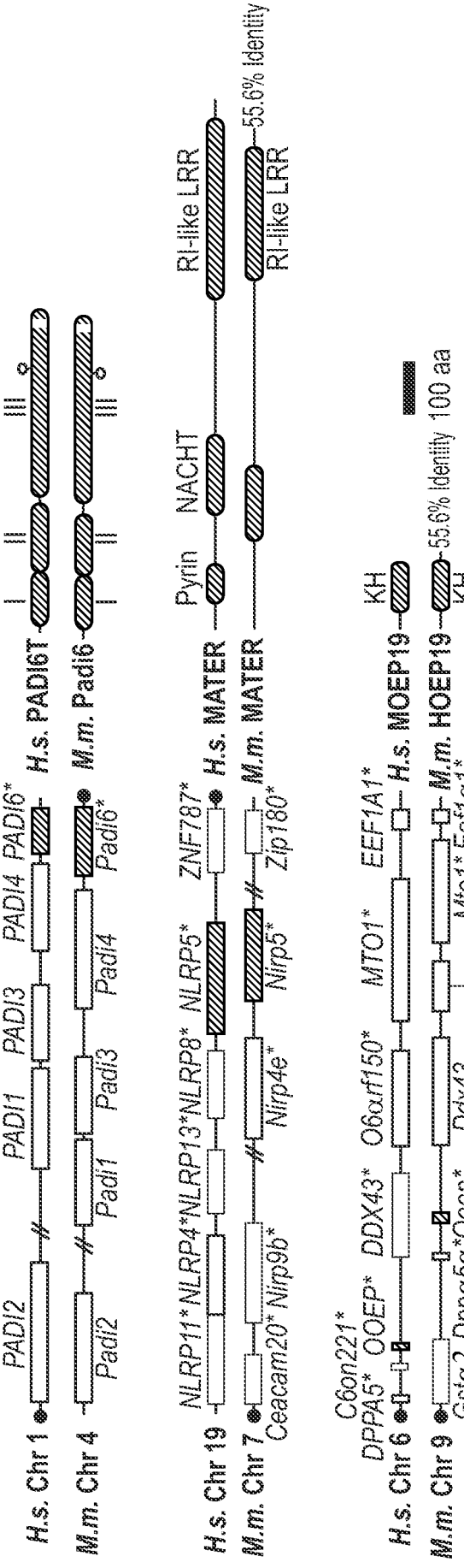

H.s. Chr 1
PADI2
PADI1
PADI3
PADI4
PADI6*
H.s. PADI6T
M.m. Chr 4
Padi2
Padi1
Padi3
Padi4
Padi6*
M.m. Padi6
H.s. Chr 19
NLRP11*NLRP4*NLRP13*NLRP8*
NLRP5*
ZNF787*
Pyrin
NACHT
RI-like LRR
H.s. MATER
M.m. Chr 7
Ceacam20*Nirp9b*
Nirp4e*
Nirp5*
Zip180*
M.m. MATER
55.6% Identity
RI-like LRR
C6on221*
DPPA5*
OOEP*
DDX43*
O6αrf150*
MTO1*
EEF1A1*
KH
H.s. MOEP19
H.s. Chr 6
M.m. Chr 9
Gstα2
Dppα5α*Ooep*
Ddx43
E330016A19Rik*
Mto1*
Eef1α1*
M.m. HOEP19
55.6% Identity
100 aa
KH

FIG. 1

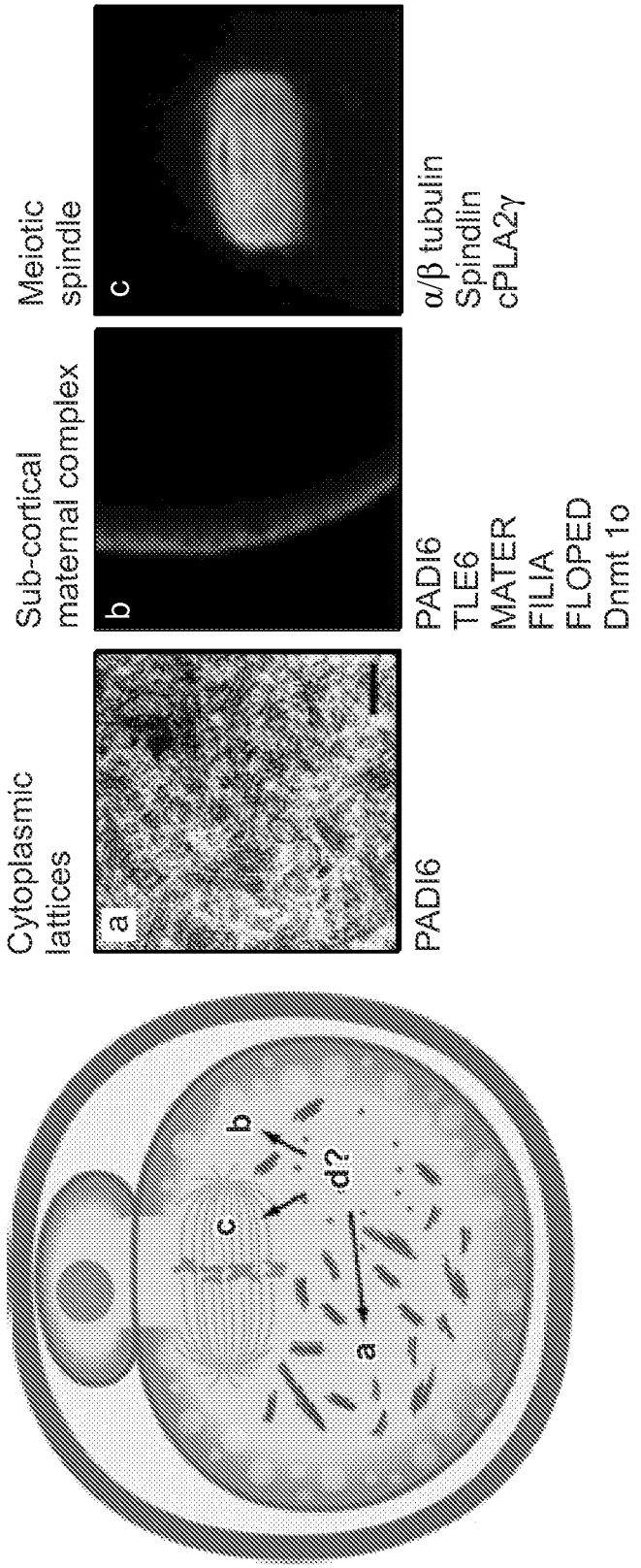

Cytoplasmic lattices
Sub-cortical maternal complex
Meiotic spindle
a
b
c
PADI6
PADI6
TLE6
MATER
FILIA
FLOPED
Dnmt 1o
α/β tubulin
Spindlin
cPLA2γ
a
b
c
d?

FIG. 2

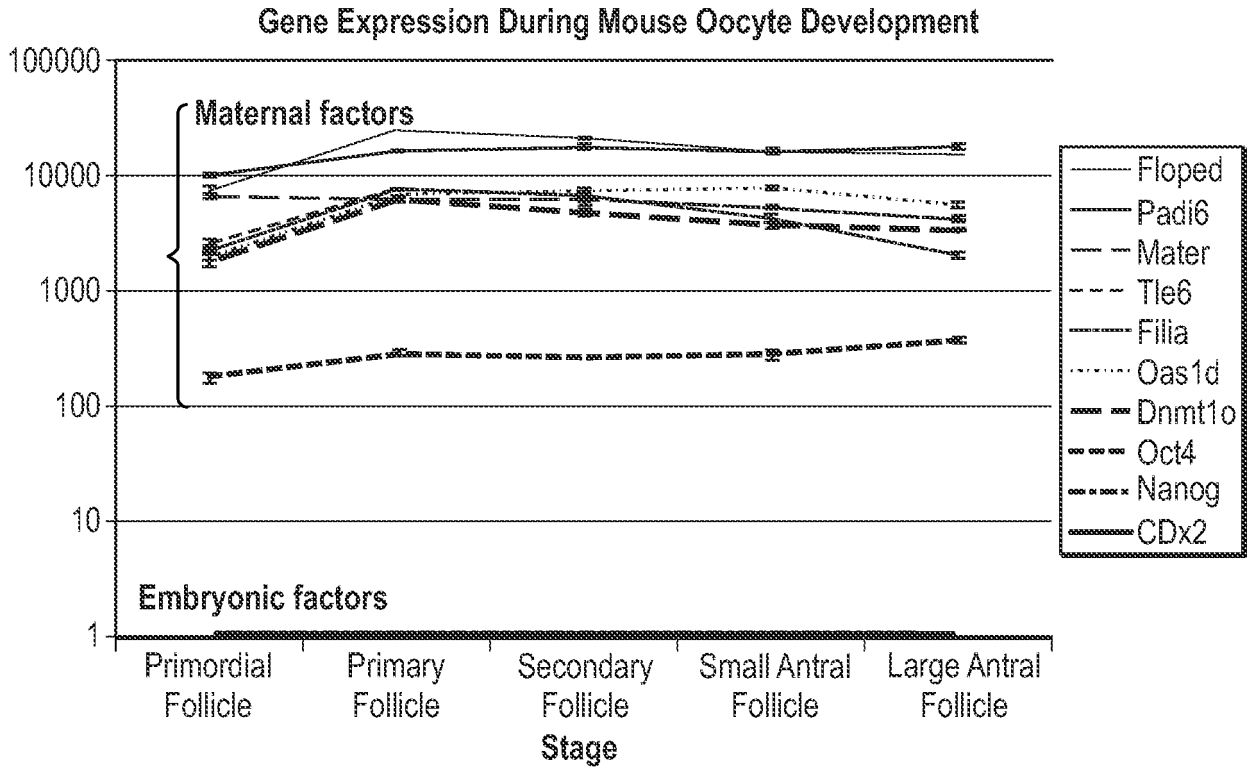

Gene Expression During Mouse Oocyte Development
100000
10000
1000
100
10
1
Maternal factors
Embryonic factors
Primordial Follicle
Primary Follicle
Secondary Follicle
Small Antral Follicle
Large Antral Follicle
Stage
Floped
Padi6
Mater
Tle6
Filia
Oas1d
Dnmt1o
Oct4
Nanog
CDx2

FIG. 3

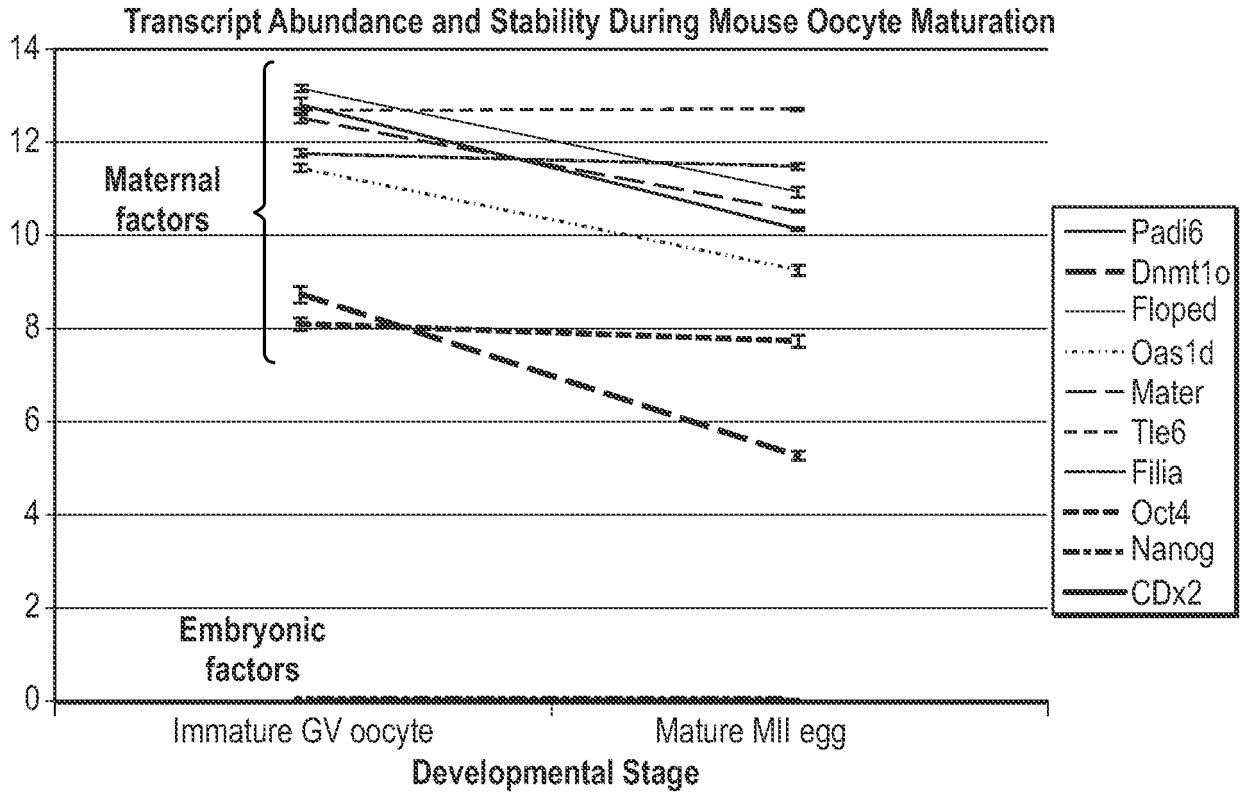

Transcript Abundance and Stability During Mouse Oocyte Maturation
14
12
10
8
6
4
2
0
Maternal factors
Embryonic factors
Immature GV oocyte
Mature MII egg
Developmental Stage
Padi6
Dnmt1o
Floped
Oas1d
Mater
Tle6
Filia
Oct4
Nanog
CDx2

FIG. 4

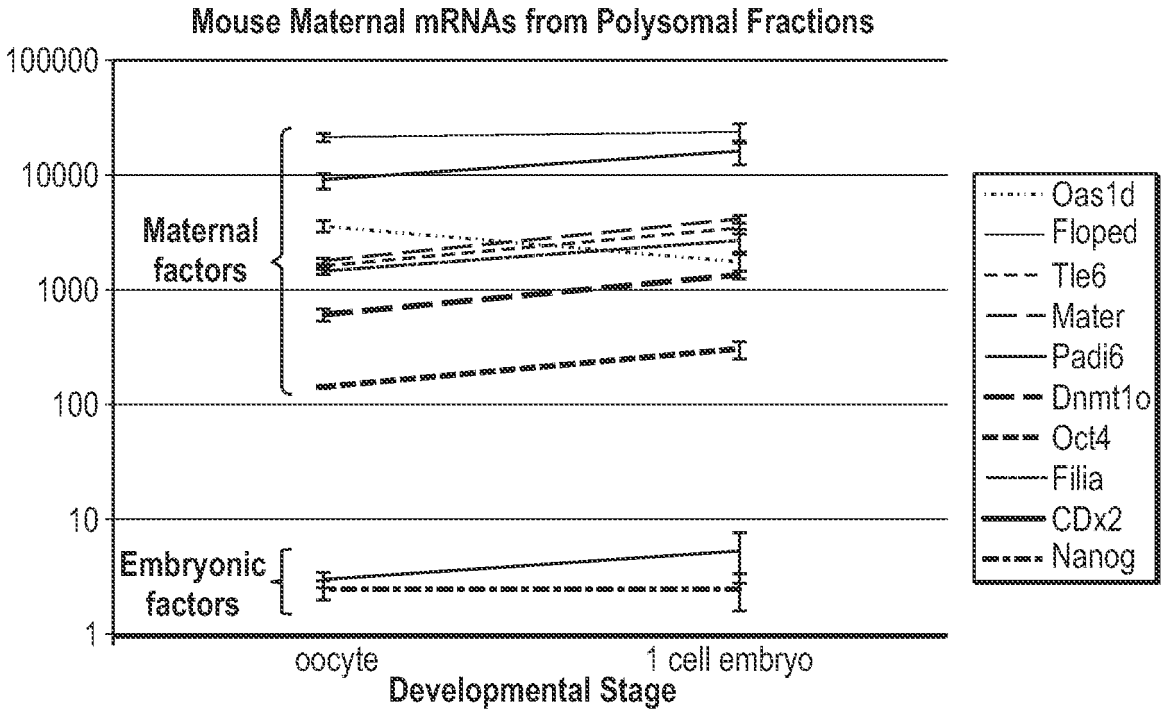

Mouse Maternal mRNAs from Polysomal Fractions
100000
10000
1000
100
10
1
Maternal factors
Embryonic factors
oocyte
1 cell embryo
Developmental Stage
Oas1d
Floped
Tle6
Mater
Padi6
Dnmt1o
Oct4
Filia
CDx2
Nanog

FIG. 5

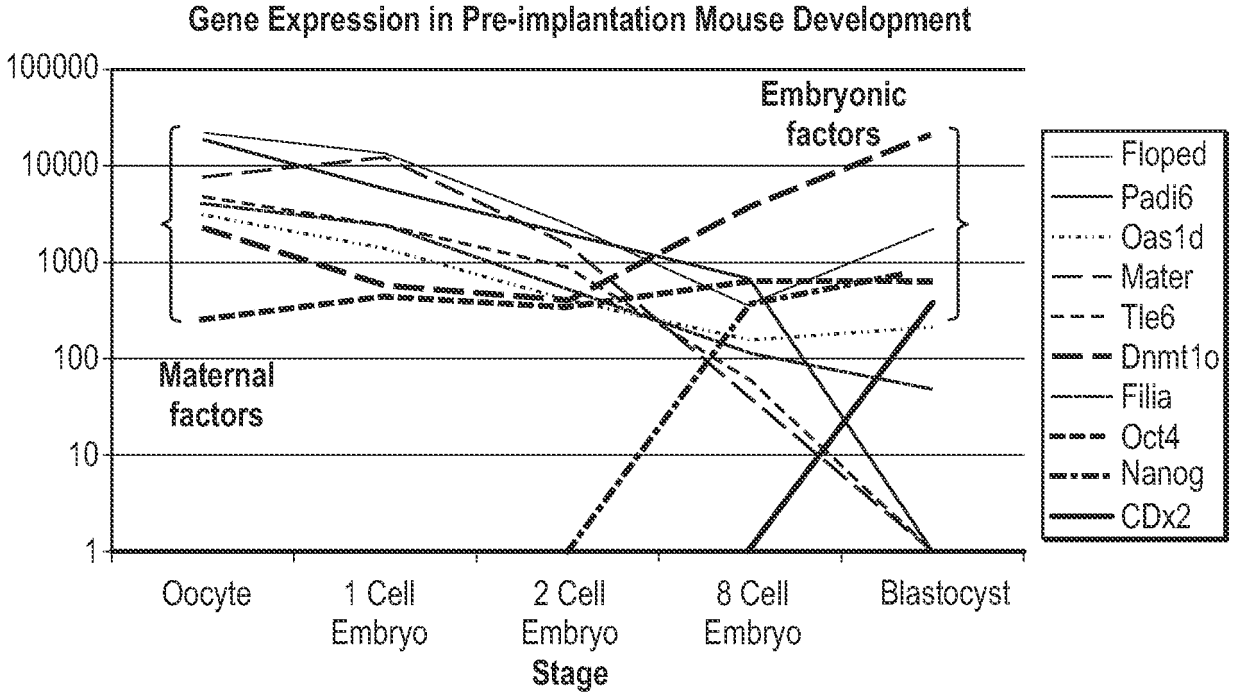

Gene Expression in Pre-implantation Mouse Development
100000
10000
1000
100
10
1
Embryonic factors
Maternal factors
Oocyte
1 Cell Embryo
2 Cell Embryo
8 Cell Embryo
Blastocyst
Stage
Floped
Padi6
Oas1d
Mater
Tle6
Dnmt1o
Filia
Oct4
Nanog
CDx2

FIG. 6

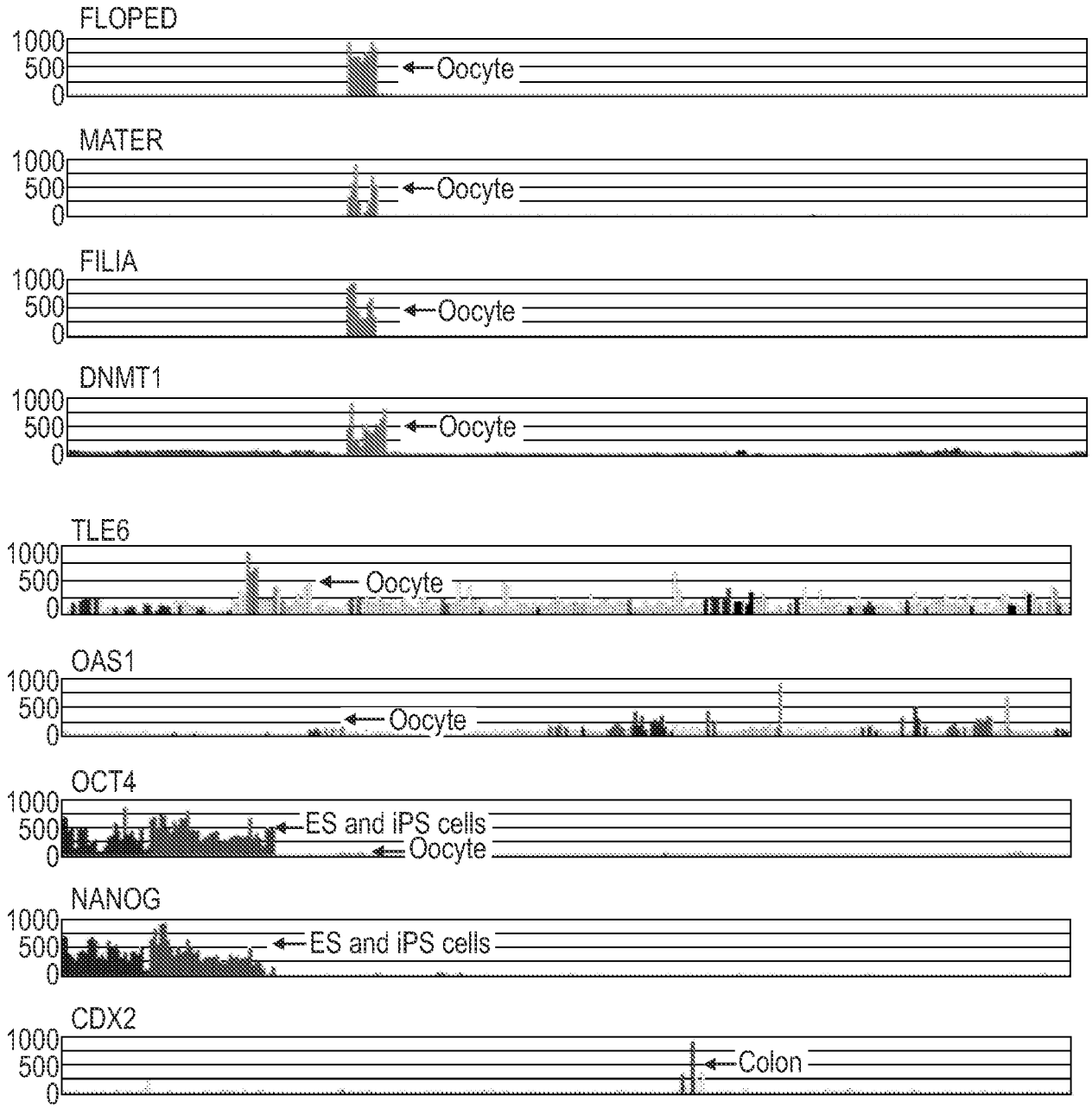

FLOPED
1000
500
0
Oocyte
MATER
1000
500
0
Oocyte
FILIA
1000
500
0
Oocyte
DNMT1
1000
500
0
Oocyte
TLE6
1000
500
0
Oocyte
OAS1
1000
500
0
Oocyte
OCT4
1000
500
0
ES and iPS cells
Oocyte
NANOG
1000
500
0
ES and iPS cells
CDX2
1000
500
0
Colon

FIG. 7

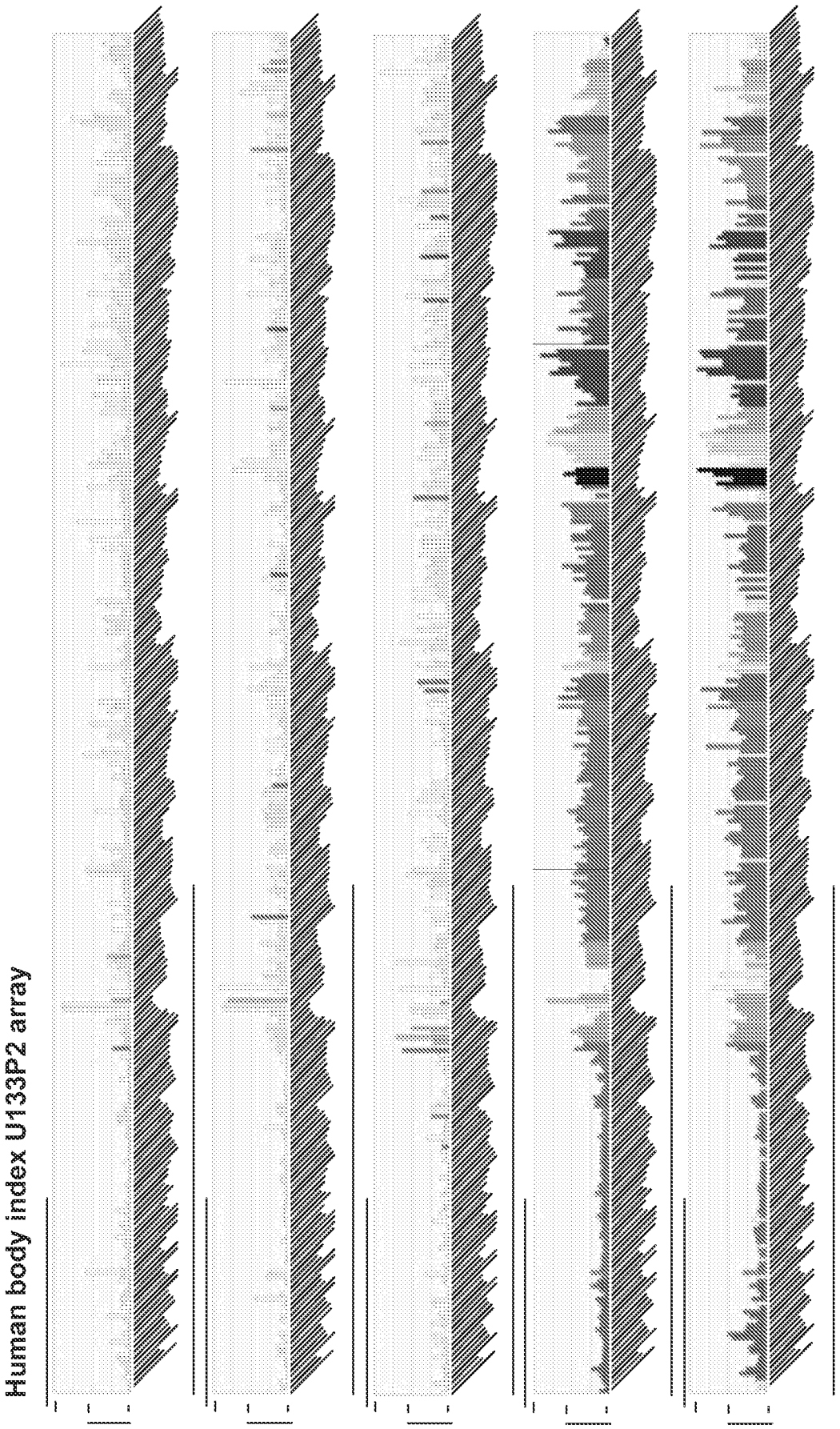


FIG. 8A

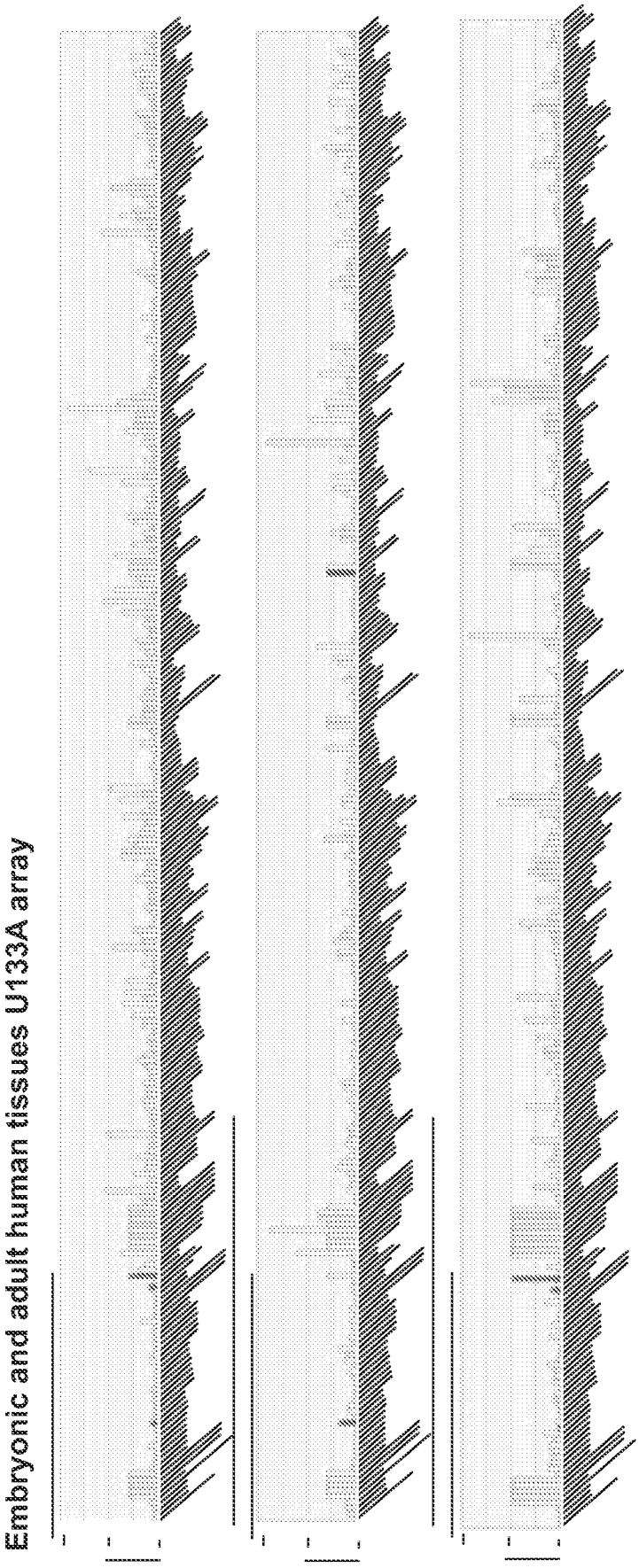


FIG. 8B

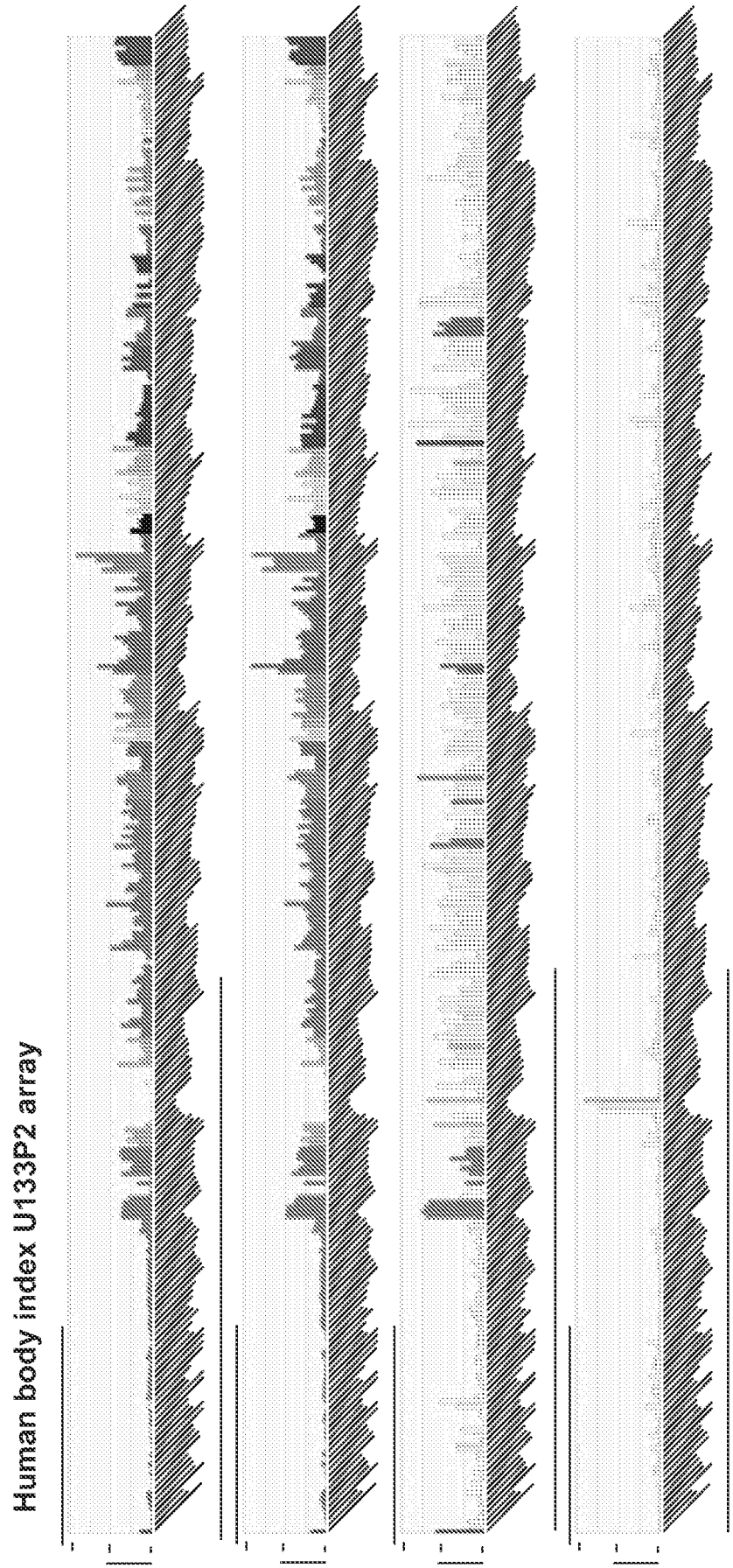


FIG. 9A

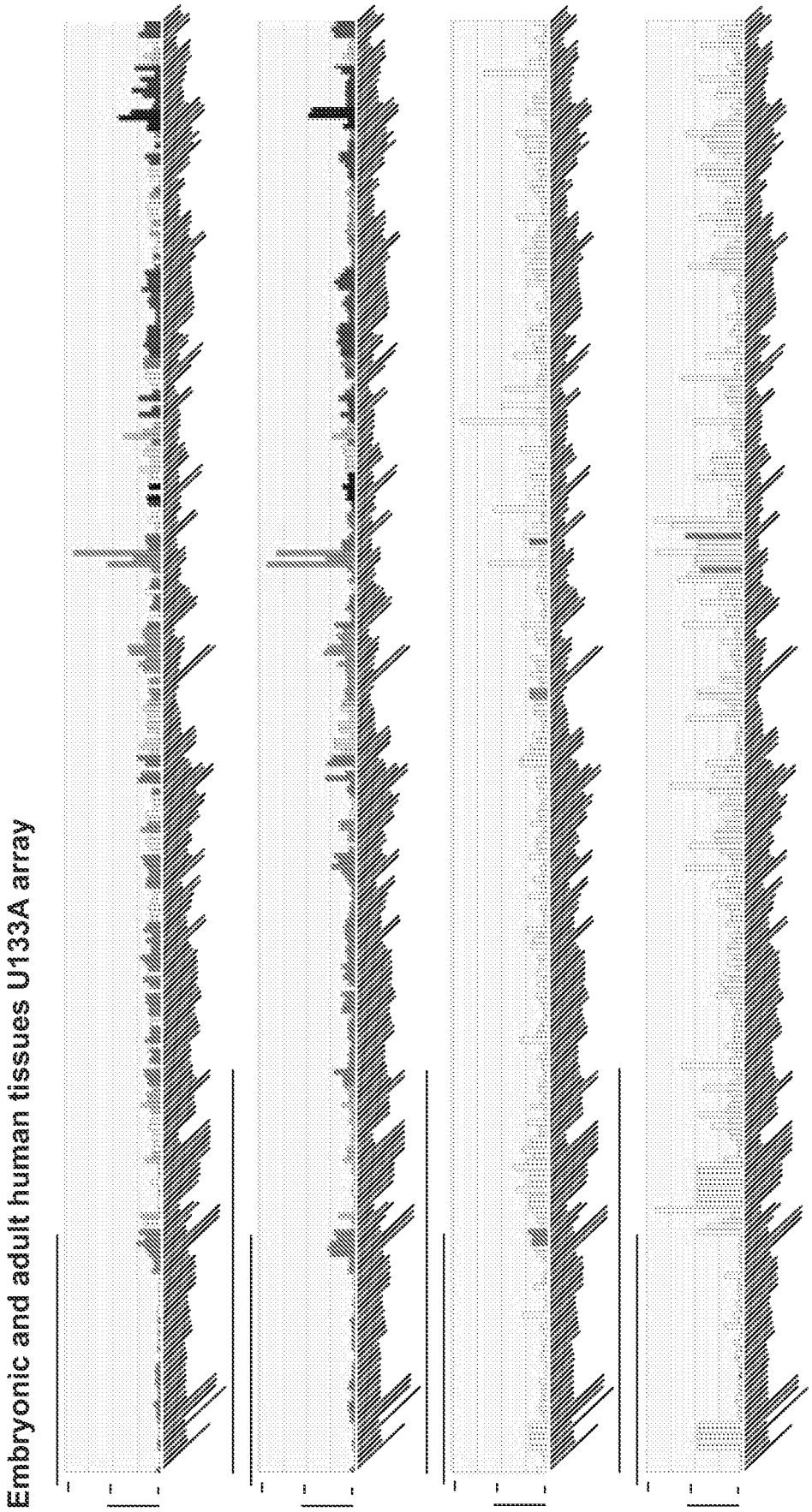


FIG. 9B

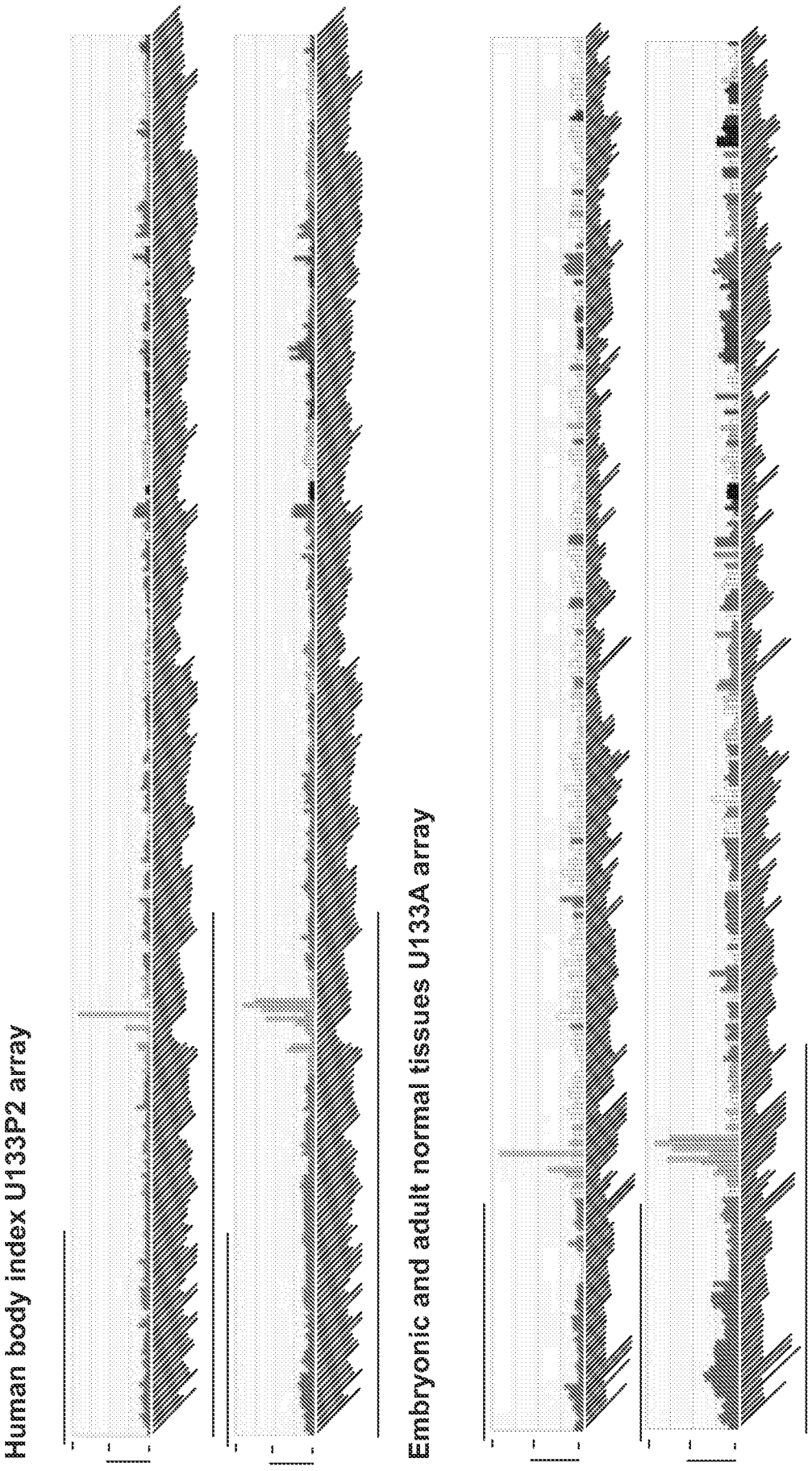

Human body index U133P2 array
Embryonic and adult normal tissues U133A array

FIG. 10

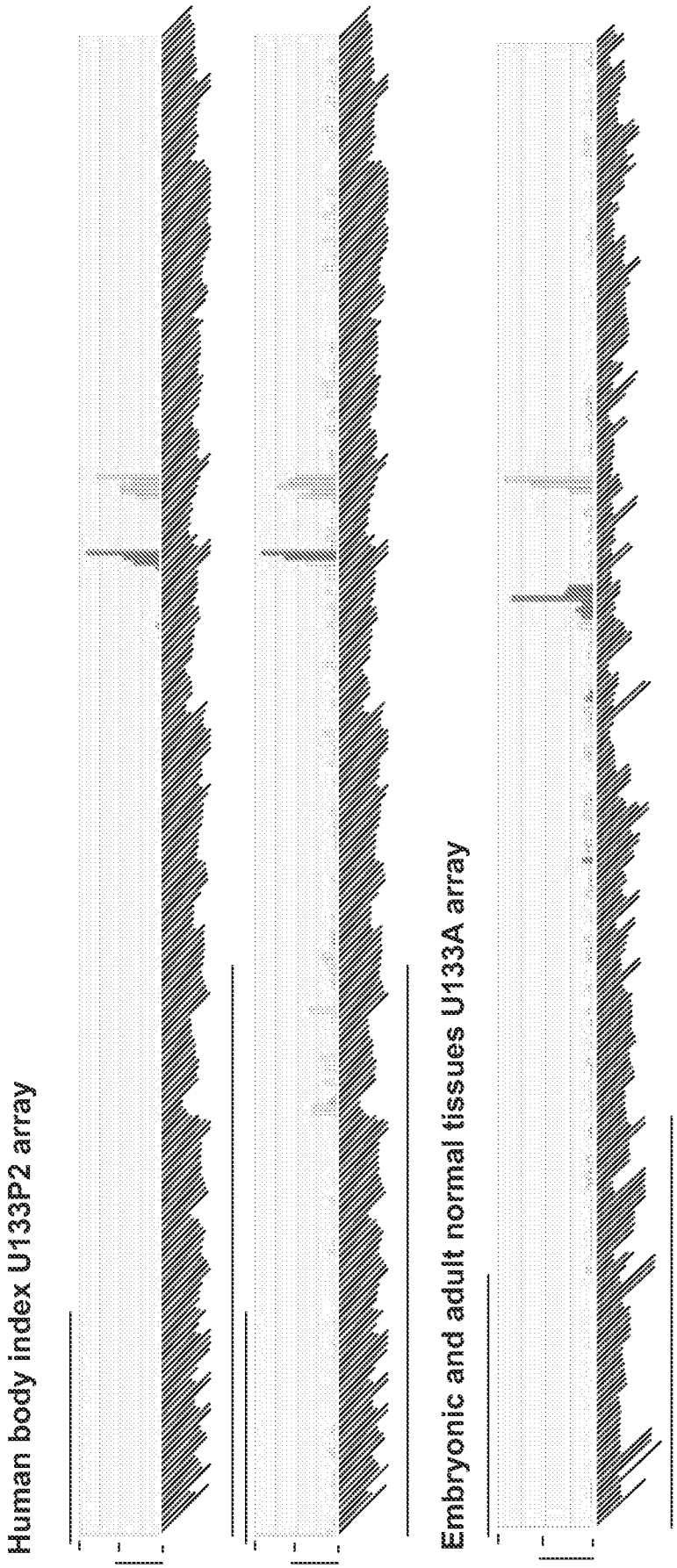

Human body index U133P2 array
Embryonic and adult normal tissues U133A array

FIG. 11

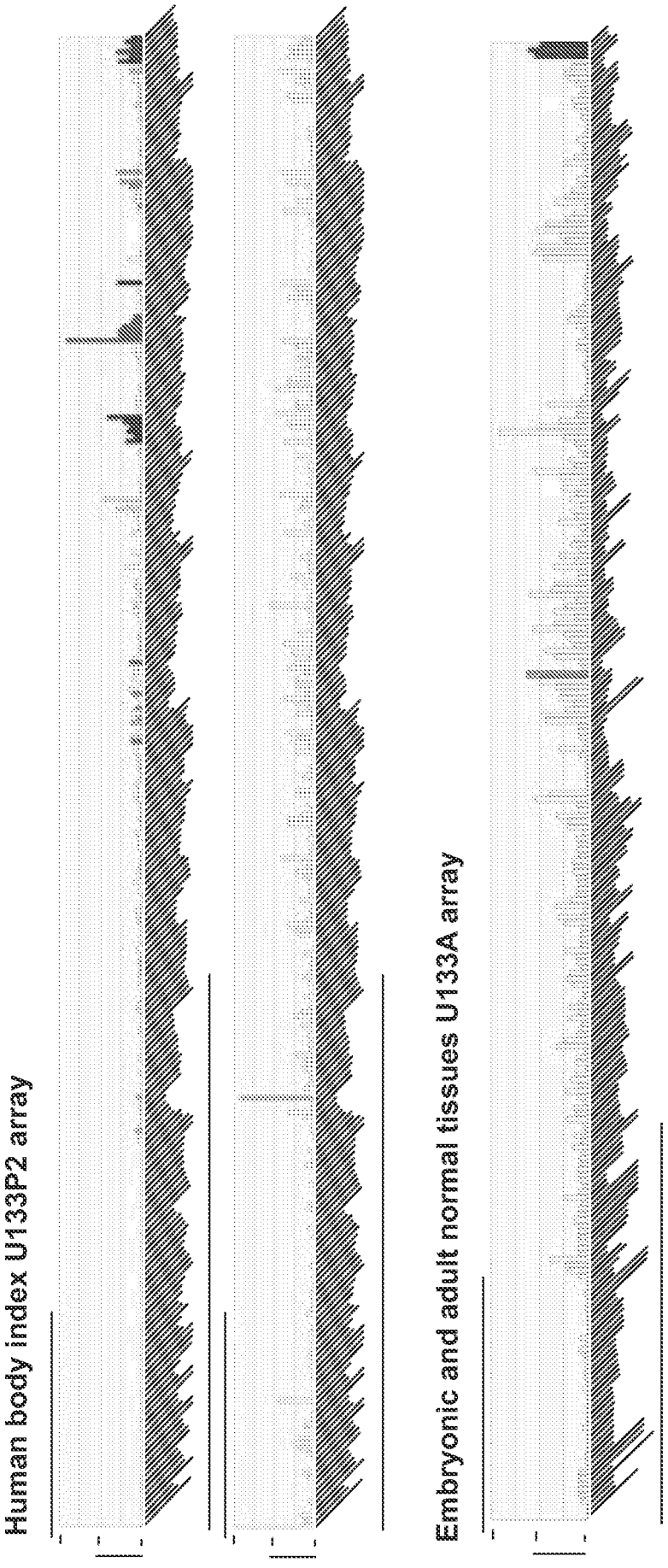

Human body index U133P2 array
Embryonic and adult normal tissues U133A array

FIG. 12

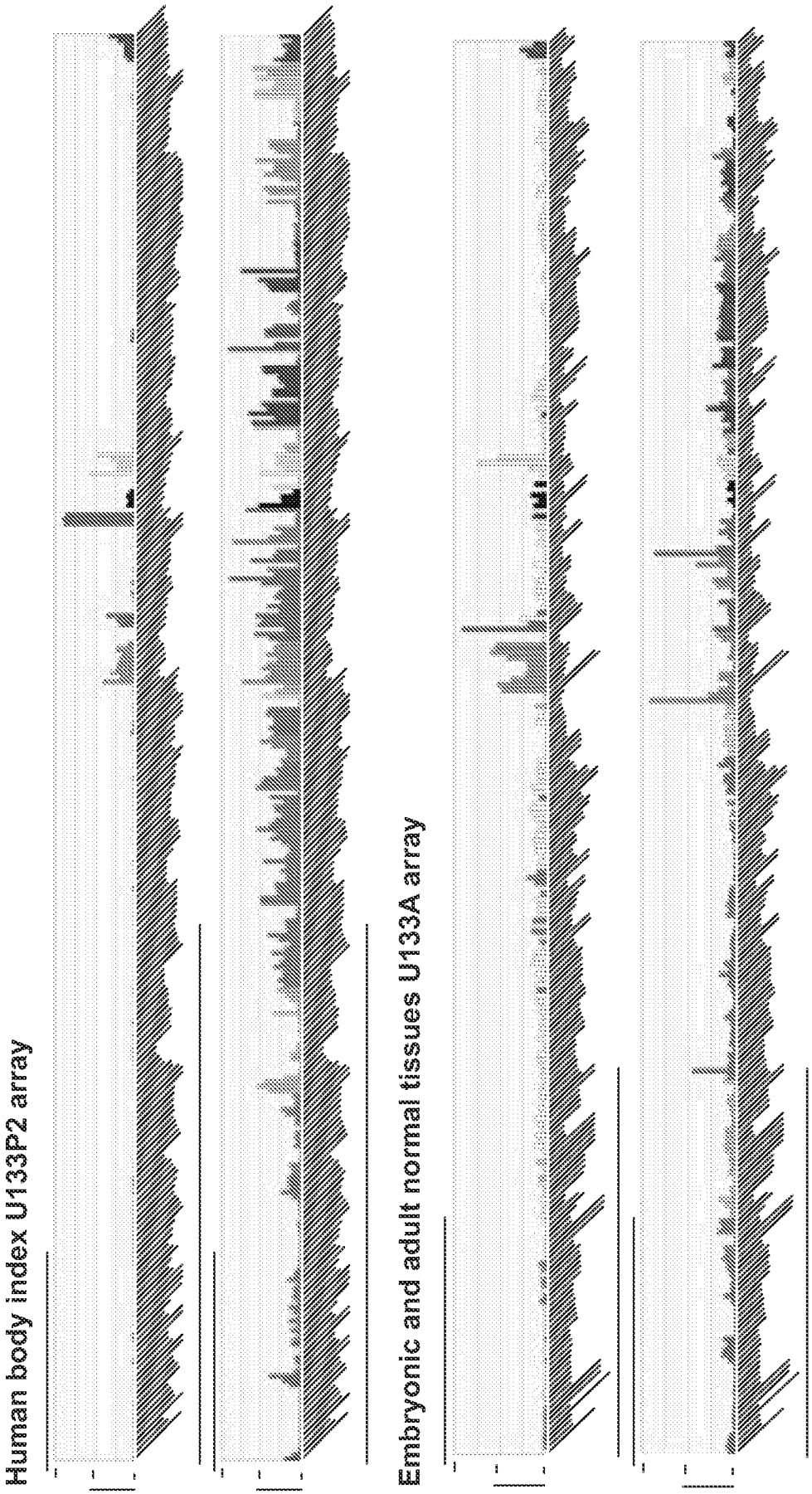

Human body index U133P2 array
Embryonic and adult normal tissues U133A array

FIG. 13

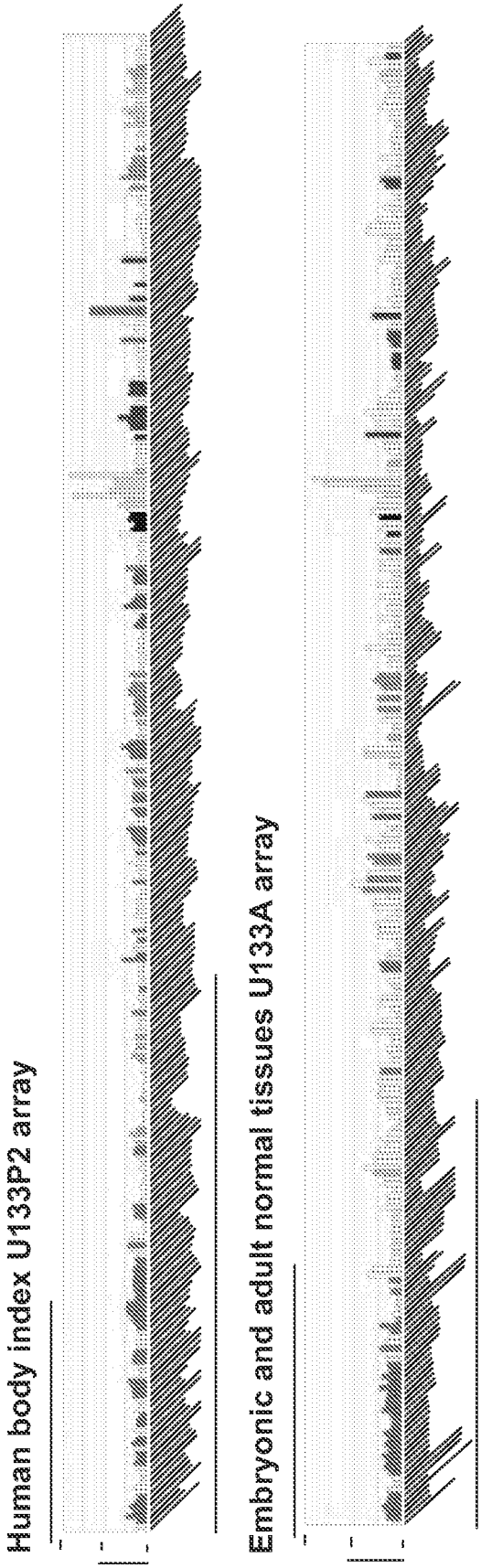

Human body index U133P2 array
Embryonic and adult normal tissues U133A array

FIG. 14

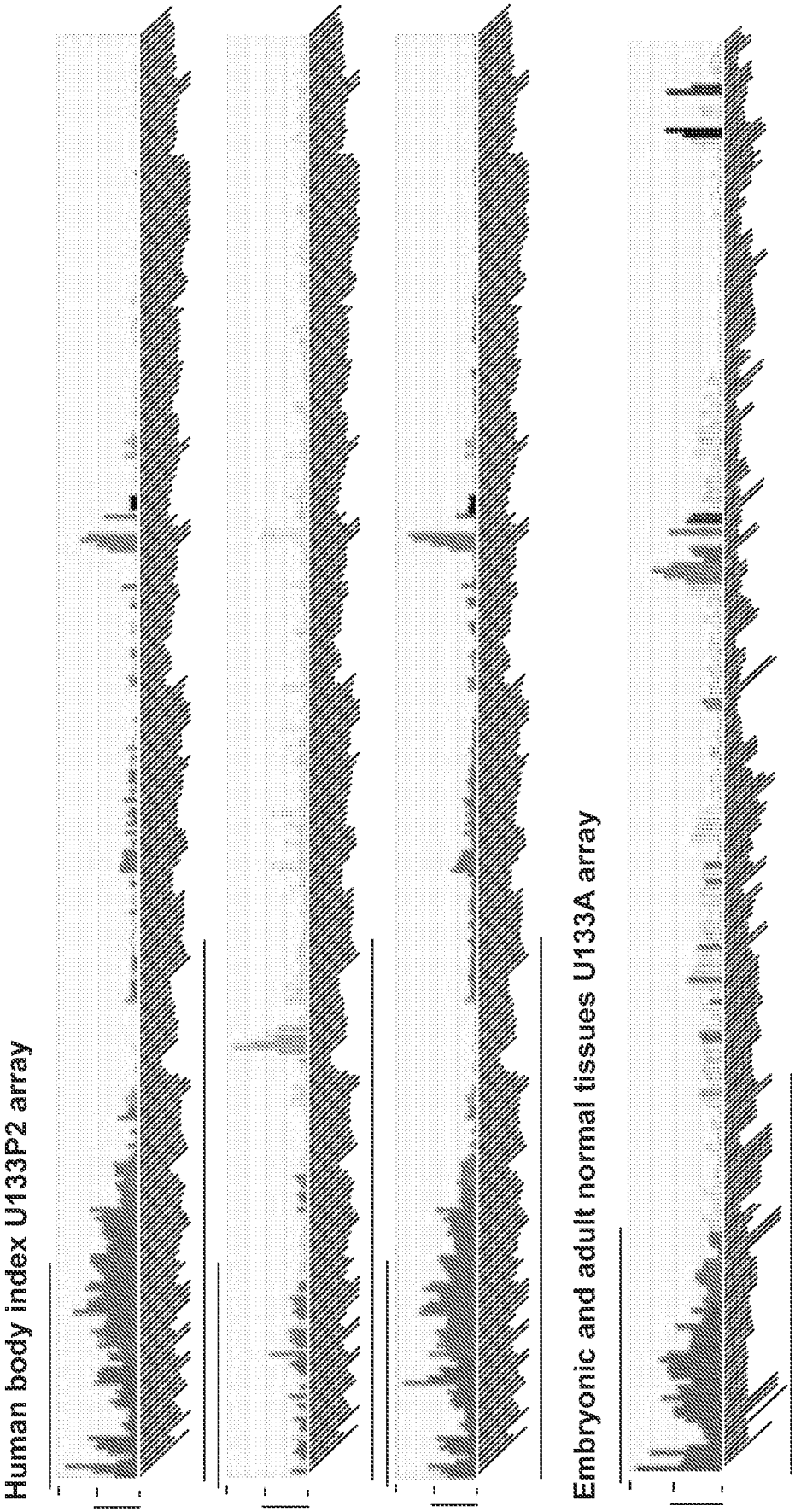

Human body index U133P2 array
Embryonic and adult normal tissues U133A array

FIG. 15

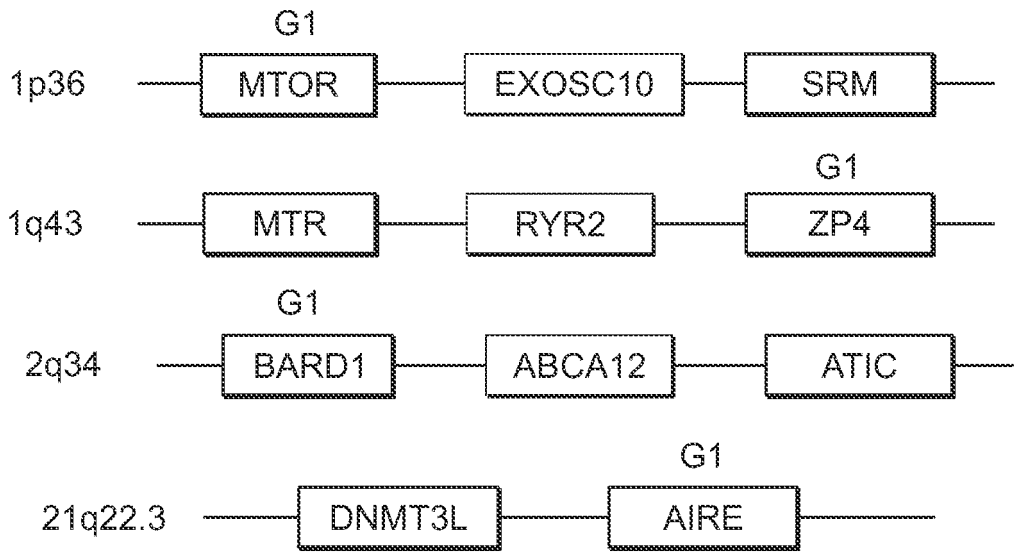

G1
1p36
MTOR
EXOSC10
SRM
G1
1q43
MTR
RYR2
ZP4
G1
2q34
BARD1
ABCA12
ATIC
G1
21q22.3
DNMT3L
AIRE

FIG. 16

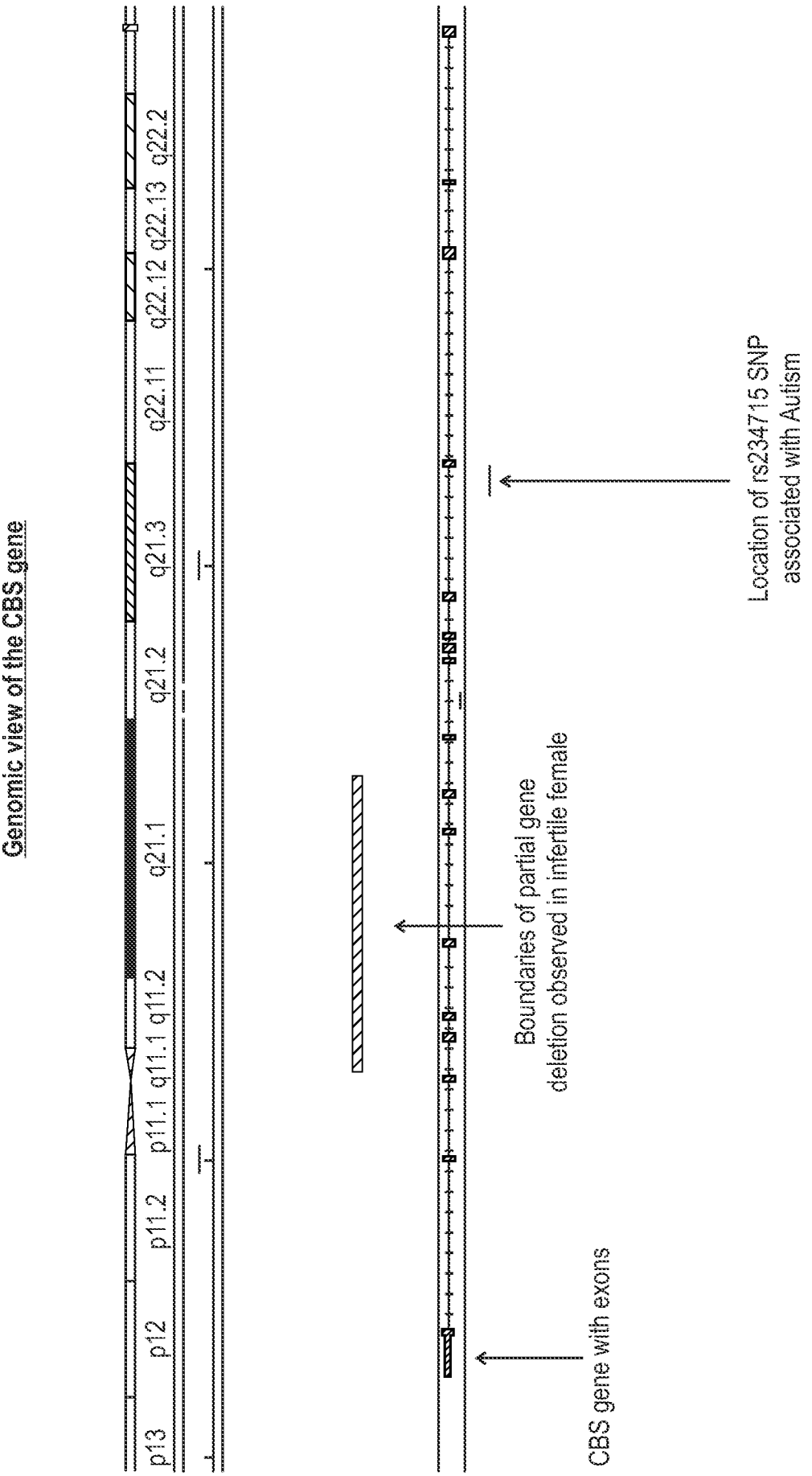

Genomic view of the CBS gene
p13
p12
p11.2
p11.1
q11.1
q11.2
q21.1
q21.2
q21.3
q22.11
q22.12
q22.13
q22.2
CBS gene with exons
Boundaries of partial gene deletion observed in infertile female
Location of rs234715 SNP associated with Autism

FIG. 17

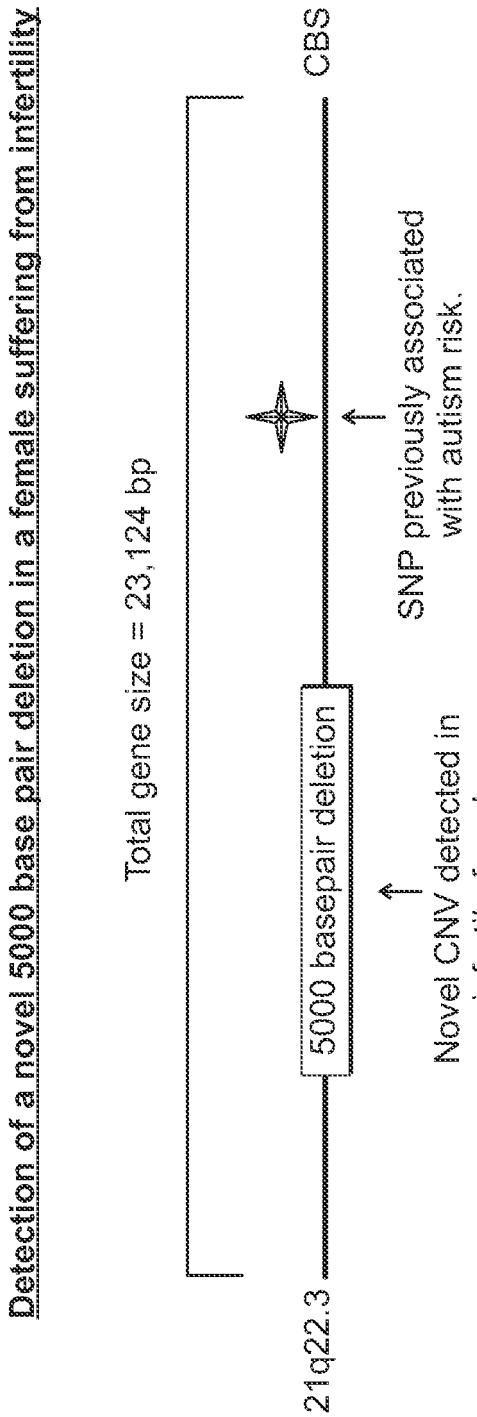

Detection of a novel 5000 base pair deletion in a female suffering from infertility
Total gene size = 23,124 bp
CBS gene
5000 basepair deletion
21q22.3
Novel CNV detected in infertile female
SNP previously associated with autism risk.

FIG. 18

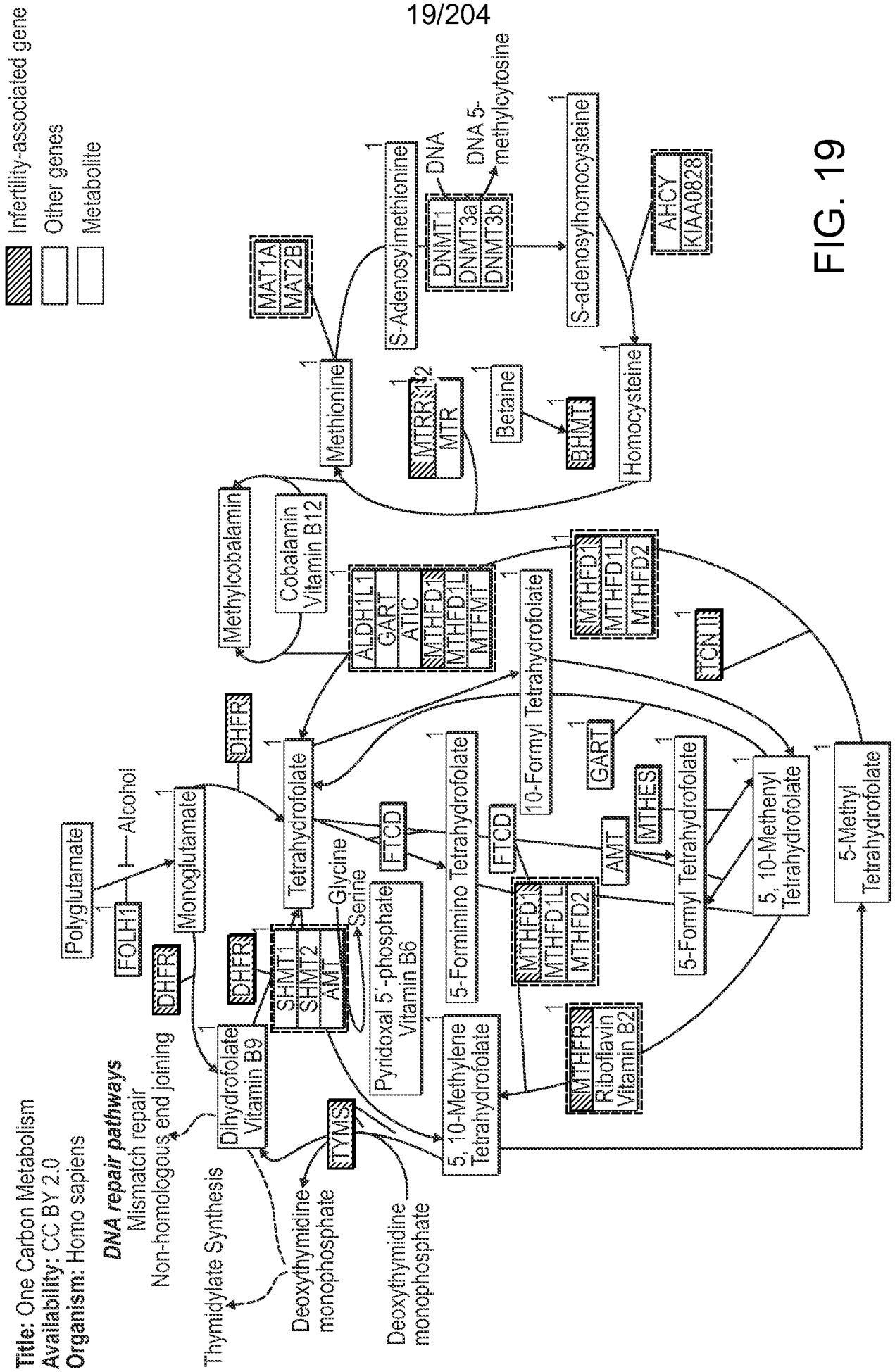

Infertility-associated gene
Other genes
Metabolite
Title: One Carbon Metabolism
Availability: CC BY 2.0
Organism: Homo sapiens
DNA repair pathways
Mismatch repair
Non-homologous end joining
Thymidylate Synthesis
Deoxythymidine monophosphate
Deoxythymidine monophosphate
Dihydrofolate Vitamin B9
TYMS
DHFR
DHFR
DHFR
Polyglutamate
FOLH1
Alcohol
Monoglutamate
SHMT1
SHMT2
AMT
Glycine
Serine
Tetrahydrofolate
Pyridoxal 5´-phosphate Vitamin B6
FTCD
5-Formimino Tetrahydrofolate
FTCD
10-Formyl Tetrahydrofolate
MTHFD1
MTHFD1L
MTHFD2
GART
AMT
MTHFS
5-Formyl Tetrahydrofolate
5, 10-Methenyl Tetrahydrofolate
5-Methyl Tetrahydrofolate
5, 10-Methylene Tetrahydrofolate
MTHFR
Riboflavin Vitamin B2
TCN III
ALDH1L1
GART
ATIC
MTHFD1
MTHFD1L
MTFMT
Methylcobalamin
Cobalamin Vitamin B12
MAT1A
MAT2B
Methionine
S-Adenosylmethionine
DNMT1
DNMT3a
DNMT3b
DNA
DNA 5-methylcytosine
MTRR
MTR
Betaine
BHMT
S-adenosylhomocysteine
Homocysteine
AHCY
KIAA0828

FIG. 19

FIG. 20A

Gene Name: ABCA1 (ATP-binding cassette, sub-family A; OMIM: 600046)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, CDC42);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2];
Medium in Uterus[3]; None in Endometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20B

Gene Name: ACVR1 (activin A receptor, type I; OMIM: 102576)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ACVR1C***-ACVR1*;
Female Infertility Candidate protein interactions : 4 (SMAD1, SMAD5, BMPR2, ACVR1B); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2A, ACVR2B, ACVR1B, BMPR1A, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20C

Gene Name: ACVR1B (activin A receptor, type IB; OMIM: 601300)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ACVRL1*-**ACVR1B***;
Female Infertility Candidate protein interactions : 9 (SMAD2, UBC, ACVR2A, ACVR2B, SMAD7, INHBB, SMAD3, ACVR1, INHBA); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2B, ACVR2A, BMPR1A, ACVR1, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20D

Gene Name: ACVR1C (activin A receptor, type IC; OMIM: 608981)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ACVR1C***-ACVR1*;
Female Infertility Candidate family members : AMHR2, ACVR2B, ACVR2A, ACVR1B, BMPR1A, ACVR1, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; **Not uniquely expressed in reproductive tissues;**

FIG. 20E

Gene Name: ACVR2A (activin A receptor, type IIA; OMIM: 102581)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 7 (UBC, BMP7, INHBA, ACVR1B, BMP6, INHBB, INHA); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2B, ACVR1B, BMPR1A, ACVR1, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20F

Gene Name: ACVR2B (activin A receptor, type IIB; OMIM: 602730)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (BMP7, INHBA, ACVR1B, BMP6, INHBB); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2A, ACVR1B, BMPR1A, ACVR1, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20G

Gene Name: ACVRL1 (activin A receptor type II-like 1; OMIM: 601284)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ACVRL1***-ACVR1B*;
Female Infertility Candidate protein interactions : 1 (TGFB1); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2B, ACVR2A, ACVR1B, BMPR1A, ACVR1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

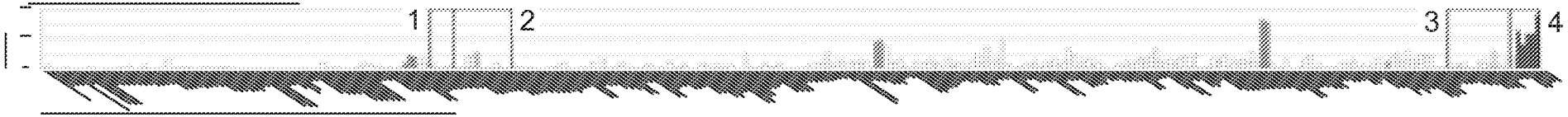


FIG. 20H

Gene Name: ADA (adenosine deaminase; OMIM: 608958)
Offspring Diseases: Asthma; Autism; Auto-Immune Disorders; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ADA***-WISP2*; Female Infertility Candidate protein interactions : 1 (UBC); Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

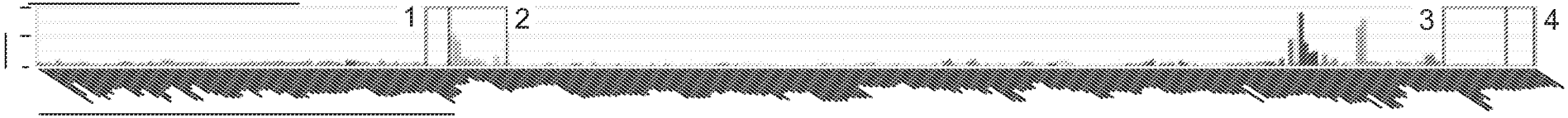


FIG. 20I

Gene Name: ADAMTS1 (ADAM metallopeptidase with thrombospondin type 1 motif, 1; OMIM: 605174)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (VEGFA, UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

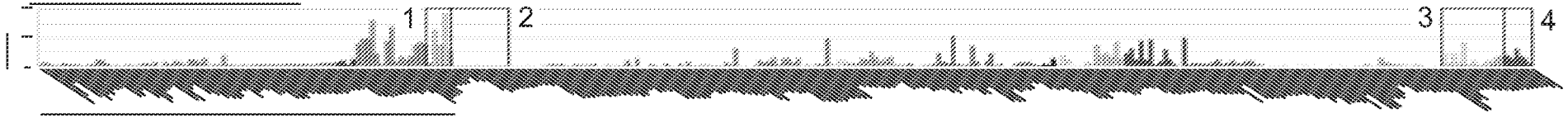


FIG. 20J

Gene Name: ADM (adrenomedullin; OMIM: 103275)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20K

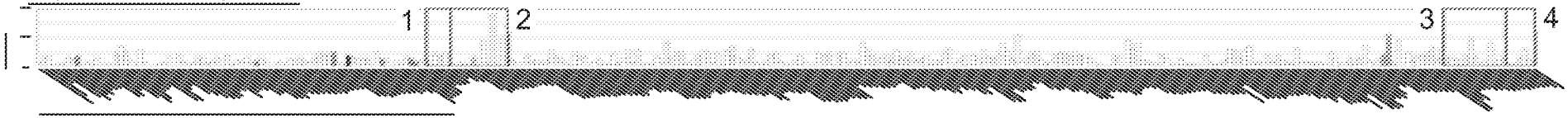
Gene Name: AFF2 (AF4/FMR2 family, member 2; OMIM: 300806)
Offspring Diseases: Autism; Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-FMR1*-FMR1NB-AFF2*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20L

Gene Name: AGT (angiotensinogen; OMIM: 106150)
Offspring Diseases: Bipolar disorder; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TAF5L*-URB2-GALNT2-PGBD5-COG2-AGT*; Female Infertility Candidate family members : SERPINA10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

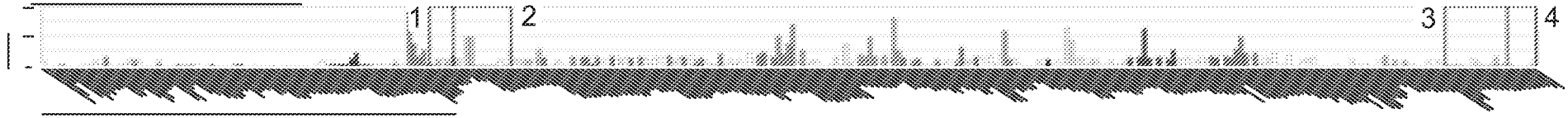
Gene Name: AIRE (autoimmune regulator; OMIM: 607358)
Offspring Diseases: Diabetes Type 1; Diabetes Type 2; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 6 (SMC1A, PCNA, MSH6, MSH2, SMC3, TOP2A);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20M



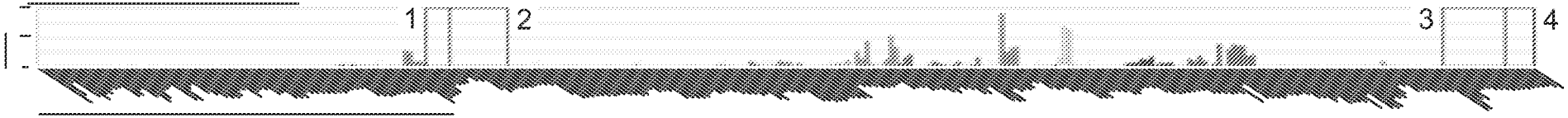
Gene Name: AKR1C1 (aldo-keto reductase family 1, member C1; OMIM: 600449)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-AKR1C1***-AKR1C2*-AKR1C3*-AKR1C4*; Female Infertility Candidate family members : AKR1C2, AKR1C3, AKR1C4;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20N



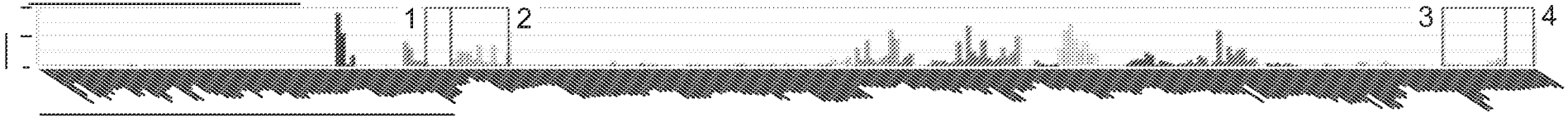
Gene Name: AKR1C2 (aldo-keto reductase family 1, member C2; OMIM: 600450)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-AKR1C1*-**AKR1C2*-**AKR1C3*-AKR1C4*; Female Infertility Candidate family members : AKR1C3, AKR1C1, AKR1C4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20O



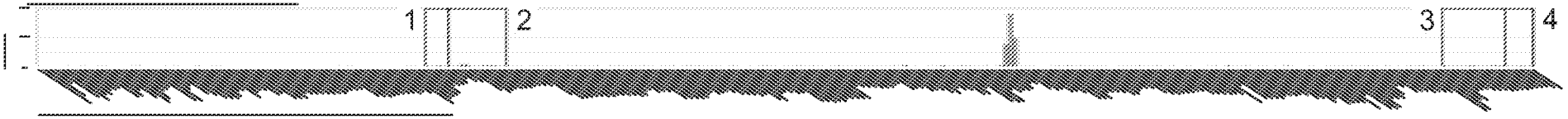
Gene Name: AKR1C3 (aldo-keto reductase family 1, member C3; OMIM: 603966)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-AKR1C1*-AKR1C2*-**AKR1C3***-AKR1C4*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : AKR1C2, AKR1C1, AKR1C4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20P



Gene Name: AKR1C4 (aldo-keto reductase family 1, member C4; OMIM: 600451)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-AKR1C1*-AKR1C2*-AKR1C3*-**AKR1C4***; Female Infertility Candidate family members : AKR1C2, AKR1C3, AKR1C1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20Q



Gene Name: AKT1 (v-akt murine thymoma viral oncogene homolog 1; OMIM: 164730)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 21 (UBC, TERT, MDM2, TCL1B, BRCA1, SMAD7, CDKN1B, MTOR, DNMT1, EZH2, SMAD2, PRKCQ, NOTCH1, TSC2, AR, NCOR2, SMAD3, ESR1, TCL1A, SMAD4, ILK); Female Infertility Candidate family members : SGK1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20R

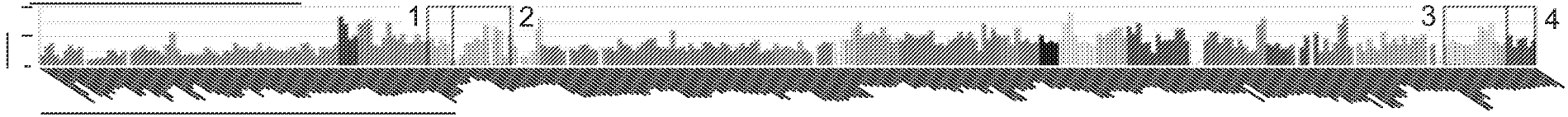


FIG. 20S

Gene Name: ALDOA (aldolase A, fructose-bisphosphate; OMIM: 103850)
Offspring Diseases: Autism; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ALDOA***-PPP4C-TBX6-YPEL3-GDPD3-MAPK3*; Female Infertility Candidate protein interactions : 2 (PCNA, UBC);
Present in the human oocyte proteome; Present in the mouse oocyte proteome; Female Infertility Candidate family members : ALDOC, ALDOB;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20T

Gene Name: ALDOB (aldolase B, fructose-bisphosphate; OMIM: 612724)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate family members : ALDOA, ALDOC;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20U

Gene Name: ALDOC (aldolase C, fructose-bisphosphate; OMIM: 103870)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-FOXN1*-UNC119-PIGS-**ALDOC***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : ALDOA, ALDOB;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20V

Gene Name: ALPL (alkaline phosphatase, liver/bone/kidney; OMIM: 171760)
Offspring Diseases: Diabetes Type 2; Endometriosis; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ALPL***-RAP1GAP-USP48-LDLRAD2-HSPG2*-CELA3B-CELA3A-CDC42*-WNT4-ZBTB40-EPHA8*-C1QA-C1QC-C1QB-EPHB2*-LOC729059-KDM1A*;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20W

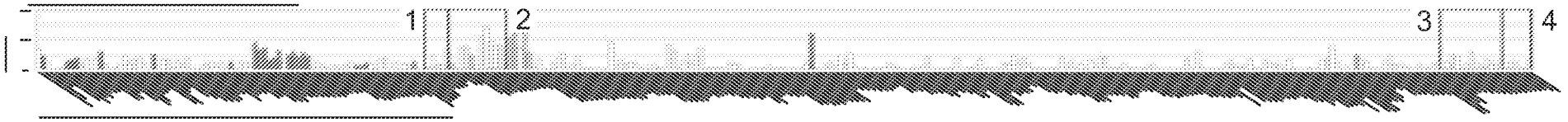
Gene Name: AMBP (alpha-1-microglobulin/bikunin precursor; OMIM: 176870)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-RGS3*-ZNF618-**AMBP***; Female Infertility Candidate family members : TFPI2, TFPI;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20X

Gene Name: AMD1 (adenosylmethionine decarboxylase 1; OMIM: 180980)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

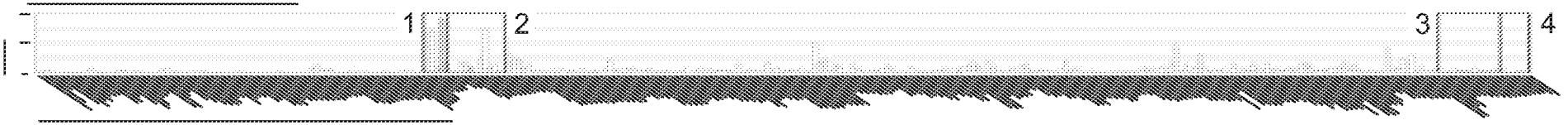
Gene Name: AMH (anti-Mullerian hormone; OMIM: 600957)
Offspring Diseases: Premature Ovarian Failure;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20Y



Gene Name: AMHR2 (anti-Mullerian hormone receptor, type II; OMIM: 600956)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate family members : ACVR1C, ACVR2B, ACVR2A, ACVR1B, BMPR1A, ACVR1, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20Z



Gene Name: ANK3 (ankyrin 3, node of Ranvier; OMIM: 600465)
Offspring Diseases: ADHD; Bipolar disorder; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, SPTBN4);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20AA

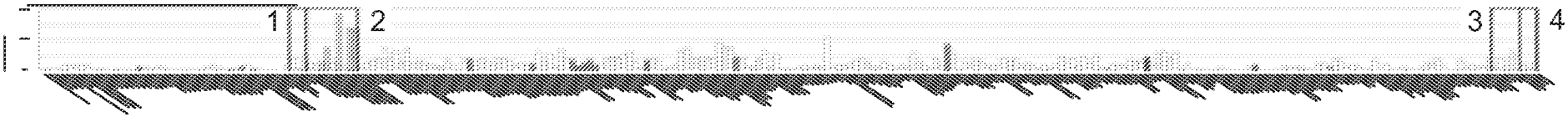


FIG. 20AB

Gene Name: ANXA1 (annexin A1; OMIM: 151690)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (UBC, UBE3A, SIRT7);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AC

Gene Name: APC (adenomatous polyposis coli; OMIM: 611731)
Offspring Diseases: Autism; Cancer; Diabetes Type 2; Endometriosis; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-STARD4*-C5orf13-EPB41L4A-APC*; Female Infertility Candidate protein interactions : 5 (BUB1B, MAD2L1, CTNNB1, UBC, BUB1);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20AD

Gene Name: APOA1 (apolipoprotein A-I; OMIM: 107680)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : APOE;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

Gene Name: APOE (apolipoprotein E; OMIM: 107741)
Offspring Diseases: Bipolar disorder; Diabetes Type 2; Obesity; Rett Syndrome; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : APOA1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AE

Gene Name: AQP4 (aquaporin 4; OMIM: 600308)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TAF4B*-KCTD1-**AQP4***;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

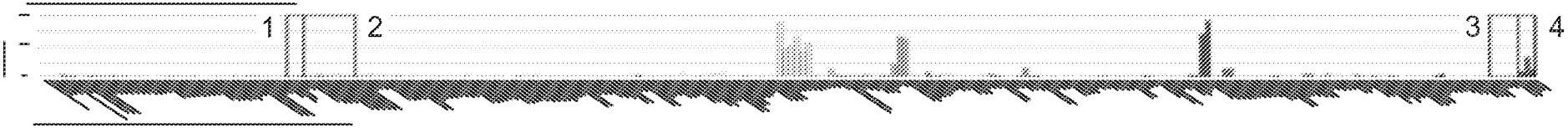
FIG. 20AF

Gene Name: AR (androgen receptor; OMIM: 313700)
Offspring Diseases: Autism; Cancer; Diabetes Type 2; Myotonic Dystrophy; Obesity; Premature Ovarian Failure; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**AR***-OPHN1-YIPF6-STARD8*-EFNB1*;
Female Infertility Candidate protein interactions : 20 (IL6ST, KDM4A, UBC, MDM2, NCOA2, CCND1, NCOR1, CTNNB1, SRCAP, KDM5B, FHL2, AKT1, SIRT1, CDK7, NCOR2, SMAD3, SMARCA4, STAT3, TGFB1I1, SMAD4);
Female Infertility Candidate family members : ESRRB, ESR1, PGR, ESR2, NR3C1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20AG

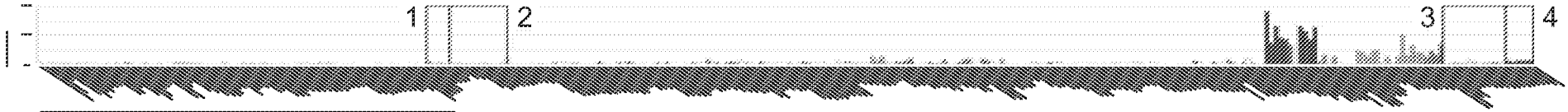
Gene Name: AREG (amphiregulin; OMIM: 104640)
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EREG*-**AREG*;**
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AH



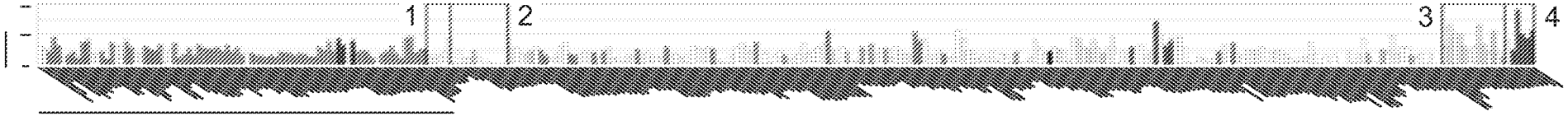
Gene Name: ARL11 (ADP-ribosylation factor-like 11; OMIM: 609351)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : SAR1B, ARL13A, ARL4A, SAR1A, ARFRP1, ARL5C, ARL13B, ARF5, ARL5A, ARL3, ARF1, ARL4D, ARL6, ARL4C, ARL10, ARL15, ARL5B, ARL2, ARF4, ARF3, ARL8A, ARL1, ARL8B;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AI



Gene Name: ARL15 (ADP-ribosylation factor-like 15)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ITGA2*-MOCS2-FST*-NDUFS4-**ARL15*;**
Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : SAR1B, ARL4A, ARL13A, SAR1A, ARL11, ARL5C, ARFRP1, ARF5, ARL13B, ARF1, ARL5A, ARL3, ARL4D, ARL6, ARL4C, ARL10, ARL2, ARL5B, ARF4, ARF3, ARL8A, ARL8B, ARL1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

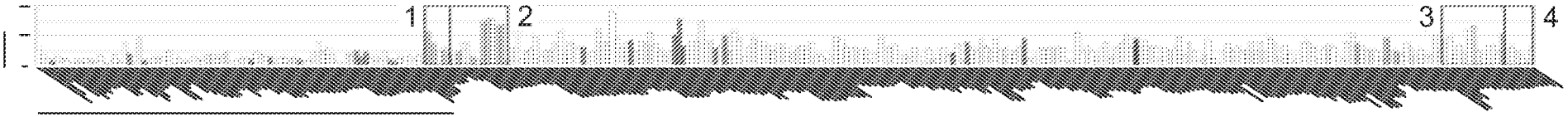
FIG. 20AJ



Gene Name: ARL3 (ADP-ribosylation factor-like 3; OMIM: 604695)

FIG. 20AK

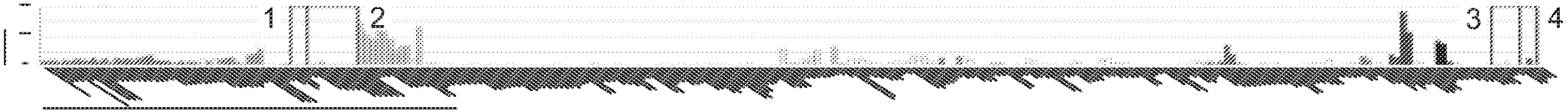
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ARL3***-SFXN2-C10orf26-CYP17A1*;
Female Infertility Candidate protein interactions : 1 (UBC); Present in the mouse oocyte proteome; Female Infertility Candidate family members : SAR1B, ARL13A, ARL4A, SAR1A, ARFRP1, ARL5C, ARL11, ARL13B, ARF5, ARL5A, ARF1, ARL4D, ARL6, ARL4C, ARL10, ARL15, ARL5B, ARL2, ARF4, ARF3, ARL8A, ARL1, ARL8B;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**



Gene Name: ARL4A (ADP-ribosylation factor-like 4A; OMIM: 604786)

FIG. 20AL

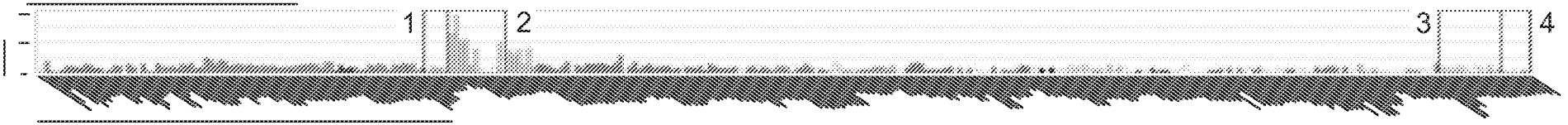
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : SAR1B, ARL13A, SAR1A, ARFRP1, ARL5C, ARL11, ARL13B, ARF5, ARL5A, ARL3, ARF1, ARL4D, ARL6, ARL4C, ARL10, ARL15, ARL5B, ARL2, ARF4, ARF3, ARL8A, ARL1, ARL8B;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: ARL6 (ADP-ribosylation factor-like 6; OMIM: 608845)

FIG. 20AM

Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EPHA3*-PROS1-ARL13B*-STX19-DHFRL1*-NSUN3-EPHA6*-**ARL6***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : SAR1B, ARL13A, ARL4A, SAR1A, ARFRP1, ARL11, ARL5C, ARL13B, ARF5, ARF1, ARL3, ARL5A, ARL4D, ARL4C, ARL10, ARL15, ARL5B, ARL2, ARF4, ARF3, ARL8A, ARL8B, ARL1;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**



Gene Name: ARNTL (aryl hydrocarbon receptor nuclear translocator-like; OMIM: 602550)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ARNTL***-BTBD10-PTH-FAR1*; Female Infertility Candidate protein interactions : 2 (SIRT1, UBC); Female Infertility Candidate family members : AHR;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AN

Gene Name: ASCL2 (achaete-scute complex homolog 2; OMIM: 601886)
Offspring Diseases: Cancer; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IGF2*-INS-TH-**ASCL2***-C11orf21-TSPAN32-CD81*-TSSC4-TRPM5-KCNQ1-CDKN1C*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AO

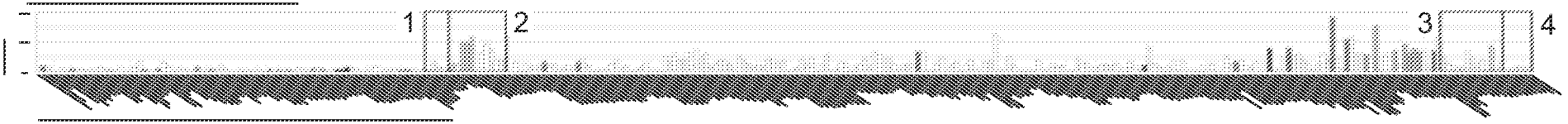
Gene Name: ATF7IP (activating transcription factor 7 interacting protein; OMIM: 613644)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (MBD1, UBC, ERCC2);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AP

Gene Name: ATM (ataxia telangiectasia mutated; OMIM: 607585)

FIG. 20AQ

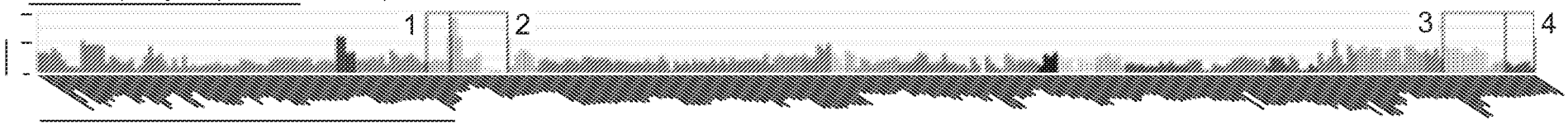
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 15 (ATR, MSH6, RAD17, MSH2, UBC, FOXO3, MLH1, TERF1, BRCA1, SMC1A, VHL, TCL1A, SMC3, TP53, SIRT7); Female Infertility Candidate family members : ATR, MTOR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: ATR (ataxia telangiectasia and Rad3 related; OMIM: 601215)

FIG. 20AR

Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ATR***-PLS1-TRPC1-PCOLCE2-PAQR9-U2SURP-CHST2*; Female Infertility Candidate protein interactions : 11 (MSH6, MTA2, RAD17, MSH2, UBC, BRCA1, NCOA2, PMS1, ATM, SMC1A, TP53); Female Infertility Candidate family members : ATM, MTOR;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: ATXN2 (ataxin 2; OMIM: 601517)

FIG. 20AS

Offspring Diseases: Bipolar disorder; Celiac Disease; Diabetes Type 1; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SH2B3***-ATXN2***;
Female Infertility Candidate protein interactions : 2 (VHL, UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

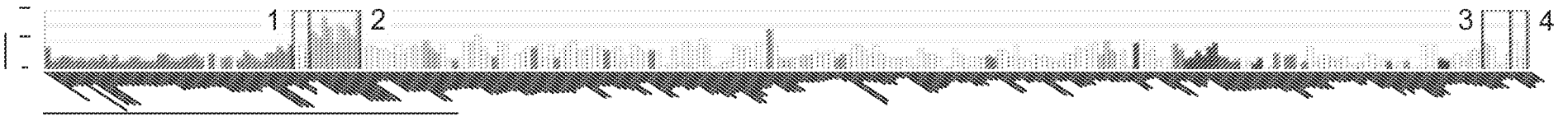


FIG. 20AT

Gene Name: AURKA (aurora kinase A; OMIM: 603072)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-AURKA***-CSTF1*-CASS4-C20orf43-GCNT7-C20orf106-C20orf107-TFAP2C*-BMP7*-SPO11*-RAE1-MTRNR2L3-RBM38-CTCFL*; Female Infertility Candidate protein interactions : 7 (CDKN2A, UBC, MBD3, KIF2C, TP53, BRCA1, SOD2); Female Infertility Candidate family members : AURKB;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20AU

Gene Name: AUTS2 (autism susceptibility candidate 2; OMIM: 607270)
Offspring Diseases: Autism; Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate family members : FBRS, FBRSL1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20AV

Gene Name: BARD1 (BRCA1 associated RING domain 1; OMIM: 601593)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 13 (UBE2D3, XIST, MSH6, CSTF2, UBC, MLH1, BRCA1, AURKB, SMC1A, UIMC1, BRCA2, ESR1, TP53);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20AW

Gene Name: BAX (BCL2-associated X protein; OMIM: 600040)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-BAX***-FTL-GYS1-RUVBL2-LHB*-CGB*-CGB2*-CGB1*-CGB5*-CGB8-CGB7-NTF4*; Female Infertility Candidate protein interactions : 4 (BCL2, UBC, BCL2L1, BCL2L10); Female Infertility Candidate family members : MCL1, BCL2, BCL2L1, BCL2L10;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AX

Gene Name: BBS1 (Bardet-Biedl syndrome 1; OMIM: 209901)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-BBS1***-ZDHHC24-ACTN3-CTSF-CCDC87-CCS*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20AY

Gene Name: BBS10 (Bardet-Biedl syndrome 10; OMIM: 610148)
Offspring Diseases: Bardet-Biedl Syndrome; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20AZ

Gene Name: BBS12 (Bardet-Biedl syndrome 12; OMIM: 610683)
Offspring Diseases: Bardet-Biedl Syndrome; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BBS7*-TRPC3-KIAA1109-ADAD1-IL2-IL21-**BBS12***;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

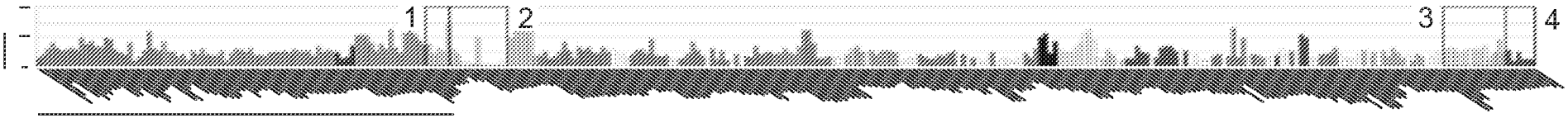


FIG. 20BA

Gene Name: BBS2 (Bardet-Biedl syndrome 2; OMIM: 606151)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

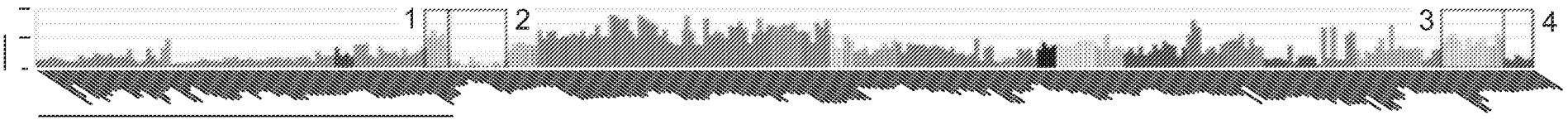


FIG. 20BB

Gene Name: BBS4 (Bardet-Biedl syndrome 4; OMIM: 600374)
Offspring Diseases: Bardet-Biedl Syndrome; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : TTC8;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

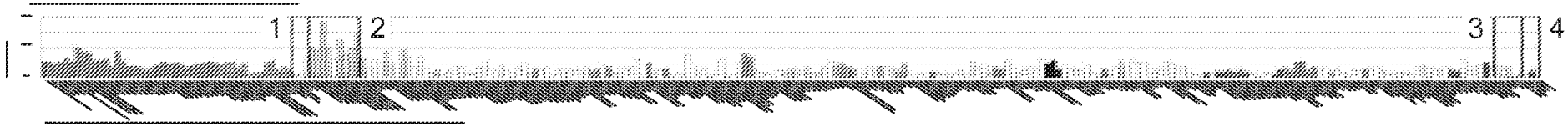


FIG. 20BC

Gene Name: BBS5 (Bardet-Biedl syndrome 5; OMIM: 603650)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BD

Gene Name: BBS7 (Bardet-Biedl syndrome 7; OMIM: 607590)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-BBS7***-TRPC3-KIAA1109-ADAD1-IL2-IL21-BBS12*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20BE

Gene Name: BBS9 (Bardet-Biedl syndrome 9; OMIM: 607968)
Offspring Diseases: Bardet-Biedl Syndrome; Bipolar disorder; Obesity; Premature Ovarian Failure;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BF

Gene Name: BCL2 (B-cell CLL/lymphoma 2; OMIM: 151430)
Offspring Diseases: Autism; Bipolar disorder; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 12 (SOD1, BECN1, UBC, CASP8, BCL2L1, EPHB2, BAX, BCL2L10, PSEN1, TP53, MYC, DYNLL1); Female Infertility Candidate family members : MCL1, BCL2L1, BAX, BCL2L10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

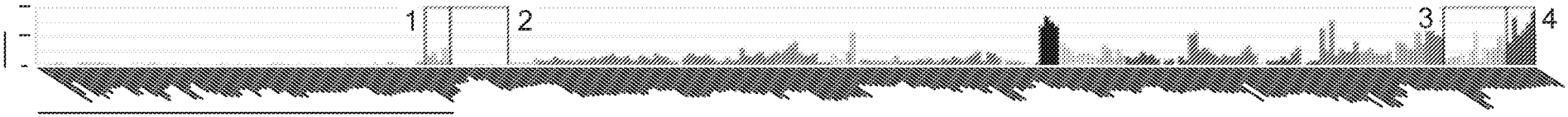


FIG. 20BG

Gene Name: BCL2L1 (BCL2-like 1; OMIM: 600039)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 6 (PSEN2, MCL1, BCL2, UBC, BAX, DYNLL1); Female Infertility Candidate family members : MCL1, BCL2, BAX, BCL2L10;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

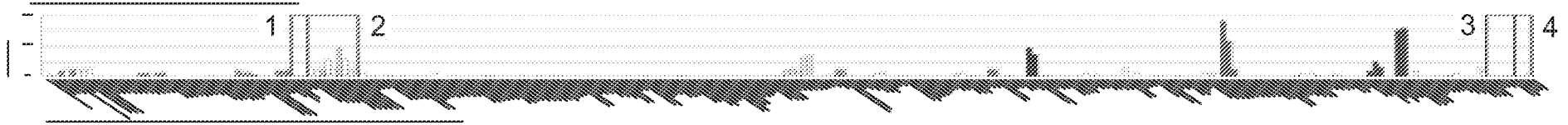


FIG. 20BH

Gene Name: BCL2L10 (BCL2-like 10; OMIM: 606910)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (BCL2, UBC, BAX); Present in the mouse oocyte proteome; Female Infertility Candidate family members : BCL2, MCL1, BCL2L1, BAX;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

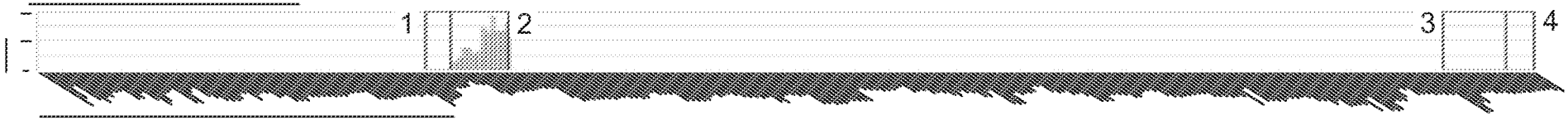


FIG. 20BI

Gene Name: BDNF (brain-derived neurotrophic factor; OMIM: 113505)
Offspring Diseases: ADHD; Asthma; Bipolar disorder; Diabetes Type 2; Obesity; Rett Syndrome; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-BDNF***-KIF18A-METTL15-KCNA4-FSHB*-C11orf46-MPPED2*; Female Infertility Candidate family members : NTF4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BJ

Gene Name: BECN1 (beclin 1, autophagy related; OMIM: 604378)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (SMC1A, BCL2, UBC, SMC3, GSPT1);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BK

Gene Name: BHMT (betaine--homocysteine S-methyltransferase; OMIM: 602888)
Offspring Diseases: Autism; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-BHMT***-JMY*; Female Infertility Candidate family members : MTHFR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BL

Gene Name: BMP15 (bone morphogenetic protein 15; OMIM: 300247)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate family members : GDF9, BMP5, GDF3, BMP4, BMP2, INHBB, NODAL, BMP3, INHBA, BMP7, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BM

Gene Name: BMP2 (bone morphogenetic protein 2; OMIM: 112261)
Offspring Diseases: Asthma; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PCNA*-CDS2-PROKR2*-GPCPD1-C20orf196-CHGB-TRMT6-MCM8*-CRLS1-LRRN4-FERMT1-**BMP2***-HAO1-TMX4-PLCB1*-PLCB4-C20orf103-PAK7-ANKRD5-SNAP25-MKKS*-C20orf94-JAG1*;
Female Infertility Candidate protein interactions : 2 (BMPR1A, BMPR2); Female Infertility Candidate family members : GDF9, GDF3, BMP5, BMP15, BMP4, INHBB, NODAL, BMP3, INHBA, BMP7, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BN

Gene Name: BMP4 (bone morphogenetic protein 4; OMIM: 112262)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, BMPR2);
Female Infertility Candidate family members : GDF9, GDF3, BMP5, BMP15, INHBB, BMP2, NODAL, BMP3, BMP7, INHBA, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not expressed in reproductive tissues;

FIG. 20BO

Gene Name: BMP6 (bone morphogenetic protein 6; OMIM: 112266)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (BMPR1A, BMPR2, ACVR2B, ACVR2A); Female Infertility Candidate family members : GDF9, GDF3, BMP5, BMP15, BMP4, INHBB, BMP2, NODAL, BMP3, INHBA, BMP7, TGFB1, GDF1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2];None in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BP

Gene Name: BMP7 (bone morphogenetic protein 7; OMIM: 112267)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-AURKA*-CSTF1*-CASS4-C20orf43-GCNT7-C20orf106-C20orf107-TFAP2C*-**BMP7***-SPO11*-RAE1-MTRNR2L3-RBM38-CTCFL*; Female Infertility Candidate protein interactions : 6 (SMAD3, NOG, UBC, BMPR2, ACVR2B, ACVR2A); Female Infertility Candidate family members : GDF9, GDF3, BMP5, BMP15, BMP4, INHBB, BMP2, NODAL, BMP3, INHBA, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BQ

Gene Name: BMPR1A (bone morphogenetic protein receptor, type IA; OMIM: 601299)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LDB3*-**BMPR1A***;
Female Infertility Candidate protein interactions : 7 (FST, UBC, BMPR2, BMPR1B, SMAD7, BMP6, BMP2); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2B, ACVR2A, ACVR1B, ACVR1, ACVRL1, BMPR2, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BR

Gene Name: BMPR1B (bone morphogenetic protein receptor, type IB; OMIM: 603248)
Offspring Diseases: ADHD; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (BMPR1A, UBC, BMPR2); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2B, ACVR2A, ACVR1B, BMPR1A, ACVR1, ACVRL1, BMPR2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BS

Gene Name: BMPR2 (bone morphogenetic protein receptor, type II; OMIM: 600799)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 10 (UBC, BMP4, BMP2, BMPR1A, ACVR1, FST, BMP7, BMPR1B, FHL2, BMP6); Female Infertility Candidate family members : ACVR1C, AMHR2, ACVR2B, ACVR2A, ACVR1B, BMPR1A, ACVR1, ACVRL1, BMPR1B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BT

Gene Name: BOP1 (block of proliferation 1; OMIM: 610596)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-BOP1***-HSF1*; Female Infertility Candidate protein interactions : 2 (UBC, SIRT7);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BU

Gene Name: BRCA1 (breast cancer 1, early onset; OMIM: 113705)
Offspring Diseases: Cancer; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**BRCA1***-NBR1-TMEM106A-ARL4D*; Female Infertility Candidate protein interactions : 32 (UBE2D3, CSTF2, STAT5A, CDK4, AURKA, UIMC1, PRMT1, TOP2A, AKT1, MSH2, TERF1, SMARCA4, MYC, ATR, PGR, MLH1, UBC, CCND1, BARD1, SMC1A, BRCA2, FHL2, TP53, XIST, STAT1, MSH6, MTA2, BRIP1, FOXO3, ATM, SMAD3, ESR1);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BV

Gene Name: BRCA2 (breast cancer 2, early onset; OMIM: 600185)
Offspring Diseases: Autism; Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**BRCA2***-N4BP2L1-N4BP2L2-PDS5B-KL*-STARD13*; Female Infertility Candidate protein interactions : 11 (SMAD2, UBC, STAT5A, FANCG, BRCA1, PMS1, AURKB, BARD1, SMAD3, TP53, PMS2);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20BW

Gene Name: BRIP1 (BRCA1 interacting protein C-terminal helicase 1; OMIM: 605882)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (UBC, MLH1, BRCA1, PMS2, PMS1); Female Infertility Candidate family members : DDX11, RTEL1, ERCC2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BX

Gene Name: BUB1 (budding uninhibited by benzimidazoles 1 homolog; OMIM: 602452)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**BUB1***-ACOXL-BCL2L11-ANAPC1-MERTK*; Female Infertility Candidate protein interactions : 3 (BUB1B, UBC, APC); Female Infertility Candidate family members : BUB1B;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20BY

Gene Name: BUB1B (budding uninhibited by benzimidazoles 1 homolog beta; OMIM: 602860)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (MAD2L1, BUB1, UBC, APC); Present in the mouse oocyte proteome; Female Infertility Candidate family members : BUB1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20BZ

Gene Name: C2orf86 ((budding uninhibited by benzimidazoles 1 homolog beta; OMIM: 602860))
Offspring Diseases: Bardet-Biedl Syndrome;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CA

Gene Name: C3 (complement component 3; OMIM: 120700)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; None in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CB

Gene Name: CA1 (carbonic anhydrase I; OMIM: 114800)
Offspring Diseases: Endometriosis;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CC

Gene Name: CARD8 (caspase recruitment domain family, member 8; OMIM: 609051)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CD

Gene Name: CASP1 (caspase 1, apoptosis-related cysteine peptidase; OMIM: 147678)
Offspring Diseases: Asthma; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CASP5*-**CASP1***;
Female Infertility Candidate protein interactions : 1 (CASP8); Female Infertility Candidate family members : CASP2, CASP6, CASP5, CASP8;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CE

Gene Name: CASP5 (caspase 5, apoptosis-related cysteine peptidase; OMIM: 602665)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CASP5***-CASP1*;
Female Infertility Candidate family members : CASP2, CASP6, CASP1, CASP8;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CF

Gene Name: CASP8 (caspase 8, apoptosis-related cysteine peptidase; OMIM: 601763)
Offspring Diseases: Asthma; Bipolar disorder; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 8 (CASP6, BCL2, UBC, CASP2, FASLG, CASP1, EZR, MAPK8); Female Infertility Candidate family members : CASP2, CASP6, CASP1, CASP5;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CG

Gene Name: CBS (cystathionine-beta-synthase; OMIM: 613381)
Offspring Diseases: Autism; Diabetes Type 2; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-CBS***-U2AF1-CRYAA-SIK1-HSF2BP*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20CH

Gene Name: CCDC101 (coiled-coil domain containing 101; OMIM: 613374)
Offspring Diseases: Autism; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EIF3CL*-EIF3C*-CLN3-APOBR-IL27-NUPR1*-**CCDC101***-SULT1A2-SULT1A1-ATXN2L-TUFM*-SH2B1*-ATP2A1-RABEP2-CD19*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CI

Gene Name: CCDC28B (coiled-coil domain containing 28B; OMIM: 610162)
Offspring Diseases: Cancer;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CJ

Gene Name: CCL13 (chemokine; OMIM: 601391)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CCL8*-**CCL13***; Female Infertility Candidate family members : CCL5, CCL8, CCL14, CCL4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CK

Gene Name: CCL4 (chemokine; OMIM: 182284)
Offspring Diseases: Asthma; Bipolar disorder; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CCL5*-RDM1-LYZL6-CCL16-CCL14*-CCL15-CCL23-CCL18-CCL3-**CCL4***; Female Infertility Candidate family members : CCL13, CCL5, CCL8, CCL14;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CL

Gene Name: CCL5 (chemokine; OMIM: 187011)
Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CCL5***-RDM1-LYZL6-CCL16-CCL14*-CCL15-CCL23-CCL18-CCL3-CCL4*; Female Infertility Candidate family members : CCL13, CCL8, CCL14, CCL4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CM

Gene Name: CCL8 (chemokine; OMIM: 602283)
Offspring Diseases: Asthma; Bipolar disorder; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CCL8***-CCL13*; Female Infertility Candidate family members : CCL13, CCL5, CCL14, CCL4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20CN

Gene Name: CCND1 (cyclin D1; OMIM: 168461)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 13 (CDK6, PCNA, CUL1, UBC, BRCA1, TSC2, CDKN1B, CDK4, AR, PRMT5, ESR1, STAT3, MAPK1); Female Infertility Candidate family members : CCND3, CCND2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CO

Gene Name: CCND2 (cyclin D2; OMIM: 123833)
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-FKBP4*-ITFG2-NRIP2*-FOXM1-TULP3-TEAD4-TSPAN9-PRMT8*-EFCAB4B-PARP11-**CCND2***-C12orf5-FGF23*; Female Infertility Candidate protein interactions : 4 (CDK6, UBC, TSC2, CDK4); Female Infertility
Candidate family members : CCND3, CCND1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CP

Gene Name: CCND3 (cyclin D3; OMIM: 123834)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CCND3***-TAF8*; Female Infertility Candidate protein interactions : 4 (CDK6, TSC2, CDKN1B, CDK4); Female Infertility Candidate family members : CCND2, CCND1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CQ

Gene Name: CCNH (cyclin H; OMIM: 601953)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (ESR1, ERCC2, TP53, CDK7);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CR

Gene Name: CD19 (CD19 molecule; OMIM: 107265)
Offspring Diseases: Autism; Auto-Immune Disorders; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EIF3CL*-EIF3C*-CLN3-APOBR-IL27-NUPR1*-CCDC101*-SULT1A2-SULT1A1-ATXN2L-TUFM*-SH2B1*-ATP2A1-RABEP2-**CD19***; Female Infertility Candidate protein interactions : 3 (IFITM1, CD9, CD81);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CS

Gene Name: CD9 (CD9 molecule; OMIM: 143030)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 7 (PRKCA, ITGB1, UBC, PTGFRN, CD19, ITGA3, CD81); Female Infertility Candidate family members : CD81; Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CT

Gene Name: CDC42 (cell division cycle 42; OMIM: 116952)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ALPL*-RAP1GAP-USP48-LDLRAD2-HSPG2*-CELA3B-CELA3A-**CDC42***-WNT4-ZBTB40-EPHA8*-C1QA-C1QC-C1QB-EPHB2*-LOC729059-KDM1A*; Female Infertility Candidate protein interactions : 3 (ABCA1, UBC, TNF);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CU

Gene Name: CDK4 (cyclin-dependent kinase 4; OMIM: 123829)
Offspring Diseases: Cancer; Diabetes Type 1; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CDK4***-MARCH9 CYP27B1*; Female Infertility Candidate protein interactions : 12 (CCND3, PCNA, UBC, BRCA1, CDKN1B, CCND1, SMC1A, CDKN2A, PRMT5, CEBPA, SMC3, CCND2); Female Infertility
Candidate family members : CDK6, CDK7;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CV

Gene Name: CDK6 (cyclin-dependent kinase 6; OMIM: 603368)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CDK6***-SAMD9-SAMD9L-HEPACAM2-CCDC132-CALCR-TFPI2*-GNGT1-GNG11-BET1-COL1A2*; Female Infertility Candidate protein interactions : 6 (CCND3, CDKN2A, UBC, CCND2, CDKN1B, CCND1); Female Infertility Candidate family members : CDK7, CDK4;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CW

Gene Name: CDK7 (cyclin-dependent kinase 7; OMIM: 601955)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CDK7***-CCDC125-TAF9*-RAD17*; Female Infertility Candidate protein interactions : 7 (SMAD1, ESR1, UBC, ERCC2, TP53, CCNH, AR); Female Infertility Candidate family members : CDK6, CDK4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20CX

Gene Name: CDKN1B (cyclin-dependent kinase inhibitor 1B; OMIM: 600778)
Offspring Diseases: Cancer; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CDKN1B***-APOLD1-DDX47-GPRC5A*; Female Infertility Candidate protein interactions : 9 (AKT1, CCND3, CDK6, UBC, TSC2, CCND1, CDK4, UBB, UBE3A); Female Infertility Candidate family members : CDKN1C;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20CY

Gene Name: CDKN1C (cyclin-dependent kinase inhibitor 1C; OMIM: 600856)
Offspring Diseases: Diabetes Type 2; Williams Beuren Syndrome;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IGF2*-INS-TH-ASCL2*-C11orf21-TSPAN32-CD81*-TSSC4-TRPM5-KCNQ1-**CDKN1C***; Female Infertility Candidate protein interactions : 3 (PCNA, CUL1, UBC); Female Infertility Candidate family members : CDKN1B;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20CZ

Gene Name: CDKN2A (cyclin-dependent kinase inhibitor 2A; OMIM: 600160)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 11 (CDK6, PCNA, UBC, MDM2, CDK4, AURKA, EPHA3, VHL, MDM4, SMARCA4, TP53);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DA

Gene Name: CDX2 (caudal type homeobox 2; OMIM: 600297)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (KDM5B); Female Infertility Candidate family members : CDX4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DB

Gene Name: CEBPA (CCAAT/enhancer binding protein; OMIM: 116897)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CEBPA***-CEBPG*;
Female Infertility Candidate protein interactions : 10 (VDR, UBC, MAF, SPTBN1, CDK4, SMC1A, SMARCA4, CTNNB1, MYC, MAPK8); Female Infertility Candidate family members : CEBPD, CEBPB, CEBPE, CEBPG;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DC

Gene Name: CEBPB (CCAAT/enhancer binding protein; OMIM: 189965)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 13 (SMARCA5, UBC, DDIT3, NCOR2, CARM1, SMARCA4, NCOR1, HSF1, ESR1, STAT3, EHMT2, MYC, MAPK1); Female Infertility Candidate family members : CEBPA, CEBPD, CEBPE, CEBPG;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DD

Gene Name: CEBPD (CCAAT/enhancer binding protein; OMIM: 116898)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (SMAD3, UBC, SMAD4); Female Infertility Candidate family members : CEBPA, CEBPB, CEBPE, CEBPG;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DE

Gene Name: CELF1 (CUGBP, Elav-like family member 1; OMIM: 601074)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : CELF4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DF

Gene Name: CENPF (centromere protein F, 350/400kDa; OMIM: 600236)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (UBC, TERF1, SIRT7);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DG

Gene Name: CEP290 (centrosomal protein 290kDa; OMIM: 610142)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CEP290***-TMTC3-KITLG*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DH

Gene Name: CGA (glycoprotein hormones, alpha polypeptide; OMIM: 118850)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CGA***-ZNF292-GJB7*;
Female Infertility Candidate protein interactions : 3 (LHCGR, FSHB, CGB);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DI

Gene Name: CGB (chorionic gonadotropin, beta polypeptide; OMIM: 118860)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BAX*-FTL-GYS1-RUVBL2-LHB*-**CGB***-CGB2*-CGB1*-CGB5*-CGB8-CGB7-NTF4*; Female Infertility Candidate protein interactions : 1 (CGA); Female Infertility Candidate family members : TSHB, FSHB, CGB2, LHB, CGB1, CGB5;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DJ

Gene Name: CGB5 (chorionic gonadotropin, beta polypeptide 5; OMIM: 118860)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BAX*-FTL-GYS1-RUVBL2-LHB*-CGB*-CGB2*-CGB1*-**CGB5***-CGB8-CGB7-NTF4*; Female Infertility Candidate family members : TSHB, FSHB, CGB2, LHB, CGB1, CGB;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DK

Gene Name: CHD7 (chromodomain helicase DNA binding protein 7; OMIM: 608892)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (MTA2, SMARCA4, UBC, SIRT7); Female Infertility Candidate family members : SMARCA5, SMARCA4, SRCAP, HELLS;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DL

Gene Name: CHST2 (carbohydrate; OMIM: 603798)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ATR*-PLS1-TRPC1-PCOLCE2-PAQR9-U2SURP-**CHST2***;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DM

Gene Name: CLDN3 (claudin 3; OMIM: 602910)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DN

Gene Name: COL1A2 (collagen, type I, alpha 2; OMIM: 120160)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CDK6*-SAMD9-SAMD9L-HEPACAM2-CCDC132-CALCR-TFPI2*-GNGT1-GNG11-BET1-**COL1A2***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DO

Gene Name: COMT (catechol-O-methyltransferase; OMIM: 116790)
Offspring Diseases: ADHD; Autism; Auto-Immune Disorders; Bipolar disorder; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DP

Gene Name: CP (ceruloplasmin; OMIM: 117700)
Offspring Diseases: Diabetes Type 2; Endometriosis; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CP***-TM4SF18-TM4SF1*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DQ

Gene Name: CPEB1 (cytoplasmic polyadenylation element binding protein 1; OMIM: 607342)
Offspring Diseases: Premature Ovarian Failure;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20DR

Gene Name: CRHR1 (corticotropin releasing hormone receptor 1; OMIM: 122561)
Offspring Diseases: Asthma; Bipolar disorder; Obesity;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DS

Gene Name: CSF1 (colony stimulating factor 1; OMIM: 120420)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CSF1***-AHCYL1-FAM40A-ALX3-UBL4B*-SLC6A17-KCNC4-RBM15-SLC16A4-HBXIP-PROK1*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DT

Gene Name: CSF2 (colony stimulating factor 2; OMIM: 138960)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CSF2***-P4HA2-PDLIM4-SLC22A4-SLC22A5-C5orf56-IRF1*-IL5*-RAD50-IL13*-IL4*-KIF3A-CCNI2-SEPT8-ANKRD43-SHROOM1-GDF9*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DU

Gene Name: CSTF2 (cleavage stimulation factor, 3' pre-RNA, subunit 2, 64kDa; OMIM: 600368)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CSTF2***-NOX1-XKRX-ARL13A*-TRMT2B-TMEM35-CENPI*; Female Infertility Candidate protein interactions : 4 (BARD1, UBC, CSTF1, BRCA1);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DV

Gene Name: CTCF (CCCTC-binding factor; OMIM: 604167)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 10 (SUZ12, UBC, YBX1, LMNA, SMC1A, SMAD3, SMC3, TOP2A, SIRT7, TAF3); Female Infertility Candidate family members : CTCFL, ZNF689;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DW

Gene Name: CTGF (connective tissue growth factor; OMIM: 121009)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (VEGFA);
Female Infertility Candidate family members : WISP2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DX

Gene Name: CTH (cystathionase; OMIM: 607657)
Offspring Diseases: SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CTH***-PTGER3*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20DY

Gene Name: CTNNB1 (catenin; OMIM: 116806)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 28 (AHR, FANCC, UBC, LMNA, SMAD7, PRKCA, USP9X, FHL2, EZH2, PTN, SMARCA5, SMAD2, SIRT1, CUL1, FOXO3, NOTCH1, NR5A1, AR, TBL1X, SMAD3, FANCL, SMARCA4, CEBPA, ESR1, PSEN1, APC, SMAD4, EZR);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20DZ

Gene Name: CX3CL1 (chemokine; OMIM: 601880)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EA

Gene Name: CXCL10 (chemokine; OMIM: 147310)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CXCL9*-ART3-**CXCL10***; Female Infertility Candidate family members : IL8, CXCL9;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; None in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EB

Gene Name: CXCL9 (chemokine; OMIM: 601704)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CXCL9***-ART3-CXCL10*; Female Infertility Candidate family members : IL8, CXCL10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EC

Gene Name: CYP11A1 (cytochrome P450, family 11, subfamily A, polypeptide 1; OMIM: 118485)
Offspring Diseases: Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CYP11A1***-SEMA7A-UBL7-ARID3B-CLK3-EDC3-CYP1A1*; Female Infertility Candidate family members : CYP11B1, CYP11B2, CYP27B1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20ED

Gene Name: CYP11B1 (cytochrome P450, family 11, subfamily B, polypeptide 1; OMIM: 610613)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**CYP11B1***-CYP11B2*; Female Infertility Candidate family members : CYP11A1, CYP11B2, CYP27B1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; None in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EE

Gene Name: CYP17A1 (cytochrome P450, family 17, subfamily A, polypeptide 1; OMIM: 609300)
Offspring Diseases: Diabetes Type 2; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ARL3*-SFXN2-C10orf26-**CYP17A1***; Female Infertility Candidate family members : CYP1A1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EF

Gene Name: CYP19A1 (cytochrome P450, family 19, subfamily A, polypeptide 1; OMIM: 107910)
Offspring Diseases: Auto-Immune Disorders; Bipolar disorder; Diabetes Type 2; Obesity; Premature Ovarian Failure;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20EG

Gene Name: CYP1A1 (cytochrome P450, family 1, subfamily A, polypeptide 1; OMIM: 108330)
Offspring Diseases: Asthma; Auto-Immune Disorders; Cancer; Diabetes Type 2; Rett Syndrome;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CYP11A1*-SEMA7A-UBL7-ARID3B-CLK3-EDC3-**CYP1A1***; Female Infertility Candidate family members : CYP17A1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EH

Gene Name: CYP27B1 (cytochrome P450, family 27, subfamily B, polypeptide 1; OMIM: 609506)
Offspring Diseases: Asthma; Diabetes Type 1; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CDK4*-MARCH9-**CYP27B1***; Female Infertility Candidate family members : CYP11A1, CYP11B1, CYP11B2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EI

Gene Name: DCTPP1 (dCTP pyrophosphatase 1)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**DCTPP1***-SEPHS2*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EJ

Gene Name: DDIT3 (DNA-damage-inducible transcript 3; OMIM: 126337)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (UBC, CEBPB, CEBPG);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EK

Gene Name: DDX11 (DEAD/H; OMIM: 601150)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (PCNA, UBC);
Female Infertility Candidate family members : RTEL1, BRIP1, ERCC2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2];
Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

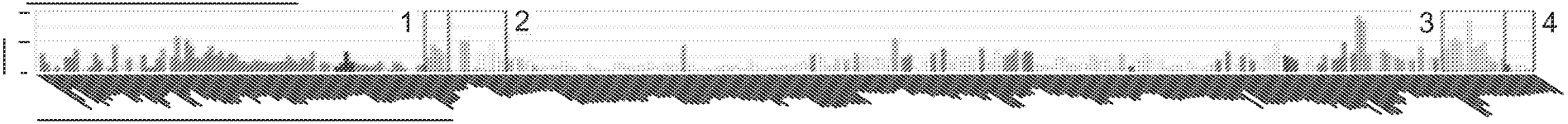


FIG. 20EL

Gene Name: DDX43 (DEAD; OMIM: 606286)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-KHDC1*-DPPA5*-C6orf221*-OOEP*-**DDX43***-MB21D1*-MTO1*-EEF1A1*; Female Infertility Candidate family members : DDX3X, DDX20;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

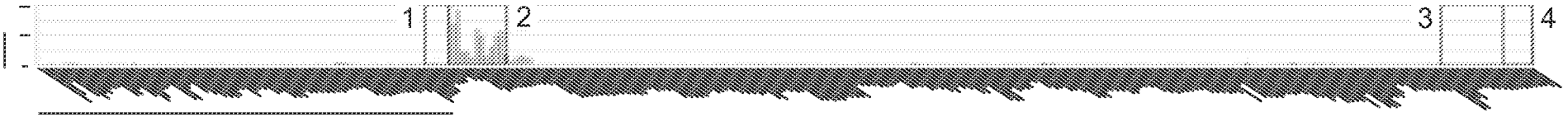


FIG. 20EM

Gene Name: DHFR (dihydrofolate reductase; OMIM: 126060)
Offspring Diseases: SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**DHFR***-MTRNR2L2-MSH3*; Female Infertility Candidate protein interactions : 2 (UBC, MDM2); Female Infertility Candidate family members : DHFRL1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2];
Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

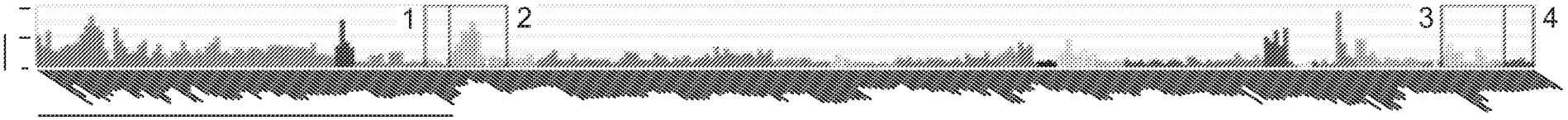


FIG. 20EN

Gene Name: DIAPH2 (diaphanous homolog 2; OMIM: 300108)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : FMN2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EO

Gene Name: DICER1 (dicer 1, ribonuclease type III; OMIM: 606241)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**DICER1***-CLMN-C14orf49-GLRX5-(TCL6)-TCL1B*-TCL1A*-BDKRB2-BDKRB1-ATG2B-C14orf129-AK7*;
Female Infertility Candidate protein interactions : 3 (EIF2C2, UBC, SIRT7);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20EP

Gene Name: DKK1 (dickkopf 1 homolog; OMIM: 605189)
Offspring Diseases: Asthma; Cancer; Endometriosis;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EQ

Gene Name: DLC1 (deleted in liver cancer 1; OMIM: 604258)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : STARD13, STARD8;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20ER

Gene Name: DMC1 (DMC1 dosage suppressor of mck1 homolog, meiosis-specific homologous recombination; OMIM: 602721)
Offspring Diseases: Cancer; Premature Ovarian Failure;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20ES

Gene Name: DNAJB1 (DnaJ; OMIM: 604572)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PTGER1*-GIPC1-LOC100130932-**DNAJB1***; Female Infertility Candidate protein interactions : 2 (UBC, FANCC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20ET

Gene Name: DNMT1 (DNA; OMIM: 126375)
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-DNMT1***-S1PR2-MRPL4-ICAM1*-ICAM4-ICAM5-ZGLP1-FDX1L-RAVER1-ICAM3*; Female Infertility Candidate protein interactions : 19 (PCNA, SUZ12, UBC, DMAP1, HELLS, DNMT3B, CBX5, TP53, MECP2, EZH2, SMARCA5, AKT1, SIRT1, MBD2, STAT3, KDM1A, EHMT2, WT1, SIRT7); Present in the human oocyte proteome; Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20EU

Gene Name: DNMT3B (DNA; OMIM: 602900)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 10 (EPHB1, SMARCA5, CUL1, UBC, HELLS, CBX1, CBX5, SMC4, DNMT1, EZH2);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20EV

Gene Name: DPYD (dihydropyrimidine dehydrogenase; OMIM: 612779)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : FDXR;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EW

Gene Name: DTNBP1 (dystrobrevin binding protein 1; OMIM: 607145)
Offspring Diseases: Bipolar disorder; Schizophrenia;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EX

Gene Name: EEF1A1 (eukaryotic translation elongation factor 1 alpha 1; OMIM: 130590)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-KHDC1*-DPPA5*-C6orf221*-OOEP*-DDX43*-MB21D1*-MTO1*-**EEF1A1***; Female Infertility Candidate protein interactions : 3 (PCNA, POU5F1, UBC); Female Infertility Candidate family members : EEF1A2, GSPT1, TUFM;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EY

Gene Name: EEF1A2 (eukaryotic translation elongation factor 1 alpha 2; OMIM: 602959)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Present in the human oocyte proteome; Female Infertility Candidate family members : EEF1A1, GSPT1, TUFM;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20EZ

Gene Name: EFNA1 (ephrin-A1; OMIM: 191164)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EFNA4*-EFNA3*-**EFNA1***; Female Infertility Candidate protein interactions : 1 (EPHA4); Female Infertility Candidate family members : EFNB1, EFNA2, EFNA5, EFNA3, EFNB2, EFNA4, EFNB3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FA

Gene Name: EFNA4 (ephrin-A4; OMIM: 601380)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EFNA4***-EFNA3*-EFNA1*; Female Infertility Candidate family members : EFNA2, EFNA1, EFNA5, EFNA3;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FB

Gene Name: EFNA5 (ephrin-A5; OMIM: 601535)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (EPHA3, EPHA7); Female Infertility Candidate family members : EFNB1, EFNA2, EFNA1, EFNA3, EFNB2, EFNA4, EFNB3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FC

Gene Name: EFNB1 (ephrin-B1; OMIM: 300035)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-AR*-OPHN1-YIPF6-STARD8*-**EFNB1***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : EFNA2, EFNA1, EFNA5, EFNA3, EFNB2, EFNB3;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FD

Gene Name: EGR1 (early growth response 1; OMIM: 128990)
Offspring Diseases: Asthma; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (TP53); Female Infertility Candidate family members : EGR3, EGR4, ZNF22, WT1, EGR2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FE

Gene Name: EGR2 (early growth response 2; OMIM: 129010)
Offspring Diseases: Autism; Charcot-Marie Tooth Disease;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (NAB2, UBC); Female Infertility Candidate family members : EGR3, EGR1, EGR4, ZNF22, WT1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FF

Gene Name: EGR3 (early growth response 3; OMIM: 602419)
Offspring Diseases: Cancer; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate family members : EGR1, EGR4, ZNF22, WT1, EGR2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FG

Gene Name: EHMT1 (euchromatic histone-lysine N-methyltransferase 1; OMIM: 607001)
Offspring Diseases: Autism; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (JARID2, UBC, MDM2, TP53); Female Infertility Candidate family members : EHMT2, EZH2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FH

Gene Name: EHMT2 (euchromatic histone-lysine N-methyltransferase 2; OMIM: 604599)
Offspring Diseases: Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 11 (KDM1B, UBC, CEBPB, SMC1A, CBX5, JARID2, POU5F1, PRDM1, DNMT1, MED12, TP53); Female Infertility Candidate family members : EHMT2, EHMT1, EZH2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

Gene Name: EIF2B2 (eukaryotic translation initiation factor 2B, subunit 2 beta, 39kDa; OMIM: 606454)
Offspring Diseases: Bipolar disorder; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EIF2B2***-MLH3*;
Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : EIF2B4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FI

Gene Name: EIF2B4 (eukaryotic translation initiation factor 2B, subunit 4 delta, 67kDa; OMIM: 606687)
Offspring Diseases: Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : EIF2B2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FJ

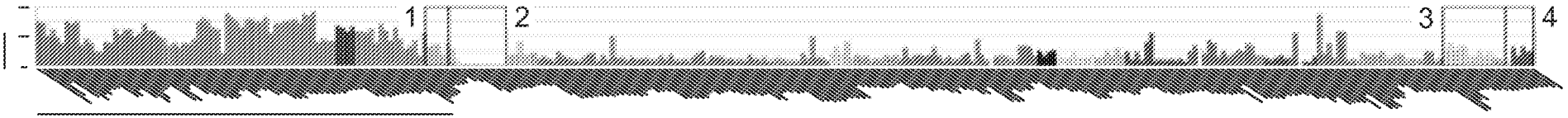
Gene Name: EIF2B5 (eukaryotic translation initiation factor 2B, subunit 5 epsilon, 82kDa; OMIM: 603945)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FK

Gene Name: EIF3C (eukaryotic translation initiation factor 3, subunit C; OMIM: 603916)

FIG. 20FL

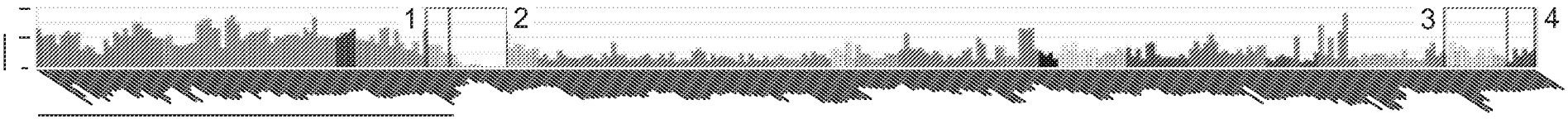
Offspring Diseases: Autism; Cancer; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EIF3CL***-EIF3C*-CLN3-APOBR-IL27-NUPR1*-CCDC101*-SULT1A2-SULT1A1-ATXN2L-TUFM*-SH2B1*-ATP2A1-RABEP2-CD19*; Female Infertility Candidate protein interactions : 2 (UBC, MTOR); Female Infertility Candidate family members : EIF3CL;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: EIF3CL (eukaryotic translation initiation factor 3, subunit C-like)

FIG. 20FM

Offspring Diseases: Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EIF3CL***-EIF3C*-CLN3-APOBR-IL27-NUPR1*-CCDC101*-SULT1A2-SULT1A1-ATXN2L-TUFM*-SH2B1*-ATP2A1-RABEP2-CD19*; Female Infertility Candidate protein interactions : 1 (UBC); Female
Infertility Candidate family members : EIF3C;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: EPHA1 (EPH receptor A1; OMIM: 179610)

FIG. 20FN

Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CASP2*-CLCN1-FAM131B-ZYX-**EPHA1***; Female Infertility Candidate protein interactions : 1 (UBC); Female
Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

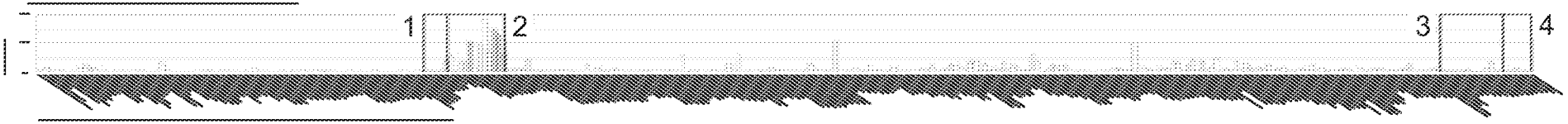


FIG. 20FO

Gene Name: EPHA3 (EPH receptor A3; OMIM: 179611)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EPHA3***-PROS1-ARL13B*-STX19-DHFRL1*-NSUN3-EPHA6*-ARL6*; Female Infertility Candidate protein interactions : 2 (CDKN2A, EFNA5); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, FGFR1, EPHA10; Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20FP

Gene Name: EPHA4 (EPH receptor A4; OMIM: 602188)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-INHA*-STK11IP-SLC4A3-**EPHA4***; Female Infertility Candidate protein interactions : 3 (EFNA1, VHL, UBC); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10; Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FQ

Gene Name: EPHA6 (EPH receptor A6; OMIM: 600066)
Offspring Diseases: Autism; Bipolar disorder; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EPHA3*-PROS1-ARL13B*-STX19-DHFRL1*-NSUN3-**EPHA6***-ARL6*; Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10; Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20FR

Gene Name: EPHA7 (EPH receptor A7; OMIM: 602190)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-GJA10*-BACH2-MAP3K7-**EPHA7***; Female Infertility Candidate protein interactions : 4 (EFNA2, EFNA5, EFNA3, UBC); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FS

Gene Name: EPHB1 (EPH receptor B1; OMIM: 600600)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TF*-SRPRB-RAB6B-C3orf36-SLCO2A1*-RYK-AMOTL2-ANAPC13-CEP63-KY-**EPHB1***; Female Infertility Candidate protein interactions : 2 (UBC, DNMT3B); Female Infertility Candidate family members : EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FT

Gene Name: EPHB2 (EPH receptor B2; OMIM: 600997)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ALPL*-RAP1GAP-USP48-LDLRAD2-HSPG2*-CELA3B-CELA3A-CDC42*-WNT4-ZBTB40-EPHA8*-C1QA-C1QC-C1QB-**EPHB2***-LOC729059-KDM1A*; Female Infertility Candidate protein interactions : 2 (BCL2, UBC); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FU

Gene Name: EPHB6 (EPH receptor B6; OMIM: 602757)
Offspring Diseases: Autism; Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : EPHB1, EPHA2,EPHB3, EPHA5, EPHA4, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2];
Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FV

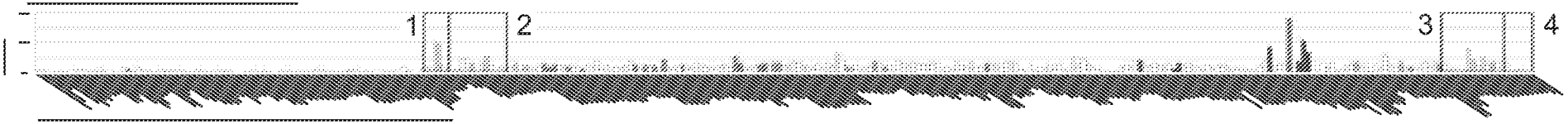
Gene Name: ERCC1 (excision repair cross-complementing rodent repair deficiency, complementation group 1; OMIM: 126380)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ERCC2*-PPP1R13L-CD3EAP-**ERCC1***; Female Infertility Candidate protein interactions : 3 (UBC, FANCG, TAF10);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2];
Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20FW

Gene Name: ERCC2 (excision repair cross-complementing rodent repair deficiency, complementation group 2; OMIM: 126340)
Offspring Diseases: Cancer; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ERCC2***-PPP1R13L-CD3EAP-ERCC1*; Female Infertility Candidate protein interactions : 5 (ATF7IP, ISG15, UBC, CDK7, CCNH); Female Infertility Candidate family members : DDX11, RTEL1, BRIP1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

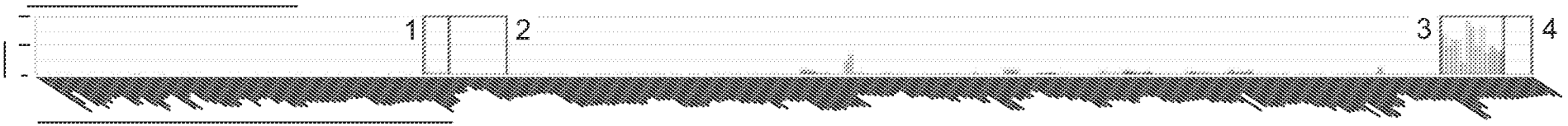
Gene Name: EREG (epiregulin; OMIM: 602061)
Offspring Diseases: ADHD;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EREG***-AREG*;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20FX



Gene Name: ESR1 (estrogen receptor 1; OMIM: 133430)
Offspring Diseases: Asthma; Autism; Auto-Immune Disorders; Bipolar disorder; Cancer; Diabetes Type 2; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ESR1***-SYNE1*; Female Infertility Candidate protein interactions : 37 (TOP2B, ESR2, BRCA1, NCOA2, CTNNB1, AKT1, SMAD2, SIRT1, MSH2, IGF1R, CEBPB, CDK7, MVP, NCOR2, MBD2, SMARCA4, STAT3, KDM1A, MAPK1, MYC, AHR, PGR, UBC, SAFB, CCNH, CCND1, BARD1, NCOR1, MTA2, MSH6, KDM5A, NRIP1, SMAD3, DDX3X, PRMT2, UBE3A, MED12); Female Infertility Candidate family members : ESRRB, PGR, ESR2, NR3C1, AR;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20FY



Gene Name: ESR2 (estrogen receptor 2; OMIM: 601663)
Offspring Diseases: Autism; Bipolar disorder; Cancer; Diabetes Type 2; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SYNE2*-**ESR2***-MTHFD1*; Female Infertility Candidate protein interactions : 8 (MSH2, UBC, NCOR2, NRIP1, NCOA2, ESR1, UBE3A, MAPK1); Female Infertility Candidate family members : ESRRB, ESR1, PGR, NR3C1, AR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20FZ

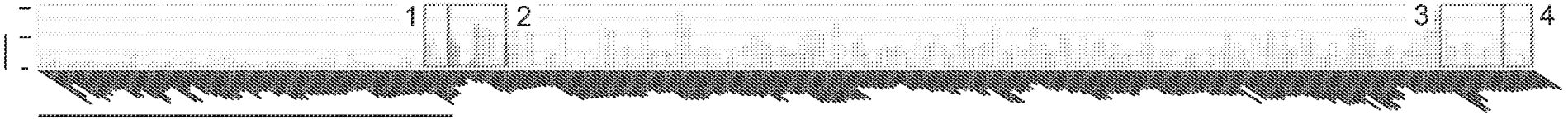


FIG. 20GA

Gene Name: ESRRB (estrogen-related receptor beta; OMIM: 602167)
Offspring Diseases: Autism; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : ESR1, PGR, ESR2, NR3C1, AR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GB

Gene Name: ETV5 (ets variant 5; OMIM: 601600)
Offspring Diseases: Asthma; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IGF2BP2*-TRA2B-**ETV5***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20GC

Gene Name: EZH2 (enhancer of zeste homolog 2; OMIM: 601573)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NOBOX*-TPK1-CNTNAP2-C7orf33-CUL1*-**EZH2***; Female Infertility Candidate protein interactions : 11 (AKT1, SIRT1, SUZ12, UBC, KDM5A, DNMT3B, JARID2, CTNNB1, POU5F1, DNMT1, WT1); Female Infertility Candidate family members : EHMT2, EHMT1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GD

Gene Name: EZR (ezrin; OMIM: 123900)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**EZR***-C6orf99-RSPH3-TAGAP-FNDC1-SOD2*; Female Infertility Candidate protein interactions : 10 (SPN, ICAM2, UBC, CASP8, ICAM3, PRKCA, FASLG, CTNNB1, ICAM1, MAPK8); Present in the human oocyte proteome; Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20GE

Gene Name: FANCC (Fanconi anemia, complementation group C; OMIM: 613899)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 6 (HSP90B1, DNAJB1, STAT1, FANCL, CTNNB1, FANCG);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20GF

Gene Name: FANCG (Fanconi anemia, complementation group G; OMIM: 602956)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (FANCL, ERCC1, BRCA2, UBC, FANCC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GG

Gene Name: FASLG (Fas ligand; OMIM: 134638)
Offspring Diseases: Auto-Immune Disorders; Diabetes Type 2; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (UBC, CASP8, MAPK8, EZR); Female Infertility Candidate family members : TNF;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GH

Gene Name: FBN1 (fibrillin 1; OMIM: 134797)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate family members : FBN2, FBN3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GI

Gene Name: FBN2 (fibrillin 2; OMIM: 612570)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : FBN1, FBN3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20GJ

Gene Name: FBRS (fibrosin; OMIM: 608601)
Offspring Diseases: Autism; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ZNF689*-PRR14-**FBRS***-SRCAP*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : AUTS2, FBRSL1;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GK

Gene Name: FCRL3 (Fc receptor-like 3; OMIM: 606510)
Offspring Diseases: Auto-Immune Disorders;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GL

Gene Name: FGF23 (fibroblast growth factor 23; OMIM: 605380)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-FKBP4*-ITFG2-NRIP2*-FOXM1-TULP3-TEAD4-TSPAN9-PRMT8*-EFCAB4B-PARP11-CCND2*-C12orf5-**FGF23***;
Female Infertility Candidate protein interactions : 1 (FGFR1); Female Infertility Candidate family members : FGF8;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GM

Gene Name: FGF8 (fibroblast growth factor 8; OMIM: 600483)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : FGF23;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20GN

Gene Name: FGFBP3 (fibroblast growth factor binding protein 3)
Offspring Diseases: Autism; Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : FGFBP1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GO

Gene Name: FGFR1 (fibroblast growth factor receptor 1; OMIM: 136350)
Offspring Diseases: Bipolar disorder; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (STAT3, UBC, FGF23, NCAM1); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, EPHA10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20GP

Gene Name: FHL2 (four and a half LIM domains 2; OMIM: 602633)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 11 (ITGB1, UBC, ITGA3, BRCA1, AR, ITGA7, IGFBP5, PSEN2, CTNNB1, BMPR2, MAPK1); Female Infertility Candidate family members : LDB3, LIMS1, LIMS3L, TGFB1I1, LIMS3, LIMS2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GQ

Gene Name: FKBP4 (FK506 binding protein 4, 59kDa; OMIM: 600611)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**FKBP4***-ITFG2-NRIP2*-FOXM1-TULP3-TEAD4-TSPAN9-PRMT8*-EFCAB4B-PARP11-CCND2*-C12orf5-FGF23*;
Female Infertility Candidate protein interactions : 4 (HSF1, UBC, FOXO3, SIRT7);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GR

Gene Name: FMR1 (fragile X mental retardation 1; OMIM: 309550)
Offspring Diseases: Autism; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**FMR1***-FMR1NB-AFF2*; Female Infertility Candidate protein interactions : 2 (UBC, SIRT7);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20GS

Gene Name: FOLR1 (folate receptor 1; OMIM: 136430)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**FOLR1***-FOLR2*-INPPL1-PHOX2A-CLPB-PDE2A-ARAP1-STARD10*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : FOLR2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GT

Gene Name: FOLR2 (folate receptor 2; OMIM: 136425)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-FOLR1*-**FOLR2***-INPPL1-PHOX2A-CLPB-PDE2A-ARAP1-STARD10*; Female Infertility Candidate family members : FOLR1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20GU

Gene Name: FOXE1 (forkhead box E1; OMIM: 602617)
Offspring Diseases: Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate family members : FOXN1, FOXO3, FOXP3, FOXL2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20GV

Gene Name: FOXL2 (forkhead box L2; OMIM: 605597)
Offspring Diseases: Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (SMAD3);
Female Infertility Candidate family members : FOXN1, FOXO3, FOXP3, FOXE1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2];
Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20GW

Gene Name: FOXO3 (forkhead box O3; OMIM: 602681)
Offspring Diseases: Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**FOXO3***-ARMC2*;
Female Infertility Candidate protein interactions : 15 (VDR, SMAD1, SIRT1, RAD17, UBC, MDM2,
BRCA1, PGK1, ATM, SMAD3, FKBP4, CTNNB1, SIRT3, SMAD4, MYC); Female Infertility
Candidate family members : FOXN1, FOXL2, FOXP3, FOXE1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High
in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; **Relatively**
unique expression in reproductive tissues;

FIG. 20GX

Gene Name: FOXP3 (forkhead box P3; OMIM: 300292)
Offspring Diseases: Asthma; Auto-Immune Disorders; Cancer; Celiac Disease; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate family members : FOXN1, FOXO3,
FOXL2, FOXE1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2];
None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively**
unique expression in reproductive tissues;

FIG. 20GY

Gene Name: FSHR (follicle stimulating hormone receptor; OMIM: 136435)
Offspring Diseases: Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MSH2*-KCNK12-MSH6*-FBXO11*-FOXN2-KLRAQ1-STON1-GTF2A1L-LHCGR*-**FSHR***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : LHCGR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20GZ

Gene Name: FST (follistatin; OMIM: 136470)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ITGA2*-MOCS2-**FST***-NDUFS4-ARL15*; Female Infertility Candidate protein interactions : 3 (BMPR1A, BMPR2, INHBA);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HA

Gene Name: GALT (galactose-1-phosphate uridylyltransferase; OMIM: 606999)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**GALT***-IL11RA*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HB

Gene Name: GCK (glucokinase; OMIM: 138079)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : HK3;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HC

Gene Name: GDF3 (growth differentiation factor 3; OMIM: 606522)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**GDF3***-DPPA3*; Female Infertility Candidate family members : GDF9, BMP5, BMP15, BMP4, INHBB, BMP2, NODAL, BMP3, INHBA, BMP7, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HD

Gene Name: GDF9 (growth differentiation factor 9; OMIM: 601918)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CSF2*-P4HA2-PDLIM4-SLC22A4-SLC22A5-C5orf56-IRF1*-IL5*-RAD50-IL13*-IL4*-KIF3A-CCNI2-SEPT8-ANKRD43-SHROOM1-**GDF9***; Female Infertility Candidate family members : BMP5, GDF3, BMP4, BMP15, BMP2, INHBB, NODAL, BMP3, INHBA, BMP7, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20HE

Gene Name: GGT1 (gamma-glutamyltransferase 1; OMIM: 137181)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; None in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HF

Gene Name: GJA1 (gap junction protein, alpha 1, 43kDa; OMIM: 121014)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (PRKCA, UBC, GJA5, GJA3, PRKCE); Female Infertility Candidate family members : GJC3, GJB3, GJA10, GJB6, GJD4, GJA4, GJC1, GJC2, GJA5, GJA3, GJD2, GJD3, GJB4, GJB2, GJB7, GJA8, GJB1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HG

Gene Name: GJA4 (gap junction protein, alpha 4, 37kDa; OMIM: 121012)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-GJB4*-GJB3*-**GJA4***; Female Infertility Candidate family members : GJC3, GJB3, GJA10, GJB6, GJD4, GJC1, GJC2, GJA5, GJA3, GJD2, GJD3, GJB4, GJB2, GJB7, GJA1, GJA8, GJB1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20HH

Gene Name: GJA8 (gap junction protein, alpha 8, 50kDa; OMIM: 600897)
Offspring Diseases: Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-GJA5*-**GJA8***; Female Infertility Candidate family members : GJC3, GJB3, GJA10, GJB6, GJD4, GJA4, GJC1, GJC2, GJA5, GJA3, GJD2, GJD3, GJB4, GJB2, GJB7, GJA1, GJB1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HI

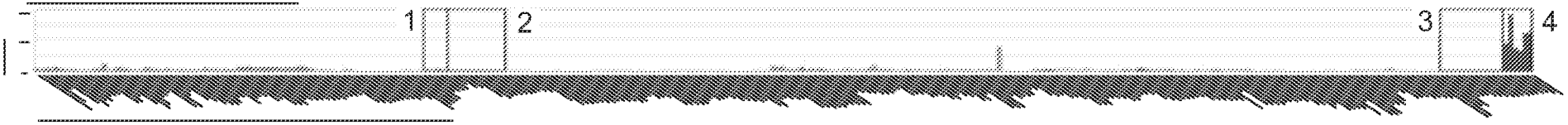
Gene Name: GJB1 (gap junction protein, beta 1, 32kDa; OMIM: 304040)
Offspring Diseases: Charcot-Marie Tooth Disease;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MED12*-NLGN3-**GJB1***; Female Infertility Candidate family members : GJC3, GJB3, GJA10, GJB6, GJD4, GJA4, GJC1, GJC2, GJA5, GJA3, GJD2, GJD3, GJB4, GJB2, GJB7, GJA1, GJA8;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HJ

Gene Name: GNRH1 (gonadotropin-releasing hormone 1; OMIM: 152760)
Offspring Diseases: Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

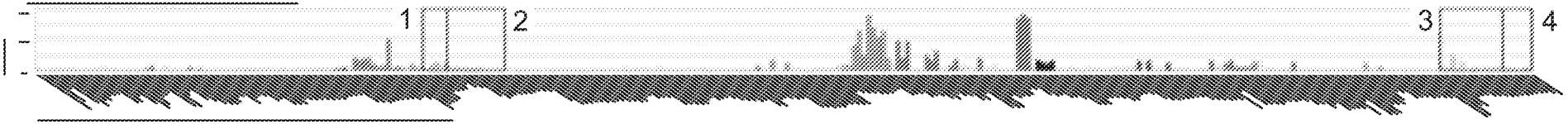
Gene Name: GPC3 (glypican 3; OMIM: 300037)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20HK



Gene Name: GPRC5A (G protein-coupled receptor, family C, group 5, member A; OMIM: 604138)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CDKN1B*-APOLD1-DDX47-GPRC5A*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : GPRC5B;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HL



Gene Name: GPRC5B (G protein-coupled receptor, family C, group 5, member B; OMIM: 605948)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : GPRC5A;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HM

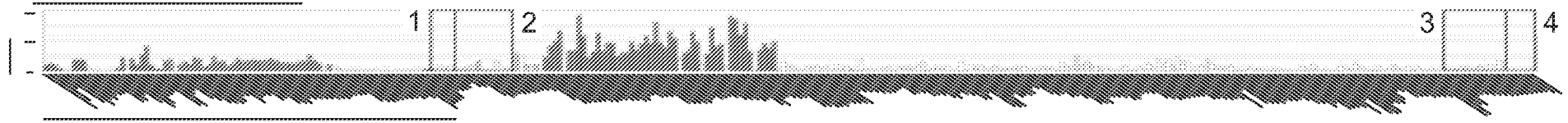


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FIG. 20HN

Gene Name: GRN (granulin; OMIM: 138945)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (VHL, SIRT3);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2];
High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HO

Gene Name: GSTA1 (glutathione S-transferase alpha 1; OMIM: 138359)
Offspring Diseases: Asthma; Premature Ovarian Failure;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2];
Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20HP

Gene Name: HABP2 (hyaluronan binding protein 2; OMIM: 603924)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate family members : MST1;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2];
Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

Gene Name: HADHA (hydroxyacyl-CoA dehydrogenase/3-ketoacyl-CoA thiolase/enoyl-CoA hydratase; OMIM: 600890)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, SIRT7);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HQ

Gene Name: HAND2 (heart and neural crest derivatives expressed 2; OMIM: 602407)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**HAND2***-FBXO8-CEP44-HPGD*; Female Infertility Candidate protein interactions : 2 (PRKCA, UBC); Female Infertility Candidate family members : FIGLA;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20HR

Gene Name: HBA1 (hemoglobin, alpha 1; OMIM: 141800)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-HBA2*-**HBA1***; Female Infertility Candidate protein interactions : 1 (HBB); Female Infertility Candidate family members : HBB, HBA2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; None in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HS

FIG. 20HT

Gene Name: HBB (hemoglobin, beta; OMIM: 141900)
Offspring Diseases: Bipolar disorder; Diabetes Type 2; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (HBA1, UBC);
Female Infertility Candidate family members : HBA1, HBA2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; None in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HU

Gene Name: HK3 (hexokinase 3; OMIM: 142570)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**HK3***-UMC1*; Female Infertility Candidate family members : GCK;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HV

Gene Name: HMOX1 (heme oxygenase; OMIM: 141250)
Offspring Diseases: Asthma; Auto-Immune Disorders; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HW

Gene Name: HNRNPK (heterogeneous nuclear ribonucleoprotein K; OMIM: 600712)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**HNRNPK***-RMI1-(SLC28A3)-NTRK2*; Female Infertility Candidate protein interactions : 6 (SIRT1, VHL, POU5F1, UBC, PRMT1, MYC); Female Infertility Candidate family members : IGF2BP2, IGF2BP3, IGF2BP1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20HX

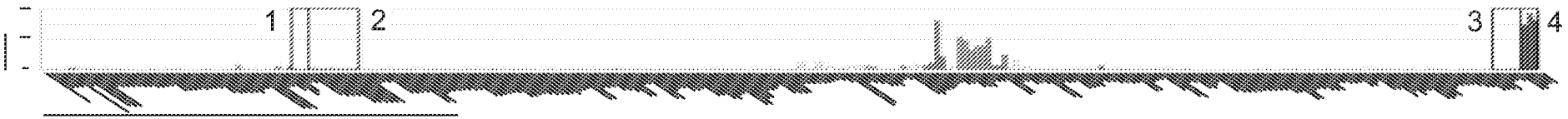
Gene Name: HOXA11 (homeobox A11; OMIM: 142958)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20HY

Gene Name: HSD17B1 (hydroxysteroid; OMIM: 109684)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-STAT5B*-STAT5A*-STAT3*-PTRF-ATP6V0A1-NAGLU-**HSD17B1***; Female Infertility Candidate family members : HSD17B7, HSD17B4, RDH11, HSD17B12, HSD17B2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

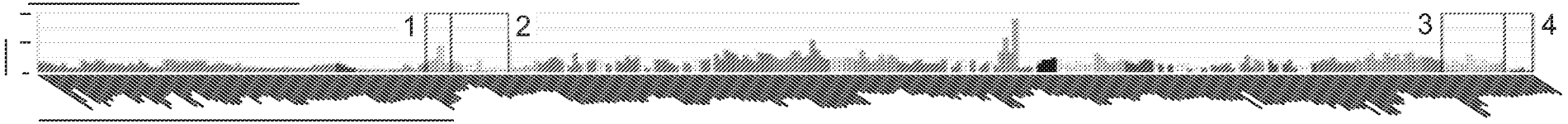
Gene Name: HSD17B2 (hydroxysteroid; OMIM: 109685)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : HSD17B7, HSD17B4, HSD17B1, RDH11, HSD17B12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20HZ



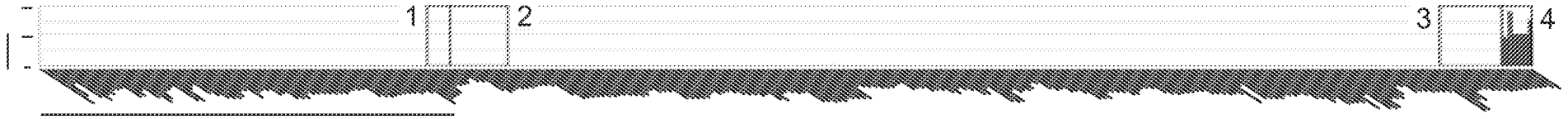
Gene Name: HSD17B7 (hydroxysteroid; OMIM: 606756)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Present in the mouse oocyte proteome; Female Infertility Candidate family members : HSD17B1, HSD17B4, RDH11, HSD17B12, HSD17B2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IA



Gene Name: HSD3B1 (hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 1; OMIM: 109715)
Offspring Diseases: Endometriosis; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SPAG17*-TBX15-WARS2-HAO2-HSD3B2-**HSD3B1***;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20IB



Gene Name: HSF1 (heat shock transcription factor 1; OMIM: 140580)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BOP1*-**HSF1***; Female Infertility Candidate protein interactions : 6 (SIRT1, STAT1, FKBP4, SMARCA4, UBC, CEBPB);
Present in the human oocyte proteome;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IC

Gene Name: HSP90B1 (heat shock protein 90kDa beta; OMIM: 191175)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IGF1*-PAH-ASCL1-C12orf42-STAB2-NT5DC3-**HSP90B1***; Female Infertility Candidate protein interactions : 5 (SMARCA4, SIRT3, FANCC, UBC, TERF1); Present in the human oocyte proteome; Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20ID

Gene Name: HSPG2 (heparan sulfate proteoglycan 2; OMIM: 142461)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ALPL*-RAP1GAP-USP48-LDLRAD2-**HSPG2***-CELA3B-CELA3A-CDC42*-WNT4-ZBTB40-EPHA8*-C1QA-C1QC-C1QB-EPHB2*-LOC729059-KDM1A*; Female Infertility Candidate protein interactions : 1 (FGFBP1);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; None in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IE

FIG. 20IF

Gene Name: HTATIP2 (HIV-1 Tat interactive protein 2, 30kDa; OMIM: 605628)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**HTATIP2***-PRMT3*;
Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IG

Gene Name: ICAM1 (intercellular adhesion molecule 1; OMIM: 147840)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Cancer; Celiac Disease; Diabetes Type 1; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-DNMT1*-S1PR2-MRPL4-ICAM1*-**ICAM4**-ICAM5-ZGLP1-FDX1L-RAVER1-ICAM3*; Female Infertility Candidate protein interactions : 2 (UBC, EZR); Female Infertility Candidate family members : ICAM2, ICAM3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IH

Gene Name: ICAM2 (intercellular adhesion molecule 2; OMIM: 146630)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (EZR); Female Infertility Candidate family members : ICAM1, ICAM3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20I

Gene Name: ICAM3 (intercellular adhesion molecule 3; OMIM: 146631)
Offspring Diseases: Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-DNMT1*-S1PR2-MRPL4-ICAM1*-ICAM4-ICAM5-ZGLP1-FDX1L-RAVER1-**ICAM3***; Female Infertility Candidate protein interactions : 1 (EZR); Female Infertility Candidate family members : ICAM2, ICAM1;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20J

Gene Name: IDH1 (isocitrate dehydrogenase 1; OMIM: 147700)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Present in the human oocyte proteome;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20K

Gene Name: IGF1 (insulin-like growth factor 1; OMIM: 147440)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IGF1***-PAH-ASCL1-C12orf42-STAB2-NT5DC3-HSP90B1*; Female Infertility Candidate protein interactions : 3 (IGFALS, IGFBP2, IGFBP3); Female Infertility Candidate family members : IGF2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20IL

Gene Name: IGF1R (insulin-like growth factor 1 receptor; OMIM: 147370)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (ESR1, UBC, IGFBP3, MDM2, TP53); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IM

Gene Name: IGF2 (insulin-like growth factor 2; OMIM: 147470)
Offspring Diseases: Diabetes Type 1; Diabetes Type 2; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IGF2***-INS-TH-ASCL2*-C11orf21-TSPAN32-CD81*-TSSC4-TRPM5-KCNQ1-CDKN1C*; Female Infertility Candidate family members : IGF1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20IN

Gene Name: IGF2BP1 (insulin-like growth factor 2 mRNA binding protein 1; OMIM: 608288)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 7 (TP73, UBC, PRKRA, MYC, TP63, TP53, ILK); Female Infertility Candidate family members : IGF2BP2, IGF2BP3, HNRNPK;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IO

Gene Name: IGF2BP2 (insulin-like growth factor 2 mRNA binding protein 2; OMIM: 608289)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster : **IGF2BP2***-TRA2B-ETV5*; Female Infertility Candidate protein interactions : 3 (UBC, MYC, SIRT7); Present in the mouse oocyte proteome; Female Infertility Candidate family members : IGF2BP3, IGF2BP1, HNRNPK;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20IP

Gene Name: IGF2R (insulin-like growth factor 2 receptor; OMIM: 147280)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, SIRT7);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IQ

Gene Name: IGFALS (insulin-like growth factor binding protein, acid labile subunit; OMIM: 601489)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (IGF1);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IR

Gene Name: IGFBP1 (insulin-like growth factor binding protein 1; OMIM: 146730)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IGFBP1***-IGFBP3*;
Female Infertility Candidate family members : IGFBP5, IGFBP2, IGFBP6, IGFBP4, IGFBP3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2];
Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20IS

Gene Name: IGFBP2 (insulin-like growth factor binding protein 2, 36kDa; OMIM: 146731)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IGFBP2***-IGFBP5*;
Female Infertility Candidate protein interactions : 1 (IGF1); Female Infertility Candidate family
members : IGFBP5, IGFBP1, IGFBP6, IGFBP4, IGFBP3;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High
in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not
uniquely expressed in reproductive tissues;

FIG. 20IT

Gene Name: IGFBP3 (insulin-like growth factor binding protein 3; OMIM: 146732)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IGFBP1*-**IGFBP3***;
Female Infertility Candidate protein interactions : 3 (TF, IGF1R, IGF1); Female Infertility Candidate
family members : IGFBP5, IGFBP2, IGFBP1, IGFBP6, IGFBP4;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High
in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; **Relatively
unique expression in reproductive tissues;**

FIG. 20IU

Gene Name: IGFBP4 (insulin-like growth factor binding protein 4; OMIM: 146733)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-GJD3*-TOP2A*-**IGFBP4***; Female Infertility Candidate family members : IGFBP5, IGFBP2, IGFBP1, IGFBP6,IGFBP3;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IV

Gene Name: IGFBP5 (insulin-like growth factor binding protein 5; OMIM: 146734)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IGFBP2*-**IGFBP5***; Female Infertility Candidate protein interactions : 1 (FHL2); Female Infertility Candidate family members : IGFBP2, IGFBP1, IGFBP6, IGFBP4, IGFBP3;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues**;

FIG. 20IW

Gene Name: IGFBP6 (insulin-like growth factor binding protein 6; OMIM: 146735)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : IGFBP5, IGFBP2, IGFBP1, IGFBP4, IGFBP3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

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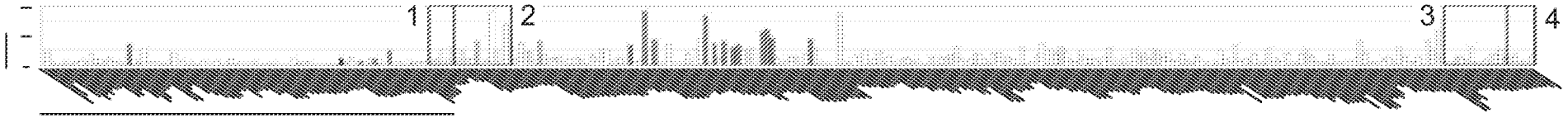
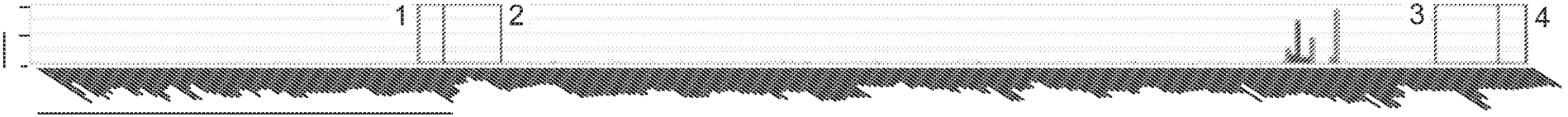
Gene Name: IGFBP7 (insulin-like growth factor binding protein 7; OMIM: 602867)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IGFBP7***-LPHN3-TECRL-EPHA5*-CENPC1-STAP1-UBA6-GNRHR*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : IGFBPL1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IX



Gene Name: IL10 (interleukin 10; OMIM: 124092)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Celiac Disease; Diabetes Type 1; Diabetes Type 2; Obesity; Schizophrenia;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IY



Gene Name: IL11RA (interleukin 11 receptor, alpha; OMIM: 600939)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-GALT*-**IL11RA***;
Female Infertility Candidate family members : IL23R, IL6ST, LEPR, LIFR, PRLR, IL5RA;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20IZ

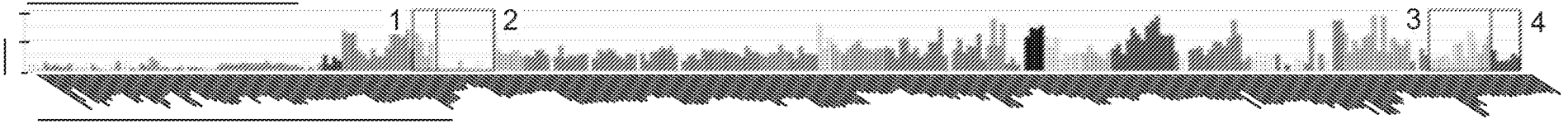


FIG. 20JA

Gene Name: IL12A (interleukin 12A; OMIM: 161560)
Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL12A***-LOC401097
-IFT80-SMC4*; Female Infertility Candidate protein interactions : 1 (IL12B);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None
in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely
expressed in reproductive tissues;

FIG. 20JB

Gene Name: IL12B (interleukin 12B; OMIM: 161561)
Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2;
Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (IL23A, IL12A);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None
in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; Not uniquely
expressed in reproductive tissues;

FIG. 20JC

Gene Name: IL13 (interleukin 13; OMIM: 147683)
Offspring Diseases: Allergies; Asthma; Auto-Immune Disorders; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CSF2*-P4HA2-PDLIM4-
SLC22A4-SLC22A5-C5orf56-IRF1*-IL5*-RAD50-**IL13***-IL4*-KIF3A-CCNI2-SEPT8-ANKRD43-SHROOM1-GDF9*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None
in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely
expressed in reproductive tissues;

FIG. 20JD

Gene Name: IL17A (interleukin 17A; OMIM: 603149)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL17A***-IL17F*; Female Infertility Candidate family members : IL17F, IL17D, IL17B, IL17C;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not expressed in reproductive tissues;

FIG. 20JE

Gene Name: IL17B (interleukin 17B; OMIM: 604627)
Offspring Diseases: Cancer; Celiac Disease; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : IL17A, IL17F, IL17D, IL17C;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20JF

Gene Name: IL17F (interleukin 17F; OMIM: 606496)
Offspring Diseases: Asthma; Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL17A***-IL17F*; Female Infertility Candidate family members : IL17A, IL17D, IL17B, IL17C;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JG

Gene Name: IL1A (interleukin 1, alpha; OMIM: 147760)
Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL1A***-IL1B*;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JH

Gene Name: IL1B (interleukin 1, beta; OMIM: 147720)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Cancer; Celiac Disease; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IL1A*-**IL1B***;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not expressed in reproductive tissues;

FIG. 20JI

Gene Name: IL23A (interleukin 23, alpha subunit p19; OMIM: 605580)
Offspring Diseases: Auto-Immune Disorders; Cancer; Diabetes Type 1; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL23A***-STAT2*; Female Infertility Candidate protein interactions : 1 (IL12B);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JJ

Gene Name: IL23R (interleukin 23 receptor; OMIM: 607562)
Offspring Diseases: Auto-Immune Disorders; Celiac Disease;
Connection to Female Infertility: Female Infertility Candidate family members : IL6ST, IL11RA, LEPR, LIFR, PRLR, IL5RA;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20JK

Gene Name: IL4 (interleukin 4; OMIM: 147780)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Celiac Disease; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CSF2*-P4HA2-PDLIM4-SLC22A4-SLC22A5-C5orf56-IRF1*-IL5*-RAD50-IL13*-**IL4***-KIF3A-CCNI2-SEPT8-ANKRD43-SHROOM1-GDF9*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20JL

Gene Name: IL5 (interleukin 5; OMIM: 147850)
Offspring Diseases: Allergies; Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CSF2*-P4HA2-PDLIM4-SLC22A4-SLC22A5-C5orf56-IRF1*-**IL5***-RAD50-IL13*-IL4*-KIF3A-CCNI2-SEPT8-ANKRD43-SHROOM1-GDF9*; Female Infertility Candidate protein interactions : 1 (IL5RA);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not expressed in reproductive tissues;

FIG. 20JM

Gene Name: IL5RA (interleukin 5 receptor, alpha; OMIM: 147851)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (IL5); Female Infertility Candidate family members : IL23R, IL6ST, IL11RA, LEPR, LIFR, PRLR;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20JN

Gene Name: IL6 (interleukin 6; OMIM: 147620)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Cancer; Celiac Disease; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL6***-TOMM7-FAM126A-KLHL7*-NUPL2-GPNMB-C7orf30-IGF2BP3*;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JO

Gene Name: IL6ST (interleukin 6 signal transducer; OMIM: 600694)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**IL6ST***-ANKRD55-MAP3K1*; Female Infertility Candidate protein interactions : 5 (PRKCD, UBC, STAT3, LIFR, AR); Female Infertility Candidate family members : IL23R, IL11RA, LEPR, LIFR, PRLR, IL5RA;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JP

Gene Name: IL8 (interleukin 8; OMIM: 146930)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : CXCL9, CXCL10;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2];
Low in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not
uniquely expressed in reproductive tissues;

FIG. 20JQ

Gene Name: INHA (inhibin, alpha; OMIM: 147380)
Offspring Diseases: Cancer; Obesity; Premature Ovarian Failure; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**INHA***-STK11IP-
SLC4A3-EPHA4*; Female Infertility Candidate protein interactions : 1 (ACVR2A);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; None
in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively**
unique expression in reproductive tissues;

FIG. 20JR

Gene Name: INHBA (inhibin, beta A; OMIM: 147290)
Offspring Diseases: Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (FST, ACVR2B,
ACVR2A, ACVR1B); Female Infertility Candidate family members : GDF9, BMP5, GDF3, BMP4,
BMP15, BMP2, INHBB, NODAL, BMP3, BMP7, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in
Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; **Relatively**
unique expression in reproductive tissues;

FIG. 20JS

Gene Name: INHBB (inhibin, beta B; OMIM: 147390)
Offspring Diseases: Cancer; Endometriosis; Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (ACVR2B, ACVR2A, ACVR1B); Female Infertility Candidate family members : GDF9, BMP5, GDF3, BMP4, BMP15, BMP2, NODAL, BMP3, BMP7, INHBA, TGFB1, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

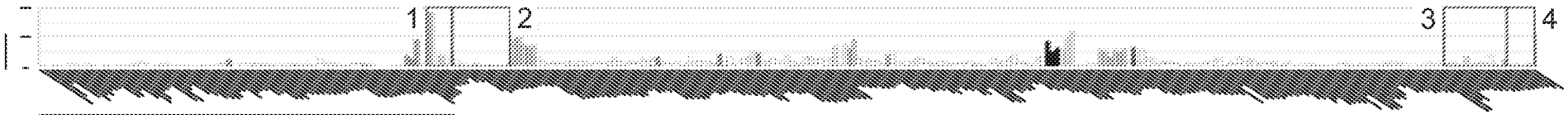


FIG. 20JT

Gene Name: IRF1 (interferon regulatory factor 1; OMIM: 147575)
Offspring Diseases: Asthma; Auto-Immune Disorders; Cancer; Celiac Disease; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CSF2*-P4HA2-PDLIM4-SLC22A4-SLC22A5-C5orf56-**IRF1***-IL5*-RAD50-IL13*-IL4*-KIF3A-CCNI2-SEPT8-ANKRD43-SHROOM1-GDF9*; Female Infertility Candidate protein interactions : 3 (STAT1, SMARCA4, UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

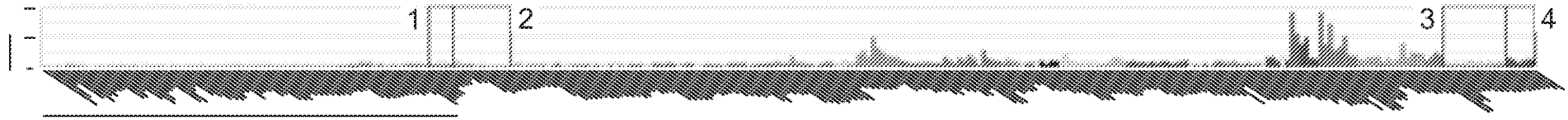


FIG. 20JU

Gene Name: ITGA11 (integrin, alpha 11; OMIM: 604789)
Offspring Diseases: ADHD; Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : ITGAV, ITGA3, ITGA9, ITGA2, ITGA7, ITGA4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

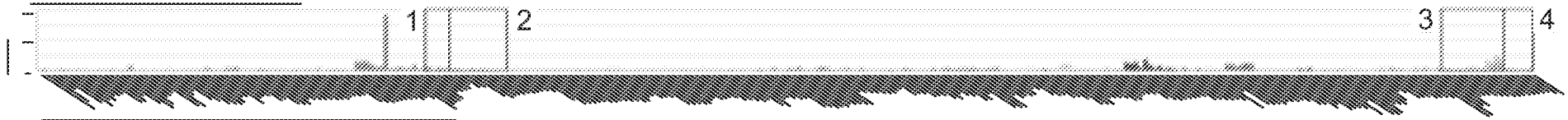


FIG. 20JV

Gene Name: ITGA2 (integrin, alpha 2; OMIM: 192974)
Offspring Diseases: Cancer; Diabetes Type 2; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ITGA2***-MOCS2-FST*-NDUFS4-ARL15*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : ITGAV, ITGA11, ITGA3, ITGA9, ITGA7, ITGA4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JW

Gene Name: ITGA3 (integrin, alpha 3; OMIM: 605025)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (ITGB1, UBC, CD9, FHL2); Female Infertility Candidate family members : ITGAV, ITGA11, ITGA9, ITGA2, ITGA7, ITGA4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JX

Gene Name: ITGA4 (integrin, alpha 4; OMIM: 192975)
Offspring Diseases: Autism; Celiac Disease;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, CD81); Female Infertility Candidate family members : ITGAV, ITGA11, ITGA3, ITGA9, ITGA2, ITGA7;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

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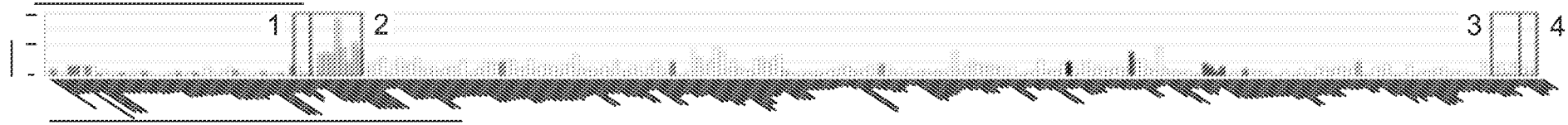
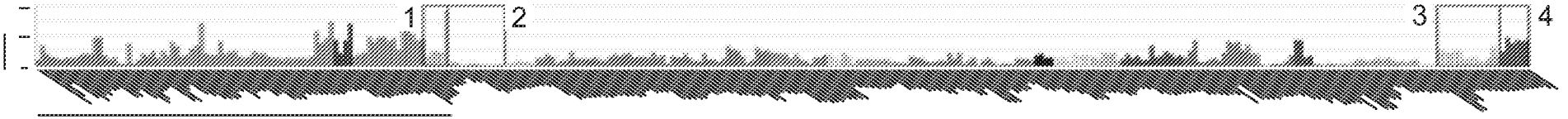
Gene Name: ITGA9 (integrin, alpha 9; OMIM: 603963)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MLH1*-LRRFIP2-GOLGA4-C3orf35-**ITGA9***; Female Infertility Candidate protein interactions : 1 (ITGB1); Female Infertility Candidate family members : ITGAV, ITGA11, ITGA3, ITGA2, ITGA7, ITGA4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20JY



Gene Name: ITGAV (integrin, alpha V; OMIM: 193210)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ITGAV***-FAM171B-ZSWIM2-CALCRL-TFPI*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : ITGA11, ITGA3, ITGA9, ITGA2, ITGA7, ITGA4;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20JZ



Gene Name: ITGB1 (integrin, beta 1; OMIM: 135630)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ITGB1***-NRP1-PARD3-CUL2-CREM-CCNY-GJD4*; Female Infertility Candidate protein interactions : 8 (UBC, CD9, ITGA3, PRKCA, CD81, ITGA9, FHL2, ILK);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KA

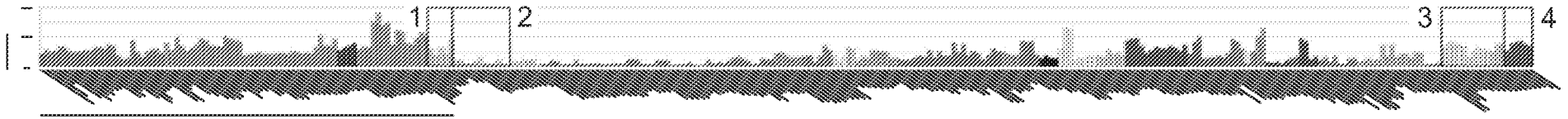


FIG. 20KB

Gene Name: JAG1 (jagged 1; OMIM: 601920)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PCNA*-CDS2-PROKR2*-GPCPD1-C20orf196-CHGB-TRMT6-MCM8*-CRLS1-LRRN4-FERMT1-BMP2*-HAO1-TMX4-PLCB1*-PLCB4-C20orf103-PAK7-ANKRD5-SNAP25-MKKS*-C20orf94-**JAG1***; Female Infertility Candidate protein interactions : 3 (NOTCH2, UBC, NOTCH1); Female Infertility Candidate family members : JAG2, NOTCH2, NOTCH1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20KC

Gene Name: JAG2 (jagged 2; OMIM: 602570)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (NOTCH2);
Female Infertility Candidate family members : NOTCH2, JAG1, NOTCH1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KD

Gene Name: JARID2 (jumonji, AT rich interactive domain 2; OMIM: 601594)
Offspring Diseases: Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SIRT5*-NOL7-RANBP9-CCDC90A-RNF182-CD83-**JARID2***; Female Infertility Candidate protein interactions : 4 (SUZ12, EHMT1, EHMT2, EZH2); Female Infertility Candidate family members : KDM4A, KDM5B, KDM5A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20KE

Gene Name: KDM3A (lysine; OMIM: 611512)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20KF

Gene Name: KITLG (KIT ligand; OMIM: 184745)
Offspring Diseases: Asthma; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CEP290*-TMTC3-**KITLG***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KG

Gene Name: KL (klotho; OMIM: 604824)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BRCA2*-N4BP2L1-N4BP2L2-PDS5B-**KL***-STARD13*;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KH

Gene Name: KLF4 (Kruppel-like factor 4; OMIM: 602253)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (PRKCD, SMARCA4, UBC); Female Infertility Candidate family members : KLF9;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

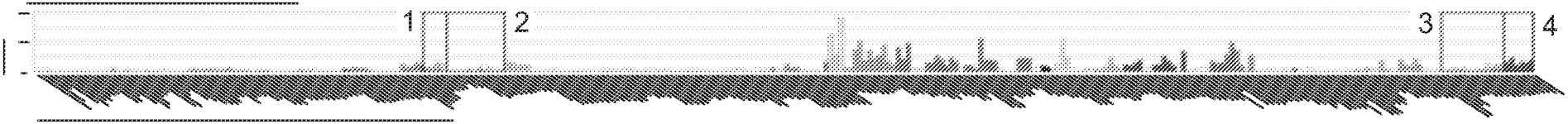


FIG. 20KI

Gene Name: LAMC1 (laminin, gamma 1; OMIM: 150290)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**LAMC1***-LAMC2*;
Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : LAMC2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

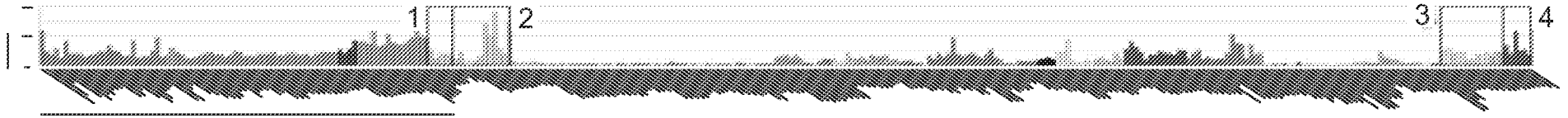
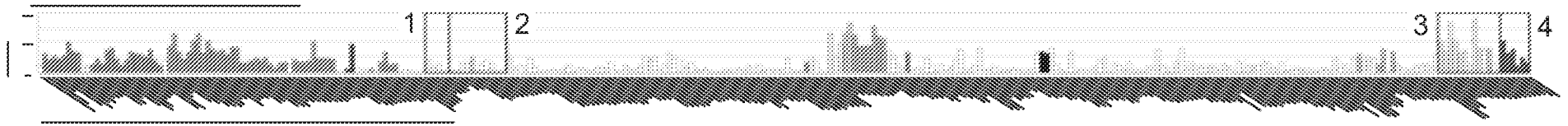


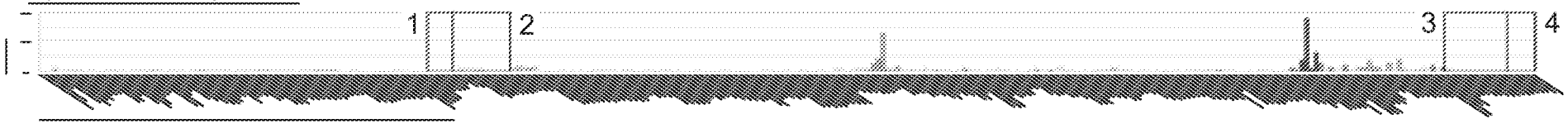
FIG. 20KJ

Gene Name: LAMC2 (laminin, gamma 2; OMIM: 150292)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LAMC1*-**LAMC2***;
Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : LAMC1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**



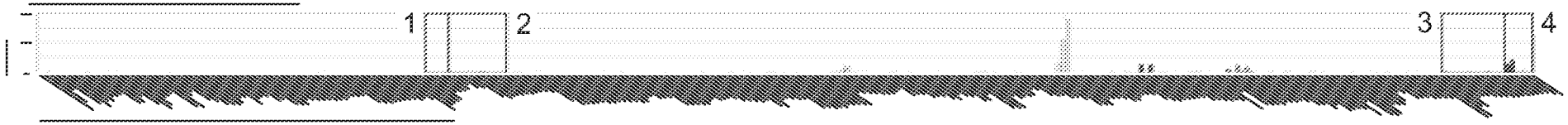
Gene Name: LAMP3 (lysosomal-associated membrane protein 3; OMIM: 605883)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate family members : LAMP1, LAMP2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KK



Gene Name: LEP (leptin; OMIM: 164160)
Offspring Diseases: Asthma; Bipolar disorder; Diabetes Type 2; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ARF5*-FSCN3-PAX4-SND1-LRRC4-**LEP***;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KL



Gene Name: LEPR (leptin receptor; OMIM: 601007)
Offspring Diseases: Asthma; Diabetes Type 2; Endometriosis; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate family members : IL23R, IL6ST, IL11RA, LIFR, PRLR, IL5RA;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KM

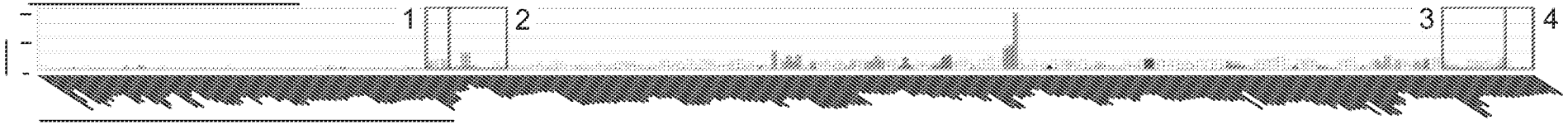


FIG. 20KN

Gene Name: LHB (luteinizing hormone beta polypeptide; OMIM: 152780)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BAX*-FTL-GYS1-RUVBL2-**LHB***-CGB*-CGB2*-CGB1*-CGB5*-CGB8-CGB7-NTF4*; Female Infertility Candidate family members : TSHB, FSHB, CGB2, CGB1, CGB5, CGB;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KO

Gene Name: LHCGR (luteinizing hormone/choriogonadotropin receptor; OMIM: 152790)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MSH2*-KCNK12-MSH6*-FBXO11*-FOXN2-KLRAQ1-STON1-GTF2A1L-**LHCGR***-FSHR*; Female Infertility Candidate protein interactions : 1 (CGA); Female Infertility Candidate family members : FSHR;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20KP

Gene Name: LHX8 (LIM homeobox 8; OMIM: 604425)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**LHX8***-SLC44A5-ACADM-RABGGTB-MSH4*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20KQ

Gene Name: LIF (leukemia inhibitory factor; OMIM: 159540)
Offspring Diseases: Diabetes Type 1; Obesity;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KR

Gene Name: LIFR (leukemia inhibitory factor receptor alpha; OMIM: 151443)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**LIFR***-OSMR-RICTOR-FYB-C9-DAB2-PTGER4*; Female Infertility Candidate protein interactions : 2 (IL6ST, UBC); Female Infertility Candidate family members : IL23R, IL6ST, IL11RA, LEPR, PRLR, IL5RA;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20KS

Gene Name: LIMS1 (LIM and senescent cell antigen-like domains 1; OMIM: 602567)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, ILK); Female Infertility Candidate family members : LDB3, LIMS3L, TGFB1I1, LIMS3, LIMS2, FHL2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KT

Gene Name: LIMS2 (LIM and senescent cell antigen-like domains 2; OMIM: 607908)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MAP3K2*-PROC-IWS1-MYO7B-**LIMS2***; Female Infertility Candidate protein interactions : 1 (ILK); Female Infertility Candidate family members : LDB3, LIMS1, LIMS3L, TGFB1I1, LIMS3, FHL2; R
epresentative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

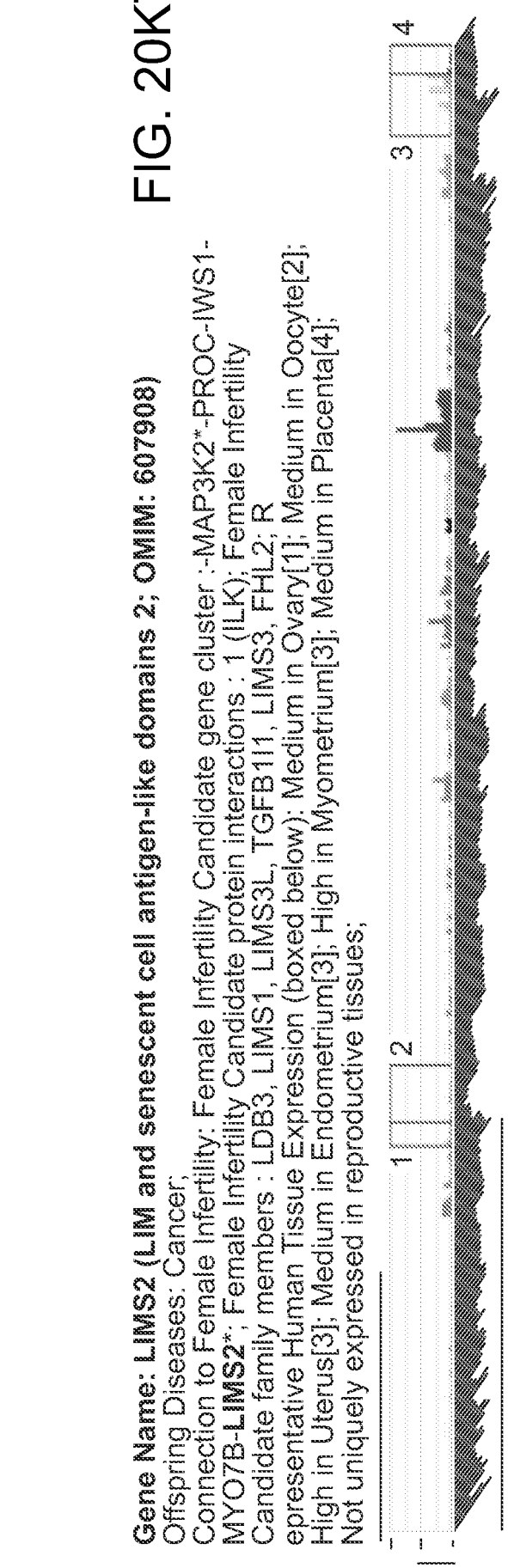


FIG. 20KU

Gene Name: LIN28B (lin-28 homolog B; OMIM: 611044)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**LIN28B***-BVES-POPDC3-PREP-PRDM1*; Female Infertility Candidate family members : YBX2, LIN28A, YBX1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; High in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20KV

Gene Name: LMNA (lamin A/C; OMIM: 150330)
Offspring Diseases: Charcot-Marie Tooth Disease; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 6 (CTCF, CTNNB1, UBC, SYNE1, MYC, SIRT7); Female Infertility Candidate family members : VIM;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20KW

Gene Name: LOC613037 (nuclear pore complex interacting protein pseudogene)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (TP73, TP63, TP53);

FIG. 20KX

Gene Name: LOXL4 (lysyl oxidase-like 4; OMIM: 607318)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SFRP5*-GOLGA7B-CRTAC1-C10orf28-**LOXL4***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20KY

Gene Name: LPP (LIM domain containing preferred translocation partner in lipoma; OMIM: 600700)
Offspring Diseases: Cancer; Celiac Disease;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**LPP***-TPRG1-TP63*;
Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20KZ

Gene Name: LYRM1 (LYR motif containing 1)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**LYRM1***-DNAH3-TMEM159-ZP2*;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

Gene Name: MAD1L1 (MAD1 mitotic arrest deficient-like 1; OMIM: 602686)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster -**MAD1L1***-FTSJ2-NUDT1-SNX8-EIF3B-CHST12-LFNG*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LA

Gene Name: MAD2L1 (MAD2 mitotic arrest deficient-like 1; OMIM: 601467)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (BUB1B, UBD, MAD2L1BP, UBC, APC); Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20LB

Gene Name: MAF (v-maf musculoaponeurotic fibrosarcoma oncogene homolog; OMIM: 177075)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (SMARCA5, CEBPA, KDM5B);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LC

Gene Name: MAP3K1 (mitogen-activated protein kinase kinase kinase 1, E3 ubiquitin protein ligase; OMIM: 600982)
Offspring Diseases: Auto-Immune Disorders; Cancer; Diabetes Type 2; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IL6ST*-ANKRD55-**MAP3K1***; Female Infertility Candidate protein interactions : 3 (UBC, MAPK1, MAPK8); Female Infertility Candidate family members : STK3, MAP3K2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LD

Gene Name: MAPK1 (mitogen-activated protein kinase 1; OMIM: 176948)
Offspring Diseases: Asthma; Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 18 (VDR, SMAD1, PGR, ESR2, UBC, YBX1, STAT5A, CCND1, PRKCE, MAP3K1, TOP2A, FHL2, TP53, CEBPB, TSC2, SMAD3, ESR1, MYC); Female Infertility Candidate family members : MAPK9, MAPK3, MAPK8;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LE

Gene Name: MAPK3 (mitogen-activated protein kinase 3; OMIM: 601795)
Offspring Diseases: Asthma; Autism; Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ALDOA*-PPP4C-TBX6-YPEL3-GDPD3-**MAPK3***; Female Infertility Candidate protein interactions : 3 (VDR, UBC, TP53);
Female Infertility Candidate family members : MAPK9, MAPK1, MAPK8;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LF

FIG. 20LG

Gene Name: MAPK8 (mitogen-activated protein kinase 8; OMIM: 601158)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2; Endometriosis; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 11 (SIRT1, UBC, CASP8, MAP3K1, FASLG, CEBPA, STAT3, MAP3K2, TP53, MYC, EZR); Female Infertility Candidate family members : MAPK3, MAPK9, MAPK1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20LH

Gene Name: MAPK9 (mitogen-activated protein kinase 9; OMIM: 602896)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster -**MAPK9***-GFPT2-CNOT6-SCGB3A1-FLT4-OR2Y1-MGAT1*; Female Infertility Candidate protein interactions : 2 (UBC, TP53); Female Infertility Candidate family members : MAPK3, MAPK1, MAPK8;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LI

Gene Name: MBD1 (methyl-CpG binding domain protein 1; OMIM: 156535)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (PCNA, STAT1, ATF7IP, CBX5, UBC); Female Infertility Candidate family members : MBD2, MBD3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LJ

Gene Name: MBD2 (methyl-CpG binding domain protein 2; OMIM: 603547)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SMAD4*-MEX3C-DCC-**MBD2***-POLI-STARD6*;
Female Infertility Candidate protein interactions : 9 (MTA2, MBD3, PRMT5, TACC3, ESR1, PRMT1, KDM5B, KDM1A, DNMT1);
Female Infertility Candidate family members : MBD1, MBD3;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2];
Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20LK

Gene Name: MBD3 (methyl-CpG binding domain protein 3; OMIM: 603573)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**MBD3***-UQCR11*-TCF3-ONECUT3-ATP8B3-REXO1*; Female Infertility Candidate protein interactions : 6 (MBD2, AURKA, MTA2, UBC, KDM5B, KDM1A); Female Infertility Candidate family members : MBD2, MBD1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2];
High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LL

Gene Name: MBD4 (methyl-CpG binding domain protein 4; OMIM: 603574)
Offspring Diseases: Autism; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**MBD4***-IFT122-RHO-H1FOO*; Female Infertility Candidate protein interactions : 2 (UBC, MLH1); Female Infertility Candidate family members : MECP2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2];
Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

Gene Name: MDM2 (Mdm2, p53 E3 ubiquitin protein ligase homolog; OMIM: 164785)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 20 (UBE2D3, PCNA, DHFR, TERT, UBC, LAMP2, CDKN2A, UIMC1, TP73, TP53, AKT1, CUL1, IGF1R, FOXO3, NOTCH1, NR3C1, AR, CASP2, MDM4, EHMT1); Female Infertility Candidate family members : MDM4;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20LM

Gene Name: MECP2 (methyl CpG binding protein 2; OMIM: 300005)
Offspring Diseases: Angelman Syndrome; Autism; Rett Syndrome;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 7 (CBX1, CBX5, SMC3, UBC, YBX1, RCOR1, DNMT1); Female Infertility Candidate family members : MBD4;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LN

Gene Name: MED12 (mediator complex subunit 12; OMIM: 300188)
Offspring Diseases: Autism; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**MED12***-NLGN3-GJB1*; Female Infertility Candidate protein interactions : 6 (VDR, ESR1, UBC, RCOR1, EHMT2, SIRT7);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LO

FIG. 20LP

Gene Name: MERTK (c-mer proto-oncogene tyrosine kinase; OMIM: 604705)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BUB1*-ACOXL-BCL2L11-ANAPC1-**MERTK***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LQ

Gene Name: MGAT1 (mannosyl; OMIM: 160995)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MAPK9*-GFPT2-CNOT6-SCGB3A1-FLT4-OR2Y1-**MGAT1***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LR

Gene Name: MITF (microphthalmia-associated transcription factor; OMIM: 156845)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**MITF***-FOXP1-EIF4E3-GPR27-PROK2*;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20LS

Gene Name: MKKS (McKusick-Kaufman syndrome; OMIM: 604896)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PCNA*-CDS2-PROKR2*-GPCPD1-C20orf196-CHGB-TRMT6-MCM8*-CRLS1-LRRN4-FERMT1-BMP2*-HAO1-TMX4-PLCB1*-PLCB4-C20orf103-PAK7-ANKRD5-SNAP25-**MKKS***-C20orf94-JAG1*;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

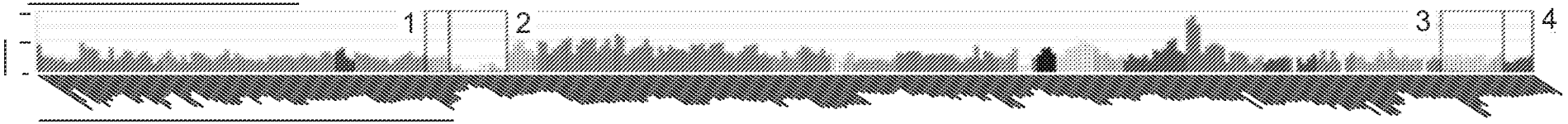


FIG. 20LT

Gene Name: MKS1 (Meckel syndrome, type 1; OMIM: 609883)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

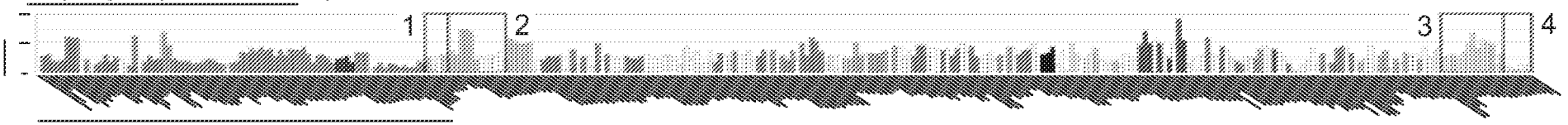
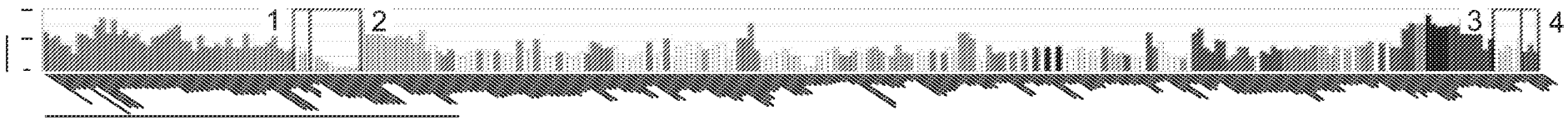


FIG. 20LU

Gene Name: MLH1 (mutL homolog 1, colon cancer, nonpolyposis type 2; OMIM: 120436)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**MLH1***-LRRFIP2-GOLGA4-C3orf35-ITGA9*; Female Infertility Candidate protein interactions : 14 (MSH6, MBD4, MSH2, UBC, BRIP1, BRCA1, MSH3, PMS1, BARD1, SMC1A, ATM, MSH4, MYC, PMS2);
Female Infertility Candidate family members : PMS2, PMS1, MLH3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

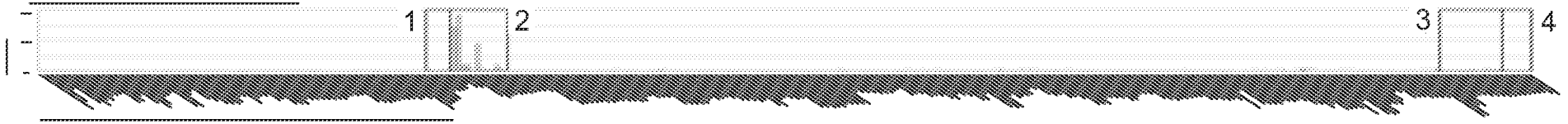


Gene Name: MLH3 (mutL homolog 3; OMIM: 604395)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EIF2B2*-**MLH3***;
Female Infertility Candidate protein interactions : 1 (MSH4); Female Infertility Candidate family members : MLH1, PMS2, PMS1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LV

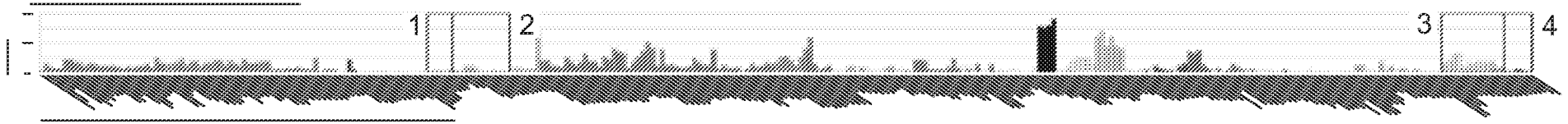
Gene Name: MOS (v-mos Moloney murine sarcoma viral oncogene homolog; OMIM: 190060)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**MOS***-PLAG1*; Female Infertility Candidate family members : ILK;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20LW



Gene Name: MPPED2 (metallophosphoesterase domain containing 2; OMIM: 600911)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BDNF*-KIF18A-METTL15-KCNA4-FSHB*-C11orf46-**MPPED2***;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20LX



Gene Name: MSH2 (mutS homolog 2, colon cancer, nonpolyposis type 1; OMIM: 609309)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MSH2*-KCNK12-MSH6*-FBXO11*-FOXN2-KLRAQ1-STON1-GTF2A1L-LHCGR*-FSHR*; Female Infertility Candidate protein interactions : 16 (PCNA, ATR, ESR2, UBC, MLH1, BRCA1, TP53, PMS2, MSH6, MSH3, AIRE, PMS1, ATM, ESR1, MYC, SIRT7); Female Infertility Candidate family members : MSH4, MSH6, MSH5, MSH3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20LY

Gene Name: MSH3 (mutS homolog 3; OMIM: 600887)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-DHFR*-MTRNR2L2-**MSH3***; Female Infertility Candidate protein interactions : 6 (PCNA, MSH2, UBC, MLH1, MYC, PMS2); Female Infertility Candidate family members : MSH4, MSH6, MSH5, MSH2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20LZ

Gene Name: MSH4 (mutS homolog 4; OMIM: 602105)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LHX8*-SLC44A5-ACADM-RABGGTB-**MSH4***; Female Infertility Candidate protein interactions : 2 (MLH1, MLH3); Female Infertility Candidate family members : MSH6, MSH5, MSH2, MSH3;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MA

FIG. 20MB

Gene Name: MSH5 (mutS homolog 5; OMIM: 603382)
Offspring Diseases: Diabetes Type 1; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : MSH4, MSH6, MSH2, MSH3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20MC

Gene Name: MSH6 (mutS homolog 6; OMIM: 600678)
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MSH2*-KCNK12-**MSH6***-FBXO11*-FOXN2-KLRAQ1-STON1-GTF2A1L-LHCGR*-FSHR*; Female Infertility Candidate protein interactions : 15 (PCNA, ATR, MSH2, UBC, MLH1, BRCA1, PMS1, AIRE, BARD1, ATM, ESR1, TP53, MYC, SIRT7, PMS2); Female Infertility Candidate family members : MSH4, MSH5, MSH2, MSH3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MD

Gene Name: MST1 (macrophage stimulating 1; OMIM: 142408)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : HABP2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20ME

Gene Name: MTHFD1 (methylenetetrahydrofolate dehydrogenase; OMIM: 172460)
Offspring Diseases: Bipolar disorder; Diabetes Type 2; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SYNE2*-ESR2*-**MTHFD1***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MF

Gene Name: MTHFR (methylenetetrahydrofolate reductase; OMIM: 607093)
Offspring Diseases: Asthma; Autism; Auto-Immune Disorders; Bipolar disorder; Cancer; Celiac Disease; Diabetes Type 2; Obesity; Premature Ovarian Failure; Schizophrenia; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate family members : BHMT;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MG

Gene Name: MTO1 (mitochondrial translation optimization 1 homolog; OMIM: 614667)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-KHDC1*-DPPA5*-C6orf221*-OOEP*-DDX43*-MB21D1*-**MTO1***-EEF1A1*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MH

Gene Name: MTOR (mechanistic target of rapamycin; OMIM: 601231)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 10 (AKT1, STAT1, UBC, TERT, TERF1, PRKCA, PRKCD, STAT3, EIF3C, SIRT7); Female Infertility Candidate family members : ATM, ATR;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MI

Gene Name: MTRR (5-methyltetrahydrofolate-homocysteine methyltransferase; OMIM: 602568)
Offspring Diseases: Autism; Auto-Immune Disorders; Bipolar disorder; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SRD5A1*-PAPD7-ADCY2-C5orf49-FASTKD3-**MTRR***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : NOS3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MJ

Gene Name: MUC4 (mucin 4, cell surface associated; OMIM: 158372)
Offspring Diseases: Cancer;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MK

Gene Name: MVP (major vault protein; OMIM: 605088)
Offspring Diseases: Autism; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (ESR1, UBC, SIRT7); Present in the human oocyte proteome; Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20ML

Gene Name: MYC (v-myc myelocytomatosis viral oncogene homolog; OMIM: 190080)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 42 (DMAP1, BRCA1, UBB, VHL, CARM1, TOP2A, MAPK8, SMARCA5, SMAD2, ACTL6A, IGF2BP1, MSH2, HNRNPK, CEBPB, MSH3, TAF9, IGF2BP2, SMARCA4, CEBPA, ARL1, MAPK1, BCL2, DDX20, MLH1, UBC, TAF5L, LMNA, HELLS, TAF10, TP73, KDM5B, PIM1, MSH6, ARF4, CUL1, FOXO3, TFAP2C, OAT, SMAD3, ESR1, SMC4, PTGES2);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20MM

Gene Name: NAB2 (NGFI-A binding protein 2; OMIM: 602381)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TAC3*-MYO1A-TMEM194A-**NAB2***-STAT6*; Female Infertility Candidate protein interactions : 1 (EGR2); Female Infertility Candidate family members : NAB1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MN

Gene Name: NAT1 (N-acetyltransferase 1; OMIM: 108345)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2];
Medium in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20MO

Gene Name: NCAM1 (neural cell adhesion molecule 1; OMIM: 116930)
Offspring Diseases: Bipolar disorder; Endometriosis; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TEX12*-BCO2-PTS-C11orf34-**NCAM1***; Female Infertility Candidate protein interactions : 4 (PRKCB, FGFR1, UBC, MDK);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MP

Gene Name: NCOA2 (nuclear receptor coactivator 2; OMIM: 601993)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 10 (VDR, AHR, ATR, PGR, UBC, ESR2, NR3C1, AR, CARM1, ESR1);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MQ

Gene Name: NCOR1 (nuclear receptor corepressor 1; OMIM: 600849)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NCOR1***-PIGL-CENPV-UBB*; Female Infertility Candidate protein interactions : 16 (VDR, PGR, KDM4A, UBC, SAFB, KDM5B, SRCAP, TP53, SIRT1, CEBPB, NR3C1, AR, TBL1X, NCOR2, SMARCA4, ESR1); Female Infertility Candidate family members : RCOR2, RCOR1, RCOR3, NCOR2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MR

Gene Name: NCOR2 (nuclear receptor corepressor 2; OMIM: 600848)
Offspring Diseases: Bipolar disorder; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NCOR2***-SCARB1*-UBC*; Female Infertility Candidate protein interactions : 11 (AKT1, PGR, UBC, ESR2, CEBPB, NR3C1, TBL1X, AR, NCOR1, SMARCA4, ESR1); Female Infertility Candidate family members : NCOR1, RCOR2, RCOR1, RCOR3;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MS

Gene Name: NDP (Norrie disease; OMIM: 300658)
Offspring Diseases: Cancer;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MT

Gene Name: NLRP1 (NLR family, pyrin domain containing 1; OMIM: 606636)
Offspring Diseases: Auto-Immune Disorders; Celiac Disease;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (CASP2);
Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MU

Gene Name: NLRP10 (NLR family, pyrin domain containing 10; OMIM: 609662)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MV

Gene Name: NLRP11 (NLR family, pyrin domain containing 11; OMIM: 609664)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NLRP9*-RFPL4A*-**NLRP11***-NLRP4*-NLRP13*-NLRP8*-NLRP5*-ZNF787*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20MW

Gene Name: NLRP12 (NLR family, pyrin domain containing 12; OMIM: 609648)
Offspring Diseases: Auto-Immune Disorders; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NLRP12***-MYADM-PRKCG*; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20MX

Gene Name: NLRP13 (NLR family, pyrin domain containing 13; OMIM: 609660)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NLRP9*-RFPL4A*-NLRP11*-NLRP4*-**NLRP13***-NLRP8*-NLRP5*-ZNF787*; Female Infertility Candidate family members : NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20MY

Gene Name: NLRP14 (NLR family, pyrin domain containing 14; OMIM: 609665)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Present in the human oocyte proteome; Present in the mouse oocyte proteome; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20MZ

Gene Name: NLRP2 (NLR family, pyrin domain containing 2; OMIM: 609364)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NLRP7***-NLRP2*; Female Infertility Candidate protein interactions : 1 (UBC); Present in the mouse oocyte proteome; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20NA

Gene Name: NLRP3 (NLR family, pyrin domain containing 3; OMIM: 606416)
Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease;
Connection to Female Infertility: Female Infertility Candidate family members : **NLRP13**, NLRP4, NLRP9, NLRP6, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not expressed in reproductive tissues;

Gene Name: NLRP4 (NLR family, pyrin domain containing 4; OMIM: 609645)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NLRP9*-RFPL4A*-NLRP11*-NLRP4*-NLRP13*-NLRP8*-**NLRP5***-ZNF787*; Female Infertility Candidate family members : NLRP13, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20NB

Gene Name: NLRP5 (NLR family, pyrin domain containing 5; OMIM: 609658)
Offspring Diseases: Auto-Immune Disorders; Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NLRP9*-RFPL4A*-NLRP11*-NLRP4*-NLRP13*-NLRP8*-**NLRP5***-ZNF787*; Female Infertility Candidate protein interactions : 1 (UBC); Present in the human oocyte proteome; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20NC

Gene Name: NLRP6 (NLR family, pyrin domain containing 6; OMIM: 609650)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SIRT3*-PSMD13-**NLRP6***-ATHL1-IFITM5-IFITM2-IFITM1*; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20ND

Gene Name: NLRP7 (NLR family, pyrin domain containing 7; OMIM: 609661)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NLRP7***-NLRP2*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20NE

Gene Name: NLRP8 (NLR family, pyrin domain containing 8; OMIM: 609659)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NLRP9*-RFPL4A*-NLRP11*-NLRP4*-NLRP13*-**NLRP8***-NLRP5*-ZNF787*; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP9, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP12;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20NF

Gene Name: NLRP9 (NLR family, pyrin domain containing 9; OMIM: 609663)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NLRP9***-RFPL4A*-NLRP11*-NLRP4*-NLRP13*-NLRP8*-NLRP5*-ZNF787*; Present in the mouse oocyte proteome; Female Infertility Candidate family members : NLRP13, NLRP4, NLRP6, NLRP3, NLRP14, NLRP7, NLRP11, NLRP10, NLRP2, NLRP5, NLRP1, NLRP8, NLRP12;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20NG

FIG. 20NH

Gene Name: NNMT (nicotinamide N-methyltransferase; OMIM: 600008)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NNMT***-C11orf71-RBM7-REXO2*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NI

Gene Name: NOBOX (NOBOX oogenesis homeobox; OMIM: 610934)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NOBOX***-TPK1-CNTNAP2-C7orf33-CUL1*-EZH2*; Female Infertility Candidate family members : RAX;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20NJ

Gene Name: NOG (noggin; OMIM: 602991)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**NOG***-C17orf67-DGKE-TRIM25-COIL*; Female Infertility Candidate protein interactions : 1 (BMP7);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NK

Gene Name: NOS3 (nitric oxide synthase 3; OMIM: 163729)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Diabetes Type 2; Obesity; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : MTRR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20NL

Gene Name: NOTCH1 (notch 1; OMIM: 190198)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 8 (AKT1, UBC, MDM2, SMAD3, UBB, CTNNB1, PSEN1, JAG1); Female Infertility Candidate family members : JAG2, NOTCH2, JAG1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20NM

Gene Name: NOTCH2 (notch 2; OMIM: 600275)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (JAG2, UBC, JAG1); Female Infertility Candidate family members : JAG2, JAG1, NOTCH1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NN

Gene Name: NPR2 (natriuretic peptide receptor B/guanylate cyclase B; OMIM: 108961)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2];
Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20NO

Gene Name: NR3C1 (nuclear receptor subfamily 3, group C, member 1; OMIM: 138040)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Celiac Disease; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 12 (STAT5B, PTGES3, UBC, MDM2, NCOR2, NCOA2, NRIP1, SMAD3, NCOR1, SMARCA4, STAT3, TP53);
Female Infertility Candidate family members : ESRRB, ESR1, PGR, ESR2, AR;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2];
Medium in Uterus[3]; Medium in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NP

Gene Name: NR5A1 (nuclear receptor subfamily 5, group A, member 1; OMIM: 184757)
Offspring Diseases: Obesity; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (CTNNB1);
Female Infertility Candidate family members : NR5A2, NR2C2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NQ

Gene Name: NRIP1 (nuclear receptor interacting protein 1; OMIM: 602490)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 7 (AHR, CARM1, ESR1, UBC, ESR2, PRMT1, NR3C1);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NR

Gene Name: NTF4 (neurotrophin 4; OMIM: 162662)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BAX*-FTL-GYS1-RUVBL2-LHB*-CGB*-CGB2*-CGB1*-CGB5*-CGB8-CGB7-**NTF4***; Female Infertility Candidate protein interactions : 1 (NTRK2); Female Infertility Candidate family members : BDNF;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NS

Gene Name: NTRK1 (neurotrophic tyrosine kinase, receptor, type 1; OMIM: 191315)
Offspring Diseases: Autism; Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (SH2B1, UBC, SH2B2); Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, EPHB4, NTRK2, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NT

Gene Name: NTRK2 (neurotrophic tyrosine kinase, receptor, type 2; OMIM: 600456)
Offspring Diseases: ADHD; Bipolar disorder; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-HNRNPK*-RMI1-(SLC28A3)-**NTRK2***; Female Infertility Candidate protein interactions : 3 (NTF4, UBC, DYNLL1);
Female Infertility Candidate family members : EPHB1, EPHA2, EPHB3, EPHA5, EPHA4, EPHB6, EPHA7, NTRK1, EPHB4, IGF1R, EPHA6, EPHA1, EPHB2, MERTK, EPHA8, EPHA3, FGFR1, EPHA10;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NU

Gene Name: NUPR1 (nuclear protein, transcriptional regulator, 1)
Offspring Diseases: Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EIF3CL*-EIF3C*-CLN3-APOBR-IL27-**NUPR1***-CCDC101*-SULT1A2-SULT1A1-ATXN2L-TUFM*-SH2B1*-ATP2A1-RABEP2-CD19*;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NV

Gene Name: OAS1 (2'-5'-oligoadenylate synthetase 1, 40/46kDa; OMIM: 164350)
Offspring Diseases: Diabetes Type 2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

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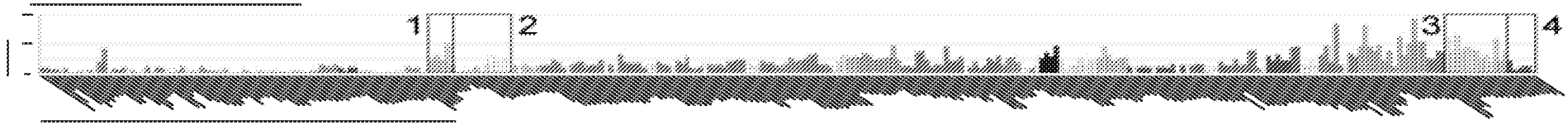
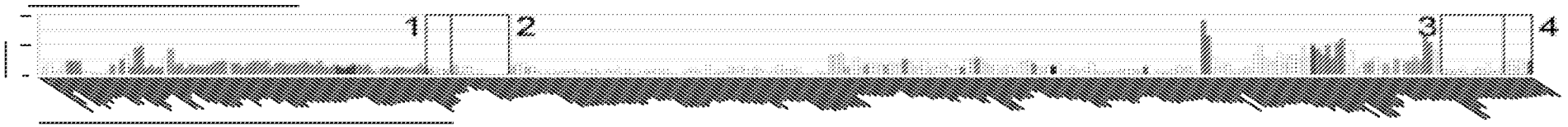
Gene Name: OFD1 (oral-facial-digital syndrome 1; OMIM: 300170)
Offspring Diseases: Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NW



Gene Name: ORAI1 (ORAI calcium release-activated calcium modulator 1; OMIM: 610277)
Offspring Diseases: Diabetes Type 2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NX



Gene Name: OTC (ornithine carbamoyltransferase; OMIM: 300461)
Offspring Diseases: Endometriosis;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20NY

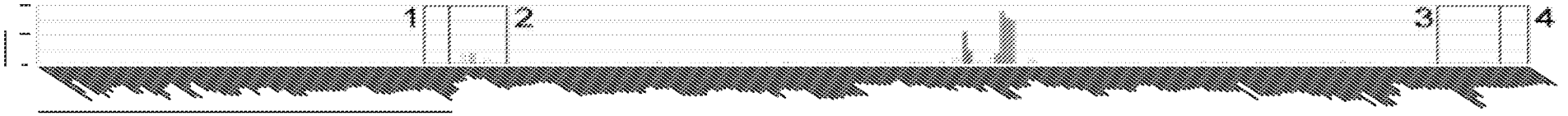


FIG. 20NZ

Gene Name: PADI1 (peptidyl arginine deiminase, type I; OMIM: 607934)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PADI2*-**PADI1***-PADI3*-PADI4*-PADI6*-RCC2-ARHGEF10L-ACTL8*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : PADI2, PADI4, PADI3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OA

Gene Name: PADI2 (peptidyl arginine deiminase, type II; OMIM: 607935)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**PADI2***-PADI1*-PADI3*-PADI4*-PADI6*-RCC2-ARHGEF10L-ACTL8*; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : PADI4, PADI1, PADI3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OB

Gene Name: PADI4 (peptidyl arginine deiminase, type IV; OMIM: 605347)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PADI2*-PADI1*-PADI3*-**PADI4***-PADI6*-RCC2-ARHGEF10L-ACTL8*; Female Infertility Candidate protein interactions : 1 (TP53); Female Infertility Candidate family members : PADI2, PADI1, PADI3;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OC

Gene Name: PAEP (progestagen-associated endometrial protein; OMIM: 173310)
Offspring Diseases: Cancer, Endometriosis;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OD

Gene Name: PCNA (proliferating cell nuclear antigen; OMIM: 176740)
Offspring Diseases: Bipolar disorder, Cancer, Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**PCNA***-CDS2-PROKR2*-GPCPD1-C20orf196-CHGB-TRMT6-MCM8*-CRLS1-LRRN4-FERMT1-BMP2*-HAO1-TMX4-PLCB1*-PLCB4-C20orf103-PAK7-ANKRD5-SNAP25-MKKS*-C20orf94-JAG1*; Female Infertility Candidate protein interactions : 24 (DDX11, MCL1, UBC, MDM2, DMAP1, YBX1, CCND1, CDK4, CDKN2A, ALDOA, DNMT1, PMS2, EEF1A1, SIRT1, MSH6, MSH2, PGK1, MSH3, AIRE, CDKN1C, CBX1, SMARCA4, FANCL, MBD1); Present in the human oocyte proteome; Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20OE

Gene Name: PDE3A (phosphodiesterase 3A, cGMP-inhibited; OMIM: 123805)
Offspring Diseases: Obesity;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OF

Gene Name: PDK1 (pyruvate dehydrogenase kinase, isozyme 1; OMIM: 602524)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (SGK1);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2];
Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20OG

Gene Name: PGR (progesterone receptor; OMIM: 607311)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 11 (STAT5B, UBC, STAT5A, BRCA1, NCOA2, NCOR2, NCOR1, ESR1, STAT3, KLF9, MAPK1); Female Infertility Candidate family members : ESRRB, ESR1, ESR2, NR3C1, AR;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20OH

Gene Name: PIM1 (pim-1 oncogene; OMIM: 164960)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (CBX1, UBC, MYC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OI

Gene Name: PLA2G2A (phospholipase A2, group IIA; OMIM: 172411)
Offspring Diseases: Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20OJ

Gene Name: PLA2G7 (phospholipase A2, group VII; OMIM: 601690)
Offspring Diseases: Asthma; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OK

Gene Name: PLAG1 (pleiomorphic adenoma gene 1; OMIM: 603026)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-MOS*-**PLAG1***; Female Infertility Candidate family members : PLAGL1;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

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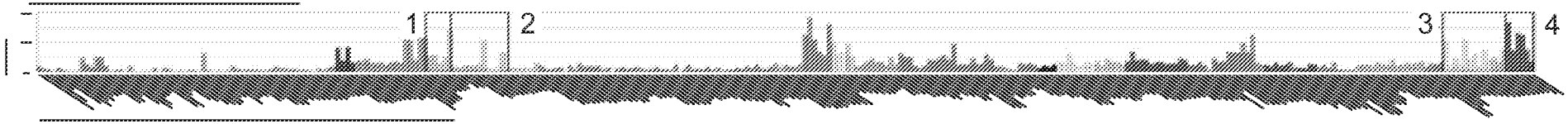
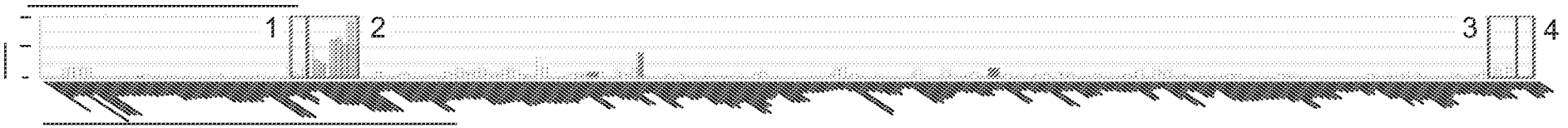
Gene Name: PLAGL1 (pleiomorphic adenoma gene-like 1; OMIM: 603044)
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate family members : PLAG1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OL



Gene Name: PLCB1 (phospholipase C, beta 1; OMIM: 607120)
Offspring Diseases: Asthma; Autism; Bipolar disorder; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PCNA*-CDS2-PROKR2*-GPCPD1-C20orf196-CHGB-TRMT6-MCM8*-CRLS1-LRRN4-FERMT1-BMP2*-HAO1-TMX4-**PLCB1***-PLCB4-C20orf103-PAK7-ANKRD5-SNAP25-MKKS*-C20orf94-JAG1*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20OM



Gene Name: PMS1 (PMS1 postmeiotic segregation increased 1; OMIM: 600258)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 10 (MSH6, ATR, MSH2, CUL1, BRIP1, UBC, MLH1, PGK1, BRCA2, SMC3); Female Infertility Candidate family members : MLH1, MLH3, PMS2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20ON

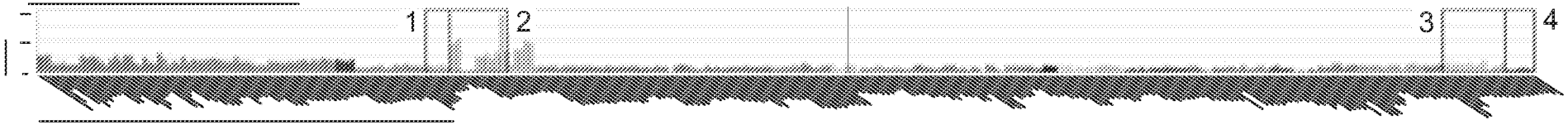


FIG. 20OO

Gene Name: PMS2 (PMS2 postmeiotic segregation increased 2; OMIM: 600259)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 9 (PCNA, MSH6, MSH2, BRIP1, UBC, MLH1, MSH3, SMARCA4, BRCA2); Female Infertility Candidate family members : MLH1, MLH3, PMS1;

FIG. 20OP

Gene Name: POF1B (premature ovarian failure, 1B; OMIM: 300603)
Offspring Diseases: Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OQ

Gene Name: POLG (polymerase; OMIM: 174763)
Offspring Diseases: Bipolar disorder; Diabetes Type 2; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

Gene Name: POU5F1 (POU class 5 homeobox 1; OMIM: 164177)
Offspring Diseases: Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 6 (EEF1A1, HNRNPK, UBC, YBX1, EHMT2, EZH2); Female Infertility Candidate family members : POU5F1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OR

Gene Name: PPP2CB (protein phosphatase 2, catalytic subunit, beta isozyme; OMIM: 176916)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (ARL2, UBC, TERF1); Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OS

Gene Name: PRDM1 (PR domain containing 1, with ZNF domain; OMIM: 603423)
Offspring Diseases: Auto-Immune Disorders; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LIN28B*-BVES-POPDC3-PREP-**PRDM1***; Female Infertility Candidate protein interactions : 4 (PRMT5, PRMT7, KDM1A, EHMT2);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20OT

FIG. 20OU

Gene Name: PRKCA (protein kinase C, alpha; OMIM: 176960)
Offspring Diseases: Asthma; Bipolar disorder; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-GNA13*-RGS9-AXIN2-CEP112-APOH-**PRKCA***; Female Infertility Candidate protein interactions : 9 (RGS2, ITGB1, HAND2, UBC, CD9, GJA1, CTNNB1, MTOR, EZR); Female Infertility Candidate family members : PRKCQ, PRKCB, PRKCD, PRKCG, PRKCE;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OV

Gene Name: PRKCB (protein kinase C, beta; OMIM: 176970)
Offspring Diseases: Autism; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (RGS2, UBC, GNA13, NCAM1); Female Infertility Candidate family members : PRKCQ, PRKCA, PRKCD, PRKCG, PRKCE;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PW

Gene Name: PRKCD (protein kinase C, delta; OMIM: 176977)
Offspring Diseases: Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 7 (IL6ST, STAT1, STAT3, UBC, MTOR, KLF4, GNA13); Female Infertility Candidate family members : PRKCQ, PRKCB, PRKCA, PRKCG, PRKCE;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None n Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OX

Gene Name: PRKCDBP (protein kinase C, delta binding protein)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**PRKCDBP***-SMPD1*;
Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2];
High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20OY

Gene Name: PRKCE (protein kinase C, epsilon; OMIM: 176975)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (STAT1, GJA1, MAPK1, GNA13); Female Infertility Candidate family members : PRKCQ, PRKCB, PRKCA, PRKCD, PRKCG;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20OZ

Gene Name: PRKCG (protein kinase C, gamma; OMIM: 176980)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NLRP12*-MYADM-**PRKCG***; Female Infertility Candidate protein interactions : 2 (RGS2, UBC); Female Infertility Candidate family members : PRKCQ, PRKCB, PRKCA, PRKCD, PRKCE;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PA

Gene Name: PRKCQ (protein kinase C, theta; OMIM: 600448)
Offspring Diseases: Auto-Immune Disorders; Cancer; Celiac Disease; Diabetes Type 1; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**PRKCQ***-SFMBT2-ITIH5-ITIH2-KIN-ATP5C1-TAF3*; Female Infertility Candidate protein interactions : 1 (AKT1);
Female Infertility Candidate family members : PRKCB, PRKCA, PRKCD, PRKCG, PRKCE;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

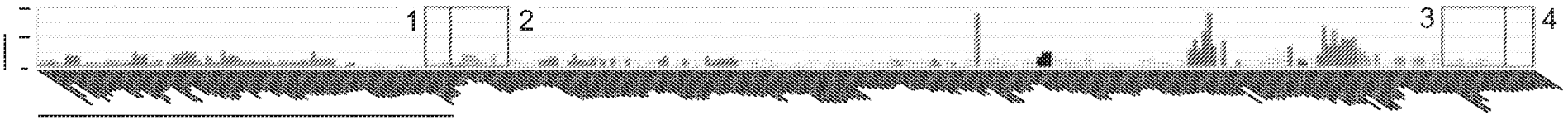


FIG. 20PB

Gene Name: PRLR (prolactin receptor; OMIM: 176761)
Offspring Diseases: Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (STAT5B, UBC); Female Infertility Candidate family members : IL23R, IL6ST, IL11RA, LEPR, LIFR, IL5RA;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

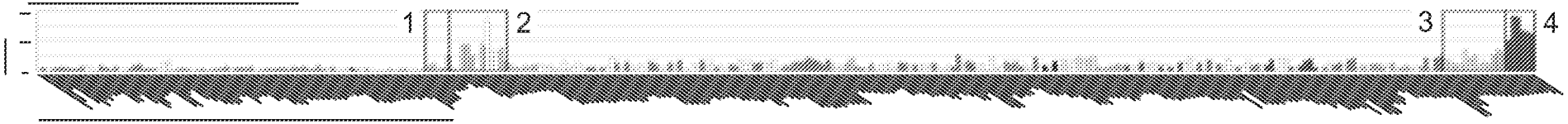


FIG. 20PC

Gene Name: PRMT3 (protein arginine methyltransferase 3; OMIM: 603190)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-HTATIP2*-**PRMT3***;
Female Infertility Candidate protein interactions : 3 (VHL, UBC, TP53); Female Infertility Candidate family members : PRMT6, PRMT2, CARM1, PRMT7, PRMT1, PRMT10, PRMT8;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

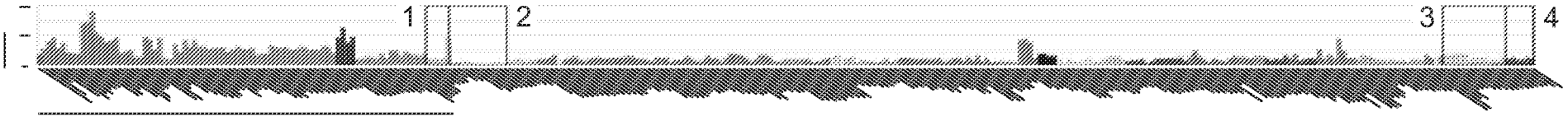


FIG. 20PD

Gene Name: PROKR2 (prokineticin receptor 2; OMIM: 607123)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PCNA*-CDS2-**PROKR2***-GPCPD1-C20orf196-CHGB-TRMT6-MCM8*-CRLS1-LRRN4-FERMT1-BMP2*-HAO1-TMX4-PLCB1*-PLCB4-C20orf103-PAK7-ANKRD5-SNAP25-MKKS*-C20orf94-JAG1*;
Female Infertility Candidate family members : TACR3, PROKR1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PE

Gene Name: PSEN1 (presenilin 1; OMIM: 104311)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (PSEN2, BCL2, CTNNB1, UBC, NOTCH1); Present in the mouse oocyte proteome; Female Infertility Candidate family members : PSEN2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PF

Gene Name: PSEN2 (presenilin 2; OMIM: 600759)
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (UBC, BCL2L1, PSEN1, FHL2); Female Infertility Candidate family members : PSEN1;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20PG

Gene Name: PTGDR (prostaglandin D2 receptor; OMIM: 604687)
Offspring Diseases: Asthma; Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**PTGDR***-PTGER2*;
Female Infertility Candidate family members : PTGER1, PTGER4, PTGFR, PTGER3, PTGER2, TBXA2R;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PH

Gene Name: PTGER1 (prostaglandin E receptor 1; OMIM: 176802)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**PTGER1***-GIPC1-LOC100130932-DNAJB1*; Female Infertility Candidate family members : PTGDR, PTGER4, PTGFR, PTGER3, PTGER2, TBXA2R;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Uniquely expressed in reproductive tissues;**

FIG. 20PI

Gene Name: PTGER2 (prostaglandin E receptor 2; OMIM: 176804)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PTGDR*-**PTGER2***;
Female Infertility Candidate family members : PTGDR, PTGER1, PTGER4, PTGFR, PTGER3, TBXA2R;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PJ

Gene Name: PTGER3 (prostaglandin E receptor 3; OMIM: 176806)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CTH*-**PTGER3***;
Female Infertility Candidate family members : PTGDR, PTGER1, PTGER4, PTGFR, PTGER2, TBXA2R;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2];
None in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; None in Placenta[4]; Not
uniquely expressed in reproductive tissues;

FIG. 20PK

Gene Name: PTGER4 (prostaglandin E receptor 4; OMIM: 601586)
Offspring Diseases: Asthma; Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LIFR*-OSMR-RICTOR-
FYB-C9-DAB2-**PTGER4***; Female Infertility Candidate protein interactions : 1 (UBC); Female
Infertility Candidate family members : PTGDR, PTGER1, PTGFR, PTGER3, PTGER2, TBXA2R;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; Low
n Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely
expressed in reproductive tissues;

FIG. 20PL

Gene Name: PTGS1 (prostaglandin-endoperoxide synthase 1; OMIM: 176805)
Offspring Diseases: Asthma; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : PTGS2;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2];
Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not
uniquely expressed in reproductive tissues;

FIG. 20PM

Gene Name: PTGS2 (prostaglandin-endoperoxide synthase 2; OMIM: 600262)
Offspring Diseases: Asthma; Autism; Auto-Immune Disorders; Bipolar disorder; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (CUL1, UBC, TP53); Female Infertility Candidate family members : PTGS1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; None in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PN

Gene Name: PTN (pleiotrophin; OMIM: 162095)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (CTNNB1); Female Infertility Candidate family members : MDK;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PO

Gene Name: PTX3 (pentraxin 3, long; OMIM: 602492)
Offspring Diseases: Bipolar disorder; Obesity;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PP

Gene Name: QDPR (quinoid dihydropteridine reductase; OMIM: 612676)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-FGFBP1*-FGFBP2-PROM1-TAPT1-LDB2-**QDPR***; Female Infertility Candidate protein interactions : 1 (UBC); Present n the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PQ

Gene Name: RAD17 (RAD17 homolog; OMIM: 603139)
Offspring Diseases: Cancer; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CDK7*-CCDC125-TAF9*-**RAD17***; Female Infertility Candidate protein interactions : 3 (ATM, ATR, FOXO3);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20PR

Gene Name: RBP4 (retinol binding protein 4, plasma; OMIM: 180250)
Offspring Diseases: Diabetes Type 2; Endometriosis; Obesity;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PS

Gene Name: REXO2 (REX2, RNA exonuclease 2 homolog; OMIM: 607149)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NNMT*-C11orf71-RBM7-**REXO2***; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PT

Gene Name: RGS2 (regulator of G-protein signaling 2, 24kDa; OMIM: 600861)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (PRKCB, PRKCA, PRKCG); Female Infertility Candidate family members : RGS3;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20PU

Gene Name: RSPO1 (R-spondin 1; OMIM: 609595)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**RSPO1***-C1orf109-CDCA8-EPHA10*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20PV

Gene Name: SCARB1 (scavenger receptor class B, member 1; OMIM: 601040)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NCOR2*-**SCARB1***
UBC*; Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20PW

Gene Name: SDC3 (syndecan 3; OMIM: 186357)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SRSF4*-MECR-PTPRU-MATN1-LAPTM5-**SDC3***;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PX

Gene Name: SELL (selectin L; OMIM: 153240)
Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2; Endometriosis; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : CD55;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PY

Gene Name: SEPHS2 (selenophosphate synthetase 2; OMIM: 606218)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-DCTPP1*-**SEPHS2***;
Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : SEPHS1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20PZ

Gene Name: SFRP1 (secreted frizzled-related protein 1; OMIM: 604156)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : FRZB, SFRP5, SFRP4, SFRP2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QA

Gene Name: SFRP2 (secreted frizzled-related protein 2; OMIM: 604157)
Offspring Diseases: Asthma; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : SFRP1, FRZB, SFRP5, SFRP4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QB

Gene Name: SFRP4 (secreted frizzled-related protein 4; OMIM: 606570)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SFRP4***-EPDR1-STARD3NL*; Female Infertility Candidate family members : SFRP1, FRZB, SFRP5, SFRP2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20QC

Gene Name: SFRP5 (secreted frizzled-related protein 5; OMIM: 604158)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SFRP5***-GOLGA7B-CRTAC1-C10orf28-LOXL4*; Female Infertility Candidate family members : SFRP1, FRZB, SFRP4, SFRP2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QD

Gene Name: SGK1 (serum/glucocorticoid regulated kinase 1; OMIM: 602958)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (PDK1, CUL1, UBC, TUFM); Female Infertility Candidate family members : AKT1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QE

Gene Name: SH2B1 (SH2B adaptor protein 1; OMIM: 608937)
Offspring Diseases: Asthma; Autism; Bipolar disorder; Diabetes Type 1; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EIF3CL*-EIF3C*-CLN3-APOBR-IL27-NUPR1*-CCDC101*-SULT1A2-SULT1A1-ATXN2L-TUFM*-**SH2B1***-ATP2A1-RABEP2-CD19*; Female Infertility Candidate protein interactions : 1 (NTRK1); Female Infertility Candidate family members : SH2B3, SH2B2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QF

Gene Name: SH2B2 (SH2B adaptor protein 2; OMIM: 605300)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (NTRK1); Female Infertility Candidate family members : SH2B3, SH2B1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QG

Gene Name: SH2B3 (SH2B adaptor protein 3; OMIM: 605093)
Offspring Diseases: Asthma; Celiac Disease; Diabetes Type 1; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SH2B3***-ATXN2*; Female Infertility Candidate family members : SH2B1, SH2B2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QH

Gene Name: SIRT1 (sirtuin 1; OMIM: 604479)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 21 (VDR, PCNA, SIRT2, SUZ12, UBC, YBX1, SMAD7, NCOR1, CTNNB1, HSF1, DNMT1, TP53, MAPK8, EZH2, HNRNPK, FOXO3, AR, ESR1, STAT3, ARNTL, ATG7);
Female Infertility Candidate family members : SIRT2, SIRT4, SIRT3, SIRT6, SIRT5, SIRT7;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium inPlacenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QI

Gene Name: SIRT3 (sirtuin 3; OMIM: 604481)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SIRT3***-PSMD13-NLRP6*-ATHL1-IFITM5-IFITM2-IFITM1*; Female Infertility Candidate protein interactions : 6 (HSP90B1, GRN, SIRT4, UBC, FOXO3, SIRT5); Female Infertility Candidate family members : SIRT1, SIRT2, SIRT4, SIRT6, SIRT7, SIRT5;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QJ

Gene Name: SIRT4 (sirtuin 4; OMIM: 604482)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (SIRT3); Female Infertility Candidate family members : SIRT1, SIRT2, SIRT6, SIRT3, SIRT7, SIRT5;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QK

Gene Name: SLC19A1 (solute carrier family 19; OMIM: 600424)
Offspring Diseases: Diabetes Type 2; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20QL

Gene Name: SLC6A2 (solute carrier family 6; OMIM: 163970)
Offspring Diseases: ADHD; Bipolar disorder; Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : SLC6A4;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20QM

Gene Name: SLC6A4 (solute carrier family 6; OMIM: 182138)
Offspring Diseases: ADHD; Asthma; Autism; Bipolar disorder; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate family members : SLC6A2;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20QN

Gene Name: SMAD1 (SMAD family member 1; OMIM: 601595)
Offspring Diseases: Charcot-Marie Tooth Disease; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 9 (FOXO3, UBC, CDK7, SMAD6, ACVR1, STAT3, SMAD4, MAPK1, USP9X); Female Infertility Candidate family members : SMAD2, SMAD3, SMAD5, SMAD6, SMAD4, SMAD9, SMAD7;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

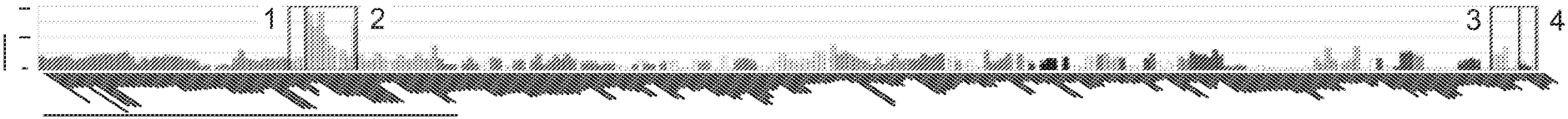


FIG. 20QO

Gene Name: SMAD2 (SMAD family member 2; OMIM: 601366)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SMAD2***-ZBTB7C-CTIF-SMAD7*; Female Infertility Candidate protein interactions : 14 (AKT1, UBC, ACVR1B, SMAD3, SMARCA4, SMAD6, BRCA2, CTNNB1, ESR1, TGFB1, SMAD4, TP53, USP9X, MYC); Female Infertility Candidate family members : SMAD3, SMAD1, SMAD5, SMAD6, SMAD4, SMAD9, SMAD7;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

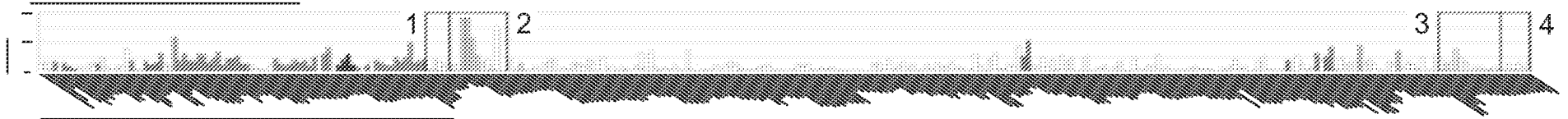
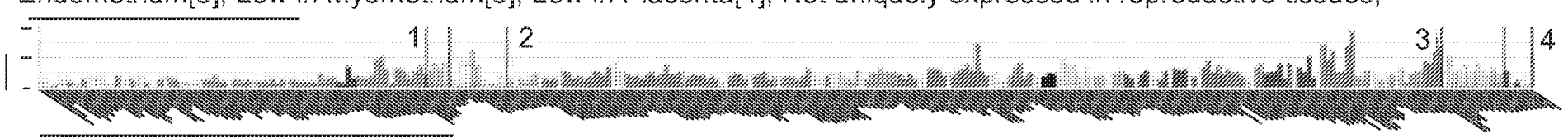


FIG. 20QP

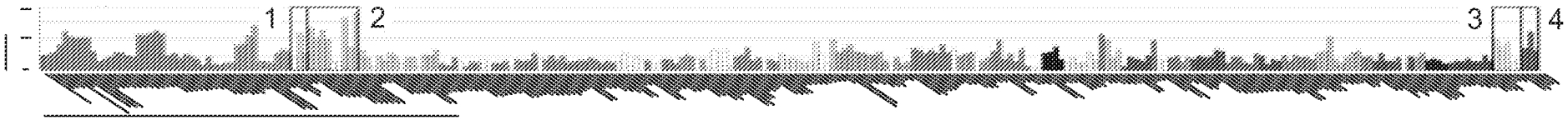
Gene Name: SMAD3 (SMAD family member 3; OMIM: 603109)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SMAD6*-**SMAD3***; Female Infertility Candidate protein interactions : 24 (CTCF, UBC, BRCA1, ACVR1B, BRCA2, CTNNB1, TGFB1, TP53, USP9X, AKT1, SMAD2, CEBPD, CUL1, FOXO3, NOTCH1, NR3C1, AR, SMARCA4, ESR1, BMP7, SMAD4, MAPK1, MYC, FOXL2); Female Infertility Candidate family members : SMAD2, SMAD1, SMAD5, SMAD6, SMAD4, SMAD9, SMAD7;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: SMAD4 (SMAD family member 4; OMIM: 600993)

FIG. 20QQ

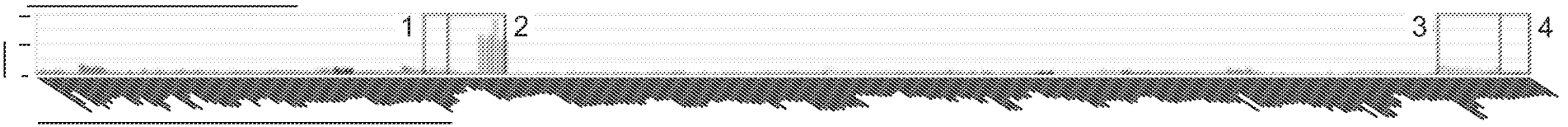
Offspring Diseases: Cancer; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SMAD4***-MEX3C-DCC-MBD2*-POLI-STARD6*; Female Infertility Candidate protein interactions : 14 (AKT1, SMAD2, SMAD1, SMAD5, CEBPD, UBC, FOXO3, SMAD7, AR, SMAD3, SMAD6, CTNNB1, SMAD9, USP9X); Female Infertility Candidate family members : SMAD2, SMAD3, SMAD1, SMAD5, SMAD6, SMAD9, SMAD7;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: SMAD5 (SMAD family member 5; OMIM: 603110)

FIG. 20QR

Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (SMAD6, ACVR1, UBC, SMAD4); Female Infertility Candidate family members : SMAD2, SMAD3, SMAD1, SMAD6, SMAD4, SMAD9, SMAD7;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**



Gene Name: SMAD7 (SMAD family member 7; OMIM: 602932)

FIG. 20QS

Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SMAD2*-ZBTB7C-CTIF-**SMAD7***; Female Infertility Candidate protein interactions : 8 (AKT1, BMPR1A, SIRT1, SMAD6, CTNNB1, UBC, SMAD4, ACVR1B); Female Infertility Candidate family members : SMAD2, SMAD3, SMAD1, SMAD5, SMAD6, SMAD4, SMAD9;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

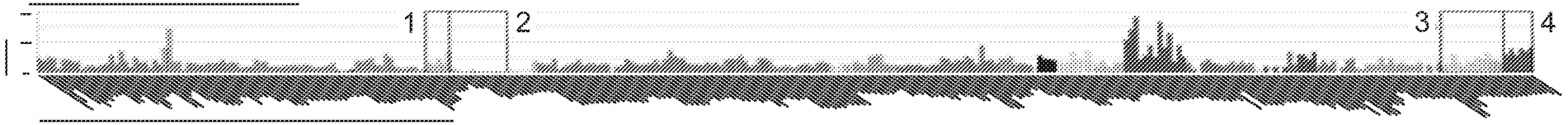


FIG. 20QT

Gene Name: SMAD9 (SMAD family member 9; OMIM: 603295)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, SMAD4);
Female Infertility Candidate family members : SMAD2, SMAD3, SMAD1, SMAD5, SMAD6, SMAD4, SMAD7;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2];
Medium in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20QU

Gene Name: SMARCA4 (SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 4; OMIM: 603254)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CARM1*-YIPF2-C19orf52-**SMARCA4***; Female Infertility Candidate protein interactions : 35 (VDR, PCNA, STAT5A, BRCA1, CDKN2A, CARM1, CBX5, CTNNB1, HSF1, RCOR1, SMAD2, HSP90B1, BRWD1, ACTL6A, CEBPB, NCOR2, PRMT5, CEBPA, STAT3, IRF1, MYC, UBC, CHD7, TAF10, NCOR1, STAT2, TP53, PMS2, STAT1, KLF4, NR3C1, AR, SMAD3, ESR1, SIRT7); Female Infertility Candidate family members : SMARCA5, CHD7, SRCAP, HELLS;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues

FIG. 20QV

Gene Name: SMPD1 (sphingomyelin phosphodiesterase 1, acid lysosomal; OMIM: 607608)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-PRKCDBP*-**SMPD1***;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

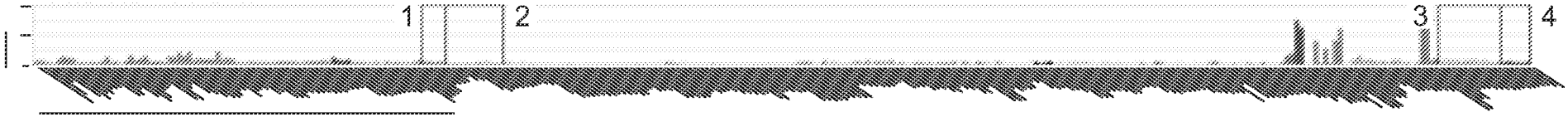
Gene Name: SOCS1 (suppressor of cytokine signaling 1; OMIM: 603597)

FIG. 20QW

Offspring Diseases: Asthma; Cancer; Celiac Disease; Diabetes Type 2; Obesity;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



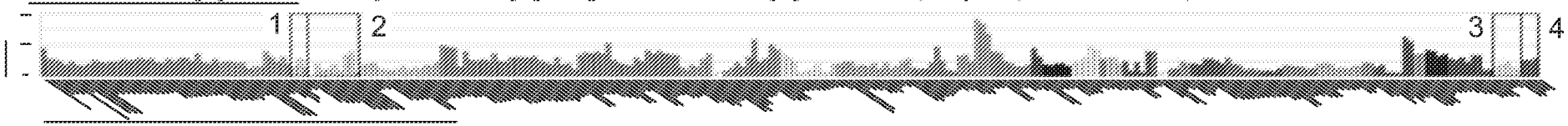
Gene Name: SOD1 (superoxide dismutase 1, soluble; OMIM: 147450)

FIG. 20QX

Offspring Diseases: Bipolar disorder; Diabetes Type 2; Obesity;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (CCS, BCL2, UBC); Present in the human oocyte proteome; Present in the mouse oocyte proteome; Female Infertility Candidate family members : SOD3, CCS;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: SOD2 (superoxide dismutase 2, mitochondrial; OMIM: 147460)

FIG. 20QY

Offspring Diseases: Bipolar disorder; Diabetes Type 2; Endometriosis; Obesity;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-EZR*-C6orf99-RSPH3-TAGAP-FNDC1-**SOD2***; Female Infertility Candidate protein interactions : 2 (AURKA, UBC);

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

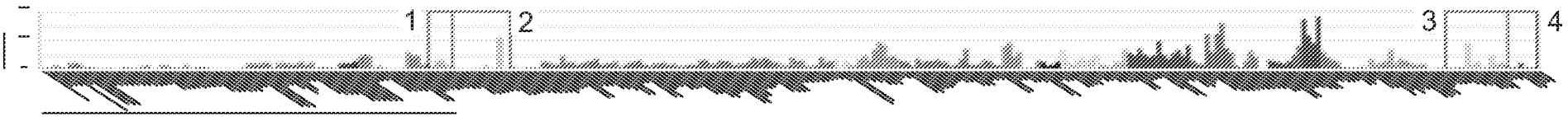


FIG. 20QZ

Gene Name: SOD3 (superoxide dismutase 3, extracellular; OMIM: 185490)
Offspring Diseases: Cancer; Diabetes Type 2; Connection to Female Infertility: Female Infertility
Candidate family members : SOD1, CCS; Representative Human Tissue Expression (boxed below):
Medium in Ovary[1]; None in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3];
Medium in Placenta[4]; Not uniquely expressed in reproductive tissues

FIG. 20RA

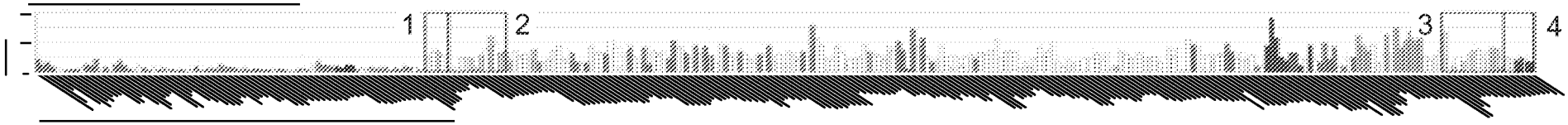
Gene Name: SPAG17 (sperm associated antigen 17)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :
-**SPAG17***-TBX15-WARS2-HAO2-HSD3B2-HSD3B1*; Representative Human Tissue Expression (boxed below):
Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3];
Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RB

Gene Name: SPARC (secreted protein, acidic, cysteine-rich; OMIM: 182120)
Offspring Diseases: Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (VEGFA);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2];
High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4];
Not uniquely expressed in reproductive tissues;

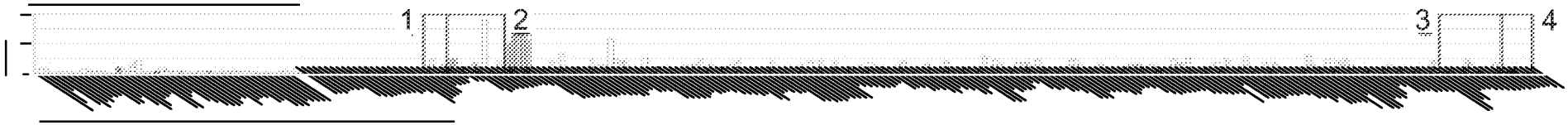
Gene Name: SPN (sialophorin; OMIM: 182160)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (EZR);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RC



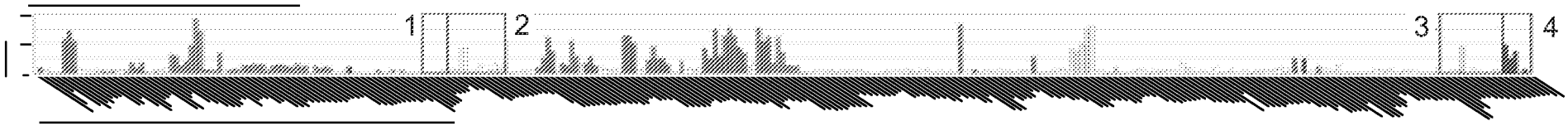
Gene Name: SPO11 (SPO11 meiotic protein covalently bound to DSB homolog; OMIM: 605114)
Offspring Diseases: Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate gene cluster :
-AURKA*-CSTF1*-CASS4-C20orf43-GCNT7-C20orf106-C20orf107-TFAP2C*-BMP7*-SPO11*
-RAE1-MTRNR2L3-RBM38-CTCFL*;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RD



Gene Name: SPP1 (secreted phosphoprotein 1; OMIM: 166490)
Offspring Diseases: Asthma; Cancer; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

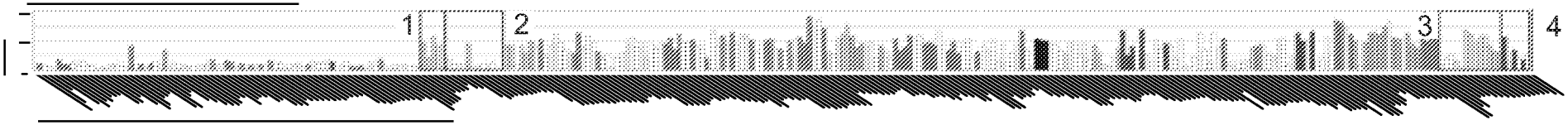
FIG. 20RE



SUBSTITUTE SHEET (RULE 26)

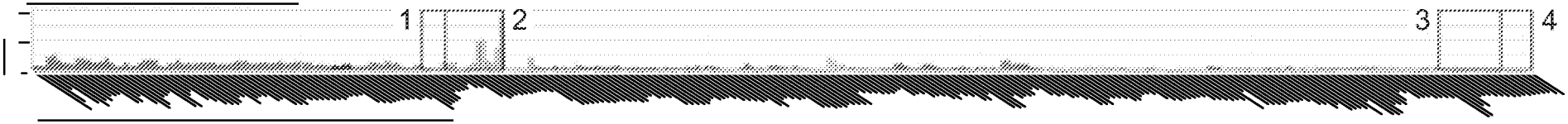
Gene Name: SRCAP (Snf2-related CREBBP activator protein; OMIM: 611421)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ZNF689*-PRR14-FBRS*-**SRCAP***;
Female Infertility Candidate protein interactions : 4 (NCOR1, UBC, DMAP1, AR); Female Infertility Candidate family members : SMARCA5, SMARCA4, CHD7, HELLS;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4];
Not uniquely expressed in reproductive tissues;

FIG. 20RF



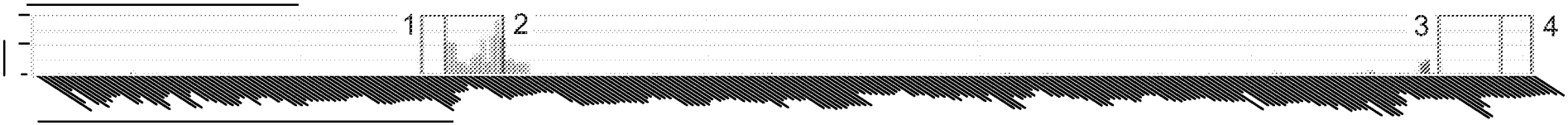
Gene Name: SRD5A1 (steroid-5-alpha-reductase, alpha polypeptide 1; OMIM: 184753)
Offspring Diseases: Obesity;
Connection to Female Infertility:
Female Infertility Candidate gene cluster :-**SRD5A1***-PAPD7-ADCY2-C5orf49-FASTKD3-MTRR*;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20RG



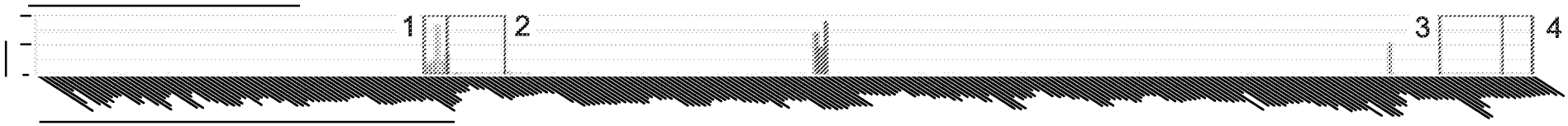
Gene Name: STAG3 (stromal antigen 3; OMIM: 608489)
Offspring Diseases: Williams Beuren Syndrome;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (SMC1A, SMC3);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20RH



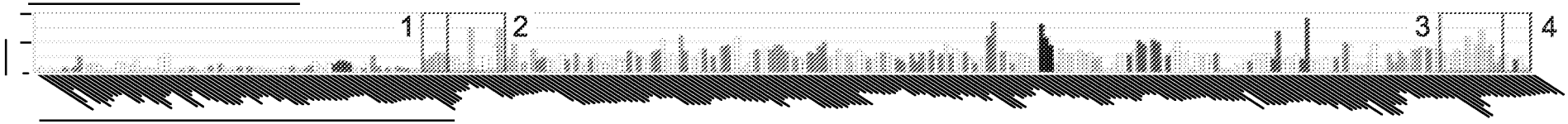
Gene Name: STAR (steroidogenic acute regulatory protein; OMIM: 600617)
Offspring Diseases: Obesity;
Connection to Female Infertility: Female Infertility Candidate family members : STARD4, STARD3NL, STARD6, STARD3, STARD5;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20RI



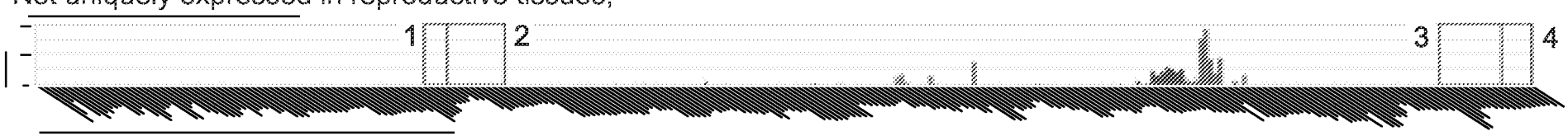
Gene Name: STARD13 (StAR-related lipid transfer; OMIM: 609866)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-BRCA2*-N4BP2L1-N4BP2L2-PDS5B-KL*-**STARD13***; Female Infertility Candidate family members : STARD8, DLC1; Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RJ



Gene Name: STARD3 (StAR-related lipid transfer; OMIM: 607048)
Offspring Diseases: Cancer; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate family members : STARD4, STARD3NL, STARD6, STARD5, STAR;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4];
Not uniquely expressed in reproductive tissues;

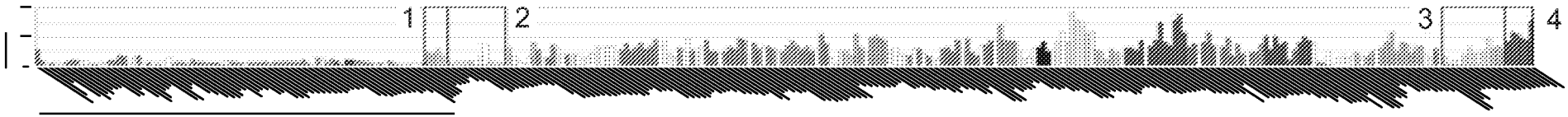
FIG. 20RK



Gene Name: STARD8 (StAR-related lipid transfer; OMIM: 300689)

FIG. 20RL

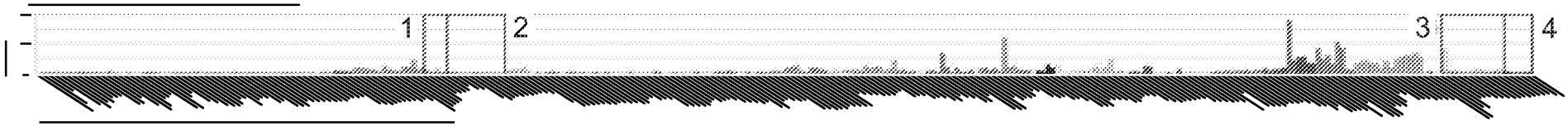
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-AR*-OPHN1-YIPF6-**STARD8***-EFNB1*;
Female Infertility Candidate family members : STARD13, DLC1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: STAT1 (signal transducer and activator of transcription 1, 91kDa; OMIM: 600555)

FIG. 20RM

Offspring Diseases: Asthma; Cancer; Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NAB1*-GLS-**STAT1***-STAT4*; Female Infertility Candidate protein interactions : 13 (VDR, UBC,
FANCC, BRCA1, PRKCE, SMARCA4, PRKCD, STAT2, HSF1, MBD1, STAT3, MTOR, IRF1); Female Infertility Candidate family members : STAT5B, STAT2, STAT4, STAT3, STAT6, STAT5A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: STAT2 (signal transducer and activator of transcription 2, 113kDa; OMIM: 600556)

FIG. 20RN

Offspring Diseases: Asthma; Diabetes Type 1;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-IL23A*-**STAT2***; Female Infertility Candidate protein interactions : 3 (STAT1, SMARCA4, UBC); Female Infertility Candidate family members : STAT5B, STAT1, STAT4, STAT3, STAT6, STAT5A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2];
Low in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

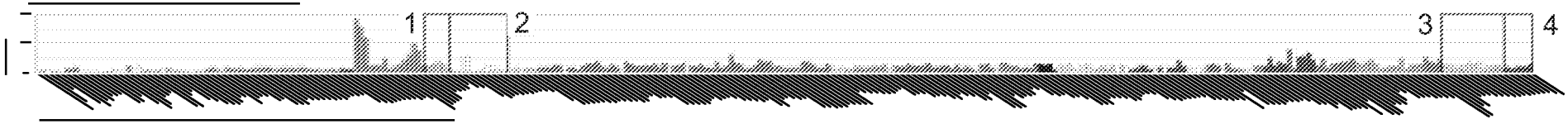


FIG. 20RO

Gene Name: STAT3 (signal transducer and activator of transcription 3; OMIM: 102582)
Offspring Diseases: Asthma; Auto-Immune Disorders; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-STAT5B*-STAT5A*-**STAT3***-PTRF-ATP6V0A1-NAGLU-HSD17B1*; Female Infertility Candidate protein interactions : 19 (IL6ST, SMAD1, PGR, EPHA5, UBC, CCND1, PRKCD, MTOR, DNMT1, MAPK8, SIRT1, STAT1, CEBPB, NR3C1, AR, SMARCA4, FGFR1, ESR1, KDM1A); Female Infertility Candidate family members : STAT5B, STAT1, STAT2, STAT4, STAT6, STAT5A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RP

Gene Name: STAT4 (signal transducer and activator of transcription 4; OMIM: 600558)
Offspring Diseases: Asthma; Auto-Immune Disorders; Cancer; Diabetes Type 1; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-NAB1*-GLS-STAT1*-**STAT4***; Female Infertility Candidate family members : STAT5B, STAT1, STAT2, STAT3, STAT6, STAT5A;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RQ

Gene Name: STAT5A (signal transducer and activator of transcription 5A; OMIM: 601511)
Offspring Diseases: Asthma; Cancer; Obesity;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-STAT5B*-**STAT5A***-STAT3*-PTRF-ATP6V0A1-NAGLU-HSD17B1*; Female Infertility Candidate protein interactions : 8 (PGR, UBC, BRCA1, CARM1, SMARCA4, BRCA2, PRMT1, MAPK1); Female Infertility Candidate family members : STAT5B, STAT1, STAT2, STAT4, STAT3, STAT6;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RR

Gene Name: STAT5B (signal transducer and activator of transcription 5B; OMIM: 604260)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**STAT5B***-STAT5A*-STAT3*-PTRF-ATP6V0A1-NAGLU-HSD17B1*; Female Infertility Candidate protein interactions : 4 (PGR, UBC, NR3C1, PRLR); Female Infertility Candidate family members : STAT1, STAT2, STAT4, STAT3, STAT6, STAT5A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20RS

Gene Name: STAT6 (signal transducer and activator of transcription 6, interleukin-4 induced; OMIM: 601512)
Offspring Diseases: Auto-Immune Disorders;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TAC3*-MYO1A-TMEM194A-NAB2*-**STAT6***; Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : STAT5B, STAT1, STAT2, STAT4, STAT3, STAT5A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20RT

Gene Name: STIM1 (stromal interaction molecule 1; OMIM: 605921)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

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FIG. 20RU

Gene Name: STK3 (serine/threonine kinase 3; OMIM: 605030)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Female Infertility Candidate family members : MAP3K1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3];
None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

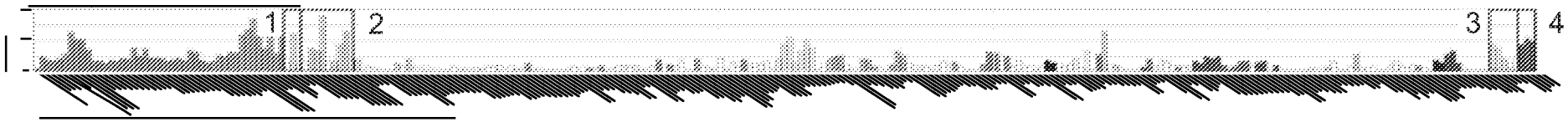


FIG. 20RV

Gene Name: SULT1E1 (sulfotransferase family 1E, estrogen-preferring, member 1; OMIM: 600043)
Offspring Diseases: Cancer; Obesity;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3];
Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

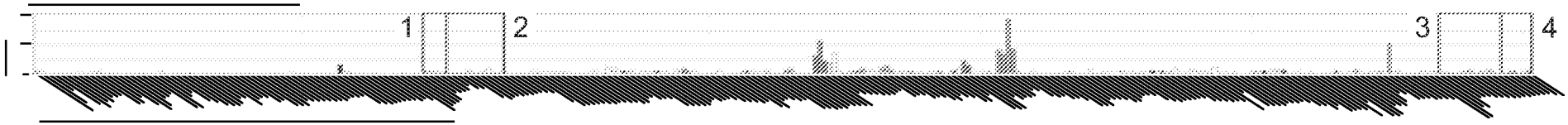


FIG. 20RW

Gene Name: SUZ12 (suppressor of zeste 12 homolog; OMIM: 606245)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 8 (CTCF, SIRT1,
JARID2, UBC, DNMT1, WT1, KDM5A, EZH2);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3];
Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

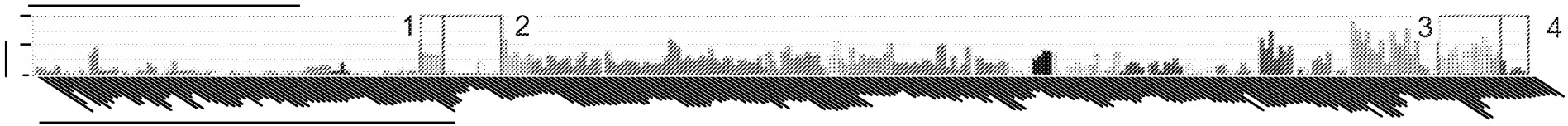


FIG. 20RX

Gene Name: SYNE1 (spectrin repeat containing, nuclear envelope 1; OMIM: 608441)

Offspring Diseases: Autism; Bipolar disorder; Cancer;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-ESR1*-**SYNE1***; Female Infertility Candidate protein interactions : 2 (UBC, LMNA); Female Infertility Candidate family members : SYNE2, SPTBN4, SPTB, SPTBN1;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

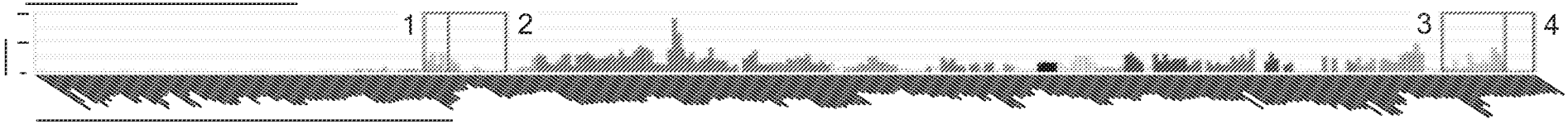


FIG. 20RY

Gene Name: SYNE2 (spectrin repeat containing, nuclear envelope 2; OMIM: 608442)

Offspring Diseases: Cancer;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-**SYNE2***-ESR2*-MTHFD1*; Female Infertility Candidate protein interactions : 3 (UBC, TERF1, SIRT7); Female Infertility Candidate family members : SYNE1, SPTBN4, SPTB, SPTBN1;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

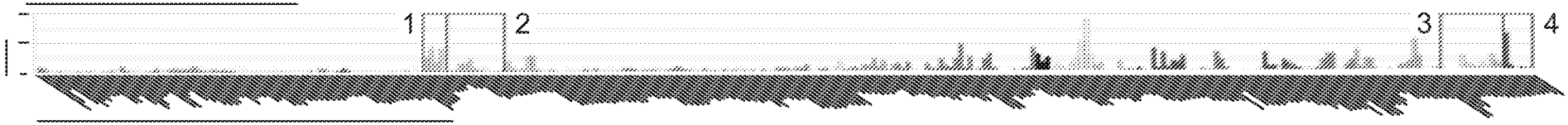


FIG. 20RZ

Gene Name: TAC3 (tachykinin 3; OMIM: 162330)

Offspring Diseases: Asthma;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-**TAC3***-MYO1A-TMEM194A-NAB2*-STAT6*;

Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

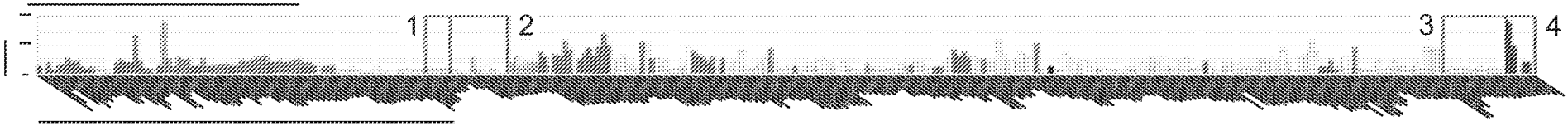


FIG. 20SA

Gene Name: TACC3 (transforming, acidic coiled-coil containing protein 3; OMIM: 605303)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (MBD2, UBC); Present in the human oocyte proteome;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20SB

Gene Name: TAP1 (transporter 1, ATP-binding cassette, sub-family B; OMIM: 170260)
Offspring Diseases: Asthma; Auto-Immune Disorders; Cancer; Diabetes Type 1; Diabetes Type 2; Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : TAP1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20SC

Gene Name: TBL1X (transducin; OMIM: 300196)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-KAL1*-FAM9A-FAM9B-**TBL1X***; Female Infertility Candidate protein interactions : 3 (NCOR1, CTNNB1, NCOR2);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4];
Relatively unique expression in reproductive tissues;

FIG. 20SD

Gene Name: TBXA2R (thromboxane A2 receptor; OMIM: 188070)
Offspring Diseases: ADHD; Asthma;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (GNA13); Female Infertility Candidate family members : PTGDR, PTGER1, PTGER4, PTGFR, PTGER3, PTGER2;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20SE

Gene Name: TCL1A (T-cell leukemia/lymphoma 1A; OMIM: 186960)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-DICER1*-CLMN-C14orf49-GLRX5-(TCL6)-TCL1B*-**TCL1A***-BDKRB2-BDKRB1-ATG2B-C14orf129-AK7*; Female Infertility Candidate protein interactions : 2 (ATM, AKT1); Present in the mouse oocyte proteome; Female Infertility Candidate family members : TCL1B;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20SF

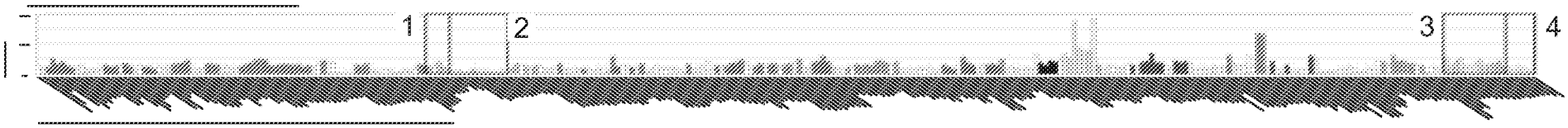
Gene Name: TCL1B (T-cell leukemia/lymphoma 1B; OMIM: 603769)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-DICER1*-CLMN-C14orf49-GLRX5-(TCL6)-**TCL1B***-TCL1A*-BDKRB2-BDKRB1-ATG2B-C14orf129-AK7*; Female Infertility Candidate protein interactions : 1 (AKT1); Female Infertility Candidate family members : TCL1A;

Gene Name: TCN2 (transcobalamin II; OMIM: 613441)

FIG. 20SG

Offspring Diseases: Autism; Obesity;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;



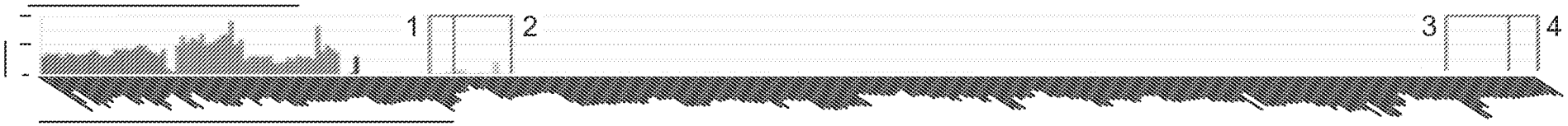
Gene Name: TDGF1 (teratocarcinoma-derived growth factor 1; OMIM: 187395)

FIG. 20SH

Offspring Diseases: Cancer; Diabetes Type 1;

Connection to Female Infertility: Female Infertility Candidate family members : CFC1;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**



Gene Name: TERC (telomerase RNA component; OMIM: 602322)

FIG. 20SI

Offspring Diseases: Cancer;

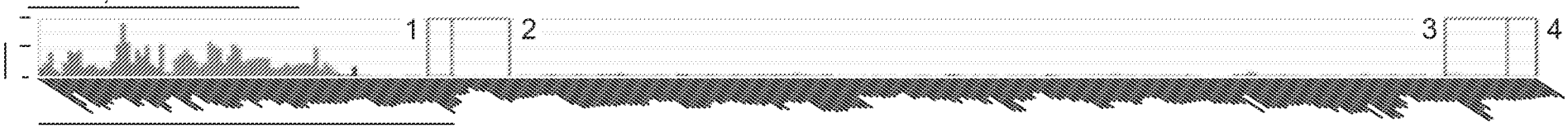
Gene Name: TERF1 (telomeric repeat binding factor; OMIM: 600951)

FIG. 20SJ

Offspring Diseases: Cancer; Endometriosis;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 11 (HSP90B1, PPP2CB, SYNE2, UBC, BRCA1, ATM, PRMT5, MTOR, PRMT1, CENPF, USP9X);

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



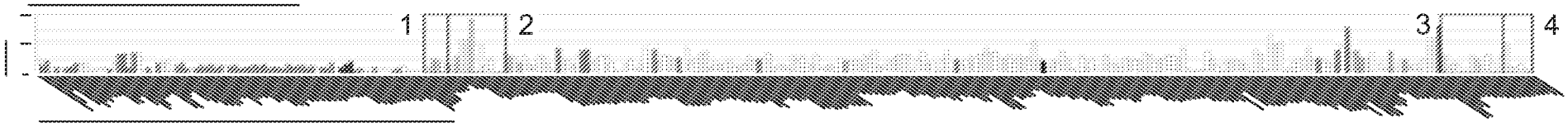
Gene Name: TERT (telomerase reverse transcriptase; OMIM: 187270)

FIG. 20SK

Offspring Diseases: Cancer; Diabetes Type 2;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (AKT1, PTGES3, UBC, MTOR, MDM2);

Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

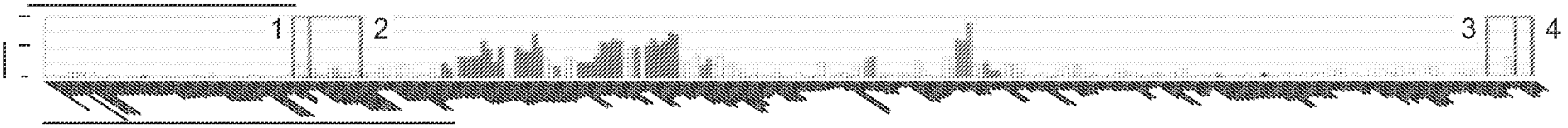


Gene Name: TF (transferrin; OMIM: 190000)

FIG. 20SL

Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Diabetes Type 2; Obesity; Connection to Female Infertility: Female Infertility Candidate gene cluster :-**TF***-SRPRB-RAB6B-C3orf36-SLCO2A1*-RYK-AMOTL2-ANAPC13-CEP63-KY-EPHB1*; Female Infertility Candidate protein interactions : 1 (IGFBP3);

Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: TFPI (tissue factor pathway inhibitor; OMIM: 152310)

FIG. 20SM

Offspring Diseases: Cancer; Diabetes Type 2;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-ITGAV*-FAM171B-ZSWIM2-CALCRL-**TFPI***; Female Infertility Candidate family members : AMBP, TFPI2;

Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

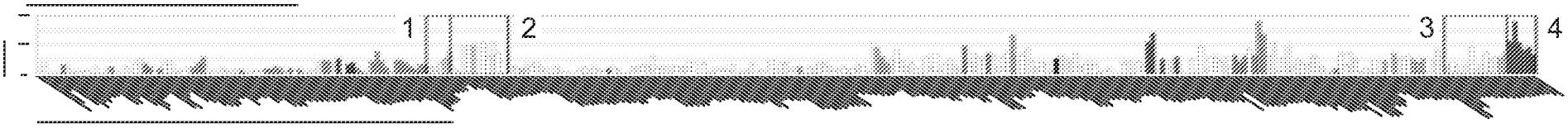


FIG. 20SN

Gene Name: TFPI2 (tissue factor pathway inhibitor 2; OMIM: 600033)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-CDK6*-SAMD9-SAMD9L-HEPACAM2-CCDC132-CALCR-**TFPI2***-GNGT1-GNG11-BET1-COL1A2*; Female Infertility Candidate family members : AMBP, TFPI;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; High in Endometrium[3]; Low in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

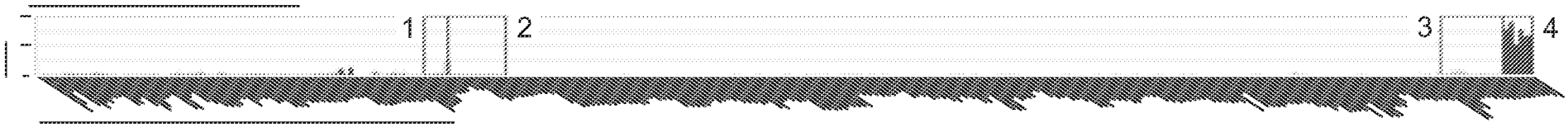


FIG. 20SO

Gene Name: TG (thyroglobulin; OMIM: 188450)
Offspring Diseases: Bipolar disorder; Cancer; Celiac Disease; Diabetes Type 2; Obesity;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

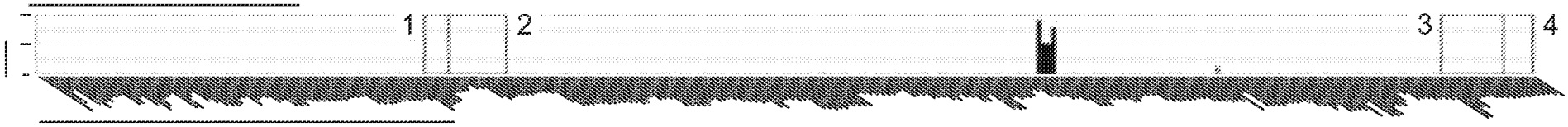


FIG. 20SP

Gene Name: TGFB1 (transforming growth factor, beta 1; OMIM: 190180)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Celiac Disease; Diabetes Type 2; Obesity; Connection to Female Infertility: Female Infertility Candidate protein interactions : 5 (SMAD3, SMAD2, TGFBR3, UBC, ACVRL1); Female Infertility Candidate family members : GDF9, BMP5, GDF3, BMP4, BMP15, BMP2, INHBB, NODAL, BMP3, BMP7, INHBA, GDF1, BMP6;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

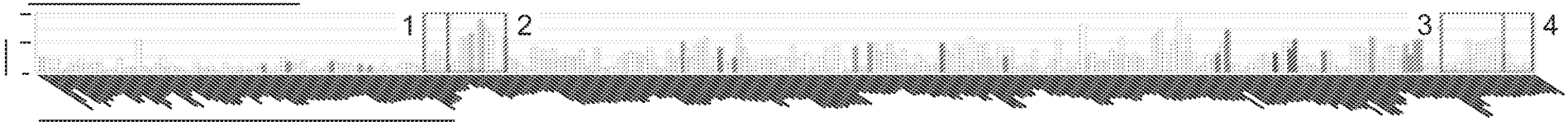


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FIG. 20SQ

Gene Name: TGFB1I1 (transforming growth factor beta 1 induced transcript 1; OMIM: 602353)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-TGFB1I1***-SLC5A2-C16orf58-AHSP-ZNF720*-ZNF267*; Female Infertility Candidate protein interactions : 3 (VHL, UBC, AR); Female Infertility Candidate family members : LDB3, LIMS1, LIMS3L, LIMS3, LIMS2, FHL2;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

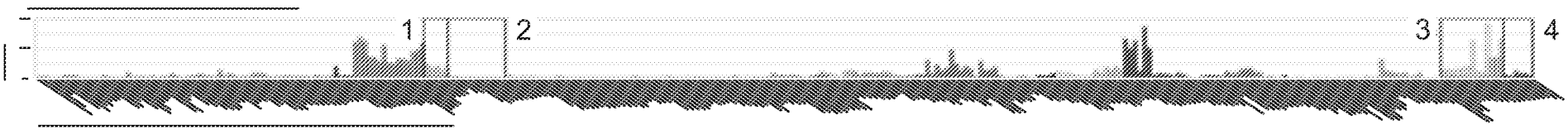

FIG. 20SR

Gene Name: TGFBR3 (transforming growth factor, beta receptor III; OMIM: 600742)
Offspring Diseases: Asthma; Cancer; Premature Ovarian Failure;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (TGFB1);
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; High in Placenta[4]; **Relatively unique expression in reproductive tissues;**

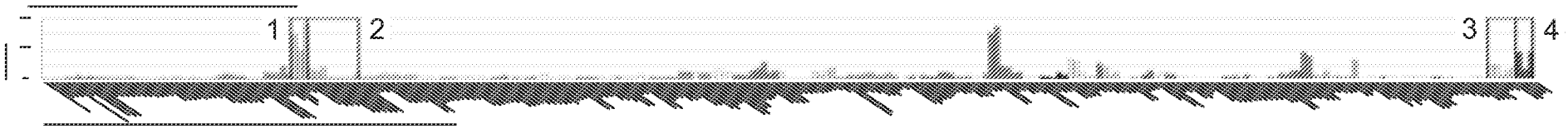

FIG. 20SS

Gene Name: THOC5 (THO complex 5; OMIM: 612733)
Offspring Diseases: Diabetes Type 1;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

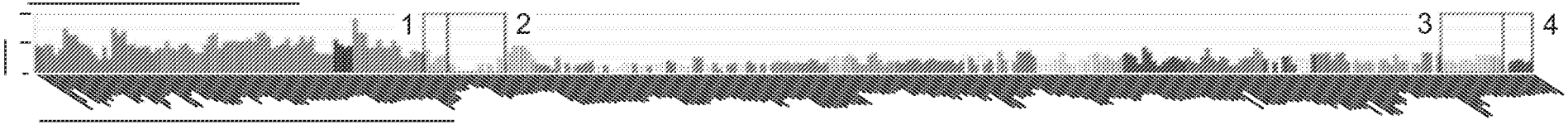

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FIG. 20ST

Gene Name: TMEM67 (transmembrane protein 67; OMIM: 609884)
Offspring Diseases: Bardet-Biedl Syndrome;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

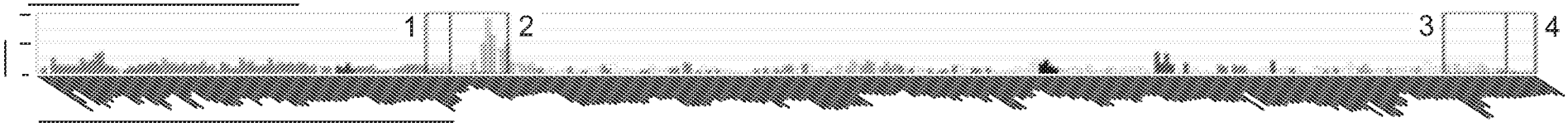


FIG. 20SU

Gene Name: TNF (tumor necrosis factor; OMIM: 191160)
Offspring Diseases: Asthma; Auto-Immune Disorders; Bipolar disorder; Cancer; Celiac Disease; Diabetes Type 1; Diabetes Type 2; Obesity; Schizophrenia;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (EIF2C2, UBC, CDC42); Female Infertility Candidate family members : FASLG, TNF;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

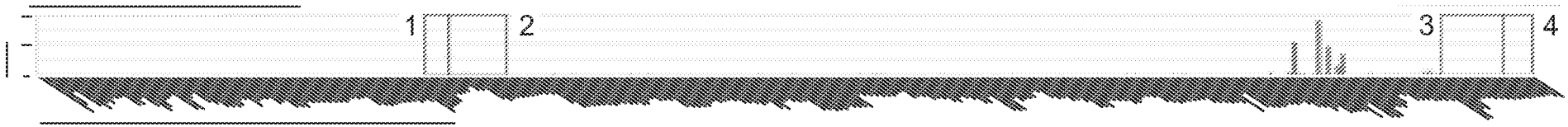


FIG. 20SV

Gene Name: TNFSF13B (tumor necrosis factor; OMIM: 603969)
Offspring Diseases: Asthma;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-EFNB2*-ARGLU1-FAM155A-LIG4-ABHD13-**TNFSF13B***;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

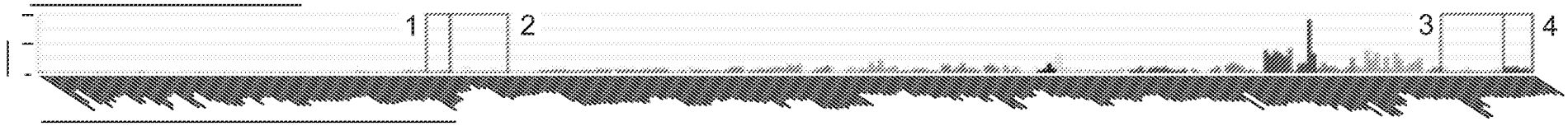


FIG. 20SW

Gene Name: TOP2B (topoisomerase; OMIM: 126431)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 4 (MTA2, ESR1, UBC, TP53); Female Infertility Candidate family members : TOP2A;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20SX

Gene Name: TP53 (tumor protein p53; OMIM: 191170)
Offspring Diseases: Auto-Immune Disorders; Cancer; Diabetes Type 2; Obesity; Schizophrenia; SpinaBifida;
Connection to Female Infertility: Female Infertility Candidate gene cluster '**-TP53***-WRAP53-EFNB3*'; Female Infertility Candidate protein interactions : 57 (UBE2D3, VDR, PADI4, TOP2B, YBX1, MDM2, BRCA1, AURKB, AURKA, MAPK9, CDKN2A, UIMC1, VHL, EGR1, EIF2C2, TOP2A, MAPK8, SMAD2, ACTL6A, SIRT1, CEBPZ, IGF1R, MSH2, IGF2BP1, CDK7, TAF9, SMARCA4, MDM4, EHMT1, KDM1A, WT1, MAPK1, ATR, BCL2, UBC, TAF5L, CCNH, TAF10, BARD1, TPT1, MAPK3, NCOR1, BRCA2, DNMT1, PRMT3, MSH6, MTA2, PRKRA, NR3C1, FBXO11, SMAD3, ATM, PTGS2, LOC613037, UBE3A, EHMT2, SIRT7); Female Infertility Candidate family members : TP73, TP63;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20SY

Gene Name: TP63 (tumor protein p63; OMIM: 603273)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LPP*-TPRG1-**TP63***; Female Infertility Candidate protein interactions : 4 (LOC613037, IGF2BP1, EIF2C2, UBC); Female Infertility Candidate family members : TP73, TP53;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20SZ

Gene Name: TPMT (thiopurine S-methyltransferase; OMIM: 187680)
Offspring Diseases: Auto-Immune Disorders; Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**TPMT***-KDM1B*; Female Infertility Candidate protein interactions : 1 (UBC); Present in the human oocyte proteome; Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20TA

Gene Name: TPT1 (tumor protein, translationally-controlled 1; OMIM: 600763)
Offspring Diseases: Diabetes Type 2;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 3 (VHL, UBC, TP53); Present in the mouse oocyte proteome;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20TB

Gene Name: TRIM32 (tripartite motif containing 32; OMIM: 602290)
Offspring Diseases: Diabetes Type 2; Obesity;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20TC

Gene Name: TSC2 (tuberous sclerosis 2; OMIM: 191092)
Offspring Diseases: Autism; Cancer;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 8 (CCND3, AKT1, UBC, CDKN1B, CCND1, CCND2, UBE3A, MAPK1);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20TD

Gene Name: TTC8 (tetratricopeptide repeat domain 8; OMIM: 608132)
Offspring Diseases: Bardet-Biedl Syndrome; Diabetes Type 2; Obesity; Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : BBS4;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

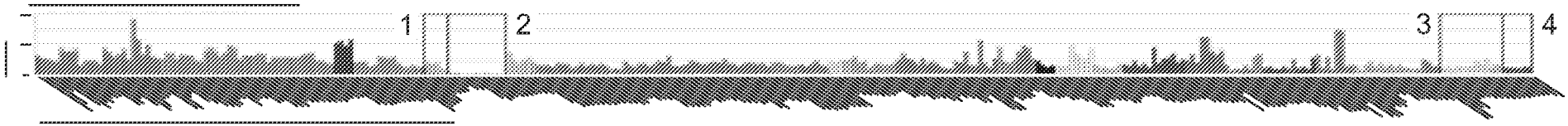
Gene Name: TUFM (Tu translation elongation factor, mitochondrial; OMIM: 602389)

FIG. 20TE

Offspring Diseases: Autism; Diabetes Type 1;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-EIF3CL*-EIF3C*-CLN3-APOBR-IL27-NUPR1*-CCDC101*-SULT1A2-SULT1A1-ATXN2L-**TUFM***-SH2B1*-ATP2A1-RABEP2-CD19*; Female Infertility Candidate protein interactions : 3 (UBC, SGK1, SIRT7); Present in the mouse oocyte proteome; Female Infertility Candidate family members : EEF1A1, EEF1A2, GSPT1;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;



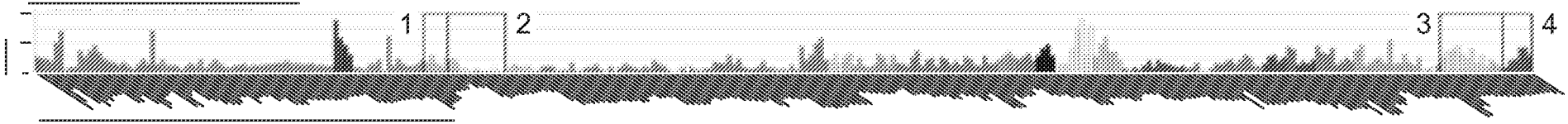
Gene Name: TYMS (thymidylate synthetase; OMIM: 188350)

FIG. 20TF

Offspring Diseases: Premature Ovarian Failure; SpinaBifida;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Present in the mouse oocyte proteome; Female Infertility Candidate family members : DHFRL1;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: UBB (ubiquitin B; OMIM: 191339)

FIG. 20TG

Offspring Diseases: Obesity;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-NCOR1*-PIGL-CENPV-**UBB***; Female Infertility Candidate protein interactions : 4 (UBC, NOTCH1, MYC, CDKN1B); Female Infertility Candidate family members : UBL4B, UBD, ISG15, UBC, UBL4A;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

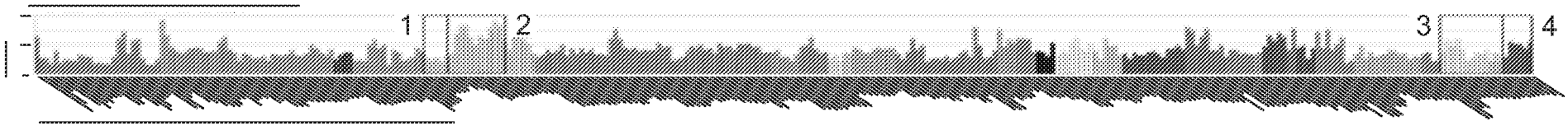


FIG. 20TH

Gene Name: UBC (ubiquitin C; OMIM: 191340)

Offspring Diseases: Bipolar disorder;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-NCOR2*-SCARB1*-**UBC***; Female Infertility Candidate family members : UBL4B, UBB, UBD, ISG15, UBL4A;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; High in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;

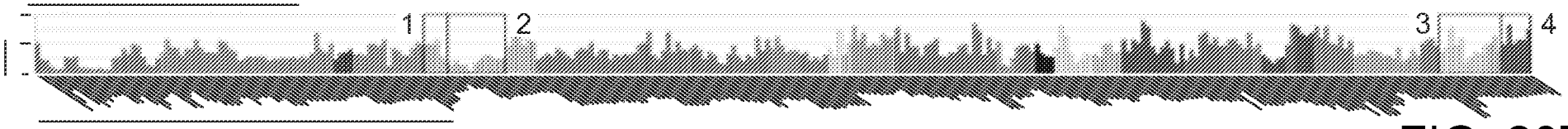


FIG. 20TI

Gene Name: UBD (ubiquitin D; OMIM: 606050)

Offspring Diseases: Cancer; Celiac Disease;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (MAD2L1, UBC); Female Infertility Candidate family members : UBL4B, UBB, ISG15, UBC, UBL4A;

Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

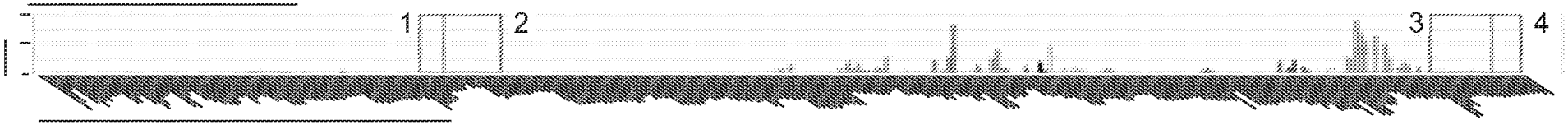


FIG. 20TJ

Gene Name: UBE3A (ubiquitin protein ligase E3A; OMIM: 601623)

Offspring Diseases: Angelman Syndrome; Autism; Cancer;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 8 (UBE2D3, ANXA1, UBC, ESR2, TSC2, CDKN1B, ESR1, TP53);

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

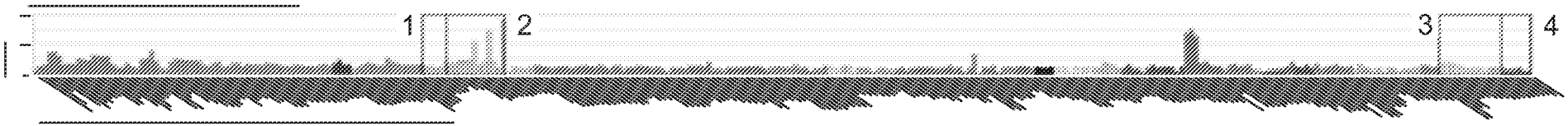


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FIG. 20TK

Gene Name: UQCRC2 (ubiquinol-cytochrome c reductase core protein II; OMIM: 191329)

Offspring Diseases: Cancer;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (UBC, SIRT7); Present in the mouse oocyte proteome;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

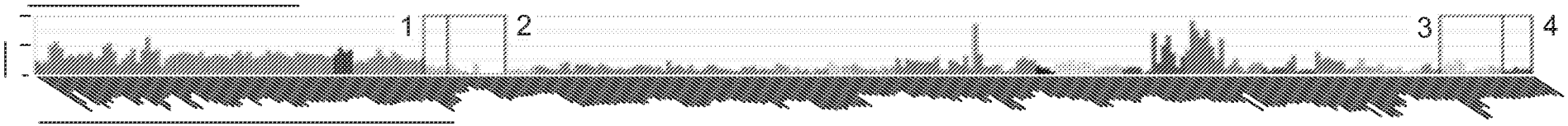


FIG. 20TL

Gene Name: VDR (vitamin D; OMIM: 601769)

Offspring Diseases: Asthma; Auto-Immune Disorders; Celiac Disease; Diabetes Type 2; Obesity; Williams Beuren Syndrome;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 12 (SIRT1, STAT1, UBC, FOXO3, NCOA2, MAPK3, SMARCA4, NCOR1, CEBPA, TP53, MED12, MAPK1);

Representative Human Tissue Expression (boxed below): None in Ovary[1]; Medium in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

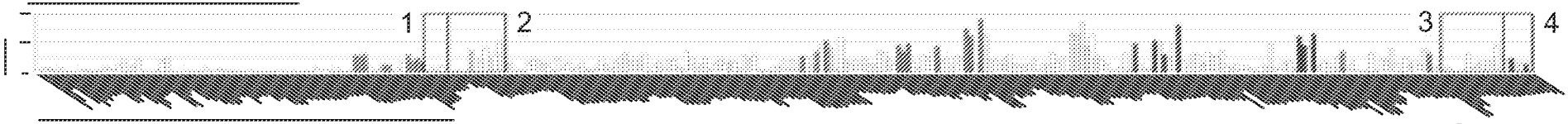


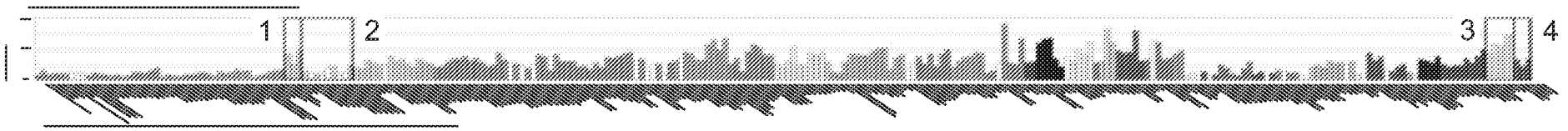
FIG. 20TM

Gene Name: VEGFA (vascular endothelial growth factor A; OMIM: 192240)

Offspring Diseases: Auto-Immune Disorders; Cancer; Diabetes Type 2; Obesity;

Connection to Female Infertility: Female Infertility Candidate gene cluster :-MAD2L1BP*-RSPH9-MRPS18A-**VEGFA***; Female Infertility Candidate protein interactions : 3 (SPARC, ADAMTS1, CTGF); Female Infertility Candidate family members : VEGFC, VEGFB;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



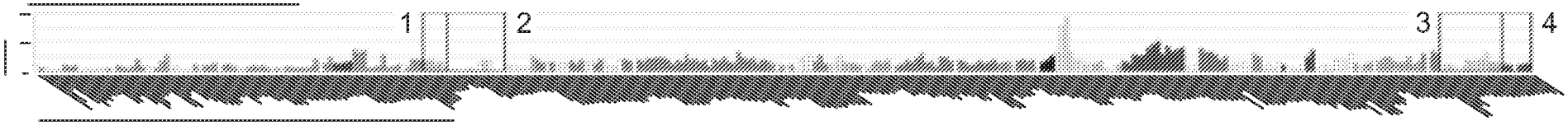
Gene Name: VEGFB (vascular endothelial growth factor B; OMIM: 601398)

FIG. 20TN

Offspring Diseases: Cancer;

Connection to Female Infertility: Female Infertility Candidate family members : VEGFC, VEGFA;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



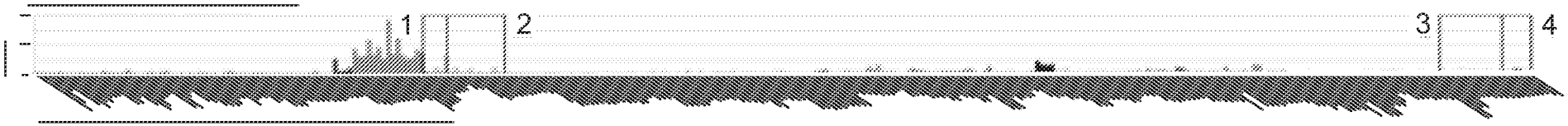
Gene Name: VEGFC (vascular endothelial growth factor C; OMIM: 601528)

FIG. 20TO

Offspring Diseases: Cancer; Obesity;

Connection to Female Infertility: Female Infertility Candidate family members : VEGFA, VEGFB;

Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Low in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;



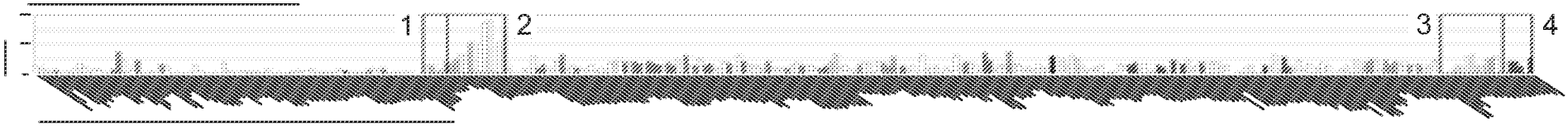
Gene Name: VHL (von Hippel-Lindau tumor suppressor, E3 ubiquitin protein ligase; OMIM: 608537)

FIG. 20TP

Offspring Diseases: Cancer; Endometriosis;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 14 (BSG, PRMT3, EPHA4, ATXN2, HNRNPK, UBC, ATM, GRN, TPT1, CDKN2A, DDX3X, TGFB1I1, MYC, TP53);

Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Low in Oocyte[2]; Low in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;



Gene Name: VIM (vimentin; OMIM: 193060)
Offspring Diseases: Bipolar disorder;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC); Female Infertility Candidate family members : LMNA;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20TQ

Gene Name: VKORC1 (vitamin K epoxide reductase complex, subunit 1; OMIM: 608547)
Offspring Diseases: Autism;
Connection to Female Infertility: Present in the mouse oocyte proteome; Female Infertility Candidate family members : VKORC1L1;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; Medium in Endometrium[3]; High in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20TR

Gene Name: WAS (Wiskott-Aldrich syndrome; OMIM: 300392)
Offspring Diseases: Allergies; Endometriosis;
Connection to Female Infertility: Female Infertility Candidate protein interactions : 2 (KDM4A, UBC);
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; Not uniquely expressed in reproductive tissues;

FIG. 20TS

SUBSTITUTE SHEET (RULE 26)

FIG. 20TT

Gene Name: WISP2 (WNT1 inducible signaling pathway protein 2; OMIM: 603399)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-ADA*-**WISP2***; Female Infertility Candidate family members : CTGF;
Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; Medium in Uterus[3]; None in Endometrium[3]; Medium in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

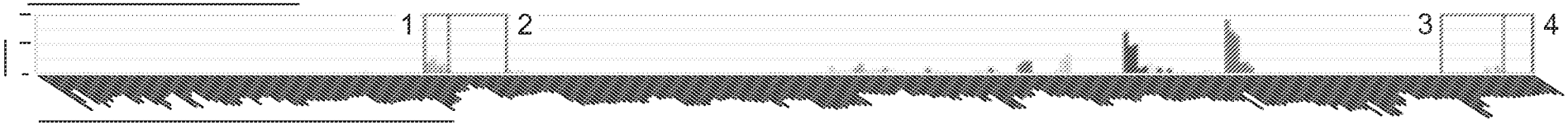


FIG. 20TU

Gene Name: WNT7A (wingless-type MMTV integration site family, member 7A; OMIM: 601570)
Offspring Diseases: Bipolar disorder; Cancer;
Connection to Female Infertility: Female Infertility Candidate family members : WNT7B;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; None in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

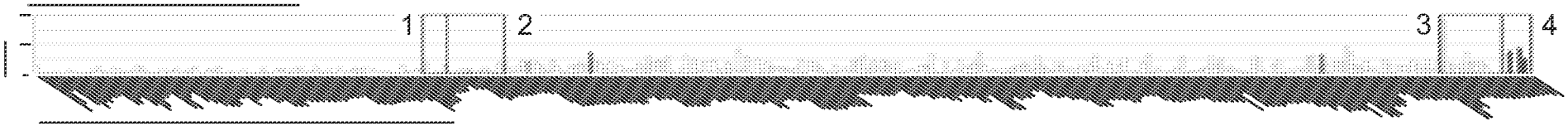


FIG. 20TV

Gene Name: WNT7B (wingless-type MMTV integration site family, member 7B; OMIM: 601967)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-SMC1B*-RIBC2-FBLN1-ATXN10-**WNT7B***; Female Infertility Candidate family members : WNT7A;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; Low in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; Not uniquely expressed in reproductive tissues;

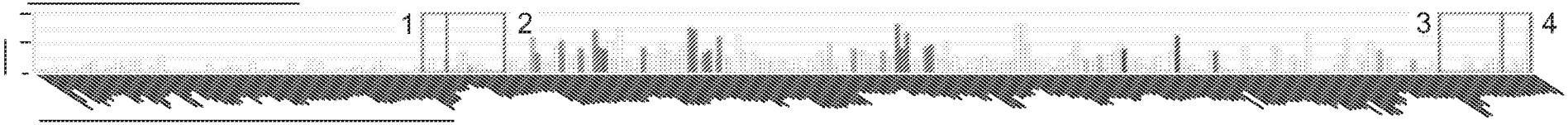


FIG. 20TW

Gene Name: WT1 (Wilms tumor 1; OMIM: 607102)

Offspring Diseases: Cancer; Obesity;

Connection to Female Infertility: Female Infertility Candidate gene cluster :**-WT1***-EIF3M-CCDC73-PRRG4-QSER1-DEPDC7*; Female Infertility Candidate protein interactions : 4 (SUZ12, DNMT1, TP53, EZH2); Female Infertility Candidate family members : EGR3, EGR1, EGR4, ZNF22, EGR2;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; Low in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

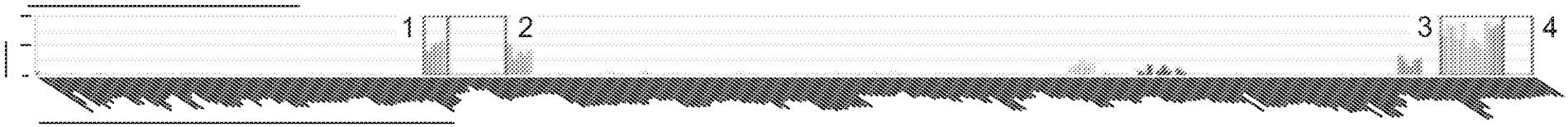


FIG. 20TX

Gene Name: XDH (xanthine dehydrogenase; OMIM: 607633)

Offspring Diseases: Cancer; Diabetes Type 2; Endometriosis; Obesity;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 1 (UBC);

Representative Human Tissue Expression (boxed below): Low in Ovary[1]; Medium in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Low in Myometrium[3]; Low in Placenta[4]; Not uniquely expressed in reproductive tissues;

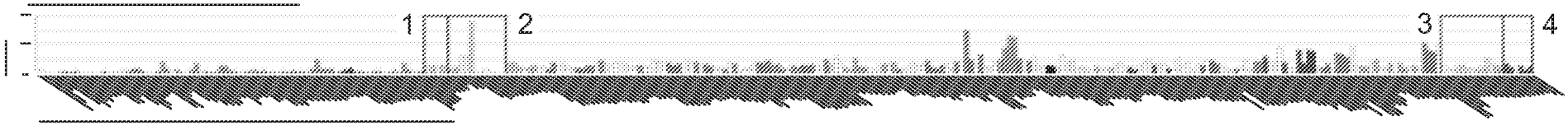


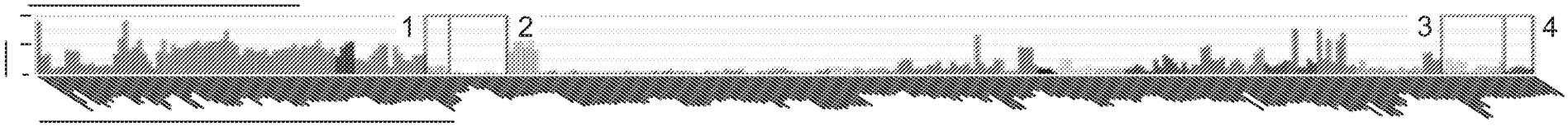
FIG. 20TY

Gene Name: YBX1 (Y box binding protein 1; OMIM: 154030)

Offspring Diseases: Cancer;

Connection to Female Infertility: Female Infertility Candidate protein interactions : 8 (CTCF, SIRT1, PCNA, UBC, POU5F1, TP53, MAPK1, MECP2); Female Infertility Candidate family members : YBX2, LIN28A, LIN28B;

Representative Human Tissue Expression (boxed below): High in Ovary[1]; Medium in Oocyte[2]; High in Uterus[3]; High in Endometrium[3]; High in Myometrium[3]; High in Placenta[4]; Not uniquely expressed in reproductive tissues;



SUBSTITUTE SHEET (RULE 26)

Gene Name: ZNF267 (zinc finger protein 267; OMIM: 604752)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-TGFB111*-SLC5A2-C16orf58-AHSP-ZNF720*-**ZNF267***
Representative Human Tissue Expression (boxed below): Low in Ovary[1]; High in Oocyte[2]; Low in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Medium in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20TZ

Gene Name: ZNF689 (zinc finger protein 689)
Offspring Diseases: Autism;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-**ZNF689***-PRR14-FBRS*-SRCAP*; Female Infertility Candidate family members : CTCF, CTCFL;
Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; Medium in Uterus[3]; Low in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20UA

Gene Name: ZP2 (zona pellucida glycoprotein 2; OMIM: 182888)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :-LYRM1*-DNAH3-TMEM159-**ZP2***; Female Infertility Candidate family members : ZP4, ZP1;
Representative Human Tissue Expression (boxed below): None in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; None in Endometrium[3]; None in Myometrium[3]; None in Placenta[4]; **Relatively unique expression in reproductive tissues;**

FIG. 20UB

FIG. 20UC

Gene Name: ZP3 (zona pellucida glycoprotein 3; OMIM: 182889)
Offspring Diseases: Cancer;
Connection to Female Infertility: Female Infertility Candidate gene cluster :**-ZP3***-DTX2-UPK3B-POMZP3*; Female Infertility Candidate protein interactions : 1 (UBC); Present in the mouse oocyte proteome; Female Infertility Candidate family members : POMZP3; Representative Human Tissue Expression (boxed below): Medium in Ovary[1]; High in Oocyte[2]; None in Uterus[3]; Medium in Endometrium[3]; Medium in Myometrium[3]; Low in Placenta[4]; **Relatively unique expression in reproductive tissues;**