP3 | 404.604 | -0.023 | 3.60E-06 | 7.27E-04 | HCN2 | 65.312 | -0.023 | 3.49E-05 | 3.13E-03 |
| SYT3 | 399.161 | -0.015 | 1.10E-05 | 1.39E-03 | LINC00963 | 62.888 | -0.019 | 1.47E-05 | 1.74E-03 |
| ELMOD1 | 397.720 | 0.017 | 4.84E-06 | 8.54E-04 | LMNTD2 | 62.775 | -0.027 | 2.54E-06 | 5.73E-04 |
| PXDNL | 390.913 | 0.014 | 1.83E-04 | 9.05E-03 | MAMSTR | 60.729 | -0.020 | 3.74E-05 | 3.24E-03 |
| NAA20 | 379.461 | 0.009 | 1.12E-05 | 1.40E-03 | GCK | 59.850 | 0.025 | 2.15E-05 | 2.25E-03 |
| ALS2CR11 | 367.106 | 0.017 | 1.96E-05 | 2.13E-03 | MPP6 | 55.651 | -0.031 | 2.74E-05 | 2.71E-03 |
| ARHGAP32 | 366.765 | 0.051 | 3.52E-07 | 1.40E-04 | STAB2 | 53.476 | 0.018 | 4.23E-05 | 3.46E-03 |
| AP1S3 | 365.601 | -0.020 | 8.69E-06 | 1.26E-03 | RSPO2 | 52.630 | 0.032 | 6.17E-08 | 3.00E-05 |
| KCNIP2 | 360.911 | -0.013 | 5.06E-05 | 3.91E-03 | ERBIN | 51.559 | 0.028 | 1.57E-06 | 4.01E-04 |
| RHBG | 359.397 | -0.023 | 8.18E-05 | 5.39E-03 | CLIC5 | 50.025 | 0.022 | 2.00E-04 | 9.44E-03 |

**[00306]** The RNAseq results for the 139 genes in basket cells having significantly altered expression with age are shown in Table 46. The log2 fold changes for the sorted nuclei from basket cells from each human sample compared to the normalized expression for sorted nuclei from granule cells across all samples are shown in Table 46. Negative values indicate reduced expression in the nuclei of the subject compared to the normalized value across nuclei from all samples, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 46. Log2 fold change of expression of genes in basket cells**

| | Log2 fold change of expression | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | xk | tm | wo | wc | wi | pk | vm | wl | sg | or | lt | zh | ko | kq | ke | ai |
| **Gene** | | | | | | | | | | | | | | | | |
| ACER3 | -0.43 | -0.46 | -0.43 | -0.01 | -0.35 | 0.08 | -0.27 | -0.12 | 0.22 | 0.30 | -0.12 | 0.05 | 0.00 | 0.33 | 0.75 | 0.46 |
| ACSS3 | -0.24 | 0.12 | -0.47 | -0.34 | -0.80 | -0.31 | -0.33 | -0.53 | -0.93 | 0.03 | -0.47 | -0.10 | 0.35 | 1.28 | 0.87 | 1.90 |
| ADAMTS2 | 0.55 | 0.00 | 0.36 | 0.67 | 0.22 | 0.20 | 0.00 | 0.12 | 0.00 | 0.30 | -0.43 | -0.04 | -0.59 | -0.28 | -0.33 | -0.76 |
| ADAMTS9 | 0.78 | 0.64 | 0.17 | 0.64 | -0.11 | 0.60 | 0.22 | 0.16 | 0.12 | 0.07 | -0.03 | -0.12 | -1.01 | -1.42 | 0.09 | -0.80 |
| ADAMTSL3 | -0.57 | 0.05 | -0.51 | -0.54 | -0.19 | -0.21 | 0.06 | -0.12 | -0.04 | 0.40 | -0.18 | -0.08 | 0.76 | 0.27 | 0.37 | 0.53 |
| ADD2 | 0.20 | 0.09 | 0.34 | 0.10 | 0.23 | 0.00 | -0.10 | 0.00 | 0.01 | -0.05 | -0.02 | 0.10 | -0.25 | -0.11 | -0.23 | -0.30 |
| ADGRL3 | 0.27 | 0.08 | 0.31 | -0.05 | 0.20 | 0.28 | 0.29 | 0.08 | -0.07 | -0.08 | -0.08 | -0.25 | -0.31 | -0.38 | -0.11 | -0.20 |
| AKAP13 | -0.41 | -0.06 | -0.31 | -0.12 | -0.70 | -0.14 | -0.31 | -0.12 | -0.27 | 0.00 | 0.01 | 0.12 | 0.21 | 0.69 | 0.64 | 0.76 |
| ALOX5 | -0.35 | -0.28 | -0.95 | -0.19 | -0.23 | -0.04 | 0.14 | -0.12 | -0.14 | -0.18 | -0.16 | 0.35 | 0.62 | 0.33 | 1.04 | 0.17 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALS2CR11 | -0.40 | -0.49 | -0.26 | -0.29 | -0.49 | 0.06 | 0.36 | -0.36 | 0.11 | -0.08 | 0.61 | -0.22 | 0.21 | 0.06 | 0.48 | 0.70 |
| ARHGEF10L | 0.18 | 0.06 | 0.31 | 0.23 | 0.17 | 0.06 | -0.09 | 0.02 | 0.01 | 0.03 | -0.10 | 0.12 | -0.21 | -0.29 | -0.04 | -0.45 |
| ARHGEF6 | -0.28 | -0.11 | -0.66 | -0.30 | -0.51 | -0.09 | -0.08 | -0.28 | -0.69 | -0.05 | -0.08 | 0.44 | 0.19 | 0.74 | 0.81 | 0.97 |
| ASIC1 | 0.39 | 0.29 | 0.60 | 0.24 | 0.48 | 0.19 | -0.03 | 0.16 | 0.02 | -0.06 | -0.15 | -0.05 | -0.70 | -0.18 | -0.37 | -0.83 |
| ASIC2 | 0.39 | 0.56 | 0.32 | 0.21 | 0.19 | 0.59 | 0.13 | 0.01 | -0.02 | 0.12 | -0.12 | 0.03 | -0.89 | -0.39 | -0.29 | -0.84 |
| ATP6V0B | 0.34 | -0.08 | 0.70 | 0.09 | 0.41 | 0.00 | -0.06 | 0.55 | 0.23 | 0.06 | 0.06 | -0.22 | -0.15 | -0.79 | -0.45 | -0.68 |
| BMP3 | -0.38 | -0.69 | -0.78 | -0.34 | -0.16 | -0.29 | -0.13 | 0.33 | 0.77 | 0.06 | -0.23 | 0.36 | 0.12 | 0.22 | 0.25 | 0.89 |
| BTBD11 | 0.11 | 0.17 | 0.36 | 0.21 | 0.03 | 0.17 | -0.01 | -0.07 | -0.12 | 0.02 | -0.02 | 0.04 | -0.31 | -0.22 | -0.27 | -0.09 |
| C11orf87 | 0.75 | 0.85 | 0.97 | 0.16 | 0.26 | 0.56 | -0.31 | -0.31 | -0.13 | 0.00 | 0.20 | -0.15 | -0.45 | -0.44 | -0.95 | -1.00 |
| C14orf1 | 0.26 | 0.20 | 0.36 | 0.09 | -0.01 | 0.20 | -0.05 | 0.02 | 0.24 | 0.09 | -0.08 | -0.17 | -0.13 | -0.28 | -0.33 | -0.41 |
| C4orf22 | -0.79 | -0.66 | -0.96 | -0.62 | 0.24 | -0.30 | 0.02 | 0.39 | 0.44 | 0.24 | 0.02 | 0.20 | 0.20 | 0.13 | 0.15 | 1.29 |
| C9orf135 | -0.30 | -0.39 | -0.60 | -0.50 | 0.03 | 0.25 | -0.42 | 0.12 | 0.12 | 0.41 | -0.63 | -0.05 | 0.88 | 0.47 | -0.36 | 0.96 |
| CA7 | 0.62 | 0.30 | 0.54 | 0.23 | 0.06 | -0.11 | -0.16 | 0.39 | -0.09 | -0.21 | -0.51 | -0.01 | 0.02 | 0.01 | -0.51 | -0.57 |
| CACNA1D | 0.16 | 0.00 | 0.17 | 0.16 | 0.04 | 0.03 | 0.10 | 0.06 | 0.07 | -0.07 | -0.04 | -0.05 | -0.05 | -0.23 | -0.19 | -0.18 |
| CACNA2D3 | -1.43 | -0.73 | -0.79 | -1.41 | -0.15 | -1.36 | 0.04 | -0.11 | 0.52 | 0.12 | 0.10 | 0.18 | 1.41 | 1.61 | 0.24 | 1.74 |
| CACNB4 | 0.26 | 0.17 | 0.47 | 0.16 | 0.14 | 0.06 | -0.06 | 0.03 | -0.06 | -0.14 | -0.16 | 0.08 | -0.21 | -0.29 | -0.21 | -0.25 |
| CADM3 | 0.44 | 0.22 | 0.15 | 0.03 | 0.21 | 0.10 | 0.00 | 0.11 | 0.25 | -0.03 | -0.04 | -0.04 | -0.59 | -0.08 | -0.19 | -0.56 |
| CADPS | 0.28 | 0.12 | 0.13 | 0.10 | 0.08 | 0.28 | 0.18 | 0.06 | -0.09 | 0.09 | -0.01 | -0.07 | -0.45 | -0.24 | -0.15 | -0.33 |
| CALR | 0.29 | 0.24 | 0.70 | 0.23 | 0.66 | 0.02 | -0.06 | 0.28 | -0.04 | -0.30 | 0.42 | -0.05 | -0.46 | -0.89 | -0.13 | -0.90 |
| CDK15 | -0.62 | 0.13 | -0.61 | -0.77 | -0.61 | -0.19 | 0.21 | -0.18 | -0.61 | 0.09 | -0.69 | 0.54 | 0.03 | 1.76 | 0.31 | 1.21 |
| CFAP46 | -0.57 | -0.57 | -0.39 | -0.07 | -0.21 | 0.25 | -0.09 | -0.25 | 0.51 | 0.22 | -0.28 | 0.36 | 0.04 | 0.50 | -0.08 | 0.64 |
| CLSTN3 | 0.09 | 0.01 | 0.72 | 0.30 | 0.51 | -0.09 | -0.11 | 0.11 | 0.04 | -0.25 | -0.07 | 0.09 | -0.26 | -0.32 | -0.35 | -0.43 |
| CNTN3 | -0.42 | -0.40 | -0.17 | -0.32 | -0.67 | -0.28 | -0.43 | -0.08 | 0.52 | 0.28 | 0.31 | -0.13 | 0.37 | 0.61 | 0.02 | 0.80 |
| CPNE8 | -0.26 | -0.38 | -0.05 | -0.03 | -0.68 | -0.14 | -0.31 | -0.45 | -0.37 | 0.05 | -0.07 | 0.01 | 0.25 | 0.63 | 0.98 | 0.82 |
| CYYR1 | -0.44 | -0.20 | -0.64 | -0.33 | -0.31 | 0.30 | -0.02 | -0.16 | 0.35 | -0.02 | -0.08 | 0.05 | 0.45 | 0.71 | -0.28 | 0.61 |
| DBH | 0.09 | 0.49 | 0.22 | 0.37 | 0.23 | 0.17 | -0.35 | 0.31 | 0.08 | -0.06 | -0.21 | 0.20 | -0.42 | -0.16 | -0.25 | -0.72 |
| DCC | -0.55 | 0.29 | -0.46 | -0.76 | -1.12 | -0.48 | -0.64 | -0.28 | 0.69 | 0.11 | -0.73 | 0.28 | 0.44 | 0.87 | 1.11 | 1.22 |
| DDO | -0.09 | -0.46 | -0.78 | -0.84 | -0.23 | 0.20 | -0.08 | -0.17 | 0.39 | 0.04 | 0.32 | 0.20 | 0.19 | 0.67 | 0.46 | 0.21 |
| DGKH | 0.31 | 0.08 | 0.34 | 0.12 | 0.06 | 0.37 | 0.11 | 0.12 | -0.12 | -0.12 | -0.12 | 0.01 | -0.18 | -0.47 | -0.27 | -0.25 |
| DISP3 | 0.25 | 0.15 | 0.41 | 0.28 | 0.10 | 0.17 | 0.00 | 0.16 | 0.14 | -0.06 | -0.17 | -0.18 | -0.55 | -0.03 | -0.47 | -0.23 |
| DLG1 | -0.46 | 0.04 | -0.59 | -0.34 | -0.13 | -0.01 | -0.16 | -0.09 | 0.00 | 0.15 | -0.04 | 0.08 | 0.19 | -0.25 | 1.02 | 0.60 |
| DLG4 | -0.06 | 0.28 | 0.73 | 0.60 | 0.17 | 0.05 | -0.06 | -0.15 | -0.02 | -0.06 | -0.22 | 0.00 | -0.14 | -0.25 | 0.00 | -0.86 |
| DMGDH | -0.36 | -0.01 | -0.90 | -0.69 | -0.44 | 0.06 | 0.27 | 0.11 | -0.67 | -0.07 | -0.27 | 0.10 | 0.92 | 0.78 | 0.22 | 0.93 |
| DNAH6 | -0.51 | -0.38 | -0.16 | -0.32 | 0.05 | 0.09 | -0.04 | -0.33 | 0.22 | -0.11 | 0.19 | 0.25 | 0.18 | 0.19 | -0.21 | 0.87 |
| DNER | 0.22 | -0.01 | 0.44 | 0.03 | 0.22 | 0.14 | 0.05 | 0.08 | -0.05 | -0.04 | -0.05 | 0.11 | -0.29 | -0.38 | -0.31 | -0.16 |
| E2F3 | 0.32 | 0.12 | 0.23 | 0.10 | 0.22 | 0.03 | 0.05 | 0.17 | 0.03 | -0.20 | -0.19 | 0.20 | -0.13 | -0.48 | -0.22 | -0.25 |
| ECHDC2 | -0.16 | -0.03 | -0.50 | -0.15 | -0.14 | -0.47 | -0.11 | -0.20 | -0.06 | 0.14 | -0.01 | 0.16 | 0.54 | 0.43 | 0.35 | 0.22 |
| ELOVL2 | -0.20 | 0.11 | -1.06 | -0.54 | -0.26 | 0.11 | -0.06 | -0.18 | -0.06 | 0.22 | -0.27 | -0.03 | 0.55 | 0.64 | 0.57 | 0.47 |
| ENPP1 | -0.71 | -0.23 | -0.30 | -0.81 | -0.10 | -0.82 | 0.20 | 0.23 | 0.17 | -0.09 | 0.39 | -0.05 | 0.86 | 0.31 | -0.03 | 0.98 |
| EPHB1 | 0.17 | 0.28 | 0.40 | 0.17 | 0.58 | -0.26 | 0.10 | 0.39 | 0.24 | 0.08 | 0.23 | 0.07 | -0.62 | -0.50 | -0.32 | -1.04 |
| ERC2 | 0.19 | 0.02 | 0.29 | 0.17 | 0.09 | 0.10 | 0.04 | 0.02 | -0.17 | -0.11 | -0.07 | 0.10 | -0.22 | -0.12 | -0.19 | -0.13 |
| FAM135B | 0.22 | 0.01 | 0.18 | 0.18 | 0.27 | 0.04 | -0.01 | 0.02 | -0.04 | -0.09 | -0.11 | 0.08 | -0.15 | -0.17 | -0.22 | -0.22 |
| FAM46C | -0.77 | -0.50 | -0.39 | -0.49 | 0.06 | -0.44 | 0.15 | -0.22 | 0.69 | -0.03 | 0.02 | 0.27 | 0.99 | 0.37 | -0.73 | 1.02 |
| FBXL21 | 1.32 | 0.31 | 0.00 | 0.44 | -0.31 | 0.69 | -0.13 | -0.20 | 0.60 | -0.04 | -0.21 | -0.33 | -0.54 | -0.80 | -0.30 | -0.50 |
| FGF5 | -0.86 | -0.35 | -1.15 | -0.64 | 0.40 | -0.44 | -0.16 | 0.02 | 0.31 | 0.32 | 0.29 | 0.21 | 0.62 | 0.37 | 0.03 | 1.01 |
| FHOD3 | 0.15 | 0.61 | 0.29 | 0.23 | 0.09 | 0.19 | -0.13 | -0.08 | 0.10 | 0.47 | -0.23 | 0.24 | -0.56 | -0.59 | -0.30 | -0.50 |
| FKBP5 | -1.16 | 0.08 | -0.21 | -1.12 | -1.00 | -1.09 | -0.16 | -0.85 | -0.11 | -0.04 | -0.18 | -0.09 | 2.01 | 1.39 | 0.19 | 2.35 |
| FRMPD4 | 0.25 | 0.19 | 0.14 | -0.01 | 0.21 | 0.21 | 0.15 | 0.09 | -0.04 | -0.12 | -0.05 | -0.13 | -0.44 | -0.07 | -0.19 | -0.19 |
| GABBR2 | 0.14 | 0.17 | 0.18 | 0.04 | 0.18 | 0.07 | 0.01 | 0.07 | 0.05 | -0.12 | -0.10 | 0.07 | -0.32 | -0.02 | -0.17 | -0.25 |
| GALNT18 | 0.23 | 0.15 | 0.18 | 0.17 | 0.07 | 0.20 | -0.05 | 0.01 | -0.05 | -0.03 | -0.16 | 0.02 | -0.34 | 0.02 | -0.16 | -0.25 |
| GAP43 | 0.28 | 0.40 | 0.40 | -0.05 | 0.40 | 0.17 | 0.21 | 0.06 | -0.04 | -0.02 | 0.02 | 0.10 | -0.46 | -0.56 | -0.30 | -0.61 |
| GBAP1 | -0.03 | 0.73 | 0.81 | 0.59 | -0.02 | -0.17 | -0.25 | 0.21 | -0.32 | 0.27 | -0.33 | 0.05 | -0.76 | -0.34 | -0.07 | -0.37 |
| GDF11 | 0.32 | 0.27 | 0.33 | 0.16 | 0.17 | 0.16 | 0.03 | -0.06 | 0.31 | 0.06 | -0.08 | -0.05 | -0.47 | -0.16 | -0.56 | -0.43 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GPR161 | 0.33 | 0.11 | 0.39 | 0.35 | -0.25 | 0.06 | 0.02 | 0.13 | -0.22 | 0.01 | -0.01 | 0.18 | -0.17 | -0.40 | -0.22 | -0.33 |
| GPR63 | 0.76 | 0.30 | 0.27 | 0.62 | -0.02 | -0.21 | 0.39 | 0.47 | -0.89 | -0.08 | -0.05 | 0.19 | -0.33 | -0.89 | -0.43 | -0.11 |
| GREB1 | -0.14 | -0.21 | -0.55 | -0.23 | -0.32 | 0.11 | -0.34 | -0.21 | 0.15 | 0.18 | 0.08 | -0.10 | 0.49 | 0.57 | 0.28 | 0.24 |
| HCN4 | 0.38 | 0.66 | 0.15 | 0.37 | 0.12 | 0.17 | -0.17 | -0.15 | 0.06 | 0.09 | 0.01 | 0.07 | -0.29 | 0.05 | -0.63 | -0.88 |
| HECTD2-AS1 | -0.44 | -0.17 | 0.04 | -0.30 | -0.15 | -0.20 | -0.06 | -0.40 | -0.03 | -0.22 | 0.19 | -0.12 | -0.11 | 0.75 | 0.61 | 0.61 |
| IQSEC3 | 0.20 | 0.23 | 0.50 | 0.16 | 0.36 | 0.00 | -0.13 | 0.03 | -0.02 | 0.00 | -0.18 | 0.35 | -0.41 | -0.22 | -0.17 | -0.69 |
| KCNA4 | -0.17 | -0.44 | 0.15 | -0.51 | -0.36 | -0.24 | -0.38 | -0.52 | 0.07 | -0.13 | 0.52 | -0.28 | 0.38 | 0.27 | 0.88 | 0.75 |
| KIF26B | 0.11 | 0.42 | 0.51 | 0.12 | 0.25 | -0.01 | 0.06 | 0.09 | -0.28 | 0.01 | 0.16 | 0.23 | -0.73 | -0.37 | -0.10 | -0.47 |
| KRT222 | 0.41 | 0.12 | 0.21 | -0.05 | 0.13 | 0.58 | 0.26 | 0.23 | -0.18 | 0.03 | 0.06 | -0.11 | -0.50 | -0.59 | -0.35 | -0.25 |
| LACTB2-AS1 | -0.40 | -0.14 | -0.37 | -0.32 | -0.18 | 0.17 | -0.16 | -0.48 | -0.21 | 0.50 | 0.22 | 0.06 | -0.01 | 0.28 | 0.30 | 0.75 |
| LHFPL3 | 0.46 | 0.30 | 0.61 | 0.14 | 0.29 | 0.17 | -0.09 | -0.10 | 0.05 | -0.14 | -0.33 | -0.07 | -0.71 | -0.12 | -0.36 | -0.10 |
| LINC00457 | -0.43 | -0.31 | -0.87 | -0.44 | -0.40 | -0.29 | 0.21 | -0.34 | 0.74 | 0.18 | -0.36 | 0.04 | 0.37 | 0.81 | -0.03 | 1.10 |
| LINC00499 | -0.37 | -0.34 | -0.51 | -0.39 | -0.73 | -0.01 | -0.11 | -0.20 | -0.01 | -0.13 | -0.20 | -0.17 | 0.94 | 0.21 | 0.13 | 1.90 |
| LINC01158 | -0.55 | -0.06 | -0.88 | -0.37 | 0.19 | -0.65 | 0.15 | -0.24 | 0.33 | 0.38 | -0.63 | 0.40 | 0.58 | 0.37 | 0.53 | 0.45 |
| LOC105377448 | -0.64 | 0.11 | -0.52 | -0.36 | -0.24 | 0.07 | -0.29 | 0.06 | -0.29 | 0.33 | -0.18 | 0.12 | 0.93 | 0.12 | 0.40 | 0.38 |
| LOC285692 | -0.51 | -0.44 | -1.15 | -0.57 | 0.01 | -0.10 | -0.28 | 0.04 | -0.14 | 0.48 | -0.75 | 0.07 | 1.63 | 0.51 | -0.14 | 1.33 |
| LOC653602 | 0.81 | 0.36 | -0.09 | 0.03 | -0.18 | 0.58 | 0.24 | 0.21 | 0.14 | 0.24 | 0.06 | -0.09 | -0.81 | -0.47 | -0.36 | -0.70 |
| LPCAT4 | 0.28 | -0.10 | 0.51 | 0.48 | 0.53 | -0.04 | -0.04 | 0.22 | -0.03 | -0.14 | -0.30 | 0.02 | -0.43 | -0.33 | -0.08 | -0.57 |
| MARC2 | -0.27 | -0.18 | -0.34 | -0.49 | -0.33 | 0.26 | -0.25 | -0.09 | 0.15 | 0.28 | 0.01 | 0.06 | 0.25 | 0.24 | 0.28 | 0.43 |
| MARCH11 | 0.41 | 0.12 | 0.15 | 0.05 | 0.23 | 0.21 | 0.17 | 0.12 | -0.09 | -0.26 | -0.11 | -0.03 | -0.29 | -0.26 | -0.18 | -0.24 |
| MASP1 | 0.50 | -0.08 | 0.47 | 0.38 | 0.37 | 0.39 | 0.33 | -0.17 | -0.25 | 0.06 | 0.49 | -0.22 | -0.68 | -0.45 | -0.27 | -0.87 |
| MEGF10 | 0.27 | 0.13 | 0.15 | -0.06 | 0.08 | 0.27 | 0.13 | 0.05 | -0.05 | -0.16 | 0.00 | -0.06 | -0.11 | -0.27 | -0.20 | -0.15 |
| MTHFSD | 0.38 | 0.22 | 0.64 | 0.15 | 0.24 | -0.34 | -0.08 | 0.12 | -0.16 | -0.25 | -0.07 | 0.16 | -0.32 | -0.19 | -0.23 | -0.28 |
| MYRIP | -0.62 | -0.10 | -0.48 | -0.57 | 0.03 | 0.02 | 0.06 | -0.04 | 0.24 | 0.36 | -0.10 | 0.31 | -0.15 | 0.03 | 0.13 | 0.89 |
| NHS | 0.29 | 0.24 | 0.39 | 0.16 | 0.17 | -0.03 | -0.03 | 0.10 | -0.03 | 0.00 | -0.17 | 0.05 | -0.39 | -0.35 | -0.31 | -0.10 |
| NOS1 | 0.17 | 0.17 | 0.27 | 0.13 | 0.24 | 0.13 | 0.03 | -0.05 | -0.02 | -0.08 | 0.06 | -0.07 | -0.12 | -0.13 | -0.09 | -0.63 |
| NPL | -0.36 | -0.12 | -0.17 | -0.54 | -0.31 | -0.56 | 0.09 | -0.15 | -0.17 | 0.10 | 0.11 | 0.10 | 0.57 | 0.53 | 0.28 | 0.59 |
| NPY6R | -0.15 | -0.19 | -0.45 | -0.20 | -0.09 | -0.02 | -0.12 | -0.12 | -0.05 | -0.03 | 0.37 | -0.02 | 0.35 | 0.31 | 0.08 | 0.33 |
| NTNG1 | 0.77 | 0.46 | 0.12 | 0.30 | 0.19 | 0.26 | -0.03 | 0.10 | 0.06 | -0.28 | -0.54 | -0.19 | -0.54 | -0.31 | -0.09 | -0.29 |
| NXNL2 | 1.10 | -0.41 | 1.75 | 1.11 | -0.19 | -0.35 | -0.04 | -0.39 | -0.54 | -0.49 | -0.01 | -0.25 | -0.08 | -0.25 | -0.71 | -0.25 |
| PAQR6 | -0.12 | -0.33 | -0.51 | -0.18 | -0.28 | -0.40 | -0.23 | -0.16 | 0.07 | 0.15 | -0.40 | -0.16 | -0.04 | 0.92 | 1.22 | 0.46 |
| PARM1 | 0.38 | 0.26 | 1.16 | 0.42 | 0.87 | -0.34 | -0.18 | 0.29 | 0.09 | 0.39 | -0.47 | 0.00 | -1.49 | -0.49 | -0.35 | -0.55 |
| PCP4 | 0.95 | 0.96 | 0.28 | 0.85 | -0.46 | 0.49 | -0.32 | -0.33 | -0.39 | -0.05 | -0.70 | 0.60 | -0.13 | -0.67 | -0.89 | -0.18 |
| PEBP4 | -0.08 | -0.45 | -0.58 | -0.59 | -0.82 | -0.56 | -0.19 | -0.52 | 0.23 | 0.21 | 0.02 | -0.19 | 0.46 | 1.30 | 0.67 | 1.11 |
| PHACTR2-AS1 | 0.20 | 0.34 | 0.24 | -0.06 | 0.38 | 0.05 | 0.22 | 0.04 | -0.10 | -0.17 | -0.10 | 0.14 | -0.28 | -0.19 | -0.06 | -0.64 |
| PHKA1 | -0.59 | -0.22 | -0.41 | -0.46 | 0.13 | 0.13 | -0.18 | -0.20 | 0.09 | 0.36 | 0.02 | 0.11 | -0.23 | -0.18 | 0.29 | 1.34 |
| PLPPR4 | 0.40 | 0.27 | 0.31 | 0.61 | 0.31 | 0.85 | 0.62 | -0.21 | 0.21 | -0.12 | 0.18 | -0.48 | -1.41 | -0.78 | -0.70 | -0.05 |
| PLXNA4 | 0.48 | 0.46 | 0.32 | 0.35 | 0.05 | 0.25 | -0.19 | -0.11 | -0.20 | 0.01 | -0.21 | 0.10 | -0.28 | -0.25 | -0.44 | -0.35 |
| PRKCG | 0.22 | -0.02 | 0.97 | 0.25 | 0.26 | 0.11 | -0.21 | -0.05 | -0.16 | 0.23 | -0.22 | 0.01 | -0.24 | -0.30 | -0.29 | -0.57 |
| RGMB | 0.46 | 0.22 | 0.58 | 0.09 | 0.27 | 0.36 | -0.09 | 0.07 | 0.16 | 0.06 | 0.32 | -0.07 | -0.50 | -0.46 | -0.71 | -0.76 |
| RNF212 | -0.32 | -0.13 | -0.35 | -0.44 | -0.07 | -0.16 | -0.03 | -0.40 | 0.19 | 0.58 | -0.02 | 0.21 | -0.12 | 0.26 | 0.42 | 0.38 |
| RNF215 | 0.29 | 0.41 | 0.78 | 0.13 | 0.62 | -0.26 | -0.08 | 0.07 | 0.15 | -0.36 | 0.00 | -0.46 | -0.17 | -0.08 | -0.62 | -0.42 |
| RORA | 0.19 | 0.28 | 0.09 | 0.09 | 0.25 | 0.32 | 0.23 | 0.08 | 0.10 | -0.08 | -0.01 | -0.07 | -0.59 | -0.24 | -0.18 | -0.46 |
| RPH3A | 0.37 | 0.51 | 0.49 | 0.13 | 0.37 | 0.65 | -0.47 | 0.05 | 0.02 | 0.17 | -0.51 | 0.07 | -0.68 | -0.27 | -0.45 | -0.43 |
| RPS6KA5 | -0.49 | -0.17 | -0.53 | -0.35 | -0.38 | 0.27 | 0.37 | -0.37 | -0.13 | 0.27 | 0.10 | -0.09 | 0.47 | 0.03 | 0.32 | 0.67 |
| SCN2B | 0.05 | 0.49 | 0.56 | 0.08 | 0.53 | -0.13 | -0.07 | 0.22 | -0.10 | -0.05 | 0.10 | 0.01 | 0.11 | -0.41 | -0.74 | -0.65 |
| SEPSECS | -0.07 | -0.39 | -0.12 | -0.32 | 0.06 | -0.36 | -0.08 | -0.29 | 0.30 | -0.06 | 0.08 | -0.06 | 0.33 | 0.19 | 0.08 | 0.71 |
| SEPSECS-AS1 | 0.16 | -0.97 | -0.79 | -1.06 | 0.11 | 0.10 | -0.19 | 0.14 | 0.22 | 0.12 | 0.30 | 0.23 | -0.01 | 0.28 | 0.61 | 0.78 |
| SHANK1 | 0.23 | 0.01 | 0.92 | 0.43 | 0.38 | -0.04 | -0.28 | 0.05 | -0.16 | -0.11 | -0.21 | 0.22 | -0.38 | -0.15 | -0.15 | -0.76 |
| SHANK2 | 0.08 | 0.12 | 0.42 | 0.18 | 0.33 | 0.11 | -0.03 | -0.08 | -0.07 | -0.02 | -0.06 | 0.08 | -0.29 | -0.06 | -0.20 | -0.52 |
| SLC12A5 | 0.19 | 0.07 | 0.37 | 0.15 | 0.10 | -0.04 | 0.07 | 0.15 | 0.10 | 0.16 | 0.17 | -0.07 | -0.19 | -0.38 | -0.40 | -0.44 |
| SLC17A4 | -0.41 | -0.08 | -0.28 | -0.93 | 0.08 | -0.57 | -0.09 | -0.02 | 0.23 | -0.15 | 0.00 | -0.26 | 0.52 | 0.81 | -0.28 | 1.42 |
| SLC25A29 | 0.27 | 0.50 | 0.28 | 0.43 | 0.05 | -0.18 | -0.19 | 0.15 | 0.01 | -0.15 | -0.10 | 0.20 | -0.23 | -0.20 | -0.11 | -0.74 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SLC26A8 | -0.06 | -0.49 | -0.14 | -0.60 | -0.33 | 0.04 | -0.36 | 0.05 | -0.12 | 0.26 | 0.33 | -0.19 | 0.14 | 0.73 | 0.36 | 0.38 |
| SLC35F4 | 0.55 | 0.29 | 0.42 | 0.58 | -0.11 | 0.14 | -0.07 | 0.11 | -0.37 | 0.00 | -0.41 | 0.29 | -0.49 | -0.58 | -0.30 | -0.07 |
| SLC8A3 | 0.65 | 0.18 | 0.19 | 0.13 | 0.37 | 0.31 | -0.01 | 0.07 | -0.09 | -0.02 | -0.15 | -0.01 | -0.64 | -0.08 | -0.24 | -0.67 |
| SPARCL1 | -0.77 | -0.10 | -0.57 | -0.72 | -0.59 | -0.52 | -0.18 | -0.20 | -0.21 | 0.30 | 0.14 | -0.02 | 0.74 | 1.26 | 0.32 | 1.12 |
| SPHK2 | 0.15 | -0.02 | 0.80 | 0.68 | 0.33 | -0.27 | -0.20 | 0.06 | -0.25 | -0.09 | 0.10 | -0.07 | -0.13 | -0.23 | -0.38 | -0.49 |
| SPON2 | -0.29 | -0.33 | -0.11 | -0.56 | 0.05 | -0.21 | 0.13 | -0.26 | 0.21 | -0.34 | -0.09 | -0.31 | 0.12 | 0.45 | 0.88 | 0.67 |
| ST6GAL2 | 0.51 | 0.31 | 0.32 | 0.13 | 0.33 | 0.25 | 0.02 | 0.10 | -0.13 | -0.20 | -0.02 | -0.16 | -0.37 | -0.38 | -0.22 | -0.47 |
| ST6GALNAC5 | -0.58 | -0.85 | -1.38 | -0.75 | -0.70 | -0.75 | -0.29 | 0.23 | 0.75 | 0.25 | 0.09 | 0.54 | 0.58 | 0.52 | 0.53 | 1.79 |
| STAT5A | -0.65 | -0.39 | -0.73 | -0.24 | -0.65 | -0.32 | -0.09 | 0.21 | -0.45 | -0.06 | -0.19 | -0.66 | 1.51 | 1.76 | 0.04 | 0.91 |
| STK33 | -0.29 | 0.17 | -0.69 | -0.59 | -0.48 | -0.13 | -0.06 | -0.28 | 0.24 | 0.16 | 0.10 | 0.20 | -0.17 | 0.30 | 0.51 | 1.02 |
| SV2C | 0.22 | -0.68 | -0.22 | -0.51 | 0.04 | -0.49 | -0.65 | -0.44 | 0.20 | 0.03 | -0.10 | -0.19 | 0.73 | 0.88 | -0.05 | 1.22 |
| SYT17 | -0.91 | 0.01 | -0.50 | -0.62 | 0.37 | -0.48 | -0.53 | -0.63 | 0.39 | 0.16 | 0.31 | 0.68 | -0.26 | 0.55 | 0.76 | 0.69 |
| TEX9 | -0.39 | -0.56 | -1.01 | -0.33 | -0.63 | 0.29 | 0.20 | -0.16 | -0.08 | 0.37 | 0.17 | -0.08 | 0.30 | 0.37 | -0.10 | 1.63 |
| TFAP2B | 0.62 | 0.07 | 0.30 | 0.19 | 0.28 | 0.47 | -0.08 | 0.03 | -0.04 | -0.12 | -0.15 | 0.09 | -0.68 | -0.09 | -0.24 | -0.64 |
| THSD7B | 0.71 | 1.09 | 1.30 | 0.78 | -0.43 | 0.78 | 0.39 | 0.17 | 0.19 | -0.23 | -0.76 | 0.52 | -0.76 | -1.36 | -0.45 | -1.95 |
| TMEM178B | 0.15 | 0.14 | 0.21 | 0.02 | 0.13 | 0.03 | 0.10 | 0.10 | 0.00 | -0.13 | -0.06 | 0.05 | -0.32 | -0.07 | -0.16 | -0.20 |
| TRAF5 | 0.40 | 0.02 | 0.66 | 0.13 | -0.09 | 0.22 | 0.05 | 0.04 | -0.19 | -0.06 | -0.23 | -0.10 | -0.18 | -0.09 | -0.21 | -0.38 |
| TRIM67 | 0.54 | 0.00 | 0.33 | 0.46 | 0.17 | 0.22 | -0.17 | 0.04 | -0.09 | -0.24 | -0.25 | 0.23 | -0.61 | -0.06 | -0.29 | -0.30 |
| TTC23L | -0.28 | -0.06 | -0.54 | -0.42 | 0.00 | 0.09 | -0.20 | -0.42 | 0.03 | 0.22 | -0.14 | 0.04 | 0.37 | 0.43 | 0.31 | 0.56 |
| TUNAR | 0.73 | 0.28 | 0.47 | 0.49 | 0.29 | 0.07 | -0.65 | -0.05 | -0.21 | -0.07 | -0.44 | 0.01 | -0.24 | -0.20 | -0.20 | -0.27 |
| UBASH3B | 0.23 | 0.41 | 0.58 | 0.00 | 0.37 | -0.11 | 0.12 | 0.06 | 0.03 | -0.17 | -0.02 | 0.08 | -0.38 | -0.30 | -0.03 | -0.88 |
| UNC5D | 0.23 | 0.20 | 0.36 | -0.02 | 0.20 | 0.01 | 0.24 | -0.05 | -0.14 | -0.18 | -0.08 | 0.06 | -0.30 | -0.32 | -0.14 | -0.07 |
| ZNF124 | -0.59 | -0.10 | -0.02 | -0.16 | -0.31 | 0.00 | -0.18 | -0.14 | -0.11 | -0.31 | -0.23 | 0.29 | 0.54 | 0.33 | 0.34 | 0.64 |
| ZYG11A | -0.68 | -0.08 | -0.28 | -0.47 | -0.11 | -0.33 | -0.28 | 0.04 | 0.51 | 0.36 | 0.03 | 0.05 | 0.23 | 0.71 | -0.04 | 0.35 |

**[00307]** The RNAseq results for the differentially expressed genes (adjusted p <0.01, baseMean > 50) in basket cells across all samples is shown in Table 47.

**Table 47. Differentially expressed genes in basket cells across all samples**

| Gene | Base Mean | Log2 Change | p-value | p-adj | Gene | Base Mean | Log2 Change | p-value | p-adj |
|---|---|---|---|---|---|---|---|---|---|
| RORA | 329335.261 | -0.013 | 4.09E-06 | 1.41E-03 | LOC285692 | 593.698 | 0.038 | 1.16E-07 | 1.03E-04 |
| FRMPD4 | 61047.625 | -0.010 | 2.01E-05 | 4.10E-03 | ACER3 | 516.515 | 0.019 | 6.18E-07 | 3.29E-04 |
| UNC5D | 46606.506 | -0.010 | 7.14E-05 | 8.17E-03 | TEX9 | 507.648 | 0.031 | 1.42E-06 | 6.29E-04 |
| ADGRL3 | 36661.187 | -0.011 | 2.59E-05 | 4.56E-03 | SPARCL1 | 482.042 | 0.035 | 1.28E-11 | 5.42E-08 |
| CADPS | 34807.226 | -0.011 | 3.51E-06 | 1.29E-03 | DNAH6 | 452.114 | 0.017 | 5.40E-05 | 6.74E-03 |
| BTBD11 | 33267.028 | -0.009 | 1.09E-05 | 2.65E-03 | CALR | 447.022 | -0.023 | 7.00E-06 | 1.92E-03 |
| CACNA1D | 33174.962 | -0.007 | 5.34E-05 | 6.73E-03 | LINC00457 | 433.253 | 0.029 | 2.14E-07 | 1.58E-04 |
| SHANK2 | 27271.658 | -0.011 | 5.02E-05 | 6.47E-03 | LINC01158 | 428.457 | 0.022 | 3.53E-05 | 5.52E-03 |
| MARCH11 | 25430.282 | -0.012 | 3.05E-07 | 1.98E-04 | GREB1 | 412.201 | 0.017 | 6.99E-07 | 3.58E-04 |
| ASIC2 | 24222.474 | -0.023 | 4.63E-09 | 7.83E-06 | CYYR1 | 391.236 | 0.020 | 1.89E-05 | 3.90E-03 |
| DNER | 21146.088 | -0.011 | 2.15E-05 | 4.19E-03 | ST6GALNAC5 | 391.080 | 0.049 | 6.41E-15 | 5.41E-11 |
| ERC2 | 21084.069 | -0.008 | 2.76E-05 | 4.68E-03 | DCC | 380.998 | 0.032 | 2.18E-05 | 4.19E-03 |
| GALNT18 | 18181.019 | -0.009 | 3.47E-05 | 5.52E-03 | STK33 | 380.653 | 0.021 | 2.63E-05 | 4.59E-03 |
| LHFPL3 | 17505.419 | -0.016 | 4.33E-06 | 1.46E-03 | HCN4 | 341.112 | -0.018 | 2.45E-05 | 4.50E-03 |
| CACNB4 | 17319.515 | -0.012 | 8.89E-09 | 1.37E-05 | TTC23L | 341.095 | 0.018 | 3.21E-07 | 2.01E-04 |
| PLXNA4 | 16464.759 | -0.017 | 6.77E-10 | 1.43E-06 | SCN2B | 327.526 | -0.018 | 9.11E-05 | 9.39E-03 |
| MEGF10 | 15961.668 | -0.008 | 1.01E-04 | 9.92E-03 | FGF5 | 318.878 | 0.031 | 1.39E-08 | 1.81E-05 |
| CACNA2D3 | 15563.645 | 0.056 | 2.62E-17 | 4.43E-13 | SLC25A29 | 309.817 | -0.016 | 2.56E-05 | 4.55E-03 |
| FAM135B | 13722.346 | -0.008 | 1.45E-05 | 3.30E-03 | SLC26A8 | 298.198 | 0.018 | 1.89E-05 | 3.90E-03 |
| GABBR2 | 12619.017 | -0.008 | 7.93E-05 | 8.65E-03 | PCP4 | 295.208 | -0.027 | 1.02E-04 | 9.92E-03 |
| UBASH3B | 11127.363 | -0.016 | 9.47E-06 | 2.40E-03 | ZNF124 | 293.931 | 0.017 | 7.07E-05 | 8.17E-03 |
| NOS1 | 9457.029 | -0.010 | 8.23E-05 | 8.85E-03 | C14orf1 | 284.530 | -0.012 | 3.47E-05 | 5.52E-03 |
| FHOD3 | 9184.114 | -0.016 | 9.66E-05 | 9.83E-03 | ATP6V0B | 278.929 | -0.021 | 3.70E-05 | 5.64E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EPHB1 | 9178.939 | -0.019 | 5.50E-05 | 6.74E-03 | AKAP13 | 271.132 | 0.021 | 2.73E-06 | 1.02E-03 |
| DGKH | 8792.452 | -0.013 | 2.15E-07 | 1.58E-04 | LOC105377448 | 269.320 | 0.020 | 8.34E-05 | 8.86E-03 |
| SLC8A3 | 8748.612 | -0.017 | 4.19E-07 | 2.53E-04 | ELOVL2 | 269.171 | 0.021 | 3.72E-05 | 5.64E-03 |
| TMEM178B | 8437.776 | -0.008 | 3.51E-05 | 5.52E-03 | GDF11 | 259.292 | -0.016 | 4.81E-06 | 1.53E-03 |
| NHS | 6608.789 | -0.012 | 6.00E-08 | 6.34E-05 | FKBP5 | 245.242 | 0.054 | 1.41E-05 | 3.26E-03 |
| ST6GAL2 | 5752.944 | -0.017 | 2.90E-14 | 1.63E-10 | SLC17A4 | 240.415 | 0.028 | 2.11E-05 | 4.19E-03 |
| ARHGEF10L | 5712.202 | -0.010 | 5.11E-05 | 6.55E-03 | CFAP46 | 234.408 | 0.019 | 7.15E-05 | 8.17E-03 |
| SLC12A5 | 5584.536 | -0.012 | 3.85E-05 | 5.73E-03 | SEPSECS-AS1 | 233.299 | 0.024 | 7.38E-05 | 8.37E-03 |
| RPH3A | 5375.584 | -0.020 | 6.48E-06 | 1.82E-03 | SPHK2 | 199.137 | -0.019 | 4.66E-05 | 6.47E-03 |
| SLC35F4 | 5210.716 | -0.018 | 6.43E-06 | 1.82E-03 | SEPSECS | 195.301 | 0.016 | 8.10E-05 | 8.77E-03 |
| THSD7B | 5096.653 | -0.046 | 2.52E-10 | 6.08E-07 | CA7 | 193.559 | -0.018 | 4.89E-05 | 6.47E-03 |
| TFAP2B | 4968.006 | -0.017 | 2.71E-06 | 1.02E-03 | MTHFSD | 171.780 | -0.016 | 4.28E-05 | 6.13E-03 |
| PRKCG | 4856.433 | -0.017 | 2.93E-05 | 4.90E-03 | C11orf87 | 161.139 | -0.037 | 7.92E-11 | 2.68E-07 |
| IQSEC3 | 4704.333 | -0.014 | 6.89E-05 | 8.03E-03 | PAQR6 | 159.437 | 0.026 | 1.33E-05 | 3.14E-03 |
| TRIM67 | 4700.260 | -0.015 | 2.21E-05 | 4.20E-03 | SV2C | 156.283 | 0.027 | 8.76E-05 | 9.16E-03 |
| SHANK1 | 4236.325 | -0.018 | 3.74E-05 | 5.64E-03 | PEBP4 | 155.122 | 0.037 | 3.22E-09 | 6.05E-06 |
| NTNG1 | 4180.841 | -0.018 | 2.64E-07 | 1.86E-04 | NPY6R | 138.962 | 0.015 | 1.10E-05 | 2.65E-03 |
| ADD2 | 3972.399 | -0.009 | 2.77E-05 | 4.68E-03 | DBH | 136.969 | -0.018 | 4.02E-05 | 5.86E-03 |
| C4orf22 | 3964.435 | 0.029 | 5.07E-08 | 5.71E-05 | GBAP1 | 130.842 | -0.023 | 4.59E-05 | 6.47E-03 |
| CADM3 | 3945.047 | -0.013 | 6.41E-05 | 7.68E-03 | PARM1 | 123.887 | -0.034 | 3.47E-05 | 5.52E-03 |
| KIF26B | 3802.618 | -0.015 | 2.98E-05 | 4.94E-03 | NXNL2 | 117.958 | -0.036 | 4.78E-05 | 6.47E-03 |
| ADAMTS2 | 3668.272 | -0.021 | 7.10E-08 | 7.06E-05 | ALOX5 | 112.642 | 0.026 | 7.49E-06 | 1.99E-03 |
| DISP3 | 2826.472 | -0.014 | 1.94E-06 | 7.94E-04 | RNF215 | 111.104 | -0.022 | 4.52E-05 | 6.41E-03 |
| ASIC1 | 2581.734 | -0.022 | 1.45E-10 | 4.08E-07 | SPON2 | 109.953 | 0.023 | 3.03E-05 | 4.98E-03 |
| CLSTN3 | 2169.950 | -0.016 | 1.74E-05 | 3.77E-03 | FBXL21 | 109.841 | -0.031 | 3.59E-05 | 5.57E-03 |
| DLG4 | 2165.740 | -0.016 | 8.27E-05 | 8.85E-03 | LACTB2-AS1 | 100.333 | 0.021 | 2.75E-05 | 4.68E-03 |
| DLG1 | 1987.619 | 0.018 | 4.83E-05 | 6.47E-03 | DDO | 100.015 | 0.026 | 1.97E-06 | 7.94E-04 |
| GAP43 | 1873.289 | -0.018 | 1.00E-08 | 1.41E-05 | CPNE8 | 95.089 | 0.026 | 3.96E-05 | 5.82E-03 |
| GPR161 | 1857.336 | -0.012 | 2.18E-05 | 4.19E-03 | GPR63 | 93.412 | -0.026 | 1.01E-04 | 9.92E-03 |
| ECHDC2 | 1823.789 | 0.014 | 9.51E-06 | 2.40E-03 | HECTD2-AS1 | 90.251 | 0.021 | 8.61E-05 | 9.10E-03 |
| PHACTR2-AS1 | 1789.213 | -0.012 | 7.64E-05 | 8.49E-03 | DMGDH | 86.861 | 0.031 | 5.27E-05 | 6.70E-03 |
| E2F3 | 1603.013 | -0.011 | 2.54E-05 | 4.55E-03 | ACSS3 | 82.085 | 0.040 | 7.61E-05 | 8.49E-03 |
| MYRIP | 1564.146 | 0.018 | 6.76E-05 | 7.94E-03 | PHKA1 | 80.159 | 0.028 | 5.79E-05 | 7.04E-03 |
| RPS6KA5 | 1280.007 | 0.017 | 4.92E-05 | 6.47E-03 | ARHGEF6 | 77.670 | 0.031 | 3.69E-06 | 1.32E-03 |
| ADAMTS9 | 1075.470 | -0.028 | 1.96E-06 | 7.94E-04 | CNTN3 | 73.987 | 0.029 | 5.68E-07 | 3.20E-04 |
| RGMB | 1072.126 | -0.021 | 1.53E-07 | 1.23E-04 | BMP3 | 64.437 | 0.033 | 3.75E-06 | 1.32E-03 |
| TUNAR | 929.869 | -0.017 | 4.71E-05 | 6.47E-03 | LINC00499 | 64.160 | 0.044 | 2.86E-07 | 1.93E-04 |
| PLPPR4 | 910.096 | -0.026 | 7.63E-05 | 8.49E-03 | CDK15 | 63.210 | 0.043 | 4.68E-05 | 6.47E-03 |
| LOC653602 | 876.620 | -0.021 | 1.34E-05 | 3.14E-03 | FAM46C | 61.914 | 0.038 | 4.67E-06 | 1.52E-03 |
| KRT222 | 871.255 | -0.016 | 1.72E-05 | 3.77E-03 | MARC2 | 60.031 | 0.021 | 4.40E-06 | 1.46E-03 |
| LPCAT4 | 754.741 | -0.017 | 5.12E-06 | 1.57E-03 | ZYG11A | 58.807 | 0.026 | 1.49E-05 | 3.35E-03 |
| MASP1 | 722.999 | -0.021 | 9.89E-06 | 2.46E-03 | STAT5A | 58.388 | 0.053 | 4.61E-07 | 2.68E-04 |
| TRAF5 | 666.436 | -0.014 | 1.51E-05 | 3.35E-03 | KCNA4 | 56.857 | 0.028 | 6.05E-05 | 7.30E-03 |
| ADAMTSL3 | 659.193 | 0.020 | 6.24E-07 | 3.29E-04 | C9orf135 | 53.429 | 0.032 | 9.81E-05 | 9.90E-03 |
| NPL | 636.916 | 0.019 | 1.27E-07 | 1.08E-04 | RNF212 | 51.986 | 0.022 | 6.47E-05 | 7.71E-03 |
| ENPP1 | 631.265 | 0.026 | 2.45E-06 | 9.62E-04 | SYT17 | 51.828 | 0.037 | 5.49E-05 | 6.74E-03 |
| ALS2CR11 | 608.480 | 0.019 | 3.87E-05 | 5.73E-03 | | | | | |

**[00308]** The RNAseq results for the 31 genes in glia having significantly altered expression with age are shown in Table 48. The log2 fold change for the sorted nuclei from glia (astrocytes and oligodendrocytes) from each human sample compared to the normalized expression data from sorted glia from all samples are shown in Table 48. Negative values indicate reduced

expression in the nuclei of the subject compared to the normalized value across nuclei from all samples, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 48. Log2 fold change of expression of genes in glia**

| Subject | xk | tm | wi | pk | vm | wl | sg | or | lt | zh | ko | kq | ke | ai |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gene | Log2 fold change in expression | | | | | | | | | | | | | |
| ADAMTS7 | 1.20 | -0.13 | 0.48 | 0.44 | 0.02 | -0.19 | 0.28 | 0.17 | -0.07 | 0.00 | -0.32 | -0.89 | -0.52 | -0.48 |
| ANKRD33B | -0.95 | -0.39 | -0.16 | -0.07 | -0.32 | -0.16 | -0.57 | -0.15 | -0.25 | 0.24 | 1.25 | 0.52 | 0.32 | 0.69 |
| AOX1 | -0.65 | -0.62 | -0.45 | -0.12 | -0.01 | -0.20 | -0.14 | 0.69 | 0.21 | -0.12 | 0.65 | 0.79 | 0.03 | -0.06 |
| C1orf95 | 0.16 | 0.83 | 0.67 | 0.96 | 0.01 | -0.23 | 0.51 | 0.02 | -0.08 | -0.13 | -0.56 | -0.99 | -0.14 | -1.02 |
| CACNG4 | 0.52 | 0.27 | 0.28 | 0.66 | -0.11 | 0.12 | 0.32 | 0.12 | -0.08 | 0.02 | -0.67 | -0.29 | -0.27 | -0.89 |
| CACNG8 | 0.96 | 0.78 | 0.27 | 0.94 | 0.71 | -0.19 | 0.35 | 0.09 | -0.78 | -0.46 | -0.74 | -0.78 | -0.73 | -0.43 |
| CAPN9 | -0.52 | -0.18 | -0.24 | -0.38 | -0.36 | -0.12 | -0.23 | 0.08 | -0.03 | 0.14 | 0.21 | 0.96 | 0.03 | 0.64 |
| CRTAC1 | 0.46 | 0.47 | 0.33 | 0.36 | -0.32 | 0.27 | 0.09 | 0.15 | -0.14 | -0.09 | -0.51 | -0.65 | -0.01 | -0.41 |
| DACH1 | 0.45 | 0.90 | 0.96 | 0.93 | 0.55 | 0.36 | -0.13 | -1.16 | -0.29 | -0.55 | -1.04 | -0.28 | -0.57 | -0.14 |
| EFHD2 | 0.88 | 0.44 | 0.35 | 0.13 | -0.09 | -0.09 | 0.39 | -0.04 | -0.10 | 0.05 | -0.23 | -0.73 | -0.13 | -0.81 |
| EGF | -0.98 | -0.28 | -0.42 | 0.13 | -0.30 | -0.24 | -0.36 | -0.01 | 0.11 | -0.12 | 0.72 | 0.59 | 0.18 | 0.98 |
| ETS1 | 0.60 | 0.45 | 0.12 | 0.37 | 0.08 | 0.17 | 0.11 | -0.23 | -0.12 | 0.24 | -0.31 | -0.92 | -0.19 | -0.36 |
| FRAS1 | 1.29 | 1.66 | 0.31 | 0.05 | 0.03 | 0.37 | -0.47 | -0.54 | -0.79 | -0.47 | -0.70 | -0.64 | -0.17 | 0.07 |
| IMPA2 | 0.63 | 0.54 | 0.17 | 0.01 | 0.44 | 0.32 | -0.60 | -0.07 | -0.17 | 0.13 | -0.56 | -0.23 | -0.45 | -0.15 |
| LINC00499 | -0.96 | -1.27 | -0.35 | -0.56 | -0.55 | -1.12 | 1.50 | -0.17 | -0.98 | -0.63 | 2.26 | -0.20 | -0.14 | 3.16 |
| LINC00844 | -0.41 | -0.35 | -0.36 | -0.22 | -0.14 | -0.14 | -0.20 | 0.11 | 0.01 | -0.42 | 0.62 | 0.77 | -0.03 | 0.76 |
| LINC01208 | -1.15 | -0.50 | -0.23 | -0.82 | 0.32 | -0.43 | -0.44 | -0.19 | 0.19 | 0.28 | 0.53 | 1.15 | 0.15 | 1.12 |
| LOC101927078 | 0.88 | 0.61 | 0.28 | 0.41 | 0.45 | 0.85 | 0.04 | -0.04 | -0.35 | 0.34 | -1.73 | -0.80 | -0.67 | -0.28 |
| LOC102724360 | 0.98 | 0.93 | 0.31 | 0.88 | 0.01 | -0.22 | 0.60 | -0.69 | -0.59 | -0.13 | -0.57 | -0.67 | -0.06 | -0.78 |
| PKDCC | 0.85 | 0.69 | 0.91 | 0.11 | -0.46 | 0.43 | -0.14 | -0.02 | -0.43 | 0.68 | -0.69 | -0.71 | -0.55 | -0.67 |
| PLXNA4 | 0.37 | 0.52 | 0.51 | 0.55 | -0.31 | -0.08 | 0.31 | -0.12 | -0.01 | 0.07 | -0.40 | -0.69 | -0.20 | -0.52 |
| PRR5 | 0.83 | 0.82 | 0.56 | 0.03 | -0.20 | 0.28 | 0.18 | -0.31 | -0.40 | 0.09 | -0.86 | -0.37 | -0.12 | -0.55 |
| RHCG | 0.57 | 0.44 | 0.14 | 0.68 | -0.39 | 0.40 | 0.05 | 0.24 | 0.33 | -0.43 | -0.40 | -0.45 | -0.55 | -0.62 |
| ROBO2 | 2.13 | 2.13 | 0.86 | 1.11 | 0.55 | 1.02 | -0.56 | -1.59 | -0.08 | -0.89 | -0.62 | -1.77 | -1.38 | -0.89 |
| SEMA5B | 0.62 | 0.56 | 0.63 | 0.74 | -0.56 | 0.28 | 0.58 | -0.07 | -0.11 | -0.10 | -0.72 | -0.95 | -0.18 | -0.72 |
| SHROOM2 | 0.57 | 0.65 | 0.22 | 0.38 | -0.36 | 0.05 | 0.15 | -0.03 | -0.06 | 0.13 | -0.85 | -0.43 | -0.22 | -0.22 |
| SLIT2 | -0.89 | -0.81 | -0.86 | -0.25 | 0.17 | 0.00 | 0.03 | 0.28 | 0.79 | 0.27 | -0.31 | 0.48 | 1.07 | 0.04 |
| TRDN | -1.52 | -0.76 | -0.92 | 0.09 | 0.19 | -0.51 | -0.22 | -0.20 | -0.42 | 0.46 | -0.05 | 2.22 | -0.55 | 2.19 |
| TXNIP | -0.91 | -0.21 | -0.26 | -0.13 | -0.29 | -0.30 | -0.25 | -0.30 | -0.08 | -0.19 | -0.33 | 1.56 | 0.44 | 1.24 |
| VWA5A | -0.46 | -0.57 | -0.19 | -0.03 | -0.11 | -0.21 | -0.15 | -0.08 | 0.04 | -0.28 | 1.15 | 0.13 | -0.12 | 0.90 |
| WNT7B | 0.36 | 0.73 | 0.51 | 0.65 | 0.21 | -0.25 | 0.21 | -0.08 | -0.14 | 0.03 | -0.92 | -0.70 | -0.10 | -0.50 |

**[00309]** RNAseq results for the differentially expressed genes (adjusted p <0.01, baseMean > 50) in glia cells across all samples is shown in Table 49.

**Table 49. Differentially expressed genes in glia across all samples**

| Gene | baseMean | Log2 Fold Change | p-value | p-adj | Gene | baseMean | Log2 Fold Change | p-value | p-adj |
|---|---|---|---|---|---|---|---|---|---|
| LINC00499 | 1007.858 | 0.081 | 2.49E-06 | 2.89E-03 | CACNG4 | 2522.614 | -0.024 | 7.83E-06 | 6.03E-03 |
| TRDN | 681.94 | 0.063 | 8.98E-06 | 6.03E-03 | RHCG | 305.832 | -0.027 | 8.29E-06 | 6.03E-03 |
| ANKRD33B | 60.594 | 0.043 | 1.03E-06 | 1.79E-03 | IMPA2 | 61.909 | -0.028 | 4.84E-06 | 4.68E-03 |
| EGF | 58.431 | 0.04 | 4.16E-07 | 1.03E-03 | WNT7B | 266.308 | -0.029 | 1.61E-06 | 2.15E-03 |
| LINC01208 | 2713.563 | 0.038 | 1.63E-07 | 5.65E-04 | ADAMTS7 | 304.863 | -0.03 | 5.79E-06 | 5.04E-03 |
| TXNIP | 514.271 | 0.036 | 1.73E-05 | 9.40E-03 | EFHD2 | 64.367 | -0.031 | 8.49E-06 | 6.03E-03 |
| SLIT2 | 1055.584 | 0.033 | 1.56E-05 | 8.74E-03 | SEMA5B | 561.896 | -0.032 | 9.46E-06 | 6.09E-03 |
| VWA5A | 192.057 | 0.029 | 1.87E-05 | 9.40E-03 | PRR5 | 144.719 | -0.032 | 9.78E-08 | 4.25E-04 |
| LINC00844 | 119.148 | 0.028 | 4.41E-06 | 4.51E-03 | C1orf95 | 477.416 | -0.034 | 1.01E-05 | 6.29E-03 |
| AOX1 | 321.131 | 0.027 | 1.80E-05 | 9.40E-03 | DACH1 | 751.135 | -0.036 | 1.12E-05 | 6.72E-03 |
| CAPN9 | 196.571 | 0.025 | 9.02E-06 | 6.03E-03 | LOC101927078 | 692.246 | -0.039 | 2.03E-06 | 2.52E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CRTAC1 | 533.293 | -0.021 | 1.49E-05 | 8.62E-03 | FRAS1 | 335.281 | -0.039 | 5.39E-06 | 4.93E-03 |
| PLXNA4 | 1899.075 | -0.022 | 1.95E-05 | 9.40E-03 | CACNG8 | 504.043 | -0.041 | 3.68E-09 | 3.20E-05 |
| ETS1 | 688.087 | -0.022 | 1.55E-06 | 2.15E-03 | LOC102724360 | 92.952 | -0.041 | 3.44E-06 | 3.74E-03 |
| SHROOM2 | 294.202 | -0.023 | 1.91E-05 | 9.40E-03 | PKDCC | 81.676 | -0.042 | 8.67E-07 | 1.67E-03 |
| | | | | | ROBO2 | 1689.394 | -0.079 | 5.11E-17 | 8.88E-13 |

**[00310]** Results showed less variation in expression due to age compared to genes having differential expression due to the other clinical attibutes analyzed herein. Previous studies of aging in the cerebellum had found fewer genes to have differntial expression suggesting that profiling gene expression in the nuclei of specific cell types provides much more sensitivity compared to using bulk tissue.

**Example 21. Overlapping changes in differential expression due to age**

**[00311]** The differentially expressed genes (adjusted p <0.01, baseMean > 50) were about equally split between those that increase in expression and those that decrease in expression with age as shown in Table 50. Table 50 shows the number of genes that are in common between eight groups of differentially expressed aging genes.

**Table 50. Number of genes with overlapping changes in expression**

| | All up | Granule up | Basket up | Glia up | All down | Granule down | Basket down | Glia down |
|---|---|---|---|---|---|---|---|---|
| All up | 12 | 2 | 2 | 2 | 0 | 0 | 0 | 0 |
| Granule up | 2 | 103 | 7 | 1 | 0 | 0 | 0 | 0 |
| Basket up | 2 | 7 | 60 | 1 | 0 | 0 | 0 | 0 |
| Glia up | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| All down | 0 | 0 | 0 | 0 | 30 | 7 | 3 | 0 |
| Granule down | 0 | 0 | 0 | 0 | 7 | 171 | 8 | 2 |
| Basket down | 0 | 0 | 0 | 0 | 3 | 8 | 79 | 1 |
| Glia down | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 20 |

**[00312]** No overlaps were found between age up-regulated genes from any cell type and down-regulated genes from any other cell type.

**[00313]** Expression of only a few genes significantly change with age in more than one cell type. For example, the 42 genes that are identified as differentially expressed with age across all cell types appear heterogeneous across conditions, and most of these do not reach significance when tested in each cell type individually (Table 51).

**Table 51. Genes with differential expression across all samples**

| Gene | baseMean | log2 Fold Change | p-value | p-adj |
|---|---|---|---|---|
| LINC00499 | 340.71 | 0.07 | 3.61E-11 | 6.82E-07 |
| TRDN | 216.05 | 0.06 | 6.35E-07 | 1.20E-03 |
| CACNA2D3 | 7555.87 | 0.04 | 3.19E-06 | 3.37E-03 |
| PRSS55 | 115.56 | 0.03 | 6.23E-06 | 4.90E-03 |
| LOC101927592 | 70.01 | 0.02 | 1.63E-05 | 6.98E-03 |
| ZNF404 | 138.97 | 0.02 | 1.61E-05 | 6.98E-03 |
| LOC100506990 | 1233.04 | 0.01 | 1.76E-06 | 2.37E-03 |

| | | | | |
|---|---|---|---|---|
| MTRF1 | 184.51 | 0.01 | 2.65E-05 | 9.46E-03 |
| ZNF585A | 648.16 | 0.01 | 9.81E-07 | 1.62E-03 |
| ZNF607 | 335.61 | 0.01 | 1.98E-06 | 2.49E-03 |
| ZNF84 | 1094.03 | 0.01 | 7.63E-06 | 5.39E-03 |
| ZSCAN29 | 197.53 | 0.01 | 1.33E-06 | 1.94E-03 |
| ATF6B | 389.47 | -0.01 | 7.71E-06 | 5.39E-03 |
| CUL7 | 224.23 | -0.01 | 2.21E-05 | 8.53E-03 |
| GPR107 | 1554.09 | -0.01 | 2.30E-05 | 8.70E-03 |
| KLHL22 | 1099.58 | -0.01 | 2.07E-05 | 8.17E-03 |
| PPP6R2 | 1793.04 | -0.01 | 1.31E-05 | 6.17E-03 |
| SPHK2 | 205.56 | -0.01 | 1.19E-05 | 6.15E-03 |
| ST3GAL2 | 646.6 | -0.01 | 1.94E-05 | 8.14E-03 |
| TAOK2 | 509.4 | -0.01 | 3.50E-06 | 3.48E-03 |
| ZNF496 | 628.69 | -0.01 | 1.20E-05 | 6.15E-03 |
| ZNF580 | 79.81 | -0.01 | 2.52E-05 | 9.32E-03 |
| ABCC10 | 189.96 | -0.02 | 9.81E-06 | 5.65E-03 |
| ACAP3 | 331.85 | -0.02 | 3.03E-07 | 8.19E-04 |
| ACHE | 78.69 | -0.02 | 1.31E-05 | 6.17E-03 |
| ATP6V0B | 219.38 | -0.02 | 5.91E-06 | 4.90E-03 |
| DNAJB5 | 393.29 | -0.02 | 1.03E-06 | 1.62E-03 |
| FZR1 | 202.22 | -0.02 | 2.57E-05 | 9.32E-03 |
| GBAP1 | 129.18 | -0.02 | 8.64E-06 | 5.65E-03 |
| GRK5 | 940.31 | -0.02 | 1.48E-05 | 6.66E-03 |
| KCTD21-AS1 | 57.46 | -0.02 | 1.23E-05 | 6.15E-03 |
| LOC100132077 | 54.79 | -0.02 | 9.56E-06 | 5.65E-03 |
| MIR9-3HG | 1566.54 | -0.02 | 5.20E-06 | 4.90E-03 |
| MPND | 61.58 | -0.02 | 6.20E-06 | 4.90E-03 |
| POLR2J3 | 137.56 | -0.02 | 2.08E-05 | 8.17E-03 |
| SNAI3-AS1 | 97.33 | -0.02 | 8.86E-06 | 5.65E-03 |
| ZFPM1 | 386.55 | -0.02 | 1.39E-05 | 6.38E-03 |
| PTMS | 230.79 | -0.03 | 9.87E-06 | 5.65E-03 |
| WASH7P | 52.51 | -0.03 | 2.02E-07 | 6.37E-04 |
| RNF17 | 117.06 | -0.05 | 9.14E-08 | 3.45E-04 |
| LINGO2 | 7101.71 | -0.07 | 1.14E-05 | 6.15E-03 |
| EGR1 | 470.89 | -0.08 | 9.80E-06 | 5.65E-03 |

**[00314]** The RNAseq results in granule cells for the 42 genes having differential expression with age across the three cell types are shown in Table 52. The log2 fold change of expression for the sorted nuclei from glia from each human sample compared to normalized expresssion from sorted nuclei from granule cells in all samples are shown in Table 52. Negative values indicate reduced expression in the nuclei of the subject compared to the normalized value across nuclei from all samples, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 52. Log2 fold change of expression in granule cells**

| | Log2 fold change of expression | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Subject** | **xk** | **tm** | **wo** | **wc** | **wi** | **pk** | **vm** | **wl** | **sg** | **or** | **lt** | **zh** | **ko** | **kq** | **ke** | **ai** |
| **Gene** | | | | | | | | | | | | | | | | |
| ABCC10 | 0.28 | 0.42 | 0.56 | 0.42 | 0.08 | -0.42 | 0.09 | 0.16 | -0.08 | 0.33 | -0.54 | -0.10 | -0.13 | -0.11 | -0.27 | -0.55 |
| ACAP3 | 0.34 | 0.76 | 1.34 | 1.05 | 0.61 | 0.06 | -0.04 | 0.06 | 0.10 | 0.52 | -0.46 | -0.08 | -0.12 | -0.14 | -0.10 | -0.27 |
| ACHE | 0.20 | 0.69 | 1.15 | 0.59 | 0.28 | -0.07 | 0.03 | -0.21 | 0.11 | 0.29 | -0.22 | 0.10 | -0.04 | -0.67 | -0.27 | -0.54 |
| ATF6B | -0.06 | 0.18 | 0.90 | 0.54 | -0.03 | -0.43 | -0.25 | -0.28 | -0.18 | 0.10 | -0.41 | -0.43 | -0.08 | -0.15 | -0.22 | -0.79 |
| ATP6V0B | 0.32 | -0.51 | 0.28 | 0.20 | 0.10 | -0.33 | -0.31 | -0.23 | -0.30 | -0.10 | -0.16 | -0.29 | -0.38 | -1.07 | -0.44 | -0.85 |
| CACNA2D3 | -1.28 | -1.71 | -2.06 | -1.52 | -1.65 | -0.66 | -1.31 | -1.39 | -0.33 | -1.09 | -1.27 | -0.99 | -0.90 | -0.46 | -1.33 | -0.38 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL7 | 0.35 | 0.56 | 0.71 | 0.45 | 0.20 | 0.09 | 0.08 | 0.27 | 0.24 | 0.30 | -0.27 | -0.36 | 0.06 | 0.06 | 0.06 | -0.44 |
| DNAJB5 | 0.28 | 0.87 | 0.54 | 0.14 | 0.43 | -0.24 | 1.05 | 0.08 | 0.08 | -0.16 | -0.31 | 0.63 | -0.28 | 0.07 | -0.14 | -0.33 |
| EGR1 | 0.47 | 0.56 | 1.28 | -0.02 | 5.30 | -0.36 | 6.92 | 0.85 | 1.00 | 0.72 | 0.85 | 4.75 | -0.85 | 0.31 | 0.33 | -0.65 |
| FZR1 | -0.02 | 0.83 | 0.93 | 0.62 | 0.52 | -0.42 | -0.02 | -0.20 | 0.00 | 0.33 | -0.10 | 0.18 | 0.04 | -0.11 | -0.07 | -0.66 |
| GBAP1 | -0.01 | 0.71 | -0.04 | -0.18 | -0.07 | -0.59 | -0.86 | -0.10 | -0.30 | -0.10 | -0.50 | -0.19 | -1.06 | -0.46 | 0.20 | -0.40 |
| GPR107 | 0.01 | 0.32 | 0.29 | 0.05 | -0.04 | 0.15 | 0.03 | 0.06 | 0.03 | 0.10 | 0.02 | 0.03 | 0.04 | -0.10 | -0.02 | -0.45 |
| GRK5 | 1.10 | 0.66 | 1.19 | 1.13 | 0.41 | 0.72 | 0.61 | 0.24 | 0.08 | 0.16 | 0.50 | 0.64 | -0.28 | -0.38 | 0.35 | -0.66 |
| KCTD21-AS1 | 0.02 | 0.69 | 0.08 | 0.14 | -0.61 | -0.04 | -0.40 | -0.02 | -0.01 | -0.58 | -0.33 | -1.31 | -0.11 | -1.44 | -0.27 | -0.66 |
| KLHL22 | 0.25 | 0.46 | 0.62 | 0.55 | 0.06 | 0.06 | -0.31 | 0.04 | 0.05 | 0.17 | 0.04 | -0.17 | -0.30 | 0.12 | 0.05 | -0.21 |
| LINC00499 | -0.17 | -0.40 | -1.13 | -1.05 | -0.76 | -0.14 | 0.13 | -0.20 | -0.10 | -0.09 | -0.38 | -0.09 | 0.44 | 0.45 | -0.03 | 0.33 |
| LINGO2 | 0.51 | 4.67 | 3.73 | -0.63 | 0.51 | 1.24 | 4.72 | 5.21 | 4.23 | 3.85 | 0.91 | 0.87 | -1.68 | -0.69 | -0.85 | 0.15 |
| LOC100132077 | 0.20 | 0.10 | 0.89 | 0.97 | -0.39 | -0.50 | -0.27 | -0.58 | -0.60 | 0.70 | -0.24 | 0.09 | -0.21 | -0.31 | -0.53 | -0.54 |
| LOC100506990 | 0.03 | -0.21 | -0.52 | -0.10 | -0.24 | 0.16 | 0.24 | 0.01 | -0.01 | -0.02 | 0.24 | 0.29 | 0.30 | 0.69 | 0.25 | 0.11 |
| LOC101927592 | -0.07 | -0.77 | -0.58 | -0.68 | -0.70 | -0.21 | 0.40 | -0.32 | -0.63 | -0.69 | -0.24 | -0.50 | 0.53 | 0.43 | -0.50 | 0.49 |
| MIR9-3HG | 0.03 | 0.14 | 0.64 | 0.53 | -0.34 | -0.14 | -0.27 | -0.10 | -0.08 | -0.05 | -0.07 | -0.36 | -0.10 | -0.30 | -0.24 | -0.91 |
| MPND | 0.26 | 1.16 | 0.94 | 0.49 | 0.32 | -0.51 | 0.02 | 0.34 | -0.06 | 0.37 | 0.10 | -0.02 | 0.34 | -0.05 | -0.03 | -0.16 |
| MTRF1 | -0.27 | -0.46 | -0.56 | -0.31 | -0.31 | -0.03 | -0.03 | -0.15 | -0.16 | -0.21 | 0.09 | -0.06 | -0.16 | 0.13 | -0.09 | 0.33 |
| POLR2J3 | -0.13 | 0.72 | 0.13 | -0.23 | 0.38 | -0.58 | -0.31 | 0.16 | 0.10 | 0.57 | -0.60 | -0.39 | -0.60 | -1.02 | -0.04 | -1.08 |
| PPP6R2 | 0.07 | 0.13 | 0.55 | 0.39 | -0.06 | -0.14 | -0.21 | -0.19 | -0.11 | 0.05 | -0.03 | -0.09 | -0.02 | -0.23 | -0.09 | -0.54 |
| PRSS55 | -0.55 | -1.22 | -0.96 | -0.45 | -0.63 | -0.61 | 0.24 | 1.63 | -0.41 | 0.26 | 1.57 | -0.24 | 0.09 | 1.64 | -0.84 | 1.64 |
| PTMS | 0.60 | 1.02 | 1.96 | 1.13 | 0.63 | 0.22 | 0.04 | -0.13 | 0.06 | 0.37 | -0.30 | -0.08 | 0.65 | 0.34 | -0.39 | -0.74 |
| RNF17 | 2.14 | 0.47 | 3.32 | -0.44 | -0.73 | -0.43 | -0.15 | 0.49 | -0.52 | -0.60 | 1.91 | -0.09 | -0.94 | -0.05 | -0.61 | 0.09 |
| SNAI3-AS1 | 0.17 | 0.54 | 0.66 | 0.71 | 0.66 | 0.34 | -0.07 | 0.47 | 0.40 | 0.49 | 0.39 | 0.02 | -0.09 | -0.09 | 0.26 | -0.65 |
| SPHK2 | -0.04 | -0.14 | 0.75 | 0.61 | -0.02 | -0.29 | -0.35 | -0.22 | -0.15 | 0.04 | -0.09 | -0.29 | 0.00 | 0.15 | -0.21 | -0.42 |
| ST3GAL2 | 0.57 | 0.72 | 1.00 | 0.73 | 0.46 | 0.28 | -0.10 | 0.25 | 0.29 | 0.52 | 0.13 | 0.02 | 0.20 | -0.09 | 0.13 | -0.44 |
| TAOK2 | 0.14 | 0.29 | 0.55 | 0.33 | -0.02 | -0.20 | -0.32 | -0.05 | -0.01 | 0.08 | -0.21 | -0.29 | -0.07 | -0.33 | 0.03 | -0.88 |
| TRDN | -1.43 | -1.20 | -0.98 | -0.66 | -1.08 | -1.25 | -0.98 | -1.39 | -1.29 | -1.17 | -0.95 | -0.66 | -0.88 | -0.92 | -1.29 | -0.35 |
| WASH7P | -0.21 | 0.86 | 1.05 | 0.63 | -0.01 | 0.16 | -0.05 | -1.02 | 0.22 | -0.09 | -1.17 | -0.68 | -0.07 | -0.42 | -0.41 | -1.51 |
| ZFPM1 | 0.02 | 0.33 | 1.32 | 0.48 | 0.32 | 0.64 | 0.09 | -0.09 | 0.20 | 0.07 | 0.09 | -0.03 | 0.42 | -0.03 | 0.22 | -0.19 |
| ZNF404 | -0.57 | -0.08 | -0.86 | -0.82 | -0.37 | 0.27 | 0.29 | 0.25 | 0.02 | -0.46 | -0.20 | -0.07 | -0.03 | 1.02 | 0.10 | 0.71 |
| ZNF496 | 0.17 | 0.24 | 0.04 | 0.17 | 0.09 | 0.09 | 0.00 | 0.01 | 0.09 | 0.27 | -0.12 | 0.15 | -0.24 | 0.11 | -0.08 | -0.50 |
| ZNF580 | 0.07 | 0.30 | 0.89 | 0.70 | 0.18 | -0.03 | -0.64 | -0.31 | 0.02 | -0.18 | -0.47 | -0.29 | -0.05 | -0.42 | -0.27 | -0.12 |
| ZNF585A | -0.17 | -0.34 | -0.07 | -0.27 | -0.17 | 0.37 | 0.17 | 0.00 | 0.21 | -0.13 | 0.08 | 0.05 | 0.20 | 0.07 | 0.08 | 0.70 |
| ZNF607 | -0.16 | -0.18 | -0.07 | -0.18 | -0.18 | 0.15 | 0.16 | -0.12 | 0.12 | 0.05 | 0.21 | 0.02 | 0.28 | -0.07 | 0.11 | 0.24 |
| ZNF84 | -0.18 | -0.31 | -0.34 | -0.28 | -0.14 | 0.23 | -0.02 | 0.07 | 0.05 | -0.14 | 0.19 | 0.09 | 0.06 | 0.18 | 0.01 | 0.21 |
| ZSCAN29 | -0.04 | -0.19 | -0.42 | -0.52 | -0.14 | -0.06 | -0.10 | 0.15 | 0.15 | 0.00 | 0.07 | -0.39 | -0.11 | 0.27 | -0.04 | 0.54 |

**[00315]** The RNAseq results in basket cells for the 42 most differentially expressed genes due to age are shown in Table 53. The log2 fold change between the RNAseq results for the sorted nuclei from basket cells from each human sample compared to normalized expresssion from unsorted nuclei from all samples are shown in Table 53. Negative values indicate reduced expression in the nuclei of the subject compared to the normalized value across nuclei from all samples, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 53. Log2 fold change of expression in basket cells**

| | Log2 fold change of expression | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Subject** | **xk** | **tm** | **wo** | **wc** | **wi** | **pk** | **vm** | **wl** | **sg** | **or** | **lt** | **zh** | **ko** | **kq** | **ke** | **ai** |
| **Gene** | | | | | | | | | | | | | | | | |
| ACER3 | -0.43 | -0.46 | -0.43 | -0.01 | -0.35 | 0.08 | -0.27 | -0.12 | 0.22 | 0.30 | -0.12 | 0.05 | 0.00 | 0.33 | 0.75 | 0.46 |
| ACSS3 | -0.24 | 0.12 | -0.47 | -0.34 | -0.80 | -0.31 | -0.33 | -0.53 | -0.93 | 0.03 | -0.47 | -0.10 | 0.35 | 1.28 | 0.87 | 1.90 |
| ADAMTS2 | 0.55 | 0.00 | 0.36 | 0.67 | 0.22 | 0.20 | 0.00 | 0.12 | 0.00 | 0.30 | -0.43 | -0.04 | -0.59 | -0.28 | -0.33 | -0.76 |
| ADAMTS9 | 0.78 | 0.64 | 0.17 | 0.64 | -0.11 | 0.60 | 0.22 | 0.16 | 0.12 | 0.07 | -0.03 | -0.12 | -1.01 | -1.42 | 0.09 | -0.80 |
| ADAMTSL3 | -0.57 | 0.05 | -0.51 | -0.54 | -0.19 | -0.21 | 0.06 | -0.12 | -0.04 | 0.40 | -0.18 | -0.08 | 0.76 | 0.27 | 0.37 | 0.53 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADD2 | 0.20 | 0.09 | 0.34 | 0.10 | 0.23 | 0.00 | -0.10 | 0.00 | 0.01 | -0.05 | -0.02 | 0.10 | -0.25 | -0.11 | -0.23 | -0.30 |
| ADGRL3 | 0.27 | 0.08 | 0.31 | -0.05 | 0.20 | 0.28 | 0.29 | 0.08 | -0.07 | -0.08 | -0.08 | -0.25 | -0.31 | -0.38 | -0.11 | -0.20 |
| AKAP13 | -0.41 | -0.06 | -0.31 | -0.12 | -0.70 | -0.14 | -0.31 | -0.12 | -0.27 | 0.00 | 0.01 | 0.12 | 0.21 | 0.69 | 0.64 | 0.76 |
| ALOX5 | -0.35 | -0.28 | -0.95 | -0.19 | -0.23 | -0.04 | 0.14 | -0.12 | -0.14 | -0.18 | -0.16 | 0.35 | 0.62 | 0.33 | 1.04 | 0.17 |
| ALS2CR11 | -0.40 | -0.49 | -0.26 | -0.29 | -0.49 | 0.06 | 0.36 | -0.36 | 0.11 | -0.08 | 0.61 | -0.22 | 0.21 | 0.06 | 0.48 | 0.70 |
| ARHGEF10L | 0.18 | 0.06 | 0.31 | 0.23 | 0.17 | 0.06 | -0.09 | 0.02 | 0.01 | 0.03 | -0.10 | 0.12 | -0.21 | -0.29 | -0.04 | -0.45 |
| ARHGEF6 | -0.28 | -0.11 | -0.66 | -0.30 | -0.51 | -0.09 | -0.08 | -0.28 | -0.69 | -0.05 | -0.08 | 0.44 | 0.19 | 0.74 | 0.81 | 0.97 |
| ASIC1 | 0.39 | 0.29 | 0.60 | 0.24 | 0.48 | 0.19 | -0.03 | 0.16 | 0.02 | -0.06 | -0.15 | -0.05 | -0.70 | -0.18 | -0.37 | -0.83 |
| ASIC2 | 0.39 | 0.56 | 0.32 | 0.21 | 0.19 | 0.59 | 0.13 | 0.01 | -0.02 | 0.12 | -0.12 | 0.03 | -0.89 | -0.39 | -0.29 | -0.84 |
| ATP6V0B | 0.34 | -0.08 | 0.70 | 0.09 | 0.41 | 0.00 | -0.06 | 0.55 | 0.23 | 0.06 | 0.06 | -0.22 | -0.15 | -0.79 | -0.45 | -0.68 |
| BMP3 | -0.38 | -0.69 | -0.78 | -0.34 | -0.16 | -0.29 | -0.13 | 0.33 | 0.77 | 0.06 | -0.23 | 0.36 | 0.12 | 0.22 | 0.25 | 0.89 |
| BTBD11 | 0.11 | 0.17 | 0.36 | 0.21 | 0.03 | 0.17 | -0.01 | -0.07 | -0.12 | 0.02 | -0.02 | 0.04 | -0.31 | -0.22 | -0.27 | -0.09 |
| C11orf87 | 0.75 | 0.85 | 0.97 | 0.16 | 0.26 | 0.56 | -0.31 | -0.31 | -0.13 | 0.00 | 0.20 | -0.15 | -0.45 | -0.44 | -0.95 | -1.00 |
| C14orf1 | 0.26 | 0.20 | 0.36 | 0.09 | -0.01 | 0.20 | -0.05 | 0.02 | 0.24 | 0.09 | -0.08 | -0.17 | -0.13 | -0.28 | -0.33 | -0.41 |
| C4orf22 | -0.79 | -0.66 | -0.96 | -0.62 | 0.24 | -0.30 | 0.02 | 0.39 | 0.44 | 0.24 | 0.02 | 0.20 | 0.20 | 0.13 | 0.15 | 1.29 |
| C9orf135 | -0.30 | -0.39 | -0.60 | -0.50 | 0.03 | 0.25 | -0.42 | 0.12 | 0.12 | 0.41 | -0.63 | -0.05 | 0.88 | 0.47 | -0.36 | 0.96 |
| CA7 | 0.62 | 0.30 | 0.54 | 0.23 | 0.06 | -0.11 | -0.16 | 0.39 | -0.09 | -0.21 | -0.51 | -0.01 | 0.02 | 0.01 | -0.51 | -0.57 |
| CACNA1D | 0.16 | 0.00 | 0.17 | 0.16 | 0.04 | 0.03 | 0.10 | 0.06 | 0.07 | -0.07 | -0.04 | -0.05 | -0.05 | -0.23 | -0.19 | -0.18 |
| CACNA2D3 | -1.43 | -0.73 | -0.79 | -1.41 | -0.15 | -1.36 | 0.04 | -0.11 | 0.52 | 0.12 | 0.10 | 0.18 | 1.41 | 1.61 | 0.24 | 1.74 |
| CACNB4 | 0.26 | 0.17 | 0.47 | 0.16 | 0.14 | 0.06 | -0.06 | 0.03 | -0.06 | -0.14 | -0.16 | 0.08 | -0.21 | -0.29 | -0.21 | -0.25 |
| CADM3 | 0.44 | 0.22 | 0.15 | 0.03 | 0.21 | 0.10 | 0.00 | 0.11 | 0.25 | -0.03 | -0.04 | -0.04 | -0.59 | -0.08 | -0.19 | -0.56 |
| CADPS | 0.28 | 0.12 | 0.13 | 0.10 | 0.08 | 0.28 | 0.18 | 0.06 | -0.09 | 0.09 | -0.01 | -0.07 | -0.45 | -0.24 | -0.15 | -0.33 |
| CALR | 0.29 | 0.24 | 0.70 | 0.23 | 0.66 | 0.02 | -0.06 | 0.28 | -0.04 | -0.30 | 0.42 | -0.05 | -0.46 | -0.89 | -0.13 | -0.90 |
| CDK15 | -0.62 | 0.13 | -0.61 | -0.77 | -0.61 | -0.19 | 0.21 | -0.18 | -0.61 | 0.09 | -0.69 | 0.54 | 0.03 | 1.76 | 0.31 | 1.21 |
| CFAP46 | -0.57 | -0.57 | -0.39 | -0.07 | -0.21 | 0.25 | -0.09 | -0.25 | 0.51 | 0.22 | -0.28 | 0.36 | 0.04 | 0.50 | -0.08 | 0.64 |
| CLSTN3 | 0.09 | 0.01 | 0.72 | 0.30 | 0.51 | -0.09 | -0.11 | 0.11 | 0.04 | -0.25 | -0.07 | 0.09 | -0.26 | -0.32 | -0.35 | -0.43 |
| CNTN3 | -0.42 | -0.40 | -0.17 | -0.32 | -0.67 | -0.28 | -0.43 | -0.08 | 0.52 | 0.28 | 0.31 | -0.13 | 0.37 | 0.61 | 0.02 | 0.80 |
| CPNE8 | -0.26 | -0.38 | -0.05 | -0.03 | -0.68 | -0.14 | -0.31 | -0.45 | -0.37 | 0.05 | -0.07 | 0.01 | 0.25 | 0.63 | 0.98 | 0.82 |
| CYYR1 | -0.44 | -0.20 | -0.64 | -0.33 | -0.31 | 0.30 | -0.02 | -0.16 | 0.35 | -0.02 | -0.08 | 0.05 | 0.45 | 0.71 | -0.28 | 0.61 |
| DBH | 0.09 | 0.49 | 0.22 | 0.37 | 0.23 | 0.17 | -0.35 | 0.31 | 0.08 | -0.06 | -0.21 | 0.20 | -0.42 | -0.16 | -0.25 | -0.72 |
| DCC | -0.55 | 0.29 | -0.46 | -0.76 | -1.12 | -0.48 | -0.64 | -0.28 | 0.69 | 0.11 | -0.73 | 0.28 | 0.44 | 0.87 | 1.11 | 1.22 |
| DDO | -0.09 | -0.46 | -0.78 | -0.84 | -0.23 | 0.20 | -0.08 | -0.17 | 0.39 | 0.04 | 0.32 | 0.20 | 0.19 | 0.67 | 0.46 | 0.21 |
| DGKH | 0.31 | 0.08 | 0.34 | 0.12 | 0.06 | 0.37 | 0.11 | 0.12 | -0.12 | -0.12 | -0.12 | 0.01 | -0.18 | -0.47 | -0.27 | -0.25 |
| DISP3 | 0.25 | 0.15 | 0.41 | 0.28 | 0.10 | 0.17 | 0.00 | 0.16 | 0.14 | -0.06 | -0.17 | -0.18 | -0.55 | -0.03 | -0.47 | -0.23 |
| DLG1 | -0.46 | 0.04 | -0.59 | -0.34 | -0.13 | -0.01 | -0.16 | -0.09 | 0.00 | 0.15 | -0.04 | 0.08 | 0.19 | -0.25 | 1.02 | 0.60 |
| DLG4 | -0.06 | 0.28 | 0.73 | 0.60 | 0.17 | 0.05 | -0.06 | -0.15 | -0.02 | -0.06 | -0.22 | 0.00 | -0.14 | -0.25 | 0.00 | -0.86 |
| DMGDH | -0.36 | -0.01 | -0.90 | -0.69 | -0.44 | 0.06 | 0.27 | 0.11 | -0.67 | -0.07 | -0.27 | 0.10 | 0.92 | 0.78 | 0.22 | 0.93 |
| DNAH6 | -0.51 | -0.38 | -0.16 | -0.32 | 0.05 | 0.09 | -0.04 | -0.33 | 0.22 | -0.11 | 0.19 | 0.25 | 0.18 | 0.19 | -0.21 | 0.87 |
| DNER | 0.22 | -0.01 | 0.44 | 0.03 | 0.22 | 0.14 | 0.05 | 0.08 | -0.05 | -0.04 | -0.05 | 0.11 | -0.29 | -0.38 | -0.31 | -0.16 |
| E2F3 | 0.32 | 0.12 | 0.23 | 0.10 | 0.22 | 0.03 | 0.05 | 0.17 | 0.03 | -0.20 | -0.19 | 0.20 | -0.13 | -0.48 | -0.22 | -0.25 |
| ECHDC2 | -0.16 | -0.03 | -0.50 | -0.15 | -0.14 | -0.47 | -0.11 | -0.20 | -0.06 | 0.14 | -0.01 | 0.16 | 0.54 | 0.43 | 0.35 | 0.22 |
| ELOVL2 | -0.20 | 0.11 | -1.06 | -0.54 | -0.26 | 0.11 | -0.06 | -0.18 | -0.06 | 0.22 | -0.27 | -0.03 | 0.55 | 0.64 | 0.57 | 0.47 |
| ENPP1 | -0.71 | -0.23 | -0.30 | -0.81 | -0.10 | -0.82 | 0.20 | 0.23 | 0.17 | -0.09 | 0.39 | -0.05 | 0.86 | 0.31 | -0.03 | 0.98 |
| EPHB1 | 0.17 | 0.28 | 0.40 | 0.17 | 0.58 | -0.26 | 0.10 | 0.39 | 0.24 | 0.08 | 0.23 | 0.07 | -0.62 | -0.50 | -0.32 | -1.04 |
| ERC2 | 0.19 | 0.02 | 0.29 | 0.17 | 0.09 | 0.10 | 0.04 | 0.02 | -0.17 | -0.11 | -0.07 | 0.10 | -0.22 | -0.12 | -0.19 | -0.13 |
| FAM135B | 0.22 | 0.01 | 0.18 | 0.18 | 0.27 | 0.04 | -0.01 | 0.02 | -0.04 | -0.09 | -0.11 | 0.08 | -0.15 | -0.17 | -0.22 | -0.22 |
| FAM46C | -0.77 | -0.50 | -0.39 | -0.49 | 0.06 | -0.44 | 0.15 | -0.22 | 0.69 | -0.03 | 0.02 | 0.27 | 0.99 | 0.37 | -0.73 | 1.02 |
| FBXL21 | 1.32 | 0.31 | 0.00 | 0.44 | -0.31 | 0.69 | -0.13 | -0.20 | 0.60 | -0.04 | -0.21 | -0.33 | -0.54 | -0.80 | -0.30 | -0.50 |
| FGF5 | -0.86 | -0.35 | -1.15 | -0.64 | 0.40 | -0.44 | -0.16 | 0.02 | 0.31 | 0.32 | 0.29 | 0.21 | 0.62 | 0.37 | 0.03 | 1.01 |
| FHOD3 | 0.15 | 0.61 | 0.29 | 0.23 | 0.09 | 0.19 | -0.13 | -0.08 | 0.10 | 0.47 | -0.23 | 0.24 | -0.56 | -0.59 | -0.30 | -0.50 |
| FKBP5 | -1.16 | 0.08 | -0.21 | -1.12 | -1.00 | -1.09 | -0.16 | -0.85 | -0.11 | -0.04 | -0.18 | -0.09 | 2.01 | 1.39 | 0.19 | 2.35 |
| FRMPD4 | 0.25 | 0.19 | 0.14 | -0.01 | 0.21 | 0.21 | 0.15 | 0.09 | -0.04 | -0.12 | -0.05 | -0.13 | -0.44 | -0.07 | -0.19 | -0.19 |
| GABBR2 | 0.14 | 0.17 | 0.18 | 0.04 | 0.18 | 0.07 | 0.01 | 0.07 | 0.05 | -0.12 | -0.10 | 0.07 | -0.32 | -0.02 | -0.17 | -0.25 |
| GALNT18 | 0.23 | 0.15 | 0.18 | 0.17 | 0.07 | 0.20 | -0.05 | 0.01 | -0.05 | -0.03 | -0.16 | 0.02 | -0.34 | 0.02 | -0.16 | -0.25 |
| GAP43 | 0.28 | 0.40 | 0.40 | -0.05 | 0.40 | 0.17 | 0.21 | 0.06 | -0.04 | -0.02 | 0.02 | 0.10 | -0.46 | -0.56 | -0.30 | -0.61 |
| GBAP1 | -0.03 | 0.73 | 0.81 | 0.59 | -0.02 | -0.17 | -0.25 | 0.21 | -0.32 | 0.27 | -0.33 | 0.05 | -0.76 | -0.34 | -0.07 | -0.37 |
| GDF11 | 0.32 | 0.27 | 0.33 | 0.16 | 0.17 | 0.16 | 0.03 | -0.06 | 0.31 | 0.06 | -0.08 | -0.05 | -0.47 | -0.16 | -0.56 | -0.43 |
| GPR161 | 0.33 | 0.11 | 0.39 | 0.35 | -0.25 | 0.06 | 0.02 | 0.13 | -0.22 | 0.01 | -0.01 | 0.18 | -0.17 | -0.40 | -0.22 | -0.33 |
| GPR63 | 0.76 | 0.30 | 0.27 | 0.62 | -0.02 | -0.21 | 0.39 | 0.47 | -0.89 | -0.08 | -0.05 | 0.19 | -0.33 | -0.89 | -0.43 | -0.11 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GREB1 | -0.14 | -0.21 | -0.55 | -0.23 | -0.32 | 0.11 | -0.34 | -0.21 | 0.15 | 0.18 | 0.08 | -0.10 | 0.49 | 0.57 | 0.28 | 0.24 |
| HCN4 | 0.38 | 0.66 | 0.15 | 0.37 | 0.12 | 0.17 | -0.17 | -0.15 | 0.06 | 0.09 | 0.01 | 0.07 | -0.29 | 0.05 | -0.63 | -0.88 |
| HECTD2-AS1 | -0.44 | -0.17 | 0.04 | -0.30 | -0.15 | -0.20 | -0.06 | -0.40 | -0.03 | -0.22 | 0.19 | -0.12 | -0.11 | 0.75 | 0.61 | 0.61 |
| IQSEC3 | 0.20 | 0.23 | 0.50 | 0.16 | 0.36 | 0.00 | -0.13 | 0.03 | -0.02 | 0.00 | -0.18 | 0.35 | -0.41 | -0.22 | -0.17 | -0.69 |
| KCNA4 | -0.17 | -0.44 | 0.15 | -0.51 | -0.36 | -0.24 | -0.38 | -0.52 | 0.07 | -0.13 | 0.52 | -0.28 | 0.38 | 0.27 | 0.88 | 0.75 |
| KIF26B | 0.11 | 0.42 | 0.51 | 0.12 | 0.25 | -0.01 | 0.06 | 0.09 | -0.28 | 0.01 | 0.16 | 0.23 | -0.73 | -0.37 | -0.10 | -0.47 |
| KRT222 | 0.41 | 0.12 | 0.21 | -0.05 | 0.13 | 0.58 | 0.26 | 0.23 | -0.18 | 0.03 | 0.06 | -0.11 | -0.50 | -0.59 | -0.35 | -0.25 |
| LACTB2-AS1 | -0.40 | -0.14 | -0.37 | -0.32 | -0.18 | 0.17 | -0.16 | -0.48 | -0.21 | 0.50 | 0.22 | 0.06 | -0.01 | 0.28 | 0.30 | 0.75 |
| LHFPL3 | 0.46 | 0.30 | 0.61 | 0.14 | 0.29 | 0.17 | -0.09 | -0.10 | 0.05 | -0.14 | -0.33 | -0.07 | -0.71 | -0.12 | -0.36 | -0.10 |
| LINC00457 | -0.43 | -0.31 | -0.87 | -0.44 | -0.40 | -0.29 | 0.21 | -0.34 | 0.74 | 0.18 | -0.36 | 0.04 | 0.37 | 0.81 | -0.03 | 1.10 |
| LINC00499 | -0.37 | -0.34 | -0.51 | -0.39 | -0.73 | -0.01 | -0.11 | -0.20 | -0.01 | -0.13 | -0.20 | -0.17 | 0.94 | 0.21 | 0.13 | 1.90 |
| LINC01158 | -0.55 | -0.06 | -0.88 | -0.37 | 0.19 | -0.65 | 0.15 | -0.24 | 0.33 | 0.38 | -0.63 | 0.40 | 0.58 | 0.37 | 0.53 | 0.45 |
| LOC105377448 | -0.64 | 0.11 | -0.52 | -0.36 | -0.24 | 0.07 | -0.29 | 0.06 | -0.29 | 0.33 | -0.18 | 0.12 | 0.93 | 0.12 | 0.40 | 0.38 |
| LOC285692 | -0.51 | -0.44 | -1.15 | -0.57 | 0.01 | -0.10 | -0.28 | 0.04 | -0.14 | 0.48 | -0.75 | 0.07 | 1.63 | 0.51 | -0.14 | 1.33 |
| LOC653602 | 0.81 | 0.36 | -0.09 | 0.03 | -0.18 | 0.58 | 0.24 | 0.21 | 0.14 | 0.24 | 0.06 | -0.09 | -0.81 | -0.47 | -0.36 | -0.70 |
| LPCAT4 | 0.28 | -0.10 | 0.51 | 0.48 | 0.53 | -0.04 | -0.04 | 0.22 | -0.03 | -0.14 | -0.30 | 0.02 | -0.43 | -0.33 | -0.08 | -0.57 |
| MARC2 | -0.27 | -0.18 | -0.34 | -0.49 | -0.33 | 0.26 | -0.25 | -0.09 | 0.15 | 0.28 | 0.01 | 0.06 | 0.25 | 0.24 | 0.28 | 0.43 |
| MARCH11 | 0.41 | 0.12 | 0.15 | 0.05 | 0.23 | 0.21 | 0.17 | 0.12 | -0.09 | -0.26 | -0.11 | -0.03 | -0.29 | -0.26 | -0.18 | -0.24 |
| MASP1 | 0.50 | -0.08 | 0.47 | 0.38 | 0.37 | 0.39 | 0.33 | -0.17 | -0.25 | 0.06 | 0.49 | -0.22 | -0.68 | -0.45 | -0.27 | -0.87 |
| MEGF10 | 0.27 | 0.13 | 0.15 | -0.06 | 0.08 | 0.27 | 0.13 | 0.05 | -0.05 | -0.16 | 0.00 | -0.06 | -0.11 | -0.27 | -0.20 | -0.15 |
| MTHFSD | 0.38 | 0.22 | 0.64 | 0.15 | 0.24 | -0.34 | -0.08 | 0.12 | -0.16 | -0.25 | -0.07 | 0.16 | -0.32 | -0.19 | -0.23 | -0.28 |
| MYRIP | -0.62 | -0.10 | -0.48 | -0.57 | 0.03 | 0.02 | 0.06 | -0.04 | 0.24 | 0.36 | -0.10 | 0.31 | -0.15 | 0.03 | 0.13 | 0.89 |
| NHS | 0.29 | 0.24 | 0.39 | 0.16 | 0.17 | -0.03 | -0.03 | 0.10 | -0.03 | 0.00 | -0.17 | 0.05 | -0.39 | -0.35 | -0.31 | -0.10 |
| NOS1 | 0.17 | 0.17 | 0.27 | 0.13 | 0.24 | 0.13 | 0.03 | -0.05 | -0.02 | -0.08 | 0.06 | -0.07 | -0.12 | -0.13 | -0.09 | -0.63 |
| NPL | -0.36 | -0.12 | -0.17 | -0.54 | -0.31 | -0.56 | 0.09 | -0.15 | -0.17 | 0.10 | 0.11 | 0.10 | 0.57 | 0.53 | 0.28 | 0.59 |
| NPY6R | -0.15 | -0.19 | -0.45 | -0.20 | -0.09 | -0.02 | -0.12 | -0.12 | -0.05 | -0.03 | 0.37 | -0.02 | 0.35 | 0.31 | 0.08 | 0.33 |
| NTNG1 | 0.77 | 0.46 | 0.12 | 0.30 | 0.19 | 0.26 | -0.03 | 0.10 | 0.06 | -0.28 | -0.54 | -0.19 | -0.54 | -0.31 | -0.09 | -0.29 |
| NXNL2 | 1.10 | -0.41 | 1.75 | 1.11 | -0.19 | -0.35 | -0.04 | -0.39 | -0.54 | -0.49 | -0.01 | -0.25 | -0.08 | -0.25 | -0.71 | -0.25 |
| PAQR6 | -0.12 | -0.33 | -0.51 | -0.18 | -0.28 | -0.40 | -0.23 | -0.16 | 0.07 | 0.15 | -0.40 | -0.16 | -0.04 | 0.92 | 1.22 | 0.46 |
| PARM1 | 0.38 | 0.26 | 1.16 | 0.42 | 0.87 | -0.34 | -0.18 | 0.29 | 0.09 | 0.39 | -0.47 | 0.00 | -1.49 | -0.49 | -0.35 | -0.55 |
| PCP4 | 0.95 | 0.96 | 0.28 | 0.85 | -0.46 | 0.49 | -0.32 | -0.33 | -0.39 | -0.05 | -0.70 | 0.60 | -0.13 | -0.67 | -0.89 | -0.18 |
| PEBP4 | -0.08 | -0.45 | -0.58 | -0.59 | -0.82 | -0.56 | -0.19 | -0.52 | 0.23 | 0.21 | 0.02 | -0.19 | 0.46 | 1.30 | 0.67 | 1.11 |
| PHACTR2-AS1 | 0.20 | 0.34 | 0.24 | -0.06 | 0.38 | 0.05 | 0.22 | 0.04 | -0.10 | -0.17 | -0.10 | 0.14 | -0.28 | -0.19 | -0.06 | -0.64 |
| PHKA1 | -0.59 | -0.22 | -0.41 | -0.46 | 0.13 | 0.13 | -0.18 | -0.20 | 0.09 | 0.36 | 0.02 | 0.11 | -0.23 | -0.18 | 0.29 | 1.34 |
| PLPPR4 | 0.40 | 0.27 | 0.31 | 0.61 | 0.31 | 0.85 | 0.62 | -0.21 | 0.21 | -0.12 | 0.18 | -0.48 | -1.41 | -0.78 | -0.70 | -0.05 |
| PLXNA4 | 0.48 | 0.46 | 0.32 | 0.35 | 0.05 | 0.25 | -0.19 | -0.11 | -0.20 | 0.01 | -0.21 | 0.10 | -0.28 | -0.25 | -0.44 | -0.35 |
| PRKCG | 0.22 | -0.02 | 0.97 | 0.25 | 0.26 | 0.11 | -0.21 | -0.05 | -0.16 | 0.23 | -0.22 | 0.01 | -0.24 | -0.30 | -0.29 | -0.57 |
| RGMB | 0.46 | 0.22 | 0.58 | 0.09 | 0.27 | 0.36 | -0.09 | 0.07 | 0.16 | 0.06 | 0.32 | -0.07 | -0.50 | -0.46 | -0.71 | -0.76 |
| RNF212 | -0.32 | -0.13 | -0.35 | -0.44 | -0.07 | -0.16 | -0.03 | -0.40 | 0.19 | 0.58 | -0.02 | 0.21 | -0.12 | 0.26 | 0.42 | 0.38 |
| RNF215 | 0.29 | 0.41 | 0.78 | 0.13 | 0.62 | -0.26 | -0.08 | 0.07 | 0.15 | -0.36 | 0.00 | -0.46 | -0.17 | -0.08 | -0.62 | -0.42 |
| RORA | 0.19 | 0.28 | 0.09 | 0.09 | 0.25 | 0.32 | 0.23 | 0.08 | 0.10 | -0.08 | -0.01 | -0.07 | -0.59 | -0.24 | -0.18 | -0.46 |
| RPH3A | 0.37 | 0.51 | 0.49 | 0.13 | 0.37 | 0.65 | -0.47 | 0.05 | 0.02 | 0.17 | -0.51 | 0.07 | -0.68 | -0.27 | -0.45 | -0.43 |
| RPS6KA5 | -0.49 | -0.17 | -0.53 | -0.35 | -0.38 | 0.27 | 0.37 | -0.37 | -0.13 | 0.27 | 0.10 | -0.09 | 0.47 | 0.03 | 0.32 | 0.67 |
| SCN2B | 0.05 | 0.49 | 0.56 | 0.08 | 0.53 | -0.13 | -0.07 | 0.22 | -0.10 | -0.05 | 0.10 | 0.01 | 0.11 | -0.41 | -0.74 | -0.65 |
| SEPSECS | -0.07 | -0.39 | -0.12 | -0.32 | 0.06 | -0.36 | -0.08 | -0.29 | 0.30 | -0.06 | 0.08 | -0.06 | 0.33 | 0.19 | 0.08 | 0.71 |
| SEPSECS-AS1 | 0.16 | -0.97 | -0.79 | -1.06 | 0.11 | 0.10 | -0.19 | 0.14 | 0.22 | 0.12 | 0.30 | 0.23 | -0.01 | 0.28 | 0.61 | 0.78 |
| SHANK1 | 0.23 | 0.01 | 0.92 | 0.43 | 0.38 | -0.04 | -0.28 | 0.05 | -0.16 | -0.11 | -0.21 | 0.22 | -0.38 | -0.15 | -0.15 | -0.76 |
| SHANK2 | 0.08 | 0.12 | 0.42 | 0.18 | 0.33 | 0.11 | -0.03 | -0.08 | -0.07 | -0.02 | -0.06 | 0.08 | -0.29 | -0.06 | -0.20 | -0.52 |
| SLC12A5 | 0.19 | 0.07 | 0.37 | 0.15 | 0.10 | -0.04 | 0.07 | 0.15 | 0.10 | 0.16 | 0.17 | -0.07 | -0.19 | -0.38 | -0.40 | -0.44 |
| SLC17A4 | -0.41 | -0.08 | -0.28 | -0.93 | 0.08 | -0.57 | -0.09 | -0.02 | 0.23 | -0.15 | 0.00 | -0.26 | 0.52 | 0.81 | -0.28 | 1.42 |
| SLC25A29 | 0.27 | 0.50 | 0.28 | 0.43 | 0.05 | -0.18 | -0.19 | 0.15 | 0.01 | -0.15 | -0.10 | 0.20 | -0.23 | -0.20 | -0.11 | -0.74 |
| SLC26A8 | -0.06 | -0.49 | -0.14 | -0.60 | -0.33 | 0.04 | -0.36 | 0.05 | -0.12 | 0.26 | 0.33 | -0.19 | 0.14 | 0.73 | 0.36 | 0.38 |
| SLC35F4 | 0.55 | 0.29 | 0.42 | 0.58 | -0.11 | 0.14 | -0.07 | 0.11 | -0.37 | 0.00 | -0.41 | 0.29 | -0.49 | -0.58 | -0.30 | -0.07 |
| SLC8A3 | 0.65 | 0.18 | 0.19 | 0.13 | 0.37 | 0.31 | -0.01 | 0.07 | -0.09 | -0.02 | -0.15 | -0.01 | -0.64 | -0.08 | -0.24 | -0.67 |
| SPARCL1 | -0.77 | -0.10 | -0.57 | -0.72 | -0.59 | -0.52 | -0.18 | -0.20 | -0.21 | 0.30 | 0.14 | -0.02 | 0.74 | 1.26 | 0.32 | 1.12 |
| SPHK2 | 0.15 | -0.02 | 0.80 | 0.68 | 0.33 | -0.27 | -0.20 | 0.06 | -0.25 | -0.09 | 0.10 | -0.07 | -0.13 | -0.23 | -0.38 | -0.49 |
| SPON2 | -0.29 | -0.33 | -0.11 | -0.56 | 0.05 | -0.21 | 0.13 | -0.26 | 0.21 | -0.34 | -0.09 | -0.31 | 0.12 | 0.45 | 0.88 | 0.67 |
| ST6GAL2 | 0.51 | 0.31 | 0.32 | 0.13 | 0.33 | 0.25 | 0.02 | 0.10 | -0.13 | -0.20 | -0.02 | -0.16 | -0.37 | -0.38 | -0.22 | -0.47 |
| ST6GALNAC5 | -0.58 | -0.85 | -1.38 | -0.75 | -0.70 | -0.75 | -0.29 | 0.23 | 0.75 | 0.25 | 0.09 | 0.54 | 0.58 | 0.52 | 0.53 | 1.79 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STAT5A | -0.65 | -0.39 | -0.73 | -0.24 | -0.65 | -0.32 | -0.09 | 0.21 | -0.45 | -0.06 | -0.19 | -0.66 | 1.51 | 1.76 | 0.04 | 0.91 |
| STK33 | -0.29 | 0.17 | -0.69 | -0.59 | -0.48 | -0.13 | -0.06 | -0.28 | 0.24 | 0.16 | 0.10 | 0.20 | -0.17 | 0.30 | 0.51 | 1.02 |
| SV2C | 0.22 | -0.68 | -0.22 | -0.51 | 0.04 | -0.49 | -0.65 | -0.44 | 0.20 | 0.03 | -0.10 | -0.19 | 0.73 | 0.88 | -0.05 | 1.22 |
| SYT17 | -0.91 | 0.01 | -0.50 | -0.62 | 0.37 | -0.48 | -0.53 | -0.63 | 0.39 | 0.16 | 0.31 | 0.68 | -0.26 | 0.55 | 0.76 | 0.69 |
| TEX9 | -0.39 | -0.56 | -1.01 | -0.33 | -0.63 | 0.29 | 0.20 | -0.16 | -0.08 | 0.37 | 0.17 | -0.08 | 0.30 | 0.37 | -0.10 | 1.63 |
| TFAP2B | 0.62 | 0.07 | 0.30 | 0.19 | 0.28 | 0.47 | -0.08 | 0.03 | -0.04 | -0.12 | -0.15 | 0.09 | -0.68 | -0.09 | -0.24 | -0.64 |
| THSD7B | 0.71 | 1.09 | 1.30 | 0.78 | -0.43 | 0.78 | 0.39 | 0.17 | 0.19 | -0.23 | -0.76 | 0.52 | -0.76 | -1.36 | -0.45 | -1.95 |
| TMEM178B | 0.15 | 0.14 | 0.21 | 0.02 | 0.13 | 0.03 | 0.10 | 0.10 | 0.00 | -0.13 | -0.06 | 0.05 | -0.32 | -0.07 | -0.16 | -0.20 |
| TRAF5 | 0.40 | 0.02 | 0.66 | 0.13 | -0.09 | 0.22 | 0.05 | 0.04 | -0.19 | -0.06 | -0.23 | -0.10 | -0.18 | -0.09 | -0.21 | -0.38 |
| TRIM67 | 0.54 | 0.00 | 0.33 | 0.46 | 0.17 | 0.22 | -0.17 | 0.04 | -0.09 | -0.24 | -0.25 | 0.23 | -0.61 | -0.06 | -0.29 | -0.30 |
| TTC23L | -0.28 | -0.06 | -0.54 | -0.42 | 0.00 | 0.09 | -0.20 | -0.42 | 0.03 | 0.22 | -0.14 | 0.04 | 0.37 | 0.43 | 0.31 | 0.56 |
| TUNAR | 0.73 | 0.28 | 0.47 | 0.49 | 0.29 | 0.07 | -0.65 | -0.05 | -0.21 | -0.07 | -0.44 | 0.01 | -0.24 | -0.20 | -0.20 | -0.27 |
| UBASH3B | 0.23 | 0.41 | 0.58 | 0.00 | 0.37 | -0.11 | 0.12 | 0.06 | 0.03 | -0.17 | -0.02 | 0.08 | -0.38 | -0.30 | -0.03 | -0.88 |
| UNC5D | 0.23 | 0.20 | 0.36 | -0.02 | 0.20 | 0.01 | 0.24 | -0.05 | -0.14 | -0.18 | -0.08 | 0.06 | -0.30 | -0.32 | -0.14 | -0.07 |
| ZNF124 | -0.59 | -0.10 | -0.02 | -0.16 | -0.31 | 0.00 | -0.18 | -0.14 | -0.11 | -0.31 | -0.23 | 0.29 | 0.54 | 0.33 | 0.34 | 0.64 |
| ZYG11A | -0.68 | -0.08 | -0.28 | -0.47 | -0.11 | -0.33 | -0.28 | 0.04 | 0.51 | 0.36 | 0.03 | 0.05 | 0.23 | 0.71 | -0.04 | 0.35 |

**[00316]** The RNAseq results in glia cells for the 42 genes having significantly altered expression due to age in the three cell types are shown in Table 54. The log2 fold change between the RNAseq results for the sorted nuclei from glia from each human sample compared to normalized expresssion from unsorted nuclei from all samples are shown in Table 54. Negative values indicate reduced expression in the nuclei of the subject compared to the normalized value across nuclei from all samples, and a positive value indicates increased expresssion compared to the normalized value across nuclei from all cell types analyzed.

**Table 54. Log2 fold change of expression in glia**

| | Log2 fold change of expression | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | xk | tm | wi | pk | vm | wl | sg | or | lt | zh | ko | kq | ke | ai |
| Gene | | | | | | | | | | | | | | |
| ABCC10 | 0.53 | -0.23 | 0.38 | -0.26 | -0.97 | 0.42 | 0.31 | 0.19 | -0.02 | -0.15 | -0.51 | -0.45 | 0.11 | -0.96 |
| ACAP3 | 0.17 | -0.41 | 0.49 | 0.17 | -0.68 | 0.34 | 0.03 | 0.50 | -0.03 | -0.52 | -0.41 | -0.57 | 0.04 | -1.00 |
| ACHE | -0.34 | -0.44 | -0.37 | 0.22 | -0.75 | -0.51 | -0.47 | -0.72 | -0.92 | -0.20 | -0.13 | -0.98 | -0.62 | -1.63 |
| ATF6B | 0.49 | 0.00 | 0.48 | 0.08 | -0.44 | 0.27 | 0.17 | 0.10 | 0.10 | -0.34 | -0.03 | -0.10 | 0.22 | -0.92 |
| ATP6V0B | 0.04 | 0.03 | -0.13 | -0.16 | 0.20 | 0.43 | -0.37 | -0.14 | 0.29 | 0.13 | 0.04 | -0.75 | 0.12 | -0.74 |
| CACNA2D3 | 0.00 | -0.05 | 0.09 | 0.44 | -0.03 | 0.02 | -0.07 | -0.19 | 0.05 | 0.22 | -0.24 | 0.13 | -0.02 | 0.65 |
| CUL7 | -0.12 | -0.58 | -0.21 | -0.28 | -0.72 | -0.29 | -0.53 | -0.19 | -0.40 | -0.56 | -0.38 | -0.77 | -0.44 | -1.18 |
| DNAJB5 | -0.40 | 0.29 | 0.06 | -0.22 | 0.02 | -0.18 | -0.26 | -0.12 | -0.50 | 0.04 | -0.53 | -1.11 | -0.51 | -1.06 |
| EGR1 | -0.37 | -1.68 | 3.58 | -0.10 | 3.53 | -1.56 | -0.54 | 0.22 | -0.52 | 2.95 | -0.66 | -1.22 | -0.52 | -2.16 |
| FZR1 | 0.51 | 0.31 | 0.38 | -0.16 | -0.70 | 0.36 | -0.24 | 0.16 | -0.09 | 0.09 | -0.09 | -0.88 | -0.16 | -1.40 |
| GBAP1 | 0.64 | 0.72 | 0.78 | 0.28 | -0.10 | 0.62 | 0.43 | 0.37 | 0.04 | 0.24 | -0.57 | -0.15 | 0.36 | -0.46 |
| GPR107 | 0.09 | 0.15 | 0.06 | 0.01 | 0.00 | -0.09 | 0.00 | 0.18 | 0.05 | 0.04 | 0.12 | -0.17 | -0.05 | -0.40 |
| GRK5 | -0.60 | -0.75 | -0.37 | -0.76 | -1.12 | -0.19 | -0.64 | -0.73 | -0.86 | -0.65 | -0.88 | -1.57 | -0.85 | -1.33 |
| KCTD21-AS1 | 0.21 | 0.70 | -0.31 | 1.03 | -0.22 | 0.40 | 0.49 | 0.13 | 0.50 | -0.70 | -0.38 | -0.62 | -0.26 | -0.13 |
| KLHL22 | -0.09 | 0.15 | 0.05 | -0.09 | -0.54 | -0.17 | -0.21 | -0.14 | -0.31 | -0.04 | -0.21 | -0.17 | -0.24 | -0.41 |
| LINC00499 | 0.00 | -0.49 | 0.87 | 0.63 | 0.59 | -0.22 | 3.04 | 1.06 | -0.03 | 0.49 | 3.88 | 1.05 | 1.12 | 4.88 |
| LINGO2 | -1.09 | 0.54 | 0.44 | -0.81 | -0.24 | 1.43 | -0.23 | -1.10 | -1.03 | -0.72 | -1.45 | -1.10 | -0.43 | -0.07 |
| LOC100132077 | 0.26 | -0.27 | -0.25 | -0.23 | 0.06 | -0.27 | -0.12 | 0.29 | -0.09 | -0.47 | -0.55 | -0.54 | -0.37 | -0.66 |
| LOC100506990 | -0.27 | 0.31 | 0.08 | 0.22 | -0.29 | -0.23 | 0.10 | -0.07 | -0.27 | 0.02 | 0.14 | 0.95 | 0.06 | 0.82 |
| LOC101927592 | -0.67 | -0.18 | -0.29 | 0.19 | 0.42 | -0.31 | -0.33 | 0.01 | -0.37 | -0.46 | 0.50 | 0.35 | -0.32 | 1.12 |
| MIR9-3HG | 0.40 | -0.06 | 0.34 | 0.49 | -0.46 | 0.13 | 0.36 | 0.04 | -0.35 | -0.01 | -0.67 | -0.97 | -0.67 | -1.74 |
| MPND | 0.33 | 0.68 | 0.07 | -0.09 | -0.78 | -0.09 | 0.05 | -0.14 | -0.31 | 0.00 | -0.25 | -0.56 | -0.39 | -1.20 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTRF1 | 0.12 | -0.01 | -0.17 | 0.41 | 0.40 | 0.17 | -0.48 | 0.16 | 0.09 | 0.17 | 0.04 | 0.82 | 0.15 | 0.68 |
| POLR2J3 | 0.31 | 0.74 | 0.35 | 0.01 | 0.10 | 0.33 | 0.49 | 0.66 | -0.27 | 0.05 | -0.29 | -0.88 | 0.19 | -0.99 |
| PPP6R2 | 0.20 | -0.02 | -0.03 | 0.01 | -0.12 | 0.05 | 0.20 | -0.08 | -0.01 | -0.02 | -0.06 | -0.13 | -0.24 | -0.59 |
| PRSS55 | 0.04 | -1.98 | -0.13 | -0.46 | -1.29 | 0.45 | 0.25 | 0.07 | -0.53 | -0.74 | 0.36 | -0.25 | -0.93 | 0.26 |
| PTMS | -0.26 | -0.69 | -0.17 | -0.29 | -1.03 | -0.62 | -0.62 | -0.57 | -1.38 | -0.40 | -0.83 | -1.22 | -1.29 | -2.14 |
| RNF17 | 0.63 | 0.54 | -1.43 | -0.89 | -0.92 | -0.25 | -1.04 | -1.07 | 1.04 | -1.37 | -0.75 | -0.79 | -0.63 | -0.02 |
| SNAI3-AS1 | 0.20 | -0.28 | 0.40 | 0.53 | 0.29 | 0.13 | 0.24 | 0.07 | 0.00 | -0.01 | -0.24 | -0.58 | -0.35 | -0.65 |
| SPHK2 | 0.46 | -0.13 | 0.07 | 0.30 | -0.29 | 0.53 | 0.08 | 0.11 | 0.06 | -0.09 | 0.05 | 0.08 | 0.05 | -0.50 |
| ST3GAL2 | 0.11 | -0.03 | 0.03 | -0.21 | -0.65 | -0.12 | -0.30 | -0.36 | -0.43 | -0.22 | -0.54 | -0.59 | -0.23 | -0.98 |
| TAOK2 | 0.36 | 0.01 | 0.33 | 0.00 | -0.30 | 0.02 | 0.16 | 0.32 | -0.02 | -0.11 | 0.00 | -0.32 | -0.07 | -0.52 |
| TRDN | -0.42 | 0.85 | 0.63 | 2.04 | 2.11 | 1.20 | 1.58 | 1.59 | 1.32 | 2.45 | 1.80 | 4.47 | 1.16 | 4.44 |
| WASH7P | 0.45 | 0.36 | 0.39 | 0.20 | -0.30 | -0.08 | 0.54 | 0.32 | 0.00 | -0.19 | -0.05 | -0.58 | -0.18 | -1.77 |
| ZFPM1 | 0.15 | -0.11 | 0.25 | 0.24 | -0.28 | 0.13 | -0.06 | -0.21 | -0.25 | -0.21 | -0.30 | -1.08 | -0.14 | -0.44 |
| ZNF404 | -0.45 | 0.18 | -0.07 | 0.51 | 0.56 | -0.06 | -0.29 | -0.53 | -0.17 | 0.01 | -0.23 | 0.37 | 0.11 | 1.26 |
| ZNF496 | 0.14 | 0.12 | -0.05 | 0.00 | -0.23 | -0.16 | -0.17 | 0.10 | -0.15 | -0.16 | -0.16 | -0.10 | -0.06 | -0.45 |
| ZNF580 | -0.18 | 0.44 | 0.32 | 0.94 | -0.29 | 0.03 | 0.02 | 0.01 | 0.03 | -0.14 | 0.45 | -0.30 | -0.02 | -0.12 |
| ZNF585A | -0.24 | -0.18 | -0.01 | -0.21 | -0.06 | -0.23 | -0.13 | -0.26 | -0.03 | -0.13 | -0.01 | -0.05 | 0.08 | 0.61 |
| ZNF607 | -0.09 | -0.01 | -0.13 | -0.24 | 0.36 | -0.13 | 0.17 | 0.16 | 0.25 | -0.13 | 0.32 | 0.28 | 0.07 | 0.20 |
| ZNF84 | 0.01 | 0.02 | -0.14 | 0.13 | 0.31 | 0.07 | 0.09 | 0.03 | 0.21 | 0.16 | 0.04 | 0.36 | 0.26 | 0.37 |
| ZSCAN29 | 0.07 | 0.17 | 0.02 | 0.11 | -0.28 | 0.00 | 0.34 | 0.05 | 0.19 | 0.08 | 0.47 | 0.72 | 0.23 | 1.02 |

**[00317]** These data suggest that the specific molecular consequences of aging, at least in the cerebellum, differ according to cell type. Despite differences in the genes impacted by aging in each cell types, it remained possible that the cellular processes altered by these changes are related between cell types.

**[00318]** The genes down-regulated with age in all three cell types, despite containing different specific genes, were enriched for synaptic genes. For example, Aquaporin 7 (Aqp7) (p-adj = 3.78E-9) and Acid Sensing Ion Channel Subunit 1 (Asic1) (p-adj = 4.07E-7) were observed to be down-regulated with age in granule cells as shown in FIG. 11A and FIG. 11B, respectively. FIG. 11C shows that Roundabout Guidance Receptor 2 (Robo2) was downregulated in both glia in basket cells. The finding that genes encoding synaptic components decline in expression with age is consistent with previous findings that axons and dendrites atrophy in the brains of older individuals (Burke, et al. (2006) Nat Rev Neurosci 7, pages 30–40 (2006); Dickstein, et al. (2013) Neuroscience 251, 21–32; Freeman, et al. (2008) J. Neuropathol. Exp. Neurol. 67, 1205–1212; each of which is herby incorporated by reference herein in its entirety). However, the data herein extend these observations to establish that this general process impacts distinct genes in each cell type.

**[00319]** To test this hypothesis, GO analysis was performed on the genes that are up- or down-regulated with age in each cell type. No significant GO categories for any group of aging up-regulated genes were observed, nor were significant GO categories identified for the aging up-downregulated genes from the "all cell types" group.

**Example 22. Determining effects of stress on human cell-type specific gene expression**

**[00320]** Transcriptional induction of immediate early genes such as Fos Proto-Oncogene, AP-1 Transcription Factor Subunit (Fos, also known as c-FOS) and JunB Proto-Oncogene, AP-1 Transcription Factor Subunit (Junb) is associated with neuronal activation, and can indicate normal behavioral responses or pathological influences (Okuno, H. (2011) Neuroscience Research 69, 175–186 and Pérez-Cadahía, et al. (2011) Biochem. Cell Biol. 89, 61–73, each of which is hereby incorporated by reference herein in its entirety). Although immediate early response genes associated with these events are often shared, the target genes and pathways induced by these factors reflect the nature of the event experienced by the cell or circuit (Duclot, et al. (2017) Front. Behav. Neurosci. 11, 717, which is hereby incorporated by reference herein in its entirety). A stress response was observed to induce a group of genes in three out of the 16 human samples and that are not explained by race, autolysis time, gender, or age. Table 55 provides the differentially expressed genes (adjusted p <0.01, baseMean > 50) across all samples compared to normalized expression for all cell types.

**Table 55. Differentially expressed genes across all samples**

| Gene | Base Mean | Log2 Change | p-value | p-adj | Gene | Base Mean | Log2 Change | p-value | p-adj |
|---|---|---|---|---|---|---|---|---|---|
| HSP90AA1 | 6188.357 | -2.067 | 9.64E-21 | 1.08E-17 | DNAJB1 | 383.949 | -3.687 | 8.95E-34 | 6.32E-30 |
| ARIH1 | 4367.296 | -0.583 | 5.64E-05 | 7.38E-03 | HIST2H2BF | 378.006 | -2.354 | 8.62E-09 | 2.50E-06 |
| ELOVL5 | 3827.847 | -1.824 | 2.83E-17 | 2.07E-14 | NR4A1 | 374.351 | -5.233 | 3.98E-21 | 4.69E-18 |
| HSD17B12 | 3577.832 | -0.480 | 1.81E-05 | 2.71E-03 | NR4A2 | 373.846 | -3.427 | 4.39E-05 | 5.93E-03 |
| ZNF331 | 3415.054 | -3.451 | 3.53E-19 | 3.12E-16 | ZNF184 | 373.550 | -1.158 | 1.37E-06 | 2.77E-04 |
| PDE7A | 2643.373 | -0.494 | 5.37E-05 | 7.11E-03 | DNAJC27 | 373.271 | -0.478 | 3.33E-05 | 4.64E-03 |
| BTAF1 | 2229.841 | -0.739 | 2.37E-06 | 4.61E-04 | FOS | 369.433 | -6.017 | 1.06E-19 | 1.02E-16 |
| HSPA8 | 2191.727 | -1.558 | 1.46E-11 | 6.74E-09 | HECA | 368.497 | -0.721 | 4.25E-08 | 1.13E-05 |
| HSPH1 | 2090.803 | -3.685 | 5.34E-16 | 3.23E-13 | NKRF | 355.175 | -1.361 | 5.40E-09 | 1.61E-06 |
| JMY | 2019.885 | -0.754 | 1.22E-05 | 1.90E-03 | SNAPC1 | 347.452 | -0.687 | 4.29E-07 | 9.68E-05 |
| RANBP2 | 1752.608 | -0.610 | 7.44E-05 | 9.50E-03 | C2orf69 | 343.055 | -0.932 | 7.88E-08 | 1.99E-05 |
| TSC22D2 | 1601.991 | -0.686 | 3.74E-08 | 1.03E-05 | SLC2A3 | 342.277 | -2.283 | 3.40E-06 | 6.38E-04 |
| MXD1 | 1400.731 | -1.631 | 1.10E-10 | 4.25E-08 | ETF1 | 338.703 | -0.538 | 8.16E-06 | 1.37E-03 |
| P4HA1 | 1393.996 | -1.058 | 7.76E-06 | 1.33E-03 | DCUN1D3 | 330.486 | -0.959 | 2.15E-07 | 5.17E-05 |
| TRA2B | 1262.337 | -0.680 | 1.57E-05 | 2.39E-03 | BCAS2 | 321.395 | -3.293 | 7.30E-42 | 1.55E-37 |
| RHEB | 1238.794 | -0.597 | 1.08E-05 | 1.71E-03 | BTG2 | 313.734 | -2.758 | 2.11E-11 | 9.30E-09 |
| DNAJB4 | 1096.419 | -1.263 | 8.49E-11 | 3.33E-08 | CASP9 | 292.778 | -0.856 | 1.33E-06 | 2.72E-04 |
| PNPLA8 | 1054.161 | -1.221 | 8.29E-09 | 2.44E-06 | HIST1H2BD | 292.613 | -3.518 | 1.85E-22 | 3.02E-19 |
| DNAJB6 | 991.014 | -1.231 | 5.14E-09 | 1.56E-06 | TOB1 | 288.226 | -1.607 | 4.63E-17 | 3.17E-14 |
| IFRD1 | 973.938 | -1.187 | 1.64E-11 | 7.38E-09 | SIAH2 | 280.639 | -0.726 | 1.03E-05 | 1.64E-03 |
| HSPA1A | 967.333 | -5.435 | 9.97E-29 | 4.23E-25 | ZBTB21 | 264.251 | -0.836 | 5.53E-08 | 1.43E-05 |
| ZFAND5 | 967.094 | -1.175 | 2.64E-05 | 3.81E-03 | LINC00278 | 263.479 | 4.992 | 2.41E-07 | 5.68E-05 |
| ST13 | 920.222 | -0.616 | 3.45E-06 | 6.38E-04 | TMEM198 | 261.699 | -1.077 | 4.71E-07 | 1.05E-04 |
| ZNF10 | 919.734 | -1.805 | 6.26E-16 | 3.69E-13 | UBC | 253.145 | -1.724 | 3.16E-17 | 2.23E-14 |
| NDEL1 | 900.829 | -1.315 | 1.30E-12 | 6.88E-10 | KLHL15 | 252.472 | -0.902 | 5.28E-07 | 1.15E-04 |
| ZNF141 | 863.045 | -1.026 | 2.84E-05 | 3.99E-03 | STIP1 | 245.513 | -1.267 | 8.29E-12 | 3.91E-09 |
| DNAJA4 | 845.930 | -1.533 | 3.23E-12 | 1.63E-09 | JOSD1 | 234.644 | -0.887 | 4.28E-10 | 1.54E-07 |
| MORF4L2 | 840.065 | -0.897 | 1.17E-08 | 3.34E-06 | HSPE1-MOB | 225.041 | -3.154 | 6.16E-24 | 1.63E-20 |
| CHORDC1 | 824.510 | -1.208 | 8.27E-11 | 3.31E-08 | SOD1 | 219.698 | -0.721 | 5.44E-06 | 9.60E-04 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EIF2AK3 | 788.209 | -1.055 | 3.30E-06 | 6.24E-04 | NUDC | 218.371 | -0.803 | 4.20E-07 | 9.57E-05 |
| ERRFI1 | 782.244 | -0.879 | 9.11E-06 | 1.49E-03 | MCL1 | 217.860 | -0.600 | 2.67E-05 | 3.82E-03 |
| HSPA4 | 772.635 | -0.998 | 1.47E-09 | 5.03E-07 | HERPUD1 | 215.632 | -0.928 | 1.41E-10 | 5.24E-08 |
| TFRC | 755.081 | -1.881 | 1.51E-10 | 5.52E-08 | DUSP1 | 201.332 | -3.227 | 5.96E-19 | 5.05E-16 |
| CCNH | 740.080 | -1.581 | 6.17E-11 | 2.57E-08 | FOSL2 | 193.863 | -3.422 | 1.25E-10 | 4.73E-08 |
| USPL1 | 725.467 | -0.902 | 3.17E-09 | 1.00E-06 | LOC403323 | 187.003 | 1.765 | 3.88E-05 | 5.34E-03 |
| PTGES3 | 719.883 | -1.665 | 1.33E-12 | 6.88E-10 | SPTY2D1 | 170.668 | -0.616 | 6.16E-05 | 7.97E-03 |
| ZNF131 | 718.183 | -0.432 | 5.61E-07 | 1.21E-04 | AHSA1 | 167.130 | -0.966 | 1.61E-07 | 3.93E-05 |
| HSPA9 | 657.744 | -0.554 | 7.13E-07 | 1.53E-04 | JUN | 158.789 | -2.706 | 4.89E-07 | 1.08E-04 |
| NAMPT | 651.933 | -1.382 | 1.48E-06 | 2.93E-04 | EIF4A3 | 154.036 | -2.954 | 2.15E-23 | 5.06E-20 |
| SRSF3 | 646.750 | -1.051 | 1.27E-05 | 1.97E-03 | MBOAT7 | 144.304 | -0.826 | 3.89E-08 | 1.06E-05 |
| PPP2CA | 643.874 | -0.623 | 2.68E-06 | 5.12E-04 | ZNF891 | 142.869 | -0.746 | 7.92E-05 | 9.99E-03 |
| PRMT9 | 626.415 | -1.450 | 3.13E-09 | 1.00E-06 | HIST2H2BE | 137.895 | -2.236 | 2.78E-16 | 1.79E-13 |
| HMGCS1 | 604.092 | -2.002 | 1.82E-08 | 5.13E-06 | TCEAL5 | 136.312 | -1.343 | 5.70E-05 | 7.42E-03 |
| TXNL4A | 588.349 | -0.581 | 8.54E-08 | 2.13E-05 | SLC7A5 | 136.094 | -1.629 | 5.59E-06 | 9.80E-04 |
| JDP2 | 583.695 | -0.896 | 4.40E-08 | 1.15E-05 | COQ10B | 135.024 | -1.061 | 2.64E-09 | 8.61E-07 |
| AZIN1 | 559.688 | -0.646 | 4.91E-06 | 8.82E-04 | TWISTNB | 133.437 | -1.081 | 1.33E-06 | 2.72E-04 |
| NR4A3 | 552.102 | -3.755 | 4.22E-20 | 4.47E-17 | STK19 | 129.998 | -0.704 | 2.70E-05 | 3.84E-03 |
| HSPA1B | 544.938 | -4.841 | 2.79E-33 | 1.48E-29 | FOSB | 128.225 | -7.806 | 3.14E-28 | 1.11E-24 |
| INSIG1 | 534.902 | -2.125 | 4.89E-06 | 8.82E-04 | ZNF212 | 120.755 | 0.630 | 8.07E-06 | 1.37E-03 |
| MTCH1 | 528.116 | -0.865 | 2.33E-05 | 3.46E-03 | ATF3 | 116.871 | -4.132 | 2.75E-21 | 3.51E-18 |
| CYSTM1 | 527.900 | -1.100 | 1.57E-06 | 3.07E-04 | HSPB1 | 116.181 | -4.761 | 3.53E-09 | 1.09E-06 |
| NPAS4 | 509.499 | -8.309 | 5.23E-20 | 5.28E-17 | PARD6G-AS | 115.608 | -1.268 | 2.43E-05 | 3.53E-03 |
| NAF1 | 493.518 | -0.741 | 7.25E-08 | 1.85E-05 | SELK | 113.826 | -2.705 | 6.40E-28 | 1.94E-24 |
| HSPD1 | 493.259 | -1.688 | 2.70E-19 | 2.49E-16 | ZFAND2A | 110.276 | -2.621 | 1.04E-22 | 1.84E-19 |
| TMEM184C | 486.387 | -1.320 | 3.78E-14 | 2.11E-11 | TCEAL7 | 103.902 | -1.933 | 5.24E-16 | 3.23E-13 |
| MSMO1 | 483.773 | -1.860 | 8.48E-06 | 1.39E-03 | PCBP1 | 103.325 | -0.749 | 7.57E-06 | 1.31E-03 |
| FKBP4 | 479.426 | -1.090 | 1.80E-09 | 6.05E-07 | TM2D2 | 102.869 | -0.858 | 1.49E-05 | 2.30E-03 |
| EGR1 | 470.894 | -5.739 | 2.82E-21 | 3.51E-18 | RGS2 | 98.031 | -3.533 | 1.04E-22 | 1.84E-19 |
| C4orf33 | 448.787 | -1.376 | 4.28E-08 | 1.13E-05 | CSRNP1 | 94.873 | -2.292 | 1.60E-05 | 2.42E-03 |
| UAP1 | 443.763 | -2.461 | 9.88E-23 | 1.84E-19 | UBB | 94.686 | -1.765 | 7.15E-12 | 3.45E-09 |
| BAG3 | 439.711 | -2.592 | 9.71E-06 | 1.57E-03 | MRPL18 | 79.610 | -0.847 | 2.56E-06 | 4.93E-04 |
| UFSP2 | 438.073 | -0.947 | 1.74E-05 | 2.62E-03 | PPP1R15A | 79.021 | -4.230 | 1.87E-41 | 1.99E-37 |
| CYCS | 429.955 | -2.118 | 5.75E-10 | 2.00E-07 | SERPINH1 | 77.852 | -4.809 | 4.41E-10 | 1.56E-07 |
| HMGCR | 429.914 | -0.825 | 4.53E-06 | 8.28E-04 | ZNRD1 | 72.879 | -1.779 | 2.16E-09 | 7.16E-07 |
| CACYBP | 428.152 | -1.296 | 8.36E-07 | 1.75E-04 | PMVK | 72.696 | -1.044 | 1.44E-06 | 2.88E-04 |
| DNAJA1 | 423.249 | -1.569 | 8.79E-15 | 5.04E-12 | RUVBL2 | 69.260 | -1.045 | 3.67E-07 | 8.46E-05 |
| PTP4A1 | 404.937 | -1.551 | 1.72E-16 | 1.14E-13 | AVPI1 | 68.283 | -1.098 | 7.60E-06 | 1.31E-03 |
| SYAP1 | 387.927 | -1.546 | 6.78E-22 | 1.03E-18 | TCEAL9 | 67.723 | -1.793 | 4.89E-11 | 2.07E-08 |
| IDI1 | 386.000 | -1.639 | 3.72E-11 | 1.61E-08 | ANKRD37 | 59.568 | -2.551 | 2.17E-13 | 1.18E-10 |
| GABARAPL1 | 384.301 | -0.814 | 1.54E-07 | 3.79E-05 | MIR3671 | 56.838 | 1.174 | 2.39E-07 | 5.68E-05 |

**[00321]** c-FOS was observed to be induced strongly in granule cells obtained from three (WI, VM, and ZH) of the sixteen individuals (FIG. 12). To further explore this difference, differential expression (adjusted $p < 0.01$, baseMean > 50) analysis was performed to identify additional genes that are significantly up- or down-regulated in these three individuals compared to the others, i.e, differential gene expression analysis of granule cells between three fos+ individuals versus the other 13 samples was performed. A very strong response was evident in granule cells

from individuals WI, VM, and TM, characterized by induction of 224 genes and diminished expression of 10 genes as shown in Table 56.

**Table 56. Differentially expressed genes in granule cells**

| Gene | Base Mean | Log2 Change | p-value | p-adj | Gene | Base Mean | Log2 Change | p-value | p-adj |
|---|---|---|---|---|---|---|---|---|---|
| SEMA4G | 102.715 | 0.992 | 4.10E-05 | 3.02E-03 | MXD1 | 1605.354 | -1.263 | 1.02E-06 | 1.13E-04 |
| CKMT1B | 1897.863 | 0.914 | 1.15E-04 | 7.19E-03 | SNHG5 | 71.208 | -1.276 | 8.33E-13 | 1.93E-10 |
| STRC | 326.503 | 0.885 | 1.42E-04 | 8.72E-03 | SLC19A2 | 400.882 | -1.277 | 2.65E-06 | 2.70E-04 |
| FSD2 | 294.523 | 0.818 | 1.11E-06 | 1.22E-04 | BDNF | 698.573 | -1.283 | 9.02E-06 | 8.05E-04 |
| MRLN | 197.882 | 0.729 | 5.20E-05 | 3.70E-03 | ERRFI1 | 782.451 | -1.285 | 3.66E-10 | 6.28E-08 |
| TMEM175 | 506.049 | 0.706 | 4.84E-05 | 3.50E-03 | DNAJB6 | 881.860 | -1.286 | 3.95E-07 | 4.78E-05 |
| LOC339874 | 706.183 | 0.667 | 1.05E-04 | 6.61E-03 | ARMCX1 | 54.271 | -1.289 | 1.88E-05 | 1.54E-03 |
| LOC100131655 | 134.170 | 0.661 | 1.05E-04 | 6.62E-03 | HSPA4 | 809.532 | -1.293 | 3.57E-06 | 3.55E-04 |
| ZNF253 | 553.671 | 0.631 | 6.73E-05 | 4.58E-03 | HIST2H2BA | 284.036 | -1.293 | 1.64E-08 | 2.33E-06 |
| TMEM254 | 155.920 | 0.615 | 8.88E-05 | 5.80E-03 | ATP1B3 | 4314.169 | -1.296 | 5.30E-07 | 6.29E-05 |
| IKBKAP | 1436.570 | -0.388 | 2.86E-05 | 2.21E-03 | APEX2 | 65.045 | -1.302 | 4.00E-07 | 4.81E-05 |
| RCAN2 | 6494.964 | -0.497 | 5.84E-05 | 4.06E-03 | SPTY2D1 | 205.806 | -1.304 | 3.13E-19 | 1.41E-16 |
| TOP1 | 2113.050 | -0.500 | 3.87E-05 | 2.87E-03 | RNF122 | 580.993 | -1.319 | 3.67E-07 | 4.53E-05 |
| METTL9 | 513.620 | -0.527 | 1.23E-04 | 7.62E-03 | STIP1 | 237.758 | -1.319 | 2.05E-06 | 2.13E-04 |
| SPAG9 | 5601.340 | -0.552 | 1.01E-04 | 6.39E-03 | ARL5B | 305.291 | -1.322 | 3.37E-08 | 4.64E-06 |
| SIK3 | 9746.163 | -0.566 | 5.90E-06 | 5.54E-04 | FAM122C | 97.552 | -1.323 | 1.59E-05 | 1.33E-03 |
| QKI | 1423.676 | -0.567 | 9.24E-05 | 5.95E-03 | SERP1 | 113.793 | -1.339 | 7.97E-10 | 1.33E-07 |
| ESYT2 | 3476.907 | -0.575 | 2.23E-05 | 1.75E-03 | PMVK | 67.643 | -1.364 | 2.69E-06 | 2.73E-04 |
| USP37 | 1315.358 | -0.596 | 1.29E-04 | 8.01E-03 | HTR5A-AS1 | 76.838 | -1.376 | 5.16E-06 | 4.90E-04 |
| ZNF131 | 744.578 | -0.635 | 7.62E-06 | 6.94E-04 | DYNLT3 | 133.963 | -1.398 | 6.98E-06 | 6.42E-04 |
| NEDD4L | 7611.496 | -0.641 | 6.96E-05 | 4.69E-03 | RPL10 | 97.578 | -1.421 | 1.08E-06 | 1.19E-04 |
| ETF1 | 347.286 | -0.659 | 1.07E-05 | 9.39E-04 | SAT1 | 118.125 | -1.428 | 5.15E-05 | 3.70E-03 |
| ZSWIM6 | 8443.682 | -0.675 | 1.34E-04 | 8.29E-03 | PPP1R11 | 246.242 | -1.432 | 1.24E-06 | 1.34E-04 |
| OXSR1 | 1601.247 | -0.693 | 7.85E-06 | 7.12E-04 | MIR7-3HG | 174.673 | -1.433 | 1.36E-07 | 1.78E-05 |
| TXNL4A | 597.737 | -0.699 | 1.32E-06 | 1.42E-04 | DCUN1D3 | 408.667 | -1.468 | 2.86E-07 | 3.60E-05 |
| SIAH2 | 316.591 | -0.702 | 6.92E-05 | 4.68E-03 | CACYBP | 637.420 | -1.470 | 1.25E-07 | 1.65E-05 |
| NUP58 | 1160.627 | -0.708 | 5.76E-05 | 4.04E-03 | ELOVL5 | 2843.838 | -1.505 | 2.67E-09 | 4.12E-07 |
| C6orf106 | 2991.322 | -0.709 | 2.14E-06 | 2.20E-04 | IDI1 | 362.780 | -1.520 | 7.76E-17 | 2.80E-14 |
| TRA2B | 1340.864 | -0.711 | 4.13E-05 | 3.03E-03 | STK19 | 125.037 | -1.536 | 3.38E-12 | 7.72E-10 |
| ARIH1 | 5343.603 | -0.715 | 3.46E-05 | 2.61E-03 | TWISTNB | 175.263 | -1.540 | 9.94E-15 | 3.09E-12 |
| TRIM26 | 770.020 | -0.722 | 1.94E-05 | 1.56E-03 | RHOB | 220.468 | -1.562 | 6.00E-09 | 8.80E-07 |
| STK38L | 1412.060 | -0.727 | 9.07E-05 | 5.86E-03 | UFSP2 | 498.172 | -1.565 | 4.44E-11 | 8.70E-09 |
| PROX1 | 1545.249 | -0.734 | 1.67E-05 | 1.38E-03 | GCH1 | 76.340 | -1.572 | 4.23E-06 | 4.19E-04 |
| ARHGEF3 | 1624.495 | -0.739 | 5.06E-05 | 3.65E-03 | PTGES3 | 619.522 | -1.577 | 1.02E-10 | 1.90E-08 |
| RLF | 2115.267 | -0.747 | 3.53E-06 | 3.55E-04 | IFRD1 | 1111.665 | -1.584 | 9.85E-12 | 2.09E-09 |
| RNF139 | 191.619 | -0.758 | 4.66E-06 | 4.54E-04 | TMEM184C | 530.230 | -1.590 | 2.59E-10 | 4.59E-08 |
| ABHD3 | 472.577 | -0.768 | 7.30E-05 | 4.88E-03 | TMEM198 | 357.453 | -1.637 | 1.44E-11 | 2.99E-09 |
| RBM22 | 165.448 | -0.790 | 5.34E-06 | 5.04E-04 | CCDC61 | 276.360 | -1.655 | 3.14E-14 | 9.27E-12 |
| HMCES | 199.301 | -0.799 | 3.45E-05 | 2.61E-03 | DDIT4 | 67.106 | -1.668 | 1.13E-05 | 9.92E-04 |
| MTCH1 | 329.455 | -0.800 | 1.38E-04 | 8.47E-03 | COQ10B | 117.908 | -1.677 | 1.07E-10 | 1.98E-08 |
| CLCN3 | 2147.890 | -0.815 | 3.44E-05 | 2.61E-03 | FTL | 140.398 | -1.694 | 1.48E-08 | 2.13E-06 |
| TCEAL6 | 72.265 | -0.819 | 7.72E-05 | 5.10E-03 | HOMER1 | 3336.401 | -1.714 | 8.36E-10 | 1.38E-07 |
| TPT1 | 336.150 | -0.822 | 6.11E-05 | 4.23E-03 | EIF2AK3 | 1144.435 | -1.718 | 2.97E-10 | 5.14E-08 |
| ZBTB21 | 228.032 | -0.823 | 9.51E-06 | 8.45E-04 | INSIG1 | 349.355 | -1.733 | 1.59E-09 | 2.52E-07 |
| USP28 | 2229.297 | -0.836 | 1.36E-05 | 1.15E-03 | CHORDC1 | 771.156 | -1.748 | 1.86E-11 | 3.77E-09 |
| PDE7A | 3084.356 | -0.839 | 4.78E-06 | 4.63E-04 | NCALD | 129.180 | -1.756 | 3.36E-05 | 2.57E-03 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PPP2CA | 777.730 | -0.845 | 5.68E-09 | 8.46E-07 | HSPD1 | 431.085 | -1.772 | 2.95E-10 | 5.14E-08 |
| PIGH | 157.066 | -0.845 | 3.58E-05 | 2.69E-03 | CD83 | 176.355 | -1.790 | 1.73E-15 | 5.67E-13 |
| BZW1 | 145.806 | -0.853 | 6.05E-06 | 5.65E-04 | SYAP1 | 405.388 | -1.793 | 1.65E-15 | 5.50E-13 |
| ECD | 585.982 | -0.855 | 2.14E-05 | 1.70E-03 | ZNF141 | 1183.540 | -1.826 | 4.91E-13 | 1.20E-10 |
| ZNF304 | 159.500 | -0.857 | 3.31E-05 | 2.54E-03 | UBB | 57.668 | -1.832 | 3.21E-08 | 4.46E-06 |
| DNAJC27 | 373.056 | -0.858 | 3.14E-07 | 3.93E-05 | TCEAL9 | 86.349 | -1.852 | 6.08E-10 | 1.02E-07 |
| ARG2 | 1107.387 | -0.868 | 3.78E-05 | 2.82E-03 | DNAJB4 | 866.020 | -1.858 | 7.27E-15 | 2.30E-12 |
| FNDC3B | 992.862 | -0.871 | 5.16E-06 | 4.90E-04 | NAMPT | 1000.443 | -1.863 | 8.91E-11 | 1.69E-08 |
| FKBP4 | 494.688 | -0.875 | 5.52E-05 | 3.89E-03 | ABRA | 130.046 | -1.870 | 1.10E-09 | 1.75E-07 |
| NARS2 | 1301.547 | -0.878 | 7.08E-06 | 6.48E-04 | PNPLA8 | 1338.913 | -1.879 | 1.96E-14 | 5.99E-12 |
| STMN4 | 659.070 | -0.888 | 6.50E-06 | 6.04E-04 | PTP4A1 | 447.034 | -1.883 | 3.22E-13 | 8.18E-11 |
| SBDS | 163.743 | -0.893 | 9.06E-05 | 5.86E-03 | C4orf33 | 623.642 | -1.897 | 9.59E-10 | 1.57E-07 |
| CASP3 | 749.428 | -0.896 | 1.92E-05 | 1.56E-03 | NFIL3 | 103.369 | -1.913 | 6.44E-12 | 1.40E-09 |
| BTG1 | 342.032 | -0.900 | 1.75E-05 | 1.44E-03 | ZNF184 | 468.534 | -1.923 | 6.10E-12 | 1.34E-09 |
| RHEB | 983.068 | -0.901 | 1.40E-07 | 1.82E-05 | NDEL1 | 848.764 | -1.924 | 7.52E-13 | 1.78E-10 |
| GNL3 | 177.223 | -0.904 | 5.43E-12 | 1.22E-09 | CTH | 138.050 | -1.963 | 9.00E-11 | 1.69E-08 |
| MAGT1 | 145.958 | -0.906 | 8.09E-05 | 5.33E-03 | HSPA8 | 2197.083 | -1.983 | 2.05E-13 | 5.44E-11 |
| VPS37B | 382.189 | -0.916 | 4.92E-06 | 4.74E-04 | CRYM-AS1 | 50.232 | -2.006 | 1.42E-05 | 1.19E-03 |
| HSD17B12 | 3765.986 | -0.918 | 2.17E-05 | 1.72E-03 | NKRF | 459.367 | -2.021 | 1.24E-15 | 4.29E-13 |
| SF3B4 | 162.476 | -0.922 | 4.41E-06 | 4.34E-04 | DNAJA1 | 428.707 | -2.042 | 8.05E-16 | 2.85E-13 |
| MLLT11 | 525.918 | -0.932 | 3.72E-07 | 4.57E-05 | TCEAL5 | 183.612 | -2.043 | 1.44E-28 | 1.08E-25 |
| SRSF3 | 732.944 | -0.941 | 3.91E-07 | 4.77E-05 | DNAJA4 | 975.754 | -2.057 | 1.27E-15 | 4.31E-13 |
| HTR5A | 248.180 | -0.944 | 8.22E-05 | 5.39E-03 | TOB1 | 300.715 | -2.109 | 7.00E-20 | 3.51E-17 |
| SGMS2 | 183.235 | -0.962 | 1.91E-05 | 1.56E-03 | NAMA | 108.441 | -2.135 | 8.34E-13 | 1.93E-10 |
| MAPRE2 | 5188.446 | -0.966 | 1.01E-09 | 1.65E-07 | CCNH | 1118.384 | -2.176 | 1.15E-13 | 3.10E-11 |
| NEAT1 | 5546.952 | -0.971 | 5.83E-05 | 4.06E-03 | UBC | 239.133 | -2.201 | 7.65E-17 | 2.80E-14 |
| MBOAT7 | 127.492 | -0.974 | 4.64E-05 | 3.37E-03 | SLC7A5 | 188.435 | -2.242 | 6.55E-06 | 6.06E-04 |
| JDP2 | 564.347 | -0.978 | 2.20E-05 | 1.73E-03 | TIPARP | 248.559 | -2.253 | 1.02E-11 | 2.13E-09 |
| RANBP2 | 2169.147 | -0.978 | 1.47E-06 | 1.57E-04 | HSP90AA1 | 6952.285 | -2.356 | 6.65E-13 | 1.60E-10 |
| MYLIP | 179.061 | -0.981 | 2.68E-05 | 2.08E-03 | PRMT9 | 871.569 | -2.480 | 2.82E-13 | 7.26E-11 |
| HSPA4L | 1163.520 | -0.987 | 1.04E-04 | 6.61E-03 | PDLIM3 | 186.650 | -2.507 | 1.58E-06 | 1.68E-04 |
| WDR45B | 594.371 | -0.993 | 4.51E-09 | 6.77E-07 | TCEAL7 | 154.835 | -2.535 | 1.84E-26 | 1.18E-23 |
| ZFAND5 | 1078.857 | -0.994 | 5.43E-05 | 3.85E-03 | ZNF10 | 1231.938 | -2.539 | 4.68E-19 | 1.97E-16 |
| RRNAD1 | 171.158 | -0.998 | 9.36E-07 | 1.05E-04 | ZFAND2A | 107.129 | -2.573 | 5.99E-40 | 7.20E-37 |
| TEX14 | 139.757 | -1.000 | 9.77E-07 | 1.09E-04 | HIST2H2BF | 728.823 | -2.593 | 4.35E-23 | 2.53E-20 |
| NFKBID | 127.328 | -1.002 | 4.50E-05 | 3.29E-03 | JUN | 226.853 | -2.650 | 7.88E-14 | 2.15E-11 |
| TM2D2 | 114.394 | -1.011 | 1.26E-06 | 1.36E-04 | ZNRD1 | 104.925 | -2.732 | 5.96E-43 | 1.08E-39 |
| USPL1 | 849.648 | -1.024 | 1.67E-08 | 2.35E-06 | TNFSF9 | 57.260 | -2.840 | 3.56E-29 | 2.79E-26 |
| RAB33A | 113.715 | -1.025 | 1.99E-05 | 1.60E-03 | TFRC | 1085.953 | -2.866 | 9.69E-19 | 3.97E-16 |
| SLC2A13 | 1670.258 | -1.026 | 3.09E-05 | 2.39E-03 | HSPE1-MOB4 | 173.395 | -2.904 | 4.42E-19 | 1.90E-16 |
| PTPRN | 667.045 | -1.026 | 3.73E-05 | 2.79E-03 | HIST2H2BE | 193.981 | -2.923 | 1.99E-19 | 9.18E-17 |
| GTF2B | 348.417 | -1.028 | 2.03E-05 | 1.62E-03 | CRYAB | 386.801 | -2.945 | 2.32E-34 | 1.99E-31 |
| C14orf1 | 123.632 | -1.031 | 9.22E-07 | 1.05E-04 | BAG3 | 541.609 | -2.955 | 4.93E-18 | 1.89E-15 |
| CRY1 | 3023.061 | -1.041 | 2.63E-06 | 2.70E-04 | UAP1 | 679.176 | -3.067 | 2.18E-35 | 2.07E-32 |
| NUDC | 203.649 | -1.050 | 5.86E-07 | 6.91E-05 | CSRNP1 | 83.832 | -3.142 | 4.62E-15 | 1.49E-12 |
| ZNF891 | 169.431 | -1.052 | 5.11E-06 | 4.90E-04 | SLC2A3 | 655.509 | -3.214 | 7.27E-61 | 2.62E-57 |
| JMY | 2627.653 | -1.053 | 1.57E-07 | 2.03E-05 | SELK | 146.632 | -3.280 | 2.95E-38 | 3.13E-35 |
| JOSD1 | 256.814 | -1.057 | 3.55E-06 | 3.55E-04 | BTG2 | 594.298 | -3.307 | 1.71E-39 | 1.93E-36 |
| HERPUD1 | 245.474 | -1.062 | 7.29E-12 | 1.56E-09 | CYCS | 509.540 | -3.438 | 2.55E-40 | 3.28E-37 |
| ARF4 | 715.355 | -1.068 | 7.92E-06 | 7.14E-04 | NR4A2 | 986.740 | -3.531 | 1.69E-21 | 9.24E-19 |
| CYSTM1 | 416.800 | -1.090 | 7.61E-05 | 5.05E-03 | ANKRD37 | 93.425 | -3.557 | 6.46E-27 | 4.32E-24 |
| FEM1C | 1909.695 | -1.091 | 1.93E-05 | 1.56E-03 | FOSL2 | 401.878 | -3.704 | 5.92E-14 | 1.69E-11 |
| RGS7BP | 1867.009 | -1.091 | 9.88E-07 | 1.10E-04 | BCAS2 | 476.899 | -3.888 | .34E-101 | 2.01E-97 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CLK1 | 849.898 | -1.102 | 1.31E-05 | 1.13E-03 | EIF4A3 | 278.631 | -3.994 | .02E-115 | .72E-111 |
| RASL11B | 83.896 | -1.113 | 4.42E-07 | 5.28E-05 | PPP1R15A | 96.321 | -4.138 | 3.49E-66 | 1.57E-62 |
| AHSA1 | 157.727 | -1.128 | 1.32E-05 | 1.14E-03 | DUSP1 | 363.240 | -4.180 | 1.75E-31 | 1.44E-28 |
| HECA | 402.594 | -1.146 | 1.86E-08 | 2.60E-06 | RGS2 | 156.965 | -4.187 | 1.20E-58 | 3.62E-55 |
| C2orf69 | 371.958 | -1.165 | 1.53E-08 | 2.20E-06 | HIST1H2BD | 575.717 | -4.196 | 1.24E-55 | 3.20E-52 |
| KLHL15 | 316.023 | -1.168 | 4.70E-08 | 6.37E-06 | NR4A3 | 1009.149 | -4.337 | 4.69E-11 | 9.10E-09 |
| CDADC1 | 366.944 | -1.173 | 4.43E-06 | 4.34E-04 | ZNF331 | 7274.277 | -4.338 | 9.41E-28 | 6.79E-25 |
| GOT1 | 817.945 | -1.181 | 1.36E-05 | 1.15E-03 | DNAJB1 | 575.178 | -4.628 | 3.59E-44 | 7.19E-41 |
| MORF4L2 | 956.904 | -1.186 | 2.15E-10 | 3.84E-08 | ATF3 | 104.384 | -5.269 | 2.56E-36 | 2.56E-33 |
| ZNF711 | 420.374 | -1.187 | 1.34E-05 | 1.14E-03 | NR4A1 | 697.801 | -5.330 | 5.63E-12 | 1.25E-09 |
| BTAF1 | 2714.626 | -1.209 | 1.09E-10 | 1.98E-08 | EGR1 | 1085.415 | -6.047 | 1.06E-42 | 1.74E-39 |
| DEDD2 | 146.087 | -1.217 | 1.04E-05 | 9.21E-04 | HSPA1B | 1043.895 | -6.097 | 1.06E-41 | 1.47E-38 |
| ETV3 | 121.646 | -1.217 | 1.96E-09 | 3.08E-07 | HSPH1 | 2891.362 | -6.265 | 3.37E-42 | 5.07E-39 |
| PRNP | 2239.768 | -1.227 | 1.60E-05 | 1.33E-03 | HSPA1A | 1867.480 | -7.238 | .33E-121 | .40E-117 |
| P4HA1 | 1013.882 | -1.229 | 5.85E-09 | 8.64E-07 | FOS | 689.775 | -7.902 | 1.80E-19 | 8.54E-17 |
| AVPI1 | 95.334 | -1.237 | 2.63E-09 | 4.09E-07 | FOSB | 305.432 | -8.230 | 1.84E-21 | 9.74E-19 |
| RBM7 | 181.059 | -1.241 | 5.04E-08 | 6.79E-06 | NPAS4 | 1337.014 | -9.059 | 1.73E-25 | 1.08E-22 |
| NAF1 | 552.597 | -1.254 | 1.07E-09 | 1.73E-07 | HSPB1 | 54.110 | -9.282 | 1.68E-45 | 3.79E-42 |

**[00322]** An overlapping but weaker response that included 136 differentially induced genes (adjusted p <0.01, baseMean > 50) was present in glial cells. Results are shown in Table 57.

**Table 57. Differentially expressed genes in glia**

| Gene | Base Mean | Log2 Change | p-value | padj | Gene | Base Mean | Log2 Change | p-value | padj |
|---|---|---|---|---|---|---|---|---|---|
| HSP90AA1 | 8051.585 | -2.662 | 9.43E-38 | 3.67E-34 | HEY2 | 435.768 | -1.292 | 2.01E-09 | 5.83E-07 |
| ELOVL5 | 6044.686 | -2.808 | 4.28E-21 | 4.63E-18 | PTP4A1 | 410.695 | -1.982 | 9.33E-13 | 4.43E-10 |
| ARIH1 | 4282.811 | -0.847 | 6.39E-05 | 8.07E-03 | NR4A1 | 401.179 | -5.257 | 1.40E-39 | 6.80E-36 |
| GLUD1 | 3498.846 | -0.698 | 5.66E-05 | 7.30E-03 | UAP1 | 400.390 | -2.781 | 8.72E-40 | 5.66E-36 |
| FDFT1 | 2492.867 | -1.303 | 3.12E-08 | 7.88E-06 | SLC25A3 | 399.813 | -0.863 | 6.57E-05 | 8.20E-03 |
| P4HA1 | 2441.044 | -1.274 | 9.81E-08 | 2.33E-05 | TOB1 | 399.348 | -1.711 | 1.04E-16 | 7.50E-14 |
| ESYT2 | 2103.778 | -0.804 | 2.51E-07 | 5.42E-05 | FOS | 395.865 | -4.458 | 1.10E-06 | 2.01E-04 |
| HSPH1 | 2050.224 | -4.197 | 4.79E-41 | 4.66E-37 | GABARAPL1 | 382.667 | -1.262 | 1.93E-08 | 5.14E-06 |
| MXD1 | 2034.515 | -2.471 | 2.14E-23 | 2.98E-20 | BCAS2 | 372.249 | -3.587 | 1.12E-48 | 2.19E-44 |
| HSPA8 | 2012.773 | -2.201 | 1.29E-13 | 6.78E-11 | PER1 | 356.725 | -1.308 | 5.35E-07 | 1.09E-04 |
| TSC22D2 | 1985.386 | -0.864 | 9.32E-06 | 1.35E-03 | CACYBP | 348.147 | -1.809 | 2.00E-08 | 5.26E-06 |
| HSP90AB1 | 1905.769 | -1.333 | 2.92E-06 | 4.95E-04 | TCP1 | 338.679 | -1.199 | 2.05E-08 | 5.31E-06 |
| TRA2B | 1669.907 | -0.926 | 2.58E-06 | 4.40E-04 | C4orf33 | 327.163 | -1.597 | 3.30E-10 | 1.09E-07 |
| ZFP36L1 | 1619.793 | -1.104 | 1.62E-05 | 2.19E-03 | ETF1 | 325.587 | -0.701 | 4.53E-06 | 7.35E-04 |
| DNAJB6 | 1547.866 | -1.579 | 1.26E-07 | 2.93E-05 | UBC | 325.079 | -2.040 | 3.83E-09 | 1.05E-06 |
| ZFAND5 | 1496.257 | -1.603 | 1.34E-07 | 3.03E-05 | HSPB1 | 315.023 | -4.552 | 5.44E-17 | 4.42E-14 |
| CRYAB | 1440.147 | -1.641 | 7.16E-06 | 1.11E-03 | STIP1 | 299.597 | -1.774 | 3.42E-07 | 7.09E-05 |
| ZNF331 | 1437.541 | -2.455 | 7.15E-15 | 4.64E-12 | SOD1 | 294.080 | -1.146 | 8.79E-06 | 1.31E-03 |
| HMGCS1 | 1402.003 | -2.585 | 1.10E-16 | 7.64E-14 | STRAP | 285.147 | -0.776 | 4.17E-05 | 5.45E-03 |
| RHEB | 1393.603 | -0.802 | 6.14E-05 | 7.81E-03 | SIAH2 | 283.467 | -1.346 | 7.45E-07 | 1.44E-04 |
| SLC25A33 | 1356.974 | -1.881 | 3.82E-11 | 1.51E-08 | HIST2H2BF | 263.990 | -2.974 | 2.53E-24 | 4.11E-21 |
| DNAJB4 | 1337.044 | -1.647 | 4.71E-17 | 3.98E-14 | BTG2 | 263.276 | -1.991 | 9.21E-06 | 1.34E-03 |
| INSIG1 | 1317.230 | -2.258 | 7.15E-13 | 3.57E-10 | HIGD1A | 263.273 | -0.641 | 4.88E-05 | 6.34E-03 |
| IFRD1 | 1258.393 | -1.207 | 4.54E-11 | 1.70E-08 | JOSD1 | 260.472 | -1.051 | 3.06E-06 | 5.14E-04 |
| PTGES3 | 1212.490 | -2.293 | 5.55E-15 | 3.72E-12 | CYCS | 257.575 | -2.697 | 9.54E-26 | 1.86E-22 |
| MSMO1 | 1189.790 | -2.226 | 8.83E-10 | 2.73E-07 | HERPUD1 | 254.675 | -1.091 | 5.85E-10 | 1.90E-07 |
| SLC25A18 | 1154.904 | -1.440 | 1.47E-05 | 2.02E-03 | NKRF | 253.510 | -1.526 | 6.01E-07 | 1.18E-04 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CHORDC1 | 1030.967 | -1.386 | 4.58E-08 | 1.14E-05 | EGR1 | 253.290 | -5.076 | 2.03E-24 | 3.60E-21 |
| ZNF10 | 1024.343 | -1.541 | 5.32E-11 | 1.92E-08 | ALDH6A1 | 252.530 | -0.762 | 9.14E-06 | 1.34E-03 |
| ST13 | 1014.370 | -1.119 | 2.60E-07 | 5.57E-05 | JUN | 251.501 | -2.789 | 7.30E-24 | 1.09E-20 |
| NDEL1 | 989.537 | -1.711 | 1.54E-14 | 8.55E-12 | SERPINH1 | 246.958 | -4.987 | 7.15E-23 | 9.29E-20 |
| SRSF3 | 958.528 | -1.412 | 3.73E-11 | 1.51E-08 | ATF3 | 240.601 | -4.238 | 1.03E-14 | 6.30E-12 |
| HSPA1A | 929.640 | -3.816 | 8.62E-15 | 5.41E-12 | HIST1H2BD | 222.156 | -2.898 | 2.14E-19 | 2.08E-16 |
| ERRFI1 | 900.528 | -1.185 | 1.93E-07 | 4.26E-05 | CSRNP1 | 210.207 | -1.863 | 1.84E-09 | 5.53E-07 |
| CYSTM1 | 889.632 | -1.359 | 6.51E-08 | 1.58E-05 | KLHL15 | 208.914 | -1.380 | 3.11E-10 | 1.04E-07 |
| ATP1B3 | 866.638 | -1.389 | 1.03E-07 | 2.41E-05 | NRBF2 | 206.863 | -1.041 | 2.21E-06 | 3.82E-04 |
| USPL1 | 846.906 | -1.220 | 2.39E-10 | 8.32E-08 | PNP | 206.849 | -1.690 | 5.70E-06 | 9.09E-04 |
| ACO2 | 845.377 | -1.027 | 7.85E-06 | 1.18E-03 | PARD6G-AS1 | 204.794 | -2.172 | 2.59E-12 | 1.15E-09 |
| TIPARP | 821.606 | -1.230 | 5.52E-07 | 1.11E-04 | NAPA | 198.513 | -1.682 | 8.82E-11 | 3.12E-08 |
| BAG3 | 816.785 | -2.235 | 2.07E-08 | 5.31E-06 | AHSA1 | 195.613 | -1.482 | 2.60E-05 | 3.47E-03 |
| HSPA4 | 768.062 | -1.455 | 4.69E-13 | 2.40E-10 | ZFAND2A | 189.453 | -3.281 | 6.38E-17 | 4.97E-14 |
| DNAJA4 | 753.981 | -2.101 | 8.05E-10 | 2.53E-07 | DUSP1 | 183.073 | -2.146 | 1.76E-06 | 3.11E-04 |
| HSPA9 | 752.754 | -0.941 | 1.03E-05 | 1.47E-03 | SLFN11 | 169.934 | -1.264 | 7.50E-05 | 9.31E-03 |
| MTCH1 | 742.823 | -1.374 | 2.68E-09 | 7.67E-07 | HIST2H2BE | 160.703 | -1.890 | 2.35E-11 | 9.72E-09 |
| JDP2 | 739.497 | -1.293 | 7.24E-06 | 1.11E-03 | MBOAT7 | 158.353 | -1.158 | 1.25E-05 | 1.77E-03 |
| AZIN1 | 713.479 | -1.003 | 1.28E-05 | 1.78E-03 | COQ10B | 155.826 | -1.330 | 1.32E-07 | 3.02E-05 |
| TRIM26 | 704.464 | -0.945 | 1.86E-06 | 3.27E-04 | GZF1 | 155.696 | -0.962 | 1.67E-05 | 2.24E-03 |
| HSPD1 | 699.334 | -2.391 | 3.83E-33 | 1.24E-29 | UBB | 150.735 | -2.195 | 1.00E-09 | 3.05E-07 |
| MORF4L2 | 694.829 | -1.221 | 6.95E-10 | 2.22E-07 | DDIT3 | 140.294 | -1.498 | 1.60E-05 | 2.18E-03 |
| IDI1 | 669.446 | -2.121 | 1.73E-26 | 3.74E-23 | SELK | 130.261 | -3.204 | 8.73E-21 | 8.95E-18 |
| CTH | 651.226 | -1.197 | 1.16E-05 | 1.65E-03 | PPP1R15A | 127.270 | -5.066 | 9.22E-28 | 2.25E-24 |
| OAT | 623.811 | -1.474 | 9.83E-12 | 4.25E-09 | EIF4A3 | 111.800 | -2.025 | 4.64E-11 | 1.71E-08 |
| CCNH | 592.219 | -1.433 | 2.97E-09 | 8.27E-07 | CD83 | 102.602 | -1.651 | 1.95E-07 | 4.27E-05 |
| HSPA4L | 591.874 | -1.787 | 8.95E-07 | 1.68E-04 | MRPL18 | 101.327 | -1.277 | 3.42E-06 | 5.69E-04 |
| FKBP4 | 588.315 | -1.754 | 1.12E-06 | 2.03E-04 | MAFF | 97.510 | -1.408 | 1.27E-05 | 1.77E-03 |
| HMGCR | 578.327 | -1.477 | 9.79E-07 | 1.81E-04 | RGS2 | 89.715 | -4.306 | 2.28E-22 | 2.77E-19 |
| TMEM184C | 567.269 | -1.817 | 1.13E-14 | 6.45E-12 | TM2D2 | 87.430 | -1.384 | 2.66E-05 | 3.51E-03 |
| SYAP1 | 516.846 | -1.874 | 2.02E-18 | 1.79E-15 | TCEAL9 | 87.242 | -2.121 | 1.91E-09 | 5.63E-07 |
| NR4A3 | 499.418 | -3.566 | 7.90E-13 | 3.84E-10 | RUVBL2 | 79.176 | -2.076 | 2.83E-09 | 7.97E-07 |
| DNAJB1 | 485.312 | -3.405 | 8.35E-19 | 7.74E-16 | TCEAL7 | 78.191 | -1.817 | 1.64E-12 | 7.59E-10 |
| DNAJA1 | 477.992 | -2.033 | 1.37E-08 | 3.72E-06 | ANKRD37 | 67.735 | -1.509 | 9.05E-08 | 2.17E-05 |
| SLC19A2 | 475.606 | -1.489 | 2.63E-07 | 5.58E-05 | SRGN | 63.289 | -2.390 | 7.28E-06 | 1.11E-03 |
| HSPA1B | 473.354 | -3.970 | 1.03E-13 | 5.59E-11 | FOSB | 60.342 | -7.121 | 2.53E-12 | 1.14E-09 |
| TFRC | 470.015 | -1.879 | 1.10E-14 | 6.45E-12 | GEM | 59.972 | -3.182 | 2.30E-11 | 9.72E-09 |
| SNAPC1 | 452.474 | -1.089 | 5.60E-07 | 1.11E-04 | NR4A2 | 59.691 | -2.772 | 4.95E-08 | 1.22E-05 |
| HSPE1-MOB4 | 451.895 | -4.139 | 8.48E-30 | 2.36E-26 | NFKBID | 58.178 | -1.579 | 6.34E-06 | 1.00E-03 |
| C2orf69 | 440.376 | -1.096 | 8.97E-06 | 1.32E-03 | AVPI1 | 55.589 | -1.640 | 6.76E-07 | 1.32E-04 |
| CASP3 | 439.607 | -0.869 | 1.33E-06 | 2.38E-04 | PCK1 | 50.725 | -4.568 | 8.34E-07 | 1.58E-04 |

**[00323]** The induction of these genes in glia is not due to contamination by granule cells as highly expressed markers for granule cells (e.g. FAT2) was not present in the glial data. This is interesting because induction c-FOS expression by glutamate in glia was thought to occur via a different mechanism than that induced by increased activity in cultured granule neurons (Edling, et al. (2007) Glia 55, 328–340, which is hereby incorporated by reference herein in its entirety). Only two differentially expressed genes were evident in the basket cell data: Heat Shock Protein Family A (Hsp70) Member 1A (HSPA1A) (Base Mean: 102.303, $\log_2$ Fold Change: -3.234, p-

value: 1.07E-12, padj: 1.06E-08) and Ring Finger Protein 122 (RNF122) (Base mean: 96.812, log2 Fold Change: -1.552, p-value: 4.20E-06, padj: 0.008).

**[00324]** A stress response was observed to induce a group of genes in three out of the 16 samples and that are not explained by race, autolysis time, gender, or age. Gene expression is shown for Activity Regulated Cytoskeleton Associated Protein (Arc), Early Growth Response 1 (Egr1), c-Fos, FosB, Jun Proto-Oncogene, AP-1 Transcription Factor Subunit (Jun), JunB, and JunD Proto-Oncogene, AP-1 Transcription Factor Subunit (JunD) in FIG. 13A. Induction of fos genes and stress-associated genes was observed to be subtly cell-type specific as it primarily occurred in granule cells, although it also occurred in glia. Few changes in expression were observed in stellate cells.

**[00325]** About 355 genes were observed to be induced in three samples of granule cells, while 25 genes were observed to be down-regulated. Many of these genes were intermediate early genes that mark neuronal activity but there were also many long-term stress response genes that are induced, as shown in FIG. 13B. Examples of affected groups of genes include those involved in: regulation of cellular metabolic process, positive regulation of macromolecule, response to unfolded protein, response to topologically incorrect protein, protein folding, protein refolding, regulation of cellular response to heat, regulation of apoptotic process, positive regulation of biological process, and response to chemical stimuli.

**[00326]** Stress response genes, such as the activated astrocyte markers GFAP, S100B, Nes, and Musashi RNA Binding Protein 1 (Msi1) in glia, are shown in FIG. 13C. The only significant change observed in expression was in GFAP in fos- nuclei.

**[00327]** Samples WI, VM, and ZH were observed to have fos and stress response genes induced in glia and granule neurons, and to a lesser extent, stellate neurons. The three individuals that were observed to have induced gene expression of fos genes did not appear to have much in common in their clinical histories. The data show reproducible activation of this stress response pathway, which provides details on the biology related to disease.

**[00328]** Given the robust response evident in the granule cell data, GO analysis was performed to determine whether the 224 induced genes in these neurons were enriched for specific functional categories. Significantly enriched GO categories were identifed for the up-regulated genes in fos+ individuals revealing enrichment for genes involved in stress response and protein folding. This analysis revealed categories associated with responses to external stimuli, protein folding/refolding, apoptosis, transcriptional response to stress, ATPase activity, and RNA splicing/metabolism as shown in Table 58.

**Table 58. Gene ontology results for significantly upregulated genes in granule cells**

| ID | Description | q-value | Gene Symbol(s) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| GO:0006457 | protein folding | 1.66E-10 | BAG3/CHORDC1/CRYAB/DNAJA1/DNAJA4/DNAJB1/DNAJB4/DNAJB6/FKBP4/HSP90AA1/HSPA1A/HSPA1B/HSPA4L/HSPA8/HSPB1/HSPD1/HSPH1/NUDC/PTGES3/RANBP2/UBB/UBC |
| GO:1900034 | regulation of cellular response to heat | 4.86E-10 | BAG3/CHORDC1/CRYAB/DNAJB1/DNAJB6/FKBP4/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPH1/NUP58/PTGES3/RANBP2 |
| GO:0009408 | response to heat | 6.39E-10 | BAG3/CHORDC1/CRYAB/DNAJA1/DNAJA4/DNAJB1/DNAJB4/DNAJB6/FKBP4/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPD1/HSPH1/NUP58/PTGES3/RANBP2 |
| GO:0009266 | response to temperature stimulus | 1.33E-09 | BAG3/CHORDC1/CRYAB/DNAJA1/DNAJA4/DNAJB1/DNAJB4/DNAJB6/EIF2AK3/FKBP4/FOS/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPD1/HSPH1/NUP58/PTGES3/RANBP2 |
| GO:0035966 | response to topologically incorrect protein | 4.55E-09 | ATF3/CTH/DNAJA1/DNAJB1/DNAJB4/EIF2AK3/HERPUD1/HSP90AA1/HSPA1A/HSPA4/HSPA4L/HSPA8/HSPB1/HSPD1/HSPH1/KLHL15/PPP1R15A/SERP1 |
| GO:0006986 | response to unfolded protein | 7.15E-09 | ATF3/CTH/DNAJA1/DNAJB1/DNAJB4/EIF2AK3/HERPUD1/HSP90AA1/HSPA1A/HSPA4/HSPA4L/HSPA8/HSPB1/HSPD1/HSPH1/PPP1R15A/SERP1 |
| GO:0034605 | cellular response to heat | 2.91E-08 | BAG3/CHORDC1/CRYAB/DNAJB1/DNAJB6/FKBP4/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPH1/NUP58/PTGES3/RANBP2 |
| GO:0042026 | protein refolding | 6.81E-08 | DNAJA4/DNAJB1/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPD1/PTGES3 |
| GO:0090084 | negative regulation of inclusion body assembly | 2.71E-05 | DNAJA4/DNAJB1/DNAJB6/HSPA1A/HSPA1B |
| GO:0097201 | negative regulation of transcription from RNA polymerase II promoter in response to stress | 6.66E-05 | BAG3/DNAJB1/HSPA1A/JUN/PPP1R15A |
| GO:0006979 | response to oxidative stress | 1.06E-04 | CASP3/CRYAB/CYCS/DUSP1/FOS/GCH1/HSPA1A/HSPA1B/HSPB1/HSPD1/HSPH1/JUN/NR4A2/NR4A3/OXSR1/PRNP/PTPRN/RHOB/TRA2B |
| GO:0033120 | positive regulation of RNA splicing | 1.64E-04 | EIF4A3/HSPA1A/HSPA8/RBM22/SF3B4/TRA2B |
| GO:0090083 | regulation of inclusion body assembly | 1.69E-04 | DNAJA4/DNAJB1/DNAJB6/HSPA1A/HSPA1B |
| GO:0061077 | chaperone-mediated protein folding | 1.73E-04 | CHORDC1/DNAJB1/FKBP4/HSPA8/HSPB1/HSPD1/HSPH1/PTGES3 |
| GO:0031647 | regulation of protein stability | 1.73E-04 | ATP1B3/BAG3/CCNH/CRYAB/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPD1/MYLIP/PRNP/PTGES3/RNF139/USP28 |
| GO:0097193 | intrinsic apoptotic signaling pathway | 2.25E-04 | CASP3/CYCS/DDIT4/DNAJA1/EIF2AK3/HERPUD1/HSPA1A/HSPB1/HSPH1/JMY/MLLT11/PPP1R15A/TPT1/UBB/USP28 |
| GO:0051131 | chaperone-mediated protein complex assembly | 2.48E-04 | HSP90AA1/HSPA1A/HSPA4/HSPD1/PTGES3 |
| GO:1903313 | positive regulation of mRNA metabolic process | 2.72E-04 | BTG2/EIF4A3/HSPA1A/HSPA8/SF3B4/TOB1/TRA2B |
| GO:0000302 | response to reactive oxygen species | 4.71E-04 | CASP3/CRYAB/CYCS/DUSP1/FOS/GCH1/HSPD1/HSPH1/JUN/NR4A3/PTPRN/RHOB/TRA2B |
| GO:0061469 | regulation of type B pancreatic cell proliferation | 4.74E-04 | ERRFI1/NR4A1/NR4A3/PTPRN |
| GO:0043484 | regulation of RNA splicing | 5.68E-04 | CLK1/EIF4A3/HSPA1A/HSPA8/RBM22/RBM7/SF3B4/SRSF3/TRA2B |
| GO:0070841 | inclusion body assembly | 5.68E-04 | DNAJA4/DNAJB1/DNAJB6/HSPA1A/HSPA1B |

| | | | |
|---|---|---|---|
| GO:0050685 | positive regulation of mRNA processing | 8.59E-04 | EIF4A3/HSPA1A/HSPA8/SF3B4/TRA2B |
| GO:0043618 | regulation of transcription from RNA polymerase II promoter in response to stress | 9.18E-04 | ATF3/BAG3/DNAJB1/EGR1/HSPA1A/JUN/PPP1R15A/UBB/UBC |
| GO:0032781 | positive regulation of ATPase activity | 1.10E-03 | AHSA1/ATP1B3/DNAJA1/DNAJB1/DNAJB4/DNAJB6 |
| GO:0043620 | regulation of DNA-templated transcription in response to stress | 1.16E-03 | ATF3/BAG3/DNAJB1/EGR1/HSPA1A/JUN/PPP1R15A/UBB/UBC |
| GO:0051085 | chaperone mediated protein folding requiring cofactor | 1.16E-03 | DNAJB1/HSPA8/HSPD1/HSPH1 |
| GO:0048545 | response to steroid hormone | 1.31E-03 | CASP3/CRY1/DDIT4/DNAJA1/DUSP1/ERRFI1/FKBP4/FOS/FOSB/GOT1/HSPD1/NPAS4/NR4A1/NR4A2/NR4A3/UFSP2 |
| GO:1903311 | regulation of mRNA metabolic process | 2.47E-03 | BTG2/EIF4A3/HSPA1A/HSPA8/RBM7/SF3B4/SRSF3/TOB1/TRA2B |
| GO:0048026 | positive regulation of mRNA splicing, via spliceosome | 2.59E-03 | EIF4A3/HSPA8/SF3B4/TRA2B |
| GO:1903320 | regulation of protein modification by small protein conjugation or removal | 2.79E-03 | CRY1/DCUN1D3/DNAJA1/EGR1/GNL3/HERPUD1/HSP90AA1/HSPA1A/HSPA1B/RNF139/SIAH2/UBB/UBC |
| GO:2001233 | regulation of apoptotic signaling pathway | 3.11E-03 | ATF3/CTH/DEDD2/DNAJA1/EIF2AK3/HERPUD1/HSPA1A/HSPA1B/HSPB1/HSPH1/MLLT11/NR4A2/SIAH2/TPT1/UBB |
| GO:0051084 | 'de novo' posttranslational protein folding | 3.88E-03 | DNAJB1/HSPA8/HSPD1/HSPH1 |
| GO:0051384 | response to glucocorticoid | 4.41E-03 | CASP3/DDIT4/DUSP1/ERRFI1/FOS/FOSB/GOT1/HSPD1/NPAS4 |
| GO:0050821 | protein stabilization | 4.47E-03 | ATP1B3/BAG3/CCNH/CRYAB/HSP90AA1/HSPA1A/HSPA1B/HSPD1/PTGES3 |
| GO:0044342 | type B pancreatic cell proliferation | 4.47E-03 | ERRFI1/NR4A1/NR4A3/PTPRN |
| GO:0010035 | response to inorganic substance | 4.93E-03 | CACYBP/CASP3/CRYAB/DUSP1/EIF2AK3/EIF4A3/FOS/FOSB/GCH1/HOMER1/HSPD1/HSPH1/JUN/NEDD4L/NR4A3/PRNP/RHOB |
| GO:0043462 | regulation of ATPase activity | 5.51E-03 | AHSA1/ATP1B3/DNAJA1/DNAJB1/DNAJB4/DNAJB6 |
| GO:0036499 | PERK-mediated unfolded protein response | 6.25E-03 | ATF3/EIF2AK3/HERPUD1/PPP1R15A |
| GO:0042542 | response to hydrogen peroxide | 7.78E-03 | CASP3/CRYAB/DUSP1/HSPD1/HSPH1/JUN/NR4A3/RHOB |
| GO:0031960 | response to corticosteroid | 8.17E-03 | CASP3/DDIT4/DUSP1/ERRFI1/FOS/FOSB/GOT1/HSPD1/NPAS4 |
| GO:0051082 | unfolded protein binding | 3.24E-07 | CRYAB/DNAJA1/DNAJA4/DNAJB1/DNAJB4/DNAJB6/HSP90AA1/HSPA1A/HSPA1B/HSPA8/HSPD1/NUDC/PTGES3 |
| GO:0031072 | heat shock protein binding | 3.24E-07 | CHORDC1/DNAJA1/DNAJA4/DNAJB1/DNAJB6/EIF2AK3/FKBP4/HSPA1A/HSPA1B/HSPA8/PTGES3/STIP1 |
| GO:0060590 | ATPase regulator activity | 1.77E-06 | AHSA1/ATP1B3/BAG3/DNAJA1/DNAJB1/DNAJB4/DNAJB6/HSPH1 |
| GO:0051087 | chaperone binding | 8.72E-06 | AHSA1/BAG3/DNAJA1/DNAJA4/DNAJB1/DNAJB4/DNAJB6/HSPD1/PRNP/STIP1 |

| | | | |
|---|---|---|---|
| GO:0001671 | ATPase activator activity | 1.88E-05 | AHSA1/ATP1B3/DNAJA1/DNAJB1/DNAJB4/DNAJB6 |

**[00329]** Analysis of immediate early gene expression indicated that their induction is also selective. For example, induction of EGR1, FOS, and FOSB occurs, but no difference in expression of ARC (a well-characterized immediate early gene) is evident (FIG. 12). Furthermore, although expression of immediate early genes such as c-FOS can become induced in response to damage such as ischemic stroke, no evidence was found for induction of glial genes such as GFAP and S100B that mark astrocyte activation in response to stroke and other forms of damage to the brain (Choudhury, et al. (2016) Neurobiology of Disease 85, 234–244; Ding, S. (2014) Neural Regen Res 9, 2048–2052; Dirnagl, et al. (1999) Trends in Neurosciences 22, 391–397; Kajihara, et al. (2001) Brain Research 909, 92–101; Pekny, M., et al. (2005) Glia 50, 427–434; each of which is hereby incorporated by reference herein in its entirety).

**[00330]** Finally, examination of the clinical records failed to reveal features (gender, age, cause of death) that distinguished these three individuals in FIG. 12 from the 13 other control donors. Although the cause or causes of these molecular events remain obscure, the discovery of this strong and highly reproducible stress response in select post-mortem human brain samples suggests the presence of an occult clinical condition and indicate that analysis of specific cell types using the cellular profiling technique described herein can be used to discover pathways and biomarkers associated with human pathophysiological conditions.

**Example 23. Staining and sorting nuclei with RNA or DNA probes**

**[00331]** Antibodies often have non-specific targets and may become rate-limiting for expanding the cellular profiling technique described herein to more cell types. An alternative to using antibodies for labeling is to use RNA probes against cell-type specific nucleic acid transcripts. RNA probes are faster and easier to synthesize than antibodies. RNA probes are designed against two classes of transcripts. The first are chromosomal associated transcripts (CATs) – transcripts held at the chromosome while being synthesized. The second class of nucleic acid transcripts are the polyA+ transcripts that are abundant in the ER adjacent to the nucleus. To characterize variability across individuals, gene expression profiles were generated for unsorted nuclei from a few regions of the human brain, and then candidate CAT and polyA+ transcripts were identified. Using in situ hybridization in tissue sections, genes that delineate specific cell types were identified by anatomy and morphology. Antibodies or RNA probes against these candidates were used to label and sort for nuclei from human cell types without the need for prior knowledge from mouse data to determine the amount of variation in gene expression across the population.

**[00332]** CATs have a unique labeling pattern of two spots at the two chromosomal sites of synthesis, which were observed to be highly specific with low background using *in situ* hybridization. FIG. 14 provides RNAseq results of CATs. A2m is a CAT specific to Bergmann glia, Itpr1 is a CAT specific to Purkinje cells, and Fat2 is a CAT specific to Granule cells. Therefore, cell-type specific CATs can be detected from a RNAseq profile from all cerebellar nuclei. Based on the *in situ* hybridization results for CATs and polyA+ transcripts labeled using RNA probes and extensive knowledge of labeling nuclei for FACS, RNA probes may be designed for any cell type.

Equivalents and Scope

**[00333]** Those skilled in the art will recognize or be able to ascertain using no more than routine experimentation, many equivalents to the specific embodiments in accordance with the invention described herein. The scope of the present invention is not intended to be limited to the above Description, but rather is as set forth in the appended claims.

**[00334]** In the claims, articles such as "a," "an," and "the" may mean one or more than one unless indicated to the contrary or otherwise evident from the context. Claims or descriptions that include "or" between one or more members of a group are considered satisfied if one, more than one, or all of the group members are present in, employed in, or otherwise relevant to a given product or process unless indicated to the contrary or otherwise evident from the context. The invention includes embodiments in which exactly one member of the group is present in, employed in, or otherwise relevant to a given product or process. The invention includes embodiments in which more than one, or the entire group members are present in, employed in, or otherwise relevant to a given product or process.

**[00335]** It is also noted that the term "comprising" is intended to be open and permits but does not require the inclusion of additional elements or steps. When the term "comprising" is used herein, the term "consisting of" is thus also encompassed and disclosed.

**[00336]** Where ranges are given, endpoints are included. Furthermore, it is to be understood that unless otherwise indicated or otherwise evident from the context and understanding of one of ordinary skill in the art, values that are expressed as ranges can assume any specific value or subrange within the stated ranges in different embodiments of the invention, to the tenth of the unit of the lower limit of the range, unless the context clearly dictates otherwise.

**[00337]** In addition, it is to be understood that any particular embodiment of the present invention that falls within the prior art may be explicitly excluded from any one or more of the claims. Since such embodiments are deemed to be known to one of ordinary skill in the art, they may be excluded even if the exclusion is not set forth explicitly herein. Any particular embodiment of the compositions of the invention (e.g., any antibiotic, therapeutic or active

ingredient; any method of production; any method of use; etc.) can be excluded from any one or more claims, for any reason, whether or not related to the existence of prior art.

**[00338]** It is to be understood that the words which have been used are words of description rather than limitation, and that changes may be made within the purview of the appended claims without departing from the true scope and spirit of the invention in its broader aspects.

**[00339]** While the present invention has been described at some length and with some particularity with respect to the several described embodiments, it is not intended that it should be limited to any such particulars or embodiments or any particular embodiment, but it is to be construed with references to the appended claims so as to provide the broadest possible interpretation of such claims in view of the prior art and, therefore, to effectively encompass the intended scope of the invention.

## CLAIMS

1. A method profiling the gene expression of a nucleus, the method comprising:

(a) processing a tissue sample containing a plurality of cell types to expose nuclei wherein the tissue sample comprises brain tissue, brain stem tissue, and/or spinal cord tissue;

(b) labeling at least one nucleus from the processed tissue sample by contacting the processed tissue sample with two or more affinity labels that each bind a different nucleic acid transcript or protein unique to the nucleus of at least one cell type contained in the tissue sample, wherein each nucleic acid transcript or protein is encoded by a gene selected from Tables 19-24, wherein the affinity labels are selected from the group consisting of an antibody, an RNA probe, and a DNA probe;

(c) purifying at least one labeled nucleus using the two or more affinity labels; and

(d) collecting nucleic acid transcript and/or protein expression data for the labeled nucleus, thereby profiling the gene expression of the nucleus.

2. The method of claim 1, wherein the cell type:

(i) originates in cerebellar tissue, and is selected from the group consisting of: granule cells, Purkinje cells, glia, Bergmann glia, basket/stellate cells, astrocytes, brainstem motor neurons, oligodendrocytes, upper motor neurons, lower motor neurons, and cerebellar deep nuclei;

(ii) originates in basal ganglia tissue, and is selected from the group consisting of: striatonigral medium-sized spiny neurons (MSNs), striatopallidal MSNs, striatal cholinergic interneurons, subthalamic nucleus, dopaminergic neurons, and bed nucleus of the stria terminalis (BNST) neurons;

(iii) originates in thalamus tissue, and is selected from the group consisting of: thalamocortical neurons, thalamostriatal neurons, and thalamic reticular nucleus neurons;

(iv) originates in cortex tissue, and is selected from the group consisting of corticostriatal neurons, entorhinal cortex layer 2/3 neurons, fast-spiking cortical interneurons, and layer 2/3 pyramidal cells from pre-frontal cortex tissue;

(v) is cholinergic projection neurons from medial habenula tissue of a pineal gland; or

(vi) originates in hippocampus tissue, and is selected from the group consisting of: cornu ammonis region 1 (CA1), cornu ammonis region 2 (CA2), cornu ammonis region 3 (CA3), and dentate gyrus cells.

3. The method of either of claims 1 or 2, further comprising:

(e) comparing gene expression of the nucleus to gene expression in at least one nucleus of:

(i) the cell type from a different tissue sample, or

(ii) a different cell type;

to identify variability in gene expression, thereby obtaining a drug target.

4. The method of claim 1, the affinity labels further comprising a fluorescent tag, optionally wherein fluorescence-activated cell sorting (FACS) is used to purify the nucleus.

5. The method of claim 3, wherein:

(i) the tissue sample or the different tissue sample is a frozen tissue sample;

(ii) the tissue sample or the different tissue sample is a fresh tissue sample;

(iii) the tissue sample or the different tissue sample is derived from a female, optionally wherein the membrane protein is synthesized in the endoplasmic reticulum, optionally wherein the protein is localized in the endoplasmic reticulum;

(iv) the tissue sample or the different tissue sample is derived from a male;

(v) the tissue sample or the different tissue sample originates from a diseased subject, optionally wherein the diseased subject is expressing, or is not expressing, a disease phenotype; or wherein the diseased subject is affected by at least one condition selected from the group consisting of: ataxia, Parkinson's disease, Alzheimer's disease, and amyotrophic lateral sclerosis (ALS), and Huntington's disease, optionally wherein the cell type is associated with:

(a) ataxia, and is selected from the group consisting of: Purkinje cells, granule cells, Bergmann glia, basket/stellate cells, astrocytes, oligodendrocytes, and cerebellar deep nuclei;

(b) Parkinson's Disease, and is selected from the group consisting of: substantia nigra and VTA dopaminergic neurons;

(c) Alzheimer's Disease, and is selected from: layer 2/3 entorhincortex, CA1 hippocampus, and CA2/3 hippocampus; or

(d) ALS, and is selected from the group consisting of: brain stem, cortical motor neurons, and spinal cord motor neurons;

(vi) the tissue sample or the different tissue sample originates in a healthy subject; or

(vii) the drug target is encoded by a gene selected from Tables 19-24.

6. The method of either of claims 1 or 2, wherein:

(i) the nuclei is contiguous to an endoplasmic reticulum; or

(ii) the protein is a membrane protein.

7. The method of either of claims 1 or 2, wherein the nucleic acid transcript is localized in the nuclei.

8. The method of claim 1, wherein:

(i) the RNA probe specifically binds a chromosomal associated transcript (CAT) or a polyA transcript; or

(ii) the DNA probe specifically binds a transporter gene.

9. The method of either of claims 1 or 2:

(i) further comprising comparing profiling for a tissue sample originating from a diseased subject and a tissue sample from a healthy subject
or comparing profiling for a tissue sample originating from at least two different healthy subjects; or

(ii) wherein profiling the gene expression is performed for a plurality of nuclei from a single cell type
or for a plurality of nuclei from different cell types.

10. The method of claim 1, further comprising:

(e) identifying variability between disease stages by comparing profiling for a tissue sample from a diseased subject expressing a disease phenotype with profiling for a tissue sample from a diseased subject not expressing a disease phenotype.

11. The method of claim 3(e)(i), further comprising:
identifying variability among different subjects by comparing profiling for more than one tissue sample, wherein each tissue sample is from a different subject.