TUMOR NEOANTIGENIC PEPTIDES AND USES THEREOF

FIELD OF THE DISCLOSURE

The present disclosure provides neoantigenic peptides encoded by transposable element (TE)-exon fusion transcripts, nucleic acids, vaccines, antibodies and immune cells that can be used in cancer therapy.

BACKGROUND

Harnessing the immune system to generate effective responses against tumors is a central goal of cancer immunotherapy. Part of the effective immune response involves T lymphocytes specific for tumor antigens. T cell activation requires their interaction with antigen-presenting cells (APCs), commonly dendritic cells (DCs), expressing TCR-cognate peptides presented in the context of a major histocompatibility molecule (MHC) and co-stimulation signals. Subsequently, activated T cells can recognize peptide-MHC complexes presented by all cell types, even malignant cells. Neoplasms often contain infiltrating T lymphocytes reactive with tumor cells.

However, the efficiency of immune responses against tumors is severely dampened by various immunosuppressive strategies developed by tumors; e.g, tumor cells express receptors that provide inhibitory signals to infiltrating T cells, or they secrete inhibitory cytokines. The development of checkpoint blockade therapy has provided means to bypass some of these mechanisms, leading to more efficient killing of cancer cells. The promising results yielded by this approach have opened up new avenues for the development of T cell-based immunotherapy. Checkpoint inhibitors are, however, effective in a minority of patients and only in limited types of cancer.

A major goal in immunotherapy is to increase the proportion of responding patients and extend the cancer indications. Vaccination, administration of anti-tumor antibodies, or administration of immune cells specific for tumor antigens have all been proposed to increase the anti-tumor immune response, and can be administered alone, with other therapies such as chemotherapy or radiation, or as a combination therapy with checkpoint blockers. The selection of antigens able to trigger anti-tumor immunity without targeting healthy tissues has been a long-standing challenge.

The search for tumor neoantigens has mostly been focused on mutated sequences appearing as in cancer cells. These antigens are unique to each patient. Tumor antigens (the ones preferentially expressed in tumor cells) are, however, self-antigens that represent poor targets for vaccination (probably due to central tolerance). Identifying shared true neoantigens (absent from tissues) is a major challenge for the field.

A few prior reports regarding transposable elements (TE) in tumors include (Helman, E. *et al.* (2014). *Genome Res.*)(Schiavetti, F. *et al.* (2002). *Cancer Res.*, Takahashi, Y. *et al.* (2008). *J. Clin. Invest.*). (Chiappinelli, K.B. *et al.* (2015). *Cell*, Roulois, D. *et al.* (2015). *Cell*). However, the relationship of TE to the antigenic landscape presented by tumor cells has not been investigated in depth.

New tumor neoantigens would be of interest and might improve or reduce the cost of cancer therapy in particular in the case of vaccination and adoptive cell therapy.

SUMMARY

The inventors have now discovered that non-canonical alternative splicing events between exons and TEs, also named herein JETs (junctions between TEs and exons) can be a source of tumor antigens and more particularly a source of tumor-specific antigens. The present disclosure therefore provides tumor neoantigenic peptide sequences and nucleotide sequences encoding such peptide sequences; a vaccine or immunogenic composition capable of raising a specific T-cell response comprising one or more of the neoantigenic peptides, or comprising nucleic acid encoding one or more of the neoantigenic peptides; an antibody, or an antigen-binding fragment thereof, a T cell receptor (TCR), or a chimeric antigen receptor (CAR) that specifically binds such neoantigenic peptides; methods of producing such antibodies, TCRs or CARs; polynucleotides encoding such neoantigenic peptides, antibodies, CARs or TCRs, optionally linked to a heterologous regulatory control sequence; immune cells that specifically bind to such neoantigenic peptides; and dendritic cells or antigen presenting cells that have been pulsed with one or more of the neoantigenic peptides; and methods of using such products. The present disclosure provides tumor neoantigenic peptides comprising at least 8 amino acids, optionally wherein said neoantigenic peptides are encoded by a part of an open reading frame (ORF) from a fusion transcript sequence comprising a transposable element (TE) sequence and an exonic sequence. While in some embodiments, the tumor neoantigenic peptide is at least 8 amino acids in length, and/or up to about 25 amino acids in length, antibodies, TCRs or CARs

that specifically bind the neoantigenic peptide may bind a peptide sequence of at least 4, at least 5, at least 6, or at least 7 amino acids.

According to the present disclosure, "neoantigen peptide characteristics" include neoantigenic peptide derived from fusion transcripts (splicing variants) wherein:

- the TE sequence can be located in 5' end of the fusion transcript sequence and the exonic sequence can be located in 3' end of the fusion transcript sequence, and the part of the ORF of said fusion transcript sequence, which encodes the neoantigenic peptide, can overlap the junction;
- the TE sequence can be located in 5' end of the fusion transcript sequence and the exonic sequence can be located in 3' end of the fusion transcript sequence, and the part of ORF which encodes said tumor neoantigenic peptide, can be downstream of the junction such that the open reading frame is non-canonical;
- the TE sequence can be located in 3' end of the fusion transcript sequence and the exonic sequence can be located in 5' end of the fusion transcript sequence and the part of the ORF of said fusion transcript sequence, which encodes the tumor neoantigenic peptide, can overlap the junction; or
- the TE sequence is located in 3' end of the fusion transcript sequence and the exonic sequence is located in 5' end of the chimeric transcript sequence, the part of the ORF which encodes a tumor neoantigenic peptide, is downstream of the junction between the exonic sequence and the TE sequence, optionally wherein the peptide sequence which is thus encoded by the pure TE sequence is non-canonical.

The TE sequences can be selected from the TE class I: Endogenous RetroVirus (ERVs), Long interspersed nuclear elements (LINEs) and short interspersed nuclear element (SINEs) and MaLR sequences or the DNA transposons of class II.

The present disclosure notably provides an isolated tumor neoantigenic peptide comprising at least 8 amino acids of SEQ ID NO:1-29744 and 29753-31346 and optionally comprising a transposable element (TE) sequence and an exonic sequence, wherein

said ORF overlaps the junction between the TE and the exonic sequence, is pure TE and/or is non-canonical.

Most particularly, the present disclosure provides an isolated tumor neoantigenic peptide, according to claim 1 wherein the peptide is from any one of SEQ NO:1-29744 and 29753-31346, including a fragment thereof, and comprises at least a portion of a TE-derived amino

acid sequence or is from any one of SEQ ID NO:1-29744 and 29753-31346. In some embodiments, the neoantigenic peptide overlaps the breakpoint between, the TE-derived amino acid sequence and the exon-derived amino acid sequence. In other embodiments, the neoantigenic peptide is derived from a pure TE sequence. In yet other embodiments, the neoantigenic peptide is encoded by a non-canonical ORF downstream of the junction between the TE-derived amino acid sequence and the exon-derived amino acid sequence.

In one embodiment, the tumor neoantigenic peptide is 8 or 9 amino acids long, notably 8 to 11, and binds to at least one MHC class I molecule.

In another embodiment, the tumor neoantigenic peptide is from 13 to 25 amino acids long, and binds to at least one MHC class II molecule of said subject.

Said neoantigenic peptides are typically expressed at higher levels, or higher frequency, in tumor samples compared to normal, optionally said neoantigenic peptides are not expressed in normal tissue samples (i.e. normal healthy cells), or not detectably expressed in normal healthy samples.

In some embodiments said neoantigenic peptides are expressed in at least 1%, 5 %, 10 %, 15 %, 20 % 25 % or even at least 30 % of subjects from a population of subjects suffering from cancer and notably from a population of subjects suffering from cancer, notably from lung cancer, more particularly Non-small cell lung cancer (NSCLC), even more particularly from lung adenocarcinoma (LUAD).

Typically, the neoantigenic peptides bind MHC class I or class II with a binding affinity Kd of less than about 10^{-4}, 10^{-5}, 10^{-6}, 10^{-7}, 10^{-8} or 10^{-9} M (lower numbers indicating higher binding affinity).

Typically, the neoantigenic peptides bind MHC class I with a binding affinity of less than 2% percentile rank score predicted by NetMHCpan 4.0

Typically, the neoantigenic peptides bind MHC class II with a binding affinity of less than 10% percentile rank score predicted by NetMHCpanII 3.2 .

The present disclosure also encompasses:

- a population of autologous dendritic cells or antigen presenting cells that have been pulsed with one or more of the peptides as herein defined, or transfected with a polynucleotide encoding one or more of the peptides as herein described;

- a vaccine or immunogenic composition, notably a sterile vaccine or immunogenic composition, capable of raising a specific T-cell response comprising
    a. one or more neoantigenic peptides as herein defined,
    b. one or more polynucleotides encoding a neoantigenic peptide as herein defined, optionally wherein the one or more polynucleotides are linked to a heterologous regulatory control nucleotide sequence; or
    c. a population of autologous dendritic cells or antigen presenting cells (notably artificial APC) that have been pulsed or loaded with one or more of the peptides as herein defined,

  optionally in combination with a physiologically or pharmacologically acceptable buffer, carrier, excipient, immunostimulant and/or adjuvant.
- an antibody, or an antigen-binding fragment thereof, a T cell receptor (TCR), or a chimeric antigen receptor (CAR) that has been selected for its binding affinity to a neoantigenic peptide from any one of SEQ ID NO:1-29744 and 29753-31346, including a portion thereof, e.g. of a length at least 4, 5, 6 7, or 8 amino acids, or a composition comprising such antibody, antigen-binding fragment thereof, TCR or CAR.
- a polynucleotide encoding a neoantigenic peptide, an antibody, a CAR or a TCR as herein defined, typically operatively linked to a heterologous regulatory control nucleotide sequence, and a vector encoding such polynucleotide, or a vaccine or immunogenic composition comprising such polynucleotide or vector;
- an immune cell, or a population or immune cells that targets one or more neoantigenic peptides from any one of SEQ ID NO:1-29744 and 29753-31346, including a portion thereof, e.g. of a length at least 4, 5, 6 7, or 8 amino acids, wherein the population of immune cells preferably targets a plurality of different tumor neoantigenic peptides as herein disclosed, or a composition comprising such immune cells or population of immune cells optionally in combination with a physiologically or pharmacologically acceptable buffer, carrier, excipient, immunostimulant and/or adjuvant.

Typically, the antibody or antigen-binding fragment thereof, TCR or CAR binds a neoantigenic peptide, optionally in association with an MHC molecule, or optionally expressed on the surface of a cell, with a Kd affinity of about 10^{-6} M or less.

In some embodiments, the T cell receptor can be made soluble and fused to an antibody fragment directed to a T cell antigen, optionally wherein the targeted antigen is CD3 or CD16.

In some embodiments, the antibody can be a multispecific antibody that further targets at least an immune cell antigen, optionally wherein the immune cell is a T cell, a NK cell or a dendritic cell, optionally wherein the targeted antigen is CD3, CD16, CD30 or a TCR. In any of the embodiments relating to an antibody, the antibody can be chimeric, humanized, or human, and may be IgG, e.g. IgG1, IgG2, IgG3, IgG4.

The immune cell can be typically a T cell or a NK cell, a CD4+ and/or CD8+ cell, a TILs/tumor derived CD8 T cells, a central memory CD8+ T cells, a Treg, a MAIT, or a Yδ T cell. The cell can also be autologous or allogenic. Methods of preparing such immune cells are also contemplated, for example, by delivering a nucleic acid or vector encoding any of the antibody, TCR, or CAR described herein to the cell, in vivo or ex vivo.

The immune cell, e.g. T cell, can comprises comprise a recombinant antigen receptor selected from T cell receptor and chimeric antigen receptor as herein described, wherein the antigen is a tumor neoantigenic receptor as herein disclosed.

The present disclosure also encompasses a method of producing an antibody, TCR or CAR that specifically binds a neoantigenic peptide as herein described and comprising the step of selecting an antibody, TCR or CAR that binds to a tumor neoantigen peptide of the present disclosure, optionally in association with an MHC or HLA molecule, or optionally expressed on the surface of a cell, optionally with a Kd binding affinity of about 10^{-6} M or less. Antibodies, TCRs and CARs selected by said method are also part of the present application, and thus any references to antibodies, TCRs or CARs herein also means an antibody, TCR or CAR that has been selected by said method.

A polynucleotide encoding a neoantigenic peptide as herein defined, or encoding an antibody, a CAR or a TCR as herein defined, optionally linked to a heterologous regulatory control sequence are also part of the present application.

As per the present disclosure, the neoantigenic peptide, the population of dendritic cells, the vaccine or immunogenic composition, the polynucleotide or the vector encoding the peptide can be used in cancer vaccination therapy of a subject; or for treating cancer in a subject suffering from cancer or at risk of cancer; or can be used for inhibiting proliferation of cancer cells. Typically, the peptide(s) bind at least one MHC molecule of said subject. Treatment as used herein includes both prophylactic and therapeutic treatment.

As per the present disclosure, the antibody or the antigen-binding fragment thereof, the multispecific antibody, the TCR, the CAR, the polynucleotide, or the vector encoding such antibody, TCR or CAR, or the immune cells, as herein defined can be used in the treatment of cancer in a subject in need thereof, the subject suffering from cancer or at risk of cancer, or can be used for inhibiting proliferation of cancer cells. Still as per the present disclosure, the population of immune cells as herein defined can be used in cell therapy of a subject suffering from cancer or at risk of cancer, or can be used for inhibiting proliferation of cancer cells.

Pharmaceutical compositions comprising any of the foregoing, optionally with a sterile pharmaceutically acceptable excipient(s), carrier, and/or buffer are also contemplated as well as methods of using them.

In any of the embodiments described herein, the Cancer Therapeutic Products as above defined can be administered in combination with at least one further therapeutic agent. Such further therapeutic agent can typically be a chemotherapeutic agent, or an immunotherapeutic agent.

For example, according to the present disclosure, any of the Cancer Therapeutic Products can be administered in combination with an anti-immunosuppressive/immunostimulatory agent. For example, the subject is further administered with one or more checkpoint inhibitors typically selected from PD-1 inhibitors, PD-L1 inhibitors, Lag-3 inhibitors, Tim-3 inhibitors, TIGIT inhibitors, BTLA inhibitors, V-domain Ig suppressor of T-cell activation (VISTA) inhibitors and CTLA-4 inhibitors, or IDO inhibitors.

Various embodiments of the methods, neoantigenic peptides and Cancer Therapeutic Products are described in detailed below. Except for alternatives clearly mentioned, combinations of such embodiments are encompassed by the present application.

DETAILED DISCLOSURE

Transposable elements (TEs) expression in normal tissues is silenced by DNA methylation established early during embryonic development. An additional layer of inhibition is provided by histone modifications. TEs can be re-activated in tumor cells. The inventors have discovered and provided clear evidence that non-canonical alternative splicing events between exons and TEs can be a source of tumor antigens, in particular of tumor-specific antigens.

The Inventors have developed a method for identifying a tumor antigen, and notably a tumor specific antigen. In particular, the inventors have identified a method for identifying tumor antigens derived from junctions between TEs and exons (JETs). In some embodiments, the present invention therefore relates to a method for identifying, or selecting, a tumor neoantigenic peptide encoded by a fusion transcript (i.e.: JET) sequence comprising a part of a TE sequence and a part of an exonic sequence.

The neoantigenic tumor specific peptides, in particular neoantigenic peptides from any one of SEQ ID NO:1-29744 and 29753-31346, identified by the method according to the present disclosure are highly immunogenic. Indeed, because they are derived from fusion transcripts (also named herein JETs), composed of a transposable element, TE, and an exonic sequence, which are absent from normal cells, the peptides of the present disclosure are expected to exhibit very low immunological tolerance.

The present disclosure also allows selecting peptides having shared tumor neoepitopes among a population of patients. Such shared tumor peptides are of high therapeutic interest since they may be used in immunotherapy for a large population of patients.

Definitions

According to the present disclosure, the term "**disease**" refers to any pathological state, including cancer diseases, in particular those forms of cancer diseases described herein.

The term "**normal**" refers to the healthy state or the conditions in a healthy subject or tissue, i.e., non-pathological conditions, wherein "healthy" preferably means non-cancerous.

Cancer (medical term: malignant neoplasm) is a class of diseases in which a group of cells display uncontrolled growth (division beyond the normal limits), invasion (intrusion on and destruction of adjacent tissues), and sometimes metastasis (spread to other locations in the body via lymph or blood). These three malignant properties of cancers differentiate them from benign tumors, which are self-limited, and do not invade or metastasize. Most cancers form a tumor but some, like leukemia, do not.

Malignant tumor is essentially synonymous with cancer. Malignancy, malignant neoplasm, and malignant tumor are essentially synonymous with cancer.

As used herein, the term "tumor" or "tumor disease" refers to an abnormal growth of cells (called neoplastic cells, tumorigenous cells or tumor cells) preferably forming a swelling or

lesion. By "tumor cell" is meant an abnormal cell that grows by a rapid, uncontrolled cellular proliferation and continues to grow after the stimuli that initiated the new growth cease. Tumors show partial or complete lack of structural organization and functional coordination with the normal tissue, and usually form a distinct mass of tissue, which may be either benign, pre-malignant or malignant.

A benign tumor is a tumor that lacks all three of the malignant properties of a cancer. Thus, by definition, a benign tumor does not grow in an unlimited, aggressive manner, does not invade surrounding tissues, and does not spread to non-adjacent tissues (metastasize).

Neoplasm is an abnormal mass of tissue as a result of neoplasia. Neoplasia (new growth in Greek) is the abnormal proliferation of cells. The growth of the cells exceeds, and is uncoordinated with that of the normal tissues around it. The growth persists in the same excessive manner even after cessation of the stimuli. It usually causes a lump or tumor. Neoplasms may be benign, pre-malignant or malignant.

"**Growth of a tumor**" or "**tumor growth**" according to the present disclosure relates to the tendency of a tumor to increase its size and/or to the tendency of tumor cells to proliferate.

For purposes of the present disclosure, the terms "**cancer**" and "**cancer disease**" are used interchangeably with the terms "**tumor**" and "**tumor disease**".

Cancers are classified by the type of cell that resembles the tumor and, therefore, the tissue presumed to be the origin of the tumor. These are the histology and the location, respectively.

According to the present application, cancer may affect any one of the following tissues or organs: breast; liver; kidney; heart, mediastinum, pleura; floor of mouth; lip; salivary glands; tongue; gums; oral cavity; palate; tonsil; larynx; trachea; bronchus, lung; pharynx, hypopharynx, oropharynx, nasopharynx; esophagus; digestive organs such as stomach, intrahepatic bile ducts, biliary tract, pancreas, small intestine, colon; rectum; urinary organs such as bladder, gallbladder, ureter; rectosigmoid junction; anus, anal canal; skin; bone; joints, articular cartilage of limbs; eye and adnexa; brain; peripheral nerves, autonomic nervous system; spinal cord, cranial nerves, meninges; and various parts of the central nervous system; connective, subcutaneous and other soft tissues; retroperitoneum, peritoneum; adrenal gland; thyroid gland; endocrine glands and related structures; female genital organs such as ovary, uterus, cervix uteri; corpus uteri, vagina, vulva; male genital organs such as penis, testis and prostate gland; hematopoietic and reticuloendothelial systems; blood; lymph nodes; thymus.

The term "**cancer**" according to the disclosure therefore comprises leukemias, seminomas, melanomas, teratomas, lymphomas, neuroblastomas, gliomas, rectal cancer, endometrial cancer, kidney cancer, adrenal cancer, thyroid cancer, blood cancer, skin cancer, cancer of the brain, cervical cancer, intestinal cancer, liver cancer, colon cancer, stomach cancer, intestine cancer, head and neck cancer, gastrointestinal cancer, lymph node cancer, esophagus cancer, colorectal cancer, pancreas cancer, ear, nose and throat (ENT) cancer, breast cancer, prostate cancer, cancer of the uterus, ovarian cancer and lung cancer and the metastases thereof. Examples thereof are lung carcinomas, mamma carcinomas, prostate carcinomas, colon carcinomas, renal cell carcinomas, cervical carcinomas, or metastases of the cancer types or tumors described above. The term cancer according to the present disclosure also comprises cancer metastases and relapse of cancer.

The main types of lung cancer are small cell lung carcinoma (SCLC) and non-small cell lung carcinoma (NSCLC). There are three main sub-types of the non-small cell lung carcinomas: squamous cell lung carcinoma, lung adenocarcinoma (LUAD), and large cell lung carcinoma. Adenocarcinomas account for approximately 10% of lung cancers. This cancer usually is seen peripherally in the lungs, as opposed to small cell lung cancer and squamous cell lung cancer, which both tend to be more centrally located.

By "**metastasis**" is meant the spread of cancer cells from its original site to another part of the body. The formation of metastasis is a very complex process and depends on detachment of malignant cells from the primary tumor, invasion of the extracellular matrix, penetration of the endothelial basement membranes to enter the body cavity and vessels, and then, after being transported by the blood, infiltration of target organs. Finally, the growth of a new tumor, i.e. a secondary tumor or metastatic tumor, at the target site depends on angiogenesis. Tumor metastasis often occurs even after the removal of the primary tumor because tumor cells or components may remain and develop metastatic potential. In one embodiment, the term "metastasis" according to the present disclosure relates to "distant metastasis" which relates to a metastasis which is remote from the primary tumor and the regional lymph node system.

The cells of a secondary or metastatic tumor are like those in the original tumor. This means, for example, that, if ovarian cancer metastasizes to the liver, the secondary tumor is made up of abnormal ovarian cells, not of abnormal liver cells. The tumor in the liver is then called metastatic ovarian cancer, not liver cancer.

A relapse or recurrence occurs when a person is affected again by a condition that affected them in the past. For example, if a patient has suffered from a tumor disease, has received a successful

treatment of said disease and again develops said disease said newly developed disease may be considered as relapse or recurrence. However, according to the present disclosure, a relapse or recurrence of a tumor disease may but does not necessarily occur at the site of the original tumor disease. Thus, for example, if a patient has suffered from ovarian tumor and has received a successful treatment a relapse or recurrence may be the occurrence of an ovarian tumor or the occurrence of a tumor at a site different to ovary. A relapse or recurrence of a tumor also includes situations wherein a tumor occurs at a site different to the site of the original tumor as well as at the site of the original tumor. Preferably, the original tumor for which the patient has received a treatment is a primary tumor and the tumor at a site different to the site of the original tumor is a secondary or metastatic tumor.

By "**treat**" is meant to administer a compound or composition as described herein to a subject in order to prevent or eliminate a disease, including reducing the size of a tumor or the number of tumors in a subject; arrest or slow a disease in a subject; inhibit or slow the development of a new disease in a subject; decrease the frequency or severity of symptoms and/or recurrences in a subject who currently has or who previously has had a disease; and/or prolong, i.e. increase the lifespan of the subject. In particular, the term "treatment of a disease" includes curing, shortening the duration, ameliorating, preventing, slowing down or inhibiting progression or worsening, or preventing or delaying the onset of a disease or the symptoms thereof.

By "**being at risk**" is meant a subject, i.e. a patient, that is identified as having a higher than normal chance of developing a disease, in particular cancer, compared to the general population. In addition, a subject who has had, or who currently has, a disease, in particular cancer, is a subject who has an increased risk for developing a disease, as such a subject may continue to develop a disease. Subjects who currently have, or who have had, a cancer also have an increased risk for cancer metastases.

The therapeutically active agents, vaccines and compositions described herein may be administered via any conventional route, including by injection or infusion.

The agents described herein are administered in effective amounts. An "**effective amount**" refers to the amount which achieves a desired reaction or a desired effect alone or together with further doses or together with further therapeutic agents. In the case of treatment of a particular disease or of a particular condition, the desired reaction preferably relates to inhibition of the course of the disease. This comprises slowing down the progress of the disease and, in particular, interrupting or reversing the progress of the disease. The desired reaction in a

treatment of a disease or of a condition may also be delay of the onset or a prevention of the onset of said disease or said condition.

An effective amount of an agent described herein will depend on the condition to be treated, the severity of the disease, the individual parameters of the patient, including age, physiological condition, size and weight, the duration of treatment, the type of an accompanying therapy (if present), the specific route of administration and similar factors. Accordingly, the doses administered of the agents described herein may depend on various of such parameters. In the case that a reaction in a patient is insufficient with an initial dose, higher doses (or effectively higher doses achieved by a different, more localized route of administration) may be used.

The pharmaceutical compositions as herein described are preferably sterile and contain an effective amount of the therapeutically active substance to generate the desired reaction or the desired effect.

The pharmaceutical compositions as herein described are generally administered in pharmaceutically compatible amounts and in pharmaceutically compatible preparation. The term "**pharmaceutically compatible**" refers to a nontoxic material which does not interact with the action of the active component of the pharmaceutical composition. Preparations of this kind may usually contain salts, buffer substances, preservatives, carriers, supplementing immunity-enhancing substances such as adjuvants, e.g. CpG oligonucleotides, cytokines, chemokines, saponin, GM-CSF and/or RNA and, where appropriate, other therapeutically active compounds. When used in medicine, the salts should be pharmaceutically compatible.

As used herein, the term "nucleic acid molecules" include any nucleic acid molecule that encodes a polypeptide of interest or a fragment thereof. Such nucleic acid molecules need not be 100% homologous or identical with an endogenous nucleic acid sequence but may exhibit substantial identity. Polynucleotides having "substantial identity" or "substantial homology" to an endogenous sequence are typically capable of hybridizing with at least one strand of a double-stranded nucleic acid molecule. By "hybridize" is meant a pair to form a double-stranded molecule between complementary polynucleotide sequences (e.g., a gene described herein), or portions thereof, under various conditions of stringency. (See, e.g., Wahl, G. M. and S. L. Berger (1987) Methods Enzymol. 152:399; Kimmel, A. R. (1987) Methods Enzymol. 152:507). For example, stringent salt concentration will ordinarily be less than about 750 mM NaCl and 75 mM trisodium citrate, e.g., less than about 500 mM NaCl and 50 mM trisodium citrate, or less than about 250 mM NaCl and 25 mM trisodium citrate. Low stringency hybridization can be obtained in the absence of organic solvent, e.g., formamide, while high

stringency hybridization can be obtained in the presence of at least about 35% formamide, e.g., at least about 50% formamide. Stringent temperature conditions will ordinarily include temperatures of at least about 30° C, at least about 37° C, or at least about 42° C. Varying additional parameters, such as hybridization time, the concentration of detergent, e.g., sodium dodecyl sulfate (SDS), and the inclusion or exclusion of carrier DNA, are well known to those skilled in the art. Various levels of stringency are accomplished by combining these various conditions as needed. In certain embodiments, hybridization will occur at 30° C in 750 mM NaCl, 75 mM trisodium citrate, and 1% SDS. In certain embodiments, hybridization will occur at 37° C in 500 mM NaCl, 50 mM trisodium citrate, 1% SDS, 35% formamide, and 100 pg/ml denatured salmon sperm DNA (ssDNA). In certain embodiments, hybridization will occur at 42° C in 250 mM NaCl, 25 mM trisodium citrate, 1% SDS, 50% formamide, and 200 pg/ml ssDNA. ETseful variations on these conditions will be readily apparent to those skilled in the art. For most applications, washing steps that follow hybridization will also vary in stringency. Wash stringency conditions can be defined by salt concentration and by temperature. As above, wash stringency can be increased by decreasing salt concentration or by increasing temperature. For example, stringent salt concentration for the wash steps can be less than about 30 mM NaCl and 3 mM trisodium citrate, e.g., less than about 15 mM NaCl and 1.5 mM trisodium citrate. Stringent temperature conditions for the wash steps will ordinarily include a temperature of at least about 25° C, of at least about 42° C, or of at least about 68° C. In certain embodiments, wash steps will occur at 25° C in 30 mM NaCl, 3 mM trisodium citrate, and 0.1% SDS. In certain embodiments, wash steps will occur at 42° C. in 15 mM NaCl, 1.5 mM trisodium citrate, and 0.1% SDS. In certain embodiments, wash steps will occur at 68° C in 15 mM NaCl, 1.5 mM trisodium citrate, and 0.1% SDS. Additional variations on these conditions will be readily apparent to those skilled in the art. Hybridization techniques are well known to those skilled in the art and are described, for example, in Benton and Davis (Science 196: 180, 1977); Grunstein and Rogness (Proc. Natl. Acad. Sci., USA 72:3961, 1975); Ausubel et al. (Current Protocols in Molecular Biology, Wiley Interscience, New York, 2001); Berger and Kimmel (Guide to Molecular Cloning Techniques, 1987, Academic Press, New York); and Sambrook et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory Press, New York.

By "substantially identical" or "substantially homologous" is meant a polypeptide or nucleic acid molecule exhibiting at least about 50% homologous or identical to a reference amino acid sequence (for example, any one of the amino acid sequences described herein) or nucleic acid sequence (for example, any one of the nucleic acid sequences described herein). In certain

embodiments, such a sequence is at least about 60%, at least about 65%, at least about 70%, at least about 75%, at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 99%, or at least about 100% homologous or identical to the sequence of the amino acid or nucleic acid used for comparison.

Sequence identity can be measured by using sequence analysis software (for example, Sequence Analysis Software Package of the Genetics Computer Group, University of Wisconsin Biotechnology Center, 1710 University Avenue, Madison, Wis. 53705, BLAST, BESTFIT, GAP, or PILEUP/PRETTYBOX programs). Such software matches identical or similar sequences by assigning degrees of homology to various substitutions, deletions, and/or other modifications. Conservative substitutions typically include substitutions within the following groups: glycine, alanine; valine, isoleucine, leucine; aspartic acid, glutamic acid, asparagine, glutamine; serine, threonine; lysine, arginine; and phenylalanine, tyrosine. In an exemplary approach to determining the degree of identity, a BLAST program may be used, with a probability score between e-3 and e-l00 indicating a closely related sequence.

By "analog" is meant a structurally related polypeptide or nucleic acid molecule having the function of a reference polypeptide or nucleic acid molecule.

Unless specifically stated or obvious from context, as used herein, the term "**about**" is to be understood as within a range of normal tolerance in the art, for example within 2 standard deviations of the mean. About can be understood as within 50%, 45%, 40%, 35%, 30%, 25%, 20%, 15%, 10%, 9%, 8%, 7%, 6%, 5%, 4%, 3%, 2%, 1%, 0.5%, 0.1%, 0.05%, or 0.01% of the stated value. Unless otherwise clear from context, all numerical values provided herein are modified by the term about.

A "**transposable element**" as used herein is a repeated DNA sequence DNA sequences that is able to move from one location to another in the genome either through an RNA copy generated by a reverse transcriptase (Class I TEs, retrotransposons), or by excising themselves from their original location (Class II TEs, or DNA transposons). It thus includes both class I (retrotransposons, including those containing LTRs, LINEs and SINEs) and class II (DNA transposons) endogenously part of the genome (i.e.: not from infection). This includes both autonomous and non-autonomous elements from both classes. According to the present disclosure the TE sequences can be for example selected from TE of class I, such as retrotransposons including Endogenous RetroVirus (ERVs), Long interspersed nuclear elements (LINEs) and short interspersed nuclear element (SINEs) and mammalian long

terminal repeat transposon (MaLR), and TE of class II, such as DNA transposons endogenously part of the genome.

Retrotransposons are by far more abundant and their characteristics are similar to retroviruses, such as HIV. Retrotransposons function via reverse transcription of an RNA intermediate replicative mechanism. They are commonly grouped into three main orders: retrotransposons with long terminal repeats (LTRs) flanking the retroelement main body, which encode reverse transcriptase, similar to retroviruses; retroposons with long interspersed nuclear elements (LINEs, LINE-1s, or L1s), which encode reverse transcriptase but lack LTRs, and are transcribed by RNA polymerase II; and retrotransposons with short interspersed nuclear elements (SINEs) that do not encode reverse transcriptase and are transcribed by RNA polymerase III. DNA transposons have a transposition mechanism that do not involve an RNA intermediate. The transpositions are catalyzed by several transposase enzymes. LTRs include endogenous retroviruses (ERVs), while non-LTR TEs subdivide into long-interspersed (LINEs) and short interspersed elements (SINEs), nonautonomous transposons mobilized by the LINE integration machinery. These lineages are composed of phylogenetically related families, further branching out into multiple subfamilies, each originating from one precursor copy. With time, the accumulation of mutations introduced divergence in the consensus sequence within members of each subfamily. For review on TE retrotransposon, see Richardson, Sandra R et al. "The Influence of LINE-1 and SINE Retrotransposons on Mammalian Genomes." Microbiology spectrum vol. 3,2 (2015): MDNA3-0061-2014.

A typical L1 element is approximately 6,000 base pairs (bp) long and consists of two non-overlapping open reading frames (ORF) which are flanked by untranslated regions (UTR) and target site duplications. LINE-1 retrotransposons have been amplifying in mammalian genomes for greater than 160 million years. In humans, the vast majority of LINE-1 sequences have amplified since the divergence of the ancestral mouse and human lineages approximately 65–75 million years ago. Sequence comparisons between individual genomic LINE-1 sequences and a consensus sequence derived from modern, active LINE-1s can be used to estimate the age of genomic LINE-1s (Khan H, Smit A, Boissinot S; Genome Res. 2006 Jan; 16(1):78-87). L1 subfamilies typically categorize into old (L1M, AluJ), intermediate (L1P, L1PB, AluS), young (L1HS, L1PA, AluY) and related (HAL, FAM) subfamilies. In humans, the only autonomously active family is the long-interspersed element-1 (LINE-1 or L1), however a few L1 copies are still retrotransposition competent, all of them belonging to the youngest human-specific L1HS subfamily.

SVA elements comprise an evolutionarily young, non-autonomous retrotransposon family that arose in primate lineages approximately 25 million years ago (Hancks DC, Kazazian HH Jr, Semin Cancer Biol. 2010 Aug; 20(4):234-45). A typical SVA element is approximately 2,000 bp and has a composite structure that consists of: 1) a hexameric CCCTCT repeat; 2) an inverted Alu-like element repeat; 3) a set of GC-rich variable nucleotide tandem repeats (VNTRs); 4) a SINE-R sequence that shares homology with HERVK-10, an inactive LTR retrotransposon; and 5) a canonical cleavage polyadenylation specificity factor (CPSF) binding site that is followed by a poly (A) tract. The youngest SVA subfamilies include SVA-D, SVA-E, SVA-F, and SVA-F1 subfamilies.

A **"messenger RNA (mRNA)"** is a single-stranded RNA molecule that corresponds to the genetic sequence of a gene and is read by the ribosome in the process of producing a protein. mRNA is created during the process of transcription, where the enzyme RNA polymerase converts genes into primary transcript mRNA (also known as pre-mRNA). This pre-mRNA usually still contains introns, regions that will not go on to code for the final amino acid sequence. These are removed in the process of RNA splicing, leaving only exons, regions that will encode the protein. This exon sequence constitutes mature mRNA. Mature mRNA is then read by the ribosome, and, utilizing amino acids carried by transfer RNA (tRNA), the ribosome creates the peptide sequence a process called translation.

A **"transcript" as** herein intended is a messenger RNA (or mRNA) or a part of a mRNA which is expressed by an organism, notably in a particular tissue or even in a particular tissue. Expression of a transcript varies depending on many factors. Expression of a transcript may be modified in a cancer cell as compared to a normal healthy cell.

A **"transcriptome" as herein intended is the full set of messenger RNA, or mRNA, molecules** expressed or transcribed by the gene of a cell. In some embodiments, the term "transcriptome" can also be used to describe the array of mRNA transcripts produced in a particular cell (or tissue type). In contrast with the genome, which is characterized by its stability, the transcriptome actively changes. In fact, an organism's transcriptome varies depending on many factors, including stage of development, environmental and physiological conditions. Typically, also, the transcriptome is modified in a cancer cell as compared to a corresponding normal healthy cell. Typically, the transcriptome as herein intended is the human transcriptome. **The terms "transcriptomic pattern" and "transcriptome" are used herein as synonyms.**

A **reading frame** is a way of dividing the sequence of nucleotides in a nucleic acid (DNA or RNA) molecule into a set of consecutive, non-overlapping triplets.

An **open reading frame** (ORF) is the part of a reading frame that has the ability to be translated into a peptide. An ORF is a continuous stretch of codons that contain a start codon (for example AUG) at a transcription starting site (TSS) and a stop codon (for example UAA, UAG or UGA). An ATG codon within the ORF (not necessarily the first) may indicate where translation starts. The transcription termination site is located after the ORF, beyond the translation stop codon. In eukaryotic genes with multiple exons, ORFs span intron/exon regions, which may be spliced together after transcription of the ORF to yield the final mRNA for protein translation.

A "canonical ORF" as herein intended is a protein coding sequence with specified reading frame within a mRNA sequence which is described or annotated in databases such as for example Ensembl genome/transcriptome/proteome database collection (typically HG19). Typically, a canonical ORF is the same as one of the exons in normal healthy cells.

A "non-canonical ORF" as herein intended is a protein coding sequence with specified reading frame within a mRNA sequence which is not described (i.e. unannotated) in genome databases such as for example in Ensembl genome/transcriptome/proteome database. Typically, a non-canonical ORF means thus that the reading frame is shifted compared to the usual reading frame of exons in normal healthy cells. In some embodiments however, a non-canonical can be described in genome databases (such as Ensembl database), but the mRNA sequence represents minor species in normal cells. By minor species it is typically intended less that 5 % , notably less than 2 %, or preferentially less than 1 % species in normal cells.

An **exon** is any part of a gene that will encode a part of the final mature RNA produced by that gene after introns have been removed by RNA splicing. The term *exon* refers to both the DNA sequence within a gene and to the corresponding sequence in RNA transcripts. In RNA splicing, introns are removed, and exons are covalently joined to one another as part of generating the mature messenger RNA. An exonic sequence as per the present applicant comprises at least a portion of one or more exons. Typically, the exonic sequence comprises at least a portion of one or 2 exons.

The untranslated sequences in 3'end and in 5' end (3'UTR and 5'UTR) present in mature RNA after splicing are exonic sequences, but are non-coding sequences because these sequences are located upstream of the start codon for the translation (5'UTR) or downstream of the stop codon ending the translation (3'UTR).

In the present application, the terms **"fusion transcript"**, **"chimeric transcripts"** "TE-exon transcript", or "Junction Exon-TE" (JET) are used indifferently as synonyms. A "fusion or a chimeric" "transcript or sequence", as per the present disclosure is defined as a transcript that aligns in part with an exon sequence and in part with a transposable element (TE) sequence. A fusion, or chimeric, transcript is also shortly named herein JET (junction between exon and TE). Typically, a fusion transcript according to the present description has a normalized number of read greater than 2.10^{-6}. The normalized number of reads is defined as the number of reads that cover the fusion divided by the library size of the sample.

The term "**peptide or polypeptide**," is used interchangeably with "**neoantigenic peptide or polypeptide**" in the present specification to designate a series of residues, typically L-amino acids, connected one to the other, typically by peptide bonds between the α-amino and carboxyl groups of adjacent amino acids. The polypeptides or peptides can be a variety of lengths, either in their neutral (uncharged) forms or in forms which are salts, and either free of modifications such as glycosylation, side chain oxidation, or phosphorylation or containing these modifications, subject to the condition that the modification does not destroy the biological activity of the polypeptides as herein described.

As used herein pJETs are peptides or polypeptides derived from (i.e. encoded by) chimeric/fusion transcripts or JETs. pJETs are also named herein translated JETs.

A **"reference genome, or "representative genome"** is a digital nucleic acid sequence data base, assembled by scientists as a representative example of species set of genes. As they are often assembled from the sequencing of DNA from a number of donors, reference genomes do not accurately represent the set of genes of any single individual (animal or person). Instead a reference provides a haploid mosaic of different DNA sequences from each donor.

RNA-Seq (named as an abbreviation of RNA sequencing) is a sequencing technique which uses next-generation sequencing (NGS) to reveal the presence and quantity of RNA (typically messenger RNA, mRNA) in a biological sample and generates an enormous numbers of raw sequencing reads (typically at least in the tens of millions). Single-cell RNA sequencing (scRNA-Seq) provides the expression profiles of an individual cell. A read refers to an RNA sequence from one RNA fragment from a biological sample or a single cell. The RNA sample that was sequenced is called the RNA library. RNA sequencing data are thus typically called RNA reads.

In the present application, "**MHC molecule**" or "**HLA molecule**" refers to at least one MHC/HLA class I molecule or at least one MHC/HLA Class II molecule. MHC class I proteins form a functional receptor on most nucleated cells of the body. There are 3 major MHC class I genes in HLA: HLA-A, HLA-B, HLA-C and three minor genes HLA-E, HLA-F and HLA-G. 32-microglobulin binds with major and minor gene subunits to produce a heterodimer. MHC molecules of class I consist of a heavy chain and a light chain and can bind a peptide of about 8 to 11 amino acids, but usually 8 or 9 amino acids, if this peptide has suitable binding motifs, and presenting it to cytotoxic T- lymphocytes. The binding of the peptide is stabilized at its two ends by contacts between atoms in the main chain of the peptide and invariant sites in the peptide-binding groove of all MHC class I molecules. There are invariant sites at both ends of the groove which bind the amino and carboxy termini of the peptide. Variations in peptide length are accommodated by a kinking in the peptide backbone, often at proline or glycine residues that allow the required flexibility. The peptide bound by the MHC molecules of class I usually originates from an endogenous protein antigen. As an example, the heavy chain of the MHC molecules of class I is typically an HLA-A, HLA-B or HLA-C monomer, and the light chain is β-2-microglobulin, in humans. There are 3 major and 2 minor MHC class II proteins encoded by the HLA. The genes of the class II combine to form heterodimeric (αβ) protein receptors that are typically expressed on the surface of antigen-presenting cells. The peptide bound by the MHC molecules of class II usually originates from an extracellular or exogenous protein antigen. As an example, the α -chain and the β-chain are in particular HLA-DR, HLA-DQ and HLA-DP monomers, in humans. MHC class II molecules are capable of binding a peptide of about 8 to 20 amino acids, notably from 10 to 25 amino acids or from 13 to 25 amino acids if this peptide has suitable binding motifs, and of presenting it to T-helper cells. The peptide lies in an extended conformation along the MHC II peptide-binding groove which (unlike the MHC class I peptide-binding groove) is open at both ends. It is held in place mainly by main-chain atom contacts with conserved residues that line the peptide-binding groove.

The term "**peptidome**" refers to the complete set of peptides expressed by a particular genome, or present within a particular organism or cell type (such as a cancer cell). Proteomic analysis (proteomics) thus refers to the separation, identification, and quantification of the entire set of peptides or proteins expressed by a genome, a cell, or a tissue at a specific point in time.

Proteomics analysis are typically based on two major techniques, namely two-dimensional gel electrophoresis (2-DGE) (Harper S et al., In: Coligan JE, Dunn BM, Speicher DW, Wing-field PT, editors. Current Protocols in Protein Science. John Wiley & Sons; Hoboken, N.J.: 1998.

pp. 10.4.1–10.4.36.) and Mass Spectrometry (MS) (Aebersold & Mann, 2003), which are both powerful methods for the analysis of complex mixtures of proteins. HPLC is an alternative separation technique for proteomic studies, especially in separation and identification of low-molecular-weight proteins and peptides (Garbis et al., 2005). MS allows the determination of the molecular mass of proteins or peptides based on the mass to charge ratio (m/z) of ions in the gas phase. The terms "gel-based" or "gel-free" proteomics are used in relation to the applied separation techniques, 2-DGE or HPLC; proteomics approaches can also be "bottom-up" or "top-down," which basically identify proteins from their protease (e.g., trypsin) digests or, as a whole, via a mass spectrometer, respectively.

Bottom-up proteomics is a common method to identify proteins from a biological sample (tissue(s) or cells) and characterize their amino acid sequences and post-translational modifications by proteolytic digestion of proteins prior to analysis by mass spectrometry. The crude protein extract is enzymatically digested, followed by one or more dimensions of separation of the peptides typically by liquid chromatography coupled to mass spectrometry, a technique known as shotgun proteomics. By comparing the masses of the proteolytic peptides or their tandem mass spectra with those predicted from a sequence database or annotated peptide spectral in a peptide spectral library, peptides can be identified, and multiple peptide identifications assembled into a protein identification.

In top-down proteomics, intact proteins are purified prior to digestion and/or fragmentation either within the mass spectrometer or by 2D electrophoresis. Top-down proteomics either uses an ion trapping mass spectrometer to store an isolated protein ion for mass measurement and tandem mass spectrometry (MS/MS) analysis or other protein purification methods such as two-dimensional gel electrophoresis in conjunction with MS/MS.

From the data generated by the MS, the protein is either sequenced de novo by manual mass analyses of the spectra or processed automatically via sequence search engines such as SEQUEST, Mascot, Phenyx, X!Tandem, and OMSSA. These algorithms are developed based on the correlation between experimental and theoretical MS/MS data; the latter being generated from in silico digestion of protein databases such as UniProt/Swiss-Prot (Deutsch, Lam, & Aebersold, 2008).

The term **"immunopeptidome"**, also commonly named **"immunopeptidomic pattern"**, **"pMHC repertoire"**, or **"MHC- ligandome"** or **"HLA ligandome"**, refers to the complete set

of peptides within a particular cell type, which are bound to at least one MHC/HLA molecule at the cell surface. Correspondingly, "immunopeptidomics" has emerged as a term to describe analysis of the MHC/HLA-ligandome. The most common immunopeptidomics methods rely on mass spectrometry (MS). Immunopeptidomics samples are generally prepared by isolating MHCs, for example by using an allele-specific antibody, pan-specific antibody, or engineered affinity tag system, from lysed cells or tissues. Isolated complexes are acid eluted, and peptides are purified from the MHC molecules using molecular weight cut-off filtration (MWCO), solid phase extraction or other techniques, and are subsequently analyzed by MS (see for example for review L.E. Stopfer et al., Immuno-Oncology and Technology, Volume 11, 2021,100042).

As used herein, the term "antibody" means not only intact antibody molecules, but also fragments of antibody molecules that retain immunogen-binding ability. Such fragments are also well known in the art and are regularly employed both in vitro and in vivo. Accordingly, as used herein, the term "antibody" means not only intact immunoglobulin molecules but also the well-known active fragments F(ab')2, and Fab.

$F(ab')_2$, and Fab fragments that lack the Fc fragment of intact antibody, clear more rapidly from the circulation, and may have less non-specific tissue binding of an intact antibody (Wahl et ah, J. Nucl. Med. 24:316-325 (1983).

As used herein, antibodies include whole native antibodies, bispecific antibodies; chimeric antibodies; Fab, Fab', single chain V region fragments (scFv), fusion polypeptides, and unconventional antibodies.

In certain embodiments, an antibody is a glycoprotein comprising at least two heavy (H) chains and two light (L) chains inter-connected by disulfide bonds. Each heavy chain is comprised of a heavy chain variable region (abbreviated herein as V_H) and a heavy chain constant (C_H) region. The heavy chain constant region is comprised of three domains, CH1, CH2 and CH3. Each light chain is comprised of a light chain variable region (abbreviated herein as V_L) and a light chain constant C_L region. The light chain constant region is comprised of one domain, C_L. The V_H and V_L regions can be further sub-divided into regions of hypervariability, termed complementarity determining regions (CDR), interspersed with regions that are more conserved, termed framework regions (FR). Each V_H and V_L is composed of three CDRs and four FRs arranged from amino-terminus to carboxy-terminus in the following order: FR1, CDR1, FR2, CDR2, FR3, CDR3, FR4.

The variable regions of the heavy and light chains contain a binding domain that interacts with an antigen. The constant regions of the antibodies may mediate the binding of the immunoglobulin to host tissues or factors, including various cells of the immune system (e.g ., effector cells) and the first component (Cl q) of the classical complement system.

As used herein, "CDRs" are defined as the complementarity determining region amino acid sequences of an antibody which are the hypervariable regions of immunoglobulin heavy and light chains (See , e.g. , Rabat et al., Sequences of Proteins of Immunological Interest, 4th U. S. Department of Health and Human Services, National Institutes of Health (1987). Generally, antibodies comprise three heavy chain and three light chain CDRs or CDR regions in the variable region. CDRs provide the majority of contact residues for the binding of the antibody to the antigen or epitope. In certain embodiments, the CDRs regions are delineated using the Rabat system (Rabat, E. A., et al. (1991) Sequences of Proteins of Immunological Interest, Fifth Edition, ET.S. Department of Health and Human Services, NIH Publication No. 91-3242).

As used herein, the term "single-chain variable fragment" or "scFv" is a fusion protein of the variable regions of the heavy (V_H) and light chains (V_L) of an immunoglobulin covalently linked to form a V_H: :V_L heterodimer. The V_H and V_L are either joined directly or joined by a peptide-encoding linker (e.g., 10, 15, 20, 25 amino acids), which connects the N-terminus of the V_H with the C-terminus of the V_L, or the C-terminus of the V_H with the N-terminus of the V_L. The linker is usually rich in glycine for flexibility, as well as serine or threonine for solubility. Despite removal of the constant regions and the introduction of a linker, scFv proteins retain the specificity of the original immunoglobulin. Single chain Fv polypeptide antibodies can be expressed from a nucleic acid including V_H - and V_L -encoding sequences as described by Huston, et al. (Proc. Nat. Acad. Sci. USA, 85:5879-5883, 1988). See, also , U.S. Patent Nos. 5,091,513, 5,132,405 and 4,956,778; and U.S. Patent Publication Nos. 20050196754 and 20050196754.

As used herein, the term "affinity" is meant a measure of binding strength. Affinity can depend on the closeness of stereochemical fit between antibody combining sites and antigen determinants, on the size of the area of contact between them, and/or on the distribution of charged and hydrophobic groups. As used herein, the term "affinity" also includes "avidity", which refers to the strength of the antigen-antibody bond after formation of reversible complexes. Methods for calculating the affinity of an antibody for an antigen are known in the art, including, but not limited to, various antigen-binding experiments, e.g., functional assays

(e.g., flow cytometry assay), surface plasmon resonance assays such as BIACORE assays, and kinetic exclusion assays such as KINEXA assays.

The term "chimeric antigen receptor" or "CAR" as used herein refers to a molecule comprising an extracellular antigen-binding domain that is fused to an intracellular signalling domain that is capable of activating or stimulating an immunoresponsive cell, and a transmembrane domain. In certain embodiments, the extracellular antigen-binding domain of a CAR comprises a scFv. The scFv can be derived from fusing the variable heavy and light regions of an antibody. Alternatively or additionally, the scFv may be derived from Fab's (instead of from an antibody, e.g., obtained from Fab libraries). In certain embodiments, the scFv is fused to the transmembrane domain and then to the intracellular signaling domain. In certain embodiments, the CAR has a high binding affinity or avidity for the antigen.

The term "antigen-binding domain" as used herein refers to a domain capable of specifically binding a particular antigenic determinant or set of antigenic determinants present on a cell.

The term "immune cell" as herein intended typically encompasses T cells, Natural Killer T cells, CD4+/CD8+ T cells, TILs/tumor derived CD8 T cells, central memory CD8+ T cells, Treg, MAIT, Yδ T cells, human embryonic stem cells, and pluripotent stem cells from which lymphoid cells may be differentiated.

By "isolated cell" is meant a cell that is separated from the molecular and/or cellular components that naturally accompany the cell.

The terms "isolated," "purified," or "biologically pure" refer to material that is free to varying degrees from components which normally accompany it as found in its native state. "Isolate" denotes a degree of separation from original source or surroundings. "Purify" denotes a degree of separation that is higher than isolation. A "purified" or "biologically pure" protein is sufficiently free of other materials such that any impurities do not materially affect the biological properties of the protein or cause other adverse consequences. That is, a nucleic acid or peptide is purified if it is substantially free of cellular material, viral material, or culture medium when produced by recombinant DNA techniques, or chemical precursors or other chemicals when chemically synthesized. Purity and homogeneity are typically determined using analytical chemistry techniques, for example, polyacrylamide gel electrophoresis or high performance liquid chromatography. The term"purified" can denote that a nucleic acid or protein gives rise to essentially one band in an electrophoretic gel. For a protein that can be

subjected to modifications, for example, phosphorylation or glycosylation, different modifications may give rise to different isolated proteins, which can be separately purified.

Unless specifically stated or obvious from context, as used herein, the term "**about**" is to be understood as within a range of normal tolerance in the art, for example within 2 standard deviations of the mean. About can be understood as within 20%, 15%, 10%, 9%, 8%, 7%, 6%, 5%, 4%, 3%, 2%, 1%, 0.5%, 0.1%, 0.05%, or 0.01% of the stated value. Unless otherwise clear from context, all numerical values provided herein are modified by the term about.

Method for selecting a tumor neoantigenic peptide

The method for selecting a tumor neoantigenic peptide as per the present disclosure comprises

- a step of identifying, among mRNA sequences from a cancer cell sample of a subject, a fusion transcript (JET) sequence comprising a transposable element (TE) sequence and an exonic sequence, and including an open reading frame (ORF), and
- a step of selecting a tumor neoantigenic peptide of at least 8 amino acids, encoded by a part of said ORF of the fusion transcript sequence,

wherein said ORF overlaps the junction between the TE and the exonic sequence, is pure TE and/or is non-canonical, and

wherein said tumor neoantigenic peptide binds to at least one Major Histocompatibility Complex (MHC) molecule of said subject.

Typically, a peptide translated from a part of non-canonical ORF of an exonic sequence is recognized as non-self by the immune system.

In some embodiments, the exonic sequence is from an oncogene and/or a tumor suppressor gene or one of their mutated variants.

Conceptually, cancer is a result of consecutive somatic mutation accumulation. Many studies have shown that both the gain of function in oncogenes and the loss of function in tumor-suppressor genes are required for the development of cancer from a normal cell. For a diploid organism, gain-of-function mutations are often dominant or semi-dominant, whereas loss-of-function mutations are usually recessive. Two-hit hypothesis of oncogenesis proposes that the development of cancer is initiated by the loss of both alleles of a tumor-suppressor gene.

Oncogenes (also named cancer genes) are genes whose action positively promotes cell proliferation or growth. The normal nonmutant versions are known as proto-oncogenes. The

mutant versions are excessively or inappropriately active leading to tumor growth. Oncogenes can be identified in the Cancer Gene Marker Database (CGMD) (Pradeepkiran, J., Sainath, S., Kramthi Kumar, K. et al. CGMD:. Sci Rep 5, 12035 (2015) *"An integrated database of cancer genes and markers"*). Oncogenes (ONCs) can also be downloaded from Network of Cancer Genes database (NCG 5.0) (An O, Dall'Olio GM, Mourikis TP, Ciccarelli FD, Nucleic Acids Res. 2016 Jan 4; 44(D1):D992-9; *"NCG 5.0: updates of a manually curated repository of cancer genes and associated properties from cancer mutational screenings"*). Non-limitatives examples of oncogenes include: *L-MYC, LYL-1, LYT-10, LYT-10/Cα1, MAS, MDM-2, MLL, MOS, MTG8/AML1, MYB, MYH11/CBFB, NEU, N-MYC, OST, PAX-5, PBX1/E2A, PIM-1, PRAD-1, RAF, RAR/PML, RAS-H, RAS-K, RAS-N, REL/NRG, RET, RHOM1, RHOM2, ROS, SKI, SIS, SET/CAN, SRC, TAL1, TAL2, TAN-1, TIAM1, TSC2,* and *TRK.*

Tumor suppressor genes (also named anti-oncogenes) represent the opposite side of cell growth control, normally acting to inhibit cell proliferation and tumor development. Thus tumor suppressor genes are genes that normally suppress cell division or growth. Loss of TSG function promotes uncontrolled cell division and tumor growth. *Rb*, a tumor suppressor gene that was identified by the genetic analysis of retinoblastoma an encoding atranscriptional regulatory protein, served as the prototype for the identification of additional tumor suppressor genes that contribute to the development of many different human cancers. Tumor suppressor genes are notably described in "Cooper GM. The Cell: A Molecular Approach. 2nd edition. Sunderland (MA): Sinauer Associates; 2000. Tumor Suppressor Genes". Tumor-suppressor genes (TSGs) can also be downloaded from Tumor Suppressor Gene database (TSGene 2.0) (see for reference Zhao M, Kim P, Mitra R, Zhao J, Zhao Z; Nucleic Acids Res. 2016 Jan 4; 44(D1):D1023-31; *"TSGene 2.0: an updated literature-based knowledgebase for tumor suppressor genes"*). In this context, non-limitative examples of tumor suppressor genes include: *APC, BRCA1, BRCA2, DPC4, INK4, MADR2, NF1, NF2, p53, PTC, PTEN, Rb, RB1, VHL, WT1, BUB1, BUBR1, TGF-βRII, Axin, DPC4, p300, PPARγ, p16, DPC4, PTEN, and hSNF5.*

Oncogenes, tumor suppressor genes or "double agent" genes (with both oncogenic and tumor-suppressor functions) can be systematically identified through database search and text mining. Indeed, information on oncogenes or tumor suppressor genes can typically be found in Ensembl database (but see also Shen L, Shi Q, Wang W. Double agents: genes with both oncogenic and tumor-suppressor functions. Oncogenesis. 2018;7(3):25. Published 2018 Mar 13). Double agent genes may be identified as genes overlapped between the two above mentioned databases (see also Shen et al., Oncogenesis 2018 above).

Without to be bound by any theory, the inventors believe that selection of fusion wherein the exonic sequence is from an oncogene and/or a tumor suppressor gene is of high relevance for the reason below:

TE insertion in oncogenes can alter their oncogenic activity. Insertion of TE sequences in oncogene active domains could therefore result in constitutive activity of the oncogenes, similar to driver mutations. These fusions giving chimeric oncogenes could thus represent a new family of oncogenic proteins. If this is the case, targeting the activity of these new "fusion oncogenes" with small molecule antagonists could represent a potential therapeutic approach for cancer where these chimeric oncogenes are expressed.

TE insertions in tumor suppressors could inactivate their suppressor functions, leading typically to a loss of function (for example through introduction of stop codons, changes in ORF or disruptive amino acid stretches), thereby contributing to the oncogenic process.

Fusions implicating cancer driver genes would be excellent targets for adoptive cell therapies, antibodies, ADCs, T cell engagers, etc. If they are involved in oncogenesis, fusions oncogenes are expected to be more specific for cancer cells, and thus to reduce the development of resistances (because of the oncogenic activity of the target).

In some embodiments, the TE sequence is located in 5' end of the fusion transcript sequence (it is also said that the TE sequence is the donor sequence) and the exonic sequence is located in 3' end of the fusion transcript sequence with respect to the junction (the exon sequence is thus called an acceptor sequence). The expression **"is located in 5' end of the fusion transcript sequence"** means that the element is located upstream of the junction in the fusion transcript sequence. The expression **"is located in 3' end of the fusion transcript sequence"** means that the element is located downstream of the junction in the fusion transcript sequence.

In a particular embodiment, the TE sequence is located in 5' end of the fusion transcript (JET) sequence and the exonic sequence is located in 3' end of the fusion transcript (JET) sequence, and the part of the ORF of said fusion transcript (JET) sequence, which encodes the neoantigenic peptide (pJET), overlaps the junction. In this case, the ORF can be canonical or non-canonical. It is understood that the ORF may comprise the junction but the neoantigenic peptide (pJET) may not derive from the junction. In some embodiments however, where the neoantigenic peptide has a sequence which is derived from the junction sequence, the obtained peptide is thus encoded by both TE sequence and exonic sequence.

The expression **"the part of the ORF is overlapping or overlaps the junction** between the TE sequence and the exonic sequence", means that said junction is contained in the part of the ORF of the fusion transcript (JET) sequence, which encodes said neoantigenic peptide (pJET).

In embodiments wherein (i) the part of the ORF encoding the neoantigenic peptide is overlapping the junction between the TE sequence and the exonic sequence, and (ii) the TE sequence and the exonic sequence are respectively in 5' end and 3'end of the fusion transcript (JET) sequence, said part of the ORF typically encodes a neoantigenic peptide of at least 8 amino acids, including at least between 1 to 6 amino acids, notably 2 to 6 from the TE sequence and at least between 1 and 6, notably 2 to 6 amino acids from the exonic sequence.

In another embodiment wherein the TE sequence is located in 5' end of the fusion transcript (JET) sequence and the exonic sequence is located in 3' end of the fusion transcript (JET) sequence, the part of ORF which encodes said neoantigenic peptide, is downstream of the junction and the ORF is thus non-canonical.

The expression **"the part of the ORF is downstream of the junction"** means that the part of the ORF encoding the neoantigenic peptide (pJET) is not overlapping the junction, but it is contained in the 3'end part of said fusion transcript sequence with respect to the junction. In this embodiment, as the 3' end part with respect to the junction, is the exonic sequence, the part of the ORF encoding the neoantigenic peptide is thus contained in the exonic sequence. Thus, as the part of the ORF is only located in the exonic sequence, the obtained peptide is therefore encoded by the exonic sequence, in a non-canonical ORF. Thus, in the particular embodiment wherein the exonic sequence is located in 3' end of the fusion transcript (JET) sequence with respect to the junction, and wherein the part of the ORF which encodes the neoantigenic peptide is downstream of the junction with a non-canonical reading frame, the part of the ORF of the fusion transcript (JET) sequence encodes a neoantigenic peptide including 0 amino acid from the TE sequence, and at least 8 amino acids from the exonic sequence.

In another embodiment, the TE sequence is located in 3' end of the fusion transcript (JET) sequence and the exonic sequence is located in 5' end of the fusion transcript sequence with respect to the junction.

In some embodiments, the TE sequence is located in 3' end of the fusion transcript (JET) sequence and the exonic sequence is located in 5' end of the fusion transcript sequence and the part of the ORF of said fusion transcript sequence, which encodes a neoantigenic peptide, is overlapping the junction between the TE sequence and the exonic sequence. In this case, the

ORF can also be canonical or non-canonical. The obtained peptide (pJET) is encoded by both TE sequence and exonic sequence.

In the particular embodiment wherein the part of the ORF encoding the neoantigenic peptide (pJET), is overlapping the junction between the exonic sequence and the TE sequence, and wherein the exonic sequence and the TE sequence are respectively in 5' end and 3'end of the fusion transcript (JET) sequence, said part of the ORF encodes a neoantigenic peptide (pJET) of at least 8 amino acids, including at least between 1 to 6, notably 2 to 6 amino acids from the TE sequence and at least between 1 and 6, notably 2 to 6 amino acids from the exonic sequence.

In still another embodiment, the TE sequence is located in 3' end of the fusion transcript (JET) sequence, the exonic sequence is located in 5' end of the fusion transcript sequence, and the part of the ORF which encodes a neoantigenic peptide (pJET), is downstream of the junction between the exonic sequence and the TE sequence. Optionally, the peptide sequence (pJET) which is thus encoded by the pure TE sequence is non-canonical.

In this embodiment, as the 3' end part with respect to the junction is the TE sequence, the part of the ORF encoding the neoantigenic peptide is therefore encoded by the TE sequence. Thus, the part of the ORF encodes a neoantigenic peptide including no amino acid from the exonic sequence and at least 8 amino acids from the TE sequence. In the particular embodiment wherein the TE sequence is located in 3' end of the fusion transcript sequence with respect to the junction, and the part of the ORF which encodes the neoantigenic peptide is downstream the junction, the part of the ORF of the fusion transcript (JET) sequence encodes a neoantigenic peptide (pJET) including 0 amino acid from the exonic sequence, and at least 8 amino acids from the TE sequence.

A tumor neoantigenic peptide is a peptide that arises from somatic alterations (classically mutations in the DNA sequence), is recognized as different from self, and is presented by antigen-presenting cells (APC), such as dendritic cells (DC) and tumor cells themselves. Cross-presentation plays an important role as the APC is able to translocate exogenous antigens from the phagosome into the cytosol for proteolytic cleavage into the major histocompatibility complex I (MHC I) epitopes by the proteasome.

In the present disclosure the alteration corresponds to the transcription of fusion mRNA sequences that comprise a transposable element (TE) sequence and an exonic sequence (JET). This may arise from somatic (*i.e.:* specifically in the tumor clone) transposition. It may also

arise not from de novo transposition but from tumor specific transcriptional de-repression such that a TE and nearby gene are co-transcribed.

A neoantigenic peptide (pJET) according to the present disclosure may be completely absent from normal healthy samples (i.e., not expressed in normal healthy samples) and thus be specific to tumor samples. Alternatively, it may be expressed at low levels in normal cells and / or disproportionately expressed on tumor samples as compared to normal (healthy) samples.

It can also be selectively expressed by the cell lineage from which the cancer evolved.

Cancer or tumor samples according to the present disclosure can be isolated from any solid tumor or non-solid tumor of any of the tissues or organs as defined previously, for example, breast cancer, lung cancer and/or melanoma. In some embodiments cancer samples are from Acute Myeloid Leukemia, Adrenocortical Carcinoma, Bladder Urothelial Carcinoma, Breast Ductal Carcinoma, Breast Lobular Carcinoma, Cervical Carcinoma, Cholangiocarcinoma, Colorectal Adenocarcinoma, Esophageal Carcinoma, Gastric Adenocarcinoma, Glioblastoma Multiforme, Head and Neck Squamous Cell Carcinoma, Hepatocellular Carcinoma, Kidney Chromophobe Carcinoma, Kidney Clear Cell Carcinoma, Kidney Papillary Cell Carcinoma, Lower Grade Glioma, Lung Adenocarcinoma, Lung Squamous Cell Carcinoma, Mesothelioma, Ovarian Serous Adenocarcinoma, Pancreatic Ductal Adenocarcinoma, Paraganglioma & Pheochromocytoma, Prostate Adenocarcinoma, Sarcoma, Skin Cutaneous Melanoma, Testicular Germ Cell Cancer, Thymoma, Thyroid Papillary Carcinoma, Uterine Carcinosarcoma, Uterine Corpus Endometrioid Carcinoma or Uveal Melanoma samples. In a particular embodiment, cancer samples are from lung cancer samples, notably from LUAD samples.

Typically, as per the present disclosure, the step of identifying the fusion transcript sequences is carried out by mapping mRNA sequences from cancer sample against a reference genome, and then distinguishing normal and abnormal (non-canonical) junctions.

According to the present disclosure, normal junctions correspond to junctions between donor and acceptor on the same strand and not too far apart (e.g.: typically not on different chromosomes).

According to the present disclosure, abnormal junctions correspond to junctions between donor and acceptor sequences on different chromosomes, or in cis (same chromosomes) but on different strands (no matter the order and the 5'-3' sense).

mRNA sequences typically usable according to the present disclosure are RNA seq data (as illustrated in the results herein). RNA seq data are typically obtained from purified RNA obtained from a cell or a tissue sample, fragmented and reverse-transcribed into cDNA. The obtained cDNA are then amplified and sequenced (next-generation sequencing - NGS) on a high-throughput platform (such as for example the Illumina GA/HiSeq – see http://www.illumina.com -, SOLiD or Roche 454). This process generates millions of short reads taken from one end of the cDNA fragments. A common variant on this process is to generate reads from both ends of each cDNA fragment, known as "paired-end" reads.

In some embodiments, the mRNA sequences can be mapped against a corresponding reference genome or transcriptome (such as the human reference genome Hg19 ENSEMBL (RNA sequences, GRCh37) with an adapted software, such as for example: Spliced Transcripts Alignment to a Reference (i.e.: STAR - see Dobin, Alexander et al. "STAR: ultrafast universal RNA-seq aligner." Bioinformatics (Oxford, England) vol. 29,1 (2013): 15-21), TopHat2 (Kim, Daehwan et al. "TopHat2: accurate alignment of transcriptomes in the presence of insertions, deletions and gene fusions." Genome biology vol. 14,4 R36. 25 Apr. 2013, doi:10.1186/gb-2013-14-4-r36) or HISAT (Kim, Daehwan et al. "HISAT: a fast spliced aligner with low memory requirements." Nature methods vol. 12,4 (2015): 357-60. doi:10.1038/nmeth.3317). STAR is a standalone software that uses sequential maximum mappable seed search followed by seed clustering and stitching to align RNA-seq reads. It can typically detect canonical junctions, non-canonical splices, and fusion/chimeric transcripts. Typically, detection of the junctions can be performed as detailed in the results based on the definitions from ENSEMBL and RepeatMasker databases respectively, downloaded from the UCSC Genome Browser. Thus, in some embodiments, the normal and abnormal junctions are determined *in silico* using dedicated databases, such as for example Ensembl and Repeatmasker databases, and the fusion transcripts having junctions between a TE and an exonic sequence are extracted *in silico*.

More particularly, in some embodiments, RNAseq reads from a sample (or cell) of interest are aligned to a reference genome (such as typically the hg19 genome) using typically STAR two-pass mode27 to identify un-annotated junctions. As previously indicated JETs are identified as a junction between an exon (most particularly a coding DNA sequence – CDS- exon) and a TE (or repeated element, RE). As per the present disclosure TE (or RE) can be identified (i.e. filtered) according to the definition of commonly used databases in the field such as ENSEMBL (GRCh37) and RepeatMasker.

According to the present disclosure, the mRNA sequences can come from all types of cancer cell or tumor cell sample(s). The tumor may be a solid or a non-solid tumor. In particular, the mRNA sequences come from any tissues or organs affected by a cancer or tumor as previously defined, for example from breast cancer, lung cancer and/or melanoma. In a particular embodiment, mRNA sequences are from LUAD samples. Tumor samples can be for example obtained from the Cancer Genome Atlas (TCGA). In some embodiments, the mRNA sequences are obtained from cell lines such as for example tumor cell lines from the Cancer Cell Line Encyclopedia (CCLE).

In some embodiments, the number of splicing reads can be normalized by the number of unique mapped reads. Typically JETs with a level of expression over 2.10^{-7} are selected.

In some embodimentsof the present disclosure, the fusion transcript sequences are shared in more than 1%; notably more than 5%, more than 10%, more than 15%, more than 20% or even more than 25 % of cancer samples (typically obtained from various patients, for example from the cancer samples collected for a given cancer type in the TCGA) and/or cell lines. In some embodiments, a fusion transcript (JET) sequence as per the present disclosure is shared in cancer samples from more than 1%; notably more than 2%, more than 5%, more than 10%, more than 15%, more than 20% or even more than 25 % of the subjects suffering from a cancer. Alternatively, or additionally, the fusion (JET) transcript sequence may be specific for a cancer type of shared between several cancer types. Alternatively, or in addition, a fusion transcript sequence can be expressed in at least 1; 2; 3; 4; 5; 6; 7;8;9;10;11;12;13;14;15;16;17;18;19;20 cell lines (typically from the CCLE).

According to the present disclosure, the fusion (JET) transcript sequences are expressed at higher levels in tumor cells compared to normal healthy cells. In some embodiments, the fusion transcript sequence is expressed in cancer cells (obtained from one or more cancer samples and/or one or more cell lines) and not in healthy cells (obtained from one or more tissue samples or one or more cell lines), in particular not in thymus healthy cells. In some embodiments a JET is considered not expressed in a cell when its expression level is below 2.10^{-7}, notably below 2.10^{-8} and typically not detectable. Such fusion (JET) transcript may be called tumor specific fusion (JET) as per the present disclosure. Fusion transcripts that are expressed at higher level(s) in tumor cells as compared to normal cell, typically that are disproportionally expressed in cancers cells as compared to normal cells as defined above may be called tumor associated fusion transcripts (TAF) as per the present disclosure. Tumor associated fusion transcripts may be selected according to the present application if they are present in more than 10% of the

tumor samples (for example in more than 1, notably more than 2 %, more than 5 % and in particular more than 10 % of tumor samples obtained from the TCGA database for the same cancer type) and in less than 20% of the normal samples (for example juxta-tumor samples from the TCGA). Alternatively, or in addition, a fusion transcript sequence can be expressed in at least 1; 2; 3; 4; 5; 6; 7;8;9;10;11;12;13;14;15;16;17;18;19;20 cell lines.

In some embodiments, the method further comprises a step of determining, optionally *in* silico or using *in vitro* techniques (see notably the examples for illustration), the binding affinity of the tumor neoantigenic peptide with at least one MHC molecule of the said subject suffering from a cancer.

When the method is carried out on human samples, the method may comprise a step of determining the patient's class I or class I Major Histocompatibility Complex (MHC, aka human leukocyte antigen (HLA) alleles). It is to be noticed that as MHC alleles for laboratory mice are generally known such that this step may not be necessary in that particular context. In the present application, "**MHC molecule**" refers to at least one MHC class I molecule or at least one MHC Class II molecule.

An MHC allele database is carried out by analyzing known sequences of MHC I and MHC II and determining allelic variability for each domain. This can be typically determined *in silico* using appropriate software algorithms well-known in the field. Several tools have been developed to obtain HLA allele information from genome-wide sequencing data (whole-exome, whole-genome, and RNA sequencing data), including OptiType, Polysolver, PHLAT, HLAreporter, HLAforest, HLAminer, and seq2HLA (see Kiyotani K et al., Immunopharmacogenomics towards personalized cancer immunotherapy targeting neoantigens; Cancer Science 2018; 109:542-549). For example, the seq2hla tool (see Boegel S, Lower M, Schafer M, et al. HLA typing from RNA-Seq sequence reads. Genome Med. 2012;4:102), which is well designed to perform the method as herein disclosed is an *in silico* method written in python and R, which takes standard RNA-Seq sequence reads in fastq format as input, uses a bowtie index (Langmead B, et al., Ultrafast and memory-efficient alignment of short DNA sequences to the human genome. Genome Biol. 2009, 10: R25-10.1186/gb-2009-10-3-r25) comprising all HLA alleles and outputs the most likely HLA class I and class II genotypes (in 4 digit resolution), a p-value for each call, and the expression of each class.

Typically, the sequences having junctions between a TE and an exonic sequence (JETs) are extracted *in silico*. The affinity of all possible peptides encoded by each sequence for each MHC allele from the patient (or mouse) can be for example determined *in silico* using computational

methods to predict peptide binding-affinity to HLA molecules. Indeed, accurate prediction approaches are based on artificial neural networks with predicted IC_{50}. For example, NetMHCpan software which has been modified from NetMHC to predict peptides binding to alleles for which no ligands have been reported, is well appropriate to implement the method as herein disclosed (Lundegaard C et al., NetMHC-3.0: accurate web accessible predictions of human, mouse and monkey MHC class I affinities for peptides of length 8-11; Nucleic Acids Res. 2008;36:W509-W512; Nielsen M et al. NetMHCpan, a method for quantitative predictions of peptide binding to any HLA-A and -B locus protein of known sequence. PLoS One. 2007;2:e796, but see also Kiyotani K et al., Immunopharmacogenomics towards personalized cancerimmunotherapy targeting neoantigens; Cancer Science 2018; 109:542-549 and Yarchoan M et al., Nat rev. cancer 2017; 17(4):209-222). NetMHCpan software predicts binding of peptides to any MHC molecule of known sequence using artificial neural networks (ANNs). The method is trained on a combination of more than 180,000 quantitative binding data and MS derived MHC eluted ligands. The binding affinity data covers 172 MHC molecules from human (HLA-A, B, C, E), mouse (H-2), cattle (BoLA), primates (Patr, Mamu, Gogo) and swine (SLA). The MS eluted ligand data covers 55 HLA and mouse alleles.

In example embodiments, neoantigenic peptides encoded by fusion (JETs) transcripts as above described and having a Kd affinity for MHC alleles of less than 10^{-4}. 10^{-5}, 10^{-6}, 10^{-7} M or less than 500 nM, notably less than 50 nM are selected as tumor neoantigenic peptides.

As above mentioned, affinity of the selected peptide for MHC alleles can be determined *in silico* using appropriate software such as netMHCpan. Thus, in some embodiments, neoantigenic peptides bind MHC class I with a binding affinity of less than 2% percentile rank score predicted by NetMHCpan 4.0. In other embodiments, the neoantigenic peptides bind MHC class II with a binding affinity of less than 10% percentile rank score predicted by NetMHCpanII 3.2.

Affinity can also (alternatively or in addition) be estimated *in vitro*, for example by using MHC tetramer formation assay as described in the results included therein (see example 2, point 2.1 and 2.2.2). Commercial assays for example from ImmunAware® can typically be used by the skilled person (EasYmers® kits are from ImmunAware® are notably used according to their training guide). Typically, binding affinity is determined as a percentage of binding to a positive control. Generally, peptides showing a percentage of binding of at least 30 %, notably at least 40% or even at least 50 % of the positive control are selected. Typically, the neoantigenic peptide as per the present disclosure, and typically obtainable as per the present method, binds

at least one HLA/MHC molecule with an affinity sufficient for the peptide to be presented on the surface of a cell as an antigen. Generally, the neoantigenic peptide has an IC50 affinity of less than 10^{-4}. or 10^{-5}, or 10^{-6}, or 10^{-7} or less than 500 nM, at least less than 250nM, at least less than 200 nM, at least less than 150 nM, at least less than 100 nM, at least less than 50 nM or less for at least one HLA/MHC molecule (lower numbers indicating greater binding affinity), typically a molecule of said subject suffering from a cancer.

Further optional steps according to the present method may thus independently include:

- a step of exclusion of fusion transcripts or predicted peptides expressed at high levels or high frequency on healthy cells. An alignment of the fusion transcript sequence against the RNAseq data of healthy cells, typically allows determining the relative amount of fusion transcript sequence(s) present in healthy cells; In one embodiment, fusion transcripts or predicted peptides expressed on healthy cells are discarded.
- a step to confirm that a tumor neoantigenic peptide is not expressed in healthy cells of the subject. This step can be carried out using typically the Basic local alignment search tool (BLAST) and performing alignment of the sequence of the neoantigenic peptide against the proteome of healthy cells; Preferably, peptides that align against the proteome of normal healthy cells (for example using BLAST) are discarded.
- a step to confirm that the fusion transcript or predicted peptide is expressed in cancer cells of the subject. The presence of the selected fusion transcript sequence in cancer cells can be checked typically by RT-PCR in mRNA extracted from cancer cell sample.

In some embodiments, the present method can also include a step wherein the identified fusion (JETs) transcripts are in silico translated to generate a JET-derived protein database (JET-db). Typically, Strand-indexed JETs containing gene as donor can be translated using the canonical ORF from the implicated gene until the first stop codon after the breakpoint. In JETs where TE was the donor, the 3 possible ORFs can be translated and only the sequence found more proximal to the breakpoint and between two stop codons is typically kept. This JET db (typically also concatenated to the human proteome) can be then interrogated in mass spectrometry based proteomic datasets obtained from tumor samples and/or tumor cell lines which typically consist in proteomics data obtained from tumors samples and/or tumor cell lines. In some embodiments, public mass spectrometry datasets can be used. This embodiment is notably well described in the results provided in the present application. Such analysis also to identify JET-derived peptides or proteins.

In more specific embodiments, the JETdb (typically concatenated to the human proteome) can be interrogated to immunonopeptidomics mass spectrometry-based datasets as also detailed in the examples included herein. This embodiment allows to identify JET-derived peptides or proteins (pJETs) that are presented to MHC molecules.

To ensure that JET-derived peptides did not match with canonical proteins or peptides derived from JETs found in normal samples, identified peptides can be filtered for example with UniProt/TrEMBL database and/or with in silico translated JETs from normal (including for example juxta-tumor) samples or cell(s) (for example from public databases such as the TCGA or the CCLE).

Neoantigenic peptides

The present disclosure also relates to an isolated tumor neoantigenic peptide comprising at least 8, 9, 10, 11, or 12 amino acids, encoded by a portion of an open reading frame (ORF) from a fusion transcript that is a human mRNA sequence comprising a transposable element (TE) sequence and an exonic sequence. The peptide may be 8-9, 8-10, 8-11, 12-25, 13-25, 12-20, or 13-20 amino acids in length. Although the ORF overlaps a junction between a TE sequence and an exonic sequence, it is understood that the tumor neoantigenic peptide itself may not comprise the junction.

More particularly, the present disclosure provides a selection of isolated neoantigenic tumor peptide candidates obtained from the fusion transcripts predicted from the bioinformatic tumor transcriptome database TCGA (The Cancer Genome Atlas).

This step has been detailed in the above section (detailed description and previous examples) of the present application. Briefly, and as previously mentioned, in these fusion transcripts, the TE can be donor (in 5' position) or acceptor (in 3' acceptor) and correspondingly the exon can be acceptor or donor. TE-exon splicing results in the incorporation of parts of the "non-coding" genome into the coding genome, thereby exposing non-coding genomic sequences to the translation machinery. These fusions (or chimeric) transcripts also named JET (Junction Exon TE) include an ORF (open reading frame). When the TE is acceptor, the ORF of the fusion transcript is canonical (i.e. the same as the canonical transcript), whereas when the TE is the donor the ORF can be canonical (generally ORF1) or can be shifted by 1 or 2 nucleotides (typically ORFs 2 and 3 respectively). The fusion transcripts include not only the fused TE and exon sequences but can also further include exon(s), upstream the fusion breakpoint (between

the exon and the TE) if the exon is donor or downstream the fusion breakpoint is the TE is donor, corresponding to the various transcript isoforms. Amino acid sequences SEQ ID NO:1-29596 and 30434-31346 correspond to the in silico translated sequences of all the transcripts (splice variants) including a fusion event (a fusion between an exonic sequence and TE sequence also named herein JET for "Junction Exon TE"), which are thus also named "fusion transcripts" or "chimeric transcripts". Amino acid sequences are also named translated fusion transcripts or shortly "translated fusions" or "translated JETs" or "pJETs. Sequences SEQ ID NO: 1-4722, 30434-30520, 30761-30802, 30965-31030; 31202-31228 are translated amino acid sequences from exon donor derived fusion transcripts. Sequences SEQ ID NO:4723-29596, 30521-30760, 30803-30964, 31031-31201, 31229-31346 are translated amino acid sequences from TE donor derived fusion transcripts. Tables 9; 11; 13; 15; and 17 and 10; 12; 14; 16; and 18 herein provides the reference, location and coordinate of the donor sequence (exon or TE) and acceptor sequence (TE or exon respectively) such that each fusion transcript sequence can be unambiguously retrieved. Tables 9; 11; 13; 15; and 17 and tables 10; 12; 14; 16; and 18 also assign each transcript to the corresponding translated fusion transcripts identified as SEQ ID NO:1-29744 and 29753-31346. For each translated fusion transcript, the position of the breakpoint (between the exonic and TE sequences) is provided such that it is possible to identify for each of the amino acid sequences of SEQ ID NO:1-29744 and 29753-31346, the TE-derived sequence and the exon-derived sequence.

Thus, the present disclosure encompasses isolated tumor neoantigenic peptides, optionally comprising at least 8 amino acids, wherein said neoantigenic peptides are encoded by a part of an open reading frame (ORF) from a fusion transcript encoding any one of SEQ ID NO:1-29744 and 29753-31346 and comprising a transposable element (TE) sequence and an exonic sequence, wherein said ORF overlaps the junction between the TE and the exonic sequence, is pure TE and/or is non-canonical.

In some embodiments, the present disclosure encompasses isolated tumor neoantigenic peptide, optionally of at least 8 amino acids, wherein the neoantigenic peptide:

- is a part of any one of the sequences of SEQ ID NO:1-29744 and 29753-31346 or a fragment thereof, and comprises a TE-derived amino acid sequence, or
- is a part of any one of the sequence of SEQ ID NO: 1-29744 and 29753-31346 or a fragment thereof and is encoded by a fusion wherein the exon is the donor. Typically said neoantigenic peptides are derived from a part of a non-canonical ORF of a fusion transcript as above defined.

In some embodiments, the neoantigenic peptide overlaps the breakpoint between the TE-derived sequence and the exon-derived sequence of the translated fusion transcripts of any one of SEQ ID NO:1-29744 and 29753-31346, including fragments thereof. In other embodiments the neoantigenic peptide consists in or comprises a pure TE-derived sequence from a translated fusion transcripts of any one of SEQ ID NO:1-29744 and 29753-31346, including fragments thereof.

In some embodiments the neoantigenic peptide comprises at least 8, 9, 10, 11 or 12 amino acids.

The peptide may be 8-9, 8-10, 8-11, 12-25, 13-25, 12-20, or 13-20 amino acids in length and fulfills one or more of the neoantigen peptide characteristics described above. The N-terminus of the peptide of at least 8 amino acids may be encoded by the triplet codon starting at any of nucleotide positions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and higher (it being understood that the disclosure contemplates a start position that is any of the integers between 1 and 8000 without having to list every number between 1 and 8000). More specifically, the N terminus of the neoantigenic peptide of at least 8 amino acids may start at any of amino acid positions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and higher (it being understood that the disclosure contemplates a start position that is any of the integers between 1 and 15000 without having to list every number between 1 and 15000) of any one of the sequences SEQ ID NO:1-29744 and 29753-31346. Typically however, and as mentioned above, the neoantigenic peptide:

- is a fragment of any one of the sequence of SEQ ID NO:1-29744 and 29753-31346 and comprises a TE-derived amino acid sequence, or
- is a fragment of any one of the sequence of SEQ ID NO: 1-29744 and 29753-31346. Typically said neoantigenic peptides are derived from a part of a non-canonical ORF of a fusion transcript as above defined.

In some embodiments, the neoantigenic peptide overlaps the breakpoint between the TE-derived sequence and the exon-derived sequence of the translated fusion transcripts of any one of SEQ ID NO:1-29744 and 29753-31346. In other embodiments the neoantigenic peptide consists in or comprises a pure TE-derived sequence from a translated fusion transcripts of any one of SEQ ID NO:1-29744 and 29753-31346.

A peptide as above defined is typically obtainable according to the method of the present disclosure and thus encompasses one or more of the characteristics as previously described. In

particular a neoantigenic peptide as per the present disclosure may exhibit one or a combination of the following further characteristics:

- It binds or specifically binds MHC class I of a subject and is 8 to 11 amino acids, notably 8, 9, 10, or 11 amino acids. Typically the neoantigenic peptide is 8 or 9 amino acids long, and binds to at least one MHC class I molecule of the subject; or alternatively, it binds to at least one MHC class II molecule of said subject and contains from 12 to 25 amino acids, notably is 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 or 25 amino acids long.
- It binds at least one HLA/MHC molecule of said subject suffering from a cancer with an affinity sufficient for the peptide to be presented on the surface of a cell as an antigen. Typically the neoantigenic peptide has an IC50 of less than 10^{-4}. or 10^{-5}, or 10^{-6}, or 10^{-7} or less than 500 nM, at least less than 250nM, at least less than 200 nM, at least less than 150 nM, at least less than 100 nM, at least less than 50 nM or less (lower numbers indicating greater binding affinity).
- It does not induce a significant autoimmune response and/or invoke immunological tolerance when administered to a subject.
- It is expressed at higher levels in tumor samples compared to normal healthy samples. Typically, as per the present disclosure, a fusion transcript may be selected if it is present in more than .1 %, notably more than 2 %, more than 5% and typically more than 10 % of the tumor samples (from the same or different tumor type, typically from one or more subjects typically from TCGA tumor samples) and in less than 20 %, notably less than 15 %, less than 10 %, less than 5%, less than 2 % or even less than 1% of the normal samples. Alternatively, or in addition, the transcript can be identified in one or more (at least 2, 5, 10, 20, 50,100 cell lines such as for example from the CCLE) In some embodiments, the neoantigenic is more specifically a tumor specific antigen (TSA), *i.e.:* it is only expressed in cancer sample and not in normal samples, or is expressed at relatively low levels in normal samples (e.g. the expressed mRNA sequences represent minor species in normal cells from normal samples).
- It comprises the junction between the TE sequence and the exonic sequence, in other words it is encoded by a part of a TE sequence and a part of an exonic sequence, the ORF being either canonical or non-canonical or
- It is encoded by a non-canonical ORF of an exonic sequence or
- It is encoded by the TE sequence, optionally in a non-canonical ORF

A tumor neoantigenic peptide may first be validated by RT transcription analysis of fusion transcripts sequence in tumors cell from a subject. Typically also, immunization with a tumor neoantigenic peptide as per the present disclosure elicits a T cell response

Affinity for MHC alleles can be determined by known techniques in the field and notably *in silico* or *in vitro* as exemplified above;

In a particular embodiment, a tumor neoantigenic peptide as per the present disclosure binds to a MHC molecule present in at least 1 %, 5 %, 10 %, 15 %, 20 %, 25% or more of subjects. Notably, a tumor neoantigenic peptide as herein disclosed is expressed in at least 1 %, 5 %, 10 %, 15 %, 20 %, 25% of subjects from a population of subjects suffering from cancer

More particularly, a tumor neoantigenic peptide of the present disclosure is capable of eliciting an immune response against a tumor present in at least 1 %, 5 %, 10 %, 15 %, 20%, or 25 % of the subjects in the population of subjects suffering from cancer.

As previously defined, cancer may affect any one of the following tissues or organs: breast; liver; kidney; heart, mediastinum, pleura; floor of mouth; lip; salivary glands; tongue; gums; oral cavity; palate; tonsil; larynx; trachea; bronchus, lung; pharynx, hypopharynx, oropharynx, nasopharynx; esophagus; digestive organs such as stomach, intrahepatic bile ducts, biliary tract, pancreas, small intestine, colon; rectum; urinary organs such as bladder, gallbladder, ureter; rectosigmoid junction; anus, anal canal; skin; bone; joints, articular cartilage of limbs; eye and adnexa; brain; peripheral nerves, autonomic nervous system; spinal cord, cranial nerves, meninges; and various parts of the central nervous system; connective, subcutaneous and other soft tissues; retroperitoneum, peritoneum; adrenal gland; thyroid gland; endocrine glands and related structures; female genital organs such as ovary, uterus, cervix uteri; corpus uteri, vagina, vulva; male genital organs such as penis, testis and prostate gland; hematopoietic and reticuloendothelial systems; blood; lymph nodes; thymus. For example, the tumors or cancers as per the present application includes leukemias, seminomas, melanomas, teratomas, lymphomas, neuroblastomas, gliomas, rectal cancer, endometrial cancer, kidney cancer, adrenal cancer, thyroid cancer, blood cancer, skin cancer, cancer of the brain, cervical cancer, intestinal cancer, liver cancer, colon cancer, stomach cancer, intestine cancer, head and neck cancer, gastrointestinal cancer, lymph node cancer, esophagus cancer, colorectal cancer, pancreas cancer, ear, nose and throat (ENT) cancer, breast cancer, prostate cancer, cancer of the uterus, ovarian cancer and lung cancer and the metastases thereof. Examples thereof are lung carcinomas, mamma carcinomas, prostate carcinomas, colon carcinomas, renal cell carcinomas, cervical carcinomas, or metastases of the cancer types or tumors described above. The term

cancer according to the present disclosure also comprises cancer metastases and relapse of cancer.

Typically, a neoantigenic peptide as per the present disclosure does not induce a significant autoimmune response and/or invoke immunological tolerance when administered to a subject. Tolerating mechanisms involve clonal deletion, ignorance, anergy, or suppression in the host w the reduction in the number of high-affinity self-reactive T cells.

The neoantigenic peptide can also be modified by extending or decreasing the compound's amino acid sequence, e.g., by the addition or deletion of amino acids. The peptides can also be modified by altering the order or composition of certain residues, it being readily appreciated that certain amino acid residues essential for biological activity, e.g., those at critical contact sites or conserved residues, may generally not be altered without an adverse effect on biological activity. The non-critical amino acids need not be limited to those naturally occurring in proteins, such as L-α-amino acids, or their D-isomers, but may include non-natural amino acids as well, such as β-γ-δ-amino acids, as well as many derivatives of L-α-amino acids.

Typically, a series of peptides with single amino acid substitutions are employed to determine the effect of electrostatic charge, hydrophobicity, etc. on binding. For instance, a series of positively charged (e.g., Lys or Arg) or negatively charged (e.g., Glu) amino acid substitutions are made along the length of the peptide revealing different patterns of sensitivity towards various MHC molecules and T cell receptors. In addition, multiple substitutions using small, relatively neutral moieties such as Ala, Gly, Pro, or similar residues may be employed. The substitutions may be homo-oligomers or hetero-oligomers. The number and types of residues which are substituted or added depend on the spacing necessary between essential contact points and certain functional attributes which are sought (e.g., hydrophobicity versus hydrophilicity). Increased binding affinity for an MHC molecule or T cell receptor may also be achieved by such substitutions, compared to the affinity of the parent peptide. In any event, such substitutions should employ amino acid residues or other molecular fragments chosen to avoid, for example, steric and charge interference which might disrupt binding.

Amino acid substitutions are typically of single residues. Substitutions, deletions, insertions or any combination thereof may be combined to arrive at a final peptide. Substitutional variants are those in which at least one residue of a peptide has been removed and a different residue inserted in its place. Such substitutions are generally made in accordance with the following Table 1 when it is desired to finely modulate the characteristics of the peptide.

Original residue	Exemplary substitution
Ala	Ser
Arg	Lys, His
Asn	Gln
Asp	Glu
Cys	Ser
Gln	Asn
Glu	Asp
Gly	Pro
His	Lys, Arg
Ile	Leu, Val
Leu	Ile, Val
Lys	Tyr, Trp
Met	Thr
Phe	Ser
Ser	Tyr, Phe
Tyr	Trp, Phe
Val	Ile, Leu
Pro	Gly

Table 1

Substantial changes in function (e.g., affinity for MHC molecules or T cell receptors) are made by selecting substitutions that are less conservative than those in above Table, i.e., selecting residues that differ more significantly in their effect on maintaining (a) the structure of the peptide backbone in the area of the substitution, for example as a sheet or helical conformation, (b) the charge or hydrophobicity of the molecule at the target site or (c) the bulk of the side chain. The substitutions which in general are expected to produce the greatest changes in peptide properties will be those in which (a) hydrophilic residue, e.g. seryl, is substituted for (or by) a hydrophobic residue, e.g. leucyl, isoleucyl, phenylalanyl, valyl or alanyl; (b) a residue having an electropositive side chain, e.g., lysl, arginyl, or histidyl, is substituted for (or by) an electronegative residue, e.g. glutamyl or aspartyl; or (c) a residue having a bulky side chain, e.g. phenylalanine, is substituted for (or by) one not having a side chain, e.g., glycine.

The peptides and polypeptides may also comprise isosteres of two or more residues in the neoantigenic peptide or polypepeptides. An isostere as defined here is a sequence of two or more residues that can be substituted for a second sequence because the steric conformation of the first sequence fits a binding site specific for the second sequence. The term specifically includes peptide backbone modifications well known to those skilled in the art. Such modifications include modifications of the amide nitrogen, the α-carbon, amide carbonyl,

complete replacement of the amide bond, extensions, deletions or backbone crosslinks. See, generally, Spatola, Chemistry and Biochemistry of Amino Acids, Peptides and Proteins, Vol. VII (Weinstein ed., 1983).

In addition, the neoantigenic peptide may be conjugated to a carrier protein, a ligand, or an antibody. Half-life of the peptide may be improved by PEGylation, glycosylation, polysialylation, HESylation, recombinant PEG mimetics, Fc fusion, albumin fusion, nanoparticle attachment, nanoparticulate encapsulation, cholesterol fusion, iron fusion, or acylation.

Modifications of peptides and polypeptides with various amino acid mimetics or unnatural amino acids are particularly useful in increasing the stability of the peptide and polypeptide in vivo. Stability can be assayed in a number of ways. For instance, peptidases and various biological media, such as human plasma and serum, have been used to test stability. See,e.g., Verhoef et al., Eur. J. Drug Metab Pharmacokin. 11:291-302 (1986). Half life of the peptides of the present disclosure is conveniently determined using a 25% human serum (v/v) assay. The protocol is generally as follows. Pooled human serum (Type AB, non-heat inactivated) is delipidated by centrifugation before use. The serum is then diluted to 25% with RPMI tissue culture media and used to test peptide stability. At predetermined time intervals a small amount of reaction solution is removed and added to either 6% aqueous trichloracetic acid or ethanol. The cloudy reaction sample is cooled (4°C) for 15 minutes and then spun to pellet the precipitated serum proteins. The presence of the peptides is then determined by reversed-phase HPLC using stability-specific chromatography conditions.

The peptides and polypeptides may be modified to provide desired attributes other than improved serum half-life. For instance, the ability of the peptides to induce CTL activity can be enhanced by linkage to a sequence which contains at least one epitope that is capable of inducing a T helper cell response. Particularly preferred immunogenic peptides/T helper conjugates are linked by a spacer molecule. The spacer is typically comprised of relatively small, neutral molecules, such as amino acids or amino acid mimetics, which are substantially uncharged under physiological conditions. The spacers are typically selected from, e.g., Ala, Gly, or other neutral spacers of nonpolar amino acids or neutral polar amino acids. It will be understood that the optionally present spacer need not be comprised of the same residues and thus may be a hetero- or homo-oligomer. When present, the spacer will usually be at least one or two residues, more usually three to six residues. Alternatively, the peptide may be linked to the T helper peptide without a spacer.

The neoantigenic peptide may be linked to the T helper peptide either directly or via a spacer either at the amino or carboxy terminus of the peptide. The amino terminus of either the neoantigenic peptide or the T helper peptide may be acylated. Exemplary T helper peptides include tetanus toxoid 830-843, influenza 307-319, malaria circumsporozoite 382-398 and 378-389

Multiple neoantigenic peptides described herein can also be linked together, optionally by a spacer.

Peptide productions, polynucleotides and vectors

Proteins or peptides may be made by any technique known to those of skill in the art, including the expression of proteins, polypeptides or peptides through standard molecular biological techniques, the isolation of proteins or peptides from natural sources, or the chemical synthesis of proteins or peptides. The nucleotide and protein, polypeptide and peptide sequences corresponding to various genes have been previously disclosed, and may be found at computerized databases known to those of ordinary skill in the art. One such database is the National Center for Biotechnology Information's Genbank and GenPept databases located at the National Institutes of Health website. The coding regions for known genes may be amplified and/or expressed using the techniques disclosed herein or as would be known to those of ordinary skill in the art. Alternatively, various commercial preparations of proteins, polypeptides and peptides are known to those of skill in the art.

In a further aspect the present disclosure provides a nucleic acid (e.g. polynucleotide) encoding a neoantigenic peptide as herein disclosed. The polynucleotide may be selected from DNA, cDNA, PNA, CNA, RNA, either single- and/or double-stranded, or native or stabilized forms of polynucleotides, such as for example polynucleotides with a phosphorothiate backbone, or combinations thereof and it may or may not contain introns so long as it codes for the peptide. Only peptides that contain naturally occurring amino acid residues joined by naturally occurring peptide bonds are encodable by a polynucleotide.

A still further aspect of the disclosure provides an expression vector capable of expressing a neoantigenic peptide as herein disclosed. Expression vectors for different cell types are well known in the art and can be selected without undue experimentation. Generally, the DNA is inserted into an expression vector, such as a plasmid, in proper orientation and correct reading frame for expression. The expression vector will comprise the appropriate heterologous

transcriptional and/or translational regulatory control nucleotide sequences recognized by the desired host. The polynucleotide encoding the tumor neoantigenic peptide may be linked to such heterologous regulatory control nucleotide sequences or may be non-adjacent yet operably linked to such heterologous regulatory control nucleotide sequences. The vector is then introduced into the host through standard techniques. Guidance can be found for example in Sambrook et al. (1989) Molecular Cloning, A Laboratory Manual, Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.

Antigen presenting cells (APCs)

The present disclosure also encompasses a population of antigen presenting cells that have been pulsed with one or more of the peptides as previously defined and / or obtainable in a method as previously described. Preferably, the antigen presenting cells are dendritic cell (DCs) or artificial antigen presenting cells (aAPCs) (see Neal, Lillian R et al. "The Basics of Artificial Antigen Presenting Cells in T Cell-Based Cancer Immunotherapies." Journal of immunology research and therapy vol. 2,1 (2017): 68-79). Dendritic cells (DC) are professional antigen-presenting cells (APC) that have an extraordinary capacity to stimulate naive T-cells and initiate primary immune responses to pathogens. Indeed, the main role of mature DCs are to sense antigens and produce mediators that activate other immune cells, particularly T cells. DCs are potent stimulators for lymphocyte activation as they express MHC molecules that trigger TCRs (signal 1) and co-stimulatory molecules (signal 2) on T cells. Additionally, DCs also secrete cytokines that support T cell expansion. T cells require presented antigen in the form of a processed peptide to recognize foreign pathogens or tumor. Presentation of peptide epitopes derived from pathogen/tumor proteins is achieved through MHC molecules. MHC class I (MHC-I) and MHC class II (MHC-II) molecules present processed peptides to CD8+ T cells and CD4+ T cells, respectively. Importantly, DCs home to inflammatory sites containing abundant T cell populations to foster an immune response. Thus, DCs can be a crucial component of any immunotherapeutic approach, as they are intimately involved with the activation of the adaptive immune response. In the context of vaccines, DC therapy can enhance T cell immune responses to a desired target in healthy volunteers or patients with infectious disease or cancer. In one embodiment, APCS are artificial APC, which are genetically modified to express the desired T-cell co-stimulatory molecules, human HLA alleles and /or cytokines. Such artificial antigen presenting cells (aAPC) are able to provide the requirements for adequate T-cell engagement, co-stimulation, as well as sustained release of cytokines that allow for

controlled T-cell expansion. These cells are not subject to the constraints of time and limited availability and can be stored in small aliquots for subsequent use in generating T-cell lines from different donors, thus representing an off the shelf reagent for immunotherapy applications. Expression of potent co-stimulatory signals on these aAPC endows this system with higher efficiency lending to increased efficacy of adoptive immunotherapy. Furthermore, aAPC can be engineered to express genes directing release of specific cytokines to facilitate the preferential expansion of desirable T-cell subsets for adoptive transfer; such as long lived memory T-cells (see for review Hasan AH et al., . Artificial Antigen Presenting Cells: An Off the Shelf Approach for Generation of Desirable T-Cell Populations for Broad Application of Adoptive Immunotherapy; Adv Genet Eng. 2015; 4(3): 130, Kim JV, Latouche JB, Rivière I, Sadelain M. The ABCs of artificial antigen presentation. Nat Biotechnol. 2004;22:403–410 or Wang C, Sun W, Ye Y, Bomba HN, Gu Z. Bioengineering of Artificial Antigen Presenting Cells and Lymphoid Organs. Theranostics 2017; 7(14):3504-3516.).

Typically, the dendritic cells are autologous dendritic cells that are pulsed with a neoantigenic peptide as herein disclosed. The peptide may be any suitable peptide that gives rise to an appropriate T-cell response. The antigen-presenting cell (or stimulator cell) typically has an MHC class I or II molecule on its surface, and in one embodiment is substantially incapable of itself loading the MHC class I or II molecule with the selected antigen. The MHC class I or II molecule may readily be loaded with the selected antigen in vitro.

As an alternative the antigen presenting cell may comprise an expression construct encoding a tumor neoantigenic peptide as herein disclosed. The polynucleotide may be any suitable polynucleotide as previously defined and it is preferred that it is capable of transducing the dendritic cell, thus resulting in the presentation of a peptide and induction of immunity

Thus the present disclosure encompasses a population of APCs than can be pulsed or loaded with the neoantigenic peptide as herein disclosed, genetically modified (via DNA or RNA transfer) to express at least one neoantigenic peptide as herein disclosed, or that comprise an expression construct encoding a tumor neoantigenic peptide of the present disclosure. Typically the population of APCs is pulsed or loaded, modified to express or comprises at least one, at least 5, at least 10, at least 15, or at least 20 different neoantigenic peptide or expression construct encoding it.

The present disclosure also encompasses compositions comprising APCs as herein disclosed. APCs can be suspended in any known physiologically compatible pharmaceutical carrier, such as cell culture medium, physiological saline, phosphate-buffered saline, cell culture medium,

or the like, to form a physiologically acceptable, aqueous pharmaceutical composition. Parenteral vehicles include sodium chloride solution, Ringer's dextrose, dextrose and sodium chloride, lactated Ringer's. Other substances may be added as desired such as antimicrobials. As used herein, a "carrier" refers to any substance suitable as a vehicle for delivering an APC to a suitable *in vitro* or *in vivo* site of action. As such, carriers can act as an excipient for formulation of a therapeutic or experimental reagent containing an APC. Preferred carriers are capable of maintaining an APC in a form that is capable of interacting with a T cell. Examples of such carriers include, but are not limited to water, phosphate buffered saline, saline, Ringer's solution, dextrose solution, serum-containing solutions, Hank's solution and other aqueous physiologically balanced solutions or cell culture medium. Aqueous carriers can also contain suitable auxiliary substances required to approximate the physiological conditions of the recipient, for example, enhancement of chemical stability and isotonicity. Suitable auxiliary substances include, for example, sodium acetate, sodium chloride, sodium lactate, potassium chloride, calcium chloride, sorbitan monolaurate, triethanolamine oleate, and other substances used to produce phosphate buffer, Tris buffer, and bicarbonate buffer.

Vaccine Compositions

The present disclosure further encompasses a vaccine or immunogenic composition capable of raising a specific T-cell response comprising:

- one or more neoantigenic peptides as herein defined,
- one or more polynucleotides encoding a neoantigenic peptide as herein defined; and/or
- a population of antigen presenting cells (such as autologous dendritic cells or artificial APC) as described above.

Preferably, neoantigenic peptide which are encoded by tumor specific fusions as previously defined are used in vaccine compositions as per the present disclosure. Said neoantigenic peptide can be also named tumor specific peptides. Preferably also polynucleotides encoding tumor specific peptides are used as per the present disclosure.

A suitable vaccine or immunogenic composition will preferably contain between 1 and 20 neoantigenic peptides, more preferably 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 different neoantigenic peptides, further preferred 6, 7, 8, 9, 10 11, 12, 13, or 14 different neoantigenic peptides, and most preferably 12, 13 or 14 different neoantigenic peptides.

The neoantigenic peptide(s) may be linked to a carrier protein. Where the composition contains two or more neoantigenic peptides, the two or more (e.g. 2-25) peptides may be linearly linked by a spacer molecule as described above, e.g. a spacer comprising 2-6 nonpolar or neutral amino acids.

In one embodiment of the present disclosure the different neoantigenic peptides, encoding polynucleotides, vectors, or APCs are selected so that one vaccine or immunogenic composition comprises neoantigenic peptides capable of associating with different MHC molecules, such as different MHC class I molecules. Preferably, such neoantigenic peptides are capable of associating with the most frequently occurring MHC class I molecules, e.g. different fragments capable of associating with at least 2 preferred, more preferably at least 3 preferred, even more preferably at least 4 preferred MHC class I molecules. In some embodiments, the compositions comprise peptides, encoding polynucleotides, vectors, or APCs capable of associating with one or more MHC class II molecules. The MHC is optionally HLA -A, -B, -C, -DP, -DQ, or -DR.

The vaccine or immunogenic composition is capable of raising a specific cytotoxic T-cells response and/or a specific helper T-cell response.

Thus, in a particular embodiment, the present disclosure also relates to a neoantigenic peptide as described above, wherein the neoantigenic peptide has a tumor specific neoepitope and is included in a vaccine or immunogenic composition. A vaccine composition is to be understood as meaning a composition for generating immunity for the prophylaxis and/or treatment of diseases. Accordingly, vaccines are medicines which comprise or generate antigens and are intended to be used in humans or animals for generating specific defense and protective substance by vaccination. An "immunogenic composition" is to be understood as meaning a composition that comprises or generates antigen(s) and is capable of eliciting an antigen-specific humoral or cellular immune response, e.g. T-cell response.

In a preferred embodiment, the neoantigenic peptide according to the disclosure is 8 or 9 residues long, or from 13 to 25 residues long. When the peptide is less than 20 residues, in order to have a peptide better suited for in vivo immunization, said neoantigenic peptide, is optionally flanked by additional amino acids to obtain an immunization peptide of more amino acids, usually more than 20.

Pharmaceutical compositions (i.e., the vaccine or immunogenic composition) comprising a peptide as herein described may be administered to an individual already suffering from cancer. In therapeutic applications, compositions are administered to a patient in an amount sufficient

to elicit an effective CTL response to the tumor antigen and to cure or at least partially arrest symptoms and/or complications. An amount adequate to accomplish this is defined as "therapeutically effective dose." Amounts effective for this use will depend on, e.g., the peptide composition, the manner of administration, the stage and severity of the disease being treated, the weight and general state of health of the patient, and the judgment of the prescribing physician, but generally range for the initial immunization (that is for therapeutic or prophylactic administration) from about 1.0 µg to about 50,000 µg of peptide for a 70 kg patient, followed by boosting dosages or from about 1.0 µg to about 10,000 µg of peptide pursuant to a boosting regimen over weeks to months depending upon the patient's response and condition by measuring specific CTL activity in the patient's blood. It must be kept in mind that the peptide and compositions of the present invention may generally be employed in serious disease states, that is, life-threatening or potentially life threatening situations, especially when the cancer has metastasized. In such cases, in view of the minimization of extraneous substances and the relative nontoxic nature of the peptide, it is possible and may be felt desirable by the treating physician to administer substantial excesses of these peptide compositions.

For therapeutic use, administration should begin at the detection or surgical removal of tumors. This is followed by boosting doses until at least symptoms are substantially abated and for a period thereafter.

The vaccine or immunogenic compositions for therapeutic treatment are intended for parenteral, topical, nasal, oral or local administration. Preferably, the pharmaceutical compositions are administered parenterally, e.g., intravenously, subcutaneously, intradermally, or intramuscularly. The compositions may be administered at the site of surgical excision to induce a local immune response to the tumor.

The vaccine or immunogenic composition may be a pharmaceutical composition which additionally comprises a pharmaceutically acceptable adjuvant, immunostimulatory agent, stabilizer, carrier, diluent, excipient and/or any other materials well known to those skilled in the art. Such materials should be non-toxic and should not interfere with the efficacy of the active ingredient. The carrier is preferably an aqueous carrier but its precise nature of the carrier or other material will depend on the route of administration. A variety of aqueous carriers may be used, e.g., water, buffered water, 0.9% saline, 0.3% glycine, hyaluronic acid and the like. These compositions may be sterilized by conventional, well known sterilization techniques, or may be sterile filtered. The resulting aqueous solutions may be packaged for use as is, or lyophilized, the lyophilized preparation being combined with a sterile solution prior to

administration. The compositions may further contain pharmaceutically acceptable auxiliary substances as required to approximate physiological conditions, such as pH adjusting and buffering agents, tonicity adjusting agents, wetting agents and the like, for example, sodium acetate, sodium lactate, sodium chloride, potassium chloride, calcium chloride, sorbitan monolaurate, triethanolamine oleate, etc. See, for example, Butterfield, BMJ. 2015 22;350 for a discussion of cancer vaccines.

Example adjuvants that increase or expand the immune response of a host to an antigenic compound include emulsifiers, muramyl dipeptides, avridine, aqueous adjuvants such as aluminum hydroxide, chitosan-based adjuvants, saponins, oils, Amphigen, LPS, bacterial cell wall extracts, bacterial DNA, CpG sequences, synthetic oligonucleotides, cytokines and combinations thereof. Emulsifier include, for example, potassium, sodium and ammonium salts of lauric and oleic acid, calcium, magnesium and aluminum salts of fatty acids, organic sulfonates such as sodium lauryl sulfate, cetyltrhethylammonlum bromide, glycerylesters, polyoxyethylene glycol esters and ethers, and sorbitan fatty acid esters and their polyoxyethylene, acacia, gelatin, lecithin and/or cholesterol. Adjuvants that comprise an oil component include mineral oil, a vegetable oil, or an animal oil. Other adjuvants include Freund's Complete Adjuvant (FCA) or Freund's Incomplete Adjuvant (FIA). Cytokines useful as additional immunostimulatory agents include interferon alpha, interleukin-2 (IL-2), and granulocyte macrophage-colony stimulating factor (GM-CSF), or combinations thereof.

The concentration of peptides as herein described in the vaccine or immunogenic formulations can vary widely, i.e., from less than about 0.1 %, usually at or at least about 2 % to as much as 20 % to 50 % or more by weight, and will be selected primarily by fluid volumes, viscosities, etc., in accordance with the particular mode of administration selected.

The peptides as herein described may also be administered via liposomes, which target the peptides to a particular cells tissue, such as lymphoid tissue. Liposomes are also useful in increasing the half-life of the peptides. Liposomes include emulsions, foams, micelles, insoluble monolayers, liquid crystals, phospholipid dispersions, lamellar layers and the like. In these preparations the peptide to be delivered is incorporated as part of a liposome, alone or in conjunction with a molecule which binds to, e.g., a receptor prevalent among lymphoid cells, such as monoclonal antibodies which bind to the CD45 antigen, or with other therapeutic or immunogenic compositions. Thus, liposomes filled with a desired peptide of the invention can be directed to the site of lymphoid cells, where the liposomes then deliver the selected therapeutic/immunogenic peptide compositions. Liposomes for use in the invention are formed

from standard vesicle-forming lipids, which generally include neutral and negatively charged phospholipids and a sterol, such as cholesterol. The selection of lipids is generally guided by consideration of, e.g., liposome size, acid lability and stability of the liposomes in the blood stream. A variety of methods are available for preparing liposomes, as described in, e.g., Szoka et al., Ann. Rev. Biophys. Bioeng. 9;467 (1980), USA U.S. Patent Nos. 4,235,871 , 4501728 USA 4,501,728 , 4,837,028 , and 5,019,369 .

For targeting to the immune cells, a ligand to be incorporated into the liposome can include, e.g., antibodies or fragments thereof specific for cell surface determinants of the desired immune system cells. A liposome suspension containing a peptide may be administered intravenously, locally, topically, etc. in a dose which varies according to, inter alia, the manner of administration, the peptide being delivered, and the stage of the disease being treated.

For solid compositions, conventional or nanoparticle nontoxic solid carriers may be used which include, for example, pharmaceutical grades of mannitol, lactose, starch, magnesium stearate, sodium saccharin, talcum, cellulose, glucose, sucrose, magnesium carbonate, and the like. For oral administration, a pharmaceutically acceptable nontoxic composition is formed by incorporating any of the normally employed excipients, such as those carriers previously listed, and generally 10-95% of active ingredient, that is, one or more peptides of the invention, and more preferably at a concentration of 25%-75%.

For aerosol administration, the immunogenic peptides are preferably supplied in finely divided form along with a surfactant and propellant. Typical percentages of peptides are 0.01 %-20 % by weight, preferably 1%-10%. The surfactant must, of course, be nontoxic, and preferably soluble in the propellant. Representative of such agents are the esters or partial esters of fatty acids containing from 6 to 22 carbon atoms, such as caproic, octanoic, lauric, palmitic, stearic, linoleic, linolenic, olesteric and oleic acids with an aliphatic polyhydric alcohol or its cyclic anhydride. Mixed esters, such as mixed or natural glycerides may be employed. The surfactant may constitute 0.1 %-20 % by weight of the composition, preferably 0.25-5 %. The balance of the composition is ordinarily propellant. A carrier can also be included as desired, as with, e.g., lecithin for intranasal delivery.

Cytotoxic T-cells (CTLs) recognize an antigen in the form of a peptide bound to an MHC molecule rather than the intact foreign antigen itself. The MHC molecule itself is located at the cell surface of an antigen presenting cell. Thus, an activation of CTLs is only possible if a trimeric complex of peptide antigen, MHC molecule, and antigen presenting cell (APC) is present. Correspondingly, it may enhance the immune response if not only the peptide is used

for activation of CTLs, but if additionally APCs with the respective MHC molecule are added. Therefore, in some embodiments the vaccine or immunogenic composition according to the present disclosure alternatively or additionally contains at least one antigen presenting cell, preferably a population of APCs.

The vaccine or immunogenic composition may thus be delivered in the form of a cell, such as an antigen presenting cell, for example as a dendritic cell vaccine. The antigen presenting cells such as a dendritic cell may be pulsed or loaded with a neoantigenic peptide as herein disclosed, may comprise an expression construct encoding a neoantigenic peptide as herein disclosed, or may be genetically modified (via DNA or RNA transfer) to express one, two or more of the herein disclosed neoantigenic peptides, for example at least 2, 3, 4, 5, 6, 7, 8, 9, or 10 neoantigenic peptides.

Suitable vaccines or immunogenic compositions may also be in the form of DNA or RNA relating to neoantigenic peptides as described herein. For example, DNA or RNA encoding one or more neoantigenic peptides or proteins derived therefrom may be used as the vaccine, for example by direct injection to a subject. For example, DNA or RNA encoding at least 2, 3, 4, 5, 6, 7, 8, 9 , 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 or 25 neoantigenic peptides or proteins derived therefrom.

A number of methods are conveniently used to deliver the nucleic acids to the patient. For instance, the nucleic acid can be delivered directly, as "naked DNA". This approach is described, for instance, in Wolff et al., Science 247: 1465-1468 (1990) as well as USAU.S. Patent Nos. 5,580,859 and 5,589,466 . The nucleic acids can also be administered using ballistic delivery as described, for instance, in U.S. Patent No. 5,204,253 . Particles comprised solely of DNA can be administered. Alternatively, DNA can be adhered to particles, such as gold particles.

The nucleic acids can also be delivered complexed to cationic compounds, such as cationic lipids. Lipid-mediated gene delivery methods are described, for instance, in 9618372WOAWO 96/18372; 9324640WOAWO 93/24640; Mannino & Gould-Fogerite, BioTechniques 6(7): 682-691 (1988); 5279833USARose U.S. Pat No. 5,279,833 ; 9106309WOAWO 91/06309; and Felgner et al., Proc. Natl. Acad. Sci. USA 84: 7413-7414 (1987).

Delivery systems may optionally include cell-penetrating peptides, nanoparticulate encapsulation, virus like particles, liposomes, or any combination thereof. Cell penetrating

peptides include TAT peptide, herpes simplex virus VP22, transportan, Antp. Liposomes may be used as a delivery system. Listeria vaccines or electroporation may also be used.

The one or more neoantigenic peptides may also be delivered via a bacterial or viral vector containing DNA or RNA sequences which encode one or more neoantigenic peptides. The DNA or RNA may be delivered as a vector itself or within attenuated bacteria virus or live attenuated virus, such as vaccinia or fowlpox. This approach involves the use of vaccinia virus as a vector to express nucleotide sequences that encode the peptide of the invention. Upon introduction into an acutely or chronically infected host or into a noninfected host, the recombinant vaccinia virus expresses the immunogenic peptide, and thereby elicits a host CTL response. Vaccinia vectors and methods useful in immunization protocols are described in, e.g., U.S. Patent No. 4,722,848 ,. Another vector is BCG (Bacille Calmette Guerin). BCG vectors are described in Stover et al. (Nature 351:456-460 (1991)). A wide variety of other vectors useful for therapeutic administration or immunization of the peptides of the invention, e.g.,Salmonella typhivectors and the like, will be apparent to those skilled in the art from the description herein.

An appropriate mean of administering nucleic acids encoding the peptides as herein described involves the use of minigene constructs encoding multiple epitopes. To create a DNA sequence encoding the selected CTL epitopes (minigene) for expression in human cells, the amino acid sequences of the epitopes are reverse translated. A human codon usage table is used to guide the codon choice for each amino acid. These epitope-encoding DNA sequences are directly adjoined, creating a continuous polypeptide sequence. To optimize expression and/or immunogenicity, additional elements can be incorporated into the minigene design. Examples of amino acid sequence that could be reverse translated and included in the minigene sequence include: helper T lymphocyte, epitopes, a leader (signal) sequence, and an endoplasmic reticulum retention signal. In addition, MHC presentation of CTL epitopes may be improved by including synthetic (e.g. poly-alanine) or naturally-occurring flanking sequences adjacent to the CTL epitopes.

The minigene sequence is converted to DNA by assembling oligonucleotides that encode the plus and minus strands of the minigene. Overlapping oligonucleotides (30-100 bases long) are synthesized, phosphorylated, purified and annealed under appropriate conditions using well known techniques. The ends of the oligonucleotides are joined using T4 DNA ligase. This synthetic minigene, encoding the CTL epitope polypeptide, can then cloned into a desired expression vector.

Standard regulatory sequences well known to those of skill in the art are included in the vector to ensure expression in the target cells. Thus, the DNA or RNA encoding the neoantigenic peptide(s) may typically be operably linked to one or more of:

- a promoter that can be used to drive nucleic acid molecule expression. AAV ITR can serve as a promoter and is advantageous for eliminating the need for an additional promoter element. For ubiquitous expression, the following promoters can be used: CMV (notably human cytomegalovirus immediate early promoter (hCMV-IE)), CAG, CBh, PGK, SV40, RSV, Ferritin heavy or light chains, etc. For brain expression, the following promoters can be used: Synapsinl for all neurons, CaMKIIalpha for excitatory neurons, GAD67 or GAD65 or VGAT for GABAergic neurons, etc. Promoters used to drive RNA synthesis can include: Pol III promoters such as U6 or HI . The use of a Pol II promoter and intronic cassettes can be used to express guide RNA (gRNA). Typically, the promoter includes a down-stream cloning site for minigene insertion. For examples of suitable promoters sequences, see notably U.S. Patent Nos. 5,580,859 and 5,589,466.
- Transcriptional transactivators or other enhancer elements, which can also increase transcription activity, e.g. the regulatory R region from the 5′ long terminal repeat (LTR) of human T-cell leukemia virus type 1 (HTLV-1) (which when combined with a CMV promoter has been shown to induce higher cellular immune response).
- Translation optimizing sequences e.g. a Kozak sequence flanking the AUG initiator codon (ACCAUGG) within mRNA, and codon optimization.

Additional vector modifications may be desired to optimize minigene expression and immunogenicity. In some cases, introns are required for efficient gene expression, and one or more synthetic or naturally-occurring introns could be incorporated into the transcribed region of the minigene. The inclusion of mRNA stabilization sequences can also be considered for increasing minigene expression. It has recently been proposed that immunostimulatory sequences (ISSs or CpGs) play a role in the immunogenicity of DNA' vaccines. These sequences could be included in the vector, outside the minigene coding sequence, if found to enhance immunogenicity.

In some embodiments, a bicistronic expression vector, to allow production of the minigene-encoded epitopes and a second protein included to enhance or decrease immunogenicity can be used.

DNA vaccines or immunogenic compositions as herein described can be enhanced by co-delivering cytokines that promote cell-mediated immune responses, such as IL-2, IL-12, IL-18,

GM-CSF and IFNγ. CXC chemokines such as IL-8, and CC chemokines such as macrophage inflammatory protein (MIP)-1α, MIP-3α, MIP-3β, and RANTES, may increase the potency of the immune response. DNA vaccine immunogenicity can also be enhanced by co-delivering plasmid-encoded cytokine-inducing molecules (e.g. LeIF), co-stimulatory and adhesion molecules, e.g. B7-1 (CD80) and/or B7-2 (CD86). Helper (HTL) epitopes could be joined to intracellular targeting signals and expressed separately from the CTL epitopes. This would allow direction of the HTL epitopes to a cell compartment different than the CTL epitopes. If required, this could facilitate more efficient entry of HTL epitopes into the MHC class II pathway, thereby improving CTL induction. In contrast to CTL induction, specifically decreasing the immune response by co-expression of immunosuppressive molecules (e.g. TGF-β) may be beneficial in certain diseases.

Once an expression vector is selected, the minigene is cloned into the polylinker region downstream of the promoter. This plasmid is transformed into an appropriate E. coli strain, and DNA is prepared using standard techniques. The orientation and DNA sequence of the minigene, as well as all other elements included in the vector, are confirmed using restriction mapping and DNA sequence analysis. Bacterial cells harboring the correct plasmid can be stored as a master cell bank and a working cell bank.

Purified plasmid DNA can be prepared for injection using a variety of formulations. The simplest of these is reconstitution of lyophilized DNA in sterile phosphate-buffer saline (PBS). A variety of methods have been described, and new techniques may become available. As noted above, nucleic acids are conveniently formulated with cationic lipids. In addition, glycolipids, fusogenic liposomes, peptides and compounds referred to collectively as protective, interactive, non-condensing (PINC) could also be complexed to purified plasmid DNA to influence variables such as stability, intramuscular dispersion, or trafficking to specific organs or cell types.

Vaccines or immunogenic compositions comprising peptides may be administered in combination with vaccines or immunogenic compositions comprising polynucleotide encoding the peptides. For example, administration of peptide vaccine and DNA vaccine may be alternated in a prime-boost protocol. For example, priming with a peptide immunogenic composition and boosting with a DNA immunogenic composition is contemplated, as is

priming with a DNA immunogenic composition and boosting with a peptide immunogenic composition.

The present disclosure also encompasses a method for producing a vaccine composition comprising the steps of:

a) Optionally, identifying at least one neoantigenic peptide according to the method as previously described;
b) producing said at least one neoantigenic peptide, at least one polypeptide encoding neoantigenic peptide(s), or at least a vector comprising said polypeptide(s) as described herein; and
c) optionally adding physiologically acceptable buffer, excipient and/or adjuvant and producing a vaccine with said at least one neoantigenic peptide, polypeptide or vector.

Another aspect of the present disclosure, is a method for producing a DC vaccine, wherein said DCs present at least one neoantigenic peptide as herein disclosed.

Antibodies TCRs, CARs and derivatives thereof

The present disclosure also relates to an antibody or an antigen-binding fragment thereof that specifically binds a neoantigenic peptide as herein defined.

In some embodiments, the neoantigenic peptide is in association with an MHC or HLA molecule.

Typically, said antibody, or antigen-binding fragment thereof binds a neoantigenic peptide as herein defined, alone or optionally in association with an MHC or HLA molecule (i.e., peptide MHC complex) with a dissociation constant (K_d) of about 2 x 10^{-7} M or less. In certain embodiments, the K_d is about 2 x 10^{-7} M or less, about 1 x 10^{-7} M or less, about 9 x 10^{-8} M or less, about 1 x 10^{-8} M or less, about 9 x 10^{-9} M or less, about 5 x 10^{-9} M or less, about 4 x 10^{-9} M or less, about 3 x 10^{-9} or less, about 2 x 10^{-9} M or less, or about 1 x 10^{-9} M or less, or about 1 x 10^{-10} M or less, or about 1 x 10^{-12} M or less. In certain non-limiting embodiments, the K_d is from about 1.5 x 10^{-6} M to about 2.7 x 10^{-12} M.

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The present disclosure thus includes antibodies targeting MHC-restricted peptides and in particular targeting neoantigenic peptides as herein defined in association with at an MHC (or HLA) molecule (peptide MHC complex) or TCR-like antibodies (see notably for detailed description and method of production Høydahl, Lene Støkken et al. "Targeting the MHC

Ligandome by Use of TCR-Like Antibodies." Antibodies (Basel, Switzerland) vol. 8,2 32. 9 May. 2019, doi:10.3390/antib8020032; He, Qinghua et al. "TCR-like antibodies in cancer immunotherapy." *Journal of hematology & oncology* vol. 12,1 99. 14 Sep. 2019, doi:10.1186/s13045-019-0788-4 ; Trenevska I, Li D, Banham AH. Therapeutic Antibodies against Intracellular Tumor Antigens. Front Immunol. 2017 Aug 18;8:1001. doi: 10.3389/fimmu.2017.01001. PMID: 28868054; PMCID: PMC5563323 ; or . Chang AY, Gejman RS, Brea EJ, Oh CY, Mathias MD, Pankov D, Casey E, Dao T, Scheinberg DA. Opportunities and challenges for TCR mimic antibodies in cancer therapy. Expert Opin Biol Ther. 2016 Aug;16(8):979-87. doi: 10.1080/14712598.2016.1176138. Epub 2016 Apr 27. PMID: 27094818; PMCID: PMC4936943).

In some embodiments, TCR-like antibodies can also be conjugated with cytotoxic organic compounds, such as antibody-drug conjugates (ADCs), radionuclides, and protein toxins, to mediate the specific killing of tumor cells (Dao T, et al. Therapeutic bispecific T-cell engager antibody targeting the intracellular oncoprotein WT1. *Nat Biotechnol.* 2015;**33**(10):1079–1086). Furthermore, immunomodulators or secondary antibodies can be conjugated with the TCR-like antibodies to mediate specific immune responses around the tumor site, as in bi-specific T cell engagers (BiTE) (Trenevska I, Li D, Banham AH. Therapeutic antibodies against intracellular tumor antigens. *Front Immunol.* 2017;**8**:1001).

To promote the infiltration and recognition of tumor cells by lymphocytes T (LT), another strategy consists in using antibodies capable of recognizing more than one antigenic target simultaneously and more particularly two antigenic targets simultaneously. There are many formats of bispecific antibodies. BiTE (bi-specific T-cell engager) are the first to have been developed. These are proteins of fusion consisting of two scFvs (variable domains heavy VH and light VL chains) from two antibodies linked by a binding peptide: one recognizes the LT marker (CD3+) and the other a tumor antigen. The goal is to favor recruitment and activation of LTs in contact with tumor, thus leading to cell lysis tumor (See for review Patrick A. Baeuerle and Carsten Reinhardt; Bispecific T-Cell Engaging Antibodies for Cancer Therapy; Cancer Res 2009; 69: (12). June 15, 2009 ; and Galaine *et al.*, Innovations & Thérapeutiques en Oncologie, vol. 3-n°3-7, mai-août 2017).

In a particular embodiment, said antibody is thus a bi-specific T-cell engager (BiTE), typically derived from a TCR-like antibody that specifically binds a tumor neoantigenic peptide as herein defined, optionally in association with a MHC or an HLA molecule and which further targets at least an immune cell antigen. Typically, the immune cell is a T cell, a NK cell or a dendritic

cell. In this context, the targeted immune cell antigen may be for example CD3, CD16, CD30 or a TCR.

The term "**antibody**" herein is used in the broadest sense and includes polyclonal and monoclonal antibodies, including intact antibodies and functional (antigen-binding) antibody fragments, including fragment antigen binding (Fab) fragments, F(ab')2 fragments, Fab' fragments, Fv fragments, recombinant IgG (rlgG) fragments, variable heavy chain (VH) regions capable of specifically binding the antigen, single chain antibody fragments, including single chain variable fragments (scFv), and single domain antibodies (e.g., VHH antibodies, sdAb, sdFv, nanobody) fragments. The term encompasses genetically engineered and/or otherwise variants modified forms of immunoglobulins, such as intrabodies, peptibodies, chimeric antibodies, fully human antibodies, humanized antibodies, and heteroconjugate antibodies, multispecific, e.g., bispecific, antibodies, diabodies, triabodies, and tetrabodies, tandem di-scFv, tandem tri-scFv. Unless otherwise stated, the term "antibody" should be understood to encompass functional antibody and fragments thereof. The term also encompasses intact or full-length antibodies, including antibodies of any class or sub-class, including IgG and sub-classes thereof, IgG1, IgG2, IgG3, IgG4, IgM, IgE, IgA, and IgD. In some embodiments, the antibody comprises a light chain variable domain and a heavy chain variable domain, e.g. in an scFv format.

Antibodies include variant polypeptide species that have one or more amino acid substitutions, insertions, or deletions in the native amino acid sequence, provided that the antibody retains or substantially retains its specific binding function. Conservative substitutions of amino acids are well known and described above.

The present disclosure further includes a method of producing an antibody, or antigen-binding fragment thereof, comprising a step of selecting antibodies that bind to a tumor neoantigen peptide as herein defined, optionally in association with an MHC or HLA molecule, with with a dissociation constant (K_d) of about 2 x 10^{-7} M or less. In certain embodiments, the K_d is about 2 x 10^{-7} M or less, about 1 x 10-7 M or less, about 9 x 10^{-8} M or less, about 1 x 10^{-8} M or less, about 9 x 10^{-9} M or less, about 5 x 10^{-9} M or less, about 4 x 10^{-9} M or less, about 3 x 10^{-9} or less, about 2 x 10^{-9} M or less, or about 1 x 10^{-9} M or less., or about 1 x 10^{-10} M or less, or about 1 x 10^{-12} M or less..

In certain embodiments, the antibody is of murine, human or camelid (e.g., lama) origin.

In some embodiments, the antibodies are selected from a library of human antibody sequences. In some embodiments, the antibodies are generated by immunizing an animal with a polypeptide comprising the neoantigenic peptide, optionally in association with an MHC or HLA molecule, followed by the selection step.

Antibodies including chimeric, humanized or human antibodies can be further affinity matured and selected as described above. Humanized antibodies contain rodent-sequence derived CDR regions; typically the rodent CDRs are engrafted into a human framework, and some of the human framework residues may be back-mutated to the original rodent framework residue to preserve affinity, and/or one or a few of the CDR residues may be mutated to increase affinity. Fully human antibodies have no murine sequence, and are typically produced via phage display technologies of human antibody libraries, or immunization of transgenic mice whose native immunoglobin loci have been replaced with segments of human immunoglobulin loci.

Antibodies produced by said method, as well as immune cells expressing such antibodies or fragments thereof are also encompassed by the present disclosure.

The present disclosure also encompasses pharmaceutical compositions comprising one or more antibodies as herein disclosed alone or in combination with at least one other agent, such as a stabilizing compound, which may be administered in any sterile, biocompatible pharmaceutical carrier and optionally formulated with formulated with sterile pharmaceutically acceptable buffer(s), diluent(s), and/or excipient(s). Pharmaceutically acceptable carriers typically enhance or stabilize the composition, and/or can be used to facilitate preparation of the composition. Pharmaceutically acceptable carriers include solvents, dispersion media, coatings, antibacterial and antifungal agents, isotonic and absorption delaying agents, and the like that are physiologically compatible and in some embodiments pharmaceutically inert.

Administration of a pharmaceutical composition comprising antibodies as herein disclosed can be accomplished orally or parenterally. Methods of parenteral delivery include topical, intra-arterial (directly to the tumor), intramuscular, spinal, subcutaneous, intramedullary, intrathecal, intraventricular, intravenous, intraperitoneal, or intranasal administration.

Thus, in addition to the active ingredients, these pharmaceutical compositions may contain suitable pharmaceutically acceptable carriers comprising excipients and auxiliaries which facilitate processing of the active compounds into preparations which can be used pharmaceutically. Further details on techniques for formulation and administration may be

found in the latest edition of Remington's Pharmaceutical Sciences (Ed. Maack Publishing Co, Easton, Pa.).

Depending on the route of administration, the active compound, i.e., antibody, bispecific and multispecific molecule, may be coated in a material to protect the compound from the action of acids and other natural conditions that may inactivate the compound.

The composition is typically sterile and preferably fluid. Proper fluidity can be maintained, for example, by use of coating such as lecithin, by maintenance of required particle size in the case of dispersion and by use of surfactants. In many cases, it is preferable to include isotonic agents, for example, sugars, polyalcohols such as mannitol or sorbitol, and sodium chloride in the composition. Long-term absorption of the injectable compositions can be brought about by including in the composition an agent which delays absorption, for example, aluminum monostearate or gelatin.

Pharmaceutical compositions for oral administration can be formulated using pharmaceutically acceptable carriers well known in the art in dosages suitable for oral administration. Such carriers enable the pharmaceutical compositions to be formulated as tablets, pills, dragees, capsules, liquids, gels, syrups, slurries, suspensions and the like, for ingestion by the patient.

Pharmaceutical preparations for oral use can be obtained through combination of active compounds with solid excipient, optionally grinding a resulting mixture, and processing the mixture of granules, after adding suitable auxilliaries, if desired, to obtain tablets or dragee cores. Suitable excipients are carbohydrate or protein fillers such as sugars, including lactose, sucrose, mannitol, or sorbitol; starch from corn, wheat, rice, potato, or other plants; cellulose such as methyl, cellulose, hydroxypropylmethylcellulose, or sodium carboxymethylcellulose; and gums including arabic and tragacanth; and proteins such as gelatin and collagen. If desired, disintegrating or solubilizing agents may be added, such as the cross-linked polyvinyl pyrrolidone, agar, alginic acid, or a salt thereof, such as sodium alginate.

Dragee cores are provided with suitable coatings such as concentrated sugar solutions, which may also contain gum arabic, talc, polyvinylpyrrolidone, carbopol gel, polyethylene glycol and/or titanium dioxide, lacquer solutions, and suitable organic solvents or solvent mixtures. Dyestuffs or pigments may be added to the tablets or dragee coatings for product identification or to characterize the quantity of active compound, ie. dosage.

Pharmaceutical preparations that can be used orally include push-fit capsules made of gelatin, as well as soft, sealed capsules made of gelatin and a coating such as glycerol or sorbitol. Push-

fit capsules can contain active ingredients mixed with a filler or binders such as lactose or starches, lubricants such as talc or magnesium stearate, and optionally, stabilizers. In soft capsules, the active compounds may be dissolved or suspended in suitable liquids, such as fatty oils, liquid paraffin, or liquid polyethylene glycol with or without stabilizers.

Pharmaceutical formulations for parenteral administration include aqueous solutions of active compounds. For injection, the pharmaceutical compositions of the invention may be formulated in aqueous solutions, preferably in physiologically compatible buffers such as Hank's solution, Ringer's solution, or physiologically buffered saline. Aqueous injection suspensions may contain substances that increase viscosity of the suspension, such as sodium carboxymethyl cellulose, sorbitol, or dextran. Additionally, suspensions of the active compounds may be prepared as appropriate oily injection suspensions. Suitable lipophilic solvents or vehicles include fatty oils such as sesame oil, or synthetic fatty acid esters, such as ethyl oleate or triglycerides, or liposomes. Optionally, the suspension may also contain suitable stabilizers or agents which increase the solubility of the compounds to allow for the preparation of highly concentrated solutions.

For topical or nasal administration, penetrants appropriate to the particular barrier to be permeated are used in the formulation. Such penetrants are generally known in the art.

Pharmaceutical compositions of the disclosure can be prepared in accordance with methods well known and routinely practiced in the art. See. e.g., Remington: The Science and Practice of Pharmacy, Mack Publishing Co., 20th ed., 2000; and Sustained and Controlled Release Drug Delivery Systems, J R. Robinson, ed., Marcel Dekker, Inc., New York, 1978. Pharmaceutical compositions are preferably manufactured under GMP conditions.

The present disclosure also encompasses a recombinant T cell receptor (TCR) that targets a neoantigenic peptide as herein defined in association with an MHC or HLA molecule.

The present disclosure further includes a method of producing a TCR, or an antigen-binding fragment thereof, comprising a step of selecting TCRs that bind to a tumor neoantigen peptide as herein defined, optionally in association with an MHC or HLA molecule, with a dissociation constant (K_d) of about 2 x 10^{-7} M or less. In certain embodiments, the K_d is about 2 x 10^{-7} M or less, about 1 x 10-7 M or less, about 9 x 10^{-8} M or less, about 1 x 10^{-8} M or less, about 9 x 10^{-9} M or less, about 5 x 10^{-9} M or less, about 4 x 10^{-9} M or less, about 3 x 10^{-9} or less, about 2 x

10^{-9} M or less, or about 1 x 10^{-9} M or less., or about 1 x 10^{-10} M or less, or about 1 x 10^{-12} M or less...

Nucleic acid encoding the TCR can be obtained from a variety of sources, such as by polymerase chain reaction (PCR) amplification of naturally occurring TCR DNA sequences, followed by expression of antibody variable regions, followed by the selecting step described above. In some embodiments, the TCR is obtained from T-cells isolated from a patient, or from cultured T-cell hybridomas. In some embodiments, the TCR clone for a target antigen has been generated in transgenic mice engineered with human immune system genes (e.g., the human leukocyte antigen system, or HLA). See, e.g., tumor antigens (see, e.g., Parkhurst et al. (2009) Clin Cancer Res. 15:169-180 and Cohen et al. (2005) J Immunol. 175:5799-5808. In some embodiments, phage display is used to isolate TCRs against a target antigen (see, e.g., Varela-Rohena et al. (2008) Nat Med. 14:1390-1395 and Li (2005) Nat Biotechnol. 23:349-354.

A "**T cell receptor**" or "**TCR**" refers to a molecule that contains a variable α and β chains (also known as TCRa and TCRb, respectively) or a variable γ and δ chains (also known as TCRg and TCRd, respectively) and that is capable of specifically binding to an antigen peptide bound to a MHC receptor. In some embodiments, the TCR is in the αβ form. Typically, TCRs that exist in αβ and γδ forms are generally structurally similar, but T cells expressing them may have distinct anatomical locations or functions. A TCR can be found on the surface of a cell or in soluble form. Generally, a TCR is found on the surface of T cells (or T lymphocytes) where it is generally responsible for recognizing antigens bound to major histocompatibility complex (MHC) molecules through its extracellular binding domain. In some embodiments, a TCR also can contain a constant domain, a transmembrane domain and/or a short cytoplasmic tail (see, e.g., Janeway et ah, Immunobiology: The Immune System in Health and Disease, 3 rd Ed., Current Biology Publications, p. 4:33, 1997). For example, in some aspects, each chain of the TCR can possess one N-terminal immunoglobulin variable domain, one immunoglobulin constant domain, a transmembrane region, and a short cytoplasmic tail at the C-terminal end. In some embodiments, a TCR is associated with invariant proteins of the CD3 complex involved in mediating signal transduction. Unless otherwise stated, the term "TCR" should be understood to encompass functional TCR fragments thereof. The term also encompasses intact or full-length TCRs, including TCRs in the αβ form or γδ form.

Thus, for purposes herein, reference to a TCR includes any TCR or functional fragment, such as an antigen-binding portion of a TCR that binds to a specific antigenic peptide bound in an MHC molecule, i.e. MHC-peptide complex. An "antigen-binding portion" or antigen-binding

fragment" of a TCR, which can be used interchangeably, refers to a molecule that contains a portion of the structural domains of a TCR, but that binds the antigen (e.g. MHC-peptide complex) to which the full TCR binds. In some cases, an antigen-binding portion contains the variable domains of a TCR, such as variable a chain and variable β chain of a TCR, sufficient to form a binding site for binding to a specific MHC-peptide complex, such as generally where each chain contains three complementarity determining regions.

In some embodiments, the variable domains of the TCR chains associate to form loops, or complementarity determining regions (CDRs) analogous to immunoglobulins, which confer antigen recognition and determine peptide specificity by forming the binding site of the TCR molecule and determine peptide specificity. Typically, like immunoglobulins, the CDRs are separated by framework regions (FRs) {see, e.g., Jores et al., Pwc. Nat'lAcad. Sci. U.S.A. 87:9138, 1990; Chothia et al., EMBO J. 7:3745, 1988; see also Lefranc et al., Dev. Comp. Immunol. 27:55, 2003). In some embodiments, CDR3 is the main CDR responsible for recognizing processed antigen, although CDR1 of the alpha chain has also been shown to interact with the N-terminal part of the antigenic peptide, whereas CDR1 of the beta chain interacts with the C-terminal part of the peptide. CDR2 is thought to recognize the MHC molecule. In some embodiments, the variable region of the β-chain can contain a further hypervariability (HV4) region.

In some embodiments, the TCR chains contain a constant domain. For example, like immunoglobulins, the extracellular portion of TCR chains {e.g., α-chain, β-chain) can contain two immunoglobulin domains, a variable domain {e.g., Va or Vp; typically amino acids 1 to 116 based on Kabat numbering Kabat et al., "Sequences of Proteins of Immunological Interest, US Dept. Health and Human Services, Public Health Service National Institutes of Health, 1991, 5th ed.) at the N-terminus, and one constant domain {e.g., a-chain constant domain or Ca, typically amino acids 117 to 259 based on Kabat, β-chain constant domain or Cp, typically amino acids 117 to 295 based on Kabat) adjacent to the cell membrane. For example, in some cases, the extracellular portion of the TCR formed by the two chains contains two membrane-proximal constant domains, and two membrane-distal variable domains containing CDRs. The constant domain of the TCR domain contains short connecting sequences in which a cysteine residue forms a disulfide bond, making a link between the two chains. In some embodiments, a TCR may have an additional cysteine residue in each of the α and β chains such that the TCR contains two disulfide bonds in the constant domains.

In some embodiments, the TCR chains can contain a transmembrane domain. In some embodiments, the transmembrane domain is positively charged. In some cases, the TCR chains contain a cytoplasmic tail. In some cases, the structure allows the TCR to associate with other molecules like CD3. For example, a TCR containing constant domains with a transmembrane region can anchor the protein in the cell membrane and associate with invariant subunits of the CD3 signaling apparatus or complex.

Generally, CD3 is a multi-protein complex that can possess three distinct chains (γ, δ, and ε) in mammals and the ζ-chain. For example, in mammals the complex can contain a CD3y chain, a CD35 chain, two CD3s chains, and a homodimer of CD3ζ chains. The CD3y, CD35, and CD3s chains are highly related cell surface proteins of the immunoglobulin superfamily containing a single immunoglobulin domain. The transmembrane regions of the CD3y, CD35, and CD3s chains are negatively charged, which is a characteristic that allows these chains to associate with the positively charged T cell receptor chains. The intracellular tails of the CD3y, CD35, and CD3s chains each contain a single conserved motif known as an immunoreceptor tyrosine -based activation motif or ITAM, whereas each CD3ζ chain has three. Generally, ITAMs are involved in the signaling capacity of the TCR complex. These accessory molecules have negatively charged transmembrane regions and play a role in propagating the signal from the TCR into the cell. The CD3- and ζ-chains, together with the TCR, form what is known as the T cell receptor complex.

In some embodiments, the TCR may be a heterodimer of two chains α and β (or optionally γ and δ) or it may be a single chain TCR construct. In some embodiments, the TCR is a heterodimer containing two separate chains (α and β chains or γ and δ chains) that are linked, such as by a disulfide bond or disulfide bonds.

While T-cell receptors (TCRs) are transmembrane proteins and do not naturally exist in soluble form, antibodies can be secreted as well as membrane bound. Importantly, TCRs have the advantage over antibodies that they in principle can recognize peptides generated from all degraded cellular proteins, both intra- and extracellular, when presented in the context of MHC molecules. Thus TCRs have important therapeutic potential.

The present disclosure also relates to soluble T-cell receptors (sTCRs) that contain the antigen recognition part directed against a tumor neoantigenic peptide as herein disclosed (see notably Walseng E, Wälchli S, Fallang L-E, Yang W, Vefferstad A, Areffard A, et al. (2015) Soluble T-Cell Receptors Produced in Human Cells for Targeted Delivery. PLoS ONE 10(4): e0119559). In a particular embodiment, the soluble TCR can be fused to an antibody fragment

directed to a T cell antigen, optionally wherein the targeted antigen is CD3 or CD16 (see for example Boudousquie, Caroline et al. "Polyfunctional response by ImmTAC (IMCgp100) redirected CD8+ and CD4+ T cells." Immunology vol. 152,3 (2017): 425-438. doi:10.1111/imm.12779).

In certain embodiments, the present disclosure encompasses Recombinant HLA-independent (or non-HLA restricted) T cell receptors (referred to as "HI-TCRs") that bind to a neoantigenic peptide as herein defined in an HLA-independent manner. "HI-TCRs" as herein intended and which are well-suited to the present invention are described in International Application No. WO 2019/157454. Thus, typically HI-TCRs according to the present disclosure comprise an antigen binding chain that comprises: (a) an antigen-binding domain (as previously defined) that binds to an antigen in an HLA-independent manner, for example, an antigen-binding fragment of an immunoglobulin variable region; and (b) a constant domain that is capable of associating with (and consequently activating) a CD3ζ polypeptide. Because typically TCRs bind antigen in a HLA-dependent manner, the antigen-binding domain that binds in an HLA-independent manner is heterologous. Preferably, the antigen-binding domain or fragment thereof comprises: (i) an antigen-binding domain comprising or consisting of an heavy chain variable region (VH) of an antibody and/or (ii) a light chain variable region (VL) of an antibody. The constant domain of the TCR is, for example, a native or modified TRAC polypeptide, or a native or modified TRBC polypeptide. The constant domain of the TCR is, for example, a native TCR constant domain (alpha or beta) or fragment thereof. Unlike chimeric antigen receptors, which typically themselves comprise an intracellular signaling domain, the HI-TCR does not directly produce an activating signal; instead, the antigen-binding chain associates with and consequently activates a CD3ζ polypeptide. The immune cells comprising the recombinant TCR provide superior activity when the antigen has a low density on the cell surface of less than about 10,000 molecules per cell.

The CD3ζ polypeptide is, for example, a native CD3ζ polypeptide or a modified CD3ζ polypeptide. The CD3ζ polypeptide is optionally fused to an intracellular domain of a co-stimulatory molecule or a fragment thereof. Alternatively, the antigen binding domain optionally comprises a co-stimulatory region, e.g. intracellular domain, that is capable of stimulating an immunoresponsive cell upon the binding of the antigen binding chain to the antigen. Example co-stimulatory molecules include CD28, 4-1BB, OX40, ICOS, DAP-10, fragments thereof, or a combination thereof.

In some embodiments, the recombinant HI-TCR is expressed by a transgene that is integrated at an endogenous gene locus of the immunoresponsive cell, for example, a CD3δ locus, a CD3ε

locus, a CD247 locus, a B2M locus, a TRAC locus, a TRBC locus, a TRDC locus and/or a TRGC locus. In most embodiments, expression of the recombinant HI-TCR is driven from the endogenous TRAC or TRBC gene locus. In some embodiments, the transgene encoding a portion of the recombinant HI-TCR is integrated into the endogenous TRAC and/or TRBC locus in a manner that disrupts or abolishes the endogenous expression of a TCR comprising a native TCR α chain and/or a native TCR β chain. This disruption prevents or eliminates mispairing between the recombinant TCR and a native TCR α chain and/or a native TCR β chain in the immunoresponsive cell. The endogenous gene locus may also comprise a modified transcription terminator region, for example, a TK transcription terminator, a GCSF transcription terminator, a TCRA transcription terminator, an HBB transcription terminator, a bovine growth hormone transcription terminator, an SV40 transcription terminator, and a P2A element.

In some embodiments of the present disclosure, the recombinant TCR and typically the HI-TCR comprises an extracellular antigen-binding domain which is capable of dimerizing with a second extracellular antigen-binding domain. Typically, the second extracellular antigen-binding domain binds a tumor antigen, preferably wherein the tumor antigen is selected from pHER95, CD19, MUC16, MUC1, CAIX, CEA, CD8, CD7, CD10, CD20, CD22, CD30, CD70, CLL1, CD33, CD34, CD38, CD41, CD44, CD49f, CD56, CD74, CD133, CD138, EGP-2, EGP-40, EpCAM, Erb-B2, Erb-B3, Erb-B4, FBP, Fetal acetylcholine receptor, folate receptor-a, GD2, GD3, HER-2, hTERT, IL-13R-a2, κ-light chain, KDR, LeY, L1 cell adhesion molecule, MAGE-A1, Mesothelin, MAGEA3, p53, MART1,GP100, Proteinase3 (PR1), Tyrosinase, Survivin, hTERT, EphA2, NKG2D ligands, NY-ESO-1, oncofetal antigen (h5T4), PSCA, PSMA, ROR1, TAG-72, VEGF-R2, WT-1, BCMA, CD123, CD44V6, NKCS1, EGF1R, EGFR-VIII, CD99, CD70, ADGRE2, CCR1, LILRB2, LILRB4, PRAME, and ERBB.

The present disclosure also encompasses a chimeric antigen receptor (CAR) which is directed against a tumor neoantigenic peptide as herein disclosed. CARs are fusion proteins comprising an antigen-binding domain, typically derived from an antibody, linked to the signalling domain of the TCR complex. CARs can be used to direct immune cells, such as T-cells or NK T cells, against a tumor neoantigenic peptide as previously defined with a suitable antigen-binding domain selected.

The antigen-binding domain of a CAR is typically based on a scFv (single chain variable fragment) derived from an antibody. In addition to an N-terminal, extracellular antibody-binding domain, CARs typically may comprise a hinge domain, which functions as a spacer to

extend the antigen-binding domain away from the plasma membrane of the immune effector cell on which it is expressed, a transmembrane (TM) domain, an intracellular signalling domain (e.g. the signalling domain from the zeta chain of the CD3 molecule (CD3ζ) of the TCR complex, or an equivalent) and optionally one or more co- stimulatory domains which may assist in signalling or functionality of the cell expressing the CAR. Signalling domains from co-stimulatory molecules including CD28, OX-40 (CD134), and 4-1BB (CD137) can be added alone (second generation) or in combination (third generation) to enhance survival and increase proliferation of CAR modified T cells. Potential co-stimulatory domains also include ICOS-1, CD27, GITR, and DAP10.

Thus, the CAR may include

(1) In its extracellular portion, one or more antigen binding molecules, such as one or more antigen-binding fragment, domain, or portion of an antibody, or one or more antibody variable domains, and/or antibody molecules.

(2) In its transmembrane portion, a transmembrane domain derived from human T cell receptor-alpha or -beta chain, a CD3 zeta chain, CD28, CD3-epsilon, CD45, CD4, CD5, CD8, CD9, CD16, CD22, CD33, CD37, CD64, CD80, CD86, CD134, CD137, ICOS, CD154, or a GITR. In some embodiments, the transmembrane domain is derived from CD28, CD8 or CD3-zeta.

(3) One or more co-stimulatory domains, such as co-stimulatory domains derived from human CD28, 4-1BB (CD137), ICOS-1, CD27, OX 40 (CD137), DAP10, and GITR (AITR). In some embodiments, the CAR comprises co-stimulating domains of both CD28 and 4-1BB.

(4) In its intracellular signalling domain, an intracellular signalling domain comprising one or more ITAMs, for example, the intracellular signalling domain is CD3-zeta, or a variant thereof lacking one or two ITAMs (e.g. ITAM3 and ITAM2), or the intracellular signalling domain is derived from FcεRIγ.

The CAR can be designed to recognize tumor neoantigenic peptide alone or in association with an HLA or MHC molecule.

The moieties used to bind to antigen include three general categories, either single-chain antibody fragments (scFvs) derived from antibodies, Fab's selected from libraries, or natural ligands that engage their cognate receptor (for the first-generation CARs). Successful examples in each of these categories are notably reported in Sadelain M, Brentjens R, Riviere I. The basic

principles of chimeric antigen receptor (CAR) design. Cancer discovery. 2013; 3(4):388-398 (see notably table 1) and are included in the present application.

Antibodies include chimeric, humanized or human antibodies, and can be further affinity matured and selected as described above. Chimeric or humanized scFv's derived from rodent immunoglobulins (e.g. mice, rat) are commonly used, as they are easily derived from well-characterized monoclonal antibodies. Humanized antibodies contain rodent-sequence derived CDR regions; typically, the rodent CDRs are engrafted into a human framework, and some of the human framework residues may be back-mutated to the original rodent framework residue to preserve affinity, and/or one or a few of the CDR residues may be mutated to increase affinity. Fully human antibodies have no murine sequences, and are typically produced via phage display technologies of human antibody libraries, or immunization of transgenic mice whose native immunoglobin loci have been replaced with segments of human immunoglobulin loci. Variants of the antibodies can be produced that have one or more amino acid substitutions, insertions, or deletions in the native amino acid sequence, wherein the antibody retains or substantially retains its specific binding function. Conservative substitutions of amino acids are well known and described above. Further variants may also be produced that have improved affinity for the antigen.

Typically, the CAR includes an antigen-binding domain as previously defined from an antibody molecule, such as a single-chain antibody fragment (scFv) derived from the variable heavy (VH) and variable light (VL) chains of a monoclonal antibody (mAb).

In some aspects, the antigen- binding, domain of the CAR is linked to one or more transmembrane and intracellular signaling domains. In some embodiments, the CAR includes a transmembrane domain fused to the extracellular domain of the CAR. In one embodiment, the transmembrane domain that is naturally associated with one of the domains in the CAR is used. In some instances, the transmembrane domain is selected or modified by amino acid substitution to avoid binding of such domains to the transmembrane domains of the same or different surface membrane proteins to minimize interactions with other members of the receptor complex.

The transmembrane domain in some embodiments is derived either from a natural or from a synthetic source. Where the source is natural, the domain can be derived from any membrane-bound or transmembrane protein. Transmembrane regions include those derived from (i.e. comprise at least the transmembrane region(s) of) the alpha, beta or zeta chain of the T-cell receptor, CD28, CD3 epsilon, CD45, CD4, CD5, CD8, CD9, CD16, CD22, CD33, CD37,

CD64, CD80, CD86, CD 134, CD137, CD154, ICOS or a GITR). The transmembrane domain can also be synthetic. In some embodiments, the transmembrane domain is derived from CD28, CD8 or CD3-zeta.

In some embodiments, a short oligo- or polypeptide linker, for example, a linker of between 2 and 10 amino acids in length, is present and forms a linkage between the transmembrane domain and the cytoplasmic signaling domain of the CAR.

The CAR generally includes at least one intracellular signaling component or components. First generation CARs typically had the intracellular domain from the CD3 ζ- chain, which is the primary transmitter of signals from endogenous TCRs. Second generation CARs typically further comprise intracellular signaling domains from various costimulatory protein receptors (e.g., CD28, 41BB (CD28), ICOS) to the cytoplasmic tail of the CAR to provide additional signals to the T cell. Co-stimulatory domains include domains derived from human CD28, 4-1BB (CD137), ICOS-1, CD27, OX 40 (CD137), DAP10, and GITR (AITR). Combinations of two co-stimulatory domains are contemplated, e.g. CD28 and 4-1BB, or CD28 and OX40. Third generation CARs combine multiple signaling domains, such as CD3z-CD28-4-1BB or CD3z-CD28-OX40, to augment potency.

The intracellular signaling domain can be from an intracellular component of the TCR complex, such as a TCR CD3+ chain that mediates T-cell activation and cytotoxicity, e.g., the CD3 zeta chain. Alternative intracellular signaling domains include FcεRIγ. The intracellular signaling domain may comprise a modified CD3 zeta polypeptide lacking one or two of its three immunoreceptor tyrosine-based activation motifs (ITAMs), wherein the ITAMs are ITAM1, ITAM2 and ITAM3 (numbered from the N-terminus to the C-terminus). The intracellular signaling region of CD3-zeta is residues 22-164 of SEQ ID NO: 4. ITAM1 is located around amino acid residues 61-89, ITAM2 around amino acid residues 100-128, and ITAM3 around residues 131-159. Thus, the modified CD3 zeta polypeptide may have any one of ITAM1, ITAM2, or ITAM3 inactivated. Alternatively, the modified CD3 zeta polypeptide may have any two ITAMs inactivated, e.g. ITAM2 and ITAM3, or ITAM1 and ITAM2. Preferably, ITAM3 is inactivated, e.g. deleted. More preferably, ITAM2 and ITAM3 are inactivated, e.g. deleted, leaving ITAM1. For example, one modified CD3 zeta polypeptide retains only ITAM1 and the remaining CD3ζ domain is deleted (residues 90-164). As another example, ITAM1 is substituted with the amino acid sequence of ITAM3, and the remaining CD3ζ domain is deleted (residues 90-164). See, for example, Bridgeman et al., Clin. Exp. Immunol. 175(2): 258-67

(2014); Zhao et al., J. Immunol. 183(9): 5563-74 (2009); Maus et al., WO 2018/132506; Sadelain et al., WO/2019/133969, Feucht et al., Nat Med. 25(1):82-88 (2019).

Thus, in some aspects, the antigen binding domain is linked to one or more cell signaling modules. In some embodiments, cell signaling modules include CD3 transmembrane domain, CD3 intracellular signaling domains, and/or other CD transmembrane domains. The CAR can also further include a portion of one or more additional molecules such as Fc receptor γ, CD8, CD4, CD25, or CD16.

In some embodiments, upon ligation of the CAR, the cytoplasmic domain or intracellular signaling domain of the CAR activates at least one of the normal effector functions or responses of the corresponding non-engineered immune cell (typically a T cell). For example, the CAR can induce a function of a T cell such as cytolytic activity or T-helper activity, secretion of cytokines or other factors.

In some embodiments, the intracellular signaling domain(s) include the cytoplasmic sequences of the T cell receptor (TCR), and in some aspects also those of co-receptors that in the natural context act in concert with such receptor to initiate signal transduction following antigen-specific receptor engagement, and/or a variant of such molecules, and/or any synthetic sequence that has the same functional capability.

T cell activation is in some aspects described as being mediated by two classes of cytoplasmic signaling sequences: those that initiate antigen- dependent primary activation through the TCR (primary cytoplasmic signaling sequences), and those that act in an antigen-independent manner to provide a secondary or co- stimulatory signal (secondary cytoplasmic signaling sequences). In some aspects, the CAR includes one or both of such signaling components.

In some aspects, the CAR includes a primary cytoplasmic signaling sequence that regulates primary activation of the TCR complex either in a stimulatory way, or in an inhibitory way. Primary cytoplasmic signaling sequences that act in a stimulatory manner may contain signaling motifs which are known as immunoreceptor tyrosine -based activation motifs or ITAMs. Examples of ITAM containing primary cytoplasmic signaling sequences include those derived from TCR zeta, FcR gamma, FcR beta, CD3 gamma, CD3 delta, CD3 epsilon, CDS, CD22, CD79a, CD79b, and CD66d. In some embodiments, cytoplasmic signaling molecule(s) in the CAR contain(s) a cytoplasmic signaling domain, portion thereof, or sequence derived from CD3 zeta.

The CAR can also include a signaling domain and/or transmembrane portion of a costimulatory receptor, such as CD28, 4-1BB, OX40, DAP10, and ICOS. In some aspects, the same CAR includes both the activating and costimulatory components; alternatively, the activating domain is provided by one CAR whereas the costimulatory component is provided by another CAR recognizing another antigen.

Thus, in some embodiments, the CAR may include:

(1) In its extracellular portion, one or more antigen binding molecules, such as one or more antigen-binding fragment, domain, or portion of an antibody, or one or more antibody variable domains (heavy chain and/or light chain), and/or antibody molecules.

(2) In its transmembrane portion, a transmembrane domain derived from human T cell receptor-alpha or -beta chain, a CD3 zeta chain, CD28, CD3-epsilon, CD45, CD4, CD5, CD8, CD9, CD16, CD22, CD33, CD37, CD64, CD80, CD86, CD134, CD137, ICOS, CD154, or a GITR. In some embodiments, the transmembrane domain is derived from CD28, CD8 or CD3-zeta.

(3) One or more co-stimulatory domains, such as co-stimulatory domains derived from human CD28, 4-1BB (CD137), ICOS-1, CD27, OX 40 (CD137), DAP10, and GITR (AITR). In some embodiments, the CAR comprises co-stimulating domains of both CD28 and 4-1BB.

(4) In its intracellular signalling domain, one or more intracellular signalling domain(s) comprising one or more ITAMs, for example: the intracellular signalling domain or a portion thereof from CD3-zeta, or a variant thereof lacking one or two ITAMs (*e.g.*: ITAM3 and/or ITAM2 see also as detailed above and bibliographic references), FcR gamma, FcR beta, CD3 gamma, CD3 delta, CD3 epsilon, CDS, CD22, CD79a, CD79b, and/or CD66d, notably selected from the intracellular domain of CD3-zeta, or a variant thereof lacking one or two ITAMs (*e.g.*: ITAM3 and ITAM2), or the intracellular signalling of FcεRIγ or a variant thereof.

The CAR or other antigen-specific receptor can also be an inhibitory CAR (e.g. iCAR) and includes intracellular components that dampen or suppress a response, such as an immune response. Examples of such intracellular signaling components are those found on immune

checkpoint molecules, including PD-1, CTLA4, LAG3, BTLA, OX2R, TIM-3, TIGIT, LAIR-1, PGE2 receptors, EP2/4 Adenosine receptors including A2AR. In some aspects, the engineered cell includes an inhibitory CAR including a signaling domain of or derived from such an inhibitory molecule, such that it serves to dampen the response of the cell. Such CARs are used, for example, to reduce the likelihood of off-target effects when the antigen recognized by the activating receptor, e.g, CAR, is also expressed, or may also be expressed, on the surface of normal cells.

In some embodiments, the CAR is a MHC-restricted antibody-based chimeric antigen receptor or TCR-like CAR. Typically, such CAR comprises an antibody or a fragment thereof targeting a MHC restricted neoantigenic peptide as previously defined. A non-limiting example of a CAR MHC-resticted antibody-based CAR which general structure is typically well-suited according to the present disclosure can be found in Maus MV, Plotkin J, Jakka G, et al. An MHC-restricted antibody-based chimeric antigen receptor requires TCR-like affinity to maintain antigen specificity. Mol Ther Oncolytics. 2017;3:1-9.

Exemplary antigen receptors, including CARs and recombinant TCRs, as well as methods for engineering and introducing the receptors into cells, include those described, for example, in international patent application publication numbers WO200014257, WO2013126726, WO2012/129514, WO2014031687, WO2013/166321, WO2013/071154, WO2013/123061, WO2019157454, U.S. patent application publication numbers US2002131960, US2013287748, US20130149337, U.S. Patent Nos.: 6,451,995, 7,446,190, 8,252,592, , 8,339,645, 8,398,282, 7,446,179, 6,410,319, 7,070,995, 7,265,209, 7,354,762, 7,446,191, 8,324,353, and 8,479,118, and European patent application number EP2537416, and/or those described by Sadelain et al., Cancer Discov. 2013 April; 3(4): 388-398; Davila et al. (2013) PLoS ONE 8(4): e61338; Turtle et al., Curr. Opin. Immunol., 2012 October; 24(5): 633-39; Wu et al., Cancer, 2012 March 18(2): 160-75. In some aspects, the genetically engineered antigen receptors include a CAR as described in U.S. Patent No.: 7,446,190, and those described in International Patent Application Publication No.: WO/2014055668 Al.

The present disclosure also encompasses polynucleotides encoding antibodies, antigen-binding fragments or derivatives thereof, TCRs and CARs as previously described as well as vector comprising said polynucleotide(s).

Immune cells

The present disclosure further encompasses an immune cell, notably an isolated immune cell which target one or more tumor neoantigenic peptides as previously described. In more specific embodiments the present disclosure encompasses an immune cell, notably an isolated immune cell expressing a recombinant CAR or TCR as previously defined.

As used herein, the term "immune cell" includes cells that are of hematopoietic origin and that play a role in the immune response. Immune cells include lymphocytes, such as B cells and T cells, natural killer cells, myeloid cells, such as monocytes, macrophages, eosinophils, mast cells, basophils, and granulocytes.

As used herein, the term "T cell" includes cells bearing a T cell receptor (TCR), in particular TCR directed against a tumor neoantigenic peptide as herein disclosed. T-cells according to the present disclosure can be selected from the group consisting of inflammatory T-lymphocytes, cytotoxic T-lymphocytes, regulatory T-lymphocytes, Mucosal-Associated Invariant T cells (MAIT), Yδ T cell, tumour infiltrating lymphocyte (TILs) or helper T- lymphocytes included both type 1 and 2 helper T cells and Th17 helper cells. In another embodiment, said cell can be derived from the group consisting of CD4+ T- lymphocytes and CD8+ T-lymphocytes. Said immune cells may originate from a healthy donor or from a subject suffering from a cancer. In some embodiments, the immune cell is an allogenic or autologous cell. In some embodiments, the immune cell is selected from T cells, Natural Killer T cells, CD4+/CD8+ T cells, TILs/tumor derived CD8 T cells, central memory CD8+ T cells, Treg, MAIT, Yδ T cells, human embryonic stem cells, and pluripotent stem cells from which lymphoid cells may be differentiated.

Immune cells can be extracted from blood or derived from stem cells. The stem cells can be adult stem cells, embryonic stem cells, more particularly non-human stem cells, cord blood stem cells, progenitor cells, bone marrow stem cells, induced pluripotent stem cells, totipotent stem cells or hematopoietic stem cells. Representative human cells are CD34+ cells.

T-cells can be obtained from a number of non-limiting sources, including peripheral blood mononuclear cells, bone marrow, lymph node tissue, cord blood, thymus tissue, tissue from a site of infection, ascites, pleural effusion, spleen tissue, and tumors. In certain embodiments, T-cells can be obtained from a unit of blood collected from a subject using any number of techniques known to the skilled person, such as FICOLL™ separation. In one embodiment, cells from the circulating blood of a subject are obtained by apheresis. In certain embodiments, T-cells are isolated from PBMCs. PBMCs may be isolated from buffy coats obtained by density gradient centrifugation of whole blood, for instance centrifugation through a LYMPHOPREP™ gradient, a PERCOLL™ gradient or a FICOLL™ gradient. T-cells may be isolated from

PBMCs by depletion of the monocytes, for instance by using CD14 DYNABEADS®. In some embodiments, red blood cells may be lysed prior to the density gradient centrifugation.

In another embodiment, said cell can be derived from a healthy donor, from a subject diagnosed with cancer. The cell can be autologous or allogeneic.

In allogeneic immune cell therapy, immune cells are collected from healthy donors, rather than the patient. Typically these are HLA matched to reduce the likelihood of graft vs. host disease. Alternatively, universal 'off the shelf' products that may not require HLA matching comprise modifications designed to reduce graft vs. host disease, such as disruption or removal of the TCRαβ receptor. See Graham et al., Cells. 2018 Oct; 7(10): 155 for a review. Because a single gene encodes the alpha chain (TRAC) rather than the two genes encoding the beta chain, the TRAC locus is a typical target for removing or disrupting TCRαβ receptor expression. Alternatively, inhibitors of TCRαβ signalling may be expressed, e.g. truncated forms of CD3ζ can act as a TCR inhibitory molecule. Disruption or removal of HLA class I molecules has also been employed. For example, Torikai et al., Blood. 2013;122:1341–1349 used ZFNs to knock out the HLA-A locus, while Ren et al., Clin. Cancer Res. 2017;23:2255–2266 knocked out Beta-2 microglobulin (B2M), which is required for HLA class I expression. Ren et al. simultaneously knocked out TCRαβ, B2M and the immune-checkpoint PD1. Generally, the immune cells are activated and expanded to be utilized in the adoptive cell therapy. The immune cells as herein disclosed can be expanded in vivo or ex vivo. The immune cells, in particular T-cells can be activated and expanded generally using methods known in the art. Generally the T-cells are expanded by contact with a surface having attached thereto an agent that stimulates a CD3/TCR complex associated signal and a ligand that stimulates a co-stimulatory molecule on the surface of the T cells.

In one embodiment of the present disclosure, the immune cell can be modified to be directed to tumor neoantigenic peptides as previously defined. In a particular embodiment, said immune cell may express a recombinant antigen receptor directed to said neoantigenic peptide its cell surface. By "recombinant" is meant an antigen receptor which is not encoded by the cell in its native state, i.e. it is heterologous, non-endogenous. Expression of the recombinant antigen receptor can thus be seen to introduce new antigen specificity to the immune cell, causing the cell to recognise and bind a previously described peptide. The antigen receptor may be isolated from any useful source. In some embodiments, the cells comprise one or more nucleic acids introduced via genetic engineering that encode one or more antigen receptors, wherein the antigen include at least one tumor neoantigenic peptide as per the present disclosure.

Among the antigen receptors as per the present disclosure are genetically engineered T cell receptors (TCRs) and components thereof, as well as functional non-TCR antigen receptors, such as chimeric antigen receptors (CAR) as previously described.

Methods by which immune cells can be genetically modified to express a recombinant antigen receptor are well known in the art. A nucleic acid molecule encoding the antigen receptor may be introduced into the cell in the form of e.g. a vector, or any other suitable nucleic acid construct. Vectors, and their required components, are well known in the art. Nucleic acid molecules encoding antigen receptors can be generated using any method known in the art, e.g. molecular cloning using PCR. Antigen receptor sequences can be modified using commonly-used methods, such as site-directed mutagenesis.

In some embodiments, the immune cell is cell wherein the gene encoding the Suv39h1 protein, and in particular the human suv39h1 protein (referenced O43463 in UNIPROT), is disrupted.

In some embodiments, the immune cell comprises a recombinant HLA-independent (or non-HLA restricted) T cell receptors (referred to as"HI-TCRs") that bind to an antigen of interest in an HLA-independent manner are described in International Application No. WO 2019/157454. Such HI-TCRs comprise an antigen binding chain that comprises: (a) an antigen-binding domain that binds to an antigen in an HLA-independent manner, for example, an antigen-binding fragment of an immunoglobulin variable region; and (b) a constant domain that is capable of associating with (and consequently activating) a CD3ζ polypeptide. Because typically TCRs bind antigen in a HLA-dependent manner, the antigen-binding domain that binds in an HLA-independent manner must be heterologous. Preferably, the antigen-binding domain or fragment thereof comprises: (i) a heavy chain variable region (VH) of an antibody and/or (ii) a light chain variable region (VL) of an antibody. The constant domain of the TCR is, for example, a native or modified TRAC polypeptide, or a native or modified TRBC polypeptide. The constant domain of the TCR is, for example, a native TCR constant domain (alpha or beta) or fragment thereof. Unlike chimeric antigen receptors, which typically themselves comprise an intracellular signaling domain, the HI-TCR does not directly produce an activating signal; instead, the antigen-binding chain associates with and consequently activates a CD3ζ polypeptide. The immune cells comprising the recombinant TCR provide superior activity when the antigen has a low density on the cell surface of less than about 10,000 molecules per cell.

The CD3ζ polypeptide is, for example, a native CD3ζ polypeptide or a modified CD3ζ polypeptide. The CD3ζ polypeptide is optionally fused to an intracellular domain of a co-stimulatory molecule or a fragment thereof. Alternatively, the antigen binding domain optionally comprises a co-stimulatory region, e.g. intracellular domain, that is capable of stimulating an immunoresponsive cell upon the binding of the antigen binding chain to the antigen. Example co-stimulatory molecules include CD28, 4-1BB, OX40, ICOS, DAP-10, fragments thereof, or a combination thereof.

In some embodiments of the present disclosure, the immune cell is a cell wherein (a) the SUV39H1 gene is inactivated, (b) the antigen-specific receptor is a modified TCR comprising a heterologous (or recombinant) antigen-binding domain and a native TCR constant domain or fragment thereof, and the antigen-specific receptor is capable of activating a CD3 zeta polypeptide. For example, the immune cell may further comprise at least one chimeric costimulatory receptor (CCR) and/or at least one chimeric antigen receptor, for example as previously defined.

In a related aspect, the immune cells, particularly if allogeneic, may be designed to reduce graft vs. host disease, such that the cells comprise inactivated (e.g. disrupted or deleted) TCRαβ receptor. In such cases, the nucleic acid encoding the antigen-binding domain of the HI-TCR (typically as previously defined) is conveniently inserted into the endogenous TRAC locus and/or TRBC locus of the immune cell. The insertion of the HI-TCR nucleic acid sequence, or another smaller mutation, can disrupt or abolish the endogenous expression of a TCR comprising a native TCR alpha chain and/or a native TCR beta chain. The insertion or mutation may reduce endogenous TCR expression by at least about 50%, 60%, 70%, 75%, 80%, 85%, 90%, 95%, 98%, or 99%. Because a single gene encodes the alpha chain (TRAC) rather than the two genes encoding the beta chain, the TRAC locus is a typical target for reducing TCRαβ receptor expression. Thus, the nucleic acid encoding the antigen-specific receptor (e.g. CAR or TCR) may be integrated into the TRAC locus at a location, preferably in the 5' region of the first exon (SEQ ID NO: 3), that significantly reduces expression of a functional TCR alpha chain. See, e.g., Jantz et al., WO 2017/062451; Sadelain et al., WO 2017/180989; Torikai et al,. Blood, 119(2): 5697-705 (2012); Eyquem et al., Nature. 2017 Mar 2;543(7643):113-117. Expression of the endogenous TCR alpha may be reduced by at least about 50%, 60%, 70%, 75%, 80%, 85%, 90%, 95%, 98%, or 99%. In such embodiments, expression of the nucleic

acid encoding the antigen-specific receptor is optionally under control of the endogenous TCR-alpha or endogenous TCR-beta promoter.

Optionally, the immune cell also comprises a modified CD3 with a single active ITAM domain, and optionally the CD3 may further comprise one or more or two or more costimulatory domains. In some embodiments, the CD3 comprises two costimulatory domains, optionally CD28 and 4-1BB. The modified CD3 with a single active ITAM domain can comprise, for example, a modified CD3zeta intracellular signaling domain in which ITAM2 and ITAM3 have been inactivated, or ITAM1 and ITAM2 have been inactivated. In some embodiments, a modified CD3 zeta polypeptide retains only ITAM1 and the remaining CD3ζ domain is deleted (residues 90-164). As another example, ITAM1 is substituted with the amino acid sequence of ITAM3, and the remaining CD3ζ domain is deleted (residues 90-164).

The modified immune cells disclosed herein may comprise combinations of two or more, or three or more, or four or more, of the foregoing aspects.

For example, the modified immune cell is an immune cell wherein (a) the antigen-specific receptor is a modified TCR comprising a heterologous (or recombinant) antigen-binding domain (typically as previously defined) and a native TCR constant domain or fragment thereof, and the antigen-specific receptor is capable of activating a CD3 zeta polypeptide, and/or the antigen-specific receptor is a CAR, and optionally (b) the SUV39H1 gene is inactivated, and optionally (c) the immune cell comprises a modified CD3 with a single active ITAM domain, e.g. in which ITAM2 and ITAM3 have been inactivated, and optionally (d) the TCR is under control of an endogenous TRAC and/or TRBC promoter, and optionally (e) expression of native TCR-alpha chain and/or native TCR-beta chain are disrupted or abolished. In further embodiments, the cell may comprise at least one chimeric costimulatory receptor (CCR). In some embodiments, the tumor antigen is selected from pHER95, CD19, MUC16, MUC1, CAIX, CEA, CD8, CD7, CD10, CD20, CD22, CD30, CD70, CLL1, CD33, CD34, CD38, CD41, CD44, CD49f, CD56, CD74, CD133, CD138, EGP-2, EGP-40, EpCAM, Erb-B2, Erb-B3, Erb-B4, FBP, Fetal acetylcholine receptor, folate receptor-a, GD2, GD3, HER-2, hTERT, IL-13R-a2, κ-light chain, KDR, LeY, L1 cell adhesion molecule, MAGE-A1, Mesothelin, MAGEA3, p53, MART1,GP100, Proteinase3 (PR1), Tyrosinase, Survivin, hTERT, EphA2, NKG2D ligands, NY-ESO-1, oncofetal antigen (h5T4), PSCA, PSMA, ROR1, TAG-72, VEGF-R2, WT-1, BCMA, CD123, CD44V6, NKCS1, EGF1R, EGFR-VIII, CD99, CD70, ADGRE2, CCR1, LILRB2, LILRB4, PRAME, and ERBB.]

In some embodiments, the recombinant HI-TCR is expressed by a transgene that is integrated at an endogenous gene locus of the immunoresponsive cell, for example, a CD3δ locus, a CD3ε locus, a CD247 locus, a B2M locus, a TRAC locus, a TRBC locus, a TRDC locus and/or a TRGC locus. In most embodiments, expression of the recombinant HI-TCR is driven from the endogenous TRAC or TRBC gene locus. In some embodiments, the transgene encoding a portion of the recombinant HI-TCR is integrated into the endogenous TRAC and/or TRBC locus in a manner that disrupts or abolishes the endogenous expression of a TCR comprising a native TCR α chain and/or a native TCR β chain. This disruption prevents or eliminates mispairing between the recombinant TCR and a native TCR α chain and/or a native TCR β chain in the immunoresponsive cell. The endogenous gene locus may also comprise a modified transcription terminator region, for example, a TK transcription terminator, a GCSF transcription terminator, a TCRA transcription terminator, an HBB transcription terminator, a bovine growth hormone transcription terminator, an SV40 transcription terminator, and a P2A element.

The present disclosure also relates to a method for providing an immune cell, and in particular a T cell population which targets a tumor neoantigenic peptide as herein disclosed, in particular an immune cell and notably a T cell population expressing a TCR or a CAR in particular an MHC-restricted antibody-based chimeric antigen receptor as previously defined.

The T cell population may comprise CD8+ T cells, CD4+ T cells or CD8+ and CD4+ T cells.

Immune cell populations produced in accordance with the present disclosure may be enriched with immune cells that are specific to, i.e. target, the tumor neoantigenic peptide of the present disclosure. That is, the immune cell population that is produced in accordance with the present disclosure will have an increased number of immune cells that target one or more tumor neoantigenic peptide. For example, the immune cell population of the disclosure will have an increased number of immune cells that target a tumor neoantigenic peptide compared with the immune cells in the sample isolated from the subject. That is to say, the composition of the immune cell population will differ from that of a "native" immune cell population (i.e. a population that has not undergone the identification and expansion steps discussed herein), in that the percentage or proportion of immune cells that target a tumor neoantigenic peptide will be increased.

Immune cell populations produced in accordance with the present disclosure may be enriched with immune cells that are specific to, i.e. target, tumor neoantigenic peptide. That is, the T cell population that is produced in accordance with the present disclosure will have an increased number of immune cells that target one or more tumor neoantigenic peptide of the present disclosure. For example, the immune cell population of the present disclosure will have an increased number of immune cells that target a tumor neoantigenic peptide compared with the immune cells in the sample isolated from the subject. That is to say, the composition of the immune cell population will differ from that of a "native" immune cell population (i.e. a population that has not undergone the identification and expansion steps discussed herein), in that the percentage or proportion of immune cells that target a tumor neoantigenic peptide will be increased.

The immune cell population according to the present disclosure may have at least about 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1 , 2, 3, 4, 5, 6, 7, 8, 9, 10, 1 1 , 12, 13, 14, 15, 16, 17, 18, 19, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95 or 100% T cells that target a tumor neoantigenic peptide as herein disclosed. For example, the immune cell population may have about 0.2%-5%, 5%-10%, 10-20%, 20-30%, 30-40%, 40-50 %, 50-70% or 70-100% immune cells that target a tumor neoantigenic peptide of the present disclosure.

An expanded population of tumor neoantigenic peptide -reactive immune cells may have a higher activity than a population of immune cells not expanded, for example, using a tumor neoantigenic peptide. Reference to "activity" may represent the response of the immune cell population to restimulation with a tumor neoantigenic peptide, e.g. a peptide corresponding to the peptide used for expansion, or a mix of tumor neoantigenic peptide. Suitable methods for assaying the response are known in the art. For example, cytokine production may be measured (e.g. IL2 or IFNy production may be measured). The reference to a "higher activity" includes, for example, a 1-5, 5-10, 10-20, 20-50, 50-100, 100-500, 500-1000-fold increase in activity. In one aspect the activity may be more than 1000-fold higher.

In a preferred embodiment present disclosure provides a plurality or population, i.e. more than one, of immune cells wherein the plurality of immune cells comprises a immune cell, notably a T cell, which recognizes a clonal tumor neoantigenic peptide and a T cell which recognizes a different clonal tumor neoantigenic peptide. As such, the present disclosure provides a plurality of immune cells, notably T cells, which recognize different clonal tumor neoantigenic peptide.

Different immune cells, notably T cells, in the plurality or population may alternatively have different TCRs which recognize the same tumor neoantigenic peptide.

In a preferred embodiment the number of clonal tumor neoantigenic peptide recognized by the plurality of T cells is from 2 to 1000. For example, the number of clonal neo-antigens recognized may be 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950 or 1000, preferably 2 to 100. There may be a plurality of immune cells, notably T cells, with different TCRs but which recognize the same clonal neo-antigen.

The immune cell and in particular the T cell population may be all or primarily composed of CD8+ T cells, or all or primarily composed of a mixture of CD8+ T cells and CD4+ T cells or all or primarily composed of CD4+ T cells.

In particular embodiments, the T cell population is generated from T cells isolated from a subject with a tumor. For example, the T cell population may be generated from T cells in a sample isolated from a subject with a tumor. The sample may be a tumor sample, a peripheral blood sample or a sample from other tissues of the subject.

In a particular embodiment the immune cell population is generated from a sample from the tumor in which the tumor neoantigenic peptide is identified. In other words, the immune cell and notably the T cell population is isolated from a sample derived from the tumor of a patient to be treated. Such T cells are referred to herein as 'tumor infiltrating lymphocytes' (TILs).

T cells may be isolated using methods which are well known in the art. For example, T cells may be purified from single cell suspensions generated from samples on the basis of expression of CD3, CD4 or CD8. T cells may be enriched from samples by passage through a Ficoll-paque gradient.

Cancer therapeutic methods

In any of the embodiments, the Cancer Therapeutic Products described herein may be used in methods for inhibiting proliferation of cancer cells. The Cancer Therapeutic Products described herein may also be used in the treatment of cancer, in patients suffering from cancer, or for the prophylactic treatment of cancer, in patients at risk of cancer.

Cancers that can be treated using the therapy described herein include any solid or non-solid tumors as previously defined. Of particular interest according to the present disclosure are breast cancer, melanoma and lung cancer.

Cancers includes also the cancers which are refractory to treatment with other chemotherapeutics. The term "refractory, as used herein refers to a cancer (and/or metastases thereof), which shows no or only weak antiproliferative response (e.g., no or only weak inhibition of tumor growth) after treatment with another chemotherapeutic agent. These are cancers that cannot be treated satisfactorily with other chemotherapeutics. Refractory cancers encompass not only (i) cancers where one or more chemotherapeutics have already failed during treatment of a patient, but also (ii) cancers that can be shown to be refractory by other means, e.g., biopsy and culture in the presence of chemotherapeutics.

The therapy described herein is also applicable to the treatment of patients in need thereof who have not been previously treated.

A subject as per the present disclosure is typically a patient in need thereof that has been diagnosed with cancer or is at risk of developing cancer. The subject is typically a human, dog, cat, horse or any animal in which a tumor specific immune response is desired.

The present disclosure also pertains to a neoantigenic peptide, a population of APCs, a vaccine or immunogenic composition, a polynucleotide encoding a neoantigenic peptide or a vector as previously defined for use in cancer vaccination therapy of a subject or for treating cancer in a subject, wherein the peptide(s) binds at least one MHC molecule of said subject.

The present disclosure also provides a method for treating cancer in a subject comprising administering a vaccine or immunogenic composition as described herein to said subject in a therapeutically effective amount to treat the subject. The method may additionally comprise the step of identifying a subject who has cancer.

The present disclosure also relates to a method of treating cancer comprising producing an antibody or antigen-binding fragment thereof by the method as herein described and administering to a subject with cancer said antibody or antigen-binding fragment thereof, or with an immune cell expressing said antibody or antigen-binding fragment thereof, in a therapeutically effective amount to treat said subject.

The present disclosure also relates to an antibody (including variants and derivatives thereof) in particular a TCR-like antibody , a T cell receptor (TCR) (including variants and derivatives thereof), or a CAR (including variants and derivatives thereof), in particular an MHC-restricted antibody-based chimeric antigen receptor, which are directed against a tumor neoantigenic peptide as herein described, for use in cancer therapy of a subject, wherein the tumor neoantigenic peptide binds at least one MHC molecule of said subject.

The present disclosure also relates to an antibody (including variants and derivatives thereof) in particular a TCR-like antibody, a T cell receptor (TCR) (including variants and derivatives thereof), or a CAR (including variants and derivatives thereof), in particular an MHC-restricted antibody-based chimeric antigen receptor, which are directed against a tumor neoantigenic peptide as herein described, optionally in association with an MHC or HLA molecule, or an immune cell which targets a neoantigenic peptide, as previously defined, for use in adoptive cell or CAR–T cell therapy in a subject, wherein the tumor neoantigenic peptide binds at least one MHC molecule of said subject. Typically, the skilled person is able to select an appropriate antigen receptor which binds and recognizes a tumor neoantigenic peptide as previously defined with which to redirect an immune cell to be used for use in cancer cell therapy. In a particular embodiment, the immune cell for use in the method of the present disclosure is a redirected T-cell, e.g. a redirected CD8+ and/ or CD4+ T-cell.

In some embodiments, cancer treatment, vaccination therapy and/or adoptive cell cancer therapy as above described are administered in combination with additional cancer therapies. In particular, the T cell compositions according to the present disclosure may be administered in combination with checkpoint blockade therapy, co-stimulatory antibodies, chemotherapy and/or radiotherapy, targeted therapy or monoclonal antibody therapy.

Checkpoint inhibitors include, but are not limited to, PD-1 inhibitors, PD-L1 inhibitors, Lag-3 inhibitors, Tim-3 inhibitors, TIGIT inhibitors, BTLA inhibitors, V-domain Ig suppressor of T-cell activation (VISTA) inhibitors and CTLA-4 inhibitors, IDO inhibitors for example. Co-stimulatory antibodies deliver positive signals through immune-regulatory receptors including but not limited to ICOS, CD137, CD27 OX-40 and GITR. In a preferred embodiment the checkpoint inhibitor is a CTLA-4 inhibitor.

A chemotherapeutic entity as used herein refers to an entity which is destructive to a cell, that is the entity reduces the viability of the cell. The chemotherapeutic entity may be a cytotoxic drug. A chemotherapeutic agent contemplated includes, without limitation, alkylating agents, anthracyclines, epothilones, nitrosoureas, ethylenimines/methylmelamine, alkyl sulfonates,

alkylating agents, antimetabolites, pyrimidine analogs, epipodophylotoxins, enzymes such as L-asparaginase; biological response modifiers such as IFNa, IL-2, G-CSF and GM-CSF; platinum coordination complexes such as cisplatin, oxaliplatin and carboplatin, anthracenediones, substituted urea such as hydroxyurea, methylhydrazine derivatives including N-methylhydrazine (MIH) and procarbazine, adrenocortical suppressants such as mitotane (o,p'-DDD) and aminoglutethimide; hormones and antagonists including adrenocorticosteroid antagonists such as prednisone and equivalents, dexamethasone and aminoglutethimide; progestin such as hydroxyprogesterone caproate, medroxyprogesterone acetate and megestrol acetate; estrogen such as diethylstilbestrol and ethinyl estradiol equivalents; antiestrogen such as tamoxifen; androgens including testosterone propionate and fluoxymesterone/equivalents; antiandrogens such as flutamide, gonadotropin-releasing hormone analogs and leuprolide; and non-steroidal antiandrogens such as flutamide.

'In combination' may refer to administration of the additional therapy before, at the same time as or after administration of the T cell composition according to the present disclosure.

In addition or as an alternative to the combination with checkpoint blockade, the T cell composition of the present disclosure may also be genetically modified to render them resistant to immune-checkpoints using gene-editing technologies including but not limited to TALEN and Crispr/Cas. Such methods are known in the art, see e.g. US20140120622. Gene editing technologies may be used to prevent the expression of immune checkpoints expressed by T cells including but not limited to PD-1 , Lag-3, Tim-3, TIGIT, BTLA CTLA-4 and combinations of these. The T cell as discussed here may be modified by any of these methods.

The T cell according to the present disclosure may also be genetically modified to express molecules increasing homing into tumours and or to deliver inflammatory mediators into the tumour microenvironment, including but not limited to cytokines, soluble immune-regulatory receptors and/or ligands.

In a particular embodiment, said tumor neoantigenic peptide is used in cancer vaccination therapy in combination with another immunotherapy such as immune checkpoint therapy, more particularly in combination with antibodies anti-PD1, anti-PDL1, anti-CTLA-4, anti-TIM-3, anti-LAG3, anti-GITR.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1: Tumor neoantigenic peptides (or TE-derived epitopes) having a predicted affinity for MHC alleles of less than 500 nM, identified by the in silico method according to the disclosure in the tumor mouse lines B16F10-OVA cells **(A)** and in MCA101-OVA cells **(B)** and identified both in the two lines **(C).**

Figure 2: (A) RT-PCR gels of amplification of the fusion transcript sequence encoding the neoantigenic peptide N25, in cDNA of tumor mouse lines B16F10-OVA and MCA101-OVA. (B) RT-PCR gels of amplification of the fusion transcript sequence encoding the neoantigenic peptide N26, in cDNA of tumor mouse lines B16F10, B16F10-OVA and MCA101-OVA.

Figure 3: (A) Detection of peptide-reactive IFNg-secreting cells by ELISPOT in inguinal lymph nodes from immunized animals with DMSO (negative control), OVA (ovalbumine) (positive control), peptide N25 or peptide N26. **(B)** IFNg spots for 10^5 cells for immunized animals with DMSO (negative control), SIINFEKL (positive control), N25 or N26 peptide.

Figure 4: (A) Evolution of the tumor volume (mm3) in mice beforehand immunized with DMSO, OVA or N25L peptide, following the days after the injection of tumor cells B16F10-OVA into said immunized mice. **(B)** Evolution of the tumor volume (mm3) in mice beforehand immunized with DMSO, OVA or N26L peptide, following the days after the injection of tumor cells B16F10-OVA into said immunized mice.

Figure 5: TCGA data sets for 784 luminal, 100 HER2+, 197 TNBC, 112 normal breast tissue, 516 primary lung adenocarcinomas (primary tumor) and 59 normal lung tissue (solid tissue normal), were analyzed by the method for identifying fusion transcript sequence encoded tumor neoantigenic peptide described. **(A)** Number of fusion transcript sequence (TE-exon fusions) in different subtypes of breast cancer (HER2+, TNBC, normal breast tissue and luminal). **(B)** Number of fusion transcript sequence (TE-exon fusions) in different subtypes of lung cancer (primary lung adenocarcinomas, normal lung tissue).

Figure 6: 8-9 amino acid-long peptides predicted from TE-gene fusion products from each sample were tested *in silico* for binding to the predicted HLA alleles expressed in the same sample. Shown are peptides with predicted affinity below 500nM for at least one HLA-A, -B, or -C allele from each sample. **(A)** Samples of different subtypes of breast cancer (HER2+, TNBC, normal breast tissue and luminal). **(B)** Samples of different subtypes of lung cancer (non-small cell lung cancer, normal lung tissue).

Figure 7: Distribution of tumor-specific peptides per patient across breast tumor subtypes. **(A)** Numbers of tumor-specific HLA-binding peptides per subtypes of breast cancer patient are shown. **(B)** Numbers of predicted tumor neoantigenic peptides shared across luminal subtypes samples (n=784) (abscissa). **(C)** Numbers of predicted tumor neoantigenic peptides shared across HER2+ subtypes samples (n=100) (abscissa). **(D)** Numbers of predicted tumor neoantigenic peptides shared across TNBC subtypes samples (n=197) (abscissa).

Figure 8: (A) Numbers of tumor-specific HLA-binding peptides per primary lung adenocarcinomas (LUAD) sample (lung cancer). **(B)** Distribution of tumor-specific peptides per patient across lung adenocarcinomas. Numbers of predicted tumor neoantigenic peptides shared across primary tumor subtypes samples (n=516) (abscissa).

Figure 9: Reconstruction of the fusion nucleotide sequence when the donor is the exon (A) and when the donor is the TE (B).

Figure 10: **Binding of chimeric transcripts-derived peptides to HLA-A2.** Binding to HLA-A2 allele of predicted peptides from the most frequent chimeric fusions were validated by flow cytometry using tetramer formation assay. The results are shown as percentage of binding relative to positive control. Dotted line indicates the threshold considered to confirm the binding to this allele.

Figure 11. Immunogenicity of fusion transcripts-derived peptides and reactive CD8+ T cells generation. (A) Frequencies of pJET (fusion transcript derived peptides) specific tetramer-positive CD8+ T cells expanded from 6 different healthy donors in in vitro immunogenicity assays using 6 different healthy donors. **(B)** Cytokine secretion of CTL-clones after stimulation with different concentration of specific peptide. On the right is listed the CTL-clones generated and their peptide specificity. **(C)** Killing assay for CTL-clone 9 in co-culture with target cells loaded with 2 different peptide concentration in combination with anti-MHC-I antibodies or Isotype control (Left panel), or with un-loaded targets cells at different ratios (Right panel). **(D)** Killing assays for CTL-clone 9, 80 and 64 when co-cultured with peptide unloaded target cells in combination with anti-MHCI-I antibodies or isotype control. Effector:Target ratio is indicated in each individual plot. H1650 were used as target cells for each plot of this figure.

Figure 12. Expression of TCR recognizing fusion-derived peptides. Transduced Jurkat-reporter cells with TCR sequence derived from CTL-clone 9 co-cultured with target cells alone, or loaded with 2 different peptide concentration. Plots show percentage of positive Jurkat cells for the 3 reporter genes evaluated by flow cytometry, using H1650 cell line as target cells (upper

plots) or H1395 cell line as target cells (lower plots). Negative control: non-transduced Jurkat cells. No peptide: transduced Jurkat cells co-cultured with peptide unloaded target cells. Positive control: Transduced Jurkat cells stimulated with PMA/ionomycin.

Figure 13. Tumor infiltrating lymphocytes recognizing fusion transcripts-derived peptides. Percentage of tetramer positive CD8 T cells for the indicated fusion transcript-derived peptides found in tumor infiltrating lymphocytes (TILs) expanded in the presence of fusion transcripts-derived peptide's mix + IL2 **(A)** or only with IL-2 **(B).**

Figure 14. Phenotype of CD8+ T cells recognizing fusion transcripts-derived peptides in LUAD patient's derived samples. Percentage of tetramer positive CD8 T cells recognizing fusion transcripts-derived peptides present in tumor, juxta tumor, lymph nodes and blood samples derived from LUAD *Patient 2* **(A,** upper panel**)** and *Patient 3* **(B,** upper panel**)**. In lower panel of figure **(A)** and **(B)** is shown the percentage of Naïve (CCR7+CD45+), Central Memory (CM, CCR7+CD45-), Effector Memory (EM, CCR7-CD45-) and Terminal Effector (TE, CCR7-CD45+) cells of tetramer positive parental cell population.

Figure 15. Immunopeptidomics analysis of lung tumor samples. Fusion transcript-derived peptide sequences were searched in public MHC-I immunopeptidomes datasets. Each column represents a different sample. Each row represents a different peptide sequence (specify on the right). Colored squares indicate in which sample is found each fusion transcript-derived peptide. Publications describing each sample data-sets are annotated on the top.

Figure 16. Immunopeptidomics. A. Identification of JET derived peptides across 17 primary lung tumors and the human adenocarcinoma cell line A549, treated or not, with interferon gamma. Peptides are shown in rows and samples in columns. **B.** Boxplot showing the comparison of MS/MS scores obtained from the annotated peptidome (canonical peptides) and from the pJET peptidome. **C.** Comparison of the frequencies of peptides identified from the annotated peptidome (canonical peptides) and the pJET peptidome at different amino acid peptide lengths.

Figure 17. Binding of ER-derived peptides to HLA-A2 molecule. Peptides-HLA-A*02:01 complex formation for synthesized chimeric transcripts-derived peptides. Percentage of complex formation relative to positive control (CMV pp65 495-503) is represented. The mutated (MelA Mut) and non-mutated (MelA) sequences of Melan-A were used as strong and weak binder peptides controls, respectively. 'Negative' indicates staining background. Dashed line indicates the minimum complex formation value needed to consider a peptide as good binder to HLA-A*0201 (50% of positive control).

Figure 18. A. Activation of Jurkat cells transduced with CTL-clones-derived TCRs recognizing chimeric transcripts-derived peptides after co-culture with target cells loaded with relevant/specific or an irrelevant/unrelated peptide (Melan-A). **B.** Activation of Jurkat cells transduced with CTL-clones-derived TCRs recognizing chimeric transcripts-derived peptides after co-culture with target cells loaded with relevant peptide or unrelated peptide (Melan-A), in presence or absence of anti-MHC-I blocking antibody (W6/32) or isotype control. PMA/Ionomycin was used as a positive control of activation and target cells without loading peptides were used as negative control of activation. H1395 LUAD cell line were used as target cells. CTL-clone from which each TCR is derived is indicated on the top and peptide specificity between brackets, showing aminoacidic sequence of chimeric transcript-derived peptide recognized by each of these TCR. This peptide sequence is the specific/relevant peptide used in each case to load target cells. Melan-A and MelA Mut both refer to the unrelated peptide (ELAGIGILTV).

Figure 19: A. Heatmap summarizing the frequency of CD8+ T cells recognizing chimeric transcript-derived peptides found ex-vivo without T cell expansions. Only peptide specificities found in at least one tissue are shown (total evaluated patients = 4). **B.** CCR7 and CD45RA percentages in tetramer positive cells summarized in A. after ex-vivo staining for patient 2 and patient 5. (no data available for Patient 1). **C.** Heatmap summarizing specific tetramer positive cells recognizing chimeric transcripts-derived peptides after in-vitro expansions at day 20 on CD8+ T cells from tumor, juxta tumor or tumor-draining LN samples in the 5 patients analyzed. Only peptide specificities found in at least one tissue are shown. Black squares highlight peptide specificities found also ex-vivo in the same tissue and patient.

EXAMPLES

1. Example 1: Identification of fusion transcript sequence encoded tumor neoantigenic peptide

1.1 Proof of concept in mice

To detect individual and shared tumor neoantigenic peptide issued from fusion transcripts sequences, a bioinformatics pipeline has been developed. This pipeline is designed to identify tumor-specific mRNA sequences composed in part of a TE sequence and in part of an exonic sequence. This pipeline implies determining the MHC alleles. For each human sample, the Class I and Class II MHC alleles can be determined using the seq2hla (v2.2) tool (bitbucket.org/sebastian_boegel/seq2hla). For mouse models, murine H-2 alleles are generally known. The bioinformatics method comprises the mapping of transcripts from RNA-sequencing against the reference genome. For the proof of concept analyses described here, mm10 was used for mouse and hg19 for human. Different versions of assembled genomes can be used for example hg19, hg38, mm9 or mm10. This mapping is carried out with STAR (v2.5.3a) (github.com/alexdobin/STAR), with the following setting:

- For allowing multi-hits mapping the parameter outFilterMultimapNmax which sets the maximum number of loci, the read is allowed to map to, is set at 1000, and
- For detecting the abnormal junction (fusion), the parameter chimSegmentMin which sets the minimum length of fusion segment, is set at 10, the parameter chimJunctionOverhangMin which sets the minimum overhang for a fusion junction is set at 10.

Normal (from SJ.out.tab output file) and abnormal (from Chimeric.out.junction output file) junctions are annotated using Ensembl and repeatmasker databases. Normal junctions define all the junctions that match the parameters used for the mapping (maximum intron length <= 1 000 000 bp (set by --alignIntronMax), same chromosome and well oriented) and abnormal ones are junctions that do not match with at least one of the previous criteria. This mean that a TE/Exon junction could be in both junction type but a Exon/Exon junction must be in normal file (SJ.out.tab). Transcript sequences comprising a junction between a TE sequence and an exonic sequence are extracted in silico. From the area of the transcript sequence which overlaps the junction, or downstream of the junction when out-of-frame (reading frame non-canonical), the software predicts, in all reading frames, all possible peptides of 8 or 9 mers. Then, the binding affinity of all these possible peptides for the MHC alleles previously defined for the matched sample is determined netMHCpan (v3.4) (cbs.dtu.dk/services/NetMHCpan/). There

are currently more than a dozen various prediction algorithms for predicting the binding affinity of peptides, with NetMHC being the most widely used and validated algorithm for neoantigen prediction pipelines.

Peptides with either less than 500 nM or with a percentile rank less than 2% are considered as potential neo-antigens. Each splice site (donor or acceptor) is uniquely annotated as TE or as Exon. The part in the 5' end is qualified "donor", and the part in the 3' is qualified "acceptor".

Predicted HLA-binding peptides shared between cancer and normal tissues are excluded from further analyses.

This method has been applied to RNAseq data obtained from 7 well-characterized murine tumor cell lines (B16F10, B16F10-OVA, MCA101, MCA101-OVA, MC38, MC38-GFP, MC38-GFP-OVA). The cell lines with the extension-OVA corresponding to the same model but further expressing ovalbumin. In this study, this line is considered as the similar model, that is to say for example that an assay carried out on the cell line from B16F10-OVA is considered as a repeat of an assay carried out on the cell line from B16F10.

A list of candidate peptides has been obtained with these parameters (figures 1A, 1B and 1C), some were specific to particular cell lines (figures 1A and 1B), and some were shared between the two tumor cell lines (figure 1C).

For validation, we selected a range of peptides, expressed either in B16F10-OVA or MCA101-OVA, with predicted affinities less than 500nM. Peptides were selected trying to optimize the ratio between number of reads and predicted affinity for MHC-I.

Four predicted tumor neoantigenic peptides were selected and characterized by identifying the TE and the exonic sequence (table 2).

Table 2: Characterization of 4 predicted tumor neoantigenic peptides selected by the method

Peptide	Cell line	Donor	Acceptor	Predicted affinity
N25	B16/B16-OVA	ERV-MaLR (subfamily MTA)	Chmp3, exon2	H2-Db, 51.8937
N26	MCA/MCA-OVA MC38-GFP/MC38-OVAGFP	SINE-Alu(B1F)	Angel2, exon2	H2-Kb, 392.0384
N90	MCA/MCA-OVA	Predicted gene 45873	ERVL-MaLR (subfamily ORR1A2-int)	H2-Kb, 403.8959 and 50.5416
N94	MCA/MCA-OVA MC38-GFP/MC38-OVAGFP	Rsrc1	ERV1 (subfamily RLTR4_MM-int)	H2-Kb, 431.0564

1.2 Validation by RT-PCR of the fusion transcript sequence

First, a validation by regular RT-PCR has been performed, using primer pairs with one primer in the TE sequence, and the other one in the exonic sequence.

For the RNA extraction and reverse transcription, 3-5.10^6 cells were lyzed in 500µL Trizol, and 100µL phenol-chloroform added to the lyzates prior centrifugation. Aqueous phase was collected, mixed in a 1:1 ratio with 100% EtOH and transferred to RNAeasy minikit columns. RNA was then collected following manufacturer's instructions (including on column DNAse treatment). After RNA elution, DNA contaminants were further removed by treatment with Turbo DNAse (Fisher scientific), according to manufacturer's instructions). RNA concentration was measured using a nanodrop, and 1µg of RNA used for reverse transcription. First strand synthesis was performed with Superscript III (Life technologies) using oligodT(15) as primers, according to manufacturer's instructions. Primers were ordered from Eurogentec. PCR reactions were performed using Taq polymerase. After identification of optimal conditions for each reaction, PCR products were extracted from agarose gels, and sequencing was performed using GATC lightrun. Sequence alignment was checked with APE software.

Using this approach, bands matching predicted size for N25, N26, N90 and N94 were detected, respectively in the cell lines identified in Table 2 (See Figure 2A for N25). Interestingly, although N26 was detected only in MCA and MC38 cells in silico by RNAseq as previously described in the pipeline, using RT-PCR we detected a band corresponding to N26 in B16F10-OVA cells (Figure 2B), indicating that this sequence is shared between three independent tumor cell lines (MCA, MC38 and B16F10). By re-analyzing the RNAseq data, we found that the N26 junction was present in B16F10-OVA cells, but below the detection threshold of the algorithm. Moreover, sequencing of the RT-PCR product showed exact match with sequences predicted by the algorithm.

1.3 In vivo immunization of mice

To validate these candidates in vivo, short (9-mers) peptides corresponding to neoantigenic peptide which binds to the MHC class I sequences, were synthetized. For the in vivo assays, long (27-mers) peptides, which include the flanking regions to the predicted MHC-binding short peptides of 9 mers, were synthetized, because this length is better suited for in vivo immunization. B16F10 OVA and MCA101-OVA were maintained in RPMI, Glutamax, 10%FCS, 1% penicillin-streptomycin and passaged using TrypLE. Cells were kept in culture for a maximum of one month, and new vials were thawed for each *in vivo* experiment. C57BL6J

recipient mice were immunized with 100µg long peptide (N25L or N26L), SIINFEKL peptide (short OVA peptide), OVA (Sigma) or DMSO, each with 50µg polyI:C, by subcutaneous injection into the flank. Immunizations were repeated 7 days after primary immunization. 3 days later (10 days after primary immunization), animals were sacrificed and numbers of peptide-specific IFNg-secreting CD8 T cells in inguinal lymph nodes were detected by ELISPOT (Figure 3A). Short peptides (N25, N26, or SIINFEKL) or DMSO at $10\mu g.mL^{-1}$ were used to restimulate T cells. Alternatively, 7 days after secondary immunization, animals were injected subcutaneously with $2.5.10^5$ B16F10-OVA or 5.10^5 MCA-OVA cells in PBS. We found that N25, and to a lesser extent N26 were able to induce immune responses (Figure 3B).

1.4 In vivo treatment of mice with tumor

To test whether these peptides were protective against tumor cells, we immunized C57BL6 mice with 100mg peptides N25L or N26L, or OVA (control peptide) and 50µg polyI:C in PBS at d0 and d7, and at d14, we injected $2.5.10^5$ B16F10-OVA cells to mice immunized with OVA, N25L and N26L. B16F10 OVA and MCA101-OVA were maintained in RPMI, Glutamax, 10%FCS, 1% penicillin-streptomycin and passaged using TrypLE. Cells were kept in culture for a maximum of one month, and new vials were thawed for each *in vivo* experiment. C57BL6J recipient mice were immunized with 100µg long peptide (N25L or N26L), OVA (Sigma) or DMSO, each with 50µg polyI:C, by subcutaneous injection into the flank. Immunizations were repeated 7 days after primary immunization.

Short peptides (N25, N26, or SIINFEKL) or DMSO at $10\mu g.mL^{-1}$ were used to restimulate T cells. Alternatively, 7 days after secondary immunization, animals were injected subcutaneously with $2.5.10^5$ B16F10-OVA or 5.10^5 MCA-OVA cells in PBS. Tumor size was measured twice weekly using a manual caliper, and animal health status monitored throughout the experiment timeframe (Figures 4A and 4B). Animals were sacrificed when tumor volume reached $1mm^3$. Strikingly, we observed that N25L significantly delayed the formation of B16OVA tumors, in a more efficient way than OVA. Moreover, we obtained a similar result upon N26L immunization.

2 Example 2: Identification of human lung adenocarcinoma (LUAD) neoantigenic peptides derived from fusion transcripts composed of a TE element and an exonic sequence

2.1 Material and methods

RNA extraction. Tumour and juxtatumour samples were cut into pieces of #1 mm^3 and resuspended in 700µl RTL lysis buffer (Quiagen) supplemented with 1% β-mercaptoethanol and homogenized using Perecellys 24 Tissue Homogenizer (Bertin Technoogies). Total RNA isolation was performed using RNeasy Micro Kit (Qiagen) following manufacturer instructions. Total RNA from tumour cell lines were extracted from 5.10^6 tumor cell lines using the same procedure.

PCR and Sequencing. Primers were designed using APE software. For each sample, 1µg of RNA was retrotranscribed into cDNA using SuperScript III Reverse transcriptase (ThermoFisher), as indicated by the provider. PCR reaction was performed using GoTaq G2 Hot Start Polymarase (Promega). All primers were used in a concentration of 0.5µM. Reactions were carried out in VeritiTM 96-Well Thermal Cycler (ThermoFisher). PCR products were loaded in LabChip GX (Caliper LifeSciences) and analysed by LabChip GX Software (v4.2).

PCR reactions were repeated for those samples with an amplification product on the expected size. Then, the PCR products were run in a 2% agarose gel SYBR Free Dye (1/10000) (Invitrogen). The specific bands were cut and the DNA products were purified using QIAquick Gel Extraction Kit (Qiagen) following manufacturer instructions. Finally, these products were sequenced by EuroFins Scientific. The resulting sequences were compared to the expected one using Serial Cloner software.

Tetramer formation. HLA-A2 monomers were purchased from ImmunAware® and the formation of tetramers was evaluated with synthetic ER-derived peptides following manufacturer instructions. Briefly, synthetic HLA-A2 monomers were incubated with synthetic peptides during 48h at 18°C. Tetramerization was done by further incubation of monomers with biotinylated-sepharose. Finally, tetramer formation was measured by flow cytometry using a PE-conjugated anti-β2-microglobulin antibody. As a positive control we used a peptide derived from CMV provided by the manufacturer.

In experiments addressed to evaluate the presence of specific CD8+ T cells, the tetramerization step was performed by incubating the monomers with different combinations of fluorescent streptavidin (PE, APC, PE-Cy5, PE-CF594, BV421, BV711 and FITC).

Priming of naïve CTLs. PBMCs were obtained by Ficoll gradient separation from HLA-A2+ healthy blood donors. CD14+, CD4+ and CD8+ cells were purified by positive selection using magnetic beads (Miltenyi Biotec). While CD4+ and CD8+ T cells were cryopreserved until the experiment day, CD14+ fraction was cultured in the presence of IL-4 (50ng/mL) and GM-CSF (10ng/mL) at 106 cells/mL during 5 days to obtain moDCs. After this period of time, the moDCs were maturated with LPS and incubated with synthetic ER-derived peptides at a final concentration of 1 μg/mL for 2 hours. Finally, peptide-loaded moDCs were co-cultured with autologous CD4+ and CD8+ T cells in culture medium supplemented with with IL-2 (10U/ml) and IL-7 (100ng/ml). The ER-derived peptide stimulation of specific CD8+ CTL populations was assessed by MHC-I tetramer staining by flow cytometry using a combination of two-color tetramer for each peptide.

Tetramer Staining. Cells were resuspended in PBS, stained with Live/Dead Aqua-405nm (ThermoFisher) during 20 minutes at 4°C and washed once. After that, cells were resuspended in PBS-1%BSA containing the mix of SA-coupled tetramers and incubated in the dark at room temperature during 20 minutes. Without further washing, surface antibodies were added in PBS-1%BSA and cells were incubated 20 minutes in the dark at 4°C. Surface antibodies were a combination of anti-CD3-BV650 + anti-CD8-PECy7 in combination with anti-CCR7-AF700 + anti-CD45RA-BUV395 when required. Finally, cells were washed twice and resuspended in FACS buffer for flow cytometry analysis.

CTL-clones generation. Tetramer positive cells were single-cell FACS sorted (ARIA-sorter, BD) in U bottom 96-well plates. Sorted cells were collected in 100μl of RPMI 10% human serum AB (Sigma-Aldrich) containing 150.000 feeders' cells. Finally, 100μl of AIM-medium containing IL-2 (3000 IU/ml) and anti-CD3 (100 μg/ml, OKT3 clone from Miltenyi) were added and cells were cultured during 15-20 days maximum. When evident cell growth was observed in wells, we perform a second round of expansions with new feeders' cells for an additional period of 15 days maximum. Cells were feed and split as necessary during this period with the same culture media (AIM-RPMI 50/50 + 5% Human Serum) but only containing IL-2 at 500 IU/ml. Finally, expanded clones were checked for their specificity by FACs-tetramer staining and only clones with >85% of tetramer positive clones were used for further analysis.

Killing assays. To perform killing assays, xCELLigence RTCA S16 Real Time Cell Analyzer was used. H1650 cell-line were plated at $0{,}5x10^6$ cells/ml in pre-coated 16 well plates. One day after, cells were incubated or not during 1 h with different concentration of the correspondent

synthetic peptides. After that, cells were washed twice with culture medium and incubated or not for additional 30 minutes with anti-MHC-I antibodies (clone W6/32, 50 μg/well) or isotype control at the same concentration. Without additional wash, CTL-clones were added at the correspondent ratio. The complete assay was done in free-serum culture medium in a final volume of 200 at 37°C connected to the xCELLigence system. Impedance variation (cell-index) was measured in real-time during 40 h. Each condition was performed by duplicates.

Cytokine secretion and Jurkat cells activation. 50.000 H1650 cells were plated in 96-well plate in culture medium supplemented with 5% of fetal bovine serum. The day after, cells were culture during 1-2 h with synthetic peptides at different final concentrations. After that, cells were washed twice, CTL-clones were added at 1:1 ratio and co-cultured during 18 h with peptide-loaded target cells. Culture supernatants were collected and cytokine concentration analyzed by cytokine beads arrays (CBA, BD Biosciences) following manufacturer's instructions.

The same experiment was performed using transduced Jurkat cells instead of CTL-clones and two different types of target cells: H1650 and H1395 cell lines. In this assay, after co-cultured with peptide-loaded target cells, Jurkat cells were assesed by flow cytometry analyzing the expression of reporter markers. PMA/Ionomycin was used as positive control to activate Jurkat cells.

Tissues and Blood samples. Lung tumor, juxta tumor and lymoh nodes samples were cut into small pieces and digested using a mix of collagenase-I (2 mg/ml), hyaluronidase (2 mg/ml) and DNasa (25 μg/ml) in a final volume of 2 ml culture medium (CO_2 independent medium + 5) during 40 min at 37°C. After digestion single cell suspensions were collected through a cell Strainer and washed. Tumor and Juxta tumor suspensions were enriched on lymphocyte fractions by a ficoll gradient. After that cells were staining for tetramer analysis by FACs as described before.

Blood samples were seeded on a ficoll gradient and PBMCs were isolated. After that, PBMCs were enriched for CD8+ T cells using EasyStep Human CD8+ T cell Enrichment Kit (STEMCELL Technologies). Finally, enriched cells were stained for tetramer analysis as described before.

Tumor infiltrating lymphocytes (TILs) cultures. Tumor tissue was cut into small pieces (1-3 mm^3 size, 6-12 pieces maximum). Each tumor fragment was transferred into individual wells from 24-well plates and cultured in a final volume of 2 ml RPMI 10% Human Serum + IL-2

6000 IU/ml. Cells were feed/split as necessary during 15-20 days and cryopreserve or analyzed for tetramer staining.

TCR cloning. Total RNA was extracted from CTL-clones and retrotranscribed into cDNA using SuperScript III (ThermoFisher). TCRα and β were amplified by PCR as described in Li *et al* 2019. DNA products were run in 2% agarose gels and sequenced after gel band extraction (Qiagen). TCR V regions (α and β) were concatenated with murine TCR constant chain and cloned into a PEW-pEF1A-inactEGFP vector and amplified in transformed bacteria.

Jurkat transduction. Lentivirus particles were produced by HEK-293FT cell line transfected with TCR-expression plasmids together with envelope (pVSVG) and packaging (psPAX2) plasmids. After 64 h, supernatant was collected and lentivirus particles were concentrated using 100kDa centrifugal filter (Sigma-Aldrich). Lentivirus suspension was transferred by spinoculation into TCR-negative Jurkat cells expressing reporter genes (NFAT-GPF, NF-KB-CFP and AP-1-mCherry). After 5 days, transduction efficiency was evaluated by FACS using anti-murine TCR-β antibody (Clone H57-597). This Jurkat cells were described in Rosskopf S. *et al*. 2018.

Mass spectrometry data analysis. Public immunopeptidomics raw data derived from MHC-eluted peptides were analysed using ProteomeDiscoverer 1.4 (ThermoFisher) with the following parameters: no-enzyme, peptide length 8-15 aa, precursor mass tolerance 20ppm and fragment mass tolerance 0.02 Da. Methionine was enabled as variable modification and a false discovery rate (FDR) of 1% was applied. MS/MS spectra were searched against the human proteome from Uniprot/SwissProt (updated 06.03.2020) concatenated with the list of all fusion transcripts-derived proteins from lung TCGA projects. Finally, peptides matching with Uniprot database or with translated fusion transcripts present in lung normal samples were discarded.

2.2 Results: Identification of fusion transcript sequences encoding tumor neoantigenic peptide in human subject

2.2.1 Characterization of neoantigens

First the TE-Exon fusion transcript landscape was characterized in normal samples from TCGA public database. A total of 8876 unique fusions were identified in 679 normal samples from 19 different tissues (bile duct, bladder, brain, breast, cervical, colon, head and neck, kidneys, liver, pancreas, PCPG, prostate, rectum, sarcoma, skin, thymus, thyroid, uterine). Specific fusions to

each tissue type were found with a very small portion of pan-tissue fusion transcripts. These results suggest that a dedicated tissue specific regulatory mechanism is associated with these fusion transcripts.

Then the number of identified fusions in 514 LUAD samples from TCGA has been compared to their 59 normal associated pulmonary samples present in TCGA. On average, 235 fusions were identified in NSCLC samples, compared with 200 in healthy lung samples (Wilcoxon pvalue = $9 \times 10.^{-10}$). 8269 total unique fusions were identified in NSCLC tumors.

A first category of fusions called TSF (tumor specific fusion) was obtained as those found in at least 1% of tumor samples and in none of the normal samples. 210 fusions were thus defined as TSF.

Some high-frequency fusion transcripts in tumors and low frequency in normal cells may also be good candidates for neo-antigens. Thus, a second category called TAF (tumor associated fusion) was notably defined as fusions present in less than 4 % of normal tissues, notably less than 2 %, and more than 10% of the tumors and that is over expressed in tumors compared to normal tissue samples.

Fusion sequence:

- In order to reconstruct the fusion nucleotide sequence, the sequence of the donor on chromosome "Donor_Chromosome_X" from "Donor_start_X" to "Donor_Breakpoint_X" on strand "Donor_strand_X " and the acceptor sequence on the chromosome "Acceptor_Chromosome_X" starting from "Acceptor_Breakpoint_X" to "Acceptor_end_X" on the strand "Acceptor_strand_X" have been extracted from the Ensembl HG19 human assembly database. It is to be noted that the use of the Ensembl HG19 human database is not limitative and that any other adapted database may be used such as NCBI reference Sequence Database (RefSeq).
- Care should be taken to take the reverse complement of the sequence if the fusion is present on the minus strand.
- The "fusion sequence" consists of the donor sequence followed by the acceptor sequence.

Nucleotide sequence of the fusion transcript:

On the basis of the known canonical transcripts in which the exon is involved, all the "fusion transcripts" were reconstructed.

When the donor is the exon (see Fig. 9A)

- it starts with the beginning of the canonical transcript to the donor exon and replace the complete canonical exon sequence with the fusion sequence. In this case, the fusion transcript stops after the TE sequence of the acceptor.

When the donor is the TE (Fig.9 B)

- The sequence begins at the canonical position of the acceptor exon in the transcript and forget all exons upstream. The canonical sequence of the acceptor exon was replaced with the fusion sequence and the transcript was reconstructed until the end.

Each nucleotide sequence of size k (i.e. from 24 to 75 nucleotides) of the fusion transcript (translation of the first k-mer starts at the first nucleotide of the fusion transcript, translation of the second k-mer starts at the second nucleotide of the fusion transcript, etc.) was then translated into a peptide sequence.

The obtained peptides are then further analyzed with NetMHCpan for MHC binding prediction. Affinity for binding to at least one of the known human alleles was thus predicted, (see also example 1 for further illustration) for each k-mer present in the sequence.

The peptides were then further screened against a reference proteome, typically for human subject against all sequences present in Uniprot (representing all the sequences encoded in the human exome). Peptides were considered equal to those in Uniprot if they had the same amino acid sequence or if they only differed in the amino acid in the first or last position. All these equal sequences were then discarded from the candidate list. 117 peptide sequences derived from these 230 fusion transcripts where thus predicted to bind to HLA-A2: 01 (see table 3 below).

Tables 3: Peptides LUAD

Peptide sequence	Peptide sequence	Peptide sequence
RLLHLESFL	TLGGLMPVL	LMTSSIMSV
TLMNLVQVL	FLQGSITFI	MLMKTVWQA
ILHSLVTGV	MLLLYIWQV	SLQPEDMAL
FMMEQVGLA	YLKIMPVHL	KILTYFPMV
AMDGKELSL	HTLGGLMPV	FLGTRVTRV
TLAYGKYYI	YIMARVLFV	SLMQSGSPV
GLIQLIWLA	FILRTDHYI	VLMWTMAHL
GMVDGGSNI	IMSSAIAYL	LLGETKVYV

Peptide sequence	Peptide sequence	Peptide sequence
YLWTTFFPL	FIIGILQLA	KILTYFPMV
ALWEAKMII	YLLQEIYGI	SLLERGLEA
WLSSRVTQL	GVFPVVIQA	VLSSLNVPL
AILPKANTV	ALVHLPSQL	FLERKSIRV
VLLFEVELV	GLHPAKPQV	FVGSSTFYL
GLDTGLQGM	MLVTWELAL	FLYTGDFFL
SLLDGTQLF	VLLTNTIWL	SVGPFALTV
GLPTGYLFV	ALVHLPSQL	NLALPLPKV
LLDRFGYHV	CLIDEMPEA	VLESGLYQV
SLLEETQAI	ALMGGFMKT	MLVAITVLI
MLLVQPAEL	LLLHLPLXL	FMDDAKILF
GLLNISHTA	TLQDKNLGL	ALVHLPSQL
HLYEPWFPV	ILANLPPAL	ILTASITSI
YLQGLPLPL	PLWDGMAGL	AMDGKELSL
KAVEGILAV	GLDHQTHPL	SLGWNISGV
MIYEENNRL	GMFLLPPQL	MISAFPNEV
YLPYFLKSL	RLADHLSFC	RLTHELPGI
GLYSLSSVV	RMRDQLPAL	LLFSDGEKV
LMISRTPEV	GLLHAEVAL	RLNESTTFV
LLGGPSVFL	SLQNCQVSV	KLEELKSFV
ILSGYGPCV	VISAFPSEV	SINEEIQTV
FLPDLDRPL	ALAIAALEL	RLHDGPLRA
AMDGKELSL	VLDGLDVLL	MISAFPNEV
RMDFEDLGL	ELFPPLFMA	ILHTSVPFL
TLIFNPTEI	FLIVAEILI	YLENMVSGV
LLPGLLLLL	IVAEILISL	QLLGRLESL
LLLVHQHAV	KAVEGILAV	RLLHLESFL
FLDDAPPGT	YLPHLPQVL	ALLRQMEGI
VLIRYVWTL	MLLDPMGGI	TLNKDFQEV
YLCGHLHTL	RLLHLESFL	IMEQGDLSV
VLSQLTILI	YLAYILYFV	RLLHLESFL

2.2.2 Validation on HLA-A2 associated peptides

Given that HLA-A2 allele is expressed in almost 50% of the Caucasian population, together with the existence of different technical tools, validations were focused on HLA-A2-associated peptides.

In the following paragraphs TE-Exon derived-transcripts is used interchangeably with "fusion transcripts" and the term "TE-derived peptides" is used interchangeably with "fusion transcripts-derived peptides.

Expression of TE-Exon derived-transcripts in lung adenocarcinoma samples

To experimentally validate the predicted TE-Exon transcripts, the expression by PCR in LUAD tumor samples and tumor cell lines was validated firstly. Specific primers for each chimeric fusion were thus designed, in order to have one of them binding to the TE part and the other to the Exon part of the fusion. The results were further confirmed by sequencing of the PCR products.

In particular, specific primers were designed in such a way that the forward primer was binding in the "donor" sequence and the reverse primer was binding in the "acceptor" sequence of the reconstructed fusion sequence. PCR reactions were run on RNA derived from lung tumor samples and human tumor cell lines. Amplifications products were seeded on agarose gels and bands found on the expected size were cut and sequenced. Finally, sequenced PCR products were compared with the reconstructed fusion sequence.

Using this approach, it was possible to confirm the presence of predicted fusion transcripts both in LUAD tumor samples and tumor cell lines. Table 4 below summarizes the results found for 8 of the most frequent chimeric fusions with a predicted peptide associated to bind with high affinity to HLA-A2 allele.

Table 4: Most frequent fusion transcript validation. The most frequent fusions peptides were validated by PCR in 15 LUAD tumor samples and 6 LUAD tumor cell lines. The status 'Yes' or 'No' in the table below indicates the presence or absence of the PCR product on the expected size. When the PCR product was further validated by sequencing, is denoted as 'Yes'.

		TE-Exon fusion derived-peptides asociated to bind HLA-A2							
	Frequency	119	48	28	24	23	19	18	16
	peptide sequence	RLLHLESFL	MLMKTVWQA	FLGTRVTRV	AILPKANTV	YLPYFLKSL	AMDGKELSL	FLIVAEILI	RLADHLSFC
LUAD tumor cell lines	H1975	***Yes***	***Yes***	No	No	***Yes***	No	No	No
	H1650	***Yes***	No	No	No	No	No	No	Yes
	H1299	Yes	No	No	No	No	No	No	Yes
	A549	Yes	***Yes***	No	No	***Yes***	No	No	No
	H2052	Yes	No	No	No	No	No	No	No
	HCC827	Yes	Yes	No	No	***Yes***	yes	No	No
LUAD tumor samples	Tumor 1	Yes	No	No	No	Yes	Yes	No	Yes
	Tumor 2	Yes	Yes	No	No	Yes	Yes	No	No
	Tumor 3	***Yes***	No	No	No	Yes	No	No	Yes
	Tumor 4	Yes	No	No	No	Yes	Yes	No	No
	Tumor 5	Yes	No	No	No	No	No	No	No
	Tumor 6	Yes	No	No	Yes	Yes	Yes	Yes	Yes
	Tumor 7	***Yes***	No	No	No	No	Yes	No	No
	Tumor 8	Yes	No	No	No	Yes	Yes	No	No
	Tumor 9	***Yes***	No	No	No	No	Yes	Yes	No
	Tumor 10	***Yes***	***Yes***	Yes	Yes	***Yes***	Yes	Yes	No
	Tumor 11	***Yes***	Yes	No	No	***Yes***	Yes	Yes	No
	Tumor 12	***Yes***	***Yes***	***Yes***	Yes	***Yes***	Yes	No	No
	Tumor 13	Yes	Yes	No	Yes	Yes	No	No	Yes
	Tumor 14	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Tumor 15	No	No	No	No	No	Yes	No	No

Binding of ER-derived peptides to HLA-A2 molecule

Once confirmed the expression of chimeric transcripts, the derived-peptides were synthetized and their binding to HLA-A2 was confirmed. Because monomer stabilization and tetramer formation are only possible in the presence of a high affinity binding peptide, the formation of HLA-A2 tetramers was estimated in the presence of synthetized peptides by flow cytometry. All predicted peptides were able to stabilize tetramer formation, showing a percentage of fluorescence higher than 50% relative to positive control. As positive control, a known high affinity binding peptide to HLA-A2 derived from Cytomegalovirus (CMV) was used. This result confirmed the predicted high affinity binding to HLA-A2 allele. Figure 10 shows the result for 10 peptides derived from the most frequent fusions peptides.

Figure 17 shows a new set of peptides, also derived from frequent chimeric transcripts, with a confirmed binding to HLA-A2 using the same peptide-MHC-I complex formation assay. As a positive control of complex formation, we used both CMV pp65 495-503 (NLVPMVATV) and the mutated sequence of Melan-A (MelA mut, ELAGIGILTV), both known good binders to HLA-A2. The non-mutated sequence of Melan-A (MelA) was used as a control of low binder peptide. Negative is recombinant HLA-A2 molecule without any peptide.

Immunogenicity of ER-derived peptides

The following step after binding validation to HLA-A2 allele, was to test the immunogenicity of predicted peptides. Priming assays were thus performed to test the ability of identified peptides to expand specific cytotoxic T cells. PBMCs from HLA-A2+ healthy donors were used to generate monocyte derived-DCs (moDCs). After loading the moDCs with a mix of synthetic peptides, autologous co-culture was performed with CD4+ and CD8+ T cells. Finally, the expansion of specific CD8+ T cells was analysed by flow cytometry using two-colours tetramer staining. As a control of specific expansion, the co-culture was performed in the absence of peptides. By using this approach in one donor, it has been possible to identify and expand specific CD8+ T cells recognizing 6 of the most frequent chimeric fusion derived-peptides (RLLHLESFL, LLGETKVYV, AILPKANTV, RLADHLSFC, FLIVAEILI, YLWTTFFPL). This result is evidenced by an increase in at least one magnitude order of the percentage of tetramer positive cells compared to control test among total CD8+ T cells.

The same experiment was performed in order to evaluate the response in additional 5 donors. Figure 11A summarizes the results obtained for the total of 6 donors analyzed in which we found specific CD8+ T expansions for 23 out of 29 of the most frequent fusions transcripts-derived peptides (YLWTTFFPL, FLGTRVTRV, RLADHLSFC, LLGETKVYV,

MLVTWELAL, MLMKTVWQA, SLMQSGSPV, AILPKANTV, AMDGKELSL, LLDRFGYHV, GLLNISHTA, ILTASITSI, ILSGYGPCV, RQAPGFHHA, GLPSHVELA, ILHSLVTGV, LLHLESFLV, VLLTNTIWL, LLTSWHLYL, RLLHLESFL, YLPYFLKSL, VLMWTMAHL, YLQGLPLPL). As a positive of expansions, mutated Melan-A peptide (ELAGIGILTV) were used. These experiments show that these peptides are able to induce an immune response and confirms the immunogenicity of ER-derived peptides.

Generation of Cytotoxic T lymphocytes clones recognizing ER-derived peptides

Expanded CD8+ tetramer positive T-cells from immunogenicity assays (Figure 11A) were single cell FACS-sorted in order to generate cytotoxic T lymphocytes (CTLs) clones. 10 clones recognizing 5 different ER-derived peptides were generated: YLWTTFFPL, LLGETKVYV, MLVTWELAL, MLMKTVWQA, RLADHLSF. These peptides are listed in Table 3 as peptide 9, 86, 53, 80 and 64 respectively. It will be referred to these numbers to indicate the specificity of each generated CTL-clone. For example, CTL-clone 9 recognize ER-derived peptide 9. In a second set of experiments a new CTL-clone 17 was generated recognizing peptide 17 (LLDRFGYHV).

In order to evaluate the cytotoxic capacity of generated CTL-clones, two different functional assays were conducted using the H1650 cell line as target cells. This is a LUAD-derived tumor cell line expressing HLA-A2 allele.

First, the ability of CTL-clones to secret cytokines after exposure to ER-derived peptides was measured. After co-cultured of the CTL-clones with the target cells loaded with the specific ER-derived peptides during 18h, secretion of INF-γ, TNF and Granzyme-B (Gr-B) was measured in culture supernatants. All CTL-clones were activated after exposure specific ER-derived peptides, secreting cytokines in a dose-dependent manner (**Figure 11B**).

In a second set of experiments, CTL clones killing capacity was assessed. CTL-clones were co-cultured in different conditions with target cells loaded or not with ER-derived peptides. Using xCELLigence system the real-time impedance variation in a target cells monolayer was measured. In these assays, a decrease in cell-index is related with a decrease in the number of cells in the monolayer reflecting cell viability.

When CTL-clone 9 was co-culture in 1:1 ratio with target cells loaded with ER-derived peptide 9, a decrease in cell-index over time was observed, compared to the control cells (target cells alone). This cell-index decrease was inhibited when co-culture was performed in the presence of blocking anti-MHC-I antibody (+ anti-MHC-I). Performing the co-culture using the same concentration of isotype control (+ isotype) did not inhibit the decrease in cell-index. Moreover,

the amount of the decrease increased when target cells were loaded with a higher concentration of peptide (1pM compared to 1uM) (**Figure 11C**, left panel). These result show that cytotoxic T cells can recognize peptides encoded by a fusion transcript as herein described and kill target tumor cells expressing such peptides.

It was then demonstrated that ER-derived peptides are naturally expressed and presented by target cells, such said target target-cells can thus be killed by co-culturing them with CTL-clones without external addition of peptides. To this aim, co-culture of CTL-clone 9 with H1650 target cells at different ratios were performed. The right panel of **Figure 11C**, shows that CTL-9 was able to kill target cells at a ratio effector-target of 4:1 as compared to the control cells (target cells alone). Moreover, killing efficacy is increased at higher ratios (8:1). No killing of target cells was evidenced at lower ratios (2:1).

Finally, similar experiments were performed with CTL-clone 9, CTL-clone 64, and CTL-clone 80 showing a specific killing of target cells that could be also inhibited when the co-culture is performed in the presence of anti-MCH-I antibodies (**Figure 11D**).

All together, these results confirm that cytotoxic T cells that recognizes several different peptides encoded by a fusion transcript as herein described can recognize and kill tumor cells expressing said specific fusion transcripts-derived peptides and that this effect is due to the specific recognition of peptides in the context of MHC-I molecules. Moreover, the fact that CTL-clones are able to kill target cells without addition of external peptides, provide clear evidence that fusion transcripts-derived peptides are naturally expressed and presented by an LUAD tumor cell line.

Generation of engineered T-cells recognizing fusion-derived peptides

Jurkat cells transduced with lentiviral vector encoding for CTL-9 TCR sequence were co-cultured with two different target cells, H1650 and H1395. Both are LUAD-derived cell lines express HLA-A2 allele. TCR-mediated activation of Jurkat cells was evaluated by flow cytometry as an increase in the fluorescence of reporter genes (NFAT-GPF, NF-KB-CFP and AP-1-mCherry). Preliminary results showed that Jurkat cells are activated when co-cultured with both target cells compared to negative control (non-transduced Jurkat cells). Furthermore, this activation increased in a dose-dependent manner when the co-culture was performed with target cells loaded with specific peptides. PMA/ionomycin was used as positive control (**Figure 12**).

These results were repeated in another set of experiments and similar ones were obtained with Jurkat cells transduced with lentiviral vector encoding TCR sequences from CTL-86 and CTL-

53 and CTL-17. Transduced Jurkat cells were activated by co-culture with a target tumor cell line loaded with the corresponding ER-derived peptide (Specific/Relevant peptide) but not with the control Melan-A peptide (Unrelated/Irrelevant peptide, ELAGIGILTV) (Figure 18A). As expected, activation is inhibited by blocking with anti-HLA-I antibodies (Figure 18B). TCRs expressed by the generated CTL-clones are thus specific to the corresponding HLA-A2 presented ER-derived peptides. Table 4bis lists the sequences of re-expressed TCRs.

These results are in line with the results shown in Figure 11 C and D, showing that LUAD-derived tumor cells express TE-derived peptides. Furthermore, these results also highlight the technical relevance of CTL-clones TCR sequences in the development of engineered T cells.

TCR number	Specificity	TCRalpha		TCRbeta			CDR3alpha	CDR3beta
		V	J	V	D	J		
1	LLDRFGYHV	TRAV41*01	TRAJ34*01	TRBV6-5*01	TRBD1*01	TRBJ-2*01	CAVLLDNTDKLIF	CASSRLQGALELFF
2	YLWTTFFPL	TRAV12*2*03	TRAJ44*01	TRBV7-6*01	TRBD1*01	TRBJ2-3*01	CAVNTRGTASKLTF	CASSLGGGTDTQYF
3	LLGETKVYV	TRAV12-3*01	TRAJ49*01	TRBV2*02	TRBD2*01	TRBJ-7*01	CAVFTGNQFYF	CASLSGESYEQYF
4	MLVTWELAL	TRAV35*01	TRAJ54*01	TRBV13*01	TRBD2*01	TRBJ2-5*01	CAGQLAGAQKLVF	CASSPSRDGQETQYF

Table 4bis: TCR sequences derived from CTL-clones recognizing chimeric transcripts-derived peptides.

Presence of CD8+ cells recognizing fusion-derived peptides in LUAD patients

It was then aimed to identify the presence of CTL cells recognizing fusion-derived peptides in LUAD tumor samples.

In a first set of experiments tumor infiltrating lymphocytes (TILs) expanded with a mix of TE-derived peptides and Il-2, or only with Il-2, were analyzed by tetramer staining. As is shown in **Figure 13 A** and **B**, CD8+ T-cells cells recognizing fusion-derived peptides were found in TILs derived from LUAD patients.

It was then showed that tetramer positive cells could be detected and their phenotype in non-expanded CD8+ T cells derived from fresh tumor samples was further assessed. Using this strategy, CD8+ T cells present in Tumor, juxta-tumor, invaded lymph-nodes and blood derived from LUAD patient samples were thus analyzed. The cell phenotype was determined based on the expression of surface markers CCR7 and CD45RA for Naïve (CCR7+CD45+), Central Memory (CM, CCR7+CD45RA-) Effector Memory (EM, CCR7-CD45-) and Terminal Effectors (TE, CCR7-CD45+) T cells. Interestingly, tetramer positive cells found in tumor tissues shared preferentially a memory phenotype whereas naïve cells (CCR7+CD45+) are

found mostly in cells derived from lymph nodes (**Figure 14 A** and **B**). Patient 2 and 3 are the same in Figure 13 and Figure 14.

All samples tested derived from HLA-A2+ patients.

The presence of tetramer positive cells with a memory phenotype in tumor tissues, together with the presence of tetramer positive cells in TILs, provide evidence that an immune response is generated against TE-derived peptides in these patients. Moreover, the existence of naïve tetramer positive cells in lymph nodes shows that an immune response against these particularly TE-derived peptides can be generated.

In a second cohort of 5 primary, untreated, LUAD tumor, juxta-tumor, tumor-draining lymph node and blood samples from LUAD cancer HLA-A2+ patients were analyzed. Half of each sample was analyzed directly ex-vivo by isolating CD8+ T cells without in-vitro expansions, and the other half was cultured in-vitro for 20 days either with chimeric transcript-derived peptide mixed with IL-2 (patients 1 and 2) or with IL-2 alone (patients 3, 4, 5), aiming to amplify in the samples, the populations of specific T cells recognizing Chimeric transcript-derived peptides. T cells were identified using double color tetramer staining. Antibodies directed CCR7 and CD45RA were also added to the non-expanded cells to distinguish naïve and memory cells. Expansions were considered with 5 or more double tetramer-labelled cells.

Figure 19A shows a summary of the 7 "Chimeric transcript-derived peptide specific" tetramer-positive T cell populations found in the 4 patients analyzed directly ex-vivo (one of the patient samples could not be analyzed for technical reasons). CCR7/CD45RA labeling showed that all tetramer-positive T cells detected in tumor samples have a clear effector/memory phenotype, whereas in blood and lymph nodes the "Chimeric transcript-derived peptide specific" tetramer-positive T cells have variable proportions of less differentiated, CCR7+ naïve and/or central memory phenotypes.

Therefore, these results demonstrate that primary human NSCLC tumors contain chimeric transcript-derived peptide specific memory T cells (Figure 19B).

A summary of expanded, tetramer+ CD8+ T cells, is shown in Figure 19C. For the majority of peptide specificities, T cells were expanded from both the tumor and the matched invaded lymph nodes (LN) analyzed only in 2 patients, and in some cases from the matched juxta-tumor samples (Jt) (Figure 19C). 5 out of 7 specific tetramer positive populations were also found at Day 20 in the same patient and tissue found ex-vivo without T cell expansions (Figure 19A and bold squares on Figure 19C).

These results provide thus evidence that chimeric transcript-derived peptide specific T cells are present in tumors, tumor-draining lymph nodes and sometimes in juxta-tumor tissue and blood

of LUAD patients before and after in-vitro expansion, consistent with the existence of chimeric transcripts-derived peptide specific immune responses in LUAD patients.

Peptide identification by Mass Spectrometry in LUAD biopsies.

Presentation by MHC class I molecules on the tumour cell surface is required for ER-derived peptides in order to be recognized by cytotoxic T cells. In order to confirm that predicted peptides are express on MHC class I molecules, public data from MHC I immunopeptidome derived from 3 LUAD biopsies (Laumont CM et al., "Noncoding regions are the main source of targetable tumor-specific antigens" Sci Transl Med. 2018 10(470)) were used. OpenMS Software was used to analyse the raw data uploaded to PRIDE database from MHC-I immunopurification of 3 LUAD tumours (PXD009752, PXD009754 and PXD009755). Having in mind that data-dependent acquisition in proteomics only allows the identification of those sequences contained in a target database (generally the whole human proteome); the peptides as per the present application had not been previously identified because they derive from non-coding sequences. The MS/MS identifications incorporating the sequences of the herein predicted peptides in the target database has been re-analyzed. Five peptides among the 3 samples biopsies (peptides ID: 3304, 269, 757, 1810, 3953) were found. To perform this analysis, all predicted peptides derived from chimeric fusions present in at least 5 samples in the TCGA binding to any MHC I allele were considered. This result confirms the expression of chimeric fusion-derived peptides on MHC class I molecules in LUAD tumors.

Later, we extended our analysis to new lung immunopeptidomics datasets (Bulik-Sullivan *et al.* Nat. Biotec 2018, Chong *et al.* Nat. Comm. 2020 and Javitt *et al.* Front Immunol 2019). Of note, all datasets were generated with fresh lung tumor samples with the exception of Javitt *et al.* Front Immunol 2019 containing LUAD tumor cell line. For this second analysis, ProteomeDiscoverer 1.4 Software was used to identify the ER-derived peptides. Considering the 4 datasets, 23 unique ER-derived peptides were present in at least one of the total 19 immunopeptidomic samples. In Figure 15, ER-derived peptides (rows) identified in each MHC sample (column) are indicated with a grey square. On the right, the peptide sequence found is indicated. Interestingly, some of them were observed in more than 1 MHC sample indicating that they are shared across samples. These results confirm that fusion transcripts-derived peptides are processed and presented by HLA-I molecules on tumor cells surface.

Peptide RLADHLSFC derived from a fusion transcript where the gene part of the fusion is a tumor suppressor gene (Fusion ID: chr22:29117506:->chr22:29115473:- /gene involved:

CHEK2) and peptide GLPSHVELA derived from a fusion transcript where the gene part is an oncogene (Fusion ID: chr6:117763597:->chr6:117739669:- / gene involved: ROS1). Interestingly, both peptides were found to be immunogenic (Figure 11 A) and particularly for peptide RLADHLSFC, results show in Figure 11 D indicate that could be express by H1650 cell line. Furthermore, we found TILs recognizing peptide GLPSHVELA (Figure 12A), which indicates that this fusion transcript-derived peptide could be express in LUAD tumor samples.

3 Example 3: Identification neoantigenic peptides derived from fusion transcripts composed of a TE element and an exonic sequence from various cancer samples.

9184 samples from 32 different cancer types (Acute Myeloid Leukemia, Adrenocortical Carcinoma, Bladder Urothelial Carcinoma, Breast Ductal Carcinoma, Breast Lobular Carcinoma, Cervical Carcinoma, Cholangiocarcinoma, Colorectal Adenocarcinoma, Esophageal Carcinoma, Gastric Adenocarcinoma, Glioblastoma Multiforme, Head and Neck Squamous Cell Carcinoma, Hepatocellular Carcinoma, Kidney Chromophobe Carcinoma, Kidney Clear Cell Carcinoma, Kidney Papillary Cell Carcinoma, Lower Grade Glioma, Lung Adenocarcinoma, Lung Squamous Cell Carcinoma, Mesothelioma, Ovarian Serous Adenocarcinoma, Pancreatic Ductal Adenocarcinoma, Paraganglioma & Pheochromocytoma, Prostate Adenocarcinoma, Sarcoma, Skin Cutaneous Melanoma, Testicular Germ Cell Cancer, Thymoma, Thyroid Papillary Carcinoma, Uterine Carcinosarcoma, Uterine Corpus Endometrioid Carcinoma and Uveal Melanoma) were analyzed according to the method as previously described.

16580 fusion transcripts were identified.

4 Example 4: proteomics results

Results

Total proteomics

Mass spectrometry-based proteomics has emerged as a powerful tool to interrogate the actual protein content of a given cell preparation. To confirm that JETs are indeed translated into proteins, mass spectrometry output files (called raw files) generated from cell lines and fresh tumors were analyzed to identify different populations of JET-derived peptides. This study has been grouped into two different analyses, each one providing a different and complementary type of information, that demonstrate that JET derived proteins can reliably be detected in a tumor sample or in a tumor cell line.

First it was demonstrated that proteins derived from the JETs were found to be highly recurrent in CCLE dataset. Therefore, the in-silico translated junctions from all those JET mRNA sequences predicted in more than 7 different cell lines in the CCLE cohort were used and interrogated to the mass spectrometry raw files from Nusinow *et al.* 2020, which consists in the proteomics analysis of 375 cell lines from CCLE. These cell lines were grouped in TMT10plex, generating a total amount of 42 MS/MS output files. This MS-based proteomics analysis led to the identification of **186** JET derived proteins, containing at least 1 peptide overlapping the splicing junction (Table 5).

Table 5:

Sequence	Chimeric_id	Recurrence in dataset
SSTGPADLK	chr20:42212014:+>chr20:42213492:+	72
MLLGLLAK	chr7:20686997:+>chr7:20687158:+	72
MGISIVK	chr8:74872000:->chr8:74871067:-	72
IQSFTNISFSMPHR	chr1:44680991:+>chr1:44683983:+	63
TQEVEVAVNR	chr7:73776406:+>chr7:73778585:+	45
MASASPTIK	chr3:53915693:->chr3:53914136:-	36
ETDLITVTGSSFLTHR	chrX:57620887:+>chrX:57667223:+	36
EAENEVQTAK	chr7:116555100:+>chr7:116556114:+	36
LNIHLLMVTSSVTSSSILINLDR	chr13:41835827:->chr13:41835011:-	36
DLELEIPFGPAIPLLGSCSQCR	chr11:129978600:+>chr11:129979324:+	36
MILESTYHNTLHIAMK	chr6:17835789:->chr6:17834302:-	36
MLAPENSDIGLAAWGR	chr20:32888526:->chr20:32883391:-	36
TQEAELAGVATVR	chr3:122863676:+>chr3:122864369:+	27
TSLHSIPVTVGRR	chr17:42188097:->chr17:42182463:-	27
AEIAPLHSSLGDK	chr5:132253438:->chr5:132240096:-	27
MLGAVAHNCDPSTLR	chr12:57081782:->chr12:57080459:-	27
GPAPEPPSMR	chr19:50010181:+>chr19:50027764:+	27
MACNMGLEKGEK	chr5:179238682:+>chr5:179250858:+	27
MASICPFLK	chr20:49307663:->chr20:49307455:-	27
EIETILANPENK	chr6:130374597:+>chr6:130376316:+	27
QAQCSTDSTLWYFMHGVCR	chr3:12604393:+>chr3:12610374:+	18
LASTTSVSEEDVSSR	chr12:79996543:->chr12:79990438:-	18
AIAQGIQELR	chr17:43475315:->chr17:43474814:-	18
TCPSAMIVSFLK	chr10:51747031:+>chr10:51749068:+	18
VQLAGNTLPSTPCWTR	chr9:130924301:+>chr9:130925722:+	18
GLEFETSLANVVQLPNSIVFSVTR	chr18:19147325:->chr18:19146167:-	18
KESLEASMMLK	chr9:88264917:->chr9:88261333:-	18
VETLCATLWGFGK	chr10:102711867:+>chr10:102716208:+	18

MMAHLCIFGLQSR	chr5:86704905:->chr5:86704003:-	18
VSTSHVGPWVSP	chr5:1475076:->chr5:1474800:-	18
NLLDIDAPVTGWQELK	chr4:102117073:->chr4:102104428:-	18
AKIAPAEGPDVSER	chr3:185370866:->chr3:185369956:-	18
EAEEPSDNGPLFTELK	chr14:97307963:+>chr14:97312432:+	18
MAGLVFQWLR	chr3:136005373:+>chr3:136012598:+	18
ISQLQIWDTAGQER	chr3:128828867:->chr3:128814012:-	18
VISAFPSELQSQCTK	chr6:100379769:->chr6:100369131:-	18
TAQLPEQLMTWHSR	chr22:37870550:->chr22:37861756:-	18
LLNITAGLGSDGTIR	chr6:34511797:->chr6:34511385:-	18
MGTVAHAYNPSTLGGR	chr2:48593264:+>chr2:48600431:+	18
MLPPFVLAVTMGLSVVK	chr3:15058779:+>chr3:15062260:+	18
QADHLMPGVQDQPNMTSVP	chr11:18491675:->chr11:18490765:-	18
WAGHSASCSSLRK	chr22:18351213:->chr22:18348778:-	18
TFMMIHCHLMNNMSCR	chr3:10160654:+>chr3:10167310:+	9
GQIGILLWNSMGTMQQPR	chr20:30254794:->chr20:30253889:-	9
APTDSTLCTLCK	chr17:62609987:->chr17:62602758:-	9
LREPIDNLTPEER	chr20:34315958:->chr20:34313077:-	9
EWSGIQKATLMDLQLSDSNFRR	chr18:244302:->chr18:226901:-	9
TSLANMVVFPLMK	chr2:98263129:+>chr2:98263530:+	9
IWLTEDATALLQRPGWR	chr11:44960717:->chr11:44959917:-	9
METGIISLLPPWGGRPSAVR	chr1:6531548:->chr1:6531300:-	9
GNLLIISLDAK	chr17:65894534:+>chr17:65899905:+	9
TSSGLPLILHCVYAK	chr16:82201145:->chr16:82197799:-	9
SGVQDQPGQQGPVTLHK	chr10:28824988:+>chr10:28872328:+	9
WADHLTSGVR	chr10:95225471:->chr10:95216694:-	9
MNDSCIFRPETDSDIMELTDR	chr19:19976808:+>chr19:19982937:+	9
IVEQTLK	chr13:115035095:+>chr13:115037659:+	9
MELTIPGEGK	chr2:99224660:->chr2:99220654:-	9
HFIAMMYFK	chr5:145540727:->chr5:145540049:-	9
ETFFLQQQGNDAK	chr16:89607754:+>chr16:89611056:+	9
QLQVCVLQIMGSCVPSCPTP	chr11:64643083:->chr11:64641990:-	9
EAEASQAAQEAEINAR	chr1:183107957:+>chr1:183109539:+	9
YSNVLEMAWLQYA	chr12:63961380:->chr12:63954442:-	9
MATVAHTSLATVEDFQIRPHTLY VHSYK	chr2:37520065:->chr2:37518142:-	9
LPIFFFGTHETLLGGR	chr9:15506559:->chr9:15492223:-	9
QASRALPPCPWNTQTSGSR	chr10:6010739:->chr10:6008302:-	9
LDIGFPSLQNYR	chr17:47441711:+>chr17:47450375:+	9
TLPSLDDLR	chr7:72720556:->chr7:72719094:-	9
LLVNDPETAVK	chr12:112149997:+>chr12:112150302:+	9
LQEMGPLGVPQR	chr14:105335983:+>chr14:105342593:+	9
TSLANMDMFK	chr12:72301769:+>chr12:72307606:+	9
MGAVVHACKPSTLGGR	chr15:42151606:->chr15:42151178:-	9
KQAQKDCPTHSGVS	chr17:43536749:->chr17:43531638:-	9
SEGIRIMEMLLK	chr5:145153908:->chr5:145144563:-	9
GFGPSTMLGTQK	chr1:193028315:->chr1:193022970:-	9

MTKLLSPIR	chr22:32787416:->chr22:32784086:-	9
WLTPVIPALWEAER	chr8:103282996:->chr8:103282411:-	9
ETTLAFK	chr1:240569786:+>chr1:240601361:+	9
ATALQPGR	chr1:45988450:->chr1:45981479:-	9
ITSVVMVDEAHER	chr6:30629093:->chr6:30628019:-	9
SQYCTPALEAETK	chr17:78263365:+>chr17:78263458:+	9
TLTFLGPLQFR	chr19:20025631:+>chr19:20026089:+	9
TPEVEATVPLQK	chr22:42085308:+>chr22:42089467:+	9
VILIFFPECYAK	chr22:31947110:+>chr22:31952928:+	9
DGDHPSQHDGVLLCCPGWSTM	chr9:96211969:->chr9:96210771:-	9
GGSHLQSQHFGRPR	chr21:34973474:->chr21:34971554:-	9
SVSTIFLTCSR	chr10:1100108:->chr10:1090111:-	9
MGTVAHACNPCTLGG	chr20:17550856:+>chr20:17565018:+	9
TPGRNGHLESGHLK	chr7:102793520:+>chr7:102939015:+	9
SGFSFLLGIVGF	chr12:22831248:+>chr12:22837417:+	9
EIETLHHPSTGVILADHK	chr13:44432917:->chr13:44413224:-	9
TIAQMIDSTVALPLEAT	chr8:38697785:+>chr8:38698832:+	9
NQSQSHLNVGLLASR	chr9:21808999:+>chr9:21815432:+	9
SVERFLQEDQMFHQEK	chr9:97843062:+>chr9:97909493:+	9
MELTIPGVGHSSGSLNEGK	chr2:99224633:->chr2:99220654:-	9
ESLEASMMLK	chr9:88264917:->chr9:88261333:-	9
LLITAEDQSMWIQS	chr13:113897987:+>chr13:113898724:+	9
QAWWIMPIIPALWEAK	chr2:10135488:+>chr2:10136007:+	9
MESQMVEQLCSR	chr8:66633382:->chr8:66631730:-	9
GLTGEFSITR	chr5:1257816:->chr5:1255526:-	9
GGEFAPSWDCKP	chr2:37490123:->chr2:37487527:-	9
CLTTLFGSFR	chr7:107256834:+>chr7:107258773:+	9
SQHFGRPSCVPLPATGVK	chr12:69249761:->chr12:69236109:-	9
EQLSQAEAVALK	chr6:17837109:->chr6:17835895:-	9
GQVLGPWPSR	chr19:1045618:+>chr19:1046229:+	9
TGAQPPATMPLNVSFTNR	chr8:128749923:+>chr8:128750494:+	9
TGIPSATLIR	chr22:46193106:+>chr22:46202839:+	9
EQTDVMHQNIYD	chr5:414855:+>chr5:422844:+	9
FVDVTECQACSANSR	chr22:25019883:+>chr22:25023093:+	9
IRDSEELIGR	chr15:79649214:+>chr15:79703742:+	9
DHIMFSLFEK	chr1:116206078:+>chr1:116206282:+	9
DSGSTTWCFIQK	chr12:112169999:+>chr12:112171727:+	9
GFPSHMSLGYHFQCPIPR	chr2:28190310:+>chr2:28210860:+	9
CPEMLPTSQTLR	chr12:110470515:+>chr12:110471602:+	9
FLQQCLLLLVSLEVFR	chr19:54502735:+>chr19:54515205:+	9
TAGGQQQALPLGSPR	chr17:45356073:+>chr17:45360720:+	9
SVTVSHNPQLGPSGCR	chr5:133691774:->chr5:133686118:-	9
AVTANGYQMLDGK	chr2:43779972:->chr2:43779478:-	9
FPSGILCVIMPGR	chr6:3432328:->chr6:3416089:-	9
HDYDEDLVQEASSEDVLGVHMVDK	chr5:177450333:+>chr5:177462097:+	9
CNPSTLGDQAEK	chr2:231040909:->chr2:231037675:-	9

AEISCQQPAPGPR	chr19:49832179:+>chr19:49838971:+	9
GQEMETIPANTLIQEDILDTGNDK	chr12:86274547:+>chr12:86276001:+	9
GGFHHDCK	chr7:84736037:->chr7:84727281:-	9
LWTSLPAPMFSR	chr20:60835987:+>chr20:60838672:+	9
CMCLEYPAVVEFAPFQK	chr13:115049839:+>chr13:115051777:+	9
LIISIFLVHSPK	chr12:7125578:->chr12:7120720:-	9
GATWTGSSPQGSWDFTR	chr7:75083158:->chr7:75070925:-	9
TVTVPAQELK	chr9:128421519:->chr9:128420078:-	9
ENTMAENELQV	chr10:112572705:+>chr10:112576399:+	9
TPMELELPPASHFEFIGSSANCR	chr2:37570066:+>chr2:37579932:+	9
GLLWSGMALTGSLRVTQR	chr22:36007617:->chr22:36007153:-	9
GLSDHVQLSQSHSTSFHVSPK	chr16:90158141:->chr16:90141431:-	9
MILESTYHNTLHIAMKAPELK	chr6:17835789:->chr6:17834302:-	9
CPETFLDGTLGR	chr19:4703015:->chr19:4702728:-	9
SYQLRPGTMIEWGNYWR	chr7:56052571:+>chr7:56059164:+	9
TILANTVMAR	chr16:2115231:+>chr16:2115520:+	9
MELTIPGVGK	chr2:99224656:->chr2:99220650:-	9
SSPQAIQMVATLGTTTCCSFDNLL EVGPICNK	chr7:50595367:->chr7:50571757:-	9
GDPGIDAR	chr21:43290029:->chr21:43280481:-	9
MAFSGSQAPYLSPDPK	chr17:25958330:+>chr17:25965125:+	9
TIAQGNLSNTDVQAAKRSCSYL	chr16:21987564:+>chr16:21988399:+	9
MQENTLRAPTDSTLWHPPHYK	chr14:60442915:+>chr14:60443943:+	9
DQPGQHGPGMRPPLGLR	chr1:222838358:+>chr1:222838651:+	9
EAPTYITWTIRR	chr1:51218110:->chr1:51210447:-	9
DLVGGYTPGTPYK	chr2:131824664:->chr2:131813268:-	9
GLNEAIFMIPTNPPPTFR	chr8:99648370:->chr8:99608397:-	9
DAAALLLANEAR	chr6:110774731:->chr6:110768193:-	9
ATSLWYFMAAQAK	chr2:42615589:->chr2:42580483:-	9
MDLVQVSGSLGSPVLSCK	chr10:104231153:+>chr10:104231667:+	9
QHQEVTLYGLK	chr15:99433697:+>chr15:99434554:+	9
LVSLSQYWEK	chr18:74574245:+>chr18:74580641:+	9
TGTTPVYSSQHEQHR	chr1:178806756:+>chr1:178846633:+	9
QATGMDLEVIILSDITQK	chr6:129786434:+>chr6:129788349:+	9
LLALLDVLK	chr1:22263648:->chr1:22224962:-	9
GIGYPAWAMK	chr2:131840150:->chr2:131829742:-	9
MESQLQIEETTLLR	chr16:4667729:+>chr16:4700366:+	9
GLLGLAGMRPELR	chr3:40555431:+>chr3:40557351:+	9
GQEMETILANMISR	chr9:96211969:->chr9:96209979:-	9
ICRPGAAAAARHPGSPGGQLAPR	chr16:29692733:+>chr16:29705985:+	9
ELGVTAGGLPTR	chr12:42795298:+>chr12:42835117:+	9
GNLDTKTPGMPK	chr10:12280484:+>chr10:12301986:+	9
LLELQGLPLMPSR	chr19:53119971:->chr19:53097557:-	9
AGGSLEAGGK	chr7:44883388:->chr7:44882953:-	9
EGDVVLYCSSATFCATSQSGTGE VR	chr2:219296440:+>chr2:219296580:+	9
STNDELDELR	chr18:8708134:+>chr18:8718422:+	9

INSAHLQTLSAGK	chr15:49600974:+>chr15:49611801:+	9
MGLSPASAPRPQTCFSLSTTK	chr17:17735071:->chr17:17723835:-	9
MLADRSMSSSLSASQLHTVNMR	chr17:38177572:->chr17:38176606:-	9
GTQVFVTGYTPWQR	chr20:1532337:->chr20:1530245:-	9
METDLECSDSR	chr5:68551355:+>chr5:68551980:+	9
TLLPGTLR	chr7:129915476:+>chr7:129916468:+	9
WLMPVIPALGR	chr1:160283437:->chr1:160282957:-	9
LLGAEIAPLHSSLDGLS	chr9:97214855:+>chr9:97216240:+	9
DPAIALQPGPQSER	chr15:79168112:+>chr15:79170555:+	9
MAHTLQYFK	chr8:72942008:+>chr8:72964774:+	9
MAHTLQYFKSSQHQR	chr8:72942008:+>chr8:72964774:+	9
MISAFPTEGQR	chr11:74830434:+>chr11:74873700:+	9
MDFMNAEILLK	chr19:49834874:->chr19:49797810:-	9
SEEPLRPAAAPSENALR	chr9:119602892:->chr9:119583062:-	9
TSPVAGPALPPNYK	chr13:45576476:+>chr13:45578440:+	9
EYLEYEDTAQR	chr2:113956803:+>chr2:113966557:+	9
QNLHEIGLWR	chr12:42835231:+>chr12:42836287:+	9
AGGSLEAK	chr19:6365650:+>chr19:6366269:+	9
AMSQINFFTNDPASAIGEYEDLR	chr10:118750845:->chr10:118738819:-	9
LELALLAPQACR	chr8:53483830:->chr8:53455005:-	9
SLVLEGFLINSKPENACEPI	chr3:149581921:+>chr3:149589816:+	9
TVTDSTLWIASSPGGLSPADCGAS FR	chr3:77121427:+>chr3:77147165:+	9
IASTQEADVVVAR	chr5:94876747:->chr5:94876534:-	9
LLRELQVMYGMLVFTLVLR	chr11:76708271:+>chr11:76709807:+	9

The identification of peptides overlapping splicing regions is less sensitive likely due to 1) the lower abundance in the whole proteome of the sequence of interest compared to a non-spliced region and 2) splicing motifs code in around 40% of the cases for a lysine (K) or arginine (R) amino acids, which are also the cleavage sites for trypsin (i.e.: the enzyme used for MS sample processing). Therefore, the above-mentioned protocol probably leads to an underestimated of the presence of JET-derived proteins in tumor samples and cell lines.

It has been then demonstrated that tumor-specific JETs were indeed translated. Focusing on lung tumors, lung tumor-specific JETs predicted in TCGA and CCLE projects were *in silico* translated and interrogated against 2 different mass spectrometry output datasets: Nusinow *et al.* 2020 (CCLE proteomics dataset) and Stewart *et al.* 2019 (lung primary tumours proteomics dataset). This analysis provided information about JET-derived proteins not only in the context of a cell line, but also in cancer human samples. In cell lines, we were able to identify 221 peptides overlapping the splicing site of 206 JET-derived proteins (Table 6).

Table 6:

Sequence	chimeric_Tx_Id	Recurrence
HTDLQATAIGK	chr12:104824437:+:Charlie6>chr12:104995684:+:ENST00000546689	108
YISLIYTNYAEGK	chr11:67352712:+:ENST00000398603>chr11:67361105:+:LTR22A	81
AQWLTPVIPALWEAEAGESPERPR	chr1:36637320:+:AluSp>chr1:36638065:+:ENST00000530729	45
MILSSIR	chr6:144066592:+:L3>chr6:144070122:+:ENST00000427704	45
MGISIVK	chr8:74872000:-:ENST00000520242>chr8:74871067:-:Tigger3b	36
LLINRMVTL	chr5:52197198:+:MLT1D>chr5:52201593:+:ENST00000282588	36
MGAVAHTCNPSTLGGQGK	chr12:104645612:+:AluSc>chr12:104651797:+:ENST00000429002	36
ALVNLSFVTGVSSMTFMMGNICR	chr2:270006:+:MER39>chr2:271866:+:ENST00000442386	36
APVSDEK	chr7:130069134:-:L3>chr7:130067859:-:ENST00000541543	27
MNSLSIR	chr9:128638776:+:Tigger2a>chr9:128677965:+:ENST00000491787	27
ALELGVVSQPSVYR	chr1:223852296:-:MIRb>chr1:223842101:-:ENST00000419193	27
MGAVTHTCNPSTLEGR	chr2:207009280:-:AluJo>chr2:207008856:-:ENST00000432169	27
ELLHGTEGGEHR	chr17:27441216:-:L3>chr17:27441115:-:ENST00000531253	27
VAASSPIMRK	chr11:71728382:-:MIR>chr11:71727576:-:ENST00000358965	18
TITLEVEPR	chr17:16285735:+:ENST00000535788>chr17:16300446:+:MER4B	18
MGAVAHTCNPSTLEGQDCPCGRPRR	chr3:185370866:-:AluSx1>chr3:185369956:-:ENST00000421047	18
EAEEPSDNGPLFTELK	chr14:97307963:+:AluSx>chr14:97312432:+:ENST00000216639	18
LQDSTGSWEK	chrX:40570189:-:MER8>chrX:40569381:-:ENST00000324817	18
GLPSHAELIR	chr12:16168469:+:THE1D>chr12:16185476:+:ENST00000531803	18
CNPSTLGDQAEK	chr2:231040909:-:AluJb>chr2:231037675:-:ENST00000258381	18
QLQSANYGHMQASCLSIK	chr12:52639328:+:ENST00000331817>chr12:52645561:+:MER58A	18
AHLNERNTLQEENK	chr18:20537359:+:L2c>chr18:20555116:+:ENST00000582354	18
DLYANTVMSVELNAASGTR	chr7:5567728:-:ENST00000331789>chr7:5522250:-:MIRb	18

TEEMPQLNFGMAVLYGG MCL	chr3:107447807:+:ENST00000415149>chr3:10 7448789:+:AluJr	18
ENLPSIQPGMVLQAVAHL HGR	chr5:140764890:+:ENST00000518325>chr5:14 0765965:+:BC200	18
LLNATHQIGCQYTHR	chr1:160314616:+:ENST00000421914>chr1:23 0653304:+:MLT1B	18
MAVVAHACNLNSFGGQG PAWFLR	chr3:49096310:-:AluSp>chr3:49065271:- :ENST00000429182	18
MVWVGTIGSGPK	chr17:59856034:- :MamRep1161>chr17:59853923:- :ENST00000259008	18
NLLDIDAPVTGWQELK	chr4:102117073:- :ENST00000525819>chr4:102104428:-:MLT1J	18
VISAFPSELQSQCTK	chr6:100379769:-:L1PA3>chr6:100369131:- :ENST00000281806	18
MACNMGLEKGEK	chr5:179238682:+:MER61- int>chr5:179250858:+:ENST00000504627	18
MLDNLMYDYELNWVR	chr14:106801819:-:L1ME2>chr14:106518589:- :ENST00000390598	18
AKIAPAEGPDVSER	chr3:185370866:-:AluSx1>chr3:185369956:- :ENST00000346192	18
MVLLVR	chr2:189861722:+:(TA)n>chr2:189861891:+:E NST00000304636	18
VGGSRVLGGDQ	chr6:30690007:+:AluSc>chr6:30690314:+:ENS T00000327892	18
NTQLTMWLPQLIWTK	chr7:127304880:+:MER21C>chr7:127347646:+ :ENST00000354725	18
MCQKEVMEQSAGR	chr2:133425973:- :ENST00000345008>chr2:133381838:- :MLT1B	18
MAQWLMPVIPALWEAQIH FILLFSR	chr2:224652913:-:AluSz>chr2:224642586:- :ENST00000396653	9
LLSSSMHTLQTK	chrX:38146409:+:CT-rich>chrX:38146366:- :ENST00000378505	9
QQMLVCFVNLDVNK	chr2:228948057:-:L1PA8>chr2:228892259:- :ENST00000344657	9
MASTISAGCGGGACGPSYS GG	chr20:62284680:- :ENST00000370053>chr20:62277869:-:AluY	9
LLDEAAGEGEAAGR	chr15:83103156:+:ENST00000358583>chr15:8 3193188:+:GA-rich	9
TSPVAGPALPPNYK	chr13:45576476:+:7SLRNA>chr13:45578440:+ :ENST00000361121	9
LSTVVDADEIIVLDQEK	chrX:74280058:- :ENST00000529949>chrX:74267940:-:L1MB8	9
MDFMNAEILLK	chr19:49834874:-:MLT1J2>chr19:49797810:- :ENST00000335875	9
MATVAHTSLATVEDFQIRP HTLYVHSYK	chr2:37520065:-:AluJb>chr2:37518142:- :ENST00000443187	9

METQADLVSQEPQALLDS ALREAEAGR	chr7:99674926:- :ENST00000428683>chr7:99674180:-:AluSc8	9
LLITAEDQSMWIQS	chr13:113897987:+:L1MC5>chr13:113898724: +:ENST00000326335	9
LADLFGWSQLIYNHITEYK	chr4:2886393:+:ENST00000398129>chr4:2888 303:+:L2a	9
LLHHQLHMMLDK	chr1:145474732:+:ENST00000323397>chr1:14 5476653:+:MIR3	9
LSPLPSNSCVTWGGYR	chr7:7498396:-:MIRb>chr7:7495743:- :ENST00000399429	9
MILESTYHNTLHIAMK	chr6:17835789:-:MIR>chr6:17834302:- :ENST00000378814	9
MQENTLRAPTDSTLWHPP HYK	chr14:60442915:+:MER1A>chr14:60443943:+: ENST00000254271	9
MMVNCHAHFWVSTYLSP HLL	chr8:74209664:+:ENST00000521928>chr8:742 16833:+:L2	9
SQVMDVDTLY	chr3:98618227:-:AluSc8>chr3:98600611:- :ENST00000326857	9
TDDSLGLGLK	chr11:14737526:+:L1PA2>chr11:14793483:+:E NST00000282096	9
GHEFETSLANMVIQLLK	chr7:154793407:-:AluSq>chr7:154790494:- :ENST00000457196	9
MDGQMMDTGVDK	chr4:2453586:+:(TGGA)n>chr4:2453869:+:EN ST00000506607	9
HLEDYMEHTPPPR	chr2:95476942:+:MIR>chr2:95540521:+:ENST 00000295201	9
IFTYQICK	chr15:72463983:-:L1M5>chr15:72462280:- :ENST00000564129	9
TENLGSILSWWHNK	chr3:72442890:-:L1MC4a>chr3:72428578:- :ENST00000477973	9
MGGATSPLLSSAK	chr17:56588640:-:MIRb>chr17:56586202:- :ENST00000579925	9
MISAFPTEGQR	chr11:74830434:+:L1PA4>chr11:74873700:+:E NST00000289575	9
TFTMIHFHLITR	chr12:4948527:+:Tigger2a>chr12:4959904:+:E NST00000542998	9
LLPPCQPGSSLSSK	chr16:18565603:-:MIR>chr16:18540905:- :ENST00000569051	9
GLFSQAEIR	chr6:123549550:-:THE1C>chr6:123545276:- :ENST00000398178	9
MAALTIATGLAVD	chr11:77850610:- :ENST00000530454>chr11:77848691:-:Tigger1	9
MYMAHGLTQSTK	chr5:153529506:+:L2c>chr5:153674376:+:ENS T00000425427	9
EFETSLGLWQAMR	chr9:15573873:+:AluJo>chr9:15578847:+:ENS T00000535968	9
TAELPKPSISSNNSNPK	chr19:42217314:+:Tigger4a>chr19:42311149:+: ENST00000415495	9

VQDHPGQHGEAIGK	chrX:47312190:-:AluSx>chrX:47308873:-:ENST00000432977	9
TSLGNMINDK	chr15:64365987:-:AluJr4>chr15:64365216:-:ENST00000300030	9
MLPPFVLAVTMGLSVVK	chr3:15058779:+:L2c>chr3:15062260:+:ENST00000323373	9
QIGCYQGFAFAWK	chr11:69488615:-:AluJo>chr11:69486587:-:ENST00000542341	9
SQGSGLNFIDLMVR	chr16:77786496:+:MIR3>chr16:77850818:+:ENST00000302536	9
AWEAEIMVKYLLFMWEIK	chr2:177179106:+:AluSz6>chr2:177191553:+:ENST00000249442	9
ATVWLGSGDEK	chr16:50651682:+:MER91A>chr16:50655550:+:ENST00000268459	9
DNTDSVVFEDVAVNFTQEEWALLGPSQK	chr19:12635610:-:L1MB3>chr19:12577664:-:ENST00000598753	9
QSLSEELK	chr2:211453855:+:LTR16C>chr2:211454830:+:ENST00000430249	9
AAAVAAKAEAVSPAK	chr19:39833216:+:(CGG)n>chr19:39866290:+:ENST00000598913	9
KLILCLNDCK	chr12:104518408:-:MER33>chr12:104517201:-:ENST00000240055	9
TGAQPPATMPLNVSFTNR	chr8:128749923:+:G-rich>chr8:128750494:+:ENST00000377970	9
DLEFETSLANK	chr10:103896914:+:AluSx1>chr10:103897607:+:ENST00000278070	9
LSSQHLGGQEPEQLPEKR	chr1:19410263:-:AluJo>chr1:19408067:-:ENST00000375224	9
TPEVEATVPLQK	chr22:42085308:+:AluSx1>chr22:42089467:+:ENST00000402966	9
ISQLQIWDTAGQER	chr3:128828867:-:AluJo>chr3:128814012:-:ENST00000457077	9
VILIFFPECYAK	chr22:31947110:+:L2>chr22:31952928:+:ENST00000450787	9
IRDSEELIGR	chr15:79649214:+:L1ME4a>chr15:79703742:+:ENST00000424155	9
MLAPENSDIGLAAWGR	chr20:32888526:-:L2b>chr20:32883391:-:ENST00000217426	9
QETPMAADEGSAEK	chr9:140606077:+:L1MB7>chr9:140611078:+:ENST00000460843	9
MLADRSMSSSLSASQLHTVNMR	chr17:38177572:-:MIRb>chr17:38176606:-:ENST00000394126	9
LGVGSDSEVEER	chr12:124157140:+:AluJo>chr12:124158165:+:ENST00000303372	9
IQEAEVAVK	chr17:48743773:+:AluSp>chr17:48744915:+:ENST00000502426	9
IDMISCVWK	chr2:223509604:-:MER44A>chr2:223507626:-:ENST00000281828	9

MGVVAHTCNPNTLGGQGIEMHQR	chr11:125450741:+:AluSx1>chr11:125451107:+:ENST00000278903	9
EDQMSSWSISTSVQPSGR	chr1:208254106:-:MIRb>chr1:208252795:-:ENST00000367033	9
MLLTHWLNLADHWR	chrX:63029083:-:MIR3>chrX:62944591:-:ENST00000253401	9
MEQFVQVYNWIDV	chr6:39290104:-:ENST00000507712>chr6:39289934:-:MIR3	9
LLSSLFSEPTCLILVSPQ	chr17:43026722:-:L2c>chr17:43013726:-:ENST00000590129	9
TAQLPEQLMTWHSR	chr22:37870550:-:ENST00000356998>chr22:37861756:-:L2a	9
SYQLRPGTMIEWGNYWR	chr7:56052571:+:ENST00000322090>chr7:56059164:+:AluSp	9
QEDPLNLTCPSCGITFAPK	chr16:4052808:-:AluSx>chr16:4043511:-:ENST00000571467	9
TQEAEVANAASK	chr18:19241710:-:AluSp>chr18:19239304:-:ENST00000289119	9
ITSVVMVDEAHER	chr6:30629093:-:AluY>chr6:30628019:-:ENST00000376442	9
NIFSCISMGNFGGPGK	chr1:92518215:+:ENST00000370383>chr1:92524420:+:LTR86B1	9
VISAFPSEVPGSSHSGVPDSGR	chr16:21059883:-:L1PA2>chr16:21051265:-:ENST00000415178	9
DILMYMVWWCVPMMPATRR	chr2:225400245:-:ENST00000409096>chr2:225395962:-:AluSz	9
GQEIQTILANTCIPR	chr1:10478650:+:AluSc>chr1:10478883:+:ENST00000270776	9
METDLECSDSR	chr5:68551355:+:ENST00000502604>chr5:68551980:+:AluJo	9
MLSFMRPPQPCFLYSLWN	chr9:17365375:+:MSTA>chr9:17366615:+:ENST00000380647	9
MLEKLEFEDEVPGP	chr7:151329155:-:ENST00000493872>chr7:151297948:-:MIRb	9
MELTIPGVGHSSGSLNEGK	chr2:99224633:-:MIRb>chr2:99220654:-:ENST00000328709	9
MASICPFLK	chr20:49307663:-:ENST00000535356>chr20:49307455:-:MIR3	9
AFLAMIHSVSSMK	chr7:151865652:-:UCON26>chr7:151864463:-:ENST00000355193	9
LSLSEDTDNSSLSPPPAK	chrX:19072648:-:L1ME4a>chrX:19058342:-:ENST00000357991	9
LHHWTPAWAAEK	chr17:80441180:+:AluSx>chr17:80443373:+:ENST00000457415	9
TISPFTGK	chr15:29384448:+:MER58A>chr15:29385278:+:ENST00000561069	9
MSAALMFDAVHVVVSAVR	chr19:42559834:-:L2a>chr19:42558624:-:ENST00000301218	9

MLLTTFVIHGR	chr17:15939279:-:Tigger1>chr17:15938258:-:ENST00000395851	9
MLLTTFVIHGRR	chr17:15939279:-:Tigger1>chr17:15938258:-:ENST00000395851	9
EYIVPMLTGLQPIMIIQ	chr5:139864383:+:L1ME3A>chr5:139864706:+:ENST00000421134	9
PQNSTASVSEAER	chr1:21588222:-:L2c>chr1:21586885:-:ENST00000473505	9
SVSTIFLTCSR	chr10:1100108:-:Tigger1>chr10:1090111:-:ENST00000381344	9
MVILESMVSLTQELCPVAMR	chr14:24530511:+:MIRc>chr14:24530706:+:ENST00000342740	9
VSTEEEK	chr15:51201329:+:MIRb>chr15:51204275:+:ENST00000558439	9
MAHLLPNVSEETVSPTR	chr9:123334133:-:L2b>chr9:123330666:-:ENST00000481266	9
MGTVADTCDPSTLGGGVCDTAYR	chr2:201751637:-:AluJo>chr2:201750495:-:ENST00000415562	9
MLQPSQEVGTISK	chr4:157831776:-:L1MD2>chr4:157782641:-:ENST00000274071	9
TQSLGVDEVTIVNILTNRSN	chr15:60689166:-:MIRc>chr15:60656722:-:ENST00000559370	9
MPGPLRSLEMAR	chr19:20278169:+:ENST00000597083>chr19:20281106:+:AluSx1	9
VMGLVIPDVPK	chr13:96595382:-:L1ME3F>chr13:96592345:-:ENST00000376747	9
LHHCTPAWLTER	chr9:33878600:+:AluJb>chr9:33886879:+:ENST00000263228	9
MLSTSWTLPR	chr20:30459529:-:L2a>chr20:30457400:-:ENST00000278979	9
LAPALLSAMIFAVLWSTR	chr17:64403546:+:MSTA>chr17:64492319:+:ENST00000284384	9
NGISGQVLK	chr2:238991995:+:ENST00000433750>chr2:238992535:+:L1MDa	9
MQLDQICISFDEGK	chr22:50947090:+:Charlie9>chr22:50954876:+:ENST00000299821	9
MGAWLTPDTGVGK	chr18:9766693:+:AluJr4>chr18:9775275:+:ENST00000578921	9
STNDELDELR	chr18:8708134:+:L2c>chr18:8718422:+:ENST00000306329	9
EAEAGESLKPGR	chr17:421135:-:AluJr>chr17:420873:-:ENST00000574029	9
SQILGMQSLALVAQSGVQWR	chr11:17098209:-:FRAM>chr11:17098094:-:ENST00000533969	9
WQIYSGPLPTSPGAACLPCFSCGAK	chr16:57483993:+:L1ME2z>chr16:57484952:+:ENST00000262507	9
EYLEYEDTAQR	chr2:113956803:+:ENST00000245796>chr2:113966557:+:L4	9

SSGAQGEYAGLATIR	chr9:6566281:-:L1MC5>chr9:6565429:-:ENST00000321612	9
AGGSGSVVIWTVPTGSWQK	chr15:75629457:+:AluJr>chr15:75630403:+:ENST00000564815	9
VNGYPNYLIR	chr14:45702609:-:L2a>chr14:45702023:-:ENST00000453142	9
MASAWEGGAWR	chr14:105195833:+:(GCGTG)n>chr14:105196166:+:ENST00000555486	9
CMCLEYPAVVEFAPFQK	chr13:115049839:+:(TG)n>chr13:115051777:+:ENST00000375299	9
TSLANMVGMFK	chr6:136924515:-:AluSx1>chr6:136923117:-:ENST00000359015	9
FSEASVAMLPVQLWNR	chr6:147981955:+:MSTA>chr6:148058453:+:ENST00000566741	9
VETLCATLWGFGK	chr10:102711867:+:AluSz>chr10:102716208:+:ENST00000370269	9
MDLVQVSGSLGSPVLSCK	chr10:104231153:+:ENST00000366277>chr10:104231667:+:MIR3	9
MVAGPTYLGDLCPPK	chr14:94523351:-:MIR>chr14:94521530:-:ENST00000330836	9
HCHALMPK	chr12:15701267:+:L1MC4a>chr12:15702028:+:ENST00000535311	9
ASGSQGMFK	chr8:95855580:+:AluSx3>chr8:95861690:+:ENST00000343161	9
IVESGDTPK	chr2:25505735:-:Charlie24>chr2:25505580:-:ENST00000406659	9
ASGSLEGPFVTWR	chr19:15297447:-:AluSx>chr19:15296490:-:ENST00000263388	9
ENTMAENELQV	chr10:112572705:+:ENST00000369519>chr10:112576399:+:L2a	9
TVTVPAQELK	chr9:128421519:-:MIR>chr9:128420078:-:ENST00000373496	9
NLQLSAHLLTSSLK	chr9:112168615:-:MER102a>chr9:112166888:-:ENST00000374541	9
NLDLLEGMESTQMPK	chr13:38183213:-:L1MEf>chr13:38171419:-:ENST00000541481	9
LDGHAGDLDIEDDMK	chr14:62187825:+:AluSg4>chr14:62188227:+:ENST00000394997	9
MTKLLSPIR	chr22:32787416:-:AluSx1>chr22:32784086:-:ENST00000216038	9
YEEEIRTCR	chr6:24551662:-:ENST00000543707>chr6:24541573:-:MLT1B	9
QAWRLMPVIPAHWEAEVK	chr7:156789005:-:AluJo>chr7:156786875:-:ENST00000469500	9
AEIALLHSSLGNREK	chrX:114878268:+:AluSx>chrX:114879341:+:ENST00000537301	9
TFWTNDDPGLEVLVPEGGVLPETQQ	chr6:134528494:-:ENST00000367858>chr6:134508473:-:ERVL-B4-int	9

QEAEIPGANLNVEILSSCR	chr1:117629144:+:ENST00000369466>chr1:117630672:+:L2c	9
LNEGASGLDGKPGSR	chr4:109762023:-:MIRb>chr4:109755546:-:ENST00000494183	9
MESQLQIEETTLLR	chr16:4667729:+:AluJb>chr16:4700366:+:ENST00000588994	9
MSDPVFLSLSLLVCETGDHEKRNGR	chr9:20361021:-:MIR>chr9:20360839:-:ENST00000380338	9
ICHFLSVTGSLLR	chr2:74071187:+:MIR>chr2:74071940:+:ENST00000424659	9
MSSINPNTSATWK	chr14:90416441:-:ENST00000267544>chr14:90416136:-:THE1B	9
IILANTFSK	chr3:185328562:+:AluY>chr3:185329439:+:ENST00000545472	9
FCRLLNGLGEEIK	chr10:28247767:-:MIRb>chr10:28233891:-:ENST00000537576	9
AQEFETSLGNMFR	chr12:95596369:-:FLAM_C>chr12:95566520:-:ENST00000451107	9
MSDQEKGPIVSSGVR	chr2:203103163:-:ENST00000392244>chr2:203098881:-:Charlie4z	9
TNYAASSYLSLTPEQWK	chr22:23204348:+:L1MA4A>chr22:23248706:+:ENST00000390325	9
TSLGNMLTADPR	chr14:35778674:+:AluSx>chr14:35779946:+:ENST00000556506	9
SPVTMEQLICK	chr2:90074903:+:MER70-int>chr2:90139454:+:ENST00000492446	9
GAGPAVPGGPVPAGATLTTGAR	chr17:2627917:+:GC_rich>chr14:106330469:-:ENST00000461719	9
GQEFETSLANMETPGR	chr16:3718260:-:AluSx>chr16:3716119:-:ENST00000576335	9
FVDVTECQACSANSR	chr22:21567354:-:ENST00000424627>chr22:21564141:-:L2b	9
TELNIVPVPR	chr19:41438041:+:L2b>chr19:41509906:+:ENST00000330446	9
MTLATDGTADMFGIR	chr3:4927407:-:ENST00000441894>chr3:4898429:-:MLT1D	9
MELSAQFAATTTTPPRPLGR	chr11:58943356:+:MIR3>chr11:58949212:+:ENST00000227451	9
EAIALCHFFFNISGILLWYPIPFTR	chr4:25676447:+:L3>chr4:25677757:+:ENST00000503434	9
DAAALLLANEAR	chr6:110774731:-:LTR40c>chr6:110768193:-:ENST00000434949	9
MELTIPGVGK	chr2:99224656:-:MIRb>chr2:99220650:-:ENST00000328709	9
METPAQLLFLLLLWLPAEAGGIMR	chr2:89442543:-:ENST00000492167>chr2:89438968:-:AluYb8	9
MGAVTHIWNPRTLGGQDPDHR	chr17:40046175:-:AluSq2>chr17:40043956:-:ENST00000353196	9

LTMGSTGCDRPLDK	chr14:106717516:-:L1MC>chr14:106641752:-:ENST00000390605	9
WGGQAPPGQPPRPGGR	chr19:39346300:-:SVA_D>chr19:39338074:-:ENST00000601449	9
LRQEQLLEPRMQR	chr19:50809471:+:AluSp>chr19:50812982:+:ENST00000262269	9
TLEVEGK	chr12:76520433:-:AluSx1>chr12:76443026:-:ENST00000431879	9
NLEASWATR	chr16:14738989:+:AluJr>chr16:14742245:+:ENST00000570219	9
ELYPGQFKPPICLL	chr19:39380329:-:ENST00000358931>chr19:39380152:-:MIR	9
MLVSASQDGK	chr7:100274628:+:AluJo>chr7:100274975:+:ENST00000412215	9
AGFYEQMNGPVAG	chr8:144745326:-:AluSz>chr8:144668944:-:ENST00000531931	9
MLGTRPHGR	chr11:73445789:-:MER1B>chr11:73441868:-:ENST00000336083	9
LAVNSPPVEPPEQHSR	chr1:53346501:+:MLT1E1A>chr1:53347143:+:ENST00000371532	9
MIVMNDQMDSSLK	chr10:64976967:-:ENST00000402544>chr10:64445839:-:L2c	9
MGTVAHACNTSTLGGQEHCEGLR	chr22:21577153:-:AluJb>chr22:21104282:-:ENST00000255882	9
MSLCILSMK	chr19:9939645:+:MIRb>chr19:9940641:+:ENST00000586895	9
IPTVTPGAASSC	chr17:62544114:-:MER5B>chr17:62499650:-:ENST00000450599	9
TITDAELPIYR	chr14:51362421:+:HERVH-int>chr14:51368547:+:ENST00000353130	9
GLEWVSQISESTNSL	chr14:107048816:-:ENST00000390627>chr14:107047602:-:LTR13	9
VAVSVLSPGK	chr11:69063184:+:ENST00000308946>chr11:69084301:+:MIRb	9
GQVIGEIDEETDSALDLGNIR	chr7:117829683:+:AluSq2>chr7:117831971:+:ENST00000422760	9
DQPGQHGPGMRPPLGLR	chr1:222838358:+:AluJb>chr1:222838651:+:ENST00000344441	9
VILVNLGSSAEWVFQR	chr9:123165587:-:L2c>chr9:123165349:-:ENST00000416449	9
TTALQPGHSDLVTAR	chr9:127988405:+:AluSx>chr9:127990189:+:ENST00000259460	9

In lung primary tumors, 167 JET-derived proteins were identified (Fig 16A and Table 7).

Table 7:

Sequence	chimeric_id_all	Recurrence
LSVLSQPK	chr2:134035154:+:L1M5>chr22:23248512:+:ENST00000390325	100
SNLNTGVPSR	chr2:90214357:+:L1ME3>chr2:90249278:+:ENST00000468879, chr2:90214357:+:L1ME3>chr2:90260131:+:ENST00000471857	99
LDSQYVER	chr19:18432008:-:L2a>chr19:18426875:-:ENST00000593829	81
DIVRSDLEGKR	chr22:45565558:+:LTR13A>chr22:45566869:+:ENST00000434760	71
AEIAPLNSSLGR	chr19:8529495:+:AluSq2>chr19:8530208:+:ENST00000348943	46
TFTGGAVIVQK	chr20:44410315:-:MER68>chr20:44404241:-:ENST00000337205	35
VETSDEEIHKK	chr1:226016613:+:ENST00000445856>chr1:226018885:+:MER58B, chr1:226016613:+:ENST00000445856>chr1:226018885:+:MER58B	32
SQLLERPRQENRLNLGASR	chr19:17387073:+:AluSq2>chr19:17387304:+:ENST00000596335, chr19:17387073:+:AluSq2>chr19:17387304:+:ENST00000598188, chr19:17387073:+:AluSq2>chr19:17387304:+:ENST00000599474, chr19:17387073:+:AluSq2>chr19:17387304:+:ENST00000601938, chr19:17387073:+:AluSq2>chr19:17387304:+:ENST00000602066	31
LSLGSRIDQINISR	chr3:4867430:-:ENST00000449914>chr3:4859235:-:L1MC4	30
NGKFPSLLTHNENMVAK	chr6:35419093:+:L2b>chr6:35438040:+:ENST00000322203	26
ACLAEGR	chr3:40501213:+:AluY>chr3:40502924:+:ENST00000338970	25
ILNCQKAMAPSFR	chr9:140458886:-:ENST00000277540>chr9:140458662:-:L2	24
TEFLSFMNTELAAFTKK	chr1:152006124:-:ENST00000271638>chr1:152005339:-:MIRc, chr1:152006124:-:ENST00000271638>chr1:152005339:-:MIRc	23
VLGVGSTR	chr1:46675049:+:HAL1>chr1:46685371:+:ENST00000371980	21
QNLQQAQCGLDLR	chrX:38015613:-:MER5A1>chrX:38013836:-:ENST00000432886, chrX:38015613:-:MER5A1>chrX:38013836:-:ENST00000432886, chrX:38015613:-:MER5A1>chrX:38013836:-:ENST00000432886	20
MRRPGQASAFLGLSFFTLYLR	chr9:130213388:-:MIR3>chr9:130213083:-:ENST00000361436, chr9:130213388:-:MIR3>chr9:130213083:-:ENST00000361436, chr9:130213388:-:MIR3>chr9:130213083:-:ENST00000361436, chr9:130213388:-:MIR3>chr9:130213083:-:ENST00000536368, chr9:130213388:-:MIR3>chr9:130213083:-:ENST00000536368, chr9:130213388:-:MIR3>chr9:130213083:-:ENST00000536368	15
TQGGSMGNSSSSR	chr2:114668071:+:MER21B>chr2:114670749:+:ENST00000263238, chr2:114668071:+:MER21B>chr2:114670749:+:ENST00000263238, chr2:114668071:+:MER21B>chr2:114670749:+:ENST00000415792, chr2:114668071:+:MER21B>chr2:114670749:+:ENST00000415792, chr2:114668071:+:MER21B>chr2:114670749:+:ENST00000446821, chr2:114668071:+:MER21B>chr2:114670749:+:ENST00000446821	15
NLDNLPSRLSIR	chr18:66490653:+:MER51E>chr18:66505943:+:ENST00000584775	14

VVSKVEFVH FLAFIK	chr7:156483036:-:Charlie7a>chr7:156480885:-:ENST00000353442	14
LPRTGIGAP RTR	chr7:94018589:+:L2c>chr7:94057721:+:ENST00000297268	14
MGWMGEA VR	chr9:130341201:-:ENST00000373314>chr9:130334967:-:MIRb	12
MALSQCGP GKPK	chr19:53754789:-:ENST00000333952>chr19:53750572:-:MER30	12
LLITTSAGGR	chr3:194340620:-:L3>chr3:194337998:-:ENST00000392432	12
LSCAASGFT LR	chr14:106866613:-:ENST00000390618>chr14:106764783:-:AluJb	12
ASQASVPPA SLPCPSR	chr2:112896307:+:ENST00000331203>chr2:112896389:+:C-rich	11
ASVTLIR	chr3:44887389:+:MER65D>chr3:44889477:+:ENST00000326047	11
MNSLSIR	chr9:128638776:+:Tigger2a>chr9:128677965:+:ENST00000342287, chr9:128638776:+:Tigger2a>chr9:128677965:+:ENST00000373487, chr9:128638776:+:Tigger2a>chr9:128677965:+:ENST00000373489, chr9:128638776:+:Tigger2a>chr9:128677965:+:ENST00000428092, chr9:128638776:+:Tigger2a>chr9:128677965:+:ENST00000491787	11
APVTGWQE LK	chr4:102117073:-:ENST00000492351>chr4:102104428:-:MLT1J	11
MEAYTPKLT QLLK	chr11:18373993:+:ENST00000526630>chr11:18374659:+:AluSq2	11
SHLLGRLSQ ENHWNLIK	chr1:234516671:+:AluSx>chr1:234519469:+:ENST00000366615	11
GLEFETSLA NMHGKK	chr4:25395102:+:AluSz6>chr4:25395461:+:ENST00000315368	8
TNVQQTTD LEIPPPGTV GYCAVK	chr14:31588916:-:ENST00000399332>chr14:31586842:-:L1ME4a, chr14:31588916:-:ENST00000399332>chr14:31586842:-:L1ME4a, chr14:31588916:-:ENST00000553957>chr14:31586842:-:L1ME4a, chr14:31588916:-:ENST00000553957>chr14:31586842:-:L1ME4a	8
LARHGWAE AFAGIRSSHI K	chr8:54994449:-:AluSq2>chr8:54978373:-:ENST00000316963, chr8:54994449:-:AluSq2>chr8:54978373:-:ENST00000343231, chr8:54994449:-:AluSq2>chr8:54978373:-:ENST00000518546	8
MATVYFTR ATSQCK	chr19:49497180:+:ENST00000595090>chr19:49497762:+:L2a	8
LGGSSCLVA YKK	chr20:35116711:+:MIR>chr20:35125108:+:ENST00000373907, chr20:35116711:+:MIR>chr20:35125108:+:ENST00000373913	8
LLIYAASNG HSGQQ	chr2:90199062:+:ENST00000390276>chr2:90207369:+:MER66-int, chr2:90199062:+:ENST00000390276>chr2:90207369:+:MER66-int	8
MAACLGLP K	chr2:172725191:-:ENST00000392592>chr2:172723793:-:SVA_D, chr2:172725191:-:ENST00000392592>chr2:172723793:-:SVA_D	8
MSLGLSIHH LSDGSGIK	chr17:37028428:+:MIR3>chr17:37034339:+:ENST00000318008	8
AEDTATSCR AK	chr14:106573251:-:ENST00000390601>chr14:106558237:-:L1PB4	8
ISSEQLFCFT LINPK	chr19:32948256:+:L4>chr19:32949006:+:ENST00000392250	7
AIALQPGQQ RETR	chrX:114878268:+:AluSx>chrX:114879341:+:ENST00000355899, chrX:114878268:+:AluSx>chrX:114879341:+:ENST00000497870	7

MGVVAHAC NSSTLGGQD PLDLLHLPG VR	chr7:6508832:-:AluY>chr7:6505954:-:ENST00000258739	7
MELTIPGEG K	chr2:99224660:-:MIRb>chr2:99220654:-:ENST00000328709, chr2:99224660:-:MIRb>chr2:99220654:-:ENST00000328709, chr2:99224660:-:MIRb>chr2:99220654:-:ENST00000328709	7
MAAAALRD PAQSR	chr19:57999351:+:ENST00000354197>chr19:58024390:+:LTR3B_	7
GPSPSGAEP R	chr17:43880005:+:Tigger12>chr17:43884376:+:ENST00000347197, chr17:43880005:+:Tigger12>chr17:43884376:+:ENST00000352855	6
LLSSSMHTL QTK	chrX:38146409:+:CT-rich>chrX:38146366:-:ENST00000318842, chrX:38146409:+:CT-rich>chrX:38146366:-:ENST00000378505, chrX:38146409:+:CT-rich>chrX:38146366:-:ENST00000482855	4
SSRPAWPT WCLPPGPG R	chr19:55882935:-:AluSx>chr19:55880309:-:ENST00000264563	4
MTDGGLAL	chr12:110873462:-:AluSz>chr12:110873022:-:ENST00000228825	4
QFWNHFVC IVEETEADV NPK	chr22:42077159:-:L1MC4a>chr22:42076368:-:ENST00000355257	4
GLILLEQDTA VQNMHK	chr9:15619847:+:Tigger1>chr9:15623265:+:ENST00000297641, chr9:15619847:+:Tigger1>chr9:15623265:+:ENST00000380701, chr9:15619847:+:Tigger1>chr9:15623265:+:ENST00000535968	4
LASVFQLQL LR	chr10:29778636:-:AluJb>chr10:29777685:-:ENST00000375400	4
DASKGVSLH K	chrX:138286221:-:ENST00000370603>chrX:138072779:-:THE1B	4
YAGRPLQCL IQDGILNPH AASCTCAAC CDDMTLLLR	chr11:684898:-:ENST00000382409>chr11:681362:-:AluSx	4
FQTSGLQNC SFKRWSMIL K	chr10:98044785:-:MLT1C>chr10:98006805:-:ENST00000224337, chr10:98044785:-:MLT1C>chr10:98006805:-:ENST00000224337	4
QLWTLIGM EMVPEESTL TSLGIK	chr2:42612922:-:MER34B>chr2:42580483:-:ENST00000468711	4
PAAVALACN PSTLRGRG MPR	chr1:234538581:-:AluJb>chr1:234537008:-:ENST00000040877	4
VIHDNFGIV EGLMTVTPK	chr12:6646556:+:ENST00000229239>chr12:6648679:+:MIRb, chr12:6646556:+:ENST00000396856>chr12:6648679:+:MIRb, chr12:6646556:+:ENST00000396858>chr12:6648679:+:MIRb	4
EFETSLANM LLDHYQNCK	chr14:50950778:-:AluSx1>chr14:50949134:-:ENST00000013125	4
AHSTLQDEA ESFMHVQL EVMVR	chr19:17683411:+:ENST00000252599>chr19:17684363:+:AluJb	4
HLEEATVAE LSSCR	chr2:118715941:-:ENST00000319432>chr2:118715754:-:MER58A, chr2:118715941:-:ENST00000376300>chr2:118715754:-:MER58A	4

SLNLYNCNS	chr1:94660048:-:MLT1A0>chr1:94655639:-:ENST00000552844	4
GAILTTMLA TRNFSDAVA SLDPRSCDS R	chr5:149627335:-:ENST00000348628>chr5:149626005:-:MER102b	4
QMTQVTM PGEPVDVAC GVDHMVTL AK	chr7:74461534:-:AluJr>chr7:74457217:-:ENST00000329959	4
QVISAFPTEI STAMPVK	chr3:51405623:+:L1PA5>chr3:51411918:+:ENST00000266037	4
WVYEVQAG AARDALQG FK	chr13:33100704:+:L1MC5>chr19:41270986:+:ENST00000243563, chr13:33100704:+:L1MC5>chr19:41270986:+:ENST00000601393	4
QVDCLGPG VPDQPGQH DITRSGAK	chr8:141451863:-:AluJr>chr8:141449296:-:ENST00000389327	4
YEEASIPFVG ILVEK	chr1:182920453:-:ENST00000367547>chr1:182915515:-:HAL1, chr1:182920453:-:ENST00000423786>chr1:182915515:-:HAL1	4
QEQSSSPA MEQSWME NDFDKLTEL GFRR	chr1:51946945:-:ENST00000371730>chr1:51945188:-:L1PA5	4
LFFLLLTSCR	chr22:41650398:+:CT-rich>chr22:41648969:-:ENST00000405486	4
AASRGVTFL FPIQAK	chr10:70722825:+:AluJo>chr10:70723047:+:ENST00000354185	4
NPSTLGGQ ASPSPSPK	chr16:16171648:+:AluSx>chr16:16173209:+:ENST00000349029, chr16:16171648:+:AluSx>chr16:16173209:+:ENST00000349029, chr16:16171648:+:AluSx>chr16:16173209:+:ENST00000351154, chr16:16171648:+:AluSx>chr16:16173209:+:ENST00000351154, chr16:16171648:+:AluSx>chr16:16173209:+:ENST00000399410, chr16:16171648:+:AluSx>chr16:16173209:+:ENST00000399410	4
IIQVWWHV PVVPAAQE AEVR	chr7:116527485:+:AluJo>chr7:116528181:+:ENST00000361183, chr7:116527485:+:AluJo>chr7:116528181:+:ENST00000426421, chr7:116527485:+:AluJo>chr7:116528181:+:ENST00000458284, chr7:116527485:+:AluJo>chr7:116528181:+:ENST00000490693	4
MWSGLPSR GLPIFK	chr2:180610440:-:ENST00000409343>chr2:180493215:-:L1MC5	4
FLGLGFFICN MRR	chr15:81281080:-:MIR3>chr15:81274523:-:ENST00000561312	4
AEIAPLHSSL GDRAAK	chr7:138950208:+:AluSc8>chr7:138951079:+:ENST00000288561, chr7:138950208:+:AluSc8>chr7:138951079:+:ENST00000483726	4
LLPVIPELWE AEMR	chr10:95240482:-:AluSx>chr10:95216694:-:ENST00000358334	4
MDGPAEPQ IPGLWDTYE DDISEISYLP KR	chr19:49055580:+:ENST00000201586>chr19:49066561:+:L1ME2z	4
NLGSVWWL EVAELTNPS	chr8:146016536:-:MIRb>chr8:146015855:-:ENST00000394920	4

TSLGNMCVIQSWVTSGTAK	chr21:45165696:+:AluJb>chr21:45165960:+:ENST00000468090	4
EAANMILVDDDFSAIIIGK	chr16:84488590:+:ENST00000262429>chr16:84490583:+:L1HS	4
MAHAYNPSTLGSQAPIK	chr17:62480081:-:AluJb>chr17:62479091:-:ENST00000539111, chr17:62480081:-:AluJb>chr17:62479091:-:ENST00000581355	4
MQVSLHPKCKADK	chr8:105152976:+:L2b>chr8:105160835:+:ENST00000408894	4
GQLRPHTWLSIRSTR	chr19:10200199:+:MIRb>chr19:10200333:+:ENST00000253110, chr19:10200199:+:MIRb>chr19:10200333:+:ENST00000587710, chr19:10200199:+:MIRb>chr19:10200333:+:ENST00000590378, chr19:10200199:+:MIRb>chr19:10200333:+:ENST00000593131	4
MMKPGLASIQSRIAILSR	chr7:37989696:+:L1MB3>chr7:37989802:+:ENST00000476620, chr7:37989704:+:L1MB3>chr7:37989802:+:ENST00000476620	4
WRHGTPAWLIQVLLEDETTESAVK	chr2:102014362:-:AluSq2>chr2:102014186:-:ENST00000376826	4
TDSREAEFPQKK	chr15:51201329:+:MIRb>chr15:51204275:+:ENST00000561441	4
ATVLFYSYKPK	chr19:32948256:+:L4>chr19:32949006:+:ENST00000392250, chr19:32948256:+:L4>chr19:32949006:+:ENST00000586987, chr19:32948256:+:L4>chr19:32949006:+:ENST00000588648	4
LLLSSLSSLGDSAPER	chr1:156962904:-:MIRb>chr1:156955965:-:ENST00000361409, chr1:156962904:-:MIRb>chr1:156955965:-:ENST00000368194	4
DLGQVISLDLHIFICEVSRVPMIR	chr20:1106051:+:MIR3>chr20:1106141:+:ENST00000333082	4
ILWWSQGK	chr12:123839145:-:MIR3>chr12:123834988:-:ENST00000267176	4
SLGLSFHICIIEAAGRGGEAVK	chr15:83100895:+:MIRb>chr15:83103066:+:ENST00000561062	4
VISAFPSEVSRR	chr9:18711328:+:L1PA3>chr9:18721534:+:ENST00000380548	4
MISSTSVYAPK	chr2:164591413:-:ENST00000409634>chr2:164561904:-:MIR3	4
GLPSHTELSMICSRASMTPLWGRPPWPR	chr14:78340168:+:THE1C>chr14:78353434:+:ENST00000238561	4
GIPSQVELAWHWKR	chr7:81946024:-:THE1B>chr7:81799925:-:ENST00000356860	4
VTLGISSPVKK	chr19:3368020:+:MIR3>chr19:3449012:+:ENST00000341919, chr19:3368020:+:MIR3>chr19:3449012:+:ENST00000346156, chr19:3368020:+:MIR3>chr19:3449012:+:ENST00000589123	4
ICKAMLELLEDPVLCALAK	chr10:5056964:-:PABL_B-int>chr10:5037645:-:ENST00000380753	4
TCAMAQNIPEGQKLDILLNK	chr8:99019829:+:ENST00000521689>chr8:99025486:+:Tigger12c, chr8:99019829:+:ENST00000522025>chr8:99025486:+:Tigger12c, chr8:99019829:+:ENST00000524308>chr8:99025486:+:Tigger12c	4

HVVQGIQII R	chr13:92560311:+:ENST00000377067>chr13:92572670:+:HAL1	4
VTGSLQDG MTTGPPRR R	chr17:39976301:+:MIRc>chr17:39977199:+:ENST00000321562	4
YLSPEAEVA VSRDCATAL QPGVK	chr14:73754128:-:AluSz6>chr14:73754022:-:ENST00000554546	4
QLLCIVSNQ K	chr12:49658051:+:MIRb>chr12:49663248:+:ENST00000541364, chr12:49658051:+:MIRb>chr12:49663248:+:ENST00000552125	4
FVSDEMSK DCLSILYNTC VCTEGVTK	chr20:33644499:-:L1ME3E>chr20:33642834:-:ENST00000252015, chr20:33644499:-:L1ME3E>chr20:33642834:-:ENST00000451813	4
QLEYLARIQ GFQASLFPE TQQY	chr8:74464247:-:ENST00000517542>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000521210>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000521451>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000521727>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000522695>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000523533>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000523558>chr8:74420593:-:Tigger1, chr8:74464247:-:ENST00000524300>chr8:74420593:-:Tigger1	4
LQGERISGN LDAPEGGFD AILQTAVCT K	chr17:73725517:+:ENST00000579662>chr17:73726063:+:AluJo	4
LLEILGATIE NSR	chr16:29692733:+:Charlie4z>chr16:29708317:+:ENST00000395384, chr17:39696603:-:MIR>chr17:39681525:-:ENST00000361566, chr17:39696603:-:MIR>chr17:39681525:-:ENST00000361566	4
MTKLLSPIR	chr22:32787416:-:AluSx1>chr22:32784086:-:ENST00000216038	4
VLILCQHEAL VK	chr17:53344521:+:MIRb>chr17:53345112:+:ENST00000226067	4
DDSEPGMP VLPPR	chr12:56685415:-:L3>chr12:56680404:-:ENST00000351328, chr12:56685415:-:L3>chr12:56680404:-:ENST00000552688	4
QWTEILHFT DFPISLDTTIL K	chr11:60665318:-:ENST00000227524>chr11:60663297:-:Tigger1, chr11:60665318:-:ENST00000227524>chr11:60663297:-:Tigger1, chr11:60665318:-:ENST00000535326>chr11:60663297:-:Tigger1, chr11:60665318:-:ENST00000535326>chr11:60663297:-:Tigger1	4
MSVLGELS	chr14:75593608:-:ENST00000238616>chr14:75593104:-:MIRc	4
GQEIKTILAN TEWTYPMR	chr14:53079781:+:AluY>chr14:53211570:+:ENST00000442123, chr14:53108136:+:AluY>chr14:53211570:+:ENST00000442123, chr14:53201596:+:AluY>chr14:53211570:+:ENST00000442123	4
FSSHSEMVII TTITSNSQG EAAR	chr18:9858290:+:MIRc>chr18:9859225:+:ENST00000578921	4
TENQTPHVL THRPPK	chr4:87716976:+:L1PA6>chr4:87718027:+:ENST00000411767	4
QAFLEQTRP LR	chr3:127878586:+:L2a>chr3:127965679:+:ENST00000254730, chr3:127878586:+:L2a>chr3:127965679:+:ENST00000483457, chr5:43583569:-:MER39B>chr5:43556101:-:ENST00000306846, chr5:43583569:-:MER39B>chr5:43556101:-:ENST00000306846, chr5:43583569:-:MER39B>chr5:43556101:-:ENST00000306846	4

ESFSDFSSSILK	chr19:16201431:+:L2c>chr19:16204346:+:ENST00000344824	4
QVLWLMPMIPALSEAEAAGSLETSLGNMTSAWCR	chr4:3344780:+:ENST00000514268>chr4:3377116:+:(CCCCAG)n	4
QTDHLRPGVQHQSGQHSK	chr1:28810817:+:AluSx>chr1:28815682:+:ENST00000373839, chr1:28810817:+:AluSx>chr1:28815682:+:ENST00000373839, chr1:28810817:+:AluSx>chr1:28815682:+:ENST00000373839	4
IEDFGVHCKQMTSHLTK	chr8:67968754:-:ENST00000357849>chr8:67967541:-:L2a	4
YFDYWGQGTLVTQSPPSK	chr14:106330435:-:ENST00000461719>chr14:106301002:-:MER65-int	4
AVALYEGTLSLCSEDLK	chr2:238451319:+:(TGG)n>chr2:238454100:+:ENST00000445024	4
MPSLNTSRPSGVPDRFSGSK	chr22:22689234:+:L1PA8>chr22:22712477:+:ENST00000390294, chr22:22689234:+:L1PA8>chr22:22735583:+:ENST00000390297	4
IVGNMFNQMAK	chr13:77572426:+:MIRc>chr13:77574593:+:ENST00000377453	4
LLIYAAATR	chr2:90537978:-:ENST00000443397>chr2:89942712:-:MLT1D	4
LFSIHLLSALGPK	chr4:55076146:-:L2a>chr2:89160766:-:ENST00000390240	4
LCPAATLSER	chr20:35779434:+:SVA_B>chr20:35812583:+:ENST00000237530	4
TVEQGVGVWR	chr11:64042841:+:MIRb>chr11:64085797:+:ENST00000265462, chr11:64042841:+:MIRb>chr11:64085797:+:ENST00000265462, chr11:64042841:+:MIRb>chr11:64085797:+:ENST00000347941, chr11:64042841:+:MIRb>chr11:64085797:+:ENST00000347941	4
GLEWIGTK	chr14:106877762:-:ENST00000390619>chr14:106859351:-:MLT1C	4
QRPLCCDEQPHQTAFGPK	chr1:153635838:-:AluJr4>chr1:153635752:-:ENST00000361891, chr1:153635838:-:AluJr4>chr1:153635752:-:ENST00000361891, chr1:153635838:-:AluJr4>chr1:153635752:-:ENST00000361891	4
MIVMNDQMDSSLK	chr10:64976967:-:ENST00000402544>chr10:64445839:-:L2c	4
PGVVAHACNPSTLGGRDLHGMVQLPPAEGR	chr19:39144970:+:AluSz>chr19:39191240:+:ENST00000252699, chr19:39144970:+:AluSz>chr19:39191240:+:ENST00000252699, chr19:39144970:+:AluSz>chr19:39191240:+:ENST00000252699	4
MSPQLLTPGSGAHSQVQLVQSGAEVK	chr14:106662989:-:HERVS71-int>chr14:106641867:-:ENST00000390605	4
LLEGEECRNLASKK	chr12:52910421:-:ENST00000252242>chr12:52900057:-:L1MC1	4
PGMMAHACNPSTLGGRGGWIMR	chr6:31360872:-:AluSg>chr6:31324570:-:ENST00000412585	4
LFPGQPMVSNK	chr14:70383468:+:L2a>chr14:70418855:+:ENST00000361956	4

TAPPLSPLADSLCGLSPPAPR	chr14:51363531:+:LTR7>chr14:51368547:+:ENST00000337334	4
NLHQSNFSLSGEAKYPPR	chr4:5827221:-:ENST00000324989>chr4:5744561:-:MER66C, chr4:5827221:-:ENST00000397890>chr4:5744561:-:MER66C, chr4:5827221:-:ENST00000512574>chr4:5744561:-:MER66C	3
SCIFTISKIDDR	chr6:74208780:+:MER104>chr6:74210297:+:ENST00000415954	3
LHELMERTIFLITQIR	chr1:212870303:-:ENST00000243440>chr1:212869254:-:L2	3
EAEAGESLESDAVKQAMQK	chr4:17818661:+:AluSc>chr4:17818884:+:ENST00000251496	3
KKADATLLK	chr14:23350226:+:AluSc>chr14:23353883:+:ENST00000267396, chr14:23350226:+:AluSc>chr14:23353883:+:ENST00000536884	3
MVEGDQLPPGHTVSQYETCK	chr1:183811061:+:Tigger4a>chr1:183816700:+:ENST00000304685, chr1:183811061:+:Tigger4a>chr1:183816700:+:ENST00000539189	3
VCNKNFDDEDSVDGNRPSSASSTSSK	chr2:122259789:-:L2a>chr2:122227536:-:ENST00000263710, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000397587, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000409078, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000418989, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000449975, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000452274, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000455322, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000541377, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000541859, chr2:122259789:-:L2a>chr2:122227536:-:ENST00000545861	3
MLETLTLISSLGGLR	chr19:58288037:+:ENST00000391702>chr19:58308975:+:AluSp	3
STNVLCTLFMLNLPDLEEK	chr2:131117848:+:L2a>chr2:131126706:+:ENST00000175756, chr2:131117848:+:L2a>chr2:131126706:+:ENST00000175756	3
QEQSSSPAMEQSWMENDFDKLTELGFRR	chr1:51946945:-:ENST00000371730>chr1:51945188:-:L1PA5	3
MILSSIR	chr6:144066592:+:L3>chr6:144070122:+:ENST00000367584	3
MGAVAQACNPSTLGGQGKPAPEIR	chr3:10237009:+:AluJo>chr3:10242053:+:ENST00000256458	3
YVLAAPEWTEEDLSQLTRSMVK	chr10:22168673:-:Tigger1>chr10:22095028:-:ENST00000376980	3
HPSFRPAMTVWVGK	chr20:25838731:-:SST1>chr20:25755948:-:ENST00000376403	3
ALEPGRGSEEAKCSITSCTR	chr17:5200809:+:MIRb>chr17:5235244:+:ENST00000262477	3
QVLQHPWK	chr3:118831521:-:L1PA3>chr3:118649122:-:ENST00000425327	3

SLRPAATPSGK	chr1:217697476:-:SVA_D>chr1:217688231:-:ENST00000366935	3
HRRQISTAMPVK	chr3:51405599:+:L1PA5>chr3:51411918:+:ENST00000266037	3
TSSGLPLILHYAMTETPLSMCLWEK	chr7:33001530:+:MER1A>chr7:33014229:+:ENST00000242209	3
LLDASQFGRMITR	chr1:243449699:+:ENST00000435549>chr1:243451519:+:AluJb	3
SQHFGRPRQVDYLR	chr7:101810334:+:AluSx1>chr7:101813726:+:ENST00000437600	3
IQNSQVGIAVQQK	chr3:9476785:+:AluSp>chr3:9477412:+:ENST00000450326	3
QPPRPNQLCRR	chr20:43581385:+:L2b>chr20:43586984:+:ENST00000372826	3
LQAEYMAASLGHGGPR	chr19:10561170:+:MIRb>chr19:10561279:+:ENST00000592685	3
DTVDVLK	chr3:50089360:+:L1MB7>chr3:50091768:+:ENST00000425608	3
AASNQISGVPSR	chr2:90010195:-:LTR62>chr2:89246936:-:ENST00000496168	3
LSWRGSGKITK	chr14:106552518:-:ENST00000390600>chr14:106279761:-:L1PA13, chr14:106815952:-:ENST00000390615>chr14:106279761:-:L1PA13	3
QELSILTMQVPPCSPR	chr18:33758286:+:L1ME1>chr18:33775220:+:ENST00000261326	3
LSCAASGFTVK	chr14:107048875:-:ENST00000390627>chr14:107025026:-:L1PB3, chr14:107131236:-:ENST00000390632>chr14:107025026:-:L1PB3	3
QAPGQGLEWMGGIIPIFGTRNYRK	chr14:107170059:-:ENST00000390633>chr14:107126752:-:L1ME2, chr14:107170059:-:ENST00000390633>chr14:107126752:-:L1ME2	3
VCTWTPFNPVTVR	chr5:302190:+:(TG)n>chr5:304292:+:ENST00000505221, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000505221, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000505221, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000506909, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000506909, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000506909, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000507473, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000507473, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000507473, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000507528, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000507528, chr5:302190:+:(TG)n>chr5:304292:+:ENST00000507528	3

Importantly, a group of 10 JET-derived proteins were found to be highly recurrent across the dataset, which were also highly reliable according to their MS/MS spectra. In addition, an overexpression of JET-derived proteins was detected in tumor samples annotated as inflammatory, which could be associated to higher interferon-γ levels, and therefore an increased expression of transposable elements. These results provide a clear evidence that JETs

encode for coding sequences that are translated into protein sequences. Mass spectrometry-based proteomics is thus a useful tool for from the validation of coding JETs.

Immunopeptidomics

Proteomic analysis provides evidence of the existence of JET-derived proteins within the cell, but it does not elucidate the contribution of those proteins to the repertoire of major histocompatibility complex class I (HLA-I in humans)-associated peptides (also referred to as the immunopeptidome). Presentation by MHC class I molecules (named HLA-I in humans) on the tumor cell surface is indeed required for JET-derived peptides (pJETs) to be recognized by cytotoxic T cells. To demonstrate that JETs can be effectively processed and presented by HLA-I, the presence of lung tumor-specific pJET was searched in MS-based immunopeptidomics datasets (Fig. 16A – Table 8).

Table 8:

Sequence	chimeric_id	Recurrence in peptidome
RATKPTVQK	chr22:19103521:->chr22:19077003:-	8
MTSQTMVNK	chr17:34139989:+>chr17:34147028:+	5
RTHQQAPLK	chr20:45967949:->chr20:45938948:-	5
VAAAESHPL	chr9:136210283:+>chr9:136216428:+	5
GIRPPTSVR	chr12:120659973:->chr12:120659561:-	4
AQMSVPFNR	chr13:38183213:->chr13:38171419:-	4
SLSPPLVSK	chr19:46646469:+>chr19:46663672:+	4
AVNGKFVGR	chr5:10384580:+>chr5:10387106:+	4
IQNEIHAQR	chr5:43583569:->chr5:43556101:-	4
RLDHQRAEK	chr1:180975232:->chr1:180974599:-	3
RWKEVPSVPR	chr10:123969561:+>chr10:123969912:+	3
GVQQYHLLSW	chr10:72644921:->chr10:72642242:-	3
RLATAPSEK	chr10:99601433:+>chr10:99619215:+	3
YLPDFYFGKF	chr11:108084796:->chr11:108068147:-	3
TVKTKSLM	chr11:117024976:+>chr11:117030650:+	3
HSKALSLSK	chr11:118278445:+>chr11:118279715:+	3
KTKNLPMQEK	chr11:19146727:+>chr11:19164530:+	3
KTKDLDQFLK	chr12:41157000:+>chr12:41312441:+	3
GGGYNDFGNY	chr12:54631910:+>chr12:54677621:+	3
TEIILRIK	chr14:75593406:->chr14:75593104:-	3
RMFWIPKTK	chr15:50744825:+>chr15:50751197:+	3
VWMRSPLSTF	chr15:60657933:->chr15:60656722:-	3
LPDLAGLAHL	chr16:47626347:+>chr16:47627411:+	3
KVLGDVATK	chr2:171927080:->chr2:171917666:-	3

MVKPPSLLK	chr2:44554937:+>chr16:75263893:-	3
ESFYGIGTTRW	chr5:140080670:+>chr5:140081591:+	3
SIKQLQLLK	chr6:7300909:->chr6:7299056:-	3
SVVSVLVQK	chr8:41859766:->chr8:41845081:-	3
ALRAVTLTAK	chr1:151239815:+>chr1:151245271:+	2
YLMPSQLWKA	chr1:207504641:+>chr1:207506243:+	2
EQLDILENI	chr1:33142971:+>chr1:33145245:+	2
RSPDHPRAEY	chr1:38258152:+>chr1:38274660:+	2
ITSWFVPRPW	chr1:45227052:+>chr1:45241706:+	2
NELDKFIVF	chr10:120938004:->chr10:120936665:-	2
SHKASLNKF	chr10:47173898:->chr10:47139994:-	2
GTVPKSKAL	chr10:5058029:->chr10:5043873:-	2
FMMEQVGLAIRS	chr10:5060092:->chr10:5043783:-	2
MELALRSQL	chr11:102093793:+>chr11:102094353:+	2
RVLLKEELTTPK	chr11:13465223:->chr11:13443385:-	2
PSSPRPSSL	chr11:17486945:->chr11:17485151:-	2
GSGKRTSSQLKP	chr11:44148906:+>chr11:44151595:+	2
STSYSISSK	chr11:61132342:+>chr11:61133517:+	2
RTQSSTIQIR	chr11:61196370:->chr11:61189080:-	2
QEDLGQRGY	chr11:785039:+>chr11:810272:+	2
ETEKDRRPW	chr12:104681628:+>chr12:104682709:+	2
RRLQGATAMVR	chr12:20704505:+>chr20:57470710:+	2
WRFQSCPPTTY	chr12:53835233:+>chr12:53836479:+	2
AVMTEVVLSK	chr12:54862609:->chr12:54857081:-	2
STSIYSTL	chr12:56867593:->chr12:56867378:-	2
APKRNTSAL	chr13:38183213:->chr13:38171419:-	2
RSVSARPPR	chr13:42456176:->chr13:42442613:-	2
SVAWPFSFPK	chr13:53015205:->chr13:53013303:-	2
TPNLRTIY	chr13:76192906:->chr13:76104323:-	2
SIQHSDLLY	chr13:99992819:+>chr13:100009388:+	2
SVKQGTGTSW	chr14:102196928:+>chr14:102197694:+	2
KSQKLREQIK	chr14:107277425:->chr14:106478239:-	2
RRQQLITRF	chr14:24686695:->chr14:24686429:-	2
KSQLLERL	chr14:77914837:->chr14:77913291:-	2
GLFFMKQSV	chr15:79168112:+>chr15:79170555:+	2
RENGFVKKF	chr15:80254313:->chr15:80253516:-	2
NEQAALSEAKVGGS	chr16:30778197:+>chr16:30778878:+	2
HELQSHHF	chr16:69773838:->chr16:69752437:-	2
NEIRISEA	chr16:80584267:+>chr16:80584412:+	2
APRMLPIQAV	chr17:25597844:+>chr17:25630393:+	2
EAEVARWL	chr17:57171332:->chr17:57168701:-	2
RLCPAAPSEK	chr17:67192427:->chr17:67190636:-	2
APRGPSGTQEM	chr19:3624569:->chr19:3624160:-	2
STHPPPPSGL	chr19:3782560:->chr19:3781670:-	2
LYSRYKKLQQHSGAK	chr19:40478151:+>chr19:40491610:+	2
AAAVNQGLSY	chr19:40540857:->chr19:40534017:-	2

LWPSPVNLRF	chr19:42217314:+>chr19:42311149:+	2
VSLSPPLVSK	chr19:46646469:+>chr19:46663672:+	2
VAAAAARVL	chr19:8323741:+>chr19:8326572:+	2
WRTSALGQR	chr2:158306719:->chr2:158300518:-	2
KYKLLDIGYRK	chr2:224817241:+>chr2:224824251:+	2
KFTRFFVK	chr2:24029041:->chr2:24021193:-	2
LHQKGGITF	chr2:24198120:+>chr2:24199839:+	2
QPSQTQVPL	chr2:28859785:+>chr2:28863793:+	2
ETFPGKSTF	chr2:30856371:+>chr2:30862983:+	2
DVLDKFMSF	chr2:70488518:+>chr2:70489942:+	2
GRWITPSNR	chr2:89166769:->chr2:89157082:-	2
SAALQALKR	chr20:32408074:+>chr20:32436273:+	2
TATQRPTPM	chr20:34710669:+>chr20:34761806:+	2
RLLVPSSPK	chr20:44540197:->chr20:44540102:-	2
TEATVDTSF	chr20:60770037:+>chr20:60770858:+	2
LASREAIL	chr20:9457400:+>chr20:9484605:+	2
HDLVRISM	chr21:27105478:->chr21:27102112:-	2
NPQFLISMILQR	chr21:27105526:->chr21:27102112:-	2
MRATKPTVQK	chr22:19103521:->chr22:19077003:-	2
SAAAGIVGR	chr22:39716401:->chr22:39714597:-	2
HTMGFWLTK	chr3:10160654:+>chr3:10188198:+	2
SPRDEGKVFR	chr3:120840551:+>chr3:120866822:+	2
QALYCQLLTY	chr3:132948195:+>chr3:132969129:+	2
GTFPFAFSL	chr3:185198511:->chr3:185194935:-	2
KTFPLSKSPK	chr4:106617004:->chr4:106616825:-	2
KVLEKYWLYK	chr4:123834362:->chr4:123833778:-	2
TTDAAIRY	chr5:10384580:+>chr5:10387106:+	2
QAQPTLRPPK	chr5:133406533:->chr5:133326845:-	2
AQPTLRPPK	chr5:133406533:->chr5:133326845:-	2
KPAVARAR	chr5:134415207:->chr5:134367163:-	2
ESFYGIGTTR	chr5:140080670:+>chr5:140081591:+	2
RRNQETGAVQR	chr5:1503092:->chr5:1501718:-	2
ATDNDFSRRNLY	chr5:1503092:->chr5:1501718:-	2
EVVSTSYRR	chr5:87546068:->chr5:87524345:-	2
KLRDPTDSTLR	chr6:109427293:+>chr6:109466422:+	2
SPSADRVVAL	chr6:43395970:+>chr6:43399880:+	2
KVSSPESGLSNR	chr7:101514832:+>chr7:101559395:+	2
DIISAFHPF	chr7:103845571:->chr7:103844682:-	2
AVFSLRPIPR	chr7:32555261:+>chr7:32582753:+	2
GRFPSQAQL	chr7:40618566:+>chr7:40789033:+	2
DIFQQQISR	chr7:56036577:+>chr7:56045819:+	2
SVSATSVQK	chr9:101867407:+>chr9:101891137:+	2
VHCDPTKGF	chr9:71770431:+>chr9:71827464:+	2
IVQHTEISSK	chrX:122865506:->chrX:122846758:-	2

HLA-I peptidomics identified 116 tumor-specific pJETs across 17 primary lung tumors and 2 tumor cell lines (one of the two cell lines was treated with interferon gamma). Interestingly, some pJETs were found in more than 1 sample, indicating that they are shared epitopes. Importantly, pJETs showed similar MS/MS identification scores and peptide length distributions as the annotated peptidome (Fig. 16B and C). To further validate the reliability of the identifications, MS/MS spectra were manually verified, and 8 of them were confirmed with MS/MS spectra of the corresponding synthetic peptides. These results fully confirmed that the present method if reliable for the identification of pJETS that are presented by HLA-I molecules on tumor cells and are therefore accessible to cytotoxic cells.

Methods

Total proteomics

For the discovery of JETs (junctions exon-transposable element) at the proteome level, two sources of mass spectrometry datasets were used. Firstly, a publicly available dataset of 504 mass spectrometry raw files corresponding to 375 cell lines of the CCLE (Cancer Cell Line Encyclopedia) were used. The original study associated to these analyses was described and published by Nusinow and colleagues in Cell in 2020 (DOI: 10.1016/j.cell.2019.12.023). The second source of data was lung primary tumours obtained from Stewart *et al.* in Cell 2019 (raw files downloaded from PRIDE database – accession code PXD010357).

Briefly, in both datasets, total protein extracts were obtained from cell lines or tumours and were subsequently digested with trypsin. The resulting peptides were chemically labelled with isobaric tags using TMT, where different samples were analysed in the same experiment, together with an internal reference standard. Peptides were fractionated offline through HPLC and different fractions from each experiment were run on the mass spectrometer separately (Orbitrap Fusion or Orbitrap Fusion Lumos, from Thermo-Fisher). Further details regarding the experimental procedures and analysis are available in the corresponding publications.

Raw output files from mass spectrometry runs were interrogated using Proteome Discoverer 2.4 (Thermo-Fisher), with Sequest-HT as search engine. Two customized databases were used to query the mass spectrometry peaks, both of them including Swissprot and TrEMBL canonical sequences, as well as the in silico translation of chimeric sequences predicted from different datasets. One of databases, the "CCLE-recurrent", included those JETs found in at least 7 samples of the CCLE mRNA-seq collection. The other database, the "lung-specific", was

constructed adding to the canonical sequences those tumor-specific JETs detected on lung cell lines from CCLE. Thus, two different outputs were obtained, according to the library of predictions set as reference. Protein cleavage was specified as Trypsin allowing for a maximum of 2 miss-cleavages. Peptide FDR was set to 1% while protein FDR was allowed to 100%, to focus our search on the investigation of peptides. The mass tolerance for peptides was 4.5ppm and fragment tolerance 0.02Da. Carbamidomethylation of Cysteines was set as fixed modification. For the quantification, signals from TMT reporters were obtained using MS2 or MS3 fragmentation, paired with the MS2 scans for peptide identification.

Cell lysis and HLA-ABC-peptide complexes purification

Dry pellets from H1650 cells were resuspended in lysis buffer and sonicated. The sample was centrifuged 12 min at 5500g and 4ºC to remove nuclei and organelles. The supernatant was collected and ultracentrifuged at 72000g for 1h at 4ºC to extract the membranes and the pellet was resuspended with solubilization buffer. After overnight incubation at 4ºC, the sample was ultracentrifuged at 55000g for 1h at 4ºC to pellet the non-solubilized membranes. Solubilized membranes were incubated overnight with CNBr-activated Sepharose beads (GE Healthcare Life Sciences) coupled to anti-HLA-ABC W6/32 antibody. After washing, peptide-HLA-ABC complexes were eluted with 0.25% TFA. The eluted material was cleaned by a C18 tip before mass spectrometry. Eluted samples were analyzed by Liquid Chromatography-Mass spectrometry (LC-MS) using an Orbitrap Fusion LumosTM Tribrid (ThermoFisher) equipped with a nanoESI source and coupled to a nanochromatographic system. LC separation was done using a 140-min acetonitrile gradient. Analyses were performed in a Top Speed (most intense) data-dependent mode using a Higher-energy Collisional Dissociation (HCD).

Immunopeptidomics

Mass spectrometry output files (called raw files) were downloaded from PRIDE database (dataset identifiers: PXD013649, MSV000082648, PXD009752, PXD009754, PXD009755 and PXD009936) or generated in house (for the H1650 cell line). Raw files were processed using ProteomeDiscoverer 2.4 (ThermoFisher) with the following parameters: no-enzyme, precursor mass tolerance 20ppm and fragment mass tolerance 0.02 Da. Methionine and N-acetylation were enabled as variable modifications. Using Percolator, a false discovery rate (FDR) of 1% was applied at peptide level and no FDR was used at protein level. MS/MS spectra were searched against the human proteome from Uniprot/SwissProt with isoforms concatenated with the in-silico translated lung tumour-specific JETs.

Identified peptides in each sample were processed individually to GibbsCluster 2.0 Server and each cluster was attributed to a HLA-I allele. Only peptides grouped to a given cluster were kept for further analyses. To ensure that JET-derived peptides are not found in canonical proteins, identified peptides were filtered with UniProt/TrEMBL database. Leucine and isoleucine were treated as equivalent. Remaining sequences were aligned to the translated junction using our own custom R scripts. Only those peptides overlapping the junction or in gene frameshift were kept. Finally, spectrums from identified peptides were checked manually.

Synthetic peptides (HPLC purity of 95%) were injected in a LTQ Orbitrap and/or in a Orbitrap Fusion Lumos (CID/HCD). Raw files were analysed with ProteomeDiscoverer 2.5 (ThermoFisher). Spectrums were exported and compared to the endogenous peptide using Msnbase R package. Only PSM with the same charge between synthetic and endogenous and without modifications were analysed.

The following tables 9 and 10 respectively refer to the detailed identification of the neoantigenic peptides of SEQ ID NO 1 to 4722 translated from fusion transcripts wherein the exon is the donor and the neoantigenic peptides of SEQ ID NO 4723 to 29596 translated from fusion transcripts wherein the TE is the donor.

In table 9, columns 1-14 refer to the following items: Column 1: Fusion_id; Colum 2: Donor_Chromosome_Exon; Colum 3: Donor_start_Exon; Colum 4: Donor_Breakpoint_Exon; Colum 5: Donor_strand_Exon; Colum 6: Acceptor_Chromosome_TE: Colum 7: Acceptor_Breakpoint_TE; Colum 8: Acceptor_end_TE; Colum 9: Acceptor_strand_TE; Colum 10: Fusion_type; Colum 11: Donor_tx_name_Exon; Colum 12: Breakpoint_position_in_AA; Colum 13: Position; Colum 14: Tissue.

In table 10, columns 1-15 refer to the following items: Column 1: Fusion_id; Colum 2: Donor_Chromosome_TE; Colum 3: Donor_start_TE; Colum 4: Donor_Breakpoint_TE; Colum 5: Donor_strand_TE; Colum 6: Acceptor_Chromosome_Exon; Colum 7: Acceptor_Breakpoint_Exon; Colum 8: Acceptor_end_Exon; Colum 9: Acceptor_strand_Exon; Colum 10: Fusion_type; Colum 11: Acceptor_tx_name_Exon; Colum 12: Breakpoint_position_in_AA; Colum 13: Position; Colum 14: Position (SEQ ID NO:); Column 15: Tissue

The column named "position" refers to the various chimeric proteins (identified by their SEQ ID NO) that are derived from splice variants of the same JET (or fusion). In table 10, the SEQ ID NO of the chimeric protein (column 14) can be obtained by adding 4722 to the number(s) provided in column 13.

The column 12 in each table gives the position of the breakpoint between the exon-derived aa sequence and the TE-derived aa sequence respectively for each of the chimeric proteins (if more than one) of the previous column (position).

In the following tables 11-17, columns 1-13 refer to the following items

	Fusions (donor :exon)	Fusions (donor :TE)
1	Fusion_id	Fusion_id
2	Donor_Chromosome_Exon	Donor_Chromosome_TE
3	Donor_start_Exon	Donor_start_TE
4	Donor_Breakpoint_Exon	Donor_Breakpoint_TE
5	Donor_tx_name_Exon	Donor_tx_name_TE
6	Donor_strand_Exon	Donor_strand_TE
7	Acceptor_Chromosome_TE	Acceptor_Chromosome_exon
8	Acceptor_Breakpoint_TE	Acceptor_Breakpoint_exon
9	Acceptor_end_TE	Acceptor_end_exon
10	Acceptor_strand_TE	Acceptor_strand_exon
11	Chimeric protein (i.e. translated JET) reference	Chimeric protein (i.e. translated JET) reference
12	Breakpoint_position_in_AA	Breakpoint_position_in_AA
13	Tissue	Tissue

Column 11 refers to the various chimeric proteins (identified by their SEQ ID NO) that are derived from splice variants of the same JET (or fusion).

- In table 11, the SEQ ID NO of the chimeric protein can be obtained by adding 30433 to the number(s) provided.
- In table 12, the SEQ ID NO of the chimeric protein can be obtained by adding 30433 to the number(s) provided.
- In table 13, the SEQ ID NO of the chimeric protein can be obtained by adding 30760 to the number(s) provided.
- In table 14, the SEQ ID NO of the chimeric protein can be obtained by adding 30760 to the number(s) provided.
- In table 15, the SEQ ID NO of the chimeric protein can be obtained by adding 30964 to the number(s) provided.
- In table 16, the SEQ ID NO of the chimeric protein can be obtained by adding 30964 to the number(s) provided.

- In table 17, the SEQ ID NO of the chimeric protein can be obtained by adding 31201 to the number(s) provided.
- In table 18, the SEQ ID NO of the chimeric protein can be obtained by adding 31201 to the number(s) provided.

Table 9

1	2	3	4	5	6	7	8	9	10	11	12	13	14
chr1:110233186:+>chr1:110235581:+	chr1	110233076	110233186	+	chr1	110235581	110235619	+	TSF	ENST00000309851, ENST00000369823	189,208	01-02	BLCA,CESC,KIRP,LUSC
chr1:11115838:->chr1:11115464:-	chr1	11115983	11115838	-	chr1	11115464	11115178	-	TSF	ENST00000376957, ENST00000490101, ENST00000490101, ENST00000376957	255,13	03-04	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr1:11718928:+>chr1:11719303:+	chr1	11718793	11718928	+	chr1	11719303	11719464	+	TAF	ENST00000251546, ENST00000376770, ENST00000376768, ENST00000251547, ENST00000376760, ENST00000376762, ENST00000475435, ENST00000471895	166,166,166,208,208,198,90,74	05-12	BLCA,BRCA,GBM,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PCPG,SKCM,STAD,THCA,THYM
chr1:117712729:->chr1:117699971:-	chr1	117712793	117712729	-	chr1	117699971	117699928	-	TSF	ENST00000359008, ENST00000328189, ENST00000369458	35,32,32	13-15	BRCA,LUAD,OV
chr1:117712729:->chr1:117702007:-	chr1	117712793	117712729	-	chr1	117702007	117701826	-	TSF	ENST00000359008, ENST00000328189, ENST00000369458	35,32,32	16-18	BRCA,OV
chr1:11805894:+>chr1:11805987:+	chr1	11805860	11805894	+	chr1	11805987	11806151	+	TSF	ENST00000476512, ENST00000400895, ENST00000376629, ENST00000376627, ENST00000314340, ENST00000452018, ENST00000510878	20,20,20,20,20,20,32	19-25	GBM,LUAD,LUSC,OV,STAD
chr1:12010577:+>chr1:12010679:+	chr1	12010414	12010577	+	chr1	12010679	12010856	+	TAF	ENST00000449038, ENST00000376369, ENST00000429000, ENST00000196061	202,202,155,155	26-29	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr1:1237368:->chr1:1236310:-	chr1	1237426	1237368	-	chr1	1236310	1236145	-	TAF	ENST00000354700, ENST00000353662	112,7	30-31	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LUAD,LUSC,MESO,PCPG,SARC,STAD,THYM
chr1:12476880:+>chr1:12510638:+	chr1	12476713	12476880	+	chr1	12510638	12510871	+	TSF	ENST00000356315, ENST00000358136, ENST00000011700, ENST00000543766	2932,4086,4111,109	32-35	LGG,THCA
chr1:1255836:->chr1:1255085:-	chr1	1255909	1255836	-	chr1	1255085	1254988	-	TSF	ENST00000435064, ENST00000540437, ENST00000450926, ENST00000545578, ENST00000528879, ENST00000434694, ENST00000526797, ENST00000527719, ENST00000530031, ENST00000534345, ENST00000498476	66,66,66,66,66,72,72,37,113,67,126	36-46	BLCA,HNSC,KIRP,LUAD,LUSC,OV,STAD,UCEC,UCS
chr1:1255836:->chr1:1255223:-	chr1	1255909	1255836	-	chr1	1255223	1254988	-	TSF	ENST00000435064, ENST00000540437, ENST00000450926, ENST00000545578, ENST00000528879, ENST00000434694, ENST00000526797, ENST00000527719, ENST00000530031, ENST00000534345, ENST00000498476	66,66,66,66,66,72,72,37,113,67,126	47-57	BLCA,BRCA,GBM,HNSC,OV,PRAD,STAD,TGCT
chr1:144852394:->chr1:144836558:-	chr1	144852443	144852394	-	chr1	144836558	144836419	-	TSF	ENST00000369356	2349	58	GBM,LGG,LIHC,OV,STAD

Table 9

chr1:147438895:+>chr1:147440564:+	chr1	147438786	147438895	+	chr1	147440564	147440653	+	TAF	ENST00000314163	242	59	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,TGCT,THYM,UCEC
chr1:151239815:+>chr1:151245243:+	chr1	151239649	151239815	+	chr1	151245243	151245553	+	TAF	ENST00000368884, ENST00000368881, ENST00000445776, ENST00000453615	192,83,376, 379	60-63	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr1:151239815:+>chr1:151245263:+	chr1	151239649	151239815	+	chr1	151245263	151245553	+	TSF	ENST00000368884, ENST00000368881, ENST00000445776, ENST00000453615	192,83,376, 379	64-67	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,THYM,UCEC,UVM
chr1:151239815:+>chr1:151251832:+	chr1	151239649	151239815	+	chr1	151251832	151251905	+	TAF	ENST00000368884, ENST00000368881, ENST00000445776, ENST00000453615	376,379,192 ,83	68-71	BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,TGCT,THCA,THYM,UCEC,UCS
chr1:151537090:+>chr1:151537646:+	chr1	151537001	151537090	+	chr1	151537646	151537693	+	TSF	ENST00000353024, ENST00000368849, ENST00000368848, ENST00000538902	79,138,113, 157	72-75	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,READ,SARC
chr1:152006124:->chr1:152005323:-	chr1	152006276	152006124	-	chr1	152005323	152005310	-	TAF	ENST00000271638	52	76	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr1:152006124:->chr1:152005339:-	chr1	152006276	152006124	-	chr1	152005339	152005310	-	TSF	ENST00000271638	52	77	BLCA,BRCA,CESC,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,READ,SARC,STAD,THCA
chr1:153533988:->chr1:153532853:-	chr1	153534067	153533988	-	chr1	153532853	153532704	-	TAF	ENST00000368708, ENST00000487430, ENST00000497140, ENST00000368710, ENST00000368709	73,73,73,73, 40	78-82	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LUAD,LUSC,OV,PAAD,SKCM,STAD,THCA,THYM,UCEC
chr1:153662858:+>chr1:153663274:+	chr1	153662760	153662858	+	chr1	153663274	153663445	+	TSF	ENST00000368680	1010	83	CESC,KIRP,MESO,OV,PCPG,SARC,UCEC
chr1:153701260:+>chr1:153703418:+	chr1	153701111	153701260	+	chr1	153703418	153703434	+	TSF	ENST00000318967, ENST00000435409	50,5	84-85	BRCA,KIRP,LUAD,OV,STAD,TGCT,UCEC
chr1:154794565:->chr1:154761737:-	chr1	154794660	154794565	-	chr1	154761737	154761457	-	TSF	ENST00000271915, ENST00000361147, ENST00000358505	343,38,30	86-88	BLCA,DLBC,GBM,STAD,TGCT,THYM,UCEC
chr1:155036412:+>chr1:155036918:+	chr1	155036300	155036412	+	chr1	155036918	155037085	+	TSF	ENST00000368409, ENST00000359751, ENST00000556931, ENST00000505139, ENST00000427683	37,37,37,37, 37	89-93	ACC,BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,OV,READ,SARC,SKCM,STAD,UCEC,UCS
chr1:156235572:->chr1:156234234:-	chr1	156236171	156235572	-	chr1	156234234	156234174	-	TSF	ENST00000361813	618	94	BLCA,BRCA,CHOL,LUAD,LUSC,READ
chr1:156256264:+>chr1:156259791:+	chr1	156256051	156256264	+	chr1	156259791	156259857	+	TAF	ENST00000295694, ENST00000357501, ENST00000405535, ENST00000456810	323,323,85, 85	95-98	PRAD
chr1:156352660:+>chr1:156354082:+	chr1	156352539	156352660	+	chr1	156354082	156354192	+	TSF	ENST00000451864, ENST00000255013, ENST00000368246, ENST00000400992, ENST00000368249	333,342,411 ,411,379	99-103	ACC,BLCA,GBM,KICH,KIRC,KIRP,LIHC

Table 9

chr1:156352660:+>chr1:156354102:+	chr1	156352539	156352660	+	chr1	156354102	156354192	+	TAF	ENST00000451864, ENST00000255013, ENST00000368246, ENST00000400992, ENST00000368249	333,342,411,411,379	104-108	ACC,BLCA,GBM,KICH,KIRC,KIRP,LIHC
chr1:156384446:->chr1:156349478:-	chr1	156384545	156384446	-	chr1	156349478	156349429	-	TSF	ENST00000368242, ENST00000310027, ENST00000368243, ENST00000357975	88,71,57,70	109-112	GBM,LGG
chr1:156384446:->chr1:156374431:-	chr1	156384545	156384446	-	chr1	156374431	156374430	-	TSF	ENST00000368242, ENST00000310027, ENST00000368243, ENST00000357975	88,71,57,70	113-116	GBM,LGG
chr1:156396590:->chr1:156374431:-	chr1	156396664	156396590	-	chr1	156374431	156374430	-	TSF	ENST00000400991, ENST00000310027, ENST00000357975	41,37,36	117-119	GBM,LGG
chr1:156618653:+>chr1:156620746:+	chr1	156618360	156618653	+	chr1	156620746	156620747	+	TSF	ENST00000329117, ENST00000361588	354,354	120-121	GBM,LGG
chr1:156721135:->chr1:156716225:-	chr1	156721221	156721135	-	chr1	156716225	156716218	-	TSF	ENST00000357325, ENST00000537739	29,29	122-123	BLCA,HNSC,LUAD,LUSC,OV,STAD
chr1:157519350:->chr1:157517485:-	chr1	157519370	157519350	-	chr1	157517485	157517377	-	TSF	ENST00000361835, ENST00000368190, ENST00000368191, ENST00000368189, ENST00000368188	17,17,17,17,17	124-128	BLCA,DLBC,LUAD
chr1:15765000:+>chr1:15765777:+	chr1	15764961	15765000	+	chr1	15765777	15765949	+	TSF	ENST00000375949, ENST00000375943	13,13	129-130	OV,PAAD
chr1:15783669:+>chr1:15807450:+	chr1	15783581	15783669	+	chr1	15807450	15807521	+	TSF	ENST00000359621	43	131	PAAD
chr1:15794033:+>chr1:15795560:+	chr1	15793881	15794033	+	chr1	15795560	15795701	+	TSF	ENST00000359621	264	132	PAAD
chr1:15803040:+>chr1:15807450:+	chr1	15802952	15803040	+	chr1	15807450	15807521	+	TSF	ENST00000375910, ENST00000422901	43,27	133-134	PAAD
chr1:15813932:+>chr1:15814741:+	chr1	15813780	15813932	+	chr1	15814741	15814890	+	TSF	ENST00000375910	264	135	PAAD
chr1:158326682:+>chr1:158327113:+	chr1	158326518	158326682	+	chr1	158327113	158327284	+	TAF	ENST00000444681, ENST00000368167, ENST00000452291, ENST00000368165, ENST00000368166, ENST00000368163, ENST00000368154, ENST00000368155, ENST00000368156, ENST00000368157, ENST00000368160	288,387,198,297,186,320,143,230,285,131,375	136-146	BRCA,KIRC,LUAD,THYM
chr1:159683793:->chr1:159682370:-	chr1	159683928	159683793	-	chr1	159682370	159682050	-	TAF	ENST00000255030, ENST00000368112	65,65	147-148	CHOL,KIRC,LIHC,PAAD
chr1:159683797:->chr1:159682370:-	chr1	159683928	159683797	-	chr1	159682370	159682050	-	TAF	ENST00000255030, ENST00000368112, ENST00000368111, ENST00000368110, ENST00000343919	64,64,64,64,64	149-153	CHOL,LIHC,PAAD
chr1:160011624:->chr1:159969284:-	chr1	160012322	160011624	-	chr1	159969284	159968914	-	TSF	ENST00000368089	233	154	GBM,LGG
chr1:160106821:+>chr1:160108093:+	chr1	160106691	160106821	+	chr1	160108093	160108301	+	TSF	ENST00000361216, ENST00000392233, ENST00000447527	640,946,946	155-157	BLCA,GBM,LGG
chr1:160109774:+>chr1:160110441:+	chr1	160109683	160109774	+	chr1	160110441	160110463	+	TSF	ENST00000361216, ENST00000392233, ENST00000447527	1011,1000,705	158-160	GBM,LGG
chr1:160264318:->chr1:160259468:-	chr1	160264383	160264318	-	chr1	160259468	160259379	-	TSF	ENST00000368069, ENST00000241704	886,877	161-162	OV,STAD
chr1:160854610:->chr1:160853933:-	chr1	160854667	160854610	-	chr1	160853933	160853823	-	TSF	ENST00000326245	19	163	LUAD,MESO
chr1:161207831:->chr1:161204494:-	chr1	161207850	161207831	-	chr1	161204494	161204367	-	TSF	ENST00000512372, ENST00000437437, ENST00000412844, ENST00000508740, ENST00000506018, ENST00000367981, ENST00000504010, ENST00000507215, ENST00000508387, ENST00000510951, ENST00000511676, ENST00000511748, ENST00000512340, ENST00000506209	6,6,6,6,6,6,6,6,6,6,6,6,6,6	164-177	LIHC
chr1:161967615:->chr1:161962049:-	chr1	161968139	161967615	-	chr1	161962049	161961535	-	TSF	ENST00000294794, ENST00000367940	491,492	178-179	KIRC,SARC,UCS

Table 9

chr1:163122340:->chr1:163022553:-	chr1	163122506	163122340	-	chr1	163022553	163022549	-	TSF	ENST00000313961, ENST00000367903, ENST00000530507, ENST00000527988	128,128,148,20	180-183	KIRC,PCPG,STAD
chr1:163172582:->chr1:163138964:-	chr1	163172625	163172582	-	chr1	163138964	163138652	-	TSF	ENST00000313961, ENST00000530507, ENST00000531476	14,14,14	184-186	BRCA,KIRC,PCPG,STAD
chr1:170705309:+>chr1:170706854:+	chr1	170705189	170705309	+	chr1	170706854	170706973	+	TSF	ENST00000239461	240	187	BRCA,CESC,SARC
chr1:171252355:+>chr1:171253062:+	chr1	171252283	171252355	+	chr1	171253062	171253076	+	TAF	ENST00000367750, ENST00000402921, ENST00000354841	418,418,355	188-190	BRCA,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUSC,MESO,SARC,THYM,UCEC,UCS
chr1:173157660:->chr1:173142495:-	chr1	173157708	173157660	-	chr1	173142495	173142335	-	TSF	ENST00000367718, ENST00000281834	17,67	191-192	ACC,GBM,HNSC,MESO,UCEC
chr1:180283827:->chr1:180281120:-	chr1	180283857	180283827	-	chr1	180281120	180281103	-	TSF	ENST00000367595	231	193	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,PRAD,SARC,SKCM,UVM
chr1:180283827:->chr1:180281457:-	chr1	180283857	180283827	-	chr1	180281457	180281103	-	TSF	ENST00000367595	231	194	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,LIHC,LUAD,LUSC,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr1:180366651:->chr1:180295697:-	chr1	180366740	180366651	-	chr1	180295697	180293314	-	TAF	ENST00000367595	221	195	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,SARC,THCA,THYM,UCEC,UCS
chr1:183441784:+>chr1:183470266:+	chr1	183441756	183441784	+	chr1	183470266	183470283	+	TSF	ENST00000440812, ENST00000444547, ENST00000347615, ENST00000507469, ENST00000515829	9,9,9,9,9	196-200	BRCA,OV,STAD,THCA
chr1:196659369:+>chr1:196678901:+	chr1	196659193	196659369	+	chr1	196678901	196678922	+	TSF	ENST00000439155, ENST00000367429, ENST00000359637	445,445,381	201-203	BLCA,LIHC
chr1:196659369:+>chr1:196835508:+	chr1	196659193	196659369	+	chr1	196835508	196835844	+	TAF	ENST00000439155, ENST00000367429, ENST00000359637	445,445,381	204-206	BLCA,CHOL,HNSC,LIHC,LUAD,MESO,OV
chr1:196749103:+>chr1:196835508:+	chr1	196748927	196749103	+	chr1	196835508	196835844	+	TAF	ENST00000367425, ENST00000471440, ENST00000367427, ENST00000391985	143,143,143,143	207-210	BLCA,BRCA,CHOL,HNSC,LIHC,LUAD,MESO
chr1:204183010:->chr1:204178313:-	chr1	204183034	204183010	-	chr1	204178313	204177989	-	TSF	ENST00000308302	8	211	BLCA,COAD,GBM,LGG,LIHC,LUAD,READ,STAD,THYM
chr1:206320319:+>chr1:206324771:+	chr1	206320201	206320319	+	chr1	206324771	206325084	+	TSF	ENST00000358184, ENST00000361052, ENST00000360218, ENST00000432969	154,154,154,79	212-215	BLCA,CESC,LUAD,LUSC,MESO,PAAD,STAD
chr1:207857302:+>chr1:207860136:+	chr1	207857217	207857302	+	chr1	207860136	207860394	+	TSF	ENST00000508064, ENST00000294997	154,98	216-217	DLBC,KICH,KIRC,KIRP,TGCT
chr1:20979114:->chr1:20978611:-	chr1	20979220	20979114	-	chr1	20978611	20978295	-	TSF	ENST00000602624, ENST00000375048, ENST00000415136	390,407,370	218-220	CESC,OV,PCPG,SARC,STAD
chr1:20979344:->chr1:20978562:-	chr1	20979464	20979344	-	chr1	20978562	20978295	-	TSF	ENST00000602624, ENST00000375048, ENST00000415136	354,371,334	221-223	OV
chr1:209946364:+>chr1:209948635:+	chr1	209946293	209946364	+	chr1	209948635	209948677	+	TAF	ENST00000400959, ENST00000367025, ENST00000478359, ENST00000367026, ENST00000367024, ENST00000010338	238,238,238,258,258,258	224-229	BLCA,BRCA,CHOL,DLBC,GBM,KIRC,LIHC,LUAD,LUSC,PAAD,SARC,STAD,TGCT,THCA,THYM
chr1:212209284:+>chr1:212211973:+	chr1	212209233	212209284	+	chr1	212211973	212212067	+	TSF	ENST00000366991, ENST00000542077	17,17	230-231	CESC,DLBC,HNSC,LUSC,OV,TGCT

Table 9

chr1:212606462:+>chr1:212608047:+	chr1	212606286	212606462	+	chr1	212608047	212608089	+	TAF	ENST00000366988	59	232	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr1:21925987:->chr1:21925313:-	chr1	21926110	21925987	-	chr1	21925313	21925206	-	TAF	ENST00000374761, ENST00000290101, ENST00000374763, ENST00000471600, ENST00000374765, ENST00000542643	623,656,677,592,592,618	233-238	ACC,BLCA,BRCA,CESC,CHOL,COAD,KICH,KIRP,LIHC,LUAD,LUSC,PAAD,STAD,THCA,UCEC,UVM
chr1:220240644:->chr1:220237757:-	chr1	220240735	220240644	-	chr1	220237757	220237680	-	TSF	ENST00000322067, ENST00000469520, ENST00000354807, ENST00000544404, ENST00000414869, ENST00000463953, ENST00000498791, ENST00000480959	158,158,158,103,103,122,122,122	239-246	BLCA,BRCA,COAD,DLBC,GBM,LUAD,LUSC,OV,PAAD,STAD
chr1:22204679:->chr1:22204032:-	chr1	22204746	22204679	-	chr1	22204032	22203987	-	TSF	ENST00000374695	895	247	STAD,UCEC
chr1:22313176:+>chr1:22321959:+	chr1	22313024	22313176	+	chr1	22321959	22322031	+	TAF	ENST00000337107, ENST00000400277	265,168	248-249	OV,PAAD
chr1:224544695:+>chr1:224551811:+	chr1	224544627	224544695	+	chr1	224551811	224551931	+	TAF	ENST00000465271, ENST00000366858, ENST00000366857, ENST00000366856	23,23,23,23	250-253	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,READ,SKCM,STAD,TGCT,UCEC
chr1:225156576:+>chr1:225157336:+	chr1	225156461	225156576	+	chr1	225157336	225158402	+	TSF	ENST00000430092, ENST00000400952, ENST00000366849, ENST00000439375	255,255,255,232	254-257	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THYM,UCEC,UCS
chr1:226016613:+>chr1:226018885:+	chr1	226016431	226016613	+	chr1	226018885	226018904	+	TSF	ENST00000445856, ENST00000272167, ENST00000448202, ENST00000366837	61,61,61,61	258-261	LIHC,LUAD,UCEC
chr1:226825380:->chr1:226799389:-	chr1	226825451	226825380	-	chr1	226799389	226799188	-	TSF	ENST00000272117, ENST00000429204	875,875	262-263	GBM,LGG,LUAD,SARC,SKCM,UVM
chr1:227843464:+>chr1:227864880:+	chr1	227842037	227843464	+	chr1	227864880	227866572	+	TSF	ENST00000397097, ENST00000343776	559,504	264-265	BRCA,CHOL,LGG,LIHC,OV,PRAD
chr1:230203153:+>chr1:230227336:+	chr1	230203028	230203153	+	chr1	230227336	230227441	+	TSF	ENST00000366672	42	266	BLCA,HNSC,LUAD,OV,UCEC
chr1:23208976:+>chr1:23211233:+	chr1	23208852	23208976	+	chr1	23211233	23211522	+	TSF	ENST00000544305, ENST00000374630, ENST00000400191, ENST00000374632, ENST00000374627	476,476,476,476,470	267-271	BRCA,COAD,READ,STAD
chr1:2339891:->chr1:2339399:-	chr1	2340297	2339891	-	chr1	2339399	2339300	-	TSF	ENST00000288774, ENST00000447513, ENST00000507596	200,200,200	272-274	BRCA,PRAD,SKCM
chr1:234546191:->chr1:234545319:-	chr1	234546277	234546191	-	chr1	234545319	234545287	-	TSF	ENST00000040877	1264	275	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LGG,LIHC,LUAD,LUSC,OV,PRAD,STAD,TGCT,THCA,UCEC,UCS
chr1:241803184:->chr1:241771682:-	chr1	241803556	241803184	-	chr1	241771682	241771633	-	TSF	ENST00000366554, ENST00000331838	124,124	276-277	BRCA,KIRC,LIHC,LUAD,LUSC,OV,SKCM
chr1:24463621:->chr1:24461426:-	chr1	24463799	24463621	-	chr1	24461426	24461370	-	TAF	ENST00000270800	118	278	ACC,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,OV,PAAD,READ,STAD,TGCT

Table 9

chr1:244855322:+>chr1:244863163:+	chr1	244855181	244855322	+	chr1	244863163	244863387	+	TAF	ENST00000302550, ENST00000263831	117,84	279-280	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,TGCT,UCS
chr1:245246990:+>chr1:245288007:+	chr1	245246924	245246990	+	chr1	245288007	245288330	+	TAF	ENST00000366523, ENST00000366522, ENST00000447569, ENST00000366521, ENST00000551317, ENST00000425550, ENST00000427529	116,116,124,124,260,182,32	281-287	BLCA,BRCA,CESC,CHOL,GBM,KIRC,LUAD,OV,SKCM,UCEC,UVM
chr1:24700192:->chr1:24696970:-	chr1	24700300	24700192	-	chr1	24696970	24696808	-	TSF	ENST00000374409, ENST00000440416, ENST00000003583, ENST00000337248, ENST00000438866	190,190,143,143,93	288-292	BLCA,DLBC,LIHC,LUSC,STAD,UCEC
chr1:2492153:+>chr1:2508457:+	chr1	2492063	2492153	+	chr1	2508457	2508463	+	TSF	ENST00000426449, ENST00000434817, ENST00000435221, ENST00000451778, ENST00000409119, ENST00000355716	183,183,183,183,183,183	293-298	ACC,BRCA,CESC,CHOL,COAD,DLBC,KICH,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC,UVM
chr1:25883758:+>chr1:25916660:+	chr1	25883644	25883758	+	chr1	25916660	25916675	+	TSF	ENST00000374338	153	299	BLCA,BRCA,HNSC,KIRC,LUSC,MESO,OV,SARC,SKCM,STAD,UCEC,UVM
chr1:25891698:+>chr1:25916660:+	chr1	25891664	25891698	+	chr1	25916660	25916675	+	TSF	ENST00000374338	260	300	ACC,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr1:31347144:->chr1:31340352:-	chr1	31347435	31347144	-	chr1	31340352	31340311	-	TSF	ENST00000336798, ENST00000339394	329,387	301-302	ACC,GBM,LGG,SARC,SKCM,UVM
chr1:32560572:+>chr1:32561261:+	chr1	32560385	32560572	+	chr1	32561261	32561358	+	TSF	ENST00000336294, ENST00000373634, ENST00000427288	371,172,256	303-305	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LUAD,LUSC,OV,SARC,TGCT,THCA,THYM,UCEC,UCS
chr1:32573735:+>chr1:32605356:+	chr1	32573732	32573735	+	chr1	32605356	32605563	+	TSF	ENST00000373625, ENST00000471599	1,1	306-307	BRCA,KIRP,LGG,LUAD,LUSC,OV,STAD,TGCT
chr1:32696620:+>chr1:32696861:+	chr1	32696528	32696620	+	chr1	32696861	32697110	+	TAF	ENST00000373586	298	308	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr1:32696620:+>chr1:32696865:+	chr1	32696528	32696620	+	chr1	32696865	32697110	+	TSF	ENST00000373586	298	309	BLCA,BRCA,CESC,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,STAD,UCS
chr1:33138502:+>chr1:33145073:+	chr1	33138392	33138502	+	chr1	33145073	33145159	+	TSF	ENST00000414241, ENST00000373493, ENST00000544435, ENST00000373485, ENST00000458695, ENST00000475321, ENST00000463378, ENST00000460669, ENST00000482190	206,163,403,404,404,152,369,159,142	310-318	BRCA,GBM,LUSC,OV,STAD,UCEC
chr1:33272083:->chr1:33270484:-	chr1	33272212	33272083	-	chr1	33270484	33269340	-	TSF	ENST00000373477	170	319	CESC,HNSC,LUSC,TGCT
chr1:33272083:->chr1:33270534:-	chr1	33272212	33272083	-	chr1	33270534	33269340	-	TAF	ENST00000373477	170	320	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS

Table 9

chr1:40313658:->chr1:40313419:-	chr1	40313763,40313769,40313673,40313734	40313658	-	chr1	40313419	40313374	-	TSF	ENST00000441669, ENST00000462797, ENST00000316891, ENST00000372818, ENST00000537223, ENST00000537440, ENST00000545233	189,271,271,271,5,5,25	321-327	BLCA,BRCA,GBM,HNSC,LGG,LUAD,LUSC,OV,PCPG,PRAD,STAD,TGCT,THCA,THYM,UCEC
chr1:40319642:->chr1:40318623:-	chr1	40319740	40319642	-	chr1	40318623	40318602	-	TSF	ENST00000462797, ENST00000316891, ENST00000372818, ENST00000492612, ENST00000489945, ENST00000469476, ENST00000544981	138,138,138,138,138,13,4,74	328-334	BLCA,LUAD,LUSC,OV
chr1:40779877:->chr1:40778630:-	chr1	40779939	40779877	-	chr1	40778630	40778617	-	TSF	ENST00000372748, ENST00000417105	83,71	335-336	PRAD
chr1:41463198:+>chr1:41465502:+	chr1	41463066	41463198	+	chr1	41465502	41465535	+	TAF	ENST00000372621, ENST00000541520, ENST00000372616	335,335,104	337-339	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,OV,SARC,TGCT
chr1:43392716:->chr1:43372275:-	chr1	43392912	43392716	-	chr1	43372275	43371386	-	TSF	ENST00000426263	491	340	BLCA,LUSC
chr1:44804717:->chr1:44801643:-	chr1	44804994	44804717	-	chr1	44801643	44801548	-	TSF	ENST00000372257, ENST00000457571	163,161	341-342	GBM,LGG,LUSC,OV,SKCM
chr1:46876526:+>chr1:46877130:+	chr1	46876486	46876526	+	chr1	46877130	46877147	+	TAF	ENST00000243167	438	343	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC
chr1:47101569:->chr1:47098528:-	chr1	47101642	47101569	-	chr1	47098528	47098433	-	TSF	ENST00000576409, ENST00000371937, ENST00000574428, ENST00000492233, ENST00000526821, ENST00000542495, ENST00000329231, ENST00000534216, ENST00000532925	311,288,220,92,134,137,243,143,200	344-352	DLBC,GBM,HNSC,OV,READ,SARC,THYM
chr1:47571933:+>chr1:47579327:+	chr1	47571800	47571933	+	chr1	47579327	47581130	+	TAF	ENST00000334194	400	353	BRCA
chr1:48771459:->chr1:48730486:-	chr1	48771550	48771459	-	chr1	48730486	48730045	-	TSF	ENST00000371847, ENST00000371843, ENST00000396199	428,412,356	354-356	BRCA,GBM,LGG,STAD
chr1:53558226:->chr1:53556655:-	chr1	53558459	53558226	-	chr1	53556655	53556632	-	TSF	ENST00000371494	343	357	BLCA,LGG,LIHC,LUAD,UVM
chr1:53569018:->chr1:53568657:-	chr1	53569240	53569018	-	chr1	53568657	53568616	-	TSF	ENST00000371494	232	358	LUAD
chr1:54389577:->chr1:54362523:-	chr1	54389620	54389577	-	chr1	54362523	54362446	-	TSF	ENST00000371378, ENST00000194214, ENST00000371377	106,106,106	359-361	CESC,DLBC,HNSC,LUSC,OV,UCEC,UCS
chr1:55319152:->chr1:55317584:-	chr1	55319285	55319152	-	chr1	55317584	55317525	-	TSF	ENST00000371269, ENST00000436604, ENST00000537443, ENST00000535035	88,450,234,409	362-365	OV,STAD
chr1:55330976:->chr1:55317750:-	chr1	55331119	55330976	-	chr1	55317750	55317525	-	TSF	ENST00000371269, ENST00000535035	340,299	366-367	OV
chr1:55341615:->chr1:55317750:-	chr1	55341720	55341615	-	chr1	55317750	55317525	-	TSF	ENST00000371269, ENST00000535035	164,123	368-369	OV
chr1:55352562:->chr1:55317546:-	chr1	55352792	55352562	-	chr1	55317546	55317525	-	TSF	ENST00000371269	77	370	OV,STAD
chr1:59812070:+>chr1:59840819:+	chr1	59811919	59812070	+	chr1	59840819	59840959	+	TSF	ENST00000413489, ENST00000371218, ENST00000303721, ENST00000430447	155,155,155,155	371-374	KIRC,OV
chr1:60370543:->chr1:60370188:-	chr1	60370730	60370543	-	chr1	60370188	60370144	-	TAF	ENST00000371204	397	375	ACC,BLCA,BRCA,CESC,COAD,GBM,KIRC,KIRP,LGG,LIHC,LUSC,PAAD,PRAD,READ,SARC,UCEC
chr1:6378552:->chr1:6367453:-	chr1	6378638	6378552	-	chr1	6367453	6367413	-	TSF	ENST00000608083, ENST00000377842, ENST00000377845, ENST00000377855, ENST00000377860, ENST00000418124, ENST00000545482, ENST00000361521, ENST00000473466, ENST00000541130	205,205,205,196,217,21,7,247,132,237,188	376-385	ACC,CESC,COAD,HNSC,KIRC,LUSC,OV,PCPG,UCEC

Table 9

chr1:63944435:->chr1:63927687:-	chr1	63944504	63944435	-	chr1	63927687	63926951	-	TSF	ENST00000371092, ENST00000271002, ENST00000489099, ENST00000283568	123,84,84,84	386-389	BLCA,CESC,UCEC
chr1:63955754:->chr1:63952444:-	chr1	63955889	63955754	-	chr1	63952444	63951983	-	TSF	ENST00000371092, ENST00000271002, ENST00000489099, ENST00000283568	100,61,61,61	390-393	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRP,LUAD,LUSC,OV,READ,SARC,STAD,TGCT,UCEC
chr1:6531548:->chr1:6531300:-	chr1	6531697	6531548	-	chr1	6531300	6531188	-	TSF	ENST00000400913, ENST00000340850, ENST00000377748, ENST00000377725, ENST00000377728, ENST00000377732, ENST00000400915, ENST00000377740, ENST00000535355, ENST00000377737, ENST00000537245, ENST00000544978	427,427,427,427,427,427,504,504,464,483,496,506	394-405	BLCA,CESC,COAD,HNSC,LUSC,OV,PAAD,PCPG,SARC,STAD,UCEC
chr1:70820794:+>chr1:70831829:+	chr1	70820635	70820794	+	chr1	70831829	70831848	+	TSF	ENST00000359875, ENST00000370940, ENST00000531950, ENST00000432224	53,53,53,53	406-409	GBM,LGG,OV,SARC,STAD,TGCT,THCA,UVM
chr1:72163691:->chr1:72145446:-	chr1	72163822	72163691	-	chr1	72145446	72144785	-	TSF	ENST00000357731, ENST00000306821	222,94	410-411	BRCA,TGCT
chr1:78420940:->chr1:78417269:-	chr1	78421014	78420940	-	chr1	78417269	78417238	-	TAF	ENST00000294623, ENST00000370768, ENST00000370767, ENST00000436586	592,593,593,614	412-415	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr1:82372915:+>chr1:82386280:+	chr1	82372702	82372915	+	chr1	82386280	82386482	+	TSF	ENST00000370721, ENST00000370723, ENST00000370725, ENST00000370727, ENST00000370728, ENST00000370730, ENST00000359929, ENST00000319517, ENST00000370713, ENST00000370715, ENST00000271029, ENST00000335786, ENST00000370717, ENST00000394879	95,95,95,95,95,95,95,95,95,95,95,95,95,95	416-429	BRCA,KIRC,LUAD,OV,TGCT,UCEC,UCS
chr1:85279558:->chr1:85278179:-	chr1	85279854	85279558	-	chr1	85278179	85278107	-	TSF	ENST00000440886, ENST00000370611	344,344	430-431	OV
chr1:987195:+>chr1:992542:+	chr1	987108	987195	+	chr1	992542	992691	+	TSF	ENST00000379370, ENST00000419249	1883,186	432-433	BLCA,LUSC,MESO,OV,SARC,STAD,UCEC,UCS
chr1:99380342:->chr1:99378537:-	chr1	99380476	99380342	-	chr1	99378537	99378478	-	TSF	ENST00000263177	311	434	GBM,LGG
chr1:99380357:->chr1:99378537:-	chr1	99380476	99380357	-	chr1	99378537	99378478	-	TSF	ENST00000370188, ENST00000263177	306,306	435-436	GBM,LGG
chr10:100174766:->chr10:100174591:-	chr10	100174892	100174766	-	chr10	100174591	100174461	-	TAF	ENST00000370575	42	437	ACC,BLCA,BRCA,CESC,CHOL,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,THCA,THYM,UVM
chr10:104650435:+>chr10:104654553:+	chr10	104650301	104650435	+	chr10	104654553	104654816	+	TAF	ENST00000369880	340	438	ACC,LIHC,PCPG
chr10:114207225:+>chr10:114208140:+	chr10	114207132	114207225	+	chr10	114208140	114208243	+	TSF	ENST00000432306, ENST00000393077	31,31	439-440	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LUAD,LUSC,OV,STAD,TGCT
chr10:116021054:+>chr10:116030863:+	chr10	116020945	116021054	+	chr10	116030863	116030985	+	TSF	ENST00000603594, ENST00000392982	123,123	441-442	BRCA,LUAD,LUSC,OV,PAAD,STAD,UCEC
chr10:118310744:+>chr10:118311742:+	chr10	118310610	118310744	+	chr10	118311742	118312116	+	TSF	ENST00000369221	153	443	PAAD
chr10:118386509:+>chr10:118386790:+	chr10	118386375	118386509	+	chr10	118386790	118386809	+	TSF	ENST00000537242, ENST00000433618	154,155	444-445	PAAD

Table 9

chr10:120905748:->chr10:120901885:-	chr10	120905865	120905748	-	chr10	120901885	120901741	-	TAF	ENST00000355697, ENST00000330036	312,303	446-447	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr10:124172561:+>chr10:124173949:+	chr10	124172436	124172561	+	chr10	124173949	124175132	+	TSF	ENST00000368990, ENST00000368988, ENST00000368989, ENST00000538022, ENST00000392799, ENST00000433307	156,156,156,156,156,156	448-453	KIRC
chr10:126205840:+>chr10:126251911:+	chr10	126205749	126205840	+	chr10	126251911	126252288	+	TSF	ENST00000368842	238	454	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,STAD,TGCT,THCA,UCEC,UCS
chr10:127483449:->chr10:127473829:-	chr10	127483547	127483449	-	chr10	127473829	127473633	-	TSF	ENST00000368797, ENST00000368786	220,22	455-456	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,LGG,LIHC,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,THCA,UCEC,UCS
chr10:128018981:->chr10:127981199:-	chr10	128019078	128018981	-	chr10	127981199	127981183	-	TSF	ENST00000368679, ENST00000368676, ENST00000448723	62,62,62	457-459	BLCA,BRCA,GBM,KICH,PAAD,SARC
chr10:128594132:+>chr10:128608404:+	chr10	128594087	128594132	+	chr10	128608404	128608409	+	TSF	ENST00000280333	15	460	BLCA,BRCA,GBM,LUAD,OV,PRAD,STAD,TGCT,UCEC
chr10:132915062:->chr10:132903439:-	chr10	132915197	132915062	-	chr10	132903439	132903054	-	TSF	ENST00000368642	465	461	BLCA,SKCM,THCA
chr10:133106474:->chr10:133064549:-	chr10	133106654	133106474	-	chr10	133064549	133063810	-	TAF	ENST00000368642	223	462	BLCA,PCPG,SARC,THCA
chr10:14709633:->chr10:14664173:-	chr10	14709690	14709633	-	chr10	14664173	14664120	-	TAF	ENST00000181796, ENST00000487335	156,156	463-464	BLCA,BRCA,KIRC,KIRP,STAD
chr10:15151701:->chr10:15148697:-	chr10	15151838	15151701	-	chr10	15148697	15148684	-	TAF	ENST00000378165, ENST00000378150, ENST00000540259, ENST00000535341	492,479,304,479	465-468	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr10:17061832:->chr10:17054170:-	chr10	17061982	17061832	-	chr10	17054170	17053931	-	TAF	ENST00000377833	1389	469	KIRC,KIRP,SKCM
chr10:17432530:->chr10:17428932:-	chr10	17432619	17432530	-	chr10	17428932	17428606	-	TAF	ENST00000377602	96	470	BRCA,KIRC,LUSC,OV,PRAD,SKCM,UCEC,UVM
chr10:19572110:+>chr10:19575490:+	chr10	19571948	19572110	+	chr10	19575490	19575970	+	TSF	ENST00000377266, ENST00000454679	448,435	471-472	BRCA,STAD,TGCT
chr10:22171211:->chr10:22168812:-	chr10	22171368	22171211	-	chr10	22168812	22168560	-	TAF	ENST00000376980	326	473	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr10:23399247:+>chr10:23428951:+	chr10	23399171	23399247	+	chr10	23428951	23429096	+	TSF	ENST00000376510, ENST00000472663	98,59	474-475	LGG,PAAD,PCPG,SARC,UCEC
chr10:3178030:+>chr10:3202810:+	chr10	3177928	3178030	+	chr10	3202810	3202810	+	TSF	ENST00000381125, ENST00000381075, ENST00000381072, ENST00000433193	741,733,159,94	476-479	KIRC,LUAD,LUSC,PAAD,UCEC,UVM
chr10:33197296:->chr10:33039666:-	chr10	33197462	33197296	-	chr10	33039666	33039198	-	TSF	ENST00000423113, ENST00000396033, ENST00000302278, ENST00000374956, ENST00000488427	777,777,777,777,45	480-484	ACC,BLCA,BRCA,GBM,LIHC,MESO,PAAD,PCPG,UCEC

Table 9

chr10:37490253:+>chr10:37491222:+	chr10	37490163	37490253	+	chr10	37491222	37494539	+	TSF	ENST00000361713, ENST00000374660, ENST00000602533	900,900,1019	485-487	BRCA
chr10:37490253:+>chr10:37494228:+	chr10	37490163	37490253	+	chr10	37494228	37494539	+	TAF	ENST00000361713, ENST00000374660, ENST00000602533	900,900,1019	488-490	BRCA,PRAD
chr10:37490253:+>chr10:37501432:+	chr10	37490163	37490253	+	chr10	37501432	37501641	+	TSF	ENST00000361713, ENST00000374660, ENST00000602533	900,900,1019	491-493	BRCA
chr10:43602019:+>chr10:43602522:+	chr10	43601824	43602019	+	chr10	43602522	43602638	+	TSF	ENST00000355710, ENST00000340058	354,354	494-495	BRCA,LUAD,OV,PCPG
chr10:47164934:->chr10:47158491:-	chr10	47164993	47164934	-	chr10	47158491	47158409	-	TSF	ENST00000358140, ENST00000359178, ENST00000414655	122,165,184	496-498	STAD
chr10:47173898:->chr10:47139994:-	chr10	47173918	47173898	-	chr10	47139994	47138925	-	TSF	ENST00000358140, ENST00000359178, ENST00000545298, ENST00000414655	7,7,7,7	499-502	BLCA,HNSC,LUSC,MESO,OV,STAD
chr10:47173898:->chr10:47151097:-	chr10	47173918	47173898	-	chr10	47151097	47150900	-	TSF	ENST00000358140, ENST00000359178, ENST00000545298, ENST00000414655	7,7,7,7	503-506	MESO
chr10:47747132:+>chr10:48278725:+	chr10	47747112	47747132	+	chr10	48278725	48278896	+	TAF	ENST00000340243, ENST00000374277, ENST00000449464, ENST00000538825	7,7,7,7	507-510	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,SKCM,STAD,THYM
chr10:47756092:+>chr10:47762533:+	chr10	47756033	47756092	+	chr10	47762533	47762615	+	TSF	ENST00000340243, ENST00000374277, ENST00000538825	165,184,122	511-513	OV,STAD
chr10:48255449:+>chr10:48278725:+	chr10	48255429	48255449	+	chr10	48278725	48278896	+	TSF	ENST00000357718, ENST00000344416, ENST00000535874, ENST00000456111	7,7,7,7	514-517	BLCA,HNSC,LUSC,MESO,OV,STAD
chr10:48264417:+>chr10:48270861:+	chr10	48264358	48264417	+	chr10	48270861	48270943	+	TSF	ENST00000357718, ENST00000344416, ENST00000456111	165,184,122	518-520	OV,STAD
chr10:4884696:+>chr10:4915406:+	chr10	4884613	4884696	+	chr10	4915406	4915583	+	TAF	ENST00000474119, ENST00000463345, ENST00000298375, ENST00000532248, ENST00000334019, ENST00000345253	175,279,279,222,222,181	521-526	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr10:50255028:->chr10:50240450:-	chr10	50255089	50255028	-	chr10	50240450	50240427	-	TSF	ENST00000332853	279	527	THCA
chr10:5037511:->chr10:5023140:-	chr10	5037676	5037511	-	chr10	5023140	5022655	-	TSF	ENST00000380753, ENST00000421196, ENST00000407674	282,282,256	528-530	BLCA,LIHC,LUAD,LUSC
chr10:5040817:->chr10:5002427:-	chr10	5040939	5040817	-	chr10	5002427	5002117	-	TAF	ENST00000380753, ENST00000421196, ENST00000407674, ENST00000604507	190,190,190,164	531-534	ACC,BLCA,BRCA,CESC,CHOL,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,SARC,THCA,UCEC
chr10:55826517:->chr10:55816578:-	chr10	55826645	55826517	-	chr10	55816578	55816423	-	TSF	ENST00000373965, ENST00000414778, ENST00000395438, ENST00000409834, ENST00000395445, ENST00000395432, ENST00000361849, ENST00000395433, ENST00000373957, ENST00000320301, ENST00000395430, ENST00000437009, ENST00000373955	747,747,745,740,740,740,740,740,3,51,703,718,718,669	535-547	GBM,LGG,LUSC

Table 9

chr10:55943204:->chr10:55933689:-	chr10	55943353	55943204	-	chr10	55933689	55933395	-	TSF	ENST00000373965, ENST00000414778, ENST00000395438, ENST00000409834, ENST00000395445, ENST00000395446, ENST00000395432, ENST00000361849, ENST00000395433, ENST00000373957, ENST00000320301, ENST00000395430, ENST00000448885, ENST00000437009, ENST00000373955	537,537,535,530,530,530,530,530,530,530,530,530,530,141,493,508,508	548-562	GBM,LGG,OV
chr10:5788607:+>chr10:5845506:+	chr10	5788142	5788607	+	chr10	5845506	5845586	+	TSF	ENST00000328090	1074	563	BRCA,OV,STAD
chr10:6019368:->chr10:6010891:-	chr10	6019455	6019368	-	chr10	6010891	6010471	-	TSF	ENST00000379977, ENST00000397251, ENST00000528354, ENST00000397250, ENST00000379971, ENST00000397255, ENST00000530685, ENST00000429135	29,29,29,29,29,29,29,29	564-571	BLCA,BRCA,HNSC,LIHC,LUAD,SARC,STAD,UCEC
chr10:60273093:+>chr10:60299081:+	chr10	60272904	60273093	+	chr10	60299081	60299303	+	TAF	ENST00000373886	63	572	CHOL,KIRP,LIHC,SARC
chr10:64416246:+>chr10:64417763:+	chr10	64416156	64416246	+	chr10	64417763	64418650	+	TSF	ENST00000410046, ENST00000395251	406,16	573-574	KIRC
chr10:70432802:+>chr10:70433158:+	chr10	70432652	70432802	+	chr10	70433158	70433321	+	TSF	ENST00000373644	1608	575	BRCA,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC,UCS
chr10:71990097:->chr10:71982750:-	chr10	71990155	71990097	-	chr10	71982750	71982433	-	TSF	ENST00000373232, ENST00000373230, ENST00000608321	41,41,41	576-578	CESC,DLBC,OV,STAD,UCEC
chr10:72538313:->chr10:72537613:-	chr10	72538393	72538313	-	chr10	72537613	72537588	-	TAF	ENST00000299290, ENST00000456372, ENST00000545575	169,169,158	579-581	PCPG,THYM
chr10:72538313:->chr10:72537677:-	chr10	72538393	72538313	-	chr10	72537677	72537588	-	TSF	ENST00000299290, ENST00000456372, ENST00000545575	169,169,158	582-584	THYM
chr10:72538313:->chr10:72537732:-	chr10	72538393	72538313	-	chr10	72537732	72537588	-	TSF	ENST00000299290, ENST00000456372, ENST00000545575	169,169,158	585-587	THYM
chr10:72539349:->chr10:72537613:-	chr10	72539498	72539349	-	chr10	72537613	72537588	-	TSF	ENST00000299290, ENST00000456372, ENST00000545575	142,142,132	588-590	THYM
chr10:72541557:->chr10:72537613:-	chr10	72541792	72541557	-	chr10	72537613	72537588	-	TSF	ENST00000299290, ENST00000456372, ENST00000545575	92,92,82	591-593	THYM
chr10:72541557:->chr10:72539689:-	chr10	72541792	72541557	-	chr10	72539689	72539621	-	TSF	ENST00000299290, ENST00000456372, ENST00000545575	92,92,82	594-596	THYM
chr10:73056499:+>chr10:73057337:+	chr10	73056335	73056499	+	chr10	73057337	73057378	+	TSF	ENST00000335350, ENST00000373192	830,819	597-598	BLCA,BRCA,CESC,HNSC,LGG,LUSC,OV,PAAD,PCPG,UCEC
chr10:75555421:+>chr10:75556079:+	chr10	75555297	75555421	+	chr10	75556079	75556138	+	TSF	ENST00000604729, ENST00000603114, ENST00000604524, ENST00000398706, ENST00000605216, ENST00000433366, ENST00000492395, ENST00000603187, ENST00000412198, ENST00000604754	1011,1011,973,1006,1006,1004,625,345,280,271	599-608	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,STAD,TGCT,THCA,UCEC,UCS
chr10:79797062:+>chr4:176584518:+	chr10	79796952	79797062	+	chr4	176584518	176584519	+	TSF	ENST00000435275, ENST00000440692, ENST00000372360, ENST00000360830	130,130,130,130	609-612	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,PAAD,PRAD,READ,THCA,UCEC,UCS
chr10:81111329:+>chr10:81114803:+	chr10	81111243	81111329	+	chr10	81114803	81115129	+	TSF	ENST00000472580, ENST00000394579, ENST00000225174, ENST00000448165	134,134,134,97	613-616	OV,STAD
chr10:81901935:+>chr10:81903525:+	chr10	81901901	81901935	+	chr10	81903525	81903598	+	TSF	ENST00000372270, ENST00000372267, ENST00000372263	12,54,54	617-619	ACC,GBM,MESO,SARC

Table 9

chr10:84718831:+>chr10:84720295:+	chr10	84718705	84718831	+	chr10	84720295	84720298	+	TSF	ENST00000372141, ENST00000404547, ENST00000372142, ENST00000404576, ENST00000556918, ENST00000537893, ENST00000545131	428,428,207,232,258,78,78	620-626	BRCA,KICH,KIRC,OV,PCPG,SKCM,UVM
chr10:90436037:+>chr10:90437871:+	chr10	90435966	90436037	+	chr10	90437871	90438023	+	TSF	ENST00000394375, ENST00000608620, ENST00000238983, ENST00000355843	330,287,320,297	627-630	DLBC,PRAD,STAD
chr10:90436037:+>chr10:90437884:+	chr10	90435966	90436037	+	chr10	90437884	90438023	+	TSF	ENST00000394375, ENST00000608620, ENST00000238983, ENST00000355843	330,287,320,297	631-634	DLBC,STAD
chr10:96443744:+>chr10:96698194:+	chr10	96443577	96443744	+	chr10	96698194	96698222	+	TSF	ENST00000339022, ENST00000285979	56,56	635-636	BLCA,CESC,CHOL,KIRC,KIRP,LIHC,PAAD,SARC,STAD
chr10:96732002:+>chr10:96735182:+	chr10	96731861	96732002	+	chr10	96735182	96735858	+	TSF	ENST00000260682	320	637	LIHC
chr10:98095731:+>chr10:98115406:+	chr10	98095652	98095731	+	chr10	98115406	98115502	+	TSF	ENST00000419175, ENST00000371174	480,481	638-639	THYM
chr10:99229403:->chr10:99229305:-	chr10	99229480	99229403	-	chr10	99229305	99229286	-	TSF	ENST00000438925, ENST00000370782, ENST00000327238, ENST00000355839, ENST00000434392, ENST00000437002	308,308,308,265,30,299	640-645	BLCA,BRCA,KIRC,LUAD,LUSC,OV,SKCM,TGCT,UVM
chr11:10049999:->chr11:10038326:-	chr11	10050104	10049999	-	chr11	10038326	10038049	-	TSF	ENST00000256190	206	646	ACC,BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,UCEC
chr11:100912676:->chr11:100911331:-	chr11	100912833	100912676	-	chr11	100911331	100910821	-	TSF	ENST00000325455, ENST00000534013, ENST00000263463	882,288,780	647-649	BRCA
chr11:101937382:+>chr11:101937956:+	chr11	101937216	101937382	+	chr11	101937956	101938097	+	TSF	ENST00000434758, ENST00000526781, ENST00000529204	145,145,36	650-652	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,STAD,THCA,THYM,UCEC,UCS
chr11:102033302:+>chr11:102045049:+	chr11	102033187	102033302	+	chr11	102045049	102045326	+	TAF	ENST00000526343, ENST00000282441, ENST00000345877, ENST00000537274, ENST00000531439, ENST00000524575	229,229,229,229,229,51	653-658	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,READ,SARC,SKCM,STAD,THCA
chr11:105623946:+>chr11:105628730:+	chr11	105623707	105623946	+	chr11	105628730	105628963	+	TSF	ENST00000393125, ENST00000282499, ENST00000393127, ENST00000428631, ENST00000531011, ENST00000525187, ENST00000530497	162,162,162,162,162,162,2,162	659-665	LGG
chr11:110306682:+>chr11:110313385:+	chr11	110306558	110306682	+	chr11	110313385	110313534	+	TAF	ENST00000260270	103	666	ACC,PCPG
chr11:113857768:+>chr11:113858309:+	chr11	113857547	113857768	+	chr11	113858309	113858477	+	TSF	ENST00000504030, ENST00000355556, ENST00000375498, ENST00000506841, ENST00000535865, ENST00000299961	379,417,385,411,123,364	667-672	BLCA,DLBC,LUAD,OV,UCEC
chr11:11394062:->chr11:11386990:-	chr11	11394176	11394062	-	chr11	11386990	11386568	-	TAF	ENST00000227756	364	673	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PRAD,SKCM,STAD,THCA,THYM
chr11:116701612:+>chr11:116704332:+	chr11	116701489	116701612	+	chr11	116704332	116704408	+	TSF	ENST00000227667, ENST00000375345	59,77	674-675	LIHC

Table 9

chr11:117186251:->chr11:117167925:-	chr11	117186511	117186251	-	chr11	117167925	117167869	-	TSF	ENST00000313005, ENST00000528053, ENST00000428381, ENST00000445823, ENST00000513780	87,87,87,87, 87	676-680	BRCA,GBM,KIRC,LGG,LIHC,MESO,OV,PAAD,PRAD,SARC,SKCM,THYM,UCEC,UVM
chr11:117342584:->chr11:117342050:-	chr11	117342751	117342584	-	chr11	117342050	117341882	-	TSF	ENST00000527706, ENST00000321322	774,1044	681-682	LGG
chr11:117710496:->chr11:117703821:-	chr11	117710545	117710496	-	chr11	117703821	117703741	-	TSF	ENST00000532984, ENST00000584394, ENST00000529335	90,86,93	683-685	BLCA,BRCA,GBM,HNSC,LGG,LUSC,OV,PAAD,PCPG,SARC,TGCT,THYM,UCS
chr11:118213268:->chr11:118212457:-	chr11	118213322	118213268	-	chr11	118212457	118212389	-	TAF	ENST00000300692, ENST00000529594, ENST00000392884	18,18,18	686-688	CESC,DLBC,LIHC,LUAD,THYM
chr11:118882964:+>chr11:118884956:+	chr11	118882859	118882964	+	chr11	118884956	118885003	+	TSF	ENST00000334418	228	689	BRCA,KIRC,KIRP,LUAD,MESO,THCA,UCS
chr11:118888078:->chr11:118739656:-	chr11	118888255	118888078	-	chr11	118739656	118739455	-	TSF	ENST00000527673	92	690	OV,STAD
chr11:118888078:->chr11:118861152:-	chr11	118888255	118888078	-	chr11	118861152	118861045	-	TSF	ENST00000527673	92	691	BRCA,CESC,OV,PRAD,STAD,THCA
chr11:129980556:+>chr11:129987692:+	chr11	129980433	129980556	+	chr11	129987692	129987988	+	TAF	ENST00000533713, ENST00000528499, ENST00000263574, ENST00000345598, ENST00000338167, ENST00000278756, ENST00000543137	119,134,134,134,14,14,41	692-698	BLCA,BRCA,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,PRAD,THCA
chr11:13402801:+>chr11:13406027:+	chr11	13402708	13402801	+	chr11	13406027	13406509	+	TAF	ENST00000396441, ENST00000389707, ENST00000401424, ENST00000361003, ENST00000403290, ENST00000403510, ENST00000403482	538,538,496,421,539,495,537	699-705	CESC,HNSC,LGG,LIHC,LUAD,LUSC,TGCT,THCA,THYM
chr11:16769704:+>chr11:16771716:+	chr11	16769644	16769704	+	chr11	16771716	16772764	+	TSF	ENST00000228136, ENST00000524439, ENST00000422258, ENST00000528634	69,69,41,25	706-709	BLCA,BRCA,CHOL,HNSC,KIRC,LUSC,OV,PAAD,READ,STAD,UCEC
chr11:17428901:->chr11:17428722:-	chr11	17429000	17428901	-	chr11	17428722	17428716	-	TSF	ENST00000389817, ENST00000302539	973,974	710-711	BRCA,LGG,LUSC,PAAD
chr11:17428901:->chr11:17428756:-	chr11	17429000	17428901	-	chr11	17428756	17428716	-	TSF	ENST00000389817, ENST00000302539	973,974	712-713	BRCA,LGG,PAAD,PCPG
chr11:18536225:->chr11:18534149:-	chr11	18536388	18536225	-	chr11	18534149	18533862	-	TAF	ENST00000536719, ENST00000251968	119,119	714-715	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,STAD,TGCT,THCA,UCEC,UCS,UVM
chr11:20982106:+>chr11:21041136:+	chr11	20981978	20982106	+	chr11	21041136	21041271	+	TSF	ENST00000298925, ENST00000357134, ENST00000325319, ENST00000532434	461,433,433,376	716-719	BRCA,HNSC,KIRC,LIHC,LUAD,LUSC,SKCM,STAD,UCEC
chr11:27147367:+>chr11:27153068:+	chr11	27147201	27147367	+	chr11	27153068	27153143	+	TSF	ENST00000529202, ENST00000263182, ENST00000528583, ENST00000525090	334,334,334,334	720-723	KIRC,PRAD
chr11:2940637:+>chr11:2940947:+	chr11	2940537	2940637	+	chr11	2940947	2941017	+	TAF	ENST00000347936, ENST00000312221, ENST00000449793, ENST00000380574	288,288,288,190	724-727	BLCA,BRCA,CESC,CHOL,COAD,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,READ,STAD,THCA
chr11:2940637:+>chr11:2940968:+	chr11	2940537	2940637	+	chr11	2940968	2941017	+	TAF	ENST00000347936, ENST00000312221, ENST00000449793, ENST00000380574	288,288,288,190	728-731	BRCA,CESC,CHOL,COAD,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,READ,SARC,STAD,THCA
chr11:428088:->chr11:424187:-	chr11	428199	428088	-	chr11	424187	423924	-	TAF	ENST00000332826	444	732	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,STAD,TGCT,THYM,UCEC,UCS

Table 9

chr11:49175398:->chr11:49173831:-	chr11	49175479	49175398	-	chr11	49173831	49173562	-	TSF	ENST00000256999, ENST00000356696, ENST00000343844, ENST00000340334, ENST00000533034	656,656,348,641,641	733-737	PRAD
chr11:49186257:->chr11:49184464:-	chr11	49186324	49186257	-	chr11	49184464	49182294	-	TSF	ENST00000256999, ENST00000356696, ENST00000343844, ENST00000340334, ENST00000533034	480,480,172,465,465	738-742	PRAD
chr11:49229844:->chr11:49228426:-	chr11	49229961	49229844	-	chr11	49228426	49228367	-	TAF	ENST00000256999, ENST00000356696, ENST00000525826, ENST00000533510, ENST00000529648	39,39,39,39,39	743-747	ACC,BRCA,LGG,PAAD,PRAD,STAD,UCEC
chr11:49229844:->chr11:49228751:-	chr11	49229961	49229844	-	chr11	49228751	49228576	-	TSF	ENST00000256999, ENST00000356696, ENST00000525826, ENST00000533510, ENST00000529648	39,39,39,39,39	748-752	PRAD
chr11:57191455:->chr11:57191196:-	chr11	57191501	57191455	-	chr11	57191196	57190890	-	TAF	ENST00000395123, ENST00000395124, ENST00000352187, ENST00000529554, ENST00000533524, ENST00000530005, ENST00000529113, ENST00000525474, ENST00000529112, ENST00000528187	120,120,120,120,120,12 0,120,133,133,67	753-762	BRCA,CESC,LIHC,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,THCA,UVM
chr11:57256389:->chr11:57255085:-	chr11	57256462	57256389	-	chr11	57255085	57254993	-	TSF	ENST00000278426, ENST00000528450, ENST00000525764	469,469,172	763-765	KICH,LIHC,PRAD,TGCT
chr11:58480233:->chr11:58467960:-	chr11	58480323	58480233	-	chr11	58467960	58463759	-	TSF	ENST00000586098, ENST00000344743, ENST00000529732, ENST00000278400	30,105,105,105	766-769	KIRC,KIRP
chr11:58919390:+>chr11:58921988:+	chr11	58919223	58919390	+	chr11	58921988	58922183	+	TSF	ENST00000528737, ENST00000420244, ENST00000527629, ENST00000361723, ENST00000531408, ENST00000533703, ENST00000531147	83,83,83,83,83,83,83	770-776	BLCA,BRCA,CESC,COAD,GBM,LUSC,OV,PRAD,SARC,STAD,THCA,THYM,UCEC
chr11:59562955:+>chr11:59605243:+	chr11	59562845	59562955	+	chr11	59605243	59605700	+	TSF	ENST00000300150, ENST00000337979, ENST00000529177, ENST00000530221	231,262,262,49	777-780	KIRC,KIRP
chr11:60701216:+>chr11:60701443:+	chr11	60701014	60701216	+	chr11	60701443	60701575	+	TSF	ENST00000453848, ENST00000005286, ENST00000536409	519,520,111	781-783	BLCA,BRCA,CESC,CHOL,GBM,HNSC,LIHC,LUAD,LUSC,OV,PRAD,STAD,TGCT,UCEC
chr11:60975962:+>chr11:60977054:+	chr11	60975763	60975962	+	chr11	60977054	60977239	+	TSF	ENST00000325558, ENST00000543349, ENST00000543505	218,145,145	784-786	DLBC,STAD
chr11:60975962:+>chr11:60995883:+	chr11	60975763	60975962	+	chr11	60995883	60996068	+	TSF	ENST00000325558, ENST00000543349, ENST00000543505	218,145,145	787-789	DLBC,STAD
chr11:60977430:+>chr11:61016877:+	chr11	60977315	60977430	+	chr11	61016877	61016985	+	TSF	ENST00000325558, ENST00000543349, ENST00000543505, ENST00000543125	257,184,184,103	790-793	STAD
chr11:60994791:+>chr11:60995883:+	chr11	60994592	60994791	+	chr11	60995883	60996068	+	TSF	ENST00000378149, ENST00000422676	218,218	794-795	DLBC,STAD
chr11:60996259:+>chr11:61016877:+	chr11	60996144	60996259	+	chr11	61016877	61016985	+	TSF	ENST00000378149, ENST00000537932	103,257	796-797	STAD
chr11:61016007:+>chr11:61016873:+	chr11	61015892	61016007	+	chr11	61016873	61016985	+	TSF	ENST00000422676, ENST00000312403, ENST00000451616	257,257,103	798-800	OV,STAD,UCS
chr11:61016007:+>chr11:61016877:+	chr11	61015892	61016007	+	chr11	61016877	61016985	+	TSF	ENST00000422676, ENST00000312403, ENST00000451616	257,257,103	801-803	STAD

Table 9

chr11:61197654:+>chr11:61240217:+	chr11	61197619	61197654	+	chr11	61240217	61240660	+	TAF	ENST00000542794, ENST00000541135, ENST00000301761, ENST00000542074, ENST00000534878, ENST00000359614, ENST00000537782, ENST00000538594, ENST00000544801, ENST00000536250, ENST00000543265	12,12,12,12, 12,12,12,12, 12,12,12	804-814	ACC,BLCA,BRCA,GBM,LGG,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,THYM,UCEC,UCS
chr11:61290547:->chr11:61289967:-	chr11	61290746	61290547	-	chr11	61289967	61289967	-	TSF	ENST00000263846, ENST00000540677, ENST00000539008, ENST00000542836, ENST00000542670, ENST00000535826	369,444,652,413,577,488	815-820	BRCA,KICH,LGG,LIHC,PAAD,PCPG,PRAD
chr11:61505679:+>chr11:61506649:+	chr11	61505607	61505679	+	chr11	61506649	61506706	+	TSF	ENST00000257215	552	821	ACC,COAD,LGG,LUSC,STAD
chr11:62987404:->chr11:62986972:-	chr11	62987493	62987404	-	chr11	62986972	62986804	-	TSF	ENST00000528239	198	822	LIHC
chr11:63365533:->chr11:63360665:-	chr11	63365635	63365533	-	chr11	63360665	63360559	-	TSF	ENST00000323646, ENST00000415826	39,39	823-824	BLCA,BRCA,KIRC,KIRP,LUAD,LUSC,PRAD,STAD
chr11:64087232:+>chr11:64089165:+	chr11	64087206	64087232	+	chr11	64089165	64089204	+	TSF	ENST00000265462, ENST00000352435	66,66	825-826	OV,STAD
chr11:64088189:+>chr11:64089177:+	chr11	64088133	64088189	+	chr11	64089177	64089204	+	TSF	ENST00000265462	121	827	OV,STAD
chr11:64088540:+>chr11:64089177:+	chr11	64088479	64088540	+	chr11	64089177	64089204	+	TSF	ENST00000265462, ENST00000352435, ENST00000347941	179,135,90	828-830	OV,STAD
chr11:64593942:->chr11:64592957:-	chr11	64594027	64593942	-	chr11	64592957	64592752	-	TAF	ENST00000342711	1533	831	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LUAD,LUSC,OV,PAAD,PRAD,STAD,THCA,UCEC
chr11:64599900:->chr11:64599599:-	chr11	64599981	64599900	-	chr11	64599599	64599309	-	TSF	ENST00000342711	1029	832	BLCA,BRCA,CESC,CHOL,HNSC,LUSC,OV,STAD,THYM,UCEC
chr11:65223052:+>chr11:65223772:+	chr11	65222908	65223052	+	chr11	65223772	65224450	+	TSF	ENST00000309775	73	833	BLCA,BRCA,DLBC,GBM,KIRC,LIHC,LUAD,LUSC,OV,UCEC,UCS
chr11:65223052:+>chr11:65224109:+	chr11	65222908	65223052	+	chr11	65224109	65224450	+	TSF	ENST00000309775	73	834	BLCA,BRCA,CESC,DLBC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr11:66008937:+>chr11:66010931:+	chr11	66008899	66008937	+	chr11	66010931	66010981	+	TSF	ENST00000320580, ENST00000529757, ENST00000529677	823,359,6	835-837	OV
chr11:6624634:->chr11:6614053:-	chr11	6624732	6624634	-	chr11	6614053	6614046	-	TSF	ENST00000254605, ENST00000534343, ENST00000533907, ENST00000530762	33,33,33,33	838-841	BLCA,BRCA,COAD,DLBC,GBM,LIHC,LUSC,OV,PCPG,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr11:66949363:+>chr11:66953323:+	chr11	66949317	66949363	+	chr11	66953323	66953458	+	TSF	ENST00000398645, ENST00000529006	102,102	842-843	BRCA,HNSC,LIHC,LUSC,PRAD,STAD
chr11:67786362:+>chr11:67786535:+	chr11	67786242	67786362	+	chr11	67786535	67786588	+	TSF	ENST00000539229, ENST00000316367, ENST00000007633, ENST00000342456	130,130,130,94	844-847	LUAD,OV,STAD
chr11:71209574:+>chr11:71216557:+	chr11	71209399	71209574	+	chr11	71216557	71216960	+	TSF	ENST00000319023, ENST00000539574, ENST00000530055, ENST00000525593, ENST00000527963	690,430,319,94,42	848-852	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,LUSC,OV,STAD
chr11:72416850:->chr11:72415938:-	chr11	72416935	72416850	-	chr11	72415938	72415877	-	TSF	ENST00000359373, ENST00000455638, ENST00000393605, ENST00000334211, ENST00000393609, ENST00000426523, ENST00000429686	603,603,603,363,358,358	853-859	BRCA,KICH,KIRC,LUAD,SKCM,THCA
chr11:73075645:+>chr11:73076139:+	chr11	73075497	73075645	+	chr11	73076139	73076217	+	TSF	ENST00000263674	1850	860	BRCA,LUAD,OV,SARC

Table 9

chr11:73589864:+>chr11:73598076:+	chr11	73589824	73589864	+	chr11	73598076	73598225	+	TAF	ENST00000310571	29	861	GBM,LGG,SARC,STAD,UCS,UVM
chr11:73589864:+>chr11:73598085:+	chr11	73589824	73589864	+	chr11	73598085	73598225	+	TAF	ENST00000310571	29	862	BLCA,GBM,KIRC,KIRP,LGG,OV,SARC,STAD,THYM,UCS,UVM
chr11:74412637:->chr11:74412552:-	chr11	74412691	74412637	-	chr11	74412552	74412398	-	TAF	ENST00000263671	391	863	BLCA,BRCA,COAD,KIRC,LUAD,PAAD,READ,SARC,STAD,TGCT
chr11:74413839:->chr11:74412552:-	chr11	74414012	74413839	-	chr11	74412552	74412398	-	TAF	ENST00000263671,ENST00000376332,ENST00000528789	373,373,308	864-866	BLCA,BRCA,CESC,COAD,KIRC,KIRP,LUAD,PAAD,READ,SARC,STAD,UCS
chr11:75917369:->chr11:75917186:-	chr11	75917451	75917369	-	chr11	75917186	75917166	-	TSF	ENST00000322563	27	867	OV,STAD
chr11:76834775:+>chr11:76834999:+	chr11	76834734	76834775	+	chr11	76834999	76835082	+	TSF	ENST00000278559,ENST00000529629,ENST00000456580	594,594,634	868-870	OV,STAD
chr11:76944070:->chr11:76940716:-	chr11	76944217	76944070	-	chr11	76940716	76940641	-	TSF	ENST00000315938,ENST00000376217	463,463	871-872	TGCT
chr11:77784044:->chr11:77763913:-	chr11	77784188	77784044	-	chr11	77763913	77763811	-	TSF	ENST00000530054,ENST00000281031,ENST00000525085,ENST00000528164	103,103,103,80	873-876	BLCA,BRCA,CESC,COAD,GBM,KICH,LIHC,OV,PCPG,PRAD,SARC,SKCM,STAD,THCA,UCEC,UVM
chr11:810357:+>chr11:910147:+	chr11	810235	810357	+	chr11	910147	910157	+	TSF	ENST00000321153,ENST00000530797	41,41	877-878	BRCA,COAD,KIRC,KIRP,LUSC,THCA,THYM
chr11:82698629:->chr11:82695638:-	chr11	82698812	82698629	-	chr11	82695638	82695143	-	TSF	ENST00000525117,ENST00000532548,ENST00000524635,ENST00000533486,ENST00000260056,ENST00000533014,ENST00000527633,ENST00000531021,ENST00000534301	120,120,120,120,120,120,120,84,92,74	879-887	BRCA
chr11:86534635:+>chr11:86589356:+	chr11	86534430	86534635	+	chr11	86589356	86590488	+	TSF	ENST00000532234,ENST00000533902	68,68	888-889	BRCA,COAD,MESO,OV,SARC,STAD
chr11:88924586:+>chr11:88953763:+	chr11	88924370	88924586	+	chr11	88953763	88953776	+	TSF	ENST00000263321	345	890	SKCM,UVM
chr11:88961082:+>chr11:88974422:+	chr11	88960991	88961082	+	chr11	88974422	88974649	+	TSF	ENST00000263321	376	891	SKCM,UVM
chr11:88961138:+>chr11:88974422:+	chr11	88960991	88961138	+	chr11	88974422	88974649	+	TAF	ENST00000263321	394	892	KIRC,SARC,SKCM,UVM
chr11:89018122:+>chr11:89022608:+	chr11	89017941	89018122	+	chr11	89022608	89022727	+	TSF	ENST00000263321	455	893	SKCM,UVM
chr11:9047249:->chr11:9045506:-	chr11	9047401	9047249	-	chr11	9045506	9045449	-	TSF	ENST00000519202,ENST00000457346,ENST00000309263,ENST00000450649,ENST00000520467,ENST00000528651	951,922,730,894,109,105	894-899	BLCA,BRCA
chr11:9068903:->chr11:9062448:-	chr11	9069109	9068903	-	chr11	9062448	9062264	-	TSF	ENST00000457346,ENST00000309263,ENST00000450649,ENST00000520467	667,667,638,512	900-903	BLCA,BRCA
chr11:9068903:->chr11:9068729:-	chr11	9069109	9068903	-	chr11	9068729	9068631	-	TSF	ENST00000457346,ENST00000309263,ENST00000450649,ENST00000520467	667,667,638,512	904-907	BRCA

Table 9

chr12:102074307:+>chr12:102089430:+	chr12	102074121	102074307	+	chr12	102089430	102089665	+	TAF	ENST00000547405, ENST00000452455, ENST00000360610, ENST00000441232, ENST00000392934, ENST00000547509, ENST00000361685, ENST00000549145, ENST00000553190, ENST00000536007, ENST00000541119, ENST00000545503, ENST00000361466, ENST00000551300, ENST00000550270	1093,1137,1137,1137,1137,1106,1105,1144,1150,1119,1119,1100,1107,1020	908-922	BLCA,BRCA,CESC,GBM,LGG,LUAD,PAAD,PRAD,SARC,STAD,THYM
chr12:102547754:+>chr12:102548605:+	chr12	102547647	102547754	+	chr12	102548605	102548938	+	TSF	ENST00000327680, ENST00000378128, ENST00000541394, ENST00000358383, ENST00000392911, ENST00000412715, ENST00000417507, ENST00000457614	84,84,165,165,242,132,132,54	923-930	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,OV,READ,SARC,STAD,TGCT,UCEC
chr12:103237424:->chr12:103236886:-	chr12	103237557	103237424	-	chr12	103236886	103236826	-	TSF	ENST00000553106, ENST00000307000	399,394	931-932	LIHC
chr12:110494994:->chr12:110493610:-	chr12	110495101	110494994	-	chr12	110493610	110493335	-	TAF	ENST00000309050	99	933	GBM,KIRC,SARC,SKCM,UVM
chr12:110494994:->chr12:110493672:-	chr12	110495101	110494994	-	chr12	110493672	110493335	-	TSF	ENST00000309050	99	934	SKCM,UVM
chr12:110511227:->chr12:110496919:-	chr12	110511233	110511227	-	chr12	110496919	110496909	-	TSF	ENST00000548191	2	935	SKCM,UVM
chr12:110511227:->chr12:110496968:-	chr12	110511233	110511227	-	chr12	110496968	110496909	-	TAF	ENST00000548191	2	936	GBM,LGG,SARC,SKCM,THCA,UVM
chr12:111803368:->chr12:111803267:-	chr12	111803370	111803368	-	chr12	111803267	111803247	-	TSF	ENST00000361483	1	937	ACC,LUSC,SARC,STAD
chr12:113403834:+>chr12:113404028:+	chr12	113403549	113403834	+	chr12	113404028	113404051	+	TSF	ENST00000228928, ENST00000546973	896,68	938-939	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,MESO,OV,STAD,UCEC
chr12:113440907:+>chr12:113442280:+	chr12	113440737	113440907	+	chr12	113442280	113442294	+	TSF	ENST00000342315, ENST00000392583	393,393	940-941	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,MESO,OV,SKCM,STAD,TGCT
chr12:113623826:+>chr12:113623998:+	chr12	113623819	113623826	+	chr12	113623998	113624117	+	TSF	ENST00000552495	2	942	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,THYM,UCEC,UCS,UVM
chr12:117537030:->chr12:117513606:-	chr12	117537087	117537030	-	chr12	117513606	117513469	-	TSF	ENST00000470612, ENST00000335209, ENST00000541210, ENST00000462502, ENST00000392545	19,19,19,19,72	943-947	BRCA,CHOL,KIRC,LIHC,LUAD,LUSC,STAD,THCA
chr12:120966743:->chr12:120965181:-	chr12	120966944	120966743	-	chr12	120965181	120964888	-	TSF	ENST00000288532, ENST00000445328, ENST00000547943	67,67,67	948-950	BRCA,HNSC,KIRC,KIRP,LIHC,LUSC,OV,UCEC
chr12:121775094:->chr12:121766988:-	chr12	121775196	121775094	-	chr12	121766988	121766947	-	TAF	ENST00000539079, ENST00000441917, ENST00000541887, ENST00000261819, ENST00000344395, ENST00000536366, ENST00000544442	34,154,154,154,253,253,132	951-957	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr12:122284768:->chr12:122282078:-	chr12	122284839	122284768	-	chr12	122282078	122281958	-	TAF	ENST00000289004, ENST00000543163	277,238	958-959	LIHC
chr12:122284768:->chr12:122282086:-	chr12	122284839	122284768	-	chr12	122282086	122281958	-	TAF	ENST00000289004, ENST00000543163	277,238	960-961	LIHC

Table 9

chr12:122292609:->chr12:122289515:-	chr12	122292698	122292609	-	chr12	122289515	122289239	-	TSF	ENST00000289004, ENST00000543163	138,99	962-963	LIHC
chr12:124810737:->chr12:124767376:-	chr12	124810916	124810737	-	chr12	124767376	124767267	-	TAF	ENST00000405201, ENST00000404621, ENST00000356219, ENST00000397355, ENST00000404121, ENST00000429285, ENST00000418829, ENST00000443451, ENST00000413172	2454,2398,2461,2399,2015,2444,116,251,119	964-972	BLCA,CESC,KIRP,MESO,OV,SARC
chr12:15087790:->chr12:15086263:-	chr12	15087927	15087790	-	chr12	15086263	15086233	-	TSF	ENST00000266397	111	973	BLCA,BRCA,KICH,KIRC,KIRP,OV,PAAD
chr12:21377773:+>chr12:21420585:+	chr12	21377656	21377773	+	chr12	21420585	21420936	+	TSF	ENST00000256958	621	974	CHOL,LIHC,OV,THCA,UCS
chr12:21427403:->chr12:21387233:-	chr12	21427520	21427403	-	chr12	21387233	21386864	-	TSF	ENST00000307378, ENST00000452078, ENST00000458504, ENST00000537524	597,597,465,465	975-978	BRCA,KIRC,LIHC,LUSC,OV,PRAD
chr12:21445098:->chr12:21387233:-	chr12	21445270	21445098	-	chr12	21387233	21386864	-	TSF	ENST00000307378, ENST00000452078, ENST00000458504, ENST00000537524, ENST00000390670	536,536,404,404,534	979-983	BRCA,HNSC,KIRC,KIRP,LIHC,LUAD,OV,PRAD,STAD,TGCT,UCS
chr12:28605587:+>chr12:28624332:+	chr12	28605411	28605587	+	chr12	28624332	28624630	+	TSF	ENST00000536154, ENST00000539107, ENST00000545336, ENST00000381256, ENST00000381259, ENST00000306172, ENST00000535212, ENST00000542801	37,107,331,331,367,367,337,66	984-991	BRCA,CESC,COAD,GBM,HNSC,KIRC,LUAD,LUSC,SARC,TGCT
chr12:28637098:+>chr12:28732785:+	chr12	28636985	28637098	+	chr12	28732785	28732895	+	TSF	ENST00000539107, ENST00000545336, ENST00000381256, ENST00000381259, ENST00000306172, ENST00000535212, ENST00000542801	369,369,405,405,375,104,75	992-998	BRCA,CESC,HNSC,KIRC,LIHC,LUSC
chr12:32369393:+>chr12:32375738:+	chr12	32369181	32369393	+	chr12	32375738	32375900	+	TSF	ENST00000548411, ENST00000281474, ENST00000395758	142,142,142	999-1001	DLBC,OV,SARC,STAD,TGCT,UCEC
chr12:40940984:+>chr12:40941279:+	chr12	40940937	40940984	+	chr12	40941279	40941378	+	TSF	ENST00000380816	206	1002	BRCA,LUSC
chr12:46760647:->chr12:46760023:-	chr12	46760728	46760647	-	chr12	46760023	46759964	-	TSF	ENST00000256689	187	1003	BLCA,BRCA,CESC,HNSC,KIRP,LUSC,SARC
chr12:46760647:->chr12:46760066:-	chr12	46760728	46760647	-	chr12	46760066	46759964	-	TSF	ENST00000256689	187	1004	BLCA,CESC,HNSC,LIHC,LUSC,OV,SARC,THYM
chr12:4874712:+>chr12:4884414:+	chr12	4874545	4874712	+	chr12	4884414	4884790	+	TSF	ENST00000252318, ENST00000542998, ENST00000535354	587,103,82	1005-1007	COAD,PAAD,READ,STAD,TGCT
chr12:49317565:->chr12:49310033:-	chr12	49317635	49317565	-	chr12	49310033	49308894	-	TSF	ENST00000444214, ENST00000550765, ENST00000552878, ENST00000453172	27,129,129,129	1008-1011	BLCA,CESC,COAD,KIRC,LIHC,LUAD,MESO,OV,PRAD,SARC,SKCM,STAD,UCS,UVM
chr12:52639416:+>chr12:52659397:+	chr12	52639196	52639416	+	chr12	52659397	52659518	+	TSF	ENST00000331817	401	1012	BLCA,BRCA,CESC,LUAD,LUSC,OV,THCA
chr12:52882112:->chr12:52462184:-	chr12	52882332	52882112	-	chr12	52462184	52462137	-	TSF	ENST00000330722	474	1013	CESC,HNSC,LUSC
chr12:52908899:->chr12:52908920:+	chr12	52909024	52908899	-	chr12	52908920	52908992	+	TSF	ENST00000252242	533	1014	STAD
chr12:52908918:->chr12:52908901:+	chr12	52909024	52908918	-	chr12	52908901	52908992	+	TSF	ENST00000252242	527	1015	STAD
chr12:52912801:->chr12:52901143:-	chr12	52912945	52912801	-	chr12	52901143	52899664	-	TSF	ENST00000252242, ENST00000551188, ENST00000549420	233,33,123	1016-1018	STAD
chr12:53691708:+>chr12:53716024:+	chr12	53691634	53691708	+	chr12	53716024	53716124	+	TSF	ENST00000551018, ENST00000351500, ENST00000334478, ENST00000549759	94,94,49,91	1019-1022	OV,STAD

Table 9

chr12:53862616:+>chr12:53865082:+	chr12	53862562	53862616	+	chr12	53865082	53865327	+	TSF	ENST00000359282, ENST00000437231, ENST00000447282, ENST00000603815, ENST00000549863, ENST00000359462, ENST00000546463, ENST00000552296, ENST00000552819, ENST00000455667, ENST00000439930, ENST00000548933, ENST00000562264, ENST00000553064, ENST00000547859	263,250,250,267,267,297,297,253,298,294,293,254,232,138,115	1023-1037	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,LUAD,LUSC,OV,READ,SARC,TGCT,THCA,UCS,UVM
chr12:56120484:->chr12:56120394:-	chr12	56120579	56120484	-	chr12	56120394	56120116	-	TAF	ENST00000548898, ENST00000552067, ENST00000420846, ENST00000548160, ENST00000546939, ENST00000552692, ENST00000549117, ENST00000257857, ENST00000552754, ENST00000550776, ENST00000552164, ENST00000551173	49,49,49,142,142,142,142,142,142,60,60,119	1038-1049	BLCA,KICH,KIRP,LUAD,PRAD,SARC,SKCM,THCA
chr12:56503719:+>chr12:56503862:+	chr12	56503641	56503719	+	chr12	56503862	56504158	+	TSF	ENST00000303305, ENST00000552766	209,209	1050-1051	OV,STAD
chr12:56742313:->chr12:56740986:-	chr12	56742407	56742313	-	chr12	56740986	56740975	-	TSF	ENST00000314128, ENST00000557235	574,57	1052-1053	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THYM
chr12:56744613:->chr12:56736879:-	chr12	56744672	56744613	-	chr12	56736879	56736779	-	TSF	ENST00000314128, ENST00000557235, ENST00000418572	364,360,360	1054-1056	OV,STAD
chr12:56744882:->chr12:56736937:-	chr12	56744974	56744882	-	chr12	56736937	56736779	-	TSF	ENST00000314128, ENST00000557235, ENST00000418572	344,340,340	1057-1059	OV
chr12:57059988:->chr12:57059571:-	chr12	57060050	57059988	-	chr12	57059571	57059432	-	TAF	ENST00000262033, ENST00000414274, ENST00000436399, ENST00000456859	146,116,113,110	1060-1063	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr12:58023935:->chr12:58023079:-	chr12	58024115	58023935	-	chr12	58023079	58022983	-	TSF	ENST00000341156, ENST00000418555, ENST00000552798, ENST00000549391, ENST00000449184, ENST00000550764, ENST00000552350, ENST00000548888	237,237,237,237,237,182,223,110	1064-1071	BRCA,GBM,HNSC,KIRC,KIRP,LGG,LUSC,SARC
chr12:58023935:->chr12:58023225:-	chr12	58024115	58023935	-	chr12	58023225	58023117	-	TSF	ENST00000341156, ENST00000418555, ENST00000552798, ENST00000549391, ENST00000449184, ENST00000550764, ENST00000552350, ENST00000548888	110,237,237,237,237,237,182,223	1072-1079	BRCA,GBM,KIRC,LGG,SARC
chr12:63060958:->chr12:63057027:-	chr12	63061109	63060958	-	chr12	63057027	63056997	-	TSF	ENST00000228705	465	1080	PRAD,STAD,TGCT,THYM,UCEC
chr12:6463604:->chr12:6463053:-	chr12	6463721	6463604	-	chr12	6463053	6462746	-	TAF	ENST00000360168, ENST00000358945, ENST00000540037, ENST00000228916, ENST00000396966, ENST00000543768	512,453,453,453,153,476	1081-1086	BLCA,BRCA,DLBC,KICH,KIRC,LUAD,LUSC,OV,PAAD,STAD

Table 9

chr12:64833095:+>chr12:64833417:+	chr12	64833024	64833095	+	chr12	64833417	64833459	+	TAF	ENST00000332707	935	1087	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr12:6943213:+>chr12:6943989:+	chr12	6943089	6943213	+	chr12	6943989	6944119	+	TAF	ENST00000251761, ENST00000396725, ENST00000606935	301,485,485	1088-1090	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr12:69656342:+>chr12:69673004:+	chr12	69656249	69656342	+	chr12	69673004	69673309	+	TSF	ENST00000551516	55	1091	BLCA,BRCA,GBM,HNSC,KIRP,LUAD,OV,SARC,TGCT,UCEC
chr12:69764755:+>chr12:69791470:+	chr12	69764668	69764755	+	chr12	69791470	69791492	+	TSF	ENST00000247843, ENST00000548020, ENST00000549685	171,117,113	1092-1094	BLCA,GBM,LIHC,LUAD,OV,SARC,STAD,TGCT
chr12:71509630:->chr12:71504233:-	chr12	71509738	71509630	-	chr12	71504233	71503634	-	TAF	ENST00000549357	74	1095	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,STAD,TGCT,THYM,UCEC,UCS
chr12:71509630:->chr12:71507025:-	chr12	71509738	71509630	-	chr12	71507025	71506982	-	TSF	ENST00000549357	74	1096	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,STAD,TGCT,THYM
chr12:71509686:->chr12:71504233:-	chr12	71509738	71509686	-	chr12	71504233	71503634	-	TSF	ENST00000549357	55	1097	BLCA,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,OV,READ,THYM,UCEC
chr12:71928966:+>chr12:71938771:+	chr12	71928895	71928966	+	chr12	71938771	71938901	+	TSF	ENST00000266674, ENST00000536515, ENST00000540815	142,142,142	1098-1100	ACC,BRCA,CESC,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,STAD,TGCT,UCEC,UCS
chr12:86272347:+>chr12:86274455:+	chr12	86272123	86272347	+	chr12	86274455	86274746	+	TSF	ENST00000256010	120	1101	BRCA,HNSC,LIHC,LUSC,OV,STAD,UCEC
chr12:8807033:->chr12:8793960:-	chr12	8807077	8807033	-	chr12	8793960	8793803	-	TSF	ENST00000535411, ENST00000359478, ENST00000396549, ENST00000543369, ENST00000544211, ENST00000535336, ENST00000540087, ENST00000537009, ENST00000544889	62,72,72,72, 72,72,72,72, 60	1102-1110	MESO,SARC
chr12:8808011:->chr12:8793960:-	chr12	8808043	8808011	-	chr12	8793960	8793803	-	TSF	ENST00000535411, ENST00000359478, ENST00000433590, ENST00000396549, ENST00000543369, ENST00000544211, ENST00000535336, ENST00000540087, ENST00000537009, ENST00000544889	47,57,57,57, 57,57,57,57, 57,45	1111-1120	OV,SARC
chr12:93873248:+>chr12:93876129:+	chr12	93873164	93873248	+	chr12	93876129	93876286	+	TSF	ENST00000549982, ENST00000361630, ENST00000552217, ENST00000393128, ENST00000547098, ENST00000549561, ENST00000548545	73,73,73,73, 73,73,73	1121-1127	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,PRAD,STAD,TGCT,UCEC
chr12:9875240:->chr12:9855036:-	chr12	9875258	9875240	-	chr12	9855036	9854406	-	TAF	ENST00000540988, ENST00000542530, ENST00000327839	6,113,162	1128-1130	BLCA,CHOL,DLBC,PRAD,SARC,STAD

Table 9

chr13:111138183:+>chr13:111139687:+	chr13	111138002	111138183	+	chr13	111139687	111139825	+	TSF	ENST00000360467	1069	1131	ACC,BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,LIHC,LUAD,LUSC,MESO,OV,PCPG,SARC,THCA,UCEC,UCS
chr13:111315798:->chr13:111312615:-	chr13	111315865	111315798	-	chr13	111312615	111311877	-	TSF	ENST00000257347, ENST00000487253, ENST00000537743	22,84,329	1132-1134	BLCA,BRCA,COAD,LUAD,LUSC,OV,PRAD,READ,STAD,UCEC,UCS
chr13:113849385:->chr13:113848640:-	chr13	113849439	113849385	-	chr13	113848640	113848038	-	TAF	ENST00000337344, ENST00000375477, ENST00000375479, ENST00000375459, ENST00000246505, ENST00000375457	121,121,121,119,119,175	1135-1140	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr13:114157903:+>chr13:114159741:+	chr13	114157811	114157903	+	chr13	114159741	114159770	+	TSF	ENST00000434316, ENST00000375391	346,346	1141-1142	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,MESO,OV,SARC,STAD,TGCT,UCEC
chr13:115030715:+>chr13:115035038:+	chr13	115030625	115030715	+	chr13	115035038	115035171	+	TAF	ENST00000360383, ENST00000375312, ENST00000356221, ENST00000375310, ENST00000252457, ENST00000375308, ENST00000252458	534,534,389,389,440,440,533	1143-1149	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr13:115057267:+>chr13:115063902:+	chr13	115057109	115057267	+	chr13	115063902	115064025	+	TSF	ENST00000375299, ENST00000351487	282,249	1150-1151	BLCA,BRCA,LGG,OV,STAD
chr13:31531166:+>chr13:31534099:+	chr13	31531010	31531166	+	chr13	31534099	31534280	+	TSF	ENST00000380473	156	1152	GBM,LGG
chr13:42457523:->chr13:42456370:-	chr13	42457627	42457523	-	chr13	42456370	42455523	-	TSF	ENST00000379310, ENST00000281496	360,36	1153-1154	BLCA,HNSC,LUSC,TGCT
chr13:43566114:->chr13:43550258:-	chr13	43566301	43566114	-	chr13	43550258	43550168	-	TSF	ENST00000313640, ENST00000313624, ENST00000398762, ENST00000538562	62,62,62,62	1155-1158	BRCA,COAD,HNSC,OV,STAD
chr13:43659974:+>chr13:43670953:+	chr13	43659904	43659974	+	chr13	43670953	43671210	+	TAF	ENST00000379221	127	1159	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr13:44432917:->chr13:44413224:-	chr13	44433033	44432917	-	chr13	44413224	44412729	-	TAF	ENST00000444614, ENST00000281508	224,224	1160-1161	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC
chr13:48651289:->chr13:48616414:-	chr13	48651447	48651289	-	chr13	48616414	48616057	-	TSF	ENST00000258648, ENST00000378586	266,22	1162-1163	CESC,CHOL,LIHC,PRAD,SKCM,UVM
chr13:52351196:->chr13:52350661:-	chr13	52351257	52351196	-	chr13	52350661	52350338	-	TAF	ENST00000444610, ENST00000218981, ENST00000280056	170,121,121	1164-1166	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,SARC,TGCT,THCA,THYM,UVM
chr13:52586598:+>chr13:52589919:+	chr13	52586555	52586598	+	chr13	52589919	52589956	+	TSF	ENST00000523764, ENST00000521508	14,14	1167-1168	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,UCS

Table 9

chr13:53307354:->chr13:53304269:-	chr13	53307495	53307354	-	chr13	53304269	53303967	-	TSF	ENST00000448904, ENST00000377962, ENST00000431550, ENST00000431550, ENST00000448904, ENST00000377962	118,118,40	1169-1171	BRCA,GBM,HNSC, KIRC,LUAD,LUSC,OV,PRAD,TGCT,THCA
chr13:95095690:->chr13:95063527:-	chr13	95095891	95095690	-	chr13	95063527	95063301	-	TSF	ENST00000377028, ENST00000446125	460,493	1172-1173	SKCM
chr13:95686859:->chr13:95659875:-	chr13	95686993	95686859	-	chr13	95659875	95659840	-	TSF	ENST00000412704, ENST00000376887	1243,129	1174-1175	PRAD
chr13:95686859:->chr13:95659886:-	chr13	95686993	95686859	-	chr13	95659886	95659840	-	TSF	ENST00000412704, ENST00000376887	1243,129	1176-1177	BRCA,PRAD
chr13:95768176:->chr13:95757357:-	chr13	95768255	95768176	-	chr13	95757357	95757136	-	TAF	ENST00000412704, ENST00000376887, ENST00000536256, ENST00000431522	798,845,845,770	1178-1181	BRCA,KIRC,KIRP,LUAD,LUSC,OV,PRAD,STAD
chr13:96505797:->chr13:96498149:-	chr13	96505911	96505797	-	chr13	96498149	96497437	-	TAF	ENST00000376747	1428	1182	ACC,BLCA,BRCA,CESC,COAD,KIRC,KIRP,LUAD,OV,PAAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr13:98642791:+>chr13:98643835:+	chr13	98642688	98642791	+	chr13	98643835	98643958	+	TSF	ENST00000261574, ENST00000357602, ENST00000490680, ENST00000469360, ENST00000539640, ENST00000261574, ENST00000357602, ENST00000490680, ENST00000539640, ENST00000469360	241,223,223,98,224	1183-1187	BLCA,BRCA,CESC,COAD,GBM,KIRC,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS
chr14:101200513:+>chr14:101473144:+	chr14	101200486	101200513	+	chr14	101473144	101473392	+	TAF	ENST00000341267, ENST00000331224	144,144	1188-1189	ACC,BLCA,BRCA,CHOL,LIHC,LUSC,OV,PAAD,PCPG,SARC,UCS
chr14:104040507:+>chr14:104051201:+	chr14	104040444	104040507	+	chr14	104051201	104051490	+	TAF	ENST00000409074, ENST00000472726, ENST00000556253, ENST00000247618, ENST00000495778	141,141,128,128,103	1190-1194	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SARC,TGCT,THCA,THYM,UCEC,UCS
chr14:106092109:->chr14:105470421:-	chr14	106092403	106092109	-	chr14	105470421	105470286	-	TSF	ENST00000390543	98	1195	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,READ
chr14:106207810:->chr14:106097973:-	chr14	106208132	106207810	-	chr14	106097973	106097783	-	TSF	ENST00000390549, ENST00000390542	331,296	1196-1197	LUAD,STAD,THCA
chr14:106207921:->chr14:106043673:-	chr14	106208132	106207921	-	chr14	106043673	106043390	-	TSF	ENST00000390548, ENST00000390549, ENST00000390542	294,294,259	1198-1200	OV,STAD
chr14:106208462:->chr14:106194471:-	chr14	106208559	106208462	-	chr14	106194471	106194382	-	TSF	ENST00000390548, ENST00000390549, ENST00000390542	146,146,146	1201-1203	OV,STAD
chr14:106235574:->chr14:106216701:-	chr14	106235896	106235574	-	chr14	106216701	106216511	-	TSF	ENST00000390551	377	1204	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,STAD,THCA
chr14:107083240:->chr14:107082668:-	chr14	107083557	107083240	-	chr14	107082668	107082471	-	TSF	ENST00000455737	121	1205	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,SARC,STAD,THCA,THYM
chr14:24615417:->chr14:24615120:-	chr14	24615449	24615417	-	chr14	24615120	24615007	-	TSF	ENST00000216802, ENST00000558273, ENST00000560370	27,27,27	1206-1208	BLCA,BRCA,KIRP,LGG,LUAD,OV,PRAD,STAD,TGCT,UCEC,UCS,UVM
chr14:24768163:->chr14:24767944:-	chr14	24768312	24768163	-	chr14	24767944	24767783	-	TSF	ENST00000288111, ENST00000396813, ENST00000558340	50,50,50	1209-1211	BLCA,CESC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,THCA

Table 9

chr14:24846084:+>chr14:24854777:+	chr14	24845500	24846084	+	chr14	24854777	24855120	+	TSF	ENST00000555590, ENST00000556279, ENST00000250373, ENST00000553879, ENST00000554344, ENST00000555453, ENST00000556759, ENST00000413692, ENST00000424781, ENST00000539237, ENST00000553708, ENST00000422617, ENST00000557451, ENST00000555167, ENST00000555802, ENST00000555393, ENST00000413692, ENST00000555590, ENST00000424781, ENST00000539237, ENST00000556279, ENST00000250373, ENST00000553708, ENST00000553879, ENST00000554344, ENST00000422617, ENST00000557451,	943,893,893,912,912,880,880,810,810,868,868,415,415,168,168	1212-1227	BRCA,HNSC,LUSC,PAAD,PCPG
chr14:24868650:+>chr14:24874817:+	chr14	24868453	24868650	+	chr14	24874817	24875031	+	TAF	ENST00000382554	66	1228	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr14:31922481:->chr14:31907346:-	chr14	31922550	31922481	-	chr14	31907346	31905965	-	TSF	ENST00000549185, ENST00000547378, ENST00000310850, ENST00000356180	60,60,60,60	1229-1232	BRCA,GBM,KIRP,LGG,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr14:32020133:+>chr14:32027031:+	chr14	32020101	32020133	+	chr14	32027031	32027274	+	TSF	ENST00000550005	11	1233	DLBC,LIHC,SARC
chr14:45590090:->chr14:45588212:-	chr14	45590157	45590090	-	chr14	45588212	45588057	-	TAF	ENST00000396062, ENST00000216330	174,174	1234-1235	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PCPG,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr14:51355621:+>chr14:51359931:+	chr14	51355542	51355621	+	chr14	51359931	51360328	+	TAF	ENST00000337334, ENST00000353130, ENST00000395752	260,183,153	1236-1238	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr14:51446105:->chr14:51433184:-	chr14	51446267	51446105	-	chr14	51433184	51433141	-	TSF	ENST00000298355, ENST00000338969	690,771	1239-1240	GBM,LGG
chr14:54903087:->chr14:54854962:-	chr14	54903155	54903087	-	chr14	54854962	54854914	-	TSF	ENST00000395573, ENST00000216416, ENST00000557659, ENST00000557690, ENST00000556113	50,50,50,50,50	1241-1245	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LUSC,OV,PCPG,READ,SARC,STAD,THCA
chr14:55615113:->chr14:55613267:-	chr14	55615191	55615113	-	chr14	55613267	55613026	-	TSF	ENST00000247191	832	1246	BRCA,LUSC,TGCT,THYM,UCEC,UCS
chr14:66096324:+>chr14:66099743:+	chr14	66096211	66096324	+	chr14	66099743	66101298	+	TSF	ENST00000360689, ENST00000394586, ENST00000342677, ENST00000557164, ENST00000394585, ENST00000358307, ENST00000360689, ENST00000394586, ENST00000342677, ENST00000394585, ENST00000358307, ENST00000557164	199,199,199,199,36,70	1247-1252	BLCA,BRCA,COAD,DLBC,LUAD,LUSC,OV,PAAD,READ,STAD,TGCT

Table 9

chr14:67878735:->chr14:67864772:-	chr14	67878776	67878735	-	chr14	67864772	67864768	-	TSF	ENST00000216446, ENST00000553387	14,14	1253-1254	BLCA,BRCA,CESC,COAD,HNSC,KICH,LUAD,LUSC,STAD
chr14:73733539:+>chr14:73734835:+	chr14	73733431	73733539	+	chr14	73734835	73734859	+	TSF	ENST00000427855, ENST00000340738, ENST00000554301, ENST00000555445	1166,1166,1139,1150	1255-1258	KIRC,KIRP,LGG,SARC,THYM
chr14:75904716:+>chr14:75936196:+	chr14	75904625	75904716	+	chr14	75936196	75936249	+	TSF	ENST00000419727, ENST00000559060, ENST00000437176, ENST00000435893, ENST00000267569	31,31,31,31,42	1259-1263	OV
chr14:75904785:+>chr14:75936196:+	chr14	75904625	75904785	+	chr14	75936196	75936249	+	TSF	ENST00000419727, ENST00000559060, ENST00000437176, ENST00000435893, ENST00000267569	54,54,54,54,65	1264-1268	OV
chr14:75991531:+>chr14:76001192:+	chr14	75991427	75991531	+	chr14	76001192	76001455	+	TAF	ENST00000286639	56	1269	BLCA,BRCA,CESC,DLBC,HNSC,LIHC,LUAD,MESO,PAAD,STAD
chr14:76662315:+>chr14:76666223:+	chr14	76662221	76662315	+	chr14	76666223	76666696	+	TSF	ENST00000312858, ENST00000261530, ENST00000554799, ENST00000553588	424,429,50,50	1270-1273	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LUAD,LUSC,SARC,STAD,TGCT,THCA,UCEC,UCS
chr14:77605556:->chr14:77602889:-	chr14	77606081	77605556	-	chr14	77602889	77602820	-	TAF	ENST00000319374	175	1274	BRCA,LGG,PCPG
chr14:92251506:->chr14:92250314:-	chr14	92251705	92251506	-	chr14	92250314	92250292	-	TSF	ENST00000435962, ENST00000340892, ENST00000360594, ENST00000556018, ENST00000556590	454,454,454,390,206	1275-1279	BLCA,BRCA,CESC,COAD,LUAD,STAD,UCEC
chr14:93397666:+>chr14:93414485:+	chr14	93397595	93397666	+	chr14	93414485	93414702	+	TSF	ENST00000216492	142	1280	PCPG
chr14:93799166:->chr14:93791211:-	chr14	93799274	93799166	-	chr14	93791211	93791104	-	TAF	ENST00000554565	36	1281	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PRAD,SKCM,STAD,UCEC,UCS
chr14:93813740:+>chr14:93864129:+	chr14	93813615	93813740	+	chr14	93864129	93864243	+	TSF	ENST00000342144	42	1282	LUSC,OV,STAD,TGCT
chr14:94594183:->chr14:94591218:-	chr14	94594329	94594183	-	chr14	94591218	94590919	-	TSF	ENST00000238609, ENST00000556727	115,9	1283-1284	CESC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,PCPG,SKCM,UVM
chr14:96703518:+>chr14:96712418:+	chr14	96703445	96703518	+	chr14	96712418	96712440	+	TAF	ENST00000554311, ENST00000306005, ENST00000553811	24,24,24	1285-1287	BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,SARC
chr15:101845467:->chr15:101841074:-	chr15	101845560	101845467	-	chr15	101841074	101840901	-	TAF	ENST00000398185, ENST00000348070, ENST00000358417	796,967,954	1288-1290	ACC,BRCA,CHOL,KIRC,LGG,LIHC,SARC,THYM,UCEC
chr15:101858524:->chr15:101841074:-	chr15	101858627	101858524	-	chr15	101841074	101840901	-	TSF	ENST00000398185, ENST00000348070, ENST00000358417	684,855,842	1291-1293	LIHC
chr15:23811234:+>chr15:23872913:+	chr15	23810930	23811234	+	chr15	23872913	23873108	+	TSF	ENST00000314520, ENST00000568252, ENST00000564592	101,101,101	1294-1296	ACC,GBM,LGG,OV
chr15:28090105:->chr15:27964474:-	chr15	28090198	28090105	-	chr15	27964474	27964338	-	TSF	ENST00000353809, ENST00000354638	786,81	1297-1298	CHOL,KIRC,LIHC,LUSC,SARC,SKCM,UCEC,UCS,UVM
chr15:32976870:+>chr15:32977335:+	chr15	32976758	32976870	+	chr15	32977335	32977906	+	TSF	ENST00000300175, ENST00000413748, ENST00000494364, ENST00000497208, ENST00000471027	163,163,162,162,153	1299-1303	BLCA,GBM,KIRP,LGG,LIHC,LUAD,MESO,PAAD,PCPG,SARC,THCA
chr15:32976870:+>chr15:32977789:+	chr15	32976758	32976870	+	chr15	32977789	32977906	+	TAF	ENST00000300175, ENST00000413748, ENST00000494364, ENST00000497208, ENST00000471027	163,163,162,162,153	1304-1308	ACC,BLCA,BRCA,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,THCA,UCEC,UCS
chr15:33149216:->chr15:33129775:-	chr15	33149308	33149216	-	chr15	33129775	33129703	-	TSF	ENST00000334528, ENST00000561249, ENST00000559047, ENST00000559610	1086,1211,1309,58	1309-1312	SARC,SKCM

Table 9

chr15:34826255:->chr15:34679464:-	chr15	34826374	34826255	-	chr15	34679464	34679458	-	TAF	ENST00000342314, ENST00000267731	56,56	1313-1314	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UVM
chr15:40849415:->chr15:40813374:-	chr15	40849571	40849415	-	chr15	40813374	40812967	-	TSF	ENST00000560305, ENST00000559153, ENST00000561011, ENST00000559291, ENST00000559911, ENST00000558113, ENST00000358005, ENST00000416810, ENST00000558750, ENST00000558918, ENST00000559103, ENST00000558871	133,133,133,133,133,13,3,133,133,1,33,133,142,34	1315-1326	BRCA,DLBC,GBM,HNSC,LUSC,OV,SARC,STAD
chr15:43705317:->chr15:43702724:-	chr15	43705532,43705526,43705484	43705317	-	chr15	43702724	43702621	-	TSF	ENST00000263801, ENST00000382039, ENST00000382044, ENST00000450115, ENST00000434595	1763,1718,1768,1766,56	1327-1331	BLCA,BRCA,CESC,CHOL,LGG,LUAD,PAAD,PCPG,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr15:45464081:->chr15:45462680:-	chr15	45464200	45464081	-	chr15	45462680	45462661	-	TSF	ENST00000290894, ENST00000318390, ENST00000458022, ENST00000558294, ENST00000559566	361,371,177,101,198	1332-1336	LGG,PCPG,PRAD,THCA
chr15:55516087:->chr15:55512776:-	chr15	55516210	55516087	-	chr15	55512776	55512769	-	TSF	ENST00000396307, ENST00000336787, ENST00000564609, ENST00000569493, ENST00000566877	155,155,155,155,155	1337-1341	PRAD,STAD
chr15:58724319:+>chr15:58748060:+	chr15	58724232	58724319	+	chr15	58748060	58748095	+	TSF	ENST00000356113, ENST00000414170, ENST00000299022, ENST00000433326	29,29,29,29	1342-1345	KIRC,KIRP,LIHC
chr15:58724319:+>chr15:58787321:+	chr15	58724232	58724319	+	chr15	58787321	58787441	+	TAF	ENST00000356113, ENST00000414170, ENST00000299022, ENST00000433326	29,29,29,29	1346-1349	BLCA,CHOL,COAD,KIRC,KIRP,LIHC,LUAD,MESO,PRAD,STAD,UCS
chr15:58957296:->chr15:58947615:-	chr15	58957396	58957296	-	chr15	58947615	58947395	-	TAF	ENST00000260408	195	1350	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr15:64217015:->chr15:64216283:-	chr15	64217060	64217015	-	chr15	64216283	64216265	-	TSF	ENST00000261891, ENST00000457488, ENST00000558069	286,286,286	1351-1353	THCA
chr15:64427006:+>chr15:64427210:+	chr15	64426863	64427006	+	chr15	64427210	64427230	+	TSF	ENST00000560829, ENST00000261889, ENST00000559844, ENST00000561026	237,455,455,390	1354-1357	LUAD,STAD,THCA
chr15:64444941:+>chr15:64445091:+	chr15	64444837	64444941	+	chr15	64445091	64445138	+	TAF	ENST00000325881, ENST00000558466	88,88	1358-1359	BLCA,BRCA,DLBC,LGG,LIHC,LUAD,PRAD,SARC,SKCM,THCA
chr15:64444941:+>chr15:64445122:+	chr15	64444837	64444941	+	chr15	64445122	64445138	+	TSF	ENST00000325881, ENST00000558466	88,88	1360-1361	BRCA,DLBC,KIRP,LGG,PRAD,THCA,THYM
chr15:65114465:->chr15:65114331:-	chr15	65114590	65114465	-	chr15	65114331	65114239	-	TSF	ENST00000268043, ENST00000333425, ENST00000559239	272,272,272	1362-1364	DLBC,SARC,TGCT
chr15:65687432:->chr15:65687004:-	chr15	65687596	65687432	-	chr15	65687004	65686908	-	TSF	ENST00000352385	525	1365	ACC,GBM,KICH,KIRC,KIRP,LGG,OV,SARC,SKCM,STAD,TGCT,THCA,UCS
chr15:66996413:+>chr15:67000837:+	chr15	66995597	66996413	+	chr15	67000837	67001281	+	TAF	ENST00000288840, ENST00000457357, ENST00000557916	272,272,272	1366-1368	BLCA,CESC,CHOL,LIHC,MESO,OV,PRAD,STAD,TGCT,UCEC,UCS
chr15:69347840:+>chr15:69354923:+	chr15	69347674	69347840	+	chr15	69354923	69354995	+	TSF	ENST00000448182, ENST00000260364, ENST00000455873, ENST00000388866, ENST00000530406	676,704,687,722,694	1369-1373	BRCA,CHOL,LUAD,UVM

Table 9

chr15:71144566:->chr15:71144059:-	chr15	71144671	71144566	-	chr15	71144059	71143957	-	TAF	ENST00000559140	75	1374	BLCA,BRCA,GBM,HNSC,KICH,KIRP,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC
chr15:74220226:+>chr15:74234853:+	chr15	74219125	74220226	+	chr15	74234853	74234966	+	TSF	ENST00000566011, ENST00000261921	367,367	1375-1376	BLCA,BRCA,CESC,HNSC,LIHC,LUSC,MESO,OV,SARC,STAD,TGCT,UCS
chr15:74234399:+>chr15:74234853:+	chr15	74234216	74234399	+	chr15	74234853	74234966	+	TSF	ENST00000566011	428	1377	BLCA,GBM,KIRC,LUSC,OV,SARC,TGCT
chr15:74476197:->chr15:74475723:-	chr15	74476330	74476197	-	chr15	74475723	74475630	-	TSF	ENST00000395105, ENST00000423167, ENST00000323940, ENST00000449139, ENST00000416286, ENST00000535552, ENST00000563965, ENST00000574278, ENST00000569936	433,433,433,424,425,470,472,448,476	1378-1386	ACC,LUAD,PCPG,TGCT,UCEC
chr15:74630912:->chr15:74624041:-	chr15	74631109	74630912	-	chr15	74624041	74623995	-	TSF	ENST00000358632, ENST00000268053, ENST00000419019	320,320,478	1387-1389	ACC
chr15:75105370:+>chr15:75108232:+	chr15	75105196	75105370	+	chr15	75108232	75108281	+	TSF	ENST00000309664, ENST00000379709	58,58	1390-1391	PRAD
chr15:77057302:->chr15:77051709:-	chr15	77057413	77057302	-	chr15	77051709	77051558	-	TSF	ENST00000538941, ENST00000563290, ENST00000324767, ENST00000564590, ENST00000565970	329,575,575,581,581	1392-1396	BLCA,HNSC,TGCT
chr15:79054745:->chr15:79054428:-	chr15	79054907	79054745	-	chr15	79054428	79054400	-	TAF	ENST00000388820	1634	1397	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LUAD,MESO,OV,PAAD,PCPG,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr15:80884045:+>chr15:80885236:+	chr15	80883909	80884045	+	chr15	80885236	80885386	+	TSF	ENST00000303329, ENST00000533983, ENST00000527771	685,674,674	1398-1400	BRCA,HNSC,LGG
chr15:81436161:+>chr15:81439636:+	chr15	81436003	81436161	+	chr15	81439636	81439809	+	TSF	ENST00000286732	212	1401	GBM,OV,UCEC
chr15:82726553:+>chr15:82808796:+	chr15	82726234	82726553	+	chr15	82808796	82808882	+	TAF	ENST00000300515	251	1402	BRCA,GBM,KIRC,OV,STAD
chr15:82726553:+>chr15:83193141:+	chr15	82726234	82726553	+	chr15	83193141	83193227	+	TSF	ENST00000300515	251	1403	OV,STAD
chr15:83103078:+>chr15:83193141:+	chr15	83102759	83103078	+	chr15	83193141	83193227	+	TSF	ENST00000561062, ENST00000358583	251,251	1404-1405	GBM,OV,STAD
chr15:84611834:+>chr15:84630325:+	chr15	84611655	84611834	+	chr15	84630325	84630701	+	TAF	ENST00000286744, ENST00000567476	830,83	1406-1407	BRCA,CESC,CHOL,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,SARC,TGCT,THCA,UCEC,UCS
chr15:85467341:+>chr15:85472528:+	chr15	85467216	85467341	+	chr15	85472528	85472791	+	TAF	ENST00000538177, ENST00000537216, ENST00000537624, ENST00000286749, ENST00000537703, ENST00000394573	361,361,361,361,361,283	1408-1413	KIRC,KIRP,LIHC
chr15:85478749:+>chr15:85494311:+	chr15	85478552	85478749	+	chr15	85494311	85494404	+	TSF	ENST00000537216, ENST00000537624, ENST00000286749, ENST00000394573	527,527,527,527	1414-1417	KIRC,KIRP
chr15:85488098:+>chr15:85494311:+	chr15	85487987	85488098	+	chr15	85494311	85494404	+	TSF	ENST00000538177, ENST00000537624, ENST00000286749, ENST00000394573	458,624,624,624	1418-1421	KIRC,KIRP

Table 9

chr15:89011255:+>chr15:89011993:+	chr15	89011139	89011255	+	chr15	89011993	89012264	+	TAF	ENST00000560708, ENST00000325844, ENST00000353598	60,60,60	1422-1424	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr15:89456478:->chr15:89453897:-	chr15	89456550	89456478	-	chr15	89453897	89453853	-	TSF	ENST00000558018, ENST00000268151, ENST00000268150, ENST00000566497, ENST00000542878, ENST00000558029	24,24,24,24, 24,24	1425-1430	BRCA,KIRC,OV,SARC,SKCM,THCA,UVM
chr16:14782022:->chr16:14779702:-	chr16	14782128	14782022	-	chr16	14779702	14779542	-	TSF	ENST00000438167, ENST00000567462	118,118	1431-1432	LUAD,STAD,UCEC
chr16:15675188:+>chr16:15676435:+	chr16	15675074	15675188	+	chr16	15676435	15676574	+	TSF	ENST00000300006, ENST00000566490, ENST00000452191, ENST00000564389, ENST00000561692, ENST00000565857	139,139,122,104,91,63	1433-1438	BRCA,GBM,LGG
chr16:15813077:->chr16:15797551:-	chr16	15813165	15813077	-	chr16	15797551	15797467	-	TSF	ENST00000396324, ENST00000452625, ENST00000576790, ENST00000300036	1730,1730,1723,1723	1439-1442	STAD
chr16:15843995:->chr16:15797541:-	chr16	15844188	15843995	-	chr16	15797541	15797467	-	TSF	ENST00000396324, ENST00000452625, ENST00000576790, ENST00000300036	693,693,686,686	1443-1446	STAD
chr16:15843995:->chr16:15842631:-	chr16	15844188	15843995	-	chr16	15842631	15842472	-	TAF	ENST00000396324, ENST00000452625, ENST00000576790, ENST00000300036	693,693,686,686	1447-1450	BLCA,LUSC,PAAD,PRAD,SARC,STAD,TGCT
chr16:16150152:+>chr16:16151288:+	chr16	16149949	16150152	+	chr16	16151288	16151380	+	TSF	ENST00000399410, ENST00000345148, ENST00000346370, ENST00000349029, ENST00000351154, ENST00000399408, ENST00000572882	559,559,559,559,559,55 9,457	1451-1457	BRCA,DLBC,HNSC,LUSC,OV,READ,STAD,THYM,UCS
chr16:16225792:+>chr16:16227957:+	chr16	16225646	16225792	+	chr16	16227957	16228051	+	TSF	ENST00000399410, ENST00000345148, ENST00000346370, ENST00000349029, ENST00000351154, ENST00000399408, ENST00000572882	1322,1322,1266,1207,1263,1332,1230	1458-1464	BLCA,LUSC
chr16:16251520:->chr16:16249711:-	chr16	16251666	16251520	-	chr16	16249711	16249633	-	TAF	ENST00000205557	1294	1465	ACC,BLCA,BRCA,CHOL,COAD,KIRC,KIRP,LIHC,LUAD,STAD,TGCT,UCEC
chr16:16381719:+>chr16:16382422:+	chr16	16381600	16381719	+	chr16	16382422	16382605	+	TSF	ENST00000399336, ENST00000263012, ENST00000538468	1148,1148,981	1466-1468	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr16:1728357:+>chr16:1729780:+	chr16	1728314	1728357	+	chr16	1729780	1730066	+	TAF	ENST00000248098, ENST00000562684, ENST00000561516, ENST00000566742, ENST00000566925, ENST00000569765	14,14,14,14, 14,14	1469-1474	BRCA,CESC,HNSC,KIRC,KIRP,LUAD,LUSC,PRAD,STAD,THYM,UCS
chr16:1735588:+>chr16:1740010:+	chr16	1735440,1735444,1735501	1735588	+	chr16	1740010	1740018	+	TSF	ENST00000248098, ENST00000562684, ENST00000561516, ENST00000382711, ENST00000566742, ENST00000569765, ENST00000566691, ENST00000382710, ENST00000565851, ENST00000562569	64,64,64,92, 92,48,48,48, 52,29	1475-1484	BRCA,OV,STAD,THCA

Table 9

chr16:20492243:+>chr16:20492741:+	chr16	20492144	20492243	+	chr16	20492741	20493191	+	TSF	ENST00000417235, ENST00000536134, ENST00000573854, ENST00000219054, ENST00000575690, ENST00000396104	424,275,503,503,503,503	1485-1490	KIRC,KIRP,LIHC
chr16:21987564:+>chr16:21987742:+	chr16	21987488	21987564	+	chr16	21987742	21987854	+	TAF	ENST00000268379, ENST00000561553	374,374	1491-1492	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr16:2818262:+>chr16:2818542:+	chr16	2811562,3	2818262	+	chr16	2818542	2818580	+	TSF	ENST00000301740, ENST00000572883	180,2577	1493-1494	OV,STAD
chr16:2819285:+>chr16:2819676:+	chr16	2818998	2819285	+	chr16	2819676	2820194	+	TAF	ENST00000301740	2673	1495	BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC
chr16:2819285:+>chr16:2819873:+	chr16	2818998	2819285	+	chr16	2819873	2820194	+	TAF	ENST00000301740	2673	1496	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr16:2825452:->chr16:2823822:-	chr16	2825557,3	2825452	-	chr16	2823822	2823809	-	TSF	ENST00000262306, ENST00000409906, ENST00000409477, ENST00000494946	81,81,76,103	1497-1500	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr16:2825452:->chr16:2823834:-	chr16	2825557,3	2825452	-	chr16	2823834	2823809	-	TAF	ENST00000262306, ENST00000409906, ENST00000409477, ENST00000494946	81,81,76,103	1501-1504	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr16:2835003:->chr16:2834278:-	chr16	2835172	2835003	-	chr16	2834278	2833911	-	TSF	ENST00000293851, ENST00000570702, ENST00000571674	228,228,217	1505-1507	BLCA,BRCA,KIRP,LUAD,OV,READ,STAD
chr16:2867967:+>chr16:2875971:+	chr16	2867802,3	2867967	+	chr16	2875971	2876154	+	TSF	ENST00000455114, ENST00000450020, ENST00000005995, ENST00000574813, ENST00000574265	85,85,85,78,29	1508-1512	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,SARC,SKCM,STAD,UCEC,UCS
chr16:2868970:+>chr16:2875971:+	chr16	2868684,3	2868970	+	chr16	2875971	2876154	+	TSF	ENST00000455114, ENST00000450020, ENST00000005995, ENST00000574813, ENST00000574265	174,125,181,183,183	1513-1517	BRCA,CESC,HNSC,KIRC,LIHC,LUSC,OV,SKCM,UCS
chr16:28947522:+>chr16:28947601:+	chr16	28947474	28947522	+	chr16	28947601	28947688	+	TAF	ENST00000538922, ENST00000324662, ENST00000567541	331,331,331	1518-1520	BLCA,BRCA,CHOL,DLBC,KIRC,LUSC,MESO,PAAD,THCA,THYM
chr16:29495055:->chr16:29392982:-	chr16	29497154	29495055	-	chr16	29392982	29392973	-	TSF	ENST00000354563	740	1521	BLCA,BRCA,GBM,KICH,KIRP,LGG,TGCT,THYM,UCEC,UCS
chr16:29913241:+>chr16:29915825:+	chr16	29913136	29913241	+	chr16	29915825	29915953	+	TSF	ENST00000563177, ENST00000483405, ENST00000308748, ENST00000414952, ENST00000566693	35,35,316,316,316	1522-1526	BRCA,CESC,CHOL,COAD,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,STAD,THYM,UCEC

Table 9

chr16:29913241:+>chr16:29930852:+	chr16	29913136	29913241	+	chr16	29930852	29930945	+	TSF	ENST00000563177, ENST00000483405, ENST00000308748, ENST00000414952, ENST00000566693	35,35,316,316,316	1527-1531	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUAD,MESO,OV,SARC,THYM
chr16:29916286:+>chr16:29930852:+	chr16	29916173	29916286	+	chr16	29930852	29930945	+	TSF	ENST00000563177, ENST00000483405, ENST00000308748, ENST00000414952, ENST00000566693	73,73,354,354,354	1532-1536	BLCA,BRCA,CESC,KIRP,LGG,LIHC,LUAD,MESO,SARC,STAD,THYM,UCEC
chr16:30783511:+>chr16:30785136:+	chr16	30783410	30783511	+	chr16	30785136	30785155	+	TSF	ENST00000324685, ENST00000402121, ENST00000563683, ENST00000357890	943,635,903,843	1537-1540	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr16:3118240:+>chr16:3135449:+	chr16	3118181	3118240	+	chr16	3135449	3135770	+	TSF	ENST00000325568, ENST00000534507, ENST00000531965, ENST00000396887, ENST00000526464, ENST00000440815, ENST00000529550, ENST00000551122, ENST00000525643, ENST00000548807, ENST00000528163, ENST00000530890, ENST00000444393, ENST00000533097, ENST00000008180, ENST00000396890, ENST00000525228, ENST00000548652, ENST00000525377, ENST00000530538, ENST00000549213, ENST00000552936, ENST00000548476, ENST00000552664, ENST00000552356, ENST00000551513, ENST00000382213	67,67,67,67,67,67,67,67,67,67,67,67,67,113,113,113,113,113,57,47,47,47,38,58,58,91,104	1541-1567	BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,SARC,STAD,THYM
chr16:396148:->chr16:369976:-	chr16	397025	396148	-	chr16	369976	369697	-	TSF	ENST00000262320, ENST00000354866	292,292	1568-1569	HNSC,STAD,TGCT
chr16:4401233:->chr16:4398819:-	chr16	4401235,4	4401233	-	chr16	4398819	4398660	-	TSF	ENST00000577031, ENST00000318059, ENST00000571986, ENST00000576217, ENST00000571178	1,1,1,1,20	1570-1574	ACC,BLCA,BRCA,CESC,COAD,KIRC,LIHC,LUAD,MESO,OV,PCPG,TGCT
chr16:4409297:->chr16:4409070:-	chr16	4409386	4409297	-	chr16	4409070	4408945	-	TAF	ENST00000572467, ENST00000251166, ENST00000539968, ENST00000537233, ENST00000574025, ENST00000576637	780,780,560,762,695,79	1575-1580	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr16:450294:+>chr16:452708:+	chr16	450219	450294	+	chr16	452708	452993	+	TSF	ENST00000397722, ENST00000444498, ENST00000382940, ENST00000219479, ENST00000450036	102,102,172,172,180	1581-1585	BRCA,KIRP,LGG,LIHC,LUSC,MESO,OV,PRAD,SARC,UCEC,UCS
chr16:50583466:+>chr16:50614862:+	chr16	50583333	50583466	+	chr16	50614862	50614981	+	TSF	ENST00000268459	64	1586	ACC,BLCA,CESC,CHOL,COAD,HNSC,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,UCEC
chr16:50642271:+>chr16:50651664:+	chr16	50642205	50642271	+	chr16	50651664	50651770	+	TSF	ENST00000268459	86	1587	BLCA,CESC,COAD,HNSC,LGG,LIHC,LUAD,LUSC,PCPG,READ,SKCM,STAD,UCEC

Table 9

chr16:50659491:+>chr16:50663933:+	chr16	50659396	50659491	+	chr16	50663933	50663990	+	TSF	ENST00000268459	154	1588	ACC,BLCA,CESC,CHOL,COAD,HNSC,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,STAD,UCEC
chr16:50666319:+>chr16:50682755:+	chr16	50666192	50666319	+	chr16	50682755	50682972	+	TSF	ENST00000268459	274	1589	ACC,BLCA,CESC,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC
chr16:52580549:->chr16:52507504:-	chr16	52580635	52580549	-	chr16	52507504	52507494	-	TSF	ENST00000219746, ENST00000568436	29,29	1590-1591	STAD
chr16:57115522:+>chr16:57116257:+	chr16	57115439	57115522	+	chr16	57116257	57116272	+	TSF	ENST00000262510, ENST00000308149, ENST00000539144	1829,1800,1800	1592-1594	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,LIHC,LUAD,LUSC,MESO,OV,SARC,STAD,TGCT,THCA,THYM,UCEC,UVM
chr16:68729826:+>chr16:68761056:+	chr16	68729681	68729826	+	chr16	68761056	68761347	+	TSF	ENST00000264012, ENST00000429102, ENST00000581171, ENST00000568292, ENST00000569080	760,760,705,119,33	1595-1599	BLCA,BRCA,CESC,HNSC,LUSC,SKCM,UCEC
chr16:68849662:+>chr16:68851395:+	chr16	68849418	68849662	+	chr16	68851395	68851859	+	TAF	ENST00000261769, ENST00000566612, ENST00000422392	521,521,460	1600-1602	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,TGCT,THCA
chr16:69418483:->chr16:69413560:-	chr16	69418613,69418553,69418599	69418483	-	chr16	69413560	69413452	-	TSF	ENST00000254942, ENST00000603068, ENST00000566750, ENST00000569542, ENST00000566257, ENST00000567296, ENST00000567841	23,202,202,160,81,39,57	1603-1609	BLCA,CESC,DLBC,LUSC,OV,STAD,TGCT,UCEC,UCS
chr16:72153750:->chr16:72150929:-	chr16	72153989	72153750	-	chr16	72150929	72150229	-	TSF	ENST00000537465, ENST00000237353, ENST00000355636	1007,1002,877	1610-1612	BLCA,COAD,GBM,HNSC,LGG,LIHC,PCPG,PRAD,READ,STAD,THYM
chr16:75239269:->chr16:75081811:-	chr16	75239411	75239269	-	chr16	75081811	75081640	-	TSF	ENST00000303037, ENST00000562106, ENST00000567767, ENST00000562387	152,65,100,68	1613-1616	PAAD
chr16:78143732:+>chr16:78145717:+	chr16	78143675	78143732	+	chr16	78145717	78146057	+	TSF	ENST00000566780, ENST00000402655, ENST00000406884, ENST00000539474, ENST00000355860, ENST00000408984	76,76,76,76,76,76	1617-1622	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PRAD,SKCM,TGCT,THYM,UCEC
chr16:81142167:->chr16:81139177:-	chr16	81142298	81142167	-	chr16	81139177	81139155	-	TSF	ENST00000533478, ENST00000525539	1720,2405	1623-1624	BLCA,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,SARC,TGCT
chr16:81142167:->chr16:81141929:-	chr16	81142298	81142167	-	chr16	81141929	81141855	-	TAF	ENST00000533478, ENST00000525539	1720,2405	1625-1626	BLCA,CESC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,SARC,STAD,TGCT
chr16:81990484:+>chr16:81995581:+	chr16	81990300	81990484	+	chr16	81995581	81995772	+	TSF	ENST00000359376	1251	1627	KICH
chr16:83520260:+>chr16:83588547:+	chr16	83520082	83520260	+	chr16	83588547	83588577	+	TSF	ENST00000566620, ENST00000268613, ENST00000428848	320,367,281	1628-1630	BLCA,CESC,HNSC,KIRC,LUSC,SARC
chr16:83986975:+>chr16:83989608:+	chr16	83986867	83986975	+	chr16	83989608	83989764	+	TAF	ENST00000561552	101	1631	ACC,BLCA,HNSC,KIRP,LIHC,LUAD,LUSC,SKCM,THCA,UCEC
chr16:88873890:+>chr16:88875475:+	chr16	88873689	88873890	+	chr16	88875475	88875490	+	TSF	ENST00000301019	492	1632	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRP,LIHC,LUAD,LUSC,OV,READ,SARC,SKCM,TGCT,THYM,UCEC,UCS
chr16:88873890:+>chr16:88875489:+	chr16	88873689	88873890	+	chr16	88875489	88875490	+	TSF	ENST00000301019	492	1633	BLCA,BRCA,CESC,HNSC,KICH,LUAD,OV,TGCT

Table 9

chr16:89795726:+>chr16:89796339:+	chr16	89795643	89795726	+	chr16	89796339	89796374	+	TSF	ENST00000446326, ENST00000289816, ENST00000568064, ENST00000443381	175,314,297,389	1634-1637	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LUAD,LUSC,OV,PRAD,SKCM,STAD,UCEC
chr17:1028518:->chr17:1005267:-	chr17	1028702,1	1028518	-	chr17	1005267	1004964	-	TSF	ENST00000302538, ENST00000544583, ENST00000574437, ENST00000575934, ENST00000574139, ENST00000570525, ENST00000574266	82,36,36,36, 36,36,36	1638-1644	ACC,GBM,KIRC,KIRP,LGG,LIHC,SARC,SKCM,STAD,TGCT,UVM
chr17:11166843:+>chr17:11172072:+	chr17	11166683	11166843	+	chr17	11172072	11172130	+	TSF	ENST00000432116, ENST00000441885, ENST00000409168, ENST00000343478	266,266,266,93	1645-1648	COAD,LGG,PRAD,STAD,THCA,UCEC
chr17:15443747:->chr17:15435156:-	chr17	15443875	15443747	-	chr17	15435156	15434353	-	TSF	ENST00000519970, ENST00000584811, ENST00000438826, ENST00000428082, ENST00000518321	111,133,197,197,197	1649-1653	TGCT
chr17:15449099:->chr17:15435156:-	chr17	15449230	15449099	-	chr17	15435156	15434353	-	TSF	ENST00000522212, ENST00000519970, ENST00000225576, ENST00000581273, ENST00000584811, ENST00000438826, ENST00000428082, ENST00000518321, ENST00000419890	154,154,154,154,154,68, 44,90,90	1654-1662	TGCT
chr17:16012100:->chr17:16009741:-	chr17	16012226	16012100	-	chr17	16009741	16009580	-	TSF	ENST00000268712, ENST00000395851, ENST00000395848	727,727,618	1663-1665	BRCA,COAD,HNSC,LUAD,PAAD,SARC,STAD
chr17:17127236:->chr17:17126584:-	chr17	17127457	17127236	-	chr17	17126584	17126403	-	TSF	ENST00000285071, ENST00000389169, ENST00000417064	206,206,153	1666-1668	HNSC,SARC
chr17:18880302:+>chr17:18897052:+	chr17	18880167	18880302	+	chr17	18897052	18897057	+	TSF	ENST00000317977, ENST00000395642, ENST00000395647, ENST00000417251, ENST00000395643, ENST00000395645	244,244,327,327,327,300	1669-1674	KIRC,KIRP,UVM
chr17:1928147:->chr17:1917588:-	chr17	1928159	1928147	-	chr17	1917588	1917538	-	TSF	ENST00000331238	4	1675	BRCA,LUSC,OV,SKCM,TGCT
chr17:19470541:+>chr17:19482057:+	chr17	19470409	19470541	+	chr17	19482057	19482370	+	TSF	ENST00000571335, ENST00000436810, ENST00000457293, ENST00000270570, ENST00000395585	241,413,436,436,436	1676-1680	ACC,KIRC,KIRP,LIHC,PCPG,THCA,THYM,UCEC
chr17:19568360:+>chr17:19588588:+	chr17	19568261	19568360	+	chr17	19588588	19589107	+	TAF	ENST00000176643, ENST00000581518, ENST00000395575, ENST00000339618, ENST00000579855, ENST00000571163	402,402,402,402,402,75	1681-1686	ACC,BLCA,BRCA,CESC,CHOL,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS,UVM
chr17:19605918:->chr17:19600213:-	chr17	19605987	19605918	-	chr17	19600213	19600058	-	TSF	ENST00000325411, ENST00000350657	424,402	1687-1688	BLCA,KIRP
chr17:25935036:+>chr17:25936150:+	chr17	25934940	25935036	+	chr17	25936150	25936175	+	TSF	ENST00000509603, ENST00000319524, ENST00000268763, ENST00000398988, ENST00000398982	697,719,582,582,432	1689-1693	BRCA,CESC,KIRC
chr17:26105716:->chr17:26105322:-	chr17	26105817	26105716	-	chr17	26105322	26105316	-	TSF	ENST00000313735	427	1694	GBM,LUSC,STAD
chr17:26938786:->chr17:26932233:-	chr17	26938813	26938786	-	chr17	26932233	26930495	-	TSF	ENST00000494272, ENST00000301037	58,24	1695-1696	KIRC,LGG,PCPG
chr17:26940096:->chr17:26932233:-	chr17	26940164	26940096	-	chr17	26932233	26930495	-	TSF	ENST00000481916, ENST00000531839, ENST00000584196, ENST00000534850, ENST00000301037, ENST00000525510	159,159,159,159,159,158	1697-1702	KIRC,PCPG
chr17:27244303:->chr17:27242466:-	chr17	27244467	27244303	-	chr17	27242466	27242238	-	TSF	ENST00000332830, ENST00000577226, ENST00000378879, ENST00000268756	378,378,378,378	1703-1706	BLCA,BRCA,LUSC,OV,PRAD
chr17:27492960:->chr17:27464102:-	chr17	27493958	27492960	-	chr17	27464102	27464011	-	TSF	ENST00000354329, ENST00000533112, ENST00000531253, ENST00000527372	333,333,333,333	1707-1710	LUAD,STAD

Table 9

chr17:28003838:->chr17:28001177:-	chr17	28003903	28003838	-	chr17	28001177	28000609	-	TAF	ENST00000269033, ENST00000540801	177,204	1711-1712	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,SARC,SKCM,STAD,THYM,UCEC,UCS
chr17:30611836:+>chr17:30615251:+	chr17	30611678	30611836	+	chr17	30615251	30615440	+	TSF	ENST00000431505, ENST00000269051, ENST00000538145	98,98,90	1713-1715	LGG
chr17:34802035:->chr17:34772854:-	chr17	34802073	34802035	-	chr17	34772854	34772787	-	TSF	ENST00000330458, ENST00000535805, ENST00000535592, ENST00000394453, ENST00000592614, ENST00000341264	178,178,178,178,178,98	1716-1721	BLCA,BRCA,CESC,HNSC,KIRP,LUAD,LUSC,MESO,PRAD,SARC,UCEC,UCS
chr17:36288740:+>chr17:36289142:+	chr17	36288631	36288740	+	chr17	36289142	36289609	+	TSF	ENST00000327454, ENST00000378174, ENST00000505415, ENST00000539424	165,165,165,85	1722-1725	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCEC
chr17:36343886:->chr17:36343484:-	chr17	36343995	36343886	-	chr17	36343484	36343017	-	TSF	ENST00000518551, ENST00000354664, ENST00000339023, ENST00000519532, ENST00000537432	209,165,165,165,165	1726-1730	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,SARC,SKCM,TGCT,UCEC
chr17:37321332:->chr17:37320542:-	chr17	37321392	37321332	-	chr17	37320542	37320482	-	TAF	ENST00000269586, ENST00000444555	35,35	1731-1732	THYM
chr17:38066009:->chr17:38065588:-	chr17	38066177	38066009	-	chr17	38065588	38065521	-	TSF	ENST00000360317, ENST00000394175, ENST00000309481, ENST00000520542, ENST00000394179, ENST00000418519, ENST00000523371, ENST00000524039, ENST00000468820	192,192,192,192,192,192,192,192,192,62	1733-1741	BLCA,BRCA,COAD,LUAD,OV,PAAD,PRAD,STAD,THYM,UCEC
chr17:38451708:+>chr17:38452940:+	chr17	38451608	38451708	+	chr17	38452940	38452953	+	TSF	ENST00000209728	394	1742	BRCA,COAD,HNSC,READ,STAD
chr17:38634559:->chr17:38633675:-	chr17	38634585	38634559	-	chr17	38633675	38633602	-	TSF	ENST00000254051, ENST00000582747	668,32	1743-1744	HNSC,LUSC,PAAD,STAD
chr17:38640736:->chr17:38639746:-	chr17	38640861	38640736	-	chr17	38639746	38639457	-	TSF	ENST00000254051	500	1745	HNSC,LUSC,READ,STAD
chr17:39741227:->chr17:39741017:-	chr17	39741309	39741227	-	chr17	39741017	39740999	-	TSF	ENST00000167586	202	1746	BLCA,HNSC
chr17:39768493:->chr17:39733779:-	chr17	39768940	39768493	-	chr17	39733779	39733579	-	TSF	ENST00000301653	149	1747	BRCA,CESC,HNSC
chr17:39780413:->chr17:39733779:-	chr17	39780761	39780413	-	chr17	39733779	39733579	-	TSF	ENST00000311208, ENST00000577817	116,101	1748-1749	BLCA,HNSC,LUSC
chr17:39914657:->chr17:39864294:-	chr17	39914770	39914657	-	chr17	39864294	39864007	-	TSF	ENST00000393930, ENST00000310706, ENST00000393931	589,589,589	1750-1752	STAD
chr17:40812725:+>chr17:40813219:+	chr17	40812657	40812725	+	chr17	40813219	40813265	+	TAF	ENST00000251412	133	1753	BLCA,BRCA,CESC,GBM,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,TGCT,THCA,THYM,UCS,UVM
chr17:40821448:->chr17:40820920:-	chr17	40821639	40821448	-	chr17	40820920	40820864	-	TAF	ENST00000591022, ENST00000412503, ENST00000293349, ENST00000412503, ENST00000591022, ENST00000293349	735,558,732	1754-1756	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS
chr17:43215355:+>chr17:43215643:+	chr17	43215280	43215355	+	chr17	43215643	43215745	+	TAF	ENST00000431281, ENST00000591859, ENST00000586346, ENST00000398322, ENST00000592162, ENST00000376955, ENST00000321854	229,229,229,216,216,216,213	1757-1763	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,THCA,UCEC,UCS

Table 9

chr17:43475315:->chr17:43474814:-	chr17	43475413	43475315	-	chr17	43474814	43474703	-	TSF	ENST00000532038, ENST00000376922, ENST00000528384, ENST00000455881, ENST00000428638, ENST00000442348, ENST00000532891	392,273,273,246,614,587,592	1764-1770	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LIHC,LUSC,PAAD,STAD
chr17:45473343:+>chr17:45474435:+	chr17	45473200	45473343	+	chr17	45474435	45476216	+	TSF	ENST00000331493, ENST00000517484, ENST00000523842	648,552,174	1771-1773	ACC,BLCA,KIRP,LUAD,THCA
chr17:45473343:+>chr17:45474497:+	chr17	45473200	45473343	+	chr17	45474497	45476216	+	TSF	ENST00000331493, ENST00000517484, ENST00000523842	648,552,174	1774-1776	BRCA,KIRC,KIRP,OV,SKCM,THCA
chr17:48266269:->chr17:48238174:-	chr17	48266371	48266269	-	chr17	48238174	48237883	-	TSF	ENST00000225964	1013	1777	BLCA,BRCA,CESC,LUAD,LUSC,OV,PAAD,SARC,STAD,TGCT
chr17:4908295:+>chr17:4908583:+	chr17	4908150	4908295	+	chr17	4908583	4909022	+	TAF	ENST00000320785	388	1778	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr17:58329742:->chr17:58323153:-	chr17	58329803	58329742	-	chr17	58323153	58323061	-	TSF	ENST00000300896, ENST00000592339, ENST00000590133, ENST00000589335, ENST00000393003	378,378,48,375,82	1779-1783	BRCA,TGCT
chr17:59482130:+>chr17:59482423:+	chr17	59481967	59482130	+	chr17	59482423	59482469	+	TSF	ENST00000240328	350	1784	BLCA,UVM
chr17:60106902:->chr17:60101011:-	chr17	60107012	60106902	-	chr17	60101011	60100641	-	TSF	ENST00000397786, ENST00000583958	87,427	1785-1786	BRCA,LUAD,THCA
chr17:61907861:+>chr17:61908085:+	chr17	61907632	61907861	+	chr17	61908085	61908122	+	TAF	ENST00000579708, ENST00000310144, ENST00000581842, ENST00000582130, ENST00000584320, ENST00000585123, ENST00000580864, ENST00000584536, ENST00000375812, ENST00000581882, ENST00000584880	107,184,176,176,176,176,176,165,165,38	1787-1797	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,TGCT,THYM,UCEC,UCS
chr17:62479036:->chr17:62478351:-	chr17	62479116	62479036	-	chr17	62478351	62478214	-	TSF	ENST00000539111, ENST00000581355	397,15	1798-1799	BLCA,BRCA,CHOL,COAD,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,SARC,STAD,THYM,UCEC
chr17:63173921:+>chr17:63176114:+	chr17	63173850	63173921	+	chr17	63176114	63176128	+	TAF	ENST00000584234, ENST00000262406	218,218	1800-1801	BLCA,BRCA,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,OV,PAAD,PCPG,PRAD,SARC,THYM,UCEC,UCS,UVM
chr17:66040619:+>chr17:66040935:+	chr17	66040437	66040619	+	chr17	66040935	66041225	+	TSF	ENST00000330459, ENST00000537025	449,449	1802-1803	BRCA,COAD,HNSC,LUSC,MESO,OV,SARC,SKCM,UCEC,UCS
chr17:66538126:->chr17:66537704:-	chr17	66538306	66538126	-	chr17	66537704	66537648	-	TAF	ENST00000592554	369	1804	BLCA,BRCA,CESC,CHOL,GBM,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,SARC,TGCT,THCA,THYM,UCEC,UCS
chr17:66972092:->chr17:66971441:-	chr17	66972154	66972092	-	chr17	66971441	66970995	-	TSF	ENST00000340001, ENST00000453985	1613,1575	1805-1806	GBM,SARC
chr17:70732789:->chr17:70670711:-	chr17	70732858	70732789	-	chr17	70670711	70670228	-	TSF	ENST00000255559, ENST00000542342, ENST00000582769, ENST00000581581	223,230,139,47	1807-1810	BLCA,BRCA,KIRC,LUSC,STAD,THCA,THYM

Table 9

chr17:7130409:->chr17:7130277:-	chr17	7130588	7130409	-	chr17	7130277	7130132	-	TAF	ENST00000005340, ENST00000575458, ENST00000575086	514,508,168	1811-1813	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr17:7214719:+>chr17:7215628:+	chr17	7214669	7214719	+	chr17	7215628	7215651	+	TSF	ENST00000336452, ENST00000336458, ENST00000576930, ENST00000572815, ENST00000573542, ENST00000419711, ENST00000571955, ENST00000573714, ENST00000416016	137,107,107,107,107,10,107,107,107	1814-1822	OV
chr17:7214719:+>chr17:7215638:+	chr17	7214669	7214719	+	chr17	7215638	7215651	+	TSF	ENST00000336452, ENST00000336458, ENST00000576930, ENST00000572815, ENST00000573542, ENST00000419711, ENST00000571955, ENST00000573714, ENST00000416016	137,107,107,107,107,10,107,107,107	1823-1831	OV
chr17:7214719:+>chr17:7215648:+	chr17	7214669	7214719	+	chr17	7215648	7215651	+	TSF	ENST00000336452, ENST00000336458, ENST00000576930, ENST00000572815, ENST00000573542, ENST00000419711, ENST00000571955, ENST00000573714, ENST00000416016	137,107,107,107,107,10,107,107,107	1832-1840	OV,STAD
chr17:7214800:+>chr17:7215641:+	chr17	7214669	7214800	+	chr17	7215641	7215651	+	TSF	ENST00000336452, ENST00000336458, ENST00000576930, ENST00000572815, ENST00000573542, ENST00000419711, ENST00000571955, ENST00000573714, ENST00000416016	164,134,134,134,134,13,134,134,134	1841-1849	OV,STAD
chr17:72861841:->chr17:72861374:-	chr17	72861942	72861841	-	chr17	72861374	72861251	-	TSF	ENST00000293195, ENST00000544854, ENST00000420580, ENST00000581530, ENST00000455107, ENST00000583917, ENST00000442102, ENST00000582944, ENST00000413947, ENST00000579893	203,203,151,163,159,204,246,195,234,152	1850-1859	ACC,BLCA,PCPG
chr17:73733725:+>chr17:73735417:+	chr17	73733619	73733725	+	chr17	73735417	73735563	+	TAF	ENST00000579662, ENST00000339591, ENST00000200181, ENST00000450894, ENST00000449880	740,740,740,740,740	1860-1864	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,LUAD,LUSC,MESO,OV,PAAD,STAD,UCEC
chr17:73887358:->chr17:73885428:-	chr17	73887428	73887358	-	chr17	73885428	73885139	-	TSF	ENST00000591668, ENST00000592642, ENST00000269383, ENST00000543309	116,203,70,352	1865-1868	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,MESO,PRAD,SARC,STAD,THCA,UCEC
chr17:74563535:->chr17:74560019:-	chr17	74563634	74563535	-	chr17	74560019	74559800	-	TSF	ENST00000225276, ENST00000588920	319,166	1869-1870	BLCA,BRCA,CESC,HNSC,LUSC,OV,PAAD,SKCM,TGCT,THCA,THYM,UCEC,UVM
chr17:74621901:->chr17:74615240:-	chr17	74622000	74621901	-	chr17	74615240	74615040	-	TSF	ENST00000156626	535	1871	CESC,HNSC,LUAD,OV,STAD
chr17:75277636:+>chr17:75313547:+	chr17	75277618	75277636	+	chr17	75313547	75313852	+	TSF	ENST00000427177, ENST00000591833, ENST00000591198	6,6,6	1872-1874	BLCA,CESC,COAD,HNSC,LUSC,MESO
chr17:75303279:+>chr17:75307415:+	chr17	75303223	75303279	+	chr17	75307415	75307459	+	TSF	ENST00000427177	25	1875	BRCA,KIRC,LUSC,STAD

Table 9

chr17:79532531:->chr17:79527702:-	chr17	79532634	79532531	-	chr17	79527702	79527690	-	TSF	ENST00000374747, ENST00000539314, ENST00000572760, ENST00000573876, ENST00000331134, ENST00000573519, ENST00000571714, ENST00000572824, ENST00000573212	89,136,556, 556,21,21,1 24,102,395	1876-1884	BLCA,BRCA,CESC,CHOL,KIRP,LIHC,LUAD,OV
chr17:79912132:->chr17:79911788:-	chr17	79912179	79912132	-	chr17	79911788	79911647	-	TSF	ENST00000409678	394	1885	CESC,HNSC,LUSC,OV,STAD
chr17:79912132:->chr17:79911819:-	chr17	79912179	79912132	-	chr17	79911819	79911647	-	TSF	ENST00000409678	394	1886	BLCA,CESC,COAD,LIHC,OV,READ,STAD,UCEC
chr17:79912132:->chr17:79911834:-	chr17	79912179	79912132	-	chr17	79911834	79911647	-	TSF	ENST00000409678	394	1887	BLCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,OV,READ,STAD,UCEC
chr17:80404499:->chr17:80401028:-	chr17	80404572	80404499	-	chr17	80401028	80400962	-	TSF	ENST00000306645, ENST00000437807, ENST00000434650, ENST00000583617, ENST00000577436, ENST00000585064, ENST00000577732, ENST00000578919, ENST00000585080, ENST00000577888, ENST00000578913, ENST00000584408, ENST00000577696, ENST00000577471, ENST00000577834, ENST00000582545	67,67,67,67, 67,67,67,67, 67,67,67,67, 53,53,53,65	1888-1903	OV,STAD
chr17:80544069:+>chr17:80544168:+	chr17	80543781	80544069	+	chr17	80544168	80544444	+	TSF	ENST00000473637, ENST00000335255, ENST00000575578	21,523,523	1904-1906	BLCA,BRCA,HNSC,LUAD,OV,PRAD,STAD
chr17:80656331:->chr17:80634662:-	chr17	80656472	80656331	-	chr17	80634662	80634498	-	TSF	ENST00000571995, ENST00000538809	47,47	1907-1908	KICH,KIRC,KIRP,LUSC,STAD
chr18:12720682:+>chr18:12728047:+	chr18	12720509	12720682	+	chr18	12728047	12728839	+	TSF	ENST00000585331, ENST00000586445, ENST00000317615, ENST00000590217	162,201,193 ,193	1909-1912	BRCA,OV,STAD
chr18:12830942:->chr18:12827677:-	chr18	12831040	12830942	-	chr18	12827677	12827395	-	TAF	ENST00000327283, ENST00000591115, ENST00000353319, ENST00000587703, ENST00000309660, ENST00000591497, ENST00000592776, ENST00000592059	120,120,120 ,120,120,44, 91,21	1913-1920	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,MESO,OV,READ,STAD,TGCT,THCA,THYM,UCEC,UCS
chr18:21511165:+>chr18:21511381:+	chr18	21511026	21511165	+	chr18	21511381	21511478	+	TAF	ENST00000313654, ENST00000399516, ENST00000269217, ENST00000587184, ENST00000586751, ENST00000588164	2858,2802,1 249,1193,11 18,94	1921-1926	BLCA,CESC,HNSC,LUAD,LUSC,OV,PAAD,STAD
chr18:32650286:+>chr18:32670836:+	chr18	32650166	32650286	+	chr18	32670836	32671096	+	TSF	ENST00000591734, ENST00000413393, ENST00000587359, ENST00000436190, ENST00000588349, ENST00000300249, ENST00000588910, ENST00000589699	40,40,40,40, 40,71,83,83	1927-1934	ACC,BLCA,BRCA,GBM,KICH,KIRC,KIRP,LGG,LIHC,LUAD,PCPG,SARC,STAD
chr18:33767644:+>chr18:33773430:+	chr18	33767503	33767644	+	chr18	33773430	33773774	+	TAF	ENST00000261326	47	1935	ACC,BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,UCEC,UVM
chr18:43307383:+>chr18:43309951:+	chr18	43307367	43307383	+	chr18	43309951	43309986	+	TSF	ENST00000502059, ENST00000415427, ENST00000588179, ENST00000436407, ENST00000589891	5,49,49,49,4 9	1936-1940	BLCA,CHOL,LUSC,SARC,THYM
chr18:47793977:->chr18:47793455:-	chr18	47794033	47793977	-	chr18	47793455	47793319	-	TSF	ENST00000585672, ENST00000592060	561,41	1941-1942	BRCA,HNSC,LIHC,UCEC
chr18:54318248:->chr18:54314766:-	chr18	54318306	54318248	-	chr18	54314766	54314664	-	TSF	ENST00000587613	19	1943	BLCA,BRCA,GBM,KIRC,LGG,LIHC,OV

Table 9

chr18:56182225:->chr18:56171854:-	chr18	56182313	56182225	-	chr18	56171854	56171790	-	TSF	ENST00000361673	2009	1944	KIRC
chr18:56807267:+>chr18:56814218:+	chr18	56807181	56807267	+	chr18	56814218	56814267	+	TSF	ENST00000587834, ENST00000299714, ENST00000588875	29,29,29	1945-1947	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,PRAD,SKCM,THCA,UCS
chr18:59992660:+>chr18:60003547:+	chr18	59992586	59992660	+	chr18	60003547	60003575	+	TSF	ENST00000269485, ENST00000586569	25,25	1948-1949	STAD
chr18:61627509:+>chr18:61628870:+	chr18	61627392	61627509	+	chr18	61628870	61629168	+	TSF	ENST00000408945	113	1950	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,MESO,OV,SARC,STAD,THCA,THYM,UCEC
chr18:72176163:+>chr18:72187682:+	chr18	72176075	72176163	+	chr18	72187682	72187899	+	TSF	ENST00000324262, ENST00000580672, ENST00000579847, ENST00000583785	152,152,152,134	1951-1954	OV,STAD
chr18:72176163:+>chr18:72187799:+	chr18	72176075	72176163	+	chr18	72187799	72187899	+	TSF	ENST00000324262, ENST00000580672, ENST00000579847, ENST00000583785	152,152,152,134	1955-1958	OV,STAD
chr18:72179767:+>chr18:72180493:+	chr18	72179683	72179767	+	chr18	72180493	72180593	+	TSF	ENST00000324262, ENST00000579847, ENST00000583785, ENST00000324301, ENST00000579624	247,247,247,163,74	1959-1963	KIRC,KIRP,PRAD
chr18:72250944:+>chr18:72256555:+	chr18	72250797	72250944	+	chr18	72256555	72256578	+	TAF	ENST00000358821, ENST00000582365	485,442	1964-1965	BLCA,GBM,HNSC,KIRC,LGG,SKCM
chr19:10450215:->chr19:10449848:-	chr19	10450290	10450215	-	chr19	10449848	10449718	-	TSF	ENST00000160262, ENST00000585439	25,25	1966-1967	DLBC,STAD,THYM
chr19:10450215:->chr19:10449921:-	chr19	10450290	10450215	-	chr19	10449921	10449718	-	TAF	ENST00000160262, ENST00000585439	25,25	1968-1969	BRCA,DLBC,LUSC,STAD,THYM
chr19:1147308:->chr19:1143923:-	chr19	1147419	1147308	-	chr19	1143923	1143814	-	TAF	ENST00000361757, ENST00000587024, ENST00000590998, ENST00000590176, ENST00000587655	93,93,93,93,93	1970-1974	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr19:11526613:->chr19:11522106:-	chr19	11526824	11526613	-	chr19	11522106	11521984	-	TAF	ENST00000380456, ENST00000393423, ENST00000567431	212,212,176	1975-1977	BLCA,KICH,KIRC,KIRP,LUAD,OV,PAAD,THCA,UCEC
chr19:11553248:+>chr19:11561222:+	chr19	11553201	11553248	+	chr19	11561222	11561319	+	TSF	ENST00000591462, ENST00000252455, ENST00000412601, ENST00000592741, ENST00000587327, ENST00000589838	172,172,172,172,172,172	1978-1983	OV,STAD
chr19:11567925:->chr19:11567647:-	chr19	11567963	11567925	-	chr19	11567647	11567483	-	TSF	ENST00000359227, ENST00000438662	250,25	1984-1985	GBM,LGG,PCPG
chr19:12146352:->chr19:12100261:-	chr19	12146354	12146352	-	chr19	12100261	12100168	-	TAF	ENST00000344980, ENST00000550507, ENST00000548669	1,1,1	1986-1988	BRCA,GBM,LGG,SARC
chr19:1235500:->chr19:1235389:-	chr19	1235564	1235500	-	chr19	1235389	1235290	-	TAF	ENST00000590083, ENST00000382477, ENST00000215376, ENST00000589260	103,97,97,97	1989-1992	ACC,BRCA,CESC,GBM,HNSC,KICH,LGG,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr19:12986994:->chr19:12986142:-	chr19	12987177	12986994	-	chr19	12986142	12986038	-	TSF	ENST00000222219, ENST00000538460	297,242	1993-1994	BRCA,DLBC,LIHC,MESO,OV,SARC,TGCT,THCA,THYM
chr19:13870086:+>chr19:13872305:+	chr19	13869914,13869931,13869925	13870086	+	chr19	13872305	13872412	+	TAF	ENST00000586600, ENST00000221554, ENST00000586666, ENST00000588809, ENST00000585844	191,191,142,162,54	1995-1999	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS

Table 9

chr19:14063931:->chr19:14060442:-	chr19	14063948	14063931	-	chr19	14060442	14060422	-	TAF	ENST00000538517, ENST00000538371, ENST00000585607	6,6,6	2000-2002	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,OV,READ,SARC,SKCM,STAD,UCEC,UCS
chr19:1462176:+>chr19:1462374:+	chr19	1461962	1462176	+	chr19	1462374	1462680	+	TSF	ENST00000590469, ENST00000233607, ENST00000238483, ENST00000535453	617,617,617,343	2003-2006	GBM,LGG,PCPG
chr19:14676102:+>chr19:14677944:+	chr19	14676014	14676102	+	chr19	14677944	14677945	+	TSF	ENST00000215567, ENST00000596073, ENST00000600083, ENST00000436007, ENST00000601187	251,96,96,266,93	2007-2011	BLCA,BRCA,CESC,HNSC,KIRP,LUSC,OV
chr19:14694246:+>chr19:14696424:+	chr19	14694169	14694246	+	chr19	14696424	14696719	+	TSF	ENST00000397439, ENST00000547437, ENST00000339847, ENST00000417570, ENST00000551730	40,40,40,40,40	2012-2016	DLBC,PAAD,STAD
chr19:14694246:+>chr19:14700687:+	chr19	14694169	14694246	+	chr19	14700687	14700982	+	TSF	ENST00000397439, ENST00000547437, ENST00000339847, ENST00000417570, ENST00000551730	40,40,40,40,40	2017-2021	DLBC,PAAD,STAD
chr19:14698503:+>chr19:14700687:+	chr19	14698426	14698503	+	chr19	14700687	14700982	+	TAF	ENST00000397439, ENST00000547437, ENST00000339847, ENST00000417570, ENST00000551730	66,66,66,66,66	2022-2026	DLBC,PAAD,STAD
chr19:15289634:->chr19:15289244:-	chr19	15289752	15289634	-	chr19	15289244	15289201	-	TSF	ENST00000263388, ENST00000601011	1279,1226	2027-2028	BLCA,BRCA,CESC,HNSC,KIRP,LUAD,LUSC,OV,SARC,STAD,THYM,UCEC
chr19:15289634:->chr19:15289358:-	chr19	15289752	15289634	-	chr19	15289358	15289201	-	TSF	ENST00000263388, ENST00000601011	1279,1226	2029-2030	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,STAD,THYM,UCEC,UCS
chr19:16024559:->chr19:16023994:-	chr19	16024719	16024559	-	chr19	16023994	16023778	-	TSF	ENST00000248041, ENST00000402119, ENST00000591841	519,519,194	2031-2033	CESC,HNSC,LIHC,LUSC,THCA
chr19:16204408:+>chr19:16213047:+	chr19	16204346	16204408	+	chr19	16213047	16213167	+	TSF	ENST00000344824, ENST00000538887, ENST00000300933, ENST00000588032, ENST00000592822	59,234,234,198,9	2034-2038	OV,STAD
chr19:17387718:+>chr19:17388878:+	chr19	17387632	17387718	+	chr19	17388878	17389009	+	TSF	ENST00000598188, ENST00000359435, ENST00000596542, ENST00000447614, ENST00000601043, ENST00000595632, ENST00000601232	262,262,262,184,262,187,32	2039-2045	GBM,OV
chr19:17556008:->chr19:17551332:-	chr19	17556093	17556008	-	chr19	17551332	17551032	-	TSF	ENST00000341130, ENST00000594663	135,12	2046-2047	OV
chr19:17628659:+>chr19:17631427:+	chr19	17628519	17628659	+	chr19	17631427	17631563	+	TSF	ENST00000252603	213	2048	BLCA,COAD,LUSC,OV,PRAD,THYM
chr19:18685937:+>chr19:18717523:+	chr19	18685867,18685680,18685913	18685937	+	chr19	18717523	18717557	+	TSF	ENST00000596304, ENST00000430157, ENST00000596273, ENST00000442744, ENST00000595683, ENST00000595158, ENST00000598780, ENST00000599551, ENST00000597451, ENST00000599595, ENST00000596272, ENST00000594527	121,121,121,121,121,12,1,121,121,121,121,131,81	2049-2060	OV,STAD
chr19:18710375:->chr19:18709961:-	chr19	18710656	18710375	-	chr19	18709961	18709918	-	TSF	ENST00000392386	132	2061	LUAD,LUSC
chr19:19313600:->chr19:19313030:-	chr19	19313690	19313600	-	chr19	19313030	19312992	-	TSF	ENST00000420605, ENST00000331552, ENST00000544883, ENST00000538165, ENST00000539678	43,43,43,43,18	2062-2066	BRCA,CESC,COAD,GBM,LUAD,LUSC,OV,PRAD,READ,SARC
chr19:19349220:+>chr19:19350543:+	chr19	19349062	19349220	+	chr19	19350543	19350866	+	TSF	ENST00000252575, ENST00000538881, ENST00000588231	1136,587,51	2067-2069	GBM,LGG
chr19:19351494:+>chr19:19353543:+	chr19	19351412	19351494	+	chr19	19353543	19353658	+	TSF	ENST00000252575, ENST00000538881, ENST00000588231	78,1164,615	2070-2072	LGG

Table 9

chr19:19371622:->chr19:19371465:-	chr19	19371984	19371622	-	chr19	19371465	19371326	-	TSF	ENST00000291481	161	2073	PCPG
chr19:2151238:->chr19:2141056:-	chr19	2151333	2151238	-	chr19	2141056	2140753	-	TSF	ENST00000355272, ENST00000356926, ENST00000350812, ENST00000345016	32,32,32,32	2074-2077	OV,STAD
chr19:23556544:->chr19:23491899:-	chr19	23556639	23556544	-	chr19	23491899	23491588	-	TSF	ENST00000599743, ENST00000300619	84,84	2078-2079	ACC,BLCA,BRCA,GBM,KICH,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,STAD
chr19:3115070:+>chr19:3115258:+	chr19	3114942	3115070	+	chr19	3115258	3115402	+	TSF	ENST00000078429, ENST00000587636	201,5	2080-2081	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRC,KIRP,LUSC,MESO,PAAD,PRAD,THYM,UCEC
chr19:34986676:+>chr19:34986786:+	chr19	34986608	34986676	+	chr19	34986786	34987070	+	TAF	ENST00000270288, ENST00000590071, ENST00000585928	608,384,199	2082-2084	BRCA,LUAD,MESO,SARC,THCA,UCS,UVM
chr19:3544807:->chr19:3538708:-	chr19	3544937	3544807	-	chr19	3538708	3538306	-	TAF	ENST00000389395, ENST00000398558, ENST00000588918, ENST00000355415, ENST00000589063	473,473,473,464,152	2085-2089	ACC,BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:3546072:->chr19:3538708:-	chr19	3546166	3546072	-	chr19	3538708	3538306	-	TSF	ENST00000389395, ENST00000398558, ENST00000588918, ENST00000355415, ENST00000589063, ENST00000589995	429,429,429,420,108,223	2090-2095	BLCA,KIRP,OV,SKCM,STAD,UVM
chr19:35505291:+>chr19:35505459:+	chr19	35505093	35505291	+	chr19	35505459	35505647	+	TSF	ENST00000599564, ENST00000317991, ENST00000504615, ENST00000411896	443,356,122,349	2096-2099	ACC,BLCA,BRCA,CESC,LIHC,LUAD,LUSC,OV,PRAD,SARC,STAD
chr19:35514451:+>chr19:35514601:+	chr19	35514331	35514451	+	chr19	35514601	35514631	+	TAF	ENST00000599564, ENST00000317991, ENST00000504615, ENST00000411896	777,694,456,683	2100-2103	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:35540420:+>chr19:35547041:+	chr19	35540379	35540420	+	chr19	35547041	35547341	+	TSF	ENST00000262626, ENST00000392226, ENST00000600390	53,53,53	2104-2106	LIHC,OV,PRAD,STAD
chr19:35612149:+>chr19:35613565:+	chr19	35612126	35612149	+	chr19	35613565	35613610	+	TAF	ENST00000454903, ENST00000406242, ENST00000604404, ENST00000435734, ENST00000603181, ENST00000604255, ENST00000344013, ENST00000346446, ENST00000603449, ENST00000406988, ENST00000605550, ENST00000604804, ENST00000605552, ENST00000535103, ENST00000603524, ENST00000604621, ENST00000605677	32,32,32,32,32,32,32,32,32,32,32,32,32,32,89,89	2107-2123	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LUAD,LUSC,PAAD,PRAD,READ,SKCM,STAD

Table 9

chr19:35996620:->chr19:35995923:-	chr19	35996667	35996620	-	chr19	35995923	35995655	-	TAF	ENST00000434389, ENST00000402589, ENST00000339686, ENST00000436012, ENST00000414866, ENST00000480502, ENST00000467637, ENST00000429837, ENST00000419602, ENST00000443640, ENST00000597212, ENST00000472252, ENST00000492341, ENST00000602781, ENST00000602679, ENST00000474928, ENST00000488892, ENST00000461300, ENST00000447113, ENST00000392206, ENST00000440396, ENST00000458071, ENST00000418261, ENST00000424570, ENST00000451297, ENST00000450261	88,91,91,91, 91,91,378,3 78,74,74,10 3,337,367,1 41,54,25,25, 25,25,25,42 8,408,123,3 90,361,111	2124-2149	BLCA,BRCA,CESC,CHOL,HNSC,LUAD,LUSC,OV,PAAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr19:37619808:+>chr19:37621046:+	chr19	37618030	37619808	+	chr19	37621046	37621237	+	TAF	ENST00000337995	638	2150	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:3855400:->chr19:3852385:-	chr19	3855446	3855400	-	chr19	3852385	3852258	-	TSF	ENST00000592398, ENST00000591712	15,15	2151-2152	BRCA,CESC,HNSC,PAAD,SARC,THYM,UCEC,UCS
chr19:3868963:->chr19:3855694:-	chr19	3869013,4	3868963	-	chr19	3855694	3855445	-	TSF	ENST00000586578, ENST00000262961, ENST00000438164, ENST00000587212, ENST00000439086, ENST00000262961, ENST00000438164, ENST00000587212, ENST00000586578, ENST00000439086	17,17,17,17, 17	2153-2157	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr19:38872868:+>chr19:38873037:+	chr19	38872757	38872868	+	chr19	38873037	38873046	+	TSF	ENST00000215071, ENST00000602911, ENST00000592561, ENST00000592035	305,242,248 ,138	2158-2161	BLCA,BRCA,CESC,COAD,HNSC,LUSC,OV,PRAD,STAD,UCEC
chr19:3905653:+>chr19:3906655:+	chr19	3905432	3905653	+	chr19	3906655	3906700	+	TSF	ENST00000450849, ENST00000301260, ENST00000398448, ENST00000600960	119,119,119 ,125	2162-2165	LGG,PCPG
chr19:39077216:+>chr19:39085644:+	chr19	39077165	39077216	+	chr19	39085644	39085967	+	TAF	ENST00000355481, ENST00000360985, ENST00000359596	5002,5002,5 007	2166-2168	ACC,BLCA,BRCA,CESC,HNSC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,THCA,UCEC,UCS,UVM
chr19:39294162:->chr19:39289106:-	chr19	39294191	39294162	-	chr19	39289106	39287788	-	TSF	ENST00000307751, ENST00000600070	84,19	2169-2170	COAD,LIHC,LUAD,PAAD,READ,STAD
chr19:39390146:->chr19:39389554:-	chr19	39390161	39390146	-	chr19	39389554	39389434	-	TAF	ENST00000249396, ENST00000358931, ENST00000443898	5,5,5	2171-2173	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,PAAD,PRAD,SARC,SKCM,THCA,THYM,UCS,UVM
chr19:39433350:->chr19:39432008:-	chr19	39433391	39433350	-	chr19	39432008	39431967	-	TAF	ENST00000448145, ENST00000599996, ENST00000292852, ENST00000595329	149,80,245, 245	2174-2177	KIRC,KIRP
chr19:39435609:->chr19:39434842:-	chr19	39435744	39435609	-	chr19	39434842	39434530	-	TAF	ENST00000448145, ENST00000599996, ENST00000292852, ENST00000595329, ENST00000599598	135,89,66,2 31,231	2178-2182	BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUSC,OV,PRAD,SKCM,UCEC,UCS,UVM

Table 9

chr19:39435609:->chr19:39435141:-	chr19	39435744	39435609	-	chr19	39435141	39434931	-	TSF	ENST00000448145, ENST00000599996, ENST00000292852, ENST00000595329, ENST00000599598	66,135,231, 231,89	2183-2187	BLCA,KIRC,LIHC,OV
chr19:39888183:+>chr19:39890782:+	chr19	39888097	39888183	+	chr19	39890782	39891028	+	TSF	ENST00000315588, ENST00000594368, ENST00000599213, ENST00000596297	170,125,149 ,156	2188-2191	OV
chr19:40328351:->chr19:40327613:-	chr19	40328483	40328351	-	chr19	40327613	40327527	-	TSF	ENST00000595545, ENST00000221801, ENST00000597224, ENST00000601274, ENST00000597634	142,227,165 ,203,190	2192-2196	BLCA,BRCA,CESC,COAD,GBM,KIRC,LGG,LIHC,LUSC,OV,READ,UCEC,UCS,UVM
chr19:40478151:+>chr19:40491610:+	chr19	40478053	40478151	+	chr19	40491610	40491685	+	TSF	ENST00000157812, ENST00000455878	45,45	2197-2198	HNSC,LIHC,LUSC,OV,SARC,STAD,UCEC
chr19:40711203:+>chr19:40711395:+	chr19	40711028	40711203	+	chr19	40711395	40711597	+	TSF	ENST00000253055, ENST00000593502, ENST00000597986	396,88,146	2199-2201	BLCA,BRCA,CESC,DLBC,LUSC,OV,READ,STAD,TGCT,UCEC,UCS,UVM
chr19:41838033:->chr19:41818843:-	chr19	41838186	41838033	-	chr19	41818843	41818697	-	TSF	ENST00000598758, ENST00000221930	100,338	2202-2203	BLCA,CESC,CHOL,HNSC,KIRC,LUAD,LUSC,MESO,SARC,THCA
chr19:4210369:+>chr19:4210493:+	chr19	4210262	4210369	+	chr19	4210493	4210815	+	TSF	ENST00000600132, ENST00000318934, ENST00000597689, ENST00000262970	353,353,324 ,443	2204-2207	GBM,KIRP,LGG
chr19:42219168:+>chr19:42274707:+	chr19	42218890	42219168	+	chr19	42274707	42275202	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816, ENST00000595113	234,234,234 ,135	2208-2211	COAD,LUAD,PAAD,STAD
chr19:42221417:+>chr19:42729297:+	chr19	42221377	42221417	+	chr19	42729297	42729312	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816, ENST00000595113	333,334,334 ,149	2212-2215	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,STAD
chr19:42221482:+>chr19:42233335:+	chr19	42221377	42221482	+	chr19	42233335	42233421	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816, ENST00000595113	354,355,355 ,171	2216-2219	STAD
chr19:42221652:+>chr19:42274707:+	chr19	42221377	42221652	+	chr19	42274707	42275202	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816	411,412,412	2220-2222	BLCA,CESC,COAD,LUAD,PAAD,READ,STAD
chr19:42222099:+>chr19:42233309:+	chr19	42222047	42222099	+	chr19	42233309	42233421	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816	429,430,430	2223-2225	STAD
chr19:42222099:+>chr19:42233313:+	chr19	42222047	42222099	+	chr19	42233313	42233421	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816	429,430,430	2226-2228	STAD
chr19:42222099:+>chr19:42234246:+	chr19	42222047	42222099	+	chr19	42234246	42234353	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816	429,430,430	2229-2231	STAD
chr19:42222099:+>chr19:42234250:+	chr19	42222047	42222099	+	chr19	42234250	42234353	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816	429,430,430	2232-2234	STAD
chr19:42223892:+>chr19:42233335:+	chr19	42223849	42223892	+	chr19	42233335	42233421	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816, ENST00000595403	122,511,512 ,512	2235-2238	STAD
chr19:42223957:+>chr19:42233335:+	chr19	42223849	42223957	+	chr19	42233335	42233421	+	TSF	ENST00000398599, ENST00000221992, ENST00000405816	532,533,533	2239-2241	STAD
chr19:42265242:+>chr19:42274857:+	chr19	42265157	42265242	+	chr19	42274857	42275202	+	TSF	ENST00000199764	170	2242	STAD
chr19:42471401:->chr19:42470173:-	chr19	42471492	42471401	-	chr19	42470173	42470026	-	TSF	ENST00000441343, ENST00000302102, ENST00000545399, ENST00000543770, ENST00000602133	1004,1004,1017,1015,974	2243-2247	PCPG
chr19:43372253:->chr19:43257528:-	chr19	43372507	43372253	-	chr19	43257528	43257135	-	TSF	ENST00000436291, ENST00000595124, ENST00000595356, ENST00000403380, ENST00000312439, ENST00000244296, ENST00000597058	414,414,414 ,414,321,321,241	2248-2254	ACC,BLCA,LUSC,SARC,THCA
chr19:43679367:->chr19:43428976:-	chr19	43679621	43679367	-	chr19	43428976	43428578	-	TSF	ENST00000366175, ENST00000407356, ENST00000599812, ENST00000342951, ENST00000404580	321,321,321 ,321,414	2255-2259	ACC,BLCA,LUSC,SARC,THCA

Table 9

chr19:43679367:->chr19:43448254:-	chr19	43679621	43679367	-	chr19	43448254	43447862	-	TSF	ENST00000366175, ENST00000407356, ENST00000599812, ENST00000342951, ENST00000404580	321,321,321,321,414	2260-2264	ACC,BLCA,LUSC,SARC,THCA
chr19:43679367:->chr19:43537524:-	chr19	43679621	43679367	-	chr19	43537524	43537131	-	TSF	ENST00000366175, ENST00000407356, ENST00000599812, ENST00000342951, ENST00000404580	321,321,321,321,414	2265-2269	ACC,BLCA,LUSC,SARC,THCA
chr19:44129230:->chr19:44129055:-	chr19	44129402	44129230	-	chr19	44129055	44128921	-	TAF	ENST00000222374	309	2270	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,THCA,UCEC,UCS
chr19:44129230:->chr19:44129101:-	chr19	44129402	44129230	-	chr19	44129101	44128921	-	TSF	ENST00000222374	309	2271	CESC,GBM,LGG,PCPG,SARC
chr19:44564994:+>chr19:44565998:+	chr19	44564902	44564994	+	chr19	44565998	44566256	+	TSF	ENST00000591793, ENST00000434772, ENST00000585552, ENST00000593088, ENST00000591850	188,78,78,78,42	2272-2276	BLCA,CESC,HNSC,OV,STAD
chr19:45315805:+>chr19:45316049:+	chr19	45315735	45315805	+	chr19	45316049	45316236	+	TAF	ENST00000589651, ENST00000270233, ENST00000591520	168,168,147	2277-2279	BLCA,BRCA,CESC,HNSC,KIRP,LUAD,LUSC,OV,PRAD,STAD,THCA,THYM
chr19:45315805:+>chr19:45324388:+	chr19	45315735	45315805	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233, ENST00000591520	168,168,147	2280-2282	OV
chr19:45316581:+>chr19:45324388:+	chr19	45316507	45316581	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233, ENST00000591520	193,193,172	2283-2285	OV
chr19:45316603:+>chr19:45323220:+	chr19	45316507	45316603	+	chr19	45323220	45323361	+	TSF	ENST00000589651, ENST00000270233, ENST00000591520	200,200,179	2286-2288	OV
chr19:45316603:+>chr19:45324388:+	chr19	45316507	45316603	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233, ENST00000591520	200,200,179	2289-2291	OV,PRAD
chr19:45317445:+>chr19:45324388:+	chr19	45317409	45317445	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233, ENST00000591520	273,273,252	2292-2294	OV
chr19:45318010:+>chr19:45324388:+	chr19	45317861	45318010	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233	357,357	2295-2296	OV
chr19:45322630:+>chr19:45324372:+	chr19	45322603	45322630	+	chr19	45324372	45324391	+	TSF	ENST00000589651, ENST00000270233	500,5	2297-2298	OV
chr19:45322747:+>chr19:45324388:+	chr19	45322603	45322747	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233	539,539	2299-2300	OV
chr19:45322864:+>chr19:45324388:+	chr19	45322839	45322864	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233	548,548	2301-2302	OV
chr19:45322879:+>chr19:45324388:+	chr19	45322839	45322879	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233	553,553	2303-2304	OV
chr19:45322983:+>chr19:45323867:+	chr19	45322839	45322983	+	chr19	45323867	45323909	+	TSF	ENST00000589651, ENST00000270233	587,587	2305-2306	CESC,LIHC,LUAD,OV,PRAD,UCEC
chr19:45322983:+>chr19:45324388:+	chr19	45322839	45322983	+	chr19	45324388	45324391	+	TSF	ENST00000589651, ENST00000270233	587,587	2307-2308	OV
chr19:45324032:+>chr19:45324358:+	chr19	45323962	45324032	+	chr19	45324358	45324391	+	TSF	ENST00000270233	611	2309	OV
chr19:45324032:+>chr19:45324363:+	chr19	45323962	45324032	+	chr19	45324363	45324391	+	TSF	ENST00000270233	611	2310	OV
chr19:45324032:+>chr19:45324372:+	chr19	45323962	45324032	+	chr19	45324372	45324391	+	TSF	ENST00000270233	611	2311	OV
chr19:45324032:+>chr19:45324388:+	chr19	45323962	45324032	+	chr19	45324388	45324391	+	TSF	ENST00000270233	611	2312	BLCA,OV,STAD
chr19:45324053:+>chr19:45324372:+	chr19	45323962	45324053	+	chr19	45324372	45324391	+	TSF	ENST00000270233	618	2313	OV
chr19:45324053:+>chr19:45324388:+	chr19	45323962	45324053	+	chr19	45324388	45324391	+	TSF	ENST00000270233	618	2314	OV

Table 9

chr19:45324079:+>chr19:45324388:+	chr19	45323962	45324079	+	chr19	45324388	45324391	+	TSF	ENST00000270233	627	2315	OV
chr19:45349870:+>chr19:45365316:+	chr19	45349783	45349870	+	chr19	45365316	45365390	+	TSF	ENST00000252485, ENST00000252483	29,29	2316-2317	LIHC,OV,PRAD,READ,STAD
chr19:45418206:+>chr19:45430934:+	chr19	45418149	45418206	+	chr19	45430934	45430990	+	TSF	ENST00000588750, ENST00000588802, ENST00000592535, ENST00000252491, ENST00000592885, ENST00000589781, ENST00000589078, ENST00000590334, ENST00000586638, ENST00000592176	19,19,19,19, 19,19,19,19, 19,19	2318-2327	GBM,LIHC,THCA
chr19:45419582:+>chr19:45420139:+	chr19	45419447	45419582	+	chr19	45420139	45420241	+	TSF	ENST00000588750, ENST00000588802, ENST00000592535, ENST00000252491, ENST00000592885, ENST00000590334, ENST00000586638	64,64,64,64, 64,64,64	2328-2334	LIHC
chr19:45452117:+>chr19:45452371:+	chr19	45451958	45452117	+	chr19	45452371	45452396	+	TAF	ENST00000589057, ENST00000252490, ENST00000590360, ENST00000585786	148,71,71,71	2335-2338	CHOL,GBM,LGG,LIHC,STAD
chr19:45895138:->chr19:45889495:-	chr19	45895598	45895138	-	chr19	45889495	45889472	-	TSF	ENST00000360957, ENST00000418234	605,605	2339-2340	BLCA,CESC,CHOL,COAD,HNSC,LUAD,LUSC,STAD
chr19:45991729:->chr19:45990601:-	chr19	45991775	45991729	-	chr19	45990601	45990291	-	TSF	ENST00000245923, ENST00000430715, ENST00000344680, ENST00000590526	499,159,426,225	2341-2344	BRCA,GBM,KIRP,LGG,LUSC,PAAD,PCPG,PRAD,SKCM,THCA
chr19:46087881:->chr19:46085924:-	chr19	46088022	46087881	-	chr19	46085924	46085806	-	TSF	ENST00000323060, ENST00000263275	47,47	2345-2346	COAD,LUAD,LUSC,OV,PAAD,STAD
chr19:46498762:+>chr19:46499503:+	chr19	46498683	46498762	+	chr19	46499503	46499685	+	TSF	ENST00000263284	53	2347	BLCA,BRCA,OV,PRAD,READ,SARC,STAD,THYM,UVM
chr19:46627143:->chr19:46623564:-	chr19	46627413	46627143	-	chr19	46623564	46622963	-	TSF	ENST00000341415	116	2348	BLCA,BRCA,CESC,HNSC,LUSC,MESO,PAAD,SARC,SKCM,TGCT
chr19:46627143:->chr19:46623577:-	chr19	46627413	46627143	-	chr19	46623577	46622963	-	TSF	ENST00000341415	116	2349	BLCA,BRCA,CESC,HNSC,KIRC,LUSC,MESO,PAAD,SARC,SKCM,TGCT
chr19:48382293:->chr19:48379566:-	chr19	48382387	48382293	-	chr19	48379566	48379257	-	TSF	ENST00000222002	189	2350	ACC,LIHC,STAD
chr19:48830880:+>chr19:48832237:+	chr19	48830778	48830880	+	chr19	48832237	48832399	+	TSF	ENST00000599704, ENST00000270221, ENST00000599255, ENST00000597279	60,60,60,60	2351-2354	ACC,BLCA,CESC,SARC,SKCM,THCA,UVM
chr19:49122398:->chr19:49121979:-	chr19	49122400	49122398	-	chr19	49121979	49121790	-	TSF	ENST00000549920, ENST00000547897, ENST00000550645, ENST00000552588, ENST00000549370, ENST00000549273	1,1,1,1,1,1	2355-2360	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,LUAD,LUSC,PRAD,READ,SKCM,TGCT,UCEC,UVM
chr19:49334925:->chr19:49322122:-	chr19	49335016	49334925	-	chr19	49322122	49322095	-	TSF	ENST00000263278, ENST00000595764	123,87	2361-2362	ACC,BLCA,BRCA,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PCPG,SKCM,STAD,THYM,UVM
chr19:49497180:+>chr19:49498033:+	chr19	49497169	49497180	+	chr19	49498033	49498189	+	TSF	ENST00000595090, ENST00000595811, ENST00000596247, ENST00000221413, ENST00000593570	4,4,4,4,4	2363-2367	BLCA,BRCA,COAD,HNSC,KIRC,KIRP,LIHC,LUSC,OV,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr19:49714526:+>chr19:49739844:+	chr19	49714421	49714526	+	chr19	49739844	49739922	+	TSF	ENST00000252826, ENST00000427978, ENST00000355712	1213,1068,859	2368-2370	PRAD

Table 9

chr19:50165205:->chr19:50164882:-	chr19	50165585	50165205	-	chr19	50164882	50164836	-	TSF	ENST00000309877, ENST00000600911, ENST00000601291, ENST00000377139, ENST00000597198, ENST00000597636, ENST00000593922, ENST00000599144, ENST00000598808	327,327,327,327,327,32 7,181,181,181	2371-2379	BLCA,BRCA,CHOL, DLBC,KIRP,PAAD,PRAD,THYM,UCEC
chr19:50214114:+>chr19:50214968:+	chr19	50213980	50214114	+	chr19	50214968	50214999	+	TSF	ENST00000323446, ENST00000392518, ENST00000354199, ENST00000598293, ENST00000405931, ENST00000595031	622,622,622,622,611,24 4	2380-2385	ACC,BLCA,CESC,GBM,LGG,LUAD,MESO,PCPG,SARC,TGCT,UCEC,UCS
chr19:504908:+>chr19:505078:+	chr19	504745	504908	+	chr19	505078	505370	+	TSF	ENST00000587541, ENST00000215637, ENST00000346144, ENST00000382683	145,364,277,182	2386-2389	ACC,DLBC,LGG,PAAD,STAD,THCA
chr19:50927012:+>chr19:50927187:+	chr19	50926862	50927012	+	chr19	50927187	50927315	+	TSF	ENST00000599632, ENST00000595883, ENST00000439922	297,163,72	2390-2392	BLCA,BRCA,CHOL, DLBC,HNSC,STAD, THYM
chr19:50984234:+>chr19:51009025:+	chr19	50984141	50984234	+	chr19	51009025	51009080	+	TAF	ENST00000334976, ENST00000376918, ENST00000598585	226,226,226	2393-2395	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr19:51359655:+>chr19:51360009:+	chr19	51359567,51359496,51359590	51359655	+	chr19	51360009	51360064	+	TAF	ENST00000601503, ENST00000326003, ENST00000422986, ENST00000597286, ENST00000597483, ENST00000593997, ENST00000595392, ENST00000595952, ENST00000360617, ENST00000598145	63,49,68,68,68,68,68,68,68,31	2396-2405	PCPG,PRAD
chr19:51361851:+>chr19:51369527:+	chr19	51361715	51361851	+	chr19	51369527	51369763	+	TSF	ENST00000326003, ENST00000597483, ENST00000593997, ENST00000595952, ENST00000360617, ENST00000598145	210,210,210,210,167,16 7	2406-2411	PRAD
chr19:51376775:+>chr19:51382148:+	chr19	51376730	51376775	+	chr19	51382148	51382280	+	TSF	ENST00000325321, ENST00000600690, ENST00000594174, ENST00000597727, ENST00000595316, ENST00000599121, ENST00000358049, ENST00000597439	15,15,15,15,15,15,15,15	2412-2419	PRAD
chr19:51451896:->chr19:51445160:-	chr19	51452029	51451896	-	chr19	51445160	51445047	-	TAF	ENST00000391809, ENST00000336334, ENST00000593428	242,242,242	2420-2422	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,MESO,OV,PAAD,SKCM,STAD,UCEC
chr19:5207933:->chr19:5159115:-	chr19	5208068	5207933	-	chr19	5159115	5158876	-	TAF	ENST00000262963, ENST00000348075, ENST00000353284, ENST00000357368, ENST00000372412, ENST00000587303, ENST00000588012, ENST00000592099	1906,1888,1888,1479,14 79,1926,1926,1927	2423-2430	ACC,BLCA,BRCA,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,UCEC,UCS
chr19:52380535:->chr19:52359220:-	chr19	52380630	52380535	-	chr19	52359220	52358662	-	TSF	ENST00000412216, ENST00000301399, ENST00000420592, ENST00000451628, ENST00000458390	94,94,94,94,94	2431-2435	ACC,BLCA,BRCA,GBM,KIRC,KIRP,LGG,LUAD,OV,PRAD,STAD,THCA,UCEC,UCS
chr19:52671311:->chr19:52666101:-	chr19	52671325	52671311	-	chr19	52666101	52665762	-	TSF	ENST00000597252, ENST00000322146, ENST00000596428, ENST00000597065	5,5,5,5	2436-2439	ACC,BRCA,UCEC
chr19:53321197:->chr19:53258356:-	chr19	53321211	53321197	-	chr19	53258356	53258315	-	TSF	ENST00000457749, ENST00000596559, ENST00000594602	5,5,5	2440-2442	TGCT
chr19:53348432:->chr19:53339322:-	chr19	53348549	53348432	-	chr19	53339322	53339166	-	TSF	ENST00000243639	86	2443	BLCA,BRCA,LIHC,LUSC,OV,STAD,UCEC

Table 9

chr19:53352340:->chr19:53297373:-	chr19	53352467	53352340	-	chr19	53297373	53297176	-	TSF	ENST00000595646, ENST00000243639, ENST00000597924, ENST00000601847	47,47,47,11	2444-2447	BLCA,BRCA,COAD, DLBC,LUSC,OV,UCEC
chr19:53352340:->chr19:53339322:-	chr19	53352467	53352340	-	chr19	53339322	53339166	-	TSF	ENST00000595646, ENST00000243639, ENST00000597924, ENST00000601847	47,47,47,11	2448-2451	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PAAD,READ,SARC,SKCM,STAD,UCEC
chr19:53357511:->chr19:53258356:-	chr19	53357525	53357511	-	chr19	53258356	53258315	-	TSF	ENST00000595646, ENST00000243639, ENST00000597924, ENST00000602144	5,5,5,5	2452-2455	TGCT
chr19:54104519:->chr19:54104407:-	chr19	54104626	54104519	-	chr19	54104407	54104303	-	TSF	ENST00000600193	104	2456	BLCA
chr19:54501567:+>chr19:54502685:+	chr19	54501493	54501567	+	chr19	54502685	54502767	+	TSF	ENST00000252729, ENST00000346968	135,135	2457-2458	BRCA,CESC,CHOL,COAD,LUAD,PAAD,UCEC
chr19:54665838:->chr19:54665366:-	chr19	54666021	54665838	-	chr19	54665366	54665264	-	TSF	ENST00000301187, ENST00000416963, ENST00000376591	562,150,568	2459-2461	BLCA,KICH,KIRC,KIRP,OV,PRAD,THCA,UCEC
chr19:54687404:->chr19:54687313:-	chr19	54687564	54687404	-	chr19	54687313	54687206	-	TSF	ENST00000431666, ENST00000338624, ENST00000245615, ENST00000449249, ENST00000391754, ENST00000495279, ENST00000414665, ENST00000453320	91,91,164,164,164,164,116,38	2462-2469	BLCA,BRCA,OV,STAD
chr19:55178200:+>chr19:55178294:+	chr19	55178149	55178200	+	chr19	55178294	55178458	+	TSF	ENST00000391736, ENST00000270452, ENST00000430952, ENST00000391734, ENST00000391733, ENST00000434286, ENST00000391733, ENST00000391736, ENST00000270452, ENST00000430952, ENST00000391734, ENST00000434286	347,347,347,347,348,346	2470-2475	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,SARC,TGCT
chr19:5680469:->chr19:5680194:-	chr19	5680497	5680469	-	chr19	5680194	5680187	-	TAF	ENST00000309324, ENST00000587589	9,9	2476-2477	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,THCA,THYM,UCEC,UCS,UVM
chr19:58320401:->chr19:58315432:-	chr19	58320471	58320401	-	chr19	58315432	58315298	-	TSF	ENST00000391701	77	2478	BLCA,BRCA,LUAD,PRAD,STAD
chr19:58386524:->chr19:58361929:-	chr19	58386594	58386524	-	chr19	58361929	58361580	-	TSF	ENST00000597348, ENST00000435989	78,78	2479-2480	LUSC,OV,PRAD,UCEC,UCS
chr19:58423428:->chr19:58361929:-	chr19	58423461,58423535,58423557,58423554	58423428	-	chr19	58361929	58361580	-	TSF	ENST00000602124, ENST00000594396, ENST00000312026, ENST00000595559, ENST00000597515, ENST00000598526, ENST00000598629, ENST00000599251	11,11,11,11,11,36,54,53	2481-2488	OV
chr19:58427747:->chr19:58361929:-	chr19	58427779	58427747	-	chr19	58361929	58361580	-	TSF	ENST00000312026, ENST00000595559	11,11	2489-2490	GBM,LIHC,OV,STAD,THCA
chr19:58758160:+>chr19:58785766:+	chr19	58758113	58758160	+	chr19	58785766	58786010	+	TSF	ENST00000599227, ENST00000269829, ENST00000597240, ENST00000594384, ENST00000596825, ENST00000333581, ENST00000596652, ENST00000596677, ENST00000596929, ENST00000595981	69,69,69,69,81,81,81,81,81,81	2491-2500	BRCA,COAD,DLBC,GBM,HNSC,LGG,OV,PCPG,PRAD,SARC,STAD,THYM
chr19:6422351:->chr19:6414524:-	chr19	6422447	6422351	-	chr19	6414524	6414481	-	TSF	ENST00000398148, ENST00000599395	58,115	2501-2502	OV

Table 9

chr19:6444162:->chr19:6436479:-	chr19	6444312	6444162	-	chr19	6436479	6436108	-	TAF	ENST00000598704, ENST00000595810, ENST00000598908, ENST00000264088, ENST00000601322, ENST00000301454, ENST00000593600, ENST00000414491, ENST00000600682, ENST00000334510	76,116,138, 174,454,68, 407,407,170 ,168	2503-2512	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UVM
chr19:6677917:->chr19:6670525:-	chr19	6678034,7	6677917	-	chr19	6670525	6670384	-	TAF	ENST00000245907, ENST00000601008	1656,98	2513-2514	BRCA,CHOL,GBM,KIRC,KIRP,LGG,LIHC,LUAD,MESO,OV,PAAD,READ,STAD,UCEC
chr19:6718105:->chr19:6716545:-	chr19	6718175	6718105	-	chr19	6716545	6716239	-	TSF	ENST00000245907	168	2515	LIHC,LUAD,MESO,OV
chr19:8122765:+>chr19:8301345:+	chr19	8122688,8	8122765	+	chr19	8301345	8301593	+	TSF	ENST00000253451, ENST00000390669	134,135	2516-2517	THYM
chr19:8961952:->chr19:8958092:-	chr19	8962031	8961952	-	chr19	8958092	8957538	-	TSF	ENST00000397910, ENST00000599436, ENST00000380951	14475,1297, 1116	2518-2520	CESC,OV
chr2:110672054:+>chr2:110672249:+	chr2	110671988	110672054	+	chr2	110672249	110672374	+	TSF	ENST00000553749	136	2521	BLCA,BRCA,HNSC,KICH,KIRC,KIRP,LUSC,OV,STAD,UCEC
chr2:111214607:->chr2:111214412:-	chr2	111214673	111214607	-	chr2	111214412	111214287	-	TSF	ENST00000603767, ENST00000447537	136,136	2522-2523	BLCA,BRCA,HNSC,KICH,KIRC,KIRP,LUSC,OV,STAD,UCEC
chr2:112600989:->chr2:112598811:-	chr2	112601176	112600989	-	chr2	112598811	112598755	-	TSF	ENST00000427997, ENST00000341068	214,68	2524-2525	THYM
chr2:112636387:->chr2:112635895:-	chr2	112636548	112636387	-	chr2	112635895	112635435	-	TSF	ENST00000341068, ENST00000451367	125,125	2526-2527	CHOL,THYM
chr2:112933416:+>chr2:112935633:+	chr2	112933291	112933416	+	chr2	112935633	112935771	+	TSF	ENST00000331203, ENST00000409903, ENST00000409450, ENST00000441565	177,177,177 ,71	2528-2531	BLCA,GBM,KIRP,LUAD,LUSC,OV,SARC,SKCM
chr2:127413888:+>chr2:127447276:+	chr2	127413840	127413888	+	chr2	127447276	127447440	+	TSF	ENST00000259254, ENST00000409836	16,16	2532-2533	MESO,SARC,SKCM,UVM
chr2:128260391:->chr2:128258799:-	chr2	128260448	128260391	-	chr2	128258799	128257878	-	TAF	ENST00000295321, ENST00000455721	489,496	2534-2535	BLCA,DLBC,KIRP,LUAD,LUSC,PAAD,STAD,TGCT,UCEC,UCS
chr2:130940348:+>chr2:130944553:+	chr2	130940200	130940348	+	chr2	130944553	130944643	+	TSF	ENST00000425361, ENST00000457492, ENST00000281871, ENST00000409255	70,69,106,106	2536-2539	GBM,OV,STAD
chr2:131128860:+>chr2:131129120:+	chr2	131128772	131128860	+	chr2	131129120	131129406	+	TSF	ENST00000175756, ENST00000347849, ENST00000409022	337,230,142	2540-2542	PRAD,THYM
chr2:131704208:+>chr2:131710021:+	chr2	131704082	131704208	+	chr2	131710021	131712132	+	TSF	ENST00000409359, ENST00000326016, ENST00000392953, ENST00000428230, ENST00000438985, ENST00000525839, ENST00000409303	998,142,142 ,142,142,142,322	2543-2549	CESC,HNSC,LUSC
chr2:131840150:->chr2:131829827:-	chr2	131840219	131840150	-	chr2	131829827	131829686	-	TSF	ENST00000409185, ENST00000389915	23,23	2550-2551	OV,STAD
chr2:132249449:->chr2:132245283:-	chr2	132249597	132249449	-	chr2	132245283	132245193	-	TAF	ENST00000427024, ENST00000309451	92,106	2552-2553	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr2:133425973:->chr2:133381838:-	chr2	133426110	133425973	-	chr2	133381838	133381614	-	TSF	ENST00000397463, ENST00000345008	63,11	2554-2555	BLCA,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV
chr2:135223685:->chr2:135216236:-	chr2	135223796	135223685	-	chr2	135216236	135216223	-	TSF	ENST00000281924	222	2556	BLCA,DLBC,HNSC,KIRP,LGG,LUAD,PAAD,THCA,THYM
chr2:135470770:->chr2:135443800:-	chr2	135470889	135470770	-	chr2	135443800	135443742	-	TSF	ENST00000281924	107	2557	BLCA,HNSC,KIRP,LGG,LIHC,LUAD,SKCM,STAD,THCA
chr2:142237965:->chr2:142187372:-	chr2	142238102	142237965	-	chr2	142187372	142187047	-	TSF	ENST00000389484	114	2558	BLCA,BRCA,LIHC

Table 9

chr2:143743590:+>chr2:143745513:+	chr2	143743517	143743590	+	chr2	143745513	143745682	+	TSF	ENST00000264170, ENST00000375773, ENST00000409512	300,300,300	2559-2561	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,SARC,SKCM
chr2:153003676:->chr2:153001350:-	chr2	153003822	153003676	-	chr2	153001350	153001066	-	TSF	ENST00000263904	149	2562	BLCA,BRCA,CESC,HNSC,KIRC,LUSC
chr2:153591640:+>chr2:153613426:+	chr2	153591508	153591640	+	chr2	153613426	153613893	+	TAF	ENST00000326446	195	2563	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LUAD,LUSC,OV,PAAD,STAD,TGCT,THCA,THYM
chr2:155115651:+>chr2:155142972:+	chr2	155115534	155115651	+	chr2	155142972	155143021	+	TSF	ENST00000392825, ENST00000409237	325,325	2564-2565	LGG
chr2:160176785:->chr2:160172085:-	chr2	160176929	160176785	-	chr2	160172085	160171780	-	TSF	ENST00000343439, ENST00000355831, ENST00000392782, ENST00000392783	2066,2132,2130,2166	2566-2569	BLCA,HNSC,OV,STAD
chr2:172725191:->chr2:172723793:-	chr2	172725333	172725191	-	chr2	172723793	172722363	-	TSF	ENST00000422440, ENST00000263812, ENST00000392592, ENST00000426896, ENST00000475360	69,69,69,1,65	2570-2574	BLCA,BRCA,CESC,HNSC,LUSC,OV,TGCT
chr2:175809616:->chr2:175805622:-	chr2	175809671	175809616	-	chr2	175805622	175805109	-	TAF	ENST00000409900, ENST00000409156	38,38	2575-2576	BRCA,GBM,KICH,KIRC,LGG,PAAD,SARC,STAD,TGCT,THCA,UCEC
chr2:176860286:->chr2:176859008:-	chr2	176860312	176860286	-	chr2	176859008	176858934	-	TSF	ENST00000272748, ENST00000544803, ENST00000392540, ENST00000445472, ENST00000392540, ENST00000272748, ENST00000544803, ENST00000445472	9,9,9,2	2577-2580	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,OV,SKCM,STAD
chr2:192546743:+>chr2:192548016:+	chr2	192546682	192546743	+	chr2	192548016	192548103	+	TSF	ENST00000307834, ENST00000307849, ENST00000410026, ENST00000451500, ENST00000409510, ENST00000425611, ENST00000435931, ENST00000307849, ENST00000451500, ENST00000425611, ENST00000435931, ENST00000307834, ENST00000410026, ENST00000409510	20,20,20,100,100,100,70	2581-2587	CESC,HNSC,LUAD,LUSC,MESO,SARC
chr2:193044394:->chr2:192957935:-	chr2	193044420	193044394	-	chr2	192957935	192957907	-	TSF	ENST00000392314, ENST00000272771, ENST00000409056	146,146,146	2588-2590	PRAD
chr2:193044394:->chr2:193026176:-	chr2	193044420	193044394	-	chr2	193026176	193025896	-	TSF	ENST00000392314, ENST00000272771, ENST00000409056	146,146,146	2591-2593	PRAD
chr2:197662521:->chr2:197661554:-	chr2	197662632	197662521	-	chr2	197661554	197661227	-	TSF	ENST00000263956, ENST00000409364	71,71	2594-2595	BRCA,CESC,COAD,GBM,HNSC,LUSC,OV,SKCM,UCEC
chr2:207146633:+>chr2:207156738:+	chr2	207146574	207146633	+	chr2	207156738	207157223	+	TSF	ENST00000374423	20	2596	COAD,KIRC,LUAD,PCPG,SARC,STAD,UCEC
chr2:211342490:+>chr2:211384275:+	chr2	211342488	211342490	+	chr2	211384275	211384452	+	TAF	ENST00000523702, ENST00000430249	1,1	2597-2598	BLCA,BRCA,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr2:211452871:+>chr2:211454033:+	chr2	211452782	211452871	+	chr2	211454033	211454053	+	TSF	ENST00000430249, ENST00000233072	243,237	2599-2600	LIHC,LUAD,STAD
chr2:214228869:+>chr2:214233538:+	chr2	214228800	214228869	+	chr2	214233538	214233723	+	TSF	ENST00000331683, ENST00000272898, ENST00000447990, ENST00000374309, ENST00000413312, ENST00000331683, ENST00000413312, ENST00000272898, ENST00000447990, ENST00000374309	277,277,277,246,183	2601-2605	BLCA,BRCA,KIRC,LIHC,OV,PAAD,UCEC

Table 9

chr2:217364754:+>chr2:217393976:+	chr2	217364672	217364754	+	chr2	217393976	217394327	+	TSF	ENST00000491306, ENST00000600880, ENST00000446558, ENST00000456586, ENST00000598925, ENST00000427280, ENST00000441179	71,71,71,47, 47,47,47	2606-2612	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LUSC,OV,PRAD,SARC,STAD,TGCT,THCA,THYM,UCEC
chr2:217366082:+>chr2:217393993:+	chr2	217366064	217366082	+	chr2	217393993	217394327	+	TSF	ENST00000491306, ENST00000456586	78,54	2613-2614	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,OV,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS,UVM
chr2:219204864:+>chr2:219211310:+	chr2	219204752	219204864	+	chr2	219211310	219211505	+	TSF	ENST00000273077, ENST00000258362, ENST00000436005	155,131,95	2615-2617	OV
chr2:219848953:->chr2:219847374:-	chr2	219849027	219848953	-	chr2	219847374	219847276	-	TSF	ENST00000295727	42	2618	PAAD,PCPG,PRAD,STAD
chr2:220239577:->chr2:220227530:-	chr2	220239744	220239577	-	chr2	220227530	220227195	-	TAF	ENST00000273075, ENST00000373972, ENST00000523282	469,394,477	2619-2621	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr2:220380028:+>chr2:220383470:+	chr2	220379066	220380028	+	chr2	220383470	220383510	+	TSF	ENST00000347842, ENST00000358078	321,321	2622-2623	LGG
chr2:230135730:->chr2:230127609:-	chr2	230135759	230135730	-	chr2	230127609	230127321	-	TAF	ENST00000409462, ENST00000392055, ENST00000534952	10,10,10	2624-2626	BLCA,CESC,CHOL,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,PRAD,READ,SARC,STAD
chr2:230377499:->chr2:230370969:-	chr2	230377652	230377499	-	chr2	230370969	230370811	-	TSF	ENST00000341772	382	2627	ACC,GBM,KIRC,LGG
chr2:230411663:->chr2:230409543:-	chr2	230411808	230411663	-	chr2	230409543	230409247	-	TSF	ENST00000341772	331	2628	GBM,STAD
chr2:231065601:->chr2:231054571:-	chr2	231065681	231065601	-	chr2	231054571	231054311	-	TAF	ENST00000258381, ENST00000358662, ENST00000392048, ENST00000258382, ENST00000540870, ENST00000338556	376,376,376 ,374,382,78	2629-2634	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,READ,SARC,SKCM,STAD,UCEC
chr2:231236366:+>chr2:231236728:+	chr2	231236313	231236366	+	chr2	231236728	231236962	+	TSF	ENST00000444636, ENST00000415673, ENST00000243810, ENST00000396563, ENST00000458341	212,212,212 ,212,125	2635-2639	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,PAAD,STAD,THYM
chr2:241555928:+>chr2:241556208:+	chr2	241555805	241555928	+	chr2	241556208	241556489	+	TSF	ENST00000270364	132	2640	CESC,COAD,KIRC,LUAD,PAAD,READ,STAD,UCEC
chr2:241555928:+>chr2:241556476:+	chr2	241555805	241555928	+	chr2	241556476	241556489	+	TSF	ENST00000270364	132	2641	COAD,STAD
chr2:241555928:+>chr2:241556590:+	chr2	241555805	241555928	+	chr2	241556590	241556603	+	TSF	ENST00000270364	132	2642	COAD,STAD
chr2:242275513:+>chr2:242276200:+	chr2	242275390	242275513	+	chr2	242276200	242276228	+	TAF	ENST00000391973, ENST00000428282, ENST00000360051, ENST00000407017, ENST00000391971, ENST00000401990, ENST00000407971, ENST00000436795, ENST00000411484, ENST00000402092, ENST00000443492, ENST00000437066, ENST00000449239, ENST00000457874	113,113,113 ,113,113,11 3,113,73,73, 73,73,123,1 24,85	2643-2656	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr2:24550921:->chr2:24544749:-	chr2	24550951	24550921	-	chr2	24544749	24544681	-	TAF	ENST00000361999, ENST00000355123, ENST00000406921, ENST00000412011	10,10,10,10	2657-2660	BRCA,DLBC,HNSC,KIRC,KIRP,LUAD,OV,STAD,THCA

Table 9

chr2:26625012:+>chr2:26630464:+	chr2	26624858	26625012	+	chr2	26630464	26631004	+	TAF	ENST00000288710, ENST00000421869	51,51	2661-2662	BLCA,BRCA,CESC,GBM,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,STAD,TGCT,UCEC,UCS
chr2:27320517:+>chr2:27321791:+	chr2	27320371	27320517	+	chr2	27321791	27321916	+	TAF	ENST00000260599, ENST00000260598, ENST00000429697	188,188,233	2663-2665	BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,PRAD,READ,THYM,UCS
chr2:27609956:->chr2:27609703:-	chr2	27610025	27609956	-	chr2	27609703	27609426	-	TSF	ENST00000344034, ENST00000350803	63,63	2666-2667	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LUAD,LUSC,PCPG,SARC,STAD,TGCT,THYM
chr2:28352247:+>chr2:28362015:+	chr2	28352138	28352247	+	chr2	28362015	28362218	+	TSF	ENST00000344773, ENST00000379624, ENST00000342045, ENST00000361704, ENST00000379632, ENST00000379629	226,226,226,226,226,226	2668-2673	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC
chr2:33784097:+>chr2:33793051:+	chr2	33783739	33784097	+	chr2	33793051	33793065	+	TSF	ENST00000402538, ENST00000403687, ENST00000407811	688,688,687	2674-2676	BRCA,DLBC,UVM
chr2:42924974:+>chr2:42925555:+	chr2	42924916	42924974	+	chr2	42925555	42925601	+	TAF	ENST00000405592, ENST00000406652, ENST00000407270, ENST00000454356, ENST00000406911, ENST00000409019, ENST00000405094	285,285,341,341,341,341	2677-2683	BLCA,BRCA,CESC,LUAD,LUSC,TGCT,THYM
chr2:47690293:+>chr2:47691419:+	chr2	47690170	47690293	+	chr2	47691419	47691669	+	TSF	ENST00000233146, ENST00000543555, ENST00000406134	503,503,437	2684-2686	BLCA,BRCA,CESC,COAD,HNSC,LGG,LUSC,TGCT
chr2:69173436:->chr2:69171675:-	chr2	69173592	69173436	-	chr2	69171675	69168240	-	TSF	ENST00000328895, ENST00000481498	157,157	2687-2688	LUAD,SARC,STAD
chr2:71163202:+>chr2:71168794:+	chr2	71163085	71163202	+	chr2	71168794	71168842	+	TSF	ENST00000234396, ENST00000432367, ENST00000412314	39,39,39	2689-2691	BRCA,KICH,KIRC,MESO,OV
chr2:71216879:->chr2:71213835:-	chr2	71216946	71216879	-	chr2	71213835	71213417	-	TSF	ENST00000606025, ENST00000272438	124,124	2692-2693	OV
chr2:71216879:->chr2:71213852:-	chr2	71216946	71216879	-	chr2	71213852	71213417	-	TSF	ENST00000606025, ENST00000272438	124,124	2694-2695	OV,STAD
chr2:71607695:+>chr2:71620524:+	chr2	71607643	71607695	+	chr2	71620524	71622486	+	TAF	ENST00000377802, ENST00000355812, ENST00000264447, ENST00000409544	792,792,792,792	2696-2699	BLCA,LIHC,LUSC,TGCT
chr2:74762419:->chr2:74762269:-	chr2	74762581	74762419	-	chr2	74762269	74761994	-	TSF	ENST00000264094, ENST00000393937, ENST00000409549, ENST00000409986	526,381,381,470	2700-2703	PCPG,SKCM
chr2:85991305:+>chr2:86045431:+	chr2	85991114	85991305	+	chr2	86045431	86045447	+	TAF	ENST00000306279	320	2704	BLCA,KIRC,LGG,LUAD,PRAD,THCA,THYM
chr2:86769375:->chr2:86768487:-	chr2	86769435	86769375	-	chr2	86768487	86767721	-	TAF	ENST00000263856, ENST00000409727, ENST00000439940, ENST00000604011, ENST00000440757	35,35,64,64,142	2705-2709	ACC,BLCA,BRCA,CESC,COAD,GBM,KIRC,KIRP,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,STAD,THCA,UCEC
chr2:87072045:->chr2:87069500:-	chr2	87072081	87072045	-	chr2	87069500	87069472	-	TAF	ENST00000393759, ENST00000349455, ENST00000331469, ENST00000390655, ENST00000431506	206,206,206,176,26	2710-2714	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,SARC,STAD,TGCT,THCA,THYM,UCEC
chr2:87135139:+>chr2:87137322:+	chr2	87135092	87135139	+	chr2	87137322	87137378	+	TSF	ENST00000409776	16	2715	BRCA,CESC,THCA,THYM,UCEC
chr2:87135139:+>chr2:87147014:+	chr2	87135092	87135139	+	chr2	87147014	87147070	+	TSF	ENST00000409776	16	2716	BRCA,CESC,THCA,THYM
chr2:87144801:+>chr2:87147014:+	chr2	87144754	87144801	+	chr2	87147014	87147070	+	TSF	ENST00000559485	16	2717	BRCA,CESC,THCA,THYM
chr2:88285246:->chr2:88283035:-	chr2	88285293	88285246	-	chr2	88283035	88282979	-	TSF	ENST00000420840	16	2718	CESC,THCA,THYM
chr2:89160398:->chr2:89129384:-	chr2	89160434	89160398	-	chr2	89129384	89129304	-	TSF	ENST00000390239	12	2719	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SKCM,STAD,TGCT,THCA

Table 9

chr2:89416936:->chr2:89370042:-	chr2	89417128	89416936	-	chr2	89370042	89366766	-	TSF	ENST00000490686	82	2720	BLCA,CESC,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,SKCM,TGCT,THCA
chr2:89512947:->chr2:89389297:-	chr2	89513203	89512947	-	chr2	89389297	89388194	-	TSF	ENST00000498435	104	2721	BLCA,BRCA,HNSC,KIRC,KIRP,LUAD,LUSC,PAAD,READ,TGCT,THCA,UCEC
chr2:99786013:->chr2:99784175:-	chr2	99786073	99786013	-	chr2	99784175	99783867	-	TAF	ENST00000422537, ENST00000289359, ENST00000409107	200,218,189	2722-2724	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,THCA,THYM,UCEC,UCS,UVM
chr20:1145120:+>chr20:1166984:+	chr20	1144962	1145120	+	chr20	1166984	1167052	+	TSF	ENST00000381898, ENST00000333082, ENST00000246015, ENST00000335877, ENST00000438768, ENST00000435720	166,254,254,254,192,96	2725-2730	BLCA,BRCA,CESC,DLBC,GBM,LGG,PRAD,SKCM,STAD,THCA
chr20:24565629:+>chr20:24627217:+	chr20	24565492	24565629	+	chr20	24627217	24627262	+	TSF	ENST00000376862	206	2731	GBM,KIRC,LGG,OV,PAAD,THYM
chr20:29632721:+>chr20:29652086:+	chr20	29632611	29632721	+	chr20	29652086	29652324	+	TSF	ENST00000278882, ENST00000358464	178,178	2732-2733	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr20:29978226:->chr20:29976162:-	chr20	29978286	29978226	-	chr20	29976162	29976126	-	TSF	ENST00000339144, ENST00000376321, ENST00000376315	20,20,20	2734-2736	LGG,TGCT,UVM
chr20:30060759:->chr20:30059856:-	chr20	30060816	30060759	-	chr20	30059856	30059283	-	TSF	ENST00000317676	19	2737	LUSC,OV,SKCM,TGCT
chr20:30451710:->chr20:30450876:-	chr20	30451784	30451710	-	chr20	30450876	30450767	-	TSF	ENST00000278979, ENST00000375966, ENST00000339738, ENST00000428829	84,84,87,76	2738-2741	ACC,BLCA,KICH,KIRC,THCA,UVM
chr20:30451710:->chr20:30450952:-	chr20	30451784	30451710	-	chr20	30450952	30450767	-	TSF	ENST00000278979, ENST00000375966, ENST00000339738, ENST00000428829	84,84,87,76	2742-2745	ACC,BRCA,DLBC,KICH,KIRC,STAD,THCA,UCEC,UCS,UVM
chr20:32247303:->chr20:32246861:-	chr20	32247538	32247303	-	chr20	32246861	32246725	-	TAF	ENST00000246190, ENST00000375238, ENST00000480994	293,259,38	2746-2748	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,TGCT,THCA,UCEC,UCS,UVM
chr20:33137833:+>chr20:33138384:+	chr20	33137782	33137833	+	chr20	33138384	33138773	+	TSF	ENST00000374837	17	2749	BRCA,CESC,COAD,HNSC,LUSC,OV,PRAD,READ,STAD,THYM,UCEC
chr20:33356267:->chr20:33350617:-	chr20	33356389	33356267	-	chr20	33350617	33350460	-	TSF	ENST00000374796, ENST00000359003	171,171	2750-2751	BRCA,HNSC,OV,STAD
chr20:33439034:->chr20:33438000:-	chr20	33439171	33439034	-	chr20	33438000	33437979	-	TAF	ENST00000336431	575	2752	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,TGCT,THYM,UCEC,UCS
chr20:35842268:+>chr20:35844460:+	chr20	35842163	35842268	+	chr20	35844460	35844765	+	TAF	ENST00000237530, ENST00000373622	364,332	2753-2754	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM

Table 9

chr20:3615036:+>chr20:3615708:+	chr20	3614958	3615036	+	chr20	3615708	3616042	+	TSF	ENST00000262919	1314	2755	BLCA,BRCA,CESC,CHOL,HNSC,LGG,LIHC,LUAD,LUSC,STAD,TGCT,THCA,UCEC
chr20:3654001:->chr20:3653870:-	chr20	3654143	3654001	-	chr20	3653870	3653815	-	TAF	ENST00000356518, ENST00000379861, ENST00000350009	377,377,377	2756-2758	GBM,KICH,KIRC,LGG,LUAD,MESO,OV,PRAD,SARC,STAD,TGCT,UCS
chr20:36767968:->chr20:36757686:-	chr20	36768056	36767968	-	chr20	36757686	36757563	-	TSF	ENST00000361475, ENST00000536701, ENST00000536724	396,315,336	2759-2761	OV,STAD
chr20:37002657:+>chr20:37003944:+	chr20	37002581	37002657	+	chr20	37003944	37004237	+	TAF	ENST00000217407	467	2762	BRCA,CHOL,KIRC,LIHC,LUAD,SARC
chr20:37384682:+>chr20:37390296:+	chr20	37384500	37384682	+	chr20	37390296	37390409	+	TSF	ENST00000243903	392	2763	BLCA,CESC,COAD,KIRP,LUAD,LUSC,PRAD,STAD,TGCT,UCEC
chr20:3843060:+>chr20:3854441:+	chr20	3842901	3843060	+	chr20	3854441	3854475	+	TSF	ENST00000416600, ENST00000428216	67,208	2764-2765	BLCA,COAD,GBM,HNSC,LGG,LUSC,OV,SKCM,STAD
chr20:3845435:+>chr20:3854441:+	chr20	3844903	3845435	+	chr20	3854441	3854475	+	TAF	ENST00000416600, ENST00000428216	245,386	2766-2767	BLCA,BRCA,CESC,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,THCA,UVM
chr20:40101962:->chr20:40101067:-	chr20	40102157	40101962	-	chr20	40101067	40101036	-	TSF	ENST00000373233	888	2768	BRCA,CESC,LUAD,TGCT
chr20:41100906:->chr20:41094843:-	chr20	41101202	41100906	-	chr20	41094843	41094411	-	TSF	ENST00000356100, ENST00000373184, ENST00000373187, ENST00000373190, ENST00000373193, ENST00000373198, ENST00000373201	483,483,483,483,483,483,483	2769-2775	BRCA
chr20:41306506:->chr20:41171740:-	chr20	41306799	41306506	-	chr20	41171740	41171524	-	TSF	ENST00000356100, ENST00000373184, ENST00000373187, ENST00000373190, ENST00000373193, ENST00000373198, ENST00000373201	384,384,384,384,384,384,384	2776-2782	BLCA,BRCA
chr20:41306506:->chr20:41225908:-	chr20	41306799	41306506	-	chr20	41225908	41225560	-	TSF	ENST00000356100, ENST00000373184, ENST00000373187, ENST00000373190, ENST00000373193, ENST00000373198, ENST00000373201	384,384,384,384,384,384,384	2783-2789	BRCA,LUSC
chr20:42788258:->chr20:42726338:-	chr20	42789047	42788258	-	chr20	42726338	42726029	-	TSF	ENST00000372980	389	2790	SARC
chr20:43561073:+>chr20:43561176:+	chr20	43560983	43561073	+	chr20	43561176	43561224	+	TAF	ENST00000255136, ENST00000217073	443,443	2791-2792	BLCA,BRCA,CESC,CHOL,COAD,DLBC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr20:43752748:->chr20:43744893:-	chr20	43752906	43752748	-	chr20	43744893	43744813	-	TSF	ENST00000372785	79	2793	KIRP
chr20:43881643:->chr20:43880953:-	chr20	43881792	43881643	-	chr20	43880953	43880903	-	TAF	ENST00000338380	131	2794	BRCA,CESC,HNSC,LIHC,LUAD,LUSC,MESO,OV,PAAD,STAD,THCA,THYM,UCEC
chr20:44333136:->chr20:44322980:-	chr20	44333200	44333136	-	chr20	44322980	44322621	-	TSF	ENST00000335769	46	2795	BRCA,LUAD,LUSC,SARC
chr20:45644936:+>chr20:45656785:+	chr20	45644820	45644936	+	chr20	45656785	45656967	+	TSF	ENST00000327619, ENST00000357410, ENST00000497062, ENST00000317304, ENST00000458636	138,138,138,114,91	2796-2800	CESC,HNSC,LUSC,OV,UCEC,UCS
chr20:45725807:+>chr20:45728490:+	chr20	45725724	45725807	+	chr20	45728490	45728598	+	TSF	ENST00000327619, ENST00000357410, ENST00000317304, ENST00000458636	296,296,296,167	2801-2804	CESC,LUAD,LUSC,OV,THYM,UCEC

Table 9

chr20:47768119:->chr20:47761186:-	chr20	47768284	47768119	-	chr20	47761186	47760181	-	TAF	ENST00000371828, ENST00000340954, ENST00000347458, ENST00000360426, ENST00000371792, ENST00000371802, ENST00000371856, ENST00000437404, ENST00000456866	89,89,89,89, 89,89,89,17 0,129	2805-2813	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr20:48124521:->chr20:48123357:-	chr20	48124601	48124521	-	chr20	48123357	48123321	-	TAF	ENST00000244043	479	2814	BLCA,KIRC,LUAD,MESO,OV,PAAD,SARC,STAD
chr20:48184580:->chr20:48177475:-	chr20	48184653	48184580	-	chr20	48177475	48177085	-	TSF	ENST00000244043	24	2815	BLCA,BRCA,CESC,GBM,LGG,LUAD,MESO,OV,PAAD,SARC,SKCM,STAD,UCS
chr20:48273105:->chr20:48264429:-	chr20	48273239	48273105	-	chr20	48264429	48264382	-	TAF	ENST00000371711	83	2816	BLCA,BRCA,COAD,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,READ,SKCM,STAD
chr20:49458437:+>chr20:49468479:+	chr20	49458303	49458437	+	chr20	49468479	49468517	+	TSF	ENST00000358791, ENST00000371608, ENST00000609336	163,163,133	2817-2819	BRCA,DLBC,KICH,LUAD,OV,PAAD,STAD,THYM,UCS,UVM
chr20:50803371:->chr20:50801861:-	chr20	50803611	50803371	-	chr20	50801861	50801561	-	TSF	ENST00000371518, ENST00000361387, ENST00000346617, ENST00000371515, ENST00000216923	95,95,95,95, 93	2820-2824	BRCA,CESC,DLBC,TGCT
chr20:52831979:+>chr20:52835531:+	chr20	52831839	52831979	+	chr20	52835531	52835553	+	TSF	ENST00000371419, ENST00000441080	91,91	2825-2826	BLCA,BRCA,CESC,COAD,LUAD,OV,STAD,TGCT
chr20:53092551:+>chr20:53111339:+	chr20	53092486	53092551	+	chr20	53111339	53111426	+	TAF	ENST00000262593	22	2827	ACC,BLCA,BRCA,CESC,CHOL,DLBC,GBM,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr20:55803285:->chr20:55781390:-	chr20	55803477	55803285	-	chr20	55781390	55781345	-	TSF	ENST00000395863, ENST00000395864, ENST00000450594, ENST00000433911	203,203,203 ,89	2828-2831	BLCA,CESC,COAD,HNSC,LGG,LUSC,OV,SARC
chr20:58581842:+>chr20:58600042:+	chr20	58581768	58581842	+	chr20	58600042	58600249	+	TSF	ENST00000244047, ENST00000348616, ENST00000370991, ENST00000244049, ENST00000350849, ENST00000456106	724,765,315 ,57,98,75	2832-2837	BLCA,LUSC,PRAD
chr20:5904677:+>chr20:5911058:+	chr20	5902981	5904677	+	chr20	5911058	5911312	+	TSF	ENST00000378961	629	2838	ACC,LUAD,PCPG,THYM
chr20:6015201:+>chr20:6020406:+	chr20	6015110	6015201	+	chr20	6020406	6020676	+	TAF	ENST00000378863, ENST00000378868	273,174	2839-2840	BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,MESO,OV,PAAD,PRAD,READ,SARC,STAD,THYM,UCEC,UCS
chr20:6017789:+>chr20:6020406:+	chr20	6017720	6017789	+	chr20	6020406	6020676	+	TSF	ENST00000378863, ENST00000378868	297,198	2841-2842	BRCA,GBM,HNSC,LGG,LIHC,THYM
chr20:60578216:->chr20:60576919:-	chr20	60578330	60578216	-	chr20	60576919	60576839	-	TSF	ENST00000252996, ENST00000488539	828,163	2843-2844	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,PRAD,READ,SARC,SKCM,TGCT
chr20:61300430:+>chr20:61301309:+	chr20	61300282	61300430	+	chr20	61301309	61301456	+	TSF	ENST00000217159, ENST00000370507, ENST00000451793	675,675,104	2845-2847	CESC,COAD,HNSC,KIRC,STAD
chr20:62069978:->chr20:62066140:-	chr20	62070073	62069978	-	chr20	62066140	62065806	-	TSF	ENST00000357249, ENST00000359125, ENST00000354587, ENST00000359689, ENST00000360480, ENST00000370224, ENST00000344462, ENST00000344425	341,341,341 ,341,341,34 1,341,341	2848-2855	GBM,KIRP,LGG,PCPG
chr20:62328875:+>chr20:62334477:+	chr20	62328681	62328875	+	chr20	62334477	62334522	+	TSF	ENST00000369996	206	2856	BLCA,CESC,COAD,HNSC,KIRP,PAAD,STAD,UCEC

Table 9

chr20:62612669:+>chr20:62612803:+	chr20	62612599	62612669	+	chr20	62612803	62612943	+	TSF	ENST00000535781, ENST00000266079	23,23	2857-2858	BLCA,BRCA,LGG,LUAD,OV,PAAD,PCPG,STAD
chr20:9382237:+>chr20:9383648:+	chr20	9382137	9382237	+	chr20	9383648	9383757	+	TSF	ENST00000334005, ENST00000378473, ENST00000278655, ENST00000414679, ENST00000378493, ENST00000378501	537,537,537,537,537,537	2859-2864	BRCA,CESC,COAD,GBM,KIRC,KIRP,LUSC,READ,SKCM,STAD,THCA,UCEC,UCS
chr20:9454012:+>chr20:9484605:+	chr20	9453926	9454012	+	chr20	9484605	9485169	+	TAF	ENST00000334005, ENST00000378473, ENST00000278655, ENST00000414679, ENST00000378493, ENST00000378501	1153,1153,1153,1153,1165	2865-2870	BLCA,BRCA,CESC,COAD,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr21:39762917:->chr21:39739570:-	chr21	39762964	39762917	-	chr21	39739570	39739188	-	TSF	ENST00000398905, ENST00000398907, ENST00000288319, ENST00000398897, ENST00000398911, ENST00000398910, ENST00000417133, ENST00000442448, ENST00000453032, ENST00000398919	282,283,306,190,289,289,290,313,313,214	2871-2880	PRAD
chr21:42540502:+>chr21:42572645:+	chr21	42540191	42540502	+	chr21	42572645	42572848	+	TSF	ENST00000328735, ENST00000330333, ENST00000347667	104,104,104	2881-2883	COAD,KICH,KIRP,OV,SARC,SKCM,STAD,UCEC
chr21:42622828:+>chr21:42628809:+	chr21	42622679	42622828	+	chr21	42628809	42628810	+	TAF	ENST00000328735, ENST00000330333	378,378	2884-2885	CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,THYM,UCEC,UVM
chr21:42629253:+>chr21:42635352:+	chr21	42629085	42629253	+	chr21	42635352	42635428	+	TAF	ENST00000330333, ENST00000347667	434,384	2886-2887	BRCA,CESC,COAD,KICH,KIRC,LIHC,LUAD,LUSC,PAAD,PRAD,SKCM,STAD,UCEC
chr21:42720651:+>chr21:42720974:+	chr21	42720519	42720651	+	chr21	42720974	42721052	+	TSF	ENST00000357985, ENST00000398647, ENST00000398652, ENST00000398646	206,158,245,229	2888-2891	BLCA,PRAD
chr21:43967250:+>chr21:43968760:+	chr21	43967213	43967250	+	chr21	43968760	43968869	+	TSF	ENST00000398341, ENST00000352133	256,256	2892-2893	PRAD
chr21:45222268:+>chr21:45240407:+	chr21	45222155	45222268	+	chr21	45240407	45240709	+	TSF	ENST00000497547	374	2894	BLCA,BRCA,CESC,COAD,HNSC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,UCEC,UCS
chr21:45379740:+>chr21:45380513:+	chr21	45379563	45379740	+	chr21	45380513	45380695	+	TAF	ENST00000291572, ENST00000448287, ENST00000398061, ENST00000327505, ENST00000445582, ENST00000398063, ENST00000398058, ENST00000457068, ENST00000422850, ENST00000546158	59,59,59,59,59,59,59,59,59,59	2895-2904	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UVM
chr21:46306651:->chr21:46302588:-	chr21	46306817	46306651	-	chr21	46302588	46302215	-	TSF	ENST00000397852, ENST00000397857, ENST00000397854, ENST00000355153, ENST00000397850, ENST00000302347	749,749,749,749,749,749,692	2905-2910	BRCA,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,READ,SARC,TGCT,THCA,THYM
chr22:21134489:+>chr22:21136178:+	chr22	21133601	21134489	+	chr22	21136178	21136264	+	TSF	ENST00000215727, ENST00000406799	296,296	2911-2912	LIHC
chr22:21576155:->chr22:21575420:-	chr22	21576241	21576155	-	chr22	21575420	21575160	-	TAF	ENST00000405188, ENST00000401924, ENST00000424627	127,127,127	2913-2915	BLCA,BRCA,KIRC,KIRP,LUAD,LUSC,THCA,UCEC
chr22:22279942:->chr22:22279401:-	chr22	22280035	22279942	-	chr22	22279401	22279262	-	TSF	ENST00000263212, ENST00000407142, ENST00000538191, ENST00000397495	328,328,160,224	2916-2919	ACC,BLCA,CESC,COAD,DLBC,HNSC,LIHC,STAD,UCEC,UCS

Table 9

chr22:22786736:+>chr22:22832893:+	chr22	22786497	22786736	+	chr22	22832893	22833352	+	TSF	ENST00000390301	95	2920	BRCA,HNSC,LUAD,LUSC,THCA
chr22:23165642:+>chr22:23175722:+	chr22	23165476	23165642	+	chr22	23175722	23175755	+	TSF	ENST00000390317	71	2921	BRCA,CESC,HNSC,LUAD,LUSC,PAAD,STAD,TGCT,THCA
chr22:23955476:->chr22:23925665:-	chr22	23955517	23955476	-	chr22	23925665	23925612	-	TSF	ENST00000317749	228	2922	GBM,KIRC,KIRP,LUAD,THCA
chr22:24200216:+>chr22:24200767:+	chr22	24200187	24200216	+	chr22	24200767	24200784	+	TSF	ENST00000436643, ENST00000316185	10,1	2923-2924	GBM,OV,PRAD,SARC,STAD,UCEC
chr22:24237131:+>chr22:24237181:+	chr22	24236959	24237131	+	chr22	24237181	24237187	+	TSF	ENST00000433835, ENST00000215754	201,93	2925-2926	OV,STAD
chr22:24323226:+>chr22:24324557:+	chr22	24323139	24323226	+	chr22	24324557	24324632	+	TAF	ENST00000215780, ENST00000402588	66,66	2927-2928	ACC,BLCA,BRCA,CESC,GBM,KIRC,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr22:25011094:+>chr22:25011829:+	chr22	25011008	25011094	+	chr22	25011829	25012092	+	TAF	ENST00000248923, ENST00000412658, ENST00000419133, ENST00000400382, ENST00000452551, ENST00000400383, ENST00000400380, ENST00000406383, ENST00000425895	127,127,127,127,127,12,127,127,127	2929-2937	BLCA,BRCA,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,THCA,THYM,UCEC
chr22:25202451:+>chr22:25209976:+	chr22	25202408	25202451	+	chr22	25209976	25210040	+	TSF	ENST00000400358, ENST00000400359	21,21	2938-2939	BLCA,BRCA,CESC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,SARC,STAD,THYM,UCEC
chr22:26747209:+>chr22:26750424:+	chr22	26747018	26747209	+	chr22	26750424	26750495	+	TSF	ENST00000404234, ENST00000529632, ENST00000248933, ENST00000343706, ENST00000402979, ENST00000403121, ENST00000411842	866,866,866,866,639,639,63	2940-2946	BRCA,GBM,KIRC,LGG,PAAD
chr22:29886410:+>chr22:29909572:+	chr22	29884838	29886410	+	chr22	29909572	29909695	+	TSF	ENST00000310624	927	2947	PRAD
chr22:32802649:->chr22:32801674:-	chr22	32802748	32802649	-	chr22	32801674	32801574	-	TSF	ENST00000216038, ENST00000451746	113,113	2948-2949	BLCA,BRCA,HNSC,KIRC,LUSC,SKCM,UCS
chr22:35819334:+>chr22:35822985:+	chr22	35819207	35819334	+	chr22	35822985	35823438	+	TSF	ENST00000216122, ENST00000382011	701,658	2950-2951	BLCA,CESC,DLBC,HNSC,LIHC,LUSC,MESO,SARC,TGCT,THYM,UCEC
chr22:35819334:+>chr22:35844184:+	chr22	35819207	35819334	+	chr22	35844184	35844261	+	TSF	ENST00000216122, ENST00000382011	701,658	2952-2953	BLCA,CESC,COAD,HNSC,KIRP,LIHC,LUSC,OV,TGCT,UCEC
chr22:35819334:+>chr22:35846150:+	chr22	35819207	35819334	+	chr22	35846150	35846200	+	TSF	ENST00000216122, ENST00000382011	701,658	2954-2955	BLCA,BRCA,CESC,CHOL,DLBC,HNSC,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,THYM
chr22:36661580:+>chr22:36663327:+	chr22	36661197	36661580	+	chr22	36663327	36663652	+	TSF	ENST00000397278, ENST00000422706, ENST00000426053, ENST00000319136, ENST00000347595, ENST00000397279	232,232,232,214,248,111	2956-2961	OV,STAD
chr22:36661833:+>chr22:36662881:+	chr22	36661197	36661833	+	chr22	36662881	36662970	+	TSF	ENST00000397278, ENST00000422706, ENST00000426053, ENST00000319136, ENST00000347595, ENST00000397279	317,317,317,299,333,196	2962-2967	OV,STAD
chr22:36661833:+>chr22:36663327:+	chr22	36661197	36661833	+	chr22	36663327	36663652	+	TSF	ENST00000397278, ENST00000422706, ENST00000426053, ENST00000319136, ENST00000347595, ENST00000397279	317,317,317,299,333,196	2968-2973	OV,STAD

Table 9

chr22:37209690:->chr22:37186448:-	chr22	37209799	37209690	-	chr22	37186448	37186392	-	TSF	ENST00000417718, ENST00000216200, ENST00000406910, ENST00000404171, ENST00000443735	101,101,101,100,69	2974-2978	KICH,KIRC,THCA
chr22:37492688:->chr22:37492292:-	chr22	37492755	37492688	-	chr22	37492292	37492206	-	TSF	ENST00000381792, ENST00000346753, ENST00000406725, ENST00000406856, ENST00000442782, ENST00000423761	134,134,134,134,143,143	2979-2984	LIHC
chr22:37868481:->chr22:37865350:-	chr22	37868566	37868481	-	chr22	37865350	37865175	-	TAF	ENST00000416983, ENST00000356998	285,299	2985-2986	BLCA,BRCA,DLBC,GBM,HNSC,KIRC,LGG,LIHC,OV,SARC,STAD,TGCT,THYM,UCEC
chr22:38074661:+>chr22:38079136:+	chr22	38074490	38074661	+	chr22	38079136	38079241	+	TAF	ENST00000215909	87	2987	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr22:38322050:+>chr22:38322963:+	chr22	38321668	38322050	+	chr22	38322963	38322967	+	TSF	ENST00000215957, ENST00000454685	65,488	2988-2989	BLCA,CESC,HNSC,LUSC,SARC,STAD
chr22:39448358:+>chr22:39449757:+	chr22	39448079	39448358	+	chr22	39449757	39450008	+	TSF	ENST00000308521	334	2990	BLCA,OV,TGCT
chr22:39711495:->chr22:39689975:-	chr22	39711560	39711495	-	chr22	39689975	39689898	-	TSF	ENST00000401609, ENST00000216146, ENST00000402527, ENST00000453303, ENST00000427905	137,137,189,216,220	2991-2995	OV,STAD
chr22:39772202:+>chr22:39775891:+	chr22	39772057	39772202	+	chr22	39775891	39775926	+	TSF	ENST00000318801, ENST00000406293, ENST00000328933, ENST00000381535	161,161,161,162	2996-2999	GBM,LGG,PCPG
chr22:40257770:->chr22:40254656:-	chr22	40258012	40257770	-	chr22	40254656	40253648	-	TSF	ENST00000325157	197	3000	SKCM
chr22:40365537:+>chr22:40380179:+	chr22	40365415	40365537	+	chr22	40380179	40380375	+	TAF	ENST00000543252, ENST00000344138, ENST00000540310, ENST00000544756, ENST00000399090, ENST00000407075	231,271,271,205,199,158	3001-3006	THYM
chr22:40761060:+>chr22:40796700:+	chr22	40760884	40761060	+	chr22	40796700	40796751	+	TSF	ENST00000216194, ENST00000454266, ENST00000498234	456,470,6	3007-3009	LUAD,LUSC,OV,PAAD,PRAD,SARC,UCEC,UCS
chr22:42003844:->chr22:42003633:-	chr22	42003865	42003844	-	chr22	42003633	42003499	-	TSF	ENST00000263256	36	3010	BLCA,HNSC,LUAD,LUSC,STAD
chr22:42154537:+>chr22:42155353:+	chr22	42154369	42154537	+	chr22	42155353	42155683	+	TSF	ENST00000401548, ENST00000540833, ENST00000400107, ENST00000540880	706,446,74,24	3011-3014	CESC,HNSC
chr22:45689194:+>chr22:45691275:+	chr22	45689062	45689194	+	chr22	45691275	45691319	+	TAF	ENST00000216211, ENST00000396082	234,113	3015-3016	BLCA,KIRP,LIHC,PRAD,SARC,STAD
chr22:45813826:+>chr22:45815177:+	chr22	45813490	45813826	+	chr22	45815177	45815331	+	TSF	ENST00000342894, ENST00000538017	112,18	3017-3018	BLCA,BRCA,CESC,LUAD,LUSC,OV,SARC,UCEC
chr22:46136418:+>chr22:46194492:+	chr22	46136249	46136418	+	chr22	46194492	46194955	+	TAF	ENST00000381061, ENST00000252934, ENST00000435026, ENST00000451241	327,391,143,90	3019-3022	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC
chr22:47071449:+>chr22:47078308:+	chr22	47071365	47071449	+	chr22	47078308	47078350	+	TSF	ENST00000406902, ENST00000361034, ENST00000408031	521,521,44	3023-3025	BLCA,CESC,CHOL,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PCPG,READ,SARC,SKCM,STAD,UCEC,UVM
chr22:47072565:+>chr22:47078308:+	chr22	47072497	47072565	+	chr22	47078308	47078350	+	TSF	ENST00000406902, ENST00000361034, ENST00000408031	544,544,67	3026-3028	KIRC,LIHC
chr22:47882479:->chr22:47880391:-	chr22	47882528	47882479	-	chr22	47880391	47879942	-	TSF	ENST00000405369	16	3029	BRCA,DLBC,HNSC,LUSC,OV,STAD

Table 9

chr22:48885516:+>chr22:48915770:+	chr22	48885405	48885516	+	chr22	48915770	48916108	+	TSF	ENST00000402357, ENST00000336769	37,37	3030-3031	BLCA,BRCA,CESC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCS
chr22:50640019:+>chr22:50643348:+	chr22	50639466	50640019	+	chr22	50643348	50643731	+	TSF	ENST00000380903	184	3032	BLCA,BRCA,CHOL,COAD,GBM,LGG,LIHC,LUAD,LUSC,PRAD,STAD,TGCT,THYM
chr3:108475355:->chr3:108466866:-	chr3	108475435	108475355	-	chr3	108466866	108466812	-	TSF	ENST00000295755	69	3033	COAD,READ,STAD
chr3:10960138:+>chr3:10965604:+	chr3	10960014	10960138	+	chr3	10965604	10965907	+	TAF	ENST00000254488	373	3034	BLCA,BRCA,CESC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PRAD,STAD,TGCT,UCEC,UCS
chr3:118917987:+>chr3:118922347:+	chr3	118917904	118917987	+	chr3	118922347	118922648	+	TSF	ENST00000497685, ENST00000264234, ENST00000460625	164,244,236	3035-3037	BLCA,HNSC,LUSC,MESO,UCEC
chr3:118942905:->chr3:118938512:-	chr3	118943092	118942905	-	chr3	118938512	118938188	-	TAF	ENST00000483209, ENST00000467604, ENST00000359213, ENST00000393765, ENST00000480814	224,224,224,224,224	3038-3042	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr3:120067591:->chr3:120067161:-	chr3	120068090	120067591	-	chr3	120067161	120067151	-	TSF	ENST00000295628	166	3043	LGG,STAD
chr3:122103146:+>chr3:122112280:+	chr3	122103113	122103146	+	chr3	122112280	122112741	+	TAF	ENST00000477892, ENST00000469967	11,11	3044-3045	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,STAD,THYM,UCEC
chr3:122658272:->chr3:122652101:-	chr3	122658317	122658272	-	chr3	122652101	122651901	-	TAF	ENST00000357599, ENST00000475244, ENST00000195173, ENST00000451055, ENST00000393583	158,158,158,158,212	3046-3050	GBM,KIRC,KIRP,LGG,LUSC,OV,PCPG,SARC,TGCT
chr3:12458653:+>chr3:12493109:+	chr3	12458203	12458653	+	chr3	12493109	12493334	+	TSF	ENST00000397010, ENST00000309576, ENST00000397015, ENST00000397012, ENST00000397026, ENST00000287820	395,395,395,395,401,423	3051-3056	BLCA,COAD,SARC,STAD,THCA
chr3:124839443:->chr3:124838735:-	chr3	124839669, 124839530, 124839525	124839443	-	chr3	124838735	124838686	-	TAF	ENST00000430155, ENST00000393469, ENST00000423114, ENST00000469902, ENST00000314584, ENST00000479826	75,274,274,303,27,156	3057-3062	BLCA,BRCA,CHOL,COAD,DLBC,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,SARC,STAD,THCA,THYM,UCEC
chr3:125271025:->chr3:125268456:-	chr3	125271523	125271025	-	chr3	125268456	125268341	-	TAF	ENST00000296220	551	3063	BLCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,SARC,THYM
chr3:125828787:->chr3:125828416:-	chr3	125828952	125828787	-	chr3	125828416	125828224	-	TAF	ENST00000273450, ENST00000472186, ENST00000452905, ENST00000393434	792,782,782,681	3064-3067	ACC,BLCA,GBM,KICH,KIRP,LGG,LIHC,THCA,THYM,UCEC
chr3:129020985:+>chr3:129029005:+	chr3	129020793	129020985	+	chr3	129029005	129029042	+	TSF	ENST00000509042, ENST00000383463, ENST00000417226, ENST00000502878, ENST00000389735	228,276,276,276,234	3068-3072	BLCA,BRCA,CESC,DLBC,HNSC,LUAD,LUSC,OV,PRAD,SKCM,THYM,UCEC
chr3:132063903:+>chr3:132063998:+	chr3	132063771	132063903	+	chr3	132063998	132064153	+	TSF	ENST00000336375, ENST00000475741, ENST00000351273	260,260,227	3073-3075	PRAD
chr3:132322073:->chr3:132321769:-	chr3	132322171	132322073	-	chr3	132321769	132321649	-	TSF	ENST00000355458, ENST00000264990, ENST00000545291, ENST00000510100	540,540,65,98	3076-3079	KIRC,LIHC
chr3:13659785:+>chr3:13660219:+	chr3	13659576	13659785	+	chr3	13660219	13660288	+	TSF	ENST00000535798, ENST00000404922, ENST00000295760, ENST00000492059	672,646,646,646	3080-3083	BRCA,OV,SARC,UCEC
chr3:13659785:+>chr3:13660222:+	chr3	13659576	13659785	+	chr3	13660222	13660288	+	TSF	ENST00000535798, ENST00000404922, ENST00000295760, ENST00000492059	672,646,646,646	3084-3087	BRCA,OV,SARC,UCEC

Table 9

chr3:137906441:+>chr3:137907243:+	chr3	137906397	137906441	+	chr3	137907243	137907252	+	TSF	ENST00000469044, ENST00000461600, ENST00000461822, ENST00000470821, ENST00000471709, ENST00000393058, ENST00000538260, ENST00000463485, ENST00000469044, ENST00000461600, ENST00000461822, ENST00000470821, ENST00000471709, ENST00000538260, ENST00000463485, ENST00000393058	15,15,15,15, 15,15,15,5	3088-3095	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCS
chr3:138289160:->chr3:138261631:-	chr3	138289340	138289160	-	chr3	138261631	138260784	-	TSF	ENST00000264982, ENST00000542237, ENST00000484888, ENST00000474781, ENST00000481834, ENST00000468900, ENST00000462419, ENST00000464035	155,155,155,155,135,135,137,134	3096-3103	BRCA,CESC,HNSC,KIRC,KIRP,LUAD,LUSC,OV,PAAD,STAD,THYM,UCEC
chr3:141640905:+>chr3:141642262:+	chr3	141640819	141640905	+	chr3	141642262	141642420	+	TAF	ENST00000286371	223	3104	BLCA,BRCA,CESC,COAD,HNSC,LUSC,OV,STAD
chr3:142769891:+>chr3:142772077:+	chr3	142769781	142769891	+	chr3	142772077	142772316	+	TSF	ENST00000397933, ENST00000473835, ENST00000493598, ENST00000480029, ENST00000467348	476,885,884,452,204	3105-3109	BLCA,BRCA,CESC,HNSC,LGG,LUAD,LUSC,PRAD,SKCM,TGCT,THCA,THYM,UCS
chr3:14520693:+>chr3:14521628:+	chr3	14520593	14520693	+	chr3	14521628	14521634	+	TAF	ENST00000454876, ENST00000360861	517,517	3110-3111	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,PAAD,READ,TGCT,THCA,UCEC
chr3:145788829:->chr3:145784468:-	chr3	145788954	145788829	-	chr3	145784468	145784175	-	TSF	ENST00000461497, ENST00000282903, ENST00000360060, ENST00000494950	367,707,686,652	3112-3115	KIRC,MESO
chr3:145788829:->chr3:145784472:-	chr3	145788954	145788829	-	chr3	145784472	145784175	-	TSF	ENST00000461497, ENST00000282903, ENST00000360060, ENST00000494950	367,707,686,652	3116-3119	CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,SARC,UCS
chr3:148563413:+>chr3:148570090:+	chr3	148563211	148563413	+	chr3	148570090	148570266	+	TSF	ENST00000491148, ENST00000282957	327,327	3120-3121	BRCA,PAAD
chr3:149205542:+>chr3:149210784:+	chr3	149205406	149205542	+	chr3	149210784	149210892	+	TAF	ENST00000305354	133	3122	CESC,CHOL,COAD,LIHC,LUAD,MESO,PAAD,STAD,UCEC
chr3:156262097:->chr3:156246256:-	chr3	156262228	156262097	-	chr3	156246256	156246164	-	TSF	ENST00000265044, ENST00000467789, ENST00000476217, ENST00000463503, ENST00000496050	163,163,176,111,111	3123-3127	OV,STAD
chr3:16217197:+>chr3:16224220:+	chr3	16216659	16217197	+	chr3	16224220	16224358	+	TSF	ENST00000339732, ENST00000437509, ENST00000430410	179,179,8	3128-3130	GBM,LGG
chr3:182566345:+>chr3:182566968:+	chr3	182566264	182566345	+	chr3	182566968	182567869	+	TAF	ENST00000323116, ENST00000498086	283,84	3131-3132	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,PAAD,PRAD,READ,SARC,STAD,THYM,UCEC
chr3:182804481:->chr3:182797071:-	chr3	182804576, 182804522, 182804572	182804481	-	chr3	182797071	182796912	-	TAF	ENST00000265594, ENST00000492597, ENST00000497959, ENST00000476176	123,14,85,76	3133-3136	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PRAD,TGCT
chr3:183454617:+>chr3:183456939:+	chr3	183454506	183454617	+	chr3	183456939	183458206	+	TSF	ENST00000305135	308	3137	LUSC,STAD
chr3:185414400:->chr3:185411016:-	chr3	185414451	185414400	-	chr3	185411016	185410789	-	TSF	ENST00000382199, ENST00000421047, ENST00000457616, ENST00000346192	113,113,113,50	3138-3141	GBM,HNSC,LUAD,LUSC,OV,SARC,STAD,TGCT,THCA,THYM,UCEC
chr3:186334316:+>chr3:186345390:+	chr3	186334232	186334316	+	chr3	186345390	186345564	+	TSF	ENST00000411641, ENST00000273784	136,136	3142-3143	LIHC
chr3:186335139:+>chr3:186345390:+	chr3	186334976	186335139	+	chr3	186345390	186345564	+	TSF	ENST00000411641, ENST00000273784	191,192	3144-3145	LIHC,LUSC

Table 9

chr3:186336426:+>chr3:186345404:+	chr3	186336325	186336426	+	chr3	186345404	186345564	+	TSF	ENST00000411641, ENST00000273784	225,226	3146-3147	LIHC
chr3:186337729:+>chr3:186345390:+	chr3	186337646	186337729	+	chr3	186345390	186345564	+	TAF	ENST00000411641, ENST00000273784	253,254	3148-3149	LIHC,LUSC
chr3:188956698:+>chr3:188963972:+	chr3	188956522	188956698	+	chr3	188963972	188964159	+	TSF	ENST00000433971, ENST00000345063, ENST00000425670	87,159,159	3150-3152	BRCA
chr3:189590784:+>chr3:189602358:+	chr3	189590648	189590784	+	chr3	189602358	189602438	+	TSF	ENST00000264731, ENST00000382063, ENST00000418709, ENST00000320472, ENST00000392460, ENST00000440651, ENST00000354600, ENST00000437221, ENST00000392463, ENST00000392461, ENST00000449992, ENST00000456148	449,449,449,449,364,445,355,355,355,270,351	3153-3164	HNSC,LUSC
chr3:190030661:->chr3:190030018:-	chr3	190030825	190030661	-	chr3	190030018	190029730	-	TSF	ENST00000295522	129	3165	CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,STAD,THCA
chr3:194325016:->chr3:194296178:-	chr3	194325174	194325016	-	chr3	194296178	194295847	-	TSF	ENST00000392432, ENST00000273580, ENST00000432352, ENST00000381975, ENST00000347147, ENST00000473092, ENST00000452358	439,392,392,392,150,390,225	3166-3172	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,SARC,UCEC,UCS
chr3:195456610:+>chr3:195462062:+	chr3	195456519	195456610	+	chr3	195462062	195462761	+	TAF	ENST00000447234, ENST00000320736, ENST00000436408, ENST00000445522, ENST00000423938	98,687,687,516,652	3173-3177	BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,OV,PAAD,STAD,UCEC
chr3:195956932:+>chr3:195970598:+	chr3	195956786	195956932	+	chr3	195970598	195971983	+	TSF	ENST00000296327, ENST00000415111	260,19	3178-3179	ACC,LIHC
chr3:196214270:->chr3:196213499:-	chr3	196214449	196214270	-	chr3	196213499	196213226	-	TSF	ENST00000318037	186	3180	BLCA,BRCA,COAD,HNSC,LUSC,PAAD
chr3:196229744:->chr3:196223342:-	chr3	196230044	196229744	-	chr3	196223342	196223041	-	TAF	ENST00000318037, ENST00000437070	100,1	3181-3182	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr3:196443792:+>chr3:196444680:+	chr3	196443740	196443792	+	chr3	196444680	196444763	+	TSF	ENST00000426755, ENST00000392391, ENST00000314118, ENST00000296333, ENST00000457284, ENST00000453218, ENST00000421265, ENST00000415832, ENST00000451319	17,17,17,17,17,58,58,49,49	3183-3191	BRCA,HNSC,LUSC,OV,STAD
chr3:196753531:->chr3:196753047:-	chr3	196753630	196753531	-	chr3	196753047	196752998	-	TAF	ENST00000296350, ENST00000296351, ENST00000439320	101,101,101	3192-3194	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRC,KIRP,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,THCA,UCEC
chr3:23960737:+>chr3:23965495:+	chr3	23960687	23960737	+	chr3	23965495	23965511	+	TSF	ENST00000307839, ENST00000422218, ENST00000434031, ENST00000413699, ENST00000456530, ENST00000412097, ENST00000415719, ENST00000435882, ENST00000354811	120,120,120,120,120,120,120,120,120	3195-3203	ACC,BRCA,COAD,DLBC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,OV,PRAD,STAD,THCA,THYM,UCS
chr3:28357914:+>chr3:28360223:+	chr3	28357824	28357914	+	chr3	28360223	28360364	+	TAF	ENST00000466830, ENST00000423894, ENST00000418849	66,36,73	3204-3206	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,OV,PRAD,SARC,TGCT,UCS

Table 9

chr3:32280611:+>chr3:32324083:+	chr3	32280465	32280611	+	chr3	32324083	32324625	+	TSF	ENST00000458535, ENST00000307526	49,49	3207-3208	BLCA,BRCA,CESC,COAD,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD
chr3:33636443:->chr3:33635629:-	chr3	33636460	33636443	-	chr3	33635629	33635332	-	TAF	ENST00000468888, ENST00000399362, ENST00000307312, ENST00000359576, ENST00000480013, ENST00000461133	656,655,655,144,422,422	3209-3214	ACC,BRCA,COAD,GBM,LGG,LUSC,PAAD,PCPG,THYM
chr3:39942417:+>chr3:40032343:+	chr3	39942308	39942417	+	chr3	40032343	40032651	+	TAF	ENST00000444716, ENST00000302541, ENST00000425621, ENST00000458292, ENST00000458441	36,36,36,36,36	3215-3219	HNSC,KICH,LIHC
chr3:419625:+>chr3:420259:+	chr3	419501	419625	+	chr3	420259	420361	+	TSF	ENST00000256509, ENST00000397491	625,609	3220-3221	KIRP,LUSC,OV,SKCM,STAD
chr3:42610357:->chr3:42605472:-	chr3	42610538	42610357	-	chr3	42605472	42605463	-	TAF	ENST00000423701, ENST00000273156, ENST00000417572, ENST00000449617, ENST00000264454, ENST00000456515, ENST00000383750, ENST00000450981, ENST00000445388, ENST00000454141, ENST00000416880, ENST00000420163	60,60,60,60,60,60,60,60,60,60,60,60	3222-3233	ACC,BLCA,BRCA,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,UCS
chr3:45748399:+>chr3:45748934:+	chr3	45748376	45748399	+	chr3	45748934	45748953	+	TSF	ENST00000455997, ENST00000418611, ENST00000389061, ENST00000445499	8,8,111,111	3234-3237	GBM,OV,STAD
chr3:4867430:->chr3:4841712:-	chr3	4867546	4867430	-	chr3	4841712	4841679	-	TSF	ENST00000449914	77	3238	BRCA,PRAD
chr3:48715997:->chr3:48702393:-	chr3	48716169	48715997	-	chr3	48702393	48702198	-	TSF	ENST00000341520, ENST00000416649, ENST00000294129, ENST00000413374, ENST00000413374, ENST00000341520, ENST00000416649, ENST00000294129	655,655,648,111	3239-3242	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr3:4872631:->chr3:4871474:-	chr3	4872702	4872631	-	chr3	4871474	4871202	-	TSF	ENST00000449914, ENST00000441894	38,38	3243-3244	BRCA,PRAD
chr3:4872631:->chr3:4871958:-	chr3	4872702	4872631	-	chr3	4871958	4871639	-	TSF	ENST00000449914, ENST00000441894	38,38	3245-3246	BLCA,BRCA,LIHC,PRAD
chr3:4927407:->chr3:4898429:-	chr3	4927450	4927407	-	chr3	4898429	4898242	-	TSF	ENST00000449914, ENST00000441894	14,14	3247-3248	BLCA,BRCA,LIHC,LUAD,PRAD
chr3:49456404:->chr3:49455661:-	chr3	49456584	49456404	-	chr3	49455661	49455617	-	TSF	ENST00000427987, ENST00000395338, ENST00000458307, ENST00000538581, ENST00000273588, ENST00000546031, ENST00000430521	289,292,292,248,236,236,195	3249-3255	BLCA,BRCA,CESC,CHOL,DLBC,KIRP,LUAD,PRAD,SARC,THCA
chr3:49715066:+>chr3:49715773:+	chr3	49715006	49715066	+	chr3	49715773	49715877	+	TAF	ENST00000296456, ENST00000442186, ENST00000438011	353,353,278	3256-3258	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,MESO,OV,PAAD,PRAD,READ,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr3:49927357:->chr3:49927248:-	chr3	49927493	49927357	-	chr3	49927248	49927204	-	TAF	ENST00000296474, ENST00000344206	1315,1266	3259-3260	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,READ,SARC,STAD,THYM,UCEC
chr3:49928630:->chr3:49928452:-	chr3	49928739	49928630	-	chr3	49928452	49928163	-	TSF	ENST00000296474, ENST00000344206, ENST00000434765, ENST00000440292	1214,1165,1192,235	3261-3264	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LUAD,LUSC,MESO,PAAD,READ,STAD,UCEC
chr3:50153413:+>chr3:50155897:+	chr3	50153339	50153413	+	chr3	50155897	50155909	+	TSF	ENST00000347869	698	3265	OV,STAD

Table 9

chr3:50153413:+>chr3:50155901:+	chr3	50153339	50153413	+	chr3	50155901	50155909	+	TSF	ENST00000347869	698	3266	OV,STAD
chr3:50153413:+>chr3:50155909:+	chr3	50153339	50153413	+	chr3	50155909	50155909	+	TSF	ENST00000347869	698	3267	OV,STAD
chr3:52823870:+>chr3:52824522:+	chr3	52823669	52823870	+	chr3	52824522	52824594	+	TSF	ENST00000273283, ENST00000540715, ENST00000537050, ENST00000428133, ENST00000405128	773,631,485,326,139	3268-3272	LIHC
chr3:53707153:+>chr3:53713021:+	chr3	53707050	53707153	+	chr3	53713021	53713326	+	TSF	ENST00000350061, ENST00000422281, ENST00000481478	406,406,79	3273-3275	BLCA,BRCA,CESC,COAD,DLBC,KIRC,KIRP,PRAD,READ
chr3:54157621:+>chr3:54326852:+	chr3	54157540	54157621	+	chr3	54326852	54327228	+	TSF	ENST00000415676, ENST00000288197, ENST00000474759	68,68,68	3276-3278	HNSC,LUSC,PCPG,TGCT,UCEC
chr3:54786704:+>chr3:54787473:+	chr3	54786626	54786704	+	chr3	54787473	54787673	+	TSF	ENST00000415676, ENST00000288197, ENST00000474759, ENST00000471363, ENST00000490478, ENST00000477024	415,415,415,321,321,321	3279-3284	DLBC,OV,PCPG
chr3:57678509:->chr3:57665452:-	chr3	57678745	57678509	-	chr3	57665452	57665436	-	TAF	ENST00000311128	79	3285	BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT
chr3:58355205:+>chr3:58363636:+	chr3	58355158	58355205	+	chr3	58363636	58364153	+	TSF	ENST00000356151, ENST00000302779, ENST00000383715, ENST00000484288, ENST00000479241, ENST00000477308, ENST00000491164	67,67,67,50,50,50,58	3286-3292	KICH,KIRC,KIRP,THCA
chr3:58552935:->chr3:58550140:-	chr3	58553091	58552935	-	chr3	58550140	58549790	-	TAF	ENST00000360997, ENST00000394481, ENST00000464064, ENST00000474531, ENST00000447756	109,109,109,140,137	3293-3297	BRCA,GBM,LGG,OV,PAAD,PRAD,THCA,THYM,UCEC
chr3:8775676:+>chr3:8819163:+	chr3	8775563	8775676	+	chr3	8819163	8819386	+	TSF	ENST00000343849, ENST00000397368	38,38	3298-3299	SARC,UCS
chr3:9476566:+>chr3:9476688:+	chr3	9476508,9	9476566	+	chr3	9476688	9476952	+	TAF	ENST00000450326, ENST00000402198, ENST00000402466, ENST00000406341, ENST00000407969, ENST00000442373, ENST00000302463	129,129,129,18,18,18,148	3300-3306	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LGG,LUAD,LUSC,MESO,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCS
chr3:98235896:->chr3:98228614:-	chr3	98236034	98235896	-	chr3	98228614	98228468	-	TSF	ENST00000502288, ENST00000507874, ENST00000341181, ENST00000437922, ENST00000394180, ENST00000506885, ENST00000503004, ENST00000394185, ENST00000394181, ENST00000513873, ENST00000510545, ENST00000511081, ENST00000513287, ENST00000511667, ENST00000513452, ENST00000502299, ENST00000512147, ENST00000508902, ENST00000510541, ENST00000514537, ENST00000515620	85,85,180,180,180,180,180,180,180,180,180,180,203,133,36,158,65,65	3307-3327	GBM,LGG
chr3:9825712:->chr3:9823380:-	chr3	9825897	9825712	-	chr3	9823380	9823336	-	TSF	ENST00000301964, ENST00000440161, ENST00000343450	368,368,368	3328-3330	BLCA,BRCA,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,STAD,TGCT,THCA,UCEC
chr3:98304285:->chr3:98292414:-	chr3	98304343	98304285	-	chr3	98292414	98292298	-	TSF	ENST00000512905, ENST00000264193	19,39	3331-3332	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LGG,LIHC,LUSC,TGCT,UCS

Table 9

chr3:98600384:->chr3:98586282:-	chr3	98600612	98600384	-	chr3	98586282	98584565	-	TSF	ENST00000326840, ENST00000326857, ENST00000449482, ENST00000449482, ENST00000326840, ENST00000326857	144,144,38	3333-3335	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,PAAD,PCPG,SARC,SKCM,STAD,THCA,UCEC,UCS
chr4:103522166:+>chr4:103522776:+	chr4	103522052	103522166	+	chr4	103522776	103522846	+	TSF	ENST00000226574, ENST00000394820, ENST00000505458, ENST00000600343	584,583,583,403	3336-3339	CESC,DLBC,HNSC,LUAD,LUSC,THYM
chr4:106557577:+>chr4:106563757:+	chr4	106557560	106557577	+	chr4	106563757	106563879	+	TSF	ENST00000420470	224	3340	BRCA,CESC,LUAD,PRAD
chr4:106557577:+>chr4:106563763:+	chr4	106557560	106557577	+	chr4	106563763	106563879	+	TSF	ENST00000420470	224	3341	BRCA,CESC,LUAD,PRAD,STAD,THCA,UCEC
chr4:107237751:+>chr4:107242023:+	chr4	107237705	107237751	+	chr4	107242023	107243452	+	TSF	ENST00000394701	15	3342	ACC,BLCA,BRCA,CESC,DLBC,HNSC,LIHC,LUAD,OV,PRAD,READ,STAD,TGCT,THYM
chr4:108999376:->chr4:108994185:-	chr4	108999538	108999376	-	chr4	108994185	108994089	-	TSF	ENST00000265165, ENST00000379951, ENST00000438313, ENST00000510624	336,308,308,240	3343-3346	THYM
chr4:108999376:->chr4:108994190:-	chr4	108999538	108999376	-	chr4	108994190	108994089	-	TAF	ENST00000265165, ENST00000379951, ENST00000438313, ENST00000510624	336,308,308,240	3347-3350	ACC,BLCA,BRCA,CESC,KIRC,LIHC,LUAD,LUSC,OV,PAAD,SARC,SKCM,STAD,THYM
chr4:1102131:->chr4:1101132:-	chr4	1102192	1102131	-	chr4	1101132	1100845	-	TSF	ENST00000382968, ENST00000433731, ENST00000511620, ENST00000510715, ENST00000333673	57,57,57,57,57	3351-3355	ACC,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,OV,PRAD,SKCM,STAD,THYM,UCEC,UCS
chr4:110723071:->chr4:110715581:-	chr4	110723127	110723071	-	chr4	110715581	110714981	-	TAF	ENST00000394635, ENST00000394634, ENST00000512148, ENST00000510800	19,19,19,19	3356-3359	ACC,BRCA,CHOL,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,STAD,THCA,UCEC,UCS
chr4:120085549:+>chr4:120089717:+	chr4	120085366	120085549	+	chr4	120089717	120089827	+	TAF	ENST00000307128	186	3360	BRCA,HNSC,MESO,OV,PCPG,PRAD,SARC,UCS
chr4:134084437:+>chr4:134129231:+	chr4	134084132	134084437	+	chr4	134129231	134129518	+	TAF	ENST00000264360	1034	3361	BLCA,BRCA,GBM,HNSC,KIRC,KIRP,LGG,OV,PCPG,SARC,TGCT,THCA,UCS
chr4:139135739:->chr4:139120225:-	chr4	139135783	139135739	-	chr4	139120225	139120178	-	TSF	ENST00000280612, ENST00000509248	263,63	3362-3363	LUAD,LUSC,OV
chr4:143003184:->chr4:142977129:-	chr4	143003338	143003184	-	chr4	142977129	142976903	-	TSF	ENST00000513000, ENST00000262992, ENST00000308502, ENST00000508116, ENST00000509777	880,880,880,880,880	3364-3368	BLCA,BRCA,HNSC,PAAD,PRAD,SKCM,THYM,UVM
chr4:146617784:+>chr4:146620339:+	chr4	146617711	146617784	+	chr4	146620339	146620424	+	TSF	ENST00000438731, ENST00000511965	102,62	3369-3370	BRCA,CESC,HNSC,LUSC,OV,STAD,TGCT
chr4:151125041:+>chr4:151135817:+	chr4	151124947	151125041	+	chr4	151135817	151135831	+	TSF	ENST00000296550, ENST00000411937, ENST00000506325, ENST00000302176	352,352,352,369	3371-3374	GBM,LGG
chr4:159620282:+>chr4:159622027:+	chr4	159620139	159620282	+	chr4	159622027	159622060	+	TSF	ENST00000511912, ENST00000307738	372,325	3375-3376	GBM,LGG,SKCM
chr4:169086477:+>chr4:169090666:+	chr4	169086398	169086477	+	chr4	169090666	169090754	+	TSF	ENST00000359299	160	3377	BLCA,COAD,HNSC,LIHC,LUAD,LUSC,PAAD,STAD
chr4:1696501:->chr4:1692954:-	chr4	1696567	1696501	-	chr4	1692954	1692622	-	TSF	ENST00000429429, ENST00000489418, ENST00000318386, ENST00000483348, ENST00000488267	193,232,239,186,197	3378-3382	BLCA,CESC,COAD,DLBC,GBM,HNSC,LGG,LUSC,OV,SARC,SKCM,STAD,TGCT

Table 9

chr4:1742713:+>chr4:1745122:+	chr4	1742553	1742713	+	chr4	1745122	1745307	+	TAF	ENST00000313288	741	3383	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr4:17623322:+>chr4:17629629:+	chr4	17623210	17623322	+	chr4	17629629	17629638	+	TSF	ENST00000237380, ENST00000503945	113,11	3384-3385	BRCA,KIRC,LUAD,OV,SARC,STAD,UCEC
chr4:17625417:+>chr4:17629629:+	chr4	17625224	17625417	+	chr4	17629629	17629638	+	TAF	ENST00000237380, ENST00000503945	177,174	3386-3387	BLCA,BRCA,COAD,DLBC,GBM,LGG,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,THYM,UCS
chr4:25759156:->chr4:25716488:-	chr4	25759228	25759156	-	chr4	25716488	25716212	-	TSF	ENST00000399878, ENST00000264868, ENST00000502949, ENST00000510448	1086,1051,933,113	3388-3391	CHOL,DLBC,KIRC,KIRP,LGG,LIHC,LUAD,OV,PCPG,READ,THCA,THYM,UCEC
chr4:25759156:->chr4:25723603:-	chr4	25759228	25759156	-	chr4	25723603	25723555	-	TSF	ENST00000399878, ENST00000264868, ENST00000502949, ENST00000510448	1086,1051,933,113	3392-3395	BRCA,CESC,CHOL,COAD,DLBC,KIRC,KIRP,LGG,LUAD,LUSC,OV,PAAD,READ,STAD,THCA,UCEC
chr4:25759156:->chr4:25732727:-	chr4	25759228	25759156	-	chr4	25732727	25732722	-	TSF	ENST00000399878, ENST00000264868, ENST00000502949, ENST00000510448	1086,1051,933,113	3396-3399	CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,READ,SARC,STAD,THCA
chr4:28372322:->chr4:28319160:-	chr4	28372431	28372322	-	chr4	28319160	28318916	-	TSF	ENST00000507759	70	3400	BLCA,HNSC,KIRC,LIHC,LUAD,MESO,SARC
chr4:289227:->chr4:227073:-	chr4	289322	289227	-	chr4	227073	226784	-	TSF	ENST00000419098	75	3401	BLCA,BRCA,DLBC,LIHC,LUAD,OV,STAD,TGCT,UCEC
chr4:38104778:+>chr4:38107699:+	chr4	38104620	38104778	+	chr4	38107699	38107796	+	TAF	ENST00000508802, ENST00000261439	946,852	3402-3403	BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,PAAD,SARC,SKCM,TGCT,THCA,THYM,UCEC
chr4:39978060:->chr4:39933249:-	chr4	39978197	39978060	-	chr4	39933249	39932944	-	TSF	ENST00000303538, ENST00000503396	46,46	3404-3405	BRCA,COAD,HNSC,LUAD,OV,SKCM,STAD
chr4:4421774:->chr4:4417890:-	chr4	4421856	4421774	-	chr4	4417890	4417824	-	TSF	ENST00000306200	331	3406	UCEC
chr4:47584081:+>chr4:47584886:+	chr4	47583977	47584081	+	chr4	47584886	47585171	+	TAF	ENST00000273859	1251	3407	ACC,BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,UCS
chr4:56230438:+>chr4:56252510:+	chr4	56230241	56230438	+	chr4	56252510	56252750	+	TSF	ENST00000264228	187	3408	BLCA,BRCA,CESC,GBM,HNSC,LUAD,LUSC,OV,PAAD,SARC,STAD,UCEC
chr4:57319927:+>chr4:57321183:+	chr4	57319769	57319927	+	chr4	57321183	57321327	+	TSF	ENST00000514888, ENST00000264221, ENST00000505164, ENST00000399688, ENST00000512576	278,370,370,370,377	3409-3413	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr4:6695797:+>chr4:6698154:+	chr4	6695660	6695797	+	chr4	6698154	6698226	+	TAF	ENST00000296370	46	3414	BLCA,BRCA,CESC,HNSC,LUAD,PAAD,STAD
chr4:6698734:+>chr4:6720414:+	chr4	6698620	6698734	+	chr4	6720414	6720685	+	TSF	ENST00000296370	84	3415	STAD
chr4:83557744:->chr4:83554583:-	chr4	83557976	83557744	-	chr4	83554583	83554006	-	TSF	ENST00000319540	267	3416	GBM,LGG,PCPG,THCA
chr4:83626436:->chr4:83616020:-	chr4	83626566	83626436	-	chr4	83616020	83615829	-	TSF	ENST00000319540, ENST00000273908, ENST00000282709	121,121,121	3417-3419	BRCA,GBM,LGG

Table 9

chr4:83626436:->chr4:83616035:-	chr4	83626566	83626436	-	chr4	83616035	83615829	-	TSF	ENST00000319540, ENST00000273908, ENST00000282709	121,121,121	3420-3422	BLCA,BRCA,SARC,STAD
chr4:86491874:+>chr4:86580201:+	chr4	86491695	86491874	+	chr4	86580201	86580368	+	TSF	ENST00000395184, ENST00000503995	60,6	3423-3424	BRCA,CESC,DLBC,HNSC,LUSC
chr4:87869723:+>chr4:87916831:+	chr4	87869686	87869723	+	chr4	87916831	87917873	+	TSF	ENST00000395146, ENST00000507468, ENST00000503477	12,12,12	3425-3427	HNSC,TGCT
chr4:88293861:->chr4:88287307:-	chr4	88293967	88293861	-	chr4	88287307	88287019	-	TAF	ENST00000358290, ENST00000507286	185,141	3428-3429	BLCA,CHOL,COAD,KIRC,LIHC,LUAD,PAAD,PRAD,STAD
chr4:91321280:+>chr4:91325075:+	chr4	91321187	91321280	+	chr4	91325075	91325176	+	TSF	ENST00000505073, ENST00000509176, ENST00000432775, ENST00000333691	534,534,534,534	3430-3433	BLCA,KIRP,LUAD,OV,PCPG,STAD,UCS,UVM
chr4:980594:->chr4:973292:-	chr4	980639	980594	-	chr4	973292	973258	-	TSF	ENST00000510286	15	3434	GBM,LUAD,OV,THYM
chr4:99325753:+>chr4:99330014:+	chr4	99325628	99325753	+	chr4	99330014	99330389	+	TSF	ENST00000380158, ENST00000264572, ENST00000408927, ENST00000453712, ENST00000339360, ENST00000408900	206,163,254,255,255,205	3435-3440	BLCA,BRCA,DLBC,LUAD,TGCT,UCEC
chr5:10748287:->chr5:10732796:-	chr5	10748383	10748287	-	chr5	10732796	10732287	-	TSF	ENST00000230895, ENST00000432074	50,5	3441-3442	BLCA,BRCA,LIHC,LUAD,LUSC,OV,STAD
chr5:121405748:->chr5:121403052:-	chr5	121405863	121405748	-	chr5	121403052	121403016	-	TSF	ENST00000231004	415	3443	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,STAD,TGCT,THCA,UCEC,UCS
chr5:128864370:+>chr5:128868409:+	chr5	128864213	128864370	+	chr5	128868409	128868509	+	TSF	ENST00000274487	436	3444	BLCA,BRCA,LUAD,PCPG,SARC,TGCT
chr5:131593520:+>chr5:131596019:+	chr5	131593428	131593520	+	chr5	131596019	131596316	+	TAF	ENST00000253754, ENST00000379018	31,31	3445-3446	BRCA,CESC,GBM,HNSC,KIRP,LGG,MESO,OV,PCPG,SARC,SKCM,THCA,UCS
chr5:140044686:+>chr5:140046629:+	chr5	140044498	140044686	+	chr5	140046629	140046654	+	TSF	ENST00000358337, ENST00000506393	63,63	3447-3448	BLCA,BRCA,KIRP,SKCM,TGCT
chr5:1409141:->chr5:1406873:-	chr5	1409240	1409141	-	chr5	1406873	1406748	-	TSF	ENST00000270349, ENST00000453492	499,499	3449-3450	KIRC,LUAD
chr5:146435228:->chr5:146414803:-	chr5	146435301	146435228	-	chr5	146414803	146414648	-	TAF	ENST00000394414, ENST00000336640, ENST00000522831, ENST00000515880, ENST00000512011	24,24,26,26,26	3451-3455	ACC,GBM,LGG,PCPG
chr5:146460622:->chr5:146321615:-	chr5	146460699	146460622	-	chr5	146321615	146321345	-	TSF	ENST00000504198, ENST00000394409	29,16	3456-3457	GBM,LGG
chr5:146460622:->chr5:146414803:-	chr5	146460699	146460622	-	chr5	146414803	146414648	-	TAF	ENST00000504198, ENST00000394409	29,16	3458-3459	GBM,LGG,SARC
chr5:147207585:->chr5:147185494:-	chr5	147207691	147207585	-	chr5	147185494	147185375	-	TAF	ENST00000296695, ENST00000510027	64,64	3460-3461	BLCA,BRCA,CHOL,COAD,DLBC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,TGCT
chr5:147281192:->chr5:147230105:-	chr5	147281336	147281192	-	chr5	147230105	147229718	-	TSF	ENST00000318315, ENST00000515291	71,71	3462-3463	BRCA,HNSC,KIRC,SARC
chr5:147281192:->chr5:147260657:-	chr5	147281336	147281192	-	chr5	147260657	147260560	-	TAF	ENST00000318315, ENST00000515291	71,71	3464-3465	BRCA,CESC,CHOL,GBM,HNSC,KIRC,LUAD,LUSC,OV,PAAD,SARC
chr5:147649705:+>chr5:147650327:+	chr5	147649636	147649705	+	chr5	147650327	147650640	+	TSF	ENST00000512953, ENST00000398450	23,23	3466-3467	ACC,CESC,KICH,KIRC,LUAD,SARC
chr5:147649705:+>chr5:147650360:+	chr5	147649636	147649705	+	chr5	147650360	147650640	+	TAF	ENST00000512953, ENST00000398450	23,23	3468-3469	ACC,CESC,KICH,KIRC,KIRP,LUAD,LUSC,SARC,UCEC
chr5:147649705:+>chr5:147650500:+	chr5	147649636	147649705	+	chr5	147650500	147650640	+	TAF	ENST00000512953, ENST00000398450	23,23	3470-3471	ACC,BLCA,CESC,CHOL,KICH,KIRC,KIRP,LUAD,LUSC,SARC,STAD
chr5:149629789:->chr5:149628210:-	chr5	149629872	149629789	-	chr5	149628210	149627911	-	TSF	ENST00000348628, ENST00000398376	300,3	3472-3473	CHOL,GBM,LGG,MESO,STAD
chr5:149782749:->chr5:149709118:-	chr5	149782875	149782749	-	chr5	149709118	149709023	-	TSF	ENST00000518797, ENST00000009530	245,25	3474-3475	OV,STAD

Table 9

chr5:150411848:->chr5:150410874:-	chr5	150411944	150411848	-	chr5	150410874	150410734	-	TAF	ENST00000520931, ENST00000389378, ENST00000315050, ENST00000523338, ENST00000522226, ENST00000518977, ENST00000521591, ENST00000523200	572,625,625,625,625,625,625,561	3476-3483	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,STAD,THYM,UCEC
chr5:150632858:+>chr5:150637286:+	chr5	150632778	150632858	+	chr5	150637286	150637636	+	TSF	ENST00000357164	27	3484	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LUAD,LUSC,MESO,SKCM,STAD
chr5:151052751:->chr5:150931801:-	chr5	151052777	151052751	-	chr5	150931801	150931704	-	TSF	ENST00000231061, ENST00000539687, ENST00000522348	49,49,49	3485-3487	BRCA,LGG,MESO,PAAD,SARC,UCS
chr5:152873625:+>chr5:152889310:+	chr5	152873488	152873625	+	chr5	152889310	152889396	+	TSF	ENST00000285900, ENST00000518142, ENST00000340592, ENST00000521843, ENST00000448073, ENST00000518783	73,73,73,4,83,83	3488-3493	BRCA,GBM,LGG
chr5:156464258:->chr5:156429918:-	chr5	156464372	156464258	-	chr5	156429918	156429891	-	TSF	ENST00000522693, ENST00000523175, ENST00000339252, ENST00000425854, ENST00000544197	317,317,317,317,317	3494-3498	BLCA,CHOL,COAD,KIRC,KIRP,LUAD,STAD
chr5:169533535:+>chr5:169533921:+	chr5	169532962	169533535	+	chr5	169533921	169533956	+	TAF	ENST00000306268, ENST00000449804	191,191	3499-3500	BLCA,KICH,KIRC,KIRP,LUAD,LUSC
chr5:169533535:+>chr5:169560172:+	chr5	169532962	169533535	+	chr5	169560172	169560283	+	TSF	ENST00000306268, ENST00000449804	191,191	3501-3502	KICH
chr5:172110543:+>chr5:172114291:+	chr5	172110422	172110543	+	chr5	172114291	172114319	+	TSF	ENST00000522853, ENST00000369800	51,233	3503-3504	STAD
chr5:172341841:+>chr5:172345344:+	chr5	172341717	172341841	+	chr5	172345344	172345395	+	TSF	ENST00000393784, ENST00000520326, ENST00000523291, ENST00000518247, ENST00000326654, ENST00000519567	125,125,125,80,80,113	3505-3510	ACC,BRCA,CHOL,COAD,KIRC,LIHC,LUAD,OV,PRAD,READ,STAD
chr5:173040134:->chr5:173012591:-	chr5	173040258	173040134	-	chr5	173012591	173012432	-	TAF	ENST00000311086, ENST00000285908, ENST00000462674	120,120,15	3511-3513	ACC,BRCA,CHOL,COAD,GBM,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PRAD,READ,SARC,THCA,UCEC,UCS
chr5:175723323:+>chr5:175731557:+	chr5	175723254	175723323	+	chr5	175731557	175732243	+	TSF	ENST00000341199, ENST00000430704, ENST00000443967, ENST00000429602	144,144,559,578	3514-3517	BRCA,CESC,GBM,HNSC,OV,STAD,TGCT
chr5:176761285:->chr5:176744789:-	chr5	176761404	176761285	-	chr5	176744789	176744095	-	TAF	ENST00000303127, ENST00000515209, ENST00000514458	303,303,188	3518-3520	ACC,BLCA,BRCA,CESC,CHOL,DLBC,GBM,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC
chr5:176830255:->chr5:176829864:-	chr5	176830398	176830255	-	chr5	176829864	176829767	-	TSF	ENST00000253496	510	3521	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,PAAD,STAD,UCEC
chr5:177656941:->chr5:177656721:-	chr5	177657100	177656941	-	chr5	177656721	177656690	-	TAF	ENST00000308158, ENST00000510913, ENST00000323594, ENST00000476170	112,112,44,126	3522-3525	KIRC,KIRP,LIHC
chr5:179315103:->chr5:179312136:-	chr5	179315312	179315103	-	chr5	179312136	179312132	-	TSF	ENST00000355235, ENST00000356834	418,418	3526-3527	BLCA,BRCA,CESC,COAD,KIRC,LGG,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,THCA,UCEC,UCS

Table 9

chr5:1802488:+>chr5:1811023:+	chr5	1802435	1802488	+	chr5	1811023	1811428	+	TAF	ENST00000274137, ENST00000469176	62,62	3528-3529	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr5:1802488:+>chr5:1811082:+	chr5	1802435	1802488	+	chr5	1811082	1811428	+	TSF	ENST00000274137, ENST00000469176	62,62	3530-3531	BLCA,BRCA,CESC,DLBC,HNSC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,THYM,UCEC
chr5:1802488:+>chr5:1811112:+	chr5	1802435	1802488	+	chr5	1811112	1811428	+	TSF	ENST00000274137, ENST00000469176	62,62	3532-3533	ACC,BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,PCPG,SARC,STAD,TGCT,UCEC
chr5:23976159:+>chr5:24177946:+	chr5	23976106	23976159	+	chr5	24177946	24178380	+	TSF	ENST00000512559, ENST00000507936	98,98	3534-3535	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr5:31493314:->chr5:31489188:-	chr5	31493400	31493314	-	chr5	31489188	31488661	-	TSF	ENST00000511367, ENST00000344624, ENST00000442743, ENST00000513349	614,614,577,577	3536-3539	BLCA,CESC,HNSC,LUAD,LUSC,SKCM,STAD
chr5:33998746:->chr5:33993480:-	chr5	33998932	33998746	-	chr5	33993480	33992996	-	TSF	ENST00000335606, ENST00000382072, ENST00000506639, ENST00000382085, ENST00000502637, ENST00000441713, ENST00000426255, ENST00000512079, ENST00000382068	246,246,246,246,192,192,2,192,192,231	3540-3548	LIHC,PRAD
chr5:34007878:->chr5:34007194:-	chr5	34008124	34007878	-	chr5	34007194	34006954	-	TAF	ENST00000335606, ENST00000382072, ENST00000506639, ENST00000382085, ENST00000502637, ENST00000441713, ENST00000426255, ENST00000512079, ENST00000382068	82,82,82,82,82,82,82,82,82	3549-3557	BLCA,LIHC,LUAD,PRAD
chr5:41794105:->chr5:41764599:-	chr5	41794180	41794105	-	chr5	41764599	41764486	-	TAF	ENST00000196371, ENST00000512084, ENST00000510634, ENST00000509987	416,19,19,230	3558-3561	BRCA,KICH,KIRC,KIRP,LGG,PCPG,PRAD,SARC,SKCM,THYM
chr5:41934410:+>chr5:41935724:+	chr5	41934235	41934410	+	chr5	41935724	41936388	+	TSF	ENST00000296812, ENST00000281623, ENST00000509134	299,299,299	3562-3564	BLCA,BRCA,CESC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,PRAD,SARC,THYM
chr5:43382066:->chr5:43376990:-	chr5	43382154	43382066	-	chr5	43376990	43376680	-	TAF	ENST00000489442, ENST00000361115, ENST00000513525	93,93,46	3565-3567	BRCA,KIRP,LIHC,OV,STAD,UVM
chr5:54993674:->chr5:54993040:-	chr5	54993786	54993674	-	chr5	54993040	54992544	-	TSF	ENST00000396865, ENST00000539768, ENST00000318672, ENST00000508124, ENST00000511233, ENST00000503891, ENST00000513993, ENST00000505563, ENST00000506624, ENST00000507109	37,37,37,37,37,37,37,37,37,37	3568-3577	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr5:59481384:->chr5:59300173:-	chr5	59481425	59481384	-	chr5	59300173	59300093	-	TAF	ENST00000502484, ENST00000546160, ENST00000509368, ENST00000505507, ENST00000514552, ENST00000515835	14,14,14,14,14,14	3578-3583	BRCA,KICH,KIRC,KIRP,MESO,PRAD,SARC

Table 9

chr5:59481384:->chr5:59443721:-	chr5	59481425	59481384	-	chr5	59443721	59443367	-	TSF	ENST00000502484, ENST00000546160, ENST00000509368, ENST00000505507, ENST00000514552, ENST00000515835	14,14,14,14, 14,14	3584-3589	BRCA,KIRP,LUAD,PRAD
chr5:65310553:+>chr5:65311417:+	chr5	65310497	65310553	+	chr5	65311417	65311436	+	TSF	ENST00000284037, ENST00000380943, ENST00000416865, ENST00000380935, ENST00000380936, ENST00000380939, ENST00000380938, ENST00000511297, ENST00000506030, ENST00000508515	177,177,177,177,177,17 7,177,177,1 77,177	3590-3599	LGG,STAD
chr5:70858347:+>chr5:70868141:+	chr5	70858101	70858347	+	chr5	70868141	70868205	+	TSF	ENST00000358731, ENST00000525844	2581,603	3600-3601	BLCA,BRCA,CESC,DLBC,GBM,KIRP,LUAD,MESO,OV,STAD,THCA,THYM,UCEC
chr5:70945080:+>chr10:1662872:+	chr5	70944924	70945080	+	chr10	1662872	1663598	+	TSF	ENST00000340941, ENST00000323375, ENST00000509539	457,419,229	3602-3604	BRCA,PRAD
chr5:74984837:->chr5:74983153:-	chr5	74984990	74984837	-	chr5	74983153	74982863	-	TAF	ENST00000428202, ENST00000514838, ENST00000380475, ENST00000510798, ENST00000446329	376,348,259,259,351	3605-3609	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr5:79410337:->chr5:79407525:-	chr5	79410474	79410337	-	chr5	79407525	79407007	-	TSF	ENST00000509193	456	3610	BLCA,COAD,LIHC,OV,PAAD,PRAD,UCEC
chr5:79410337:->chr5:79409445:-	chr5	79410474	79410337	-	chr5	79409445	79409319	-	TSF	ENST00000509193	456	3611	BLCA,GBM,LIHC,OV,PRAD,READ,SKCM,UCEC
chr5:79441913:->chr5:79407525:-	chr5	79442057	79441913	-	chr5	79407525	79407007	-	TSF	ENST00000507668, ENST00000509193, ENST00000512972, ENST00000512721	412,412,412,410	3612-3615	PRAD,SKCM,UCEC
chr5:79498705:->chr5:79481724:-	chr5	79498872	79498705	-	chr5	79481724	79481327	-	TSF	ENST00000507668, ENST00000509193, ENST00000512972, ENST00000512721	65,65,65,65	3616-3619	CESC,STAD,TGCT
chr5:80769519:->chr5:80769370:-	chr5	80769589	80769519	-	chr5	80769370	80769065	-	TSF	ENST00000320672, ENST00000509053, ENST00000514493, ENST00000504985, ENST00000512923, ENST00000505980, ENST00000515395, ENST00000509013	190,160,160,160,96,96,1 70,186	3620-3627	ACC,BLCA,BRCA,CESC,CHOL,DLBC,HNSC,LUAD,LUSC,OV,STAD,THCA,THYM,UCS
chr5:82554496:+>chr5:82606608:+	chr5	82554349	82554496	+	chr5	82606608	82606935	+	TAF	ENST00000282268, ENST00000338635, ENST00000396027, ENST00000511817	297,297,297,297	3628-3631	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr5:88100415:->chr5:88086672:-	chr5	88100618	88100415	-	chr5	88086672	88086593	-	TAF	ENST00000340208, ENST00000424173, ENST00000504921, ENST00000514028, ENST00000437473, ENST00000510942, ENST00000506554, ENST00000508569, ENST00000514015, ENST00000539796, ENST00000513252, ENST00000506716, ENST00000507984, ENST00000502983, ENST00000508610, ENST00000502831, ENST00000503075	86,86,86,86,86,86,86,86, 86,86,86,86, 86,86,86,86, 86,86,86,86, 86	3632-3648	DLBC

Table 9

chr5:90398157:+>chr5:90412152:+	chr5	90398036	90398157	+	chr5	90412152	90412249	+	TSF	ENST00000405460, ENST00000425867	6144,1805	3649-3650	ACC,BRCA,GBM,LGG,LIHC,LUAD,LUSC,THYM
chr6:102483441:+>chr6:102495349:+	chr6	102483216	102483441	+	chr6	102495349	102495644	+	TSF	ENST00000369138, ENST00000413795, ENST00000421544, ENST00000318991, ENST00000369137, ENST00000369134	770,770,770,770,694,721	3651-3656	LGG,UCEC
chr6:105771540:->chr6:105764464:-	chr6	105771643	105771540	-	chr6	105764464	105763345	-	TSF	ENST00000369110, ENST00000448705	439,34	3657-3658	BRCA,COAD,HNSC,LUSC,SARC,SKCM,STAD,UCEC,UCS
chr6:10749931:+>chr6:10829240:+	chr6	10749855	10749931	+	chr6	10829240	10829256	+	TAF	ENST00000379542, ENST00000473166, ENST00000463448, ENST00000460341, ENST00000480294, ENST00000473807, ENST00000461342, ENST00000475942, ENST00000379530, ENST00000463100, ENST00000481240, ENST00000467317, ENST00000478732	33,33,33,33,33,33,33,33,33,33,33,11	3659-3671	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr6:10751467:+>chr6:10829243:+	chr6	10751366	10751467	+	chr6	10829243	10829256	+	TAF	ENST00000379542, ENST00000475942, ENST00000467317, ENST00000478732, ENST00000467229	67,67,67,45,21	3672-3676	ACC,BLCA,BRCA,CESC,GBM,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PCPG,PRAD,STAD,THCA,THYM,UCEC,UCS
chr6:10755465:+>chr6:10829240:+	chr6	10755375	10755465	+	chr6	10829240	10829256	+	TSF	ENST00000379542, ENST00000461342, ENST00000475942, ENST00000379530, ENST00000473276, ENST00000481240, ENST00000467317, ENST00000467229	97,97,97,63,63,63,38,52	3677-3684	ACC,BLCA,BRCA,CHOL,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,READ,SARC,STAD,THCA,THYM,UCEC,UCS,UVM
chr6:10759294:+>chr6:10760279:+	chr6	10759172	10759294	+	chr6	10760279	10760632	+	TSF	ENST00000481240, ENST00000467317	104,138	3685-3686	BRCA,LIHC,LUAD,OV,STAD,THCA,UCEC
chr6:107908379:+>chr6:107948590:+	chr6	107908284	107908379	+	chr6	107948590	107948666	+	TSF	ENST00000317357	223	3687	GBM,LGG,LUAD,OV,PCPG,THYM
chr6:11000320:->chr6:11000151:-	chr6	11000397	11000320	-	chr6	11000151	11000002	-	TAF	ENST00000354666	111	3688	BRCA,CESC,CHOL,GBM,HNSC,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr6:110567335:->chr6:110565813:-	chr6	110567463	110567335	-	chr6	110565813	110565664	-	TSF	ENST00000338882	305	3689	BLCA,KIRP,LUAD,OV,PCPG,SARC,STAD,THCA,UCEC
chr6:110679358:->chr2:115695277:-	chr6	110679475	110679358	-	chr2	115695277	115695018	-	TAF	ENST00000338882	39	3690	BLCA,BRCA,CESC,DLBC,HNSC,KICH,KIRC,LGG,LIHC,LUSC,PAAD,PCPG,PRAD,READ,SARC,THCA,UCEC,UCS
chr6:117700222:->chr6:117693892:-	chr6	117700322	117700222	-	chr6	117693892	117693601	-	TAF	ENST00000368507, ENST00000368508	860,865	3691-3692	BLCA,BRCA,HNSC,LUAD,LUSC,MESO,OV
chr6:139363999:+>chr6:139372258:+	chr6	139363856	139363999	+	chr6	139372258	139372516	+	TAF	ENST00000367660	68	3693	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr6:144613043:+>chr6:144629111:+	chr6	144612965	144613043	+	chr6	144629111	144629489	+	TSF	ENST00000433557, ENST00000367545	26,26	3694-3695	OV,PRAD,STAD
chr6:150239310:->chr6:150238660:-	chr6	150239520	150239310	-	chr6	150238660	150237927	-	TSF	ENST00000367360	280	3696	ACC,BLCA,HNSC,MESO
chr6:151738414:->chr6:151732046:-	chr6	151738534	151738414	-	chr6	151732046	151731858	-	TSF	ENST00000336451, ENST00000367303	189,4	3697-3698	BRCA,TGCT,THCA,UCEC
chr6:151742380:->chr6:151739714:-	chr6	151742456	151742380	-	chr6	151739714	151739579	-	TSF	ENST00000336451, ENST00000367303, ENST00000444024	148,359,189	3699-3701	BLCA,BRCA,KIRC,TGCT,UCEC,UCS

Table 9

chr6:152201906:+>chr6:152233905:+	chr6	152201790	152201906	+	chr6	152233905	152234264	+	TSF	ENST00000440973, ENST00000338799, ENST00000456483, ENST00000443427, ENST00000206249, ENST00000427531, ENST00000415488	253,253,253,253,253,80,38	3702-3708	BRCA
chr6:152201906:+>chr6:152261821:+	chr6	152201790	152201906	+	chr6	152261821	152262024	+	TSF	ENST00000440973, ENST00000338799, ENST00000456483, ENST00000443427, ENST00000206249, ENST00000427531, ENST00000415488	253,253,253,253,253,80,38	3709-3715	BRCA
chr6:152382259:+>chr6:152399927:+	chr6	152382126	152382259	+	chr6	152399927	152404932	+	TAF	ENST00000440973, ENST00000338799, ENST00000456483, ENST00000443427, ENST00000206249, ENST00000406599, ENST00000427531	456,456,456,456,344,195,283	3716-3722	BRCA,CESC,OV,SARC,THCA,UCEC
chr6:163735979:+>chr6:163742647:+	chr6	163735859	163735979	+	chr6	163742647	163743208	+	TSF	ENST00000337019, ENST00000366889, ENST00000366888	283,244,244	3723-3725	KICH,KIRC,PCPG
chr6:167352383:->chr6:167351170:-	chr6	167352496	167352383	-	chr6	167351170	167351130	-	TSF	ENST00000507747, ENST00000366855, ENST00000508775, ENST00000476238, ENST00000478180	129,110,148,148,148	3726-3730	BLCA,BRCA,CESC,COAD,KIRC,KIRP,LUAD,UCEC,UCS
chr6:1930337:->chr6:1888004:-	chr6	1930464	1930337	-	chr6	1888004	1887962	-	TSF	ENST00000530927, ENST00000380815	227,257	3731-3732	BRCA,CESC,COAD,HNSC,KIRC,PRAD,READ,STAD,UCS
chr6:1960101:->chr6:1955184:-	chr6	1960205	1960101	-	chr6	1955184	1955013	-	TAF	ENST00000530927, ENST00000380815	184,214	3733-3734	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,PAAD,PRAD,READ,SARC,SKCM,STAD,UCEC,UVM
chr6:20758874:+>chr6:20772038:+	chr6	20758826	20758874	+	chr6	20772038	20772218	+	TSF	ENST00000274695, ENST00000378624, ENST00000378610	172,172,102	3735-3737	BLCA,BRCA,CESC,LUSC,STAD,THYM,UCEC
chr6:20781496:+>chr6:20797829:+	chr6	20781376	20781496	+	chr6	20797829	20797991	+	TSF	ENST00000274695, ENST00000378624, ENST00000378610	212,212,142	3738-3740	BLCA,BRCA,LUAD,LUSC
chr6:20781496:+>chr6:20805885:+	chr6	20781376	20781496	+	chr6	20805885	20806219	+	TSF	ENST00000274695, ENST00000378624, ENST00000378610	212,212,142	3741-3743	BLCA,BRCA,CESC,KIRC,LUSC,STAD,THYM
chr6:2116005:->chr6:2081017:-	chr6	2116114	2116005	-	chr6	2081017	2075510	-	TSF	ENST00000530927, ENST00000380815	85,115	3744-3745	STAD
chr6:2116005:->chr6:2109630:-	chr6	2116114	2116005	-	chr6	2109630	2109512	-	TAF	ENST00000530927, ENST00000380815	85,115	3746-3747	BRCA,CESC,COAD,LIHC,LUAD,LUSC,PAAD,PRAD,READ,STAD
chr6:21595236:+>chr6:21596236:+	chr6	21594766	21595236	+	chr6	21596236	21596314	+	TSF	ENST00000244745, ENST00000543472	157,157	3748-3749	OV,STAD
chr6:24533915:+>chr6:24536738:+	chr6	24533735	24533915	+	chr6	24536738	24536757	+	TSF	ENST00000546278, ENST00000357578, ENST00000491546, ENST00000348925	439,527,499,540	3750-3753	BLCA,LIHC
chr6:24533915:+>chr6:24543356:+	chr6	24533735	24533915	+	chr6	24543356	24543371	+	TSF	ENST00000546278, ENST00000357578, ENST00000491546, ENST00000348925	439,527,499,540	3754-3757	BLCA,LIHC
chr6:24551662:->chr6:24548828:-	chr6	24551753	24551662	-	chr6	24548828	24548413	-	TSF	ENST00000430948, ENST00000535378, ENST00000378214, ENST00000543707	968,1004,1013,1013	3758-3761	CESC,HNSC,KIRP,LIHC,LUAD,LUSC,SKCM
chr6:25691352:+>chr6:25718996:+	chr6	25691284	25691352	+	chr6	25718996	25719185	+	TSF	ENST00000377961	234	3762	BRCA,CHOL,KIRC,KIRP,LIHC,LUSC,PAAD,PRAD,STAD
chr6:25691352:+>chr6:25737488:+	chr6	25691284	25691352	+	chr6	25737488	25737845	+	TSF	ENST00000377961	234	3763	CHOL,KIRC,KIRP,LUSC,PAAD,PRAD,STAD
chr6:25849602:->chr6:25847464:-	chr6	25849692	25849602	-	chr6	25847464	25847164	-	TAF	ENST00000481949, ENST00000505420, ENST00000397060, ENST00000361703, ENST00000360657	54,7,454,376	3764-3768	KIRC,KIRP,LIHC
chr6:25850987:->chr6:25836733:-	chr6	25851105	25850987	-	chr6	25836733	25836517	-	TSF	ENST00000397060, ENST00000361703, ENST00000360657	277,199,199	3769-3771	KIRC,KIRP

Table 9

chr6:25861852:->chr6:25836733:-	chr6	25861939	25861852	-	chr6	25836733	25836517	-	TSF	ENST00000397060, ENST00000361703, ENST00000360657	208,130,130	3772-3774	KIRC
chr6:27114201:->chr6:27106460:-	chr6	27114577	27114201	-	chr6	27106460	27106003	-	TAF	ENST00000396891, ENST00000356950	125,125	3775-3776	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr6:27217008:+>chr6:27217348:+	chr6	27216879	27217008	+	chr6	27217348	27217694	+	TSF	ENST00000230582, ENST00000470870, ENST00000475106, ENST00000485993	155,155,47,47	3777-3780	THYM
chr6:27220728:+>chr6:27221559:+	chr6	27220587	27220728	+	chr6	27221559	27221657	+	TSF	ENST00000421826, ENST00000230582, ENST00000475106, ENST00000485993	161,135,126,383	3781-3784	THYM
chr6:29693340:+>chr6:29700968:+	chr6	29693224	29693340	+	chr6	29700968	29700992	+	TSF	ENST00000376861, ENST00000334668, ENST00000259951, ENST00000440587, ENST00000434407, ENST00000429294, ENST00000444621	334,334,334,216,242,213,10	3785-3791	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,KIRP,LIHC,LUAD,LUSC,MESO,SARC,STAD,THCA,THYM,UCEC
chr6:29910757:+>chr6:30349606:+	chr6	29910534	29910757	+	chr6	30349606	30349643	+	TSF	ENST00000396634, ENST00000376806, ENST00000376809, ENST00000376802	99,99,99,99	3792-3795	OV,STAD
chr6:29913058:+>chr6:29915459:+	chr6	29913011	29913058	+	chr6	29915459	29916523	+	TAF	ENST00000396634, ENST00000376806, ENST00000376809	364,364,370	3796-3798	BRCA,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,SKCM,STAD,THCA,THYM,UVM
chr6:30458292:+>chr6:30461503:+	chr6	30458017	30458292	+	chr6	30461503	30461850	+	TSF	ENST00000376630	203	3799	OV,STAD
chr6:30458971:+>chr6:30461651:+	chr6	30458914	30458971	+	chr6	30461651	30461850	+	TSF	ENST00000376630	222	3800	OV
chr6:30459146:+>chr6:30461539:+	chr6	30458914	30459146	+	chr6	30461539	30461850	+	TSF	ENST00000376630	281	3801	OV,SKCM,STAD
chr6:30459396:+>chr6:30461007:+	chr6	30459314	30459396	+	chr6	30461007	30461101	+	TSF	ENST00000376630	323	3802	OV,STAD
chr6:30908858:+>chr6:30913176:+	chr6	30908777	30908858	+	chr6	30913176	30913422	+	TSF	ENST00000462446	27	3803	STAD
chr6:32826282:+>chr6:32828985:+	chr6	32826141	32826282	+	chr6	32828985	32829263	+	TAF	ENST00000395330, ENST00000453265, ENST00000374859	154,133,177	3804-3806	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr6:33271732:->chr6:33267676:-	chr6	33271766	33271732	-	chr6	33267676	33267587	-	TSF	ENST00000434618, ENST00000475304, ENST00000489157, ENST00000426633, ENST00000456592	445,445,445,463,358	3807-3811	BLCA,BRCA,CESC,COAD,DLBC,KIRC,KIRP,LIHC,LUSC,OV,PRAD,UCEC
chr6:34210572:+>chr6:34212756:+	chr6	34210489	34210572	+	chr6	34212756	34212817	+	TSF	ENST00000447654, ENST00000311487, ENST00000347617, ENST00000401473, ENST00000374116	73,73,62,62,62	3812-3816	OV,STAD
chr6:34386146:->chr6:34385704:-	chr6	34386201	34386146	-	chr6	34385704	34385695	-	TSF	ENST00000605528, ENST00000344700, ENST00000326199	152,152,152	3817-3819	BLCA,CESC,OV,PRAD,STAD,THYM
chr6:34511797:->chr6:34511385:-	chr6	34512232	34511797	-	chr6	34511385	34511028	-	TAF	ENST00000374037, ENST00000544425	145,145	3820-3821	BRCA,CESC,COAD,LIHC,OV,PRAD,STAD,UCEC
chr6:35314927:+>chr6:35351354:+	chr6	35314915	35314927	+	chr6	35351354	35351915	+	TAF	ENST00000448077	4	3822	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM

Table 9

chr6:35547813:->chr6:35531291:-	chr6	35547998	35547813	-	chr6	35531291	35531039	-	TSF	ENST00000539068, ENST00000536438, ENST00000357266, ENST00000540787	342,342,342,163	3823-3826	BRCA,HNSC,KIRC,KIRP,LGG,LUAD,MESO,PCPG,PRAD,SARC
chr6:36762367:->chr6:36760220:-	chr6	36762426	36762367	-	chr6	36760220	36760189	-	TAF	ENST00000244751	154	3827	GBM,KICH,KIRP,LGG,SKCM
chr6:36762367:->chr6:36760223:-	chr6	36762426	36762367	-	chr6	36760223	36760189	-	TAF	ENST00000244751	154	3828	BLCA,BRCA,CESC,GBM,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,TGCT,THCA,UCS,UVM
chr6:36922707:+>chr6:36924759:+	chr6	36922537	36922707	+	chr6	36924759	36925208	+	TSF	ENST00000373674	57	3829	LGG
chr6:37611585:->chr6:37611139:-	chr6	37611719	37611585	-	chr6	37611139	37611040	-	TSF	ENST00000297153, ENST00000434837, ENST00000505425, ENST00000418178	849,845,845,155	3830-3833	BLCA,BRCA,CESC,HNSC,LIHC,LUSC,MESO,PCPG,SARC,SKCM
chr6:38851774:+>chr6:38852622:+	chr6	38851652	38851774	+	chr6	38852622	38852809	+	TSF	ENST00000449981, ENST00000327475, ENST00000359357, ENST00000441566	2753,2741,2536,2500	3834-3837	DLBC,PRAD
chr6:41606563:+>chr6:41607515:+	chr6	41606488	41606563	+	chr6	41607515	41607595	+	TAF	ENST00000432027, ENST00000419164, ENST00000373051, ENST00000441667, ENST00000230321, ENST00000373050, ENST00000446650, ENST00000435476	25,25,25,25,25,25,25,25	3838-3845	BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCS
chr6:42883865:+>chr6:42890333:+	chr6	42883808	42883865	+	chr6	42890333	42890502	+	TSF	ENST00000304672, ENST00000441198, ENST00000446507	19,19,19	3846-3848	THYM
chr6:42883865:+>chr6:42891625:+	chr6	42883808	42883865	+	chr6	42891625	42891704	+	TSF	ENST00000304672, ENST00000441198, ENST00000446507	19,19,19	3849-3851	THYM
chr6:42891085:+>chr6:42891625:+	chr6	42890765	42891085	+	chr6	42891625	42891704	+	TAF	ENST00000304672, ENST00000441198	126,101	3852-3853	THYM
chr6:42980664:->chr6:42948581:-	chr6	42980766	42980664	-	chr6	42948581	42948550	-	TAF	ENST00000244711	135	3854	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr6:42980664:->chr6:42973204:-	chr6	42980766	42980664	-	chr6	42973204	42973029	-	TSF	ENST00000244711	135	3855	BLCA,BRCA,DLBC,LUAD,OV,PRAD,SARC,SKCM,STAD,TGCT
chr6:43005597:->chr6:43005086:-	chr6	43005749	43005597	-	chr6	43005086	43004995	-	TSF	ENST00000265348, ENST00000535468	1642,1726	3856-3857	BLCA,BRCA,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,THCA,THYM,UCEC,UCS,UVM
chr6:44200165:+>chr6:44209921:+	chr6	44200080	44200165	+	chr6	44209921	44210213	+	TSF	ENST00000393844, ENST00000313248, ENST00000427851, ENST00000371740, ENST00000371755, ENST00000371731, ENST00000393841, ENST00000371713, ENST00000371724, ENST00000371708	353,353,353,353,353,353,353,353,353,432	3858-3867	BLCA,BRCA,CHOL,GBM,KIRP,LIHC,LUAD,OV,PAAD,PCPG,SARC,SKCM,STAD,UCS
chr6:46672890:->chr6:46667004:-	chr6	46673038	46672890	-	chr6	46667004	46666386	-	TSF	ENST00000274793, ENST00000537365	396,396	3868-3869	PRAD
chr6:46867766:->chr6:46856509:-	chr6	46867820	46867766	-	chr6	46856509	46856439	-	TAF	ENST00000283296, ENST00000362015, ENST00000456426, ENST00000265417	52,52,52,52	3870-3873	KICH,KIRC,LUAD,PRAD
chr6:51609183:->chr6:51608386:-	chr6	51609340	51609183	-	chr6	51608386	51607435	-	TSF	ENST00000371117, ENST00000340994	3385,3385	3874-3875	BLCA,CHOL,KIRC,KIRP,LIHC,OV,SKCM
chr6:53778767:+>chr6:53783822:+	chr6	53778652	53778767	+	chr6	53783822	53783822	+	TSF	ENST00000370888	368	3876	BLCA,BRCA,HNSC,KIRP,LIHC,MESO

Table 9

chr6:610098:->chr6:607066:-	chr6	610178	610098	-	chr6	607066	606461	-	TSF	ENST00000230449	247	3877	BRCA
chr6:65098583:->chr6:65097495:-	chr6	65098733	65098583	-	chr6	65097495	65097442	-	TSF	ENST00000503581, ENST00000370621, ENST00000370616	2026,2026,2026	3878-3880	BLCA,DLBC,HNSC,LUAD,LUSC,OV,READ,SARC,STAD,TGCT,UCEC
chr6:74228077:->chr6:74195910:-	chr6	74228333	74228077	-	chr6	74195910	74195882	-	TSF	ENST00000316292, ENST00000309268, ENST00000331523	343,343,343	3881-3883	BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,OV,PRAD,STAD,THCA,THYM,UCS
chr6:74228077:->chr6:74202961:-	chr6	74228333	74228077	-	chr6	74202961	74202718	-	TSF	ENST00000316292, ENST00000309268, ENST00000331523	343,343,343	3884-3886	LUAD,OV,STAD,TGCT
chr6:75953433:->chr6:75951015:-	chr6	75953546,75953450,75953503	75953433	-	chr6	75951015	75951009	-	TSF	ENST00000370081, ENST00000230459, ENST00000370089, ENST00000459637, ENST00000509698, ENST00000460985, ENST00000472311, ENST00000377978	23,38,38,6,6,6,6,6	3887-3894	BRCA,CESC,GBM,KIRC,LGG,LUAD,OV,PCPG,SKCM,STAD,UCS
chr6:84772711:+>chr6:84775517:+	chr6	84772612	84772711	+	chr6	84775517	84775723	+	TSF	ENST00000257776	75	3895	CESC,HNSC,LUSC,OV,SARC,STAD
chr6:84772711:+>chr6:84849189:+	chr6	84772612	84772711	+	chr6	84849189	84849246	+	TSF	ENST00000257776	75	3896	BRCA,CESC,COAD,GBM,HNSC,KICH,LGG,LUSC,OV,PAAD,PCPG,SARC,STAD,UCEC
chr6:85448215:->chr6:85377422:-	chr6	85448309	85448215	-	chr6	85377422	85377053	-	TSF	ENST00000606784, ENST00000369663	208,366	3897-3898	ACC,HNSC,MESO,OV,SARC,SKCM,UCEC
chr6:99781227:->chr6:99774039:-	chr6	99781423	99781227	-	chr6	99774039	99774006	-	TSF	ENST00000389677	199	3899	LUSC,OV
chr7:100854872:->chr7:100854207:-	chr7	100854953	100854872	-	chr7	100854207	100854151	-	TSF	ENST00000454310, ENST00000223127, ENST00000440925, ENST00000421736	27,452,65,243	3900-3903	BRCA,COAD,KIRC,PAAD,SKCM,STAD
chr7:102079628:+>chr7:102080251:+	chr7	102079404	102079628	+	chr7	102080251	102080534	+	TSF	ENST00000495936, ENST00000356387, ENST00000478730, ENST00000468241, ENST00000403646, ENST00000498661, ENST00000473939	75,75,75,75,75,75,75	3904-3910	DLBC
chr7:102141146:->chr7:102138644:-	chr7	102141240	102141146	-	chr7	102138644	102138521	-	TSF	ENST00000541662, ENST00000465829, ENST00000306682	245,245,173	3911-3913	BRCA,DLBC,KIRC,LGG,PCPG,THCA
chr7:102141146:->chr7:102139087:-	chr7	102141240	102141146	-	chr7	102139087	102139007	-	TAF	ENST00000541662, ENST00000465829, ENST00000306682	245,245,173	3914-3916	ACC,BLCA,BRCA,DLBC,GBM,KIRC,LGG,PAAD,PCPG,THYM
chr7:102150046:->chr7:102149552:-	chr7	102150107	102150046	-	chr7	102149552	102149223	-	TSF	ENST00000541662, ENST00000465829, ENST00000306682	99,99,27	3917-3919	BLCA,BRCA,CESC,DLBC,GBM,KIRC,LGG,PAAD,PCPG,SARC,THCA,UCS
chr7:102240307:->chr7:102237809:-	chr7	102240401	102240307	-	chr7	102237809	102237686	-	TSF	ENST00000262940, ENST00000461209, ENST00000449970, ENST00000462172, ENST00000519539, ENST00000522801	100,245,245,173,173,226	3920-3925	BRCA,DLBC,KIRC,LGG,PCPG,THCA
chr7:102240307:->chr7:102238252:-	chr7	102240401	102240307	-	chr7	102238252	102238172	-	TAF	ENST00000262940, ENST00000461209, ENST00000449970, ENST00000462172, ENST00000519539, ENST00000522801	245,245,173,173,100,226	3926-3931	ACC,BLCA,BRCA,DLBC,GBM,KIRC,LGG,PAAD,PCPG,THYM
chr7:102249208:->chr7:102248714:-	chr7	102249269	102249208	-	chr7	102248714	102248385	-	TSF	ENST00000262940, ENST00000461209, ENST00000449970, ENST00000462172, ENST00000522801, ENST00000520042, ENST00000521076	99,99,27,27,27,27,80	3932-3938	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,PAAD,PCPG,PRAD,SARC,THCA,UCS
chr7:102307537:->chr7:102207490:-	chr7	102307711	102307537	-	chr7	102207490	102207365	-	TAF	ENST00000591000, ENST00000476151, ENST00000358438	105,105,105	3939-3941	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC

Table 9

chr7:1037282:->chr7:1018697:-	chr7	1037440	1037282	-	chr7	1018697	1018446	-	TAF	ENST00000357429, ENST00000397100, ENST00000397098, ENST00000412051, ENST00000444428, ENST00000491163	188,188,188,188,172,156	3942-3947	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,THCA,THYM,UCEC,UCS,UVM
chr7:103969672:+>chr7:103974311:+	chr7	103969270	103969672	+	chr7	103974311	103974541	+	TSF	ENST00000424859, ENST00000535008, ENST00000401970, ENST00000543266	134,134,148,148	3948-3951	GBM,LGG
chr7:116593745:+>chr7:116738667:+	chr7	116593595	116593745	+	chr7	116738667	116738692	+	TSF	ENST00000393446, ENST00000265437, ENST00000393451, ENST00000438863, ENST00000323984, ENST00000393449, ENST00000443979, ENST00000446490	50,50,50,50,50,50,50,50	3952-3959	BRCA,GBM,KICH,KIRC,LIHC,LUAD,LUSC,OV,PRAD,STAD
chr7:116660683:+>chr7:116738667:+	chr7	116660662	116660683	+	chr7	116738667	116738692	+	TSF	ENST00000465133, ENST00000393444, ENST00000393447	7,7,7	3960-3962	GBM,LGG,LUAD,PAAD,PCPG,SKCM
chr7:117254767:+>chr7:117258279:+	chr7	117254667	117254767	+	chr7	117258279	117258298	+	TSF	ENST00000003084, ENST00000454343, ENST00000426809, ENST00000468795	1156,1095,126,97	3963-3966	KICH,KIRC,LIHC,PAAD,READ
chr7:121513611:+>chr7:121549265:+	chr7	121513554	121513611	+	chr7	121549265	121550027	+	TSF	ENST00000393386, ENST00000449182	19,19	3967-3968	GBM,LGG,LUSC
chr7:127953228:->chr7:127921205:-	chr7	127953327	127953228	-	chr7	127921205	127920177	-	TSF	ENST00000223073, ENST00000415472	715,574	3969-3970	GBM,LGG,UCEC
chr7:135635347:->chr7:135585557:-	chr7	135635430	135635347	-	chr7	135585557	135585512	-	TSF	ENST00000393085	90	3971	BLCA,CESC,COAD,GBM,KIRC,LGG,LUSC,OV,SARC,STAD,THCA,UCEC,UCS
chr7:136935977:->chr7:136925784:-	chr7	136936138	136935977	-	chr7	136925784	136925658	-	TAF	ENST00000348225, ENST00000393083	150,15	3972-3973	BLCA,BRCA,GBM,LGG,LUSC,OV,PCPG,SARC,TGCT
chr7:137080344:->chr7:137053199:-	chr7	137080443	137080344	-	chr7	137053199	137053024	-	TSF	ENST00000453654, ENST00000288490, ENST00000424189, ENST00000446122	696,1027,1040,1009	3974-3977	KICH
chr7:140080082:->chr7:140075454:-	chr7	140080190	140080082	-	chr7	140075454	140075361	-	TSF	ENST00000477571, ENST00000340308, ENST00000447932, ENST00000326232, ENST00000429996, ENST00000469193, ENST00000462881	66,66,66,66,66,66,66	3978-3984	CESC,COAD,GBM,STAD,TGCT,UCEC
chr7:14017052:->chr7:14014711:-	chr7	14017105	14017052	-	chr7	14014711	14014667	-	TSF	ENST00000430479, ENST00000399357, ENST00000405192, ENST00000405358, ENST00000403527, ENST00000405218, ENST00000443137, ENST00000443608, ENST00000421381, ENST00000431887	78,78,78,78,78,78,38,38,38,92	3985-3994	BRCA,KICH,LUSC,PAAD,PRAD,SKCM,TGCT
chr7:142829304:+>chr7:142856912:+	chr7	142829210	142829304	+	chr7	142856912	142857269	+	TSF	ENST00000291009	31	3995	BRCA
chr7:142832392:+>chr7:142856912:+	chr7	142832287	142832392	+	chr7	142856912	142857269	+	TSF	ENST00000291009	67	3996	BRCA,KICH
chr7:150066030:+>chr7:150067849:+	chr7	150065992	150066030	+	chr7	150067849	150067901	+	TSF	ENST00000466559, ENST00000475514, ENST00000488943, ENST00000467980, ENST00000518514, ENST00000522266	13,13,13,13,13,13	3997-4002	BRCA,COAD,KICH,LGG,LIHC,LUAD,LUSC,OV,PRAD,READ,STAD
chr7:150939023:->chr7:150938275:-	chr7	150939064	150939023	-	chr7	150938275	150938099	-	TSF	ENST00000262188, ENST00000392811, ENST00000356800	239,226,226	4003-4005	OV
chr7:151573592:->chr7:151532195:-	chr7	151573705	151573592	-	chr7	151532195	151531867	-	TSF	ENST00000287878, ENST00000488258	38,38	4006-4007	KIRC,LIHC,PRAD

Table 9

chr7:151810483:+>chr7:151813950:+	chr7	151810331	151810483	+	chr7	151813950	151814077	+	TSF	ENST00000430044, ENST00000452146, ENST00000434507, ENST00000320311, ENST00000431940	411,411,411,330,51	4008-4012	HNSC,KIRC,KIRP,LUAD,LUSC
chr7:157903521:->chr7:157893548:-	chr7	157903607	157903521	-	chr7	157893548	157892972	-	TSF	ENST00000409483, ENST00000389416, ENST00000389418, ENST00000404321	509,530,547,570	4013-4016	ACC,BRCA,PAAD,PCPG,PRAD,READ,SARC,STAD
chr7:158282427:->chr7:158229450:-	chr7	158282477	158282427	-	chr7	158229450	158229273	-	TSF	ENST00000389413, ENST00000409483, ENST00000389418, ENST00000404321	54,54,54,77	4017-4020	LUAD,PAAD,PCPG,PRAD,STAD
chr7:16900124:->chr7:16894536:-	chr7	16900207	16900124	-	chr7	16894536	16894260	-	TSF	ENST00000402239, ENST00000310398, ENST00000414935, ENST00000310398, ENST00000402239, ENST00000414935	150,150,128	4021-4023	BLCA,BRCA,COAD,LUAD,STAD
chr7:16901008:->chr7:16894536:-	chr7	16901071	16901008	-	chr7	16894536	16894260	-	TSF	ENST00000310398, ENST00000402239, ENST00000414935	122,122,100	4024-4026	BRCA,LUAD,PAAD,STAD
chr7:22532184:->chr7:22512853:-	chr7	22532348	22532184	-	chr7	22512853	22512669	-	TSF	ENST00000406890, ENST00000404369, ENST00000424363	235,254,254	4027-4029	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,SARC,SKCM,TGCT,UCS
chr7:22532184:->chr7:22531483:-	chr7	22532348	22532184	-	chr7	22531483	22531370	-	TSF	ENST00000406890, ENST00000404369, ENST00000424363	235,254,254	4030-4032	BLCA,CESC,KIRC,LUAD,LUSC,SARC,UCS
chr7:23300392:+>chr7:23300981:+	chr7	23300075	23300392	+	chr7	23300981	23301414	+	TSF	ENST00000258733, ENST00000381990, ENST00000539136, ENST00000453162	339,339,240,281	4033-4036	BLCA,BRCA,HNSC,KIRP,LUAD,LUSC,SARC,SKCM,THCA,UVM
chr7:23300392:+>chr7:23301185:+	chr7	23300075	23300392	+	chr7	23301185	23301414	+	TSF	ENST00000258733, ENST00000381990, ENST00000539136, ENST00000453162	339,339,240,281	4037-4040	BRCA,CESC,COAD,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,MESO,PRAD,SKCM,TGCT,UVM
chr7:23313233:+>chr7:23322924:+	chr7	23313140	23313233	+	chr7	23322924	23323223	+	TSF	ENST00000258733, ENST00000381990, ENST00000539136, ENST00000453162	507,519,408,461	4041-4044	CESC,HNSC,KICH,KIRC,KIRP,LUSC,OV,SARC,SKCM,THCA,UVM
chr7:26192688:+>chr7:26210356:+	chr7	26192119	26192688	+	chr7	26210356	26210396	+	TSF	ENST00000056233	190	4045	COAD,LUSC,STAD,TGCT
chr7:27582586:->chr7:27581374:-	chr7	27582719	27582586	-	chr7	27581374	27579272	-	TAF	ENST00000265395, ENST00000425715	206,148	4046-4047	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr7:30468990:->chr7:30468225:-	chr7	30469073	30468990	-	chr7	30468225	30468003	-	TSF	ENST00000222823	929	4048	LUAD,THCA
chr7:33644587:+>chr7:33900207:+	chr7	33644477	33644587	+	chr7	33900207	33900392	+	TSF	ENST00000242067, ENST00000350941, ENST00000354265, ENST00000355070, ENST00000396127, ENST00000434373	877,837,842,872,842,443	4049-4054	ACC,BRCA,GBM,KIRC,KIRP,LGG,MESO,PCPG,SARC,THCA
chr7:34888275:+>chr7:34935732:+	chr7	34888095	34888275	+	chr7	34935732	34935887	+	TSF	ENST00000360581, ENST00000381542, ENST00000359791, ENST00000531252, ENST00000381539	341,341,341,275,330	4055-4059	CESC,COAD,HNSC,LGG,LUAD,LUSC,PAAD,READ,STAD
chr7:39610226:+>chr7:39618101:+	chr7	39610105	39610226	+	chr7	39618101	39618410	+	TSF	ENST00000223273, ENST00000448268, ENST00000432096	83,83,83	4060-4062	BRCA,GBM,LGG,OV,STAD
chr7:4026954:+>chr7:4027977:+	chr7	4026818	4026954	+	chr7	4027977	4028157	+	TAF	ENST00000404826, ENST00000389531	710,71	4063-4064	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,SARC,STAD,UCEC
chr7:44198672:->chr7:44197795:-	chr7	44198719	44198672	-	chr7	44197795	44197675	-	TSF	ENST00000345378	16	4065	LIHC

Table 9

chr7:44294141:->chr7:44293110:-	chr7	44294206	44294141	-	chr7	44293110	44292801	-	TSF	ENST00000350811, ENST00000457475, ENST00000395749, ENST00000440254, ENST00000358707, ENST00000353625, ENST00000353185, ENST00000258682, ENST00000346990, ENST00000347193, ENST00000395747, ENST00000415369, ENST00000424197, ENST00000421607	113,113,113,113,113,11,3,113,113,1,13,113,113,113,113,129	4066-4079	BLCA,BRCA,CESC,DLBC,HNSC,KICH,LUSC,PAAD,PCPG,PRAD,SARC
chr7:45650096:+>chr7:45652520:+	chr7	45649978	45650096	+	chr7	45652520	45652533	+	TSF	ENST00000432715, ENST00000297323	77,302	4080-4081	TGCT
chr7:4955636:->chr7:4953019:-	chr7	4955710	4955636	-	chr7	4953019	4952706	-	TSF	ENST00000406755, ENST00000404774, ENST00000401401	121,121,121	4082-4084	LGG
chr7:5434071:->chr7:5433863:-	chr7	5434226,5	5434071	-	chr7	5433863	5433797	-	TSF	ENST00000399537, ENST00000430969, ENST00000434361, ENST00000399434	114,114,40,40	4085-4088	BRCA,LUAD,OV,STAD
chr7:55270401:+>chr7:55272949:+	chr7	55270210	55270401	+	chr7	55272949	55272949	+	TSF	ENST00000455089	1073	4089	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,SARC,STAD
chr7:55469013:+>chr7:55477218:+	chr7	55468867	55469013	+	chr7	55477218	55477724	+	TSF	ENST00000254770	275	4090	BLCA,BRCA,CESC,GBM,HNSC,LGG,STAD,TGCT
chr7:5780604:->chr7:5779256:-	chr7	5781275,6	5780604	-	chr7	5779256	5779224	-	TAF	ENST00000425013, ENST00000389902, ENST00000389900	291,291,348	4091-4093	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr7:618893:->chr7:618449:-	chr7	619014	618893	-	chr7	618449	618307	-	TSF	ENST00000544935, ENST00000537384, ENST00000406797, ENST00000403562, ENST00000360274, ENST00000400758, ENST00000430040	297,297,297,297,297,297,157	4094-4100	BLCA,CESC,COAD,HNSC,LIHC,OV,READ,SARC,STAD,TGCT,UCEC
chr7:64254949:+>chr7:64257358:+	chr7	64254947	64254949	+	chr7	64257358	64257449	+	TAF	ENST00000307355, ENST00000494380, ENST00000440155, ENST00000440598	1,1,1,1	4101-4104	BLCA,BRCA,COAD,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,STAD,TGCT,THYM,UCEC,UCS,UVM
chr7:65751696:+>chr7:65781807:+	chr7	65751498	65751696	+	chr7	65781807	65782076	+	TSF	ENST00000304842	348	4105	GBM,LIHC,PCPG
chr7:71142291:+>chr7:71169493:+	chr7	71142196	71142291	+	chr7	71169493	71170639	+	TSF	ENST00000333538	500	4106	KICH,KIRC,KIRP,OV,PCPG,PRAD,SARC,TGCT,THYM
chr7:73459623:+>chr7:73460337:+	chr7	73459552	73459623	+	chr7	73460337	73460377	+	TSF	ENST00000445912, ENST00000252034, ENST00000358929, ENST00000320492, ENST00000438906, ENST00000414324, ENST00000380562, ENST00000380575, ENST00000380584, ENST00000458204, ENST00000357036, ENST00000429192, ENST00000380576, ENST00000320399	180,180,180,180,180,180,180,180,168,175,170,170,185,185	4107-4120	BRCA,CHOL,LGG,LIHC,MESO,PCPG,SARC,TGCT,UCEC,UCS
chr7:73731997:+>chr7:73734711:+	chr7	73731877	73731997	+	chr7	73734711	73734869	+	TSF	ENST00000361545, ENST00000223398, ENST00000395060	40,40,40	4121-4123	GBM,LGG,STAD
chr7:73973985:+>chr7:73985447:+	chr7	73973957	73973985	+	chr7	73985447	73985582	+	TSF	ENST00000265755, ENST00000455841, ENST00000424337, ENST00000476977, ENST00000470715	788,805,773,773,150	4124-4128	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LUAD,OV,READ,SKCM,TGCT,THCA,UCEC,UCS

Table 9

chr7:74157859:+>chr7:74158483:+	chr7	74157788	74157859	+	chr7	74158483	74158600	+	TSF	ENST00000324896, ENST00000346152, ENST00000353920, ENST00000416070	583,562,563,542	4129-4132	BRCA,LUAD,TGCT
chr7:74168361:+>chr7:74168612:+	chr7	74168178	74168361	+	chr7	74168612	74168748	+	TSF	ENST00000324896, ENST00000346152, ENST00000353920, ENST00000416070	941,920,921,900	4133-4136	BLCA,BRCA,GBM,KIRP,LGG,OV,STAD,TGCT
chr7:74867229:->chr7:74856485:-	chr7	74867341	74867229	-	chr7	74856485	74856184	-	TSF	ENST00000426327	37	4137	GBM,LIHC,OV,STAD,TGCT
chr7:75442624:->chr7:75441450:-	chr7	75442741	75442624	-	chr7	75441450	75441417	-	TAF	ENST00000222902, ENST00000416943	63,63	4138-4139	BLCA,COAD,PAAD,READ,STAD
chr7:75611640:+>chr7:75612546:+	chr7	75611542,75611580,75611597	75611640	+	chr7	75612546	75612675	+	TAF	ENST00000461988, ENST00000419840, ENST00000394893, ENST00000412064, ENST00000447222, ENST00000545601, ENST00000450476, ENST00000439269	276,276,90,209,327,84,175,14	4140-4147	ACC,KIRC,LIHC,OV,THCA
chr7:75617036:->chr7:75603302:-	chr7	75617128	75617036	-	chr7	75603302	75603295	-	TSF	ENST00000493111	261	4148	KIRC,KIRP,LGG,LIHC,LUAD,OV,SARC,SKCM
chr7:76143393:+>chr7:76648226:+	chr7	76143264	76143393	+	chr7	76648226	76648393	+	TSF	ENST00000334348, ENST00000448265, ENST00000419923, ENST00000443097, ENST00000257632, ENST00000394849	252,252,252,197,223,223	4149-4154	BLCA,MESO,OV,STAD,UCEC
chr7:76143393:+>chr7:76676146:+	chr7	76143264	76143393	+	chr7	76676146	76676313	+	TSF	ENST00000334348, ENST00000448265, ENST00000419923, ENST00000443097, ENST00000257632, ENST00000394849	223,223,252,252,252,197	4155-4160	BLCA,MESO,OV,STAD,UCEC
chr7:76144473:+>chr7:76648226:+	chr7	76144362	76144473	+	chr7	76648226	76648393	+	TSF	ENST00000334348, ENST00000448265, ENST00000419923, ENST00000443097, ENST00000257632, ENST00000394849	261,261,289,289,289,234	4161-4166	BLCA,MESO,OV,THCA,UCEC
chr7:76144473:+>chr7:76676146:+	chr7	76144362	76144473	+	chr7	76676146	76676313	+	TSF	ENST00000334348, ENST00000448265, ENST00000419923, ENST00000443097, ENST00000257632, ENST00000394849	261,261,289,289,289,234	4167-4172	BLCA,MESO,OV,THCA,UCEC
chr7:77212967:+>chr7:77213910:+	chr7	77212873	77212967	+	chr7	77213910	77213912	+	TSF	ENST00000248594, ENST00000433369, ENST00000415482, ENST00000418110, ENST00000522115, ENST00000440186, ENST00000447995	127,8,8,8,8,8,89	4173-4179	BLCA,BRCA,GBM,HNSC,LUAD,LUSC,SKCM,STAD,TGCT
chr7:81964451:->chr7:81929467:-	chr7	81964567	81964451	-	chr7	81929467	81929190	-	TSF	ENST00000356860, ENST00000356253, ENST00000423588	98,98,98	4180-4182	ACC,BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,LGG,LUAD,LUSC,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr7:8198157:->chr7:8197727:-	chr7	8198282	8198157	-	chr7	8197727	8197714	-	TSF	ENST00000402384, ENST00000406470, ENST00000265577, ENST00000396675, ENST00000339809, ENST00000401396, ENST00000422063, ENST00000407906, ENST00000317367	235,235,235,235,235,234,223,223	4183-4191	BLCA,COAD,LUAD,LUSC,PAAD,READ
chr7:86848742:->chr7:86836058:-	chr7	86848819	86848742	-	chr7	86836058	86835850	-	TAF	ENST00000257637, ENST00000433078, ENST00000423734	26,26,26	4192-4194	DLBC,KIRP,LUAD,LUSC,MESO,THCA
chr7:87022383:+>chr7:87025232:+	chr7	87022264	87022383	+	chr7	87025232	87025462	+	TSF	ENST00000419147, ENST00000331536, ENST00000442291	600,572,572	4195-4197	BLCA,BRCA,LUSC,PRAD
chr7:91509369:->chr7:91430582:-	chr7	91509397	91509369	-	chr7	91430582	91429696	-	TSF	ENST00000351870, ENST00000442961	9,9	4198-4199	BLCA,BRCA,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,THYM,UCEC,UCS

Table 9

chr7:91771777:->chr7:91767155:-	chr7	91771800	91771777	-	chr7	91767155	91766808	-	TSF	ENST00000435873	8	4200	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,OV,PRAD,STAD,UCEC,UCS
chr7:91771777:->chr7:91767179:-	chr7	91771800	91771777	-	chr7	91767179	91766808	-	TSF	ENST00000435873	8	4201	OV,UCEC
chr7:92083999:+>chr7:92090633:+	chr7	92083816	92083999	+	chr7	92090633	92090800	+	TSF	ENST00000287957	206	4202	GBM,HNSC,KIRP,LGG,LUSC,STAD
chr7:92902045:+>chr7:92904706:+	chr7	92901947	92902045	+	chr7	92904706	92904974	+	TSF	ENST00000251739, ENST00000305866, ENST00000541136, ENST00000544910, ENST00000458707	267,267,78, 237,53	4203-4207	BRCA,CESC,GBM,LUAD,SARC,SKCM,STAD
chr7:93516573:->chr7:93492029:-	chr7	93516744	93516573	-	chr7	93492029	93491711	-	TSF	ENST00000222543, ENST00000451238, ENST00000451238, ENST00000222543	210,106	4208-4209	KIRC,KIRP,LUAD,LUSC,MESO
chr7:95125369:+>chr7:95147506:+	chr7	95125070	95125369	+	chr7	95147506	95147874	+	TAF	ENST00000428113, ENST00000325885	162,162	4210-4211	ACC,LUAD,LUSC,STAD
chr7:95165862:+>chr7:95168895:+	chr7	95165749	95165862	+	chr7	95168895	95169198	+	TAF	ENST00000325885	364	4212	ACC,LUSC,PCPG,STAD
chr7:95668733:+>chr7:95670774:+	chr7	95668589	95668733	+	chr7	95670774	95671058	+	TSF	ENST00000447467, ENST00000324972, ENST00000537881, ENST00000437599, ENST00000359388, ENST00000457059	503,503,520 ,483,483,50 0	4213-4218	BLCA,HNSC,KIRC,LIHC,LUAD,LUSC,PCPG,SKCM,TGCT
chr7:98741349:->chr7:98680363:-	chr7	98741403	98741349	-	chr7	98680363	98679576	-	TSF	ENST00000361368, ENST00000361125	18,18	4219-4220	HNSC,LUSC,STAD
chr7:98961256:+>chr7:98963096:+	chr7	98961166	98961256	+	chr7	98963096	98963255	+	TSF	ENST00000432884, ENST00000262942	311,358	4221-4222	BLCA,COAD,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,TGCT
chr7:98991742:+>chr7:98994840:+	chr7	98991652	98991742	+	chr7	98994840	98994900	+	TAF	ENST00000252725, ENST00000451682	360,36	4223-4224	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr7:99821505:->chr7:99810756:-	chr7	99821698	99821505	-	chr7	99810756	99810604	-	TAF	ENST00000436886	137	4225	GBM,HNSC,KIRP,LGG,MESO,OV,THYM
chr8:101620722:->chr8:101619733:-	chr8	101620791	101620722	-	chr8	101619733	101619704	-	TSF	ENST00000311812, ENST00000428383	227,128	4226-4227	BLCA
chr8:101721361:->chr8:101720235:-	chr8	101721451	101721361	-	chr8	101720235	101719431	-	TAF	ENST00000318607, ENST00000519004, ENST00000522387, ENST00000523636, ENST00000517403	135,98,445, 400,413	4228-4232	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,PRAD,SARC,SKCM,STAD,THCA
chr8:104778765:+>chr8:104821508:+	chr8	104778455	104778765	+	chr8	104821508	104821527	+	TSF	ENST00000504942, ENST00000406091	232,232	4233-4234	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,LGG,LUAD,LUSC,PAAD,PCPG,STAD,TGCT,UCEC
chr8:109240496:->chr8:109233832:-	chr8	109240620	109240496	-	chr8	109233832	109233552	-	TSF	ENST00000522352, ENST00000220849, ENST00000519030, ENST00000519627	64,240,147, 113	4235-4238	OV,STAD
chr8:109468159:+>chr8:109468381:+	chr8	109468102	109468159	+	chr8	109468381	109468590	+	TSF	ENST00000220853, ENST00000519642	121,68	4239-4240	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SKCM,STAD,UCEC,UCS,UVM
chr8:11704561:->chr8:11700371:-	chr8	11704677	11704561	-	chr8	11700371	11700139	-	TSF	ENST00000434271, ENST00000353047, ENST00000530640, ENST00000531089, ENST00000453527, ENST00000345125, ENST00000533455, ENST00000534510	264,264,264 ,264,264,26 4,264,264	4241-4248	OV,STAD
chr8:117950806:+>chr8:117960753:+	chr8	117950483	117950806	+	chr8	117960753	117961020	+	TSF	ENST00000378279	108	4249	BRCA,MESO,OV
chr8:11872340:->chr8:11761114:-	chr8	11872558	11872340	-	chr8	11761114	11760831	-	TSF	ENST00000527396	73	4250	PRAD,SKCM,THCA,THYM

Table 9

chr8:120220844:+>chr8:120233190:+	chr8	120220779	120220844	+	chr8	120233190	120233225	+	TSF	ENST00000276681	44	4251	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,OV,PAAD,READ,STAD,THCA
chr8:121282413:+>chr8:121289724:+	chr8	121282274	121282413	+	chr8	121289724	121290171	+	TSF	ENST00000309791, ENST00000297848, ENST00000247781	1071,1071,976	4252-4254	ACC,BLCA,BRCA,HNSC,KICH,LIHC,LUSC,MESO,OV,SARC,TGCT,THCA,UCEC,UCS
chr8:124033687:->chr8:123989465:-	chr8	124033739	124033687	-	chr8	123989465	123989244	-	TSF	ENST00000259512, ENST00000405944, ENST00000419562, ENST00000519018, ENST00000523036	168,168,68,68,68	4255-4259	ACC,BRCA,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,OV,SARC,TGCT
chr8:126194498:+>chr8:126207297:+	chr8	126194345	126194498	+	chr8	126207297	126207395	+	TSF	ENST00000523741, ENST00000517532, ENST00000287437, ENST00000522563, ENST00000517315	139,139,139,139,79	4260-4264	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,OV,SARC,STAD,UVM
chr8:134274290:->chr8:134272213:-	chr8	134274410	134274290	-	chr8	134272213	134272102	-	TAF	ENST00000323851, ENST00000517599, ENST00000537882, ENST00000414097, ENST00000522476, ENST00000522377, ENST00000520230, ENST00000518480, ENST00000519228, ENST00000519580, ENST00000522890, ENST00000520943, ENST00000521544, ENST00000522738, ENST00000523892	108,108,108,108,108,10,8,108,73,27,42,42,42,125,119,162	4265-4279	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,UCS,UVM
chr8:139626110:->chr8:139623600:-	chr8	139626163	139626110	-	chr8	139623600	139623460	-	TSF	ENST00000303045, ENST00000435777	1326,1306	4280-4281	BLCA,CESC,LIHC,LUSC,PCPG,SARC,SKCM,TGCT,THYM,UCS
chr8:139889993:->chr8:139875196:-	chr8	139890559	139889993	-	chr8	139875196	139875126	-	TSF	ENST00000303045, ENST00000435777	219,219	4282-4283	HNSC,SKCM,TGCT
chr8:141710990:->chr8:141701376:-	chr8	141711121	141710990	-	chr8	141701376	141701371	-	TSF	ENST00000522684, ENST00000519654, ENST00000535192, ENST00000519465, ENST00000517887, ENST00000521059, ENST00000395218, ENST00000523539, ENST00000538769, ENST00000340930, ENST00000519419, ENST00000430260, ENST00000521986	833,833,833,833,797,78,7,461,877,8,77,505,501,143,531	4284-4296	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,LGG,LUAD,OV,STAD
chr8:141762002:->chr8:141760508:-	chr8	141762086	141762002	-	chr8	141760508	141760403	-	TSF	ENST00000524202	313	4297	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,OV,STAD
chr8:143867005:->chr8:143859806:-	chr8	143867103	143867005	-	chr8	143859806	143859781	-	TSF	ENST00000301263	50	4298	BLCA,BRCA,CESC,HNSC,LUSC
chr8:144102850:+>chr8:144113283:+	chr8	144102731	144102850	+	chr8	144113283	144113885	+	TAF	ENST00000292494, ENST00000429120, ENST00000521699, ENST00000520531, ENST00000520466, ENST00000521003, ENST00000522971, ENST00000519611, ENST00000519546, ENST00000523847, ENST00000522024	57,57,57,57,57,57,57,57,57,57,57	4299-4309	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr8:144102850:+>chr8:144113354:+	chr8	144102731	144102850	+	chr8	144113354	144113885	+	TSF	ENST00000292494, ENST00000429120, ENST00000521699, ENST00000520531, ENST00000520466, ENST00000521003, ENST00000522971, ENST00000519611, ENST00000519546, ENST00000523847, ENST00000522024	57,57,57,57,57,57,57,57,57,57,57	4310-4320	BLCA,CESC,HNSC,LUSC,OV,SARC,SKCM
chr8:144919421:->chr8:144916987:-	chr8	144919471	144919421	-	chr8	144916987	144916867	-	TSF	ENST00000442628, ENST00000327830	375,132	4321-4322	OV

Table 9

chr8:145000952:->chr8:144977746:-	chr8	145001050	145000952	-	chr8	144977746	144977671	-	TSF	ENST00000345136, ENST00000357649, ENST00000354589, ENST00000398774, ENST00000322810, ENST00000354958, ENST00000356346, ENST00000436759, ENST00000527096, ENST00000527303	1348,1352,1348,1316,1485,1326,1334,1375,1371,44	4323-4332	BRCA,CESC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD
chr8:146279527:+>chr8:146280809:+	chr8	146279404	146279527	+	chr8	146280809	146281504	+	TSF	ENST00000331434	224	4333	GBM,OV,STAD,UVM
chr8:17872349:+>chr8:17873210:+	chr8	17872093	17872349	+	chr8	17873210	17873221	+	TSF	ENST00000325083, ENST00000519253, ENST00000327578, ENST00000522275	1947,1939,646,686	4334-4337	BLCA,BRCA,CESC,KIRP,LUAD,SARC,STAD,THYM,UCEC
chr8:25240294:+>chr8:25246325:+	chr8	25240190	25240294	+	chr8	25246325	25246384	+	TSF	ENST00000276440	1377	4338	BRCA,LIHC,LUAD,LUSC,MESO,PAAD,STAD
chr8:26265892:+>chr8:26317396:+	chr8	26265743	26265892	+	chr8	26317396	26317454	+	TSF	ENST00000380629, ENST00000523949, ENST00000523515, ENST00000520409, ENST00000518611	203,181,163,163,163	4339-4343	KIRC,OV
chr8:27461808:->chr8:27458611:-	chr8	27461912	27461808	-	chr8	27458611	27458570	-	TSF	ENST00000316403, ENST00000546343, ENST00000560366, ENST00000405140, ENST00000523500, ENST00000522098	173,311,311,311,322,363	4344-4349	GBM,KIRP,LGG,OV,THCA,UCEC
chr8:27472172:->chr8:27471250:-	chr8	27472298	27472172	-	chr8	27471250	27471189	-	TSF	ENST00000560366	42	4350	BRCA,KIRC,KIRP,LGG,LIHC,PCPG,THCA
chr8:27517056:+>chr8:27555709:+	chr8	27516013	27517056	+	chr8	27555709	27555926	+	TAF	ENST00000337221, ENST00000301904	456,456	4351-4352	BLCA,BRCA,GBM,KIRP,LGG,MESO,OV,SARC,THCA,THYM,UCS
chr8:28707730:->chr8:28705226:-	chr8	28707790	28707730	-	chr8	28705226	28705209	-	TSF	ENST00000523303, ENST00000521022, ENST00000416984, ENST00000521777, ENST00000522363, ENST00000523436, ENST00000518510, ENST00000524081, ENST00000520184	66,66,66,66,66,42,42,23,57	4353-4361	BRCA,LUAD,LUSC,OV,STAD
chr8:36780147:+>chr8:36786424:+	chr8	36780008	36780147	+	chr8	36786424	36786484	+	TSF	ENST00000399881, ENST00000522372	912,912	4362-4363	BLCA,LIHC,SKCM
chr8:41387817:+>chr8:41388646:+	chr8	41387722	41387817	+	chr8	41388646	41388815	+	TSF	ENST00000276533, ENST00000520354, ENST00000520710, ENST00000518671, ENST00000523277	32,32,32,32,32	4364-4368	BLCA,BRCA,CESC,DLBC,HNSC,LIHC,LUSC,MESO,OV,SARC,UCEC,UCS
chr8:42302164:->chr8:42301552:-	chr8	42302280	42302164	-	chr8	42301552	42301149	-	TSF	ENST00000342228, ENST00000520262, ENST00000520179	243,243,243	4369-4371	BLCA,HNSC,LUSC,PAAD,UCEC
chr8:42924802:+>chr8:42925245:+	chr8	42924698	42924802	+	chr8	42925245	42925476	+	TSF	ENST00000534420, ENST00000302279, ENST00000533998, ENST00000342116, ENST00000531266, ENST00000525699, ENST00000529687, ENST00000533336, ENST00000534420, ENST00000302279, ENST00000533998, ENST00000342116, ENST00000531266, ENST00000533336, ENST00000525699, ENST00000529687	125,168,101,101,150,17,17,106	4372-4379	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr8:42932507:+>chr8:42934165:+	chr8	42932359	42932507	+	chr8	42934165	42935743	+	TSF	ENST00000302279, ENST00000342116, ENST00000529687, ENST00000533336	260,193,109,198	4380-4383	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,PRAD,READ,SARC,STAD,TGCT,THYM,UCS
chr8:52287157:->chr8:52286772:-	chr8	52287291	52287157	-	chr8	52286772	52286772	-	TSF	ENST00000522628, ENST00000356297, ENST00000543296	496,1230,1230	4384-4386	BRCA,KIRC,LUSC,SARC,TGCT

Table 9

chr8:54792162:+>chr8:54826057:+	chr8	54791818	54792162	+	chr8	54826057	54826421	+	TSF	ENST00000297313	170	4387	BLCA,CESC,HNSC,KIRP,LUAD,LUSC,SKCM,STAD,TGCT,UVM
chr8:54793644:+>chr8:54826057:+	chr8	54793576	54793644	+	chr8	54826057	54826421	+	TAF	ENST00000276500	23	4388	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PAAD,SARC,SKCM,STAD,TGCT,UCEC,UVM
chr8:55013468:->chr8:54994583:-	chr8	55013499	55013468	-	chr8	54994583	54994275	-	TSF	ENST00000316963, ENST00000343231, ENST00000518546, ENST00000522007, ENST00000521898	33,33,33,33,33	4389-4393	BLCA,LUSC,OV,SKCM,STAD,TGCT
chr8:623289:->chr8:622204:-	chr8	624047,623326,623657	623289	-	chr8	622204	621954	-	TSF	ENST00000522706, ENST00000523415, ENST00000262109, ENST00000522893	260,12,354,123	4394-4397	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,THYM
chr8:62546242:->chr8:62544404:-	chr8	62546286	62546242	-	chr8	62544404	62544342	-	TSF	ENST00000541428, ENST00000379454, ENST00000522919, ENST00000356457, ENST00000519234, ENST00000518068, ENST00000517903, ENST00000445642, ENST00000517847, ENST00000522835	282,311,311,124,325,268,296,297,297,254	4398-4407	LUAD,LUSC
chr8:62546242:->chr8:62544521:-	chr8	62546286	62546242	-	chr8	62544521	62544342	-	TSF	ENST00000541428, ENST00000379454, ENST00000522919, ENST00000356457, ENST00000519234, ENST00000518068, ENST00000517903, ENST00000445642, ENST00000517847, ENST00000522835	282,311,311,124,325,268,296,297,297,254	4408-4417	BRCA,LIHC,LUAD,LUSC,MESO,PAAD
chr8:63502353:+>chr8:63546747:+	chr8	63502273	63502353	+	chr8	63546747	63547118	+	TSF	ENST00000523211, ENST00000328472	91,91	4418-4419	ACC,BLCA,BRCA,CHOL,GBM,KIRP,LGG,LUAD,LUSC,OV,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr8:6735319:->chr8:6734600:-	chr8	6735379	6735319	-	chr8	6734600	6734532	-	TAF	ENST00000297439	20	4420	KICH,KIRC,KIRP
chr8:68536411:->chr8:68520294:-	chr8	68536486	68536411	-	chr8	68520294	68520139	-	TAF	ENST00000479862, ENST00000297770, ENST00000518549	64,64,64	4421-4423	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,UCEC,UCS
chr8:71619388:+>chr8:71625661:+	chr8	71619168	71619388	+	chr8	71625661	71625673	+	TSF	ENST00000408926, ENST00000520030	164,164	4424-4425	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,UCS
chr8:73921440:+>chr8:73925091:+	chr8	73921122	73921440	+	chr8	73925091	73925180	+	TSF	ENST00000276603, ENST00000276602, ENST00000518874	106,106,106	4426-4428	LUSC,TGCT
chr8:74939076:+>chr8:74944554:+	chr8	74939024	74939076	+	chr8	74944554	74944936	+	TAF	ENST00000284818, ENST00000518893	128,98	4429-4430	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,SKCM,STAD,UCS,UVM
chr8:87111337:+>chr8:87144159:+	chr8	87111208	87111337	+	chr8	87144159	87144425	+	TAF	ENST00000523635, ENST00000285393	43,43	4431-4432	KICH,KIRC
chr8:87126109:+>chr8:87144167:+	chr8	87125938	87126109	+	chr8	87144167	87144425	+	TAF	ENST00000285393	100	4433	KICH,KIRC

Table 9

chr8:91057223:+>chr8:91058369:+	chr8	91057077	91057223	+	chr8	91058369	91063412	+	TAF	ENST00000220764, ENST00000522161	295,286	4434-4435	ACC,BLCA,BRCA,CESC,GBM,KICH,KIRC,KIRP,LIHC,OV,PRAD,STAD,THYM,UCS
chr9:100308623:+>chr9:100309531:+	chr9	100308467	100308623	+	chr9	100309531	100309647	+	TAF	ENST00000395211, ENST00000259365	92,92	4436-4437	CESC,GBM,HNSC,LGG,LIHC,OV,PAAD,PCPG,SARC,UCEC,UCS,UVM
chr9:100774754:+>chr9:100777715:+	chr9	100774703	100774754	+	chr9	100777715	100777715	+	TSF	ENST00000339399	229	4438	BRCA,KIRC,OV,STAD
chr9:101984925:+>chr9:101986271:+	chr9	101984828	101984925	+	chr9	101986271	101986319	+	TSF	ENST00000223641	33	4439	BLCA,BRCA,CESC,DLBC,HNSC,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr9:101984925:+>chr9:101986374:+	chr9	101984828	101984925	+	chr9	101986374	101986588	+	TAF	ENST00000223641	33	4440	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr9:104130402:->chr9:104117689:-	chr9	104130604	104130402	-	chr9	104117689	104116763	-	TAF	ENST00000259407, ENST00000395051	223,223	4441-4442	CHOL,KIRC,LIHC
chr9:104133221:->chr9:104117689:-	chr9	104133686	104133221	-	chr9	104117689	104116763	-	TSF	ENST00000259407, ENST00000395051	155,155	4443-4444	KIRC,LIHC
chr9:104133600:->chr9:104117689:-	chr9	104133686	104133600	-	chr9	104117689	104116763	-	TSF	ENST00000259407, ENST00000395051	29,29	4445-4446	KIRC,LIHC
chr9:114538071:->chr9:114535173:-	chr9	114538255	114538071	-	chr9	114535173	114532046	-	TSF	ENST00000374287, ENST00000318737, ENST00000374283	83,83,147	4447-4449	KICH
chr9:116824957:->chr9:116823895:-	chr9	116825038	116824957	-	chr9	116823895	116823894	-	TSF	ENST00000265132, ENST00000466610	228,119	4450-4451	LIHC
chr9:117085527:+>chr9:117092629:+	chr9	117085414	117085527	+	chr9	117092629	117092673	+	TAF	ENST00000259396, ENST00000538816	38,38	4452-4453	CHOL,LIHC,PRAD
chr9:123716008:->chr9:123705787:-	chr9	123716146	123716008	-	chr9	123705787	123705454	-	TAF	ENST00000223642	1633	4454	LIHC,LUAD,STAD
chr9:125054119:+>chr9:125068067:+	chr9	125054028	125054119	+	chr9	125068067	125068171	+	TSF	ENST00000297908, ENST00000344641, ENST00000373723, ENST00000373729, ENST00000394315	131,183,183,183,139	4455-4459	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr9:126219627:->chr9:126219210:-	chr9	126219714	126219627	-	chr9	126219210	126219167	-	TAF	ENST00000373624, ENST00000542603, ENST00000394219, ENST00000373620, ENST00000394215, ENST00000373618	395,395,137,363,365,363	4460-4465	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,PRAD,READ,SARC,SKCM,UCEC,UCS,UVM
chr9:127622462:->chr9:127621011:-	chr9	127622543	127622462	-	chr9	127621011	127621010	-	TSF	ENST00000373570, ENST00000493018, ENST00000348462	74,74,74	4466-4468	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,THCA,THYM,UCEC,UCS,UVM
chr9:128510902:+>chr9:128572989:+	chr9	128510829	128510902	+	chr9	128572989	128573209	+	TSF	ENST00000342287, ENST00000373487, ENST00000373489, ENST00000373492, ENST00000373482, ENST00000491787, ENST00000447726	91,91,91,91,91,16,16	4469-4475	BLCA,BRCA,DLBC,LUSC,SARC,TGCT,THCA,THYM

Table 9

chr9:130213560:->chr9:130213398:-	chr9	130213596	130213560	-	chr9	130213398	130213359	-	TSF	ENST00000361436, ENST00000536368	12,12	4476-4477	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr9:130540870:->chr9:130540563:-	chr9	130540906	130540870	-	chr9	130540563	130540257	-	TAF	ENST00000314830	12	4478	BLCA,DLBC,THYM
chr9:130678687:->chr9:130678527:-	chr9	130678698	130678687	-	chr9	130678527	130678449	-	TSF	ENST00000335791	4	4479	BRCA,CESC,HNSC,KIRP,LUAD,LUSC,OV,STAD
chr9:131002058:+>chr9:131002706:+	chr9	131002007	131002058	+	chr9	131002706	131002973	+	TSF	ENST00000475805, ENST00000341179, ENST00000372923, ENST00000393594, ENST00000486160	515,515,515,515,515	4480-4484	ACC,GBM,KIRC,KIRP,LGG,LUSC,OV,READ,SARC
chr9:131002275:+>chr9:131002706:+	chr9	131002264	131002275	+	chr9	131002706	131002973	+	TAF	ENST00000475805, ENST00000341179, ENST00000372923, ENST00000393594, ENST00000486160	519,519,519,519,519	4485-4489	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr9:131004624:+>chr9:131004898:+	chr9	131004511	131004624	+	chr9	131004898	131005047	+	TSF	ENST00000475805, ENST00000341179, ENST00000372923, ENST00000393594, ENST00000486160	557,557,557,557,557	4490-4494	BLCA,KIRC,KIRP,LGG,LUSC,PAAD,PCPG
chr9:132719639:->chr9:132718439:-	chr9	132719743	132719639	-	chr9	132718439	132718336	-	TAF	ENST00000446176, ENST00000420781, ENST00000449089, ENST00000355681	171,171,171,132	4495-4498	DLBC,PRAD,SARC,STAD,THYM
chr9:133301311:+>chr9:133302166:+	chr9	133301074	133301311	+	chr9	133302166	133302266	+	TSF	ENST00000428715	336	4499	SARC
chr9:133352273:+>chr9:133421349:+	chr9	133352258	133352273	+	chr9	133421349	133421406	+	TSF	ENST00000352480, ENST00000372394, ENST00000372393	204,204,204	4500-4502	OV,STAD
chr9:136518121:+>chr9:136521413:+	chr9	136518062	136518121	+	chr9	136521413	136521506	+	TSF	ENST00000393056	478	4503	PCPG
chr9:136518121:+>chr9:136521502:+	chr9	136518062	136518121	+	chr9	136521502	136521506	+	TSF	ENST00000393056	478	4504	PCPG
chr9:139847480:+>chr9:139847768:+	chr9	139847344, 139847404, 139847428	139847480	+	chr9	139847768	139847869	+	TSF	ENST00000371633, ENST00000471615, ENST00000371632	83,25,17	4505-4507	THCA
chr9:139847480:+>chr9:139847940:+	chr9	139847344, 139847404, 139847428	139847480	+	chr9	139847940	139848024	+	TAF	ENST00000371633, ENST00000471615, ENST00000371632	83,25,17	4508-4510	CESC,KIRC,LGG,OV,STAD,THCA,UCEC
chr9:139872144:+>chr9:139873283:+	chr9	139872031	139872144	+	chr9	139873283	139873345	+	TAF	ENST00000224167, ENST00000457950, ENST00000371625, ENST00000371623, ENST00000471521	38,38,38,38,38	4511-4515	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,THCA,THYM,UCEC,UCS
chr9:140260945:->chr9:140253058:-	chr9	140261084	140260945	-	chr9	140253058	140252867	-	TSF	ENST00000491734, ENST00000340951, ENST00000478344, ENST00000479452	46,218,218,16	4516-4519	BRCA,KIRC,KIRP,LGG,LUAD,MESO,OV,PRAD,THCA,THYM
chr9:15506559:->chr9:15492223:-	chr9	15506635	15506559	-	chr9	15492223	15492056	-	TAF	ENST00000380738, ENST00000380733, ENST00000380715, ENST00000380716, ENST00000397519	49,49,49,49,49	4520-4524	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr9:17143374:+>chr9:17166816:+	chr9	17143286	17143374	+	chr9	17166816	17167136	+	TSF	ENST00000380647, ENST00000262360, ENST00000425824, ENST00000380641	149,149,149,149	4525-4528	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,LIHC,LUAD,LUSC,PRAD,SARC,TGCT

Table 9

chr9:19378898:->chr9:19269457:-	chr9	19378916	19378898	-	chr9	19269457	19269457	-	TSF	ENST00000380394, ENST00000380384, ENST00000315377	52,21,21	4529-4531	OV,STAD
chr9:33001565:->chr9:32997346:-	chr9	33001602	33001565	-	chr9	32997346	32997346	-	TAF	ENST00000379825, ENST00000309615, ENST00000397172, ENST00000379819, ENST00000474658, ENST00000476858, ENST00000379812, ENST00000473221, ENST00000464632, ENST00000478279	12,12,12,12, 12,12,12,12, 12,4	4532-4541	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,UCEC
chr9:33796800:+>chr9:33797121:+	chr9	33796641	33796800	+	chr9	33797121	33797225	+	TSF	ENST00000361005, ENST00000457896, ENST00000342836, ENST00000429677, ENST00000379405	123,78,80,59,66	4542-4546	PAAD
chr9:33798593:+>chr4:144494223:+	chr9	33798484	33798593	+	chr4	144494223	144494466	+	TSF	ENST00000361005, ENST00000342836, ENST00000429677, ENST00000379405	245,202,181,188	4547-4550	PAAD
chr9:37432135:+>chr9:37432530:+	chr9	37432005	37432135	+	chr9	37432530	37432695	+	TAF	ENST00000318158, ENST00000607784	288,288	4551-4552	BRCA,DLBC,KIRC,KIRP,LIHC
chr9:37842283:+>chr9:37853047:+	chr9	37842086	37842283	+	chr9	37853047	37853165	+	TSF	ENST00000377724, ENST00000242323	283,283	4553-4554	BRCA
chr9:3856009:->chr9:3855631:-	chr9	3856184	3856009	-	chr9	3855631	3855480	-	TSF	ENST00000324333, ENST00000381971	669,824	4555-4556	BLCA,CESC,LIHC,LUAD,LUSC,OV,SARC,STAD,UCEC,UCS
chr9:5164179:->chr9:4992433:-	chr9	5164265	5164179	-	chr9	4992433	4991945	-	TSF	ENST00000381641	125	4557	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,OV,READ,STAD,THCA,THYM,UCEC,UCS
chr9:5335468:->chr9:5326315:-	chr9	5335597	5335468	-	chr9	5326315	5326232	-	TAF	ENST00000223862	113	4558	BLCA,BRCA,PRAD
chr9:5690038:+>chr9:5710416:+	chr9	5689959	5690038	+	chr9	5710416	5711239	+	TSF	ENST00000251879, ENST00000414202, ENST00000381532, ENST00000418622, ENST00000449720, ENST00000545641	110,110,31, 31,31,39	4559-4564	BLCA,BRCA,CESC,HNSC,KICH,KIRC,LUAD,LUSC,OV,SARC,SKCM,STAD,UCS
chr9:5690038:+>chr9:5712361:+	chr9	5689959	5690038	+	chr9	5712361	5712559	+	TSF	ENST00000251879, ENST00000414202, ENST00000381532, ENST00000418622, ENST00000449720, ENST00000545641	110,110,31, 31,31,39	4565-4570	ACC,BLCA,BRCA,CESC,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,SARC,STAD,THCA,UCEC
chr9:71155453:->chr9:71141327:-	chr9	71155730	71155453	-	chr9	71141327	71141315	-	TSF	ENST00000377311	92	4571	KIRC,KIRP
chr9:7799461:->chr9:7798658:-	chr9	7799734	7799461	-	chr9	7798658	7798645	-	TSF	ENST00000358227	91	4572	BLCA,BRCA,COAD,HNSC,KIRC,LUSC,OV,STAD,THYM
chr9:78547399:+>chr9:78565414:+	chr9	78547295	78547399	+	chr9	78565414	78565806	+	TSF	ENST00000545128, ENST00000376767, ENST00000376752	99,99,99	4573-4575	TGCT
chr9:80932720:+>chr9:81037010:+	chr9	80932592	80932720	+	chr9	81037010	81037166	+	TSF	ENST00000347159, ENST00000376588	289,289	4576-4577	LGG,LIHC,OV,STAD,UCEC
chr9:91150651:+>chr9:91198914:+	chr9	91150350	91150651	+	chr9	91198914	91198934	+	TAF	ENST00000375854, ENST00000375855	100,1	4578-4579	BRCA,KIRC,KIRP,OV,THCA,UCEC
chr9:91150651:+>chr9:91198917:+	chr9	91150350	91150651	+	chr9	91198917	91198934	+	TAF	ENST00000375854, ENST00000375855	100,1	4580-4581	BLCA,BRCA,KIRC,KIRP,OV,UCEC
chr9:94991283:->chr9:94990268:-	chr9	94991408	94991283	-	chr9	94990268	94989087	-	TSF	ENST00000375643, ENST00000443024, ENST00000447699	1136,1136,1026	4582-4584	BRCA,CESC,DLBC,HNSC,LIHC,LUAD,LUSC,OV,SARC,SKCM,TGCT,UCEC
chr9:96031028:+>chr9:96040344:+	chr9	96030909	96031028	+	chr9	96040344	96040994	+	TSF	ENST00000427277, ENST00000297954, ENST00000349097, ENST00000395477, ENST00000432730, ENST00000411624, ENST00000448251	956,956,1344,1340,947,141	4585-4591	BRCA,COAD,LUSC,READ,STAD,TGCT
chr9:98766983:+>chr9:98801158:+	chr9	98766802	98766983	+	chr9	98801158	98801481	+	TSF	ENST00000407474, ENST00000320486	205,196	4592-4593	BRCA,GBM,KICH,LGG,PRAD,STAD

Table 9

chr9:99122436:->chr9:99115925:-	chr9	99122503	99122436	-	chr9	99115925	99115627	-	TAF	ENST00000253270, ENST00000375259, ENST00000375257	115,115,115	4594-4596	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCS,UVM
chrX:100169610:->chrX:100143801:-	chrX	100170072	100169610	-	chrX	100143801	100143669	-	TSF	ENST00000328526, ENST00000372956	368,355	4597-4598	LUAD,LUSC,THCA
chrX:100177782:->chrX:100143801:-	chrX	100178050	100177782	-	chrX	100143801	100143669	-	TSF	ENST00000328526, ENST00000372956	214,201	4599-4600	ACC,COAD,LUAD,LUSC,PCPG,THCA,THYM
chrX:103219195:+>chrX:103231301:+	chrX	103219096	103219195	+	chrX	103231301	103231354	+	TSF	ENST00000419165, ENST00000563257, ENST00000540220, ENST00000436583, ENST00000567181, ENST00000569577	33,33,33,33, 33,33	4601-4606	BLCA,BRCA,GBM,LGG,LUAD,LUSC,OV,SARC,TGCT,UCEC,UCS
chrX:107320560:+>chrX:107321756:+	chrX	107320278	107320560	+	chrX	107321756	107321847	+	TSF	ENST00000415430, ENST00000217957	407,371	4607-4608	STAD
chrX:117900939:+>chrX:117902549:+	chrX	117900807	117900939	+	chrX	117902549	117902902	+	TSF	ENST00000371666	336	4609	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PAAD,STAD,THCA,UCEC
chrX:117900939:+>chrX:117938895:+	chrX	117900807	117900939	+	chrX	117938895	117939267	+	TAF	ENST00000371666	336	4610	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chrX:118923871:->chrX:118884131:-	chrX	118923974	118923871	-	chrX	118884131	118883802	-	TSF	ENST00000361575	35	4611	BLCA,BRCA,HNSC,KIRC,LUSC,OV,STAD
chrX:119575585:->chrX:119567897:-	chrX	119575749	119575585	-	chrX	119567897	119567790	-	TAF	ENST00000434600, ENST00000538785, ENST00000200639, ENST00000486593, ENST00000371335, ENST00000540603	364,364,364 ,253,212,31 7	4612-4617	BRCA,CHOL,GBM,KICH,KIRC,LIHC,LUSC,OV,PRAD,SARC,THYM
chrX:119708406:->chrX:119705855:-	chrX	119708472	119708406	-	chrX	119705855	119705820	-	TSF	ENST00000404115	22	4618	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC
chrX:133963312:+>chrX:133972757:+	chrX	133963256	133963312	+	chrX	133972757	133974403	+	TSF	ENST00000370784, ENST00000370785	82,82	4619-4620	ACC,GBM,LGG,OV,STAD,TGCT
chrX:134852722:+>chrX:134866428:+	chrX	134852702	134852722	+	chrX	134866428	134866512	+	TSF	ENST00000370741, ENST00000497301, ENST00000482795	7,7,7	4621-4623	OV
chrX:134950226:->chrX:134936521:-	chrX	134950246	134950226	-	chrX	134936521	134936437	-	TSF	ENST00000420087, ENST00000463085, ENST00000370724, ENST00000491480	7,7,7,7	4624-4627	OV
chrX:134967476:->chrX:134936521:-	chrX	134967496	134967476	-	chrX	134936521	134936437	-	TSF	ENST00000491002, ENST00000448053, ENST00000472834	7,7,7	4628-4630	OV
chrX:134967476:->chrX:134953780:-	chrX	134967496	134967476	-	chrX	134953780	134953696	-	TSF	ENST00000491002, ENST00000448053, ENST00000472834	7,7,7	4631-4633	LUSC,OV,STAD
chrX:13956626:->chrX:13952867:-	chrX	13956629	13956626	-	chrX	13952867	13952865	-	TSF	ENST00000454189	1	4634	GBM,LGG,SKCM,TGCT
chrX:148628463:+>chrX:148638635:+	chrX	148628285	148628463	+	chrX	148638635	148638790	+	TSF	ENST00000434353, ENST00000514208, ENST00000422892, ENST00000450602, ENST00000441248, ENST00000393985, ENST00000423421, ENST00000423540, ENST00000428236, ENST00000359293	144,144,144 ,144,144,14 4,144,144,1 44,82	4635-4644	BRCA,HNSC
chrX:14891880:+>chrX:14899985:+	chrX	14891811	14891880	+	chrX	14899985	14900209	+	TSF	ENST00000380492, ENST00000482354, ENST00000497603	26,26,26	4645-4647	BLCA,CESC,COAD,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD

Table 9

chrX:149100807:->chrX:149090624:-	chrX	149100985	149100807	-	chrX	149090624	149090469	-	TSF	ENST00000370406, ENST00000355203, ENST00000370404, ENST00000370409, ENST00000462691	144,144,144,144,144	4648-4652	BRCA,HNSC,LUSC
chrX:1505528:->chrX:1481917:-	chrX	1505652	1505528	-	chrX	1481917	1481663	-	TSF	ENST00000381401	288	4653	OV,STAD
chrX:151996436:->chrX:151994427:-	chrX	151996474	151996436	-	chrX	151994427	151994098	-	TSF	ENST00000370277	156	4654	GBM,OV
chrX:152602168:+>chrX:152617375:+	chrX	152602138	152602168	+	chrX	152617375	152617427	+	TSF	ENST00000370251, ENST00000421401	10,1	4655-4656	ACC,STAD
chrX:152730446:->chrX:152728559:-	chrX	152730513	152730446	-	chrX	152728559	152728505	-	TAF	ENST00000370211, ENST00000370212, ENST00000370210	107,107,97	4657-4659	ACC,BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,MESO,OV,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chrX:152830561:+>chrX:152831276:+	chrX	152830379	152830561	+	chrX	152831276	152831321	+	TAF	ENST00000349466, ENST00000370186, ENST00000393842, ENST00000359149, ENST00000263519, ENST00000370181	1114,1114,1114,1100,1100,1100	4660-4665	ACC,GBM,KIRC,LGG,PCPG,SKCM,TGCT,THCA
chrX:152864420:->chrX:152863164:-	chrX	152864474	152864420	-	chrX	152863164	152862704	-	TAF	ENST00000406277	35	4666	ACC,BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,READ,SARC,TGCT,THYM,UCEC,UVM
chrX:153277177:->chrX:153276642:-	chrX	153277368	153277177	-	chrX	153276642	153276543	-	TSF	ENST00000455690	207	4667	OV,STAD
chrX:153284050:->chrX:153276645:-	chrX	153284238	153284050	-	chrX	153276645	153276543	-	TSF	ENST00000369980, ENST00000369974, ENST00000393682, ENST00000369973, ENST00000393687, ENST00000429936, ENST00000443220	243,243,243,269,269,269,13	4668-4674	COAD,OV,STAD,UCEC
chrX:153786865:+>chrX:153788357:+	chrX	153786747	153786865	+	chrX	153788357	153788357	+	TSF	ENST00000440286, ENST00000422680, ENST00000369609, ENST00000369607, ENST00000369606, ENST00000413620, ENST00000263518, ENST00000470142, ENST00000393549, ENST00000455588, ENST00000369602, ENST00000424839, ENST00000369601	172,172,172,172,172,172,172,40,160,171,171,38	4675-4687	BLCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,STAD,UCEC
chrX:22208619:+>chrX:22209939:+	chrX	22208561	22208619	+	chrX	22209939	22210210	+	TSF	ENST00000379374, ENST00000537599, ENST00000535894, ENST00000418858	548,548,451,251	4688-4691	THCA,THYM
chrX:24091333:+>chrX:24091714:+	chrX	24091208	24091333	+	chrX	24091714	24091817	+	TSF	ENST00000253039	436	4692	OV,STAD
chrX:41598637:->chrX:41557348:-	chrX	41598709	41598637	-	chrX	41557348	41557057	-	TSF	ENST00000421587, ENST00000318588, ENST00000361962, ENST00000378163, ENST00000378158, ENST00000378166, ENST00000442742, ENST00000378154	143,143,143,143,143,143,143,143,143	4693-4700	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,SARC,STAD,TGCT,UCS
chrX:49054174:->chrX:49053735:-	chrX	49054298	49054174	-	chrX	49053735	49053463	-	TSF	ENST00000263233, ENST00000479808, ENST00000469389, ENST00000466635	75,75,75,75	4701-4704	ACC,BLCA,BRCA,COAD,GBM,LGG,LUAD,LUSC,PAAD,PCPG,PRAD,STAD,UVM
chrX:49358846:+>chrX:49452063:+	chrX	49358721	49358846	+	chrX	49452063	49452091	+	TSF	ENST00000362097	109	4705	OV,STAD
chrX:49368396:+>chrX:49452063:+	chrX	49368271	49368396	+	chrX	49452063	49452091	+	TSF	ENST00000381709, ENST00000381700	110,11	4706-4707	OV,STAD
chrX:53407541:->chrX:53388629:-	chrX	53407651	53407541	-	chrX	53388629	53388408	-	TSF	ENST00000322213, ENST00000470241	1206,279	4708-4709	ACC,KIRP,MESO,PAAD,PCPG,UCEC

Table 9

chrX:64743440:->chrX:64742373:-	chrX	64743588	64743440	-	chrX	64742373	64741630	-	TAF	ENST00000374807, ENST00000374811, ENST00000374804, ENST00000469091	465,482,423,19	4710-4713	BLCA,BRCA,GBM,KIRP,LGG,LUAD,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chrX:71401678:+>chrX:71405250:+	chrX	71401561,71401615,71401644	71401678	+	chrX	71405250	71405452	+	TSF	ENST00000373662, ENST00000218432, ENST00000423432, ENST00000373669, ENST00000496835, ENST00000439980, ENST00000446576	39,39,39,39,21,21,11	4714-4720	BLCA,BRCA,CESC,HNSC,KIRP,LGG,LUAD,LUSC,PRAD,SARC,TGCT,THCA,THYM,UCEC
chrX:74725656:->chrX:74722103:-	chrX	74725682	74725656	-	chrX	74722103	74721880	-	TSF	ENST00000373367, ENST00000373361	54,54	4721-4722	GBM,LUAD,PCPG,SARC,THYM

Table 19

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
chr1:100176911:->chr1:100176505:-	chr1	100177044	100176911	-	chr1	100176505	100176390	-	TSF	ENST00000287474,ENST00000414213	16,44,44,16	01-04	4723-4726	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LIHC,LUSC,THYM
chr1:101189677:+>chr1:101190180:+	chr1	101189453	101189677	+	chr1	101190180	101190446	+	TSF	ENST00000370119,ENST00000347652,ENST00000294728,ENST00000370115	2,2,2,2,4,4,4,4,32,32,32	05-16	4727-4738	KIRC
chr1:101189853:+>chr1:101190180:+	chr1	101189453	101189853	+	chr1	101190180	101190446	+	TSF	ENST00000370119,ENST00000347652,ENST00000294728,ENST00000370115	2,2,2,2,20,20,18,18,18,18,20,20	17-28	4739-4750	ACC,KIRC
chr1:10404975:+>chr1:10405903:+	chr1	10404970	10404975	+	chr1	10405903	10406011	+	TSF	ENST00000263934,ENST00000377086,ENST00000377081	2,2,2,1,1,1,1,1	29-37	4751-4759	LGG
chr1:10499583:+>chr1:10500404:+	chr1	10499523	10499583	+	chr1	10500404	10500470	+	TSF	ENST00000400900,ENST00000602787,ENST00000309048,ENST00000477755,ENST00000602446	11,11,11,11,11,19,19,19,19,19	38-47	4760-4769	BLCA,CESC,KIRP,LUAD,STAD,TGCT
chr1:109478866:->chr1:109477564:-	chr1	109479016	109478866	-	chr1	109477564	109477292	-	TSF	ENST00000369968,ENST00000369969,ENST00000356970,ENST00000369971,ENST00000415331,ENST00000369970,ENST00000302500,ENST00000348264	1,1,1,1,1,1,1,41,41,41,41,41,41,41,41,4,4,4,4,4,4,4	48-71	4770-4793	BLCA,BRCA,CHOL,LGG,LUAD,SARC,STAD,UCS
chr1:109695471:+>chr1:109704516:+	chr1	109695285	109695471	+	chr1	109704516	109704636	+	TSF	ENST00000533147,ENST00000531664,ENST00000534476,ENST00000526264,ENST00000369939,ENST00000457623,ENST00000529753	22,7,22,7,7,7,7,7,22,22,22,22,22	72-85	4794-4807	BRCA,COAD,LUAD,PRAD,STAD,TGCT
chr1:109725274:+>chr1:109727667:+	chr1	109725208	109725274	+	chr1	109727667	109727755	+	TSF	ENST00000369939,ENST00000457623	22,13,13,21,21,22	86-91	4808-4813	BRCA,LUAD,PRAD,UCEC
chr1:110168634:+>chr1:110168782:+	chr1	110168535	110168634	+	chr1	110168782	110168820	+	TSF	ENST00000531734,ENST00000342115,ENST00000528667,ENST00000531203,ENST00000256578,ENST00000358729,ENST00000369840,ENST00000527846,ENST00000528454,ENST00000393688	33,32,33,33,33,33,33,33,33,33,32,32,32,32,32,32,32,32	92-111	4814-4833	LGG,PCPG
chr1:110235454:+>chr1:110235828:+	chr1	110235391	110235454	+	chr1	110235828	110235917	+	TSF	ENST00000309851,ENST00000369823,ENST00000349334,ENST00000369819	21,21,21,21,20,20,20,20	112-119	4834-4841	BLCA,BRCA,HNSC,KICH,KIRC,KIRP,LIHC,LUSC
chr1:111670605:->chr1:111668916:-	chr1	111670629	111670605	-	chr1	111668916	111668849	-	TAF	ENST00000286692,ENST00000539140,ENST00000496430	8,8,8,2,2,2	120-125	4842-4847	BLCA,BRCA,CHOL,COAD,DLBC,GBM,HNSC,KIRC,LUAD,LUSC,OV,PAAD,READ,SARC,SKCM,STAD,THCA,UCEC
chr1:111960373:->chr1:111959080:-	chr1	111960622	111960373	-	chr1	111959080	111958945	-	TSF	ENST00000369732,ENST00000540696	16,2,13,13,16,2	126-131	4848-4853	BLCA,BRCA,LIHC,OV,UCEC
chr1:113646357:+>chr1:113650216:+	chr1	113646274	113646357	+	chr1	113650216	113650379	+	TSF	ENST00000361127	5,27,7	132-134	4854-4856	STAD,TGCT
chr1:113646407:+>chr1:113650216:+	chr1	113646274	113646407	+	chr1	113650216	113650379	+	TAF	ENST00000361127	1,15,12	135-137	4857-4859	BRCA,CESC,COAD,LUAD,LUSC,STAD,TGCT,UCEC
chr1:116206078:+>chr1:116206282:+	chr1	116205952	116206078	+	chr1	116206282	116206889	+	TSF	ENST00000355485,ENST00000369510,ENST00000310260,ENST00000369509	1,1,1,1,42,42,42,42,16,16,16,16	138-149	4860-4871	BRCA,HNSC,KIRC,LUSC,PAAD,SARC
chr1:116594632:+>chr1:116605383:+	chr1	116594535	116594632	+	chr1	116605383	116605503	+	TSF	ENST00000369503	6,32	150-151	4872-4873	BLCA,LIHC,LUAD,STAD
chr1:117473836:+>chr1:117484337:+	chr1	117473681	117473836	+	chr1	117484337	117484705	+	TSF	ENST00000393203	1,33,30	152-154	4874-4876	HNSC,STAD

Table 19

chr1:12002835:+>chr1:12008033:+	chr1	12002791	12002835	+	chr1	12008033	12008124	+	TSF	ENST00000449038,ENST00000376369,ENST00000429000,ENST00000196061	13,13,13,13,14,14,14,7,7,7,7	155-166	4877-4888	BRCA,KIRC,LIHC,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,UCS
chr1:120257108:+>chr1:120263793:+	chr1	120257032	120257108	+	chr1	120263793	120263944	+	TSF	ENST00000369409,ENST00000369407	2,2,25,25	167-170	4889-4892	GBM,LGG
chr1:120274561:+>chr1:120277257:+	chr1	120274523	120274561	+	chr1	120277257	120277389	+	TSF	ENST00000369409,ENST00000369407	11,11,12,12,12,12	171-176	4893-4898	BLCA,BRCA,CESC,COAD,KIRC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chr1:120274578:+>chr1:120277257:+	chr1	120274523	120274578	+	chr1	120277257	120277389	+	TAF	ENST00000369409,ENST00000369407	2,2,18,18,18,18	177-182	4899-4904	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr1:12515280:+>chr1:12516054:+	chr1	12515263	12515280	+	chr1	12516054	12516186	+	TSF	ENST00000356315,ENST00000358136,ENST00000011700,ENST00000543766	5,5,5,5,5,5,5,5	183-190	4905-4912	PRAD,THCA
chr1:13922564:+>chr1:13933668:+	chr1	13922411	13922564	+	chr1	13933668	13933801	+	TSF	ENST00000294489,ENST00000376057,ENST00000510906,ENST00000509009	5,5,24,24,24,24,10,10,10,10,5,5	191-202	4913-4924	CESC,DLBC,GBM,HNSC,LUSC,TGCT
chr1:1422685:+>chr1:1423243:+	chr1	1422590	1422685	+	chr1	1423243	1423294	+	TSF	ENST00000308647	23,31,1	203-205	4925-4927	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LGG,LIHC,LUAD,LUSC,OV,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr1:145667041:+>chr1:145682023:+	chr1	145666897	145667041	+	chr1	145682023	145682094	+	TSF	ENST00000369291	40,25,8	206-208	4928-4930	BRCA,LUAD,LUSC,TGCT,THCA
chr1:1496712:->chr1:1479367:-	chr1	1496761	1496712	-	chr1	1479367	1479249	-	TSF	ENST00000291386	7,16,12	209-211	4931-4933	OV,UVM
chr1:1496712:->chr1:1480382:-	chr1	1496761	1496712	-	chr1	1480382	1480243	-	TSF	ENST00000291386	7,16,12	212-214	4934-4936	UVM
chr1:150914402:+>chr1:151018273:+	chr1	150914336	150914402	+	chr1	151018273	151018359	+	TSF	ENST00000368931,ENST00000295294,ENST00000361277	22,22,22,13,13,13,21,21,21	215-223	4937-4945	BLCA,BRCA,CESC,HNSC,OV
chr1:150951226:+>chr1:151018273:+	chr1	150951160	150951226	+	chr1	151018273	151018359	+	TSF	ENST00000368931,ENST00000295294,ENST00000361277	13,13,13,22,22,22,21,21,21	224-232	4946-4954	BLCA,BRCA,CESC,HNSC,OV,UCEC
chr1:151017509:+>chr1:151018273:+	chr1	151017459	151017509	+	chr1	151018273	151018359	+	TSF	ENST00000368931,ENST00000295294,ENST00000361277	17,17,17,7,7,7,16,16	233-241	4955-4963	BLCA,BRCA,CESC,HNSC,LUSC,OV,SARC,UCEC
chr1:151683172:->chr1:151682267:-	chr1	151683281	151683172	-	chr1	151682267	151682219	-	TAF	ENST00000290585,ENST00000290583,ENST00000420342	8,8,8,23,23,21,21,23,21	242-250	4964-4972	BLCA,BRCA,COAD,GBM,LGG,LUAD,LUSC,PAAD,PCPG,READ,STAD,TGCT,UVM
chr1:153431207:->chr1:153430446:-	chr1	153431306	153431207	-	chr1	153430446	153430282	-	TSF	ENST00000368722,ENST00000368723	12,12,21,21,1,1	251-256	4973-4978	BLCA,BRCA,CESC,HNSC,LUSC,STAD
chr1:153532824:->chr1:153517203:-	chr1	153533056	153532824	-	chr1	153517203	153517130	-	TSF	ENST00000368715,ENST00000354332,ENST00000368716,ENST00000368714	7,7,7,7,29,29,29,29,52,52,52,52	257-268	4979-4990	OV
chr1:153635838:->chr1:153635752:-	chr1	153636090	153635838	-	chr1	153635752	153635691	-	TSF	ENST00000361891	1,13,10	269-271	4991-4993	BLCA,BRCA,GBM,LGG,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr1:154581067:->chr1:154575102:-	chr1	154581117	154581067	-	chr1	154575102	154573517	-	TSF	ENST00000292205,ENST00000368474,ENST00000529168	17,17,7,7,7,16,16,16,17	272-280	4994-5002	BRCA,GBM,HNSC,LGG,LUAD,LUSC,OV,PRAD,STAD,TGCT,UCEC
chr1:154925088:->chr1:154924397:-	chr1	154925216	154925088	-	chr1	154924397	154924271	-	TAF	ENST00000368463,ENST00000368460,ENST00000490230	11,1,1,1,1,1,11	281-286	5003-5008	ACC,BLCA,BRCA,GBM,KICH,KIRP,LGG,LIHC,LUAD,PCPG,SARC,SKCM,STAD,THCA,THYM,UCEC

chr1:155031103:+>chr1:155031186:+	chr1	155031050	155031103	+	chr1	155031186	155031263	+	TSF	ENST00000355956,ENST00000356955,ENST00000359280,ENST00000360674,ENST00000368412,ENST00000449910,ENST00000526491,ENST00000529473,ENST00000368410,ENST00000271836,ENST00000368413,ENST00000531455	18,17,17,17,17,17,17,17,17,17,17,17,17,2,2,2,2,2,2,2,2,2,2,2,18,18,18,18,18,18,18,18,18,18	287-322	5009-5044	BLCA,BRCA,CESC,LUAD,LUSC,OV,READ,STAD,UCEC
chr1:155037036:+>chr1:155039206:+	chr1	155036912	155037036	+	chr1	155039206	155039492	+	TAF	ENST00000368409,ENST00000359751,ENST00000427683	20,9,9,9,7,7,7,20,20	323-331	5045-5053	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,SARC,SKCM,STAD,UCEC,UCS
chr1:155179341:+>chr1:155180137:+	chr1	155179310	155179341	+	chr1	155180137	155180206	+	TSF	ENST00000368376,ENST00000316721,ENST00000424959,ENST00000609421	10,10,10,10,10,10,8,8,10,8,10,8	332-343	5054-5065	BLCA,BRCA,HNSC,LUAD,LUSC,MESO,OV,PRAD,SARC,STAD,UCEC
chr1:15563257:+>chr1:15578267:+	chr1	15562769	15563257	+	chr1	15578267	15578373	+	TSF	ENST00000433640	11,7,14	344-346	5066-5068	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,OV,PAAD,SARC,SKCM,STAD,UCEC,UCS
chr1:155839730:+>chr1:155850291:+	chr1	155839652	155839730	+	chr1	155850291	155850414	+	TAF	ENST00000368324	26,26,1	347-349	5069-5071	GBM,LGG,PCPG,SARC
chr1:156025466:+>chr1:156028106:+	chr1	156025381	156025466	+	chr1	156028106	156028162	+	TAF	ENST00000368305,ENST00000368304,ENST00000368302	15,15,25,25,28,28,28,15,25	350-358	5072-5080	BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr1:156095265:+>chr1:156100408:+	chr1	156095197	156095265	+	chr1	156100408	156100564	+	TAF	ENST00000368301,ENST00000361308,ENST00000347559,ENST00000368300,ENST00000368299,ENST00000448611,ENST00000368297,ENST00000504687,ENST00000473598,ENST00000392353	23,23,23,23,23,23,23,23,23,13,13,13,13,13,13,13,13,13	359-378	5081-5100	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,UVM
chr1:1562875:+>chr1:1563053:+	chr1	1562829	1562875	+	chr1	1563053	1563209	+	TSF	ENST00000520777,ENST00000357210,ENST00000360522,ENST00000378710,ENST00000355826,ENST00000518681,ENST00000505820,ENST00000487053,ENST00000378712,ENST00000504599,ENST00000378708,ENST00000514234	15,15,15,15,15,15,15,15,15,15,15,15,5,5,5,5,5,5,5,5,5,15,15,15,15,15,15,15,15,15,15,15,15,15,15,15	379-414	5101-5136	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr1:1562926:+>chr1:1563053:+	chr1	1562829	1562926	+	chr1	1563053	1563209	+	TSF	ENST00000520777,ENST00000357210,ENST00000360522,ENST00000378710,ENST00000355826,ENST00000518681,ENST00000505820,ENST00000487053,ENST00000378712,ENST00000504599,ENST00000378708,ENST00000514234	15,15,15,15,15,15,15,15,15,15,15,15,5,5,5,5,5,5,5,5,5,32,32,32,32,32,32,32,32,32,32,32,15,15	415-450	5137-5172	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM

Table 19

chr1:1562973:+>chr1:1563053:+	chr1	1562829	1562973	+	chr1	1563053	1563209	+	TSF	ENST00000520777,ENST00000357210,ENST00000360522,ENST00000378710,ENST00000355826,ENST00000518681,ENST00000505820,ENST00000487053,ENST00000378712,ENST00000504599,ENST00000378708,ENST00000514234	5,5,5,5,5,5,5,5,5,5,5,21,21,21,21,21,21,21,21,21,21,47,47,47,47,47,47,47,47,47,47,47	451-486	5173-5208	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LIHC,LUSC,OV,PAAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr1:156305264:->chr1:156304709:-	chr1	156305455	156305264	-	chr1	156304709	156304659	-	TSF	ENST00000295688,ENST00000368258,ENST00000413555,ENST00000496684,ENST00000478640,ENST00000415548	6,25,25,25,25,25,2,2,2,2,2,6,6,6,6,2,6	487-504	5209-5226	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UVM
chr1:156307468:->chr1:156305679:-	chr1	156307574	156307468	-	chr1	156305679	156305618	-	TSF	ENST00000295688,ENST00000368259,ENST00000413555,ENST00000496684,ENST00000446905,ENST00000478640,ENST00000415548	1,1,1,1,1,1,1,4,4,4,4,4,4,4	505-518	5227-5240	BLCA,BRCA,DLBC,LUSC,STAD,TGCT
chr1:156312456:+>chr1:156314371:+	chr1	156312383	156312456	+	chr1	156314371	156314499	+	TSF	ENST00000368255,ENST00000368253,ENST00000470342,ENST00000368254,ENST00000481479,ENST00000368252,ENST00000466306,ENST00000368251	20,20,20,20,20,20,20,20,14,14,14,14,14,14,14	519-534	5241-5256	LUAD,OV,TGCT
chr1:156337862:+>chr1:156339110:+	chr1	156337404	156337862	+	chr1	156339110	156339227	+	TSF	ENST00000537040,ENST00000544720,ENST00000368246,ENST00000368247,ENST00000368249,ENST00000446171,ENST00000368245	30,24,84,84,84,84,84,84,84,30,30,30,24,24,24,30,24,24,30,30,24	535-555	5257-5277	KICH,KIRC,KIRP,LIHC
chr1:156374537:->chr1:156374393:-	chr1	156374721	156374537	-	chr1	156374393	156374318	-	TAF	ENST00000400991,ENST00000368242,ENST00000310027,ENST00000368243,ENST00000357975	12,12,16,16,16,16,16,12,12,12	556-565	5278-5287	GBM,LGG,TGCT
chr1:156628662:+>chr1:156628819:+	chr1	156628571	156628662	+	chr1	156628819	156628926	+	TSF	ENST00000329117	28,14,5	566-568	5288-5290	GBM,LGG
chr1:156716133:->chr1:156715165:-	chr1	156716197	156716133	-	chr1	156715165	156715089	-	TSF	ENST00000357325,ENST00000537739,ENST00000368209,ENST00000368206	2,2,2,2,21,21,21,21	569-576	5291-5298	BLCA,BRCA,CESC,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,READ,SARC,STAD,THCA,UCEC
chr1:15791412:+>chr1:15792494:+	chr1	15791260	15791412	+	chr1	15792494	15792639	+	TSF	ENST00000359621	1,49,6	577-579	5299-5301	PAAD
chr1:15795527:+>chr1:15798485:+	chr1	15795401	15795527	+	chr1	15798485	15798502	+	TSF	ENST00000359621	5,41	580-581	5302-5303	PAAD
chr1:15807482:+>chr1:15807593:+	chr1	15807396	15807482	+	chr1	15807593	15807690	+	TSF	ENST00000375910,ENST00000422901	29,4,4,29	582-585	5304-5307	PAAD
chr1:159014421:+>chr1:159015087:+	chr1	159014388	159014421	+	chr1	159015087	159015254	+	TAF	ENST00000368131,ENST00000295809,ENST00000359709,ENST00000430894	11,11,11,11,5,1,1,1,1,5,5,5,5	586-597	5308-5319	BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCS
chr1:159014421:+>chr1:159019222:+	chr1	159014388	159014421	+	chr1	159019222	159019389	+	TAF	ENST00000368132,ENST00000295809,ENST00000359709,ENST00000430894	11,11,11,11,5,5,5,5,1,1,1,1	598-609	5320-5331	BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,LGG,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCS
chr1:159927784:->chr1:159923443:-	chr1	159928050	159927784	-	chr1	159923443	159923099	-	TSF	ENST00000368092,ENST00000368093	71,71,3,3,6,6	610-615	5332-5337	BRCA,LIHC,LUAD
chr1:160853835:->chr1:160853316:-	chr1	160854025	160853835	-	chr1	160853316	160853218	-	TSF	ENST00000326245	6,8,33	616-618	5338-5340	BLCA,COAD,LUAD,MESO,PAAD,STAD

Table 10

chr1:161177330:+>chr1:161178983:+	chr1	161177275	161177330	+	chr1	161178983	161179103	+	TSF	ENST00000367993,ENST00000392179,ENST00000476409	13,13,13,18,18,18	619-624	5341-5346	ACC,BLCA,KIRC,PAAD,PCPG,PRAD,SARC,STAD
chr1:161205477:->chr1:161203128:-	chr1	161205595	161205477	-	chr1	161203128	161202959	-	TSF	ENST00000512372,ENST00000367980,ENST00000367983,ENST00000437437,ENST00000412844,ENST00000428574,ENST00000442691,ENST00000505005,ENST00000508740,ENST00000367982,ENST00000506018,ENST00000367981,ENST00000504010,ENST00000511676,ENST00000515621,ENST00000367984,ENST00000367985,ENST00000367979,ENST00000506209,ENST00000515452	39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39	625-664	5347-5386	LIHC
chr1:161519206:->chr1:161518821:-	chr1	161519332	161519206	-	chr1	161518821	161518801	-	TSF	ENST00000367969,ENST00000443193,ENST00000436743,ENST00000367967,ENST00000426740,ENST00000442336	4,4,4,41,41,41,41,41,41,4,4,4	665-676	5387-5398	BRCA,GBM,KIRC,LGG,MESO
chr1:162768725:+>chr1:162769533:+	chr1	162768504	162768725	+	chr1	162769533	162769727	+	TSF	ENST00000367917,ENST00000254521	7,20,20,7	677-680	5399-5402	ACC,BRCA,KIRC,LIHC,LUSC
chr1:163138881:->chr1:163138158:-	chr1	163139462	163138881	-	chr1	163138158	163138048	-	TSF	ENST00000313961,ENST00000367903,ENST00000530507	33,33,127,127,127,33	681-686	5403-5408	BRCA,KIRC,PCPG,STAD
chr1:165468249:->chr1:165398203:-	chr1	165468331	165468249	-	chr1	165398203	165397956	-	TSF	ENST00000359842	12,26	687-688	5409-5410	THCA
chr1:165854616:+>chr1:165859441:+	chr1	165854440	165854616	+	chr1	165859441	165859600	+	TSF	ENST00000367879,ENST00000372212	45,5,5,7,7,45	689-694	5411-5416	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,LUAD,LUSC,MESO,OV,PCPG,PRAD,STAD,TGCT,UCEC
chr1:165863816:+>chr1:165865427:+	chr1	165863702	165863816	+	chr1	165865427	165865569	+	TAF	ENST00000367879	2,16,18	695-697	5417-5419	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr1:167417580:->chr1:167410004:-	chr1	167417583	167417580	-	chr1	167410004	167409901	-	TAF	ENST00000362089,ENST00000392122	1,1,1,1	698-701	5420-5423	THYM
chr1:167833076:+>chr1:167921038:+	chr1	167832811	167833076	+	chr1	167921038	167921099	+	TSF	ENST00000367843,ENST00000470721,ENST00000432587,ENST00000312263,ENST00000367840	68,68,68,68,68,15,2,2,2,2,2,15,15,15,15	702-716	5424-5438	BLCA,LUSC,STAD,TGCT
chr1:168067120:->chr1:168066470:-	chr1	168067171	168067120	-	chr1	168066470	168065746	-	TSF	ENST00000367838,ENST00000271357,ENST00000539777,ENST00000361697,ENST00000537209,ENST00000546300,ENST00000367835	14,14,14,14,14,14,14,17,17,17,17,17,17,17,16,16,16,16,16,16,16	717-737	5439-5459	SARC,SKCM,TGCT,UVM
chr1:168349020:+>chr1:168549301:+	chr1	168348640	168349020	+	chr1	168549301	168549415	+	TSF	ENST00000367818	25,8,39	738-740	5460-5462	BLCA,CESC,GBM,HNSC,LUAD,LUSC,OV,STAD,TGCT,THYM,UCEC,UCS
chr1:169819707:+>chr1:169820958:+	chr1	169819657	169819707	+	chr1	169820958	169821077	+	TSF	ENST00000359326,ENST00000286031	17,17,7,7,16,16	741-746	5463-5468	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,READ,SARC,STAD,TGCT,THYM,UCEC,UCS

Table 19

chr1:171238225:+>chr1:171244485:+	chr1	171237955	171238225	+	chr1	171244485	171244647	+	TAF	ENST00000433267,ENST00000367750,ENST00000402921,ENST00000354841	48,48,48,48,21,7,7,7,21,21,21	747-758	5469-5480	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PAAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr1:172134843:+>chr1:172222713:+	chr1	172134550	172134843	+	chr1	172222713	172222822	+	TSF	ENST00000358155,ENST00000355305,ENST00000367731,ENST00000520906,ENST00000523513	55,15,15,15,15,27,27,27,55,55,55,55,15,27	759-773	5481-5495	BRCA,CESC,COAD,HNSC,LUAD,OV,PAAD,STAD,UCS
chr1:17371636:->chr1:17371383:-	chr1	17371820	17371636	-	chr1	17371383	17371256	-	TSF	ENST00000375499	5,7,10	774-776	5496-5498	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUSC,MESO,OV,SARC,STAD,TGCT,THYM
chr1:175324412:->chr1:175323659:-	chr1	175324477	175324412	-	chr1	175323659	175323527	-	TSF	ENST00000367674,ENST00000263525	22,22,17,17,6,6	777-782	5499-5504	LGG
chr1:175328513:->chr1:175325598:-	chr1	175328580	175328513	-	chr1	175325598	175325455	-	TSF	ENST00000367674,ENST00000263525	13,13,22,22	783-786	5505-5508	LGG
chr1:17568900:+>chr1:17570505:+	chr1	17568772	17568900	+	chr1	17570505	17570738	+	TAF	ENST00000375471,ENST00000537499,ENST00000413717,ENST00000536552	2,2,2,2,31,31,31,31,7,7,7,7	787-798	5509-5520	BLCA,CESC,KIRC,LIHC,LUAD,LUSC,PAAD,STAD
chr1:17604315:+>chr1:17606845:+	chr1	17603989	17604315	+	chr1	17606845	17606924	+	TSF	ENST00000375460	45,103,99	799-801	5521-5523	BLCA,CESC,KIRP,LIHC
chr1:176882366:->chr1:176863966:-	chr1	176882517	176882366	-	chr1	176863966	176863698	-	TSF	ENST00000367657,ENST00000361833,ENST00000367654,ENST00000424564	21,21,21,21,18,18,18,18	802-809	5524-5531	GBM,LGG,PAAD,PCPG
chr1:180280936:->chr1:180257652:-	chr1	180281096	180280936	-	chr1	180257652	180257498	-	TSF	ENST00000367595	11,17,53	810-812	5532-5534	BRCA,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,UCS
chr1:182375081:+>chr1:182423093:+	chr1	182374948	182375081	+	chr1	182423093	182423175	+	TSF	ENST00000542961,ENST00000294854,ENST00000443996,ENST00000416676,ENST00000422241	43,43,30,30,30,30,43,43,43	813-822	5535-5544	LIHC
chr1:182406465:+>chr1:182423093:+	chr1	182406436	182406465	+	chr1	182423093	182423175	+	TSF	ENST00000542961,ENST00000294854,ENST00000443996,ENST00000416676,ENST00000422241	10,10,10,10,10,3,3,3	823-832	5545-5554	LIHC
chr1:183599874:->chr1:183599772:-	chr1	183600359	183599874	-	chr1	183599772	183599596	-	TAF	ENST00000367534,ENST00000359856,ENST00000294742	22,14,14,14,51,51,51,22,22	833-841	5555-5563	BLCA,BRCA,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCS,UVM
chr1:196675339:+>chr1:196682865:+	chr1	196673673	196675339	+	chr1	196682865	196683047	+	TSF	ENST00000367429	7,12,2	842-844	5564-5566	CHOL,LIHC,MESO
chr1:19672295:->chr1:19671746:-	chr1	19672366	19672295	-	chr1	19671746	19671681	-	TSF	ENST00000401084,ENST00000264203,ENST00000375144,ENST00000375142,ENST00000433834,ENST00000264202,ENST00000413711	24,24,24,1,1,1,1,1,1,24,24,24,24	845-858	5567-5580	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,THYM,UCEC
chr1:198208232:+>chr1:198222170:+	chr1	198208121	198208232	+	chr1	198222170	198222310,198222208,198222298	+	TSF	ENST00000367385,ENST00000442588,ENST00000538004,ENST00000367383,ENST00000544035,ENST00000391974	13,13,13,13,13,13,30,30,6,6,6,6,30,30,30	859-876	5581-5598	MESO
chr1:200882562:+>chr1:200882665:+	chr1	200882539	200882562	+	chr1	200882665	200882757	+	TSF	ENST00000367342,ENST00000413687	8,8,7,7,7,7	877-882	5599-5604	BLCA,HNSC,LIHC,LUSC,OV,PAAD,READ,STAD
chr1:201354740:->chr1:201353963:-	chr1	201354798	201354740	-	chr1	201353963	201353920	-	TSF	ENST00000503578,ENST00000391967,ENST00000367313	1,1,1,19,19,19	883-888	5605-5610	STAD

Table 19

chr1:201356732:->chr1:201356306:-	chr1	201356770	201356732	-	chr1	201356306	201355463	-	TAF	ENST00000391967,ENST00000367313	12,12,12,12	889-892	5611-5614	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LUAD,LUSC,PAAD,READ,STAD,UCEC
chr1:203191877:->chr1:203191453:-	chr1	203191927	203191877	-	chr1	203191453	203191330	-	TSF	ENST00000367229,ENST00000491855,ENST00000255427,ENST00000535569,ENST00000503786	2,2,2,2,2,16,16,16,16,16,16,16,16,16,16	893-907	5615-5629	BLCA,BRCA,CESC,HNSC,LUSC,THYM
chr1:204110153:->chr1:204109246:-	chr1	204110253	204110153	-	chr1	204109246	204109163	-	TSF	ENST00000367201,ENST00000367202,ENST00000367199,ENST00000367198,ENST00000422072,ENST00000422699,ENST00000452983,ENST00000444817	33,33,33,33,33,33,33,24,11,11,11,11,11,11,11,24,24,24,24,24,24	908-931	5630-5653	ACC,BRCA,GBM,KIRC,KIRP,LGG,LIHC
chr1:205496185:+>chr1:205496922:+	chr1	205496165	205496185	+	chr1	205496922	205497045,205497001,205496953	+	TSF	ENST00000429964,ENST00000506784,ENST00000360066,ENST00000478560,ENST00000419301	2,2,2,6,6,6,2,6,2,6	932-941	5654-5663	KIRC
chr1:206276891:->chr1:206243250:-	chr1	206278006	206276891	-	chr1	206243250	206243150	-	TSF	ENST00000331555	45,139,39	942-944	5664-5666	BLCA,BRCA,CESC,CHOL,KIRC,KIRP,OV,SARC
chr1:206277067:->chr1:206243250:-	chr1	206278006	206277067	-	chr1	206243250	206243150	-	TSF	ENST00000331555	44,81,28	945-947	5667-5669	BLCA,BRCA,CESC,CHOL,KIRC,KIRP,LUSC,OV,SARC
chr1:206277274:->chr1:206243250:-	chr1	206278006	206277274	-	chr1	206243250	206243150	-	TSF	ENST00000331555	37,12,26	948-950	5670-5672	BRCA,CESC,CHOL,KIRP,OV,SARC,UCEC
chr1:206288105:->chr1:206243250:-	chr1	206288369	206288105	-	chr1	206243250	206243150	-	TSF	ENST00000331555	15,2	951-952	5673-5674	BLCA,CESC,CHOL,KIRC,KIRP,LUAD,OV,UCEC
chr1:206326721:+>chr1:206327474:+	chr1	206326596	206326721	+	chr1	206327474	206327596	+	TSF	ENST00000358184,ENST00000361052,ENST00000360218,ENST00000432969	21,21,21,21	953-956	5675-5678	CESC,LUAD,PAAD,STAD
chr1:207263385:+>chr1:207263653:+	chr1	207263335	207263385	+	chr1	207263653	207263826	+	TAF	ENST00000367078,ENST00000452902,ENST00000243611,ENST00000391923	3,3,3,3,7,7,7,7,16,16,16,16	957-968	5679-5690	BLCA,CESC,CHOL,COAD,LIHC,LUAD,MESO,PAAD,STAD
chr1:207263401:+>chr1:207263653:+	chr1	207263335	207263401	+	chr1	207263653	207263826	+	TSF	ENST00000367078,ENST00000452902,ENST00000243611,ENST00000391923	8,8,8,13,13,13,2,1,21,21,21,8	969-980	5691-5702	LIHC
chr1:207269340:+>chr1:207269867:+	chr1	207268999	207269340	+	chr1	207269867	207269960	+	TAF	ENST00000367078,ENST00000452902,ENST00000243611,ENST00000367076,ENST00000391923	60,60,60,60,60,22,22,22,22,48,48,48,48,48	981-995	5703-5717	BLCA,CESC,CHOL,LIHC,LUAD,LUSC,MESO,PAAD,SARC
chr1:207820768:+>chr1:207850734:+	chr1	207820596	207820768	+	chr1	207850734	207850913	+	TSF	ENST00000508064	57,24,57	996-998	5718-5720	KICH,KIRP,TGCT
chr1:20940086:+>chr1:20940335:+	chr1	20940040	20940086	+	chr1	20940335	20940392	+	TSF	ENST00000375071	15	999	999	COAD,HNSC,KICH,LIHC,PAAD,SKCM,TGCT
chr1:209819875:->chr1:209811993:-	chr1	209819885	209819875	-	chr1	209811993	209811879	-	TSF	ENST00000356082,ENST00000391911,ENST00000367030,ENST00000415782	3,3,3,3,3,3,3,3,3,3,3	1000-1011	5722-5733	BLCA,HNSC,LUAD,STAD
chr1:2124284:->chr1:2121196:-	chr1	2124338	2124284	-	chr1	2121196	2121152,2	-	TAF	ENST00000414253,ENST00000378546,ENST00000378545	4,4,4,9,1,9,9,1,1	1012-1020	5734-5742	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UVM
chr1:212594948:+>chr1:212615907:+	chr1	212594935	212594948	+	chr1	212615907	212615967	+	TAF	ENST00000366988	4,4	1021-1022	5743-5744	MESO,SKCM,UVM
chr1:212595005:+>chr1:212615911:+	chr1	212594935	212595005	+	chr1	212615911	212615967	+	TAF	ENST00000366988	17,19,23	1023-1025	5745-5747	KICH,PRAD,SARC,SKCM,UVM
chr1:212598077:+>chr1:212615911:+	chr1	212596286	212598077	+	chr1	212615911	212615967	+	TSF	ENST00000366988	35,5,2	1026-1028	5748-5750	SKCM,UVM

Table 19

chr1:212598077:+>chr1:212617681:+	chr1	212596286	212598077	+	chr1	212617681	212617784	+	TSF	ENST00000366988	35,5,2	1029-1031	5751-5753	ACC,LGG,SKCM,UVM
chr1:212598195:+>chr1:212615907:+	chr1	212596286	212598195	+	chr1	212615907	212615967	+	TSF	ENST00000366988	74,5	1032-1033	5754-5755	UVM
chr1:212602718:+>chr1:212615907:+	chr1	212601578	212602718	+	chr1	212615907	212615967	+	TSF	ENST00000366988	25,9,1	1034-1036	5756-5758	ACC,KICH,SKCM,UVM
chr1:212602888:+>chr1:212615907:+	chr1	212601578	212602888	+	chr1	212615907	212615967	+	TSF	ENST00000366988	2,5,8	1037-1039	5759-5761	PRAD,SARC,SKCM,UVM
chr1:212861469:->chr1:212860321:-	chr1	212862111	212861469	-	chr1	212860321	212860133	-	TAF	ENST00000243440	6,26,38	1040-1042	5762-5764	ACC,BLCA,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,SARC,SKCM,TGCT,THYM,UCEC
chr1:212861639:->chr1:212860321:-	chr1	212862111	212861639	-	chr1	212860321	212860133	-	TSF	ENST00000243440	71,81,3	1043-1045	5765-5767	BLCA,DLBC,GBM,HNSC,KIRC,LGG,MESO,SARC
chr1:213064523:+>chr1:213068328:+	chr1	213064469	213064523	+	chr1	213068328	213068395	+	TSF	ENST00000366971,ENST00000419102	18,18,7,7,1,1	1046-1051	5768-5773	BLCA,READ,STAD,TGCT,THYM
chr1:213316144:+>chr1:213341201:+	chr1	213316012	213316144	+	chr1	213341201	213341316	+	TSF	ENST00000543470,ENST00000366959,ENST00000366960	2,2,2,11,11,11	1052-1057	5774-5779	BRCA,LUAD,LUSC,PRAD,UCEC
chr1:217697476:->chr1:217688231:-	chr1	217698243	217697476	-	chr1	217688231	217688164	-	TSF	ENST00000366935	27,13,11	1058-1060	5780-5782	BRCA,HNSC,PRAD,THYM
chr1:21901670:+>chr1:21902226:+	chr1	21901654	21901670	+	chr1	21902226	21902417	+	TAF	ENST00000539907,ENST00000540617,ENST00000374840,ENST00000374832,ENST00000425315	5,5,5,5,5,2,2,2,2,2	1061-1070	5783-5792	BLCA,BRCA,CESC,KIRC,LIHC,LUAD,MESO,OV,PCPG,SARC,TGCT,THCA,UCEC,UCS
chr1:21925216:->chr1:21924995:-	chr1	21925339	21925216	-	chr1	21924995	21924893	-	TAF	ENST00000374761,ENST00000290101,ENST00000374763,ENST00000374765,ENST00000542643	41,41,41,41,41,3,3,3,3,3	1071-1080	5793-5802	ACC,BLCA,BRCA,CHOL,COAD,KICH,LIHC,LUAD,OV,PAAD,STAD,THCA,UCEC
chr1:222838312:+>chr1:222838651:+	chr1	222838237	222838312	+	chr1	222838651	222838961	+	TSF	ENST00000344922,ENST00000344441,ENST00000340535	25,25,25,5,5,5,1,1,1	1081-1089	5803-5811	BRCA,LIHC,LUAD,PRAD,STAD
chr1:222838358:+>chr1:222838651:+	chr1	222838237	222838358	+	chr1	222838651	222838961	+	TSF	ENST00000344922,ENST00000344441,ENST00000340535	40,40,40,6,6,6,9,9,9	1090-1098	5812-5820	ACC,BRCA,LIHC,LUAD,LUSC,OV,PRAD,STAD,UCEC
chr1:22296330:+>chr1:22324644:+	chr1	22296254	22296330	+	chr1	22324644	22324682	+	TSF	ENST00000400277	25,23,25	1099-1101	5821-5823	PAAD
chr1:22296400:+>chr1:22324644:+	chr1	22296254	22296400	+	chr1	22324644	22324682	+	TSF	ENST00000400277	22,3	1102-1103	5824-5825	PAAD
chr1:22322006:+>chr1:22324644:+	chr1	22321930	22322006	+	chr1	22324644	22324682	+	TAF	ENST00000400277	25,23,25	1104-1106	5826-5828	OV,PAAD
chr1:223720355:->chr1:223718212:-	chr1	223720576	223720355	-	chr1	223718212	223718134	-	TSF	ENST00000430824,ENST00000366872	7,7,2,2,20,20	1107-1112	5829-5834	BLCA,BRCA,LUAD,PAAD
chr1:224493476:->chr1:224492868:-	chr1	224493544	224493476	-	chr1	224492868	224492736	-	TSF	ENST00000469968,ENST00000391875,ENST00000281701,ENST00000469075,ENST00000361463,ENST00000467882,ENST00000488718,ENST00000492281,ENST00000436927	23,23,23,23,13,13,13,13,13,13,13,13,13,13,23,23,23,23,23	1113-1130	5835-5852	BRCA
chr1:224527861:+>chr1:224553581:+	chr1	224527533	224527861	+	chr1	224553581	224553693	+	TSF	ENST00000465271,ENST00000366858,ENST00000366857,ENST00000366856	46,46,46,46,21,21,3,21,3,21,3,3	1131-1142	5853-5864	KIRC,KIRP,LUAD,LUSC,OV,UCEC
chr1:224551900:+>chr1:224553581:+	chr1	224551810	224551900	+	chr1	224553581	224553693	+	TAF	ENST00000465271,ENST00000366858,ENST00000366857,ENST00000366856	8,8,24,29,29,29,29,8,24,8,24,24	1143-1154	5865-5876	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,SKCM,STAD,TGCT,UCEC

chr1:226013120:+>chr1:226016587:+	chr1	226013104	226013120	+	chr1	226016587	226016613	+	TSF	ENST00000445856,ENST00000272167,ENST00000448202,ENST00000366837	5,5,5,5,2,2,2,2,5,5,5,5	1155-1166	5877-5888	LIHC
chr1:226013120:+>chr1:226030115:+	chr1	226013104	226013120	+	chr1	226030115	226030175	+	TSF	ENST00000272167,ENST00000366837	5,5,2,2,5,5	1167-1172	5889-5894	LIHC
chr1:226013146:+>chr1:226016587:+	chr1	226013104	226013146	+	chr1	226016587	226016613	+	TSF	ENST00000445856,ENST00000272167,ENST00000448202,ENST00000366837	7,7,7,7,11,13,13,13,13,11,11,11	1173-1184	5895-5906	LIHC
chr1:226013146:+>chr1:226019533:+	chr1	226013104	226013146	+	chr1	226019533	226019660	+	TSF	ENST00000445856,ENST00000272167,ENST00000448202,ENST00000366837	7,7,7,7,11,11,11,11,13,13,13,13	1185-1196	5907-5918	LIHC
chr1:226599358:->chr1:226590080:-	chr1	226599484	226599358	-	chr1	226590080	226589915	-	TSF	ENST00000366794,ENST00000366792,ENST00000366791,ENST00000366790	42,42,42,42,19,23,23,23,23,19,19,19	1197-1208	5919-5930	BRCA,DLBC,GBM,HNSC,KIRP,LGG
chr1:228782677:+>chr1:228873420:+	chr1	228782545	228782677	+	chr1	228873420	228873478	+	TSF	ENST00000366691	44,36,17	1209-1211	5931-5933	BLCA,BRCA,GBM,KIRC,LGG,MESO,PCPG,PRAD
chr1:233790730:+>chr1:233802341:+	chr1	233789624	233790730	+	chr1	233802341	233802736	+	TSF	ENST00000366621,ENST00000366620,ENST00000446915	8,8,8,39,39,2,2,2	1212-1220	5934-5942	COAD,STAD
chr1:23397118:+>chr1:23397718:+	chr1	23397020	23397118	+	chr1	23397718	23397852	+	TSF	ENST00000356634,ENST00000400181,ENST00000542151	33,33,33,1,1,1	1221-1226	5943-5948	BLCA,BRCA,HNSC,LUSC,OV,STAD
chr1:236327054:+>chr1:236332006:+	chr1	236326774	236327054	+	chr1	236332006	236332055	+	TSF	ENST00000366592,ENST00000454895	7,7,18,18,40,40	1227-1232	5949-5954	BLCA,CHOL,KIRC,KIRP,LIHC,LUAD,OV,PAAD,SARC,SKCM,STAD,UVM
chr1:236485567:->chr1:236433294:-	chr1	236485958	236485567	-	chr1	236433294	236433175	-	TSF	ENST00000354619,ENST00000327333	29,29,1,1,5,5	1233-1238	5955-5960	LUAD
chr1:236534395:+>chr1:236572516:+	chr1	236534342	236534395	+	chr1	236572516	236572574	+	TAF	ENST00000334232,ENST00000359362	16,16,17,17	1239-1242	5961-5964	BLCA,BRCA,KICH,KIRC,LUSC
chr1:23762216:->chr1:23761111:-	chr1	23762222	23762216	-	chr1	23761111	23761026	-	TSF	ENST00000495646,ENST00000336689,ENST00000437606	2,2,2,2,2,2,1,1,1	1243-1251	5965-5973	ACC,BLCA,BRCA,CESC,GBM,KIRC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr1:240569786:+>chr1:240601361:+	chr1	240569724	240569786	+	chr1	240601361	240601510	+	TAF	ENST00000319653,ENST00000545751	13,13,8,8,20,20	1252-1257	5974-5979	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr1:243727587:->chr1:243727150:-	chr1	243727680	243727587	-	chr1	243727150	243727022	-	TSF	ENST00000336199,ENST00000366540,ENST00000366539,ENST00000263826	9,9,9,9,31,31,13,13,13,13,31,31	1258-1269	5980-5991	GBM,LGG
chr1:24645398:+>chr1:24657916:+	chr1	24645232	24645398	+	chr1	24657916	24658102	+	TSF	ENST00000361548,ENST00000350501,ENST00000236255	47,47,3,3,3,35,35,35,47	1270-1278	5992-6000	GBM,LGG
chr1:246478829:->chr1:246093239:-	chr1	246478956	246478829	-	chr1	246093239	246093172	-	TSF	ENST00000541742,ENST00000490107,ENST00000388985,ENST00000453676	10,10,10,10,13,13,13,13	1279-1286	6001-6008	BRCA,PRAD
chr1:246547930:->chr1:246518396:-	chr1	246547998	246547930	-	chr1	246518396	246518333	-	TSF	ENST00000388985,ENST00000403792	23,23,13,13	1287-1290	6009-6012	BRCA,LGG,SARC,SKCM
chr1:246580598:->chr1:246498776:-	chr1	246581335	246580598	-	chr1	246498776	246498669	-	TSF	ENST00000541742,ENST00000490107,ENST00000388985,ENST00000453676,ENST00000403792,ENST00000455277	20,20,20,34,34,34,34,34,21,21,21,21,21,20,20,20,34	1291-1308	6013-6030	BRCA,GBM,KIRC,LGG,LIHC,MESO,SARC
chr1:246580598:->chr1:246518396:-	chr1	246581335	246580598	-	chr1	246518396	246518333	-	TSF	ENST00000388985,ENST00000403792	20,20,34,21,21,34	1309-1314	6031-6036	ACC,BLCA,BRCA,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,SARC,SKCM,UCS

Table 19

chr1:246886803:+>chr1:246890194:+	chr1	246886599	246886803	+	chr1	246890194	246890306	+	TSF	ENST00000366510	34,4	1315-1316	6037-6038	BLCA,BRCA,KIRC,LIHC,LUAD,LUSC,PRAD
chr1:25125844:+>chr1:25140585:+	chr1	25125118	25125844	+	chr1	25140585	25140710	+	TSF	ENST00000374379,ENST00000488683	37,37,12,12,26,26	1317-1322	6039-6044	HNSC,KIRP,SARC,TGCT
chr1:26442478:+>chr1:26646662:+	chr1	26442407	26442478	+	chr1	26646662	26646793	+	TAF	ENST00000374213	24,13	1323-1324	6045-6046	BLCA,BRCA,CHOL,DLBC,PAAD,STAD,THYM
chr1:26595855:+>chr1:26595951:+	chr1	26595323	26595855	+	chr1	26595951	26596105	+	TSF	ENST00000451429,ENST00000476272,ENST00000252992,ENST00000453146	43,43,43,43,36,36,36,36	1325-1332	6047-6054	BLCA,BRCA,CESC,LIHC,LUAD,LUSC,TGCT
chr1:27144423:+>chr1:27158938:+	chr1	27143965	27144423	+	chr1	27158938	27159098	+	TSF	ENST00000374142	1,27,14	1333-1335	6055-6057	BLCA,CESC,HNSC,STAD
chr1:27158544:+>chr1:27158938:+	chr1	27158295	27158544	+	chr1	27158938	27159098	+	TSF	ENST00000374142	31,29,9	1336-1338	6058-6060	BLCA,CESC,DLBC,HNSC,LUAD,LUSC,SARC,TGCT
chr1:27228857:+>chr1:27250580:+	chr1	27228495	27228857	+	chr1	27250580	27250657	+	TAF	ENST00000435827,ENST00000321265	4,66,66,10,10,4	1339-1344	6061-6066	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr1:27271351:+>chr1:27271881:+	chr1	27271260	27271351	+	chr1	27271881	27271964	+	TSF	ENST00000321265	11,3	1345-1346	6067-6068	LIHC,UCEC
chr1:27430228:->chr1:27429803:-	chr1	27430428	27430228	-	chr1	27429803	27429714	-	TAF	ENST00000263980,ENST00000545949	15,15,11,11,31,31	1347-1352	6069-6074	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,PAAD,SKCM,STAD,TGCT,UCEC
chr1:28199387:+>chr1:28203099:+	chr1	28199269	28199387	+	chr1	28203099	28203239	+	TSF	ENST00000328928,ENST00000373925,ENST00000373927,ENST00000442118,ENST00000373921	39,39,39,39,39,4,39,39,39,39,4,4,4,4	1353-1367	6075-6089	OV
chr1:29648148:+>chr1:29649883:+	chr1	29648112	29648148	+	chr1	29649883	29650008	+	TSF	ENST00000345512,ENST00000373779,ENST00000323874,ENST00000356870,ENST00000428026,ENST00000460170	2,2,2,2,2,4,4,4,4,4,4,2	1368-1379	6090-6101	ACC,BLCA,BRCA,CESC,HNSC,LUAD,LUSC,MESO,OV,STAD,UCEC,UCS,UVM
chr1:31208427:->chr1:31208112:-	chr1	31208485	31208427	-	chr1	31208112	31208020	-	TSF	ENST00000294507	18,19,19	1380-1382	6102-6104	BRCA,DLBC,GBM,KICH,KIRC,KIRP,LGG,LIHC,LUSC,OV,SARC,THCA,THYM
chr1:31218765:->chr1:31215396:-	chr1	31218846	31218765	-	chr1	31215396	31215303	-	TSF	ENST00000294507	3,19,26	1383-1385	6105-6107	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,STAD
chr1:31346686:->chr1:31346224:-	chr1	31346734	31346686	-	chr1	31346224	31346058	-	TAF	ENST00000336798,ENST00000339394	16,16,16,16,15,15	1386-1391	6108-6113	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCS,UVM
chr1:31744121:->chr1:31742087:-	chr1	31744147	31744121	-	chr1	31742087	31742005	-	TSF	ENST00000263694,ENST00000373720,ENST00000446633	8,8,8,8,8,8	1392-1397	6114-6119	BRCA,CESC,HNSC,KIRC,LGG,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,TGCT,UCEC,UCS
chr1:31887779:+>chr1:31896540:+	chr1	31887686	31887779	+	chr1	31896540	31896701	+	TAF	ENST00000373710,ENST00000536859,ENST00000373709,ENST00000536384	31,31,31,31,31,31,31,6,6,6,6	1398-1409	6120-6131	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,SARC,STAD,THCA,UCEC
chr1:32152171:->chr1:32151880:-	chr1	32152700	32152171	-	chr1	32151880	32151845	-	TSF	ENST00000271069,ENST00000373672,ENST00000373668	35,35,35,31,31,31	1410-1415	6132-6137	GBM,HNSC,KIRC,LUSC,OV,SARC,SKCM,STAD,UCS

Table 19

chr1:32262170:->chr1:32259836:-	chr1	32262195	32262170	-	chr1	32259836	32259725	-	TSF	ENST00000257100,ENST00000360482,ENST00000452755,ENST00000533231,ENST00000528579	8,8,8,8,8,1,1,1,1,1,8,8,8,8,8	1416-1430	6138-6152	BLCA,BRCA,GBM,LGG,LUAD,SARC
chr1:32264490:->chr1:32264202:-	chr1	32264516	32264490	-	chr1	32264202	32264043	-	TSF	ENST00000257100,ENST00000373648,ENST00000360482,ENST00000452755,ENST00000533231,ENST00000528579	9,9,9,9,9,8,8,7,7,7,7,7,7,9,8,8,8,8	1431-1448	6153-6170	GBM,LGG,SARC
chr1:32376104:->chr1:32375713:-	chr1	32376196	32376104	-	chr1	32375713	32375639	-	TSF	ENST00000602725,ENST00000344035,ENST00000457805,ENST00000470404	31,31,31,31,21,21,21,6,6,6,6,21	1449-1460	6171-6182	BRCA
chr1:32605465:+>chr1:32620189:+	chr1	32605303	32605465	+	chr1	32620189	32620322	+	TSF	ENST00000373625,ENST00000471599,ENST00000545542	5,5,3,3,3,5	1461-1466	6183-6188	BRCA,HNSC,KIRC,LUAD,LUSC,SKCM,STAD,TGCT,UCEC
chr1:33097809:->chr1:33097480:-	chr1	33097909	33097809	-	chr1	33097480	33097428	-	TAF	ENST00000468695	2,11	1467-1468	6189-6190	BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr1:33142971:+>chr1:33145241:+	chr1	33142637	33142971	+	chr1	33145241	33145299,33145306,33145415	+	TAF	ENST00000482190,ENST00000414241,ENST00000373493,ENST00000544435,ENST00000458695,ENST00000460669,ENST00000463378,ENST00000414241,ENST00000373493,ENST00000544435,ENST00000458695,ENST00000463378,ENST00000460669,ENST00000482190	5,5,5,5,5,36,36,36,36,36,36,12,12,12,12,12,12,5,5	1469-1489	6191-6211	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,OV,READ,STAD,THCA,UCS
chr1:33229103:+>chr1:33233388:+	chr1	33228913	33229103	+	chr1	33233388	33233558	+	TSF	ENST00000401073,ENST00000373481,ENST00000294521,ENST00000373480	21,21,21,21,44,44,44,5,5,5,5,44	1490-1501	6212-6223	OV,STAD
chr1:33270146:->chr1:33263444:-	chr1	33270876	33270146	-	chr1	33263444	33263364	-	TSF	ENST00000373477	50,25,12	1502-1504	6224-6226	BRCA,CESC,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC
chr1:33594050:+>chr1:33741701:+	chr1	33593993	33594050	+	chr1	33741701	33741764	+	TSF	ENST00000539719,ENST00000373428	1,1,19,19,7,7	1505-1510	6227-6232	OV
chr1:3423998:->chr1:3422800:-	chr1	3424070	3423998	-	chr1	3422800	3422672	-	TSF	ENST00000294599,ENST00000356575,ENST00000485002	2,15,15,15,23,23,23,2,2	1511-1519	6233-6241	BLCA,LUSC,MESO,SARC
chr1:36604261:->chr1:36603579:-	chr1	36604350	36604261	-	chr1	36603579	36603397	-	TSF	ENST00000373166,ENST00000373163,ENST00000373162	2,2,2,8,8,8	1520-1525	6242-6247	BLCA,CESC,HNSC,LUAD,LUSC,OV,PRAD,STAD,THCA,THYM
chr1:36637320:+>chr1:36638065:+	chr1	36637256	36637320	+	chr1	36638065	36638228	+	TSF	ENST00000429533,ENST00000316156,ENST00000373150,ENST00000373151,ENST00000530729	13,13,13,13,21,21,21,21,13,21	1526-1535	6248-6257	BRCA,CESC,HNSC,SARC
chr1:37979373:->chr1:37979139:-	chr1	37979411	37979373	-	chr1	37979139	37979024	-	TSF	ENST00000373075,ENST00000296214,ENST00000373074,ENST00000373073,ENST00000448519	13,7,7,7,7,7,13,13,13,13	1536-1545	6258-6267	PRAD
chr1:37979375:->chr1:37979139:-	chr1	37979411	37979375	-	chr1	37979139	37979024	-	TSF	ENST00000373075,ENST00000296214,ENST00000373074,ENST00000373073,ENST00000448519	7,11,11,11,11,7,7,7	1546-1555	6268-6277	PRAD

Table 19

chr1:37979395:->chr1:37979139:-	chr1	37979411	37979395	-	chr1	37979139	37979024	-	TSF	ENST00000373075,ENST00000296214,ENST00000373074,ENST00000373073,ENST00000448519	5,5,5,5,5,5,5,5,5,5	1556-1565	6278-6287	BRCA,PRAD
chr1:40041229:->chr1:40038258:-	chr1	40041312	40041229	-	chr1	40038258	40038065	-	TAF	ENST00000372862,ENST00000372858,ENST00000372857,ENST00000372856,ENST00000470443,ENST00000451091	28,28,28,28,28,28,12,12,12,12,12,12,1,1,1,1,1,1	1566-1583	6288-6305	ACC,BLCA,BRCA,CESC,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SKCM,TGCT,THYM
chr1:40748159:+>chr1:40751597:+	chr1	40748073	40748159	+	chr1	40751597	40751701	+	TAF	ENST00000372759	27,28,3	1584-1586	6306-6308	BLCA,BRCA,PRAD
chr1:40781517:->chr1:40781336:-	chr1	40781678	40781517	-	chr1	40781336	40781262	-	TAF	ENST00000372748,ENST00000417105,ENST00000372736	9,28,28,9,9,28	1587-1592	6309-6314	ACC,BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr1:41465756:+>chr1:41466701:+	chr1	41465686	41465756	+	chr1	41466701	41466789	+	TSF	ENST00000372621,ENST00000541520,ENST00000372616	7,7,7,23,23,23,13,13,13	1593-1601	6315-6323	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PCPG,SARC,SKCM,TGCT,UCEC,UCS
chr1:42660441:->chr1:42657390:-	chr1	42660454	42660441	-	chr1	42657390	42656974	-	TSF	ENST00000372572,ENST00000372573,ENST00000361346,ENST00000361776,ENST00000545068,ENST00000445886	4,4,4,4,4,4,2,2,2,2,2,2,4,4,4,4,4,4,4,2	1602-1619	6324-6341	KIRC
chr1:43234703:+>chr1:43239234:+	chr1	43234653	43234703	+	chr1	43239234	43239320	+	TSF	ENST00000372525	17,7,16	1620-1622	6342-6344	BRCA,LUAD,LUSC,OV,PRAD,STAD
chr1:43409704:->chr1:43408992:-	chr1	43409712	43409704	-	chr1	43408992	43408897	-	TSF	ENST00000426263,ENST00000415851,ENST00000372500	3,2,2,2,2,2,2,3,3	1623-1631	6345-6353	BLCA,HNSC,KIRP,LUSC,OV,READ,STAD
chr1:43634409:->chr1:43632906:-	chr1	43634418	43634409	-	chr1	43632906	43632831	-	TSF	ENST00000431635,ENST00000236051	3,3,2,2,2,2	1632-1637	6354-6359	BLCA,BRCA,CESC,COAD,HNSC,LGG,LIHC,OV,PRAD,STAD,UCEC,UCS
chr1:44019043:+>chr1:44019163:+	chr1	44018824	44019043	+	chr1	44019163	44019308	+	TAF	ENST00000359947,ENST00000438120,ENST00000372413,ENST00000372414,ENST00000437607	4,4,39,39,39,39,39,4,4,4	1638-1647	6360-6369	BLCA,BRCA,CESC,CHOL,HNSC,LIHC,LUAD,LUSC,MESO,OV,STAD
chr1:44446286:+>chr1:44446781:+	chr1	44446234	44446286	+	chr1	44446781	44447145	+	TSF	ENST00000309519	4,9,17	1648-1650	6370-6372	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD
chr1:45139439:->chr1:45125967:-	chr1	45139523	45139439	-	chr1	45125967	45125846	-	TAF	ENST00000372242,ENST00000372243,ENST00000372237,ENST00000372235,ENST00000420706	16,10,10,10,10,10,16,16,16,16	1651-1660	6373-6382	ACC,BLCA,BRCA,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,READ,SKCM,STAD,THYM,UCS,UVM
chr1:45988450:->chr1:45980667:-	chr1	45988716	45988450	-	chr1	45980667	45980545	-	TSF	ENST00000262746,ENST00000319248,ENST00000447184,ENST00000424390	13,13,13,13,77,77,21,21,21,21,77,77	1661-1672	6383-6394	BLCA,BRCA,HNSC,LUAD,LUSC,OV,STAD,UCEC
chr1:45988450:->chr1:45981479:-	chr1	45988716	45988450	-	chr1	45981479	45981326	-	TSF	ENST00000262746,ENST00000319248,ENST00000447184,ENST00000424390	13,13,13,13,77,77,77,77,21,21,21,21	1673-1684	6395-6406	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,TGCT,UCEC
chr1:46797497:->chr1:46764042:-	chr1	46797740	46797497	-	chr1	46764042	46763956	-	TAF	ENST00000343304	15,2,70	1685-1687	6407-6409	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,KIRP,LUAD,LUSC,OV,UCEC,UCS
chr1:47346314:+>chr1:47581201:+	chr1	47345017	47346314	+	chr1	47581201	47581265	+	TSF	ENST00000334194	6,73,27	1688-1690	6410-6412	BRCA
chr1:47446228:+>chr1:47581201:+	chr1	47441646	47446228	+	chr1	47581201	47581265	+	TSF	ENST00000334194	6,29,185	1691-1693	6413-6415	BRCA
chr1:48256707:->chr1:48244216:-	chr1	48256717	48256707	-	chr1	48244216	48244126	-	TSF	ENST00000606738	3,3,3	1694-1696	6416-6418	KIRC,KIRP,TGCT

Table 19

chr1:48271527:->chr1:48267291:-	chr1	48271615	48271527	-	chr1	48267291	48267145	-	TSF	ENST00000606738	22,11,24	1697-1699	6419-6421	KIRC,KIRP,THCA
chr1:48839346:->chr1:48825442:-	chr1	48839622	48839346	-	chr1	48825442	48825258	-	TSF	ENST00000371847,ENST00000371843,ENST00000396199,ENST00000371841	18,18,18,18,39,39,7,7,7,7,39	1700-1711	6422-6433	STAD
chr1:49197246:->chr1:49193715:-	chr1	49197473	49197246	-	chr1	49193715	49193558	-	TAF	ENST00000371833	50,9	1712-1713	6434-6435	ACC,CESC,GBM,THYM
chr1:49723396:->chr1:49711536:-	chr1	49723490	49723396	-	chr1	49711536	49711442	-	TSF	ENST00000371839,ENST00000371838,ENST00000371836	6,6,6,12,12,12	1714-1719	6436-6441	LUAD,OV,STAD,TGCT,UCEC
chr1:50992877:->chr1:50957473:-	chr1	50993149	50992877	-	chr1	50957473	50957393	-	TSF	ENST00000396153,ENST00000371778,ENST00000545823,ENST00000494400	18,18,18,66,66,66,66,18	1720-1727	6442-6449	LIHC
chr1:52306849:->chr1:52306186:-	chr1	52306889	52306849	-	chr1	52306186	52305898	-	TSF	ENST00000352171,ENST00000354831	7,13,13,7	1728-1731	6450-6453	BRCA,PRAD
chr1:52322114:->chr1:52306186:-	chr1	52322378	52322114	-	chr1	52306186	52305898	-	TSF	ENST00000352171,ENST00000354831	20,20,2,2,14,14	1732-1737	6454-6459	BLCA,BRCA,CESC,GBM,HNSC,LUAD,LUSC,MESO,OV,SARC,STAD,TGCT,UCEC
chr1:52343655:->chr1:52306186:-	chr1	52343673	52343655	-	chr1	52306186	52305898	-	TSF	ENST00000352171,ENST00000354831	6,6,1,1	1738-1741	6460-6463	BRCA,CESC,HNSC,KIRC,LUAD,LUSC,SARC,STAD,TGCT
chr1:52496255:->chr1:52494302:-	chr1	52496316	52496255	-	chr1	52494302	52494250	-	TAF	ENST00000371626	20,7,20	1742-1744	6464-6466	TGCT
chr1:53070501:+>chr1:53072356:+	chr1	53070435	53070501	+	chr1	53072356	53072617	+	TSF	ENST00000361314	22,13,5	1745-1747	6467-6469	BLCA,BRCA,GBM,KIRC,LUSC,OV,SARC,STAD,TGCT,UCEC,UCS
chr1:53107382:+>chr1:53108535:+	chr1	53107333	53107382	+	chr1	53108535	53108674	+	TSF	ENST00000517870	7,16	1748-1749	6470-6471	DLBC,STAD
chr1:53346501:+>chr1:53347143:+	chr1	53346099	53346501	+	chr1	53347143	53347337	+	TSF	ENST00000371532,ENST00000371528	13,13,8,8,39,39	1750-1755	6472-6477	BLCA,BRCA,LUAD,LUSC,TGCT
chr1:54879029:->chr1:54870603:-	chr1	54879137	54879029	-	chr1	54870603	54870531	-	TAF	ENST00000371320,ENST00000371319,ENST00000357475	3,3,3,21,21,21,9,9,9	1756-1764	6478-6486	COAD,GBM,LGG,LIHC,LUSC,OV,PRAD,SARC,SKCM,STAD,THYM,UVM
chr1:55349772:->chr1:55349446:-	chr1	55349965	55349772	-	chr1	55349446	55349291	-	TSF	ENST00000371269,ENST00000535035	10,10,19,19,1,1	1765-1770	6487-6492	ACC,BRCA,LIHC,PRAD,STAD
chr1:55366719:->chr1:55349446:-	chr1	55368856	55366719	-	chr1	55349446	55349291	-	TSF	ENST00000371269,ENST00000535035	8,8,24,24,5,5	1771-1776	6493-6498	OV
chr1:55517126:+>chr1:55517951:+	chr1	55517012	55517126	+	chr1	55517951	55518084	+	TSF	ENST00000302118	6,17,9	1777-1779	6499-6501	CESC,COAD,HNSC,LIHC,LUAD,LUSC,READ,STAD
chr1:59844080:+>chr1:59844421:+	chr1	59843828	59844080	+	chr1	59844421	59844509	+	TSF	ENST00000413489,ENST00000371218,ENST00000303721,ENST00000430447,ENST00000371212	31,7,7,7,7,7,31,31,31,31	1780-1789	6502-6511	BLCA,BRCA,CESC,COAD,HNSC,LUSC,MESO,PAAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr1:59980497:+>chr1:60019796:+	chr1	59980221	59980497	+	chr1	60019796	60019899	+	TSF	ENST00000371218,ENST00000303721,ENST00000430447,ENST00000371212	38,38,38,38,7,7,7,7	1790-1797	6512-6519	BLCA,BRCA,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,READ,SARC,STAD,THYM,UCEC,UCS
chr1:59980497:+>chr1:60073475:+	chr1	59980221	59980497	+	chr1	60073475	60073582	+	TSF	ENST00000371218,ENST00000303721,ENST00000430447,ENST00000371212,ENST00000371210	18,18,18,18,18,38,7,7,7,7,7,38,38,38,38	1798-1812	6520-6534	COAD,LIHC,LUAD,READ
chr1:59980969:+>chr1:60019796:+	chr1	59980753	59980969	+	chr1	60019796	60019899	+	TSF	ENST00000371218,ENST00000303721,ENST00000430447,ENST00000371212	72,72,72,72,26,26,26,26	1813-1820	6535-6542	COAD,KIRC,KIRP,LIHC,READ
chr1:59981111:+>chr1:60019796:+	chr1	59980753	59981111	+	chr1	60019796	60019899	+	TSF	ENST00000371218,ENST00000303721,ENST00000430447,ENST00000371212	1,1,1,1,35,35,35,35	1821-1828	6543-6550	COAD,LIHC,LUSC
chr1:60093457:+>chr1:60103900:+	chr1	60092543	60093457	+	chr1	60103900	60104047	+	TSF	ENST00000371218,ENST00000303721,ENST00000430447,ENST00000371212,ENST00000371210	16,16,16,16,16,41,22,22,22,22,22,41,41,41,41	1829-1843	6551-6565	COAD,KIRC,LIHC,LUAD,READ

Table 19

chr1:60374278:->chr1:60373599:-	chr1	60374334	60374278	-	chr1	60373599	60373458	-	TSF	ENST00000371204	16,18,18	1844-1846	6566-6568	KIRC,KIRP,LIHC
chr1:60384761:->chr1:60381772:-	chr1	60384788	60384761	-	chr1	60381772	60381610	-	TSF	ENST00000371204	3,9,8	1847-1849	6569-6571	KIRC
chr1:60391853:->chr1:60381772:-	chr1	60391887	60391853	-	chr1	60381772	60381610	-	TSF	ENST00000371204	11,1,9	1850-1852	6572-6574	KIRC
chr1:60405910:->chr1:60381772:-	chr1	60406096	60405910	-	chr1	60381772	60381610	-	TSF	ENST00000371204	62,14,5	1853-1855	6575-6577	BLCA,KIRC
chr1:6365322:->chr1:6355040:-	chr1	6366296	6365322	-	chr1	6355040	6354924	-	TSF	ENST00000608083,ENST00000377842,ENST00000377845,ENST00000377855,ENST00000377860,ENST00000418124,ENST00000545482,ENST00000361521,ENST00000473466	26,26,26,26,26,26,26,26,26,13,13,13,13,13,13,13,13,13,79,79,79,79,79,79,79,79,79	1856-1882	6578-6604	BLCA,COAD,HNSC,KIRC,KIRP,LGG,LUSC,PCPG,SARC,SKCM,STAD,TGCT,UCS
chr1:6365480:->chr1:6355040:-	chr1	6366296	6365480	-	chr1	6355040	6354924	-	TSF	ENST00000608083,ENST00000377842,ENST00000377845,ENST00000377855,ENST00000377860,ENST00000418124,ENST00000545482,ENST00000361521,ENST00000473466	13,13,13,13,13,13,29,29,29,29,29,29,29,29,29,26,26,26,26,26,26,26,26,26,13,13,13	1883-1909	6605-6631	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LUSC,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCS
chr1:6365524:->chr1:6355040:-	chr1	6366296	6365524	-	chr1	6355040	6354924	-	TSF	ENST00000608083,ENST00000377842,ENST00000377845,ENST00000377855,ENST00000377860,ENST00000418124,ENST00000545482,ENST00000361521,ENST00000473466	27,27,27,27,27,27,27,27,27,14,14,14,14,14,14,12,12,12,12,12,12,12,12,12,14,14,14	1910-1936	6632-6658	HNSC,TGCT
chr1:6365564:->chr1:6355040:-	chr1	6366296	6365564	-	chr1	6355040	6354924	-	TSF	ENST00000608083,ENST00000377842,ENST00000377845,ENST00000377855,ENST00000377860,ENST00000418124,ENST00000545482,ENST00000361521,ENST00000473466	14,14,14,14,14,14,1,1,1,1,1,1,1,1,1,49,49,49,49,49,49,49,49,49,14,14,14	1937-1963	6659-6685	HNSC,TGCT
chr1:6380649:->chr1:6378638:-	chr1	6380703	6380649	-	chr1	6378638	6378552	-	TAF	ENST00000608083,ENST00000377842,ENST00000377845,ENST00000377855,ENST00000377860,ENST00000418124,ENST00000545482,ENST00000361521,ENST00000473466,ENST00000541130	5,5,5,5,5,5,12,12,12,12,12,12,12,12,12,12,17,17,17,17,17,17,17,17,5,5,5,5,17	1964-1993	6686-6715	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr1:64652652:+>chr1:64671322:+	chr1	64652641	64652652	+	chr1	64671322	64671403	+	TSF	ENST00000371077,ENST00000371076	4,3,3,4	1994-1997	6716-6719	BRCA,CHOL,KIRC,KIRP,LIHC,LUAD,OV
chr1:71327988:->chr1:71318542:-	chr1	71328082	71327988	-	chr1	71318542	71318522	-	TAF	ENST00000370932,ENST00000460330	2,2,6,6	1998-2001	6720-6723	KICH,KIRC,OV,SARC
chr1:78390023:+>chr1:78390873:+	chr1	78389766	78390023	+	chr1	78390873	78390914	+	TSF	ENST00000401035,ENST00000330010,ENST00000334785,ENST00000342754	32,8,8,8,8,10,10,10,10,32,32,32	2002-2013	6724-6735	STAD
chr1:79124650:+>chr1:79124997:+	chr1	79124611	79124650	+	chr1	79124997	79125169	+	TAF	ENST00000370747,ENST00000438486	13,13,13,13	2014-2017	6736-6739	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr1:84740758:+>chr1:84791320:+	chr1	84740629	84740758	+	chr1	84791320	84791431	+	TSF	ENST00000370673,ENST00000370671,ENST00000394834,ENST00000370669,ENST00000370668,ENST00000370670	21,21,21,21,21,21,18,18,18,18,18,18,11,11,11,11,11,11	2018-2035	6740-6757	BLCA,BRCA,CHOL,COAD,LUSC,PAAD,STAD

Table 19

chr1:85845264:->chr1:85824530:-	chr1	85845282	85845264	-	chr1	85824530	85824431	-	TSF	ENST00000284031,ENST00000539042,ENST00000426972,ENST00000542148	5,5,5,5,6,6,6,6,5,5,5,5	2036-2047	6758-6769	KIRC,KIRP,LGG,LIHC
chr1:86821330:->chr1:86820542:-	chr1	86821476	86821330	-	chr1	86820542	86820458	-	TAF	ENST00000359242,ENST00000460698,ENST00000317336,ENST00000370567,ENST00000394731,ENST00000370566,ENST00000462648,ENST00000294678,ENST00000531412	1,1,36,36,36,36,36,36,2,2,2,2,2,2,2,2,1,1,1,1,1,1,36	2048-2074	6770-6796	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr1:8924519:->chr1:8924151:-	chr1	8924664	8924519	-	chr1	8924151	8923950	-	TSF	ENST00000234590	2,1,6	2075-2077	6797-6799	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr1:89663461:->chr1:89662987:-	chr1	89663545	89663461	-	chr1	89662987	89662793	-	TSF	ENST00000355754	3,2,9	2078-2080	6800-6802	BRCA,COAD,HNSC,STAD
chr1:9128439:->chr1:9118309:-	chr1	9128508	9128439	-	chr1	9118309	9118211	-	TAF	ENST00000377424,ENST00000377414,ENST00000484798,ENST00000474145,ENST00000479813,ENST00000486632,ENST00000487835,ENST00000464985,ENST00000473209	4,4,4,4,4,4,4,4,4,17,22,22,22,22,22,22,22,22,22,17,17,17,17,17,17,17,17,17	2081-2107	6803-6829	ACC,DLBC,GBM,HNSC,KIRC,LGG,PRAD,SARC
chr1:93299506:+>chr1:93300336:+	chr1	93299408	93299506	+	chr1	93300336	93300470	+	TAF	ENST00000370321,ENST00000315741	7,14,14,19,19,7	2108-2113	6830-6835	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD,THCA,THYM,UVM
chr1:9850120:->chr1:9833452:-	chr1	9850138	9850120	-	chr1	9833452	9833330	-	TSF	ENST00000377298,ENST00000361311,ENST00000377288	1,5,5,5,1,1	2114-2119	6836-6841	OV,STAD
chr1:99718543:+>chr1:99753521:+	chr1	99718539	99718543	+	chr1	99753521	99753706	+	TSF	ENST00000370185,ENST00000457765	1,1,1,1,1,1	2120-2125	6842-6847	GBM,LGG
chr10:100147622:->chr10:100147064:-	chr10	100147690	100147622	-	chr10	100147064	100146958	-	TAF	ENST00000370575	23,13,22	2126-2128	6848-6850	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,THCA,THYM,UCEC,UCS,UVM
chr10:101180714:->chr10:101180562:-	chr10	101180795	101180714	-	chr10	101180562	101180381	-	TSF	ENST00000370508,ENST00000543866	7,7,26,26	2129-2132	6851-6854	ACC,BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,TGCT,THCA
chr10:101184972:->chr10:101180562:-	chr10	101185022	101184972	-	chr10	101180562	101180381	-	TAF	ENST00000370508,ENST00000543866	17,17,16,16,16,16	2133-2138	6855-6860	BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,PCPG,PRAD,READ,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr10:101420239:+>chr10:101421203:+	chr10	101420120	101420239	+	chr10	101421203	101421385	+	TSF	ENST00000370489	39,8,10	2139-2141	6861-6863	BLCA,BRCA,HNSC,KIRP,LUAD,PRAD,STAD
chr10:101952216:->chr10:101950725:-	chr10	101952336	101952216	-	chr10	101950725	101950626	-	TAF	ENST00000370397	12,2,39	2142-2144	6864-6866	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,TGCT,THCA,UCEC,UCS

Table 19

chr10:102259867:->chr10:102259355:-	chr10	102260069	102259867	-	chr10	102259355	102259281	-	TAF	ENST00000370345	5,23,59	2145-2147	6867-6869	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UVM
chr10:104164216:->chr10:104163742:-	chr10	104164273	104164216	-	chr10	104163742	104163599	-	TAF	ENST00000020673,ENST00000406432	13,13,19,19,18,18	2148-2153	6870-6875	BLCA,COAD,GBM,LGG,PAAD,PCPG,SARC
chr10:104634957:->chr10:104636711:+	chr10	104634953	104634957	+	chr10	104636711	104636792	+	TAF	ENST00000369880	1,1,1	2154-2156	6876-6878	ACC,LIHC,PCPG
chr10:104637429:->chr10:104638136:+	chr10	104637349	104637429	+	chr10	104638136	104638267	+	TAF	ENST00000369880	2,18,26	2157-2159	6879-6881	ACC,KIRC,KIRP,LIHC,PCPG,UCS
chr10:104637429:->chr10:104638606:+	chr10	104637349	104637429	+	chr10	104638606	104638748	+	TAF	ENST00000369880	18,2,26	2160-2162	6882-6884	ACC,LIHC
chr10:104654429:->chr10:104660350:+	chr10	104654213	104654429	+	chr10	104660350	104660457	+	TAF	ENST00000369880	6,62,1	2163-2165	6885-6887	ACC,LIHC,PCPG
chr10:105819196:->chr10:105817948:-	chr10	105819324	105819196	-	chr10	105817948	105817904	-	TSF	ENST00000353479,ENST00000369733	21,21,10,10	2166-2169	6888-6891	HNSC,LUSC,STAD
chr10:1100074:->chr10:1089333:-	chr10	1100230	1100074	-	chr10	1089333	1089241	-	TSF	ENST00000381344,ENST00000427898,ENST00000429642	52,12,12,12,51,51,51,52,52	2170-2178	6892-6900	BRCA,CESC,HNSC,LGG,LIHC,LUAD,PRAD,READ
chr10:1100108:->chr10:1089333:-	chr10	1100230	1100108	-	chr10	1089333	1089241	-	TSF	ENST00000381344,ENST00000427898,ENST00000429642	41,41,41,40,40,40	2179-2184	6901-6906	BRCA,GBM,HNSC,LGG,LUAD,STAD
chr10:111987095:->chr10:111987947:+	chr10	111986999	111987095	+	chr10	111987947	111988079	+	TAF	ENST00000332674,ENST00000453116,ENST00000239007,ENST00000393134	32,32,32,32,32,32,31,31,31,31,32,32	2185-2196	6907-6918	KICH,KIRC,LGG,OV,PRAD,SKCM,STAD,THCA,UVM
chr10:111987135:->chr10:111987947:+	chr10	111986999	111987135	+	chr10	111987947	111988079	+	TAF	ENST00000332674,ENST00000453116,ENST00000239007,ENST00000393134	45,45,45,45,6,6,1,1,1,1,6,6	2197-2208	6919-6930	KIRC,LGG,OV,SKCM,STAD,THCA,UVM
chr10:116126388:->chr10:116100490:-	chr10	116126443	116126388	-	chr10	116100490	116100362	-	TSF	ENST00000304129,ENST00000369271,ENST00000545353,ENST00000419268	11,11,11,11,2,18,18,18,18,2,2,2	2209-2220	6931-6942	BRCA,OV,THCA
chr10:117194993:->chr10:117221451:+	chr10	117194803	117194993	+	chr10	117221451	117221526	+	TSF	ENST00000526373,ENST00000355044,ENST00000423111	57,57,57,21,21,41,41,41,21	2221-2229	6943-6951	BRCA,HNSC,LIHC
chr10:117875720:->chr10:117856275:-	chr10	117875752	117875720	-	chr10	117856275	117856166	-	TSF	ENST00000439649,ENST00000369236,ENST00000355422,ENST00000544592,ENST00000369234	11,11,11,11,11,7,7,7,7,7	2230-2239	6952-6961	BRCA
chr10:118178265:->chr10:118202567:+	chr10	118177984	118178265	+	chr10	118202567	118202686	+	TSF	ENST00000369230	46,7	2240-2241	6962-6963	ACC,KIRC,KIRP,LUSC,SARC
chr10:118308051:->chr10:118310610:+	chr10	118308042	118308051	+	chr10	118310610	118310744	+	TSF	ENST00000369221	3,2,2	2242-2244	6964-6966	PAAD
chr10:118313077:->chr10:118313239:+	chr10	118312917	118313077	+	chr10	118313239	118313350	+	TSF	ENST00000369221	17,9,11	2245-2247	6967-6969	PAAD
chr10:118750845:->chr10:118738819:-	chr10	118751278	118750845	-	chr10	118738819	118738767	-	TSF	ENST00000392903,ENST00000260777,ENST00000355371	3,3,3,63,9,9,9,63,63	2248-2256	6970-6978	BRCA,LGG,LUAD,PRAD,UCEC
chr10:119009901:->chr10:119012910:+	chr10	119009835	119009901	+	chr10	119012910	119012968	+	TSF	ENST00000298472	7,21	2257-2258	6979-6980	PCPG,STAD
chr10:120901765:->chr10:120900831:-	chr10	120902016	120901765	-	chr10	120900831	120900754	-	TAF	ENST00000355697,ENST00000330036	2,2,5,5,3,3	2259-2264	6981-6986	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM

Table 19

chr10:121275814:->chr10:121275164:-	chr10	121275965	121275814	-	chr10	121275164	121275021	-	TAF	ENST00000392865,ENST00000369101,ENST00000369103	18,18,18,1,1,1	2265-2270	6987-6992	BRCA,DLBC,KIRC,LUAD,LUSC,OV,SARC,THYM
chr10:12277329:+>chr10:12279143:+	chr10	12277215	12277329	+	chr10	12279143	12279265	+	TSF	ENST00000281141,ENST00000442050,ENST00000440613	38,9,9,24,24,24,38,9,38	2271-2279	6993-7001	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,UCEC
chr10:124064644:+>chr10:124066704:+	chr10	124064536	124064644	+	chr10	124066704	124066823	+	TSF	ENST00000368994,ENST00000260723	36,36,16,16	2280-2283	7002-7005	BLCA,LIHC
chr10:124066425:+>chr10:124066704:+	chr10	124066312	124066425	+	chr10	124066704	124066823	+	TSF	ENST00000368994,ENST00000260723	38,38,13,13	2284-2287	7006-7009	BLCA,BRCA,LUSC,STAD
chr10:124091773:+>chr10:124091951:+	chr10	124091515	124091773	+	chr10	124091951	124092028	+	TAF	ENST00000368994,ENST00000260723	40,40,47,47,8,8	2288-2293	7010-7015	BLCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,READ,SKCM,STAD
chr10:124091773:+>chr10:124094396:+	chr10	124091515	124091773	+	chr10	124094396	124094494	+	TSF	ENST00000368994,ENST00000260723	40,40,47,47,8,8	2294-2299	7016-7021	COAD,KIRC,KIRP,LGG,LUAD,READ,STAD
chr10:124174189:+>chr10:124175375:+	chr10	124173941	124174189	+	chr10	124175375	124175518	+	TSF	ENST00000368990,ENST00000368988,ENST00000368989,ENST00000538022,ENST00000392799,ENST00000433307	16,16,16,2,2,2,2,2,16,16,16	2300-2311	7022-7033	HNSC,KIRC,STAD
chr10:124238992:+>chr10:124248418:+	chr10	124238815	124238992	+	chr10	124248418	124248517	+	TSF	ENST00000368984	26,2	2312-2313	7034-7035	BRCA,GBM,LGG,STAD
chr10:125605751:->chr10:125602004:-	chr10	125606103	125605751	-	chr10	125602004	125601865	-	TSF	ENST00000241305	17,14,4	2314-2316	7036-7038	BLCA,CESC,COAD,HNSC,KICH,LUAD,LUSC,OV,STAD
chr10:125779865:->chr10:125771996:-	chr10	125779873	125779865	-	chr10	125771996	125771849	-	TSF	ENST00000346248,ENST00000435907	3,3,2,2,2,2	2317-2322	7039-7044	TGCT
chr10:126455793:->chr10:126454177:-	chr10	126455800	126455793	-	chr10	126454177	126453961	-	TAF	ENST00000494792,ENST00000368836	2,2,2,2	2323-2326	7045-7048	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr10:132903251:->chr10:132902617:-	chr10	132904406	132903251	-	chr10	132902617	132902528	-	TSF	ENST00000368642	50,65,8	2327-2329	7049-7051	SKCM,THCA
chr10:13336880:->chr10:13336596:-	chr10	13337060	13336880	-	chr10	13336596	13336428	-	TAF	ENST00000263038,ENST00000396920,ENST00000479604	26,26,26,32,32,32,5,5,5	2330-2338	7052-7060	ACC,KICH,KIRP,LIHC,OV,THCA
chr10:13366334:->chr10:13365047:-	chr10	13366616	13366334	-	chr10	13365047	13364835	-	TSF	ENST00000327347,ENST00000545675,ENST00000537130	61,61,38,38,38,61	2339-2344	7061-7066	BRCA,OV,STAD,TGCT,UCEC
chr10:133791188:->chr10:133787447:-	chr10	133791239	133791188	-	chr10	133787447	133787297	-	TSF	ENST00000368636,ENST00000540159	17,1,1,16,16,17	2345-2350	7067-7072	ACC,BRCA,GBM,HNSC,KIRC,LGG,LIHC,OV,PCPG,STAD,TGCT
chr10:134034429:->chr10:134022605:-	chr10	134034537	134034429	-	chr10	134022605	134022598	-	TSF	ENST00000462160,ENST00000368622,ENST00000298630,ENST00000368625	2,2,2,2,32,28,32,32,32,28,28,28	2351-2362	7073-7084	THCA
chr10:134665102:->chr10:134664809:-	chr10	134665322	134665102	-	chr10	134664809	134664621	-	TSF	ENST00000368586,ENST00000263170	51,51,34,34	2363-2366	7085-7088	PAAD,STAD
chr10:135053345:+>chr10:135053436:+	chr10	135053342	135053345	+	chr10	135053436	135053810	+	TSF	ENST00000325980	1	2367	2367	TGCT
chr10:135190164:->chr10:135184261:-	chr10	135190204	135190164	-	chr10	135184261	135184064	-	TAF	ENST00000368547	13,3,13	2368-2370	7090-7092	CHOL,LIHC,PRAD
chr10:135208233:+>chr10:135209217:+	chr10	135208151	135208233	+	chr10	135209217	135209281	+	TSF	ENST00000468317,ENST00000317502,ENST00000432508	2,2,2,9,9,4,4,4,9	2371-2379	7093-7101	BLCA,OV,STAD

Table 19

chr10:17933123:+>chr10:17936221:+	chr10	17932769	17933123	+	chr10	17936221	17936323	+	TSF	ENST00000331429	28,4	2380-2381	7102-7103	BRCA,LIHC,LUAD,LUSC,PAAD
chr10:18180042:+>chr10:18183139:+	chr10	18179688	18180042	+	chr10	18183139	18183241	+	TSF	ENST00000239761	28,4	2382-2383	7104-7105	BRCA,LIHC,LUAD,LUSC,PAAD
chr10:22168673:->chr10:22095028:-	chr10	22170801	22168673	-	chr10	22095028	22094909	-	TSF	ENST00000376980	13,4	2384-2385	7106-7107	BLCA,BRCA,KIRC,SARC,SKCM,TGCT,THYM
chr10:22994872:->chr10:22898646:-	chr10	22995124	22994872	-	chr10	22898646	22898549	-	TSF	ENST00000376573	29,39	2386-2387	7108-7109	UVM
chr10:23383689:+>chr10:23393073:+	chr10	23383125	23383689	+	chr10	23393073	23393173	+	TSF	ENST00000376510,ENST00000472663	2,5,5,43,43,2	2388-2393	7110-7115	BRCA,LGG,LIHC,SARC
chr10:26792333:+>chr10:26800676:+	chr10	26792284	26792333	+	chr10	26800676	26800835	+	TSF	ENST00000376236	7,16,16	2394-2396	7116-7118	KIRC,KIRP,THYM
chr10:26814408:+>chr10:26822368:+	chr10	26814247	26814408	+	chr10	26822368	26822454	+	TAF	ENST00000376236	28,7,2	2397-2399	7119-7121	BLCA,BRCA,CHOL,DLBC,KIRC,KIRP,LGG,LIHC,LUAD,MESO,SARC,STAD,THYM
chr10:27051669:->chr10:27048164:-	chr10	27051731	27051669	-	chr10	27048164	27047991	-	TSF	ENST00000376170,ENST00000359188,ENST00000376142,ENST00000376139,ENST00000376160,ENST00000376166,ENST00000376138,ENST00000346832,ENST00000355394,ENST00000376134,ENST00000376140	11,11,11,11,11,11,11,11,11,14,14,14,14,14,14,14,14,14,14,14	2400-2421	7122-7143	BLCA,BRCA,CESC,CHOL,HNSC,LGG,LUSC,OV,UCEC
chr10:27470654:+>chr10:27475308:+	chr10	27470588	27470654	+	chr10	27475308	27475465	+	TSF	ENST00000375946,ENST00000375940,ENST00000342386	2,2,2,13,13,13,5,5,5	2422-2430	7144-7152	BLCA,BRCA,CESC,COAD,HNSC,LUSC,MESO,OV,SARC,SKCM,TGCT,THYM,UCEC
chr10:3122494:+>chr10:3124580:+	chr10	3122429	3122494	+	chr10	3124580	3124653	+	TAF	ENST00000381125,ENST00000381075	13,13,5,21,5,21	2431-2436	7153-7158	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr10:3133857:+>chr10:3141467:+	chr10	3133726	3133857	+	chr10	3141467	3141544	+	TSF	ENST00000607886,ENST00000381125,ENST00000381075,ENST00000407806	35,3,3,3,10,35,10,1 0,35,3,10,35	2437-2448	7159-7170	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,SARC,STAD,TGCT,THCA,THYM,UCEC
chr10:31756382:+>chr10:31784708:+	chr10	31755851	31756382	+	chr10	31784708	31784767	+	TSF	ENST00000320985,ENST00000361642,ENST00000424869,ENST00000542815,ENST00000561212,ENST00000446923,ENST00000559476	21,21,21,21,21,21,21,50,50,50,50,50,50,50	2449-2462	7171-7184	GBM,KIRC,LGG
chr10:31757459:+>chr10:31784708:+	chr10	31755851	31757459	+	chr10	31784708	31784767	+	TSF	ENST00000320985,ENST00000361642,ENST00000424869,ENST00000542815,ENST00000561212,ENST00000446923,ENST00000559476	18,18,18,18,18,18,18,2,2,2,2,2,2,2	2463-2476	7185-7198	GBM,KIRC,LGG
chr10:33505616:->chr10:33502645:-	chr10	33505669	33505616	-	chr10	33502645	33502134	-	TSF	ENST00000432372,ENST00000374875,ENST00000265371,ENST00000374867,ENST00000395995,ENST00000374821,ENST00000374822,ENST00000374823,ENST00000374816	18,18,18,18,18,18,18,18,18,17,17,17,17,17,17,17,17,17	2477-2494	7199-7216	BLCA,BRCA,GBM,KIRP,LUAD,LUSC,SARC

Table 19

chr10:34694588:->chr10:34690845:-	chr10	34694893	34694588	-	chr10	34690845	34690754	-	TAF	ENST00000545260,ENST00000545693,ENST00000346874,ENST00000350537,ENST00000374788,ENST00000374789,ENST00000374790,ENST00000374794,ENST00000374776,ENST00000340077,ENST00000374773	5,5,16,16,16,16,16,16,16,16,16,16,2,2,2,2,2,2,2,2,2,2,5,5,5,5,5,5,5,5,5,5	2495-2527	7217-7249	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,READ,SKCM,STAD,TGCT,UCEC
chr10:35744391:+>chr10:35772332:+	chr10	35744377	35744391	+	chr10	35772332	35772406	+	TSF	ENST00000374704	5,4,4	2528-2530	7250-7252	HNSC,KIRC,LUSC,OV,STAD
chr10:37430401:+>chr10:37430646:+	chr10	37430220	37430401	+	chr10	37430646	37431218	+	TSF	ENST00000361713,ENST00000374660,ENST00000602533	7,7,7,19,19,19	2531-2536	7253-7258	BRCA
chr10:37457331:+>chr10:37458458:+	chr10	37457109	37457331	+	chr10	37458458	37458486	+	TAF	ENST00000361713,ENST00000374660	20,7,7,42,42,20	2537-2542	7259-7264	BRCA,PRAD
chr10:37457331:+>chr10:37470250:+	chr10	37457109	37457331	+	chr10	37470250	37470278	+	TAF	ENST00000374660,ENST00000602533	20,20,7,7,42,42	2543-2548	7265-7270	BRCA,PRAD
chr10:37457331:+>chr10:37481992:+	chr10	37457109	37457331	+	chr10	37481992	37482020	+	TSF	ENST00000361713,ENST00000374660,ENST00000602533	20,20,20,7,7,7	2549-2554	7271-7276	BRCA
chr10:37469123:+>chr10:37470250:+	chr10	37468901	37469123	+	chr10	37470250	37470278	+	TAF	ENST00000374660,ENST00000602533	20,20,7,7,42,42	2555-2560	7277-7282	BRCA,PRAD
chr10:37469123:+>chr10:37481992:+	chr10	37468901	37469123	+	chr10	37481992	37482020	+	TSF	ENST00000361713,ENST00000374660,ENST00000602533	20,20,20,7,7,7	2561-2566	7283-7288	BRCA
chr10:37480864:+>chr10:37481992:+	chr10	37480642	37480864	+	chr10	37481992	37482020	+	TSF	ENST00000361713,ENST00000374660,ENST00000602533	7,7,7,20,20,20	2567-2572	7289-7294	BRCA
chr10:47198475:->chr10:47197573:-	chr10	47198502	47198475	-	chr10	47197573	47197538	-	TSF	ENST00000452145,ENST00000413193,ENST00000355232	9,9,8,8,9,8	2573-2578	7295-7300	BLCA,GBM,LUAD,STAD
chr10:48230877:+>chr10:48231779:+	chr10	48230850	48230877	+	chr10	48231779	48231814	+	TSF	ENST00000453919,ENST00000456984	9,9,8,8	2579-2582	7301-7304	BLCA,GBM,LUAD,STAD
chr10:4952123:+>chr10:5014908:+	chr10	4952037	4952123	+	chr10	5014908	5014941,5	+	TSF	ENST00000434459,ENST00000380872,ENST00000442997	29,29,29,28,28,28,28,28,28	2583-2591	7305-7313	BLCA,HNSC,KIRP,LIHC,LUAD,LUSC,THCA
chr10:4986466:+>chr10:5008196:+	chr10	4986182	4986466	+	chr10	5008196	5008273	+	TAF	ENST00000434459,ENST00000380872,ENST00000380859	43,43,39,39,39,12,12,12,43	2592-2600	7314-7322	KICH,KIRC,KIRP,LUAD,LUSC
chr10:4986466:+>chr10:5008202:+	chr10	4986182	4986466	+	chr10	5008202	5008273	+	TAF	ENST00000434459,ENST00000380872,ENST00000442997,ENST00000380859	43,43,39,39,39,39,12,12,12,12,43,43	2601-2612	7323-7334	BLCA,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,SARC
chr10:4986518:+>chr10:5008106:+	chr10	4986182	4986518	+	chr10	5008106	5008273	+	TSF	ENST00000434459,ENST00000380872,ENST00000380859	60,60,60,13,13,29,29,29,13	2613-2621	7335-7343	KICH,KIRC,LUAD,LUSC
chr10:4992053:+>chr10:5008196:+	chr10	4990318	4992053	+	chr10	5008196	5008273	+	TSF	ENST00000434459,ENST00000380872,ENST00000380859	7,7,7,85,85,85	2622-2627	7344-7349	KICH,KIRC,KIRP
chr10:4992053:+>chr10:5008202:+	chr10	4990318	4992053	+	chr10	5008202	5008273	+	TSF	ENST00000434459,ENST00000380872,ENST00000442997,ENST00000380859	7,7,7,7,85,85,85,85,85	2628-2635	7350-7357	KICH,KIRC,LIHC
chr10:4992053:+>chr10:5009119:+	chr10	4990318	4992053	+	chr10	5009119	5009235	+	TAF	ENST00000434459,ENST00000380872,ENST00000442997,ENST00000380859	7,7,7,7,85,85,85,85	2636-2643	7358-7365	HNSC,KICH,KIRC,KIRP,LUSC
chr10:5000656:+>chr10:5008106:+	chr10	5000323	5000656	+	chr10	5008106	5008273	+	TSF	ENST00000434459,ENST00000380872,ENST00000380859	27,27,27,12,12,16,16,16,12	2644-2652	7366-7374	CESC,HNSC,LIHC,LUAD,LUSC
chr10:5050220:->chr10:5043873:-	chr10	5050548	5050220	-	chr10	5043873	5043706	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	16,16,16,16,16,64,64,64,64,12,12,12,12,12	2653-2667	7375-7389	CESC,HNSC,LUAD,LUSC

Table 19

chr10:5057095:->chr10:5043873:-	chr10	5057417	5057095	-	chr10	5043873	5043706	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	12,12,12,12,12,11,11,11,11,7,7,7,7,7	2668-2682	7390-7404	BLCA,BRCA,CESC,CHOL,HNSC,KIRP,LIHC,LUAD,LUSC,THCA,UCEC
chr10:5060040:->chr10:5043873:-	chr10	5060345	5060040	-	chr10	5043873	5043706	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	16,16,29,29,29,29,50,50,50,50,16,16,16	2683-2697	7405-7419	BLCA,CESC,HNSC,LUAD,LUSC
chr10:5060092:->chr10:5034105:-	chr10	5060345	5060092	-	chr10	5034105	5034023	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674	12,12,12,33,33,33	2698-2703	7420-7425	BLCA,CESC,HNSC,LIHC,LUAD,LUSC
chr10:5060092:->chr10:5038057:-	chr10	5060345	5060092	-	chr10	5038057	5037948,5	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507	12,12,12,33,33,33,12,33	2704-2711	7426-7433	HNSC,LIHC,LUAD,LUSC
chr10:5060092:->chr10:5040939:-	chr10	5060345	5060092	-	chr10	5040939	5040817	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507	12,12,12,12,33,33,33,33	2712-2719	7434-7441	BLCA,CESC,HNSC,LIHC,LUAD,LUSC
chr10:5060092:->chr10:5042858:-	chr10	5060345	5060092	-	chr10	5042858	5042742	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	12,12,12,12,12,33,33,33,33,33	2720-2729	7442-7451	BLCA,LIHC,LUAD,LUSC
chr10:5060092:->chr10:5043777:-	chr10	5060345	5060092	-	chr10	5043777	5043706	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	12,12,12,12,12,33,33,33,33,33	2730-2739	7452-7461	BLCA,CESC,HNSC,LIHC,LUAD,LUSC,STAD,UCEC
chr10:5060092:->chr10:5043783:-	chr10	5060345	5060092	-	chr10	5043783	5043706	-	TSF	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	12,12,12,12,12,33,33,33,33,33	2740-2749	7462-7471	CESC,HNSC,LIHC,LUAD,LUSC
chr10:5077808:+>chr10:5138602:+	chr10	5077666	5077808	+	chr10	5138602	5138769	+	TAF	ENST00000602997,ENST00000605149,ENST00000380554	27,27,27,34,34,34,6,6,6	2750-2758	7472-7480	BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRP,LIHC,LUAD,LUSC,OV,SARC,STAD,THCA,UCEC,UCS
chr10:5120493:+>chr10:5138602:+	chr10	5120335	5120493	+	chr10	5138602	5138769	+	TSF	ENST00000602997,ENST00000605149,ENST00000380554	12,30,30,30,1,1,1,12,12	2759-2767	7481-7489	HNSC,LUSC
chr10:5241368:+>chr10:5242144:+	chr10	5241290	5241368	+	chr10	5242144	5242311	+	TSF	ENST00000380448,ENST00000263126	25,25,25,25	2768-2771	7490-7493	LIHC,LUAD
chr10:5241755:+>chr10:5242144:+	chr10	5241290	5241755	+	chr10	5242144	5242311	+	TSF	ENST00000380448,ENST00000263126	94,94,9,9,18,18	2772-2777	7494-7499	LIHC,LUAD,LUSC
chr10:5241827:+>chr10:5242144:+	chr10	5241290	5241827	+	chr10	5242144	5242311	+	TSF	ENST00000380448,ENST00000263126	22,22,42,42	2778-2781	7500-7503	LIHC,LUAD,LUSC
chr10:5454849:+>chr10:5468618:+	chr10	5454793	5454849	+	chr10	5468618	5468684	+	TSF	ENST00000355029	19,7,18	2782-2784	7504-7506	BRCA,CESC,HNSC,LGG,LUAD,LUSC,OV,PCPG,UVM
chr10:5473380:->chr10:5443050:-	chr10	5473735	5473380	-	chr10	5443050	5442807	-	TSF	ENST00000380419	15,18	2785-2786	7507-7508	BLCA,BRCA,MESO,OV,STAD
chr10:5825287:->chr10:5815904:-	chr10	5826921	5825287	-	chr10	5815904	5815805	-	TAF	ENST00000380191,ENST00000447751,ENST00000380132,ENST00000380181,ENST00000456041	51,51,51,51,51,30,30,30,30,30	2787-2796	7509-7518	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr10:60376727:+>chr10:60380615:+	chr10	60376682	60376727	+	chr10	60380615	60380661	+	TAF	ENST00000373886	15,7,11	2797-2799	7519-7521	CHOL,KIRC,KIRP,LIHC,MESO,PAAD,STAD
chr10:64280356:+>chr10:64382863:+	chr10	64280004	64280356	+	chr10	64382863	64383010	+	TSF	ENST00000410046	33,5	2800-2801	7522-7523	KIRC
chr10:70433244:+>chr10:70441156:+	chr10	70433076	70433244	+	chr10	70441156	70441245	+	TSF	ENST00000373644	18,54,11	2802-2804	7524-7526	BRCA,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC,UCS

Table 19

chr10:71236002:+>chr10:71243447:+	chr10	71235761	71236002	+	chr10	71243447	71243632	+	TAF	ENST00000373290	28,1,6	2805-2807	7527-7529	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,PRAD,READ,SARC,STAD
chr10:71851334:+>chr10:71851513:+	chr10	71851150	71851334	+	chr10	71851513	71851710	+	TAF	ENST00000373255	7,16	2808-2809	7530-7531	CHOL,COAD,KIRC,LIHC,READ,STAD,TGCT,UCS
chr10:71990251:->chr10:71990155:-	chr10	71990523	71990251	-	chr10	71990155	71990097	-	TSF	ENST00000373232,ENST00000373230,ENST00000608321	13,13,13,36,36,36,1,1,1	2810-2818	7532-7540	COAD,HNSC,OV,STAD,UCEC
chr10:72537648:->chr10:72537091:-	chr10	72537735	72537648	-	chr10	72537091	72536909	-	TAF	ENST00000299290,ENST00000456372	13,13,3,28,3,28	2819-2824	7541-7546	THYM
chr10:72618877:+>chr10:72619128:+	chr10	72618870	72618877	+	chr10	72619128	72619257	+	TSF	ENST00000373202,ENST00000299297,ENST00000409118	2,2,2,2,2,2,2,2	2825-2833	7547-7555	LUAD,PCPG
chr10:72622628:+>chr10:72628102:+	chr10	72621217	72622628	+	chr10	72628102	72628190	+	TSF	ENST00000373202	11,44	2834-2835	7556-7557	BLCA
chr10:73858277:->chr10:73857208:-	chr10	73858281	73858277	-	chr10	73857208	73857093	-	TSF	ENST00000394919,ENST00000317168,ENST00000486689,ENST00000530394,ENST00000317126,ENST00000545550	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	2836-2853	7558-7575	PRAD
chr10:74501603:+>chr10:74594117:+	chr10	74501505	74501603	+	chr10	74594117	74594187	+	TSF	ENST00000373053,ENST00000357157,ENST00000536019,ENST00000604152	33,33,23,23,23,1,1,1,1,33,33,23	2854-2865	7576-7587	LUAD,STAD
chr10:74624174:+>chr10:74628461:+	chr10	74623670	74624174	+	chr10	74628461	74628622	+	TSF	ENST00000373053,ENST00000536019,ENST00000604152	2,2,2,28,28,28	2866-2871	7588-7593	CESC,COAD,LUSC,PAAD,STAD
chr10:74643529:+>chr10:74644024:+	chr10	74643151	74643529	+	chr10	74644024	74644140	+	TSF	ENST00000373053,ENST00000357157,ENST00000536019	22,22,22,8,8,8,6,6,6	2872-2880	7594-7602	STAD
chr10:74704617:->chr10:74702498:-	chr10	74704869	74704617	-	chr10	74702498	74702410	-	TSF	ENST00000373032	14,35,21	2881-2883	7603-7605	LIHC,LUSC
chr10:7612834:->chr10:7611747:-	chr10	7612883	7612834	-	chr10	7611747	7611631	-	TAF	ENST00000256861,ENST00000298441,ENST00000446830	16,16,16,16,16,16	2884-2889	7606-7611	CHOL,KIRC,LUSC,OV,STAD
chr10:76984287:+>chr10:76989402:+	chr10	76984123	76984287	+	chr10	76989402	76989459	+	TSF	ENST00000298468,ENST00000543351,ENST00000332211,ENST00000535553,ENST00000313132	19,22,22,22,22,22,42,42,42,42,42,19,19,19,19	2890-2904	7612-7626	CESC,HNSC,LIHC,PRAD,TGCT,UCEC,UCS
chr10:7733712:->chr10:7697638:-	chr10	7735189	7733712	-	chr10	7697638	7697594	-	TSF	ENST00000256861,ENST00000397146,ENST00000397145	26,26,26,2,2,2,4,4,4	2905-2913	7627-7635	CHOL,LIHC
chr10:7735278:->chr10:7697638:-	chr10	7735546	7735278	-	chr10	7697638	7697594	-	TSF	ENST00000256861,ENST00000397146,ENST00000397145	47,47,47,7,7,7	2914-2919	7636-7641	CHOL,LIHC,STAD
chr10:79700428:->chr10:79628955:-	chr10	79700435	79700428	-	chr10	79628955	79628887	-	TSF	ENST00000372391,ENST00000372388,ENST00000468332	2,2,2,2,2,2,2,2,2	2920-2928	7642-7650	CESC,HNSC,LUSC,OV,THYM
chr10:8110501:+>chr10:8111436:+	chr10	8110441	8110501	+	chr10	8111436	8111561	+	TSF	ENST00000379328,ENST00000346208	20,20,13,13	2929-2932	7651-7654	BLCA,BRCA
chr10:82214127:+>chr10:82264484:+	chr10	82214092	82214127	+	chr10	82264484	82264534	+	TAF	ENST00000429989,ENST00000372158,ENST00000341863,ENST00000372156	12,12,12,11,11,11,11,11,11,11,12,11	2933-2944	7655-7666	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LUSC,OV,SARC,SKCM,STAD,UCEC,UCS,UVM
chr10:86006726:+>chr10:86007347:+	chr10	86006670	86006726	+	chr10	86007347	86007503	+	TSF	ENST00000359452,ENST00000358110	19,19,18,18,18,18	2945-2950	7667-7672	LGG,UVM
chr10:87362906:->chr10:87362458:-	chr10	87362982	87362906	-	chr10	87362458	87362030	-	TSF	ENST00000327946,ENST00000536331	5,5,20,20,11,11	2951-2956	7673-7678	CHOL,LGG,PCPG,THCA
chr10:89682384:+>chr10:89685270:+	chr10	89682344	89682384	+	chr10	89685270	89685314	+	TSF	ENST00000371953	5,13,1	2957-2959	7679-7681	OV,STAD

Table 19

chr10:90305146:->chr10:90122482:-	chr10	90305421	90305146	-	chr10	90122482	90122309	-	TAF	ENST00000371947,ENST00000437752,ENST00000331772	38,38,38,7,7,7	2960-2965	7682-7687	BLCA,BRCA,KIRC,KIRP,LUSC,SKCM,UVM
chr10:90305214:->chr10:90122482:-	chr10	90305421	90305214	-	chr10	90122482	90122309	-	TAF	ENST00000371947,ENST00000437752,ENST00000331772	12,12,22,22,22,12	2966-2971	7688-7693	BLCA,BRCA,KIRC,KIRP,LUSC,OV,SARC,SKCM,UCEC,UCS,UVM
chr10:90437988:+>chr10:90438202:+	chr10	90437871	90437988	+	chr10	90438202	90438438	+	TSF	ENST00000394375,ENST00000608620,ENST00000238983,ENST00000355843	10,10,10,10,22,22,22,38,38,38	2972-2983	7694-7705	DLBC,PRAD,SARC,STAD
chr10:94735028:+>chr10:94757231:+	chr10	94734302	94735028	+	chr10	94757231	94757372	+	TSF	ENST00000371547,ENST00000371552,ENST00000443748,ENST00000260762,ENST00000495132,ENST00000458552	37,37,37,37,37,37,12,12,12,12,26,26,26,26,12,12	2984-3001	7706-7723	TGCT
chr10:95348:->chr10:94852:-	chr10	96908	95348	-	chr10	94852	94744	-	TSF	ENST00000309812	12,41,102	3002-3004	7724-7726	BLCA,BRCA,TGCT
chr10:95433070:->chr10:95430605:-	chr10	95433302	95433070	-	chr10	95430605	95430527	-	TSF	ENST00000359204	25,21,6	3005-3007	7727-7729	BLCA,CESC,LIHC,SARC,THYM
chr10:97063415:->chr10:97031541:-	chr10	97064311	97063415	-	chr10	97031541	97031390	-	TSF	ENST00000329399	27,53,1	3008-3010	7730-7732	TGCT
chr10:97605893:+>chr10:97607203:+	chr10	97605877	97605893	+	chr10	97607203	97607463	+	TSF	ENST00000453258,ENST00000371207,ENST00000543964,ENST00000371203,ENST00000539125,ENST00000371205	5,5,5,5,5,5,5,5,5,5,5,5	3011-3022	7733-7744	THCA
chr10:98363643:->chr10:98362155:-	chr10	98363669	98363643	-	chr10	98362155	98362037	-	TAF	ENST00000339364,ENST00000371110,ENST00000371109	9,9,9,8,8,8,6,6,6	3023-3031	7745-7753	CHOL,COAD,DLBC,KIRC,KIRP,LIHC,STAD
chr10:98363666:->chr10:98362155:-	chr10	98363669	98363666	-	chr10	98362155	98362037	-	TAF	ENST00000339364,ENST00000371110,ENST00000371109	1,1,1,1,1,1	3032-3037	7754-7759	CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,PAAD,SARC,STAD
chr10:98821532:->chr10:98820544:-	chr10	98821635	98821532	-	chr10	98820544	98820397	-	TSF	ENST00000266058,ENST00000371070,ENST00000314867,ENST00000371041	18,18,18,14,14,18,14,14	3038-3045	7760-7767	LGG,THCA
chr10:99119361:->chr10:99118767:-	chr10	99119563	99119361	-	chr10	99118767	99118700	-	TSF	ENST00000370992,ENST00000536831,ENST00000315563,ENST00000414986	40,40,40,40,25,25,25,25,3,3,3,3	3046-3057	7768-7779	ACC
chr10:99548695:->chr10:99529502:-	chr10	99548701	99548695	-	chr10	99529502	99529425	-	TAF	ENST00000266066	2,1	3058-3059	7780-7781	ACC,CHOL,LIHC,PAAD,PCPG,TGCT
chr10:99601473:+>chr10:99619215:+	chr10	99600727	99601473	+	chr10	99619215	99619340	+	TSF	ENST00000370602	1,27,14	3060-3062	7782-7784	BLCA,CESC,HNSC,LUSC,SKCM,TGCT
chr10:99601513:+>chr10:99619215:+	chr10	99600727	99601513	+	chr10	99619215	99619340	+	TSF	ENST00000370602	14,5,27	3063-3065	7785-7787	CESC,HNSC,LUAD,LUSC,OV,SARC,SKCM,TGCT,UCEC
chr10:99666955:->chr10:99664571:-	chr10	99667221	99666955	-	chr10	99664571	99664426	-	TAF	ENST00000413387,ENST00000370597,ENST00000298819,ENST00000309155,ENST00000370591	24,24,24,24,24,88,88,88,88,88,88,88,88,88,88	3066-3080	7788-7802	BLCA,BRCA,KICH,KIRC,KIRP,LIHC,LUAD,OV,PCPG,SARC,SKCM,UVM
chr11:100156572:+>chr11:100168357:+	chr11	100156479	100156572	+	chr11	100168357	100168427	+	TSF	ENST00000527185,ENST00000528682,ENST00000524871,ENST00000418526,ENST00000279463	31,31,31,31,31,6,6,6,6,6	3081-3090	7803-7812	BLCA,HNSC,LUSC,OV
chr11:102045146:+>chr11:102056749:+	chr11	102045048	102045146	+	chr11	102056749	102056862	+	TSF	ENST00000282441,ENST00000537274,ENST00000531439,ENST00000524575	11,11,11,11,26,26,26,32,32,32	3091-3102	7813-7824	CESC,HNSC,OV,SARC,STAD
chr11:102074853:+>chr11:102076624:+	chr11	102074849	102074853	+	chr11	102076624	102076805	+	TSF	ENST00000526343,ENST00000282441,ENST00000345877,ENST00000537274,ENST00000531439,ENST00000524575,ENST00000529029	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	3103-3123	7825-7845	CESC,HNSC,OV,PAAD,SARC,STAD

Table 19

chr11:10549023:->chr11:10546920:-	chr11	10549538	10549023	-	chr11	10546920	10546739	-	TSF	ENST00000265981,ENST00000528665,ENST00000533412	42,67,67,67,7,7,4,2,42	3124-3132	7846-7854	CESC,HNSC,LGG,LUSC
chr11:107998706:+>chr11:108004547:+	chr11	107998616	107998706	+	chr11	108004547	108004664	+	TAF	ENST00000265838,ENST00000299355,ENST00000531813	3,3,3,8,29,29,29,8,8	3133-3141	7855-7863	KICH,KIRC,KIRP,LIHC
chr11:110301671:+>chr11:110306558:+	chr11	110301592	110301671	+	chr11	110306558	110306682	+	TAF	ENST00000260270	26,1,7	3142-3144	7864-7866	ACC,PCPG
chr11:110301776:+>chr11:110306558:+	chr11	110301592	110301776	+	chr11	110306558	110306682	+	TAF	ENST00000260270	9,4,6	3145-3147	7867-7869	ACC,LIHC,PCPG
chr11:110317561:+>chr11:110327642:+	chr11	110317098	110317561	+	chr11	110327642	110327771	+	TAF	ENST00000260270	115,2,10	3148-3150	7870-7872	ACC
chr11:110329943:+>chr11:110333078:+	chr11	110329921	110329943	+	chr11	110333078	110333192	+	TAF	ENST00000260270	7,7	3151-3152	7873-7874	ACC,BLCA,CESC,DLBC,GBM,KICH,KIRP,LIHC,LUAD,LUSC,PCPG,STAD
chr11:113094766:+>chr11:113102367:+	chr11	113094670	113094766	+	chr11	113102367	113102517	+	TAF	ENST00000533760,ENST00000524665,ENST00000534015,ENST00000401611,ENST00000316851	32,6,6,6,6,6,32,32,32,32	3153-3162	7875-7884	BRCA,GBM,KIRC,LGG,LUSC,OV,PAAD,PCPG,SARC,STAD
chr11:113100589:+>chr11:113102367:+	chr11	113094670	113100589	+	chr11	113102367	113102517	+	TSF	ENST00000533760,ENST00000524665,ENST00000534015,ENST00000401611,ENST00000316851	36,36,36,36,36,33,33,33,33,33	3163-3172	7885-7894	LGG
chr11:11334475:->chr11:11314740:-	chr11	11334682	11334475	-	chr11	11314740	11314576	-	TAF	ENST00000227756	12,1	3173-3174	7895-7896	CHOL,HNSC,KIRC,LIHC,LUAD,LUSC,PCPG,PRAD,SARC,THCA,THYM
chr11:114171954:+>chr11:114182767:+	chr11	114171770	114171954	+	chr11	114182767	114183199	+	TSF	ENST00000535401,ENST00000299964	21,21,5,5	3175-3178	7897-7900	BRCA,COAD,GBM,KIRC,KIRP,MESO,OV,PAAD,SARC,THYM
chr11:114178747:+>chr11:114182767:+	chr11	114177915	114178747	+	chr11	114182767	114183199	+	TAF	ENST00000535401,ENST00000299964	18,18,50,50	3179-3182	7901-7904	BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,STAD,UCEC,UCS
chr11:114311184:+>chr11:114311378:+	chr11	114311118	114311184	+	chr11	114311378	114311461	+	TSF	ENST00000265881,ENST00000544196,ENST00000539754,ENST00000539275,ENST00000541703,ENST00000538198,ENST00000544827	3,3,3,3,3,3,3,22,22,22,22,22,22,22	3183-3196	7905-7918	PRAD
chr11:117694041:->chr11:117693432:-	chr11	117694170	117694041	-	chr11	117693432	117693394	-	TAF	ENST00000532119,ENST00000528014,ENST00000292079,ENST00000260287,ENST00000532984	4,4,4,4,43,43,43,43,43	3197-3206	7919-7928	KICH,KIRC,KIRP,LIHC,PAAD,THYM
chr11:118082875:->chr11:118081427:-	chr11	118083018	118082875	-	chr11	118081427	118081202	-	TSF	ENST00000356289,ENST00000292067,ENST00000533261,ENST00000526595,ENST00000526620,ENST00000524477,ENST00000527877,ENST00000525565	10,10,10,47,47,47,47,47,47,47,47,10,10,10,10,10	3207-3222	7929-7944	LIHC
chr11:118146719:->chr11:118133812:-	chr11	118146787	118146719	-	chr11	118133812	118133646	-	TSF	ENST00000278937,ENST00000438295	2,2,22,22,12,12	3223-3228	7945-7950	BLCA,CESC,HNSC,LUSC,THCA
chr11:118220037:+>chr11:118220458:+	chr11	118220011	118220037	+	chr11	118220458	118220685	+	TAF	ENST00000532917	2,8	3229-3230	7951-7952	BRCA,CHOL,DLBC,LIHC,TGCT,THYM
chr11:118401227:+>chr11:118401369:+	chr11	118401084	118401227	+	chr11	118401369	118401631	+	TAF	ENST00000302783,ENST00000539546	1,1,39,39,6,6	3231-3236	7953-7958	BRCA,KIRC,LIHC,OV,PRAD,STAD
chr11:118892263:+>chr11:118892470:+	chr11	118892255	118892263	+	chr11	118892470	118892596	+	TSF	ENST00000533632,ENST00000528230,ENST00000525303,ENST00000434101,ENST00000533058,ENST00000533012	3,3,3,3,3,3,2,2,2,2,2,2,1,1,1,1,1,1	3237-3254	7959-7976	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LGG,LIHC,PAAD,PCPG,STAD,THCA,THYM

chr11:118917078:->chr11:118916543:-	chr11	118917082	118917078	-	chr11	118916543	118916493	-	TSF	ENST00000404233,ENST00000529972,ENST00000525859	1,1,1,1,1,1,1,1	3255-3263	7977-7985	BLCA,BRCA,DLBC,LIHC,LUSC,OV,PCPG,PRAD,READ,STAD,UCEC,UCS
chr11:121357166:+>chr11:121358741:+	chr11	121357068	121357166	+	chr11	121358741	121358902	+	TSF	ENST00000260197	11,13,6	3264-3266	7986-7988	BRCA,KIRC,LGG,LUSC,OV
chr11:122700370:+>chr11:122720776:+	chr11	122699762	122700370	+	chr11	122720776	122720922	+	TSF	ENST00000227348	1,18,6	3267-3269	7989-7991	LIHC,LUAD,MESO,OV,SARC
chr11:124618862:->chr11:124618659:-	chr11	124618894	124618862	-	chr11	124618659	124618540	-	TAF	ENST00000326621,ENST00000403470	11,11,4,4,10,10	3270-3275	7992-7997	BLCA,COAD,KIRP,LUAD,LUSC,PAAD,PRAD,STAD,THCA
chr11:124799875:->chr11:124794965:-	chr11	124800143	124799875	-	chr11	124794965	124794624	-	TSF	ENST00000298251	4,15	3276-3277	7998-7999	GBM,LGG
chr11:125351294:->chr11:125333466:-	chr11	125351332	125351294	-	chr11	125333466	125333380	-	TAF	ENST00000278919,ENST00000577924	7,12,12,12,12,7	3278-3283	8000-8005	GBM,LGG
chr11:126245491:+>chr11:126275991:+	chr11	126245394	126245491	+	chr11	126275991	126276045	+	TSF	ENST00000534733	12,32,7	3284-3286	8006-8008	KIRC,SKCM,UVM
chr11:126266739:+>chr11:126275991:+	chr11	126266642	126266739	+	chr11	126275991	126276045	+	TSF	ENST00000534733	12,7,32	3287-3289	8009-8011	KIRC,SKCM,UVM
chr11:126273381:+>chr11:126275991:+	chr11	126273341	126273381	+	chr11	126275991	126276045	+	TAF	ENST00000534733	13,4,13	3290-3292	8012-8014	ACC,BLCA,BRCA,CESC,COAD,KICH,KIRC,KIRP,LIHC,LUAD,PAAD,SKCM,UVM
chr11:14589773:->chr11:14540587:-	chr11	14589824	14589773	-	chr11	14540587	14540543	-	TSF	ENST00000419365,ENST00000555531,ENST00000396394,ENST00000396393,ENST00000418988	1,1,1,1,1,17,17,16,16,16,16,16,17,17,17	3293-3307	8015-8029	OV,STAD,UCEC
chr11:14589820:->chr11:14540587:-	chr11	14589824	14589820	-	chr11	14540587	14540543	-	TSF	ENST00000419365,ENST00000555531,ENST00000396394,ENST00000396393,ENST00000418988	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	3308-3322	8030-8044	OV,STAD
chr11:15112973:->chr6:32497961:-	chr11	15114123	15112973	-	chr6	32497961	32497902	-	TSF	ENST00000374975	27,15	3323-3324	8045-8046	GBM,OV,STAD
chr11:1620075:->chr11:1619101:-	chr11	1620310	1620075	-	chr11	1619101	1618947	-	TAF	ENST00000412090	48,8,2	3325-3327	8047-8049	BLCA,DLBC,LIHC,LUSC,OV,SKCM,STAD,UVM
chr11:17888338:->chr11:17809960:-	chr11	17888603	17888338	-	chr11	17809960	17809632	-	TAF	ENST00000265965,ENST00000529151	7,7,48,21,48,21	3328-3333	8050-8055	KICH,KIRC,OV,SARC,SKCM,THYM,UCS
chr11:17895767:->chr11:17809960:-	chr11	17895953	17895767	-	chr11	17809960	17809632	-	TAF	ENST00000265965,ENST00000529151	12,21,21,12	3334-3337	8056-8059	ACC,BLCA,BRCA,CESC,DLBC,HNSC,KICH,KIRC,KIRP,LGG,LIHC,MESO,PAAD,PCPG,PRAD,THCA,THYM,UCEC,UCS
chr11:1891243:+>chr11:1901317:+	chr11	1891186	1891243	+	chr11	1901317	1901454	+	TSF	ENST00000311604,ENST00000381775,ENST00000457279,ENST00000429923,ENST00000418975	3,3,3,3,3,1,1,1,1,1,18,18,18,18,18	3338-3352	8060-8074	ACC,BLCA,SARC
chr11:19190515:+>chr11:19191958:+	chr11	19190423	19190515	+	chr11	19191958	19192115	+	TAF	ENST00000446113,ENST00000399351	7,7,3,3	3353-3356	8075-8078	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRP,LUAD,LUSC,PAAD,PRAD,READ,TGCT,THCA,UCEC,UCS
chr11:321387:->chr11:320772:-	chr11	321410	321387	-	chr11	320772	320565	-	TAF	ENST00000399808	8,7	3357-3358	8079-8080	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM

Table 19

chr11:321426:->chr11:320772:-	chr11	321450	321426	-	chr11	320772	320565	-	TAF	ENST00000399808	8,8	3359-3360	8081-8082	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:321465:->chr11:320772:-	chr11	321488	321465	-	chr11	320772	320565	-	TAF	ENST00000399808	8,7	3361-3362	8083-8084	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:321504:->chr11:320772:-	chr11	321638	321504	-	chr11	320772	320565	-	TAF	ENST00000399808	9,44	3363-3364	8085-8086	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:321543:->chr11:320772:-	chr11	321638	321543	-	chr11	320772	320565	-	TAF	ENST00000399808	9,31	3365-3366	8087-8088	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:321582:->chr11:320772:-	chr11	321638	321582	-	chr11	320772	320565	-	TAF	ENST00000399808	9,18	3367-3368	8089-8090	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:321660:->chr11:320772:-	chr11	321716	321660	-	chr11	320772	320565	-	TAF	ENST00000399808	9,18	3369-3370	8091-8092	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:321855:->chr11:320772:-	chr11	321911	321855	-	chr11	320772	320565	-	TAF	ENST00000399808	9,18	3371-3372	8093-8094	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:322011:->chr11:320772:-	chr11	322067	322011	-	chr11	320772	320565	-	TAF	ENST00000399808	9,18	3373-3374	8095-8096	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM

Table 19

chr11:322206:->chr11:320772:-	chr11	322262	322206	-	chr11	320772	320565	-	TAF	ENST00000399808	9,18	3375-3376	8097-8098	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:322401:->chr11:320772:-	chr11	322457	322401	-	chr11	320772	320565	-	TAF	ENST00000399808	9,18	3377-3378	8099-8100	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:322557:->chr11:320772:-	chr11	322580	322557	-	chr11	320772	320565	-	TAF	ENST00000399808	8,7	3379-3380	8101-8102	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr11:323324:->chr11:320772:-	chr11	323767	323324	-	chr11	320772	320565	-	TSF	ENST00000399808	13,24,17	3381-3383	8103-8105	BLCA,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,UCEC,UVM
chr11:324180:->chr11:320772:-	chr11	324821	324180	-	chr11	320772	320565	-	TSF	ENST00000399808	3,35,40	3384-3386	8106-8108	HNSC,KIRC,OV,STAD
chr11:32453188:->chr11:32450165:-	chr11	32453241	32453188	-	chr11	32450165	32450043	-	TSF	ENST00000379079,ENST00000379077,ENST00000332351,ENST00000530998,ENST00000452863,ENST00000448076	11,11,11,11,11,11,17,17,17,17,17,17,6,6,6,6,6,6	3387-3404	8109-8126	OV
chr11:32453220:->chr11:32450165:-	chr11	32453241	32453220	-	chr11	32450165	32450043	-	TSF	ENST00000379079,ENST00000379077,ENST00000332351,ENST00000530998,ENST00000452863,ENST00000448076	7,7,7,7,7,7,6,6,6,6,6,6	3405-3416	8127-8138	OV
chr11:32617922:+>chr11:32622235:+	chr11	32617857	32617922	+	chr11	32622235	32622378	+	TSF	ENST00000531120,ENST00000524896,ENST00000526267	22,22,22,12,12,12,15,15,15	3417-3425	8139-8147	OV
chr11:36219321:+>chr11:36248635:+	chr11	36219316	36219321	+	chr11	36248635	36248980	+	TSF	ENST00000524419,ENST00000528989,ENST00000315571	2,2,2,1,1,1,1,1,1	3426-3434	8148-8156	BRCA,LGG,PRAD,SARC,SKCM,TGCT
chr11:423942:->chr11:421198:-	chr11	424193	423942	-	chr11	421198	421141	-	TAF	ENST00000332826	13,34,1	3435-3437	8157-8159	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr11:44626051:+>chr11:44626608:+	chr11	44625878	44626051	+	chr11	44626608	44626732	+	TAF	ENST00000526958,ENST00000227155,ENST00000342935,ENST00000532544,ENST00000527737,ENST00000524704,ENST00000525813,ENST00000530601	2,2,2,2,2,2,57,57,57,57,57,57,57,57,20,20,2,20,20,20,2,20,20,20	3438-3461	8160-8183	BLCA,BRCA,CHOL,DLBC,LUAD,LUSC,PAAD,SARC,STAD,THCA,THYM
chr11:46321229:+>chr11:46321486:+	chr11	46321227	46321229	+	chr11	46321486	46321714	+	TSF	ENST00000529193,ENST00000288400	1,1	3462-3463	8184-8185	BLCA,BRCA,KIRC,PRAD,READ,SARC,STAD

Table 19

chr11:46390524:+> chr11:46391044:+	chr11	46390474	46390524	+	chr11	46391044	46391100	+	TSF	ENST00000343674,ENST00000532868,ENST00000395574,ENST00000527911,ENST00000533376,ENST00000456247,ENST00000421244,ENST00000318201,ENST00000454345,ENST00000524448	7,7,7,7,7,7,7,7,7,7,17,17,17,17,17,17,16,16,16,16,16,16,16,16,16,16,17,17,16,16,17,17	3464-3493	8186-8215	GBM,OV,STAD
chr11:46403329:+> chr11:46403844:+	chr11	46403313	46403329	+	chr11	46403844	46404011	+	TSF	ENST00000405308,ENST00000441869,ENST00000359803,ENST00000533952,ENST00000395566,ENST00000489525,ENST00000407067,ENST00000395565	5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5	3494-3509	8216-8231	OV,STAD,UCS
chr11:46670417:+> chr11:46670687:+	chr11	46670360	46670417	+	chr11	46670687	46670733	+	TAF	ENST00000312040,ENST00000434074,ENST00000451945,ENST00000529655,ENST00000533325,ENST00000530500,ENST00000526508,ENST00000524625,ENST00000359513,ENST00000528494,ENST00000395549	2,2,2,2,2,2,2,2,2,2,2,5,5,5,5,5,18,18,18,18,18,18,18,18,18,18,18,18,5,5,5,5,5,5	3510-3542	8232-8264	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr11:46744531:+> chr11:46744730:+	chr11	46744446	46744531	+	chr11	46744730	46744835	+	TSF	ENST00000311907,ENST00000530231,ENST00000442468	16,16,16,11,8,8,8,1,1,11	3543-3551	8265-8273	LIHC
chr11:47013198:+> chr11:47073939:+	chr11	47013185	47013198	+	chr11	47073939	47074069	+	TSF	ENST00000528488,ENST00000278460,ENST00000378618,ENST00000395460,ENST00000378615,ENST00000525895	3,4,4,4,4,4,4,4,3,4,4,4,4,4,3,3,3	3552-3569	8274-8291	BRCA,GBM,KIRP,LGG,LUAD,OV,SARC,STAD,THCA,UCEC
chr11:47435767:+> chr11:47435976:+	chr11	47435494	47435767	+	chr11	47435976	47436026	+	TSF	ENST00000533076,ENST00000531865,ENST00000362021,ENST00000354884	1,1,1,1,45,26,26,26,26,45,45,45	3570-3581	8292-8303	LGG
chr11:49184098:->chr11:49179595:-	chr11	49185698	49184098	-	chr11	49179595	49179504	-	TSF	ENST00000256999,ENST00000356696,ENST00000343844,ENST00000340334,ENST00000533034	5,5,5,5,5,112,112,112,112,112,112	3582-3591	8304-8313	PRAD
chr11:49184443:->chr11:49179595:-	chr11	49185698	49184443	-	chr11	49179595	49179504	-	TSF	ENST00000256999,ENST00000356696,ENST00000343844,ENST00000340334,ENST00000533034	17,17,17,17,17,79,79,79,79,79,3,3,3,3,3	3592-3606	8314-8328	PRAD
chr11:49228638:->chr11:49227724:-	chr11	49228772	49228638	-	chr11	49227724	49227619	-	TAF	ENST00000256999,ENST00000356696,ENST00000525826,ENST00000340334,ENST00000533034	13,13,13,13,13,8,8,8,8,8,4,4,4,44,44,44	3607-3621	8329-8343	ACC,BRCA,PAAD,PRAD,STAD,UCEC
chr11:49229182:->chr11:49227724:-	chr11	49229295	49229182	-	chr11	49227724	49227619	-	TSF	ENST00000256999,ENST00000356696,ENST00000525826,ENST00000340334,ENST00000533034	37,37,37,37,37,14,14,14,14,14,6,6,6,6,6	3622-3636	8344-8358	PRAD
chr11:57280599:->chr11:57268802:-	chr11	57280665	57280599	-	chr11	57268802	57268626	-	TSF	ENST00000278426,ENST00000528450,ENST00000534298,ENST00000530159,ENST00000533066,ENST00000533263	16,16,22,22,22,22,1,1,1,1,1,16,22,16,16,16,22	3637-3654	8359-8376	TGCT
chr11:57328294:->chr11:57327905:-	chr11	57328392	57328294	-	chr11	57327905	57327810	-	TSF	ENST00000287156,ENST00000526659	28,23,23,1,1,28	3655-3660	8377-8382	OV

Table 19

chr11:57495928:+>chr11:57505080:+	chr11	57495862	57495928	+	chr11	57505080	57505140	+	TSF	ENST00000524972,ENST00000378312,ENST00000528395,ENST00000530114,ENST00000278422,ENST00000525035,ENST00000533602,ENST00000528110,ENST00000529403	21,21,22,22,21,21,21,21,21,21,21,21,22,21,22,22,21,21,22,22,21,22	3661-3687	8383-8409	OV,TGCT
chr11:58330321:->chr11:58322413:-	chr11	58330466	58330321	-	chr11	58322413	58322314	-	TAF	ENST00000530561,ENST00000395074,ENST00000528954,ENST00000528489	39,48,48,48,48,39,39,39	3688-3695	8410-8417	BLCA,BRCA,DLBC,LIHC,LUAD,LUSC,MESO,PRAD,SARC,SKCM,STAD,THYM
chr11:58943356:+>chr11:58949212:+	chr11	58943264	58943356	+	chr11	58949212	58949935	+	TSF	ENST00000227451	1,30,30	3696-3698	8418-8420	LUAD,OV,THCA
chr11:59608450:->chr11:59604824:-	chr11	59608573	59608450	-	chr11	59604824	59604647	-	TSF	ENST00000257248,ENST00000541311	2,2,19,19,20,20	3699-3704	8421-8426	COAD,DLBC,SARC,STAD
chr11:59620878:->chr11:59620794:-	chr11	59621007	59620878	-	chr11	59620794	59620676	-	TSF	ENST00000257264	2,15,6	3705-3707	8427-8429	BLCA,BRCA,CESC,COAD,PAAD,STAD
chr11:60615096:+>chr11:60615397:+	chr11	60615047	60615096	+	chr11	60615397	60615526	+	TAF	ENST00000227520	16,3,9	3708-3710	8430-8432	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUSC,MESO,PRAD,READ,SARC,SKCM,STAD,UCEC
chr11:60661987:->chr11:60658735:-	chr11	60663653	60661987	-	chr11	60658735	60658638	-	TSF	ENST00000227524,ENST00000535326	16,16,39,39	3711-3714	8433-8436	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,READ,SARC,THCA,THYM,UCEC,UCS
chr11:60694539:+>chr11:60694676:+	chr11	60694460	60694539	+	chr11	60694676	60694890	+	TSF	ENST00000453848,ENST00000005286	8,8,1,12,12,1	3715-3720	8437-8442	BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,UCEC,UCS
chr11:60694542:+>chr11:60694676:+	chr11	60694460	60694542	+	chr11	60694676	60694890	+	TSF	ENST00000453848,ENST00000005286	9,9,2,13,13,2	3721-3726	8443-8448	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,SARC,SKCM,TGCT,UCEC,UCS
chr11:60719973:->chr11:60718838:-	chr11	60720029	60719973	-	chr11	60718838	60718466	-	TSF	ENST00000541505,ENST00000227880	19,19,1,4,4,1	3727-3732	8449-8454	OV,SARC,STAD
chr11:60933962:->chr11:60901679:-	chr11	60934781	60933962	-	chr11	60901679	60901508	-	TSF	ENST00000301765,ENST00000538036	14,14,1,37,37,1	3733-3738	8455-8460	BLCA,CESC,HNSC,LUAD,LUSC,OV,STAD,UCS
chr11:60978370:+>chr11:60978562:+	chr11	60978221	60978370	+	chr11	60978562	60978706	+	TSF	ENST00000325558,ENST00000543505,ENST00000543125	14,14,14,39,39,24,24,24,39	3739-3747	8461-8469	KIRC,OV
chr11:60997199:+>chr11:60997391:+	chr11	60997050	60997199	+	chr11	60997391	60997535	+	TSF	ENST00000378149,ENST00000537932	14,14,39,39,24,24	3748-3753	8470-8475	KIRC,OV
chr11:61079683:->chr11:61079556:-	chr11	61079810	61079683	-	chr11	61079556	61079461	-	TSF	ENST00000301764,ENST00000540166,ENST00000535147	17,28,28,28,16,16,16,17,17	3754-3762	8476-8484	TGCT
chr11:61087135:->chr11:61084039:-	chr11	61087201	61087135	-	chr11	61084039	61083964	-	TSF	ENST00000301764,ENST00000540166,ENST00000535967,ENST00000539739,ENST00000535174	22,13,13,13,13,13,21,21,21,21,21,22,22,22,22	3763-3777	8485-8499	BLCA,BRCA,HNSC,LGG,LUAD,LUSC,OV,PCPG,PRAD,SKCM,STAD,THCA,THYM,UVM
chr11:61129205:->chr11:61121464:-	chr11	61129218	61129205	-	chr11	61121464	61121257	-	TAF	ENST00000294072,ENST00000426130,ENST00000447532,ENST00000536915,ENST00000542361,ENST00000537364,ENST00000539128	4,4,4,4,4,4,4,4,4,4,4,4,4,4	3778-3791	8500-8513	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD

Table 10

chr11:61196370:->chr11:61189080:-	chr11	61196480	61196370	-	chr11	61189080	61188862	-	TSF	ENST00000340437,ENST00000394888,ENST00000439958,ENST00000448745,ENST00000477890,ENST00000539952,ENST00000535222,ENST00000544990,ENST00000544585,ENST00000413232,ENST00000537162,ENST00000543545,ENST00000541963,ENST00000536548,ENST00000450000,ENST00000449811,ENST00000413184,ENST00000536145	12,12,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,23,23,23,23,23,23,23,23,23,23,23,23,23,23,23,23,23,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12	3792-3845	8514-8567	BRCA,GBM,KIRC,LGG,LUSC,OV,STAD,THCA
chr11:61544423:+>chr11:61544736:+	chr11	61544394	61544423	+	chr11	61544736	61544936	+	TSF	ENST00000278836,ENST00000265460,ENST00000327797	10,9,9,9,9,9,9,10,10	3846-3854	8568-8576	CESC,CHOL,KIRP,MESO,OV,PAAD,STAD
chr11:61558538:->chr11:61558074:-	chr11	61558725	61558538	-	chr11	61558074	61557966	-	TSF	ENST00000537328,ENST00000541893,ENST00000545210,ENST00000257262,ENST00000535297	7,7,7,7,7,54,54,54,54,54	3855-3864	8577-8586	OV,PRAD,STAD
chr11:62649740:+>chr11:62650380:+	chr11	62649715	62649740	+	chr11	62650380	62650471	+	TSF	ENST00000377892,ENST00000377890,ENST00000377891,ENST00000377889,ENST00000535296,ENST00000338663	8,8,8,8,8,8,1,1,1,1,1,1,8,8,8,8,8,8	3865-3882	8587-8604	GBM,KIRP,LGG
chr11:62651559:+>chr11:62651929:+	chr11	62651471	62651559	+	chr11	62651929	62651997	+	TSF	ENST00000377892,ENST00000377890,ENST00000377891,ENST00000377889,ENST00000535296,ENST00000338663	29,29,29,29,29,29,9,9,9,9,9,9,21,21,21,21,21,21	3883-3900	8605-8622	BLCA,BRCA,CESC,GBM,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,TGCT
chr11:63953882:+>chr11:63960550:+	chr11	63953789	63953882	+	chr11	63960550	63960759	+	TAF	ENST00000358794,ENST00000305218,ENST00000536973,ENST00000538945,ENST00000543847	31,31,31,31,31,24,24,30,30,30,30,30,24,24,24	3901-3915	8623-8637	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr11:64507840:->chr11:64507635:-	chr11	64508144	64507840	-	chr11	64507635	64507485	-	TAF	ENST00000377494,ENST00000394432,ENST00000377497,ENST00000354024,ENST00000431822	101,26,26,26,26,26,6,6,6,6,6,101,101,101,101	3916-3930	8638-8652	BLCA,BRCA,CHOL,COAD,DLBC,GBM,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,STAD,TGCT,THCA,THYM,UCS
chr11:64599483:->chr11:64599193:-	chr11	64599672	64599483	-	chr11	64599193	64598977	-	TSF	ENST00000342711	63,3,61	3931-3933	8653-8655	BLCA,BRCA,CESC,CHOL,HNSC,LUAD,LUSC,OV,STAD,THYM
chr11:64852846:+>chr11:64853887:+	chr11	64852798	64852846	+	chr11	64853887	64854027,64853914,64854080	+	TSF	ENST00000531761,ENST00000453524,ENST00000294258,ENST00000526334,ENST00000526945,ENST00000532200	16,16,5,5,5,5,5,5,16,16,16,16,16,16,16,16,16,16	3934-3951	8656-8673	LUAD,OV,SARC
chr11:65038313:+>chr11:65043363:+	chr11	65037941	65038313	+	chr11	65043363	65043469	+	TSF	ENST00000265465,ENST00000532391	27,27,26,14,14,26	3952-3957	8674-8679	OV,STAD
chr11:65378283:->chr11:65375919:-	chr11	65378293	65378283	-	chr11	65375919	65375739	-	TSF	ENST00000309100	2,3,3	3958-3960	8680-8682	SKCM,UVM
chr11:65629337:->chr11:65623713:-	chr11	65629362	65629337	-	chr11	65623713	65623407	-	TSF	ENST00000525451,ENST00000308162,ENST00000534769,ENST00000532134,ENST00000526975	8,8,8,8,8,8,8,8,8,8,8,8,8,8,8	3961-3975	8683-8697	BLCA,BRCA,COAD,GBM,HNSC,KIRC,LUAD,LUSC,MESO,OV,PRAD,READ,STAD

Table 19

chr11:66049045:+>chr11:66049730:+	chr11	66048968	66049045	+	chr11	66049730	66049799	+	TSF	ENST00000528852,ENST00000311445,ENST00000528063	24,19,19,19,24,24	3976-3981	8698-8703	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUAD,LUSC,OV,PAAD,PCPG,SARC,STAD,TGCT,UCEC,UCS
chr11:66219444:->chr11:66205730:-	chr11	66219706	66219444	-	chr11	66205730	66205635	-	TSF	ENST00000310999,ENST00000430466,ENST00000534488,ENST00000329819	11,11,11,11,2,2,2,2	3982-3989	8704-8711	GBM,OV,STAD
chr11:66355279:+>chr11:66361113:+	chr11	66354487	66355279	+	chr11	66361113	66361185	+	TSF	ENST00000533244,ENST00000530961	14,14,1,27,27,1	3990-3995	8712-8717	BLCA,BRCA,CESC,HNSC,LUSC
chr11:66355279:+>chr11:66366587:+	chr11	66354487	66355279	+	chr11	66366587	66366724	+	TSF	ENST00000533244,ENST00000530961,ENST00000310190	14,14,1,1,1,27,27,27,14	3996-4004	8718-8726	BLCA,CESC,HNSC,LUSC,TGCT
chr11:66954052:+>chr11:66974981:+	chr11	66953459	66954052	+	chr11	66974981	66975159	+	TSF	ENST00000398645,ENST00000529006	6,6,9,9	4005-4008	8727-8730	BLCA,BRCA,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,SARC,STAD
chr11:67035570:+>chr11:67044743:+	chr11	67035528	67035570	+	chr11	67044743	67044819	+	TSF	ENST00000308595,ENST00000526285	14,14,2,2,13,13	4009-4014	8731-8736	COAD,PAAD,STAD
chr11:67073338:+>chr11:67074309:+	chr11	67073292	67073338	+	chr11	67074309	67074433	+	TSF	ENST00000308127,ENST00000308298,ENST00000376757	15,15,15,2,2,2,15,15,15	4015-4023	8737-8745	BLCA,BRCA,STAD
chr11:67803255:+>chr11:67803929:+	chr11	67803205	67803255	+	chr11	67803929	67804061	+	TSF	ENST00000313468,ENST00000528492,ENST00000526339	17,17,7,7,16,16,16,17,7	4024-4032	8746-8754	BLCA,BRCA,CESC,HNSC,LUSC,OV,PRAD,SKCM,STAD,UCEC,UCS
chr11:70007088:+>chr11:70007267:+	chr11	70006969	70007088	+	chr11	70007267	70007468	+	TSF	ENST00000355303,ENST00000398543,ENST00000538023,ENST00000316296,ENST00000530676,ENST00000531349,ENST00000531300	7,7,7,7,7,18,18,18,18,18,18,7,7,18	4033-4046	8755-8768	BLCA,CESC,HNSC,LUAD,LUSC,OV,PAAD,STAD
chr11:71508126:+>chr11:71510607:+	chr11	71508077	71508126	+	chr11	71510607	71510693	+	TSF	ENST00000346333,ENST00000359244,ENST00000426628	16,16,16,3,3,3	4047-4052	8769-8774	BRCA,HNSC,STAD,TGCT
chr11:71953910:->chr11:71952333:-	chr11	71954010	71953910	-	chr11	71952333	71952146	-	TSF	ENST00000298231	2,24,11	4053-4055	8775-8777	OV,PCPG
chr11:72412165:->chr11:72410597:-	chr11	72412362	72412165	-	chr11	72410597	72410462	-	TAF	ENST00000359373,ENST00000455638,ENST00000393605,ENST00000334211,ENST00000393609,ENST00000426523,ENST00000429686,ENST00000427971,ENST00000452383	5,5,5,5,5,5,5,5,5,65,65,65,65,65,65,65,65,65,36,36,36,36,36,36,36,36	4056-4082	8778-8804	ACC,BLCA,BRCA,CESC,CHOL,DLBC,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,OV,SARC,STAD,UCS
chr11:725414:+>chr11:725728:+	chr11	725232	725414	+	chr11	725728	725847	+	TAF	ENST00000318562,ENST00000533256,ENST00000530636,ENST00000526198	39,39,39,39,18,18,18,18	4083-4090	8805-8812	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SKCM,STAD,THCA,THYM,UCEC,UCS
chr11:73359321:+>chr11:73360057:+	chr11	73359298	73359321	+	chr11	73360057	73360132	+	TAF	ENST00000354190,ENST00000398492	5,7,7,7,7,5	4091-4096	8813-8818	GBM,LGG
chr11:73367447:+>chr11:73371798:+	chr11	73367079	73367447	+	chr11	73371798	73371897,73371801,73371811,73371815,73371918,73371840	+	TAF	ENST00000354190,ENST00000398492,ENST00000227214,ENST00000398494,ENST00000543085,ENST00000539157,ENST00000546251,ENST00000535582,ENST00000538227,ENST00000543524,ENST00000541597,ENST00000535129,ENST00000542389,ENST00000540431	11,11,11,11,11,11,11,11,11,11,27,27,27,27,27,27,11,27,11,27,11,27,27,11,27,27	4097-4124	8819-8846	BRCA,GBM,KICH,LGG,LUAD,MESO,OV,PAAD,PRAD,SKCM,STAD,THCA,UCEC
chr11:74426167:->chr11:74424524:-	chr11	74426175	74426167	-	chr11	74424524	74424431	-	TSF	ENST00000263671,ENST00000376332,ENST00000534276,ENST00000528789	3,2,2,2,2,2,2,2,2,3,3,3	4125-4136	8847-8858	BLCA,BRCA,LUAD,PAAD,SARC,STAD

Table 19

chr11:74751690:+>chr11:74873700:+	chr11	74751425	74751690	+	chr11	74873700	74873830	+	TSF	ENST00000289575	21,9,2	4137-4139	8859-8861	KIRC,SKCM
chr11:752481:+>chr11:755879:+	chr11	752380	752481	+	chr11	755879	756002	+	TAF	ENST00000319006,ENST00000528097,ENST00000530440	28,28,28,23,23,1,1,23,1	4140-4148	8862-8870	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr11:76631299:+>chr11:76637601:+	chr11	76630955	76631299	+	chr11	76637601	76637712	+	TAF	ENST00000532485,ENST00000525194,ENST00000525861,ENST00000531461,ENST00000531352,ENST00000278544	20,20,20,20,20,20,28,28,28,28,28,28	4149-4160	8871-8882	CESC,COAD,PAAD,PRAD,READ,STAD
chr11:76935283:->chr11:76928359:-	chr11	76935376	76935283	-	chr11	76928359	76928323	-	TSF	ENST00000315938,ENST00000376217	12,6,12,6	4161-4164	8883-8886	BRCA,HNSC,LUSC,PAAD,SKCM,STAD,TGCT,UCEC
chr11:77673716:->chr11:77672184:-	chr11	77673812	77673716	-	chr11	77672184	77672151	-	TSF	ENST00000433818,ENST00000534064,ENST00000529807	5,14,14,14,5,5	4165-4170	8887-8892	KICH,KIRC,KIRP,OV
chr11:77909743:+>chr11:77910641:+	chr11	77909738	77909743	+	chr11	77910641	77910770	+	TSF	ENST00000528910,ENST00000529308	1,1,1,1,1,1	4171-4176	8893-8898	ACC,BLCA,BRCA,CHOL,HNSC,LIHC,OV,SARC,SKCM
chr11:77909764:+>chr11:77910641:+	chr11	77909738	77909764	+	chr11	77910641	77910770	+	TAF	ENST00000528910,ENST00000529308	8,8,5,8,8,5	4177-4182	8899-8904	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,THCA,UCEC
chr11:77945089:->chr11:77938097:-	chr11	77945120	77945089	-	chr11	77938097	77937511	-	TSF	ENST00000340149,ENST00000361507	10,10,10,10	4183-4186	8905-8908	OV,SARC,SKCM,UVM
chr11:78075062:->chr11:77991947:-	chr11	78075071	78075062	-	chr11	77991947	77991647	-	TAF	ENST00000361507	3,3,2	4187-4189	8909-8911	BRCA,GBM,LGG,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD
chr11:82551841:->chr11:82550467:-	chr11	82551957	82551841	-	chr11	82550467	82550304	-	TSF	ENST00000313010,ENST00000393399,ENST00000535099,ENST00000531801	4,4,4,5,5,5,5,2,2,2,2,4	4190-4201	8912-8923	GBM,LGG
chr11:85340247:+>chr11:85342189:+	chr11	85339945	85340247	+	chr11	85342189	85342230	+	TAF	ENST00000531718,ENST00000528361,ENST00000529197	7,7,7,10,10,10,3,3,3	4202-4210	8924-8932	BRCA,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,TGCT
chr11:85340247:+>chr11:85342731:+	chr11	85339945	85340247	+	chr11	85342731	85342852	+	TSF	ENST00000358867,ENST00000534341	7,10,10,3,3,7	4211-4216	8933-8938	ACC,BLCA,BRCA,COAD,GBM,LUAD,LUSC,PRAD,STAD,UCEC,UVM
chr11:85968062:+>chr11:85968557:+	chr11	85967969	85968062	+	chr11	85968557	85968638	+	TSF	ENST00000263360,ENST00000528180,ENST00000327320,ENST00000351625	16,16,16,16,31,6,6,6,6,31,31,31	4217-4228	8939-8950	BLCA,CESC,DLBC,HNSC,LIHC,LUSC
chr11:86380517:->chr11:86270865:-	chr11	86380764	86380517	-	chr11	86270865	86270732	-	TSF	ENST00000393324,ENST00000359636,ENST00000543262,ENST00000524826,ENST00000526504,ENST00000530335	22,22,22,22,22,22,7,7,7,7,7,7	4229-4240	8951-8962	ACC,BRCA,COAD,KICH,KIRC,LUAD,LUSC,READ,SARC,SKCM,UCEC
chr11:87906580:->chr11:87883123:-	chr11	87906665	87906580	-	chr11	87883123	87882843	-	TAF	ENST00000243662,ENST00000526372	25,25,3,3	4241-4244	8963-8966	ACC,BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,SKCM,UVM
chr11:88974474:+>chr11:89017941:+	chr11	88974419	88974474	+	chr11	89017941	89018122	+	TSF	ENST00000263321	15,3,18	4245-4247	8967-8969	SKCM,UVM
chr11:88974474:+>chr11:89028311:+	chr11	88974419	88974474	+	chr11	89028311	89028534	+	TSF	ENST00000263321	15,3,18	4248-4250	8970-8972	SARC,SKCM,UVM

Table 19

chr11:89098143:->chr11:89088211:-	chr11	89098177	89098143	-	chr11	89088211	89088130	-	TSF	ENST00000535633,ENST00000424319,ENST00000343727,ENST00000534731,ENST00000263317,ENST00000532825,ENST00000527956,ENST00000542487,ENST00000527626,ENST00000528341,ENST00000413594,ENST00000375979,ENST00000531342	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8	4251-4276	8973-8998	CESC,LUSC,SARC
chr11:9172677:->chr11:9172311:-	chr11	9172687	9172677	-	chr11	9172311	9172227,9	-	TSF	ENST00000328194,ENST00000530044,ENST00000527700,ENST00000526707	3,3,3,3,3,3,3,3,3,3,3,3	4277-4288	8999-9010	GBM,LGG,MESO
chr11:93468129:->chr11:93466563:-	chr11	93468219	93468129	-	chr11	93466563	93466528	-	TSF	ENST00000393259	30,11,2	4289-4291	9011-9013	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LUAD,LUSC,OV,READ,STAD,TGCT,UCEC
chr11:93468129:->chr11:93467826:-	chr11	93468219	93468129	-	chr11	93467826	93467792	-	TAF	ENST00000393259,ENST00000527169	30,11,2,2,30,11	4292-4297	9014-9019	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr12:10105636:+>chr12:10124176:+	chr12	10104813	10105636	+	chr12	10124176	10124286	+	TSF	ENST00000355690	27,14,12	4298-4300	9020-9022	HNSC,LUSC
chr12:102411498:->chr12:102406970:-	chr12	102411559	102411498	-	chr12	102406970	102406886	-	TAF	ENST00000240079,ENST00000545679,ENST00000542923	11,11,11,20,20,20,16,16,16	4301-4309	9023-9031	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr12:104229670:->chr12:104208899:-	chr12	104229950	104229670	-	chr12	104208899	104208715	-	TSF	ENST00000392876	7,46	4310-4311	9032-9033	SKCM,UVM
chr12:104681628:+>chr12:104682709:+	chr12	104681506	104681628	+	chr12	104682709	104682818	+	TSF	ENST00000378070,ENST00000525566,ENST00000429002,ENST00000526691,ENST00000388854,ENST00000542918	25,25,25,25,25,25,14,14,14,14,14,14	4312-4323	9034-9045	KIRP,LUAD,LUSC
chr12:105386186:+>chr12:105388256:+	chr12	105386081	105386186	+	chr12	105388256	105388474	+	TSF	ENST00000552951,ENST00000280749	35,20,32,35,32	4324-4328	9046-9050	BLCA,BRCA,CESC,COAD,DLBC,KIRP,LIHC,LUAD,LUSC,PRAD,READ,SARC,UCEC
chr12:110306193:->chr12:110296546:-	chr12	110306235	110306193	-	chr12	110296546	110296488	-	TSF	ENST00000318348,ENST00000544393,ENST00000540772,ENST00000536390,ENST00000537066	14,14,14,14,14,14,13,14,13,13,14,14,13,13	4329-4343	9051-9065	CESC,HNSC,LUSC
chr12:110610701:+>chr12:110618227:+	chr12	110610148	110610701	+	chr12	110618227	110618376	+	TSF	ENST00000552912,ENST00000242591,ENST00000550156	57,57,57,26,26,26,11,11,11	4344-4352	9066-9074	BRCA,SKCM,TGCT,UVM
chr12:110610745:+>chr12:110618227:+	chr12	110610148	110610745	+	chr12	110618227	110618376	+	TSF	ENST00000552912,ENST00000242591,ENST00000550156	13,13,13,41,41,25,25,25,41	4353-4361	9075-9083	BRCA,SKCM,TGCT,UVM
chr12:110610836:+>chr12:110618227:+	chr12	110610148	110610836	+	chr12	110618227	110618376	+	TAF	ENST00000552912,ENST00000242591,ENST00000550156	43,43,43,71,71,71,56,56,56	4362-4370	9084-9092	BLCA,BRCA,CESC,GBM,KIRP,LGG,LUAD,OV,PCPG,SARC,SKCM,TGCT,THCA,UCEC,UVM
chr12:110654638:+>chr12:110655849:+	chr12	110654593	110654638	+	chr12	110655849	110656031	+	TAF	ENST00000552912,ENST00000242591	3,3,1,1,14,14	4371-4376	9093-9098	BRCA,CESC,CHOL,GBM,KIRC,KIRP,LGG,LUAD,PCPG,SARC,SKCM,TGCT,THCA,UCEC,UCS,UVM

Table 19

chr12:112169999:+>chr12:112171727:+	chr12	112169907	112169999	+	chr12	112171727	112171872	+	TSF	ENST00000392636,ENST00000549590,ENST00000455480,ENST00000313698,ENST00000552706	31,31,31,31,31,29,12,12,12,12,29,29,29,29,12	4377-4391	9099-9113	KIRP,THCA
chr12:113809071:+>chr12:113810454:+	chr12	113808893	113809071	+	chr12	113810454	113810612	+	TAF	ENST00000545182,ENST00000280800,ENST00000548997	25,25,25,43,43,6,6,43,6	4392-4400	9114-9122	ACC,BLCA,GBM,KIRP,LIHC,LUAD,PCPG,SARC,SKCM,STAD
chr12:116400244:->chr12:116399203:-	chr12	116400299	116400244	-	chr12	116399203	116399071	-	TSF	ENST00000281928	18,7,18	4401-4403	9123-9125	BRCA,LUSC,STAD
chr12:117498567:->chr12:117494691:-	chr12	117498589	117498567	-	chr12	117494691	117494611	-	TSF	ENST00000470612,ENST00000335209,ENST00000392545,ENST00000462502	7,7,7,7,7,7,7,7,7,7,7,7	4404-4415	9126-9137	BLCA,CESC,CHOL,COAD,KIRP,LIHC,LUAD,LUSC,PAAD,PCPG,STAD,THCA,UCEC
chr12:118466694:+>chr12:118467576:+	chr12	118466627	118466694	+	chr12	118467576	118467630	+	TAF	ENST00000229043,ENST00000454402,ENST00000392542	16,16,16,22,22,22,3,3,3	4416-4424	9138-9146	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr12:120566088:->chr12:120565778:-	chr12	120566093	120566088	-	chr12	120565778	120565653	-	TSF	ENST00000300648	2,1,1	4425-4427	9147-9149	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LUSC,OV,PAAD,SARC,STAD,TGCT,UCEC,UCS
chr12:120764436:->chr12:120763823:-	chr12	120764491	120764436	-	chr12	120763823	120763664	-	TSF	ENST00000308366,ENST00000423423	5,5,18,18	4428-4431	9150-9153	PAAD
chr12:120877098:+>chr12:120878257:+	chr12	120877048	120877098	+	chr12	120878257	120878340	+	TSF	ENST00000229379	17,7,16	4432-4434	9154-9156	GBM,OV,STAD
chr12:120900393:->chr12:120899965:-	chr12	120900591	120900393	-	chr12	120899965	120899822	-	TAF	ENST00000229390	7,17,12	4435-4437	9157-9159	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,STAD,TGCT,THYM,UCEC,UCS
chr12:122293120:->chr12:122292698:-	chr12	122293286	122293120	-	chr12	122292698	122292609	-	TSF	ENST00000289004,ENST00000543163	1,1,7,7,18,18	4438-4443	9160-9165	LIHC
chr12:122293243:->chr12:122292698:-	chr12	122293286	122293243	-	chr12	122292698	122292609	-	TSF	ENST00000289004,ENST00000543163	14,14,14,14,14,14	4444-4449	9166-9171	LIHC
chr12:122388242:+>chr12:122389386:+	chr12	122387836	122388242	+	chr12	122389386	122389436	+	TSF	ENST00000288912,ENST00000397454	23,23,44,44	4450-4453	9172-9175	ACC,BLCA,CESC,HNSC,KIRP,LUSC,MESO,STAD,THYM
chr12:122388242:+>chr12:122392026:+	chr12	122387836	122388242	+	chr12	122392026	122392240	+	TSF	ENST00000288912,ENST00000397454	23,23,44,44	4454-4457	9176-9179	BLCA,CESC,HNSC,LUSC,MESO,STAD,THYM
chr12:122388242:+>chr12:122394980:+	chr12	122387836	122388242	+	chr12	122394980	122395174	+	TSF	ENST00000288912,ENST00000397454	23,44,44,23	4458-4461	9180-9183	BLCA,CESC,HNSC,LUSC,STAD
chr12:122431578:+>chr12:122439403:+	chr12	122430912	122431578	+	chr12	122439403	122439504	+	TSF	ENST00000288912	37,12,26	4462-4464	9184-9186	BLCA,CESC,HNSC,LUAD,LUSC,TGCT
chr12:122431615:+>chr12:122437622:+	chr12	122430912	122431615	+	chr12	122437622	122437850	+	TAF	ENST00000288912	1,49,24	4465-4467	9187-9189	BLCA,BRCA,CESC,DLBC,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr12:122431655:+>chr12:122439403:+	chr12	122430912	122431655	+	chr12	122439403	122439504	+	TSF	ENST00000288912	1,37,14	4468-4470	9190-9192	CESC,HNSC,LUAD,LUSC
chr12:122431795:+>chr12:122437622:+	chr12	122430912	122431795	+	chr12	122437622	122437850	+	TSF	ENST00000288912	47,45,61	4471-4473	9193-9195	BLCA,CESC,DLBC,HNSC,KIRP,LUAD,LUSC,STAD,TGCT,THYM
chr12:122432103:+>chr12:122437622:+	chr12	122430912	122432103	+	chr12	122437622	122437850	+	TSF	ENST00000288912	29,89,41	4474-4476	9196-9198	BLCA,CESC,DLBC,HNSC,KIRP,LUAD,LUSC,STAD,TGCT,THYM

Table 19

chr12:122432282:+>chr12:122437622:+	chr12	122430912	122432282	+	chr12	122437622	122437850	+	TSF	ENST00000288912	46,148,58	4477-4479	9199-9201	BLCA,CESC,DLBC,HNSC,KIRP,LUAD,LUSC,TGCT,THYM
chr12:122599667:+>chr12:122611803:+	chr12	122599625	122599667	+	chr12	122611803	122611909	+	TSF	ENST00000319080	14,5	4480-4481	9202-9203	COAD,STAD,TGCT
chr12:123070983:+>chr12:123071248:+	chr12	123070929	123070983	+	chr12	123071248	123071304	+	TSF	ENST00000333479	18,18,12	4482-4484	9204-9206	KICH,KIRC
chr12:123464485:+>chr12:123465676:+	chr12	123464400	123464485	+	chr12	123465676	123465846	+	TSF	ENST00000315580,ENST00000543566,ENST00000539770,ENST00000542099,ENST00000392435,ENST00000453766	23,28,23,23,28,23,28,23,28,28,23,28	4485-4496	9207-9218	CESC,HNSC,OV,PAAD,PCPG,THYM,UCEC
chr12:123873729:+>chr12:123873980:+	chr12	123873690	123873729	+	chr12	123873980	123874101	+	TSF	ENST00000330479,ENST00000402868	13,13,13,13,12,12	4497-4502	9219-9224	OV,STAD
chr12:123873729:+>chr12:123873984:+	chr12	123873690	123873729	+	chr12	123873984	123874101	+	TSF	ENST00000330479,ENST00000402868	13,13,13,13,12,12	4503-4508	9225-9230	STAD
chr12:123873729:+>chr12:123875258:+	chr12	123873690	123873729	+	chr12	123875258	123875333	+	TAF	ENST00000330479,ENST00000402868,ENST00000437519,ENST00000437502	13,13,13,13,13,13,12,12,12,12,13,13	4509-4520	9231-9242	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,STAD,UCS
chr12:125263744:->chr12:125263132:-	chr12	125263794	125263744	-	chr12	125263132	125263013	-	TAF	ENST00000339570,ENST00000415380	17,16,17,16	4521-4524	9243-9246	ACC,COAD,KIRC,KIRP,LIHC,OV,PCPG,STAD
chr12:12966871:+>chr12:12967065:+	chr12	12966683	12966871	+	chr12	12967065	12967158	+	TSF	ENST00000352940,ENST00000358007,ENST00000544400	15,6,6,6,11,11,11,15,15	4525-4533	9247-9255	BRCA,DLBC,LIHC,LUAD,LUSC,MESO,OV,STAD,TGCT,THCA
chr12:130849940:+>chr12:130851678:+	chr12	130849847	130849940	+	chr12	130851678	130851803	+	TSF	ENST00000245255	31,12,6	4534-4536	9256-9258	THCA
chr12:133142413:+>chr12:133144067:+	chr12	133142351	133142413	+	chr12	133144067	133144112	+	TSF	ENST00000434748,ENST00000261673	20,20,6,6	4537-4540	9259-9262	OV,STAD
chr12:133264751:+>chr12:133266849:+	chr12	133264718	133264751	+	chr12	133266849	133266962	+	TSF	ENST00000317479,ENST00000543589	11,11,11,11,10,10	4541-4546	9263-9268	LIHC
chr12:133264790:+>chr12:133266849:+	chr12	133264718	133264790	+	chr12	133266849	133266962	+	TSF	ENST00000317479,ENST00000543589	24,24,24,24,11,11	4547-4552	9269-9274	LIHC
chr12:133264868:+>chr12:133266849:+	chr12	133264718	133264868	+	chr12	133266849	133266962	+	TSF	ENST00000317479,ENST00000543589	11,11,50,50,50,50	4553-4558	9275-9280	LIHC
chr12:133288275:+>chr12:133291444:+	chr12	133288092	133288275	+	chr12	133291444	133291498	+	TSF	ENST00000537262,ENST00000545677,ENST00000317555,ENST00000498926	36,60,36,36,36,60,60,60	4559-4566	9281-9288	OV,STAD
chr12:14507672:+>chr12:14576843:+	chr12	14506971	14507672	+	chr12	14576843	14578407	+	TSF	ENST00000544627	12,26,37	4567-4569	9289-9291	HNSC,LUAD,LUSC
chr12:14507749:+>chr12:14576843:+	chr12	14506971	14507749	+	chr12	14576843	14578407	+	TSF	ENST00000544627	37,14,1	4570-4572	9292-9294	BLCA,HNSC,LUAD,LUSC
chr12:14670239:->chr12:14664645:-	chr12	14670381	14670239	-	chr12	14664645	14664445	-	TSF	ENST00000240617	13,1,25	4573-4575	9295-9297	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LUSC,MESO,PAAD,READ,STAD,TGCT,UCEC
chr12:15296463:->chr12:15274053:-	chr12	15296492	15296463	-	chr12	15274053	15273997	-	TSF	ENST00000256953,ENST00000538313,ENST00000536465,ENST00000545567,ENST00000537647,ENST00000393736	10,10,10,10,10,10,9,9,9,9,9,9,9,9,9,9,9,9	4576-4593	9298-9315	BRCA,KIRC,LUAD,MESO
chr12:15490311:->chr12:15274053:-	chr12	15490399	15490311	-	chr12	15274053	15273997	-	TSF	ENST00000256953,ENST00000538313,ENST00000536465,ENST00000545567,ENST00000537647,ENST00000393736	29,29,29,29,29,29,9,9,9,28,28,28,28,28,9,9,9	4594-4611	9316-9333	KIRC,KIRP,LUAD,LUSC,OV,READ,SKCM,TGCT,UCEC
chr12:15701267:+>chr12:15702028:+	chr12	15701006	15701267	+	chr12	15702028	15702160	+	TSF	ENST00000281171,ENST00000348962,ENST00000535311	83,83,83,11,2,2,2,11,11	4612-4620	9334-9342	BLCA,COAD,LUSC,READ,STAD

Table 19

chr12:15811892:->chr12:15811519:-	chr12	15812051	15811892	-	chr12	15811519	15811431	-	TSF	ENST00000543523,ENST00000281172,ENST00000543612,ENST00000540613,ENST00000542903	12,12,12,12,12,9,9,9,9,52,52,52,2	4621-4635	9343-9357	KICH,KIRC,KIRP,LUSC
chr12:20780410:+>chr12:20782842:+	chr12	20780314	20780410	+	chr12	20782842	20783061	+	TAF	ENST00000359062	3,10,26	4636-4638	9358-9360	BLCA,BRCA,COAD,HNSC,LIHC,LUAD,LUSC,PRAD,READ,SARC,STAD,TGCT
chr12:21011909:+>chr12:21013951:+	chr12	21011867	21011909	+	chr12	21013951	21014072	+	TAF	ENST00000540853,ENST00000261196,ENST00000381545,ENST00000540229,ENST00000553473	14,14,14,14,14,13,13,13,13	4639-4648	9361-9370	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,UCEC
chr12:21426215:->chr12:21422701:-	chr12	21426370	21426215	-	chr12	21422701	21422482	-	TSF	ENST00000307378,ENST00000452078,ENST00000458504,ENST00000537524	16,16,16,16,9,9,9,9,8,8,8,8	4649-4660	9371-9382	BRCA,CESC,LGG,LIHC,LUSC,PRAD,TGCT
chr12:21477528:->chr12:21471857:-	chr12	21478885	21477528	-	chr12	21471857	21471716	-	TAF	ENST00000307378,ENST00000452078,ENST00000544020,ENST00000544290,ENST00000390670,ENST00000422327,ENST00000453443,ENST00000421294,ENST00000450590,ENST00000435179,ENST00000445053,ENST00000421287	23,23,23,23,23,23,23,23,23,23,23,23,14,14,14,14,14,14,14,14,14,14,14,29,29,29,29,29,29,29,29,29,14,29	4661-4696	9383-9418	BRCA,GBM,LGG
chr12:22637151:->chr12:22635677:-	chr12	22637180	22637151	-	chr12	22635677	22635491	-	TAF	ENST00000333957,ENST00000396028,ENST00000446597,ENST00000536386,ENST00000542676,ENST00000544930,ENST00000545552	10,10,10,10,10,10,10,9,9,9,9,9,9,9,9,9,9,9,9	4697-4717	9419-9439	BLCA,BRCA,COAD,HNSC,LGG,LUAD,LUSC,OV,READ,STAD,TGCT
chr12:25062524:->chr12:25054819:-	chr12	25062633	25062524	-	chr12	25054819	25054748	-	TSF	ENST00000261192,ENST00000538118,ENST00000539282,ENST00000539780	36,36,36,36,3,3,3,3,36,36,36,36	4718-4729	9440-9451	HNSC,LUAD,LUSC,OV,STAD,UCEC
chr12:27144286:->chr12:27143560:-	chr12	27144384	27144286	-	chr12	27143560	27143383	-	TSF	ENST00000343028,ENST00000545303,ENST00000535260,ENST00000543882,ENST00000543655,ENST00000535819	11,23,23,23,23,23,23,1,1,1,1,1,1,1,11,11,11,11,11	4730-4747	9452-9469	BRCA,KIRC,KIRP,LIHC,OV,STAD
chr12:27557646:+>chr12:27568802:+	chr12	27557551	27557646	+	chr12	27568802	27568880	+	TSF	ENST00000544915,ENST00000395901,ENST00000546179,ENST00000311001,ENST00000261178,ENST00000266503,ENST00000457040,ENST00000542388	32,32,32,32,32,32,32,23,23,23,23,23,23,23,23	4748-4763	9470-9485	BLCA,BRCA,CESC,GBM,LUSC,STAD
chr12:28378794:+>chr12:28458582:+	chr12	28378695	28378794	+	chr12	28458582	28458727	+	TSF	ENST00000538586,ENST00000539107,ENST00000536442,ENST00000545336,ENST00000543534,ENST00000543809,ENST00000545737,ENST00000381256,ENST00000381259,ENST00000306172	22,33,33,33,33,33,33,33,33,33,33,33,1,1,1,1,1,1,1,1,1,1,22,22,22,22,22,22,22,22,22,22	4764-4793	9486-9515	HNSC,KIRC,LUSC
chr12:28378794:+>chr12:28544237:+	chr12	28378695	28378794	+	chr12	28544237	28544344	+	TSF	ENST00000540794,ENST00000536442,ENST00000545336,ENST00000543809,ENST00000545737,ENST00000381259,ENST00000306172	22,22,22,22,22,22,22,33,1,1,1,1,1,1,33,33,33,33,33,33	4794-4814	9516-9536	KIRC,LUSC

Table 19

chr12:28565871:+>chr12:28603094:+	chr12	28565851	28565871	+	chr12	28603094	28603186	+	TSF	ENST00000540794,ENST00000539107,ENST00000536442,ENST00000545336,ENST00000545737,ENST00000381256,ENST00000381259,ENST00000306172	7,6,6,6,6,6,6,6,6,7,7,7,7,7,7	4815-4830	9537-9552	BLCA,BRCA,HNSC,KIRC,LGG,LUAD,LUSC,STAD,TGCT
chr12:3041468:+>chr12:3042584:+	chr12	3041463	3041468	+	chr12	3042584	3042696	+	TSF	ENST00000448120,ENST00000397132	2,1,1,1,1,2	4831-4836	9553-9558	BLCA,LUSC,OV,TGCT,UCS,UVM
chr12:42822199:+>chr12:42835117:+	chr12	42821122	42822199	+	chr12	42835117	42835311	+	TSF	ENST00000549190,ENST00000395580,ENST00000337898,ENST00000358314,ENST00000395568,ENST00000256678,ENST00000449194,ENST00000552761,ENST00000317560,ENST00000432191	3,3,3,3,3,3,3,3,3,3,35,35,35,35,35,146,146,146,146,146,146,146,146,146,146,35,35,35,35,35	4837-4866	9559-9588	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,PCPG,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr12:4654478:+>chr12:4654948:+	chr12	4653807	4654478	+	chr12	4654948	4654998	+	TSF	ENST00000321524,ENST00000228843	6,6,22,7,7,22	4867-4872	9589-9594	TGCT
chr12:4757967:+>chr12:4763458:+	chr12	4757939	4757967	+	chr12	4763458	4763628	+	TSF	ENST00000266544,ENST00000535050	9,9,9,4,4,9	4873-4878	9595-9600	BRCA,COAD,OV,PAAD,READ,STAD,TGCT,UCEC
chr12:48058373:->chr12:48057373:-	chr12	48058419	48058373	-	chr12	48057373	48057288	-	TSF	ENST00000005386,ENST00000432584,ENST00000380650	14,14,14,7,7,7,13,13,13	4879-4887	9601-9609	BLCA,BRCA,CESC,DLBC,HNSC,LUAD,LUSC,SARC,STAD,TGCT,THYM,UCEC,UCS
chr12:48166365:+>chr12:48172811:+	chr12	48166180	48166365	+	chr12	48172811	48172978	+	TSF	ENST00000442218,ENST00000551301	22,22,7,7	4888-4891	9610-9613	OV
chr12:49309695:->chr12:49297691:-	chr12	49310439	49309695	-	chr12	49297691	49297443	-	TSF	ENST00000398092	37,12,39	4892-4894	9614-9616	CESC,HNSC,LUSC,OV,UCEC
chr12:4948527:+>chr12:4959904:+	chr12	4948345	4948527	+	chr12	4959904	4960077	+	TSF	ENST00000542998	1,48,60	4895-4897	9617-9619	BLCA,CESC,COAD,GBM,LGG,LUSC,OV,PAAD,PCPG,READ,STAD,TGCT,UCS
chr12:49602732:+>chr12:49621874:+	chr12	49602693	49602732	+	chr12	49621874	49621949	+	TSF	ENST00000541364,ENST00000549818,ENST00000552448,ENST00000552125	13,8,8,8,8,12,13,13,12,12,13,12	4898-4909	9620-9631	ACC,GBM,LGG,SARC,STAD
chr12:49660025:+>chr12:49663248:+	chr12	49659927	49660025	+	chr12	49663248	49663470	+	TSF	ENST00000541364,ENST00000552125,ENST00000301072,ENST00000549183	33,33,23,23,23,1,1,1,1,33,23,33	4910-4921	9632-9643	BLCA,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,OV,SKCM,STAD,TGCT,UCEC
chr12:50264776:->chr12:50264436:-	chr12	50264840	50264776	-	chr12	50264436	50264287, 50264314, 50264356	-	TAF	ENST00000320634,ENST00000550890,ENST00000552669,ENST00000552863	21,21,21,21,21,21,21,21	4922-4929	9644-9651	BRCA,GBM,LGG,LUAD,OV,PCPG,SARC,THYM
chr12:50285280:->chr12:50284897:-	chr12	50285408	50285280	-	chr12	50284897	50284848	-	TSF	ENST00000320634,ENST00000550890,ENST00000550195,ENST00000552669,ENST00000552863,ENST00000550635,ENST00000547871	43,43,43,7,7,43,7,7,43,7,43,7,43,7	4930-4943	9652-9665	BRCA,COAD,LGG,LUAD,PCPG,READ,STAD
chr12:50292556:->chr12:50291869:-	chr12	50292609	50292556	-	chr12	50291869	50291770	-	TSF	ENST00000320634,ENST00000550890,ENST00000550195,ENST00000552669,ENST00000550635,ENST00000547871	9,9,9,9,9,9,17,17,17,17,17,17,17,17,17,17,17,17	4944-4961	9666-9683	BRCA,GBM,LGG,PCPG,SARC
chr12:50380303:->chr12:50370842:-	chr12	50380548	50380303	-	chr12	50370842	50370733	-	TSF	ENST00000548961	30,26	4962-4963	9684-9685	KIRC,SARC,SKCM,UCEC,UVM
chr12:50389433:->chr12:50388292:-	chr12	50389576	50389433	-	chr12	50388292	50388197	-	TSF	ENST00000427314,ENST00000312377,ENST00000434422,ENST00000454520,ENST00000551016,ENST00000547905,ENST00000549342	3,3,3,3,3,3,5,5,5,5,5,5,5,5,1,1,1,1,1,1,1,3	4964-4984	9686-9706	BLCA,BRCA,CESC,COAD,DLBC,LUAD,LUSC,OV,SARC,STAD,TGCT,THYM,UCEC,UCS

chr12:50491120:+>chr12:50492497:+	chr12	50491053	50491120	+	chr12	50492497	50492598	+	TSF	ENST00000394963,ENST00000381513,ENST00000548573,ENST00000549274	13,13,13,13,22,22,22,22	4985-4992	9707-9714	BRCA,KIRC,LUAD,LUSC,OV,STAD
chr12:50537986:->chr12:50537840:-	chr12	50538043	50537986	-	chr12	50537840	50537735	-	TAF	ENST00000551697,ENST00000380189,ENST00000317551,ENST00000422340,ENST00000542320,ENST00000547800	19,19,19,7,7,7,7,7,19,19,19	4993-5004	9715-9726	GBM,LGG,LUSC,OV,PCPG,PRAD,TGCT,THYM
chr12:50810217:+>chr12:50821545:+	chr12	50810162	50810217	+	chr12	50821545	50821692	+	TSF	ENST00000293618,ENST00000429001,ENST00000548174,ENST00000398473,ENST00000522085,ENST00000551886,ENST00000347328	18,18,18,18,18,18,18,9,9,9,9,9,9	5005-5018	9727-9740	COAD,LUAD,STAD,TGCT,UCEC
chr12:50814670:+>chr12:50821545:+	chr12	50813695	50814670	+	chr12	50821545	50821692	+	TSF	ENST00000293618,ENST00000429001,ENST00000548174,ENST00000398473,ENST00000522085,ENST00000551886,ENST00000347328	3,3,3,3,3,3,3,1,4,4,4,4,4,4,1,1,1,1,1,1	5019-5039	9741-9761	COAD,LUAD,SKCM,STAD,TGCT
chr12:50814670:+>chr12:50821548:+	chr12	50813695	50814670	+	chr12	50821548	50821692	+	TSF	ENST00000293618,ENST00000429001,ENST00000548174,ENST00000398473,ENST00000522085,ENST00000518444,ENST00000551886,ENST00000347328,ENST00000550260	3,3,3,3,3,3,3,3,1,4,4,4,4,4,4,4,4,1,1,1,1,1,1,1	5040-5066	9762-9788	STAD
chr12:51048823:+>chr12:51053977:+	chr12	51048448	51048823	+	chr12	51053977	51054102	+	TSF	ENST00000301180	70,1	5067-5068	9789-9790	STAD
chr12:51101831:+>chr12:51102231:+	chr12	51101579	51101831	+	chr12	51102231	51102345	+	TSF	ENST00000301180	84,84,58	5069-5071	9791-9793	HNSC,LGG,LUSC,STAD
chr12:51681668:->chr12:51678571:-	chr12	51681734	51681668	-	chr12	51678571	51678500	-	TAF	ENST00000452142,ENST00000267012,ENST00000544402	22,22,22,13,13,13,21,21,21	5072-5080	9794-9802	BRCA,CESC,CHOL,DLBC,GBM,KIRC,KIRP,LGG,LUAD,LUSC,SARC,TGCT,THCA,THYM
chr12:51785272:+>chr12:51834492:+	chr12	51785233	51785272	+	chr12	51834492	51834573	+	TSF	ENST00000358657,ENST00000453097	13,13,13,12,12,13	5081-5086	9803-9808	BRCA,LUAD,OV
chr12:52353971:+>chr12:52369049:+	chr12	52353922	52353971	+	chr12	52369049	52369288	+	TSF	ENST00000257963,ENST00000541224,ENST00000426655,ENST00000415850	16,16,16,16,16,16,16,16	5087-5094	9809-9816	KIRP,LUAD,STAD,TGCT
chr12:52444325:+>chr12:52448111:+	chr12	52444147	52444325	+	chr12	52448111	52448430,52448988,52448981	+	TAF	ENST00000548977,ENST00000360284,ENST00000546842,ENST00000545748,ENST00000550082	35,35,35,35,35,19,2,2,2,2,2,19,19,19,19	5095-5109	9817-9831	KICH,KIRC,KIRP,PRAD,STAD
chr12:52849601:->chr12:52845683:-	chr12	52849815	52849601	-	chr12	52845683	52845323	-	TSF	ENST00000252252	32,9,6	5110-5112	9832-9834	HNSC,STAD
chr12:52908919:+>chr12:52908758:-	chr12	52908876	52908919	+	chr12	52908758	52908726	-	TSF	ENST00000252242	14,4,14	5113-5115	9835-9837	BRCA,CESC,HNSC,LUSC,SKCM
chr12:53342475:->chr12:53298811:-	chr12	53342573	53342475	-	chr12	53298811	53298443	-	TSF	ENST00000552150,ENST00000548998,ENST00000546542	16,16,2,32,32,2,16,2	5116-5124	9838-9846	COAD,LUSC,OV,STAD,THCA
chr12:53342523:->chr12:53298811:-	chr12	53342573	53342523	-	chr12	53298811	53298443	-	TAF	ENST00000552150,ENST00000548998,ENST00000546542	7,16,16,16,7,7	5125-5130	9847-9852	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,STAD,TGCT,THCA,THYM,UCEC,UCS
chr12:53353678:->chr12:52913570:-	chr12	53353926	53353678	-	chr12	52913570	52913527	-	TSF	ENST00000252242,ENST00000549420,ENST00000551275	9,22,22,42,42,42,9,9,22	5131-5139	9853-9861	STAD
chr12:53835233:+>chr12:53836479:+	chr12	53835137	53835233	+	chr12	53836479	53836517	+	TSF	ENST00000547368	32,2	5140-5141	9862-9863	OV,STAD

Table 19

chr12:53865132:+>chr12:53865422:+	chr12	53865082	53865132	+	chr12	53865422	53865591	+	TSF	ENST00000359282,ENST00000437231,ENST00000447282,ENST00000603815,ENST00000549863,ENST00000359462,ENST00000546463,ENST00000552296,ENST00000552819,ENST00000455667,ENST00000439930,ENST00000548933,ENST00000562264,ENST00000553064,ENST00000547859	17,17,17,17,17,17,17,17,17,17,17,17,17,17,7,7,7,7,7,7,7,7,7,7,7,7,7,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,17	5142-5186	9864-9908	BLCA,COAD,HNSC,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC
chr12:54064161:->chr12:54063732:-	chr12	54064392	54064161	-	chr12	54063732	54063655	-	TSF	ENST00000602871,ENST00000394349,ENST00000549164,ENST00000338662	14,14,14,14,16,16,16,16,6,6,6,6	5187-5198	9909-9920	BRCA,LUAD,OV
chr12:54862609:->chr12:54858951:-	chr12	54862718	54862609	-	chr12	54858951	54858851	-	TSF	ENST00000546931,ENST00000552397,ENST00000305879	16,16,16,3,5,5,5,3,3	5199-5207	9921-9929	BLCA,BRCA,CESC,DLBC,LIHC,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr12:55224659:+>chr12:55248900:+	chr12	55223983	55224659	+	chr12	55248900	55248941	+	TAF	ENST00000546809,ENST00000308796	19,19,18,18,16,16	5208-5213	9930-9935	ACC,BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,READ,STAD,TGCT,THCA,UCEC
chr12:55224659:+>chr12:55250554:+	chr12	55223983	55224659	+	chr12	55250554	55250676	+	TSF	ENST00000546809,ENST00000308796	19,19,18,18,16,16	5214-5219	9936-9941	ACC,BLCA,CESC,COAD,HNSC,OV,PRAD,READ,STAD,UCEC
chr12:55224840:+>chr12:55248900:+	chr12	55223983	55224840	+	chr12	55248900	55248941	+	TAF	ENST00000546809,ENST00000308796	4,4,6,6,6,2,2	5220-5225	9942-9947	ACC,BLCA,CESC,HNSC,KICH,KIRC,KIRP,OV,STAD,THCA
chr12:55350538:->chr12:55344174:-	chr12	55350849	55350538	-	chr12	55344174	55343993	-	TAF	ENST00000528240,ENST00000532757	21,8,8,49,21,49	5226-5231	9948-9953	BRCA,CESC,CHOL,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,PAAD,PRAD,SARC,STAD,TGCT,THCA,THYM
chr12:56110523:+>chr12:56110717:+	chr12	56110428	56110523	+	chr12	56110717	56110789	+	TAF	ENST00000257899,ENST00000550412,ENST00000548925,ENST00000549147	6,6,6,6,28,28,28,28,7,7,7,7	5232-5243	9954-9965	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr12:56110523:+>chr12:56112875:+	chr12	56110428	56110523	+	chr12	56112875	56113007,56112894,56113085	+	TSF	ENST00000257899,ENST00000551946,ENST00000550412,ENST00000548925,ENST00000549147,ENST00000553100	6,6,6,6,28,28,7,7,7,7,7,7,6,6,28,28,28,28	5244-5261	9966-9983	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUSC,OV,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr12:56160521:->chr12:56154424:-	chr12	56160733	56160521	-	chr12	56154424	56154336	-	TSF	ENST00000546604,ENST00000444631,ENST00000336133,ENST00000546837,ENST00000552080	37,37,37,37,26,26,26,26,26,26,37	5262-5271	9984-9993	OV,PRAD
chr12:56350835:+>chr12:56350794:-	chr12	56350811	56350835	+	chr12	56350794	56350733	-	TSF	ENST00000449260,ENST00000552882,ENST00000550464,ENST00000548747,ENST00000360714,ENST00000536427,ENST00000539511,ENST00000548493,ENST00000549404,ENST00000548803	2,2,2,2,2,2,2,2,2,2,8,8,8,8,8,8,8,8,8,8,7,7,7,7,7,7,7,7,7,7	5272-5301	9994-10023	SKCM,UVM

Table 19

chr12:56353706:->chr12:56352391:-	chr12	56353740	56353706	-	chr12	56352391	56352257, 56352273, 56352331	-	TSF	ENST00000449260,ENST00000552882,ENST00000550464,ENST00000548747,ENST00000539511,ENST00000548493,ENST00000550447,ENST00000548803,ENST00000547137,ENST00000546543,ENST00000549418,ENST00000549233	11,11,11,11,11,11,11,11,11,11,11,11,11,11,3,11,11,11,11,11,3,3,3,3,3,11,3,11,3,11,3,3,11,3,11	5302-5337	10024-10059	SKCM,UVM
chr12:56357814:->chr12:56355516:-	chr12	56357933	56357814	-	chr12	56355516	56355406	-	TSF	ENST00000449260,ENST00000552882,ENST00000548747,ENST00000360714,ENST00000536427,ENST00000548493,ENST00000548803,ENST00000547137,ENST00000546543,ENST00000549418,ENST00000549233	15,15,15,15,15,15,15,15,15,15,15,15,8,8,8,8,8,8,8,8,8,8,8,8,6,6,6,6,6,6,6,6,6,6,15,6,6,6	5338-5370	10060-10092	SKCM,UVM
chr12:56358944:->chr12:56355516:-	chr12	56359010	56358944	-	chr12	56355516	56355406	-	TSF	ENST00000449260,ENST00000552882,ENST00000548747,ENST00000360714,ENST00000536427,ENST00000548493,ENST00000548803,ENST00000547137,ENST00000546543,ENST00000549418,ENST00000549233	22,13,13,13,13,13,13,13,13,13,13,13,13,5,5,5,5,5,5,5,5,5,5,22,22,22,22,22,22,22,22,13,22,22	5371-5403	10093-10125	SKCM,UVM
chr12:56363834:+>chr12:56364828:+	chr12	56363784	56363834	+	chr12	56364828	56365031	+	TSF	ENST00000266970,ENST00000553376,ENST00000440311,ENST00000354056	17,17,17,17,7,7,7,7	5404-5411	10126-10133	BLCA,CESC,COAD,DLBC,LUAD,OV,SARC,SKCM,TGCT,UVM
chr12:57899899:+>chr12:57905481:+	chr12	57899758	57899899	+	chr12	57905481	57905651	+	TAF	ENST00000537638,ENST00000262027,ENST00000315473	1,1,1,12,19,19,19,12,12	5412-5420	10134-10142	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LGG,LIHC,LUAD,LUSC,SARC,STAD,TGCT
chr12:58023062:->chr12:58022686:-	chr12	58023123	58023062	-	chr12	58022686	58022497	-	TSF	ENST00000341156,ENST00000418555,ENST00000449184	17,17,6,6,6,17	5421-5426	10143-10148	BRCA,GBM,HNSC,KIRC,LGG,LUSC,SARC
chr12:58023062:->chr12:58022929:-	chr12	58023123	58023062	-	chr12	58022929	58022832	-	TSF	ENST00000341156,ENST00000418555,ENST00000552798,ENST00000549391	17,17,6,6,17,17,6,6	5427-5434	10149-10156	BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,OV,PCPG,SARC,SKCM,TGCT
chr12:58189746:+>chr12:58189960:+	chr12	58189709	58189746	+	chr12	58189960	58190366, 58189980, 58190044	+	TSF	ENST00000454289,ENST00000540550,ENST00000323833,ENST00000350762,ENST00000457189,ENST00000540550,ENST00000457189,ENST00000454289,ENST00000323833,ENST00000350762	5,5,5,12,12,12,12,5,5	5435-5444	10157-10166	BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,PRAD,READ,SARC,TGCT,THYM,UCEC
chr12:58344667:+>chr12:58345541:+	chr12	58344612	58344667	+	chr12	58345541	58345679	+	TSF	ENST00000300145,ENST00000549257	18,18,12,12,5,5	5445-5450	10167-10172	BLCA,BRCA,CHOL,GBM,OV,SARC,STAD
chr12:63961380:->chr12:63954442:-	chr12	63962410	63961380	-	chr12	63954442	63954292	-	TAF	ENST00000324472,ENST00000413230	12,12,19,19,17,17	5451-5456	10173-10178	ACC,BLCA,BRCA,CESC,GBM,KICH,KIRC,KIRP,LGG,LUSC,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr12:64428169:+>chr12:64436570:+	chr12	64427856	64428169	+	chr12	64436570	64436752	+	TSF	ENST00000355086,ENST00000357825,ENST00000543397	46,46,46,29,29,29,13,13,13	5457-5465	10179-10187	SKCM,UVM
chr12:6458996:->chr12:6458387:-	chr12	6459191	6458996	-	chr12	6458387	6458330	-	TSF	ENST00000360168,ENST00000358945,ENST00000540037,ENST00000228916,ENST00000543768	11,11,11,11,11,4,4,4,4,4,4,33,33,33,33	5466-5480	10188-10202	BLCA,BRCA,CESC,COAD,KIRC,KIRP,LUAD,LUSC,OV,STAD,UCEC

Table 19

chr12:64687061:->chr12:64679840:-	chr12	64687157	64687061	-	chr12	64679840	64679734	-	TAF	ENST00000543942,ENST00000333722	32,32,6,6	5481-5484	10203-10206	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr12:6602754:->chr12:6602138:-	chr12	6602868	6602754	-	chr12	6602138	6602028	-	TSF	ENST00000229238	2,2	5485-5486	10207-10208	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr12:6602840:->chr12:6602138:-	chr12	6602868	6602840	-	chr12	6602138	6602028	-	TAF	ENST00000229238	1,9,7	5487-5489	10209-10211	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr12:66314527:+>chr12:66345163:+	chr12	66314250	66314527	+	chr12	66345163	66345196	+	TSF	ENST00000403681,ENST00000541363,ENST00000393577	9,18,39,9,18,39,9,18,39	5490-5498	10212-10220	GBM,LUSC,SARC,SKCM
chr12:69217294:+>chr12:69218143:+	chr12	69217149	69217294	+	chr12	69218143	69218210,69218173,69218169	+	TSF	ENST00000462284,ENST00000311420,ENST00000539479,ENST00000393415,ENST00000393416,ENST00000350057,ENST00000481186,ENST00000496959,ENST00000536089,ENST00000537182,ENST00000540352,ENST00000546048	11,11,11,11,11,11,11,11,11,11,28,28,34,34,34,34,34,34,34,34,34,34,28,28,28,28,28,28,28,11,11,28,28,28	5499-5534	10221-10256	BRCA,GBM,HNSC,OV
chr12:7277662:->chr12:7277326:-	chr12	7277801	7277662	-	chr12	7277326	7277225	-	TSF	ENST00000266560	19,1,33	5535-5537	10257-10259	KIRC,LIHC
chr12:7284070:+>chr12:7285620:+	chr12	7284013	7284070	+	chr12	7285620	7285742	+	TAF	ENST00000541953,ENST00000266546,ENST00000539982,ENST00000537408	4,19,19,19,19,15,15,15,4,4	5538-5549	10260-10271	BRCA,KIRC,KIRP,MESO,PCPG,UCS
chr12:7846037:->chr12:7843300:-	chr12	7846135	7846037	-	chr12	7843300	7842474	-	TSF	ENST00000329913	33,2,32	5550-5552	10272-10274	TGCT
chr12:79991596:->chr12:79990438:-	chr12	79992039	79991596	-	chr12	79990438	79990291	-	TAF	ENST00000328827	3,4,16	5553-5555	10275-10277	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,STAD,TGCT,THCA,UCEC
chr12:86274547:+>chr12:86276001:+	chr12	86274449	86274547	+	chr12	86276001	86276153	+	TAF	ENST00000551529,ENST00000256010	33,33,23,23,1,1	5556-5561	10278-10283	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,READ,STAD,TGCT,THCA,THYM,UCEC,UCS
chr12:86274547:+>chr12:86276010:+	chr12	86274449	86274547	+	chr12	86276010	86276153	+	TSF	ENST00000551529,ENST00000256010	33,33,23,23,1,1	5562-5567	10284-10289	BLCA,BRCA,CESC,LIHC,LUSC,STAD
chr12:8864879:+>chr12:8866407:+	chr12	8864869	8864879	+	chr12	8866407	8866637	+	TSF	ENST00000537189	3,1	5568-5569	10290-10291	LUAD,LUSC,UCEC
chr12:9072802:+>chr12:9073581:+	chr12	9072683	9072802	+	chr12	9073581	9073661	+	TSF	ENST00000538657,ENST00000543824,ENST00000433083,ENST00000544916,ENST00000544539,ENST00000539063,ENST00000540574,ENST00000541181	17,3,3,3,3,3,3,3,11,17,17,11,11,17,11,17,11,17,11,17,3,11,17,11,17,11	5570-5593	10292-10315	TGCT
chr12:92826686:->chr12:92814949:-	chr12	92826976	92826686	-	chr12	92814949	92814786	-	TSF	ENST00000378487,ENST00000538965	43,43,26,26,10,10	5594-5599	10316-10321	BLCA,BRCA,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,SARC,TGCT,UCEC

Table 19

chr12:93806392:->chr12:93805075:-	chr12	93806814	93806392	-	chr12	93805075	93804829, 93804647, 93804902	-	TSF	ENST00000318066,ENST00000550657,ENST00000549490,ENST00000552442	29,4,4,4,26,26,26,29,29,4,29	5600-5611	10322-10333	BLCA,CESC,LUAD,LUSC,PRAD
chr12:94167262:+>chr12:94243746:+	chr12	94167005	94167262	+	chr12	94243746	94244047	+	TAF	ENST00000332896,ENST00000542893	18,18,33,33,7,7	5612-5617	10334-10339	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRC,LUAD,LUSC,MESO,PCPG,SARC,SKCM,STAD,UVM
chr12:94209257:+>chr12:94243746:+	chr12	94208725	94209257	+	chr12	94243746	94244047	+	TSF	ENST00000332896,ENST00000542893	5,5,15,15,47,47	5618-5623	10340-10345	ACC,GBM,KIRC,LUAD,LUSC,SARC,SKCM
chr12:96301326:->chr12:96300229:-	chr12	96302230	96301326	-	chr12	96300229	96300165	-	TSF	ENST00000344280	43,41,28	5624-5626	10346-10348	CESC,HNSC,LUSC,SARC,TGCT
chr12:96301454:->chr12:96300229:-	chr12	96302230	96301454	-	chr12	96300229	96300165	-	TSF	ENST00000344280	1,27,14	5627-5629	10349-10351	BLCA,CESC,HNSC,LUSC,TGCT
chr12:96341255:+>chr12:96346495:+	chr12	96340433	96341255	+	chr12	96346495	96346601	+	TSF	ENST00000266736,ENST00000548310	14,14,12,12,27,27	5630-5635	10352-10357	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,SKCM,STAD,TGCT
chr12:97251620:+>chr12:97303530:+	chr12	97251345	97251620	+	chr12	97303530	97303673	+	TSF	ENST00000554226,ENST00000557644	48,48,7,7,41,41	5636-5641	10358-10363	CESC,LUSC
chr12:97286334:+>chr12:97303530:+	chr12	97286062	97286334	+	chr12	97303530	97303673	+	TSF	ENST00000554226,ENST00000557644	39,39,7,7,18,18	5642-5647	10364-10369	BLCA,BRCA,CESC,GBM,HNSC,LUSC,SARC,STAD,THYM
chr12:97286334:+>chr12:97311399:+	chr12	97286062	97286334	+	chr12	97311399	97311516	+	TSF	ENST00000266742,ENST00000429527,ENST00000554226,ENST00000557478,ENST00000557092,ENST00000557644	39,39,39,7,7,7,7,7,18,18,18,18,18,18,18,39,39,39	5648-5665	10370-10387	BLCA,CESC,GBM,HNSC,LUSC,SARC
chr12:97286334:+>chr12:97328754:+	chr12	97286062	97286334	+	chr12	97328754	97328984	+	TSF	ENST00000266742,ENST00000429527,ENST00000557478,ENST00000411739,ENST00000553609,ENST00000557644,ENST00000457368	39,39,39,39,39,7,7,7,7,7,18,18,18,18,18,18,39,7,18,39	5666-5686	10388-10408	CESC,LUSC,SARC
chr12:9809756:+>chr12:9833519:+	chr12	9809754	9809756	+	chr12	9833519	9833630	+	TSF	ENST00000261340,ENST00000290855,ENST00000325960,ENST00000492359,ENST00000444971,ENST00000479877,ENST00000543300	1,1,1,1,1,1,1	5687-5693	10409-10415	BLCA,BRCA,DLBC,LUAD,OV,PAAD,SARC,STAD
chr13:101090970:+>chr13:101101506:+	chr13	101090702	101090970	+	chr13	101101506	101101559	+	TSF	ENST00000376279,ENST00000376286,ENST00000376285,ENST00000458283,ENST00000413170	46,46,46,46,46,15,15,22,22,15,15,22,22,15,22	5694-5708	10416-10430	CESC,CHOL,COAD,KICH,KIRC,LUAD,LUSC,PAAD,PCPG,READ,SKCM,STAD,UCEC
chr13:101090974:+>chr13:101167681:+	chr13	101090702	101090974	+	chr13	101167681	101167821	+	TSF	ENST00000376286,ENST00000376285,ENST00000428969	48,48,16,16,16,23,23,23,48	5709-5717	10431-10439	CESC,COAD,LUAD,OV,READ,STAD,UCEC
chr13:102182187:+>chr13:102220050:+	chr13	102181928	102182187	+	chr13	102220050	102220196	+	TSF	ENST00000376180,ENST00000376162	7,7,1,1,37,37	5718-5723	10440-10445	BRCA,GBM,KIRC,KIRP,LUAD,SARC,SKCM
chr13:111287482:+>chr13:111287815:+	chr13	111287310	111287482	+	chr13	111287815	111287935	+	TAF	ENST00000458711,ENST00000424185,ENST00000309957	3,3,3,6,6,6,11,11,11	5724-5732	10446-10454	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,UCS,UVM
chr13:114997117:+>chr13:115002120:+	chr13	114996946	114997117	+	chr13	115002120	115002174	+	TSF	ENST00000360383,ENST00000356221,ENST00000252457	16,16,16,21,21,25,25,25,21	5733-5741	10455-10463	OV
chr13:22254080:+>chr13:22255181:+	chr13	22253799	22254080	+	chr13	22255181	22255284	+	TAF	ENST00000382353	13,60,21	5742-5744	10464-10466	ACC,CESC,GBM,KICH,KIRC,KIRP,LGG,MESO,OV,PCPG,SKCM,UCEC,UCS,UVM
chr13:24331229:->chr13:24330757:-	chr13	24331567	24331229	-	chr13	24330757	24330684	-	TSF	ENST00000433710,ENST00000382172	4,4,12,28,28,12	5745-5750	10467-10472	HNSC,LUSC,MESO,PRAD,SARC,THYM

chr13:28225489:+>chr13:28239823:+	chr13	28224759	28225489	+	chr13	28239823	28240090	+	TAF	ENST00000399697	1,6,11	5751-5753	10473-10475	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LUAD,LUSC,OV,PAAD,PRAD,READ,SKCM,STAD,THYM,UCEC
chr13:34394605:+>chr13:34395269:+	chr13	34394352	34394605	+	chr13	34395269	34395406	+	TSF	ENST00000380071,ENST00000434425	35,35,2,2,25,25	5754-5759	10476-10481	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LGG,LUAD,LUSC,OV,PCPG,PRAD,READ,STAD
chr13:37599328:->chr13:37598330:-	chr13	37599378	37599328	-	chr13	37598330	37598172	-	TAF	ENST00000490716,ENST00000495071,ENST00000360252,ENST00000475892,ENST00000469488,ENST00000356185,ENST00000350612,ENST00000464744,ENST00000542180	7,7,7,7,7,7,7,7,15,15,15,16,16,16,15,15,15,15,15,16,16,16,15,16,16,16	5760-5786	10482-10508	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRP,LGG,LUAD,LUSC,PAAD,PRAD,READ,SARC,SKCM,TGCT,THCA,UCEC,UCS
chr13:41835827:->chr13:41835051:-	chr13	41835911	41835827	-	chr13	41835051	41834629	-	TAF	ENST00000430347	1,4	5787-5788	10509-10510	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chr13:43629679:+>chr13:43639822:+	chr13	43628887	43629679	+	chr13	43639822	43639873	+	TAF	ENST00000379221	46,16,6	5789-5791	10511-10513	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,READ,STAD,TGCT,UCEC,UCS
chr13:43629679:+>chr13:43643066:+	chr13	43628887	43629679	+	chr13	43643066	43643139	+	TAF	ENST00000379221	46,16,6	5792-5794	10514-10516	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr13:43629679:+>chr13:43681314:+	chr13	43628887	43629679	+	chr13	43681314	43681384	+	TSF	ENST00000379221	46,16,6	5795-5797	10517-10519	ACC,BLCA,BRCA,CESC,COAD,DLBC,KIRC,LUAD,LUSC,MESO,OV,READ,SARC,STAD,UCEC
chr13:43659268:+>chr13:43659904:+	chr13	43659219	43659268	+	chr13	43659904	43659974	+	TAF	ENST00000379221	5,16,16	5798-5800	10520-10522	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PAAD,READ,STAD,TGCT,UCEC
chr13:43671144:+>chr13:43681314:+	chr13	43670805	43671144	+	chr13	43681314	43681384	+	TSF	ENST00000379221	40,21,7	5801-5803	10523-10525	BLCA,CESC,CHOL,COAD,LUAD,OV,PAAD,READ,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr13:45925234:->chr13:45914303:-	chr13	45925262	45925234	-	chr13	45914303	45914129	-	TSF	ENST00000379056,ENST00000530705,ENST00000379060,ENST00000379055,ENST00000309246,ENST00000527226	9,9,9,9,6,6,6,6,6,6,9,9	5804-5815	10526-10537	BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,OV,READ,STAD,TGCT,THYM
chr13:51289014:->chr13:51287376:-	chr13	51289548	51289014	-	chr13	51287376	51287353	-	TSF	ENST00000400393	17,33	5816-5817	10538-10539	BRCA,GBM,LGG
chr13:51414079:->chr13:51397656:-	chr13	51414162	51414079	-	chr13	51397656	51397450	-	TSF	ENST00000504404	28,21,27	5818-5820	10540-10542	GBM,KIRC,LGG,LUAD,THCA
chr13:51440362:+>chr13:51501543:+	chr13	51440177	51440362	+	chr13	51501543	51501614	+	TSF	ENST00000336617,ENST00000422660	42,42,30,30	5821-5824	10543-10546	BRCA,GBM,OV,STAD,THYM
chr13:60979204:+>chr13:61013822:+	chr13	60978922	60979204	+	chr13	61013822	61013906	+	TAF	ENST00000535286	48,21,7	5825-5827	10547-10549	BRCA,HNSC,KIRC,KIRP,LIHC,LUAD,PAAD,SARC,SKCM,UVM
chr13:71010948:->chr13:70549934:-	chr13	71011242	71010948	-	chr13	70549934	70549752	-	TSF	ENST00000377844	41,1,7	5828-5830	10550-10552	BRCA
chr13:73295918:->chr13:73293235:-	chr13	73295985	73295918	-	chr13	73293235	73293090	-	TSF	ENST00000377818	15,6,22	5831-5833	10553-10555	BRCA,CESC,COAD,GBM,HNSC,LUAD,LUSC,STAD,TGCT

Table 19

chr13:76175706:+>chr13:76178905:+	chr13	76173531	76175706	+	chr13	76178905	76178963	+	TAF	ENST00000377595,ENST00000419068	13,13,1,1	5834-5837	10556-10559	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr13:78324377:+>chr13:78327338:+	chr13	78324032	78324377	+	chr13	78327338	78327493,78327417,78327376	+	TSF	ENST00000466548,ENST00000418532,ENST00000442759,ENST00000488699,ENST00000267219,ENST00000351546,ENST00000441784,ENST00000314070,ENST00000474663,ENST00000358679	5,5,5,5,5,5,5,15,15,15,15,15,15,15,15,15,15,15,16,16,16,16,16,16,16,16,16,16,5,5,5	5838-5867	10560-10589	LGG
chr13:78549482:->chr13:78492759:-	chr13	78549747	78549482	-	chr13	78492759	78492226	-	TAF	ENST00000377211	65,15,2	5868-5870	10590-10592	BLCA,BRCA,HNSC,LGG,LIHC,LUAD,LUSC,SKCM,STAD,UVM
chr13:78549606:->chr13:78492759:-	chr13	78549747	78549606	-	chr13	78492759	78492226	-	TSF	ENST00000377211	24,4,36	5871-5873	10593-10595	BLCA,LUSC,SKCM,UVM
chr13:95233815:->chr13:95233443:-	chr13	95233957	95233815	-	chr13	95233443	95233345	-	TSF	ENST00000261296	34,1	5874-5875	10596-10597	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,OV,READ,SKCM,STAD
chr13:95690729:->chr13:95686993:-	chr13	95690828	95690729	-	chr13	95686993	95686859	-	TSF	ENST00000412704,ENST00000376887	9,9,33,33,24,24	5876-5881	10598-10603	PRAD
chr13:95715253:->chr13:95715113:-	chr13	95715443	95715253	-	chr13	95715113	95714958	-	TSF	ENST00000412704,ENST00000376887	11,11,63,63	5882-5885	10604-10607	BRCA,KIRC,LUSC,PRAD
chr13:95757300:->chr13:95735544:-	chr13	95757645	95757300	-	chr13	95735544	95735394	-	TSF	ENST00000412704,ENST00000376887	29,29,4,4	5886-5889	10608-10611	LUSC,PRAD
chr13:95757300:->chr13:95748433:-	chr13	95757645	95757300	-	chr13	95748433	95748389	-	TSF	ENST00000536256,ENST00000431522	29,29,4,4	5890-5893	10612-10615	BRCA,OV,PRAD
chr13:95872224:->chr13:95863035:-	chr13	95872419	95872224	-	chr13	95863035	95862946	-	TSF	ENST00000412704,ENST00000376887,ENST00000536256,ENST00000431522	13,7,7,7,7,13,13,13	5894-5901	10616-10623	PRAD
chr13:98628756:+>chr13:98628947:+	chr13	98628730	98628756	+	chr13	98628947	98629041	+	TAF	ENST00000460070,ENST00000481455,ENST00000261574,ENST00000493281,ENST00000490369,ENST00000463157,ENST00000489058,ENST00000481689,ENST00000480611,ENST00000485433,ENST00000496368,ENST00000421861	9,9,9,9,9,9,9,9,9,9,8,8,8,8,8,8,8,8,8,8,8,8,8,9,8,8,8,9,8,8,8,8,8,8,8,8	5902-5937	10624-10659	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,UCEC,UCS,UVM
chr13:99121063:->chr13:99118815:-	chr13	99121170	99121063	-	chr13	99118815	99118630	-	TAF	ENST00000376554,ENST00000397517,ENST00000376547,ENST00000539966,ENST00000444574	4,17,17,17,17,17,17,4,4,4	5938-5947	10660-10669	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,READ,SKCM,STAD,THCA,THYM,UCEC
chr14:100572471:+>chr14:100589876:+	chr14	100572435	100572471	+	chr14	100589876	100589907	+	TSF	ENST00000555706,ENST00000402714,ENST00000544450,ENST00000392920,ENST00000557153,ENST00000557384	5,5,12,12,12,12,12,12,11,11,11,11,11,5,5,12,11,5,5	5948-5965	10670-10687	BRCA,GBM,KIRC,LUAD,LUSC,THYM
chr14:100581300:+>chr14:100589876:+	chr14	100581223	100581300	+	chr14	100589876	100589907	+	TSF	ENST00000555706,ENST00000402714,ENST00000544450,ENST00000392920,ENST00000557153,ENST00000557384	2,2,2,2,2,25,25,25,25,25,25,25,25,2,2,25,25,25,25	5966-5983	10688-10705	BRCA,PRAD,THYM
chr14:100606856:+>chr14:100607517:+	chr14	100606667	100606856	+	chr14	100607517	100607583	+	TSF	ENST00000402714,ENST00000392920,ENST00000554695	18,18,18,7,7,7	5984-5989	10706-10711	BLCA,BRCA,CHOL,KIRC,PRAD,THCA,THYM,UCS

Table 19

chr14:100942918:+>chr14:100950331:+	chr14	100942914	100942918	+	chr14	100950331	100950461	+	TSF	ENST00000554998,ENST00000402312,ENST00000335290,ENST00000557710,ENST00000542471	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	5990-6004	10712-10726	BLCA,BRCA,DLBC,HNSC,KIRP,LUAD,PAAD,PCPG,SARC,SKCM,STAD,THCA
chr14:101195584:+>chr14:101198379:+	chr14	101195452	101195584	+	chr14	101198379	101198407	+	TSF	ENST00000392848,ENST00000341267,ENST00000331224	15,44,10,15,44,44,10,10,15	6005-6013	10727-10735	ACC,BRCA,LUSC,OV,PCPG,SARC,TGCT,UCS
chr14:102691432:->chr14:102691131:-	chr14	102691697	102691432	-	chr14	102691131	102691116	-	TAF	ENST00000559838	12,10,1	6014-6016	10736-10738	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr14:102691557:->chr14:102691131:-	chr14	102691697	102691557	-	chr14	102691131	102691116	-	TSF	ENST00000559838	13,19,24	6017-6019	10739-10741	BLCA,BRCA,HNSC,KIRC,KIRP,MESO,SKCM,UCEC
chr14:104020199:+>chr14:104053611:+	chr14	104020098	104020199	+	chr14	104053611	104053701,104053628,104053671	+	TSF	ENST00000409074,ENST00000472726,ENST00000440963,ENST00000458117,ENST00000556253,ENST00000247618	18,18,18,18,18,18,33,33,33,33,33,33,33,33,33,33,33,33	6020-6037	10742-10759	BRCA,GBM,KIRP,THCA
chr14:105173038:+>chr14:105173247:+	chr14	105172936	105173038	+	chr14	105173247	105173388	+	TSF	ENST00000330634,ENST00000392634	1,1,33,33	6038-6041	10760-10763	BLCA,BRCA,COAD,LUAD,OV,PAAD,STAD
chr14:105641815:->chr14:105639598:-	chr14	105642036	105641815	-	chr14	105639598	105639358	-	TSF	ENST00000392568	7,33,20	6042-6044	10764-10766	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRC,LUAD,LUSC,MESO,OV,PRAD,SARC,TGCT,THCA,THYM,UCEC
chr14:105944027:+>chr14:105944603:+	chr14	105944002	105944027	+	chr14	105944603	105944697	+	TSF	ENST00000483017,ENST00000329146	8,8,8,8,8,8	6045-6050	10767-10772	BRCA,OV,THCA
chr14:105944067:+>chr14:105944603:+	chr14	105944002	105944067	+	chr14	105944603	105944697	+	TSF	ENST00000483017,ENST00000329146	22,22,21,21,9,9	6051-6056	10773-10778	BRCA,KIRC,LGG,LUAD,OV,PRAD,THCA
chr14:105944196:+>chr14:105944603:+	chr14	105944002	105944196	+	chr14	105944603	105944697	+	TSF	ENST00000483017,ENST00000329146	65,65,6,6,52,52	6057-6062	10779-10784	BRCA,CESC,OV,STAD,THYM
chr14:105944214:+>chr14:105944603:+	chr14	105944002	105944214	+	chr14	105944603	105944697	+	TAF	ENST00000483017,ENST00000329146	71,71,12,12,58,58	6063-6068	10785-10790	BRCA,CESC,DLBC,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,THCA,THYM,UCEC,UCS
chr14:105944232:+>chr14:105944603:+	chr14	105944002	105944232	+	chr14	105944603	105944697	+	TAF	ENST00000483017,ENST00000329146	77,77,18,18,64,64	6069-6074	10791-10796	BRCA,CESC,GBM,HNSC,KIRC,KIRP,LUAD,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS
chr14:105944250:+>chr14:105944603:+	chr14	105944002	105944250	+	chr14	105944603	105944697	+	TAF	ENST00000483017,ENST00000329146	83,83,24,24,70,70	6075-6080	10797-10802	BRCA,CESC,GBM,HNSC,KIRC,KIRP,LUAD,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS
chr14:105944268:+>chr14:105944603:+	chr14	105944002	105944268	+	chr14	105944603	105944697	+	TAF	ENST00000483017,ENST00000329146	89,89,30,30,76,76	6081-6086	10803-10808	BRCA,CESC,GBM,HNSC,KIRC,KIRP,LUAD,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS
chr14:106174466:+>chr14:106173770:-	chr14	106174427	106174466	+	chr14	106173770	106173505	-	TSF	ENST00000390547	13,4	6087-6088	10809-10810	STAD
chr14:106258725:->chr14:106209234:-	chr14	106258982	106258725	-	chr14	106209234	106209114	-	TSF	ENST00000390548,ENST00000390549,ENST00000390542	14,36,36,36,27,27,27,14,14	6089-6097	10811-10819	BLCA,BRCA,COAD,HNSC,KIRC,LUAD,LUSC,OV,PAAD,PRAD,READ,SKCM,STAD,THCA,UCEC,UCS

Table 19

chr14:106258725:->chr14:106237569:-	chr14	106258982	106258725	-	chr14	106237569	106237449	-	TSF	ENST00000390551	36,27,14	6098-6100	10820-10822	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LUAD,LUSC,OV,PAAD,PRAD,READ,SKCM,STAD,THCA,UCEC,UCS
chr14:20787171:->chr14:20784719:-	chr14	20787221	20787171	-	chr14	20784719	20784573	-	TSF	ENST00000556563	17,7,16	6101-6103	10823-10825	GBM,KIRC,LUAD,OV
chr14:20974255:+>chr14:20978626:+	chr14	20973494	20974255	+	chr14	20978626	20979281	+	TSF	ENST00000430083	1,37,14	6104-6106	10826-10828	BLCA,CESC,HNSC,LUSC,TGCT
chr14:20974295:+>chr14:20978626:+	chr14	20973494	20974295	+	chr14	20978626	20979281	+	TSF	ENST00000430083	14,12,27	6107-6109	10829-10831	BLCA,CESC,HNSC,LUSC,TGCT
chr14:20974386:+>chr14:20978626:+	chr14	20974370	20974386	+	chr14	20978626	20979281	+	TSF	ENST00000430083	5,5,5	6110-6112	10832-10834	CESC,HNSC,LUSC,TGCT
chr14:21515025:->chr14:21491480:-	chr14	21515206	21515025	-	chr14	21491480	21491400	-	TAF	ENST00000403829	2,7	6113-6114	10835-10836	BLCA,BRCA,GBM,LGG,LIHC,OV,SKCM
chr14:23040779:->chr14:23034037:-	chr14	23040829	23040779	-	chr14	23034037	23034012	-	TAF	ENST00000538631	15,7,16	6115-6117	10837-10839	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UVM
chr14:24105801:+>chr14:24112361:+	chr14	24104836	24105801	+	chr14	24112361	24112428	+	TSF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	16,4,4,4,4,4,79,79,79,79,79,79,16,16,16	6118-6132	10840-10854	BLCA,BRCA,HNSC,KICH,LUSC,STAD
chr14:24105898:+>chr14:24112361:+	chr14	24105862	24105898	+	chr14	24112361	24112428	+	TSF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	8,8,8,8,8,12,12,12,12,12	6133-6142	10855-10864	BLCA,BRCA,HNSC
chr14:24105955:+>chr14:24112361:+	chr14	24105943	24105955	+	chr14	24112361	24112428	+	TSF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	4,4,4,4,4,4,3,3,3,3,3,4,4,4,4	6143-6157	10865-10879	BLCA,BRCA,OV,THYM
chr14:24105981:+>chr14:24108127:+	chr14	24105943	24105981	+	chr14	24108127	24108213	+	TSF	ENST00000432832,ENST00000250383,ENST00000344777	13,13,13,12,7,7,7,12,12	6158-6166	10880-10888	ACC,BLCA,BRCA,KICH,LIHC,LUAD,LUSC,STAD,THYM
chr14:24105981:+>chr14:24109003:+	chr14	24105943	24105981	+	chr14	24109003	24109104	+	TAF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	13,12,12,12,12,12,7,7,7,7,7,13,13,13,13	6167-6181	10889-10903	ACC,BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,STAD,THCA,THYM,UCEC
chr14:24105981:+>chr14:24112361:+	chr14	24105943	24105981	+	chr14	24112361	24112428	+	TAF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	13,7,7,7,7,7,13,13,13,13	6182-6191	10904-10913	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,STAD,THCA,THYM,UCEC,UCS
chr14:24105981:+>chr14:24113320:+	chr14	24105943	24105981	+	chr14	24113320	24113371	+	TSF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	13,13,13,13,13,12,7,7,7,7,7,12,12,12,12	6192-6206	10914-10928	BLCA,BRCA,HNSC
chr14:24105981:+>chr14:24113618:+	chr14	24105943	24105981	+	chr14	24113618	24113752,24113763,24113704	+	TSF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	13,12,12,12,12,7,7,7,7,13,13,13,12,13	6207-6221	10929-10943	BLCA,BRCA,CESC,HNSC,KICH,KIRP,LIHC,LUAD,LUSC,OV,PCPG,STAD,THYM
chr14:24107626:+>chr14:24108388:+	chr14	24107624	24107626	+	chr14	24108388	24108565	+	TAF	ENST00000432832,ENST00000250383,ENST00000344777	1,1,1	6222-6224	10944-10946	ACC,BLCA,BRCA,KICH,KIRP,THYM

chr14:24113155:+>chr14:24113320:+	chr14	24113093	24113155	+	chr14	24113320	24113371	+	TAF	ENST00000432832,ENST00000250383,ENST00000344777,ENST00000557535,ENST00000553600	11,11,11,11,11,20,6,6,6,6,6,20,20,20,20	6225-6239	10947-10961	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,OV,PRAD,STAD,THCA,THYM,UCEC
chr14:24631779:+>chr14:24632175:+	chr14	24631729	24631779	+	chr14	24632175	24632191	+	TAF	ENST00000561342,ENST00000560852,ENST00000396864,ENST00000559284,ENST00000560275,ENST00000396864,ENST00000561342,ENST00000559284,ENST00000560275,ENST00000560852	17,7,16,16,16,16,17,17,7,7,17,7,17,7	6240-6254	10962-10976	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr14:24681871:->chr14:24681035:-	chr14	24682072	24681871	-	chr14	24681035	24680886	-	TSF	ENST00000530611,ENST00000556387,ENST00000347519,ENST00000533523,ENST00000609024,ENST00000533011,ENST00000534106	9,9,18,18,18,18,18,18,1,1,1,1,1,1,9,9,9,9,9	6255-6275	10977-10997	ACC,BRCA,CESC,HNSC,KIRP,LGG,LUAD,LUSC,OV,PRAD,SARC,STAD,THCA,THYM,UVM
chr14:24682139:->chr14:24681035:-	chr14	24682204	24682139	-	chr14	24681035	24680886	-	TSF	ENST00000530611,ENST00000556387,ENST00000347519,ENST00000533523,ENST00000609024,ENST00000533011,ENST00000534106	22,22,22,22,22,22,22,21,21,21,21,21,21	6276-6289	10998-11011	ACC,BRCA,DLBC,KIRC,MESO,OV,PRAD,SARC,THCA,THYM,UCEC
chr14:24686695:->chr14:24686429:-	chr14	24686795	24686695	-	chr14	24686429	24686392	-	TSF	ENST00000605847,ENST00000250495	33,24,24,11,11,33	6290-6295	11012-11017	OV,STAD
chr14:26959460:->chr14:26949349:-	chr14	26959896	26959460	-	chr14	26949349	26949183	-	TSF	ENST00000465357,ENST00000539517,ENST00000449198,ENST00000549571,ENST00000344429,ENST00000547619,ENST00000574031	7,7,7,7,7,7,7,30,12,12,12,12,12,12,12,30,30,30,30,30,30	6296-6316	11018-11038	BRCA,GBM,LGG
chr14:32036132:+>chr14:32068495:+	chr14	32035785	32036132	+	chr14	32068495	32068585	+	TSF	ENST00000281081,ENST00000547839,ENST00000549838,ENST00000551314,ENST00000536705	4,4,7,7,7,7,7,13,13,13,13,4,4,13,4	6317-6331	11039-11053	LGG,SARC,SKCM
chr14:34409759:->chr14:34400421:-	chr14	34409875	34409759	-	chr14	34400421	34400302	-	TSF	ENST00000250457,ENST00000553215,ENST00000487915	8,8,19,19,19,6,6,6,8	6332-6340	11054-11062	BRCA,GBM,HNSC,KIRC,LUAD,LUSC,PCPG,SARC
chr14:35035230:->chr14:35032381:-	chr14	35035301	35035230	-	chr14	35032381	35032328	-	TAF	ENST00000396526,ENST00000396534,ENST00000362031,ENST00000355110	24,24,24,24,14,14,14,14,10,10,10	6341-6352	11063-11074	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PRAD,SARC,TGCT,THCA,THYM,UCEC,UCS
chr14:35063813:->chr14:35062356:-	chr14	35063866	35063813	-	chr14	35062356	35062251	-	TSF	ENST00000396526,ENST00000396534,ENST00000362031,ENST00000355110,ENST00000557265	7,7,7,7,1,1,1,1,1,17,17,17,17,17,7	6353-6367	11075-11089	OV
chr14:37888315:+>chr14:37892060:+	chr14	37888149	37888315	+	chr14	37892060	37892154	+	TSF	ENST00000536774,ENST00000327441,ENST00000539062,ENST00000556451,ENST00000555870,ENST00000396294,ENST00000545536,ENST00000537471	38,38,38,38,38,38,38,38,7,7,7,7,7,7,1,1,1,1,1,1,1	6368-6391	11090-11113	PRAD
chr14:45596304:->chr14:45590823:-	chr14	45596308	45596304	-	chr14	45590823	45590688	-	TAF	ENST00000396062,ENST00000216330	1,1,1,1,1,1	6392-6397	11114-11119	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM

Table 19

chr14:50053490:+>chr14:50166790:+	chr14	50053298	50053490	+	chr14	50166790	50166875	+	TSF	ENST00000555704	3,18,6	6398-6400	11120-11122	STAD
chr14:50113288:->chr14:50110388:-	chr14	50113338	50113288	-	chr14	50110388	50110370	-	TSF	ENST00000216367,ENST00000539565	17,17,7,7,16,16	6401-6406	11123-11128	BLCA,LIHC,READ,STAD,TGCT,UCEC,UCS
chr14:50285011:->chr14:50281575:-	chr14	50285108	50285011	-	chr14	50281575	50281472	-	TSF	ENST00000298310,ENST00000545773,ENST00000546046,ENST00000555970	23,23,1,1,1,1,32,32,32,32,23,23	6407-6418	11129-11140	TGCT
chr14:51360476:+>chr14:51368547:+	chr14	51360331	51360476	+	chr14	51368547	51368629	+	TSF	ENST00000337334,ENST00000353130,ENST00000395752	23,23,23,44,44,44,16,16,16	6419-6427	11141-11149	BLCA,BRCA,CESC,COAD,HNSC,LUSC,READ,STAD,TGCT
chr14:51362421:+>chr14:51368547:+	chr14	51360331	51362421	+	chr14	51368547	51368629	+	TSF	ENST00000337334,ENST00000353130,ENST00000395752	8,8,8,22,22,22,20,20,20,20	6428-6436	11150-11158	BLCA,COAD,LUSC,TGCT
chr14:51362440:+>chr14:51368547:+	chr14	51360331	51362440	+	chr14	51368547	51368629	+	TSF	ENST00000337334,ENST00000353130,ENST00000395752	14,14,14,5,5,5,26,26,26	6437-6445	11159-11167	BLCA,BRCA,CESC,COAD,HNSC,LUSC,PAAD,READ,STAD,TGCT,UCEC
chr14:51363531:+>chr14:51368547:+	chr14	51363110	51363531	+	chr14	51368547	51368629	+	TSF	ENST00000337334,ENST00000353130,ENST00000395752	44,44,44,30,30,30,11,11,11	6446-6454	11168-11176	BLCA,CESC,COAD,HNSC,LUSC,READ,TGCT
chr14:51365697:+>chr14:51368547:+	chr14	51365630	51365697	+	chr14	51368547	51368629	+	TSF	ENST00000337334,ENST00000353130,ENST00000395752	13,13,13,22,22,22	6455-6460	11177-11182	TGCT
chr14:52338741:+>chr14:52344335:+	chr14	52338594	52338741	+	chr14	52344335	52344375	+	TSF	ENST00000556522	3,13,48	6461-6463	11183-11185	GBM,LGG,PAAD,SKCM,STAD
chr14:52929530:->chr14:52923892:-	chr14	52930122	52929530	-	chr14	52923892	52923808	-	TAF	ENST00000281741	21,24	6464-6465	11186-11187	BRCA,LUAD,OV,PRAD,STAD
chr14:55484310:->chr14:55480314:-	chr14	55484360	55484310	-	chr14	55480314	55480203	-	TSF	ENST00000360586,ENST00000455555	17,17,7,7	6466-6469	11188-11191	BRCA,TGCT
chr14:56129713:+>chr14:56130673:+	chr14	56129674	56129713	+	chr14	56130673	56130759	+	TSF	ENST00000395309,ENST00000413890,ENST00000395314,ENST00000459737,ENST00000395308,ENST00000395311,ENST00000416613,ENST00000555573	12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12	6470-6485	11192-11207	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,TGCT
chr14:58544802:->chr14:58478868:-	chr14	58545088	58544802	-	chr14	58478868	58478837	-	TSF	ENST00000267485	4,3	6486-6487	11208-11209	KICH,KIRC
chr14:60106250:->chr14:60074210:-	chr14	60107035	60106250	-	chr14	60074210	60074003	-	TSF	ENST00000395090,ENST00000342503,ENST00000267484	2,2,2,19,19,19,50,50,50	6488-6496	11210-11218	GBM,LGG
chr14:61868698:+>chr14:61909829:+	chr14	61868140	61868698	+	chr14	61909829	61909979	+	TSF	ENST00000332981,ENST00000553830	32,10,10,13,32,13	6497-6502	11219-11224	SKCM,UVM
chr14:65406835:->chr14:65406556:-	chr14	65406849	65406835	-	chr14	65406556	65406206	-	TAF	ENST00000389614,ENST00000557049	5,5,4,4,4,4	6503-6508	11225-11230	BLCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,PAAD,READ,STAD,UCEC
chr14:67820416:->chr14:67819757:-	chr14	67820507	67820416	-	chr14	67819757	67819640	-	TSF	ENST00000554087,ENST00000555474,ENST00000216442,ENST00000554236,ENST00000556058,ENST00000555012	1,1,21,21,21,21,21,21,21,8,8,8,8,8,8,8,8,1,1,1,1	6509-6526	11231-11248	GBM,KICH,KIRC,LGG,SARC,THCA
chr14:67862594:->chr14:67862300:-	chr14	67862610	67862594	-	chr14	67862300	67862119	-	TSF	ENST00000216446,ENST00000555803,ENST00000554395	5,5,5,5,5,5,1,1,1	6527-6535	11249-11257	BRCA,GBM,PCPG,STAD
chr14:68160511:->chr14:68159769:-	chr14	68160667	68160511	-	chr14	68159769	68159652	-	TSF	ENST00000381346,ENST00000553384,ENST00000428130,ENST00000557273,ENST00000557726	17,17,17,17,17,43,43,43,43,43,6,6,6,6,6	6536-6550	11258-11272	BRCA,PRAD
chr14:68507934:+>chr14:68758601:+	chr14	68507686	68507934	+	chr14	68758601	68758697	+	TSF	ENST00000487861,ENST00000471583,ENST00000487270,ENST00000488612,ENST00000390683	29,25,25,25,25,25,12,12,12,12,12,29,29,29,29	6551-6565	11273-11287	LUSC,MESO,THYM

Table 19

chr14:69847502:->chr14:69847357:-	chr14	69847661	69847502	-	chr14	69847357	69847255	-	TAF	ENST00000557016	52,10,4	6566-6568	11288-11290	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr14:69855278:->chr14:69853800:-	chr14	69855378	69855278	-	chr14	69853800	69853681	-	TSF	ENST00000557016,ENST00000555373	13,13,24,11,11,24	6569-6574	11291-11296	PRAD
chr14:69863209:->chr14:69861629:-	chr14	69863275	69863209	-	chr14	69861629	69861542	-	TAF	ENST00000557016,ENST00000555373	22,13,13,22	6575-6578	11297-11300	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr14:70422072:+>chr14:70442432:+	chr14	70421994	70422072	+	chr14	70442432	70442531	+	TAF	ENST00000361956,ENST00000381280	18,18,26,25,25,26	6579-6584	11301-11306	BLCA,GBM,KICH,KIRC,LGG,LIHC,PCPG,SARC,STAD,UCEC
chr14:70466673:+>chr14:70477471:+	chr14	70466641	70466673	+	chr14	70477471	70477663	+	TSF	ENST00000361956,ENST00000381280	11,11,10,10,10,10	6585-6590	11307-11312	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,SARC,STAD,TGCT,UCEC
chr14:70495153:+>chr14:70496959:+	chr14	70495075	70495153	+	chr14	70496959	70496975	+	TSF	ENST00000361956	20,13	6591-6592	11313-11314	LGG
chr14:70495153:+>chr14:70496962:+	chr14	70495075	70495153	+	chr14	70496962	70496975	+	TSF	ENST00000361956,ENST00000381280	20,20,15,15,13,13	6593-6598	11315-11320	KICH,LGG
chr14:72944289:+>chr14:72944976:+	chr14	72944225	72944289	+	chr14	72944976	72945037	+	TAF	ENST00000553525,ENST00000555571,ENST00000553530,ENST00000554474,ENST00000556437,ENST00000355512,ENST00000404301,ENST00000406236,ENST00000407322,ENST00000343854,ENST00000402788,ENST00000434263,ENST00000554782	13,13,13,13,13,13,13,13,13,13,13,13,13,21,21,21,21,21,21,21,21,21,21,21,21,21	6599-6624	11321-11346	GBM,LGG
chr14:75983948:+>chr14:75991427:+	chr14	75983600	75983948	+	chr14	75991427	75991532	+	TSF	ENST00000286639,ENST00000555504	16,16,10,6,6,10	6625-6630	11347-11352	BRCA,DLBC,LUSC
chr14:76123598:->chr14:76121319:-	chr14	76123655	76123598	-	chr14	76121319	76121229	-	TAF	ENST00000256319	6,18	6631-6632	11353-11354	ACC,BLCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,SKCM,STAD,UCEC
chr14:77241058:+>chr14:77242235:+	chr14	77240992	77241058	+	chr14	77242235	77242616	+	TSF	ENST00000167106	22,12,21	6633-6635	11355-11357	GBM,KIRC,LGG,LUSC,OV,SARC,TGCT,THYM
chr14:78042075:->chr14:78036851:-	chr14	78042174	78042075	-	chr14	78036851	78036727	-	TAF	ENST00000216484,ENST00000554901	15,11,11,2,2,15	6636-6641	11358-11363	BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,LUAD,LUSC,MESO,PAAD,STAD,TGCT
chr14:81545280:+>chr14:81554298:+	chr14	81544931	81545280	+	chr14	81554298	81554372	+	TAF	ENST00000541158,ENST00000342443,ENST00000298171,ENST00000554263,ENST00000554435	3,3,27,27,27,27,27,3,3,3	6642-6651	11364-11373	THCA
chr14:91013107:->chr14:91007933:-	chr14	91013189	91013107	-	chr14	91007933	91007713	-	TSF	ENST00000328459,ENST00000357056,ENST00000553972,ENST00000555894,ENST00000557292	24,24,24,24,24,27,27,27,27,16,16,16,16,27	6652-6666	11374-11388	ACC,PCPG
chr14:92112481:->chr14:92105594:-	chr14	92112577	92112481	-	chr14	92105594	92105509	-	TSF	ENST00000557036,ENST00000256343	32,32,6,6	6667-6670	11389-11392	HNSC,LUSC,OV,PRAD
chr14:92119864:->chr14:92105594:-	chr14	92120138	92119864	-	chr14	92105594	92105441	-	TSF	ENST00000256343,ENST00000557036	18,18,8,8	6671-6674	11393-11396	BRCA,LUAD,SKCM

Table 19

chr14:92270000:->chr14:92268765:-	chr14	92270099	92270000	-	chr14	92268765	92268598	-	TSF	ENST00000435962,ENST00000340892,ENST00000360594,ENST00000556018	33,33,33,11,11,11,11,16,16,16,16,33	6675-6686	11397-11408	BRCA,LUAD,STAD
chr14:92586220:->chr14:92583986:-	chr14	92586341	92586220	-	chr14	92583986	92583842	-	TSF	ENST00000329559	7,4	6687-6688	11409-11410	BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC
chr14:93063281:+>chr14:93081752:+	chr14	93063213	93063281	+	chr14	93081752	93081824	+	TSF	ENST00000216487	9,22,6	6689-6691	11411-11413	HNSC,LUSC,PAAD,STAD
chr14:93396958:+>chr14:93397595:+	chr14	93396861	93396958	+	chr14	93397595	93398047	+	TSF	ENST00000216492	32,32,3	6692-6694	11414-11416	PCPG
chr14:93399750:+>chr14:93401146:+	chr14	93399634	93399750	+	chr14	93401146	93401229	+	TSF	ENST00000216492,ENST00000334654	39,39,2,2	6695-6698	11417-11420	BRCA,OV,PAAD,PCPG,STAD,UCEC
chr14:93425269:->chr14:93424711:-	chr14	93425387	93425269	-	chr14	93424711	93424546,93424579,93424616	-	TAF	ENST00000267615,ENST00000354313,ENST00000556603,ENST00000555495,ENST00000554999,ENST00000556185,ENST00000555553	11,11,11,11,11,11,11,39,39,39,39,1,1,1,1,39,1,39,1,39,1	6699-6719	11421-11441	CESC,GBM,LGG,LUAD,OV,PCPG,SKCM
chr14:94518094:->chr14:94517808:-	chr14	94518197	94518094	-	chr14	94517808	94517537	-	TAF	ENST00000330836,ENST00000544005,ENST00000555054	1,1,1,3,3,3,21,21,21	6720-6728	11442-11450	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRP,LGG,LUSC,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr14:94581557:+>chr14:94582127:+	chr14	94581487	94581557	+	chr14	94582127	94582191,94582279,94582176	+	TAF	ENST00000554448,ENST00000448882,ENST00000554800,ENST00000556544,ENST00000298902,ENST00000557634,ENST00000555744,ENST00000557035	23,13,10,23,23,23,23,13,13,13,13,10,10,10,10,10,23,13,10,23,13,23,13	6729-6752	11451-11474	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRP,LGG,LUAD,LUSC,MESO,OV,PCPG,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UVM
chr14:94936425:->chr14:94935803:-	chr14	94936503	94936425	-	chr14	94935803	94935551	-	TSF	ENST00000448305,ENST00000337425,ENST00000380365,ENST00000538527,ENST00000546329	26,26,26,26,26,18,18,18,18,18,13,13,13,13,13	6753-6767	11475-11489	DLBC,STAD
chr14:95048047:+>chr14:95053957:+	chr14	95047992	95048047	+	chr14	95053957	95054215,95054318,95053971,95053957,95054132,95054170	+	TSF	ENST00000554220,ENST00000553780,ENST00000554760,ENST00000554866,ENST00000329597,ENST00000556775,ENST00000553511,ENST00000554633,ENST00000555681,ENST00000554276,ENST00000557598	18,9,9,9,9,9,9,9,9,9,9,18,18,18,18,18,18,18,18,9,18,18,18	6768-6788	11490-11510	OV
chr14:97013272:+>chr14:97014134:+	chr14	97013173	97013272	+	chr14	97014134	97014255	+	TSF	ENST00000216277,ENST00000392990,ENST00000555626	33,16,16,16,10,10,10,33,33	6789-6797	11511-11519	BRCA,OV,STAD,UCEC
chr15:101823443:->chr15:101821987:-	chr15	101823470	101823443	-	chr15	101821987	101821929	-	TSF	ENST00000254193,ENST00000560496	2,9,8,8,2,9	6798-6803	11520-11525	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LIHC,LUSC,OV,PRAD,STAD,TGCT,UCEC
chr15:101833498:->chr15:101833377:-	chr15	101833626	101833498	-	chr15	101833377	101833230	-	TAF	ENST00000254193,ENST00000559309	5,5,2,2	6804-6807	11526-11529	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC
chr15:28123431:->chr15:28117068:-	chr15	28123956	28123431	-	chr15	28117068	28117009	-	TSF	ENST00000353809,ENST00000354638	2,2,8,8	6808-6811	11530-11533	LUSC,SKCM,UVM
chr15:28127177:->chr15:28096621:-	chr15	28127352	28127177	-	chr15	28096621	28096528	-	TSF	ENST00000353809,ENST00000354638	2,2,58,58	6812-6815	11534-11537	LIHC,SKCM,UVM
chr15:28127177:->chr15:28117068:-	chr15	28127352	28127177	-	chr15	28117068	28117009	-	TSF	ENST00000353809,ENST00000354638	27,27,2,2,58,58	6816-6821	11538-11543	LIHC,SKCM,UVM

Table 19

chr15:31365913:->chr15:31362429:-	chr15	31367719	31365913	-	chr15	31362429	31362234	-	TSF	ENST00000397795,ENST00000256552,ENST00000542188,ENST00000558445,ENST00000559177,ENST00000560658,ENST00000559179	8,8,8,8,8,8,20,20,20,20,20,20,8,20	6822-6835	11544-11557	SKCM,UVM
chr15:34453416:->chr15:34446885:-	chr15	34453644	34453416	-	chr15	34446885	34446845	-	TSF	ENST00000256544,ENST00000557877,ENST00000560108,ENST00000559515	76,76,76,76,2,30,30,30,2,2,2	6836-6847	11558-11569	BLCA,BRCA,LUAD
chr15:39896087:->chr15:39893127:-	chr15	39896167	39896087	-	chr15	39893127	39893081	-	TSF	ENST00000350221,ENST00000559547	4,4,19,19,6,6	6848-6853	11570-11575	BRCA
chr15:39898131:->chr15:39893127:-	chr15	39898214	39898131	-	chr15	39893127	39893081	-	TSF	ENST00000350221,ENST00000559547	10,10,4,4	6854-6857	11576-11579	BRCA
chr15:40186077:->chr15:40099459:-	chr15	40186285	40186077	-	chr15	40099459	40099207	-	TSF	ENST00000561100,ENST00000543580	45,45,69,69,58,58	6858-6863	11580-11585	BLCA,BRCA,HNSC,LUSC,STAD,TGCT
chr15:40186255:->chr15:40099459:-	chr15	40186285	40186255	-	chr15	40099459	40099207	-	TSF	ENST00000561100,ENST00000543580	10,10,10,10,9,9	6864-6869	11586-11591	BLCA,BRCA,HNSC,LUSC,STAD,TGCT
chr15:40186430:->chr15:40099459:-	chr15	40186558	40186430	-	chr15	40099459	40099207	-	TSF	ENST00000561100,ENST00000543580	38,38,42,42,42,42	6870-6875	11592-11597	BLCA,BRCA,HNSC,LUSC,STAD,TGCT
chr15:40186657:->chr15:40099459:-	chr15	40187476	40186657	-	chr15	40099459	40099207	-	TSF	ENST00000561100,ENST00000543580	14,14,1,1,62,62	6876-6881	11598-11603	BLCA,HNSC,LUSC,TGCT
chr15:40186733:->chr15:40099398:-	chr15	40187476	40186733	-	chr15	40099398	40099207	-	TSF	ENST00000299092,ENST00000561100,ENST00000543580	12,12,12,26,26,26,37,37,37	6882-6890	11604-11612	BLCA,HNSC,TGCT
chr15:40186733:->chr15:40099459:-	chr15	40187476	40186733	-	chr15	40099459	40099207	-	TSF	ENST00000561100,ENST00000543580	12,12,26,26,37,37	6891-6896	11613-11618	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,STAD,TGCT
chr15:41968463:->chr15:41815513:-	chr15	41968651	41968463	-	chr15	41815513	41815443	-	TAF	ENST00000561603,ENST00000304330,ENST00000562303	5,53,53,5,3,33,33,3,3,5,5	6897-6905	11619-11627	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr15:43431330:+>chr15:43440953:+	chr15	43431174	43431330	+	chr15	43440953	43441077	+	TSF	ENST00000564698,ENST00000260403,ENST00000564494	52,52,52,52,52,52	6906-6911	11628-11633	BLCA,BRCA,CESC,GBM,LUAD,PAAD,PRAD
chr15:43467988:+>chr15:43470805:+	chr15	43467899	43467988	+	chr15	43470805	43470909	+	TSF	ENST00000260403	12,6	6912-6913	11634-11635	BLCA,BRCA,COAD,LUAD,LUSC
chr15:43802568:->chr15:43784666:-	chr15	43802603	43802568	-	chr15	43784666	43784482	-	TSF	ENST00000382039,ENST00000382044,ENST00000450115,ENST00000413546	7,7,7,7,11,11,11,11,2,2,2,2	6914-6925	11636-11647	BRCA,LGG,PCPG,SARC,TGCT
chr15:43889601:+>chr15:43890391:+	chr15	43889497	43889601	+	chr15	43890391	43890525	+	TAF	ENST00000300283,ENST00000441322	15,15,3,3,2,2	6926-6931	11648-11653	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SKCM,STAD
chr15:43889601:+>chr15:43990212:+	chr15	43889497	43889601	+	chr15	43990212	43990346	+	TSF	ENST00000434505,ENST00000413453	15,15,3,3,2,2	6932-6937	11654-11659	BRCA,CESC,HNSC,LUSC,PAAD,PCPG,STAD
chr15:43989422:+>chr15:43990212:+	chr15	43989318	43989422	+	chr15	43990212	43990346	+	TAF	ENST00000434505,ENST00000413453	15,15,3,3,2,2	6938-6943	11660-11665	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,READ,SKCM,STAD
chr15:44051953:+>chr15:44053622:+	chr15	44051756	44051953	+	chr15	44053622	44053729	+	TSF	ENST00000300289,ENST00000538521	5,5,34,34	6944-6947	11666-11669	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA
chr15:44601046:+>chr15:44615163:+	chr15	44600951	44601046	+	chr15	44615163	44615217	+	TSF	ENST00000557945,ENST00000299957,ENST00000345795,ENST00000360824	32,32,14,14,14,14,22,22,22,22,32,32	6948-6959	11670-11681	BRCA,KIRC,KIRP,LUAD,OV,PCPG,PRAD,STAD

Table 19

chr15:51649596:+>chr15:51669646:+	chr15	51649563	51649596	+	chr15	51669646	51669697	+	TSF	ENST00000335449,ENST00000558426	11,11,11,10,10,11	6960-6965	11682-11687	HNSC,KIRC,LGG,LIHC,LUAD,SARC,STAD
chr15:52752156:->chr15:52725482:-	chr15	52752877	52752156	-	chr15	52725482	52725372	-	TSF	ENST00000399231,ENST00000356338,ENST00000358212,ENST00000399233,ENST00000553916,ENST00000556196	27,27,27,27,27,25,25,25,25,25,12,12,12,12,27,12	6966-6983	11688-11705	KIRP,LGG,SKCM,UVM
chr15:52752312:->chr15:52725482:-	chr15	52752877	52752312	-	chr15	52725482	52725372	-	TSF	ENST00000399231,ENST00000356338,ENST00000358212,ENST00000399233,ENST00000553916,ENST00000556196	39,39,39,39,39,24,24,24,24,1,1,1,1,39,1	6984-7001	11706-11723	SKCM
chr15:52850214:->chr15:52849419:-	chr15	52850366	52850214	-	chr15	52849419	52849297	-	TSF	ENST00000566423,ENST00000249822,ENST00000567669,ENST00000569281,ENST00000564163,ENST00000561971	12,12,12,12,12,12,10,10,10,10,10,10,5,5,5,5,5	7002-7019	11724-11741	LGG,SARC
chr15:57573990:+>chr15:57574643:+	chr15	57573646	57573990	+	chr15	57574643	57574786	+	TSF	ENST00000438423,ENST00000267811,ENST00000452095,ENST00000559609,ENST00000333725,ENST00000557843,ENST00000543579,ENST00000537840,ENST00000343827,ENST00000559710,ENST00000559703,ENST00000560836	13,13,13,13,13,13,13,13,13,13,13,13,2,2,2,2,2,2,2,2,2,13,2	7020-7043	11742-11765	DLBC,LGG,STAD
chr15:63638317:->chr15:63637818:-	chr15	63638414	63638317	-	chr15	63637818	63637676	-	TAF	ENST00000178638,ENST00000344366,ENST00000422263	2,2,2,8,8,8	7044-7049	11766-11771	BLCA,BRCA,HNSC,KICH,KIRC,KIRP,LUSC
chr15:63650004:->chr15:63638908:-	chr15	63650282	63650004	-	chr15	63638908	63638729	-	TSF	ENST00000178638,ENST00000344366	11,11,3,3,31,31	7050-7055	11772-11777	KICH,KIRC,KIRP
chr15:63668160:->chr15:63667877:-	chr15	63668307	63668160	-	chr15	63667877	63667857	-	TSF	ENST00000178638,ENST00000344366,ENST00000422263	18,4,4,18,18,4	7056-7061	11778-11783	BRCA,KICH,KIRC
chr15:64202899:->chr15:64200799:-	chr15	64203056	64202899	-	chr15	64200799	64200719	-	TAF	ENST00000261891,ENST00000457488	14,14,1,1,30,30	7062-7067	11784-11789	THCA
chr15:64445132:+>chr15:64445444:+	chr15	64445039	64445132	+	chr15	64445444	64445539	+	TSF	ENST00000325881,ENST00000558466	31,31,14,1,1,14	7068-7073	11790-11795	LGG,THCA
chr15:66170790:+>chr15:66172009:+	chr15	66170740	66170790	+	chr15	66172009	66172090	+	TSF	ENST00000564910,ENST00000261890,ENST00000569896,ENST00000567671	17,17,17,7,7,7,17,7	7074-7081	11796-11803	GBM,OV,STAD
chr15:67546562:->chr15:67529158:-	chr15	67546688	67546562	-	chr15	67529158	67528968	-	TSF	ENST00000261880	13,16	7082-7083	11804-11805	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC,UCS
chr15:68577315:+>chr15:68581945:+	chr15	68577054	68577315	+	chr15	68581945	68583580	+	TSF	ENST00000306917	37,21,7	7084-7086	11806-11808	HNSC,LIHC,SARC,SKCM,UVM
chr15:69682983:+>chr15:69689807:+	chr15	69682891	69682983	+	chr15	69689807	69689903	+	TAF	ENST00000395407,ENST00000561153,ENST00000340965	31,31,31,6,6,6,15,15,15	7087-7095	11809-11817	CHOL,COAD,HNSC,KICH,KIRC,KIRP,LUAD,OV
chr15:69718995:+>chr15:69721450:+	chr15	69718867	69718995	+	chr15	69721450	69721552	+	TSF	ENST00000559279,ENST00000395392,ENST00000352331,ENST00000260363,ENST00000558585,ENST00000559283,ENST00000537891	5,5,5,5,23,23,23,23,23,23,18,18,18,18,18,18,5,5,5	7096-7116	11818-11838	BLCA,BRCA,CESC,COAD,HNSC,LGG,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr15:72463983:->chr15:72462280:-	chr15	72464154	72463983	-	chr15	72462280	72462188	-	TSF	ENST00000309731,ENST00000564129,ENST00000568594,ENST00000570275,ENST00000562288	11,11,11,11,11,40,40,40,40,40,16,16,16,16,16	7117-7131	11839-11853	LUAD,OV,THCA,UCEC

chr15:72540602:->chr15:72535040:-	chr15	72540647	72540602	-	chr15	72535040	72534961,72534975,72535001	-	TSF	ENST00000569795,ENST00000260376,ENST00000287196,ENST00000564610,ENST00000567974,ENST00000565443,ENST00000567263,ENST00000419739	6,6,6,11,11,11,11,11,11,1,1,1,1,1,1,1,6,6,6,11,6	7132-7155	11854-11877	BLCA,BRCA,CESC,HNSC,KIRC,LGG,LUSC,OV,PAAD,PCPG,SARC,TGCT,THYM
chr15:73055759:->chr15:73052868:-	chr15	73055826	73055759	-	chr15	73052868	73052761	-	TSF	ENST00000569534,ENST00000311669,ENST00000563907,ENST00000565814	22,22,22,22,22,22,22,22	7156-7163	11878-11885	BLCA,KIRC,PRAD
chr15:73976801:+>chr15:73994596:+	chr15	73976790	73976801	+	chr15	73994596	73994914,73994934,73994926,73994838,73994671	+	TSF	ENST00000567189,ENST00000318443,ENST00000318424,ENST00000558689,ENST00000560786,ENST00000561213,ENST00000563584,ENST00000561416,ENST00000560995,ENST00000561260,ENST00000564751	4,4,4,4,4,4,4,4,4,4,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,4,3,3	7164-7196	11886-11918	ACC,BRCA,GBM,HNSC,LGG,LUAD,LUSC,OV,SARC,SKCM,STAD
chr15:74004264:+>chr15:74005275:+	chr15	74004214	74004264	+	chr15	74005275	74005297	+	TSF	ENST00000318443,ENST00000537340,ENST00000318424,ENST00000564751,ENST00000561176,ENST00000559073	7,7,7,7,7,7,17,17,17,17,17,16,16,16,16,16,16,16	7197-7214	11919-11936	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr15:74330296:+>chr15:74335330:+	chr15	74330065	74330296	+	chr15	74335330	74335522	+	TSF	ENST00000395135,ENST00000268058,ENST00000565898,ENST00000564428	10,10,10,10,76,76,76,76	7215-7222	11937-11944	BLCA,HNSC,LUAD,OV,STAD
chr15:74475594:->chr15:74474784:-	chr15	74475607	74475594	-	chr15	74474784	74474684	-	TSF	ENST00000395105,ENST00000423167,ENST00000323940,ENST00000449139,ENST00000416286,ENST00000535552,ENST00000563965,ENST00000574278,ENST00000572785	4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4	7223-7249	11945-11971	BLCA,CESC,LUSC,PCPG,SARC,STAD
chr15:74475594:->chr15:74474801:-	chr15	74475607	74475594	-	chr15	74474801	74474684	-	TSF	ENST00000395105,ENST00000423167,ENST00000323940,ENST00000449139,ENST00000416286,ENST00000535552,ENST00000563965,ENST00000574278,ENST00000572785	4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4	7250-7276	11972-11998	ACC,BLCA,CESC,CHOL,HNSC,LUAD,LUSC,OV,PCPG,PRAD,SARC,STAD,TGCT,THCA,UCEC,UCS
chr15:74490651:->chr15:74490159:-	chr15	74490750	74490651	-	chr15	74490159	74490094	-	TSF	ENST00000395105,ENST00000423167,ENST00000323940,ENST00000449139,ENST00000416286,ENST00000535552,ENST00000563965,ENST00000574278,ENST00000569936,ENST00000432245,ENST00000571341,ENST00000573391	24,24,24,24,24,24,24,24,24,24,24,24,11,11,11,11,11,11,11,11,11,11,14,14,14,14,14,14,14,14,14,14,14,14,24,11,14	7277-7312	11999-12034	BLCA,PCPG
chr15:75030728:->chr15:75014682:-	chr15	75030988	75030728	-	chr15	75014682	75014615	-	TSF	ENST00000395048,ENST00000379727,ENST00000567032,ENST00000395049,ENST00000562201,ENST00000569630	45,45,45,7,7,7,7,7,7,45,45,45	7313-7324	12035-12046	LIHC
chr15:75650345:->chr15:75649243:-	chr15	75650395	75650345	-	chr15	75649243	75649134	-	TSF	ENST00000569482,ENST00000565683,ENST00000563622,ENST00000267978	17,7,7,7,7,16,16,16,16,17,17,17	7325-7336	12047-12058	ACC,BLCA,DLBC,GBM,KIRC,KIRP,LGG,LIHC,LUSC,MESO,OV,PCPG,PRAD,THYM

chr15:75891599:->chr15:75891022:-	chr15	75891737	75891599	-	chr15	75891022	75890699	-	TSF	ENST00000567134,ENST00000308588,ENST00000371091,ENST00000564644,ENST00000564675	29,29,29,29,29,19,19,19,19,9,9,9,9,9	7337-7351	12059-12073	BRCA,CESC,GBM,LGG,LUSC,OV,SARC,TGCT,THYM,UCEC
chr15:76298078:->chr15:76261565:-	chr15	76298180	76298078	-	chr15	76261565	76261559	-	TAF	ENST00000472094,ENST00000568073,ENST00000562114,ENST00000567936,ENST00000498750,ENST00000567126	3,3,3,3,3,3,1,1,1,1,1,1,33,33,33,33,33,33	7352-7369	12074-12091	ACC,BLCA,KICH,KIRC,MESO,OV,PRAD,STAD,UCEC
chr15:78443886:+>chr15:78447555:+	chr15	78443636	78443886	+	chr15	78447555	78447617	+	TAF	ENST00000299518,ENST00000558933,ENST00000558554,ENST00000560667,ENST00000561279,ENST00000560396,ENST00000559865,ENST00000558509,ENST00000559803,ENST00000559106	7,7,7,7,7,7,7,7,7,7,29,29,29,29,16,16,16,16,29,29,29,16,16,16,29,16,29,16	7370-7399	12092-12121	ACC,HNSC,KICH,KIRC,LGG,LUSC,PAAD,SKCM,THCA
chr15:78467436:->chr15:78466866:-	chr15	78467446	78467436	-	chr15	78466866	78466727	-	TSF	ENST00000258873,ENST00000541759,ENST00000560817	2,2,2,3,3,3,3,3,3	7400-7408	12122-12130	BLCA,KICH,PCPG
chr15:78811115:+>chr15:78819722:+	chr15	78810978	78811115	+	chr15	78819722	78819906	+	TAF	ENST00000388988,ENST00000408962,ENST00000566332,ENST00000569878,ENST00000563233	19,19,36,36,36,36,1,1,1,1,1,19,19,19	7409-7423	12131-12145	BLCA,BRCA,CESC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,PCPG,PRAD,TGCT,THCA,THYM,UVM
chr15:80425177:+>chr15:80429822:+	chr15	80424477	80425177	+	chr15	80429822	80429971	+	TSF	ENST00000261749,ENST00000561060,ENST00000559157,ENST00000564367,ENST00000558494,ENST00000559835,ENST00000559775,ENST00000558087	2,2,2,2,2,2,2,2,21,21,21,21,21,21,9,9,9,9,9,9,21,9	7424-7447	12146-12169	BRCA,CESC,COAD,HNSC,LGG,LUSC,PRAD,SKCM,TGCT,THCA,THYM,UCEC
chr15:80450042:+>chr15:80450402:+	chr15	80450039	80450042	+	chr15	80450402	80450512	+	TSF	ENST00000558022,ENST00000407106,ENST00000261755,ENST00000561421	1,1,1,1,1,1,1,1	7448-7455	12170-12177	BRCA
chr15:80469529:+>chr15:80469879:+	chr15	80469525	80469529	+	chr15	80469879	80469925	+	TAF	ENST00000407106,ENST00000261755,ENST00000561421,ENST00000539156,ENST00000561353	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	7456-7470	12178-12192	BRCA,CHOL,KICH,KIRC,LIHC,LUAD,PRAD
chr15:80690949:->chr15:80690348:-	chr15	80691014	80690949	-	chr15	80690348	80690286	-	TSF	ENST00000559008	22,21,21	7471-7473	12193-12195	GBM,LGG
chr15:82386575:+>chr15:82387823:+	chr15	82386123	82386575	+	chr15	82387823	82387869	+	TSF	ENST00000559788	38,2,14	7474-7476	12196-12198	BLCA,CESC,CHOL,GBM,HNSC,KIRC,LGG,LUAD,LUSC,SARC
chr15:82715862:+>chr15:82724031:+	chr15	82715787	82715862	+	chr15	82724031	82724150	+	TSF	ENST00000300515	25,2,7	7477-7479	12199-12201	BLCA,BRCA,CESC,KIRP,LUAD,LUSC,TGCT
chr15:83092387:+>chr15:83100556:+	chr15	83092312	83092387	+	chr15	83100556	83100675	+	TSF	ENST00000561062,ENST00000358583	25,25,7,2,2,7	7480-7485	12202-12207	BLCA,BRCA,CESC,KIRP,LUAD,LUSC,TGCT
chr15:83261988:->chr15:83240282:-	chr15	83263939	83261988	-	chr15	83240282	83240094	-	TSF	ENST00000563800,ENST00000562019,ENST00000568128,ENST00000261723	4,4,4,26,26,26,4	7486-7493	12208-12215	TGCT
chr15:83667078:->chr15:83657580:-	chr15	83667946	83667078	-	chr15	83657580	83657392	-	TSF	ENST00000514272	27,14,12	7494-7496	12216-12218	BLCA,CESC,HNSC,LUSC,TGCT
chr15:83667078:->chr15:83660798:-	chr15	83667946	83667078	-	chr15	83660798	83660684	-	TSF	ENST00000451195	27,14,12	7497-7499	12219-12221	BRCA,CESC,HNSC,LUSC,TGCT
chr15:85469889:+>chr15:85478257:+	chr15	85469743	85469889	+	chr15	85478257	85478425	+	TSF	ENST00000537216,ENST00000537624,ENST00000286749,ENST00000394573	9,9,9,9,1,38,38,38,38,1,1,1	7500-7511	12222-12233	KIRC
chr15:85472633:+>chr15:85478257:+	chr15	85472494	85472633	+	chr15	85478257	85478425	+	TAF	ENST00000537216,ENST00000537624,ENST00000286749,ENST00000394573	46,1,1,1,1,24,24,24,24,46,46,46	7512-7523	12234-12245	KIRC,KIRP,LIHC

Table 19

chr15:89717675:+>chr15:89719043:+	chr15	89717587	89717675	+	chr15	89719043	89719226	+	TSF	ENST00000352732,ENST00000565973,ENST00000355100	11,11,11,29,29,29,4,4,4	7524-7532	12246-12254	BRCA,LUSC,PAAD,PRAD,READ,STAD
chr15:91528993:->chr15:91528055:-	chr15	91529041	91528993	-	chr15	91528055	91527923	-	TSF	ENST00000394249,ENST00000361919,ENST00000361188,ENST00000442656,ENST00000557905,ENST00000559811	16,16,16,16,16,16,7,7,7,7,7,7	7533-7544	12255-12266	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LGG,LUAD,LUSC,MESO,READ,SARC,SKCM,STAD,TGCT,UCS
chr15:93221360:->chr15:93173575:-	chr15	93221696	93221360	-	chr15	93173575	93173444	-	TAF	ENST00000327355	22,36	7545-7546	12267-12268	KICH,KIRC,KIRP,PAAD,PCPG,SARC,SKCM,UVM
chr15:93253499:->chr15:93173575:-	chr15	93253529	93253499	-	chr15	93173575	93173444	-	TSF	ENST00000327355	10,1	7547-7548	12269-12270	BRCA,OV,PRAD,UCEC,UCS
chr15:93592599:->chr15:93588935:-	chr15	93592614	93592599	-	chr15	93588935	93588229	-	TSF	ENST00000425933,ENST00000543599,ENST00000329082,ENST00000542321,ENST00000538818,ENST00000557301,ENST00000557420,ENST00000556658	5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,4,4,4,4,4,4,4,5,4	7549-7572	12271-12294	BRCA,GBM,HNSC,LGG,LUSC,PAAD,SARC,STAD
chr15:99816395:+>chr15:99816781:+	chr15	99816054	99816395	+	chr15	99816781	99816821	+	TAF	ENST00000301981,ENST00000561253,ENST00000422500,ENST00000442993,ENST00000447360,ENST00000561276,ENST00000331450,ENST00000558861	4,14,14,14,14,14,14,4,29,29,29,29,29,29,29,9,4,14,29,4,4,4,4,4,14,29,4	7573-7596	12295-12318	DLBC,LUSC,THYM
chr16:103121:->chr16:101645:-	chr16	103424	103121	-	chr16	101645	101558	-	TSF	ENST00000293860	101,101,29	7597-7599	12319-12321	BRCA,DLBC,LUSC,TGCT
chr16:10721934:->chr16:10721656:-	chr16	10722002	10721934	-	chr16	10721656	10721440	-	TSF	ENST00000283025	18,13	7600-7601	12322-12323	BRCA,PRAD
chr16:14699912:->chr16:14698083:-	chr16	14699964	14699912	-	chr16	14698083	14698003	-	TSF	ENST00000437198,ENST00000420015,ENST00000341484,ENST00000539279,ENST00000538472	17,17,17,17,17,2,2,2,2,2	7602-7611	12324-12333	DLBC
chr16:14942561:+>chr16:14942756:+	chr16	14942551	14942561	+	chr16	14942756	14942828	+	TSF	ENST00000287667	3,3,3	7612-7614	12334-12336	GBM,KIRC,OV,STAD
chr16:1521625:->chr16:1515339:-	chr16	1521687	1521625	-	chr16	1515339	1515268	-	TAF	ENST00000382745,ENST00000564568	2,17,17,20,20,2	7615-7620	12337-12342	BRCA,DLBC,KIRC,SARC,SKCM,UVM
chr16:15624694:+>chr16:15661840:+	chr16	15624455	15624694	+	chr16	15661840	15661913	+	TSF	ENST00000300006,ENST00000566490,ENST00000452191,ENST00000564389,ENST00000561692,ENST00000565857	34,34,34,34,34,34	7621-7626	12343-12348	BRCA,GBM,KIRP,LGG,LUAD,PCPG,PRAD,SARC,THCA
chr16:16100650:+>chr16:16101673:+	chr16	16100474	16100650	+	chr16	16101673	16101849	+	TSF	ENST00000399410,ENST00000345148,ENST00000346370,ENST00000349029,ENST00000351154,ENST00000399408	33,6,6,6,6,6,6,33,33,33,33,33,33	7627-7638	12349-12360	HNSC,LUSC,OV,STAD
chr16:16227839:+>chr16:16228207:+	chr16	16227557	16227839	+	chr16	16228207	16228365	+	TSF	ENST00000399410,ENST00000345148,ENST00000346370,ENST00000349029,ENST00000351154,ENST00000399408,ENST00000572882	36,36,36,36,36,36,36,16,16,16,16,16,16,6,6,6,6,6,6,16	7639-7659	12361-12381	BLCA,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,PRAD,READ,STAD
chr16:16233287:+>chr16:16235030:+	chr16	16233187	16233287	+	chr16	16235030	16235138	+	TSF	ENST00000399410,ENST00000345148,ENST00000346370,ENST00000349029,ENST00000351154,ENST00000399408,ENST00000572882	33,33,33,33,33,33,33,6,6,6,6,6,6,8,8,8,8,8,8,8	7660-7680	12382-12402	HNSC,LUSC
chr16:16249649:->chr16:16248888:-	chr16	16249761	16249649	-	chr16	16248888	16248730	-	TAF	ENST00000205557	8,1,18	7681-7683	12403-12405	ACC,BRCA,CHOL,COAD,KIRC,KIRP,LIHC,LUAD,STAD,TGCT

Table 19

chr16:1630957:->chr16:1630851:-	chr16	1631056	1630957	-	chr16	1630851	1630760,2	-	TAF	ENST00000426508,ENST00000397417	2,28,6,6,2,28	7684-7689	12406-12411	BLCA,BRCA,CHOL,COAD,LIHC,LUAD,LUSC,PAAD,PRAD,READ,STAD
chr16:16341057:+>chr16:16341252:+	chr16	16341038	16341057	+	chr16	16341252	16341324	+	TSF	ENST00000399336,ENST00000263012,ENST00000538468,ENST00000575225	6,6,6,6,6,6,6,6,6,6,6,6	7690-7701	12412-12423	GBM,KIRC,OV,STAD
chr16:18795124:->chr16:18794424:-	chr16	18795209	18795124	-	chr16	18794424	18794331	-	TAF	ENST00000322989,ENST00000572008,ENST00000563390,ENST00000565420,ENST00000563579	1,1,1,1,28,28,28,28,28,15,15,15,15,1,15	7702-7716	12424-12438	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr16:19487488:+>chr16:19488762:+	chr16	19487389	19487488	+	chr16	19488762	19488840	+	TAF	ENST00000541464,ENST00000381414,ENST00000396229,ENST00000542583,ENST00000219821,ENST00000561503,ENST00000564959	22,22,22,22,22,22,22,11,11,11,11,11,11,11	7717-7730	12439-12452	BRCA,CESC,COAD,LUAD,PAAD,PRAD,READ,STAD
chr16:19723116:->chr16:19722762:-	chr16	19723118	19723116	-	chr16	19722762	19722694	-	TAF	ENST00000219837	1	7731	7731	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,LGG,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr16:19886054:->chr16:19884168:-	chr16	19886067	19886054	-	chr16	19884168	19883138	-	TAF	ENST00000537135	4,4,4	7732-7734	12454-12456	BLCA,GBM,KICH,KIRC,KIRP,LGG,OV,SARC,SKCM,STAD,UVM
chr16:19893237:->chr16:19884168:-	chr16	19893258	19893237	-	chr16	19884168	19883138	-	TSF	ENST00000537135	7,6	7735-7736	12457-12458	LGG
chr16:20328487:->chr16:20327362:-	chr16	20328511	20328487	-	chr16	20327362	20327278	-	TSF	ENST00000302555,ENST00000341642,ENST00000381362,ENST00000381360	8,8,8,8,8,8,8,8,7,7,7,7	7737-7748	12459-12470	PAAD
chr16:20336269:->chr16:20335578:-	chr16	20336354	20336269	-	chr16	20335578	20335138	-	TSF	ENST00000302555,ENST00000381362,ENST00000575449	28,28,28,28,28,28,28,28,28	7749-7757	12471-12479	PAAD
chr16:20463788:+>chr16:20476839:+	chr16	20463435	20463788	+	chr16	20476839	20476978,20477049,20477015	+	TSF	ENST00000576361,ENST00000424070,ENST00000573854,ENST00000219054,ENST00000575690,ENST00000574692,ENST00000571894,ENST00000396104	31,42,42,42,42,42,42,42,42,1,1,1,1,1,1,1,31,31,31,31,31,31	7758-7781	12480-12503	KIRC,KIRP,LIHC
chr16:20474796:+>chr16:20476839:+	chr16	20474655	20474796	+	chr16	20476839	20476978,20477049,20477015	+	TSF	ENST00000576361,ENST00000424070,ENST00000573854,ENST00000219054,ENST00000575690,ENST00000574692,ENST00000571894,ENST00000396104	8,8,8,8,8,8,8,8,6,6,6,6,6,6	7782-7797	12504-12519	KIRC,KIRP,LIHC
chr16:20474981:+>chr16:20476839:+	chr16	20474655	20474981	+	chr16	20476839	20476978,20477049,20477015	+	TAF	ENST00000576361,ENST00000424070,ENST00000573854,ENST00000219054,ENST00000575690,ENST00000574692,ENST00000571894,ENST00000396104	18,18,18,18,18,18,18,18,34,34,34,34,34,34,34	7798-7813	12520-12535	KIRC,KIRP,LIHC
chr16:20553656:->chr16:20552095:-	chr16	20553998	20553656	-	chr16	20552095	20551976	-	TSF	ENST00000329697,ENST00000565322,ENST00000565232,ENST00000567001	15,15,15,15,7,7,7,7	7814-7821	12536-12543	KIRC,KIRP,LIHC
chr16:20553701:->chr16:20552095:-	chr16	20553998	20553701	-	chr16	20552095	20551976	-	TAF	ENST00000329697,ENST00000565322,ENST00000565232,ENST00000567001	1,1,1,1,85,85,85,85	7822-7829	12544-12551	KIRC,KIRP,LIHC

Table 19

chr16:20586744:->chr16:20570769:-	chr16	20587097	20586744	-	chr16	20570769	20570559,20570593,20570630	-	TSF	ENST00000329697,ENST00000565232,ENST00000567001,ENST00000569327,ENST00000414188,ENST00000566384,ENST00000569344	42,42,42,42,42,42,42,1,1,1,1,1,31,31,31,31,31,31,31,31	7830-7850	12552-12572	KIRC,KIRP,LIHC
chr16:21059927:->chr16:21053525:-	chr16	21060024	21059927	-	chr16	21053525	21053349	-	TSF	ENST00000261383,ENST00000415178	6,6,32,32	7851-7854	12573-12576	BLCA,BRCA,COAD,LUAD,LUSC,OV,PAAD,STAD
chr16:21966183:+>chr16:21968556:+	chr16	21966083	21966183	+	chr16	21968556	21968639	+	TAF	ENST00000268379,ENST00000565464,ENST00000561553,ENST00000563898,ENST00000564095	9,9,9,9,9,11,11,11,11,11	7855-7864	12577-12586	BLCA,COAD,GBM,KICH,KIRP,LIHC,LUAD,LUSC,OV,READ,STAD
chr16:2205859:+>chr16:2215880:+	chr16	2205826	2205859	+	chr16	2215880	2215937	+	TSF	ENST00000326181,ENST00000564067,ENST00000567645	11,11,11,11,10,10,11,10,11	7865-7873	12587-12595	OV,STAD
chr16:23118652:->chr16:23117808:-	chr16	23118718	23118652	-	chr16	23117808	23117720	-	TAF	ENST00000219689	22,4,9	7874-7876	12596-12598	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,OV,READ,STAD
chr16:23360640:+>chr16:23364122:+	chr16	23360523	23360640	+	chr16	23364122	23364395	+	TSF	ENST00000343070,ENST00000307331,ENST00000564275,ENST00000568085,ENST00000568923	7,7,7,7,7,31,31,31,31,31,1,1,1,1,1	7877-7891	12599-12613	BLCA,LUAD,OV
chr16:23575430:+>chr16:23578308:+	chr16	23575135	23575430	+	chr16	23578308	23578390	+	TAF	ENST00000219638,ENST00000395878,ENST00000567212	23,23,23,5,5,5,44,44,44	7892-7900	12614-12622	BLCA,BRCA,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM
chr16:23605658:->chr16:23598640:-	chr16	23605688	23605658	-	chr16	23598640	23598518	-	TSF	ENST00000007516,ENST00000570319	10,10,10,10	7901-7904	12623-12626	TGCT
chr16:23606750:->chr16:23598640:-	chr16	23606905	23606750	-	chr16	23598640	23598518	-	TSF	ENST00000007516,ENST00000570319	3,3,16,16,9,9	7905-7910	12627-12632	CESC,CHOL,LIHC,OV,STAD,TGCT,UCEC
chr16:25189933:+>chr16:25232778:+	chr16	25189880	25189933	+	chr16	25232778	25232904	+	TSF	ENST00000566125,ENST00000219660	4,4,17,17,9,9	7911-7916	12633-12638	ACC,LIHC
chr16:2525171:+>chr16:2569219:+	chr16	2525097	2525171	+	chr16	2569219	2569384,3	+	TSF	ENST00000564543,ENST00000330398,ENST00000568562	25,25,25,6,6,6,24,24,24	7917-7925	12639-12647	BRCA,HNSC,KICH,OV,PAAD,STAD
chr16:2556125:+>chr16:2569219:+	chr16	2556075	2556125	+	chr16	2569219	2569384,3	+	TSF	ENST00000564543,ENST00000330398,ENST00000568562	3,3,3,7,7,7	7926-7931	12648-12653	KICH,LGG,LUAD,OV,PAAD
chr16:2564396:+>chr16:2569219:+	chr16	2564319	2564396	+	chr16	2569219	2569384,3	+	TAF	ENST00000564543,ENST00000330398,ENST00000568562	26,26,26,25,25,25,25,25,25	7932-7940	12654-12662	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr16:2820027:+>chr16:2820353:+	chr16	2819422	2820027	+	chr16	2820353	2820466	+	TSF	ENST00000301740	163,25,79	7941-7943	12663-12665	OV
chr16:28836298:+>chr16:28836687:+	chr16	28836248	28836298	+	chr16	28836687	28836723	+	TSF	ENST00000340394,ENST00000325215,ENST00000336783,ENST00000382686,ENST00000395547,ENST00000564304,ENST00000570200,ENST00000568266	3,3,3,3,3,3,3,3,7,16,16,16,16,16,16,16,16,7,7,7,7,7,7,7	7944-7967	12666-12689	BRCA,OV,STAD
chr16:28839140:+>chr16:28840722:+	chr16	28838911	28839140	+	chr16	28840722	28840813	+	TSF	ENST00000340394,ENST00000325215,ENST00000336783,ENST00000382686,ENST00000395547,ENST00000564304,ENST00000570200,ENST00000568266	7,7,7,7,7,7,7,7,23,23,23,23,23,23,23,23,23,3	7968-7983	12690-12705	BRCA,OV,STAD

Table 10

chr16:28932384:->chr16:28931264:-	chr16	28932484	28932384	-	chr16	28931264	28931107	-	TSF	ENST00000357573,ENST00000358201,ENST00000544477,ENST00000568703,ENST00000567483	24,11,11,11,11,11,24,24,24,24	7984-7993	12706-12715	ACC,BRCA,OV,PRAD
chr16:29845758:+>chr16:29848043:+	chr16	29845718	29845758	+	chr16	29848043	29848279	+	TAF	ENST00000357402,ENST00000566859,ENST00000452209,ENST00000395353	13,13,13,13,13,13,13,13,13,13,13,13	7994-8005	12716-12727	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS
chr16:29915910:+>chr16:29916173:+	chr16	29915789	29915910	+	chr16	29916173	29916286	+	TAF	ENST00000563177,ENST00000483405,ENST00000308748,ENST00000414952,ENST00000566693	8,8,8,8,8,10,35,35,35,35,35,10,10,10,10	8006-8020	12728-12742	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr16:30011504:+>chr16:30012079:+	chr16	30011417	30011504	+	chr16	30012079	30012157	+	TSF	ENST00000563197,ENST00000304516,ENST00000567254,ENST00000567065,ENST00000562441,ENST00000567705,ENST00000567987	25,4,4,4,4,4,4,4,25,25,25,25,25,25	8021-8034	12743-12756	BLCA,BRCA,LUAD,OV,STAD
chr16:30057991:+>chr16:30078595:+	chr16	30057952	30057991	+	chr16	30078595	30078687, 30078611, 30078654	+	TSF	ENST00000338110,ENST00000395248,ENST00000566897,ENST00000568435,ENST00000562168,ENST00000569545,ENST00000563060,ENST00000412304,ENST00000563987,ENST00000564546,ENST00000564595,ENST00000569798,ENST00000395240,ENST00000566846,ENST00000562679	13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13	8035-8064	12757-12786	BLCA,BRCA,COAD,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,PCPG,READ,SARC,SKCM,STAD,THCA,UVM
chr16:30391159:->chr16:30390855:-	chr16	30391227	30391159	-	chr16	30390855	30390756	-	TSF	ENST00000321367,ENST00000571393,ENST00000605106,ENST00000566517	23,23,23,13,13,13,13,23	8065-8072	12787-12794	DLBC,LIHC,THYM
chr16:4702295:+>chr16:4702679:+	chr16	4702240	4702295	+	chr16	4702679	4702825	+	TSF	ENST00000591895,ENST00000262370,ENST00000415496,ENST00000536343,ENST00000587747,ENST00000399577,ENST00000588994,ENST00000586183,ENST00000590790,ENST00000593224	18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18,18	8073-8102	12795-12824	KIRC,LUAD
chr16:4702316:+>chr16:4702679:+	chr16	4702240	4702316	+	chr16	4702679	4702825	+	TSF	ENST00000591895,ENST00000262370,ENST00000415496,ENST00000536343,ENST00000587747,ENST00000399577,ENST00000588994,ENST00000586183,ENST00000590790,ENST00000593224	25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25,25	8103-8132	12825-12854	KIRC
chr16:4708353:+>chr16:4714710:+	chr16	4708255	4708353	+	chr16	4714710	4714776	+	TSF	ENST00000262370,ENST00000415496,ENST00000536343,ENST00000587747,ENST00000399577,ENST00000588994,ENST00000586183,ENST00000590790	33,23,23,23,23,23,23,23,23,1,1,1,1,1,1,1,1,33,33,33,33,33,33,33,33	8133-8156	12855-12878	BRCA,CESC,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PRAD,STAD,THCA,UCEC,UVM
chr16:47350483:->chr16:47347734:-	chr16	47350611	47350483	-	chr16	47347734	47347640	-	TSF	ENST00000320640,ENST00000544001	24,24,42,42,17,17	8157-8162	12879-12884	GBM,LGG

Table 19

chr16:48450727:->chr16:48396341:-	chr16	48451457	48450727	-	chr16	48396341	48395491	-	TSF	ENST00000356721	50,25,12	8163-8165	12885-12887	BLCA,CESC,HNSC,LUSC,OV,SARC,TGCT
chr16:50663964:+>chr16:50664097:+	chr16	50663697	50663964	+	chr16	50664097	50664244	+	TSF	ENST00000268459	34,42,10	8166-8168	12888-12890	CESC,COAD,LIHC,LUAD,LUSC,OV,PCPG,READ,STAD,UCEC
chr16:53780292:+>chr16:53844052:+	chr16	53780019	53780292	+	chr16	53844052	53844129	+	TSF	ENST00000471389,ENST00000464071	1,1,35,11,11,35	8169-8174	12891-12896	CHOL,KIRC,KIRP
chr16:53867152:+>chr16:53878067:+	chr16	53866877	53867152	+	chr16	53878067	53878211	+	TSF	ENST00000471389,ENST00000464071	18,18,91,91,9,9	8175-8180	12897-12902	BLCA,CESC,HNSC,LUSC
chr16:56616837:+>chr16:56623782:+	chr16	56616788	56616837	+	chr16	56623782	56623848	+	TAF	ENST00000561640,ENST00000565838,ENST00000200691,ENST00000570176	16,16,16,13,13,13,16,16,16,16,13,16	8181-8192	12903-12914	GBM,LGG
chr16:56972244:+>chr16:56973149:+	chr16	56972194	56972244	+	chr16	56973149	56973271	+	TSF	ENST00000439977,ENST00000300302,ENST00000379792,ENST00000569429,ENST00000563343,ENST00000568358	17,17,17,17,17,17,7,7,7,16,16,16,16,7,7,7,16	8193-8210	12915-12932	GBM,OV,STAD
chr16:57073401:+>chr16:57073693:+	chr16	57073351	57073401	+	chr16	57073693	57073761	+	TSF	ENST00000262510,ENST00000308149,ENST00000436936,ENST00000539144,ENST00000538805,ENST00000545081,ENST00000538110,ENST00000543030,ENST00000538453	17,17,17,17,17,17,17,17,17,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16	8211-8237	12933-12959	DLBC
chr16:57795262:->chr16:57795083:-	chr16	57795289	57795262	-	chr16	57795083	57794954	-	TSF	ENST00000465878,ENST00000379655,ENST00000445690,ENST00000421376,ENST00000541240,ENST00000540079,ENST00000543930,ENST00000562903,ENST00000539578,ENST00000565270	9,9,9,9,9,9,9,9,9,9,7,7,7,7,7,7,7,7,7,7	8238-8257	12960-12979	BLCA,CESC,CHOL,KIRC,LIHC,LUAD,LUSC,PAAD,THCA
chr16:57816371:->chr16:57806200:-	chr16	57816467	57816371	-	chr16	57806200	57806135	-	TAF	ENST00000379655,ENST00000445690,ENST00000541240,ENST00000540079,ENST00000539578,ENST00000562503,ENST00000569222,ENST00000566648,ENST00000561524,ENST00000565684	12,12,12,12,12,12,12,12,12,12,32,4,4,4,4,4,4,4,4,32,32,32,32,32,32,32,32	8258-8287	12980-13009	CHOL,KIRC,KIRP,LIHC,LUAD,OV,THCA,THYM
chr16:58758792:->chr16:58757806:-	chr16	58758969	58758792	-	chr16	58757806	58757650	-	TSF	ENST00000245206,ENST00000434819	32,32,7,7	8288-8291	13010-13013	BRCA,COAD,DLBC,KIRP,LIHC,OV,STAD
chr16:603077:+>chr16:603343:+	chr16	603045	603077	+	chr16	603343	603516	+	TAF	ENST00000219611	11,10,10	8292-8294	13014-13016	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr16:603138:+>chr16:603343:+	chr16	603045	603138	+	chr16	603343	603516	+	TAF	ENST00000219611	31,31,30	8295-8297	13017-13019	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr16:66461334:+>chr16:66503505:+	chr16	66461229	66461334	+	chr16	66503505	66503768	+	TSF	ENST00000536005	35,34	8298-8299	13020-13021	BLCA,COAD,GBM,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD
chr16:66587382:+>chr16:66597025:+	chr16	66587343	66587382	+	chr16	66597025	66597120	+	TSF	ENST00000264001,ENST00000351137,ENST00000417030,ENST00000532838	1,1,13,13,12,12,12,12,1,1,13,13	8300-8311	13022-13033	BLCA,CESC,DLBC,GBM,KIRP,LGG,LUAD,LUSC,OV,SARC,STAD,THYM,UCEC

Table 10

chr16:67063052:+>chr16:67063630:+	chr16	67063021	67063052	+	chr16	67063630	67063716	+	TSF	ENST00000290858,ENST00000564034,ENST00000412916,ENST00000565389	10,10,10,10,10,10,10,10,10,10,10,10	8312-8323	13034-13045	BLCA,BRCA,COAD,HNSC,LUAD,STAD,UCS
chr16:68401247:->chr16:68398995:-	chr16	68401373	68401247	-	chr16	68398995	68398920	-	TAF	ENST00000219334,ENST00000574662,ENST00000568373,ENST00000563226	42,42,42,42,14,16,16,14,14,16,14,16	8324-8335	13046-13057	BRCA,LGG,MESO,STAD,THYM
chr16:70714506:->chr16:70713958:-	chr16	70714570	70714506	-	chr16	70713958	70713874	-	TSF	ENST00000338779	11,21,21	8336-8338	13058-13060	BLCA,GBM,LGG,SKCM,STAD,UVM
chr16:718154:+>chr16:718353:+	chr16	718049	718154	+	chr16	718353	718411	+	TAF	ENST00000315082,ENST00000561983,ENST00000563134,ENST00000563637,ENST00000570280,ENST00000562333,ENST00000561929	2,35,35,35,35,35,35,35,34,34,34,34,2,2,2,2,34,2,34,2,34	8339-8359	13061-13081	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr16:72098893:+>chr16:72108183:+	chr16	72098678	72098893	+	chr16	72108183	72108284	+	TSF	ENST00000356967,ENST00000540303,ENST00000561690,ENST00000228226	6,6,6,6,25,25,25,25,37,37,37,37	8360-8371	13082-13093	LIHC
chr16:72105523:+>chr16:72107791:+	chr16	72098678	72105523	+	chr16	72107791	72107876	+	TSF	ENST00000356967,ENST00000540303,ENST00000561690,ENST00000228226	63,63,63,36,36,36,36,63	8372-8379	13094-13101	LIHC
chr16:72105593:+>chr16:72107791:+	chr16	72098678	72105593	+	chr16	72107791	72107876	+	TAF	ENST00000356967,ENST00000540303,ENST00000561690,ENST00000228226	26,26,26,26,59,59,59,59	8380-8387	13102-13109	KIRC,LIHC
chr16:72105626:+>chr16:72107791:+	chr16	72098678	72105626	+	chr16	72107791	72107876	+	TSF	ENST00000356967,ENST00000540303,ENST00000561690,ENST00000228226	37,37,37,37,70,70,70,70	8388-8395	13110-13117	LIHC
chr16:72105852:+>chr16:72107791:+	chr16	72098678	72105852	+	chr16	72107791	72107876	+	TAF	ENST00000356967,ENST00000540303,ENST00000561690,ENST00000228226	112,112,112,28,28,28,28,112	8396-8403	13118-13125	LIHC
chr16:72106386:+>chr16:72107791:+	chr16	72106207	72106386	+	chr16	72107791	72107876	+	TSF	ENST00000356967,ENST00000540303,ENST00000561690,ENST00000228226	3,3,3,58,58,58,58,3	8404-8411	13126-13133	LIHC
chr16:74665639:->chr16:74664855:-	chr16	74665694	74665639	-	chr16	74664855	74664679	-	TSF	ENST00000361070,ENST00000571750	6,6,18,18,18,18	8412-8417	13134-13139	BRCA,CESC,LUSC,TGCT
chr16:74833256:->chr16:74774013:-	chr16	74833301	74833256	-	chr16	74774013	74773921	-	TSF	ENST00000219368,ENST00000567683,ENST00000569949	4,14,14,14,4,4,15,15,15	8418-8426	13140-13148	HNSC,LUAD,LUSC,SKCM,STAD
chr16:74834274:->chr16:74774013:-	chr16	74834658	74834274	-	chr16	74774013	74773921	-	TSF	ENST00000219368,ENST00000567683,ENST00000569949	17,17,17,4,14,14,14,4,4	8427-8435	13149-13157	HNSC,LUAD,LUSC,SKCM,STAD
chr16:75118535:+>chr16:75127470:+	chr16	75118199	75118535	+	chr16	75127470	75127565	+	TSF	ENST00000335325,ENST00000320619,ENST00000566250,ENST00000567962	2,2,68,68,68,68,34,34,34,34,2,2	8436-8447	13158-13169	BRCA,DLBC,KIRP,LUSC,OV,PCPG,THYM,UCS
chr16:75251839:+>chr16:75256666:+	chr16	75251739	75251839	+	chr16	75256666	75256769	+	TSF	ENST00000361017,ENST00000495583	33,33,24,33,33,24	8448-8453	13170-13175	PAAD
chr16:7555956:+>chr16:7568149:+	chr16	7555906	7555956	+	chr16	7568149	7568391	+	TSF	ENST00000547605,ENST00000550418,ENST00000553186,ENST00000547372,ENST00000422070,ENST00000535565,ENST00000552089,ENST00000551752,ENST00000547338,ENST00000436368,ENST00000311745,ENST00000355637,ENST00000340209,ENST00000570626	17,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,17,17,17,17,17,17,17,17,17,17,17,17,17	8454-8481	13176-13203	LGG

Table 19

chr16:75683228:+>chr16:75688171:+	chr16	75683160	75683228	+	chr16	75688171	75688296	+	TSF	ENST00000300086,ENST00000569234	23,13,13,23	8482-8485	13204-13207	GBM,LGG,LUAD,PCPG
chr16:75685636:+>chr16:75688171:+	chr16	75685621	75685636	+	chr16	75688171	75688296	+	TAF	ENST00000300086,ENST00000569234	5,4,4,5	8486-8489	13208-13211	ACC,BLCA,BRCA,CESC,GBM,KIRP,LGG,OV,PAAD,PCPG,PRAD,SARC,STAD,TGCT,THCA
chr16:77235039:+>chr16:77240338:+	chr16	77234898	77235039	+	chr16	77240338	77240397	+	TSF	ENST00000378644	20,46	8490-8491	13212-13213	PRAD
chr16:78060356:+>chr16:78062004:+	chr16	78060352	78060356	+	chr16	78062004	78062087	+	TSF	ENST00000299642,ENST00000575655	1,1,1,1,1,1	8492-8497	13214-13219	BRCA
chr16:78085350:+>chr16:78085855:+	chr16	78085262	78085350	+	chr16	78085855	78085865	+	TAF	ENST00000567430	18,11,10	8498-8500	13220-13222	BLCA,BRCA,CESC,PRAD,STAD
chr16:79160459:+>chr16:79245505:+	chr16	79160209	79160459	+	chr16	79245505	79245693,79246031,79245661	+	TSF	ENST00000566780,ENST00000402655,ENST00000406884,ENST00000539474	12,12,12,12,25,25,29,29,29,25,25,29	8501-8512	13223-13234	LUSC,THYM
chr16:79160495:+>chr16:79245505:+	chr16	79160209	79160495	+	chr16	79245505	79245693,79246031,79245661	+	TSF	ENST00000566780,ENST00000402655,ENST00000406884,ENST00000539474	7,7,7,7,1,1,41,41,41,1,1,1,41	8513-8524	13235-13246	LUSC,THYM
chr16:81057064:+>chr16:81058320:+	chr16	81057014	81057064	+	chr16	81058320	81058383	+	TSF	ENST00000305850,ENST00000439957,ENST00000393335,ENST00000428963	3,3,3,7,7,7,7,16,16,16,16,3	8525-8536	13247-13258	HNSC,PRAD,STAD
chr16:81141755:->chr16:81134889:-	chr16	81141785	81141755	-	chr16	81134889	81134728	-	TSF	ENST00000533478,ENST00000525539	10,10,10,10,3,3	8537-8542	13259-13264	KIRC,LIHC,TGCT
chr16:83989746:+>chr16:83991245:+	chr16	83989605	83989746	+	chr16	83991245	83991256	+	TSF	ENST00000561552,ENST00000343939	1,29,4,1,29,4	8543-8548	13265-13270	ACC,BLCA,CESC,KIRP,LIHC,LUAD,LUSC,THCA,UCEC
chr16:84000932:+>chr16:84005756:+	chr16	84000773	84000932	+	chr16	84005756	84005780	+	TSF	ENST00000305202	53,28	8549-8550	13271-13272	LIHC,LUSC
chr16:84676456:->chr16:84623868:-	chr16	84676629	84676456	-	chr16	84623868	84623711	-	TSF	ENST00000262428	10,3	8551-8552	13273-13274	ACC,HNSC,KIRC,SARC,THYM
chr16:88878500:->chr16:88878064:-	chr16	88878506	88878500	-	chr16	88878064	88877959	-	TAF	ENST00000378364,ENST00000567713,ENST00000426324,ENST00000567391,ENST00000568319,ENST00000563655,ENST00000569616	2,2,2,2,2,2,2,2,2,2,1,2,1,1,2,2,1,1,2,1,1	8553-8573	13275-13295	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr16:89607792:+>chr16:89611056:+	chr16	89607673	89607792	+	chr16	89611056	89611180	+	TAF	ENST00000268704,ENST00000569820	6,6,2,2	8574-8577	13296-13299	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,TGCT,THCA,THYM,UCS,UVM
chr16:89649851:+>chr16:89650105:+	chr16	89649823	89649851	+	chr16	89650105	89650179	+	TSF	ENST00000268720,ENST00000319518	9,9,1,1	8578-8581	13300-13303	BRCA,CESC,CHOL,COAD,KIRC,KIRP,OV,PCPG,PRAD,READ,STAD
chr16:89884946:+>chr16:89911730:+	chr16	89884404	89884946	+	chr16	89911730	89911773	+	TSF	ENST00000393062,ENST00000378247,ENST00000563972	14,14,14,1,1,29,29,1,29	8582-8590	13304-13312	CESC,OV,STAD,THCA
chr16:90158141:->chr16:90141431:-	chr16	90158266	90158141	-	chr16	90141431	90141324	-	TSF	ENST00000449207,ENST00000568473,ENST00000564210	37,7,7,7,19,37,19,37,19	8591-8599	13313-13321	SKCM
chr17:1005142:->chr17:1003975:-	chr17	1005272	1005142	-	chr17	1003975	1003877	-	TSF	ENST00000302538,ENST00000544583,ENST00000574437,ENST00000291107,ENST00000574139,ENST00000570525,ENST00000574266	3,3,3,3,3,3,3,9,9,9,9,9,9,9,12,12,12,12,12,12,12	8600-8620	13322-13342	COAD,STAD
chr17:1005174:->chr17:1003975:-	chr17	1005272	1005174	-	chr17	1003975	1003877	-	TSF	ENST00000302538,ENST00000544583,ENST00000574437,ENST00000291107,ENST00000574139,ENST00000570525,ENST00000574266	33,33,33,33,23,23,23,23,23,23,1,1,1,1,1,33,33,33	8621-8641	13343-13363	GBM,STAD

Table 19

chr17:11973166:+>chr17:11984673:+	chr17	11973110	11973166	+	chr17	11984673	11984847	+	TAF	ENST00000353533,ENST00000415385,ENST00000602811,ENST00000602537,ENST00000602686	13,13,2,2,18,18,18,18,18,13,13,13,2,2,2	8642-8656	13364-13378	GBM,LGG
chr17:13442384:->chr17:13400135:-	chr17	13442614	13442384	-	chr17	13400135	13399514	-	TSF	ENST00000284110	4,18,43	8657-8659	13379-13381	ACC,BLCA,CESC,CHOL,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,TGCT,THYM,UCEC,UCS
chr17:15873143:+>chr17:15877993:+	chr17	15872860	15873143	+	chr17	15877993	15878656	+	TSF	ENST00000304222	74,8,18	8660-8662	13382-13384	HNSC,LUSC
chr17:15873282:+>chr17:15877993:+	chr17	15873243	15873282	+	chr17	15877993	15878656	+	TSF	ENST00000304222	9,13,12	8663-8665	13385-13387	HNSC,LUSC,SKCM,TGCT
chr17:17051346:+>chr17:17053458:+	chr17	17051276	17051346	+	chr17	17053458	17053547	+	TSF	ENST00000395811,ENST00000444976,ENST00000395804,ENST00000341712,ENST00000584067	18,18,18,18,18,23,23,23,23,10,10,10,10,10	8666-8680	13388-13402	BLCA,LUAD,MESO
chr17:17126441:->chr17:17125975:-	chr17	17126706	17126441	-	chr17	17125975	17125815	-	TSF	ENST00000285071,ENST00000389169	18,18,21,21,13,13	8681-8686	13403-13408	BLCA,SARC
chr17:17735071:->chr17:17723835:-	chr17	17735107	17735071	-	chr17	17723835	17723404	-	TSF	ENST00000338854,ENST00000355815,ENST00000261646,ENST00000435530,ENST00000423161	12,12,12,12,12,12,8,8,8,8,8,12,12,12,12	8687-8701	13409-13423	BRCA,COAD,STAD
chr17:17815566:->chr17:17810845:-	chr17	17816540	17815566	-	chr17	17810845	17810761	-	TSF	ENST00000581396,ENST00000379504,ENST00000318094,ENST00000395739,ENST00000535933,ENST00000540946,ENST00000542206	44,44,44,44,44,44,44,41,41,41,41,41,41,41,28,28,28,28,28,28	8702-8722	13424-13444	BLCA,BRCA,CESC,HNSC,LUSC,PCPG,SARC
chr17:17815655:->chr17:17810845:-	chr17	17816540	17815655	-	chr17	17810845	17810761	-	TSF	ENST00000581396,ENST00000379504,ENST00000318094,ENST00000395739,ENST00000535933,ENST00000540946,ENST00000542206	14,12,12,12,12,12,12,27,27,27,27,27,27,27,14,14,14,14,14,14	8723-8743	13445-13465	BLCA,CESC,HNSC,LUSC,SARC
chr17:18390254:+>chr17:18390961:+	chr17	18390031	18390254	+	chr17	18390961	18391071	+	TAF	ENST00000581545,ENST00000582333,ENST00000328114,ENST00000412421,ENST00000583322,ENST00000584941	7,7,7,7,7,7,2,9,2,9,2,2,9,9,2,9,2,9	8744-8761	13466-13483	BLCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,PAAD,READ,STAD
chr17:18967302:->chr17:18881199:-	chr17	18967449	18967302	-	chr17	18881199	18880897	-	TSF	ENST00000388995,ENST00000585154,ENST00000345041,ENST00000580115	35,35,35,18,18,18,11,11,11,11,35,18	8762-8773	13484-13495	OV,STAD
chr17:19015802:->chr17:18881199:-	chr17	19015949	19015802	-	chr17	18881199	18880897	-	TSF	ENST00000388995,ENST00000585154,ENST00000345041,ENST00000580115	18,18,18,11,11,11,11,18,35,35,35,35	8774-8785	13496-13507	STAD
chr17:20360691:->chr17:20359984:-	chr17	20360914	20360691	-	chr17	20359984	20359874	-	TAF	ENST00000423676,ENST00000324290	7,7,2,9,2,9	8786-8791	13508-13513	BLCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,READ,STAD
chr17:21476490:->chr17:21438799:-	chr17	21476521	21476490	-	chr17	21438799	21438561	-	TAF	ENST00000391411,ENST00000412778	10,10,10,10,10,10	8792-8797	13514-13519	BRCA,GBM,KIRP,LGG,OV,PCPG,PRAD,SARC,SKCM,STAD,UCS
chr17:26733475:->chr17:26733015:-	chr17	26733578	26733475	-	chr17	26733015	26732905	-	TSF	ENST00000321666,ENST00000440501	23,23,6,6	8798-8801	13520-13523	ACC,PCPG,THYM
chr17:27054837:->chr17:27052581:-	chr17	27054938	27054837	-	chr17	27052581	27052499	-	TAF	ENST00000292090,ENST00000394933	11,11,24,24,6,6	8802-8807	13524-13529	BLCA,BRCA,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,STAD,TGCT,UCEC
chr17:27373865:+>chr17:27380431:+	chr17	27373782	27373865	+	chr17	27380431	27380613	+	TSF	ENST00000323372,ENST00000466889,ENST00000469082	14,27,27,27,2,2,2,14,14	8808-8816	13530-13538	LIHC

Table 19

chr17:27415321:->chr17:27414139:-	chr17	27415371	27415321	-	chr17	27414139	27413954	-	TSF	ENST00000354329,ENST00000533112,ENST00000531253,ENST00000527372	17,17,7,7,7,7,16,16,16,16,17,17	8817-8828	13539-13550	LGG
chr17:27441216:->chr17:27441115:-	chr17	27441253	27441216	-	chr17	27441115	27441029	-	TSF	ENST00000354329,ENST00000533112,ENST00000531253,ENST00000527372	12,12,12,12,10,10,10,10,12,12,12	8829-8840	13551-13562	COAD,HNSC,LGG,LUAD,STAD
chr17:28255510:->chr17:28252573:-	chr17	28255620	28255510	-	chr17	28252573	28252490	-	TSF	ENST00000582084,ENST00000590153	9,9,36,36	8841-8844	13563-13566	BLCA,CESC,DLBC,HNSC,KIRP,LUAD,OV,SKCM,UCEC,UVM
chr17:2879069:+>chr17:2883581:+	chr17	2878819	2879069	+	chr17	2883581	2883659	+	TAF	ENST00000540393,ENST00000254695,ENST00000366401,ENST00000542807	2,2,2,2,43,43,43,43,18,18,18,18	8845-8856	13567-13578	BRCA,CESC,COAD,GBM,HNSC,KICH,KIRP,LUAD,LUSC,OV,PRAD,READ,SARC,STAD,THCA,UCEC
chr17:30185499:->chr17:30183884:-	chr17	30185561	30185499	-	chr17	30183884	30183818	-	TSF	ENST00000302362,ENST00000378634,ENST00000496655	6,6,20,20,20,6	8857-8862	13579-13584	KICH,KIRC,LIHC,OV,STAD,UCEC
chr17:30244908:->chr17:30226749:-	chr17	30244937	30244908	-	chr17	30226749	30226665	-	TSF	ENST00000261708	10,9	8863-8864	13585-13586	BRCA,HNSC,LUSC,STAD
chr17:30615388:+>chr17:30615811:+	chr17	30615201	30615388	+	chr17	30615811	30616035	+	TSF	ENST00000431505,ENST00000269051,ENST00000538145,ENST00000536287	12,12,12,12,9,9,9,9	8865-8872	13587-13594	GBM,LGG
chr17:30771536:+>chr17:30773963:+	chr17	30771499	30771536	+	chr17	30773963	30774064	+	TAF	ENST00000261712,ENST00000457654,ENST00000579451	1,1,1,12,12,12	8873-8878	13595-13600	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr17:30850415:->chr17:30821933:-	chr17	30850448	30850415	-	chr17	30821933	30821777	-	TSF	ENST00000318217,ENST00000394649	9,9,2,2	8879-8882	13601-13604	BRCA,LUAD,LUSC,SKCM,STAD,THCA,UVM
chr17:3366820:->chr17:3366061:-	chr17	3367100	3366820	-	chr17	3366061	3366001,3	-	TSF	ENST00000397168,ENST00000572969,ENST00000355380,ENST00000575375,ENST00000573128,ENST00000541913,ENST00000268981,ENST00000574051,ENST00000572582,ENST00000574457	24,24,24,24,24,24,16,16,16,16,16,16,16,16,16,16,24,24,24,24	8883-8902	13605-13624	TGCT
chr17:3401426:+>chr17:3402185:+	chr17	3401396	3401426	+	chr17	3402185	3402382	+	TSF	ENST00000456349,ENST00000263080	10,10,10,10,5,5	8903-8908	13625-13630	KIRC
chr17:34221113:->chr17:34205643:-	chr17	34221697	34221113	-	chr17	34205643	34205532	-	TSF	ENST00000293272,ENST00000366113,ENST00000463941	44,44,40,40,44,40	8909-8914	13631-13636	BLCA
chr17:37319411:->chr17:37319111:-	chr17	37319504	37319411	-	chr17	37319111	37318964	-	TAF	ENST00000269586,ENST00000444555	31,31,22,22,8,8	8915-8920	13637-13642	BRCA,THYM
chr17:37886333:->chr17:37886014:-	chr17	37886362	37886333	-	chr17	37886014	37885851	-	TSF	ENST00000577810,ENST00000394231,ENST00000394231,ENST00000577810	8,8,9,9,9,9	8921-8926	13643-13648	BLCA,BRCA,CESC,HNSC,OV,READ,STAD
chr17:37898081:+>chr17:37898505:+	chr17	37897992	37898081	+	chr17	37898505	37898709	+	TSF	ENST00000445327	21,29,29	8927-8929	13649-13651	BLCA,BRCA,CESC,OV,STAD
chr17:37898291:+>chr17:37898505:+	chr17	37898260	37898291	+	chr17	37898505	37898709	+	TSF	ENST00000445327	10,10,2	8930-8932	13652-13654	BLCA,BRCA,CESC,COAD,KIRP,LIHC,OV,PAAD,READ,STAD,UCEC
chr17:37902638:+>chr17:37903004:+	chr17	37902588	37902638	+	chr17	37903004	37903150	+	TSF	ENST00000309156,ENST00000394211,ENST00000445327,ENST00000394209	15,15,15,15,7,7,7,7,3,3,3,3	8933-8944	13655-13666	BLCA,BRCA,CESC,HNSC,KIRP,LUAD,LUSC,OV,PAAD,READ,STAD,UCEC
chr17:38243929:+>chr17:38244495:+	chr17	38243904	38243929	+	chr17	38244495	38244753	+	TSF	ENST00000394121,ENST00000264637,ENST00000584985,ENST00000450525,ENST00000546243	4,4,4,4,4,8,8,8,8,8,2,2,2,2,2	8945-8959	13667-13681	BRCA,GBM,LGG,STAD

Table 19

chr17:38639593:->chr17:38638668:-	chr17	38639751	38639593	-	chr17	38638668	38638576	-	TSF	ENST00000254051	2,30,22	8960-8962	13682-13684	BLCA,CESC,COAD,HNSC,LUAD,LUSC,PAAD,READ,STAD
chr17:38649640:->chr17:38645221:-	chr17	38649720	38649640	-	chr17	38645221	38644798	-	TSF	ENST00000254051	8,15	8963-8964	13685-13686	CESC,HNSC,STAD
chr17:39696603:->chr17:39681525:-	chr17	39696711	39696603	-	chr17	39681525	39681443	-	TSF	ENST00000361566,ENST00000455635	3,3,15,26,26,15	8965-8970	13687-13692	BRCA,LUAD,TGCT
chr17:39737191:->chr17:39726472:-	chr17	39737300	39737191	-	chr17	39726472	39726390	-	TSF	ENST00000246662	7,36,18	8971-8973	13693-13695	BLCA,BRCA,CESC,HNSC,LUSC,MESO,SARC,SKCM
chr17:39740452:->chr17:39740173:-	chr17	39740464	39740452	-	chr17	39740173	39740012	-	TAF	ENST00000167586	4,4,3	8974-8976	13696-13698	BLCA,BRCA,CESC,HNSC,LUSC,PRAD,SKCM
chr17:39741014:->chr17:39659564:-	chr17	39741127	39741014	-	chr17	39659564	39659539	-	TSF	ENST00000246635,ENST00000336861,ENST00000587544,ENST00000590425,ENST00000587435	11,11,11,11,11,5,5,5,5,37,37,37,37	8977-8991	13699-13713	STAD
chr17:39815667:->chr17:39776996:-	chr17	39815837	39815667	-	chr17	39776996	39776911	-	TSF	ENST00000311208,ENST00000540235	57,57,6,6,19,19	8992-8997	13714-13719	BLCA,CESC,HNSC,LUSC
chr17:39974854:+>chr17:39975462:+	chr17	39974832	39974854	+	chr17	39975462	39975651	+	TAF	ENST00000321562	7,7,7	8998-9000	13720-13722	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr17:39974893:+>chr17:39975462:+	chr17	39974832	39974893	+	chr17	39975462	39975651	+	TSF	ENST00000321562	20,20,20	9001-9003	13723-13725	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr17:39976301:+>chr17:39976521:+	chr17	39976225	39976301	+	chr17	39976521	39976713	+	TSF	ENST00000321562,ENST00000455106,ENST00000544340	25,25,25,7,7,7,25,25,25	9004-9012	13726-13734	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr17:40029683:->chr17:40028435:-	chr17	40029733	40029683	-	chr17	40028435	40028285	-	TSF	ENST00000352035,ENST00000590151,ENST00000353196,ENST00000537919,ENST00000393896	15,15,15,15,15,16,16,16,16,16,16,16,16,16,16	9013-9027	13735-13749	LIHC
chr17:40813245:+>chr17:40815395:+	chr17	40813111	40813245	+	chr17	40815395	40815521	+	TSF	ENST00000251412	25,31	9028-9029	13750-13751	GBM,LGG
chr17:40813974:+>chr17:40814991:+	chr17	40813377	40813974	+	chr17	40814991	40815070	+	TAF	ENST00000251412	11,4,25	9030-9032	13752-13754	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,SARC,SKCM,TGCT,THCA,UCEC,UCS
chr17:40813974:+>chr17:40815395:+	chr17	40813377	40813974	+	chr17	40815395	40815521	+	TAF	ENST00000251412	11,4,25	9033-9035	13755-13757	BLCA,BRCA,CESC,GBM,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr17:40820676:->chr17:40820321:-	chr17	40820773	40820676	-	chr17	40820321	40820145	-	TSF	ENST00000591022,ENST00000412503,ENST00000293349	23,23,23,1,1,1,11,1,11,1	9036-9044	13758-13766	ACC,BLCA,BRCA,CESC,HNSC,KIRP,LUSC,OV,SARC,THCA,THYM,UCEC,UCS
chr17:40820708:->chr17:40820321:-	chr17	40820773	40820708	-	chr17	40820321	40820145	-	TAF	ENST00000591022,ENST00000412503,ENST00000293349	13,13,13,21,21,21	9045-9050	13767-13772	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS

chr17:40985522:+>chr17:40986361:+	chr17	40985441	40985522	+	chr17	40986361	40986393	+	TSF	ENST00000590720,ENST00000441946,ENST00000589469,ENST00000543428,ENST00000293362,ENST00000592169	27,27,27,27,27,27,27,26,26,26,26,26,27,27,27,26	9051-9068	13773-13790	BLCA,BRCA,GBM,HNSC,LGG,LUAD,OV,STAD
chr17:41170991:->chr17:41170816:-	chr17	41171108	41170991	-	chr17	41170816	41170609	-	TAF	ENST00000355653,ENST00000587173,ENST00000587062	20,20,19,19,20,19	9069-9074	13791-13796	ACC,BLCA,BRCA,CHOL,GBM,KIRC,KIRP,LGG,LUAD,MESO,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UVM
chr17:42085588:+>chr17:42085816:+	chr17	42085560	42085588	+	chr17	42085816	42085969	+	TSF	ENST00000293404,ENST00000589767	9,9,9,9,9,9	9075-9080	13797-13802	ACC,BRCA,LIHC
chr17:42149179:+>chr17:42151528:+	chr17	42149044	42149179	+	chr17	42151528	42151597	+	TSF	ENST00000591696,ENST00000269097,ENST00000269097,ENST00000591696	10,4,4,22,10,22	9081-9086	13803-13808	BLCA,BRCA,GBM,KIRC,KIRP,LUAD,OV,STAD,THCA,UVM
chr17:42388881:+>chr17:42389948:+	chr17	42388704	42388881	+	chr17	42389948	42390063	+	TAF	ENST00000426726,ENST00000590941,ENST00000225441	17,17,17,2,2,2,9,9,9	9087-9095	13809-13817	LGG,PAAD,PCPG,PRAD
chr17:42395306:+>chr17:42395464:+	chr17	42395269	42395306	+	chr17	42395464	42395606	+	TAF	ENST00000426726	12,12,12	9096-9098	13818-13820	ACC,BRCA,GBM,LGG,LUAD,LUSC,OV,PAAD,PCPG,UVM
chr17:42400540:->chr17:42400220:-	chr17	42400590	42400540	-	chr17	42400220	42400176	-	TSF	ENST00000225308,ENST00000377095,ENST00000590194,ENST00000588049,ENST00000586633,ENST00000592857,ENST00000585523	17,17,17,17,17,17,17,7,7,7,7,7,7,7,7	9099-9112	13821-13834	OV,STAD
chr17:426165:->chr17:424978:-	chr17	426168	426165	-	chr17	424978	424841	-	TAF	ENST00000437048	1,1	9113-9114	13835-13836	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,PRAD,READ,SARC,SKCM,TGCT,THCA,UCEC,UCS,UVM
chr17:42989722:->chr17:42989165:-	chr17	42989790	42989722	-	chr17	42989165	42989040,42989042,42989065	-	TAF	ENST00000253408,ENST00000435360,ENST00000586793,ENST00000587997,ENST00000588957,ENST00000588316	23,13,13,13,13,13,13,23,23,23,23,23	9115-9126	13837-13848	GBM,HNSC,LGG,LIHC,OV,SARC,TGCT,UCEC,UVM
chr17:42991849:->chr17:42991449:-	chr17	42991959	42991849	-	chr17	42991449	42991396	-	TSF	ENST00000253408,ENST00000435360,ENST00000586793,ENST00000592320,ENST00000588316,ENST00000588037	5,10,10,10,10,10,10,22,22,22,22,22,22,5,5,5,5,5	9127-9144	13849-13866	GBM,LGG
chr17:42991849:->chr17:42991456:-	chr17	42991959	42991849	-	chr17	42991456	42991396	-	TSF	ENST00000253408,ENST00000435360,ENST00000586793,ENST00000592320,ENST00000588316,ENST00000588037	5,5,5,5,5,5,10,22,22,22,22,22,22,10,10,10,10,10	9145-9162	13867-13884	GBM,LGG
chr17:42991941:->chr17:42991456:-	chr17	42991959	42991941	-	chr17	42991456	42991396	-	TSF	ENST00000253408,ENST00000435360,ENST00000586793,ENST00000592320,ENST00000588316,ENST00000588037	6,6,6,6,6,6,6,6,6,6,6,6,6,5,5,5,5,5	9163-9180	13885-13902	GBM,LGG
chr17:43485601:->chr17:43483449:-	chr17	43485811	43485601	-	chr17	43483449	43483042	-	TSF	ENST00000532038,ENST00000428638,ENST00000442348,ENST00000532891,ENST00000528677	28,28,28,28,28,49,49,45,45,45,45,45,49,49,49	9181-9195	13903-13917	BLCA,HNSC,LUAD,LUSC,OV,PAAD,STAD
chr17:43536749:->chr17:43531638:-	chr17	43537130	43536749	-	chr17	43531638	43530721	-	TSF	ENST00000430334,ENST00000421073	7,7,22,22,24,24	9196-9201	13918-13923	HNSC,KIRP,LUAD,LUSC,THCA
chr17:45698367:+>chr17:45699134:+	chr17	45698288	45698367	+	chr17	45699134	45699286	+	TSF	ENST00000530173,ENST00000322157,ENST00000544660,ENST00000528565	26,26,26,26,24,24,24,24,11,11,11,11	9202-9213	13924-13935	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,PRAD,SARC,SKCM,TGCT,UCEC

Table 19

chr17:45908677:->chr17:45906036:-	chr17	45908775	45908677	-	chr17	45906036	45905867	-	TAF	ENST00000351111,ENST00000290208,ENST00000414011	18,18,18,2,2,20,20,0,20	9214-9222	13936-13944	BRCA,GBM,KIRC,LGG,LUAD,OV,PAAD,SARC,SKCM,STAD,UCS
chr17:4700476:+>chr17:4700733:+	chr17	4700327	4700476	+	chr17	4700733	4700864	+	TSF	ENST00000270586,ENST00000571309	4,4,40,9,9,40	9223-9228	13945-13950	BLCA,BRCA,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,MESO,SARC,TGCT,UCEC,UCS,UVM
chr17:48164357:+>chr17:48165108:+	chr17	48164136	48164357	+	chr17	48165108	48165233	+	TAF	ENST00000320031,ENST00000007722	7,25,25,20,20,7	9229-9234	13951-13956	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,THCA,THYM,UCEC
chr17:48750209:+>chr17:48750332:+	chr17	48749939	48750209	+	chr17	48750332	48750499	+	TAF	ENST00000285238,ENST00000505699	10,10,30,24,24,30	9235-9240	13957-13962	BLCA,BRCA,CESC,CHOL,COAD,GBM,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,READ,STAD,THCA
chr17:48820202:+>chr17:48821067:+	chr17	48820020	48820202	+	chr17	48821067	48821171	+	TSF	ENST00000505658,ENST00000393227,ENST00000240304,ENST00000544170	5,5,53,53,53,53,12,12,12,12,5,5	9241-9252	13963-13974	BRCA,OV,STAD,TGCT
chr17:4908701:+>chr17:4910210:+	chr17	4908417	4908701	+	chr17	4910210	4910379	+	TAF	ENST00000320785	8,9,23	9253-9255	13975-13977	BLCA,CESC,CHOL,COAD,HNSC,KIRP,LGG,LIHC,LUAD,OV,PRAD,READ,SARC,SKCM,TGCT,THCA,UCEC,UCS
chr17:49346514:+>chr17:49350723:+	chr17	49346367	49346514	+	chr17	49350723	49350811	+	TSF	ENST00000225298	17,4	9256-9257	13978-13979	BLCA
chr17:5014371:->chr17:5013063:-	chr17	5014630	5014371	-	chr17	5013063	5012689,5	-	TSF	ENST00000575898,ENST00000250076,ENST00000416429	4,4,4,44,44,44,18,18	9258-9266	13980-13988	BLCA,BRCA,COAD,GBM,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,UVM
chr17:54888652:->chr17:54872541:-	chr17	54888692	54888652	-	chr17	54872541	54872425	-	TAF	ENST00000397861,ENST00000397862,ENST00000575658	5,5,5,4,4,4,13,13,13	9267-9275	13989-13997	THYM
chr17:54891289:->chr17:54872541:-	chr17	54891362	54891289	-	chr17	54872541	54872425	-	TSF	ENST00000397861,ENST00000397862,ENST00000575658	14,14,14,1,1,1,7,7,7	9276-9284	13998-14006	THYM
chr17:56486202:->chr17:56448394:-	chr17	56486405	56486202	-	chr17	56448394	56448272	-	TSF	ENST00000407977,ENST00000584437,ENST00000577716	26,26,26,11,11,11,7,7,7	9285-9293	14007-14015	COAD,PRAD,READ
chr17:56612799:->chr17:56603674:-	chr17	56612963	56612799	-	chr17	56603674	56603582	-	TAF	ENST00000393086,ENST00000426861,ENST00000579371,ENST00000317268,ENST00000457347,ENST00000580844,ENST00000317256,ENST00000412945,ENST00000580809,ENST00000577729,ENST00000581615,ENST00000578131,ENST00000583291	30,30,30,30,30,30,36,36,36,36,36,36,36,36,36,36,36,36,36,22,22,22,22,22,22,22,22,22,22,22,22,22,30,30,30,30,30,30	9294-9332	14016-14054	ACC,KIRC,LIHC,PCPG
chr17:56612799:->chr17:56604339:-	chr17	56612963	56612799	-	chr17	56604339	56604043,56604293,56604126	-	TSF	ENST00000393086,ENST00000426861,ENST00000317268,ENST00000457347,ENST00000317256,ENST00000412945,ENST00000581615,ENST00000578131,ENST00000583291,ENST00000581607	30,30,30,30,30,22,22,22,22,22,22,22,22,22,30,30,30,30,30	9333-9352	14055-14074	LIHC
chr17:57720900:+>chr17:57721637:+	chr17	57720819	57720900	+	chr17	57721637	57721845	+	TSF	ENST00000393043,ENST00000269122,ENST00000579456,ENST00000584313,ENST00000580081	8,14,14,14,14,14,8,8,8	9353-9362	14075-14084	BRCA,COAD,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,PRAD,SARC,SKCM,STAD,THCA

chr17:57885650:+>chr17:57886157:+	chr17	57885458	57885650	+	chr17	57886157	57886238	+	TSF	ENST00000262291,ENST00000537567,ENST00000539763,ENST00000536180,ENST00000545362,ENST00000592619,ENST00000591877	2,2,2,2,2,2,16,16,16,16,16,16,2,0,20,20,20,0,20,20,20,0,2,16,16	9363-9383	14085-14105	BRCA,CESC,LUAD,LUSC,MESO,PAAD,SARC
chr17:59480242:+>chr17:59480422:+	chr17	59480183	59480242	+	chr17	59480422	59480568	+	TSF	ENST00000240328	20,14	9384-9385	14106-14107	BLCA,KIRP,THCA
chr17:61517029:->chr17:61514921:-	chr17	61517244	61517029	-	chr17	61514921	61514708	-	TSF	ENST00000542042,ENST00000580691,ENST00000582997,ENST00000580592	14,14,14,34,34,34,2,2,2,2,14,34	9386-9397	14108-14119	PCPG
chr17:61517092:->chr17:61514921:-	chr17	61517244	61517092	-	chr17	61514921	61514708	-	TSF	ENST00000542042,ENST00000580691,ENST00000582997,ENST00000580592	26,26,26,13,13,13,2,2,2,2,26,13	9398-9409	14120-14131	PCPG,STAD
chr17:61518901:->chr17:61514921:-	chr17	61518950	61518901	-	chr17	61514921	61514708	-	TSF	ENST00000542042,ENST00000580691,ENST00000582997,ENST00000580592	16,16,16,2,2,2,2,16,16,16,16,16	9410-9421	14132-14143	PCPG
chr17:61556008:+>chr17:61556368:+	chr17	61555745	61556008	+	chr17	61556368	61556461	+	TSF	ENST00000538928,ENST00000290866,ENST00000428043,ENST00000582627	13,10,10,10,10,1,1,1,1,13,13,13	9422-9433	14144-14155	PCPG,TGCT
chr17:62480081:->chr17:62479116:-	chr17	62480131	62480081	-	chr17	62479116	62479036	-	TAF	ENST00000539111,ENST00000581355	17,7,7,13,13,17	9434-9439	14156-14161	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr17:64988129:+>chr17:65014305:+	chr17	64988088	64988129	+	chr17	65014305	65014388	+	TSF	ENST00000262138	14,13,13	9440-9442	14162-14164	BRCA,GBM,LGG,OV,PRAD
chr17:65894534:+>chr17:65899905:+	chr17	65894489	65894534	+	chr17	65899905	65900034	+	TSF	ENST00000544778,ENST00000321892,ENST00000335221,ENST00000306378,ENST00000424123	15,15,15,15,15,15,15,15,15,15,3,3,3,3,3	9443-9457	14165-14179	BRCA,LUAD,OV,STAD
chr17:66244199:+>chr17:66244785:+	chr17	66244121	66244199	+	chr17	66244785	66244846	+	TSF	ENST00000584837	26,16,25	9458-9460	14180-14182	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LUAD,LUSC,OV,PRAD,SARC,STAD,TGCT,THCA
chr17:70670643:->chr17:70645407:-	chr17	70671026	70670643	-	chr17	70645407	70645309	-	TAF	ENST00000255559,ENST00000542342,ENST00000582769	3,3,13,13,6,6,6,3,13	9461-9469	14183-14191	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PRAD,READ,SKCM,STAD,TGCT,THCA,UCEC
chr17:70713885:->chr17:70645407:-	chr17	70713894	70713885	-	chr17	70645407	70645309	-	TSF	ENST00000255559,ENST00000542342,ENST00000582769	3,3,3,3,3,2,2,3,2	9470-9478	14192-14200	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,PAAD,READ,STAD,UCEC
chr17:70713885:->chr17:70709120:-	chr17	70713894	70713885	-	chr17	70709120	70709075	-	TSF	ENST00000581581	3,3,2	9479-9481	14201-14203	BLCA,LUAD,LUSC,STAD
chr17:7130212:->chr17:7129958:-	chr17	7130320	7130212	-	chr17	7129958	7129740	-	TAF	ENST00000005340,ENST00000575458,ENST00000575086	12,12,22,22,22,35,35,35,12	9482-9490	14204-14212	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr17:72951178:->chr17:72950460:-	chr17	72951257	72951178	-	chr17	72950460	72950233	-	TSF	ENST00000425042	7,26	9491-9492	14213-14214	BLCA,BRCA,CESC,LUAD,OV,PCPG,PRAD,READ,STAD,UCEC

Table 19

chr17:73846895:->chr17:73845820:-	chr17	73847069	73846895	-	chr17	73845820	73845685	-	TSF	ENST00000254806,ENST00000585462,ENST00000591399,ENST00000591831,ENST00000590221,ENST00000344296,ENST00000433525,ENST00000593002	14,14,14,14,14,14,58,58,58,5,5,5,5,5,5,5,5,58,58	9493-9516	14215-14238	BRCA,GBM,LGG
chr17:73847024:->chr17:73845820:-	chr17	73847069	73847024	-	chr17	73845820	73845685	-	TSF	ENST00000254806,ENST00000585462,ENST00000591399,ENST00000591831,ENST00000590221,ENST00000344296,ENST00000433525,ENST00000593002	15,15,15,15,15,15,15,15,15,15,15,15,7,7,7,7,7,7,7,15,15,15	9517-9540	14239-14262	BRCA,GBM,KIRC,KIRP,LGG,LUAD,OV
chr17:74261484:+>chr17:74261988:+	chr17	74261446	74261484	+	chr17	74261988	74262050	+	TAF	ENST00000327490	13,12,12	9541-9543	14263-14265	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRP,LGG,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr17:74582951:->chr17:74574898:-	chr17	74583012	74582951	-	chr17	74574898	74574839	-	TAF	ENST00000225276,ENST00000585736	20,7,20,20,20,7	9544-9549	14266-14271	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LUSC,OV,PAAD,SARC,SKCM,THCA,THYM,UCEC,UCS,UVM
chr17:7479718:+>chr17:7479842:+	chr17	7479605	7479718	+	chr17	7479842	7480008,7480010,7479924	+	TSF	ENST00000582169,ENST00000293831,ENST00000585024,ENST00000583802,ENST00000581544,ENST00000577269,ENST00000584784,ENST00000582746,ENST00000584860,ENST00000581384	8,16,16,16,16,16,16,16,16,16,16,16,8,8,8,8,8,8,8,8	9550-9569	14272-14291	BLCA,BRCA,HNSC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,UCS,UVM
chr17:74943777:+>chr17:74943912:+	chr17	74943634	74943777	+	chr17	74943912	74944168	+	TSF	ENST00000301618,ENST00000569840,ENST00000428789	7,7,7,1,1,1,3,3,3	9570-9578	14292-14300	BRCA,LIHC,OV,SARC,SKCM,UVM
chr17:75313709:+>chr17:75398141:+	chr17	75313396	75313709	+	chr17	75398141	75398484,75398497,75398565,75398785	+	TSF	ENST00000589070,ENST00000591934,ENST00000589140,ENST00000427177,ENST00000591198,ENST00000329047,ENST00000590294,ENST00000423034,ENST00000589070,ENST00000427177,ENST00000591198,ENST00000329047,ENST00000590294,ENST00000591934,ENST00000423034,ENST00000589140	31,31,31,31,31,31,31,28,4,4,4,4,4,4,4,28,28,28,28,28,28,28	9579-9602	14301-14324	BLCA,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,OV,PRAD,STAD
chr17:75318752:+>chr17:75398141:+	chr17	75318693	75318752	+	chr17	75398141	75398484,75398497,75398565,75398785	+	TAF	ENST00000589070,ENST00000591934,ENST00000589140,ENST00000427177,ENST00000591198,ENST00000329047,ENST00000590294,ENST00000423034,ENST00000589070,ENST00000427177,ENST00000591198,ENST00000329047,ENST00000590294,ENST00000591934,ENST00000423034,ENST00000589140	15,15,15,15,15,15,15,15,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19	9603-9626	14325-14348	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC,UVM

chr17:75338959:+>chr17:75398141:+	chr17	75338773	75338959	+	chr17	75398141	75398484,75398785,75398497,75398565	+	TSF	ENST00000589070,ENST00000427177,ENST00000591198,ENST00000329047,ENST00000590294,ENST00000591934,ENST00000423034,ENST00000589140	35,35,35,35,35,35,35,39,39,39,39,39,39,39,39,39	9627-9642	14349-14364	COAD,LUAD,PAAD,STAD,UCEC
chr17:7550019:+>chr17:7557159:+	chr17	7549704	7550019	+	chr17	7557159	7557263	+	TSF	ENST00000250111	48,46	9643-9644	14365-14366	GBM,LGG
chr17:76192809:+>chr17:76198580:+	chr17	76192772	76192809	+	chr17	76198580	76198684	+	TAF	ENST00000409257,ENST00000591256,ENST00000588199,ENST00000327898,ENST00000586542	6,6,6,6,6,12,2,2,2,1,2,12,2,12,12,2	9645-9659	14367-14381	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PRAD,SARC,THYM,UCEC
chr17:7788052:+>chr17:7788257:+	chr17	7788014	7788052	+	chr17	7788257	7788401	+	TSF	ENST00000380358	13,12,12	9660-9662	14382-14384	BRCA,KIRC,LUSC,THYM,UCEC
chr17:78263365:+>chr17:78263458:+	chr17	78263107	78263365	+	chr17	78263458	78263636	+	TSF	ENST00000508628,ENST00000456466,ENST00000582970,ENST00000319921	10,10,10,10,32,32,8,8,8,8,32,32	9663-9674	14385-14396	BRCA,KIRC,KIRP,LUSC,STAD
chr17:78344187:+>chr17:78345674:+	chr17	78344149	78344187	+	chr17	78345674	78345785	+	TSF	ENST00000508628,ENST00000582970,ENST00000336301	13,13,13,12,12,12	9675-9680	14397-14402	BRCA,CESC,LUAD,OV,STAD
chr17:79057207:+>chr17:79058632:+	chr17	79057181	79057207	+	chr17	79058632	79058693	+	TAF	ENST00000575750,ENST00000575989,ENST00000321280,ENST00000572329,ENST00000428708,ENST00000575712,ENST00000575245,ENST00000435091,ENST00000321300,ENST00000571530,ENST00000572918,ENST00000575958,ENST00000573659,ENST00000572073,ENST00000573677,ENST00000574804	9,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,9,9,9,9,9,9,9,9,9,9,9,9,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8	9681-9728	14403-14450	BLCA,BRCA,COAD,HNSC,LUAD,OV,PRAD,STAD,THYM,UVM
chr17:79214239:+>chr17:79214787:+	chr17	79214190	79214239	+	chr17	79214787	79214817	+	TAF	ENST00000431388,ENST00000576002	7,16,16,7	9729-9732	14451-14454	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr17:7947155:+>chr17:7948147:+	chr17	7947105	7947155	+	chr17	7948147	7948319	+	TSF	ENST00000380183,ENST00000572022,ENST00000380173,ENST00000573359	17,17,17,17,7,7,7,7,16,16,16,16	9733-9744	14455-14466	BRCA,PRAD
chr17:79649473:->chr17:79649179:-	chr17	79649571	79649473	-	chr17	79649179	79649064	-	TAF	ENST00000397498,ENST00000570561,ENST00000576135	33,33,33,2,2,2,1,1,1	9745-9753	14467-14475	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr17:79911734:->chr17:79911143:-	chr17	79911953	79911734	-	chr17	79911143	79910837	-	TAF	ENST00000409678	38,7,28	9754-9756	14476-14478	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr17:79914232:->chr17:79913420:-	chr17	79914312	79914232	-	chr17	79913420	79913274	-	TAF	ENST00000409678,ENST00000477214	10,23,23,26,10,26	9757-9762	14479-14484	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,THCA,UCEC

chr17:79936215:+>chr17:79937060:+	chr17	79936116	79936215	+	chr17	79937060	79937115	+	TSF	ENST00000581484,ENST00000306729,ENST00000306739,ENST00000344865,ENST00000581647,ENST00000583503,ENST00000579684	1,1,1,1,1,1,1,24,32,32,32,32,32,32,24,24,24,24,24,24	9763-9783	14485-14505	BLCA,BRCA,KIRC,KIRP,LIHC,LUSC,OV,STAD
chr17:80070635:->chr17:80059742:-	chr17	80070847	80070635	-	chr17	80059742	80059559	-	TSF	ENST00000389641,ENST00000392347,ENST00000392345	42,42,42,51,51,51,70,70,70	9784-9792	14506-14514	BLCA,BRCA,LIHC,LUAD,PRAD
chr17:80418199:+>chr17:80422163:+	chr17	80418062	80418199	+	chr17	80422163	80422306	+	TAF	ENST00000309794,ENST00000581202,ENST00000374611,ENST00000457415,ENST00000581795,ENST00000577432,ENST00000582907	12,19,19,19,19,19,19,19,6,6,6,6,6,6,12,12,12,12,12,12	9793-9813	14515-14535	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr17:80441180:+>chr17:80441592:+	chr17	80440912	80441180	+	chr17	80441592	80441656	+	TAF	ENST00000390006,ENST00000309794,ENST00000345415,ENST00000457415,ENST00000412079,ENST00000577432,ENST00000584513,ENST00000390006,ENST00000309794,ENST00000345415,ENST00000457415,ENST00000577432,ENST00000584513,ENST00000412079	21,21,21,21,21,21,21,39,39,39,39,35,35,35,35,35,35,39,39,39	9814-9834	14536-14556	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr17:80544753:+>chr17:80544939:+	chr17	80544496	80544753	+	chr17	80544939	80545149	+	TSF	ENST00000473637,ENST00000335255,ENST00000575578	8,10,8,10,8,10	9835-9840	14557-14562	BLCA,BRCA,HNSC,LUAD,LUSC,OV,STAD,THCA,UCEC,UCS
chr17:80812141:+>chr17:80828100:+	chr17	80812047	80812141	+	chr17	80828100	80828256	+	TSF	ENST00000355528,ENST00000397466,ENST00000539345	11,11,11,13,7,7,7,13,13	9841-9849	14563-14571	BLCA,BRCA,KIRC,LUAD,MESO,PCPG,SARC,THCA,THYM,UCS,UVM
chr17:80866313:+>chr17:80867161:+	chr17	80866189	80866313	+	chr17	80867161	80867183	+	TAF	ENST00000355528,ENST00000539345,ENST00000576160,ENST00000571712,ENST00000576996,ENST00000571316,ENST00000576760,ENST00000572984,ENST00000574975,ENST00000572953,ENST00000574422	38,38,38,38,38,38,38,38,38,38,38,38,2,2,2,2,2,2,2,2,2,2,10,10,10,10,10,10,10,10,10,10,38,10,10,10	9850-9882	14572-14604	KIRC,SARC,STAD,THYM
chr17:8713434:->chr17:8707471:-	chr17	8713706	8713434	-	chr17	8707471	8707359	-	TSF	ENST00000311434	50,7,19	9883-9885	14605-14607	CESC,KIRC,LIHC,STAD
chr17:8715333:->chr17:8707471:-	chr17	8715603	8715333	-	chr17	8707471	8707359	-	TSF	ENST00000311434	7,48,21	9886-9888	14608-14610	CESC,KIRC,OV,STAD
chr17:90313:->chr17:69527:-	chr17	90541	90313	-	chr17	69527	69414	-	TSF	ENST00000331302,ENST00000323434,ENST00000536489	1,1,1,6,6,6,23,23,23	9889-9897	14611-14619	BRCA,LUAD,PAAD,PCPG
chr18:20590383:+>chr18:20596791:+	chr18	20590293	20590383	+	chr18	20596791	20596887	+	TSF	ENST00000327155,ENST00000399722,ENST00000360790,ENST00000583057	6,6,6,11,11,11,11,2,9,29,29,29,6	9898-9909	14620-14631	BLCA,BRCA,CESC,GBM,HNSC,KICH,LGG,LUAD,LUSC,SARC,THYM
chr18:20777408:+>chr18:20793941:+	chr18	20777402	20777408	+	chr18	20793941	20794018	+	TSF	ENST00000400473,ENST00000579963,ENST00000256925,ENST00000582882,ENST00000420687	2,2,2,2,2,2,2,2,2,2,1,1,1,1,1	9910-9924	14632-14646	BRCA,OV,SKCM,UVM
chr18:2873305:+>chr18:2891239:+	chr18	2873127	2873305	+	chr18	2891239	2892484	+	TSF	ENST00000254528	5,48,19	9925-9927	14647-14649	BLCA,SARC
chr18:29076818:+>chr18:29098202:+	chr18	29076431	29076818	+	chr18	29098202	29098237	+	TSF	ENST00000261590,ENST00000585206	20,20,5,5	9928-9931	14650-14653	BRCA,KICH,KIRC

chr18:32400289:+>chr18:32400755:+	chr18	32400184	32400289	+	chr18	32400755	32400879	+	TSF	ENST00000283365,ENST00000315456,ENST00000598334,ENST00000554864,ENST00000399121,ENST00000269190,ENST00000595022,ENST00000598774,ENST00000598142,ENST00000348997,ENST00000597599,ENST00000269191,ENST00000444659,ENST00000399113,ENST00000590727	8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,2,2,34,34,34,34,34,34,34,34,34,34,34,34,34,34,34,34,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2	9932-9976	14654-14698	LGG
chr18:32426197:+>chr18:32428260:+	chr18	32426045	32426197	+	chr18	32428260	32428347	+	TSF	ENST00000283365,ENST00000598334,ENST00000399121,ENST00000269190,ENST00000399097,ENST00000595022,ENST00000598774,ENST00000598142,ENST00000348997,ENST00000597599,ENST00000269191,ENST00000444659,ENST00000399113,ENST00000601125,ENST00000269192,ENST00000591182,ENST00000597674,ENST00000556414,ENST00000599844,ENST00000587723	28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,50,28,28,28,28,28,28,28,28	9977-10016	14699-14738	GBM,LGG
chr18:33076739:->chr18:33060527:-	chr18	33076776	33076739	-	chr18	33060527	33060417	-	TSF	ENST00000592173,ENST00000334598,ENST00000441607,ENST00000591139	12,12,12,12,12,12,12,3,3,3,3	10017-10028	14739-14750	BLCA,BRCA,COAD,DLBC,HNSC,KIRC,LUAD,LUSC,MESO,OV,SARC,STAD,THCA
chr18:33274542:+>chr18:33282861:+	chr18	33274343	33274542	+	chr18	33282861	33282959	+	TSF	ENST00000269195,ENST00000537549	64,64,22,22,44,44	10029-10034	14751-14756	BLCA,BRCA,HNSC,KIRC,LIHC,LUSC
chr18:33553783:+>chr18:33554903:+	chr18	33553603	33553783	+	chr18	33554903	33555058	+	TSF	ENST00000592875	51,6,46	10035-10037	14757-14759	HNSC,KICH,LUAD,LUSC,TGCT,THCA
chr18:33693356:->chr18:33692544:-	chr18	33693361	33693356	-	chr18	33692544	33692464	-	TSF	ENST00000269187,ENST00000590986,ENST00000440549,ENST00000586829	2,2,2,2,1,1,1,1,1,1,1,1	10038-10049	14760-14771	BRCA
chr18:33711615:+>chr18:33713201:+	chr18	33711482	33711615	+	chr18	33713201	33713279	+	TSF	ENST00000358232,ENST00000351393,ENST00000442325,ENST00000423854,ENST00000539560,ENST00000542430,ENST00000350494,ENST00000542824,ENST00000540799	21,21,21,21,21,21,21,21,21,9,9,9,9,9,9,9,9,9	10050-10067	14772-14789	BRCA
chr18:43415246:+>chr18:43416994:+	chr18	43415105	43415246	+	chr18	43416994	43417053	+	TSF	ENST00000389474	16,47	10068-10069	14790-14791	BLCA,LUSC,STAD
chr18:43686799:+>chr18:43698147:+	chr18	43686699	43686799	+	chr18	43698147	43698282	+	TAF	ENST00000282058,ENST00000592471	33,33,6,11,11,6	10070-10075	14792-14797	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,READ,SARC,THYM,UCEC,UCS
chr18:47213601:->chr18:47017800:-	chr18	47213717	47213601	-	chr18	47017800	47017775	-	TSF	ENST00000584895,ENST00000577910,ENST00000579408,ENST00000579248,ENST00000580261,ENST00000418495,ENST00000580210,ENST00000583637,ENST00000578532,ENST00000583036,ENST00000580387,ENST00000578528	39,39,39,39,39,39,39,39,39,39,39,39,12,12,12,12,12,12,12,12,12,12,12,12,7,7,7,7,7,7,7,7,7,7,7,7,7,7	10076-10111	14798-14833	OV,PRAD,STAD,UVM

chr18:47213643:->chr18:47017800:-	chr18	47213717	47213643	-	chr18	47017800	47017775	-	TSF	ENST00000584895,ENST00000577910,ENST00000579408,ENST00000579248,ENST00000580261,ENST00000418495,ENST00000580210,ENST00000583637,ENST00000578532,ENST00000583036,ENST00000580387,ENST00000578528	25,25,25,25,25,25,25,25,25,25,25,25,24,24,24,24,24,24,24,24,24,24,24,24,7,7,7,7,7,7,7,7,7,7,7,7	10112-10147	14834-14869	OV,PRAD,STAD,UVM
chr18:48249890:+>chr18:48252332:+	chr18	48249804	48249890	+	chr18	48252332	48252545	+	TAF	ENST00000400384,ENST00000540640	22,22,2,2,28,28	10148-10153	14870-14875	ACC,BLCA,BRCA,CESC,GBM,KICH,LGG,LIHC,LUAD,PCPG,PRAD,SKCM,THYM,UVM
chr18:48347090:->chr18:48346072:-	chr18	48347181	48347090	-	chr18	48346072	48345951	-	TSF	ENST00000585524,ENST00000431965,ENST00000436348	3,6,11,11,11,3,3,6,6	10154-10162	14876-14884	LGG
chr18:49727:->chr18:49237:-	chr18	51273	49727	-	chr18	49237	49129	-	TSF	ENST00000308911	16,12,27	10163-10165	14885-14887	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr18:60453726:+>chr18:60497268:+	chr18	60453659	60453726	+	chr18	60497268	60497464	+	TSF	ENST00000400316,ENST00000262719	4,4,20,20,2,2	10166-10171	14888-14893	LGG
chr18:60485978:+>chr18:60497268:+	chr18	60485771	60485978	+	chr18	60497268	60497464	+	TSF	ENST00000400316,ENST00000262719	35,35,5,5,9,9	10172-10177	14894-14899	LGG
chr18:60573623:+>chr18:60582146:+	chr18	60573526	60573623	+	chr18	60582146	60582241	+	TSF	ENST00000400316,ENST00000262719,ENST00000591386	6,6,32,32,32,6	10178-10183	14900-14905	LGG,LUSC,SKCM,STAD,UVM
chr18:668576:+>chr18:669072:+	chr18	668506	668576	+	chr18	669072	669173	+	TSF	ENST00000323274,ENST00000323250	23,23,13,13	10184-10187	14906-14909	KIRC
chr18:70840073:->chr18:70829208:-	chr18	70840904	70840073	-	chr18	70829208	70829180	-	TSF	ENST00000581011,ENST00000581862	15,15,14,14,8,8	10188-10193	14910-14915	LUAD,LUSC,STAD
chr18:71977013:->chr18:71930712:-	chr18	71977251	71977013	-	chr18	71930712	71930584	-	TSF	ENST00000340533,ENST00000494131,ENST00000397914	7,7,7,25,25,25	10194-10199	14916-14921	HNSC,LUAD
chr18:74710247:->chr18:74702016:-	chr18	74710407	74710247	-	chr18	74702016	74701912,74701967,74701932,74701935	-	TSF	ENST00000382582,ENST00000355994,ENST00000397875,ENST00000397866,ENST00000397865,ENST00000527041,ENST00000359645,ENST00000397869,ENST00000531144,ENST00000583474,ENST00000533278,ENST00000526111,ENST00000580402,ENST00000579129,ENST00000578193,ENST00000447114,ENST00000473302,ENST00000493623,ENST00000578873,ENST00000459948,ENST00000498683	39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,39,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,12,21,21,21,21,21,21,21,21,21,39,12,21,21,21,21,21,21,21,21,21,21	10200-10262	14922-14984	GBM,LGG,SKCM
chr18:77906530:+>chr18:77933763:+	chr18	77906423	77906530	+	chr18	77933763	77933818	+	TSF	ENST00000589574	2,4,24	10263-10265	14985-14987	BRCA,KICH,KIRP,LGG,LUAD,OV
chr18:9594127:->chr18:9593872:-	chr18	9594227	9594127	-	chr18	9593872	9593767	-	TAF	ENST00000400556,ENST00000400555,ENST00000584074,ENST00000581250,ENST00000580745,ENST00000580182,ENST00000582240,ENST00000581835	6,6,6,6,6,6,6,6,11,1,11,11,1,11,11,1,11,11,1	10266-10281	14988-15003	BLCA,BRCA,CESC,HNSC,KIRP,LGG,LUAD,LUSC,MESO,PAAD,PRAD,SARC,SKCM,TGCT,THCA
chr18:9805956:+>chr18:9814017:+	chr18	9805890	9805956	+	chr18	9814017	9814088	+	TSF	ENST00000578921	22,13,21	10282-10284	15004-15006	GBM,LGG

chr19:10471638:->chr19:10469978:-	chr19	10471727	10471638	-	chr19	10469978	10469851	-	TSF	ENST00000264818,ENST00000524462,ENST00000525621,ENST00000529370	28,28,28,28,29,29,29,29,8,8,8,8	10285-10296	15007-15018	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LUSC,OV,SARC,STAD,TGCT,THYM
chr19:10819829:+>chr19:10822837:+	chr19	10819783	10819829	+	chr19	10822837	10822975	+	TAF	ENST00000250237,ENST00000591643	15,15,8,15,15,8	10297-10302	15019-15024	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr19:11140045:+>chr19:11141406:+	chr19	11140024	11140045	+	chr19	11141406	11141569	+	TSF	ENST00000358026,ENST00000344626,ENST00000429416,ENST00000541122,ENST00000589677,ENST00000444061,ENST00000590574,ENST00000413806,ENST00000450717	7,7,7,7,7,7,7,7,7,7,4,4,4,4,4,4,4,4,4,4,7,7,7,7,7,7,7	10303-10329	15025-15051	BLCA,BRCA,CESC,COAD,HNSC,LGG,LUAD,LUSC,OV,PRAD,SARC,TGCT,THCA,THYM,UCEC,UCS
chr19:1114676:->chr19:1114421:-	chr19	1114930	1114676	-	chr19	1114421	1114230	-	TSF	ENST00000361757,ENST00000587024,ENST00000438103	10,10,10,31,31,31,18,18,18	10330-10338	15052-15060	BLCA,BRCA,CESC,CHOL,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SKCM,STAD,TGCT,THYM,UCEC
chr19:11469050:+>chr19:11470208:+	chr19	11469032	11469050	+	chr19	11470208	11470396	+	TSF	ENST00000251473,ENST00000591329	4,4,6,6	10339-10342	15061-15064	BRCA,GBM,LGG,LUAD,LUSC,OV,PAAD,PCPG,STAD
chr19:11528379:->chr19:11527733:-	chr19	11528445	11528379	-	chr19	11527733	11527510	-	TSF	ENST00000562663,ENST00000563726,ENST00000380456,ENST00000393423,ENST00000567431,ENST00000567080	22,22,22,22,22,22,13,21,21,21,21,21,21,13,13,13,13,13	10343-10360	15065-15082	BLCA,CESC,KIRP,LUAD,OV,THCA,THYM,UCEC
chr19:11555219:+>chr19:11556204:+	chr19	11555143	11555219	+	chr19	11556204	11556288	+	TAF	ENST00000591462,ENST00000252455,ENST00000412601,ENST00000592741,ENST00000587327,ENST00000589838	25,25,25,25,25,25,20,20,20,20,20,20	10361-10372	15083-15094	BLCA,BRCA,CESC,GBM,HNSC,LUSC,OV,PRAD,SKCM,TGCT,THYM
chr19:1232910:->chr19:1231274:-	chr19	1232978	1232910	-	chr19	1231274	1230892,1	-	TSF	ENST00000590083,ENST00000382477,ENST00000215376	2,2,22,22,22,5,5,2,5	10373-10381	15095-15103	KICH
chr19:13079995:->chr19:13065340:-	chr19	13080090	13079995	-	chr19	13065340	13065022	-	TSF	ENST00000316939	11,31,24	10382-10384	15104-15106	LGG
chr19:13127986:+>chr19:13135835:+	chr19	13127972	13127986	+	chr19	13135835	13136366,13135976,13136309	+	TAF	ENST00000397661,ENST00000592199,ENST00000587760,ENST00000585575,ENST00000360105,ENST00000586797,ENST00000591028,ENST00000587260,ENST00000358552	5,5,5,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,5,5,5,5,5,5	10385-10411	15107-15133	BRCA,GBM,HNSC,LGG,LUSC,MESO,OV,PRAD,SARC,STAD
chr19:13148316:+>chr19:13183861:+	chr19	13148192	13148316	+	chr19	13183861	13183923	+	TSF	ENST00000397661,ENST00000592199,ENST00000585382,ENST00000587760,ENST00000585575,ENST00000360105,ENST00000588228,ENST00000587260,ENST00000358552	21,21,21,21,21,21,21,21,21,9,9,9,9,9,9,9,9,9	10412-10429	15134-15151	BRCA,CESC,HNSC,KICH,KIRC,KIRP,LUAD,MESO,OV,SARC
chr19:13183471:+>chr19:13183861:+	chr19	13183453	13183471	+	chr19	13183861	13183923	+	TSF	ENST00000397661,ENST00000592199,ENST00000585382,ENST00000587760,ENST00000585575,ENST00000360105,ENST00000588228,ENST00000587260,ENST00000358552	6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6	10430-10447	15152-15169	GBM,LGG,LUSC
chr19:13880520:+>chr19:13882935:+	chr19	13880454	13880520	+	chr19	13882935	13883095	+	TSF	ENST00000319545,ENST00000040663	22,22,13,13,21,21	10448-10453	15170-15175	BLCA,BRCA,LUSC,OV,STAD

Table 10

chr19:14129243:+>chr19:14141522:+	chr19	14129234	14129243	+	chr19	14141522	14141760	+	TSF	ENST00000431365,ENST00000585987,ENST00000585987,ENST00000431365	1,3,2,2,1,3	10454-10459	15176-15181	BRCA,LIHC,LUAD,LUSC,OV,PRAD,UCEC
chr19:14242881:->chr19:14237049:-	chr19	14243138	14242881	-	chr19	14237049	14236934	-	TSF	ENST00000263382,ENST00000592798,ENST00000590835,ENST00000474890	8,8,8,8,18,18,18,18,10,10,10,10	10460-10471	15182-15193	GBM,OV
chr19:1499600:->chr19:1488279:-	chr19	1500000	1499600	-	chr19	1488279	1488187	-	TSF	ENST00000591201,ENST00000300954,ENST00000588195,ENST00000588671	26,26,26,26,37,37,37,37,12,12,12,12	10472-10483	15194-15205	TGCT
chr19:15493406:->chr19:15491423:-	chr19	15493496	15493406	-	chr19	15491423	15491328	-	TAF	ENST00000397410,ENST00000595465	4,4,18,18,20,20	10484-10489	15206-15211	ACC,PCPG
chr19:15502761:->chr19:15491423:-	chr19	15502944	15502761	-	chr19	15491423	15491328	-	TAF	ENST00000397410,ENST00000595465	21,21,7,7	10490-10493	15212-15215	ACC,BLCA,BRCA,CESC,COAD,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:1599987:->chr19:1599559:-	chr19	1600051	1599987	-	chr19	1599559	1599439	-	TAF	ENST00000585937,ENST00000591899,ENST00000589880,ENST00000585671	21,21,21,21,21,21,21,21,15,15,15,15	10494-10505	15216-15227	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr19:16198509:+>chr19:16198837:+	chr19	16198411	16198509	+	chr19	16198837	16198907,16198903,16198876	+	TSF	ENST00000344824,ENST00000538887,ENST00000586499,ENST00000586833,ENST00000588507,ENST00000300933,ENST00000588410,ENST00000592138	33,33,33,14,14,14,14,14,14,14,14,32,32,32,32,32,32,32,32,33,33,33,33,33	10506-10529	15228-15251	OV,UCEC
chr19:16201431:+>chr19:16204346:+	chr19	16201364	16201431	+	chr19	16204346	16204408,16204354,16204374,16204391	+	TSF	ENST00000344824,ENST00000538887,ENST00000586833,ENST00000588507,ENST00000300933,ENST00000592138,ENST00000588032	8,8,8,8,22,22,22,22,22,22,22,8,8,8	10530-10543	15252-15265	BRCA,CESC,HNSC,KIRC,LUAD,OV,PRAD,STAD
chr19:16267566:+>chr19:16268020:+	chr19	16267516	16267566	+	chr19	16268020	16268139,16268205,16268208,16268448	+	TAF	ENST00000593031,ENST00000397372,ENST00000253680,ENST00000593154,ENST00000588246,ENST00000253680,ENST00000397372,ENST00000593154,ENST00000588246,ENST00000593031	17,7,7,7,7,7,16,17,16,17,17,16,16,17,16	10544-10558	15266-15280	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC
chr19:16267584:+>chr19:16268020:+	chr19	16267516	16267584	+	chr19	16268020	16268139,16268205,16268208,16268448	+	TSF	ENST00000593031,ENST00000397372,ENST00000253680,ENST00000593154,ENST00000588246,ENST00000253680,ENST00000397372,ENST00000593154,ENST00000588246,ENST00000593031	23,13,13,13,13,13,23,23,23,23	10559-10568	15281-15290	BLCA,BRCA,CESC,COAD,DLBC,LUAD,LUSC,OV,PRAD,STAD,TGCT,THCA,THYM,UCEC
chr19:17384260:+>chr19:17384713:+	chr19	17384225	17384260	+	chr19	17384713	17384833,17384754,17384789	+	TSF	ENST00000598188,ENST00000594247,ENST00000359435,ENST00000596542,ENST00000599474,ENST00000599057,ENST00000447614,ENST00000601043,ENST00000596335,ENST00000601436,ENST00000601938,ENST00000602066,ENST00000598567	12,12,12,12,12,12,12,12,12,12,12,12,12,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11	10569-10607	15291-15329	BRCA,GBM,KIRP,LUSC,OV,STAD

chr19:17421655:+>chr19:17424832:+	chr19	17421511	17421655	+	chr19	17424832	17424912	+	TSF	ENST00000593466,ENST00000359866,ENST00000596582	13,13,13,10,10,10,34,34,34	10608-10616	15330-15338	ACC,BLCA,BRCA,CESC,GBM,HNSC,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,SKCM,THCA,THYM,UCS
chr19:17524114:+>chr19:17531122:+	chr19	17524027	17524114	+	chr19	17531122	17531220	+	TSF	ENST00000317040,ENST00000528659,ENST00000392702,ENST00000529939,ENST00000528515,ENST00000543795	4,4,4,4,4,4,21,21,2,2,2,2,2,21,21,21,21	10617-10634	15339-15356	BLCA,BRCA,CESC,COAD,GBM,HNSC,OV,UCEC
chr19:17551235:->chr19:17547736:-	chr19	17551333	17551235	-	chr19	17547736	17547267	-	TSF	ENST00000341130,ENST00000594663	33,33,23,23,1,1	10635-10640	15357-15362	OV
chr19:17667488:+>chr19:17670120:+	chr19	17667441	17667488	+	chr19	17670120	17670230	+	TSF	ENST00000252599	16,5,15	10641-10643	15363-15365	KIRC,OV,STAD
chr19:17949989:->chr19:17949199:-	chr19	17950014	17949989	-	chr19	17949199	17949072	-	TAF	ENST00000458235,ENST00000527670,ENST00000534444	5,5,5,1,1,1	10644-10649	15366-15371	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,STAD,TGCT,THCA,THYM,UCS
chr19:17971652:+>chr19:17972102:+	chr19	17971608	17971652	+	chr19	17972102	17972281	+	TAF	ENST00000222247,ENST00000600147,ENST00000599898	15,14,14,15,15,14	10650-10655	15372-15377	BRCA,CESC,COAD,DLBC,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:18506886:->chr19:18502935:-	chr19	18506969	18506886	-	chr19	18502935	18502797	-	TSF	ENST00000339007,ENST00000595840	5,5,24,24	10656-10659	15378-15381	ACC,GBM,KICH,KIRC,KIRP,LUAD,SARC
chr19:18653179:->chr19:18652805:-	chr19	18653186	18653179	-	chr19	18652805	18652489	-	TAF	ENST00000453489	2,2,2	10660-10662	15382-15384	BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,TGCT,THCA,THYM,UCEC,UCS
chr19:18981924:->chr19:18981428:-	chr19	18982032	18981924	-	chr19	18981428	18981386	-	TSF	ENST00000427170	4,36,26	10663-10665	15385-15387	GBM,LGG,PAAD
chr19:18991757:->chr19:18991244:-	chr19	18991807	18991757	-	chr19	18991244	18991083	-	TSF	ENST00000427170,ENST00000429504,ENST00000542296,ENST00000596048	17,17,17,17,7,16,16,16,16,7,7,7	10666-10677	15388-15399	GBM,LGG
chr19:19015005:->chr19:19014232:-	chr19	19015073	19015005	-	chr19	19014232	19014077	-	TSF	ENST00000262812,ENST00000600932,ENST00000351079,ENST00000593827	23,23,23,13,13,13,13,23	10678-10685	15400-15407	LGG
chr19:19353712:+>chr19:19356122:+	chr19	19353662	19353712	+	chr19	19356122	19356266	+	TSF	ENST00000252575,ENST00000538881,ENST00000588231	17,17,16,16,16,16,16,16,17	10686-10694	15408-15416	BRCA,GBM,LGG
chr19:20737096:->chr19:20736641:-	chr19	20737134	20737096	-	chr19	20736641	20736515	-	TSF	ENST00000427401,ENST00000597940,ENST00000596797,ENST00000427401,ENST00000596797,ENST00000597940	13,2,2,2,12,12,12,13,13	10695-10703	15417-15425	ACC,BLCA,BRCA,LUAD,OV,PCPG,PRAD,STAD,TGCT,THCA
chr19:2140989:->chr19:2138713:-	chr19	2141057	2140989	-	chr19	2138713	2138618	-	TSF	ENST00000355272,ENST00000356926,ENST00000350812,ENST00000345016	23,22,22,22,22,23,23,23	10704-10711	15426-15433	BLCA,KIRC,OV,PAAD,SKCM,STAD
chr19:22699248:->chr19:22697432:-	chr19	22699420	22699248	-	chr19	22697432	22697166	-	TSF	ENST00000593802	24,4,12	10712-10714	15434-15436	TGCT
chr19:282661:->chr19:282310:-	chr19	282715	282661	-	chr19	282310	282134,28	-	TSF	ENST00000269812,ENST00000434325,ENST00000327790,ENST00000586998	18,18,18,18,18,18,18,1,1,1,1,8,1	10715-10726	15437-15448	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,OV,PAAD,STAD,UCEC,UCS

Table 19

chr19:3014149:->chr19:3013816:-	chr19	3014217	3014149	-	chr19	3013816	3013667,3	-	TSF	ENST00000262953,ENST00000455444,ENST00000591529,ENST00000443826,ENST00000590536,ENST00000426948,ENST00000591457	23,23,23,23,13,13,13,13,13,13,23,23,23,13	10727-10740	15449-15462	BLCA,BRCA,CESC,COAD,KICH,LUAD,OV,STAD,THCA,UCEC
chr19:340514:->chr19:336173:-	chr19	340691	340514	-	chr19	336173	336083	-	TSF	ENST00000264819	59,1	10741-10742	15463-15464	LUAD,TGCT
chr19:3552620:->chr19:3551192:-	chr19	3552777	3552620	-	chr19	3551192	3550982,4	-	TSF	ENST00000389395,ENST00000398558,ENST00000588918,ENST00000355415,ENST00000585814	8,8,8,8,8,8,19,45,45,45,45,45,19,19,19,19	10743-10757	15465-15479	SKCM,STAD
chr19:35548655:+>chr19:35556802:+	chr19	35548506	35548655	+	chr19	35556802	35556936	+	TSF	ENST00000262626,ENST00000392226,ENST00000597419	21,21,21,14,14,14,7,7,7	10758-10766	15480-15488	KIRC,KIRP,LIHC,LUAD,PRAD,THCA
chr19:35551974:+>chr19:35556154:+	chr19	35551883	35551974	+	chr19	35556154	35556249	+	TSF	ENST00000262626,ENST00000392226,ENST00000597419	13,13,13,30,30,30,30,30,30	10767-10775	15489-15497	BRCA,CHOL,KICH,KIRC,KIRP,LIHC,LUAD,OV,PAAD,PRAD,THCA
chr19:35613502:+>chr19:35613669:+	chr19	35613389	35613502	+	chr19	35613669	35613862,35613743,35613858	+	TSF	ENST00000406242,ENST00000604404,ENST00000435734,ENST00000603181,ENST00000604255,ENST00000344013,ENST00000346446,ENST00000406988,ENST00000605550,ENST00000604804,ENST00000535103,ENST00000603524,ENST00000604621,ENST00000605677	37,37,37,37,37,37,37,37,37,37,37,37,37,26,26,26,26,26,26,26,26,26,26,26,26,26	10776-10803	15498-15525	BLCA,CESC,HNSC,LIHC,LUAD,LUSC,SKCM,TGCT,THYM
chr19:35760261:+>chr19:35760349:+	chr19	35760074	35760261	+	chr19	35760349	35760395	+	TSF	ENST00000343550,ENST00000222305,ENST00000595068,ENST00000379134,ENST00000602164,ENST00000594064,ENST00000598058	62,38,62,62,38,38,38,38,62,62,62,62,62,38,62,62,38,62,62,62	10804-10824	15526-15546	CESC,OV,SARC,UVM
chr19:35978880:->chr19:35978661:-	chr19	35979015	35978880	-	chr19	35978661	35978614	-	TSF	ENST00000484218,ENST00000338897	30,30,6,6,10,10	10825-10830	15547-15552	BLCA,CESC,HNSC,LUSC,SKCM,TGCT
chr19:35995843:->chr19:35994349:-	chr19	35995931	35995843	-	chr19	35994349	35994323	-	TAF	ENST00000474928,ENST00000488892,ENST00000461300,ENST00000447113,ENST00000392206,ENST00000440396,ENST00000458071,ENST00000418261,ENST00000424570,ENST00000451297,ENST00000450261	24,24,24,24,24,24,24,24,24,24,10,10,10,10,10,10,10,10,10,10,23,23,23,23,23,23,23,23,23,24,10,23	10831-10863	15553-15585	BLCA,BRCA,CESC,HNSC,KIRP,LUAD,LUSC,OV,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr19:36028550:+>chr19:36029209:+	chr19	36028515	36028550	+	chr19	36029209	36029305	+	TSF	ENST00000222286,ENST00000586334,ENST00000585510	12,12,12,7,11,11,11,7,7	10864-10872	15586-15594	UVM
chr19:36105133:+>chr19:36105944:+	chr19	36105129	36105133	+	chr19	36105944	36106049	+	TSF	ENST00000587439,ENST00000203166,ENST00000379045	1,1,1,1,1,1,1,1,1	10873-10881	15595-15603	BLCA,CESC,LUAD,LUSC,OV,SARC,UCEC,UCS
chr19:36397240:->chr19:36395536:-	chr19	36397290	36397240	-	chr19	36395536	36395471	-	TSF	ENST00000424586,ENST00000585901,ENST00000544690,ENST00000262629,ENST00000589517	17,17,17,17,17,7,7,7,7,16,16,16,16,16	10882-10896	15604-15618	GBM,KIRC,OV,STAD
chr19:36405224:->chr19:36398166:-	chr19	36405278	36405224	-	chr19	36398166	36398120	-	TSF	ENST00000585901,ENST00000544690,ENST00000262629	18,18,18,9,9,9,1,1,1	10897-10905	15619-15627	GBM,LUSC,OV,STAD
chr19:3726414:+>chr19:3728422:+	chr19	3726315	3726414	+	chr19	3728422	3728478	+	TAF	ENST00000589378,ENST00000262968,ENST00000587686	24,24,24,11,11,32,32,32,11	10906-10914	15628-15636	COAD,KICH,KIRC,KIRP,THCA

Table 19

chr19:39110170:+>chr19:39110977:+	chr19	39110121	39110170	+	chr19	39110977	39111075	+	TAF	ENST00000248342,ENST00000588934,ENST00000545173,ENST00000586513,ENST00000592558	5,16,16,16,16,16,13,13,13,13,5,5,5	10915-10929	15637-15651	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:39131283:+>chr19:39191240:+	chr19	39131233	39131283	+	chr19	39191240	39191354	+	TSF	ENST00000252699,ENST00000424234,ENST00000589528	17,16,9,9,9,17,16,17,16	10930-10938	15652-15660	OV,STAD
chr19:39144970:+>chr19:39191240:+	chr19	39144921	39144970	+	chr19	39191240	39191354	+	TSF	ENST00000252699,ENST00000424234,ENST00000589528	7,16,16,16,16,7,16,7,16	10939-10947	15661-15669	BLCA,BRCA,DLBC,KIRP,LUAD,LUSC,MESO,OV,READ,STAD
chr19:39309912:->chr19:39308215:-	chr19	39309918	39309912	-	chr19	39308215	39308091	-	TSF	ENST00000221418,ENST00000601778,ENST00000595470,ENST00000594769,ENST00000602021	2,2,2,2,2,2,1,1,1,1,1,2,2,2,2	10948-10962	15670-15684	STAD
chr19:39346206:->chr19:39338074:-	chr19	39347374	39346206	-	chr19	39338074	39337956	-	TSF	ENST00000221419,ENST00000601449,ENST00000600233,ENST00000601813	102,102,102,102,73,73,73,73,61,61,61,61	10963-10974	15685-15696	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr19:39346430:->chr19:39338074:-	chr19	39347374	39346430	-	chr19	39338074	39337956	-	TSF	ENST00000221419,ENST00000601449,ENST00000600233,ENST00000601813	28,28,43,43,43,43,41,41,41,41,28,28	10975-10986	15697-15708	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,OV,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr19:39346635:->chr19:39338074:-	chr19	39347374	39346635	-	chr19	39338074	39337956	-	TAF	ENST00000221419,ENST00000601449,ENST00000600233,ENST00000601813	39,39,39,39,37,37,37,37,12,12,12,12	10987-10998	15709-15720	BLCA,BRCA,CESC,DLBC,HNSC,LUAD,LUSC,OV,STAD,TGCT,THCA,UCEC,UCS
chr19:3966171:->chr19:3964989:-	chr19	3966211	3966171	-	chr19	3964989	3964629	-	TAF	ENST00000545797,ENST00000301264,ENST00000596311,ENST00000601824,ENST00000593844	13,13,13,13,13,13,13,13,13,13,13,13	10999-11008	15721-15730	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LGG,LIHC,LUSC,MESO,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UVM
chr19:39959001:+>chr19:39959396:+	chr19	39958795	39959001	+	chr19	39959396	39959501	+	TAF	ENST00000599117,ENST00000402194,ENST00000432763,ENST00000359191,ENST00000598725	7,7,7,7,7,15,15,15,15,15,38,38,38,38,38	11009-11023	15731-15745	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:39973114:+>chr19:39973525:+	chr19	39973016	39973114	+	chr19	39973525	39973556	+	TSF	ENST00000314349,ENST00000601358,ENST00000607714,ENST00000597666,ENST00000602028,ENST00000597782,ENST00000599733,ENST00000602265,ENST00000594583	33,33,33,23,23,23,23,23,23,23,1,1,33,33,1,1,1,33,33,33,23,1,33,1,23,1,1	11024-11050	15746-15772	OV,STAD
chr19:40327534:->chr19:40327308:-	chr19	40327657	40327534	-	chr19	40327308	40327196	-	TSF	ENST00000595545,ENST00000221801,ENST00000597224,ENST00000601274,ENST00000597634	33,41,41,41,41,41,14,14,14,14,14,33,33,33,33	11051-11065	15773-15787	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,OV,SARC,SKCM,THYM,UCEC,UCS,UVM
chr19:40330344:->chr19:40329845:-	chr19	40330448	40330344	-	chr19	40329845	40329675,40329835,40329714	-	TAF	ENST00000595545,ENST00000221801,ENST00000594443,ENST00000597224,ENST00000601274,ENST00000597634,ENST00000598417,ENST00000594309,ENST00000599134	7,8,8,8,8,8,8,8,8,21,21,21,21,21,21,21,21,21,8,7,7,7,7,7,7	11066-11092	15788-15814	ACC,OV,PCPG,UCS
chr19:40709625:+>chr19:40710392:+	chr19	40709427	40709625	+	chr19	40710392	40710540	+	TSF	ENST00000253055,ENST00000597986	46,46,6,6,34,34	11093-11098	15815-15820	BLCA,CESC,LUSC,OV,READ,STAD,TGCT,UVM

Table 19

chr19:40761378:->chr19:40761176:-	chr19	40761842	40761378	-	chr19	40761176	40761065	-	TSF	ENST00000392038,ENST00000424901,ENST00000311278,ENST00000491778,ENST00000441941,ENST00000486368,ENST00000596634,ENST00000452077,ENST00000392037,ENST00000416362,ENST00000578123,ENST00000423127,ENST00000358335,ENST00000456441,ENST00000583859,ENST00000580747,ENST00000416994,ENST00000427375	119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,119,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59,59	11099-11134	15821-15856	TGCT,THCA
chr19:41312059:+>chr19:41312460:+	chr19	41311935	41312059	+	chr19	41312460	41312579	+	TSF	ENST00000303961,ENST00000406058,ENST00000593726	41,41,41,18,18,18,32,32,32	11135-11143	15857-15865	BRCA,MESO
chr19:41514950:+>chr19:41515124:+	chr19	41514770	41514950	+	chr19	41515124	41515300	+	TSF	ENST00000324071	37,7,42	11144-11146	15866-15868	BRCA,STAD
chr19:41732817:+>chr19:41736872:+	chr19	41732717	41732817	+	chr19	41736872	41736952	+	TAF	ENST00000301178,ENST00000359092	33,33,6,33,33,6	11147-11152	15869-15874	BLCA,CESC,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,UCS
chr19:41816920:+>chr19:41822289:+	chr19	41816860	41816920	+	chr19	41822289	41822744	+	TAF	ENST00000269967	4,12,19	11153-11155	15875-15877	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,SARC,SKCM,STAD,TGCT,THCA,THYM,UCS,UVM
chr19:4211271:+>chr19:4212472:+	chr19	4211130	4211271	+	chr19	4212472	4212510	+	TSF	ENST00000600132,ENST00000318934,ENST00000597689,ENST00000262970	1,1,1,1,14,14,14,46,46,46,46,14	11156-11167	15878-15889	GBM,LGG,TGCT,THYM
chr19:42217314:+>chr19:42218890:+	chr19	42217251	42217314	+	chr19	42218890	42219168	+	TAF	ENST00000398599,ENST00000221992,ENST00000405816,ENST00000595113	21,21,21,21,20,20,20,20,1,1,1,1	11168-11179	15890-15901	BLCA,BRCA,CESC,COAD,LUAD,PAAD,READ,STAD
chr19:42217314:+>chr19:42223849:+	chr19	42217251	42217314	+	chr19	42223849	42224127	+	TAF	ENST00000398599,ENST00000221992,ENST00000405816,ENST00000595403	1,1,1,21,21,21,20,20,20,1,21	11180-11191	15902-15913	BLCA,BRCA,CESC,COAD,LUAD,PAAD,READ,STAD
chr19:42246564:->chr19:42181431:-	chr19	42246888	42246564	-	chr19	42181431	42181340	-	TSF	ENST00000006724,ENST00000338196,ENST00000401731,ENST00000602225	40,40,40,40,26,26,26,26,21,21,21,21	11192-11203	15914-15925	COAD,READ,STAD
chr19:42246564:->chr19:42187994:-	chr19	42246888	42246564	-	chr19	42187994	42187716	-	TSF	ENST00000006724,ENST00000401731	40,40,26,26,21,21	11204-11209	15926-15931	COAD,READ,STAD
chr19:42246564:->chr19:42191152:-	chr19	42246888	42246564	-	chr19	42191152	42190790	-	TSF	ENST00000006724,ENST00000338196,ENST00000401731,ENST00000602225	40,40,26,26,26,26,21,21,21,21,40,40	11210-11221	15932-15943	COAD,READ,STAD
chr19:42335940:+>chr19:42364892:+	chr19	42335927	42335940	+	chr19	42364892	42364915	+	TAF	ENST00000598742,ENST00000601492,ENST00000600467,ENST00000593863,ENST00000598261,ENST00000598399	4,4,4,4,4,4,4,4,4,4,4,4	11222-11233	15944-15955	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:42335940:+>chr19:42365240:+	chr19	42335927	42335940	+	chr19	42365240	42365281	+	TAF	ENST00000598742,ENST00000601492,ENST00000600467,ENST00000593863,ENST00000598261,ENST00000598399	4,4,4,4,4,4,4,4,4,4,4,4	11234-11245	15956-15967	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM

chr19:4288919:+>chr19:4290444:+	chr19	4288851	4288919	+	chr19	4290444	4290630	+	TSF	ENST00000543264,ENST00000599689	21,21,13,13	11246-11249	15968-15971	GBM,LGG,LIHC,STAD
chr19:4294283:->chr19:4292882:-	chr19	4294350	4294283	-	chr19	4292882	4292596	-	TAF	ENST00000595645,ENST00000301272,ENST00000600114,ENST00000600349	22,22,22,22,22,22,22,22	11250-11257	15972-15979	THYM
chr19:4294301:->chr19:4292882:-	chr19	4294350	4294301	-	chr19	4292882	4292596	-	TSF	ENST00000595645,ENST00000301272,ENST00000600114,ENST00000600349	16,16,16,16,16,16,16,16,16,16,16,16	11258-11269	15980-15991	THYM
chr19:43980487:->chr19:43979696:-	chr19	43980514	43980487	-	chr19	43979696	43979562	-	TSF	ENST00000292140	9,7,1	11270-11272	15992-15994	BLCA,BRCA,CESC,HNSC,KIRP,LIHC,LUAD,PRAD,TGCT,THYM
chr19:4412399:+>chr19:4418017:+	chr19	4412258	4412399	+	chr19	4418017	4418073	+	TSF	ENST00000301280	1,47,6	11273-11275	15995-15997	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LGG,LUAD,LUSC,PRAD,READ,SARC,SKCM,TGCT,THYM,UCEC
chr19:4412517:+>chr19:4418017:+	chr19	4412258	4412517	+	chr19	4418017	4418073	+	TSF	ENST00000301280	8,36,32	11276-11278	15998-16000	BRCA,CESC,LUSC,SARC,SKCM,STAD,TGCT,THYM,UCEC
chr19:44243825:->chr19:44242369:-	chr19	44244036	44243825	-	chr19	44242369	44242274	-	TAF	ENST00000270066,ENST00000601170	22,22,30,30,20,20	11279-11284	16001-16006	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM
chr19:4454819:->chr19:4454090:-	chr19	4454954	4454819	-	chr19	4454090	4453927	-	TSF	ENST00000591919,ENST00000301281,ENST00000592515	24,24,24,14,14,14,44,44,44	11285-11293	16007-16015	ACC,BRCA,CESC,HNSC,KIRC,KIRP,LUSC,MESO,SARC
chr19:45184798:+>chr19:45185839:+	chr19	45184732	45184798	+	chr19	45185839	45185892	+	TSF	ENST00000358777,ENST00000403660	22,22,21,22,22,21	11294-11299	16016-16021	BLCA,HNSC,PAAD
chr19:45289633:+>chr19:45293261:+	chr19	45289567	45289633	+	chr19	45293261	45293348	+	TSF	ENST00000270279,ENST00000341505	22,22,13,13,21,21	11300-11305	16022-16027	BLCA,CESC,COAD,HNSC,LUSC,STAD,UCEC
chr19:45347340:+>chr19:45368528:+	chr19	45347212	45347340	+	chr19	45368528	45368917	+	TAF	ENST00000252485,ENST00000252483	6,6,13,13,36,36	11306-11311	16028-16033	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PAAD,STAD,THCA,UCEC
chr19:45365456:+>chr19:45368528:+	chr19	45365391	45365456	+	chr19	45368528	45368917	+	TSF	ENST00000252485,ENST00000252483	8,8,10,10,21,21	11312-11317	16034-16039	BLCA,BRCA,CESC,LIHC,LUAD,OV,PRAD,STAD,UCEC
chr19:45365943:+>chr19:45368528:+	chr19	45365700	45365943	+	chr19	45368528	45368917	+	TSF	ENST00000252485,ENST00000252483	7,20,20,72,72,7	11318-11323	16040-16045	BRCA,COAD,OV,STAD
chr19:45410105:+>chr19:45411017:+	chr19	45409998	45410105	+	chr19	45411017	45411209	+	TSF	ENST00000252486,ENST00000446996,ENST00000434152,ENST00000425718	36,36,36,36,2,2,2,2	11324-11331	16046-16053	ACC,LIHC
chr19:45420622:+>chr19:45422430:+	chr19	45420573	45420622	+	chr19	45422430	45422487,45422466,45422480,45422461	+	TSF	ENST00000588750,ENST00000588802,ENST00000592535,ENST00000252491,ENST00000592885,ENST00000589781,ENST00000586638	7,7,7,16,16,16,16,16,16,16,16,16,16,16,16,16,7,16,7,7,7,16	11332-11352	16054-16074	LGG,LIHC,SARC
chr19:45439575:+>chr19:45448006:+	chr19	45439440	45439575	+	chr19	45448006	45448147	+	TSF	ENST00000592954,ENST00000419266,ENST00000585685,ENST00000589057,ENST00000591600	23,23,23,11,11,11,23,11,23,11	11353-11362	16075-16084	LIHC
chr19:45439575:+>chr19:45451723:+	chr19	45439440	45439575	+	chr19	45451723	45451790	+	TSF	ENST00000589057	23,11	11363-11364	16085-16086	LIHC
chr19:45450350:+>chr19:45451723:+	chr19	45450127	45450350	+	chr19	45451723	45451790	+	TSF	ENST00000589057	39,65,13	11365-11367	16087-16089	GBM,LIHC
chr19:45571862:+>chr19:45572324:+	chr19	45571855	45571862	+	chr19	45572324	45572336	+	TSF	ENST00000391952,ENST00000221455,ENST00000391953,ENST00000544944,ENST00000591904	2,2,2,2,2,2,2,2,2,2,2,2,2,2,2	11368-11382	16090-16104	BRCA

Table 19

chr19:45681186:->chr19:45668452:-	chr19	45681322	45681186	-	chr19	45668452	45668385	-	TSF	ENST00000006275,ENST00000585934	6,6,45,45,2,2	11383-11388	16105-16110	BRCA,DLBC,HNSC,LIHC,OV,PRAD,STAD,TGCT
chr19:46194421:->chr19:46191824:-	chr19	46194689	46194421	-	chr19	46191824	46191645	-	TSF	ENST00000342669,ENST00000588301,ENST00000590212	2,2,13,13,13,35,35,35,2	11389-11397	16111-16119	BLCA,BRCA,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,STAD,TGCT,THYM,UCEC,UCS
chr19:46194670:->chr19:46191824:-	chr19	46194689	46194670	-	chr19	46191824	46191645	-	TSF	ENST00000342669,ENST00000588301,ENST00000590212	6,6,6,6,6,6,6,6,6	11398-11406	16120-16128	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,OV,PAAD,READ,SKCM,TGCT,THYM,UCEC,UCS,UVM
chr19:46196481:+>chr19:46196671:+	chr19	46196448	46196481	+	chr19	46196671	46196814	+	TSF	ENST00000012049,ENST00000366382,ENST00000591606	11,10,10,10,11,11	11407-11412	16129-16134	LIHC,SKCM
chr19:46395428:->chr19:46394581:-	chr19	46395476	46395428	-	chr19	46394581	46393881	-	TSF	ENST00000322217	16,16,7	11413-11415	16135-16137	GBM,LUSC,OV,STAD
chr19:47343373:->chr19:47342835:-	chr19	47343471	47343373	-	chr19	47342835	47342722	-	TSF	ENST00000352203,ENST00000601498,ENST00000599990,ENST00000593442,ENST00000263270,ENST00000597020	33,33,33,33,33,33,12,12,12,12,12,12,20,20,20,20,20,20	11416-11433	16138-16155	BRCA,CESC,HNSC,LUAD,LUSC,PRAD,UCEC
chr19:47343460:->chr19:47342835:-	chr19	47343471	47343460	-	chr19	47342835	47342722	-	TSF	ENST00000352203,ENST00000601498,ENST00000599990,ENST00000593442,ENST00000263270,ENST00000597020	4,4,4,4,4,4,3,3,3,3,3,3,3,3,3,3,3,3	11434-11451	16156-16173	BLCA,BRCA,CESC,HNSC,LUSC,STAD
chr19:47347409:->chr19:47342835:-	chr19	47347459	47347409	-	chr19	47342835	47342722	-	TSF	ENST00000352203,ENST00000601498,ENST00000599990,ENST00000593442,ENST00000263270,ENST00000597020	17,17,17,17,17,17,7,7,7,7,7,7,16,16,16,16,16,16	11452-11469	16174-16191	ACC,BLCA,BRCA,DLBC,GBM,HNSC,LIHC,LUSC,OV,PRAD,READ,SARC,STAD,UCEC
chr19:48240273:+>chr19:48244138:+	chr19	48240207	48240273	+	chr19	48244138	48244689	+	TAF	ENST00000263277,ENST00000538399	22,22,13,13,21,21	11470-11475	16192-16197	GBM,HNSC,KIRC,KIRP,LUSC,OV,STAD
chr19:48283451:+>chr19:48283982:+	chr19	48283383	48283451	+	chr19	48283982	48284006	+	TAF	ENST00000601048,ENST00000593892,ENST00000599874,ENST00000595615	23,23,23,23,13,13,13,13	11476-11483	16198-16205	PRAD,SARC,UCS
chr19:48387636:->chr19:48387042:-	chr19	48387733	48387636	-	chr19	48387042	48386834	-	TSF	ENST00000222002	23,1,11	11484-11486	16206-16208	LIHC
chr19:48388506:->chr19:48387042:-	chr19	48388785	48388506	-	chr19	48387042	48386834	-	TAF	ENST00000222002	14,23,2	11487-11489	16209-16211	ACC,KIRC,LIHC,PCPG
chr19:48627044:->chr19:48626575:-	chr19	48627094	48627044	-	chr19	48626575	48626431	-	TSF	ENST00000263274,ENST00000536218,ENST00000594759,ENST00000427526,ENST00000601091	17,17,17,17,7,7,7,7,17,17	11490-11499	16212-16221	BLCA,BRCA,CESC,COAD,HNSC,LGG,LIHC,LUAD,LUSC,READ,SARC,SKCM,TGCT,UCEC,UVM
chr19:48654725:->chr19:48654593:-	chr19	48654965	48654725	-	chr19	48654593	48654489	-	TSF	ENST00000263274,ENST00000594759,ENST00000427526,ENST00000601091,ENST00000542460	11,11,47,47,47,47,47,19,19,19,19,19,19,11,11,11	11500-11514	16222-16236	BLCA,CESC,HNSC,LUAD
chr19:48654725:->chr19:48654596:-	chr19	48654965	48654725	-	chr19	48654596	48654489	-	TSF	ENST00000263274,ENST00000601091,ENST00000542460	11,47,47,47,19,19,19,11,11	11515-11523	16237-16245	ACC,BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LGG,LUSC,OV,SARC,SKCM,STAD,TGCT
chr19:48832441:+>chr19:48832609:+	chr19	48832400	48832441	+	chr19	48832609	48832696	+	TAF	ENST00000599704,ENST00000270221,ENST00000597279,ENST00000593437	14,14,14,14,5,1,5,5,1,1,1,5	11524-11535	16246-16257	ACC,BLCA,BRCA,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,THCA,UCEC
chr19:48889623:->chr19:48887655:-	chr19	48889673	48889623	-	chr19	48887655	48887487	-	TSF	ENST00000330720,ENST00000597017,ENST00000600980	17,17,7,7,7,17	11536-11541	16258-16263	STAD

chr19:49121817:->chr19:49121134:-	chr19	49121994	49121817	-	chr19	49121134	49121048	-	TAF	ENST00000549920,ENST00000547897,ENST00000084795,ENST00000550645,ENST00000549370,ENST00000549273,ENST00000549920,ENST00000547897,ENST00000550645,ENST00000549370,ENST00000549273,ENST00000084795	17,17,17,17,17,17,12,12,41,41,41,41,41,41,12,12,12,12	11542-11559	16264-16281	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:49458182:+> chr19:49458944:+	chr19	49458157	49458182	+	chr19	49458944	49459090	+	TAF	ENST00000539787,ENST00000345358,ENST00000391871,ENST00000515540,ENST00000356483,ENST00000415969,ENST00000293288	8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8	11560-11580	16282-16302	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:49832179:+> chr19:49838971:+	chr19	49831887	49832179	+	chr19	49838971	49839043	+	TSF	ENST00000391859,ENST00000595725,ENST00000323906,ENST00000535669,ENST00000595660	8,8,8,8,8,17,17,17,17,49,49,49,49,49	11581-11595	16303-16317	DLBC,PRAD,SARC,STAD
chr19:49832338:+> chr19:49838971:+	chr19	49831887	49832338	+	chr19	49838971	49839043	+	TSF	ENST00000391859,ENST00000595725,ENST00000323906,ENST00000535669,ENST00000595660	12,12,12,12,12,6,6,6,6,6	11596-11605	16318-16327	DLBC
chr19:49832338:+> chr19:49840166:+	chr19	49831887	49832338	+	chr19	49840166	49840290	+	TSF	ENST00000391859,ENST00000595725,ENST00000323906,ENST00000535669,ENST00000595660	12,6,12,6,12,12,6,6,12,6	11606-11615	16328-16337	DLBC
chr19:49847303:->chr19:49846655:-	chr19	49847402	49847303	-	chr19	49846655	49846488	-	TSF	ENST00000598810,ENST00000593945,ENST00000601519,ENST00000311227,ENST00000377214,ENST00000539846	24,24,24,24,24,24,11,11,11,11,11,11,32,32,32,32,32,32	11616-11633	16338-16355	BLCA,BRCA,HNSC,LUAD,LUSC,MESO,SARC,UCEC,UCS
chr19:50167184:->chr19:50166771:-	chr19	50167252	50167184	-	chr19	50166771	50166600,50166728,50166630	-	TSF	ENST00000309877,ENST00000600911,ENST00000601291,ENST00000377139,ENST00000597198,ENST00000597636,ENST00000599223,ENST00000377135,ENST00000596756,ENST00000598108,ENST00000593337,ENST00000601809,ENST00000596788,ENST00000600453	18,18,18,13,13,13,13,13,13,13,13,13,13,13,13,18,18,18,18,18,18,18,18,13,18	11634-11661	16356-16383	BRCA,COAD,KIRC,LUAD,LUSC,OV,STAD
chr19:50174836:+> chr19:50176955:+	chr19	50174724	50174836	+	chr19	50176955	50177006	+	TSF	ENST00000441864,ENST00000246785,ENST00000600947,ENST00000598306,ENST00000441864,ENST00000246785,ENST00000598306,ENST00000600947	25,25,25,25,31,31,31,7,7,7,7,31	11662-11673	16384-16395	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,THCA,THYM,UCEC,UCS
chr19:50188743:+> chr19:50189350:+	chr19	50188651	50188743	+	chr19	50189350	50189500	+	TAF	ENST00000532489,ENST00000391851,ENST00000454376	8,8,8,30,30,10,10,10,10	11674-11682	16396-16404	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,OV,PAAD,PRAD,SARC,STAD,THCA,THYM,UCEC,UCS
chr19:50391391:+> chr19:50391488:+	chr19	50391349	50391391	+	chr19	50391488	50391574	+	TSF	ENST00000221543,ENST00000535102	14,14,14,14,6,6	11683-11688	16405-16410	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,LUAD,LUSC,OV,PCPG,STAD,THCA,THYM,UCEC,UCS,UVM

Table 19

chr19:50492051:->chr19:50491749:-	chr19	50492224	50492051	-	chr19	50491749	50491626	-	TSF	ENST00000593919,ENST00000316763,ENST00000377011,ENST00000599538,ENST00000443401,ENST00000601341,ENST00000594948,ENST00000601912,ENST00000594092,ENST00000593912	16,16,16,16,16,16,16,16,16,46,46,46,46,46,46,46,46,46,25,25,25,25,25,25,25,25,25	11689-11718	16411-16440	BRCA,COAD,KIRP,LIHC,LUAD,LUSC,PAAD,PRAD,TGCT,THYM,UCEC
chr19:51340387:+>chr19:51359496:+	chr19	51340308	51340387	+	chr19	51359496	51359655	+	TAF	ENST00000326003,ENST00000422986,ENST00000597483,ENST00000593997,ENST00000595392,ENST00000595952,ENST00000360617,ENST00000598145	26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26	11719-11742	16441-16464	KICH,KIRC,KIRP,PRAD
chr19:51340387:+>chr19:51359590:+	chr19	51340308	51340387	+	chr19	51359590	51359655	+	TSF	ENST00000601503,ENST00000326003,ENST00000422986,ENST00000597286,ENST00000597483,ENST00000593997,ENST00000595392,ENST00000595952,ENST00000360617,ENST00000598145	26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26	11743-11772	16465-16494	KICH,PRAD
chr19:51345748:+>chr19:51359496:+	chr19	51345545	51345748	+	chr19	51359496	51359655	+	TSF	ENST00000326003,ENST00000422986,ENST00000597483,ENST00000593997,ENST00000595392,ENST00000595952,ENST00000360617,ENST00000598145	5,5,5,5,5,5,36,36,36,36,36,36,12,12,5,5,36,36,12,12,12,12,12,12	11773-11796	16495-16518	PRAD
chr19:51360205:+>chr19:51361285:+	chr19	51360137	51360205	+	chr19	51361285	51361571,51361342,51361430,51361589	+	TSF	ENST00000601503,ENST00000326003,ENST00000422986,ENST00000597286,ENST00000593997,ENST00000595392,ENST00000360617,ENST00000598145	23,23,23,23,23,23,23,13,13,13,13,13,13,13,13	11797-11812	16519-16534	PRAD
chr19:51360236:+>chr19:51361285:+	chr19	51360137	51360236	+	chr19	51361285	51361571,51361342,51361430,51361589	+	TSF	ENST00000601503,ENST00000326003,ENST00000422986,ENST00000597286,ENST00000593997,ENST00000595392,ENST00000360617,ENST00000598145	33,33,33,33,33,33,33,24,24,24,24,24,24,24,24,10,10,10,10,10,10	11813-11836	16535-16558	PRAD
chr19:51363679:+>chr19:51381765:+	chr19	51363647	51363679	+	chr19	51381765	51381816	+	TSF	ENST00000325321,ENST00000391810,ENST00000595050	11,11,11,10,10,2,2,10,2	11837-11845	16559-16567	PRAD
chr19:51410894:->chr19:51410342:-	chr19	51410961	51410894	-	chr19	51410342	51410191	-	TSF	ENST00000324041,ENST00000431178	22,22,22,22	11846-11849	16568-16571	PRAD
chr19:51464269:->chr19:51462572:-	chr19	51464315	51464269	-	chr19	51462572	51462421	-	TSF	ENST00000376851,ENST00000310157,ENST00000391808,ENST00000456750,ENST00000376853,ENST00000594641	7,7,7,7,7,15,15,15,15,15,15,15,15,15,15,15,15,15,15,15,7	11850-11867	16572-16589	HNSC,LGG,LUAD,LUSC,OV,PAAD,STAD
chr19:51502209:->chr19:51501140:-	chr19	51502251	51502209	-	chr19	51501140	51501007	-	TSF	ENST00000391806,ENST00000291726,ENST00000600767,ENST00000347619	14,14,14,14,14,14,14,13,13,13	11868-11879	16590-16601	BRCA,OV,THYM,UCEC
chr19:51853970:->chr19:51853645:-	chr19	51854024	51853970	-	chr19	51853645	51853583	-	TAF	ENST00000354232,ENST00000309244,ENST00000596253	9,9,17,17,17,9	11880-11885	16602-16607	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,SARC,STAD,TGCT
chr19:51854037:->chr19:51853645:-	chr19	51854233	51854037	-	chr19	51853645	51853583	-	TAF	ENST00000354232,ENST00000309244,ENST00000596253	1,1,1,20,20,20,11,11,11,11	11886-11894	16608-16616	BLCA,CESC,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,PAAD,STAD,TGCT,UCEC
chr19:54104248:->chr19:54103688:-	chr19	54104302	54104248	-	chr19	54103688	54103573	-	TSF	ENST00000600193	18,9,17	11895-11897	16617-16619	BLCA,BRCA

Table 10

chr19:54105030:->chr19:54104626:-	chr19	54105034	54105030	-	chr19	54104626	54104519	-	TSF	ENST00000600193	1,1,1	11898-11900	16620-16622	BLCA,BRCA
chr19:54106162:->chr19:54105417:-	chr19	54106196	54106162	-	chr19	54105417	54105251	-	TSF	ENST00000600193	11,9	11901-11902	16623-16624	BLCA,BRCA
chr19:54631115:+>chr19:54631448:+	chr19	54631006	54631115	+	chr19	54631448	54631575	+	TAF	ENST00000321030,ENST00000419967	35,35,13,13,36,36	11903-11908	16625-16630	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr19:54868321:->chr19:54868228:-	chr19	54868492	54868321	-	chr19	54868228	54868101	-	TSF	ENST00000391743,ENST00000348231,ENST00000391742,ENST00000434277,ENST00000313038,ENST00000391741,ENST00000474878	5,5,5,5,5,5,57,57,57,57,57,57,57,5	11909-11922	16631-16644	GBM,KIRC,MESO,THYM
chr19:54930716:+>chr19:54932451:+	chr19	54930702	54930716	+	chr19	54932451	54932562	+	TAF	ENST00000423529,ENST00000301194,ENST00000376530,ENST00000445095,ENST00000391739,ENST00000376531	5,5,5,5,5,5,4,4,4,4,4,4,4,4,4,4,4,4	11923-11940	16645-16662	BRCA,CHOL,GBM,KIRP,LGG,LIHC,OV,PAAD,SARC,SKCM,STAD,TGCT,UCS
chr19:54945078:+>chr19:54946722:+	chr19	54944914	54945078	+	chr19	54946722	54946864	+	TSF	ENST00000301194,ENST00000376530,ENST00000391739,ENST00000376531	55,19,1,1,1,55,19,55,19,55,19,1	11941-11952	16663-16674	BRCA,GBM,KIRP,LGG,OV
chr19:54945169:+>chr19:54946722:+	chr19	54945134	54945169	+	chr19	54946722	54946864	+	TSF	ENST00000301194,ENST00000376530,ENST00000391739,ENST00000376531	12,11,11,11,11,12,11,12,11,12,11,11	11953-11964	16675-16686	BRCA,CHOL,GBM,LGG,SKCM
chr19:55449717:->chr19:55449609:-	chr19	55449720	55449717	-	chr19	55449609	55449412	-	TSF	ENST00000340844,ENST00000590030,ENST00000446217,ENST00000588756,ENST00000586379,ENST00000592784	1,1,1,1,1,1	11965-11970	16687-16692	BLCA,CESC,HNSC,LUSC,OV,TGCT
chr19:55501120:+>chr19:55501390:+	chr19	55501071	55501120	+	chr19	55501390	55501561	+	TSF	ENST00000543010,ENST00000391721,ENST00000339757,ENST00000448584,ENST00000537859,ENST00000427260,ENST00000538819,ENST00000263437,ENST00000543277,ENST00000543277,ENST00000543010,ENST00000391721,ENST00000339757,ENST00000448584,ENST00000537859,ENST00000427260,ENST00000538819,ENST00000263437	16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16,16	11971-11997	16693-16719	BLCA,BRCA,CESC,LUAD,LUSC,OV,STAD,TGCT,UCEC
chr19:55558473:->chr19:55556677:-	chr19	55558521	55558473	-	chr19	55556677	55556442	-	TAF	ENST00000415061,ENST00000396247	8,8,16,16,15,15	11998-12003	16720-16725	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,STAD,THCA,UCEC
chr19:55562068:->chr19:55560131:-	chr19	55562151	55562068	-	chr19	55560131	55560027	-	TAF	ENST00000415061,ENST00000291892,ENST00000396247,ENST00000592573	4,4,4,4,11,11,11,11	12004-12011	16726-16733	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,STAD,UCEC

Table 19

chr19:55649877:->chr19:55649442:-	chr19	55649945	55649877	-	chr19	55649442	55649329,55649344,55649386	-	TAF	ENST00000587758,ENST00000291901,ENST00000356783,ENST00000588426,ENST00000536926,ENST00000588981,ENST00000593194,ENST00000589745,ENST00000587465,ENST00000585321,ENST00000593046,ENST00000589226,ENST00000588147	23,23,23,23,23,23,23,23,13,13,13,13,13,13,13,13,13,13,23,23,23,23	12012-12037	16734-16759	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr19:56187420:+>chr19:56189893:+	chr19	56187371	56187420	+	chr19	56189893	56190221	+	TAF	ENST00000411543	16,2,16	12038-12040	16760-16762	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr19:56811344:+>chr19:56813337:+	chr19	56811235	56811344	+	chr19	56813337	56813464	+	TSF	ENST00000588026	36,13,5	12041-12043	16763-16765	BLCA,CESC,HNSC,LUSC,TGCT,THYM,UCEC
chr19:5714878:->chr19:5714282:-	chr19	5714928	5714878	-	chr19	5714282	5714194	-	TSF	ENST00000360614,ENST00000590558,ENST00000585374,ENST00000593119,ENST00000590729	12,12,12,7,7,7,7,12,12	12044-12053	16766-16775	COAD,HNSC,OV,STAD,TGCT
chr19:58366313:+>chr19:58367475:+	chr19	58366263	58366313	+	chr19	58367475	58367492	+	TSF	ENST00000316462,ENST00000604231,ENST00000598031,ENST00000339656,ENST00000603271,ENST00000423137	17,17,16,16,16,16,16,16,17,17,17,17	12054-12065	16776-16787	BRCA
chr19:58516068:+>chr19:58517275:+	chr19	58515808	58516068	+	chr19	58517275	58517368	+	TAF	ENST00000550135,ENST00000553254	47,47,36,36,45,45	12066-12071	16788-16793	BLCA,BRCA,CESC,CHOL,DLBC,GBM,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SKCM,STAD,THCA,THYM,UCS
chr19:5902426:->chr19:5897008:-	chr19	5902574	5902426	-	chr19	5897008	5896916	-	TAF	ENST00000592091,ENST00000585661,ENST00000586349,ENST00000418389,ENST00000592634,ENST00000308961	16,4,4,4,4,4,4,16,16,16,16,16,16	12072-12083	16794-16805	ACC,BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr19:5976273:->chr19:5957984:-	chr19	5976359	5976273	-	chr19	5957984	5957929,6	-	TAF	ENST00000439268,ENST00000340578,ENST00000592771,ENST00000591092,ENST00000034275,ENST00000587159,ENST00000589353,ENST00000587463,ENST00000588010,ENST00000592133,ENST00000587263,ENST00000591333	18,18,18,18,18,18,18,18,18,18,18,18,21,21,21,21,21,21,21,21,21,21,21,21	12084-12107	16806-16829	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr19:6692148:->chr19:6690738:-	chr19	6692279	6692148	-	chr19	6690738	6690640	-	TSF	ENST00000245907	21,12,1	12108-12110	16830-16832	CHOL,LIHC,LUAD,MESO,OV
chr19:6761101:->chr19:6760998:-	chr19	6761121	6761101	-	chr19	6760998	6760649	-	TAF	ENST00000245908,ENST00000597687	7,6,6,6,6,7	12111-12116	16833-16838	BLCA,BRCA,CESC,CHOL,COAD,HNSC,LUAD,LUSC,PAAD,PRAD,READ,THCA,UCEC
chr19:7583591:+>chr19:7584091:+	chr19	7583497	7583591	+	chr19	7584091	7584174	+	TAF	ENST00000599312	1,23,10	12117-12119	16839-16841	GBM,LGG,OV,PRAD,SARC,SKCM,THYM
chr19:7895267:+>chr19:7911468:+	chr19	7895176	7895267	+	chr19	7911468	7911565	+	TSF	ENST00000270530,ENST00000538904	30,30,30,30,21,21	12120-12125	16842-16847	KICH,LGG,PCPG,SARC,STAD
chr19:8382806:->chr19:8381529:-	chr19	8382856	8382806	-	chr19	8381529	8381380,8	-	TSF	ENST00000598884,ENST00000593729,ENST00000595856,ENST00000301457	17,17,17,17,7,7,7,16,16,16,7,16	12126-12137	16848-16859	OV,STAD

Table 19

chr19:8438075:+>chr19:8438589:+	chr19	8438007	8438075	+	chr19	8438589	8438770	+	TSF	ENST00000301455,ENST00000541807,ENST00000393962,ENST00000593998	23,23,23,23,13,13,13,13	12138-12145	16860-16867	BLCA,CESC,GBM,HNSC,KIRC,LUAD
chr19:9924814:->chr19:9922393:-	chr19	9924904	9924814	-	chr19	9922393	9921572,9922383,9922130,9922270	-	TAF	ENST00000247977,ENST00000588922,ENST00000585379,ENST00000591009,ENST00000590277,ENST00000586469	18,18,18,18,18,18,30,30,30,7,7,7,7,7,30,7,30,30	12146-12163	16868-16885	BLCA,CESC,GBM,HNSC,KIRC,LGG,LUSC,OV,SARC,STAD,THYM
chr19:9974055:->chr19:9971470:-	chr19	9974212	9974055	-	chr19	9971470	9971321	-	TSF	ENST00000264833,ENST00000593091	2,2,52,52,52,52	12164-12169	16886-16891	BRCA,LIHC
chr2:101024202:->chr2:101023169:-	chr2	101024262	101024202	-	chr2	101023169	101023038	-	TSF	ENST00000542617,ENST00000448989	2,20,20,19,19,2	12170-12175	16892-16897	BLCA,BRCA,GBM,KICH,LGG,LUAD,LUSC,PRAD,SARC,SKCM,UCEC,UCS,UVM
chr2:101024223:->chr2:101023169:-	chr2	101024262	101024223	-	chr2	101023169	101023038	-	TSF	ENST00000542617,ENST00000448989	8,13,13,12,12,8	12176-12181	16898-16903	BRCA,GBM,LGG,LUSC
chr2:101518064:+>chr2:101521195:+	chr2	101518034	101518064	+	chr2	101521195	101521248	+	TSF	ENST00000427413,ENST00000542504	8,8,10,10,9,9	12182-12187	16904-16909	CHOL,COAD,LUSC,OV,PAAD,READ,STAD
chr2:101568117:+>chr2:101580520:+	chr2	101567739	101568117	+	chr2	101580520	101580638	+	TSF	ENST00000335681,ENST00000542504	1,1,13,13,5,5	12188-12193	16910-16915	BLCA,OV,SKCM,STAD
chr2:101649808:->chr2:101648847:-	chr2	101649818	101649808	-	chr2	101648847	101648730	-	TAF	ENST00000376840,ENST00000409318	3,3,3,3	12194-12197	16916-16919	ACC,BLCA,BRCA,CESC,CHOL,HNSC,KIRC,LIHC,LUAD,LUSC,OV,PRAD,SKCM,STAD,TGCT,UCEC,UCS
chr2:102468327:+>chr2:102472439:+	chr2	102468305	102468327	+	chr2	102472439	102472600	+	TSF	ENST00000425019,ENST00000302217,ENST00000324219,ENST00000350198,ENST00000413150,ENST00000347699,ENST00000456652,ENST00000417294,ENST00000350878,ENST00000421882,ENST00000418101	7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7	12198-12219	16920-16941	HNSC,LGG,LUAD,LUSC,MESO,SARC,SKCM,STAD,TGCT,UCS
chr2:10944882:->chr2:10942766:-	chr2	10945150	10944882	-	chr2	10942766	10942625	-	TAF	ENST00000272227,ENST00000404371,ENST00000404824,ENST00000540494,ENST00000381611	6,6,6,6,6,64,64,64,64,64,89,89,89,89,89	12220-12234	16942-16956	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr2:11299200:+>chr2:11300592:+	chr2	11299135	11299200	+	chr2	11300592	11300674	+	TSF	ENST00000445402,ENST00000295083,ENST00000445921,ENST00000441908,ENST00000402361,ENST00000428481	3,3,3,3,3,3,21,21,21,21,21,21,21	12235-12246	16957-16968	BRCA,TGCT
chr2:114188536:+>chr2:114196597:+	chr2	114188389	114188536	+	chr2	114196597	114196619	+	TSF	ENST00000358604	1,49,3	12247-12249	16969-16971	ACC,BRCA,CHOL,GBM,LIHC,LUAD,OV,PRAD,STAD,THCA
chr2:131117848:+>chr2:131126706:+	chr2	131117443	131117848	+	chr2	131126706	131126774	+	TSF	ENST00000175756,ENST00000347849	17,17,1,1,2,2	12250-12255	16972-16977	BLCA,CESC,LUSC,PRAD,STAD,THYM
chr2:132237231:+>chr2:132237642:+	chr2	132237131	132237231	+	chr2	132237642	132238322	+	TSF	ENST00000321253	33,6,11	12256-12258	16978-16980	BRCA,CESC,KIRC,OV,UCEC
chr2:132281839:+>chr2:132287220:+	chr2	132281819	132281839	+	chr2	132287220	132287264	+	TAF	ENST00000295171,ENST00000409856,ENST00000434330	6,6,6,7,7,7,6,6,6	12259-12267	16981-16989	ACC,BRCA,LIHC,MESO,PCPG
chr2:132286168:+>chr2:132287220:+	chr2	132286104	132286168	+	chr2	132287220	132287264	+	TSF	ENST00000434330,ENST00000295171,ENST00000409856,ENST00000295171,ENST00000409856,ENST00000434330	21,21,13,13,13,21,21,21,21	12268-12276	16990-16998	ACC,BLCA,BRCA,GBM,HNSC,MESO,OV,PRAD,THYM
chr2:133325151:+>chr2:133402674:+	chr2	133324902	133325151	+	chr2	133402674	133403179	+	TSF	ENST00000329321	48,1,8	12277-12279	16999-17001	OV,UCS

Table 19

chr2:133363763:+>chr2:133402674:+	chr2	133363747	133363763	+	chr2	133402674	133403179	+	TAF	ENST00000329321	5,5,5	12280-12282	17002-17004	BRCA,GBM,HNSC,LGG,LIHC,LUAD,OV,PCPG,SARC,SKCM,THYM,UCEC,UCS
chr2:135250213:->chr2:135223796:-	chr2	135250933	135250213	-	chr2	135223796	135223685	-	TSF	ENST00000281924	78,16	12283-12284	17005-17006	BLCA,KIRP,LGG,LIHC,LUAD,PCPG,SKCM,THCA,THYM
chr2:135414047:->chr2:135308232:-	chr2	135414144	135414047	-	chr2	135308232	135308141	-	TSF	ENST00000281924	6,32	12285-12286	17007-17008	LUAD,LUSC,OV,STAD
chr2:135414047:->chr2:135309662:-	chr2	135414144	135414047	-	chr2	135309662	135309619	-	TSF	ENST00000281924	6,32	12287-12288	17009-17010	BLCA,KIRP,LUAD,OV,PAAD,STAD
chr2:138746213:+>chr2:138758488:+	chr2	138746163	138746213	+	chr2	138758488	138758595	+	TSF	ENST00000410115,ENST00000280097	7,7,17,17,16,16	12289-12294	17011-17016	GBM,LGG,LIHC,STAD
chr2:143715823:+>chr2:143718193:+	chr2	143715736	143715823	+	chr2	143718193	143718339	+	TSF	ENST00000264170,ENST00000375773,ENST00000409512	8,8,8,23,23,28,28,28,23	12295-12303	17017-17025	CESC,LUAD,LUSC
chr2:143763709:+>chr2:143787196:+	chr2	143763612	143763709	+	chr2	143787196	143787248	+	TSF	ENST00000264170,ENST00000409512	6,6,32,32	12304-12307	17026-17029	HNSC,LUAD,LUSC,PRAD
chr2:143794842:+>chr2:143797997:+	chr2	143794737	143794842	+	chr2	143797997	143798227	+	TSF	ENST00000264170,ENST00000409512	34,34,16,16	12308-12311	17030-17033	BLCA,BRCA,CESC,CHOL,HNSC,LIHC,LUAD,LUSC,SARC,STAD,THYM
chr2:144377460:+>chr2:144381702:+	chr2	144377158	144377460	+	chr2	144381702	144381836	+	TSF	ENST00000295095	54,12	12312-12313	17034-17035	GBM,OV,SKCM,UCS
chr2:150015745:+>chr2:150017278:+	chr2	150015354	150015745	+	chr2	150017278	150017349	+	TSF	ENST00000409642,ENST00000450639,ENST00000280115	29,29,16,16,29,16	12314-12319	17036-17041	BLCA,OV,STAD
chr2:150044093:+>chr2:150061767:+	chr2	150044073	150044093	+	chr2	150061767	150061918	+	TSF	ENST00000409642,ENST00000409876,ENST00000409029,ENST00000442722,ENST00000280115	2,2,2,2,2,6,6,6,6,4,4,4,4,4,6	12320-12334	17042-17056	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,LUAD,LUSC,MESO,OV,SARC,STAD,UCEC,UCS
chr2:161411748:->chr2:161223902:-	chr2	161411930	161411748	-	chr2	161223902	161223727	-	TAF	ENST00000348849,ENST00000392753	19,7,7,39,39,19	12335-12340	17057-17062	BRCA,KIRP,LUSC,OV
chr2:162903212:->chr2:162902122:-	chr2	162903347	162903212	-	chr2	162902122	162902042	-	TAF	ENST00000360534,ENST00000434918	14,14	12341-12342	17063-17064	CESC,COAD,GBM,KIRC,KIRP,LIHC,LUAD,MESO,PRAD,SARC,STAD,THCA,UCEC,UCS
chr2:163040253:->chr2:163039978:-	chr2	163040340	163040253	-	chr2	163039978	163039924	-	TSF	ENST00000188790,ENST00000443424	2,2,29,29,9,9	12343-12348	17065-17070	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,THCA,UCS
chr2:163164512:->chr2:163163365:-	chr2	163164568	163164512	-	chr2	163163365	163163219	-	TSF	ENST00000263642	16,3,6	12349-12351	17071-17073	BLCA,BRCA,CESC,COAD,HNSC,LUSC,TGCT,UCEC
chr2:163165417:->chr2:163163365:-	chr2	163165782	163165417	-	chr2	163163365	163163219	-	TSF	ENST00000263642	10,5	12352-12353	17074-17075	BRCA,COAD,HNSC,LUAD,OV,STAD,TGCT
chr2:165805999:->chr2:165802237:-	chr2	165806067	165805999	-	chr2	165802237	165802103	-	TSF	ENST00000303735,ENST00000409149,ENST00000409058,ENST00000409662	9,9,9,9,13,13,13,13	12354-12361	17076-17083	LUSC,PCPG,PRAD,SARC
chr2:1675811:->chr2:1670258:-	chr2	1675865	1675811	-	chr2	1670258	1669986	-	TAF	ENST00000252804,ENST00000433670	18,18,17,17	12362-12365	17084-17087	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,MESO,OV,PRAD,SARC,TGCT,UCEC,UCS
chr2:168968047:->chr2:168931741:-	chr2	168968104	168968047	-	chr2	168931741	168931619	-	TSF	ENST00000355999	8,19,5	12366-12368	17088-17090	CESC,COAD,KIRC,PRAD,STAD,TGCT
chr2:170205691:->chr2:170177394:-	chr2	170206045	170205691	-	chr2	170177394	170177287	-	TSF	ENST00000263816,ENST00000443831	2,2,21,21	12369-12372	17091-17094	BRCA,KIRC
chr2:170668783:->chr2:170668368:-	chr2	170668914	170668783	-	chr2	170668368	170668330	-	TSF	ENST00000442181,ENST00000409340,ENST00000260953,ENST00000409965,ENST00000392640,ENST00000308099	7,7,7,7,7,7,13,13,13,13,13,13	12373-12384	17095-17106	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,PAAD,PCPG,PRAD,READ,SKCM,TGCT,UCEC,UCS

chr2:171222628:+>chr2:171225732:+	chr2	171222296	171222628	+	chr2	171225732	171225887	+	TSF	ENST00000317935,ENST00000408978,ENST00000409044,ENST00000484338,ENST00000334231,ENST00000442690	41,41,41,41,41,41,25,21,21,21,21,21,21,25,25,25,25,25	12385-12402	17107-17124	BRCA
chr2:171222632:+>chr2:171225732:+	chr2	171222296	171222632	+	chr2	171225732	171225887	+	TSF	ENST00000317935,ENST00000408978,ENST00000409044,ENST00000484338,ENST00000334231,ENST00000442690	42,42,42,42,42,42,27,27,27,27,27,27,22,22,22,22,22,22	12403-12420	17125-17142	BRCA,CESC
chr2:171572614:+>chr2:171572769:+	chr2	171572610	171572614	+	chr2	171572769	171573914	+	TSF	ENST00000375281	1,1,1	12421-12423	17143-17145	BLCA,BRCA,CESC,COAD,LUSC,OV,PRAD,STAD,TGCT
chr2:172723378:->chr2:172712459:-	chr2	172724171	172723378	-	chr2	172712459	172712344	-	TSF	ENST00000422440,ENST00000426896,ENST00000475360	37,14,14,14,12,12,12,37,37	12424-12432	17146-17154	TGCT
chr2:172723495:->chr2:172712459:-	chr2	172724171	172723495	-	chr2	172712459	172712344	-	TSF	ENST00000422440,ENST00000426896,ENST00000475360	26,37,37,37,12,12,12,26,26	12433-12441	17155-17163	BRCA,KIRP,TGCT,UCEC
chr2:173902474:+>chr2:173913328:+	chr2	173902425	173902474	+	chr2	173913328	173913382	+	TSF	ENST00000264111,ENST00000397081,ENST00000409036,ENST00000397087,ENST00000538974,ENST00000540783,ENST00000539331,ENST00000535187	11,11,11,11,11,11,11,11,16,16,16,16,16,16,16,16	12442-12457	17164-17179	ACC,LGG
chr2:173999766:+>chr2:174034533:+	chr2	173999600	173999766	+	chr2	174034533	174034620	+	TSF	ENST00000539448,ENST00000409176,ENST00000338983,ENST00000375213,ENST00000422149	33,33,33,33,33,11,11,11,11,11	12458-12467	17180-17189	BLCA,CESC,HNSC,LUSC,MESO
chr2:174982666:->chr2:174946792:-	chr2	174982998	174982666	-	chr2	174946792	174946652	-	TAF	ENST00000284719,ENST00000344357,ENST00000409546,ENST00000429575	5,5,5,5,10,10,10,65,65,65,65,10	12468-12479	17190-17201	BLCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,PAAD,READ,SARC,TGCT,THCA,UCEC,UCS
chr2:174982711:->chr2:174946792:-	chr2	174982998	174982711	-	chr2	174946792	174946652	-	TAF	ENST00000284719,ENST00000344357,ENST00000409546,ENST00000429575	42,42,42,42,11,11,11,50,50,50,50,11	12480-12491	17202-17213	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,PAAD,READ,SARC,STAD,TGCT,THYM,UCEC,UCS
chr2:174982866:->chr2:174946792:-	chr2	174982998	174982866	-	chr2	174946792	174946652	-	TSF	ENST00000284719,ENST00000344357,ENST00000409546,ENST00000429575	17,17,17,17,27,27,27,27	12492-12499	17214-17221	MESO,SARC
chr2:175805544:->chr2:175783293:-	chr2	175806110	175805544	-	chr2	175783293	175783262	-	TAF	ENST00000409900,ENST00000409156	8,29,29,9,9,8	12500-12505	17222-17227	BRCA,GBM,HNSC,KICH,LGG,LIHC,LUAD,OV,PAAD,PCPG,PRAD,SARC,STAD,TGCT
chr2:177035647:+>chr2:177036245:+	chr2	177035628	177035647	+	chr2	177036245	177037002	+	TSF	ENST00000468418,ENST00000410016,ENST00000249440	6,6,6,6,6,6,6,6,6,6	12506-12514	17228-17236	OV
chr2:17876059:->chr2:17865030:-	chr2	17876171	17876059	-	chr2	17865030	17864905	-	TSF	ENST00000448223,ENST00000351948,ENST00000381272,ENST00000402989	2,2,2,2,8,8,8,8	12515-12522	17237-17244	BLCA,BRCA,CESC,DLBC,HNSC,LIHC,LUAD,LUSC,READ,SARC,SKCM,TGCT,UCEC,UVM
chr2:182766115:+>chr2:182766493:+	chr2	182766065	182766115	+	chr2	182766493	182767193	+	TSF	ENST00000431877,ENST00000320370,ENST00000409001,ENST00000428267	10,10,10,10,16,16,16,16	12523-12530	17245-17252	BRCA,LGG,PRAD,READ,STAD
chr2:189844751:+>chr2:189849486:+	chr2	189844524	189844751	+	chr2	189849486	189849688	+	TSF	ENST00000304636,ENST00000317840	1,1,24,24,16,16	12531-12536	17253-17258	BRCA,HNSC,LUSC,OV,SARC,STAD
chr2:189861722:+>chr2:189861891:+	chr2	189861720	189861722	+	chr2	189861891	189861944	+	TSF	ENST00000304636,ENST00000317840	1,1	12537-12538	17259-17260	BRCA,HNSC,LUSC,MESO,SARC,UCS
chr2:189865248:+>chr2:189866123:+	chr2	189864980	189865248	+	chr2	189866123	189866176	+	TSF	ENST00000304636,ENST00000317840	5,5,17,17,25,25	12539-12544	17261-17266	BLCA,BRCA,GBM,HNSC,LUAD,LUSC,OV,PAAD,SARC

Table 19

chr2:191111301:->chr2:191110938:-	chr2	191111350	191111301	-	chr2	191110938	191110880	-	TAF	ENST00000392332,ENST00000359678,ENST00000410045,ENST00000416732,ENST00000409820	14,14,14,14,14,16,16,16,16,8,8,8,8,8	12545-12559	17267-17281	KICH,KIRC,KIRP
chr2:192851903:->chr2:192821104:-	chr2	192851958	192851903	-	chr2	192821104	192820981	-	TSF	ENST00000392314,ENST00000272771	18,18,18,7,7,18	12560-12565	17282-17287	PRAD
chr2:192946999:->chr2:192922501:-	chr2	192947147	192946999	-	chr2	192922501	192922405	-	TSF	ENST00000392314,ENST00000272771	6,6,8,42,42,8	12566-12571	17288-17293	PRAD
chr2:198536266:->chr2:198511390:-	chr2	198536292	198536266	-	chr2	198511390	198511207	-	TSF	ENST00000295049,ENST00000429081	9,9,8,8,3,3	12572-12577	17294-17299	LGG
chr2:198593827:+>chr2:198636581:+	chr2	198593687	198593827	+	chr2	198636581	198636638	+	TSF	ENST00000409845	15,7,21	12578-12580	17300-17302	BRCA,LUAD,LUSC,OV,THYM
chr2:201253278:+>chr2:201253946:+	chr2	201253013	201253278	+	chr2	201253946	201254006	+	TAF	ENST00000409755,ENST00000409151	12,12,19,19,21,21	12581-12586	17303-17308	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,STAD,THCA,UCEC
chr2:201277593:+>chr2:201281102:+	chr2	201277501	201277593	+	chr2	201281102	201281151	+	TAF	ENST00000439084,ENST00000409718,ENST00000358677,ENST00000409988,ENST0000439395,ENST00000451764,ENST00000360760,ENST00000423749,ENST00000457757,ENST00000453663,ENST00000409140,ENST00000409397,ENST00000409755,ENST00000409151,ENST00000421573,ENST00000449647,ENST00000438761	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,28,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24	12587-12637	17309-17359	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA
chr2:201327459:+>chr2:201332013:+	chr2	201327365	201327459	+	chr2	201332013	201332122	+	TSF	ENST00000409718,ENST00000358677,ENST00000409988,ENST00000409385,ENST0000451764,ENST00000360760,ENST00000409140,ENST00000409397,ENST00000409755,ENST00000409151,ENST00000438761	31,31,31,31,31,31,31,31,31,31,11,11,11,11,11,11,11,11,11,25,25,25,25,25,25,25,25,25,25,11,11	12638-12670	17360-17392	BRCA,KIRC,KIRP,LIHC,LUAD,LUSC,STAD
chr2:202004053:+>chr2:202005080:+	chr2	202003725	202004053	+	chr2	202005080	202005162	+	TAF	ENST00000309955,ENST00000443227,ENST00000341222,ENST00000340870,ENST0000355558,ENST00000341582,ENST00000342795,ENST00000423241,ENST00000439154,ENST00000440180,ENST00000457277,ENST00000494258,ENST00000470178,ENST00000462763,ENST00000479953	46,46,46,46,46,46,46,46,46,46,46,46,46,46,21,21,21,3,3,3,3,3,3,3,3,3,21,21,3,3,3,3,21,21,21,3,21,21,21,3,21,21	12671-12715	17393-17437	BLCA,DLBC,HNSC,KIRC,KIRP,LUAD,LUSC,STAD,TGCT

Table 10

chr2:202004664:+>chr2:202005080:+	chr2	202003725	202004664	+	chr2	202005080	202005162	+	TSF	ENST00000309955,ENST00000443227,ENST00000341222,ENST00000340870,ENST00000355558,ENST00000341582,ENST00000342795,ENST00000423241,ENST00000439154,ENST00000440180,ENST00000457277,ENST00000494258,ENST00000470178,ENST00000462763,ENST00000479953	5,5,5,33,33,33,33,33,33,33,33,47,47,47,47,47,47,47,47,47,47,47,5,5,33,33,33,5,5,5,5,5,33,5,5,33,5,5,5	12716-12760	17438-17482	TGCT
chr2:202073190:+>chr2:202073793:+	chr2	202073108	202073190	+	chr2	202073793	202074285	+	TSF	ENST00000286186,ENST00000272879,ENST00000346817,ENST00000313728,ENST00000448480	7,7,7,7,7,1,1,1,1,1	12761-12770	17483-17492	STAD
chr2:207156840:+>chr2:207161970:+	chr2	207156598	207156840	+	chr2	207161970	207162097	+	TAF	ENST00000374423	43,4,49	12771-12773	17493-17495	BRCA,KIRC,LGG,LUAD,PCPG,STAD,TGCT,UCEC
chr2:207633327:+>chr2:207634815:+	chr2	207633144	207633327	+	chr2	207634815	207634918	+	TSF	ENST00000236980,ENST00000402774,ENST00000403094	16,16,16,12,12,12	12774-12779	17496-17501	PRAD
chr2:207634640:+>chr2:207634815:+	chr2	207634479	207634640	+	chr2	207634815	207634918	+	TSF	ENST00000236980,ENST00000402774,ENST00000403094	39,39,39,12,12,12,10,10,10	12780-12788	17502-17510	PRAD
chr2:210937924:->chr2:210908828:-	chr2	210938033	210937924	-	chr2	210908828	210908663	-	TSF	ENST00000281772,ENST00000418791,ENST00000457374,ENST00000452086,ENST00000428655	23,23,23,23,23,18,18,18,18,18,35,35,35,35,35	12789-12803	17511-17525	CHOL,KIRC,KIRP,PRAD,STAD
chr2:211161144:->chr2:211159142:-	chr2	211161174	211161144	-	chr2	211159142	211158969	-	TSF	ENST00000341685,ENST00000352451	4,4,2,2,9,9	12804-12809	17526-17531	HNSC,SARC,UCS
chr2:211417732:+>chr2:211421443:+	chr2	211417526	211417732	+	chr2	211421443	211421583	+	TSF	ENST00000523702,ENST00000430249	19,19,10,10	12810-12813	17532-17535	LUAD,STAD
chr2:214079242:->chr2:214013368:-	chr2	214079365	214079242	-	chr2	214013368	214013320	-	TSF	ENST00000342002,ENST00000433134,ENST00000442445	8,8,8,41,22,22,41,41	12814-12822	17536-17544	BRCA
chr2:216248492:->chr2:216248206:-	chr2	216248580	216248492	-	chr2	216248206	216248051	-	TSF	ENST00000421182,ENST00000323926,ENST00000336916,ENST00000357867,ENST00000354785,ENST00000345488,ENST00000346544,ENST00000357009,ENST00000359671,ENST00000446046,ENST00000443816,ENST00000432072,ENST00000356005,ENST00000456923	29,29,29,29,29,29,29,29,29,29,29,29,29,29,3,29,29,29,29,29,29,29,29,29,29,29,29,29,29,3,3,3,3,3,3,3,3,3,3,3,3,3	12823-12864	17545-17586	SARC,THCA
chr2:216905772:->chr2:216904083:-	chr2	216905778	216905772	-	chr2	216904083	216903998	-	TSF	ENST00000265322	2,2,1	12865-12867	17587-17589	LIHC
chr2:216977153:+>chr2:216977739:+	chr2	216976986	216977153	+	chr2	216977739	216977852	+	TSF	ENST00000392133,ENST00000392132	21,21,51,51,55,55	12868-12873	17590-17595	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC
chr2:217506062:+>chr2:217525280:+	chr2	217506021	217506062	+	chr2	217525280	217525509	+	TSF	ENST00000233809,ENST00000456764	3,3,13,13,13,13	12874-12879	17596-17601	COAD,HNSC,LUSC,MESO,OV,UCEC
chr2:217520258:+>chr2:217525280:+	chr2	217519962	217520258	+	chr2	217525280	217525509	+	TSF	ENST00000233809,ENST00000456764	1,1,41,41,7,7	12880-12885	17602-17607	BLCA,CESC,HNSC,LUSC,THYM,UCEC
chr2:218764162:->chr2:218762692:-	chr2	218764168	218764162	-	chr2	218762692	218762521	-	TAF	ENST00000446903,ENST00000413554,ENST00000310858,ENST00000423413	2,2,2,2,2,2,2,2,1,1,1,1	12886-12897	17608-17619	HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,PRAD,SARC,SKCM,STAD,UVM

Table 19

chr2:219298229:+>chr2:219299249:+	chr2	219298180	219298229	+	chr2	219299249	219299428	+	TSF	ENST00000248444,ENST00000392114,ENST00000419986	7,7,3,3,7,3	12898-12903	17620-17625	COAD,READ,STAD
chr2:220120037:->chr2:220116952:-	chr2	220120254	220120037	-	chr2	220116952	220116730	-	TSF	ENST00000248437,ENST00000456818,ENST00000425551	37,37,13,13,37,13	12904-12909	17626-17631	HNSC
chr2:220381889:+>chr2:220396480:+	chr2	220381821	220381889	+	chr2	220396480	220396624	+	TSF	ENST00000347842,ENST00000358078	13,22,22,9,9,13	12910-12915	17632-17637	LGG
chr2:220383613:+>chr2:220396480:+	chr2	220383535	220383613	+	chr2	220396480	220396624	+	TSF	ENST00000347842,ENST00000358078	14,14,2,25,2	12916-12921	17638-17643	LGG
chr2:220407420:->chr2:220406911:-	chr2	220407466	220407420	-	chr2	220406911	220406338	-	TAF	ENST00000243776,ENST00000373891	15,15,15,15,15,15	12922-12927	17644-17649	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,THCA,UCS,UVM
chr2:223509604:->chr2:223507724:-	chr2	223509679	223509604	-	chr2	223507724	223507570	-	TSF	ENST00000281828	23,24	12928-12929	17650-17651	BLCA,BRCA,COAD,GBM,KIRC,LUSC,OV,PRAD,READ,SARC,STAD
chr2:230370928:->chr2:230341969:-	chr2	230371170	230370928	-	chr2	230341969	230341856	-	TSF	ENST00000341772	36,3	12930-12931	17652-17653	ACC,GBM,KIRC,LGG
chr2:230409481:->chr2:230377652:-	chr2	230409549	230409481	-	chr2	230377652	230377499	-	TAF	ENST00000341772	23,13	12932-12933	17654-17655	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,STAD,UCEC
chr2:230547:->chr2:230044:-	chr2	230769	230547	-	chr2	230044	229966,23	-	TSF	ENST00000403712,ENST00000415006,ENST00000403657,ENST00000405430,ENST00000356150,ENST00000403658,ENST00000451005,ENST00000431160	16,16,16,16,16,16,16,19,19,19,19,19,2,2,2,2,2,2,2,19,19,19	12934-12957	17656-17679	ACC,BLCA,BRCA,CESC,CHOL,GBM,KIRC,LGG,LIHC,LUAD,OV,PAAD,SARC,UCEC,UCS
chr2:232340940:+>chr2:232576105:+	chr2	232340741	232340940	+	chr2	232576105	232576119	+	TSF	ENST00000448874,ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,6,12,12,12,12,12,12,46,46,46,6,6,6,6,6,6,46,6,46	12958-12978	17680-17700	OV,STAD
chr2:232340940:+>chr2:232576621:+	chr2	232340741	232340940	+	chr2	232576621	232576693	+	TSF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,46,46,46,46,46,6,6,6,6,6,6,12,12,12,2,12,12,12	12979-12996	17701-17718	OV,STAD
chr2:232340940:+>chr2:232576646:+	chr2	232340741	232340940	+	chr2	232576646	232576693	+	TSF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,46,46,46,46,46,6,6,6,6,6,6,12,12,12,12,12,6,12	12997-13014	17719-17736	OV,STAD
chr2:232340940:+>chr2:232576649:+	chr2	232340741	232340940	+	chr2	232576649	232576693	+	TSF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,46,46,46,46,46,6,6,6,6,6,6,12,12,12,12,12,6,12	13015-13032	17737-17754	OV,STAD
chr2:232340940:+>chr2:232576651:+	chr2	232340741	232340940	+	chr2	232576651	232576693	+	TSF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,46,46,46,46,6,6,6,6,6,12,12,12,12,12,46,12	13033-13050	17755-17772	OV,STAD
chr2:232340940:+>chr2:232576658:+	chr2	232340741	232340940	+	chr2	232576658	232576693	+	TSF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,46,46,46,46,46,6,6,6,6,6,6,12,12,12,12,12,6,12	13051-13068	17773-17790	OV,STAD

Table 10

chr2:232340940:+>chr2:232577177:+	chr2	232340741	232340940	+	chr2	232577177	232577226	+	TSF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	46,46,46,46,46,46,6,6,6,6,6,12,12,12,12,12,12	13069-13086	17791-17808	OV,STAD
chr2:232369808:+>chr2:232576600:+	chr2	232369617	232369808	+	chr2	232576600	232576693	+	TAF	ENST00000409321,ENST00000409115,ENST00000341369,ENST00000409683,ENST00000410064,ENST00000412128	13,13,13,13,13,36,36,36,36,36,36,13	13087-13098	17809-17820	BLCA,CESC,CHOL,COAD,HNSC,KIRC,LUSC,SARC,TGCT,THCA,THYM
chr2:234174805:+>chr2:234178648:+	chr2	234174801	234174805	+	chr2	234178648	234178713	+	TAF	ENST00000347464,ENST00000392017,ENST00000444735,ENST00000373525,ENST00000419681,ENST00000417017,ENST00000392020,ENST00000392018	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	13099-13122	17821-17844	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,PAAD,PCPG,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC
chr2:234733401:+>chr2:234737276:+	chr2	234733211	234733401	+	chr2	234737276	234737425	+	TSF	ENST00000389758	10,14,9	13123-13125	17845-17847	LIHC,MESO
chr2:234967342:+>chr2:234967480:+	chr2	234967204	234967342	+	chr2	234967480	234967602	+	TSF	ENST00000373368,ENST00000168148	46,46,14,14	13126-13129	17848-17851	LIHC
chr2:238451319:+>chr2:238455249:+	chr2	238451313	238451319	+	chr2	238455249	238455326	+	TAF	ENST00000410032,ENST00000264605,ENST00000338530,ENST00000409373,ENST00000437893,ENST00000415753,ENST00000432475,ENST00000434770	2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2	13130-13145	17852-17867	BLCA,BRCA,LUAD,PAAD,PRAD,SKCM,STAD,UCEC,UVM
chr2:238627008:+>chr2:238628166:+	chr2	238626962	238627008	+	chr2	238628166	238628210	+	TAF	ENST00000308482,ENST00000244815,ENST00000420665,ENST00000392000	15,15,15,15,15,15,15,15,15,15,15,15	13146-13157	17868-17879	PCPG,THYM,UCS
chr2:238921737:+>chr2:238925208:+	chr2	238921636	238921737	+	chr2	238925208	238925275	+	TSF	ENST00000272930,ENST00000448502,ENST00000416292,ENST00000409633,ENST00000455999,ENST00000414443,ENST00000439780,ENST00000449191,ENST00000433241,ENST00000409953,ENST00000409332,ENST00000434655,ENST00000434137	34,34,34,34,34,34,34,34,34,34,34,6,6,6,6,6,6,6,6,34,6,6,34,6,6,6	13158-13183	17880-17905	BRCA,GBM,LUSC,OV,SKCM,STAD
chr2:238935906:+>chr2:238939197:+	chr2	238935895	238935906	+	chr2	238939197	238939220,238939254,238939236,238939204	+	TSF	ENST00000441728,ENST00000272930,ENST00000448502,ENST00000416292,ENST00000409633,ENST00000449891,ENST00000455999,ENST00000445676,ENST00000414443,ENST00000409953,ENST00000409332,ENST00000434655,ENST00000434137	4,4,4,4,4,4,4,4,4,4,4,4,2,2,2,3,3,3,3,3,3,3,3,3,3,3,3,3,2,2,2,2,2,2,2,2,4,2,2	13184-13222	17906-17944	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,PRAD,SARC,STAD,TGCT
chr2:242174421:->chr2:242173378:-	chr2	242174499	242174421	-	chr2	242173378	242173235	-	TAF	ENST00000391975,ENST00000391976,ENST00000310931,ENST00000427183,ENST00000373292	26,26,26,26,26,15,15,15,15,25,25,25,25,25,15	13223-13237	17945-17959	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM

Table 10

chr2:242276234:+>chr2:242276797:+	chr2	242276229	242276234	+	chr2	242276797	242276931,242276900,242276863,242276848	+	TSF	ENST00000391973,ENST00000428282,ENST00000360051,ENST00000391971,ENST00000401990,ENST00000407971,ENST00000436795,ENST00000411484,ENST00000402092,ENST00000443492,ENST00000437066,ENST00000449239,ENST00000457874	2,2,2,2,2,2,2,2,2,2,2,2,2,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	13238-13276	17960-17998	BRCA,COAD,GBM,HNSC,KIRC,LGG,LUAD,PCPG,PRAD,SARC,STAD
chr2:242276279:+>chr2:242276797:+	chr2	242276229	242276279	+	chr2	242276797	242276931,242276900,242276863,242276848	+	TSF	ENST00000391973,ENST00000428282,ENST00000360051,ENST00000391971,ENST00000401990,ENST00000407971,ENST00000436795,ENST00000411484,ENST00000402092,ENST00000443492,ENST00000437066,ENST00000449239,ENST00000457874	17,17,17,17,17,17,17,17,17,17,17,17,17,7,7,7,7,7,7,7,7,7,7,7,7,7	13277-13302	17999-18024	GBM,OV,STAD
chr2:242559034:->chr2:242545888:-	chr2	242559097	242559034	-	chr2	242545888	242545729	-	TSF	ENST00000402136,ENST00000407315,ENST00000402545	21,21,21,21,21,21	13303-13308	18025-18030	BLCA,HNSC,KIRC,LUAD,LUSC,PCPG,STAD,UCEC
chr2:24544683:->chr2:24538093:-	chr2	24544896	24544683	-	chr2	24538093	24538001	-	TAF	ENST00000361999,ENST00000355123,ENST00000406921,ENST00000412011	5,15,15,15,15,5,5,5	13309-13316	18031-18038	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,OV,SARC,STAD,THCA
chr2:25015253:->chr2:25013450:-	chr2	25015386	25015253	-	chr2	25013450	25013280	-	TSF	ENST00000328379	14,3,2	13317-13319	18039-18041	BRCA,CESC,LUAD,LUSC,OV,PRAD,SKCM,STAD,TGCT,THYM,UCS
chr2:25109962:->chr2:25095588:-	chr2	25110247	25109962	-	chr2	25095588	25095439	-	TAF	ENST00000260600,ENST00000433852	7,7,1,1,17,17	13320-13325	18042-18047	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,PAAD,SARC,STAD,TGCT,THYM,UVM
chr2:25309890:->chr2:25095588:-	chr2	25310179	25309890	-	chr2	25095588	25095439	-	TSF	ENST00000260600,ENST00000433852	7,7,39,39,1,1	13326-13331	18048-18053	BLCA,DLBC,KIRC,SARC,STAD,TGCT,THYM
chr2:26309272:+>chr2:26321531:+	chr2	26309164	26309272	+	chr2	26321531	26321591	+	TSF	ENST00000264710	36,4	13332-13333	18054-18055	BRCA,CESC,HNSC,OV,PRAD,STAD
chr2:26309786:+>chr2:26321531:+	chr2	26309164	26309786	+	chr2	26321531	26321591	+	TSF	ENST00000264710	4,3	13334-13335	18056-18057	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LUAD,LUSC,OV,SARC,STAD,UCEC
chr2:26433446:->chr2:26432758:-	chr2	26433512	26433446	-	chr2	26432758	26432649	-	TAF	ENST00000380649	22,13,21	13336-13338	18058-18060	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr2:26666354:+>chr2:26667090:+	chr2	26666337	26666354	+	chr2	26667090	26667224	+	TSF	ENST00000288710,ENST00000442810	6,6,5,5,5,5	13339-13344	18061-18066	LUSC
chr2:26947428:+>chr2:26950535:+	chr2	26947307	26947428	+	chr2	26950535	26951436	+	TSF	ENST00000302909	6,15,1	13345-13347	18067-18069	KIRC,KIRP,LIHC,LUAD,OV,STAD,THCA
chr2:27666532:+>chr2:27666816:+	chr2	27666464	27666532	+	chr2	27666816	27666923	+	TSF	ENST00000543753,ENST00000288873,ENST00000407293,ENST00000452499	23,23,23,23,13,13,13,13	13348-13355	18070-18077	BLCA,CESC,COAD,HNSC,LUAD,LUSC,OV,PAAD,PRAD,STAD,UCEC
chr2:27667765:->chr2:27667388:-	chr2	27667813	27667765	-	chr2	27667388	27667299	-	TSF	ENST00000260570	16,16,7	13356-13358	18078-18080	BLCA,BRCA,CESC,COAD,KIRP,OV,PAAD,STAD,TGCT,THYM

chr2:28190310:+>chr2:28210860:+	chr2	28190037	28190310	+	chr2	28210860	28210954	+	TAF	ENST00000436924,ENST00000344773,ENST00000379624,ENST00000342045,ENST00000361704,ENST00000379632,ENST00000379629,ENST00000604932	19,39,39,39,39,39,39,7,7,7,7,7,7,7,19,19,19,19,19,19	13359-13382	18081-18104	ACC,BLCA,BRCA,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,TGCT,THYM,UCS
chr2:28192099:+>chr2:28210860:+	chr2	28191829	28192099	+	chr2	28210860	28210954	+	TSF	ENST00000436924,ENST00000344773,ENST00000379624,ENST00000342045,ENST00000361704,ENST00000379632,ENST00000379629,ENST00000604932	1,21,21,21,21,21,21,7,7,7,7,7,7,7,1,1,1,1,1,1,1	13383-13406	18105-18128	ACC,CHOL,KIRC,LIHC,MESO,OV,SARC,STAD,UCS
chr2:28201241:+>chr2:28210860:+	chr2	28200909	28201241	+	chr2	28210860	28210954	+	TAF	ENST00000436924,ENST00000344773,ENST00000379624,ENST00000342045,ENST00000361704,ENST00000379632,ENST00000379629,ENST00000604932	34,34,34,34,34,34,34,73,73,73,73,73,73,73,18,18,18,18,18,18	13407-13430	18129-18152	ACC,BRCA,CHOL,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,STAD,UCS
chr2:28630878:+>chr2:28631626:+	chr2	28630786	28630878	+	chr2	28631626	28631733	+	TSF	ENST00000379619,ENST00000264716,ENST00000436647,ENST00000545753	31,29,29,29,29,8,8,8,8,31,31,31	13431-13442	18153-18164	BLCA,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,MESO,PAAD,SARC,STAD,UCEC
chr2:29015290:+>chr2:29016729:+	chr2	29015237	29015290	+	chr2	29016729	29016863	+	TAF	ENST00000358506,ENST00000296122,ENST00000395366	18,18,18,17,17,17	13443-13448	18165-18170	BLCA,CESC,GBM,HNSC,KIRC,LGG,LUSC,OV,PAAD,PRAD,SARC,STAD,THCA
chr2:29353921:+>chr2:29354124:+	chr2	29353781	29353921	+	chr2	29354124	29354263	+	TSF	ENST00000401605,ENST00000415891,ENST00000404424,ENST00000456385,ENST00000320081,ENST00000449202	16,16,16,16,16,16,25,25,25,25,25,25,3,3,3,3,3,3	13449-13466	18171-18188	HNSC,LUSC
chr2:30475183:+>chr2:30480299:+	chr2	30474925	30475183	+	chr2	30480299	30480487	+	TSF	ENST00000395323,ENST00000406087,ENST00000401506,ENST00000407930	37,37,37,37,28,28,28,28	13467-13474	18189-18196	ACC,COAD,TGCT
chr2:31156092:->chr2:31155060:-	chr2	31156138	31156092	-	chr2	31155060	31154934	-	TSF	ENST00000324589,ENST00000349752,ENST00000406653,ENST00000356174,ENST00000420311,ENST00000430167	15,15,15,15,15,15,15,15,15,15,15,15	13475-13486	18197-18208	KIRC,KIRP
chr2:31719225:->chr2:31628830:-	chr2	31719227	31719225	-	chr2	31628830	31628773	-	TSF	ENST00000379416	1	13487	13487	BLCA,COAD,OV,STAD
chr2:32828600:+>chr2:32832522:+	chr2	32828531	32828600	+	chr2	32832522	32832710	+	TSF	ENST00000421745	23,11,22	13488-13490	18210-18212	PRAD,TGCT
chr2:3431530:+>chr2:3624182:+	chr2	3431377	3431530	+	chr2	3624182	3624220	+	TSF	ENST00000304921,ENST00000407445,ENST00000403564,ENST00000406376	9,9,9,9,4,4,4,4	13491-13498	18213-18220	OV,STAD
chr2:3462286:+>chr2:3464034:+	chr2	3462278	3462286	+	chr2	3464034	3464107,3	+	TSF	ENST00000382110,ENST00000324266,ENST00000441983,ENST00000417243,ENST00000415624	3,3,3,3,3,2,2,2,2,2	13499-13508	18221-18230	ACC,BLCA,BRCA,HNSC,LGG,LIHC,LUAD,LUSC,PCPG,PRAD,THYM,UCEC,UCS
chr2:3477886:+>chr2:3481466:+	chr2	3477590	3477886	+	chr2	3481466	3481566	+	TAF	ENST00000382110,ENST00000324266,ENST00000415624	61,61,61,3,3,3,18,18,18	13509-13517	18231-18239	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr2:3624441:+>chr2:3625300:+	chr2	3624355	3624441	+	chr2	3625300	3625364	+	TSF	ENST00000304921,ENST00000407445,ENST00000403564,ENST00000406376	29,29,29,22,22,22,22,29	13518-13525	18240-18247	COAD,KIRC,LIHC,LUAD,LUSC,OV,PRAD,STAD,TGCT,UCEC,UCS

Table 19

chr2:3624710:+>chr2:3625300:+	chr2	3624644	3624710	+	chr2	3625300	3625364	+	TSF	ENST00000304921,ENST00000407445,ENST00000403564,ENST00000406376	22,22,22,22,13,13,13,5,5,5,5,13	13526-13537	18248-18259	BLCA,DLBC,LUAD,LUSC,OV,STAD
chr2:3624742:+>chr2:3625300:+	chr2	3624644	3624742	+	chr2	3625300	3625364	+	TSF	ENST00000304921,ENST00000407445,ENST00000403564,ENST00000406376	33,33,33,23,23,23,23,1,1,1,1,33	13538-13549	18260-18271	BLCA,BRCA,DLBC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,OV,PAAD,SARC,STAD,TGCT,THCA
chr2:36993533:+>chr2:36994237:+	chr2	36993390	36993533	+	chr2	36994237	36994428	+	TSF	ENST00000379242,ENST00000389975,ENST00000404084,ENST00000379241,ENST00000401530	3,3,3,3,3,47,47,47,47,47,1,1,1,1,1	13550-13564	18272-18286	LGG,LUSC,SARC
chr2:37570066:+>chr2:37579932:+	chr2	37569837	37570066	+	chr2	37579932	37580078	+	TSF	ENST00000338415	24,76,12	13565-13567	18287-18289	ACC,OV,SKCM,UVM
chr2:38983086:->chr2:38977336:-	chr2	38983894	38983086	-	chr2	38977336	38977156	-	TSF	ENST00000313117,ENST00000425778,ENST00000425941,ENST00000446327,ENST00000409276,ENST00000431066,ENST00000443213	28,28,28,28,28,28,28,44,42,42,42,42,42,42,42,44,44,44,44,44,44	13568-13588	18290-18310	BLCA,CESC,HNSC,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC
chr2:38983132:->chr2:38977336:-	chr2	38983894	38983132	-	chr2	38977336	38977156	-	TAF	ENST00000313117,ENST00000425778,ENST00000425941,ENST00000446327,ENST00000409276,ENST00000431066,ENST00000443213	13,29,29,29,29,29,29,26,26,26,26,26,26,13,13,13,13,13,13	13589-13609	18311-18331	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,SARC,STAD,TGCT,THYM,UCEC
chr2:38983253:->chr2:38977336:-	chr2	38983894	38983253	-	chr2	38977336	38977156	-	TSF	ENST00000313117,ENST00000425778,ENST00000425941,ENST00000446327,ENST00000409276,ENST00000431066,ENST00000443213	24,24,24,24,24,24,24,49,49,49,49,49,49,13,13,13,13,13,13	13610-13630	18332-18352	BLCA,BRCA,CESC,HNSC,KIRC,LGG,LUAD,LUSC,OV,PRAD,SARC,STAD,TGCT,THYM,UCEC
chr2:39225641:->chr2:39224566:-	chr2	39225691	39225641	-	chr2	39224566	39224394	-	TAF	ENST00000426016,ENST00000402219,ENST00000395038	12,12,12,7,7,7,16,16,16	13631-13639	18353-18361	BLCA,BRCA,COAD,HNSC,LUAD,LUSC,PAAD,SKCM,THCA,UVM
chr2:40465674:->chr2:40404995:-	chr2	40465767	40465674	-	chr2	40404995	40404892	-	TSF	ENST00000406785,ENST00000407929,ENST00000402441,ENST00000405269,ENST00000406391,ENST00000408028,ENST00000542024	31,31,31,31,31,31,31,23,23,23,23,23,23,23	13640-13653	18362-18375	LUAD,OV,STAD
chr2:42615585:->chr2:42580483:-	chr2	42615588	42615585	-	chr2	42580483	42580352	-	TSF	ENST00000468711,ENST00000378669,ENST00000234301,ENST00000463055	1,1,1,1	13654-13657	18376-18379	SKCM
chr2:42615589:->chr2:42580483:-	chr2	42615932	42615589	-	chr2	42580483	42580352	-	TSF	ENST00000468711,ENST00000378669,ENST00000234301,ENST00000463055	21,21,21,21,1,1,1,1,14,14,14,14	13658-13669	18380-18391	SKCM
chr2:42872096:+>chr2:42883340:+	chr2	42871686	42872096	+	chr2	42883340	42883442	+	TAF	ENST00000405592,ENST00000406652,ENST00000407270,ENST00000454356,ENST00000406911,ENST00000409019,ENST00000405094	16,16,16,16,16,16,16,4,4,4,4,4,4,4,46,46,46,46,46,46	13670-13690	18392-18412	BRCA,CESC,DLBC,KIRP,LUAD,LUSC,OV,TGCT,THYM,UCEC,UCS
chr2:43616285:->chr2:43571376:-	chr2	43616365	43616285	-	chr2	43571376	43571261	-	TSF	ENST00000405975,ENST00000415080,ENST00000407351,ENST00000405006	10,10,10,10,4,4,4,4,26,26,26,26	13691-13702	18413-18424	BLCA,LIHC,PRAD,STAD
chr2:43963670:+>chr2:43965480:+	chr2	43963431	43963670	+	chr2	43965480	43965659	+	TSF	ENST00000282406	80,18,3	13703-13705	18425-18427	KIRP
chr2:44524132:+>chr2:44527110:+	chr2	44523867	44524132	+	chr2	44527110	44527229	+	TSF	ENST00000260649,ENST00000409387,ENST00000410056,ENST00000409741,ENST00000409229,ENST00000409380,ENST00000427285	7,7,7,7,7,7,7,40,40,40,40,40,40,40	13706-13719	18428-18441	COAD,PRAD

Table 19

chr2:44903914:+>chr2:44931422:+	chr2	44903747	44903914	+	chr2	44931422	44931482	+	TSF	ENST00000378494	14,1,7	13720-13722	18442-18444	TGCT
chr2:47553008:+>chr2:47600602:+	chr2	47552899	47553008	+	chr2	47600602	47600709	+	TAF	ENST00000405271,ENST00000456133,ENST00000263735,ENST00000419334	13,13,13,13,36,36,36,12,12,12,12,36	13723-13734	18445-18456	BRCA,CHOL,KICH,KIRC,KIRP,LUAD,LUSC,OV,PRAD,STAD,TGCT,THCA,UCEC
chr2:47596600:+>chr2:47596660:+	chr2	47596424	47596600	+	chr2	47596660	47596720	+	TSF	ENST00000263735,ENST00000419334	59,58,46,59,58,46	13735-13740	18457-18462	OV,STAD
chr2:48949869:+>chr2:49003419:+	chr2	48949534	48949869	+	chr2	49003419	49003454	+	TSF	ENST00000402114	53,13,35	13741-13743	18463-18465	DLBC,KIRC,KIRP,OV,SARC,SKCM,THCA
chr2:56145988:->chr2:56145402:-	chr2	56146377	56145988	-	chr2	56145402	56145354	-	TAF	ENST00000394555,ENST00000394554,ENST00000355426,ENST00000438672,ENST00000439193,ENST00000440439,ENST00000429909,ENST00000452337,ENST00000421664	130,130,130,79,79,79,79,79,79,79,79,79,6,6,6,6,6,6,6,130,130,130,130,130,130,130	13744-13770	18466-18492	BRCA,CESC,GBM,HNSC,LGG,LUSC,MESO,SARC
chr2:62197160:+>chr2:62227836:+	chr2	62197111	62197160	+	chr2	62227836	62228117	+	TAF	ENST00000311832,ENST00000538736	7,7,16,16,16,16	13771-13776	18493-18498	BRCA,CESC,HNSC,LUAD,LUSC,OV,UCEC
chr2:62362285:+>chr2:62362966:+	chr2	62362210	62362285	+	chr2	62362966	62363076	+	TAF	ENST00000311832,ENST00000458337,ENST00000427417	25,25,25,5,5,5,10,10,10	13777-13785	18499-18507	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr2:65243368:+>chr2:65243574:+	chr2	65243329	65243368	+	chr2	65243574	65243807	+	TSF	ENST00000234256	13,13,4	13786-13788	18508-18510	BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,READ,SARC,SKCM,UVM
chr2:68984862:+>chr2:69002353:+	chr2	68983124	68984862	+	chr2	69002353	69002553	+	TSF	ENST00000295381,ENST00000409202,ENST00000467265,ENST00000488795,ENST00000409030,ENST00000409220,ENST00000473986,ENST00000497079	10,10,10,10,10,10,10,7,7,20,20,20,20,20,20,20,20,7,7,7,7,10,7,7	13789-13812	18511-18534	DLBC,LGG,LUAD,MESO,SARC,STAD
chr2:70052362:+>chr2:70052588:+	chr2	70052223	70052362	+	chr2	70052588	70052647	+	TAF	ENST00000409920,ENST00000394295,ENST00000536030	11,11,11,14,14,14,30,30,30	13813-13821	18535-18543	BRCA,CHOL,KIRC,KIRP,LIHC,MESO,PAAD,PRAD,READ,STAD,THCA,UCEC
chr2:71191014:+>chr2:71191568:+	chr2	71190941	71191014	+	chr2	71191568	71191672	+	TAF	ENST00000234396,ENST00000412314	6,6,9,9	13822-13825	18544-18547	BRCA,CESC,KICH,KIRC,OV
chr2:71895374:+>chr2:71895884:+	chr2	71895365	71895374	+	chr2	71895884	71895972	+	TSF	ENST00000409582,ENST00000409762,ENST00000413539,ENST00000429174,ENST00000258104,ENST00000394120,ENST00000409366,ENST00000409651,ENST00000409744,ENST00000410020,ENST00000410041	3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,2,2,2,2,2,2,2,2,2,2,2,2,2,2	13826-13858	18548-18580	KIRC
chr2:74762039:->chr2:74761901:-	chr2	74762302	74762039	-	chr2	74761901	74761658	-	TSF	ENST00000264094,ENST00000393937,ENST00000409549,ENST00000409986	13,13,13,13,34,34,34,34,21,21,21,21	13859-13870	18581-18592	ACC,BLCA,BRCA,DLBC,GBM,KIRC,OV,PCPG,SARC,SKCM
chr2:77256391:->chr2:76976042:-	chr2	77256752	77256391	-	chr2	76976042	76975821	-	TSF	ENST00000409911,ENST00000409884,ENST00000409093	82,82,82,1,1,1,94,94,94	13871-13879	18593-18601	LIHC
chr2:79732308:+>chr2:79878678:+	chr2	79731998	79732308	+	chr2	79878678	79878784	+	TAF	ENST00000361291	1,10,17	13880-13882	18602-18604	ACC,BRCA,COAD,GBM,KICH,LGG,MESO,SARC
chr2:79872487:+>chr2:79878678:+	chr2	79872412	79872487	+	chr2	79878678	79878784	+	TSF	ENST00000361291	2,17,24	13883-13885	18605-18607	GBM,LGG

chr2:79925043:+>chr2:79971513:+	chr2	79924995	79925043	+	chr2	79971513	79971709	+	TSF	ENST00000466387,ENST00000496558,ENST00000451966,ENST00000409971,ENST00000361291,ENST00000402739,ENST00000540488,ENST00000541047	1,1,1,1,1,1,1,1,16,16,16,16,10,10,10,10,10,10,10,16,16,16	13886-13909	18608-18631	COAD,GBM,KICH,LGG
chr2:85053622:->chr2:85051328:-	chr2	85053636	85053622	-	chr2	85051328	85051077	-	TSF	ENST00000335459,ENST00000409520	5,5,4,4,4,4	13910-13915	18632-18637	CESC,COAD,READ,STAD
chr2:85059512:->chr2:85059269:-	chr2	85059551	85059512	-	chr2	85059269	85059179	-	TAF	ENST00000335459,ENST00000409520	11,11,2,2,4,4	13916-13921	18638-18643	BLCA,CESC,COAD,HNSC,LUAD,LUSC,READ,SARC,SKCM,STAD,THYM
chr2:85534401:+>chr2:85534765:+	chr2	85534293	85534401	+	chr2	85534765	85534840	+	TSF	ENST00000282111	18,36,25	13922-13924	18644-18646	STAD
chr2:85811992:+>chr2:85818852:+	chr2	85811874	85811992	+	chr2	85818852	85818985	+	TSF	ENST00000306384	18,9,2	13925-13927	18647-18649	GBM,KIRC,KIRP,LIHC,SARC
chr2:85823377:+>chr2:85823642:+	chr2	85823332	85823377	+	chr2	85823642	85823772	+	TSF	ENST00000441634,ENST00000306368,ENST00000414390,ENST00000443647,ENST00000456023	15,15,15,15,15,15,15,15,15,15,14,14,14,14,14	13928-13942	18650-18664	BLCA,BRCA,GBM,KIRC,KIRP,LIHC,LUAD,MESO,OV,PAAD,TGCT,THCA,THYM,UCEC
chr2:86094968:->chr2:86090608:-	chr2	86095051	86094968	-	chr2	86090608	86090485	-	TSF	ENST00000393808,ENST00000377332,ENST00000306262,ENST00000525834	12,12,12,12,9,9,9,9	13943-13950	18665-18672	LUAD,SKCM,THCA
chr2:86512698:->chr2:86509365:-	chr2	86512770	86512698	-	chr2	86509365	86509293	-	TSF	ENST00000165698,ENST00000541910,ENST00000538924,ENST00000437769,ENST00000453231	4,4,4,4,4,24,24,24,24,24,23,23,23,23,23	13951-13965	18673-18687	MESO
chr2:87075916:->chr2:87073896:-	chr2	87076138	87075916	-	chr2	87073896	87073807	-	TAF	ENST00000393759,ENST00000331469,ENST00000390655	20,7,7,7,24,24,24,20,20	13966-13974	18688-18696	THYM
chr2:88804412:+>chr2:88825923:+	chr2	88804201	88804412	+	chr2	88825923	88826015	+	TSF	ENST00000303254	3,11	13975-13976	18697-18698	LIHC,LUAD,TGCT
chr2:89238677:->chr2:89157196:-	chr2	89238917	89238677	-	chr2	89157196	89156874	-	TSF	ENST00000390237	6,1,12	13977-13979	18699-18701	BRCA,HNSC,LUAD,LUSC,TGCT,THCA
chr2:89370031:->chr2:89292018:-	chr2	89370075	89370031	-	chr2	89292018	89291928	-	TSF	ENST00000495489	6,14,7	13980-13982	18702-18704	BLCA,CESC,COAD,HNSC,LUAD,LUSC,SKCM,THCA
chr2:90168893:+>chr2:90193334:+	chr2	90168849	90168893	+	chr2	90193334	90193424	+	TSF	ENST00000390275	6,14,7	13983-13985	18705-18707	LUAD,LUSC,THCA
chr2:9695025:->chr2:9683414:-	chr2	9695192	9695025	-	chr2	9683414	9683282	-	TSF	ENST00000310823,ENST00000497134	14,14,55,55	13986-13989	18708-18711	HNSC,LUSC
chr2:97206414:+>chr2:97213139:+	chr2	97206254	97206414	+	chr2	97213139	97213254	+	TAF	ENST00000357485,ENST00000412735	27,8,8,27	13990-13993	18712-18715	BRCA,CHOL,DLBC,KIRC,LGG,LUSC,PAAD,SARC,THCA,THYM,UVM
chr2:9736908:->chr2:9731644:-	chr2	9737072	9736908	-	chr2	9731644	9731521	-	TAF	ENST00000381844,ENST00000238081,ENST00000446619	7,7,32,32,32,54,54,54,7	13994-14002	18716-18724	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,STAD,UCEC
chr2:97560977:->chr2:97559788:-	chr2	97561135	97560977	-	chr2	97559788	97559663	-	TSF	ENST00000327896,ENST00000417561,ENST00000490605	11,11,11,18,18,18,3,3,3	14003-14011	18725-18733	BLCA,BRCA,CESC,HNSC,LUAD,LUSC
chr2:97615723:->chr2:97613639:-	chr2	97615730	97615723	-	chr2	97613639	97613555	-	TSF	ENST00000327896,ENST00000417561,ENST00000490605	2,2,2,2,2,2	14012-14017	18734-18739	BLCA,HNSC,LGG,SKCM,UCEC,UVM
chr2:99224660:->chr2:99220654:-	chr2	99224680	99224660	-	chr2	99220654	99220571	-	TSF	ENST00000328709,ENST00000409997	7,3,3,6,6,7	14018-14023	18740-18745	BRCA,GBM,LGG,LUAD,LUSC,OV,PCPG,SARC,SKCM
chr2:99315517:->chr2:99294934:-	chr2	99315948	99315517	-	chr2	99294934	99294767	-	TSF	ENST00000264968,ENST00000393487,ENST00000409391	43,43,43,22,22,22	14024-14029	18746-18751	BRCA,PRAD

Table 19

chr2:99797170:->chr2:99790479:-	chr2	99797199	99797170	-	chr2	99790479	99790378	-	TAF	ENST00000422537,ENST00000289359,ENST00000409107	3,3,3,9,9,9,9,9	14030-14038	18752-18760	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr20:10400319:->chr20:10389451:-	chr20	10400592	10400319	-	chr20	10389451	10389276	-	TSF	ENST00000347364,ENST00000399054	30,30,17,17,11,11	14039-14044	18761-18766	BLCA,CESC,CHOL,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,THCA,UCS
chr20:10628254:->chr20:10627751:-	chr20	10628319	10628254	-	chr20	10627751	10627587	-	TSF	ENST00000254958,ENST00000423891	21,21,21,21	14045-14048	18767-18770	BLCA,HNSC,KIRC,LGG,LUSC,PAAD,PRAD,SARC,STAD,THYM
chr20:110697:+>chr20:126056:+	chr20	110606	110697	+	chr20	126056	126333	+	TSF	ENST00000382398	21,3	14049-14050	18771-18772	ACC,BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,PRAD,READ,STAD,TGCT,UCEC
chr20:110697:+>chr20:126220:+	chr20	110606	110697	+	chr20	126220	126333	+	TSF	ENST00000382398	21,3	14051-14052	18773-18774	BLCA,HNSC,LUSC,OV,PRAD,STAD,UCEC
chr20:1453360:->chr20:1438919:-	chr20	1453431	1453360	-	chr20	1438919	1438845,1	-	TAF	ENST00000353088,ENST00000555944,ENST00000476071,ENST00000216879,ENST00000350991,ENST00000381653,ENST00000555568,ENST00000489203	23,21,21,21,21,21,21,23,23,21,21,23,23,23,23,23	14053-14068	18775-18790	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr20:14676510:+>chr20:15210586:+	chr20	14676179	14676510	+	chr20	15210586	15210707	+	TSF	ENST00000217246,ENST00000310348	16,16,27,20,20,27	14069-14074	18791-18796	BRCA
chr20:16294353:->chr20:16293063:-	chr20	16294930	16294353	-	chr20	16293063	16292980	-	TSF	ENST00000354981,ENST00000355755,ENST00000378003	39,39,39,3,3,3,60,60,60	14075-14083	18797-18805	ACC,BRCA,COAD,HNSC,LUSC,READ,TGCT
chr20:18495446:+>chr20:18496294:+	chr20	18495298	18495446	+	chr20	18496294	18496380	+	TSF	ENST00000450074,ENST00000262544,ENST00000336714,ENST00000377475,ENST00000377465	49,49,49,49,49,3,3,3,3	14084-14093	18806-18815	KIRC,PRAD,TGCT
chr20:18509137:+>chr20:18511324:+	chr20	18509077	18509137	+	chr20	18511324	18511447	+	TSF	ENST00000262544,ENST00000336714,ENST00000377475,ENST00000377465	20,20,20,20,4,4,4,4,19,19,19,19	14094-14105	18816-18827	BLCA,BRCA,CHOL,KICH,KIRC,PRAD,READ
chr20:19851939:+>chr20:19870210:+	chr20	19851935	19851939	+	chr20	19870210	19870302	+	TAF	ENST00000255006	1,1,1	14106-14108	18828-18830	BLCA,BRCA,CESC,COAD,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC
chr20:19966639:+>chr20:19970650:+	chr20	19966479	19966639	+	chr20	19970650	19970955	+	TSF	ENST00000255006,ENST00000440354	20,20,4,4,7,7	14109-14114	18831-18836	CESC,HNSC,LGG,LUSC,STAD
chr20:24951515:->chr20:24951007:-	chr20	24951582	24951515	-	chr20	24951007	24950833	-	TSF	ENST00000451442,ENST00000217456,ENST00000447138	22,22,22,22,2,2,2,2,22	14115-14123	18837-18845	GBM,KIRC,LGG,SARC,THYM
chr20:25053172:->chr20:25052654:-	chr20	25053246	25053172	-	chr20	25052654	25052557	-	TSF	ENST00000429762,ENST00000444511	25,25,2,21,2,21	14124-14129	18846-18851	GBM,KICH,KIRC,LGG,LUAD,OV,PCPG,STAD,THCA,UVM
chr20:25146366:+>chr20:25249765:+	chr20	25146273	25146366	+	chr20	25249765	25249843	+	TSF	ENST00000216962	14,6	14130-14131	18852-18853	BRCA,READ,SARC,SKCM,STAD,TGCT
chr20:25776681:->chr20:25755948:-	chr20	25777823	25776681	-	chr20	25755948	25755497	-	TAF	ENST00000376403,ENST00000584071	28,28,46,21,46,21	14132-14137	18854-18859	GBM,LGG,LUAD
chr20:25776681:->chr20:25755972:-	chr20	25777823	25776681	-	chr20	25755972	25755659	-	TSF	ENST00000584071	28,46,21	14138-14140	18860-18862	GBM,LGG
chr20:25778939:->chr20:25755948:-	chr20	25780351	25778939	-	chr20	25755948	25755497	-	TSF	ENST00000376403,ENST00000584071	25,25,46,26,46,26	14141-14146	18863-18868	GBM,LGG,LUAD
chr20:25778939:->chr20:25755972:-	chr20	25780351	25778939	-	chr20	25755972	25755659	-	TSF	ENST00000584071	25,46,26	14147-14149	18869-18871	GBM,LGG

Table 19

chr20:25840376:->chr20:25755948:-	chr20	25841506	25840376	-	chr20	25755948	25755497	-	TSF	ENST00000376403,ENST00000584071	25,25,46,73,46,73	14150-14155	18872-18877	GBM,LGG,LUAD,PCPG
chr20:25840376:->chr20:25755972:-	chr20	25841506	25840376	-	chr20	25755972	25755659	-	TSF	ENST00000584071	25,46,73	14156-14158	18878-18880	GBM,LGG,LUAD,PCPG
chr20:25842039:->chr20:25755948:-	chr20	25843181	25842039	-	chr20	25755948	25755497	-	TSF	ENST00000376403,ENST00000584071	25,25,46,73,46,73	14159-14164	18881-18886	GBM,LGG,LUAD,PCPG
chr20:25842039:->chr20:25755972:-	chr20	25843181	25842039	-	chr20	25755972	25755659	-	TSF	ENST00000584071	25,46,73	14165-14167	18887-18889	GBM,LGG,LUAD,PCPG
chr20:25843696:->chr20:25755948:-	chr20	25844836	25843696	-	chr20	25755948	25755497	-	TSF	ENST00000376403,ENST00000584071	25,25,73,46,73,46	14168-14173	18890-18895	GBM,LGG,LUAD,PCPG
chr20:25843696:->chr20:25755972:-	chr20	25844836	25843696	-	chr20	25755972	25755659	-	TSF	ENST00000584071	25,73,46	14174-14176	18896-18898	GBM,LGG,PCPG
chr20:2633819:+>chr20:2633925:+	chr20	2633768	2633819	+	chr20	2633925	2634039	+	TAF	ENST00000329276,ENST00000445139	17,17,17,8,8,17	14177-14182	18899-18904	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr20:2775374:->chr20:2775285:-	chr20	2775864	2775374	-	chr20	2775285	2775183	-	TAF	ENST00000380605	9,27,6	14183-14185	18905-18907	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,TGCT,THYM,UCEC,UCS
chr20:29976126:->chr20:29965242:-	chr20	29976260	29976126	-	chr20	29965242	29965212	-	TSF	ENST00000339144,ENST00000376321	5,6,6,2,5,2	14186-14191	18908-18913	LGG,TGCT
chr20:29976126:->chr20:29966194:-	chr20	29976260	29976126	-	chr20	29966194	29966155	-	TSF	ENST00000339144	5,6,2	14192-14194	18914-18916	LGG,TGCT,UVM
chr20:30014925:+>chr20:30037832:+	chr20	30014070	30014925	+	chr20	30037832	30037977	+	TSF	ENST00000376309	14,1,27	14195-14197	18917-18919	SKCM,TGCT
chr20:30024331:+>chr20:30037832:+	chr20	30023971	30024331	+	chr20	30037832	30037977	+	TSF	ENST00000376309	20,10,2	14198-14200	18920-18922	OV,TGCT
chr20:30057772:->chr20:30053466:-	chr20	30058231	30057772	-	chr20	30053466	30053309	-	TSF	ENST00000317676	24,12,56	14201-14203	18923-18925	CESC,HNSC,LGG,LUSC,SARC,SKCM,TGCT,THYM
chr20:30059401:->chr20:30053466:-	chr20	30060256	30059401	-	chr20	30053466	30053309	-	TSF	ENST00000317676	14,12,27	14204-14206	18926-18928	HNSC,LGG,LUSC,SKCM,STAD,TGCT,THYM,UCEC
chr20:30059441:->chr20:30053466:-	chr20	30060256	30059441	-	chr20	30053466	30053309	-	TSF	ENST00000317676	1,37,14	14207-14209	18929-18931	HNSC,SKCM,TGCT,THYM,UCEC
chr20:30059518:->chr20:30053466:-	chr20	30060256	30059518	-	chr20	30053466	30053309	-	TAF	ENST00000317676	37,12,26	14210-14212	18932-18934	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LUSC,OV,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr20:30269014:->chr20:30253889:-	chr20	30269169	30269014	-	chr20	30253889	30253752	-	TAF	ENST00000376062,ENST00000376055,ENST00000307677,ENST00000420653,ENST00000450273	21,21,21,21,40,40,40,40,2,2,2,2,21,40,2	14213-14227	18935-18949	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr20:30451427:->chr20:30450545:-	chr20	30451567	30451427	-	chr20	30450545	30450374	-	TSF	ENST00000278979,ENST00000375966,ENST00000339738	8,15,15,15,8,8	14228-14233	18950-18955	KICH,KIRC
chr20:30453945:->chr20:30452805:-	chr20	30454037	30453945	-	chr20	30452805	30452756	-	TAF	ENST00000278979,ENST00000375966,ENST00000339738,ENST00000428829	8,3,3,3,14,14,14,14,8,8,8,3	14234-14245	18956-18967	ACC,BRCA,GBM,KICH,KIRC,KIRP,UCS
chr20:30457004:->chr20:30454956:-	chr20	30457064	30457004	-	chr20	30454956	30454874	-	TSF	ENST00000278979,ENST00000375966,ENST00000339738,ENST00000428829	20,9,9,9,19,19,19,19,20,20,20,9	14246-14257	18968-18979	KICH,KIRC

Table 19

chr20:30669925:+>chr20:30671697:+	chr20	30669845	30669925	+	chr20	30671697	30671846	+	TAF	ENST00000534862,ENST00000538448,ENST00000375862,ENST00000520553,ENST00000518730,ENST00000375852	26,26,26,26,26,26,12,12,12,12,12,12	14258-14269	18980-18991	BRCA,CESC,COAD,DLBC,GBM,HNSC,LUAD,LUSC,SARC,THYM
chr20:31764929:+>chr20:31765953:+	chr20	31764878	31764929	+	chr20	31765953	31766034	+	TAF	ENST00000253362,ENST00000354932	17,17,7,7	14270-14273	18992-18995	ACC,BLCA,BRCA,CESC,KICH,KIRC,LIHC,LUAD,LUSC,OV,PAAD,STAD,UCEC
chr20:32028924:->chr20:32026832:-	chr20	32029125	32028924	-	chr20	32026832	32026647	-	TSF	ENST00000217381	9,6,16	14274-14276	18996-18998	ACC,LIHC,THCA
chr20:32404149:+>chr20:32436273:+	chr20	32404108	32404149	+	chr20	32436273	32436450	+	TSF	ENST00000217402	4,1	14277-14278	18999-19000	BRCA
chr20:32693709:->chr20:32693351:-	chr20	32693720	32693709	-	chr20	32693351	32693174	-	TSF	ENST00000374980	3,3	14279-14280	19001-19002	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT
chr20:32882165:->chr20:32881962:-	chr20	32882711	32882165	-	chr20	32881962	32881887	-	TAF	ENST00000217426,ENST00000538132	39,39,93,93	14281-14284	19003-19006	BRCA,LGG,LUSC,PRAD,THYM
chr20:33107303:+>chr20:33122432:+	chr20	33107223	33107303	+	chr20	33122432	33122599	+	TSF	ENST00000357156,ENST00000417166,ENST00000374846	8,8,8,18,18,18,10,10,10,10	14285-14293	19007-19015	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUSC,OV,PCPG,PRAD,READ,SKCM,STAD,THCA,UCEC,UVM
chr20:33111436:+>chr20:33114073:+	chr20	33111081	33111436	+	chr20	33114073	33114148	+	TSF	ENST00000357156,ENST00000417166,ENST00000300469,ENST00000374846	41,41,41,41,13,13,13,86,86,86,13,86	14294-14305	19016-19027	ACC,BLCA,BRCA,CESC,GBM,KICH,LGG,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,UCS
chr20:33190934:->chr20:33176411:-	chr20	33191661	33190934	-	chr20	33176411	33176257	-	TAF	ENST00000217446,ENST00000374820,ENST00000452740,ENST00000438215	43,43,43,43,2,2,2,10,10,10,2,10	14306-14317	19028-19039	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,READ,STAD
chr20:33350530:->chr20:33346736:-	chr20	33351314	33350530	-	chr20	33346736	33346608	-	TSF	ENST00000374796,ENST00000359003	25,25,5,5,3,3	14318-14323	19040-19045	HNSC,OV,STAD
chr20:33601885:->chr20:33600869:-	chr20	33601951	33601885	-	chr20	33600869	33600811	-	TAF	ENST00000451813,ENST00000252015,ENST00000539834,ENST00000432634	9,9,9,9,13,13,13,13	14324-14331	19046-19053	ACC,BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr20:33851310:+>chr20:33851594:+	chr20	33850895	33851310	+	chr20	33851594	33851755	+	TAF	ENST00000246186	4,20,24	14332-14334	19054-19056	KICH,KIRC,KIRP,LUAD,MESO,OV,TGCT
chr20:34133127:+>chr20:34135163:+	chr20	34133027	34133127	+	chr20	34135163	34135256	+	TSF	ENST00000348547,ENST00000357394,ENST00000279052,ENST00000447986,ENST00000416206,ENST00000413587	24,11,11,11,11,11,11,24,24,24,24,24	14335-14346	19057-19068	OV
chr20:34710669:+>chr20:34761806:+	chr20	34710617	34710669	+	chr20	34761806	34761876	+	TSF	ENST00000406771,ENST00000452261,ENST00000447825,ENST00000427533,ENST00000338074,ENST00000373941	17,17,17,17,17,17,7,17,17,17,7,7,7,17,7,7	14347-14364	19069-19086	BRCA,CESC,COAD,HNSC,KICH,KIRP,PAAD,STAD
chr20:34710669:+>chr20:34763473:+	chr20	34710617	34710669	+	chr20	34763473	34763637	+	TSF	ENST00000406771,ENST00000452261,ENST00000447825,ENST00000373946,ENST00000338074,ENST00000373941	17,17,17,17,17,17,7,7,7,7,7,7,17,17,17,17	14365-14382	19087-19104	BLCA,BRCA,HNSC,KIRP,OV,STAD
chr20:35779434:+>chr20:35812583:+	chr20	35778650	35779434	+	chr20	35812583	35812776	+	TSF	ENST00000237530,ENST00000373622,ENST00000373632	50,50,50,27,1,1,1,27,27	14383-14391	19105-19113	BRCA,HNSC,KIRP,LUSC,OV,STAD,UCEC

Table 1[illegible]

chr20:35844528:+>chr20:35852281:+	chr20	35844460	35844528	+	chr20	35852281	35852372	+	TAF	ENST00000237530,ENST00000373622	23,13,13,23	14392-14395	19114-19117	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr20:35857337:+>chr20:35858376:+	chr20	35857318	35857337	+	chr20	35858376	35858462	+	TAF	ENST00000237530,ENST00000373622,ENST00000437329,ENST00000456400	6,6,6,6,6,6,6,6,6,6,6,6	14396-14407	19118-19129	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,STAD,THCA,UCEC,UCS
chr20:35861289:+>chr20:35862423:+	chr20	35861188	35861289	+	chr20	35862423	35862498	+	TSF	ENST00000237530,ENST00000373622,ENST00000437329,ENST00000456400	4,4,19,19,19,5,5,5,5,4,4,19	14408-14419	19130-19141	BLCA,GBM,HNSC,LGG,PCPG,THCA,UCEC,UCS
chr20:36393294:+>chr20:36393599:+	chr20	36393263	36393294	+	chr20	36393599	36393692	+	TSF	ENST00000361383,ENST00000447935,ENST00000405275,ENST00000373473	10,10,10,10,10,10,10,10,10,10,10,10	14420-14431	19142-19153	BLCA,HNSC,SKCM
chr20:36998324:+>chr20:36999382:+	chr20	36998164	36998324	+	chr20	36999382	36999449	+	TAF	ENST00000217407	28,22,5	14432-14434	19154-19156	BRCA,CHOL,HNSC,KIRC,LIHC,LUAD,SARC,STAD
chr20:3776526:+>chr20:3779059:+	chr20	3776424	3776526	+	chr20	3779059	3779110	+	TSF	ENST00000344256,ENST00000379598,ENST00000245960,ENST00000439880,ENST00000340833	34,34,34,7,7,7,7,9,9,9,9,9,34,34,7	14435-14449	19157-19171	CESC,LUAD,LUSC,OV,STAD,THYM
chr20:390021:+>chr20:390525:+	chr20	389765	390021	+	chr20	390525	390669	+	TSF	ENST00000411647,ENST00000382214,ENST00000356286,ENST00000415942,ENST00000475269	83,83,83,83,83,85,8,8,8,8,8,85,85,85,85	14450-14464	19172-19186	BLCA,BRCA,COAD,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,READ,STAD,UCEC
chr20:410425:+>chr20:410994:+	chr20	410407	410425	+	chr20	410994	411074	+	TSF	ENST00000356286,ENST00000353660,ENST00000382181	5,5,5,6,6,6	14465-14470	19187-19192	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,READ,SARC,SKCM,TGCT,THYM,UCEC,UCS,UVM
chr20:42232068:+>chr20:42232400:+	chr20	42231978	42232068	+	chr20	42232400	42232529	+	TSF	ENST00000373030,ENST00000373039	30,30,26,26,15,15	14471-14476	19193-19198	CHOL,LIHC,OV
chr20:42342751:+>chr20:42343774:+	chr20	42342728	42342751	+	chr20	42343774	42343923	+	TSF	ENST00000396863,ENST00000217026	8,8,1,1,6,6	14477-14482	19199-19204	BLCA,BRCA,DLBC,LUSC,TGCT
chr20:42754145:->chr20:42747263:-	chr20	42754178	42754145	-	chr20	42747263	42747145	-	TSF	ENST00000372980	11,11,10	14483-14485	19205-19207	SARC
chr20:43253289:->chr20:43252970:-	chr20	43253349	43253289	-	chr20	43252970	43252843	-	TSF	ENST00000372874,ENST00000536532,ENST00000537820	6,10,10,10,19,19,19,6,6	14486-14494	19208-19216	THYM
chr20:43561175:+>chr20:43561713:+	chr20	43561150	43561175	+	chr20	43561713	43561826	+	TSF	ENST00000255136,ENST00000217073	8,8,8,8,8,8	14495-14500	19217-19222	BLCA,BRCA,CESC,CHOL,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,READ,STAD,THCA,UCEC,UCS
chr20:43561175:+>chr20:43564032:+	chr20	43561150	43561175	+	chr20	43564032	43564138	+	TSF	ENST00000255136,ENST00000217073,ENST00000372824,ENST00000372819,ENST00000217075,ENST00000479873,ENST00000372826	8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,8	14501-14521	19223-19243	BLCA,BRCA,CESC,CHOL,KIRC,KIRP,LUAD,LUSC,READ,SKCM,TGCT,UCEC
chr20:43581345:+>chr20:43586978:+	chr20	43581305	43581345	+	chr20	43586978	43587052	+	TAF	ENST00000372826	13,4,13	14522-14524	19244-19246	BLCA,BRCA,CESC,CHOL,DLBC,GBM,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS

Table 19

chr20:43919514:->chr20:43882374:-	chr20	43919547	43919514	-	chr20	43882374	43882216	-	TAF	ENST00000338380	11,11,7	14525-14527	19247-19249	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS,UVM
chr20:43941632:+>chr20:43942108:+	chr20	43941352	43941632	+	chr20	43942108	43942245	+	TSF	ENST00000372741,ENST00000372743,ENST00000343694	9,9,9,1,13,13,13,1,1	14528-14536	19250-19258	LIHC,OV,PAAD
chr20:44019785:+>chr20:44037100:+	chr20	44019144	44019785	+	chr20	44037100	44037106,44037101,44037246	+	TSF	ENST00000419593,ENST00000458187,ENST00000452133,ENST00000372720,ENST00000372710,ENST00000443296	8,8,8,8,8,64,64,8,64,64,64,64	14537-14548	19259-19270	ACC,GBM,LGG,PCPG
chr20:44409038:->chr20:44404241:-	chr20	44409050	44409038	-	chr20	44404241	44404056	-	TSF	ENST00000337205,ENST00000243938,ENST00000372632,ENST00000372630	4,4,4,4,4,4,4,3,3,3,3	14549-14560	19271-19282	LUAD,PRAD,SARC
chr20:44410081:->chr20:44404241:-	chr20	44410585	44410081	-	chr20	44404241	44404056	-	TAF	ENST00000337205,ENST00000243938,ENST00000372632,ENST00000372630	5,5,5,5,43,43,43,43,2,2,2,2	14561-14572	19283-19294	BRCA,CESC,COAD,KICH,KIRC,LUAD,LUSC,MESO,PAAD,SARC,STAD
chr20:44421070:+>chr20:44421316:+	chr20	44420870	44421070	+	chr20	44421316	44421386	+	TAF	ENST00000372622,ENST00000449078,ENST00000456939	2,5,5,5,24,2,24,2,24	14573-14581	19295-19303	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr20:44442685:+>chr20:44443023:+	chr20	44442461	44442685	+	chr20	44443023	44443109	+	TSF	ENST00000356455,ENST00000405520,ENST00000335046,ENST00000372568	7,7,7,74,74,74,74,20,20,20,7	14582-14593	19304-19315	KIRC,LUAD,LUSC,OV,STAD
chr20:44453823:->chr20:44453473:-	chr20	44453914	44453823	-	chr20	44453473	44453422	-	TAF	ENST00000372555	19,8,30	14594-14596	19316-19318	BRCA,HNSC,LUAD,LUSC,SARC,THYM,UCEC,UCS
chr20:44501827:+>chr20:44520650:+	chr20	44501760	44501827	+	chr20	44520650	44520666	+	TSF	ENST00000606788,ENST00000372484,ENST00000354880,ENST00000191018,ENST00000607482,ENST00000372459	13,13,13,13,22,22,22,22,13,22,13,22	14597-14608	19319-19330	OV,STAD
chr20:44540197:->chr20:44540102:-	chr20	44540290	44540197	-	chr20	44540102	44539992	-	TSF	ENST00000542937	31,24,30	14609-14611	19331-19333	GBM,LGG,THYM
chr20:44752755:+>chr20:44755279:+	chr20	44752656	44752755	+	chr20	44755279	44755340	+	TSF	ENST00000372285,ENST00000466205	33,33,11,11,32,32	14612-14617	19334-19339	BLCA,DLBC,MESO,THYM
chr20:45138244:->chr20:45133379:-	chr20	45138455	45138244	-	chr20	45133379	45133253	-	TSF	ENST00000593880,ENST00000347606	11,11,2,8,2,8	14618-14623	19340-19345	BLCA,BRCA,GBM,KIRC,KIRP,LGG,LUSC,OV,PRAD,READ,STAD,TGCT,THYM,UCS
chr20:45199619:->chr20:45195029:-	chr20	45199908	45199619	-	chr20	45195029	45194868	-	TSF	ENST00000396360,ENST00000435032,ENST00000290317,ENST00000279027,ENST00000472148,ENST00000413164,ENST00000495082,ENST00000468915	7,7,7,7,7,7,7,1,1,1,1,1,1,1,7,1	14624-14639	19346-19361	SKCM
chr20:45199655:->chr20:45195029:-	chr20	45199908	45199655	-	chr20	45195029	45194868	-	TSF	ENST00000396360,ENST00000435032,ENST00000290317,ENST00000279027,ENST00000472148,ENST00000413164,ENST00000495082,ENST00000468915	54,54,54,54,54,54,54,54	14640-14647	19362-19369	SKCM
chr20:45337192:+>chr20:45353680:+	chr20	45337040	45337192	+	chr20	45353680	45354963	+	TSF	ENST00000359271	51,37,25	14648-14650	19370-19372	BLCA,BRCA,COAD,HNSC,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,TGCT,THCA,UCEC

Table 10

chr20:48264298:->chr20:48263615:-	chr20	48264330	48264298	-	chr20	48263615	48263502	-	TSF	ENST00000371711	11,1	14651-14652	19373-19374	KIRC,KIRP,LUAD,OV,STAD
chr20:48328898:->chr20:48273239:-	chr20	48328930	48328898	-	chr20	48273239	48273105	-	TSF	ENST00000371711	5,1	14653-14654	19375-19376	KIRC,KIRP,LUSC,OV,SARC,SKCM,STAD
chr20:48763055:->chr20:48760158:-	chr20	48763148	48763055	-	chr20	48760158	48760039	-	TSF	ENST00000341698,ENST00000557021,ENST00000371650,ENST00000371652,ENST00000371658	10,10,31,31,31,31,31,30,30,30,30,10,10,10,30	14655-14669	19377-19391	HNSC,STAD
chr20:49434474:+>chr20:49434748:+	chr20	49434330	49434474	+	chr20	49434748	49434819	+	TAF	ENST00000358791,ENST00000262591,ENST00000371608,ENST00000609336,ENST00000445038,ENST00000463943	48,48,48,48,48,48,20,20,12,12,12,12,12,12,20,20,20,20	14670-14687	19392-19409	BLCA,BRCA,DLBC,STAD,THCA
chr20:49556310:->chr20:49552799:-	chr20	49556441	49556310	-	chr20	49552799	49552685	-	TSF	ENST00000371588,ENST00000371582,ENST00000371584,ENST00000371583,ENST00000413082	19,19,19,19,19,43,43,43,43,1,1,1,1,1,43	14688-14702	19410-19424	BLCA,BRCA,CESC,COAD,LUSC,OV,STAD
chr20:5090905:->chr20:5090091:-	chr20	5090931	5090905	-	chr20	5090091	5089978	-	TSF	ENST00000342308	9,8,8	14703-14705	19425-19427	BRCA,OV,UVM
chr20:52614848:->chr20:52612589:-	chr20	52615231	52614848	-	chr20	52612589	52612431	-	TSF	ENST00000448484,ENST00000371440,ENST00000371435,ENST00000395961	5,5,13,13,13,13,19,19,19,19,5,5	14706-14717	19428-19439	GBM,LGG,STAD
chr20:55815709:->chr20:55803477:-	chr20	55815985	55815709	-	chr20	55803477	55803285	-	TSF	ENST00000395863,ENST00000395864,ENST00000450594,ENST00000433911	18,39,39,7,7,7,7,18,39,18,18,39	14718-14729	19440-19451	SARC,SKCM
chr20:55970039:+>chr20:55982599:+	chr20	55970013	55970039	+	chr20	55982599	55982903	+	TAF	ENST00000356208,ENST00000440234,ENST00000371219	9,9,8,8,8,8,8,9,8	14730-14738	19452-19460	BLCA,BRCA,CESC,LUSC,OV,SARC,STAD,UCEC
chr20:56265035:->chr20:56234753:-	chr20	56265149	56265035	-	chr20	56234753	56234599	-	TSF	ENST00000341744,ENST00000347215,ENST00000414037,ENST00000395819	17,17,27,27,27,27,15,15,15,17,17,15	14739-14750	19461-19472	BLCA,BRCA,CESC,CHOL,COAD,KIRC,LUSC,PAAD,PRAD,SARC,STAD,UCEC
chr20:5741274:+>chr20:5903657:+	chr20	5741057	5741274	+	chr20	5903657	5904746,6	+	TSF	ENST00000378961,ENST00000455042	31,18,5,5,31,18	14751-14756	19473-19478	PCPG
chr20:57466186:+>chr20:57485409:+	chr20	57466178	57466186	+	chr20	57485409	57485456	+	TSF	ENST00000371100,ENST00000371102,ENST00000371095,ENST00000354359,ENST00000371085,ENST00000265620,ENST00000306090	3,3,3,3,3,3,3,2,2,2,2,2,2,2,2,2,2,2,2,2,2	14757-14777	19479-19499	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,TGCT,THCA,THYM,UCS,UVM
chr20:57466605:+>chr20:57480438:+	chr20	57466589	57466605	+	chr20	57480438	57480535	+	TSF	ENST00000371100,ENST00000371102,ENST00000450130,ENST00000349036,ENST00000604005,ENST00000371095,ENST00000354359,ENST00000371085,ENST00000265620,ENST00000306090,ENST00000603546	5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5	14778-14810	19500-19532	GBM,OV,PCPG,STAD
chr20:58403213:+>chr20:58411560:+	chr20	58402976	58403213	+	chr20	58411560	58411615	+	TSF	ENST00000359926,ENST00000371015,ENST00000395639,ENST00000541461,ENST00000355648,ENST00000361300,ENST00000395636	79,79,79,79,79,79,79,12,12,12,12,12,12,12,13,13,13,13,13,13,13	14811-14831	19533-19553	HNSC,LUAD,LUSC,THYM
chr20:5874991:+>chr20:5903286:+	chr20	5874978	5874991	+	chr20	5903286	5904746,6	+	TSF	ENST00000378961,ENST00000455042	4,4,4,4	14832-14835	19554-19557	PCPG
chr20:5874991:+>chr20:5903727:+	chr20	5874978	5874991	+	chr20	5903727	5904746	+	TSF	ENST00000378961	4,4	14836-14837	19558-19559	PCPG
chr20:5874991:+>chr20:5903856:+	chr20	5874978	5874991	+	chr20	5903856	5904746	+	TSF	ENST00000378961	4,4	14838-14839	19560-19561	PCPG

chr20:60878105:+>chr20:60878775:+	chr20	60878087	60878105	+	chr20	60878775	60878837	+	TSF	ENST00000253003	6,6,5	14840-14842	19562-19564	BLCA,BRCA,CESC,COAD,HNSC,LGG,LIHC,LUAD,LUSC,OV,SKCM,STAD,TGCT,THYM,UCEC
chr20:60878105:+>chr20:60878778:+	chr20	60878087	60878105	+	chr20	60878778	60878837	+	TSF	ENST00000253003	6,6,5	14843-14845	19565-19567	BRCA,DLBC,HNSC,LIHC,LUAD,LUSC,OV,SARC,SKCM,STAD
chr20:60878105:+>chr20:60882818:+	chr20	60878087	60878105	+	chr20	60882818	60882884	+	TSF	ENST00000253003	6,6,5	14846-14848	19568-19570	OV,STAD
chr20:61301405:+>chr20:61303102:+	chr20	61301271	61301405	+	chr20	61303102	61303245	+	TAF	ENST00000217159,ENST00000370507,ENST00000451793	21,21,21,10,10,10,8,8,8	14849-14857	19571-19579	ACC,BLCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,PAAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UVM
chr20:61475132:->chr20:61473449:-	chr20	61475759	61475132	-	chr20	61473449	61473327	-	TAF	ENST00000335351	11,30,15	14858-14860	19580-19582	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr20:62065933:->chr20:62065256:-	chr20	62066436	62065933	-	chr20	62065256	62065163	-	TSF	ENST00000357249,ENST00000359125,ENST00000354587,ENST00000359689,ENST00000360480,ENST00000370224,ENST00000344462,ENST00000344425	3,77,77,77,77,81,81,81,3,1,81,81,3,3,77,77,77,81,81,81,3,3,3,3,3,77,81	14861-14884	19583-19606	GBM,HNSC,KIRP,LGG,LUAD,PCPG,PRAD,SARC,UCEC
chr20:62631628:+>chr20:62632430:+	chr20	62631560	62631628	+	chr20	62632430	62632592	+	TSF	ENST00000535781,ENST00000266079	23,13,13,23	14885-14888	19607-19610	OV
chr20:62631735:+>chr20:62632430:+	chr20	62631560	62631735	+	chr20	62632430	62632592	+	TSF	ENST00000535781,ENST00000266079	8,8,4,4,13,13	14889-14894	19611-19616	OV,UCEC
chr20:62647374:+>chr20:62648076:+	chr20	62647199	62647374	+	chr20	62648076	62648198	+	TSF	ENST00000535781,ENST00000266079	12,12,25,25	14895-14898	19617-19620	BLCA,HNSC,LUSC,THYM
chr20:634468:->chr20:629561:-	chr20	634541	634468	-	chr20	629561	629358,63	-	TSF	ENST00000381962,ENST00000488788	4,12,12,2,4,2	14899-14904	19621-19626	ACC,BLCA,CESC,HNSC,LIHC,LUAD,LUSC,STAD
chr20:8625147:+>chr20:8626749:+	chr20	8624404	8625147	+	chr20	8626749	8626828	+	TSF	ENST00000378641,ENST00000338037,ENST00000378637,ENST00000404098	12,12,26,26,26,26,37,37,37,37,12,12	14905-14916	19627-19638	BLCA,HNSC,LUSC,TGCT
chr20:8625184:+>chr20:8626749:+	chr20	8624404	8625184	+	chr20	8626749	8626828	+	TSF	ENST00000378641,ENST00000338037,ENST00000378637,ENST00000404098	24,24,24,24,1,1,49,49,49,49,1,1	14917-14928	19639-19650	BLCA,HNSC,LUSC
chr20:8625224:+>chr20:8626749:+	chr20	8624404	8625224	+	chr20	8626749	8626828	+	TSF	ENST00000378641,ENST00000338037,ENST00000378637,ENST00000404098	1,1,1,1,37,37,37,37,14,14,14,14	14929-14940	19651-19662	BLCA,HNSC,LUSC,TGCT
chr20:8625264:+>chr20:8626749:+	chr20	8624404	8625264	+	chr20	8626749	8626828	+	TSF	ENST00000378641,ENST00000338037,ENST00000378637,ENST00000404098	1,1,1,1,27,27,27,27,14,14,14,14	14941-14952	19663-19674	HNSC,LUSC
chr20:9289105:+>chr20:9317773:+	chr20	9289042	9289105	+	chr20	9317773	9317853	+	TSF	ENST00000407043,ENST00000441846,ENST00000334005,ENST00000378473,ENST00000437503,ENST00000416836,ENST00000278655,ENST00000414679,ENST00000378493,ENST00000378501	13,13,13,13,13,13,13,13,13,13,19,20,20,20,20,20,20,20,20,20,19,19,19,19,19,19,19,19,19,19	14953-14982	19675-19704	BRCA,COAD,KIRC,KIRP,LUSC,PCPG,PRAD,READ,THCA,UVM

Table 19

chr20:9311205:+>chr20:9317773:+	chr20	9311166	9311205	+	chr20	9317773	9317853	+	TSF	ENST00000407043,ENST00000441846,ENST00000334005,ENST00000378473,ENST00000437503,ENST00000416836,ENST00000278655,ENST00000414679,ENST00000378493,ENST00000378501	2,2,2,2,2,2,2,2,2,2,13,12,12,12,12,12,12,12,12,13,13,13,13,13,13,13,13,13,13	14983-15012	19705-19734	COAD,READ
chr21:19289717:+>chr21:19628826:+	chr21	19289273	19289717	+	chr21	19628826	19629135	+	TAF	ENST00000299295,ENST00000543733	5,5,4,4,6,6	15013-15018	19735-19740	BLCA,BRCA,CESC,DLBC,HNSC,KIRC,LUAD,LUSC,MESO,OV,TGCT,UCEC
chr21:19400289:+>chr21:19628826:+	chr21	19399995	19400289	+	chr21	19628826	19629135	+	TSF	ENST00000299295,ENST00000543733	6,6,24,24,3,3	15019-15024	19741-19746	BRCA,HNSC,LUAD,LUSC,OV,TGCT,UCEC
chr21:27438253:->chr21:27425664:-	chr21	27438394	27438253	-	chr21	27425664	27425552	-	TAF	ENST00000346798,ENST00000354192,ENST00000348990,ENST00000357903,ENST00000358918,ENST00000359726,ENST00000448388,ENST00000440126,ENST00000439274,ENST00000448850	8,8,4,4,4,4,4,4,4,4,4,4,42,42,42,42,42,42,42,42,42,42,8,8,8,8,8,8,8,8	15025-15054	19747-19776	HNSC,LGG,LUSC,OV,SARC,TGCT,THCA
chr21:27453597:->chr21:27425664:-	chr21	27453972	27453597	-	chr21	27425664	27425552	-	TSF	ENST00000346798,ENST00000354192,ENST00000348990,ENST00000357903,ENST00000358918,ENST00000359726,ENST00000448388,ENST00000440126,ENST00000439274,ENST00000448850	69,69,44,44,44,44,44,44,44,44,44,44,10,10,10,10,10,10,10,10,10,10,69,69,69,69,69,69	15055-15084	19777-19806	TGCT
chr21:27462572:->chr21:27462388:-	chr21	27462714	27462572	-	chr21	27462388	27462259	-	TSF	ENST00000346798,ENST00000354192,ENST00000348990,ENST00000357903,ENST00000358918,ENST00000359726,ENST00000448388,ENST00000440126,ENST00000439274	47,47,47,47,47,47,47,47,47,47,22,22,22,22,22,22,22,22,47,47,47,47,47,47	15085-15111	19807-19833	HNSC,KIRC,TGCT
chr21:27478879:->chr21:27462388:-	chr21	27478957	27478879	-	chr21	27462388	27462259	-	TSF	ENST00000346798,ENST00000354192,ENST00000348990,ENST00000357903,ENST00000358918,ENST00000359726,ENST00000448388,ENST00000440126,ENST00000439274	11,11,11,11,11,11,11,11,11,26,26,12,12,12,12,12,12,12,12,26,26,26,26,26,26	15112-15138	19834-19860	TGCT
chr21:30381948:->chr21:30380942:-	chr21	30382014	30381948	-	chr21	30380942	30380716	-	TSF	ENST00000493196	13,21	15139-15140	19861-19862	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,PCPG,SARC,SKCM,UCS,UVM
chr21:30806689:+>chr21:30969890:+	chr21	30806412	30806689	+	chr21	30969890	30970014	+	TAF	ENST00000422809,ENST00000468059	7,39,19,19,7,39	15141-15146	19863-19868	BLCA,BRCA,DLBC,GBM,HNSC,KIRC,LUSC,MESO,OV,SARC,SKCM,STAD,THYM
chr21:33707025:->chr21:33706643:-	chr21	33707090	33707025	-	chr21	33706643	33706472	-	TSF	ENST00000382751	22,21,1	15147-15149	19869-19871	SKCM,UVM
chr21:34624553:+>chr21:34624967:+	chr21	34624467	34624553	+	chr21	34624967	34625135	+	TSF	ENST00000382264,ENST00000382241,ENST00000404220,ENST00000342136,ENST00000342101,ENST00000413881,ENST00000443073,ENST00000433395,ENST00000432231	2,2,9,9,9,9,9,9,9,9,9,28,28,28,28,28,28,28,28,28,28,2,2,2,2,2,2	15150-15176	19872-19898	BLCA,BRCA,GBM,HNSC,KIRC,LUAD,OV,READ,STAD
chr21:34823642:->chr21:34823170:-	chr21	34823925	34823642	-	chr21	34823170	34823125	-	TSF	ENST00000420455,ENST00000542230	21,21,2,2,16,16	15177-15182	19899-19904	PRAD

Table 19

chr21:34901873:->chr21:34901243:-	chr21	34902064	34901873	-	chr21	34901243	34901156	-	TSF	ENST00000381815,ENST00000381831,ENST00000381839,ENST00000424203,ENST00000361093	43,43,43,9,9,9,9,43,43	15183-15192	19905-19914	BLCA,BRCA,CESC,LUAD,OV,STAD,TGCT
chr21:37509497:+>chr21:37510123:+	chr21	37509492	37509497	+	chr21	37510123	37510230	+	TSF	ENST00000290354	2,1,1	15193-15195	19915-19917	BLCA,LUSC,TGCT
chr21:38272892:->chr21:38269431:-	chr21	38273278	38272892	-	chr21	38269431	38269160	-	TSF	ENST00000336648,ENST00000399120	73,73,26,26,5,5	15196-15201	19918-19923	BLCA,BRCA,CESC,COAD,LUAD,LUSC,PRAD,READ,SKCM,UCEC
chr21:39513404:+>chr21:39526527:+	chr21	39513161	39513404	+	chr21	39526527	39526623	+	TSF	ENST00000357704,ENST00000400477	37,37,55,55	15202-15205	19924-19927	BRCA,LIHC,LUAD,PCPG,SARC,UCEC
chr21:39513404:+>chr21:39528398:+	chr21	39513161	39513404	+	chr21	39528398	39528496	+	TSF	ENST00000357704,ENST00000400477	37,37,55,55	15206-15209	19928-19931	BRCA,CESC,LIHC,LUAD,LUSC,PCPG,SARC,THCA,UCEC
chr21:40180187:+>chr21:40181959:+	chr21	40180090	40180187	+	chr21	40181959	40182030	+	TSF	ENST00000360214,ENST00000360938,ENST00000432278,ENST00000456966	31,31,31,31,32,32,32,32	15210-15217	19932-19939	BLCA,CESC,COAD,HNSC,LUAD,LUSC,READ,STAD
chr21:40851064:+>chr21:40871749:+	chr21	40851014	40851064	+	chr21	40871749	40871841	+	TSF	ENST00000380637,ENST00000380634,ENST00000440288,ENST00000380631,ENST00000333634,ENST00000423596,ENST00000447939	17,17,17,17,17,16,16,16,16,16,17,17,16	15218-15231	19940-19953	KICH,LGG
chr21:42597622:+>chr21:42598193:+	chr21	42597177	42597622	+	chr21	42598193	42598281	+	TAF	ENST00000328735,ENST00000330333,ENST00000347667	14,14,14,44,44,44,16,16,16	15232-15240	19954-19962	BLCA,BRCA,CESC,CHOL,COAD,GBM,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr21:42597622:+>chr21:42598199:+	chr21	42597177	42597622	+	chr21	42598199	42598281	+	TSF	ENST00000328735,ENST00000330333,ENST00000347667	14,14,14,44,44,44,16,16,16	15241-15249	19963-19971	BRCA,CESC,COAD,HNSC,KICH,KIRC,LIHC,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,UVM
chr21:42609159:+>chr21:42609440:+	chr21	42609094	42609159	+	chr21	42609440	42609656	+	TAF	ENST00000328735,ENST00000330333,ENST00000347667	11,11,11,21,21,21,21,21,21	15250-15258	19972-19980	BRCA,KICH,KIRC,KIRP,SARC,STAD,UCEC
chr21:42609191:+>chr21:42609440:+	chr21	42609094	42609191	+	chr21	42609440	42609656	+	TSF	ENST00000328735,ENST00000330333,ENST00000347667	21,32,32,32,32,32,32,21,21	15259-15267	19981-19989	KICH,KIRC,KIRP,OV,SKCM,STAD
chr21:42802535:+>chr21:42807910:+	chr21	42801857	42802535	+	chr21	42807910	42807956	+	TSF	ENST00000398600,ENST00000398598,ENST00000455164,ENST00000424365,ENST00000417963	79,79,79,79,79,11,11,11,11,11	15268-15277	19990-19999	OV,STAD
chr21:42802535:+>chr21:42811621:+	chr21	42801857	42802535	+	chr21	42811621	42811775	+	TSF	ENST00000398600,ENST00000398598,ENST00000455164,ENST00000424365,ENST00000417963,ENST00000288383	79,79,79,79,79,11,11,11,11,11,11,79,79	15278-15289	20000-20011	BLCA,BRCA,CESC,HNSC,KIRC,LGG,MESO,OV,SKCM,STAD,TGCT,THCA,THYM
chr21:42822398:+>chr21:42823094:+	chr21	42822313	42822398	+	chr21	42823094	42823170	+	TSF	ENST00000398600,ENST00000398598,ENST00000455164,ENST00000288383	13,13,13,13,7,7,7,7,12,12,12,12	15290-15301	20012-20023	BRCA,DLBC,LUAD,OV,STAD,TGCT
chr21:42882427:->chr21:42870116:-	chr21	42882831	42882427	-	chr21	42870116	42870046	-	TSF	ENST00000398585	7,32	15302-15303	20024-20025	PRAD
chr21:42882786:->chr21:42870116:-	chr21	42882831	42882786	-	chr21	42870116	42870046	-	TAF	ENST00000398585	15,15,6	15304-15306	20026-20028	PRAD
chr21:42883790:->chr21:42852529:-	chr21	42884787	42883790	-	chr21	42852529	42852403	-	TSF	ENST00000332149,ENST00000398585,ENST00000458356,ENST00000454499,ENST00000424093	7,7,7,7,7,46,46,46,31,31,31,31,31,31,46,46	15307-15321	20029-20043	PRAD

Table 19

chr21:42883790:->chr21:42861520:-	chr21	42884787	42883790	-	chr21	42861520	42861434	-	TSF	ENST00000332149,ENST00000398585,ENST00000458356,ENST00000454499,ENST00000424093	7,7,7,7,7,46,46,46,31,31,31,31,31,46,46	15322-15336	20044-20058	PRAD
chr21:42883790:->chr21:42866505:-	chr21	42884787	42883790	-	chr21	42866505	42866283	-	TSF	ENST00000332149,ENST00000398585,ENST00000458356,ENST00000454499,ENST00000424093,ENST00000455813	7,7,7,7,7,7,46,46,46,46,46,46,31,31,31,31,31,31	15337-15354	20059-20076	PRAD
chr21:43945289:+>chr21:43945886:+	chr21	43944863	43945289	+	chr21	43945886	43945967	+	TSF	ENST00000398341,ENST00000352133	48,48,31,31,104,104	15355-15360	20077-20082	BLCA,BRCA,CESC,COAD,GBM,KICH,LUAD,LUSC,OV,PAAD,PRAD,SARC,STAD,TGCT,UCEC,UCS
chr21:44193728:+>chr21:44195390:+	chr21	44193636	44193728	+	chr21	44195390	44195403	+	TSF	ENST00000335512,ENST00000539837,ENST00000291539,ENST00000328862,ENST00000335440,ENST00000380328,ENST00000398225,ENST00000398227,ENST00000398229,ENST00000398232,ENST00000398234,ENST00000398236,ENST00000349112,ENST00000398224	31,31,31,31,31,31,31,31,31,31,31,31,31,21,21,21,21,21,21,21,21,21,21,21,21,21,21,1,1,1,1,1,1,1,1,1,1,1,1,1,1	15361-15402	20083-20124	BLCA,PRAD,SARC,UCEC
chr21:44307069:+>chr21:44317037:+	chr21	44307009	44307069	+	chr21	44317037	44317157	+	TAF	ENST00000354250,ENST00000340344	20,20,17,19,17,19	15403-15408	20125-20130	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr21:45165696:+>chr21:45165960:+	chr21	45165597	45165696	+	chr21	45165960	45166006	+	TSF	ENST00000468090,ENST00000291565,ENST00000467908	15,15,15,9,9,9,22,22,22	15409-15417	20131-20139	BLCA,OV,STAD,UCEC
chr21:46238584:->chr21:46234019:-	chr21	46238665	46238584	-	chr21	46234019	46233891	-	TAF	ENST00000397898,ENST00000332859,ENST00000411651,ENST00000397893	14,14,14,14,9,26,26,26,9,9	15418-15429	20140-20151	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,UCEC,UCS,UVM
chr21:47278724:+>chr21:47316122:+	chr21	47278635	47278724	+	chr21	47316122	47316276	+	TSF	ENST00000400314,ENST00000400310,ENST00000449640,ENST00000400308,ENST00000400309	14,14,14,14,14,29,29,29,29,29,16,16,16,16,16	15430-15444	20152-20166	LUAD,PCPG,SARC,STAD,THYM
chr21:47410419:+>chr21:47410687:+	chr21	47410358	47410419	+	chr21	47410687	47410740	+	TAF	ENST00000361866	20,2	15445-15446	20167-20168	BLCA,BRCA,COAD,DLBC,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS
chr21:47675316:->chr21:47674758:-	chr21	47675413	47675316	-	chr21	47674758	47674690	-	TAF	ENST00000397708,ENST00000291688	32,32,32,32,32,32	15447-15452	20169-20174	ACC,BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr21:47741060:->chr21:47738134:-	chr21	47741082	47741060	-	chr21	47738134	47737926	-	TAF	ENST00000291691	7,3	15453-15454	20175-20176	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LUSC,OV,SARC,STAD,TGCT,THYM,UCEC

chr22:19971196:->chr22:19969614:-	chr22	19971218	19971196	-	chr22	19969614	19969456	-	TAF	ENST00000263207,ENST00000344269,ENST00000401994,ENST00000406522,ENST00000406259	2,2,2,2,2,7,7,7,7,7	15455-15464	20177-20186	BLCA,BRCA,CESC,CHOL,GBM,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,STAD,TGCT,THCA,UCEC
chr22:21355808:->chr22:21355700:-	chr22	21355965	21355808	-	chr22	21355700	21355545	-	TSF	ENST00000215742,ENST00000399133	52,52,52,52,27,27	15465-15470	20187-20192	BLCA,BRCA,HNSC,LUAD,LUSC,OV,PRAD,SARC,THCA
chr22:21355835:->chr22:21355700:-	chr22	21355965	21355835	-	chr22	21355700	21355545	-	TSF	ENST00000215742,ENST00000399133	43,43,18,18	15471-15474	20193-20196	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KICH,LGG,LIHC,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,TGCT,UCS,UVM
chr22:21575317:->chr22:21570956:-	chr22	21575439	21575317	-	chr22	21570956	21570760	-	TAF	ENST00000405188,ENST00000401924,ENST00000424627	1,1,1,34,34,34,23,23,23	15475-15483	20197-20205	BLCA,BRCA,CESC,KIRC,KIRP,LUAD,LUSC,THCA,THYM,UCEC
chr22:21972670:+>chr22:21975804:+	chr22	21972574	21972670	+	chr22	21975804	21975958	+	TSF	ENST00000458578,ENST00000342192,ENST00000545681	1,1,1,31,31,31	15484-15489	20206-20211	GBM,OV,STAD
chr22:22140985:->chr22:22127271:-	chr22	22141039	22140985	-	chr22	22127271	22127162	-	TSF	ENST00000215832,ENST00000398822,ENST00000544786	9,9,9,17,17,17	15490-15495	20212-20217	HNSC,LGG,LUSC,STAD
chr22:22512867:+>chr22:22516765:+	chr22	22512559	22512867	+	chr22	22516765	22517074	+	TSF	ENST00000390284	22,18,35	15496-15498	20218-20220	BRCA,HNSC,LUAD,LUSC,PAAD,STAD,THCA
chr22:22542331:+>chr22:22550370:+	chr22	22542244	22542331	+	chr22	22550370	22550770	+	TSF	ENST00000390285	12,6	15499-15500	20221-20222	BLCA,BRCA,LUAD,LUSC,PAAD,SARC,SKCM,STAD,THYM
chr22:22899965:->chr22:22893511:-	chr22	22899971	22899965	-	chr22	22893511	22893185,22893189,22893274,22893481	-	TSF	ENST00000406503,ENST00000398743,ENST00000398741,ENST00000543184,ENST00000405655,ENST00000402697,ENST00000439106,ENST00000438888,ENST00000420709,ENST00000403441,ENST00000442481,ENST00000398743,ENST00000398741,ENST00000543184,ENST00000405655,ENST00000402697,ENST00000439106,ENST00000438888,ENST00000420709,ENST00000406503,ENST00000442481,ENST00000403441	2,2,2,2,2,2,2,2,2,2,2,2,2,2,1,1,1,1,1,1,1,1,1,1,1,2,2,2,2,2,2,2	15501-15533	20223-20255	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr22:23978123:->chr22:23974160:-	chr22	23978396	23978123	-	chr22	23974160	23974003	-	TSF	ENST00000317749	5,37,58	15534-15536	20256-20258	KIRC,KIRP,TGCT,THCA
chr22:24899562:+>chr22:24906717:+	chr22	24899415	24899562	+	chr22	24906717	24906811	+	TAF	ENST00000413389,ENST00000326010	43,43,30,30,47,47	15537-15542	20259-20264	DLBC,KIRC,LIHC,LUSC,THYM
chr22:24967475:+>chr22:24967884:+	chr22	24967426	24967475	+	chr22	24967884	24967945	+	TSF	ENST00000215829,ENST00000404603	5,5,16,16,16,16	15543-15548	20265-20270	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LIHC,LUSC,PRAD,STAD,TGCT,THCA,THYM
chr22:25020113:+>chr22:25023399:+	chr22	25020098	25020113	+	chr22	25023399	25023586	+	TSF	ENST00000248923,ENST00000412658,ENST00000400382,ENST00000400383,ENST00000400380,ENST00000406383,ENST00000425895	5,5,5,5,5,5,5,5,5,5,5,4,4,4,4,4,4,4,4,5,5	15549-15569	20271-20291	BRCA,CHOL,COAD,KIRC,KIRP,LIHC,PRAD
chr22:28326682:->chr22:28310335:-	chr22	28326858	28326682	-	chr22	28310335	28310305	-	TSF	ENST00000335272,ENST00000320996,ENST00000455418,ENST00000436663	5,5,5,5,7,7,15,15,15,15,7,7	15570-15581	20292-20303	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,STAD

Table 19

chr22:29117506:->chr22:29115473:-	chr22	29117574	29117506	-	chr22	29115473	29115383	-	TSF	ENST00000348295,ENST00000382566,ENST00000382578,ENST00000404276,ENST00000328354,ENST00000405598,ENST00000382580,ENST00000433728,ENST00000448511,ENST00000402731,ENST00000403642,ENST00000439200,ENST00000348295,ENST00000382566,ENST00000382578,ENST00000404276,ENST00000328354,ENST00000405598,ENST00000382580,ENST00000433728,ENST00000402731,ENST00000403642,ENST00000439200,ENST00000448511	23,23,23,23,23,23,23,23,23,13,13,13,13,13,13,13,13,13,13,13,23	15582-15605	20304-20327	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PAAD,READ,SARC,TGCT,THYM,UCEC,UCS
chr22:29194546:->chr22:29193193:-	chr22	29194595	29194546	-	chr22	29193193	29193065	-	TSF	ENST00000216037,ENST00000403532,ENST00000405219,ENST00000344347	7,7,7,7,16,16,16,16,16,16,16,16	15606-15617	20328-20339	OV,STAD
chr22:31359211:->chr22:31354680:-	chr22	31359261	31359211	-	chr22	31354680	31354627	-	TSF	ENST00000397641	17,7,16	15618-15620	20340-20342	BLCA,CHOL,COAD,LGG,LUAD,LUSC,PAAD,PRAD,READ,STAD
chr22:32013525:+>chr22:32014101:+	chr22	32013425	32013525	+	chr22	32014101	32014147	+	TSF	ENST00000414585,ENST00000443326,ENST00000540643,ENST00000432498,ENST00000443011,ENST00000400289,ENST00000400288	19,16,16,16,16,16,16,16,9,19,19,19,9,19,19,9,9,9,9,9	15621-15641	20343-20363	BRCA,LIHC,THYM
chr22:36007617:->chr22:36007153:-	chr22	36007706	36007617	-	chr22	36007153	36006931	-	TAF	ENST00000397326,ENST00000397328,ENST00000359787,ENST00000406324,ENST00000443033,ENST00000451685,ENST00000447607,ENST00000419229	30,30,30,30,30,30,30,30,29,29,29,29,10,10,10,10,10,10,10,10,29,29,29,29	15642-15665	20364-20387	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,PRAD,SARC,SKCM,STAD
chr22:36652346:+>chr22:36653129:+	chr22	36652278	36652346	+	chr22	36653129	36653182	+	TSF	ENST00000397278,ENST00000422706,ENST00000319136,ENST00000422471,ENST00000438034,ENST00000427990,ENST00000397279,ENST00000433768,ENST00000440669,ENST00000431184	10,10,10,10,14,14,14,14,14,14,14,14,14,14,10,10,10,10,10,10	15666-15685	20388-20407	BLCA,CESC,COAD,HNSC,KIRC,LIHC,LUAD,LUSC,STAD,UCEC
chr22:37211536:->chr22:37211279:-	chr22	37211553	37211536	-	chr22	37211279	37211147	-	TSF	ENST00000417718,ENST00000216200,ENST00000406910,ENST00000443735	6,6,6,6,5,5,5,5,5,5,5,5	15686-15697	20408-20419	KICH,KIRC,KIRP
chr22:37211547:->chr22:37211279:-	chr22	37211553	37211547	-	chr22	37211279	37211147	-	TSF	ENST00000417718,ENST00000216200,ENST00000406910,ENST00000443735	2,2,2,2,2,2,1,1,1,1,2,2	15698-15709	20420-20431	BRCA,KICH,KIRC,KIRP
chr22:37407942:->chr22:37407366:-	chr22	37408003	37407942	-	chr22	37407366	37407068	-	TSF	ENST00000403892,ENST00000249042	20,20,20,20	15710-15713	20432-20435	BLCA,CESC,COAD,HNSC,KIRC,LGG,LIHC,LUSC,STAD,UCEC
chr22:37422119:+>chr22:37425257:+	chr22	37422073	37422119	+	chr22	37425257	37425555	+	TAF	ENST00000401419,ENST00000397129,ENST00000404802,ENST00000341116,ENST00000429360,ENST00000397225	12,12,12,12,12,12,3,3,3,3,3,3,9,9,9,9,9,9	15714-15731	20436-20453	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PRAD,READ,STAD,TGCT,UCS

Table 19

chr22:37423947:+>chr22:37425305:+	chr22	37423933	37423947	+	chr22	37425305	37425555	+	TSF	ENST00000401419,ENST00000397129,ENST00000404802,ENST00000341116,ENST00000429360,ENST00000397225	5,5,5,5,5,5,4,4,4,4,4,4	15732-15743	20454-20465	BLCA,BRCA,LIHC,LUSC
chr22:37624648:->chr22:37622843:-	chr22	37624777	37624648	-	chr22	37622843	37622713	-	TSF	ENST00000249071,ENST00000406508,ENST00000405484,ENST00000441619	18,18,18,43,43,43,43,42,42,42,18,42	15744-15755	20466-20477	BRCA,DLBC,HNSC,STAD,THYM
chr22:37963951:+>chr22:37964115:+	chr22	37963762	37963951	+	chr22	37964115	37964827	+	TSF	ENST00000249014	63,12,5	15756-15758	20478-20480	BRCA,CESC,CHOL,COAD,LIHC,LUSC,OV,SARC,STAD
chr22:38166230:+>chr22:38167657:+	chr22	38166164	38166230	+	chr22	38167657	38167743	+	TSF	ENST00000406386,ENST00000403663	22,22,13,13,21,21	15759-15764	20481-20486	BLCA,BRCA,CESC,COAD,KIRP,LIHC,LUAD,LUSC,OV,PAAD,SARC,STAD,THYM,UCEC,UVM
chr22:38182899:+>chr22:38206034:+	chr22	38182207	38182899	+	chr22	38206034	38206164	+	TSF	ENST00000323205,ENST00000248924,ENST00000445195,ENST00000451984	12,12,12,12,39,39,39,39,37,37,37	15765-15776	20487-20498	BLCA,CESC,HNSC,LUSC,OV,SARC,TGCT,THCA
chr22:38253153:+>chr22:38254686:+	chr22	38253087	38253153	+	chr22	38254686	38254747	+	TSF	ENST00000412331,ENST00000381683,ENST00000414316,ENST00000406934,ENST00000451427	22,22,6,6,6,6,21,21,21,21,22,22,22	15777-15791	20499-20513	OV,STAD
chr22:38253185:+>chr22:38254686:+	chr22	38253087	38253185	+	chr22	38254686	38254747	+	TSF	ENST00000412331,ENST00000381683,ENST00000414316,ENST00000406934,ENST00000451427	33,33,33,33,33,16,16,16,16,1,1,16,1,1,1	15792-15806	20514-20528	OV,STAD
chr22:38620354:->chr22:38617717:-	chr22	38620420	38620354	-	chr22	38617717	38617476	-	TSF	ENST00000361906,ENST00000361684	22,22,13,13,21,21	15807-15812	20529-20534	GBM,KIRC,OV,STAD,UCEC
chr22:39228705:->chr22:39224514:-	chr22	39228782	39228705	-	chr22	39224514	39224292	-	TSF	ENST00000333039	19,25,21	15813-15815	20535-20537	LGG,LUSC
chr22:40269979:->chr22:40231963:-	chr22	40270249	40269979	-	chr22	40231963	40231845	-	TSF	ENST00000325157	4,7	15816-15817	20538-20539	SARC,SKCM
chr22:40269979:->chr22:40258012:-	chr22	40270249	40269979	-	chr22	40258012	40257770	-	TSF	ENST00000325157	63,4,7	15818-15820	20540-20542	GBM,SARC,SKCM
chr22:40896995:->chr22:40859290:-	chr22	40897378	40896995	-	chr22	40859290	40859225	-	TSF	ENST00000422851	41,28,127	15821-15823	20543-20545	CESC,HNSC,LUAD,LUSC,SARC,STAD
chr22:40898130:->chr22:40859290:-	chr22	40898710	40898130	-	chr22	40859290	40859225	-	TSF	ENST00000422851	28,44,42	15824-15826	20546-20548	BLCA,CESC,HNSC,LUAD,LUSC,SARC,STAD
chr22:40898220:->chr22:40859290:-	chr22	40898710	40898220	-	chr22	40859290	40859225	-	TSF	ENST00000422851	27,14,12	15827-15829	20549-20551	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,STAD,TGCT
chr22:42083757:->chr22:42076368:-	chr22	42083838	42083757	-	chr22	42076368	42076248	-	TAF	ENST00000355257,ENST00000215956,ENST00000401959,ENST00000402458	7,7,7,7,2,2,2,2	15830-15837	20552-20559	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr22:42511212:->chr22:42483179:-	chr22	42511426	42511212	-	chr22	42483179	42483064	-	TSF	ENST00000602404,ENST00000498737	8,8,71,71,6,6	15838-15843	20560-20565	BRCA,CESC,KIRP,LUAD,LUSC,OV,STAD,TGCT,UCEC,UCS
chr22:43223414:->chr22:43223005:-	chr22	43223671	43223414	-	chr22	43223005	43222946	-	TSF	ENST00000263245,ENST00000429508,ENST00000437119,ENST00000453516,ENST00000454099	32,32,32,32,32,18,18,18,18,18,10,10,10,10	15844-15858	20566-20580	ACC,BRCA,CESC,PRAD,UVM
chr22:43552306:+>chr22:43557058:+	chr22	43552142	43552306	+	chr22	43557058	43557196	+	TSF	ENST00000337554,ENST00000428336,ENST00000329563	23,23,7,7,47,47,47,23,7	15859-15867	20581-20589	BLCA,CESC,HNSC,LUSC,STAD,THYM

Table 10

chr22:45064685:+>chr22:45098372:+	chr22	45064651	45064685	+	chr22	45098372	45098488	+	TAF	ENST00000403581,ENST00000336985,ENST00000403696,ENST00000431834,ENST00000361473,ENST00000352766,ENST00000517296	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11	15868-15888	20590-20610	BRCA,GBM,HNSC,KIRC,KIRP,LGG,LIHC,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,UVM
chr22:45814802:+>chr22:45818170:+	chr22	45814683	45814802	+	chr22	45818170	45818288	+	TSF	ENST00000342894,ENST00000538017	40,40,39,39,7,7	15889-15894	20611-20616	BLCA,CESC
chr22:45815239:+>chr22:45818170:+	chr22	45814683	45815239	+	chr22	45818170	45818288	+	TAF	ENST00000342894,ENST00000538017	6,6,12,12,19,19	15895-15900	20617-20622	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,LGG,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,UCEC,UCS
chr22:45815239:+>chr22:45821828:+	chr22	45814683	45815239	+	chr22	45821828	45822055	+	TSF	ENST00000342894,ENST00000538017	6,6,12,12,19,19	15901-15906	20623-20628	BRCA,CESC,HNSC,UCEC
chr22:46768553:->chr22:46765701:-	chr22	46768579	46768553	-	chr22	46765701	46765589	-	TSF	ENST00000262738	9,8,4	15907-15909	20629-20631	BRCA,HNSC,KIRC,LUAD,LUSC,STAD
chr22:46778374:->chr22:46777947:-	chr22	46778472	46778374	-	chr22	46777947	46777743	-	TSF	ENST00000262738	11,23,1	15910-15912	20632-20634	STAD
chr22:51019459:->chr22:51019089:-	chr22	51019509	51019459	-	chr22	51019089	51018994	-	TSF	ENST00000406938	17,5	15913-15914	20635-20636	KIRP,LUSC,PAAD,TGCT,THCA,THYM
chr3:100462018:+>chr3:100463677:+	chr3	100461913	100462018	+	chr3	100463677	100463775	+	TSF	ENST00000418917,ENST00000490574,ENST00000240851,ENST00000476228	4,4,4,4,2,2,2,2,11,11,11,11	15915-15926	20637-20648	ACC,BRCA,CESC,CHOL,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr3:10111811:+>chr3:10114555:+	chr3	10111144	10111811	+	chr3	10114555	10114665	+	TSF	ENST00000287647,ENST00000383806,ENST00000383807,ENST00000419585,ENST00000421731	26,26,26,26,26,37,12,12,12,12,12,37,37,37,37	15927-15941	20649-20663	TGCT
chr3:10113019:+>chr3:10114555:+	chr3	10112843	10113019	+	chr3	10114555	10114665	+	TSF	ENST00000287647,ENST00000383806,ENST00000383807,ENST00000419585,ENST00000421731	44,44,44,44,44,9,9,9,9,9,5,5,5,5,5	15942-15956	20664-20678	TGCT
chr3:10973389:+>chr3:10974837:+	chr3	10973219	10973389	+	chr3	10974837	10974939	+	TSF	ENST00000254488	57,32,41	15957-15959	20679-20681	GBM,LGG
chr3:11060955:+>chr3:11061899:+	chr3	11060777	11060955	+	chr3	11061899	11062008	+	TSF	ENST00000287766	1,37	15960-15961	20682-20683	LGG
chr3:111533310:+>chr3:111564668:+	chr3	111532965	111533310	+	chr3	111564668	111564716	+	TSF	ENST00000393934	1,10,4	15962-15964	20684-20686	HNSC,KIRC,SARC
chr3:112200031:->chr3:112198616:-	chr3	112200904	112200031	-	chr3	112198616	112198302	-	TSF	ENST00000334529,ENST00000383680	5,8,8,9,9,5	15965-15970	20687-20692	OV,TGCT
chr3:113449590:->chr3:113442939:-	chr3	113450271	113449590	-	chr3	113442939	113442806	-	TSF	ENST00000240922,ENST00000477813,ENST00000497255,ENST00000481432,ENST00000493900,ENST00000478020	5,5,5,5,5,5,8,8,8,8,8,8,36,36,36,36,36,36	15971-15988	20693-20710	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,LIHC,LUSC,STAD,TGCT,UCEC
chr3:115350159:+>chr3:115394860:+	chr3	115350112	115350159	+	chr3	115394860	115395457	+	TSF	ENST00000305124,ENST00000393780	2,2,15,15,15,15	15989-15994	20711-20716	GBM,LGG,PCPG,SARC,THCA
chr3:115827368:->chr3:115805403:-	chr3	115829645	115827368	-	chr3	115805403	115805171	-	TSF	ENST00000490035,ENST00000333617,ENST00000539563,ENST00000474851	20,20,20,20,8,8,8,8,14,14,14,14	15995-16006	20717-20728	BLCA,BRCA,CESC,HNSC,LGG,LUSC,READ,SARC,SKCM,STAD,TGCT
chr3:115829500:->chr3:115805403:-	chr3	115829645	115829500	-	chr3	115805403	115805171	-	TSF	ENST00000490035,ENST00000333617,ENST00000539563,ENST00000474851	23,44,44,44,44,18,18,18,18,23,23,23	16007-16018	20729-20740	BLCA,HNSC,LUSC,STAD,TGCT
chr3:11645798:->chr3:11643496:-	chr3	11645847	11645798	-	chr3	11643496	11643307	-	TSF	ENST00000273038,ENST00000430365,ENST00000404339,ENST00000445411,ENST00000418000,ENST00000458499,ENST00000417206,ENST00000419541	4,4,4,4,4,4,4,4,7,7,7,16,16,16,16,16,16,16,16,7,7,7,7,7	16019-16042	20741-20764	ACC,BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,THYM,UCEC,UCS

Table 19

chr3:122499557:->chr3:122496753:-	chr3	122500000	122499557	-	chr3	122496753	122496568	-	TSF	ENST00000383659,ENST00000306103	12,12,27,27,14,14	16043-16048	20765-20770	TGCT
chr3:122499597:->chr3:122496753:-	chr3	122500000	122499597	-	chr3	122496753	122496568	-	TSF	ENST00000383659,ENST00000306103	1,1,27,27,14,14	16049-16054	20771-20776	TGCT
chr3:122499637:->chr3:122496753:-	chr3	122500000	122499637	-	chr3	122496753	122496568	-	TSF	ENST00000383659,ENST00000306103	14,1,1,37,37,14	16055-16060	20777-20782	HNSC,TGCT
chr3:122499677:->chr3:122496753:-	chr3	122500000	122499677	-	chr3	122496753	122496568	-	TSF	ENST00000383659,ENST00000306103	1,1,49,49,24,24	16061-16066	20783-20788	HNSC,LUAD,TGCT
chr3:122652013:->chr3:122647905:-	chr3	122652679	122652013	-	chr3	122647905	122647843	-	TSF	ENST00000357599,ENST00000475244,ENST00000195173,ENST00000451055,ENST00000393583	16,16,16,16,16,19,19,29,29,29,29,19,19,19	16067-16081	20789-20803	KIRC,KIRP,LGG,LUSC,OV,PCPG
chr3:122863676:+>chr3:122864369:+	chr3	122863450	122863676	+	chr3	122864369	122864384	+	TAF	ENST00000489923,ENST00000316218	35,35,20,7,20,7	16082-16087	20804-20809	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr3:123694754:->chr3:123694387:-	chr3	123694808	123694754	-	chr3	123694387	123694226,123694233,123694273	-	TSF	ENST00000184183,ENST00000405845,ENST00000467907,ENST00000460743	8,8,8,8,3,3,17,17,17,17,3,3	16088-16099	20810-20821	BRCA,SKCM,UVM
chr3:12440989:+>chr3:12447381:+	chr3	12440939	12440989	+	chr3	12447381	12447580	+	TAF	ENST00000397010,ENST00000309576,ENST00000397015,ENST00000397012,ENST00000397026,ENST00000397000,ENST00000539812,ENST00000287820	17,17,17,17,17,17,17,16,16,16,16,16,16,16	16100-16115	20822-20837	BLCA,BRCA,COAD,KIRP,PAAD,READ,SARC,STAD,THCA
chr3:124560517:->chr3:124560398:-	chr3	124560577	124560517	-	chr3	124560398	124560230	-	TAF	ENST00000296181,ENST00000488466,ENST00000496703,ENST00000608657	20,20,20,20,20,20,19,20,19,19,20,19	16116-16127	20838-20849	BRCA,PRAD
chr3:124597450:->chr3:124592378:-	chr3	124597514	124597450	-	chr3	124592378	124592293	-	TSF	ENST00000296181	21,21,7	16128-16130	20850-20852	BRCA,CHOL,LIHC,LUSC,OV,PAAD,SARC,STAD
chr3:124690838:->chr3:124689645:-	chr3	124690942	124690838	-	chr3	124689645	124689496	-	TAF	ENST00000311127,ENST00000487661	9,9,22,22,34,34	16131-16136	20853-20858	BRCA,CESC,HNSC,KIRC,LUAD,LUSC,MESO,SARC,STAD,THCA,THYM
chr3:124838710:->chr3:124837700:-	chr3	124838831	124838710	-	chr3	124837700	124837613	-	TSF	ENST00000430155,ENST00000393469,ENST00000423114,ENST00000469902,ENST00000314584,ENST00000479826	19,19,19,19,40,40,40,40,40,40,17,17,17,17,17,19,19	16137-16154	20859-20876	BLCA,LUAD,LUSC,MESO,STAD
chr3:124842374:->chr3:124829179:-	chr3	124842655	124842374	-	chr3	124829179	124829033	-	TSF	ENST00000430155,ENST00000393469,ENST00000423114,ENST00000469902,ENST00000314584,ENST00000479826	10,10,10,10,7,7,7,7,7,37,37,37,37,37,10,10,7,37	16155-16172	20877-20894	LUSC,MESO
chr3:124842374:->chr3:124839530:-	chr3	124842655	124842374	-	chr3	124839530	124839443	-	TAF	ENST00000430155,ENST00000393469,ENST00000423114,ENST00000469902,ENST00000479826	10,10,10,10,10,7,7,7,7,7	16173-16182	20895-20904	BLCA,BRCA,CESC,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,UCEC,UCS
chr3:125266880:->chr3:125266436:-	chr3	125267022	125266880	-	chr3	125266436	125266250	-	TSF	ENST00000296220	12,1	16183-16184	20905-20906	KIRC,KIRP,LGG,SARC
chr3:125869634:->chr3:125869374:-	chr3	125869700	125869634	-	chr3	125869374	125869249	-	TAF	ENST00000273450,ENST00000472186,ENST00000452905,ENST00000393434,ENST00000393431	13,13,13,13,21,21,21,21,21,13	16185-16194	20907-20916	ACC,BLCA,CESC,KICH,KIRC,KIRP,LGG,LIHC,PCPG
chr3:125898558:->chr3:125879845:-	chr3	125898576	125898558	-	chr3	125879845	125879696	-	TAF	ENST00000273450	6,6,5	16195-16197	20917-20919	KIRC,KIRP,LGG,LIHC

Table 19

chr3:126602182:+>chr3:126633523:+	chr3	126601624	126602182	+	chr3	126633523	126633593	+	TSF	ENST00000290913,ENST00000508789,ENST00000513253	4,26,26,26,4,4	16198-16203	20920-20925	BLCA,BRCA,CESC,COAD,GBM,HNSC,LUAD,LUSC,MESO,OV,PAAD,PCPG,THYM,UCEC,UCS
chr3:126729222:+>chr3:126730801:+	chr3	126729058	126729222	+	chr3	126730801	126731001	+	TSF	ENST00000251772,ENST00000393409	25,25,36,36,21,21	16204-16209	20926-20931	BLCA,CESC,HNSC,LUAD,LUSC,SKCM,UCEC
chr3:128352306:->chr3:128351000:-	chr3	128352356	128352306	-	chr3	128351000	128350791	-	TSF	ENST00000296255,ENST00000497289	17,17,7,7,16,16	16210-16215	20932-20937	BLCA,BRCA,HNSC,LUSC,OV,STAD
chr3:128359849:->chr3:128356948:-	chr3	128359904	128359849	-	chr3	128356948	128356642	-	TAF	ENST00000296255	18,6,11	16216-16218	20938-20940	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr3:128721589:->chr3:128706672:-	chr3	128721625	128721589	-	chr3	128706672	128706459	-	TSF	ENST00000511438,ENST00000265068,ENST00000515659	12,12,12,12,12,12	16219-16224	20941-20946	BRCA,READ,STAD
chr3:129019508:+>chr3:129020793:+	chr3	129019458	129019508	+	chr3	129020793	129020985,129020977,129020857,129020848	+	TSF	ENST00000509042,ENST00000383463,ENST00000417226,ENST00000510314,ENST00000502878,ENST00000389735,ENST00000509551,ENST00000511665	17,17,17,17,17,17,17,7,16,16,16,16,16,16,16,16,16,7,7,7,7,7,7,7	16225-16248	20947-20970	BLCA,BRCA,CESC,DLBC,HNSC,LIHC,LUAD,LUSC,MESO,OV,STAD,THYM
chr3:130586877:+>chr3:130649260:+	chr3	130586141	130586877	+	chr3	130649260	130649370	+	TSF	ENST00000393221,ENST00000533801,ENST00000510168,ENST00000508532,ENST00000505072,ENST00000509662,ENST00000328560,ENST00000428331,ENST00000359644,ENST00000422190	49,49,49,49,49,49,49,49,49,14,14,14,14,14,14,14,14,14,14,1,1,1,1,1,1,1,1	16249-16278	20971-21000	BLCA,BRCA,CESC,HNSC,LUSC,TGCT
chr3:130586917:+>chr3:130649260:+	chr3	130586141	130586917	+	chr3	130649260	130649370	+	TSF	ENST00000393221,ENST00000533801,ENST00000510168,ENST00000508532,ENST00000505072,ENST00000509662,ENST00000328560,ENST00000428331,ENST00000359644,ENST00000422190	12,12,27,27,27,27,27,27,27,27,27,14,14,14,14,14,14,14,14,14,14,12,12,12,12,12,12	16279-16308	21001-21030	BRCA,HNSC,LUSC
chr3:13060650:->chr3:12983365:-	chr3	13060700	13060650	-	chr3	12983365	12983071	-	TAF	ENST00000273221,ENST00000450726,ENST00000429247	17,17,17,3,16,16,6,3,3	16309-16317	21031-21039	ACC,KIRP,LGG,SARC,STAD,THYM
chr3:131308085:->chr3:131306426:-	chr3	131308480	131308085	-	chr3	131306426	131306328	-	TSF	ENST00000512055,ENST00000429747,ENST00000512332,ENST00000511604,ENST00000502818	59,59,59,59,59,20,20,20,20,20,3,3,3,3,3	16318-16332	21040-21054	PRAD
chr3:132014543:+>chr3:132047111:+	chr3	132014279	132014543	+	chr3	132047111	132047206	+	TSF	ENST00000336375,ENST00000495911,ENST00000475741,ENST00000351273	15,15,15,15,2,50,50,50,50,2,2,2	16333-16344	21055-21066	COAD,LIHC,LUSC,STAD
chr3:132047426:+>chr3:132050491:+	chr3	132047242	132047426	+	chr3	132050491	132050577	+	TSF	ENST00000336375,ENST00000475741,ENST00000351273	7,7,7,27,27,27	16345-16350	21067-21072	PRAD
chr3:132052733:+>chr3:132056300:+	chr3	132052633	132052733	+	chr3	132056300	132056398	+	TSF	ENST00000336375,ENST00000495911,ENST00000351273	33,33,33,1,1,1,11,1,11	16351-16359	21073-21081	PRAD
chr3:132376938:->chr3:132363740:-	chr3	132377006	132376938	-	chr3	132363740	132363641	-	TSF	ENST00000355458,ENST00000264990,ENST00000485198,ENST00000481970	18,18,18,18,13,13,13,13	16360-16367	21082-21089	KIRC
chr3:133465758:+>chr3:133467256:+	chr3	133465755	133465758	+	chr3	133467256	133467428,133467513,133467369	+	TAF	ENST00000402696,ENST00000414694,ENST00000494430,ENST00000485977	1,1,1,1,1,1,1,1	16368-16375	21090-21097	CHOL,KIRC,LGG,LIHC

Table 19

chr3:133466865:+>chr3:133467256:+	chr3	133466701	133466865	+	chr3	133467256	133467428,13346753,133467369	+	TSF	ENST00000402696,ENST00000414694,ENST00000494430,ENST00000485977	29,29,29,29,1,1,1,1	16376-16383	21098-21105	LGG,LIHC
chr3:133880716:->chr3:133878217:-	chr3	133881128	133880716	-	chr3	133878217	133878081	-	TSF	ENST00000460933,ENST00000296084,ENST00000427044	4,4,4,17,17,17,41,41,41	16384-16392	21106-21114	BLCA,CESC,COAD,KIRC,KIRP,OV,PAAD,READ,SARC,UCEC,UCS
chr3:134857845:+>chr3:134872994:+	chr3	134857832	134857845	+	chr3	134872994	134873118	+	TSF	ENST00000398015	4,4,4	16393-16395	21115-21117	GBM,LGG,LUSC,PCPG,SARC
chr3:136680413:+>chr3:136699308:+	chr3	136680342	136680413	+	chr3	136699308	136699434	+	TSF	ENST00000329582	24,16	16396-16397	21118-21119	CESC,HNSC,KIRC
chr3:139086379:->chr3:139085987:-	chr3	139086428	139086379	-	chr3	139085987	139085857	-	TSF	ENST00000333188,ENST00000507777,ENST00000512309	7,7,7,16,16,16,16,16	16398-16406	21120-21128	BLCA,BRCA,CESC,HNSC,KICH,KIRC,LIHC,LUAD,LUSC,OV,READ,STAD,THCA
chr3:13917401:->chr3:13916670:-	chr3	13918009	13917401	-	chr3	13916670	13916444	-	TSF	ENST00000285018	39,14,1	16407-16409	21129-21131	BLCA,LUAD,OV,UCEC
chr3:139244462:->chr3:139237364:-	chr3	139244518	139244462	-	chr3	139237364	139237263	-	TSF	ENST00000232219	18,18,14	16410-16412	21132-21134	CESC,GBM,HNSC,LGG,LIHC,LUSC,OV,PAAD,UCEC
chr3:139245400:->chr3:139237364:-	chr3	139245547	139245400	-	chr3	139237364	139237263	-	TSF	ENST00000232219	25,7	16413-16414	21135-21136	ACC,BRCA,CESC,GBM,HNSC,LGG,LUSC,OV,PCPG,SARC,UCEC
chr3:139250891:->chr3:139237364:-	chr3	139251153	139250891	-	chr3	139237364	139237263	-	TSF	ENST00000232219	87,2,7	16415-16417	21137-21139	CESC,OV,UCEC
chr3:141642345:+>chr3:141644373:+	chr3	141642134	141642345	+	chr3	141644373	141644543	+	TAF	ENST00000286371,ENST00000462082	24,24,9,9	16418-16421	21140-21143	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LUSC,OV,PCPG,PRAD,READ,SKCM,STAD
chr3:141719074:->chr3:141713983:-	chr3	141719378	141719074	-	chr3	141713983	141713862,14171390,141713913	-	TSF	ENST00000499676,ENST00000489671,ENST00000486111,ENST00000467072,ENST00000317104,ENST00000310282,ENST00000479040,ENST00000397991,ENST00000467667,ENST00000497579,ENST00000488107,ENST00000475734,ENST00000494358,ENST00000467634	5,5,5,5,5,5,5,5,5,5,5,5,3,3,3,3,3,3,3,3,3,3,5,3,5,3	16422-16449	21144-21171	THYM
chr3:141923059:->chr3:141917775:-	chr3	141923156	141923059	-	chr3	141917775	141917644	-	TSF	ENST00000492097,ENST00000480757,ENST00000392993,ENST00000544571	24,24,24,24,11,11,11,11	16450-16457	21172-21179	BRCA,LUSC,PRAD,STAD
chr3:1442077:+>chr3:1443117:+	chr3	1442010	1442077	+	chr3	1443117	1443229	+	TSF	ENST00000446702,ENST00000539053,ENST00000350110	22,22,22,10,10,10,9,9,9	16458-16466	21180-21188	KIRP,THCA
chr3:146129180:->chr3:146113708:-	chr3	146129390	146129180	-	chr3	146113708	146113692	-	TSF	ENST00000463633	20,4,13	16467-16469	21189-21191	TGCT
chr3:146237953:->chr3:146234954:-	chr3	146238022	146237953	-	chr3	146234954	146234793,14623487,146234936,146234945	-	TAF	ENST00000342435,ENST00000487389,ENST00000448787,ENST00000483300,ENST00000462666,ENST00000486631,ENST00000472349	2,2,2,2,2,2,5,5,5,11,11,11,11,11,5,5,5,11,5,11	16470-16490	21192-21212	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,UCEC,UCS
chr3:148570155:+>chr3:148575244:+	chr3	148570083	148570155	+	chr3	148575244	148575328	+	TSF	ENST00000491148,ENST00000282957	24,24,24,24	16491-16494	21213-21216	BRCA,PAAD
chr3:149090421:->chr3:149089654:-	chr3	149090578	149090421	-	chr3	149089654	149089474,14908944,149089616	-	TSF	ENST00000305366,ENST00000472441,ENST00000493348	20,42,42,29,29,29,20,20,42	16495-16503	21217-21225	BRCA,CESC,HNSC,LUAD,LUSC,MESO,STAD
chr3:149210837:+>chr3:149216509:+	chr3	149210772	149210837	+	chr3	149216509	149216698	+	TAF	ENST00000305354	12,8,21	16504-16506	21226-21228	CHOL,LIHC,LUAD,PAAD,STAD
chr3:150344146:+>chr3:150344797:+	chr3	150344095	150344146	+	chr3	150344797	150344921	+	TSF	ENST00000480740,ENST00000471696,ENST00000477889,ENST00000485923	17,17,17,17,14,14,14,14,16,16,16,16	16507-16518	21229-21240	BLCA,GBM,LGG,LUAD,LUSC

Table 19

chr3:150344471:+>chr3:150344797:+	chr3	150344303	150344471	+	chr3	150344797	150344921	+	TSF	ENST00000480740,ENST00000471696,ENST00000477889,ENST00000485923	56,56,56,56,54,54,54,54	16519-16526	21241-21248	GBM,HNSC,LGG,UCS,UVM
chr3:150463483:->chr3:150460485:-	chr3	150463581	150463483	-	chr3	150460485	150459928	-	TSF	ENST00000312960,ENST00000482706	33,32,32,1,1,33	16527-16532	21249-21254	OV,STAD
chr3:15096427:->chr3:15094974:-	chr3	15096823	15096427	-	chr3	15094974	15094887	-	TSF	ENST00000253686,ENST00000449354,ENST00000420267,ENST00000447299	65,5,10,10,10,6,5,5,65,65,5,5	16533-16544	21255-21266	DLBC,KICH,LUAD,SKCM,TGCT,THCA,UCS
chr3:155605320:+>chr3:155611307:+	chr3	155605105	155605320	+	chr3	155611307	155611488	+	TSF	ENST00000496455	13,4,1	16545-16547	21267-21269	BRCA,CESC,LUSC,OV,STAD
chr3:159455690:+>chr3:159482232:+	chr3	159455523	159455690	+	chr3	159482232	159482251,15948292,15948241,159482495,159482300,15948482888	+	TSF	ENST00000471575,ENST00000476809,ENST00000485419,ENST00000483486,ENST00000481715,ENST00000488898,ENST00000337808,ENST00000412423	13,50,30,13,13,13,50,50,50,50,50,50,50,30,30,30,30,30,30,30,13,13,13	16548-16571	21270-21293	KIRC,KIRP,LUSC,MESO,SARC
chr3:169042361:->chr3:168861620:-	chr3	169042432	169042361	-	chr3	168861620	168861486	-	TSF	ENST00000264674,ENST00000494292	14,11,11,23,23,14	16572-16577	21294-21299	BLCA,BRCA,CESC,HNSC,LUSC
chr3:170075551:+>chr3:170099032:+	chr3	170075519	170075551	+	chr3	170099032	170099129	+	TSF	ENST00000259119,ENST00000426052,ENST00000413427,ENST00000458537,ENST00000470571	11,11,11,10,10,10,10,10,10,10,10,10,10,11,11	16578-16592	21300-21314	BRCA,HNSC,PRAD,STAD
chr3:170097776:+>chr3:170099032:+	chr3	170097741	170097776	+	chr3	170099032	170099129	+	TSF	ENST00000259119,ENST00000426052,ENST00000413427,ENST00000458537,ENST00000470571	12,12,12,1,1,1,1,1,12,12	16593-16602	21315-21324	BLCA,BRCA,CESC,PAAD,PRAD,STAD
chr3:170144403:+>chr3:170150312:+	chr3	170144282	170144403	+	chr3	170150312	170150544	+	TSF	ENST00000064724	4,9,25	16603-16605	21325-21327	GBM,LGG
chr3:171427731:->chr3:171427499:-	chr3	171427764	171427731	-	chr3	171427499	171427350	-	TSF	ENST00000356327,ENST00000351298,ENST00000342215,ENST00000340989	2,2,2,2,11,11,11,11,6,6,6,6	16606-16617	21328-21339	TGCT
chr3:172098266:+>chr3:172098756:+	chr3	172098199	172098266	+	chr3	172098756	172098883	+	TAF	ENST00000415807,ENST00000336824,ENST00000416957	22,22,22,22,22,22,4,4,4	16618-16626	21340-21348	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,UCEC,UCS
chr3:175506380:+>chr3:175520793:+	chr3	175506179	175506380	+	chr3	175520793	175520991	+	TSF	ENST00000454872	10,38,6	16627-16629	21349-21351	PRAD
chr3:180632783:+>chr3:180651122:+	chr3	180632728	180632783	+	chr3	180651122	180651174	+	TAF	ENST00000357559,ENST00000445140,ENST00000480918,ENST00000484042	5,5,5,5,7,7,7	16630-16637	21352-21359	BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr3:182757101:->chr3:182756923:-	chr3	182757105	182757101	-	chr3	182756923	182756814	-	TSF	ENST00000265594,ENST00000492597,ENST00000497959,ENST00000539926,ENST00000476176	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	16638-16652	21360-21374	CHOL,KIRC,KIRP,LIHC,LUAD,LUSC
chr3:182833262:->chr3:182812393:-	chr3	182833330	182833262	-	chr3	182812393	182812347	-	TSF	ENST00000265594,ENST00000497830,ENST00000495767,ENST00000476176,ENST00000487634,ENST00000466650,ENST00000486226	22,22,20,22,22,22,22,22,22,22,22,22,20,20,22,22,20,20,22,20,20	16653-16673	21375-21395	BLCA,BRCA,CESC,DLBC,LGG,LIHC,LUAD,LUSC,OV,PCPG,STAD,TGCT,UCEC,UCS
chr3:183371877:+>chr3:183381246:+	chr3	183371827	183371877	+	chr3	183381246	183381430	+	TAF	ENST00000242810,ENST00000454652,ENST00000476808	17,17,17,16,16,5,5,5,16	16674-16682	21396-21404	ACC,BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PRAD,STAD,TGCT,THCA,UCS

Table 19

chr3:183460733:+>chr3:183465460:+	chr3	183460031	183460733	+	chr3	183465460	183465504	+	TSF	ENST00000305135	28,48,32	16683-16685	21405-21407	BRCA,HNSC,LUSC,TGCT
chr3:183680541:->chr3:183679442:-	chr3	183680609	183680541	-	chr3	183679442	183679299	-	TSF	ENST00000334444,ENST00000265586	23,13,13,23	16686-16689	21408-21411	HNSC,LUSC
chr3:183904948:+>chr3:183905185:+	chr3	183904878	183904948	+	chr3	183905185	183905231	+	TSF	ENST00000429586,ENST00000292808	22,22,1,1,23,23	16690-16695	21412-21417	PCPG
chr3:183966210:->chr3:183963600:-	chr3	183966288	183966210	-	chr3	183963600	183963501	-	TSF	ENST00000397676,ENST00000445626,ENST00000455059,ENST00000423996	19,19,19,26,26,26,23,23,23,23,19	16696-16707	21418-21429	BLCA,BRCA,HNSC,LIHC,LUSC,OV,SKCM,TGCT
chr3:183973607:+>chr3:183975261:+	chr3	183973543	183973607	+	chr3	183975261	183975544	+	TSF	ENST00000324557,ENST00000402825	21,21,21,21	16708-16711	21430-21433	BRCA,CESC,HNSC,KIRC,LIHC,LUSC,OV,SARC,TGCT,UCEC
chr3:184083362:+>chr3:184084505:+	chr3	184083167	184083362	+	chr3	184084505	184084588	+	TSF	ENST00000456318,ENST00000438240,ENST00000455712,ENST00000452961,ENST00000296223,ENST00000429568	56,56,56,56,56,56,7,7,7,7,7,7	16712-16723	21434-21445	ACC,BLCA,BRCA,CESC,DLBC,HNSC,KIRC,LIHC,LUAD,LUSC,MESO,OV,STAD,TGCT,UCS
chr3:184640271:+>chr3:184642650:+	chr3	184639788	184640271	+	chr3	184642650	184642769	+	TSF	ENST00000287546,ENST00000437079,ENST00000436792,ENST00000446204	4,4,4,4,7,7,7,7	16724-16731	21446-21453	BLCA,BRCA,CESC,HNSC,LUSC,OV,STAD,TGCT
chr3:184749503:+>chr3:184766267:+	chr3	184749371	184749503	+	chr3	184766267	184766347	+	TSF	ENST00000287546,ENST00000437079,ENST00000436792,ENST00000446204	15,15,15,15,2,2,2,2,7,7,7,7	16732-16743	21454-21465	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRP,LGG,LUSC,SARC,SKCM,UCEC
chr3:185370866:->chr3:185369956:-	chr3	185370915	185370866	-	chr3	185369956	185369882	-	TSF	ENST00000382199,ENST00000421047,ENST00000457616,ENST00000346192	7,7,7,7,16,16,16,16,16,16,16,16	16744-16755	21466-21477	HNSC,LUSC,OV,STAD
chr3:185410965:->chr3:185410550:-	chr3	185411133	185410965	-	chr3	185410550	185410487	-	TAF	ENST00000382199,ENST00000421047,ENST00000457616,ENST00000346192	17,17,17,13,13,13,13,4,4,4,4,17	16756-16767	21478-21489	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr3:186352397:+>chr3:186362540:+	chr3	186352354	186352397	+	chr3	186362540	186362709	+	TSF	ENST00000450521,ENST00000382134,ENST00000265029,ENST00000435961,ENST00000382136	14,14,14,14,1,1,1,1,14,14,14,14,14,14,1	16768-16782	21490-21504	LIHC
chr3:186988983:->chr3:186980508:-	chr3	186989069	186988983	-	chr3	186980508	186980331,186980469,186980502	-	TSF	ENST00000337774,ENST00000296280,ENST00000169293,ENST00000392470,ENST00000392475,ENST00000439271,ENST00000425937	17,28,28,28,28,28,28,1,1,1,1,1,17,17,17,17,17,1	16783-16803	21505-21525	GBM,LGG,LIHC,LUSC,SARC
chr3:187087144:+>chr3:187088576:+	chr3	187087097	187087144	+	chr3	187088576	187089161	+	TSF	ENST00000259030	16,15,13	16804-16806	21526-21528	BRCA,HNSC,KIRC,LIHC,LUSC,OV
chr3:187088050:+>chr3:187088576:+	chr3	187088030	187088050	+	chr3	187088576	187089161	+	TSF	ENST00000259030	7,6,6	16807-16809	21529-21531	BRCA,KIRC,LUSC,PAAD
chr3:189567255:+>chr3:189582021:+	chr3	189566580	189567255	+	chr3	189582021	189582207	+	TSF	ENST00000264731,ENST00000382063,ENST00000418709,ENST00000320472,ENST00000392460,ENST00000440651,ENST00000354600,ENST00000434928,ENST00000437221,ENST00000392463,ENST00000392461,ENST00000449992,ENST00000456148	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,29,29,29,29,29,16,16,16,16,16,16,16,16,16,16,16,16,16,29,29,29,29,29,29,29,29,29	16810-16848	21532-21570	BLCA,HNSC,LUSC
chr3:190065532:->chr3:190030825:-	chr3	190065748	190065532	-	chr3	190030825	190030661	-	TSF	ENST00000295522	29,58,1	16849-16851	21571-21573	HNSC,LUSC

Table 19

chr3:191872988:->chr3:191861916:-	chr3	191873117	191872988	-	chr3	191861916	191861798	-	TSF	ENST00000445105,ENST00000264730,ENST00000454309,ENST00000440901,ENST00000450716,ENST00000430714,ENST00000448795	21,21,21,21,21,21,15,15,15,15,15,15,7,7,7,7,7,7,21,15	16852-16872	21574-21594	BRCA,CESC,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUSC,OV,PRAD,TGCT,THCA,THYM,UCEC
chr3:191873032:->chr3:191861916:-	chr3	191873117	191873032	-	chr3	191861916	191861798	-	TSF	ENST00000445105,ENST00000264730,ENST00000454309,ENST00000440901,ENST00000450716,ENST00000430714,ENST00000448795	6,6,6,6,6,6,28,28,28,28,28,28,28,28	16873-16886	21595-21608	BRCA,GBM,KIRP,LIHC,LUSC,OV,PRAD,THCA,THYM,UCEC
chr3:195445067:+>chr3:195451551:+	chr3	195444683	195445067	+	chr3	195451551	195453443	+	TAF	ENST00000447234,ENST00000320736,ENST00000436408	4,10,10,10,4,4	16887-16892	21609-21614	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,READ,SARC,STAD,THCA
chr3:195447395:+>chr3:195451551:+	chr3	195447345	195447395	+	chr3	195451551	195453443	+	TSF	ENST00000447234,ENST00000320736,ENST00000436408	17,17,17,16,16,16	16893-16898	21615-21620	KICH,KIRC,KIRP
chr3:195593261:->chr3:195591058:-	chr3	195593372	195593261	-	chr3	195591058	195591052	-	TSF	ENST00000416152,ENST00000381916,ENST00000333602,ENST00000428187,ENST00000392400	14,14,14,14,14,28,28,28,28,28,36,36,36,36,36	16899-16913	21621-21635	BLCA,BRCA,CESC,HNSC,LGG,LIHC,LUSC,OV,PAAD,PRAD,STAD,TGCT,THCA
chr3:195797990:->chr3:195796439:-	chr3	195798106	195797990	-	chr3	195796439	195796326	-	TSF	ENST00000420415,ENST00000360110,ENST00000392396	20,20,20,8,8,8,3,3,3	16914-16922	21636-21644	CESC,HNSC,LUSC
chr3:196453642:+>chr3:196454798:+	chr3	196453456	196453642	+	chr3	196454798	196455007,196455051,196454981	+	TSF	ENST00000426755,ENST00000392391,ENST00000314118,ENST00000296333,ENST00000421265,ENST00000451319	20,8,8,8,8,8,8,20,20,20,20,20,20	16923-16934	21645-21656	BRCA,LUSC,OV,SARC,STAD
chr3:197640160:->chr3:197639620:-	chr3	197640178	197640160	-	chr3	197639620	197639546	-	TSF	ENST00000265239,ENST00000455191	5,5,2,2,5,5	16935-16940	21657-21662	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LGG,LUAD,LUSC,OV,PAAD,UCEC,UCS
chr3:197680531:+>chr3:197680874:+	chr3	197680391	197680531	+	chr3	197680874	197681018	+	TAF	ENST00000464167,ENST00000448864,ENST00000442341	32,32,32,2,2,9,9,9,2	16941-16949	21663-21671	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr3:31045927:->chr3:30903257:-	chr3	31046348	31045927	-	chr3	30903257	30903085	-	TSF	ENST00000282538,ENST00000454381	15,15,9,29,29,9	16950-16955	21672-21677	PCPG
chr3:31668931:+>chr3:31670790:+	chr3	31668605	31668931	+	chr3	31670790	31670903	+	TSF	ENST00000295770	31,22,29	16956-16958	21678-21680	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,PRAD,READ,SARC,STAD,TGCT
chr3:32324151:+>chr3:32398865:+	chr3	32323981	32324151	+	chr3	32398865	32399038	+	TSF	ENST00000307526	23,16,56	16959-16961	21681-21683	BLCA,BRCA,COAD,LUAD,OV,PRAD,READ,SARC,STAD
chr3:32535322:->chr3:32533378:-	chr3	32535582	32535322	-	chr3	32533378	32533202	-	TSF	ENST00000205636	63,3	16962-16963	21684-21685	LUSC,OV
chr3:33550447:->chr3:33543260:-	chr3	33550559	33550447	-	chr3	33543260	33543144	-	TAF	ENST00000468888,ENST00000399362,ENST00000307312,ENST00000359576,ENST00000480013,ENST00000461133,ENST00000487553	5,5,5,5,5,5,5,32,32,32,32,32,32,32,7,7,7,7,7	16964-16984	21686-21706	ACC,BRCA,CESC,GBM,KICH,LGG,LUAD,PCPG,PRAD,READ
chr3:33555942:->chr3:33552256:-	chr3	33556001	33555942	-	chr3	33552256	33552050	-	TSF	ENST00000468888,ENST00000399362,ENST00000307312,ENST00000359576,ENST00000480013,ENST00000461133	7,7,7,7,7,7,9,9,9,9,9,9,16,16,16,16,16,16	16985-17002	21707-21724	GBM,LGG

Table 19

chr3:38538420:+>chr3:38539120:+	chr3	38538147	38538420	+	chr3	38539120	38539175	+	TSF	ENST00000436414,ENST00000287675,ENST00000431472,ENST00000454803,ENST00000457367,ENST00000453767,ENST00000450732	3,11,11,11,11,11,11,23,3,23,23,23,23,3,3,3,23,3,3	17003-17023	21725-21745	GBM,LUSC
chr3:39374955:+>chr3:39453486:+	chr3	39374892	39374955	+	chr3	39453486	39453552	+	TSF	ENST00000301821,ENST00000458478,ENST00000443003	18,18,18,2,2,20,20,2,20	17024-17032	21746-21754	BLCA,BRCA,KIRC,LUSC,OV,STAD,UCEC
chr3:39544405:+>chr3:39554874:+	chr3	39544232	39544405	+	chr3	39554874	39554913	+	TAF	ENST00000428261,ENST00000415443,ENST00000447324,ENST00000383754,ENST00000311042,ENST00000452959,ENST00000396228,ENST00000442631	58,58,58,58,58,58,14,14,14,14,14,14,14,14	17033-17046	21755-21768	GBM,LGG
chr3:40465763:+>chr3:40468763:+	chr3	40465676	40465763	+	chr3	40468763	40468999	+	TSF	ENST00000301825,ENST00000456402	3,3,1,1,28,28	17047-17052	21769-21774	BLCA,HNSC,LUSC
chr3:43498855:->chr3:43474219:-	chr3	43499158	43498855	-	chr3	43474219	43474103	-	TSF	ENST00000292246,ENST00000350459,ENST00000396091,ENST00000451430,ENST00000448045	51,51,51,51,51,48,48,48,48,7,7,7,7,7	17053-17067	21775-21789	KICH,KIRC,SARC,SKCM,THCA
chr3:45018242:+>chr3:45030632:+	chr3	45018144	45018242	+	chr3	45030632	45030733	+	TAF	ENST00000265564	5,32,32	17068-17070	21790-21792	ACC,BLCA,BRCA,CESC,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,PRAD,SARC,SKCM,TGCT,THCA,THYM,UCEC
chr3:45030346:+>chr3:45030632:+	chr3	45030340	45030346	+	chr3	45030632	45030733	+	TAF	ENST00000265564	2,2	17071-17072	21793-21794	KICH,KIRC,KIRP
chr3:45180844:->chr3:45160113:-	chr3	45180920	45180844	-	chr3	45160113	45159904	-	TSF	ENST00000296129,ENST00000425231	6,6,1,25,25,1	17073-17078	21795-21800	SARC,STAD
chr3:47554681:->chr3:47552716:-	chr3	47554781	47554681	-	chr3	47552716	47552638	-	TAF	ENST00000296149,ENST00000442215	33,33,24,24,11,11	17079-17084	21801-21806	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr3:47700048:->chr3:47680270:-	chr3	47700203	47700048	-	chr3	47680270	47680215	-	TAF	ENST00000254480	5,7	17085-17086	21807-21808	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LUAD,LUSC,OV,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UVM
chr3:47772030:->chr3:47770584:-	chr3	47772073	47772030	-	chr3	47770584	47770515	-	TSF	ENST00000254480	5,2	17087-17088	21809-21810	BLCA,BRCA,KIRP,LUSC,PRAD,STAD
chr3:48097516:+>chr3:48265844:+	chr3	48096672	48097516	+	chr3	48265844	48265951	+	TSF	ENST00000296435,ENST00000576243	1,1,27,27,14,14	17089-17094	21811-21816	CESC,HNSC,TGCT
chr3:48252800:+>chr3:48265844:+	chr3	48252382	48252800	+	chr3	48265844	48265951	+	TSF	ENST00000296435,ENST00000576243	1,1,37,37,14,14	17095-17100	21817-21822	HNSC,TGCT
chr3:48252840:+>chr3:48265844:+	chr3	48252382	48252840	+	chr3	48265844	48265951	+	TSF	ENST00000296435,ENST00000576243	1,1,27,27,14,14	17101-17106	21823-21828	BRCA,CESC,HNSC,LUSC,TGCT
chr3:48252880:+>chr3:48265095:+	chr3	48252382	48252880	+	chr3	48265095	48265202	+	TSF	ENST00000296435,ENST00000576243	14,14,12,12,27,27	17107-17112	21829-21834	HNSC,TGCT
chr3:48252880:+>chr3:48265844:+	chr3	48252382	48252880	+	chr3	48265844	48265951	+	TSF	ENST00000296435,ENST00000576243	27,27,14,14,12,12	17113-17118	21835-21840	BRCA,CESC,HNSC,LUSC,PAAD,SARC,STAD,TGCT
chr3:4857857:->chr3:4856115:-	chr3	4858133	4857857	-	chr3	4856115	4856088	-	TSF	ENST00000449914,ENST00000441894	4,4,1,1	17119-17122	21841-21844	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,MESO,OV,PRAD,SARC,THCA,UCS
chr3:4859117:->chr3:4856115:-	chr3	4859338	4859117	-	chr3	4856115	4856088	-	TSF	ENST00000449914,ENST00000441894	30,30,4,4	17123-17126	21845-21848	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUAD,MESO,OV,PRAD,SARC,THCA,UCS
chr3:4898320:->chr3:4872702:-	chr3	4898685	4898320	-	chr3	4872702	4872631	-	TAF	ENST00000449914,ENST00000441894	47,47,10,20,20,10	17127-17132	21849-21854	BLCA,BRCA,DLBC,HNSC,KIRC,LIHC,LUAD,PRAD

Table 19

chr3:49725728:->chr3:49725330:-	chr3	49725746	49725728	-	chr3	49725330	49725183	-	TSF	ENST00000449682,ENST00000545762	6,6,6,5,5,6	17133-17138	21855-21860	LIHC
chr3:52007451:->chr3:52004200:-	chr3	52007496	52007451	-	chr3	52004200	52003960	-	TSF	ENST00000483233,ENST00000395008,ENST00000361143,ENST00000461108,ENST00000525795	15,15,15,15,15,15,15,15,15,15,7,7,7,7,7,15	17139-17153	21861-21875	OV,STAD
chr3:54853855:+>chr3:54871186:+	chr3	54853592	54853855	+	chr3	54871186	54871257	+	TSF	ENST00000415676,ENST00000288197,ENST00000474759,ENST00000471363,ENST00000490478,ENST00000477024	21,21,21,21,12,12,12,12,12,12,1,1,1,1,1,1,1,21,21	17154-17171	21876-21893	PCPG
chr3:54946415:+>chr3:55002477:+	chr3	54946412	54946415	+	chr3	55002477	55002538	+	TSF	ENST00000415676,ENST00000288197,ENST00000474759,ENST00000490478	1,1,1,1,1,1,1,1	17172-17179	21894-21901	BLCA,BRCA,HNSC,LGG,LUSC,OV,SARC,UCEC
chr3:58363791:+>chr3:58368241:+	chr3	58363388	58363791	+	chr3	58368241	58368428	+	TAF	ENST00000356151,ENST00000302779,ENST00000383716,ENST00000463280,ENST00000383715,ENST00000484288,ENST00000479241,ENST00000477308,ENST00000491164	66,66,66,66,66,66,66,66,66,66,61,61,61,61,61,61,61,61,61,61,3,3,3,3,3,3,3,3,3,3	17180-17206	21902-21928	KICH,KIRC,KIRP,THCA
chr3:58365321:+>chr3:58368241:+	chr3	58365254	58365321	+	chr3	58368241	58368428	+	TAF	ENST00000356151,ENST00000302779,ENST00000383716,ENST00000463280,ENST00000383715,ENST00000484288,ENST00000479241,ENST00000477308,ENST00000491164	9,9,9,9,9,9,9,9,9,22,22,22,22,22,22,22,22,14,14,14,14,14,14,14,14,14	17207-17233	21929-21955	BLCA,DLBC,KICH,KIRC,LGG,SARC,THCA
chr3:58508545:->chr3:58508328:-	chr3	58508590	58508545	-	chr3	58508328	58508223	-	TSF	ENST00000459701,ENST00000302819	7,7,15,15,4,4	17234-17239	21956-21961	LIHC
chr3:58558348:->chr3:58555592:-	chr3	58558391	58558348	-	chr3	58555592	58555418	-	TSF	ENST00000474531,ENST00000447756	1,1,14,14,3,3	17240-17245	21962-21967	LGG,THYM
chr3:59842708:->chr3:59738047:-	chr3	59842786	59842708	-	chr3	59738047	59737952	-	TSF	ENST00000476844,ENST00000492590,ENST00000468189,ENST00000341848	8,8,8,8,2,2,2,2,25,25,25	17246-17257	21968-21979	BLCA,KIRC
chr3:59851867:->chr3:59738047:-	chr3	59852391	59851867	-	chr3	59738047	59737952	-	TSF	ENST00000476844,ENST00000492590,ENST00000468189,ENST00000341848	69,69,69,69,23,23,23,23,56,56,56	17258-17269	21980-21991	BRCA,GBM,LGG,PCPG,SARC,SKCM,UVM
chr3:66502653:->chr3:66502057:-	chr3	66502660	66502653	-	chr3	66502057	66501983	-	TSF	ENST00000273261,ENST00000383703	2,2,2,2,2,2	17270-17275	21992-21997	BRCA,GBM,LGG,OV,SARC,STAD
chr3:69286248:->chr3:69273841:-	chr3	69286305	69286248	-	chr3	69273841	69273759	-	TAF	ENST00000398540,ENST00000542259,ENST00000493880,ENST00000473029,ENST00000460709	19,19,19,19,9,9,9,9,19,9	17276-17285	21998-22007	BLCA,BRCA,CESC,HNSC,MESO,OV,PAAD,SKCM,STAD
chr3:72830456:->chr3:72799987:-	chr3	72830506	72830456	-	chr3	72799987	72799435	-	TSF	ENST00000325599,ENST00000463369	17,17,7,7,16,16	17286-17291	22008-22013	BRCA,LUAD,THYM
chr3:9367694:->chr3:9166601:-	chr3	9368437	9367694	-	chr3	9166601	9166409	-	TAF	ENST00000383836,ENST00000360413	53,53,16,16	17292-17295	22014-22017	BRCA,KIRP,LGG,OV,STAD,THCA
chr3:9476785:+>chr3:9477412:+	chr3	9476647	9476785	+	chr3	9477412	9477509,9	+	TSF	ENST00000450326,ENST00000402198,ENST00000402466,ENST00000406341,ENST00000407969,ENST00000442373,ENST00000302463	1,19,19,19,9,19,19,19,5,5,5,5,5,5,1,1,1,1,1	17296-17316	22018-22038	BLCA,GBM,HNSC,LGG,OV,PRAD,SARC,STAD,UCS
chr3:9823088:->chr3:9822233:-	chr3	9823188	9823088	-	chr3	9822233	9822041	-	TSF	ENST00000301964,ENST00000440161	14,14,33,33,6,6	17317-17322	22039-22044	ACC,BLCA,BRCA,CESC,DLBC,HNSC,KIRP,LGG,LIHC,LUAD,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,TGCT,THCA,UCEC

Table 19

chr3:98482283:+>chr3:98487274:+	chr3	98482258	98482283	+	chr3	98487274	98487373	+	TAF	ENST00000492254	8,3,8	17323-17325	22045-22047	BRCA,CHOL,DLBC,GBM,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,SKCM,STAD,THCA,THYM,UVM
chr3:98586135:->chr3:98568442:-	chr3	98586295	98586135	-	chr3	98568442	98568306	-	TSF	ENST00000326840,ENST00000326857,ENST00000449482,ENST00000449482,ENST00000326840,ENST00000326857	6,6,6,26,28,28,26,26	17326-17334	22048-22056	BLCA,CESC,KICH,KIRC,KIRP,LUAD,LUSC,MESO,PAAD,SARC,SKCM,THCA
chr3:9953735:+>chr3:9955640:+	chr3	9953662	9953735	+	chr3	9955640	9955708	+	TAF	ENST00000421412,ENST00000295980,ENST00000383814,ENST00000454190	7,7,7,7,13,13,13,24,24,24,13,24	17335-17346	22057-22068	BLCA,BRCA,CESC,COAD,HNSC,LUAD,LUSC,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT
chr3:99884005:+>chr3:99885179:+	chr3	99883880	99884005	+	chr3	99885179	99885238	+	TSF	ENST00000421999,ENST00000489081,ENST00000478909,ENST00000497345	30,30,30,30,17,17,17,17,41,41,41	17347-17358	22069-22080	BLCA,BRCA,CESC,HNSC,LUSC,OV,PCPG,SARC,SKCM,TGCT,THCA,UCEC,UCS,UVM
chr4:100021056:->chr4:100006367:-	chr4	100021143	100021056	-	chr4	100006367	100006266	-	TAF	ENST00000296412,ENST00000512659,ENST00000503130,ENST00000502590,ENST00000505652	12,6,6,6,6,6,12,12,12,12	17359-17368	22081-22090	ACC,BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,UCEC
chr4:100304649:->chr4:100268301:-	chr4	100304888	100304649	-	chr4	100268301	100268163	-	TSF	ENST00000515683	15,31	17369-17370	22091-22092	LIHC,LUSC
chr4:102080228:->chr4:102030235:-	chr4	102080353	102080228	-	chr4	102030235	102030111	-	TSF	ENST00000394854,ENST00000323055,ENST00000394853,ENST00000523694,ENST00000529324,ENST00000525819	13,13,13,13,13,13,1,1,1,1,1,24,24,24,24,24,24	17371-17388	22093-22110	PRAD
chr4:10533137:->chr4:10527546:-	chr4	10533364	10533137	-	chr4	10527546	10527465	-	TSF	ENST00000226951	7,30,53	17389-17391	22111-22113	KICH,KIRC,KIRP
chr4:10533137:->chr4:10529718:-	chr4	10533364	10533137	-	chr4	10529718	10529700	-	TSF	ENST00000226951	7,30,53	17392-17394	22114-22116	KICH,KIRC
chr4:10546658:->chr4:10543904:-	chr4	10546721	10546658	-	chr4	10543904	10543879	-	TSF	ENST00000226951,ENST00000442825,ENST00000507719	10,1,1,1,1,18,18,18,10,10	17395-17403	22117-22125	KICH,KIRC,KIRP
chr4:106355184:->chr4:106345479:-	chr4	106355281	106355184	-	chr4	106345479	106345353	-	TAF	ENST00000341695,ENST00000348706,ENST00000432483,ENST00000357415,ENST00000380004,ENST00000510015,ENST00000508518,ENST00000310267,ENST00000504028	15,15,15,15,15,15,15,15,15,11,11,11,11,11,11,11,11,11	17404-17421	22126-22143	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PCPG,PRAD,STAD,THCA,UCEC
chr4:107242046:+>chr4:107246142:+	chr4	107241932	107242046	+	chr4	107246142	107246275	+	TSF	ENST00000394701	20,33,12	17422-17424	22144-22146	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,KIRC,KIRP,LGG,LIHC,LUAD,PRAD,READ,SARC,SKCM,TGCT,THYM
chr4:107242850:+>chr4:107246142:+	chr4	107241932	107242850	+	chr4	107246142	107246275	+	TAF	ENST00000394701	69,12,53	17425-17427	22147-22149	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr4:1079281:->chr4:1075407:-	chr4	1079284	1079281	-	chr4	1075407	1075355	-	TSF	ENST00000382968,ENST00000433731	1,1,1,1	17428-17431	22150-22153	OV
chr4:108981654:->chr4:108969907:-	chr4	108981708	108981654	-	chr4	108969907	108969828	-	TSF	ENST00000379951	18,6,17	17432-17434	22154-22156	CESC,SKCM,THYM
chr4:108994141:->chr4:108991926:-	chr4	108994237	108994141	-	chr4	108991926	108991819	-	TSF	ENST00000265165,ENST00000379951,ENST00000438313,ENST00000510624	27,27,27,27,23,23,23,16,16,16,16,23	17435-17446	22157-22168	SKCM,THYM

Table 19

chr4:1101040:->chr4:1090627:-	chr4	1101138	1101040	-	chr4	1090627	1090578,1	-	TSF	ENST00000506730,ENST00000382968,ENST00000433731,ENST00000511620,ENST00000508428,ENST00000333673	11,11,1,1,1,1,1,1,11,11,11,11	17447-17458	22169-22180	BRCA,HNSC,OV,SARC
chr4:1101040:->chr4:1093715:-	chr4	1101138	1101040	-	chr4	1093715	1093539	-	TSF	ENST00000510715	11,23,1	17459-17461	22181-22183	BRCA,CESC,KIRP,LUAD,LUSC,OV,SKCM,STAD
chr4:111472030:+>chr4:111474471:+	chr4	111471988	111472030	+	chr4	111474471	111474611	+	TAF	ENST00000265162	14,14,10	17462-17464	22184-22186	KIRC,KIRP,STAD
chr4:122174730:->chr4:122137655:-	chr4	122175026	122174730	-	chr4	122137655	122137570	-	TSF	ENST00000509841	49,6,61	17465-17467	22187-22189	CHOL,KIRC,LIHC
chr4:124087575:+>chr4:124177171:+	chr4	124087242	124087575	+	chr4	124177171	124177335	+	TSF	ENST00000274008	37,50,43	17468-17470	22190-22192	HNSC,LUAD,PAAD,STAD
chr4:125178:+>chr4:337571:+	chr4	125071	125178	+	chr4	337571	337697	+	TSF	ENST00000512994,ENST00000505939,ENST00000240499	36,13,13,13,36,36	17471-17476	22193-22198	BRCA,GBM,HNSC,LGG,OV,PCPG,SARC,STAD,THCA
chr4:140216458:->chr4:140216300:-	chr4	140216524	140216458	-	chr4	140216300	140216197	-	TAF	ENST00000503997,ENST00000539002,ENST00000544855,ENST00000394228,ENST00000539387,ENST00000265500,ENST00000505036,ENST00000394223	7,7,7,7,7,7,7,7,2,2,22,22,2,2,22,22,2,2,22,21,21,21,21,21,21,21	17477-17500	22199-22222	ACC,BLCA,KIRC,KIRP,LIHC
chr4:142977072:->chr4:142950067:-	chr4	142977397	142977072	-	chr4	142950067	142949935	-	TSF	ENST00000513000,ENST00000262992,ENST00000308502,ENST00000508116	17,17,17,17,4,4,4,4	17501-17508	22223-22230	BLCA,BRCA,CESC,HNSC,KICH,LIHC,LUAD,PAAD,PRAD,SKCM,STAD,UVM
chr4:146617184:+>chr4:146617711:+	chr4	146617147	146617184	+	chr4	146617711	146617784	+	TSF	ENST00000438731,ENST00000511965	12,12,3,3,12,12	17509-17514	22231-22236	BRCA,OV,STAD,TGCT
chr4:146620571:+>chr4:146648063:+	chr4	146620427	146620571	+	chr4	146648063	146648121	+	TSF	ENST00000438731,ENST00000511965	48,48,44,44,23,23	17515-17520	22237-22242	TGCT
chr4:146622789:+>chr4:146648063:+	chr4	146620427	146622789	+	chr4	146648063	146648121	+	TSF	ENST00000438731,ENST00000511965	26,26,14,14,5,5	17521-17526	22243-22248	BRCA,CESC,LUSC,OV,STAD,TGCT
chr4:146644154:+>chr4:146648063:+	chr4	146643833	146644154	+	chr4	146648063	146648121	+	TSF	ENST00000438731,ENST00000511965	14,14,2,2,17,17	17527-17532	22249-22254	BRCA,KICH,KIRC,STAD,TGCT
chr4:147297909:->chr4:147247148:-	chr4	147298390	147297909	-	chr4	147247148	147247113	-	TAF	ENST00000432059,ENST00000335472,ENST00000507030,ENST00000394062	15,15,15,15,14,14,14,14,29,29,29,29	17533-17544	22255-22266	BRCA,PRAD
chr4:151135882:+>chr4:151141855:+	chr4	151135833	151135882	+	chr4	151141855	151141930	+	TSF	ENST00000296550,ENST00000302176	7,7,16,16,16,16	17545-17550	22267-22272	GBM,LGG
chr4:151135882:+>chr4:151141858:+	chr4	151135833	151135882	+	chr4	151141858	151141930	+	TSF	ENST00000296550,ENST00000411937,ENST00000506325,ENST00000302176	7,7,7,7,16,16,16,16,16,16,16,16	17551-17562	22273-22284	BRCA,GBM,KIRC,LGG
chr4:151647737:->chr4:151604869:-	chr4	151647998	151647737	-	chr4	151604869	151604703	-	TSF	ENST00000535741,ENST00000510413,ENST00000357115,ENST00000509835,ENST00000507224	29,29,29,29,29,36,36,36,36,36	17563-17572	22285-22294	PRAD
chr4:154534548:+>chr4:154541908:+	chr4	154533967	154534548	+	chr4	154541908	154542032	+	TAF	ENST00000440693,ENST00000409663,ENST00000409959,ENST00000240487	1,1,1,1,11,11,11,11,17,17,17,17	17573-17584	22295-22306	BLCA,BRCA,DLBC,LIHC,LUAD,LUSC,SARC,TGCT,THYM
chr4:154546350:+>chr4:154547299:+	chr4	154546282	154546350	+	chr4	154547299	154547377	+	TSF	ENST00000440693,ENST00000409663,ENST00000409959,ENST00000240487	23,23,23,23,22,22,22,22	17585-17592	22307-22314	DLBC,HNSC,LUSC,THYM
chr4:15792504:+>chr4:15818134:+	chr4	15791827	15792504	+	chr4	15818134	15818263	+	TSF	ENST00000502843,ENST00000226279	12,12,26,37,37,26	17593-17598	22315-22320	BLCA,HNSC,LUAD,LUSC,STAD
chr4:15792541:+>chr4:15818134:+	chr4	15791827	15792541	+	chr4	15818134	15818263	+	TAF	ENST00000502843,ENST00000226279	24,24,1,1,49,49	17599-17604	22321-22326	BLCA,BRCA,CESC,HNSC,LGG,LUAD,LUSC,PRAD,STAD,TGCT,UCS

Table 19

chr4:158141877:+>chr4:158142819:+	chr4	158141838	158141877	+	chr4	158142819	158142875	+	TSF	ENST00000512774,ENST00000509417,ENST00000296526,ENST00000264426	11,13,13,13,13,12,12,12,11,11,11	17605-17616	22327-22338	BRCA,LGG,SARC
chr4:162585968:->chr4:162577646:-	chr4	162586244	162585968	-	chr4	162577646	162577480	-	TSF	ENST00000306100,ENST00000379164,ENST00000536695,ENST00000427802	41,41,41,41,7,7,7,7	17617-17624	22339-22346	ACC,BLCA,BRCA,DLBC,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,SARC,SKCM,STAD
chr4:166400127:+>chr4:166403394:+	chr4	166400036	166400127	+	chr4	166403394	166403474,16640351,166403499	+	TAF	ENST00000513982,ENST00000402744,ENST00000431967,ENST00000511992	4,30,30,30,30,15,4,15,4,15	17625-17636	22347-22358	BRCA,GBM,KIRC,LGG,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,SARC,TGCT,THCA,THYM
chr4:1709026:+>chr4:1957892:+	chr4	1708983	1709026	+	chr4	1957892	1957915	+	TSF	ENST00000508803,ENST00000382892,ENST00000382891,ENST00000382895,ENST00000514329,ENST00000382888	14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14	17637-17654	22359-22376	STAD
chr4:171005876:->chr4:170999734:-	chr4	171005986	171005876	-	chr4	170999734	170999660	-	TSF	ENST00000337664,ENST00000509167,ENST00000515480,ENST00000353187,ENST00000510340,ENST00000507375,ENST00000502392	37,37,37,37,24,24,24,24,24,24,2,2,2,2,2,37,37,37	17655-17675	22377-22397	BRCA,CESC,LUSC,PRAD
chr4:174310746:->chr4:174309544:-	chr4	174310858	174310746	-	chr4	174309544	174309492	-	TSF	ENST00000296506	21,5,19	17676-17678	22398-22400	BRCA,GBM,LGG
chr4:174310746:->chr4:174309546:-	chr4	174310858	174310746	-	chr4	174309546	174309492	-	TAF	ENST00000296506	21,5,19	17679-17681	22401-22403	ACC,BLCA,BRCA,GBM,KIRC,LGG,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THYM
chr4:1745264:+>chr4:1746245:+	chr4	1745002	1745264	+	chr4	1746245	1746351	+	TSF	ENST00000313288	2,1,13	17682-17684	22404-22406	ACC,BLCA,BRCA,CESC,CHOL,DLBC,GBM,HNSC,KIRP,LGG,LUSC,MESO,OV,SARC,TGCT,THYM,UCEC,UCS
chr4:176868796:->chr4:176622918:-	chr4	176868864	176868796	-	chr4	176622918	176622726	-	TAF	ENST00000280187,ENST00000393658,ENST00000506894,ENST00000515090,ENST00000503397,ENST00000513365,ENST00000505304	18,18,18,18,18,18,16,16,16,16,16,16	17685-17698	22407-22420	GBM,LGG
chr4:185615524:+>chr4:185615676:+	chr4	185615383	185615524	+	chr4	185615676	185615933	+	TAF	ENST00000314970,ENST00000515774,ENST00000503752,ENST00000512834,ENST00000508001	14,14,14,14,14,7,7,7,7,25,25,25,7,25	17699-17713	22421-22435	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,PRAD,SARC,THCA,THYM,UCEC,UCS
chr4:185620691:->chr4:185618957:-	chr4	185620772	185620691	-	chr4	185618957	185618801	-	TSF	ENST00000281453,ENST00000510146	22,22,24,24	17714-17717	22436-22439	BLCA,BRCA,CESC,COAD,GBM,HNSC,LUAD,LUSC,OV,SARC,SKCM,STAD,TGCT,THYM,UCEC
chr4:186460994:->chr22:23243156:+	chr4	186461046	186460994	-	chr22	23243156	23243475	+	TSF	ENST00000390323	3,15,10	17718-17720	22440-22442	BRCA,CESC,HNSC,KIRC,LUAD,LUSC,MESO,OV,PAAD,SARC,STAD,THCA,THYM
chr4:187060762:+>chr4:187070327:+	chr4	187060473	187060762	+	chr4	187070327	187070437	+	TSF	ENST00000356371	76,12	17721-17722	22443-22444	CESC,CHOL,KIRC,KIRP,LUAD,PAAD,PRAD,STAD,UCEC
chr4:2041819:+>chr4:2044463:+	chr4	2041574	2041819	+	chr4	2044463	2044551	+	TSF	ENST00000382878,ENST00000409248,ENST00000409860	18,18,18,39,39,39,4,4,4	17723-17731	22445-22453	COAD,OV,STAD
chr4:22097560:->chr4:21764655:-	chr4	22097850	22097560	-	chr4	21764655	21764612	-	TSF	ENST00000515786	1,35,49	17732-17734	22454-22456	HNSC,LUAD,LUSC,SARC
chr4:22601612:+>chr4:22737604:+	chr4	22601350	22601612	+	chr4	22737604	22737831	+	TSF	ENST00000508166,ENST00000503442	77,77,15,2,2,15	17735-17740	22457-22462	KIRC,KIRP
chr4:22716168:+>chr4:22737604:+	chr4	22715811	22716168	+	chr4	22737604	22737831	+	TSF	ENST00000508166,ENST00000503442	8,8,33,33	17741-17744	22463-22466	KIRC,KIRP

Table 19

chr4:28378035:->chr4:28372431:-	chr4	28378393	28378035	-	chr4	28372431	28372322	-	TSF	ENST00000507759	32,1,36	17745-17747	22467-22469	BLCA,BRCA,CHOL,HNSC,KIRC,LUAD,LUSC,MESO,SARC,STAD
chr4:38103648:+>chr4:38104620:+	chr4	38103597	38103648	+	chr4	38104620	38104778	+	TAF	ENST00000508802,ENST00000261439	17,16,16,17	17748-17751	22470-22473	BLCA,HNSC,LUSC,MESO,PCPG,SARC,TGCT
chr4:38696173:+>chr4:38696367:+	chr4	38696010	38696173	+	chr4	38696367	38696527	+	TAF	ENST00000261438	43,26,24	17752-17754	22474-22476	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,STAD,THCA,THYM,UCEC,UCS
chr4:39470047:+>chr4:39471639:+	chr4	39469818	39470047	+	chr4	39471639	39471784	+	TAF	ENST00000340169,ENST00000261434,ENST00000513731,ENST00000381846	8,8,8,8	17755-17758	22477-22480	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PRAD,READ,SARC,TGCT,THYM,UCS
chr4:39516501:->chr4:39515804:-	chr4	39516601	39516501	-	chr4	39515804	39515703	-	TSF	ENST00000316423,ENST00000501493,ENST00000506179,ENST00000515021,ENST00000514106,ENST00000509391,ENST00000505698	2,2,2,2,2,2,24,24,24,24,24,24,11,11,11,11,11,11	17759-17779	22481-22501	BRCA,LIHC,LUAD
chr4:39516533:->chr4:39515804:-	chr4	39516601	39516533	-	chr4	39515804	39515703	-	TSF	ENST00000316423,ENST00000501493,ENST00000506179,ENST00000515021,ENST00000514106,ENST00000509391,ENST00000505698	23,23,13,13,13,13,13,13,23,23,23,23	17780-17793	22502-22515	LIHC,LUAD,LUSC
chr4:39585284:->chr4:39459881:-	chr4	39585332	39585284	-	chr4	39459881	39459814	-	TSF	ENST00000295955,ENST00000449470,ENST00000508595,ENST00000503040,ENST00000504470	2,2,2,5,5,5,5,15,15,15,15,2,2	17794-17808	22516-22530	KIRC,LUSC,OV,STAD
chr4:39699922:+>chr4:39739040:+	chr4	39699858	39699922	+	chr4	39739040	39739133	+	TAF	ENST00000261427,ENST00000510934,ENST00000295963,ENST00000445950	21,21,21,21,21,21,21,21,6,6,6,6	17809-17820	22531-22542	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,UCEC,UCS,UVM
chr4:39699922:+>chr4:39747372:+	chr4	39699858	39699922	+	chr4	39747372	39747430	+	TSF	ENST00000261427,ENST00000510934,ENST00000295963,ENST00000445950	21,21,21,21,21,6,6,6,6,21,21,21	17821-17832	22543-22554	OV,STAD
chr4:39933081:->chr4:39929784:-	chr4	39933437	39933081	-	chr4	39929784	39929581	-	TSF	ENST00000303538,ENST00000503396	21,25,25,1,1,21	17833-17838	22555-22560	BRCA,COAD,HNSC,KIRP,LUAD,LUSC,OV,STAD
chr4:40352049:+>chr4:40355996:+	chr4	40352026	40352049	+	chr4	40355996	40356537	+	TSF	ENST00000310169	6,7,7	17839-17841	22561-22563	BLCA,BRCA,GBM,HNSC,LGG,LUAD,UCS
chr4:4437287:->chr4:4436585:-	chr4	4437494	4437287	-	chr4	4436585	4436497	-	TAF	ENST00000505286,ENST00000306200,ENST00000503861,ENST00000512195,ENST00000507908	17,3,3,3,3,20,20,20,20,20,17,17,3,17,17	17842-17856	22564-22578	CESC,OV,UCEC
chr4:4475221:->chr4:4473433:-	chr4	4475319	4475221	-	chr4	4473433	4473366	-	TSF	ENST00000505286,ENST00000306200	33,1,1,33	17857-17860	22579-22582	ACC,CESC,LIHC,OV,UCEC
chr4:4508569:->chr4:4473433:-	chr4	4508675	4508569	-	chr4	4473433	4473366	-	TSF	ENST00000505286,ENST00000306200	33,33,35,35,24,24	17861-17866	22583-22588	KICH,KIRC,OV,SARC,UCEC
chr4:47584978:+>chr4:47589036:+	chr4	47584885	47584978	+	chr4	47589036	47589223	+	TAF	ENST00000273859	26,9	17867-17868	22589-22590	ACC,BLCA,BRCA,GBM,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,SARC,SKCM,THYM,UCS
chr4:48012811:->chr4:47954720:-	chr4	48013268	48012811	-	chr4	47954720	47954600	-	TAF	ENST00000402813	87,8,30	17869-17871	22591-22593	BLCA,BRCA,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,OV,PAAD,STAD,UCEC
chr4:4864335:+>chr4:4864428:+	chr4	4864193	4864335	+	chr4	4864428	4864870	+	TAF	ENST00000382723	42,35,47	17872-17874	22594-22596	OV,UCEC

Table 19

chr4:48897441:->chr4:48896070:-	chr4	48897704	48897441	-	chr4	48896070	48896023	-	TSF	ENST00000508632,ENST00000273860,ENST00000381464	17,37,37,37,41,17,41,17,41	17875-17883	22597-22605	ACC,BRCA,COAD,LUSC,PCPG,PRAD,THYM,UVM
chr4:490916:->chr4:466490:-	chr4	491211	490916	-	chr4	466490	466364	-	TAF	ENST00000515578,ENST00000506646,ENST00000505900	78,78,78,4,4,4	17884-17889	22606-22611	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr4:52913266:->chr4:52899806:-	chr4	52913536	52913266	-	chr4	52899806	52899597	-	TSF	ENST00000381431,ENST00000506357,ENST00000514133	38,38,38,21,7,7,7,21,21	17890-17898	22612-22620	KIRC,KIRP
chr4:54932834:->chr4:54915472:-	chr4	54932915	54932834	-	chr4	54915472	54915418	-	TSF	ENST00000263921,ENST00000512964,ENST00000510894	10,10,10,18,18,18	17899-17904	22621-22626	GBM,HNSC,KIRC,LGG,LUSC
chr4:55096106:+>chr4:55124924:+	chr4	55096091	55096106	+	chr4	55124924	55124984	+	TAF	ENST00000512143	5,5,4	17905-17907	22627-22629	BRCA,CESC,CHOL,COAD,GBM,HNSC,LGG,LUAD,LUSC,MESO,PAAD,PRAD,READ,SARC,STAD,UCEC
chr4:55109839:+>chr4:55124924:+	chr4	55109748	55109839	+	chr4	55124924	55124984	+	TAF	ENST00000512143	6,25	17908-17909	22630-22631	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,LGG,LUAD,LUSC,MESO,PAAD,PRAD,READ,SARC,STAD,UCEC
chr4:56223631:+>chr4:56225513:+	chr4	56223594	56223631	+	chr4	56225513	56225655	+	TSF	ENST00000264228,ENST00000505210	12,12,2,12,12,2	17910-17915	22632-22637	BRCA,CESC,LUAD,PAAD
chr4:56227417:+>chr4:56230241:+	chr4	56227367	56227417	+	chr4	56230241	56230438	+	TSF	ENST00000264228	17,16	17916-17917	22638-22639	BLCA,BRCA,CESC,LUAD,LUSC,OV,STAD,UCEC
chr4:56227417:+>chr4:56235999:+	chr4	56227367	56227417	+	chr4	56235999	56236258	+	TSF	ENST00000264228,ENST00000505210	17,17,16,16	17918-17921	22640-22643	BRCA,CESC,LUSC,OV,PAAD,STAD,UCEC
chr4:56492923:->chr4:56482552:-	chr4	56493122	56492923	-	chr4	56482552	56482505	-	TSF	ENST00000264218,ENST00000505262,ENST00000507338	31,31,31,16,16,16,11,11,11	17922-17930	22644-22652	CESC,HNSC,LUSC,MESO,OV,STAD,THCA,UCEC
chr4:56766858:+>chr4:56768510:+	chr4	56766766	56766858	+	chr4	56768510	56768704	+	TSF	ENST00000381295,ENST00000346134,ENST00000349598	28,28,28,2,2,2,1,1,1	17931-17939	22653-22661	LUSC,TGCT
chr4:57321258:+>chr4:57325538:+	chr4	57321042	57321258	+	chr4	57325538	57325705	+	TSF	ENST00000514888,ENST00000264221,ENST00000505164,ENST00000399688,ENST00000512576	9,9,9,9,5,5,5,5,5,31,31,31,31,9,31	17940-17954	22662-22676	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LGG,LUAD,LUSC,OV,STAD,TGCT
chr4:57559845:->chr4:57522178:-	chr4	57560508	57559845	-	chr4	57522178	57522024	-	TSF	ENST00000420433,ENST00000554144,ENST00000508121,ENST00000557328	1,1,1,1,14,14,27,27,14,27,14,27	17955-17966	22677-22688	HNSC,LUAD,LUSC,SARC,TGCT,THCA
chr4:57559885:->chr4:57522178:-	chr4	57560508	57559885	-	chr4	57522178	57522024	-	TSF	ENST00000420433,ENST00000554144,ENST00000508121,ENST00000557328	1,1,49,49,14,14,1,4 9,14,1,49,14	17967-17978	22689-22700	HNSC,LUAD,THCA
chr4:57559925:->chr4:57522178:-	chr4	57560508	57559925	-	chr4	57522178	57522024	-	TSF	ENST00000420433,ENST00000554144,ENST00000508121,ENST00000557328	1,1,1,1,25,25,36,36,25,36,25,36	17979-17990	22701-22712	LUAD
chr4:57559962:->chr4:57522178:-	chr4	57560508	57559962	-	chr4	57522178	57522024	-	TSF	ENST00000420433,ENST00000554144,ENST00000508121,ENST00000557328	13,13,24,24,57,57,13,24,57,13,24,57	17991-18002	22713-22724	GBM,HNSC,LUAD,LUSC,THCA
chr4:5789351:+>chr4:5795335:+	chr4	5788948	5789351	+	chr4	5795335	5795444	+	TAF	ENST00000264956,ENST00000382674	33,33,42,42	18003-18006	22725-22728	CESC,CHOL,KIRC,KIRP,SARC,SKCM
chr4:5830583:->chr4:5830395:-	chr4	5830600	5830583	-	chr4	5830395	5830216	-	TSF	ENST00000324989,ENST00000397890,ENST00000512574	6,6,6,5,5,5,5,5	18007-18015	22729-22737	ACC,BRCA,CESC,GBM,LGG,LUSC,OV,PAAD,PCPG,SARC,SKCM,TGCT,UCEC,UCS
chr4:5868912:->chr4:5868483:-	chr4	5869106	5868912	-	chr4	5868483	5868395	-	TSF	ENST00000324989,ENST00000397890,ENST00000512574	4,4,4,1,1,1,6,6,6	18016-18024	22738-22746	GBM,LGG,PCPG

Table 19

chr4:6592648:+>chr4:6594900:+	chr4	6592594	6592648	+	chr4	6594900	6595077,7	+	TSF	ENST00000285599,ENST00000504248,ENST00000505907	18,18,18,9,9,9,17,17,17	18025-18033	22747-22755	OV,STAD
chr4:68436356:+>chr4:68436802:+	chr4	68436241	68436356	+	chr4	68436802	68436873	+	TSF	ENST00000265404,ENST00000396225	18,18,10,10,8,8	18034-18039	22756-22761	KICH,KIRC
chr4:69441669:->chr4:69431438:-	chr4	69441933	69441669	-	chr4	69431438	69431290	-	TAF	ENST00000317746	15,40,72	18040-18042	22762-22764	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PAAD,UCEC
chr4:6959457:+>chr4:6969031:+	chr4	6959398	6959457	+	chr4	6969031	6969151	+	TSF	ENST00000448507,ENST00000409757,ENST00000410031	11,11,11,19,19,19,19,19,19	18043-18051	22765-22773	KICH,KIRC,KIRP
chr4:69813728:->chr4:69811168:-	chr4	69814157	69813728	-	chr4	69811168	69811024	-	TAF	ENST00000251566,ENST00000503012	18,18,8,8,1,1	18052-18057	22774-22779	BLCA,CESC,CHOL,KIRC,KIRP,LIHC,LUSC,STAD
chr4:6984058:+>chr4:6995911:+	chr4	6983745	6984058	+	chr4	6995911	6996029	+	TSF	ENST00000448507,ENST00000409757,ENST00000410031,ENST00000451522	61,61,61,61,14,14,14,14	18058-18065	22780-22787	KICH,TGCT
chr4:69920610:+>chr4:69964258:+	chr4	69919044	69920610	+	chr4	69964258	69964406	+	TSF	ENST00000305231,ENST00000508661	40,40,20,20	18066-18069	22788-22791	KIRC,KIRP,LIHC,UCEC
chr4:71846787:+>chr4:71847697:+	chr4	71846253	71846787	+	chr4	71847697	71847774	+	TAF	ENST00000309395,ENST00000396051	13,13,38,38	18070-18073	22792-22795	KICH,KIRC,KIRP,PAAD
chr4:72608377:->chr4:72607587:-	chr4	72608401	72608377	-	chr4	72607587	72607552	-	TAF	ENST00000513476	8,8,5	18074-18076	22796-22798	KIRP,LIHC
chr4:72624879:->chr4:72623888:-	chr4	72625242	72624879	-	chr4	72623888	72623759	-	TSF	ENST00000273951,ENST00000504199,ENST00000513476,ENST00000509740	3,3,3,3,6,6,6,6,77,77,77,77	18077-18088	22799-22810	LIHC
chr4:73969720:->chr4:73968264:-	chr4	73969917	73969720	-	chr4	73968264	73968094	-	TAF	ENST00000358602,ENST00000558247,ENST00000509867,ENST00000330838,ENST00000561029	2,2,2,2,37,37,37,37,37,2	18089-18098	22811-22820	BLCA,BRCA,CESC,CHOL,COAD,KIRC,KIRP,LIHC,LUAD,LUSC,PRAD,READ,SARC,STAD,TGCT,THCA,UCEC
chr4:74314578:+>chr4:74315052:+	chr4	74314427	74314578	+	chr4	74315052	74315184	+	TSF	ENST00000395792,ENST00000226359	5,38,38,11,11,5	18099-18104	22821-22826	BRCA,LIHC,LUSC
chr4:76893322:->chr4:76892611:-	chr4	76893390	76893322	-	chr4	76892611	76892510	-	TSF	ENST00000356260,ENST00000395711	23,23,13,13	18105-18108	22827-22830	BRCA,LUAD,LUSC,OV,UCEC
chr4:77000294:+>chr4:77002977:+	chr4	77000253	77000294	+	chr4	77002977	77003229,77003296,77003431,77003512,77003688	+	TSF	ENST00000513353,ENST00000504914,ENST00000510423,ENST00000513122,ENST00000341029,ENST00000349321,ENST00000355810	14,13,13,13,13,13,13,13,6,6,6,6,6,6,14,14,14,14,14,14	18109-18129	22831-22851	BRCA,LUSC
chr4:77020223:+>chr4:77021444:+	chr4	77020173	77020223	+	chr4	77021444	77021473	+	TSF	ENST00000341029,ENST00000349321,ENST00000355810,ENST00000511188	17,17,17,17,7,7,7,7,16,16,16,16	18130-18141	22852-22863	BLCA,BRCA,LUSC,PRAD
chr4:8231139:+>chr4:8233703:+	chr4	8231126	8231139	+	chr4	8233703	8233883	+	TAF	ENST00000245105,ENST00000539824,ENST00000511002	3,3,4,4,3,4	18142-18147	22864-22869	DLBC,THYM
chr4:83651970:->chr4:83626566:-	chr4	83652035	83651970	-	chr4	83626566	83626436	-	TSF	ENST00000319540,ENST00000273908,ENST00000282709	13,13,13,21,21,21,21,21,21	18148-18156	22870-22878	GBM,LGG
chr4:83752626:->chr4:83752128:-	chr4	83752701	83752626	-	chr4	83752128	83752090	-	TSF	ENST00000503937,ENST00000432794	25,25,24,24	18157-18160	22879-22882	STAD

Table 10

chr4:83761993:->chr4:83750211:-	chr4	83762275	83761993	-	chr4	83750211	83750153	-	TSF	ENST00000503937,ENST00000348405,ENST00000513858,ENST00000395310,ENST00000443462,ENST00000509142,ENST00000311785,ENST00000326950,ENST00000432794,ENST00000448323,ENST00000505472,ENST00000500777,ENST00000508502,ENST00000355196,ENST00000264405,ENST00000505984,ENST00000511338	4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,26,26,26,26,26,26,26,26,26,26,26,26,26,26,26,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9,4	18161-18211	22883-22933	BRCA,GBM,LUSC,OV,PAAD,PCPG,SKCM,STAD
chr4:83764450:->chr4:83763634:-	chr4	83764590	83764450	-	chr4	83763634	83763294	-	TSF	ENST00000503937,ENST00000348405,ENST00000395310,ENST00000443462,ENST00000326950,ENST00000432794,ENST00000448323,ENST00000505472,ENST00000508502,ENST00000355196,ENST00000264405,ENST00000505984	19,19,19,19,19,19,19,19,19,19,19,19,2,2,2,2,2,2,2,2,2,2,2,2	18212-18235	22934-22957	COAD,LUAD,OV,STAD
chr4:83774211:->chr4:83772757:-	chr4	83774285	83774211	-	chr4	83772757	83772585	-	TSF	ENST00000348405,ENST00000513858,ENST00000395310,ENST00000443462,ENST00000509142,ENST00000311785,ENST00000326950,ENST00000432794,ENST00000448323,ENST00000505472,ENST00000500777,ENST00000508502,ENST00000355196,ENST00000264405,ENST00000505984,ENST00000508479,ENST00000507828,ENST00000512664	16,16,16,16,16,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,24,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,16,16,16,16,16,16,16,16,16,16,16,16,16,16	18236-18289	22958-23011	ACC,BRCA,HNSC,LGG,LUAD,OV,SARC,STAD,TGCT
chr4:873014:->chr4:871597:-	chr4	873272	873014	-	chr4	871597	871403	-	TSF	ENST00000314167,ENST00000511163	27,27,32,32,42,42	18290-18295	23012-23017	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRP,LUAD,LUSC,OV,PAAD,READ,SARC,STAD,TGCT,UCEC
chr4:89198541:->chr4:89198395:-	chr4	89198618	89198541	-	chr4	89198395	89198296	-	TSF	ENST00000608933,ENST00000295908,ENST00000315194,ENST00000514204	13,25,25,25,25,13,13,13	18296-18303	23018-23025	SKCM,UVM
chr4:89454120:->chr4:89443180:-	chr4	89454580	89454120	-	chr4	89443180	89443039	-	TAF	ENST00000273968	85,1,152	18304-18306	23026-23028	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,PCPG,SARC,SKCM,STAD,TGCT
chr4:91325170:+>chr4:91389385:+	chr4	91324981	91325170	+	chr4	91389385	91389505	+	TSF	ENST00000505073,ENST00000509176,ENST00000432775,ENST00000333691	54,15,15,15,15,4,4,4,4,54,54,54	18307-18318	23029-23040	BLCA,LUAD,LUSC,PCPG,THYM,UVM
chr4:91640523:+>chr4:91645065:+	chr4	91640179	91640523	+	chr4	91645065	91645142	+	TAF	ENST00000509176,ENST00000432775,ENST00000333691,ENST00000513522	4,4,29,29,29,29,4,4	18319-18326	23041-23048	KICH,KIRC,KIRP,OV,UCS
chr4:95574373:+>chr4:95575611:+	chr4	95574306	95574373	+	chr4	95575611	95575791	+	TSF	ENST00000437932,ENST00000317968,ENST00000503974,ENST00000542407,ENST00000514743,ENST00000506632	16,16,16,16,15,15,15,15,15,15,11,11,11,11,11,11,16,16	18327-18344	23049-23066	PRAD

Table 19

chr4:95574522:+>chr4:95575611:+	chr4	95574306	95574522	+	chr4	95575611	95575791	+	TAF	ENST00000437932,ENST00000317968,ENST00000503974,ENST00000542407,ENST00000514743,ENST00000506632	4,4,4,4,4,4,22,22,2,22,22,2,2,7,7,7,7,7	18345-18362	23067-23084	PRAD,SARC
chr4:95983246:+>chr4:96025559:+	chr4	95982945	95983246	+	chr4	96025559	96025718	+	TAF	ENST00000440890	49,55,13	18363-18365	23085-23087	BRCA,KICH,KIRC,KIRP,LUAD,LUSC,PRAD,STAD,THYM
chr4:95983291:+>chr4:96025559:+	chr4	95982945	95983291	+	chr4	96025559	96025718	+	TSF	ENST00000440890	13,70,5	18366-18368	23088-23090	BRCA
chr4:95986245:+>chr4:96025559:+	chr4	95985713	95986245	+	chr4	96025559	96025718	+	TSF	ENST00000440890	3,17	18369-18370	23091-23092	BRCA
chr4:99927003:+>chr4:99950018:+	chr4	99926272	99927003	+	chr4	99950018	99950069	+	TSF	ENST00000296411,ENST00000510107	14,15,37,37,14,15	18371-18376	23093-23098	HNSC,LUAD,LUSC,OV,PRAD,STAD
chr5:10728097:->chr5:10683683:-	chr5	10728215	10728097	-	chr5	10683683	10683641	-	TSF	ENST00000230895	14,1,39	18377-18379	23099-23101	GBM,OV,STAD
chr5:10732658:->chr5:10683683:-	chr5	10732874	10732658	-	chr5	10683683	10683641	-	TAF	ENST00000230895	15,6,28	18380-18382	23102-23104	BLCA,BRCA,CHOL,GBM,LIHC,LUAD,LUSC,OV,SARC,STAD
chr5:108342193:+>chr5:108373123:+	chr5	108341955	108342193	+	chr5	108373123	108373179	+	TSF	ENST00000281092,ENST00000438717	7,7,78,78	18383-18386	23105-23108	BLCA,CESC,COAD,HNSC,LUSC,OV,STAD,UCS
chr5:113769590:+>chr5:113798746:+	chr5	113768197	113769590	+	chr5	113798746	113798887	+	TSF	ENST00000512097,ENST00000264773	11,11,90,90	18387-18390	23109-23112	GBM,LGG,PRAD,SKCM
chr5:113769626:+>chr5:113798746:+	chr5	113768197	113769626	+	chr5	113798746	113798887	+	TSF	ENST00000512097,ENST00000264773	23,23,9,9,102,102	18391-18396	23113-23118	ACC,GBM,HNSC,LGG,LIHC,PRAD,SKCM
chr5:118865382:+>chr5:118865589:+	chr5	118865267	118865382	+	chr5	118865589	118865675	+	TSF	ENST00000256216,ENST00000515320,ENST00000510025,ENST00000504811,ENST00000414835,ENST00000513628,ENST00000509514	8,8,8,8,8,8,8,38,38,38,38,38,38,38,38,2,2,2,2,2	18397-18417	23119-23139	PRAD
chr5:120012614:+>chr5:120021649:+	chr5	120012572	120012614	+	chr5	120021649	120022404	+	TSF	ENST00000407149,ENST00000379551	14,14,2,2	18418-18421	23140-23143	BRCA,OV,PRAD
chr5:121403017:->chr5:121402444:-	chr5	121403097	121403017	-	chr5	121402444	121402438	-	TSF	ENST00000231004	27,2,18	18422-18424	23144-23146	KIRC
chr5:1257816:->chr5:1255526:-	chr5	1257846	1257816	-	chr5	1255526	1255402	-	TSF	ENST00000310581,ENST00000334602	10,10,10,10,9,9	18425-18430	23147-23152	BLCA,CESC,KICH,KIRC,KIRP,LIHC,SARC,SKCM,STAD,THYM
chr5:132737281:->chr5:132736678:-	chr5	132737340	132737281	-	chr5	132736678	132736430	-	TSF	ENST00000265342,ENST00000510685	7,7,19,19,17,17	18431-18436	23153-23158	BRCA,LUAD,PCPG
chr5:133458682:+>chr5:133473750:+	chr5	133458649	133458682	+	chr5	133473750	133473855	+	TSF	ENST00000378564,ENST00000321584,ENST00000321603,ENST00000342854,ENST00000395029,ENST00000518887,ENST00000517851,ENST00000521639,ENST00000522375,ENST00000432532,ENST00000378560,ENST00000520958,ENST00000518915,ENST00000395023,ENST00000519447,ENST00000517741,ENST00000520652,ENST00000519037	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10,11,11,11,11,11,11,11,11,11,11,11,11,11,10,11	18437-18490	23159-23212	STAD,THYM
chr5:135216599:+>chr5:135223721:+	chr5	135216301	135216599	+	chr5	135223721	135223773	+	TSF	ENST00000412661	70,14	18491-18492	23213-23214	GBM,LGG
chr5:135398602:+>chr5:135398875:+	chr5	135398466	135398602	+	chr5	135398875	135398915	+	TAF	ENST00000442011,ENST00000305126,ENST00000514554,ENST00000508076,ENST00000503087	12,12,12,12,6,6,6,6,6,12	18493-18502	23215-23224	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,UCEC,UCS

chr5:136449976:->chr5:136448250:-	chr5	136450001	136449976	-	chr5	136448250	136448124	-	TSF	ENST00000394945,ENST00000282223,ENST00000505690	8,8,8,8,8,8	18503-18508	23225-23230	KIRC,STAD,TGCT
chr5:138724589:->chr5:138724274:-	chr5	138724860	138724589	-	chr5	138724274	138724150	-	TSF	ENST00000503481,ENST00000302125	12,12,14,14,36,36	18509-18514	23231-23236	THYM
chr5:139976476:+>chr5:140021250:+	chr5	139976114	139976476	+	chr5	140021250	140021365,140021408,140021344	+	TSF	ENST00000394671,ENST00000511410,ENST00000515653,ENST00000252100	9,19,19,11,11,11,1,9,19,9,19,9	18515-18526	23237-23248	ACC,GBM,LIHC,OV
chr5:1406781:->chr5:1406403:-	chr5	1407127	1406781	-	chr5	1406403	1406303	-	TAF	ENST00000270349,ENST00000453492	4,4,1,1,9,9	18527-18532	23249-23254	KIRC,KIRP,LIHC,LUAD,LUSC,MESO,SARC,STAD
chr5:1408358:->chr5:1406403:-	chr5	1408454	1408358	-	chr5	1406403	1406303	-	TSF	ENST00000270349,ENST00000453492	32,32,28,28,23,23	18533-18538	23255-23260	KIRC
chr5:140889480:+>chr5:140890514:+	chr5	140889477	140889480	+	chr5	140890514	140890740	+	TSF	ENST00000517417,ENST00000394576,ENST00000253812,ENST00000523390,ENST00000571252,ENST00000522605,ENST00000518069,ENST00000576222,ENST00000517434,ENST00000518325,ENST00000519479,ENST00000398604,ENST00000573521,ENST00000520790,ENST00000398610,ENST00000398594,ENST00000398587,ENST00000518882,ENST00000252085,ENST00000308177,ENST00000306593,ENST00000252087	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	18539-18560	23261-23282	GBM,LGG
chr5:141373145:->chr5:141371485:-	chr5	141373148	141373145	-	chr5	141371485	141371430	-	TSF	ENST00000513454	1,1	18561-18562	23283-23284	TGCT
chr5:142191055:+>chr5:142252965:+	chr5	142190974	142191055	+	chr5	142252965	142253060	+	TSF	ENST00000274498,ENST00000378004,ENST00000378013	21,1,1,1,21,21	18563-18568	23285-23290	OV
chr5:145540727:->chr5:145540049:-	chr5	145541009	145540727	-	chr5	145540049	145539937	-	TSF	ENST00000394434,ENST00000545646,ENST00000274562,ENST00000510191	11,11,11,11,5,5,5,5	18569-18576	23291-23298	COAD,STAD
chr5:147156045:+>chr5:147261009:+	chr5	147155750	147156045	+	chr5	147261009	147261211	+	TSF	ENST00000296694	7,41,45	18577-18579	23299-23301	HNSC,LUSC
chr5:147206839:->chr5:147204269:-	chr5	147206892	147206839	-	chr5	147204269	147204224	-	TAF	ENST00000296695	9,17,17	18580-18582	23302-23304	BLCA,CHOL,COAD,KICH,LIHC,LUAD,OV,PAAD,STAD
chr5:147210946:->chr5:147209193:-	chr5	147210961	147210946	-	chr5	147209193	147209162	-	TAF	ENST00000296695,ENST00000510027	5,3,4,4,5,3	18583-18588	23305-23310	BLCA,CESC,CHOL,COAD,KICH,KIRC,KIRP,LIHC,LUAD,OV,PAAD,PRAD,READ,STAD,UCEC
chr5:147245387:+>chr5:147261009:+	chr5	147244208	147245387	+	chr5	147261009	147261211	+	TSF	ENST00000296694	14,5,26	18589-18591	23311-23313	HNSC,LUAD,LUSC,TGCT,UCEC
chr5:1475076:->chr5:1474800:-	chr5	1475119	1475076	-	chr5	1474800	1474675	-	TSF	ENST00000475622,ENST00000283415	14,14,14,14,10,10	18592-18597	23314-23319	BLCA,HNSC,KIRC,LIHC,LUAD,LUSC,SARC,TGCT
chr5:147650475:+>chr5:147653910:+	chr5	147650185	147650475	+	chr5	147653910	147653947	+	TAF	ENST00000512953,ENST00000398450	4,4,26,26,20,20	18598-18603	23320-23325	ACC,CESC,KICH,KIRC,LUAD,SARC
chr5:148770728:->chr5:148756588:-	chr5	148770827	148770728	-	chr5	148756588	148756299	-	TSF	ENST00000261796	24,11,32	18604-18606	23326-23328	ACC,SARC
chr5:148780258:->chr5:148756588:-	chr5	148780664	148780258	-	chr5	148756588	148756299	-	TSF	ENST00000261796	24,1,78	18607-18609	23329-23331	SARC
chr5:148909167:->chr5:148904734:-	chr5	148909179	148909167	-	chr5	148904734	148904608	-	TAF	ENST00000261798,ENST00000377843,ENST00000515768	4,4,4,4,4,4,3,3,3	18610-18618	23332-23340	ACC,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,OV,STAD

chr5:149533002:+>chr5:149562331:+	chr5	149532994	149533002	+	chr5	149562331	149562476	+	TAF	ENST00000231656	3,2,2	18619-18621	23341-23343	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,LIHC,LUAD,LUSC,MESO,PAAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC
chr5:149925791:->chr5:149792270:-	chr5	149925856	149925791	-	chr5	149792270	149792188	-	TAF	ENST00000377795,ENST00000353334,ENST00000518797,ENST00000524315,ENST00000009530,ENST00000523208,ENST00000522246,ENST00000523813	13,21,21,21,21,21,21,8,8,8,8,8,8,8,13,13,13,13,13,21	18622-18645	23344-23367	BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC
chr5:150155583:->chr5:150136049:-	chr5	150155913	150155583	-	chr5	150136049	150135979	-	TSF	ENST00000447998,ENST00000446090,ENST00000521448,ENST00000517421	1,1,1,1,7,4,4,4,4,7,7,7	18646-18657	23368-23379	BLCA,GBM,HNSC,MESO,OV,SARC
chr5:150159192:+>chr5:150174992:+	chr5	150159175	150159192	+	chr5	150174992	150174996	+	TSF	ENST00000600109	6,5	18658-18659	23380-23381	ACC,GBM,KIRC,PAAD
chr5:151074519:->chr5:151046027:-	chr5	151074528	151074519	-	chr5	151046027	151045922	-	TSF	ENST00000231061,ENST00000538026	3,3,2,2,3,3	18660-18665	23382-23387	ACC,BLCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LUSC,MESO,OV,PAAD,SARC,STAD,THCA,UCEC
chr5:152889366:+>chr5:153026488:+	chr5	152889167	152889366	+	chr5	153026488	153026727	+	TSF	ENST00000285900,ENST00000340592,ENST00000521843,ENST00000448073,ENST00000518783	14,14,14,14,14,6,6,6,6,6	18666-18675	23388-23397	BRCA,GBM,LGG
chr5:156399254:->chr5:156381767:-	chr5	156399385	156399254	-	chr5	156381767	156381426	-	TAF	ENST00000274532,ENST00000407087	44,44,10,10,17,17	18676-18681	23398-23403	KICH,KIRC,KIRP,PRAD,SARC,THCA
chr5:156483190:->chr5:156482544:-	chr5	156483240	156483190	-	chr5	156482544	156482212	-	TSF	ENST00000522693,ENST00000523175,ENST00000339252,ENST00000425854,ENST00000544197,ENST00000518745	17,17,17,17,17,17,7,7,7,7,7,16,16,16,16,16	18682-18699	23404-23421	BLCA,KIRC,KIRP
chr5:15934710:+>chr5:15936559:+	chr5	15934695	15934710	+	chr5	15936559	15937295	+	TSF	ENST00000504595,ENST00000510662,ENST00000329673	2,2,2,5,5,5,4,4,4	18700-18708	23422-23430	ACC,BRCA,GBM,LGG,LUSC,MESO,OV,SARC,SKCM,STAD,THYM
chr5:159516513:->chr5:159507777:-	chr5	159516518	159516513	-	chr5	159507777	159507658	-	TSF	ENST00000456329	2,1,1	18709-18711	23431-23433	KIRC,LGG,SARC,TGCT
chr5:167654073:+>chr5:167654900:+	chr5	167653877	167654073	+	chr5	167654900	167655135	+	TSF	ENST00000518659,ENST00000545108,ENST00000519204,ENST00000520394,ENST00000403607	16,16,16,16,16,43,43,43,43,8,8,8,8,8	18712-18726	23434-23448	HNSC,LUSC
chr5:167685690:+>chr5:167687288:+	chr5	167685522	167685690	+	chr5	167687288	167687418	+	TSF	ENST00000518659,ENST00000545108,ENST00000519204,ENST00000520394,ENST00000403607	22,22,22,22,22,21,21,21,21,29,29,29,29,29	18727-18741	23449-23463	BLCA,HNSC,LUSC,MESO,SARC
chr5:171487971:->chr5:171484477:-	chr5	171488028	171487971	-	chr5	171484477	171484353	-	TAF	ENST00000176763,ENST00000520476	4,19,19,2,2,4	18742-18747	23464-23469	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,PAAD,READ,SARC,SKCM,STAD,TGCT,THYM,UVM
chr5:172281729:+>chr5:172315702:+	chr5	172281405	172281729	+	chr5	172315702	172315763	+	TAF	ENST00000393784,ENST00000520326,ENST00000520642,ENST00000523291	5,5,5,5,40,40,40,40	18748-18755	23470-23477	KIRC,KIRP
chr5:173041919:->chr5:173040258:-	chr5	173041966	173041919	-	chr5	173040258	173040134	-	TAF	ENST00000311086,ENST00000285908	16,15,15,15,15,16	18756-18761	23478-23483	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM

Table 19

chr5:175504713:+>chr5:175516466:+	chr5	175504615	175504713	+	chr5	175516466	175516524	+	TSF	ENST00000253490	33,23,1	18762-18764	23484-23486	ACC,CHOL,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PCPG
chr5:175697523:+>chr5:175716657:+	chr5	175697409	175697523	+	chr5	175716657	175717958	+	TSF	ENST00000443967,ENST00000429602	2,2,38,30,30,38	18765-18770	23487-23492	BRCA,COAD,LUSC,OV,PAAD,SARC,STAD
chr5:175825958:->chr5:175825048:-	chr5	175826144	175825958	-	chr5	175825048	175824931	-	TAF	ENST00000310418,ENST00000345807,ENST00000508425	12,7,7,7,12,12	18771-18776	23493-23498	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC
chr5:176949947:->chr5:176949072:-	chr5	176950016	176949947	-	chr5	176949072	176948976	-	TSF	ENST00000514747,ENST00000329540,ENST00000443375,ENST00000524677	23,23,23,23,16,16,16,16	18777-18784	23499-23506	BLCA,GBM,KIRC,KIRP,LGG,LUSC,PRAD,READ,TGCT,THYM
chr5:176949956:->chr5:176949072:-	chr5	176950016	176949956	-	chr5	176949072	176948976	-	TAF	ENST00000514747,ENST00000329540,ENST00000443375,ENST00000524677	20,20,20,20,13,13,13,13	18785-18792	23507-23514	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr5:176950160:->chr5:176949072:-	chr5	176950300	176950160	-	chr5	176949072	176948976	-	TAF	ENST00000514747,ENST00000329540,ENST00000443375,ENST00000524677	12,12,12,12,1,1,1,1,4,4,4,4	18793-18804	23515-23526	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr5:177187438:->chr5:177175700:-	chr5	177187536	177187438	-	chr5	177175700	177175642	-	TSF	ENST00000515787,ENST00000503845,ENST00000504518	33,23,23,1,23,33,1	18805-18811	23527-23533	CHOL,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,PCPG
chr5:177450333:+>chr5:177462097:+	chr5	177450235	177450333	+	chr5	177462097	177462155	+	TSF	ENST00000511856,ENST00000511189	23,23,33,33,1,1	18812-18817	23534-23539	KIRC,KIRP,LUAD,LUSC,MESO,OV,PCPG
chr5:178594154:->chr5:178585880:-	chr5	178594221	178594154	-	chr5	178585880	178585724	-	TSF	ENST00000251582,ENST00000274609	22,22,7,7,22,22	18818-18823	23540-23545	BLCA,BRCA,HNSC,LUSC,MESO,OV,SARC,THYM,UCS
chr5:178696386:->chr5:178634716:-	chr5	178696659	178696386	-	chr5	178634716	178634514	-	TSF	ENST00000251582,ENST00000274609	18,61,61,7,7,18	18824-18829	23546-23551	MESO,OV,SARC,SKCM,UVM
chr5:179021552:+>chr5:179021867:+	chr5	179021483	179021552	+	chr5	179021867	179021964	+	TSF	ENST00000319449,ENST00000437570,ENST00000393438,ENST00000508609,ENST00000502434	23,23,23,23,23,23,23,23,14,14,14,14,23,14,23	18830-18844	23552-23566	ACC,BRCA,CESC,CHOL,KIRC,KIRP,LIHC,LUSC,MESO,OV,PAAD,PRAD,SARC,THCA,THYM,UCEC,UVM
chr5:179234884:->chr5:179228969:-	chr5	179234950	179234884	-	chr5	179228969	179228784	-	TSF	ENST00000337755,ENST00000292591,ENST00000520918,ENST00000523329	22,22,13,13,13,13,7,7,7,7,22,22	18845-18856	23567-23578	COAD,OV,STAD
chr5:179238682:+>chr5:179249989:+	chr5	179238653	179238682	+	chr5	179249989	179250053	+	TAF	ENST00000389805,ENST00000504627,ENST00000510187	9,9,9,9,9,9	18857-18862	23579-23584	BLCA,BRCA,KIRP,LIHC,LUAD,LUSC,OV,SARC,STAD,THCA,UCEC
chr5:179238682:+>chr5:179250858:+	chr5	179238653	179238682	+	chr5	179250858	179251087	+	TSF	ENST00000376929,ENST00000514093,ENST00000422245,ENST00000389805,ENST00000504627,ENST00000402874,ENST00000510187,ENST00000360718	2,2,2,2,2,2,2,2,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9,9	18863-18886	23585-23608	KIRC,KIRP,LUAD,OV,STAD,UCEC,UCS
chr5:179238682:+>chr5:179260032:+	chr5	179238653	179238682	+	chr5	179260032	179260246	+	TAF	ENST00000376929,ENST00000389805,ENST00000402874,ENST00000510187,ENST00000360718	2,2,2,2,2,9,9,9,9,9,9,9,9,9,9	18887-18901	23609-23623	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UCS,UVM

Table 19

chr5:1811176:+>chr5:1814453:+	chr5	1811001	1811176	+	chr5	1814453	1814575,2	+	TAF	ENST00000274137,ENST00000469176	43,43,33,33,1,1	18902-18907	23624-23629	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,OV,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC
chr5:31298554:+>chr5:31299571:+	chr5	31298457	31298554	+	chr5	31299571	31299738	+	TSF	ENST00000514738,ENST00000265071	32,32,13,13	18908-18911	23630-23633	KIRC,KIRP,OV
chr5:33794291:->chr5:33751653:-	chr5	33794481	33794291	-	chr5	33751653	33751509	-	TSF	ENST00000504830,ENST00000352040,ENST00000515401	24,24,24,63,63,63	18912-18917	23634-23639	BLCA,BRCA,KICH,OV,SARC,UCS
chr5:33794368:->chr5:33751653:-	chr5	33794481	33794368	-	chr5	33751653	33751509	-	TSF	ENST00000504830,ENST00000352040,ENST00000515401	35,15,15,15,37,37,37,35,35	18918-18926	23640-23648	BRCA,KICH,LUSC,OV,SARC,UCS
chr5:33993278:->chr5:33989607:-	chr5	33993714	33993278	-	chr5	33989607	33989198,33989589,33989216	-	TSF	ENST00000335606,ENST00000382072,ENST00000382085,ENST00000502637	9,9,9,9,8,8,8	18927-18934	23649-23656	LIHC,PRAD
chr5:33993302:->chr5:33989607:-	chr5	33993714	33993302	-	chr5	33989607	33989198,33989589,33989216	-	TSF	ENST00000335606,ENST00000382072,ENST00000382085,ENST00000502637	1,1,1,1,26,26,26,26	18935-18942	23657-23664	PRAD
chr5:34006915:->chr5:34006004:-	chr5	34006954	34006915	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	13,1,1,1,1,1,1,1,1,1,1,5,5,5,5,5,5,13,5,5,5,5,5,13,13,13,13,13,13,13,13	18943-18972	23665-23694	BLCA,KIRP,LIHC,PRAD
chr5:34006922:->chr5:34006004:-	chr5	34006954	34006922	-	chr5	34006004	34005861	-	TAF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	11,11,11,11,11,11,11,11,11,10,10,10,10,10,10,3,10,10,10,0,10,10,3,3,3,3,3,3,3,3	18973-19002	23695-23724	BLCA,CHOL,COAD,KICH,KIRC,KIRP,LIHC,LUAD,PRAD,READ,STAD,UVM
chr5:34007048:->chr5:34006004:-	chr5	34007349	34007048	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	1,1,1,1,1,16,48,48,48,48,48,48,48,48,48,48,48,1,1,1,16,16,16,16,16,16,16,16	19003-19032	23725-23754	BLCA,KIRP,LIHC,PRAD
chr5:34007309:->chr5:34006004:-	chr5	34007349	34007309	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13,13	19033-19062	23755-23784	LIHC,PRAD
chr5:34010259:->chr5:34006004:-	chr5	34010561	34010259	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	13,13,13,13,13,13,13,13,13,13,13,13,13,30,30,30,30,30,4,30,30,30,30,4,4,4,4,4,4,4,4	19063-19092	23785-23814	KIRP,LIHC,PRAD

Table 19

chr5:34010276:->chr5:34006004:-	chr5	34010561	34010276	-	chr5	34006004	34005861	-	TAF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	7,25,25,25,25,25,25,25,25,34,34,34,34,7,34,34,34,34,7,7,7,7,7,7,7	19093-19122	23815-23844	BLCA,COAD,KICH,KIRC,KIRP,LIHC,LUAD,PRAD,READ,STAD,THCA
chr5:34010287:->chr5:34006004:-	chr5	34010561	34010287	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	3,3,3,3,3,21,31,31,31,31,31,31,31,31,31,3,3,3,3,21,21,21,21,21,21,21	19123-19152	23845-23874	PRAD
chr5:34010327:->chr5:34006004:-	chr5	34010561	34010327	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	47,8,8,8,8,8,8,8,8,8,8,8,17,17,17,7,17,17,17,7,17,17,17,7,47,47,47,7,47,47,47,7,47	19153-19182	23875-23904	KIRP,LIHC,PRAD,STAD
chr5:34013950:->chr5:34006004:-	chr5	34014243	34013950	-	chr5	34006004	34005861	-	TSF	ENST00000335606,ENST00000382072,ENST00000382079,ENST00000506639,ENST00000382085,ENST00000502637,ENST00000441713,ENST00000426255,ENST00000512079,ENST00000382068	1,1,1,1,1,1,1,1,1,1,7,7,7,7,7,10,7,7,7,7,7,10,10,10,10,10,10,10,10,10,10,10	19183-19212	23905-23934	LIHC,LUAD,LUSC,PRAD
chr5:34914032:->chr5:34913683:-	chr5	34914125	34914032	-	chr5	34913683	34913575	-	TSF	ENST00000382038,ENST00000341754	8,8,4,4,30,30	19213-19218	23935-23940	BLCA,BRCA,HNSC,KIRC,LUAD,LUSC,SARC,STAD
chr5:38305719:+>chr5:38337622:+	chr5	38304257	38305719	+	chr5	38337622	38337731	+	TSF	ENST00000354891,ENST00000322350	16,16,10,9,9,10	19219-19224	23941-23946	BRCA,PCPG
chr5:38458851:+>chr5:38463010:+	chr5	38458801	38458851	+	chr5	38463010	38463113	+	TAF	ENST00000354891,ENST00000322350,ENST00000336740,ENST00000397202,ENST00000397210,ENST00000506135,ENST00000508131,ENST00000514476	17,17,17,17,17,17,17,17,10,10,10,10,10,10,10,16,16,16,16,16,16,16,16,10	19225-19248	23947-23970	BLCA,GBM,HNSC,KIRC,OV,PCPG,SARC,THYM
chr5:39217739:->chr5:39203089:-	chr5	39217816	39217739	-	chr5	39203089	39201928	-	TSF	ENST00000540520	12,20,23	19249-19251	23971-23973	BRCA,DLBC,KIRC,STAD,THYM
chr5:50095792:+>chr5:50111266:+	chr5	50095496	50095792	+	chr5	50111266	50111358	+	TSF	ENST00000514342,ENST00000505697,ENST00000503750,ENST00000281631,ENST00000514067,ENST00000505554	40,55,55,55,55,55,55,9,9,9,9,9,9,40,40,40,40,40	19252-19269	23974-23991	LGG,SKCM,UVM
chr5:52897704:+>chr5:52899282:+	chr5	52897436	52897704	+	chr5	52899282	52899360	+	TSF	ENST00000502423,ENST00000296684,ENST00000506974,ENST00000506765	10,10,10,10,21,26,26,26,21,21,21,1,1,1,1,1,1,1,1,1,1,1,10,10,10,21,26,26,26,26,21,21,	19270-19305	23992-24027	BLCA,BRCA,CESC,CHOL,HNSC,LIHC,LUAD,LUSC,MESO,PAAD,STAD
chr5:54280736:->chr5:54277974:-	chr5	54280783	54280736	-	chr5	54277974	54277825	-	TSF	ENST00000381405	1,3,15	19306-19308	24028-24030	KICH,KIRC,PCPG

Table 19

chr5:54528595:->chr5:54528374:-	chr5	54528691	54528595	-	chr5	54528374	54528189	-	TAF	ENST00000282572	7,32,4	19309-19311	24031-24033	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KICH,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr5:54722306:->chr5:54721867:-	chr5	54722535	54722306	-	chr5	54721867	54721691	-	TAF	ENST00000264775,ENST00000307259	24,24,2,2,7,7	19312-19317	24034-24039	ACC,BLCA,BRCA,CESC,CHOL,KIRC,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,SARC,TGCT,THCA,THYM,UCEC
chr5:54723765:->chr5:54721867:-	chr5	54723913	54723765	-	chr5	54721867	54721691	-	TSF	ENST00000264775,ENST00000307259	22,22,9,9,15,15	19318-19323	24040-24045	PRAD
chr5:58596862:->chr5:58511794:-	chr5	58596952	58596862	-	chr5	58511794	58511603	-	TSF	ENST00000340635,ENST00000360047,ENST00000507116,ENST00000503258,ENST00000405755,ENST00000502484,ENST00000546160,ENST00000309641,ENST00000502575	11,11,11,11,11,11,11,11,11,29,29,29,29,29,29,29,29,29,12,12,12,12,12,12,12,12,12	19324-19350	24046-24072	BRCA,CESC,LUAD,LUSC
chr5:59300101:->chr5:59284544:-	chr5	59300404	59300101	-	chr5	59284544	59284315,59284344,59284363	-	TAF	ENST00000502484,ENST00000546160,ENST00000505507,ENST00000514552	19,19,19,19,22,22,7,7,7,7,22,22	19351-19362	24073-24084	BLCA,BRCA,KICH,KIRC,KIRP,LUAD,LUSC,MESO,OV,PRAD,SARC
chr5:59968185:->chr5:59943360:-	chr5	59968470	59968185	-	chr5	59943360	59943225	-	TSF	ENST00000265036,ENST00000453022,ENST00000545085	42,42,42,45,45,45,10,10,10	19363-19371	24085-24093	CESC,CHOL,LIHC,LUSC,PAAD,READ,STAD
chr5:59983552:->chr5:59983054:-	chr5	59983652	59983552	-	chr5	59983054	59982789	-	TSF	ENST00000265036,ENST00000453022	2,2,24,24,11,11	19372-19377	24094-24099	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,STAD,TGCT,THCA
chr5:64050405:->chr5:64050189:-	chr5	64050585	64050405	-	chr5	64050189	64050142	-	TSF	ENST00000513458	47,7	19378-19379	24100-24101	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUAD,OV,PRAD,STAD,TGCT,THCA,THYM
chr5:66046208:+>chr5:66055537:+	chr5	66046112	66046208	+	chr5	66055537	66055690	+	TSF	ENST00000404260,ENST00000403625,ENST00000406374,ENST00000406039	13,6,6,6,6,13,13,13	19380-19387	24102-24109	BLCA,COAD,HNSC,LUAD,LUSC,STAD
chr5:66178848:+>chr5:66195779:+	chr5	66178759	66178848	+	chr5	66195779	66195810	+	TAF	ENST00000404260,ENST00000403625,ENST00000406374,ENST00000406039,ENST00000452953,ENST00000432817,ENST00000434115,ENST00000411628,ENST00000490016,ENST00000403666,ENST00000450827	14,1,1,1,1,1,1,1,1,1,1,16,16,14,14,16,14,16,14,16,14,14,16,14,16,16,14,16,16,14,16,16,14,14,16	19388-19420	24110-24142	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,MESO,STAD,THCA
chr5:66179020:+>chr5:66195779:+	chr5	66178759	66179020	+	chr5	66195779	66195810	+	TSF	ENST00000404260,ENST00000403625,ENST00000406374,ENST00000406039,ENST00000452953,ENST00000432817,ENST00000434115,ENST00000411628,ENST00000490016,ENST00000403666,ENST00000450827	33,33,36,39,39,39,39,39,39,39,39,39,39,39,36,33,36,33,36,33,33,36,36,33,36,33,33,36,36,33,36	19421-19453	24143-24175	BLCA,CESC,LIHC,LUAD,LUSC
chr5:68663666:->chr5:68662422:-	chr5	68663671	68663666	-	chr5	68662422	68662330	-	TAF	ENST00000380822,ENST00000380818	2,2,1,1,1,1	19454-19459	24176-24181	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC

Table 19

chr5:70912053:+>chr5:70922467:+	chr5	70911418	70912053	+	chr5	70922467	70922580	+	TSF	ENST00000340941,ENST00000509358	3,43,43,3	19460-19463	24182-24185	PRAD,SARC
chr5:70912053:+>chr5:70927948:+	chr5	70911418	70912053	+	chr5	70927948	70928012	+	TSF	ENST00000512218,ENST00000340941,ENST00000509358,ENST00000323375,ENST00000509539	3,43,43,4 3,43,43,3, 3,3,3	19464-19473	24186-24195	PRAD
chr5:70927725:+>chr5:70927948:+	chr5	70927667	70927725	+	chr5	70927948	70928012	+	TAF	ENST00000512218,ENST00000340941,ENST00000509358,ENST00000323375,ENST00000509539	7,7,7,7,7, 19,19,19, 19,19,19, 19,19,19, 19	19474-19488	24196-24210	BLCA,BRCA,LUAD,LUSC,OV,PRAD,UCEC
chr5:70945361:+>chr5:70945896:+	chr5	70945258	70945361	+	chr5	70945896	70946010	+	TSF	ENST00000340941,ENST00000323375,ENST00000509539	1,1,34,34, 34,6,6,6,1	19489-19497	24211-24219	BRCA,OV,PRAD,STAD
chr5:72167716:+>chr5:72168466:+	chr5	72167664	72167716	+	chr5	72168466	72168548	+	TSF	ENST00000337273,ENST00000454282,ENST00000447967,ENST00000520850,ENST00000523768,ENST00000506351	2,2,2,2,17 ,17,17,17, 17,17,5,5, 5,5,5,5,2, 2	19498-19515	24220-24237	BLCA,BRCA,COAD,LUAD,LUSC,OV,READ,STAD,TGCT,THCA,UCEC
chr5:76108135:+>chr5:76128515:+	chr5	76107394	76108135	+	chr5	76128515	76129626	+	TSF	ENST00000296677	37,12,26	19516-19518	24238-24240	BLCA,CESC,HNSC,LUSC,MESO,STAD,TGCT
chr5:76108212:+>chr5:76128515:+	chr5	76107394	76108212	+	chr5	76128515	76129626	+	TSF	ENST00000296677	63,37,14	19519-19521	24241-24243	BLCA,CESC,HNSC,LUSC,MESO,STAD
chr5:76108438:+>chr5:76128515:+	chr5	76107394	76108438	+	chr5	76128515	76129626	+	TSF	ENST00000296677	5,74,60	19522-19524	24244-24246	BLCA,HNSC,LUSC,STAD
chr5:79294198:+>chr5:79335900:+	chr5	79293955	79294198	+	chr5	79335900	79336103	+	TSF	ENST00000350881	29,56	19525-19526	24247-24248	GBM,KIRP,LGG,OV,UCEC,UCS
chr5:79371193:+>chr5:79372678:+	chr5	79371074	79371193	+	chr5	79372678	79372871	+	TSF	ENST00000350881,ENST00000511733	1,1,33,33	19527-19530	24249-24252	BRCA,GBM,HNSC,LGG,LUAD,PAAD,PRAD,SARC,STAD,TGCT,THYM,UCS
chr5:80552252:+>chr5:80553552:+	chr5	80552027	80552252	+	chr5	80553552	80553675	+	TAF	ENST00000254035,ENST00000437669,ENST00000424301	18,18,18, 8,8,8	19531-19536	24253-24258	ACC,COAD,KICH,KIRC,OV,SARC,UCS
chr5:80703677:->chr5:80681645:-	chr5	80703954	80703677	-	chr5	80681645	80681576	-	TSF	ENST00000307624,ENST00000513751	7,7,19,2,2 ,19	19537-19542	24259-24264	LIHC,LUAD
chr5:823504:->chr5:822010:-	chr5	823586	823504	-	chr5	822010	821976	-	TAF	ENST00000424784,ENST00000283441	26,26,25, 25,5,5	19543-19548	24265-24270	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr5:86543184:+>chr5:86627165:+	chr5	86542665	86543184	+	chr5	86627165	86627317	+	TSF	ENST00000274376,ENST00000515800,ENST00000456692,ENST00000512763,ENST00000506290	18,18,18, 18,18,2,2, 2,2,2,3,3, 3,3,3	19549-19563	24271-24285	GBM,LGG,THCA
chr5:90249033:+>chr5:90261232:+	chr5	90248993	90249033	+	chr5	90261232	90261348	+	TSF	ENST00000405460,ENST00000425867	3,3,13,13, 2,2	19564-19569	24286-24291	CHOL,LGG,LIHC,LUAD,LUSC,THYM
chr5:92920128:+>chr5:92921107:+	chr5	92920103	92920128	+	chr5	92921107	92921192	+	TAF	ENST00000327111	8,8,8	19570-19572	24292-24294	ACC,BLCA,BRCA,CESC,GBM,KIRC,LGG,LIHC,LUAD,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr6:108394846:->chr6:108385503:-	chr6	108394895	108394846	-	chr6	108385503	108385389	-	TSF	ENST00000193322	16,13	19573-19574	24295-24296	KIRC,KIRP,SKCM,STAD,UVM
chr6:109427293:+>chr6:109466422:+	chr6	109426948	109427293	+	chr6	109466422	109466584	+	TSF	ENST00000523787	57,4,18	19575-19577	24297-24299	BRCA,GBM,HNSC,KIRP,LUSC,OV,READ,STAD
chr6:111198849:+>chr6:111208708:+	chr6	111198749	111198849	+	chr6	111208708	111208794	+	TSF	ENST00000368885	5,21	19578-19579	24300-24301	PRAD
chr6:111205591:+>chr6:111208708:+	chr6	111205094	111205591	+	chr6	111208708	111208794	+	TAF	ENST00000368885	24,35,12	19580-19582	24302-24304	COAD,KIRC,OV,PRAD,SKCM,STAD,TGCT,UCEC

Table 19

chr6:111494728:+>chr6:111498415:+	chr6	111494644	111494728	+	chr6	111498415	111498868	+	TSF	ENST00000368851,ENST00000439288,ENST00000419619	2,2,2,11,11,11,27,27,27	19583-19591	24305-24313	LGG,TGCT
chr6:111651389:->chr6:111650941:-	chr6	111651498	111651389	-	chr6	111650941	111650735	-	TAF	ENST00000368802,ENST00000368805,ENST00000358835,ENST00000435970	12,12,12,12,20,20,20,20,36,36,36	19592-19603	24314-24325	BRCA,CESC,GBM,LGG,LUAD,LUSC,PCPG,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr6:111995484:->chr6:111983150:-	chr6	111995513	111995484	-	chr6	111983150	111982942	-	TSF	ENST00000368682,ENST00000354650,ENST00000229471,ENST00000368667,ENST00000368678,ENST00000538466,ENST00000229470,ENST00000356013	10,10,10,10,10,10,10,10,9,9,9,9,9,9,9	19604-19619	24326-24341	COAD,KIRC,KIRP,STAD
chr6:114321165:->chr6:114281182:-	chr6	114321437	114321165	-	chr6	114281182	114281070	-	TSF	ENST00000519065,ENST00000398283,ENST00000425835,ENST00000521163	44,44,44,44,7,7,7,7,18,18,18,18	19620-19631	24342-24353	ACC,BLCA,COAD,HNSC,LGG,READ,SARC,TGCT
chr6:117763597:->chr6:117739669:-	chr6	117763870	117763597	-	chr6	117739669	117739625	-	TSF	ENST00000368507,ENST00000368508	44,44,21,7,7,21	19632-19637	24354-24359	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,SARC,STAD
chr6:123083103:+>chr6:123101436:+	chr6	123083025	123083103	+	chr6	123101436	123101608	+	TSF	ENST00000368444,ENST00000356535	26,19,19,25,25,26	19638-19643	24360-24365	BRCA,KIRC,KIRP,LUAD
chr6:123097454:+>chr6:123101436:+	chr6	123097008	123097454	+	chr6	123101436	123101608	+	TSF	ENST00000368444,ENST00000356535	6,6,18,18,3,3	19644-19649	24366-24371	KIRC
chr6:123101091:+>chr6:123101436:+	chr6	123101055	123101091	+	chr6	123101436	123101608	+	TSF	ENST00000368444,ENST00000356535	10,12,12,11,11,10	19650-19655	24372-24377	BLCA,BRCA,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,SKCM
chr6:123908604:->chr6:123892277:-	chr6	123908749	123908604	-	chr6	123892277	123892068	-	TSF	ENST00000398178,ENST00000334268,ENST00000546248,ENST00000542443	1,1,1,1,48,48,48,48,48,48,48,48	19656-19667	24378-24389	HNSC,TGCT
chr6:124669850:+>chr6:124676413:+	chr6	124669760	124669850	+	chr6	124676413	124676493	+	TSF	ENST00000368416,ENST00000368417,ENST00000546092,ENST00000545433	30,6,6,6,6,30,30,30	19668-19675	24390-24397	BLCA,COAD,HNSC,LIHC,LUSC,OV,STAD
chr6:125440534:+>chr6:125541224:+	chr6	125440425	125440534	+	chr6	125541224	125541339	+	TSF	ENST00000304877,ENST00000534000,ENST00000368402,ENST00000368388,ENST00000527711,ENST00000528193	18,18,18,18,18,18,8,32,32,32,32,32,8,8,8,8,8	19676-19693	24398-24415	BRCA,CHOL,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,UCEC
chr6:128380622:->chr6:128330413:-	chr6	128380624	128380622	-	chr6	128330413	128330275	-	TAF	ENST00000368226,ENST00000368227,ENST00000532331,ENST00000368213,ENST00000368210,ENST00000368207,ENST00000415046	1,1,1,1,1,1,1	19694-19700	24416-24422	BLCA,BRCA,CESC,COAD,HNSC,KIRC,LGG,LUAD,PAAD,PCPG,PRAD,READ,SKCM,STAD,THYM
chr6:129917934:->chr6:129905257:-	chr6	129918031	129917934	-	chr6	129905257	129905133	-	TSF	ENST00000368149	32,15,14	19701-19703	24423-24425	ACC,KICH,KIRC,PAAD,READ,SARC
chr6:131913952:->chr6:131913600:-	chr6	131913985	131913952	-	chr6	131913600	131913528	-	TSF	ENST00000354577,ENST00000403834,ENST00000368068,ENST00000368060,ENST00000368058,ENST00000545957	2,2,2,2,2,2,11,11,11,11,11,11,8,8,8,8,8,8	19704-19721	24426-24443	BRCA,GBM,LGG,LUSC

Table 19

chr6:13321692:->chr6:13321327:-	chr6	13321752	13321692	-	chr6	13321327	13321140, 13320945, 13321064	-	TSF	ENST00000606214,ENST00000421203,ENST00000356436,ENST00000379300,ENST00000379307,ENST00000343141,ENST00000607658,ENST00000450347,ENST00000452989,ENST00000422136,ENST00000446018,ENST00000420456,ENST00000428109,ENST00000416436,ENST00000379291,ENST00000606370,ENST00000606541	7,7,7,7,7,7,7,7,7,7,7,7,7,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19	19722-19755	24444-24477	SKCM
chr6:13472213:->chr6:13470862:-	chr6	13472490	13472213	-	chr6	13470862	13470669	-	TSF	ENST00000603223	9,39	19756-19757	24478-24479	OV,SARC,SKCM
chr6:13616338:+>chr6:13616695:+	chr6	13616316	13616338	+	chr6	13616695	13616753	+	TSF	ENST00000451315,ENST00000420088	1,1,4,4	19758-19761	24480-24483	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,LGG,LIHC,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chr6:137536205:->chr6:137528214:-	chr6	137536317	137536205	-	chr6	137528214	137528100	-	TSF	ENST00000367739,ENST00000543628,ENST00000458076,ENST00000367735,ENST00000414770	5,5,5,5,5,1,1,4,4,4,4,4,4,1,1,1	19762-19776	24484-24498	BLCA,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,STAD
chr6:138423021:->chr6:138417631:-	chr6	138423138	138423021	-	chr6	138417631	138417491	-	TAF	ENST00000421351	5,39,38	19777-19779	24499-24501	BLCA,BRCA,CESC,COAD,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SKCM,STAD,THCA,THYM,UCEC,UCS
chr6:138424827:->chr6:138417631:-	chr6	138424848	138424827	-	chr6	138417631	138417491	-	TAF	ENST00000421351	7,4,6	19780-19782	24502-24504	BLCA,BRCA,CESC,COAD,HNSC,LUSC,OV,SKCM,STAD,THCA
chr6:151188718:+>chr6:151197226:+	chr6	151188691	151188718	+	chr6	151197226	151197310	+	TSF	ENST00000367321,ENST00000367307,ENST00000367308	9,9,9,8,8,8	19783-19788	24505-24510	BLCA,BRCA,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,UCEC,UCS,UVM
chr6:151731988:->chr6:151726971:-	chr6	151732076	151731988	-	chr6	151726971	151726855	-	TSF	ENST00000336451,ENST00000367303	12,12,29,29	19789-19792	24511-24514	TGCT
chr6:151739668:->chr6:151738534:-	chr6	151739722	151739668	-	chr6	151738534	151738414	-	TAF	ENST00000336451,ENST00000367303,ENST00000444024	2,2,2,7,7,7,17,17,17	19793-19801	24515-24523	BLCA,BRCA,KIRC,KIRP,LIHC,STAD,TGCT,UCS
chr6:151755140:->chr6:151754365:-	chr6	151755279	151755140	-	chr6	151754365	151754290	-	TSF	ENST00000367303,ENST00000444024	23,23,1,13,13,1	19802-19807	24524-24529	BRCA
chr6:151784765:+>chr6:151785588:+	chr6	151784315	151784765	+	chr6	151785588	151785753	+	TSF	ENST00000367294,ENST00000545879	14,14,2,2,15,15	19808-19813	24530-24535	BRCA
chr6:152261988:+>chr6:152265308:+	chr6	152261756	152261988	+	chr6	152265308	152265643	+	TSF	ENST00000440973,ENST00000338799,ENST00000443427,ENST00000206249,ENST00000427531	13,13,13,13,13,15,15,15,15,3,3,3,3,15	19814-19828	24536-24550	BRCA,UCEC
chr6:160522271:+>chr6:160523551:+	chr6	160522124	160522271	+	chr6	160523551	160523703	+	TAF	ENST00000356956	14,10,8	19829-19831	24551-24553	COAD,KIRC,KIRP,LIHC,PAAD,SARC
chr6:161637691:->chr6:161587449:-	chr6	161637963	161637691	-	chr6	161587449	161587280	-	TSF	ENST00000320285,ENST00000366908,ENST00000436279,ENST00000366905	39,39,39,39,7,7,7,7	19832-19839	24554-24561	ACC,BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,SARC,SKCM,STAD,THYM
chr6:163875527:+>chr6:163876311:+	chr6	163875469	163875527	+	chr6	163876311	163876453	+	TSF	ENST00000361758,ENST00000275262,ENST00000392127,ENST00000453779,ENST00000361752,ENST00000361195,ENST00000424802	4,4,4,4,4,4,4,13,13,19,19,19,19,19,19,19,13,13,13,13,13	19840-19860	24562-24582	GBM,LGG,PAAD

Table 19

chr6:167367904:->chr6:167366036:-	chr6	167367994	167367904	-	chr6	167366036	167365976	-	TSF	ENST00000507747,ENST00000508775,ENST00000421787,ENST00000476238,ENST00000028008,ENST00000478180	18,18,18,18,18,18	19861-19866	24583-24588	KIRC,LGG,LUAD,OV,STAD
chr6:168928062:+>chr6:168944305:+	chr6	168927975	168928062	+	chr6	168944305	168944352	+	TSF	ENST00000354536,ENST00000356284	13,6,6,3,3,13	19867-19872	24589-24594	PAAD,SARC,STAD
chr6:17994671:->chr6:17987375:-	chr6	17994733	17994671	-	chr6	17987375	17987285	-	TSF	ENST00000378814,ENST00000259711,ENST00000378843,ENST00000378826,ENST00000378816,ENST00000502704	21,21,21,21,21,21,7,7,7,7,7,7,12,12,12,12,12,12	19873-19890	24595-24612	BRCA,COAD,HNSC,LUSC,STAD
chr6:20674067:+>chr6:20739750:+	chr6	20673784	20674067	+	chr6	20739750	20739846	+	TSF	ENST00000274695,ENST00000378624,ENST00000378610	7,7,21,21,21,7	19891-19896	24613-24618	BLCA,CESC,LUSC,SARC,STAD,THYM
chr6:21201123:+>chr6:21201341:+	chr6	21201067	21201123	+	chr6	21201341	21201505	+	TAF	ENST00000274695,ENST00000378624,ENST00000378610	18,18,18,1,1,1	19897-19902	24619-24624	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,OV,PCPG,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr6:24306866:->chr6:24302272:-	chr6	24306949	24306866	-	chr6	24302272	24302196	-	TAF	ENST00000378454	9,16,6	19903-19905	24625-24627	BRCA,CHOL,LIHC,PRAD
chr6:24710723:->chr6:24709139:-	chr6	24710791	24710723	-	chr6	24709139	24709005	-	TAF	ENST00000378119,ENST00000540769,ENST00000378102	23,23,23,13,13,13	19906-19911	24628-24633	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr6:24783543:+>chr6:24784315:+	chr6	24783176	24783543	+	chr6	24784315	24784397	+	TAF	ENST00000356509,ENST00000230056,ENST00000378054,ENST00000378059	10,10,10,15,15,2,2,2,15,10,15,2	19912-19923	24634-24645	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SKCM,TGCT,THYM,UCEC
chr6:25864286:->chr6:25862672:-	chr6	25865287	25864286	-	chr6	25862672	25862461	-	TSF	ENST00000397060,ENST00000361703,ENST00000360657,ENST00000506105,ENST00000449356	32,32,32,32,32,3,3,3,3,29,29,29,29,29	19924-19938	24646-24660	KIRC,KIRP
chr6:26370250:+>chr6:26370550:+	chr6	26370093	26370250	+	chr6	26370550	26370831	+	TSF	ENST00000532865,ENST00000530653,ENST00000527422,ENST00000356386,ENST00000396934,ENST00000377708,ENST00000396948,ENST00000508906	34,30,30,30,30,30,30,30,34,34,34,34,34,34,34,34	19939-19954	24661-24676	ACC,BRCA,HNSC,KIRC,LUSC,STAD
chr6:26474624:+>chr6:26476389:+	chr6	26474324	26474624	+	chr6	26476389	26476396	+	TAF	ENST00000480218	7,28	19955-19956	24677-24678	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,SKCM,STAD,THYM,UCEC,UCS,UVM
chr6:27221989:+>chr6:27222472:+	chr6	27221686	27221989	+	chr6	27222472	27222651,27222534,27222478	+	TSF	ENST00000421826,ENST00000230582,ENST00000466364,ENST00000475106,ENST00000485993	2,2,61,61,61,2,2,2,61,61	19957-19966	24679-24688	THYM
chr6:30844673:+>chr6:30856465:+	chr6	30844573	30844673	+	chr6	30856465	30856591	+	TSF	ENST00000508312,ENST00000503495	1,1,11,11	19967-19970	24689-24692	CESC,HNSC,KICH,LGG,LUSC
chr6:30913271:+>chr6:30916324:+	chr6	30913142	30913271	+	chr6	30916324	30920276	+	TSF	ENST00000462446	6,19,23	19971-19973	24693-24695	STAD
chr6:31114237:->chr6:31113585:-	chr6	31114486	31114237	-	chr6	31113585	31113473	-	TSF	ENST00000396268,ENST00000376266,ENST00000451521	53,53,53,26,26,26,1,1,1	19974-19982	24696-24704	BLCA,BRCA,CESC,CHOL,GBM,KIRP,LGG,LIHC,LUAD,LUSC,OV,SARC,TGCT,UCEC,UCS
chr6:31150660:->chr6:31133824:-	chr6	31152226	31150660	-	chr6	31133824	31133704	-	TSF	ENST00000259915	60,2	19983-19984	24705-24706	CESC,KIRC

Table 19

chr6:31153803:->chr6:31133824:-	chr6	31154067	31153803	-	chr6	31133824	31133704	-	TAF	ENST00000259915	15,2,77	19985-19987	24707-24709	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,SARC,STAD,UCEC,UCS
chr6:31501436:->chr6:31500688:-	chr6	31501566	31501436	-	chr6	31500688	31500557	-	TSF	ENST00000484566,ENST00000376177,ENST00000396172,ENST00000417556,ENST00000458640,ENST00000415382,ENST00000417023,ENST00000431908,ENST00000427214	17,17,17,17,17,17,17,17,10,10,10,10,10,10,10,10,9,9,9,9,9,9,9,9	19988-20014	24710-24736	ACC,BLCA,BRCA,CESC,GBM,LUAD,OV,PRAD,TGCT,THYM,UCS
chr6:31660355:->chr6:31659695:-	chr6	31660537	31660355	-	chr6	31659695	31659581	-	TSF	ENST00000395952,ENST00000440843	12,12,1,1	20015-20018	24737-24740	BLCA,BRCA,CESC,COAD,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,STAD,TGCT,THCA,UCEC,UVM
chr6:31941829:+>chr6:31946680:+	chr6	31941780	31941829	+	chr6	31946680	31946775, 31946787, 31946759	+	TSF	ENST00000375331,ENST00000375333,ENST00000483801,ENST00000519179	7,16,16,16,16,16,7,16,7,7,16,16	20019-20030	24741-24752	GBM,OV,STAD
chr6:3229779:->chr6:3226903:-	chr6	3229888	3229779	-	chr6	3226903	3226795	-	TSF	ENST00000259818	20,3,36	20031-20033	24753-24755	BLCA,DLBC,GBM,LGG,LUAD,STAD,UCS
chr6:3247553:->chr6:3226903:-	chr6	3247564	3247553	-	chr6	3226903	3226795	-	TAF	ENST00000259818	4,3,3	20034-20036	24756-24758	BRCA,GBM,LGG,LUSC,PCPG,SKCM,UCS
chr6:32490383:->chr6:32489951:-	chr6	32490932	32490383	-	chr6	32489951	32489682	-	TSF	ENST00000374975	24,60,75	20037-20039	24759-24761	ACC,PCPG,THCA
chr6:32547945:->chr6:32546881:-	chr6	32547977	32547945	-	chr6	32546881	32546868	-	TSF	ENST00000360004	10,7,10	20040-20042	24762-24764	ACC,DLBC,HNSC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,SKCM,STAD,THCA
chr6:32547972:->chr6:32546881:-	chr6	32547977	32547972	-	chr6	32546881	32546868	-	TSF	ENST00000360004	1,1,1	20043-20045	24765-24767	BLCA,BRCA,KIRC,KIRP,LGG,LUAD,OV,SARC,STAD,TGCT,THYM
chr6:32552631:->chr6:32549391:-	chr6	32552703	32552631	-	chr6	32549391	32549334	-	TSF	ENST00000360004	7,24,22	20046-20048	24768-24770	HNSC,KIRP,OV,STAD
chr6:32746483:->chr6:32731247:-	chr6	32746812	32746483	-	chr6	32731247	32731151	-	TSF	ENST00000411527,ENST00000435145,ENST00000437316	3,46,46,46,21,21,21,3,3	20049-20057	24771-24779	LUAD,THCA
chr6:33039397:->chr6:33037663:-	chr6	33039547	33039397	-	chr6	33037663	33037418	-	TAF	ENST00000419277,ENST00000428995,ENST00000453337	8,8,21,21,21,49,49,49,8	20058-20066	24780-24788	BLCA,BRCA,CESC,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,TGCT,THCA
chr6:33544801:->chr6:33543643:-	chr6	33544821	33544801	-	chr6	33543643	33543570	-	TSF	ENST00000374467,ENST00000442998,ENST00000360661	7,7,6,6,6,6,6,7,6	20067-20075	24789-24797	OV,STAD
chr6:33673041:->chr6:33669197:-	chr6	33673107	33673041	-	chr6	33669197	33669123	-	TAF	ENST00000374231,ENST00000607484	22,22,13,13,21,21	20076-20081	24798-24803	BRCA,CESC,HNSC,LUAD,LUSC,MESO,OV,PRAD,SARC,THCA,THYM,UCEC,UCS
chr6:34338038:->chr6:34309749:-	chr6	34338198	34338038	-	chr6	34309749	34309639	-	TSF	ENST00000607016,ENST00000605528	1,1,48,48,21,21	20082-20087	24804-24809	GBM,KIRC,LGG,LUSC,MESO,OV,SARC
chr6:34509380:->chr6:34508958:-	chr6	34509454	34509380	-	chr6	34508958	34508761	-	TAF	ENST00000374037,ENST00000544425	25,15,2,25,15,2	20088-20093	24810-24815	BRCA,CESC,COAD,OV,PAAD,PRAD,STAD,UCEC
chr6:34966878:+>chr6:34985250:+	chr6	34966613	34966878	+	chr6	34985250	34985836	+	TAF	ENST00000360359	15,2	20094-20095	24816-24817	BLCA,CESC,KIRC,KIRP,LUAD,LUSC,OV,PCPG,TGCT,UCEC,UCS
chr6:35258760:+>chr6:35259055:+	chr6	35258663	35258760	+	chr6	35259055	35259180	+	TSF	ENST00000469195,ENST00000373953,ENST00000440666,ENST00000339411	32,32,32,32,32,8,8,8,8,32,32,32	20096-20107	24818-24829	OV,PCPG,SARC,STAD,THCA
chr6:36851128:+>chr6:36867202:+	chr6	36850815	36851128	+	chr6	36867202	36867409	+	TSF	ENST00000355190	16,55	20108-20109	24830-24831	BLCA,GBM,LGG,LUAD,LUSC,OV,UCEC
chr6:36924925:+>chr6:36926921:+	chr6	36924636	36924925	+	chr6	36926921	36927142	+	TSF	ENST00000373674	37,23,16	20110-20112	24832-24834	LGG

Table 19

chr6:37327118:+>chr6:37328222:+	chr6	37326936	37327118	+	chr6	37328222	37328350	+	TSF	ENST00000373479,ENST00000229866,ENST00000394443,ENST00000469316,ENST00000469731	19,3,3,3,3,3,19,19,19,19	20113-20122	24835-24844	BLCA,BRCA,CESC,COAD,GBM,HNSC,LUAD,LUSC,SKCM,STAD,TGCT,UCEC
chr6:37436635:+>chr6:37438797:+	chr6	37436378	37436635	+	chr6	37438797	37438853	+	TSF	ENST00000373451	1,37	20123-20124	24845-24846	BRCA,CESC,GBM,KIRC,LGG,LUAD,LUSC,SARC,SKCM,TGCT,THCA,UCEC,UVM
chr6:39268149:->chr6:39267513:-	chr6	39268199	39268149	-	chr6	39267513	39267203	-	TSF	ENST00000373231	17,5,16	20125-20127	24847-24849	BLCA,BRCA,KIRC,LIHC,LUAD,PAAD,PCPG,SARC,THCA,UCEC
chr6:41611118:+>chr6:41613864:+	chr6	41610978	41611118	+	chr6	41613864	41614046	+	TSF	ENST00000432027,ENST00000419164,ENST00000373051,ENST00000441667,ENST00000230321,ENST00000446650	5,5,5,5,5,5,44,44,44,44,44,44,28,28,28,28,28,28	20128-20145	24850-24867	BLCA,BRCA,CESC,HNSC,KIRC,LGG,LUAD,OV,PCPG,PRAD,TGCT,UCEC,UCS
chr6:41744159:->chr6:41743343:-	chr6	41744299	41744159	-	chr6	41743343	41743157	-	TSF	ENST00000259748,ENST00000373018,ENST00000426290,ENST00000422888	47,47,37,37,37,37,1,1,1,1,47,47	20146-20157	24868-24879	OV,STAD
chr6:42890148:+>chr6:42890765:+	chr6	42890125	42890148	+	chr6	42890765	42891085	+	TAF	ENST00000304672	8,6,7	20158-20160	24880-24882	THYM
chr6:42890148:+>chr6:42890883:+	chr6	42890125	42890148	+	chr6	42890883	42891085	+	TSF	ENST00000304672,ENST00000441198	8,8,6,6,7,7	20161-20166	24883-24888	THYM
chr6:42890547:+>chr6:42890765:+	chr6	42890506	42890547	+	chr6	42890765	42891085	+	TAF	ENST00000304672	14,6,1	20167-20169	24889-24891	THYM
chr6:42890547:+>chr6:42890883:+	chr6	42890506	42890547	+	chr6	42890883	42891085	+	TSF	ENST00000304672,ENST00000441198	14,14,6,6,1,1	20170-20175	24892-24897	THYM
chr6:42890547:+>chr6:42891967:+	chr6	42890506	42890547	+	chr6	42891967	42892011	+	TSF	ENST00000304672,ENST00000441198,ENST00000446507	14,14,14,6,6,6,1,1,1	20176-20184	24898-24906	THYM
chr6:43026822:->chr6:43025971:-	chr6	43026913	43026822	-	chr6	43025971	43025803,43025889,43025777	-	TAF	ENST00000388752,ENST00000230413,ENST00000489623,ENST00000487429,ENST00000468957	9,9,9,9,9,26,26,26,26,26	20185-20194	24907-24916	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr6:45627095:+>chr6:45630852:+	chr6	45627086	45627095	+	chr6	45630852	45631459	+	TSF	ENST00000576263	3,3,2	20195-20197	24917-24919	BRCA,SARC
chr6:46617893:->chr6:46610035:-	chr6	46618224	46617893	-	chr6	46610035	46609900	-	TSF	ENST00000275016	8,39,7	20198-20200	24920-24922	BRCA,LIHC,PRAD,READ
chr6:51817226:->chr6:51799120:-	chr6	51817315	51817226	-	chr6	51799120	51798908	-	TSF	ENST00000371117,ENST00000340994	30,30,24,24,26,26	20201-20206	24923-24928	KIRC,KIRP
chr6:5498789:+>chr6:5545413:+	chr6	5498702	5498789	+	chr6	5545413	5545573	+	TSF	ENST00000324331,ENST00000274680	4,4,9,9,24,24	20207-20212	24929-24934	BLCA,BRCA,CESC,CHOL,KIRC,LIHC,LUAD,MESO,SARC
chr6:5530482:+>chr6:5545413:+	chr6	5530387	5530482	+	chr6	5545413	5545573	+	TSF	ENST00000324331,ENST00000274680	20,20,3,3,16,16	20213-20218	24935-24940	LIHC
chr6:71556620:+>chr6:71562243:+	chr6	71556614	71556620	+	chr6	71562243	71562367	+	TSF	ENST00000316999,ENST00000370452,ENST00000370455	2,2,2,2,2,1,1,1,2	20219-20227	24941-24949	OV
chr6:71556625:+>chr6:71562243:+	chr6	71556614	71556625	+	chr6	71562243	71562367	+	TSF	ENST00000316999,ENST00000370452,ENST00000370455	4,4,4,3,3,3	20228-20233	24950-24955	LIHC,LUSC,OV,STAD,UCEC
chr6:74413676:+>chr6:74432974:+	chr6	74413627	74413676	+	chr6	74432974	74433002	+	TSF	ENST00000422508,ENST00000437994,ENST00000287097	7,7,7,16,16,16,16,16,16	20234-20242	24956-24964	BRCA,LUSC,STAD
chr6:80022085:->chr6:79924739:-	chr6	80022917	80022085	-	chr6	79924739	79924689	-	TSF	ENST00000275036,ENST00000344726	65,65,20,20,4,4	20243-20248	24965-24970	ACC,BLCA,BRCA,CESC,CHOL,HNSC,KICH,KIRP,LIHC,LUAD,LUSC,OV,PAAD,READ,STAD,THCA,THYM,UCEC,UCS

chr7:100230403:->chr7:100229568:-	chr7	100230492	100230403	-	chr7	100229568	100229429	-	TSF	ENST00000223051,ENST00000490084,ENST00000462107	30,30,7,7,7,16,16,30,16	20249-20257	24971-24979	LIHC
chr7:100230403:->chr7:100229772:-	chr7	100230492	100230403	-	chr7	100229772	100229705	-	TSF	ENST00000223051,ENST00000490084,ENST00000462107	30,30,30,7,7,16,16,7,16	20258-20266	24980-24988	LIHC
chr7:100418218:->chr7:100417918:-	chr7	100418501	100418218	-	chr7	100417918	100417763	-	TSF	ENST00000360620,ENST00000358173	19,19,16,37,37,16	20267-20272	24989-24994	BRCA,CESC,HNSC,STAD,TGCT
chr7:100818318:->chr7:100806798:-	chr7	100818527	100818318	-	chr7	100806798	100806277	-	TSF	ENST00000249330,ENST00000445482	5,5,6,6,11,11	20273-20278	24995-25000	LGG,PCPG,SKCM,UCEC,UVM
chr7:100850506:->chr7:100850185:-	chr7	100850556	100850506	-	chr7	100850185	100850060	-	TSF	ENST00000454310,ENST00000223127	17,17,7,7	20279-20282	25001-25004	ACC,BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr7:100854711:->chr7:100853725:-	chr7	100854761	100854711	-	chr7	100853725	100853612	-	TAF	ENST00000454310,ENST00000223127	17,7,7,17	20283-20286	25005-25008	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,READ,SARC,SKCM,STAD,UCEC,UCS,UVM
chr7:100854711:->chr7:100853923:-	chr7	100854761	100854711	-	chr7	100853923	100853813	-	TSF	ENST00000454310,ENST00000223127,ENST00000421736	17,7,7,7,17,17	20287-20292	25009-25014	BRCA,COAD,HNSC,LIHC,LUAD,LUSC,PAAD,READ,SARC,SKCM,STAD,TGCT,UVM
chr7:100877154:->chr7:100876195:-	chr7	100877200	100877154	-	chr7	100876195	100876114	-	TSF	ENST00000308344,ENST00000401528,ENST00000414035,ENST00000412417	7,7,7,7,2,2,2,2	20293-20300	25015-25022	COAD,LIHC,MESO,OV,STAD
chr7:100877859:->chr7:100877723:-	chr7	100878007	100877859	-	chr7	100877723	100877559	-	TAF	ENST00000308344,ENST00000401528,ENST00000433833	14,14,40,40,4,4,4,14,40	20301-20309	25023-25031	CESC,COAD,LUAD,MESO,OV,PAAD,STAD
chr7:100877907:->chr7:100877723:-	chr7	100878007	100877907	-	chr7	100877723	100877559	-	TSF	ENST00000308344,ENST00000401528,ENST00000433833	33,33,24,24,33,33,33,33,24	20310-20318	25032-25040	COAD,MESO,STAD
chr7:1014543:->chr7:1012928:-	chr7	1014593	1014543	-	chr7	1012928	1012817	-	TSF	ENST00000457254,ENST00000344111	17,17,7,7,16,16	20319-20324	25041-25046	ACC,CESC,COAD,DLBC,HNSC,LUSC,OV,READ,STAD,THYM
chr7:102118421:->chr7:102116717:-	chr7	102118425	102118421	-	chr7	102116717	102116628	-	TSF	ENST00000292614,ENST00000393794	1,1,1,1,1,1	20325-20330	25047-25052	KIRC,KIRP,OV,STAD
chr7:102146893:->chr7:102143691:-	chr7	102146992	102146893	-	chr7	102143691	102143610	-	TSF	ENST00000541662,ENST00000465829,ENST00000306682	24,24,24,11,11,11,2,2,2	20331-20339	25053-25061	KIRC,KIRP,LGG,LUAD,PAAD,PCPG,SARC,THCA
chr7:102207815:->chr7:102207530:-	chr7	102208027	102207815	-	chr7	102207530	102207498,102207444,102207440	-	TSF	ENST00000379340,ENST00000486319,ENST00000508848,ENST00000513506,ENST00000514917,ENST00000507355,ENST00000608621,ENST00000511313	18,18,18,10,10,10,18,10,18,10,10,18,18,18,10,10	20340-20355	25062-25077	CHOL,LGG,OV
chr7:102207972:->chr7:102207530:-	chr7	102208027	102207972	-	chr7	102207530	102207498,102207444,102207440	-	TSF	ENST00000379340,ENST00000486319,ENST00000508848,ENST00000513506,ENST00000514917,ENST00000507355,ENST00000608621,ENST00000511313	18,18,18,13,13,13,13,13,13,13,13,18,18,18,18,18	20356-20371	25078-25093	BLCA,GBM,KIRP,LGG,LUAD,TGCT
chr7:102212084:->chr7:102210371:-	chr7	102212088	102212084	-	chr7	102210371	102210282	-	TSF	ENST00000489144,ENST00000379340,ENST00000486319,ENST00000508848,ENST00000513506,ENST00000514917,ENST00000507355,ENST00000608621,ENST00000511313,ENST00000513438	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	20372-20401	25094-25123	KIRC,KIRP,OV,STAD

Table 19

chr7:102212170:->chr7:102210371:-	chr7	102212392	102212170	-	chr7	102210371	102210282	-	TSF	ENST00000489144,ENST00000379340,ENST00000486319,ENST00000508848,ENST00000513506,ENST00000514917,ENST00000507355,ENST00000608621,ENST00000511313,ENST00000513438	7,7,7,7,7,7,7,7,7,7,33,33,33,33,33,33,33,33,33,33	20402-20421	25124-25143	KIRP,OV,STAD,UCEC
chr7:102246056:->chr7:102242852:-	chr7	102246155	102246056	-	chr7	102242852	102242771	-	TSF	ENST00000262940,ENST00000461209,ENST00000449970,ENST00000462172,ENST00000522801,ENST00000520042,ENST00000521076	24,24,24,24,24,11,11,11,11,11,11,11,2,2,2,2,2,24,24,2,2	20422-20442	25144-25164	KIRC,KIRP,LGG,LUAD,PAAD,PCPG,SARC
chr7:102306895:->chr7:102306610:-	chr7	102307107	102306895	-	chr7	102306610	102306578	-	TSF	ENST00000591000,ENST00000476151,ENST00000333432	18,18,10,10,18,10	20443-20448	25165-25170	CHOL,LGG
chr7:102307052:->chr7:102207530:-	chr7	102307107	102307052	-	chr7	102207530	102207498,10220744,102207440	-	TSF	ENST00000379340,ENST00000486319,ENST00000508848,ENST00000513506,ENST00000514917,ENST00000507355,ENST00000608621,ENST00000511313	18,18,18,13,13,13,13,13,13,13,13,18,18,18,18,18	20449-20464	25171-25186	GBM,LGG
chr7:102307052:->chr7:102306610:-	chr7	102307107	102307052	-	chr7	102306610	102306578	-	TSF	ENST00000591000,ENST00000476151,ENST00000333432	18,18,13,13,13,18	20465-20470	25187-25192	BLCA,GBM,LGG,LUAD,TGCT
chr7:102793520:+>chr7:102939015:+	chr7	102793255	102793520	+	chr7	102939015	102939155	+	TSF	ENST00000249269,ENST00000428154,ENST00000456433,ENST00000443722,ENST00000453466	53,53,53,53,53,15,15,15,15,15,2,2,2,2,2	20471-20485	25193-25207	COAD,READ
chr7:107568012:->chr7:107566804:-	chr7	107568061	107568012	-	chr7	107566804	107566628	-	TSF	ENST00000393561,ENST00000222399	7,7,16,16,16,16	20486-20491	25208-25213	BLCA,KIRP,MESO,TGCT,UCEC
chr7:107598030:->chr7:107596075:-	chr7	107598095	107598030	-	chr7	107596075	107595912	-	TSF	ENST00000393561,ENST00000222399	2,2,21,21,21,21	20492-20497	25214-25219	BRCA,KIRP,SARC
chr7:116364901:+>chr7:116371722:+	chr7	116364854	116364901	+	chr7	116371722	116371913	+	TAF	ENST00000397752,ENST00000318493,ENST00000436117	16,4,4,4,16,16	20498-20503	25220-25225	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,READ,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr7:117316035:+>chr7:117355812:+	chr7	117315827	117316035	+	chr7	117355812	117355913	+	TSF	ENST00000600166	8,11,49	20504-20506	25226-25228	BRCA,COAD,LIHC,LUSC,READ,TGCT
chr7:117326829:+>chr7:117355812:+	chr7	117326507	117326829	+	chr7	117355812	117355913	+	TSF	ENST00000600166	3,20,47	20507-20509	25229-25231	COAD,KICH,LIHC,LUSC,READ
chr7:117376519:->chr7:117375475:-	chr7	117376632	117376519	-	chr7	117375475	117375323	-	TSF	ENST00000160373,ENST00000446636,ENST00000435233	38,38,38,13,13,13	20510-20515	25232-25237	BRCA,KIRP,LGG,UCS
chr7:1193154:->chr7:1192860:-	chr7	1193171	1193154	-	chr7	1192860	1192709,1192543,1192705	-	TAF	ENST00000401903,ENST00000397083,ENST00000316495	6,5,5,6,6,5,5,5,5	20516-20524	25238-25246	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,SARC,SKCM,TGCT,THCA,UCEC,UCS
chr7:120447344:->chr7:120446746:-	chr7	120447469	120447344	-	chr7	120446746	120446603	-	TSF	ENST00000222747,ENST00000415871	28,28,20,20,2,2	20525-20530	25247-25252	ACC,KIRC,LUAD
chr7:121556146:+>chr7:121568210:+	chr7	121556048	121556146	+	chr7	121568210	121568275	+	TSF	ENST00000393386,ENST00000449182	11,11,6,6	20531-20534	25253-25256	LGG
chr7:121570251:+>chr7:121608005:+	chr7	121570168	121570251	+	chr7	121608005	121608184	+	TSF	ENST00000393386,ENST00000449182	28,28,27,27,11,11	20535-20540	25257-25262	LGG
chr7:121570258:+>chr7:121608005:+	chr7	121570168	121570258	+	chr7	121608005	121608184	+	TSF	ENST00000393386,ENST00000449182	30,30,13,13	20541-20544	25263-25266	GBM,LGG,LUSC

Table 19

chr7:121615144:+>chr7:121616227:+	chr7	121614961	121615144	+	chr7	121616227	121616322	+	TSF	ENST00000393386,ENST00000449182	15,19,19,15	20545-20548	25267-25270	GBM,LGG,LUSC
chr7:121663441:+>chr7:121668606:+	chr7	121663316	121663441	+	chr7	121668606	121668697	+	TSF	ENST00000393386,ENST00000449182	34,34,41,9,9,41	20549-20554	25271-25276	GBM,HNSC,LGG,LUSC,SKCM
chr7:126136413:->chr7:126086426:-	chr7	126136473	126136413	-	chr7	126086426	126086180	-	TSF	ENST00000444921,ENST00000339582,ENST00000358373,ENST00000472701	15,15,12,12,12,15,15	20555-20562	25277-25284	KIRC,KIRP
chr7:129960856:+>chr7:129962329:+	chr7	129960758	129960856	+	chr7	129962329	129962516	+	TSF	ENST00000445470,ENST00000222482,ENST00000493259	6,6,6,13,13,13	20563-20568	25285-25290	BRCA,CESC,MESO
chr7:130127065:+>chr7:130135209:+	chr7	130127044	130127065	+	chr7	130135209	130135363	+	TAF	ENST00000223215,ENST00000437945	7,7,3,3,6,6	20569-20574	25291-25296	BLCA,BRCA,COAD,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,SARC,STAD,TGCT,THYM,UCEC,UCS
chr7:130130254:+>chr7:130135209:+	chr7	130130176	130130254	+	chr7	130135209	130135363	+	TSF	ENST00000223215,ENST00000437945	26,26,19,19,25,25	20575-20580	25297-25302	BLCA,OV
chr7:134212386:+>chr7:134215479:+	chr7	134212336	134212386	+	chr7	134215479	134215562	+	TSF	ENST00000359579	12,7,16	20581-20583	25303-25305	BLCA,CESC,HNSC,LIHC,LUAD,LUSC,STAD
chr7:134213199:+>chr7:134215395:+	chr7	134213194	134213199	+	chr7	134215395	134215562	+	TSF	ENST00000359579	2,1,1	20584-20586	25306-25308	HNSC,KIRC,KIRP,LIHC,LUSC
chr7:134215973:+>chr7:134216660:+	chr7	134215952	134215973	+	chr7	134216660	134216776	+	TSF	ENST00000359579	7,2,6	20587-20589	25309-25311	BLCA,CESC,HNSC,KIRP,LIHC,LUSC
chr7:134215973:+>chr7:134217756:+	chr7	134215952	134215973	+	chr7	134217756	134217833	+	TSF	ENST00000359579	7,2,6	20590-20592	25312-25314	LUSC
chr7:134234001:+>chr7:134252910:+	chr7	134233804	134234001	+	chr7	134252910	134253077	+	TAF	ENST00000457545,ENST00000423958	66,66,52,52,3,3	20593-20598	25315-25320	BLCA,BRCA,CESC,HNSC,KIRP,LIHC,LUAD,LUSC,MESO,SARC,UCEC
chr7:136952826:->chr7:136939714:-	chr7	136953098	136952826	-	chr7	136939714	136939606	-	TSF	ENST00000348225,ENST00000393083	71,17,17,42,42,71	20599-20604	25321-25326	BLCA
chr7:136953071:->chr7:136939714:-	chr7	136953098	136953071	-	chr7	136939714	136939606	-	TSF	ENST00000348225,ENST00000393083	9,9,4,8,8,4	20605-20610	25327-25332	BLCA,OV
chr7:137617650:->chr7:137613112:-	chr7	137617767	137617650	-	chr7	137613112	137612896	-	TAF	ENST00000330387,ENST00000456390,ENST00000452463	9,9,9,3,38,38,38,3,3	20611-20619	25333-25341	ACC,BRCA,CESC,COAD,DLBC,GBM,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,READ,SKCM,STAD
chr7:139048198:+>chr7:139060808:+	chr7	139048120	139048198	+	chr7	139060808	139060902	+	TAF	ENST00000541170,ENST00000541515,ENST00000354926,ENST00000456182,ENST00000263545	24,24,24,24,2,2,2,2,2,17,17,17,17,17,24	20620-20634	25342-25356	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC
chr7:139441762:->chr7:139416814:-	chr7	139441888	139441762	-	chr7	139416814	139415731	-	TSF	ENST00000406875,ENST00000428878,ENST00000342645	17,17,17,34,34,34	20635-20640	25357-25362	KICH,KIRC,STAD
chr7:139714786:+>chr7:139715523:+	chr7	139714768	139714786	+	chr7	139715523	139715660	+	TSF	ENST00000425687,ENST00000263552,ENST00000336425,ENST00000414508,ENST00000416849,ENST00000436047,ENST00000448866,ENST00000458722,ENST00000411653	6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,5,5,5,5,5,5,5,5,5,5,5	20641-20667	25363-25389	BLCA,COAD,DLBC,KIRP,LIHC,LUAD,PAAD,PRAD,READ,SARC,STAD,TGCT,THYM
chr7:14308524:->chr7:14217776:-	chr7	14309025	14308524	-	chr7	14217776	14217656	-	TSF	ENST00000258767,ENST00000399322,ENST00000403951,ENST00000402815,ENST00000407950,ENST00000444700,ENST00000406247	5,5,5,5,5,5,31,31,31,31,31,31,31,31,31,2,2,2,2,2,2,2,2,5	20668-20688	25390-25410	GBM,LGG
chr7:1476990:->chr7:1476492:-	chr7	1477059	1476990	-	chr7	1476492	1476378	-	TSF	ENST00000405088,ENST00000297508	23,23,14,14,22,22	20689-20694	25411-25416	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRP,LUAD,LUSC,PAAD,SARC,UCEC
chr7:148712660:->chr7:148712134:-	chr7	148712709	148712660	-	chr7	148712134	148711996	-	TSF	ENST00000286091	11,16,4	20695-20697	25417-25419	BRCA,GBM,OV,TGCT

Table 19

chr7:148982787:+>chr7:148984656:+	chr7	148982749	148982787	+	chr7	148984656	148984699	+	TSF	ENST00000378052,ENST00000476295,ENST00000418158	13,13,12,12,12,13	20698-20703	25420-25425	BLCA,BRCA,GBM,KICH,KIRP,LGG,LUAD,LUSC,OV,PRAD,UCEC,UCS
chr7:149537696:+>chr7:149541714:+	chr7	149537664	149537696	+	chr7	149541714	149541825	+	TSF	ENST00000223210	11,10,10	20704-20706	25426-25428	BRCA,GBM,KIRC,KIRP,LGG,OV,SARC,SKCM
chr7:149571710:+>chr7:149572687:+	chr7	149571552	149571710	+	chr7	149572687	149572734	+	TAF	ENST00000421974,ENST00000456496,ENST00000464683,ENST00000479613,ENST00000606024,ENST00000471877,ENST00000464662,ENST00000425642	9,9,3,3,3,3,3,3,3,3,9,9,9,9,9,9	20707-20722	25429-25444	BRCA,GBM,KIRP,LGG,LIHC,OV,PAAD,PCPG,PRAD,THCA,THYM,UCEC
chr7:150730148:+>chr7:150730692:+	chr7	150730019	150730148	+	chr7	150730692	150730929,150731004,150730700	+	TAF	ENST00000461373,ENST00000358849,ENST00000489192,ENST00000297504,ENST00000356058,ENST00000498578,ENST00000477719,ENST00000477092	43,43,43,43,43,43,43,9,9,9,9,9,5,5,5,43,5,5,5,5	20723-20746	25445-25468	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,THCA,UVM
chr7:150777296:->chr7:150775179:-	chr7	150777427	150777296	-	chr7	150775179	150775103	-	TSF	ENST00000540185,ENST00000353841,ENST00000297532,ENST00000482571	2,16,16,16,16,2,2,2	20747-20754	25469-25476	OV,STAD
chr7:150938250:->chr7:150937608:-	chr7	150938296	150938250	-	chr7	150937608	150937511	-	TAF	ENST00000262188,ENST00000392811,ENST00000356800	11,11,11,4,4,4,15,15,15	20755-20763	25477-25485	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS
chr7:151133690:->chr7:151133411:-	chr7	151133708	151133690	-	chr7	151133411	151133266	-	TSF	ENST00000337323	4,6,5	20764-20766	25486-25488	THCA
chr7:154755838:->chr7:154755476:-	chr7	154755921	154755838	-	chr7	154755476	154755381	-	TSF	ENST00000404141,ENST00000397192	10,10,6,6	20767-20770	25489-25492	BRCA,HNSC,LUAD,SARC,TGCT,THYM,UCEC
chr7:158431181:->chr7:158424409:-	chr7	158431231	158431181	-	chr7	158424409	158424358	-	TSF	ENST00000541468,ENST00000356309,ENST00000409423,ENST00000441982,ENST00000275830	17,17,17,17,17,7,7,7,7,7	20771-20780	25493-25502	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LGG,LUSC,READ,SARC,TGCT,THYM,UCEC
chr7:16840006:->chr7:16839441:-	chr7	16840326	16840006	-	chr7	16839441	16839368	-	TAF	ENST00000419304,ENST00000450569,ENST00000419572,ENST00000401412,ENST00000412973	30,30,30,30,30,31,31,31,31,31,59,59,59,59,59	20781-20795	25503-25517	BRCA,CESC,COAD,PRAD,STAD
chr7:16914438:->chr7:16913467:-	chr7	16914458	16914438	-	chr7	16913467	16913404	-	TAF	ENST00000310398,ENST00000402239,ENST00000414935	6,6,6,6,6,6	20796-20801	25518-25523	BRCA,CESC,COAD,LUAD,PAAD,PRAD,STAD
chr7:16920016:->chr7:16913467:-	chr7	16920082	16920016	-	chr7	16913467	16913404	-	TSF	ENST00000310398,ENST00000402239,ENST00000414935	18,18,18,13,13,13	20802-20807	25524-25529	BRCA,LUAD,PRAD,STAD
chr7:2059649:->chr7:2054277:-	chr7	2059680	2059649	-	chr7	2054277	2054137	-	TSF	ENST00000402746,ENST00000399654,ENST00000406869,ENST00000265854,ENST00000438959	10,10,10,10,10,4,4,4,4	20808-20817	25530-25539	BLCA,DLBC,HNSC,KIRP,SARC,SKCM,THYM,UCS,UVM
chr7:20686997:+>chr7:20687158:+	chr7	20686966	20686997	+	chr7	20687158	20687271	+	TSF	ENST00000404938	2,10,10	20818-20820	25540-25542	KIRC,KIRP,LIHC,SARC,SKCM,UVM
chr7:20708050:+>chr7:20721128:+	chr7	20707326	20708050	+	chr7	20721128	20721289	+	TSF	ENST00000404938,ENST00000258738	26,26,37,37,12,12	20821-20826	25543-25548	KIRC,KIRP,LIHC,SARC,SKCM,TGCT,UVM
chr7:21979880:->chr7:21956512:-	chr7	21979898	21979880	-	chr7	21956512	21956372	-	TAF	ENST00000406877,ENST00000373934	6,6,6,5,5,6	20827-20832	25549-25554	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,READ,SARC,SKCM,STAD,TGCT,THYM
chr7:2212885:->chr7:2188873:-	chr7	2213442	2212885	-	chr7	2188873	2188787	-	TSF	ENST00000402746,ENST00000399654,ENST00000406869,ENST00000265854	26,26,26,26,29,29,29,3,3,3	20833-20844	25555-25566	CESC,DLBC,GBM,HNSC,KIRP,LGG,LUAD,LUSC,SARC,TGCT,THCA,THYM,UCEC

Table 19

chr7:22512791:->chr7:22459455:-	chr7	22512874	22512791	-	chr7	22459455	22459423	-	TSF	ENST00000406890	28,6,17	20845-20847	25567-25569	BLCA,CESC,HNSC,LIHC,LUSC,SARC,SKCM,TGCT
chr7:2276801:->chr7:2275199:-	chr7	2276932	2276801	-	chr7	2275199	2274757,2	-	TAF	ENST00000242257,ENST00000440306,ENST00000407040	22,22,22,9,9,1,1,9,1	20848-20856	25570-25578	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LUAD,LUSC,READ,SARC,SKCM,STAD,TGCT,UCS
chr7:22858099:->chr7:22857667:-	chr7	22858195	22858099	-	chr7	22857667	22857619	-	TSF	ENST00000358435,ENST00000405021,ENST00000372879	6,6,11,11,11,29,29,29,6	20857-20865	25579-25587	BRCA,GBM,KIRC,KIRP,LUSC,OV,STAD
chr7:2287861:+>chr7:2289492:+	chr7	2287707	2287861	+	chr7	2289492	2289637	+	TSF	ENST00000356714,ENST00000397049,ENST00000397046,ENST00000397048,ENST00000339737,ENST00000343985	17,17,17,17,17,17,51,51,51,51,51,51,3,3,3,3,3,3	20866-20883	25588-25605	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,READ,SARC,SKCM,TGCT,THYM,UCS
chr7:2289115:+>chr7:2289492:+	chr7	2289080	2289115	+	chr7	2289492	2289637	+	TAF	ENST00000356714,ENST00000397049,ENST00000397046,ENST00000397048,ENST00000339737,ENST00000343985	12,12,12,12,12,12,6,6,6,6,6,6,3,3,3,3,3,3	20884-20901	25606-25623	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,PAAD,PCPG,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr7:2289194:+>chr7:2289492:+	chr7	2289080	2289194	+	chr7	2289492	2289637	+	TAF	ENST00000356714,ENST00000397049,ENST00000397046,ENST00000397048,ENST00000339737,ENST00000343985	38,38,38,38,38,38,33,33,33,33,33,33,29,29,29,29,29,29	20902-20919	25624-25641	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS,UVM
chr7:23290481:+>chr7:23292926:+	chr7	23290404	23290481	+	chr7	23292926	23293078	+	TSF	ENST00000258733,ENST00000381990,ENST00000409458,ENST00000453162	9,9,9,9,7,7,7,7	20920-20927	25642-25649	BLCA,CESC,HNSC,KICH,KIRC,KIRP,LIHC,LUSC,SARC,SKCM,TGCT,UVM
chr7:23676342:+>chr7:23682550:+	chr7	23675523	23676342	+	chr7	23682550	23682734	+	TSF	ENST00000307471,ENST00000409765,ENST00000448353,ENST00000410069	25,25,25,12,12,12,12,27,27,27,27,25	20928-20939	25650-25661	HNSC,LUSC,TGCT
chr7:23722381:+>chr7:23724118:+	chr7	23722338	23722381	+	chr7	23724118	23724291	+	TSF	ENST00000409192,ENST00000344962,ENST00000429719,ENST00000446234	10,7,7,7,7,10,10,10	20940-20947	25662-25669	BRCA,CESC,COAD,GBM,KICH,MESO,OV,PRAD,STAD,TGCT,UCEC
chr7:2403665:+>chr7:2404007:+	chr7	2403615	2403665	+	chr7	2404007	2404164,2	+	TSF	ENST00000431643,ENST00000360876,ENST00000413917,ENST00000397011	17,7,7,7,16,16,16,17,17,17,7,16	20948-20959	25670-25681	OV,STAD
chr7:24325188:+>chr7:24329118:+	chr7	24325099	24325188	+	chr7	24329118	24329198	+	TSF	ENST00000242152,ENST00000407573,ENST00000405982	23,23,23,3,3,3	20960-20965	25682-25687	PRAD
chr7:26211491:+>chr7:26217563:+	chr7	26211486	26211491	+	chr7	26217563	26217742	+	TSF	ENST00000056233	1,1	20966-20967	25688-25689	TGCT
chr7:26678069:+>chr7:26678815:+	chr7	26677781	26678069	+	chr7	26678815	26678963	+	TSF	ENST00000409974	39,7	20968-20969	25690-25691	BLCA,KICH,KIRC,SARC,SKCM,STAD
chr7:27581188:->chr7:27578036:-	chr7	27581923	27581188	-	chr7	27578036	27577960	-	TSF	ENST00000265395,ENST00000425715	21,21,58,3,3,58	20970-20975	25692-25697	BRCA,KIRC,KIRP,LGG,LIHC,LUAD,SARC
chr7:27686771:->chr7:27672045:-	chr7	27687049	27686771	-	chr7	27672045	27671955	-	TAF	ENST00000265395,ENST00000428288,ENST00000425715	11,11,6,6,6,71,11,71,71	20976-20984	25698-25706	ACC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SKCM,STAD,THCA

chr7:29523591:+>chr7:29535568:+	chr7	29523499	29523591	+	chr7	29535568	29535652	+	TSF	ENST00000539406,ENST00000222792,ENST00000495789,ENST00000539389,ENST00000546235,ENST00000446446,ENST00000409041,ENST00000424025,ENST00000421775,ENST00000439711	21,21,21,21,21,21,21,30,30,30,30,30,30,30,30,30,13,13,13,13,13,13,13,13,13,13,21,21,30,21	20985-21014	25707-25736	BRCA,CESC,COAD,DLBC,LIHC,LUSC,READ,SARC,THCA
chr7:29900179:+>chr7:29915446:+	chr7	29899867	29900179	+	chr7	29915446	29915578	+	TSF	ENST00000409123,ENST00000242140,ENST00000409290	18,18,18,53,53,35,35,35,53	21015-21023	25737-25745	GBM,LGG,SARC,SKCM,UCS
chr7:30468120:->chr7:30465326:-	chr7	30468250	30468120	-	chr7	30465326	30465254	-	TSF	ENST00000222823	14,35,43	21024-21026	25746-25748	LUAD,THCA
chr7:30737846:+>chr7:30793347:+	chr7	30737766	30737846	+	chr7	30793347	30793554	+	TSF	ENST00000013222,ENST00000451002	12,12,25,25,3,3	21027-21032	25749-25754	THCA
chr7:30847863:+>chr7:30868295:+	chr7	30847611	30847863	+	chr7	30868295	30868353	+	TSF	ENST00000265299	15,2,50	21033-21035	25755-25757	DLBC,GBM,STAD,TGCT
chr7:33006627:+>chr7:33014229:+	chr7	33006587	33006627	+	chr7	33014229	33014374	+	TSF	ENST00000242209,ENST00000538336	2,2,13,13	21036-21039	25758-25761	BLCA,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD
chr7:38311882:->chr7:38289173:-	chr7	38312003	38311882	-	chr7	38289173	38288844	-	TAF	ENST00000436911	17,15	21040-21041	25762-25763	PRAD,UCEC
chr7:38311882:->chr7:38305279:-	chr7	38312003	38311882	-	chr7	38305279	38304950	-	TAF	ENST00000443402	17,15	21042-21043	25764-25765	BRCA,PRAD,UCEC
chr7:44158351:->chr7:44157663:-	chr7	44158417	44158351	-	chr7	44157663	44157542	-	TSF	ENST00000406581,ENST00000223361,ENST00000452185,ENST00000433715,ENST00000456038,ENST00000418438	22,22,13,13,13,13,13,13,21,21,21,21,21,21,22,22,22,22	21044-21061	25766-25783	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr7:48039725:->chr7:48035743:-	chr7	48039730	48039725	-	chr7	48035743	48035628	-	TSF	ENST00000453071,ENST00000297325,ENST00000412371,ENST00000412142,ENST00000395572,ENST00000453192,ENST00000438771	2,2,2,2,2,2,2,1,1,1,1,1,1,1	21062-21075	25784-25797	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,MESO,OV,SARC,STAD,TGCT
chr7:4949360:->chr7:4947230:-	chr7	4949365	4949360	-	chr7	4947230	4947027	-	TSF	ENST00000404774,ENST00000401401	2,2,1,1,1,1	21076-21081	25798-25803	LGG
chr7:50595367:->chr7:50547561:-	chr7	50595425	50595367	-	chr7	50547561	50547485	-	TSF	ENST00000357936,ENST00000431062,ENST00000426377,ENST00000444124,ENST00000430300	19,19,19,19,19,19,19,19,19,19,19,19,19,19,19	21082-21096	25804-25818	PCPG
chr7:50595367:->chr7:50563115:-	chr7	50595425	50595367	-	chr7	50563115	50563049	-	TSF	ENST00000357936,ENST00000431062,ENST00000426377,ENST00000444733,ENST00000444124,ENST00000430300,ENST00000380984	19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19	21097-21117	25819-25839	LUAD,PCPG
chr7:50595367:->chr7:50571757:-	chr7	50595425	50595367	-	chr7	50571757	50571691	-	TSF	ENST00000357936,ENST00000431062,ENST00000426377,ENST00000444733,ENST00000444124,ENST00000430300,ENST00000380984	19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19,19	21118-21138	25840-25860	LUAD,LUSC,PCPG
chr7:50722961:->chr7:50694675:-	chr7	50723014	50722961	-	chr7	50694675	50694519	-	TSF	ENST00000398810,ENST00000439599,ENST00000398812,ENST00000335866,ENST00000402578,ENST00000403097,ENST00000406641,ENST00000357271,ENST00000407526,ENST00000401949,ENST00000402497	13,13,13,13,13,13,13,13,13,13,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,17,13	21139-21171	25861-25893	KIRC,LUAD,PRAD,SARC,THCA

Table 19

chr7:50763289:->chr7:50742355:-	chr7	50763323	50763289	-	chr7	50742355	50742133	-	TSF	ENST00000439599,ENST00000398812,ENST00000403097,ENST00000357271,ENST00000401949,ENST00000439044	6,6,6,6,6,6,11,11,1,11,11,1,11,11,1,11,11,1,11,11,1	21172-21189	25894-25911	BLCA,BRCA,GBM,KICH,KIRC,KIRP,LUAD,LUSC,OV,PCPG,SARC,STAD,TGCT,THCA
chr7:5340708:+>chr7:5342428:+	chr7	5340608	5340708	+	chr7	5342428	5342570	+	TSF	ENST00000396872,ENST00000297195,ENST00000406453	6,6,6,33,33,33,11,11,11	21190-21198	25912-25920	GBM,LGG,OV,PCPG
chr7:5433673:->chr7:5430259:-	chr7	5433736	5433673	-	chr7	5430259	5430116,5	-	TSF	ENST00000399537,ENST00000430969,ENST00000434361,ENST00000399434	7,9,9,9,9,15,15,7,7,15,7,15	21199-21210	25921-25932	BRCA,CESC,COAD,HNSC,LUAD,LUSC,OV,SARC,STAD
chr7:54612029:+>chr7:54612315:+	chr7	54611995	54612029	+	chr7	54612315	54612481	+	TAF	ENST00000302287,ENST00000407838,ENST00000404951,ENST00000402026,ENST00000402613	11,11,11,11,11,11,11,2,2,2,2,2,11,11,11	21211-21225	25933-25947	BRCA,GBM,KIRC,KIRP,LGG,MESO,PAAD,PCPG,PRAD
chr7:55435321:+>chr7:55459486:+	chr7	55435136	55435321	+	chr7	55459486	55459603	+	TSF	ENST00000254770	15,52,39	21226-21228	25948-25950	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,UCEC
chr7:55464924:+>chr7:55466116:+	chr7	55464873	55464924	+	chr7	55466116	55466323	+	TSF	ENST00000254770	17,17,7	21229-21231	25951-25953	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LGG,LUAD,LUSC,SARC,STAD,TGCT,UCEC
chr7:55477474:+>chr7:55479600:+	chr7	55477082	55477474	+	chr7	55479600	55479782	+	TSF	ENST00000254770	47,92,14	21232-21234	25954-25956	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUAD,LUSC,SARC,STAD,TGCT
chr7:55985990:+>chr7:55990855:+	chr7	55985644	55985990	+	chr7	55990855	55990981	+	TSF	ENST00000426595,ENST00000429591	13,13,56,56	21235-21238	25957-25960	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUAD,LUSC,OV,PRAD,SARC,STAD
chr7:56018522:+>chr7:56020872:+	chr7	56018506	56018522	+	chr7	56020872	56021011	+	TSF	ENST00000426595	5,5	21239-21240	25961-25962	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LUAD,LUSC,OV,PAAD,READ,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr7:56018522:+>chr7:56022602:+	chr7	56018506	56018522	+	chr7	56022602	56022866	+	TSF	ENST00000443449,ENST00000426595,ENST00000285298,ENST00000426595,ENST00000285298,ENST00000443449	5,5,5,5,5,5	21241-21246	25963-25968	BLCA,BRCA,CESC,GBM,HNSC,LUAD,LUSC,OV,STAD,UCEC
chr7:56020509:+>chr7:56020872:+	chr7	56020443	56020509	+	chr7	56020872	56021011	+	TSF	ENST00000426595	22,11,21	21247-21249	25969-25971	BRCA,CESC,COAD,GBM,LUSC,OV,STAD
chr7:56020541:+>chr7:56020872:+	chr7	56020443	56020541	+	chr7	56020872	56021011	+	TSF	ENST00000426595	33,21,1	21250-21252	25972-25974	BLCA,BRCA,CESC,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,READ,STAD,TGCT,UCEC,UCS
chr7:56037358:+>chr7:56045819:+	chr7	56037040	56037358	+	chr7	56045819	56045958	+	TSF	ENST00000322090,ENST00000446778,ENST00000456204	17,17,17,1,1,1,58,58,58	21253-21261	25975-25983	BRCA,GBM,KICH,KIRC,LUAD,STAD
chr7:6423803:+>chr7:6426843:+	chr7	6423751	6423803	+	chr7	6426843	6426914	+	TSF	ENST00000348035,ENST00000356142	15,17,17,13,13,15	21262-21267	25984-25989	BLCA,BRCA,CESC,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,STAD,TGCT,UCEC
chr7:65418399:+>chr7:65419061:+	chr7	65418154	65418399	+	chr7	65419061	65419288	+	TSF	ENST00000360768,ENST00000434382	16,16,33,61,61,33	21268-21273	25990-25995	LUAD,LUSC,STAD
chr7:65546064:+>chr7:65546790:+	chr7	65545998	65546064	+	chr7	65546790	65546984	+	TSF	ENST00000304874,ENST00000380839,ENST00000395332,ENST00000395331	22,22,22,22,16,16,13,13,13,13,16,16	21274-21285	25996-26007	COAD,LIHC,PCPG
chr7:65819316:+>chr7:65821812:+	chr7	65819313	65819316	+	chr7	65821812	65821829	+	TAF	ENST00000304842	1,1	21286-21287	26008-26009	ACC,CESC,GBM,HNSC,KICH,KIRC,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,SARC,TGCT,THYM
chr7:65819361:+>chr7:65821812:+	chr7	65819313	65819361	+	chr7	65821812	65821829	+	TSF	ENST00000304842	16,16,7	21288-21290	26010-26012	GBM,KIRC,LGG,PCPG

Table 19

chr7:66386448:+>chr7:66409963:+	chr7	66386440	66386448	+	chr7	66409963	66410248,66410147,66410019,66410221,66410085	+	TSF	ENST00000341567,ENST00000607045,ENST00000433271,ENST00000413593,ENST00000424964,ENST00000418375	3,2,2,2,2,2,2,2,2,2,2,3,3,3,2,3,3	21291-21308	26013-26030	OV,STAD
chr7:66414197:+>chr7:66415939:+	chr7	66414193	66414197	+	chr7	66415939	66416122	+	TSF	ENST00000341567	1,1,1	21309-21311	26031-26033	STAD
chr7:72720556:->chr7:72719094:-	chr7	72720593	72720556	-	chr7	72719094	72718957	-	TSF	ENST00000428206,ENST00000252594,ENST00000438747,ENST00000310326,ENST00000455763	12,12,12,12,12,12,12,12,12,12	21312-21321	26034-26043	BLCA,BRCA,CESC,COAD,DLBC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr7:73098330:+>chr7:73100966:+	chr7	73098299	73098330	+	chr7	73100966	73101061	+	TAF	ENST00000265758,ENST00000432522,ENST00000421744,ENST00000428163,ENST00000423166,ENST00000423497	10,10,10,10,10,10,10,10,10,10,10,10	21322-21333	26044-26055	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr7:73098709:+>chr7:73100966:+	chr7	73098580	73098709	+	chr7	73100966	73101061	+	TSF	ENST00000265758,ENST00000432522,ENST00000421744,ENST00000428163,ENST00000423166,ENST00000423497	6,6,6,6,6,6,34,34,34,34,34,34,17,17,17,17	21334-21351	26056-26073	BRCA,LUAD,OV,PCPG,PRAD,SKCM,UCEC
chr7:73466891:+>chr7:73467493:+	chr7	73466655	73466891	+	chr7	73467493	73467639	+	TAF	ENST00000445912,ENST00000252034,ENST00000358929,ENST00000320492,ENST00000414324,ENST00000380562,ENST00000380575,ENST00000380584,ENST00000458204,ENST00000357036,ENST00000429192,ENST00000380553,ENST00000380576,ENST00000320399	8,8,8,8,8,8,8,8,8,8,8,8,8,8,8,15,15,15,15,15,15,15,15,15,15,15,15,15,10,10,10,10,10,10,10,10,10,10,10,10,10,10,10	21352-21393	26074-26115	ACC,BRCA,CESC,GBM,LGG,LIHC,LUAD,LUSC,MESO,PAAD,SARC,TGCT,UCEC,UCS
chr7:73776406:+>chr7:73778585:+	chr7	73776149	73776406	+	chr7	73778585	73778645	+	TAF	ENST00000361545,ENST00000223398,ENST00000395060	10,31,18,10,10,31,31,18,18	21394-21402	26116-26124	GBM,HNSC,KIRP,LGG,SARC
chr7:73816214:+>chr7:73818167:+	chr7	73816114	73816214	+	chr7	73818167	73818178	+	TSF	ENST00000361545,ENST00000223398,ENST00000395060,ENST00000487447	33,33,33,33,6,6,6,6,11,11,11,11	21403-21414	26125-26136	DLBC,GBM,LGG,SKCM,STAD
chr7:73816411:+>chr7:73818167:+	chr7	73816311	73816411	+	chr7	73818167	73818178	+	TSF	ENST00000361545,ENST00000223398,ENST00000395060,ENST00000487447	6,6,6,6,33,33,33,33,11,11,11,11	21415-21426	26137-26148	LGG,SKCM,STAD
chr7:74128505:+>chr7:74165693:+	chr7	74128471	74128505	+	chr7	74165693	74165748	+	TSF	ENST00000324896,ENST00000346152,ENST00000353920,ENST00000416070	11,11,11,11,3,3,3,3,1,1,1,1	21427-21438	26149-26160	BRCA,GBM,OV,STAD
chr7:74158566:+>chr7:74159097:+	chr7	74158449	74158566	+	chr7	74159097	74159280	+	TAF	ENST00000324896,ENST00000346152,ENST00000353920,ENST00000416070	1,1,1,1,12,12,12,12,38,38,38,38	21439-21450	26161-26172	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr7:74480881:+>chr7:74528191:+	chr7	74480763	74480881	+	chr7	74528191	74528329	+	TSF	ENST00000356115,ENST00000430511,ENST00000312575,ENST00000423666	39,39,39,39,35,35,35,35,25,25,25,25	21451-21462	26173-26184	BLCA,BRCA,CESC,HNSC,LUSC,TGCT
chr7:7558760:->chr7:7557468:-	chr7	7559044	7558760	-	chr7	7557468	7557427	-	TSF	ENST00000399429,ENST00000444268	40,7,36,36,40,7	21463-21468	26185-26190	CESC,CHOL,COAD,KIRC,LUAD,PAAD,READ,SARC,SKCM,STAD

Table 19

chr7:76921749:+>chr7:76922269:+	chr7	76921651	76921749	+	chr7	76922269	76922517	+	TSF	ENST00000285871,ENST00000431197	33,33,23,23,1,1	21469-21474	26191-26196	KIRC,KIRP,OV
chr7:76921792:+>chr7:76922269:+	chr7	76921651	76921792	+	chr7	76922269	76922517	+	TSF	ENST00000285871,ENST00000431197	1,1,13,13,15,15	21475-21480	26197-26202	BLCA,KIRC,KIRP,OV
chr7:76957483:->chr7:76955590:-	chr7	76957485	76957483	-	chr7	76955590	76955529	-	TSF	ENST00000257626,ENST00000415112	1,1	21481-21482	26203-26204	GBM,KIRP,LUAD,OV
chr7:77573153:+>chr7:77578995:+	chr7	77573053	77573153	+	chr7	77578995	77579150	+	TSF	ENST00000422959,ENST00000307305,ENST00000416283,ENST00000248550	33,33,33,33,24,24,24,24,11,11,11	21483-21494	26205-26216	SKCM,TGCT
chr7:82523713:->chr7:82508778:-	chr7	82523973	82523713	-	chr7	82508778	82508653	-	TSF	ENST00000333891,ENST00000423517,ENST00000413807,ENST00000456006	18,18,18,18,7,7,7,7,38,38,38,38	21495-21506	26217-26228	ACC,HNSC,LUSC,PCPG,SARC,SKCM
chr7:8267268:->chr7:8261028:-	chr7	8267515	8267268	-	chr7	8261028	8260905	-	TAF	ENST00000402384,ENST00000406470,ENST00000265577,ENST00000396675,ENST00000339809,ENST00000401396,ENST00000422063,ENST00000407906,ENST00000317367,ENST00000447326,ENST00000430867	19,19,19,19,19,19,19,19,19,19,19,19,13,13,13,13,13,10,10,10,10,10,10,10,10,10,10,10,13,13,13,13,13,13	21507-21539	26229-26261	BLCA,BRCA,CESC,CHOL,COAD,KICH,KIRC,KIRP,LUAD,PAAD,PCPG,PRAD,READ,STAD,UCEC,UVM
chr7:87600690:+>chr7:87607651:+	chr7	87600681	87600690	+	chr7	87607651	87607727	+	TSF	ENST00000398204,ENST00000439864,ENST00000412441,ENST00000398201,ENST00000265727,ENST00000315984,ENST00000398209,ENST00000398203	3,3,3,3,3,3,3,3,2,2,2,2,2,2,3,3,3,3,3,3	21540-21563	26262-26285	BLCA,LGG,SARC
chr7:89911485:+>chr7:89912206:+	chr7	89911392	89911485	+	chr7	89912206	89912370	+	TAF	ENST00000316089,ENST00000389297,ENST00000497910,ENST00000457170,ENST00000449577	26,26,11,11,11,11,11,26,26,26	21564-21573	26286-26295	BRCA,KIRC,KIRP,MESO,PRAD,UCEC
chr7:92778372:+>chr7:92869179:+	chr7	92778284	92778372	+	chr7	92869179	92869248	+	TSF	ENST00000251739,ENST00000305866,ENST00000438395,ENST00000441602,ENST00000458530,ENST00000436177,ENST00000535481	29,29,29,29,29,29,29,17,17,17,17,17,17,17,9,9,9,9,9,9	21574-21594	26296-26316	PCPG
chr7:94018589:+>chr7:94057748:+	chr7	94018505	94018589	+	chr7	94057748	94057789	+	TSF	ENST00000297268	28,28,2	21595-21597	26317-26319	BLCA,BRCA,COAD,HNSC,KIRC,LUAD,LUSC,MESO,OV,PAAD,READ,SARC,STAD,TGCT,THCA
chr7:94270209:->chr7:94259153:-	chr7	94270259	94270209	-	chr7	94259153	94259031	-	TSF	ENST00000265735,ENST00000445866,ENST00000447873,ENST00000428696,ENST00000415788	17,17,17,17,17,7,7,7,7,16,16,16,16,16	21598-21612	26320-26334	ACC,BRCA,KIRC,SARC,STAD
chr7:94270209:->chr7:94268760:-	chr7	94270259	94270209	-	chr7	94268760	94268653	-	TSF	ENST00000415788	17,7,16	21613-21615	26335-26337	BRCA,GBM,LUAD,STAD
chr7:95037151:->chr7:95035559:-	chr7	95037343	95037151	-	chr7	95035559	95035431	-	TSF	ENST00000536183,ENST00000433091,ENST00000222572	42,42,42,33,33,33,63,63,63	21616-21624	26338-26346	GBM,LGG,STAD
chr7:95053104:->chr7:95045609:-	chr7	95053394	95053104	-	chr7	95045609	95045554	-	TSF	ENST00000536183,ENST00000455123,ENST00000433091,ENST00000222572	40,40,40,40,7,7,7,7,49,49,49,49	21625-21636	26347-26358	GBM,LIHC,LUAD
chr7:95053140:->chr7:95045609:-	chr7	95053394	95053140	-	chr7	95045609	95045554	-	TSF	ENST00000536183,ENST00000455123,ENST00000433091,ENST00000222572	28,28,28,28,11,11,11,11	21637-21644	26359-26366	LIHC,LUAD
chr7:95055720:->chr7:95053897:-	chr7	95055853	95055720	-	chr7	95053897	95053827	-	TSF	ENST00000536183,ENST00000455123,ENST00000433091,ENST00000222572,ENST00000446142	4,4,3,3,3,3,3,13,13,13,13,13,13,4,4,4	21645-21659	26367-26381	GBM,LGG,LUAD,LUSC,STAD,THCA

Table 19

chr7:95670949:+>chr7:95705369:+	chr7	95670520	95670949	+	chr7	95705369	95705509	+	TSF	ENST00000447467,ENST00000324972,ENST00000537881,ENST00000437599,ENST00000359388,ENST00000457059	3,3,3,3,3,3,75,75,75,75,75,75,1 4,14,14,1 4,14,14,7 5	21660-21677	26382-26399	ACC,GBM,LGG,LIHC,LUSC,PCPG
chr7:95987766:->chr7:95926263:-	chr7	95988433	95987766	-	chr7	95926263	95926210	-	TSF	ENST00000265631,ENST00000416240,ENST00000472162	27,27,27,19,19,19,5,5,5	21678-21686	26400-26408	TGCT
chr7:96339504:->chr7:96324203:-	chr7	96339660	96339504	-	chr7	96324203	96324110	-	TSF	ENST00000417009,ENST00000444799,ENST00000449279,ENST00000413065,ENST00000248566	7,3,3,3,3,3,28,28,2 8,28,28,7, 7,7,7	21687-21701	26409-26423	BLCA,BRCA,CESC,HNSC,KIRC,KIRP,LIHC,LUSC,OV,PRAD,TGCT,THYM,UCS
chr7:96380353:->chr7:96324203:-	chr7	96380645	96380353	-	chr7	96324203	96324110	-	TSF	ENST00000417009,ENST00000444799,ENST00000449279,ENST00000413065,ENST00000248566	7,7,7,7,7,35,25,25,25,25,25,35,35,35	21702-21716	26424-26438	GBM,LGG,PAAD
chr7:96798524:+>chr7:96810324:+	chr7	96798362	96798524	+	chr7	96810324	96810527	+	TSF	ENST00000432641	21,2,10	21717-21719	26439-26441	GBM,KIRC,LUSC,OV,SKCM,STAD
chr7:97938714:->chr7:97937208:-	chr7	97938760	97938714	-	chr7	97937208	97937001	-	TSF	ENST00000005260	7,15,12	21720-21722	26442-26444	BRCA,HNSC,LIHC,LUAD,LUSC,PAAD,STAD
chr7:98448151:->chr7:98446318:-	chr7	98448201	98448151	-	chr7	98446318	98446206	-	TSF	ENST00000416379,ENST00000339375,ENST00000450876,ENST00000345589,ENST00000546258	3,3,3,3,3,7,16,7,7,7 ,7,16,16,1 6,16	21723-21737	26445-26459	KIRC,LIHC,LUAD,MESO,PCPG
chr7:98974197:+>chr7:98983325:+	chr7	98974090	98974197	+	chr7	98983325	98983401	+	TAF	ENST00000432884	17,35	21738-21739	26460-26461	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,UCEC,UVM
chr7:99061750:->chr7:99057816:-	chr7	99061804	99061750	-	chr7	99057816	99057709	-	TSF	ENST00000413834,ENST00000555673,ENST00000451138,ENST00000414062,ENST00000449683,ENST00000359832,ENST00000292475,ENST00000544611,ENST00000488775,ENST00000394186	17,17,12,12,12,12,12,12,12,12,12,12,9,9,9,9,9,9,9,9,9,9,17,17,17,17,17,17,17,17	21740-21769	26462-26491	HNSC,STAD,TGCT,UCEC
chr7:99251951:->chr7:99250402:-	chr7	99257824	99251951	-	chr7	99250402	99250176	-	TSF	ENST00000222982,ENST00000343703	18,18,27,27,107,107	21770-21775	26492-26497	LIHC,LUAD
chr7:99257739:->chr7:99247855:-	chr7	99257824	99257739	-	chr7	99247855	99247696	-	TSF	ENST00000222982,ENST00000343703	6,6,28,28	21776-21779	26498-26501	LIHC,PAAD,STAD
chr7:99394725:->chr7:99250402:-	chr7	99394816	99394725	-	chr7	99250402	99250176	-	TAF	ENST00000222982,ENST00000343703	6,6,14,14	21780-21783	26502-26505	BLCA,CHOL,COAD,KIRP,LIHC,PAAD,READ,STAD
chr7:99401279:->chr7:99250402:-	chr7	99401376	99401279	-	chr7	99250402	99250176	-	TAF	ENST00000222982,ENST00000343703	23,23,12,12	21784-21787	26506-26509	BLCA,COAD,KIRP,LIHC,PAAD,READ,STAD
chr7:99747315:+>chr7:99751023:+	chr7	99747312	99747315	+	chr7	99751023	99751141	+	TAF	ENST00000341942,ENST00000441173	1,1	21788-21789	26510-26511	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr7:99761407:->chr7:99758582:-	chr7	99761456	99761407	-	chr7	99758582	99757552	-	TAF	ENST00000413800,ENST00000360039,ENST00000423751,ENST00000411994,ENST00000426974	16,16,16,16,16,16,16,16,16,16,16,16	21790-21799	26512-26521	BRCA,COAD,GBM,KIRC,KIRP,LGG,LUAD,LUSC,OV,SARC,SKCM,THYM,UCS

Table 10

chr7:99779427:+>chr7:99779713:+	chr7	99779289	99779427	+	chr7	99779713	99779815	+	TSF	ENST00000426455,ENST00000394018,ENST00000416412,ENST00000317296,ENST00000422690,ENST00000439782	19,19,19,19,19,19,7,7,7,7,7,7	21800-21811	26522-26533	BLCA,BRCA,COAD,HNSC,LUAD,PAAD,STAD,THYM,UCEC
chr7:99801819:+>chr7:99802250:+	chr7	99801794	99801819	+	chr7	99802250	99802398	+	TSF	ENST00000426455,ENST00000394018,ENST00000317296	8,8,8,8,8,8,8,8,8	21812-21820	26534-26542	BLCA,BRCA,CESC,DLBC,HNSC,LUAD,LUSC,MESO,OV,SARC,SKCM,THYM
chr7:99810670:->chr7:99773988:-	chr7	99810933	99810670	-	chr7	99773988	99773830	-	TSF	ENST00000292377	54,23,35	21821-21823	26543-26545	GBM,KIRC,LGG
chr8:100901910:->chr8:100899846:-	chr8	100901915	100901910	-	chr8	100899846	100899733	-	TSF	ENST00000522934,ENST00000520517,ENST00000520468,ENST00000297564,ENST00000520271,ENST00000517682,ENST00000524245,ENST00000522940,ENST00000518171,ENST00000523016	2,2,2,2,2,2,2,2,2,2,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	21824-21853	26546-26575	BRCA
chr8:100901972:->chr8:100899846:-	chr8	100902036	100901972	-	chr8	100899846	100899733	-	TSF	ENST00000522934,ENST00000520517,ENST00000520468,ENST00000297564,ENST00000520271,ENST00000517682,ENST00000524245,ENST00000522940,ENST00000518171,ENST00000523016	5,5,5,5,5,5,5,5,5,5,21,21,21,21,21,21,21,21,21,21	21854-21873	26576-26595	BRCA
chr8:100905547:->chr8:100899846:-	chr8	100905650	100905547	-	chr8	100899846	100899733	-	TSF	ENST00000522934,ENST00000520517,ENST00000520468,ENST00000297564,ENST00000520271,ENST00000517682,ENST00000524245,ENST00000522940,ENST00000518171,ENST00000523016	1,1,1,1,1,1,1,1,1,1,17,17,17,17,17,17,17,17,17,17,34,34,34,34,34,34,34,34,34,34	21874-21903	26596-26625	BLCA,BRCA,COAD,DLBC,GBM,HNSC,KIRP,LGG,LIHC,LUSC,OV,PRAD,SARC,STAD,TGCT,THCA
chr8:101647627:->chr8:101642619:-	chr8	101647768	101647627	-	chr8	101642619	101642555	-	TSF	ENST00000311812,ENST00000520352,ENST00000520661	1,3,3,3,1,1	21904-21909	26626-26631	BLCA
chr8:101933272:->chr8:101932980:-	chr8	101933557	101933272	-	chr8	101932980	101932921	-	TSF	ENST00000395957,ENST00000395958,ENST00000457309,ENST00000395956,ENST00000353245,ENST00000523848,ENST00000522542,ENST00000521309,ENST00000522819,ENST00000395953,ENST00000395948,ENST00000395951,ENST00000419477,ENST00000521607	9,9,9,9,9,9,9,9,9,9,9,9,9,9,29,29,29,29,29,29,29,29,29,29,29,29,29,29,20,20,20,20,20,20,20,20,20,20,20,20,20,29,20	21910-21951	26632-26673	BRCA,CESC,KIRC,KIRP,LGG,LIHC,LUSC,OV,PCPG,PRAD,READ,SARC,STAD,THCA,THYM
chr8:102609842:+>chr8:102611285:+	chr8	102609579	102609842	+	chr8	102611285	102611379	+	TSF	ENST00000251808,ENST00000395927	33,33,87,87	21952-21955	26674-26677	BRCA,OV,PRAD
chr8:104220725:+>chr8:104225147:+	chr8	104220609	104220725	+	chr8	104225147	104225313	+	TSF	ENST00000309982,ENST00000297574	16,16,31,31,20,20	21956-21961	26678-26683	GBM,LGG,LUAD,SKCM,STAD
chr8:104389536:+>chr8:104390255:+	chr8	104389530	104389536	+	chr8	104390255	104390471	+	TSF	ENST00000330295,ENST00000520337	1,1,1,1	21962-21965	26684-26687	BLCA,BRCA,CESC,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,SARC,SKCM,STAD,TGCT,UCEC,UCS

chr8:104389551:+>chr8:104390255:+	chr8	104389530	104389551	+	chr8	104390255	104390471	+	TAF	ENST00000330295,ENST00000520337	7,7,6,6	21966-21969	26688-26691	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr8:109321565:->chr8:109254142:-	chr8	109321615	109321565	-	chr8	109254142	109254028	-	TAF	ENST00000220849,ENST00000522445,ENST00000521440,ENST00000521297	9,16,16,16,16,16,16,9,9,9	21970-21981	26692-26703	BLCA,BRCA,COAD,KIRC,KIRP,LGG,OV,READ,SARC,SKCM,STAD,TGCT,UCS,UVM
chr8:11706904:->chr8:11706673:-	chr8	11706946	11706904	-	chr8	11706673	11706555,11706570,11706571,11706593	-	TSF	ENST00000434271,ENST00000353047,ENST00000530640,ENST00000531089,ENST00000453527,ENST00000345125,ENST00000533455,ENST00000534510,ENST00000534636,ENST00000533572,ENST00000530296,ENST00000526195,ENST00000527243,ENST00000534149,ENST00000526645	14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,7,7,7,7,7,7,7,7,14,7,14,7,14,7,14,7,14,14,7,7,14,7	21982-22026	26704-26748	BLCA,HNSC,KIRC,LUAD,LUSC,OV,STAD,THCA
chr8:117662067:->chr8:117661165:-	chr8	117662244	117662067	-	chr8	117661165	117661045	-	TSF	ENST00000521861,ENST00000276682,ENST00000518949	59,59,59,4,4,4	22027-22032	26749-26754	BRCA,LUAD
chr8:117816753:+>chr8:117861127:+	chr8	117816470	117816753	+	chr8	117861127	117861256	+	TSF	ENST00000517820,ENST00000520733	7,7,43,43,49,49	22033-22038	26755-26760	BLCA,BRCA,CESC,LUAD,PRAD,SARC
chr8:119919242:+>chr8:120101919:+	chr8	119918965	119919242	+	chr8	120101919	120101990	+	TSF	ENST00000332843	7,1,16	22039-22041	26761-26763	BLCA,COAD,KICH,KIRC,KIRP,LUAD,LUSC,MESO,SARC
chr8:120050389:+>chr8:120101919:+	chr8	120050383	120050389	+	chr8	120101919	120101990	+	TSF	ENST00000332843	2,2	22042-22043	26764-26765	BLCA,COAD,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,UCEC
chr8:121662337:->chr8:121644891:-	chr8	121662427	121662337	-	chr8	121644891	121644684	-	TSF	ENST00000395601,ENST00000517992	30,30,6,6	22044-22047	26766-26769	BRCA,COAD,KIRP,LIHC,LUAD,OV,PAAD,STAD,THCA
chr8:125535448:->chr8:125535243:-	chr8	125535738	125535448	-	chr8	125535243	125535178	-	TSF	ENST00000276692,ENST00000523214,ENST00000522810,ENST00000519776,ENST00000605953,ENST00000522310,ENST00000519232	8,8,8,8,8,8,8,11,11,11,11,11,11,11,21,21,21,21,21,21,21	22048-22068	26770-26790	BRCA,LGG,LUAD,OV,STAD,UCEC,UVM
chr8:126168340:+>chr8:126194345:+	chr8	126168241	126168340	+	chr8	126194345	126194498	+	TAF	ENST00000523741,ENST00000517532,ENST00000287437,ENST00000522563,ENST00000517315	24,24,24,24,24,11,11,11,11,11	22069-22078	26791-26800	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS,UVM
chr8:128749923:+>chr8:128750494:+	chr8	128749913	128749923	+	chr8	128750494	128751265	+	TSF	ENST00000377970	3,3,3	22079-22081	26801-26803	BLCA,BRCA,CESC,COAD,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THYM,UCEC,UVM
chr8:130855855:->chr8:130854451:-	chr8	130855946	130855855	-	chr8	130854451	130854388	-	TSF	ENST00000519824,ENST00000522746,ENST00000523509,ENST00000401979,ENST00000519110,ENST00000522250,ENST00000517654,ENST00000519540,ENST00000522941	30,30,30,30,30,30,30,30,30,8,8,8,8,8,8,8,8,8,4,4,4,4,4,4,4,4,4	22082-22108	26804-26830	BLCA,BRCA,CHOL,COAD,GBM,HNSC,LIHC,LUAD,LUSC,OV,STAD

Table

chr8:133672739:->chr8:133669153:-	chr8	133672763	133672739	-	chr8	133669153	133669076	-	TSF	ENST00000519595,ENST00000518642,ENST00000250173,ENST00000522584	8,8,8,8,8,8,7,7,7,7,8,8	22109-22120	26831-26842	BRCA,COAD,LGG,OV,UCEC
chr8:134271646:->chr8:134271473:-	chr8	134271825	134271646	-	chr8	134271473	134271411	-	TSF	ENST00000323851,ENST00000517599,ENST00000537882,ENST00000414097,ENST00000522476,ENST00000522377,ENST00000520230,ENST00000518480,ENST00000519228,ENST00000519580,ENST00000522890,ENST00000520943,ENST00000521544,ENST00000522738	5,5,5,5,5,5,5,5,5,5,5,5,5,21,21,21,21,21,21,21,21,21,21,21,21,5,21	22121-22148	26843-26870	HNSC
chr8:134272103:->chr8:134271473:-	chr8	134272238	134272103	-	chr8	134271473	134271411	-	TAF	ENST00000323851,ENST00000517599,ENST00000537882,ENST00000414097,ENST00000522476,ENST00000522377,ENST00000520230,ENST00000518480,ENST00000519228,ENST00000519580,ENST00000522890,ENST00000520943,ENST00000521544,ENST00000522738	18,18,18,18,18,18,18,18,18,18,18,18,18,3,3,3,3,3,3,3,3,3,3,3,3,3,5,5,5,5,5,5,5,5,5,5,5,5,5,18,3,5	22149-22190	26871-26912	BLCA,BRCA,CESC,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,THCA,UCEC,UCS,UVM
chr8:134314886:->chr8:134296572:-	chr8	134314977	134314886	-	chr8	134296572	134296492	-	TSF	ENST00000520230,ENST00000520943,ENST00000522738	21,21,21,8,8,8,30,30,30	22191-22199	26913-26921	CESC,HNSC,KIRC,LUSC
chr8:136547139:+>chr8:136554897:+	chr8	136546987	136547139	+	chr8	136554897	136555013	+	TSF	ENST00000355849,ENST00000524199,ENST00000517394	22,28,28,28,3,3,3,22,22	22200-22208	26922-26930	LUSC,THYM
chr8:136621239:+>chr8:136657302:+	chr8	136621237	136621239	+	chr8	136657302	136657360	+	TSF	ENST00000355849,ENST00000520981,ENST00000517859,ENST00000521461	1,1,1,1	22209-22212	26931-26934	BRCA,GBM
chr8:139623508:->chr8:139620232:-	chr8	139623662	139623508	-	chr8	139620232	139620179	-	TSF	ENST00000303045,ENST00000435777	29,29,42,42,4,4	22213-22218	26935-26940	BLCA,CESC,HNSC,PCPG,SARC,TGCT,THYM,UCS
chr8:140818376:->chr8:140744445:-	chr8	140818443	140818376	-	chr8	140744445	140744222	-	TSF	ENST00000389327,ENST00000389328,ENST00000520857,ENST00000438773	20,20,20,20,22,22,22,22	22219-22226	26941-26948	BRCA,KIRC,LUAD,OV,PCPG,STAD,UVM
chr8:143592168:+>chr8:143592293:+	chr8	143592075	143592168	+	chr8	143592293	143592434	+	TSF	ENST00000517894,ENST00000521208,ENST00000323289	31,31,31,31,31,31,30,30,30	22227-22235	26949-26957	GBM,OV
chr8:143751986:+>chr8:143762745:+	chr8	143751981	143751986	+	chr8	143762745	143762852	+	TAF	ENST00000301258,ENST00000513264	1,1,1,1	22236-22239	26958-26961	BLCA,BRCA,CESC,HNSC,KICH,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,THYM,UVM
chr8:143834786:->chr8:143832588:-	chr8	143834800	143834786	-	chr8	143832588	143832469	-	TSF	ENST00000359228	5,4,2	22240-22242	26962-26964	HNSC,OV,STAD
chr8:144102637:+>chr8:144102731:+	chr8	144102603	144102637	+	chr8	144102731	144102839,144102850,144102900	+	TSF	ENST00000517503,ENST00000292494,ENST00000429120,ENST00000521699,ENST00000520466,ENST00000521003,ENST00000522971,ENST00000519611,ENST00000519546,ENST00000523847,ENST00000522024,ENST00000520531	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11	22243-22278	26965-27000	ACC,BLCA,BRCA,CESC,HNSC,KIRC,LUAD,LUSC,MESO,OV,PAAD,PCPG,SKCM,STAD,TGCT,THYM

chr8:144638200:+>chr8:144640548:+	chr8	144638103	144638200	+	chr8	144640548	144640621	+	TAF	ENST00000533063	23,32,12	22279-22281	27001-27003	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UVM
chr8:144669576:->chr8:144669019:-	chr8	144669798	144669576	-	chr8	144669019	144668899	-	TAF	ENST00000532741,ENST00000442189,ENST00000423316,ENST00000530616,ENST00000533749	20,20,20,20,20,7,7,7,51,51,51,51	22282-22296	27004-27018	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chr8:144690934:->chr8:144690296:-	chr8	144691011	144690934	-	chr8	144690296	144690232	-	TSF	ENST00000220966,ENST00000433751	23,23,19,19,12,12	22297-22302	27019-27024	BLCA,BRCA,CESC,COAD,KIRP,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SKCM,STAD,UCEC,UVM
chr8:145134124:+>chr8:145134846:+	chr8	145134058	145134124	+	chr8	145134846	145135052	+	TSF	ENST00000316052,ENST00000525936,ENST00000527954	22,22,22,22,21,21,21,22,22	22303-22311	27025-27033	LIHC,OV,UCS
chr8:145134309:+>chr8:145134846:+	chr8	145134058	145134309	+	chr8	145134846	145135052	+	TAF	ENST00000316052,ENST00000525936,ENST00000527954	39,5,5,5,18,18,18,39,39	22312-22320	27034-27042	BRCA,GBM,HNSC,LIHC,LUAD,LUSC,OV,SKCM,STAD,UCEC,UVM
chr8:145516371:+>chr8:145532592:+	chr8	145516361	145516371	+	chr8	145532592	145532700	+	TSF	ENST00000528838	3,3,3	22321-22323	27043-27045	OV,STAD
chr8:15274814:+>chr8:15480589:+	chr8	15274514	15274814	+	chr8	15480589	15480758	+	TAF	ENST00000382020,ENST00000515859,ENST00000506802,ENST00000510836,ENST00000509380,ENST00000503731,ENST00000511783	13,3,3,3,3,3,3,3,13,13,13,13,13	22324-22337	27046-27059	ACC,BLCA,CESC,CHOL,GBM,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,SARC,STAD,UCEC
chr8:17722494:->chr8:17722260:-	chr8	17722594	17722494	-	chr8	17722260	17722101	-	TAF	ENST00000398056,ENST00000522444,ENST00000381840,ENST00000398054,ENST00000381841,ENST00000427924,ENST00000518650	33,33,33,33,33,33,33,33,33,33,33,33,11,11,11,11,11,11	22338-22358	27060-27080	LIHC,LUAD
chr8:17865919:+>chr8:17867056:+	chr8	17865642	17865919	+	chr8	17867056	17867253	+	TSF	ENST00000325083,ENST00000519253,ENST00000524226,ENST00000327578,ENST00000522275	14,14,14,14,14,28,28,28,28,4,4,4,4	22359-22373	27081-27095	BRCA,TGCT
chr8:17873340:+>chr8:17882870:+	chr8	17873227	17873340	+	chr8	17882870	17882962	+	TAF	ENST00000325083,ENST00000519253,ENST00000524226,ENST00000327578,ENST00000522275	31,31,31,31,31,37,37,37,37,33,33,33,33,33	22374-22388	27096-27110	BLCA,BRCA,CESC,CHOL,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PAAD,PCPG,PRAD,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr8:19324413:->chr8:19316153:-	chr8	19324621	19324413	-	chr8	19316153	19315937	-	TSF	ENST00000454498,ENST00000332246,ENST00000397998,ENST00000311540,ENST00000522854,ENST00000544602,ENST00000519222	20,20,20,20,20,20,20,23,23,23,23,15,15,15,15,15,15,15,23,23	22389-22409	27111-27131	PRAD
chr8:19325000:->chr8:19316153:-	chr8	19325038	19325000	-	chr8	19316153	19315937	-	TSF	ENST00000454498,ENST00000332246,ENST00000397998,ENST00000311540,ENST00000522854,ENST00000544602,ENST00000519222	7,7,7,7,7,7,7,12,12,12,12,12,12	22410-22423	27132-27145	PRAD

Table 19

chr8:20011370:->chr8:20008255:-	chr8	20011376	20011370	-	chr8	20008255	20008177	-	TSF	ENST00000265808,ENST00000276373,ENST00000437980,ENST00000440926,ENST00000517776,ENST00000519026,ENST00000381608	2,2,2,2,2,2,2,1,1,1,1,1,1,1	22424-22437	27146-27159	PCPG,STAD
chr8:21954458:+>chr8:21955027:+	chr8	21954408	21954458	+	chr8	21955027	21955131	+	TSF	ENST00000450006,ENST00000289921	12,12,7,7,16,16	22438-22443	27160-27165	BLCA,BRCA,CESC,COAD,HNSC,KICH,LGG,LUAD,LUSC,OV,PAAD,PRAD,SARC,SKCM,STAD,THCA,THYM,UCEC,UVM
chr8:22271219:+>chr8:22272293:+	chr8	22271215	22271219	+	chr8	22272293	22272415	+	TAF	ENST00000359741,ENST00000240095,ENST00000381237,ENST00000289952,ENST00000517370	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1	22444-22458	27166-27180	BLCA,BRCA,CESC,CHOL,COAD,KIRC,KIRP,LIHC,LUAD,LUSC,PAAD,STAD,THCA
chr8:23127756:+>chr8:23146019:+	chr8	23127459	23127756	+	chr8	23146019	23146146	+	TAF	ENST00000411463	24,43,46	22459-22461	27181-27183	GBM,LGG
chr8:23131513:+>chr8:23146019:+	chr8	23131391	23131513	+	chr8	23146019	23146146	+	TSF	ENST00000411463	11,40,1	22462-22464	27184-27186	BLCA,GBM,HNSC,LGG,LUAD,LUSC,OV,STAD,TGCT,UCEC
chr8:24354747:+>chr8:24356749:+	chr8	24354477	24354747	+	chr8	24356749	24356829	+	TSF	ENST00000175238,ENST00000380789,ENST00000520720	44,44,44,21,7,7,7,21,21	22465-22473	27187-27195	KIRC,KIRP
chr8:27834547:->chr8:27779762:-	chr8	27834814	27834547	-	chr8	27779762	27779088	-	TSF	ENST00000354914,ENST00000524352,ENST00000518030,ENST00000301906	16,23,23,23,23,13,13,13,16,16,16	22474-22485	27196-27207	SARC
chr8:27947849:+>chr8:27954736:+	chr8	27947459	27947849	+	chr8	27954736	27954835	+	TAF	ENST00000256398,ENST00000523687,ENST00000518112	1,5,5,5,56,56,56,1,1	22486-22494	27208-27216	BLCA,BRCA,CESC,KICH,KIRC,KIRP,LUAD,OV,SKCM,STAD,THCA,UCEC,UCS
chr8:27947920:+>chr8:27954736:+	chr8	27947459	27947920	+	chr8	27954736	27954835	+	TAF	ENST00000256398,ENST00000523687,ENST00000518112	1,5,5,5,1,1,28,28,28	22495-22503	27217-27225	BLCA,BRCA,CESC,CHOL,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,SKCM,STAD,THCA,UCEC,UCS,UVM
chr8:28225966:->chr8:28218659:-	chr8	28226049	28225966	-	chr8	28218659	28218493	-	TSF	ENST00000521548	13,7	22504-22505	27226-27227	KIRC,KIRP,MESO
chr8:30356857:+>chr8:30361803:+	chr8	30356797	30356857	+	chr8	30361803	30361953	+	TSF	ENST00000538486,ENST00000397323,ENST00000339877,ENST00000320203,ENST00000287771,ENST00000517860,ENST00000519359,ENST00000522694	20,20,20,20,20,20,20,4,19,19,19,19,19,19,19,4,4,4,4,4,4	22506-22529	27228-27251	KIRC,KIRP,LIHC,LUAD,SARC
chr8:30395240:+>chr8:30402011:+	chr8	30395124	30395240	+	chr8	30402011	30402141, 30402288, 30402073	+	TAF	ENST00000397323,ENST00000339877,ENST00000320203,ENST00000287771,ENST00000517860,ENST00000520161,ENST00000523115,ENST00000519647,ENST00000520191,ENST00000522694	17,17,17,17,17,17,17,17,17,23,23,23,23,23,23,23,23,23,17	22530-22549	27252-27271	BLCA,BRCA,CESC,KIRC,KIRP,LIHC,LUAD,SARC,STAD,TGCT,THCA
chr8:3040513:->chr8:3038736:-	chr8	3040579	3040513	-	chr8	3038736	3038632	-	TSF	ENST00000335551,ENST00000400186,ENST00000602723,ENST00000520002,ENST00000602557,ENST00000537824,ENST00000542608,ENST00000539096	22,13,13,13,13,13,13,13,13,13,5,5,5,5,5,5,5,5,5,22,22,22,22,22,22	22550-22573	27272-27295	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,SARC,SKCM,STAD,TGCT,UCEC
chr8:30984432:+>chr8:30989881:+	chr8	30984245	30984432	+	chr8	30989881	30990022	+	TSF	ENST00000298139	9,30,23	22574-22576	27296-27298	DLBC,TGCT
chr8:31016403:+>chr8:31024538:+	chr8	31016146	31016403	+	chr8	31024538	31024746	+	TSF	ENST00000298139	16,32,12	22577-22579	27299-27301	CESC,GBM,LUSC,TGCT
chr8:38320623:->chr8:38315052:-	chr8	38320722	38320623	-	chr8	38315052	38314874	-	TSF	ENST00000425967	8,11,4	22580-22582	27302-27304	OV

Table 19

chr8:39709866:->chr8:39694731:-	chr8	39710096	39709866	-	chr8	39694731	39694655	-	TAF	ENST00000347580,ENST00000379853,ENST00000265708,ENST00000521880	7,7,7,7,5,5,5,5,76,76,76,76	22583-22594	27305-27316	BLCA,BRCA,CESC,KICH,KIRC,KIRP,LUAD,LUSC,PRAD,UCEC
chr8:39709999:->chr8:39694731:-	chr8	39710096	39709999	-	chr8	39694731	39694655	-	TAF	ENST00000347580,ENST00000379853,ENST00000265708,ENST00000521880	32,32,32,32,2,32,3 2,32,32,2,2,2	22595-22606	27317-27328	BLCA,BRCA,KICH,KIRC,PRAD
chr8:39759967:+>chr8:39775394:+	chr8	39759879	39759967	+	chr8	39775394	39775489	+	TSF	ENST00000518804,ENST00000519154,ENST00000522495,ENST00000522840,ENST00000518237,ENST00000253513	29,29,29,29,29,25,25,25,25,25,29,29,29,29,29,29	22607-22624	27329-27346	BLCA,CESC,HNSC,LUAD,LUSC,OV,TGCT,THCA,UCEC,UCS
chr8:39766549:+>chr8:39775394:+	chr8	39766308	39766549	+	chr8	39775394	39775489	+	TSF	ENST00000518804,ENST00000519154,ENST00000522495,ENST00000522840,ENST00000518237,ENST00000253513	25,25,25,25,25,39,39,39,39,39,39,5,5,5,5,5	22625-22642	27347-27364	HNSC,LUSC,OV,THCA,UCEC
chr8:39766867:+>chr8:39775394:+	chr8	39766308	39766867	+	chr8	39775394	39775489	+	TSF	ENST00000518804,ENST00000519154,ENST00000522495,ENST00000522840,ENST00000518237,ENST00000253513	11,11,11,11,11,3,3,3,3,3,9,9,9,9,11,9,9	22643-22660	27365-27382	CESC,HNSC,LUSC,THCA,UCEC
chr8:39778956:+>chr8:39780071:+	chr8	39778739	39778956	+	chr8	39780071	39780173,39780170,39780150	+	TSF	ENST00000519154,ENST00000522495,ENST00000518237,ENST00000253513	34,21,21,21,21,13,13,13,13,34,34,34	22661-22672	27383-27394	BLCA,BRCA,CESC,KIRC,LUSC,STAD,THYM
chr8:42014390:+>chr8:42015459:+	chr8	42014292	42014390	+	chr8	42015459	42015603	+	TSF	ENST00000522288,ENST00000518421,ENST00000174653,ENST00000396926,ENST00000530375,ENST00000517922,ENST00000517499,ENST00000518421,ENST00000174653,ENST00000396926,ENST00000530375,ENST00000522288,ENST00000517922,ENST00000517499	10,10,10,25,25,25,25,25,25,25,10,10,10,10	22673-22686	27395-27408	BRCA,LUAD,LUSC,SKCM,STAD,TGCT,UCEC
chr8:48617136:+>chr8:48625224:+	chr8	48617118	48617136	+	chr8	48625224	48625434	+	TSF	ENST00000297423,ENST00000518074,ENST00000541342,ENST00000519401,ENST00000517693	3,3,3,3,3,6,6,6,4,4,4,4,4,6,6	22687-22701	27409-27423	BLCA,CESC,GBM,HNSC,LUAD,LUSC,MESO,OV,STAD,UCS
chr8:51557016:+>chr8:51569469:+	chr8	51556816	51557016	+	chr8	51569469	51569585	+	TSF	ENST00000518864,ENST00000522124,ENST00000517473,ENST00000520825,ENST00000276467,ENST00000524004	2,2,62,62,62,62,62,62,2,2,2,2	22702-22713	27424-27435	BLCA,GBM,LGG,SKCM,STAD,UCS
chr8:54841324:+>chr8:54852136:+	chr8	54841106	54841324	+	chr8	54852136	54852284	+	TSF	ENST00000297313,ENST00000344277,ENST00000276500	7,7,7,33,33,33,18,18	22714-22722	27436-27444	SKCM,UVM
chr8:620243:->chr8:618782:-	chr8	620733	620243	-	chr8	618782	618598,62	-	TSF	ENST00000522706,ENST00000523415,ENST00000262109,ENST00000522893	12,102,102,102,102,11,11,11,11,12,12,12	22723-22734	27445-27456	ACC,BLCA,BRCA,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,MESO,PAAD,READ,SARC,TGCT,THYM
chr8:63315263:+>chr8:63492098:+	chr8	63314966	63315263	+	chr8	63492098	63492235	+	TSF	ENST00000523211,ENST00000524201,ENST00000328472	36,36,36,42,42,7,7,7,42	22735-22743	27457-27465	LUAD
chr8:63948932:->chr8:63948329:-	chr8	63949410	63948932	-	chr8	63948329	63948215	-	TSF	ENST00000260118	56,6	22744-22745	27466-27467	BLCA,BRCA,CESC,COAD,HNSC,LIHC,LUAD,LUSC,READ,STAD,UCEC
chr8:63958130:->chr8:63948329:-	chr8	63958276	63958130	-	chr8	63948329	63948215	-	TSF	ENST00000260118	49,12,19	22746-22748	27468-27470	COAD,LIHC,LUAD,LUSC,READ,STAD
chr8:6585281:+>chr8:6588232:+	chr8	6585268	6585281	+	chr8	6588232	6588347,7	+	TSF	ENST00000285518,ENST00000523234	4,4,4,4,4,4	22749-22754	27471-27476	GBM,LGG

Table 19

chr8:66628604:+>chr8:66631615:+	chr8	66628514	66628604	+	chr8	66631615	66631668	+	TSF	ENST00000521247	30,26,18	22755-22757	27477-27479	COAD,READ,TGCT
chr8:66970244:+>chr8:66988895:+	chr8	66969394	66970244	+	chr8	66988895	66989109	+	TSF	ENST00000276570,ENST00000522619	19,47,47,15,15,19	22758-22763	27480-27485	BLCA,BRCA,DLBC,LUAD,TGCT,UCEC
chr8:67753161:+>chr8:67753259:+	chr8	67752911	67753161	+	chr8	67753259	67753345	+	TSF	ENST00000519289,ENST00000521198,ENST00000522398,ENST00000520976,ENST00000396596,ENST00000345714	41,41,41,41,41,41,21,21,21,21,21,21,13,13,13,13,13,13	22764-22781	27486-27503	BRCA
chr8:69545202:+>chr8:69552611:+	chr8	69544201	69545202	+	chr8	69552611	69552746	+	TSF	ENST00000539993,ENST00000518698,ENST00000337103,ENST00000325233	31,31,31,31,21,21,21,21,62,62,62,62	22782-22793	27504-27515	BRCA,TGCT
chr8:69545202:+>chr8:69621229:+	chr8	69544201	69545202	+	chr8	69621229	69621314	+	TSF	ENST00000539993,ENST00000518698,ENST00000337103,ENST00000325233	31,31,31,31,21,21,21,62,62,62,62,21	22794-22805	27516-27527	BRCA
chr8:71625811:+>chr8:71646031:+	chr8	71625721	71625811	+	chr8	71646031	71646659	+	TSF	ENST00000408926,ENST00000520030	30,30,5,5	22806-22809	27528-27531	BLCA,BRCA,CHOL,COAD,HNSC,LIHC,LUAD,LUSC,PAAD,PRAD,READ,SARC,STAD,TGCT,UCS
chr8:72937669:+>chr8:72964774:+	chr8	72937377	72937669	+	chr8	72964774	72964806	+	TAF	ENST00000524152,ENST00000519068	7,7,50,50,25,25	22810-22815	27532-27537	ACC,BLCA,BRCA,GBM,HNSC,KICH,KIRC,KIRP,LUSC,MESO,PAAD,PCPG,SARC,SKCM,UCS,UVM
chr8:74035742:->chr8:73993448:-	chr8	74036014	74035742	-	chr8	73993448	73993254	-	TSF	ENST00000297354	81,47,1	22816-22818	27538-27540	BLCA,BRCA,LIHC,LUAD,OV,STAD,UCEC,UCS
chr8:74859471:->chr8:74859055:-	chr8	74859521	74859471	-	chr8	74859055	74858866	-	TSF	ENST00000518127,ENST00000520210,ENST00000520242,ENST00000519487,ENST00000284811,ENST00000522337,ENST00000523815,ENST00000519082	17,17,17,17,17,17,17,7,7,7,7,7,7,7,17	22819-22834	27541-27556	GBM,OV,STAD
chr8:74871320:->chr8:74868289:-	chr8	74871473	74871320	-	chr8	74868289	74868146	-	TAF	ENST00000602840,ENST00000518127,ENST00000520242,ENST00000519487,ENST00000284811,ENST00000522337,ENST00000523815,ENST00000519082	4,30,30,30,30,30,30,30,30,30,2,32,32,32,2,32,32,32,2,32,4,4,4,4,4,4,4	22835-22858	27557-27580	BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,LIHC,LUAD,LUSC,MESO,OV,PCPG,PRAD,SARC,SKCM,STAD,THYM,UCEC,UCS,UVM
chr8:75580998:+>chr8:75614614:+	chr8	75580849	75580998	+	chr8	75614614	75614691	+	TSF	ENST00000523442,ENST00000523118	50,50,17,17,44,44	22859-22864	27581-27586	BRCA
chr8:80686056:->chr8:80678931:-	chr8	80686236	80686056	-	chr8	80678931	80678886	-	TSF	ENST00000354724,ENST00000337919,ENST00000518733	25,25,25,12,12,6,6,6,12	22865-22873	27587-27595	LGG,LUSC
chr8:82194723:+>chr8:82195601:+	chr8	82194688	82194723	+	chr8	82195601	82195773	+	TSF	ENST00000297258	12,11,11	22874-22876	27596-27598	BLCA,CESC,GBM,HNSC,LGG,LUSC,PRAD
chr8:82194727:+>chr8:82195601:+	chr8	82194688	82194727	+	chr8	82195601	82195773	+	TAF	ENST00000297258	13,12	22877-22878	27599-27600	BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC
chr8:82355982:->chr8:82355683:-	chr8	82356115	82355982	-	chr8	82355683	82355634	-	TSF	ENST00000256103,ENST00000519260	3,40,40,19,3,19	22879-22884	27601-27606	GBM,LGG,SARC
chr8:82357691:->chr8:82357224:-	chr8	82357757	82357691	-	chr8	82357224	82357052	-	TSF	ENST00000256103	22,13,21	22885-22887	27607-27609	GBM,LGG
chr8:87144238:+>chr8:87151686:+	chr8	87144142	87144238	+	chr8	87151686	87151864	+	TAF	ENST00000285393	3,11,26	22888-22890	27610-27612	KICH,KIRC
chr8:91058452:+>chr8:91063905:+	chr8	91057494	91058452	+	chr8	91063905	91063968	+	TSF	ENST00000220764,ENST00000522161,ENST00000520148	7,7,10,10,10,1,1,7,1	22891-22899	27613-27621	LIHC
chr8:91102521:->chr8:91094330:-	chr8	91102885	91102521	-	chr8	91094330	91094254	-	TSF	ENST00000265431	44,30,11	22900-22902	27622-27624	BLCA,CESC,COAD,HNSC,LUSC,OV,READ,STAD,TGCT,UCS

Table 19

chr8:91105645:->chr8:91094330:-	chr8	91107662	91105645	-	chr8	91094330	91094254	-	TSF	ENST00000265431	22,20,8	22903-22905	27625-27627	BLCA,CESC,COAD,HNSC,LUAD,LUSC,READ,STAD,TGCT
chr8:91107732:->chr8:91094330:-	chr8	91108096	91107732	-	chr8	91094330	91094254	-	TSF	ENST00000265431	11,44,30	22906-22908	27628-27630	BLCA,CESC,COAD,HNSC,LUSC,STAD,UCS
chr8:95430884:->chr8:95423543:-	chr8	95431039	95430884	-	chr8	95423543	95423349,95423528,95423520,95423471	-	TSF	ENST00000336148,ENST00000517506,ENST00000463267,ENST00000518998,ENST00000523839	30,30,30,16,16,16,16,23,30,30,23,23,23	22909-22923	27631-27645	BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,LGG,LUAD,LUSC,OV,READ,SKCM,STAD,TGCT,UCEC
chr8:95716810:+>chr8:95718153:+	chr8	95716710	95716810	+	chr8	95718153	95718174	+	TSF	ENST00000423620,ENST00000454170,ENST00000517610	19,19,19,6,6,33,33,6,33	22924-22932	27646-27654	BLCA,BRCA,LUSC,OV,PRAD,READ,STAD,TGCT
chr8:95765986:+>chr8:95768264:+	chr8	95765825	95765986	+	chr8	95768264	95768387	+	TSF	ENST00000414645,ENST00000523020	2,2,10,53,53,10	22933-22938	27655-27660	BRCA,SARC
chr8:9629933:+>chr8:9634160:+	chr8	9629642	9629933	+	chr8	9634160	9634246	+	TSF	ENST00000310430,ENST00000518281	14,14,24,24	22939-22942	27661-27664	BLCA,BRCA,GBM,LGG,OV,SKCM,STAD,TGCT,UCEC
chr8:97344068:+>chr8:97345685:+	chr8	97343998	97344068	+	chr8	97345685	97345795	+	TSF	ENST00000517309,ENST00000455950,ENST00000522072	23,23,23,14,14,2,2,14,2	22943-22951	27665-27673	BLCA,BRCA,COAD,HNSC,LUSC,OV,PRAD,SKCM,TGCT,UCEC,UCS
chr8:98817331:+>chr8:98817581:+	chr8	98817265	98817331	+	chr8	98817581	98817692	+	TSF	ENST00000445593,ENST00000521545,ENST00000517924	22,22,21,21,21,22	22952-22957	27674-27679	BLCA,BRCA,HNSC,KIRC,LIHC,LUAD,LUSC,OV,STAD
chr9:100740868:+>chr9:100756913:+	chr9	100740768	100740868	+	chr9	100756913	100757062	+	TAF	ENST00000339399	11,29,18	22958-22960	27680-27682	BRCA,DLBC,LUSC,OV,THYM
chr9:100808487:+>chr9:100823064:+	chr9	100807994	100808487	+	chr9	100823064	100823279	+	TSF	ENST00000210444	44,11	22961-22962	27683-27684	BRCA,COAD,DLBC,PRAD,STAD
chr9:100821131:+>chr9:100823064:+	chr9	100821079	100821131	+	chr9	100823064	100823279	+	TSF	ENST00000210444	7,1,17	22963-22965	27685-27687	PRAD
chr9:100832020:+>chr9:100839200:+	chr9	100831854	100832020	+	chr9	100839200	100839299	+	TAF	ENST00000210444	13,4,3	22966-22968	27688-27690	BLCA,BRCA,CESC,COAD,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,UCEC
chr9:100872351:->chr9:100872266:-	chr9	100872455	100872351	-	chr9	100872266	100872171	-	TAF	ENST00000375098,ENST00000341469,ENST00000342043	35,35,35,17,17,17,34,34,34	22969-22977	27691-27699	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SKCM,STAD,TGCT,THYM,UCEC
chr9:101249441:->chr9:101243279:-	chr9	101249511	101249441	-	chr9	101243279	101243214	-	TSF	ENST00000259455	23,23,23	22978-22980	27700-27702	BLCA,LGG,LIHC,LUAD,SARC,THCA
chr9:101724399:+>chr9:101747847:+	chr9	101724297	101724399	+	chr9	101747847	101748394	+	TSF	ENST00000375001	3,33,33	22981-22983	27703-27705	BRCA,KIRC,LUAD,SARC,STAD,THCA
chr9:101730438:+>chr9:101747847:+	chr9	101730308	101730438	+	chr9	101747847	101748394	+	TSF	ENST00000375001	2,17,13	22984-22986	27706-27708	BRCA,COAD,KIRC,LUSC,SARC,STAD
chr9:104030320:+>chr9:104032162:+	chr9	104030196	104030320	+	chr9	104032162	104032350	+	TSF	ENST00000374874,ENST00000456287,ENST00000395056	33,33,33,41,41,41	22987-22992	27709-27714	GBM,KIRC,KIRP,LGG,LIHC,LUAD
chr9:108112906:+>chr9:108118493:+	chr9	108112857	108112906	+	chr9	108118493	108118662	+	TAF	ENST00000374720,ENST00000374723,ENST00000470972,ENST00000374724	16,16,2,2,2,4,4,4,4,16	22993-23004	27715-27726	BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRP,LGG,LUAD,LUSC,PAAD,READ,SARC,STAD,THCA,UCEC
chr9:110017773:+>chr9:110062422:+	chr9	110017723	110017773	+	chr9	110062422	110062503	+	TSF	ENST00000419616,ENST00000358015,ENST00000442587	17,7,7,7,16,16,16,17,17	23005-23013	27727-27735	THCA
chr9:111632734:->chr9:111631462:-	chr9	111633879	111632734	-	chr9	111631462	111631395	-	TAF	ENST00000374647,ENST00000537196	1,1,46,46	23014-23017	27736-27739	ACC,BLCA,BRCA,CESC,CHOL,GBM,HNSC,KIRC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,TGCT,THCA,UCEC,UCS
chr9:111648048:->chr9:111644467:-	chr9	111648536	111648048	-	chr9	111644467	111644405	-	TAF	ENST00000495759,ENST00000374647,ENST00000537196	1,3,3,3,1,1	23018-23023	27740-27745	ACC,CESC,HNSC,LGG,LIHC,LUAD,MESO,OV,PCPG,STAD,TGCT,THCA

Table 19

chr9:114403028:+>chr9:114405137:+	chr9	114402184	114403028	+	chr9	114405137	114405208	+	TSF	ENST00000463589,ENST00000447096	27,27,14,14,1,1	23024-23029	27746-27751	TGCT
chr9:114403068:+>chr9:114405137:+	chr9	114402184	114403068	+	chr9	114405137	114405208	+	TSF	ENST00000463589,ENST00000447096	12,12,27,27,14,14	23030-23035	27752-27757	CESC,HNSC,LIHC,SKCM,TGCT,UCEC,UCS
chr9:114546079:->chr9:114543297:-	chr9	114546431	114546079	-	chr9	114543297	114543210	-	TAF	ENST00000374283	19,11,9	23036-23038	27758-27760	ACC,MESO,PCPG,STAD
chr9:114575283:->chr9:114548315:-	chr9	114575337	114575283	-	chr9	114548315	114548192	-	TSF	ENST00000374283	2,18,5	23039-23041	27761-27763	KICH,KIRC
chr9:116860071:->chr9:116840393:-	chr9	116860197	116860071	-	chr9	116840393	116840373	-	TSF	ENST00000265132,ENST00000603230	20,20,32,21,21,32	23042-23047	27764-27769	LIHC
chr9:117089580:+>chr9:117092714:+	chr9	117089333	117089580	+	chr9	117092714	117092856	+	TAF	ENST00000431067,ENST00000412657	46,46,29,29	23048-23051	27770-27773	BRCA,CHOL,LIHC,PRAD,STAD
chr9:117089631:+>chr9:117092819:+	chr9	117089333	117089631	+	chr9	117092819	117092856	+	TSF	ENST00000431067	12,4,46	23052-23054	27774-27776	CHOL,LIHC,PRAD
chr9:117090775:+>chr9:117092714:+	chr9	117090746	117090775	+	chr9	117092714	117092856	+	TSF	ENST00000431067,ENST00000412657	10,9,10,9	23055-23058	27777-27780	CHOL,LIHC
chr9:117824593:->chr9:117822281:-	chr9	117824597	117824593	-	chr9	117822281	117822009	-	TSF	ENST00000350763,ENST00000341037,ENST00000423613	1,1,1,1,1,1,1,1,1	23059-23067	27781-27789	BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LUAD,LUSC,MESO,SARC,SKCM,UCEC
chr9:119602892:->chr9:119583062:-	chr9	119603649	119602892	-	chr9	119583062	119582896	-	TAF	ENST00000373996,ENST00000313400,ENST00000373986,ENST00000361209	27,27,27,27,14,14,14,14,1,1,1,1	23068-23079	27790-27801	BLCA,CESC,HNSC,LUAD,LUSC,OV,THYM
chr9:119602932:->chr9:119583062:-	chr9	119603649	119602932	-	chr9	119583062	119582896	-	TAF	ENST00000373996,ENST00000313400,ENST00000373986,ENST00000361209	1,1,1,1,14,14,14,14,49,49,49,49	23080-23091	27802-27813	CESC,HNSC,LUAD,LUSC,THYM
chr9:119602972:->chr9:119583062:-	chr9	119603649	119602972	-	chr9	119583062	119582896	-	TSF	ENST00000373996,ENST00000313400,ENST00000373986,ENST00000361209	1,1,1,1,25,25,25,25,36,36,36,36	23092-23103	27814-27825	CESC,HNSC,LUAD,LUSC,THYM
chr9:123159573:->chr9:123156916:-	chr9	123159676	123159573	-	chr9	123156916	123156790	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	22,22,22,22,22,22,17,17,17,17,17,17	23104-23115	27826-27837	BLCA,HNSC,LUAD,LUSC,MESO,THCA
chr9:123165577:->chr9:123165349:-	chr9	123165858	123165577	-	chr9	123165349	123165084	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	12,12,12,12,12,12,16,16,16,16,16,16	23116-23127	27838-27849	BLCA,CESC,HNSC,LIHC,LUAD,LUSC,THCA
chr9:123165590:->chr9:123165349:-	chr9	123165858	123165590	-	chr9	123165349	123165084	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	7,7,7,7,7,7,89,89,89,89,89,89,12,12,12,2	23128-23145	27850-27867	BLCA,HNSC,LUAD,LUSC
chr9:123165594:->chr9:123165349:-	chr9	123165858	123165594	-	chr9	123165349	123165084	-	TAF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	6,6,6,6,6,6,88,88,88,88,88,88,10,10,10,10,10,10	23146-23163	27868-27885	ACC,BLCA,CESC,HNSC,KIRP,LGG,LIHC,LUAD,LUSC,THCA
chr9:123165617:->chr9:123165349:-	chr9	123165858	123165617	-	chr9	123165349	123165084	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	15,15,15,15,15,15,80,80,80,80,80,80,3,3,3,3,3,3	23164-23181	27886-27903	BLCA,CESC,HNSC,LIHC,LUAD,LUSC
chr9:123165677:->chr9:123165349:-	chr9	123165858	123165677	-	chr9	123165349	123165084	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	17,17,17,17,17,17,60,60,60,60,60,60,50,50,50,50,50,50	23182-23199	27904-27921	BLCA,CESC,HNSC,LIHC,LUAD,LUSC

Table 10

chr9:123237310:->chr9:123234156:-	chr9	123237538	123237310	-	chr9	123234156	123234026	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000480112,ENST00000416449	11,11,11,11,11,11,1,1,1,1,1,4,4,4,4,4,4	23200-23217	27922-27939	MESO,THCA
chr9:123237484:->chr9:123234140:-	chr9	123237538	123237484	-	chr9	123234140	123234026	-	TSF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000480112,ENST00000416449	14,14,14,14,14,14,18,2,2,2,2,2,2,18,18,18,18,18	23218-23235	27940-27957	MESO,THCA
chr9:123237484:->chr9:123234156:-	chr9	123237538	123237484	-	chr9	123234156	123234026	-	TAF	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000480112,ENST00000416449	14,14,14,14,14,14,18,18,18,18,18,18,2,2,2,2,2	23236-23253	27958-27975	MESO,SARC,THCA
chr9:123540941:->chr9:123540823:-	chr9	123541039	123540941	-	chr9	123540823	123540629	-	TSF	ENST00000608872,ENST00000453291	22,22,32,32	23254-23257	27976-27979	HNSC,LIHC,LUSC
chr9:126117568:+>chr9:126125144:+	chr9	126117506	126117568	+	chr9	126125144	126125467	+	TSF	ENST00000359999,ENST00000373631	21,21,20,20	23258-23261	27980-27983	CESC,GBM,HNSC,LGG,LUSC
chr9:127083134:+>chr9:127083738:+	chr9	127083090	127083134	+	chr9	127083738	127083848	+	TSF	ENST00000540326,ENST00000373603,ENST00000373600,ENST00000320246,ENST00000545174,ENST00000444973,ENST00000454453,ENST00000373596,ENST00000425237,ENST00000423785,ENST00000394199,ENST00000546191,ENST00000422297,ENST00000539416,ENST00000447379	6,6,6,6,6,6,6,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,14,6,6,6,6,6,6	23262-23306	27984-28028	KIRC
chr9:127110909:+>chr9:127113116:+	chr9	127110792	127110909	+	chr9	127113116	127113226	+	TSF	ENST00000540326,ENST00000373603,ENST00000373600,ENST00000320246,ENST00000545174,ENST00000394199,ENST00000546191,ENST00000539416	31,31,31,31,31,31,31,31,2,2,2,2,2,2,2	23307-23322	28029-28044	BRCA,CHOL,COAD,HNSC,KIRC,KIRP,LUAD,LUSC,PAAD,STAD,TGCT,UCEC
chr9:127173482:->chr9:127167711:-	chr9	127173550	127173482	-	chr9	127167711	127167596	-	TAF	ENST00000259457,ENST00000441097	23,23,13,13	23323-23326	28045-28048	ACC,BLCA,CESC,CHOL,GBM,HNSC,KIRC,LIHC,LUSC,PCPG,SARC,SKCM,STAD,UCS,UVM
chr9:127176809:->chr9:127176284:-	chr9	127176843	127176809	-	chr9	127176284	127176187	-	TAF	ENST00000259457,ENST00000536392,ENST00000441097	11,11,11,11,11,11,10,10,10	23327-23335	28049-28057	ACC,BLCA,BRCA,CESC,GBM,HNSC,KIRP,LGG,LUSC,OV,PAAD,SARC,SKCM,TGCT,THYM,UCEC,UCS,UVM
chr9:128286013:->chr9:128268696:-	chr9	128286052	128286013	-	chr9	128268696	128268589	-	TSF	ENST00000373511,ENST00000373498,ENST00000373503,ENST00000265960,ENST00000394063	5,13,12,12,12,12,12,5,5,5,5,13,13,13,13	23336-23350	28058-28072	THCA
chr9:128286013:->chr9:128284044:-	chr9	128286052	128286013	-	chr9	128284044	128284031	-	TSF	ENST00000394060	5,13,12	23351-23353	28073-28075	THCA
chr9:128287523:->chr9:128268696:-	chr9	128287668	128287523	-	chr9	128268696	128268589	-	TSF	ENST00000373511,ENST00000373498,ENST00000373503,ENST00000265960,ENST00000394063	12,12,12,12,12,10,21,10,10,10,10,21,21,21,21	23354-23368	28076-28090	THCA
chr9:128287523:->chr9:128284044:-	chr9	128287668	128287523	-	chr9	128284044	128284031	-	TAF	ENST00000394060	12,10,21	23369-23371	28091-28093	LUAD,THCA

chr9:128362114:->chr9:128348006:-	chr9	128362212	128362114	-	chr9	128348006	128347834	-	TAF	ENST00000373511,ENST00000373498,ENST00000350766,ENST00000265960,ENST00000394060,ENST00000468896	33,10,10,10,10,10,10,33,33,33,33,33	23372-23383	28094-28105	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,TGCT,THCA,UCEC,UCS,UVM
chr9:130213384:->chr9:130211635:-	chr9	130213440	130213384	-	chr9	130211635	130211560	-	TSF	ENST00000361436,ENST00000536368	18,18,18,18	23384-23387	28106-28109	OV
chr9:130213384:->chr9:130213062:-	chr9	130213440	130213384	-	chr9	130213062	130213010	-	TSF	ENST00000361436,ENST00000536368	18,18,18,18	23388-23391	28110-28113	OV,STAD
chr9:130213384:->chr9:130213083:-	chr9	130213440	130213384	-	chr9	130213083	130213010	-	TAF	ENST00000361436,ENST00000536368	18,18,18,18	23392-23395	28114-28117	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr9:130425055:+>chr9:130425484:+	chr9	130424996	130425055	+	chr9	130425484	130425632	+	TSF	ENST00000373302,ENST00000373299	19,19,16,16	23396-23399	28118-28121	PAAD,PCPG,STAD
chr9:130570054:+>chr9:130570513:+	chr9	130569975	130570054	+	chr9	130570513	130570590	+	TAF	ENST00000373247,ENST00000373245,ENST00000393706,ENST00000373228,ENST00000373225,ENST00000431857,ENST00000423577	26,26,26,26,26,26,26,26,26,26,26,26,26,26,3,3,3,3,3	23400-23420	28122-28142	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chr9:130715152:->chr9:130712818:-	chr9	130715295	130715152	-	chr9	130712818	130712702	-	TSF	ENST00000373095	48,38,1	23421-23423	28143-28145	STAD
chr9:130716974:->chr9:130716204:-	chr9	130717031	130716974	-	chr9	130716204	130716084	-	TSF	ENST00000373095	11,19,18	23424-23426	28146-28148	OV,STAD
chr9:130732597:->chr9:130716204:-	chr9	130732697	130732597	-	chr9	130716204	130716084	-	TSF	ENST00000373095	2,24,11	23427-23429	28149-28151	BRCA,DLBC,HNSC,KICH,KIRC,KIRP,LUAD,LUSC,OV,STAD
chr9:130866740:+>chr9:130868008:+	chr9	130866734	130866740	+	chr9	130868008	130868160	+	TSF	ENST00000373068,ENST00000373069,ENST00000373066,ENST00000432073,ENST00000373064,ENST00000433501	2,2,2,2,2,2,2,2,2,2,2,2,1,1,1,1,1,1	23430-23447	28152-28169	LIHC,STAD
chr9:130900452:+>chr9:130913917:+	chr9	130900342	130900452	+	chr9	130913917	130913996	+	TAF	ENST00000373017,ENST00000540948,ENST00000277480,ENST00000373013	37,37,37,37,36,36,36,36,36,36,36	23448-23459	28170-28181	BLCA,BRCA,CESC,CHOL,COAD,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,STAD,UCEC
chr9:130921962:+>chr9:130925722:+	chr9	130921922	130921962	+	chr9	130925722	130925894	+	TSF	ENST00000372994	4,13	23460-23461	28182-28183	OV,THCA
chr9:130922014:+>chr9:130925722:+	chr9	130921922	130922014	+	chr9	130925722	130925894	+	TSF	ENST00000372994	16,21,14	23462-23464	28184-28186	BLCA,CESC,COAD,DLBC,HNSC,LUAD,LUSC,MESO,OV,READ,SARC,STAD,THYM,UCEC
chr9:130922117:+>chr9:130925722:+	chr9	130921922	130922117	+	chr9	130925722	130925894	+	TSF	ENST00000372994	50,33,7	23465-23467	28187-28189	BLCA,CESC,COAD,LGG,LUAD,LUSC,OV,PAAD,PRAD,STAD,THYM,UCEC
chr9:130924301:+>chr9:130925722:+	chr9	130924283	130924301	+	chr9	130925722	130925894	+	TAF	ENST00000372994	6,6,5	23468-23470	28190-28192	ACC,BLCA,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC

chr9:130929818:->chr9:130929443:-	chr9	130929922	130929818	-	chr9	130929443	130929374	-	TSF	ENST00000372954,ENST00000393608,ENST00000541172,ENST00000325721,ENST00000357558,ENST00000538431,ENST00000277465,ENST00000372948,ENST00000372938,ENST00000415526	35,35,35,35,35,35,35,35,35,18,18,18,18,18,18,18,18,1,1,1,1,1,1,1,1	23471-23500	28193-28222	ACC,BLCA,BRCA,CESC,CHOL,COAD,KIRC,KIRP,LUAD,LUSC,PRAD,SARC,UCS
chr9:131002811:+>chr9:131004511:+	chr9	131002678	131002811	+	chr9	131004511	131004624	+	TAF	ENST00000475805,ENST00000341179,ENST00000372923,ENST00000393594,ENST00000486160	7,7,7,7,7,2,2,2,2,2,18,18,18,18,18	23501-23515	28223-28237	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,SKCM,STAD,TGCT,UCEC,UCS,UVM
chr9:131190058:+>chr9:131190581:+	chr9	131189761	131190058	+	chr9	131190581	131190700	+	TAF	ENST00000372842,ENST00000420512,ENST00000372838	11,11,23,23,23,98,98,98,11	23516-23524	28238-28246	ACC,BLCA,BRCA,CESC,COAD,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,PAAD,PCPG,READ,SARC,SKCM,TGCT,THCA,UCEC,UCS,UVM
chr9:131193223:+>chr9:131193538:+	chr9	131193013	131193223	+	chr9	131193538	131193582	+	TAF	ENST00000372842,ENST00000372838	18,18,5,5	23525-23528	28247-28250	ACC,BLCA,BRCA,GBM,HNSC,KIRP,LGG,LUSC,MESO,OV,PAAD,PRAD,SARC,SKCM,THCA,UCEC,UCS
chr9:131399953:->chr9:131399306:-	chr9	131400020	131399953	-	chr9	131399306	131399197	-	TSF	ENST00000372715,ENST00000451652	22,22,22,22	23529-23532	28251-28254	UVM
chr9:131542578:+>chr9:131550613:+	chr9	131541764	131542578	+	chr9	131550613	131550686	+	TSF	ENST00000372648,ENST00000223865	27,14,14,1,1,27	23533-23538	28255-28260	HNSC,LUSC
chr9:131902148:+>chr9:131904724:+	chr9	131902050	131902148	+	chr9	131904724	131904831	+	TSF	ENST00000358994,ENST00000393370,ENST00000337738,ENST00000348141,ENST00000452489,ENST00000357197,ENST00000347048,ENST00000355007,ENST00000417728,ENST00000423100,ENST00000436883,ENST00000414510,ENST00000432124,ENST00000419582,ENST00000432651,ENST00000435132,ENST00000434095,ENST00000411917,ENST00000524946,ENST00000435305,ENST00000358994,ENST00000393370,ENST00000337738,ENST00000348141,ENST00000452489,ENST00000357197,ENST00000347048,ENST00000355007,ENST00000417728	27,27,27,27,27,27,27,27,27,27,27,27,27,27,27,27,27,27,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32,32	23539-23578	28261-28300	BRCA,GBM,HNSC,KIRC,KIRP,LUSC,OV,PRAD,SKCM,STAD,THCA,UCEC
chr9:132512163:->chr9:132511016:-	chr9	132512208	132512163	-	chr9	132511016	132510934	-	TSF	ENST00000340607	15,7,14	23579-23581	28301-28303	BLCA,BRCA,CESC,HNSC,LUAD,LUSC
chr9:132580632:->chr9:132576501:-	chr9	132580720	132580632	-	chr9	132576501	132576251	-	TSF	ENST00000351698	8,2,29	23582-23584	28304-28306	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,STAD,THCA,UCEC,UCS
chr9:133953695:+>chr9:133954536:+	chr9	133953597	133953695	+	chr9	133954536	133954685	+	TSF	ENST00000361069	33,21,1	23585-23587	28307-28309	ACC,LUSC,PCPG
chr9:133962061:+>chr9:133962863:+	chr9	133961993	133962061	+	chr9	133962863	133963009	+	TAF	ENST00000361069,ENST00000355452	23,23,13,13	23588-23591	28310-28313	ACC,BRCA,GBM,KIRC,OV,PRAD,SARC,TGCT,UCEC,UCS

chr9:134364268:+>chr9:134366812:+	chr9	134363954	134364268	+	chr9	134366812	134366967	+	TSF	ENST00000405995,ENST00000357304,ENST00000458550,ENST00000372249,ENST00000320547	33,33,33,16,16,16,16,16,33,33	23592-23601	28314-28323	BLCA,BRCA,CESC,COAD,GBM,HNSC,LGG,LUAD,LUSC,MESO,OV,PRAD,SARC,SKCM,STAD,TGCT,UCEC,UVM
chr9:135665131:->chr9:135602921:-	chr9	135665394	135665131	-	chr9	135602921	135602841	-	TAF	ENST00000298545	11,7,2	23602-23604	28324-28326	BLCA,BRCA,CESC,CHOL,COAD,DLBC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,READ,SARC,STAD,TGCT,THCA
chr9:136393545:->chr9:136385410:-	chr9	136393635	136393545	-	chr9	136385410	136385296	-	TAF	ENST00000339996	20,30,29	23605-23607	28327-28329	HNSC,LIHC,MESO,OV,SARC,UCS
chr9:137248203:+>chr9:137293478:+	chr9	137248112	137248203	+	chr9	137293478	137293728	+	TSF	ENST00000481739	30,24	23608-23609	28330-28331	BLCA,BRCA,HNSC,STAD
chr9:137326400:+>chr9:137328313:+	chr9	137326382	137326400	+	chr9	137328313	137328460	+	TSF	ENST00000481739,ENST00000540193	6,6,5,5	23610-23613	28332-28335	BLCA,CESC,HNSC,LIHC,LUAD,SKCM
chr9:139611665:+>chr9:139612029:+	chr9	139611399	139611665	+	chr9	139612029	139612163	+	TAF	ENST00000371692	13,34,21	23614-23616	28336-28338	BLCA,BRCA,GBM,KICH,KIRP,LIHC,LUAD,OV,PAAD,PCPG,PRAD,SKCM,TGCT,UCEC,UVM
chr9:139809928:+>chr9:139810993:+	chr9	139809866	139809928	+	chr9	139810993	139811067	+	TSF	ENST00000536468,ENST00000247668,ENST00000359662	5,5,5,20,20,20,20,20	23617-23625	28339-28347	HNSC,LUAD
chr9:140012371:->chr9:140009028:-	chr9	140012434	140012371	-	chr9	140009028	140008915	-	TAF	ENST00000371579,ENST00000472306,ENST00000497375	1,16,16,19,1,16,19,1,19	23626-23634	28348-28356	ACC,BLCA,BRCA,CHOL,DLBC,GBM,KICH,KIRC,LGG,LIHC,LUAD,OV,PRAD,SKCM,STAD,TGCT,UCEC
chr9:140122359:+>chr9:140123074:+	chr9	140122334	140122359	+	chr9	140123074	140123538	+	TSF	ENST00000445101	8,8,4	23635-23637	28357-28359	BLCA,LUAD,OV,STAD,THCA,UCEC
chr9:140499389:+>chr9:140507348:+	chr9	140499260	140499389	+	chr9	140507348	140507458	+	TSF	ENST00000371421,ENST00000431925,ENST00000461627,ENST00000419386	43,22,22,22,22,42,42,42,42,43,43,43	23638-23649	28360-28371	BLCA,BRCA,CESC,COAD,LUSC,OV,STAD,UCEC
chr9:140633231:+>chr9:140637823:+	chr9	140632674	140633231	+	chr9	140637823	140637980	+	TSF	ENST00000462484,ENST00000334856,ENST00000460843	25,25,25,8,8,8	23650-23655	28372-28377	DLBC,STAD
chr9:17779564:+>chr9:17786379:+	chr9	17779355	17779564	+	chr9	17786379	17786522	+	TSF	ENST00000380607,ENST00000537391	11,11,2,2	23656-23659	28378-28381	LGG
chr9:19118815:->chr9:19118453:-	chr9	19118990	19118815	-	chr9	19118453	19118319	-	TSF	ENST00000411567,ENST00000276914	23,23,4,4,13,13	23660-23665	28382-28387	KIRC,KIRP,LIHC
chr9:19118890:->chr9:19118453:-	chr9	19118990	19118890	-	chr9	19118453	19118319	-	TAF	ENST00000411567,ENST00000276914	19,19,24,24,11,11	23666-23671	28388-28393	BRCA,KIRC,KIRP,LIHC,LUSC,SARC
chr9:19120171:->chr9:19119829:-	chr9	19120331	19120171	-	chr9	19119829	19119782	-	TSF	ENST00000411567,ENST00000276914	5,5,30,30	23672-23675	28394-28397	BRCA,KIRC,OV
chr9:19419707:+>chr9:19423860:+	chr9	19419482	19419707	+	chr9	19423860	19423974	+	TSF	ENST00000340967	22,8	23676-23677	28398-28399	BLCA
chr9:21974089:->chr9:21971207:-	chr9	21974190	21974089	-	chr9	21971207	21971002,21970901,21970975	-	TSF	ENST00000361570,ENST00000304494,ENST00000579755,ENST00000579122,ENST00000530628,ENST00000498124,ENST00000446177	34,34,34,10,10,10,10,10,10,10,24,24,24,24,24,24,34,34,34,34	23678-23698	28400-28420	BLCA,BRCA,CESC,HNSC,OV,SARC,UCEC,UCS
chr9:33033436:+>chr9:33034214:+	chr9	33033420	33033436	+	chr9	33034214	33034328	+	TSF	ENST00000330899,ENST00000544625	5,5,5,5,5,5	23699-23704	28421-28426	LIHC,TGCT
chr9:33787393:+>chr9:33796641:+	chr9	33787120	33787393	+	chr9	33796641	33796800	+	TAF	ENST00000361005,ENST00000457896,ENST00000342836,ENST00000429677,ENST00000379405	10,10,10,10,21,21,21,21,21,21,25,25,25,25,25,10	23705-23719	28427-28441	COAD,HNSC,READ,STAD
chr9:33797162:+>chr9:33797827:+	chr9	33797054	33797162	+	chr9	33797827	33798080	+	TSF	ENST00000361005,ENST00000457896,ENST00000342836,ENST00000429677,ENST00000379405	20,20,20,20,20,2,2,2,2,2,35,35,35,35,35	23720-23734	28442-28456	PAAD

Table 19

chr9:35657683:+>chr9:35658573:+	chr9	35657501	35657683	+	chr9	35658573	35658724	+	TSF	ENST00000378407,ENST00000378406,ENST00000426546,ENST00000327351,ENST00000421582,ENST00000378409	13,13,13,13,13,41,41,41,41,41,13	23735-23746	28457-28468	ACC,PCPG,SARC
chr9:35678160:+>chr9:35679182:+	chr9	35678063	35678160	+	chr9	35679182	35679339	+	TSF	ENST00000378357	23,32,32	23747-23749	28469-28471	BLCA,BRCA,CESC,CHOL,HNSC,KIRC,KIRP,LIHC,LUAD,LUSC,MESO,OV,PAAD,STAD,UCEC,UCS
chr9:35790337:+>chr9:35799615:+	chr9	35790327	35790337	+	chr9	35799615	35799728	+	TSF	ENST00000342694	3,3,3	23750-23752	28472-28474	BLCA,BRCA,CESC,CHOL,COAD,KIRC,LUAD,LUSC,OV,PAAD,PRAD,STAD,UCS
chr9:35846070:+>chr9:35846255:+	chr9	35846065	35846070	+	chr9	35846255	35846378	+	TSF	ENST00000377996,ENST00000439587,ENST00000377991,ENST00000377988	2,2,2,2,1,1,1,1	23753-23760	28475-28482	BLCA,BRCA,COAD,GBM,KICH,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,SARC,UCEC,UCS
chr9:37801713:+>chr9:37819285:+	chr9	37801617	37801713	+	chr9	37819285	37819398	+	TSF	ENST00000377724,ENST00000242323	5,5,32,32,31,31	23761-23766	28483-28488	BRCA,UCEC
chr9:42254270:+>chr9:42671887:+	chr9	42254026	42254270	+	chr9	42671887	42671946	+	TSF	ENST00000456520,ENST00000377391	2,2,12,12,28,28	23767-23772	28489-28494	OV
chr9:5907721:+>chr9:5908640:+	chr9	5907671	5907721	+	chr9	5908640	5908708	+	TSF	ENST00000381477,ENST00000381476,ENST00000381471	17,17,17,7,7,7,16,16,16	23773-23781	28495-28503	SKCM,UVM
chr9:5907771:+>chr9:5908640:+	chr9	5907671	5907771	+	chr9	5908640	5908708	+	TSF	ENST00000381477,ENST00000381476,ENST00000381471	33,33,33,24,24,24,11,11,11	23782-23790	28504-28512	LIHC,SKCM,UVM
chr9:6248555:+>chr9:6250474:+	chr9	6248332	6248555	+	chr9	6250474	6250599	+	TAF	ENST00000456383,ENST00000381434	9,9,17,17	23791-23794	28513-28516	BLCA,CESC,COAD,KICH,READ,STAD,TGCT
chr9:6807744:+>chr9:6814631:+	chr9	6806927	6807744	+	chr9	6814631	6814745,7	+	TSF	ENST00000535193,ENST00000438023,ENST00000543771,ENST00000401787,ENST00000381306,ENST00000381309	27,27,14,14,14,14,14,14,12,12,12,12,12,27,27,27	23795-23812	28517-28534	TGCT
chr9:69229475:->chr9:69218561:-	chr9	69229480	69229475	-	chr9	69218561	69218510	-	TAF	ENST00000416428,ENST00000377457,ENST00000377449,ENST00000382399	2,2,2,2,1,1,1,1	23813-23820	28535-28542	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,PRAD,READ,SARC,SKCM,TGCT,THCA,THYM,UCEC,UCS
chr9:69269396:->chr9:69259308:-	chr9	69269543	69269396	-	chr9	69259308	69259223	-	TAF	ENST00000377457,ENST00000377449,ENST00000382399,ENST00000377441,ENST00000377439	3,3,3,3,3,1,1,1,49,49,49,49,9,1,1	23821-23835	28543-28557	BLCA,BRCA,GBM,LGG,THCA
chr9:70847411:+>chr9:70860129:+	chr9	70847151	70847411	+	chr9	70860129	70860215	+	TSF	ENST00000360171,ENST00000377342,ENST00000377344,ENST00000478048	45,45,45,45,7,7,7,7,18,18,18,18	23836-23847	28558-28569	BLCA,BRCA,GBM,HNSC,LGG,LUSC
chr9:72501289:+>chr9:72501754:+	chr9	72500819	72501289	+	chr9	72501754	72501811	+	TSF	ENST00000377197	24,2,14	23848-23850	28570-28572	BRCA,GBM,LGG
chr9:74533471:+>chr9:74561922:+	chr9	74533392	74533471	+	chr9	74561922	74562028	+	TAF	ENST00000334731,ENST00000377031,ENST00000486911	26,26,26,2,2,2,26,26	23851-23859	28573-28581	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KIRC,KIRP,LGG,LUAD,LUSC,PRAD,READ,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chr9:75517763:->chr9:75516196:-	chr9	75517880	75517763	-	chr9	75516196	75516124	-	TSF	ENST00000297785	30,4,2	23860-23862	28582-28584	BLCA,CESC,KIRP,LIHC,LUSC,STAD
chr9:75580323:->chr9:75555168:-	chr9	75580673	75580323	-	chr9	75555168	75555064	-	TSF	ENST00000297785,ENST00000376939,ENST00000419959,ENST00000446946	12,4,4,4,4,22,22,22,22,12,12,12	23863-23874	28585-28596	LUSC,UCS

Table 10

chr9:75695283:->chr9:75555168:-	chr9	75695610	75695283	-	chr9	75555168	75555064	-	TAF	ENST00000297785,ENST00000376939,ENST00000419959,ENST00000446946	44,44,44,44,58,67,67,67,67,58,58,58	23875-23886	28597-28608	GBM,KIRC,KIRP,LGG
chr9:85967460:->chr9:85964672:-	chr9	85967664	85967460	-	chr9	85964672	85964594	-	TSF	ENST00000376438,ENST00000304195	68,68,8,8	23887-23890	28609-28612	LIHC,THCA
chr9:90301883:+>chr9:90311922:+	chr9	90301842	90301883	+	chr9	90311922	90312119	+	TSF	ENST00000358077,ENST00000472284,ENST00000469640,ENST00000408954	5,5,5,5,13,13,13,13,13,13,13,13	23891-23902	28613-28624	BLCA,LIHC,LUAD
chr9:93648256:+>chr9:93650031:+	chr9	93647278	93648256	+	chr9	93650031	93650171	+	TAF	ENST00000375751,ENST00000375754,ENST00000375747,ENST00000375746	130,130,130,130,4,4,4,7,7,7,7	23903-23914	28625-28636	CESC,COAD,DLBC,HNSC,READ,SKCM,STAD,THYM
chr9:94504366:->chr9:94499800:-	chr9	94504684	94504366	-	chr9	94499800	94499673	-	TSF	ENST00000375715,ENST00000375708	18,18,45,45,7,7	23915-23920	28637-28642	BLCA,BRCA,DLBC,SARC,STAD
chr9:95777506:+>chr9:95778019:+	chr9	95777456	95777506	+	chr9	95778019	95778111	+	TSF	ENST00000375482,ENST00000416701,ENST00000337352,ENST00000467786	17,17,7,7,7,7,17,17	23921-23928	28643-28650	BLCA,BRCA,DLBC
chr9:95843805:+>chr9:95846819:+	chr9	95843657	95843805	+	chr9	95846819	95846950	+	TSF	ENST00000465709,ENST00000375472,ENST00000375469,ENST00000471462	27,27,27,14,14,14,14,11,11,11,11,27	23929-23940	28651-28662	BLCA,BRCA,CHOL,DLBC,LIHC,OV,TGCT,THYM
chr9:97767010:+>chr9:97767440:+	chr9	97766976	97767010	+	chr9	97767440	97767502	+	TSF	ENST00000297979,ENST00000375315,ENST00000424143,ENST00000428313,ENST00000451893,ENST00000425634,ENST00000445181,ENST00000478473	11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11,11	23941-23964	28663-28686	CESC,OV,STAD
chr9:99067556:->chr9:99064349:-	chr9	99067886	99067556	-	chr9	99064349	99064233	-	TSF	ENST00000375263,ENST00000375262	26,45,45,6,6,26	23965-23970	28687-28692	ACC,CHOL,GBM,KIRC,LGG,LIHC,PAAD,SARC,THCA
chrX:100124234:->chrX:100118584:-	chrX	100125243	100124234	-	chrX	100118584	100118474	-	TAF	ENST00000372966,ENST00000372964,ENST00000217885	6,6,6,64,64,64,336,336,336	23971-23979	28693-28701	COAD,READ
chrX:100654732:->chrX:100653934:-	chrX	100655477	100654732	-	chrX	100653934	100653773	-	TSF	ENST00000218516	71,36,1	23980-23982	28702-28704	ACC,BLCA,BRCA,CESC,KIRP,LIHC,LUAD,LUSC,OV,SKCM
chrX:103287369:->chrX:103267320:-	chrX	103287465	103287369	-	chrX	103267320	103267284	-	TSF	ENST00000217926	32,6	23983-23984	28705-28706	BLCA,LUSC,OV,STAD
chrX:106007873:+>chrX:106016143:+	chrX	106007615	106007873	+	chrX	106016143	106016390	+	TSF	ENST00000418562,ENST00000324342,ENST00000255499	10,32,32,32,18,18,18,10,10	23985-23993	28707-28715	CHOL,COAD,KIRC,LIHC,LUAD,READ,STAD,THCA
chrX:107266261:+>chrX:107301268:+	chrX	107265928	107266261	+	chrX	107301268	107301431	+	TSF	ENST00000415430,ENST00000217957,ENST00000458383	12,10,10,10,50,50,50,12,12	23994-24002	28716-28724	LUAD,LUSC
chrX:107294242:+>chrX:107301268:+	chrX	107293989	107294242	+	chrX	107301268	107301431	+	TSF	ENST00000415430,ENST00000217957,ENST00000458383	61,61,61,6,10,10,10,6,6	24003-24011	28725-28733	LUAD,LUSC,PAAD,STAD
chrX:107370324:+>chrX:107372011:+	chrX	107370259	107370324	+	chrX	107372011	107372082	+	TAF	ENST00000345734,ENST00000372232,ENST00000343524	11,11,11,1,1,1,13,13,13	24012-24020	28734-28742	BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THCA,UCEC,UCS
chrX:118371371:+>chrX:118374272:+	chrX	118371254	118371371	+	chrX	118374272	118374427	+	TSF	ENST00000217971	39,20,5	24021-24023	28743-28745	ACC,BRCA,KIRC,OV
chrX:119449548:->chrX:119438346:-	chrX	119449588	119449548	-	chrX	119438346	119438204	-	TSF	ENST00000309720,ENST00000371369,ENST00000440464,ENST00000519908	13,13,13,13,13,2,2,2,2,13,13,13	24024-24035	28746-28757	KICH,KIRC,KIRP,SKCM
chrX:119449552:->chrX:119438268:-	chrX	119449588	119449552	-	chrX	119438268	119438204	-	TSF	ENST00000309720,ENST00000371369,ENST00000440464,ENST00000519908	12,12,12,12,12,12,12,12	24036-24043	28758-28765	KICH,KIRC,KIRP

Table 19

chrX:119449552:->chrX:119438346:-	chrX	119449588	119449552	-	chrX	119438346	119438204	-	TSF	ENST00000309720,ENST00000371369,ENST00000440464,ENST00000519908	12,12,12,12,12,12,12,12	24044-24051	28766-28773	KICH,KIRC,KIRP
chrX:123617816:->chrX:123615814:-	chrX	123618682	123617816	-	chrX	123615814	123615582	-	TSF	ENST00000371130,ENST00000422452	14,14,22,22	24052-24055	28774-28777	GBM,KIRC,KIRP,LGG,LIHC,LUAD,PCPG,PRAD,SARC,TGCT,THCA
chrX:129264593:->chrX:129264141:-	chrX	129264697	129264593	-	chrX	129264141	129263945	-	TAF	ENST00000440263,ENST00000460436,ENST00000346424,ENST00000319908,ENST00000287295	2,2,2,2,2,4,4,4,4,4,34,34,34,34,34	24056-24070	28778-28792	ACC,BLCA,BRCA,CESC,COAD,DLBC,KICH,KIRC,KIRP,LIHC,LUAD,LUSC,OV,PRAD,READ,THYM,UCEC,UCS
chrX:130206550:+>chrX:130215734:+	chrX	130206450	130206550	+	chrX	130215734	130215892	+	TSF	ENST00000276211,ENST00000370922,ENST00000412432	20,20,20,5,5,5	24071-24076	28793-28798	THCA
chrX:133098673:->chrX:133087238:-	chrX	133098739	133098673	-	chrX	133087238	133087077	-	TSF	ENST00000370818,ENST00000394299	5,5,21,21	24077-24080	28799-28802	BLCA,BRCA,HNSC,LIHC,LUSC,SARC,STAD,TGCT,UCS
chrX:134847423:+>chrX:134852761:+	chrX	134847126	134847423	+	chrX	134852761	134852870	+	TSF	ENST00000370741,ENST00000497301,ENST00000482795	38,38,38,50,50,50,8,8,8	24081-24089	28803-28811	BRCA,CESC,COAD,DLBC,HNSC,LUAD,LUSC,OV,READ,STAD,UCS
chrX:134847423:+>chrX:134870023:+	chrX	134847126	134847423	+	chrX	134870023	134870132	+	TSF	ENST00000370736,ENST00000471213,ENST00000495729	8,8,8,50,50,38,38,38	24090-24098	28812-28820	BRCA,COAD,DLBC,HNSC,LUAD,LUSC,OV,READ,STAD,UCS
chrX:134847423:+>chrX:134887292:+	chrX	134847126	134847423	+	chrX	134887292	134887401	+	TSF	ENST00000370734,ENST00000485366,ENST00000443882	8,8,8,50,50,38,38,38	24099-24107	28821-28829	BRCA,COAD,DLBC,HNSC,LUAD,LUSC,OV,READ,UCS
chrX:134866452:+>chrX:134870023:+	chrX	134866155	134866452	+	chrX	134870023	134870132	+	TSF	ENST00000370736,ENST00000471213,ENST00000495729	50,50,50,38,38,38,8,8,8	24108-24116	28830-28838	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134866452:+>chrX:134887292:+	chrX	134866155	134866452	+	chrX	134887292	134887401	+	TSF	ENST00000370734,ENST00000485366,ENST00000443882	50,50,50,38,38,38,8,8,8	24117-24125	28839-28847	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134866469:+>chrX:134870023:+	chrX	134866155	134866469	+	chrX	134870023	134870132	+	TSF	ENST00000370736,ENST00000471213,ENST00000495729	56,56,56,14,14,14,43,43,43	24126-24134	28848-28856	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,UCS
chrX:134866469:+>chrX:134887292:+	chrX	134866155	134866469	+	chrX	134887292	134887401	+	TSF	ENST00000370734,ENST00000485366,ENST00000443882	56,56,56,43,43,43,14,14,14	24135-24143	28857-28865	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,UCS
chrX:134883726:+>chrX:134887292:+	chrX	134883429	134883726	+	chrX	134887292	134887401	+	TSF	ENST00000370734,ENST00000485366,ENST00000443882	50,50,50,38,38,38,8,8,8	24144-24152	28866-28874	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134883743:+>chrX:134887292:+	chrX	134883429	134883743	+	chrX	134887292	134887401	+	TSF	ENST00000370734,ENST00000485366,ENST00000443882	56,56,56,43,43,43,14,14,14	24153-24161	28875-28883	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,UCS
chrX:134936480:->chrX:134932924:-	chrX	134936794	134936480	-	chrX	134932924	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	56,56,56,43,43,43,14,14,14	24162-24170	28884-28892	BRCA,HNSC,LIHC,LUAD,LUSC
chrX:134936497:->chrX:134932870:-	chrX	134936794	134936497	-	chrX	134932870	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	38,38,38,8,8,8,50,50	24171-24179	28893-28901	BRCA,LUSC,OV,SKCM,STAD,UCEC
chrX:134936497:->chrX:134932924:-	chrX	134936794	134936497	-	chrX	134932924	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	38,38,38,50,50,50,8,8,8	24180-24188	28902-28910	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134953739:->chrX:134932924:-	chrX	134954053	134953739	-	chrX	134932924	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	56,56,56,43,43,43,14,14,14	24189-24197	28911-28919	BRCA,HNSC,LIHC,LUAD,LUSC
chrX:134953739:->chrX:134950187:-	chrX	134954053	134953739	-	chrX	134950187	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	56,56,56,56,14,14,14,14,43,43,43	24198-24209	28920-28931	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,SKCM,STAD,UCS

Table 19

chrX:134953756:->chrX:134932870:-	chrX	134954053	134953756	-	chrX	134932870	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	38,38,38,8,8,8,50,50,50	24210-24218	28932-28940	BRCA,LUSC,OV,SKCM,STAD,UCEC
chrX:134953756:->chrX:134932924:-	chrX	134954053	134953756	-	chrX	134932924	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	38,38,38,50,50,50,8,8,8	24219-24227	28941-28949	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134953756:->chrX:134950133:-	chrX	134954053	134953756	-	chrX	134950133	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	38,38,38,38,8,8,8,8,50,50,50,50	24228-24239	28950-28961	BLCA,BRCA,LUSC,OV,SKCM,STAD,UCEC
chrX:134953756:->chrX:134950187:-	chrX	134954053	134953756	-	chrX	134950187	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	50,50,50,50,38,38,38,8,8,8,8,8	24240-24251	28962-28973	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134970989:->chrX:134932924:-	chrX	134971303	134970989	-	chrX	134932924	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	43,43,43,14,14,14,56,56,56	24252-24260	28974-28982	BRCA,HNSC,LIHC,LUAD,LUSC
chrX:134970989:->chrX:134950187:-	chrX	134971303	134970989	-	chrX	134950187	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	14,14,14,14,56,56,56,56,43,43,43	24261-24272	28983-28994	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,SKCM,UCS
chrX:134970989:->chrX:134967437:-	chrX	134971303	134970989	-	chrX	134967437	134967328	-	TSF	ENST00000491002,ENST00000448053,ENST00000472834	56,56,56,43,43,43,14,14,14	24273-24281	28995-29003	BLCA,BRCA,CESC,HNSC,LIHC,LUAD,LUSC,OV,SKCM,UCS
chrX:134971006:->chrX:134932870:-	chrX	134971303	134971006	-	chrX	134932870	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	50,50,50,38,38,38,8,8,8	24282-24290	29004-29012	BRCA,LUSC,OV,SKCM,STAD,UCEC
chrX:134971006:->chrX:134932924:-	chrX	134971303	134971006	-	chrX	134932924	134932815	-	TSF	ENST00000487941,ENST00000434966,ENST00000494421	38,38,38,8,8,8,50,50,50	24291-24299	29013-29021	BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134971006:->chrX:134950133:-	chrX	134971303	134971006	-	chrX	134950133	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	50,50,50,50,38,38,38,38,8,8,8	24300-24311	29022-29033	BLCA,BRCA,LUSC,OV,SKCM,STAD,UCEC
chrX:134971006:->chrX:134950187:-	chrX	134971303	134971006	-	chrX	134950187	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	38,38,38,38,8,50,50,50,8,8	24312-24323	29034-29045	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134971006:->chrX:134967383:-	chrX	134971303	134971006	-	chrX	134967383	134967328	-	TSF	ENST00000491002,ENST00000448053,ENST00000472834	50,50,50,38,38,38,8,8,8	24324-24332	29046-29054	BLCA,BRCA,LUSC,OV,SKCM,STAD,UCEC
chrX:134971006:->chrX:134967437:-	chrX	134971303	134971006	-	chrX	134967437	134967328	-	TSF	ENST00000491002,ENST00000448053,ENST00000472834	38,38,38,8,8,8,50,50,50	24333-24341	29055-29063	BLCA,BRCA,CESC,COAD,DLBC,HNSC,LIHC,LUAD,LUSC,OV,PRAD,READ,SKCM,STAD,TGCT,UCEC,UCS
chrX:134975496:->chrX:134950187:-	chrX	134975955	134975496	-	chrX	134950187	134950078	-	TSF	ENST00000420087,ENST00000463085,ENST00000370724,ENST00000491480	32,32,32,32,45,45,45,45,8,8,8	24342-24353	29064-29075	BLCA,HNSC,LIHC,LUSC,OV,STAD
chrX:134975496:->chrX:134967437:-	chrX	134975955	134975496	-	chrX	134967437	134967328	-	TSF	ENST00000491002,ENST00000448053,ENST00000472834	45,45,45,32,32,32,8,8,8	24354-24362	29076-29084	BLCA,HNSC,LIHC,LUSC,OV,STAD
chrX:13804092:->chrX:13803927:-	chrX	13804185	13804092	-	chrX	13803927	13803741	-	TAF	ENST00000316715,ENST00000454189,ENST00000493677,ENST00000355135,ENST00000356942,ENST00000475307	2,2,31,31,31,31,31,17,17,17,17,2,2,2,2	24363-24380	29085-29102	BLCA,BRCA,CESC,GBM,HNSC,LGG,LUSC,OV,UCEC,UCS
chrX:138072670:->chrX:137939841:-	chrX	138072952	138072670	-	chrX	137939841	137939674	-	TSF	ENST00000370603,ENST00000436198,ENST00000455663,ENST00000448673	48,21,21,21,21,7,7,7,7,48,48,48	24381-24392	29103-29114	ACC,BLCA,CESC,HNSC,KIRC,KIRP,LUAD,LUSC,PAAD,READ,SARC,SKCM,UCEC

Table 19

chrX:13907571:->chrX:13803927:-	chrX	13907696	13907571	-	chrX	13803927	13803741	-	TAF	ENST00000316715,ENST00000454189,ENST00000493677,ENST00000355135,ENST00000356942,ENST00000475307	6,6,6,6,6,6,12,12,12,12,12,12	24393-24404	29115-29126	GBM,LGG,SARC,UCEC
chrX:13921670:->chrX:13803927:-	chrX	13921681	13921670	-	chrX	13803927	13803741	-	TAF	ENST00000316715,ENST00000454189,ENST00000493677,ENST00000355135,ENST00000356942,ENST00000475307	4,4,4,4,4,4,3,3,3,3,3,3,3,3,3,3,3,3	24405-24422	29127-29144	GBM,LGG,OV,UCEC
chrX:148576990:->chrX:148571971:-	chrX	148577156	148576990	-	chrX	148571971	148571845	-	TAF	ENST00000340855,ENST00000422081,ENST00000541269,ENST00000370441	13,13,13,13,15,15,15,8,8,8,15,8	24423-24434	29145-29156	ACC,BLCA,BRCA,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,OV,PAAD,PCPG,SKCM,STAD,THCA,UCS
chrX:149996779:->chrX:149963959:-	chrX	149997009	149996779	-	chrX	149963959	149963891	-	TSF	ENST00000370377,ENST00000466436,ENST00000418547	9,9,9,26,26,26,15,15,15	24435-24443	29157-29165	BRCA,CHOL,LGG,LUAD,LUSC,OV
chrX:150886376:+>chrX:150889867:+	chrX	150886281	150886376	+	chrX	150889867	150889973	+	TSF	ENST00000370350	11,19,24	24444-24446	29166-29168	ACC
chrX:151410406:->chrX:151393317:-	chrX	151410500	151410406	-	chrX	151393317	151393235	-	TSF	ENST00000370314,ENST00000535043	6,6,31,31	24447-24450	29169-29172	BLCA,BRCA,CESC,HNSC,LUAD,LUSC,OV,STAD,TGCT,UCEC
chrX:152937874:->chrX:152937655:-	chrX	152937975	152937874	-	chrX	152937655	152937581,152937592,152937597	-	TSF	ENST00000340888,ENST00000370150,ENST00000393831,ENST00000370142,ENST00000370145,ENST00000447676,ENST00000439087,ENST00000433470,ENST00000422811,ENST00000411968,ENST00000418241,ENST00000434652	34,34,34,34,34,34,34,25,25,25,25,33,33,33,33,33,33,33,33,33,33,25,25,25,34,34,25,25,25,34,25,33,34,25,33	24451-24486	29173-29208	KIRC
chrX:152969992:->chrX:152969549:-	chrX	152970153	152969992	-	chrX	152969549	152969414	-	TSF	ENST00000441714,ENST00000345046,ENST00000458587,ENST00000442093,ENST00000429550,ENST00000416815,ENST00000423827,ENST00000430088	4,4,4,4,4,4,4,4,17,17,17,10,10,10,10,10,10,10,10,17,17,17,17,17	24487-24510	29209-29232	THYM
chrX:153207921:->chrX:153207484:-	chrX	153207989	153207921	-	chrX	153207484	153207403	-	TSF	ENST00000393700,ENST00000369997	23,23,13,13	24511-24514	29233-29236	BRCA,DLBC,KICH,KIRP,LUAD,SKCM,THYM,UVM
chrX:154534773:->chrX:154528458:-	chrX	154534914	154534773	-	chrX	154528458	154528349	-	TSF	ENST00000369449,ENST00000321926	21,21,15,7,7,15	24515-24520	29237-29242	BLCA,COAD,HNSC,LIHC,LUAD,LUSC,OV,STAD,THYM
chrX:154534817:->chrX:154528458:-	chrX	154534914	154534817	-	chrX	154528458	154528349	-	TSF	ENST00000369449,ENST00000321926	6,6,32,32	24521-24524	29243-29246	BLCA,COAD,HNSC,LIHC,LUAD,LUSC,OV,STAD,TGCT,THYM
chrX:154751612:->chrX:154528458:-	chrX	154751709	154751612	-	chrX	154528458	154528349	-	TSF	ENST00000369449,ENST00000321926	6,6,32,32	24525-24528	29247-29250	BLCA,HNSC,LUAD,LUSC
chrX:16671984:+>chrX:16672528:+	chrX	16671913	16671984	+	chrX	16672528	16672632	+	TSF	ENST00000380200	6,21,23	24529-24531	29251-29253	BLCA,BRCA,CESC,KIRC,READ
chrX:16718441:->chrX:16717216:-	chrX	16718539	16718441	-	chrX	16717216	16717046	-	TSF	ENST00000443824,ENST00000359276,ENST00000380241	33,33,33,23,23,23,16,16,16	24532-24540	29254-29262	BRCA,KIRC,LUSC
chrX:17044386:+>chrX:17047649:+	chrX	17044209	17044386	+	chrX	17047649	17047746	+	TSF	ENST00000357277,ENST00000303843,ENST00000380064	1,1,9,9,9,2,2,2,1	24541-24549	29263-29271	ACC,BRCA,KIRC,LGG,LUAD,STAD
chrX:19668432:->chrX:19663593:-	chrX	19668715	19668432	-	chrX	19663593	19663518	-	TSF	ENST00000397821,ENST00000379716,ENST00000379698,ENST00000379726,ENST00000379697,ENST00000432234	7,7,7,7,7,49,49,49,49,49,1,1,1,1,7,49,1	24550-24567	29272-29289	SARC

Table 19

chrX:19668468:->chrX:19663593:-	chrX	19668715	19668468	-	chrX	19663593	19663518	-	TSF	ENST00000397821,ENST00000379716,ENST00000379698,ENST00000379726,ENST00000379697,ENST00000432234	37,37,37,37,37,34,34,34,34,37,34	24568-24579	29290-29301	SARC
chrX:2177670:->chrX:2161271:-	chrX	2178048	2177670	-	chrX	2161271	2161064,2	-	TAF	ENST00000334651,ENST00000412516	8,8,43,43,44,44	24580-24585	29302-29307	ACC,BLCA,BRCA,CESC,CHOL,COAD,GBM,HNSC,KICH,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chrX:21965489:+>chrX:21985314:+	chrX	21965424	21965489	+	chrX	21985314	21985434	+	TSF	ENST00000404933,ENST00000379404,ENST00000457085	22,22,22,6,6,6,21,21,21	24586-24594	29308-29316	CESC,HNSC,KIRP,PRAD,TGCT,UCEC
chrX:2291084:->chrX:2209644:-	chrX	2291342	2291084	-	chrX	2209644	2209543	-	TAF	ENST00000334651,ENST00000412516,ENST00000444280	36,33,33,33,7,7,7,36,36	24595-24603	29317-29325	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PRAD,READ,SARC,STAD,TGCT,THCA,UCEC,UCS,UVM
chrX:33096303:->chrX:33038317:-	chrX	33097155	33096303	-	chrX	33038317	33038256	-	TSF	ENST00000378677,ENST00000357033,ENST00000420596,ENST00000448370,ENST00000288447	28,28,2,2,2,2,2,28,28,28	24604-24613	29326-29335	STAD,TGCT
chrX:33101211:->chrX:33038317:-	chrX	33102393	33101211	-	chrX	33038317	33038256	-	TSF	ENST00000378677,ENST00000357033,ENST00000420596,ENST00000448370,ENST00000288447	38,38,23,23,23,23,38,38,38	24614-24623	29336-29345	TGCT
chrX:3773630:->chrX:3735819:-	chrX	3773692	3773630	-	chrX	3735819	3735816	-	TAF	ENST00000425492	21,20,20	24624-24626	29346-29348	BLCA,BRCA,CESC,CHOL,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PCPG,PRAD,READ,SARC,SKCM,STAD,TGCT,THCA,THYM,UCEC,UCS,UVM
chrX:3812054:->chrX:3735819:-	chrX	3812116	3812054	-	chrX	3735819	3735816	-	TSF	ENST00000425492	21,20,20	24627-24629	29349-29351	BLCA,BRCA,CESC,COAD,DLBC,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,OV,PRAD,STAD,TGCT,THYM,UCEC,UCS,UVM
chrX:43703702:->chrX:43703010:-	chrX	43703705	43703702	-	chrX	43703010	43702916	-	TSF	ENST00000378069	1,1	24630-24631	29352-29353	BRCA,GBM,KIRC,KIRP,LGG,LIHC
chrX:47013188:->chrX:47002143:-	chrX	47013218	47013188	-	chrX	47002143	47002013	-	TSF	ENST00000377811,ENST00000276062	10,10,10,10	24632-24635	29354-29357	BRCA,OV
chrX:47058027:+>chrX:47058202:+	chrX	47057962	47058027	+	chrX	47058202	47058318	+	TSF	ENST00000377351,ENST00000412206,ENST00000427561,ENST00000442035,ENST00000457753,ENST00000335972,ENST00000451702	16,16,16,16,16,16,16,21,21,21,21,21,21	24636-24649	29358-29371	BLCA,BRCA,CESC,GBM,HNSC,KICH,KIRC,LGG,LUAD,LUSC,OV,STAD,TGCT,UCEC
chrX:48394426:+>chrX:48417285:+	chrX	48394106	48394426	+	chrX	48417285	48417412	+	TSF	ENST00000376771,ENST00000481090,ENST00000418627	33,33,33,8,8,8,11,11,11	24650-24658	29372-29380	ACC,SARC
chrX:48708228:->chrX:48690751:-	chrX	48708290	48708228	-	chrX	48690751	48690279	-	TSF	ENST00000218230	21,1,20	24659-24661	29381-29383	STAD
chrX:48752631:->chrX:48751504:-	chrX	48752918	48752631	-	chrX	48751504	48751380	-	TSF	ENST00000465150,ENST00000376582,ENST00000396779,ENST00000495490,ENST00000490755	24,24,24,24,95,95,95,95,95,24	24662-24671	29384-29393	CESC,COAD,GBM,LGG,OV

Table 19

chrX:48793462:->chrX:48792291:-	chrX	48793481	48793462	-	chrX	48792291	48792227	-	TAF	ENST00000396743,ENST00000455452,ENST00000156084,ENST00000376488,ENST00000428668	3,3,3,3,3,2,2,2,2,2	24672-24681	29394-29403	ACC,BLCA,BRCA,CESC,CHOL,COAD,DLBC,GBM,HNSC,KIRC,KIRP,LGG,LIHC,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,SARC,SKCM,STAD,TGCT,THYM,UCEC,UCS
chrX:53578958:->chrX:53578441:-	chrX	53579130	53578958	-	chrX	53578441	53578227	-	TSF	ENST00000427052,ENST00000342160,ENST00000262854	4,4,4,9,9,9,1,1,1	24682-24690	29404-29412	BLCA,BRCA,LUAD,LUSC,OV,READ,STAD,TGCT,UCEC
chrX:53664254:->chrX:53661250:-	chrX	53664297	53664254	-	chrX	53661250	53661188	-	TSF	ENST00000342160,ENST00000262854,ENST00000218328	7,7,7,14,14,14	24691-24696	29413-29418	OV,STAD
chrX:63029083:->chrX:62944591:-	chrX	63029112	63029083	-	chrX	62944591	62944412	-	TSF	ENST00000253401,ENST00000374878	9,9,9,9	24697-24700	29419-29422	PCPG
chrX:69366077:+>chrX:69366483:+	chrX	69366031	69366077	+	chrX	69366483	69366678	+	TSF	ENST00000342206,ENST00000356413	15,15,11,11,15,15	24701-24706	29423-29428	ACC,BLCA,BRCA,CESC,COAD,DLBC,KIRP,LGG,LUAD,OV,READ,SARC,STAD,TGCT,THCA,UCEC
chrX:69366077:+>chrX:69366595:+	chrX	69366031	69366077	+	chrX	69366595	69366678	+	TSF	ENST00000342206,ENST00000356413	15,15,11,11,15,15	24707-24712	29429-29434	ACC,BLCA,CESC,COAD,LUAD,LUSC,MESO,OV,STAD,THCA,THYM,UCEC
chrX:69679903:+>chrX:69699000:+	chrX	69679853	69679903	+	chrX	69699000	69699114	+	TSF	ENST00000194900,ENST00000374360,ENST00000374355	17,17,17,7,7,7,16,16,16	24713-24721	29435-29443	COAD,TGCT
chrX:70328686:->chrX:70328545:-	chrX	70328788	70328686	-	chrX	70328545	70328450	-	TSF	ENST00000374202,ENST00000456850,ENST00000464642	2,2,12,12,4,4,2,12,4	24722-24730	29444-29452	COAD,STAD,THYM
chrX:71398498:+>chrX:71406311:+	chrX	71397824	71398498	+	chrX	71406311	71406384	+	TAF	ENST00000218432,ENST00000423432,ENST00000373669,ENST00000496835,ENST00000439980,ENST00000446576	37,37,37,37,37,37,11,11,11,11,11,11,26,26,26,26,26,26	24731-24748	29453-29470	ACC,BLCA,BRCA,CESC,DLBC,GBM,HNSC,LGG,LUAD,LUSC,OV,SARC,STAD,TGCT,THCA,THYM,UCEC,UCS
chrX:71398498:+>chrX:71416635:+	chrX	71397824	71398498	+	chrX	71416635	71416779	+	TSF	ENST00000218432,ENST00000423432,ENST00000373669,ENST00000496835,ENST00000439980,ENST00000446576	37,37,11,11,11,11,11,26,26,26,26,26,37,37,37	24749-24766	29471-29488	CESC,DLBC,HNSC,OV,TGCT,THCA,UCEC,UCS
chrX:71398575:+>chrX:71406311:+	chrX	71397824	71398575	+	chrX	71406311	71406384	+	TSF	ENST00000218432,ENST00000423432,ENST00000373669,ENST00000496835,ENST00000439980,ENST00000446576	62,62,62,62,62,62,14,14,1,1,1,1,1,14,14,14	24767-24784	29489-29506	HNSC,LUSC,TGCT
chrX:71398575:+>chrX:71416635:+	chrX	71397824	71398575	+	chrX	71416635	71416779	+	TSF	ENST00000218432,ENST00000423432,ENST00000373669,ENST00000496835,ENST00000439980,ENST00000446576	62,62,62,62,62,62,14,14,14,14,14,14,1,1,1,1,1,1	24785-24802	29507-29524	TGCT,UCEC
chrX:71398615:+>chrX:71406311:+	chrX	71397824	71398615	+	chrX	71406311	71406384	+	TSF	ENST00000218432,ENST00000423432,ENST00000373669,ENST00000496835,ENST00000439980,ENST00000446576	12,12,12,12,12,12,27,27,27,27,27,27,14,14,14,14,14,14	24803-24820	29525-29542	CESC,HNSC,LUSC,TGCT,THCA,THYM
chrX:71398659:+>chrX:71406311:+	chrX	71397824	71398659	+	chrX	71406311	71406384	+	TSF	ENST00000218432,ENST00000423432,ENST00000373669,ENST00000496835,ENST00000439980,ENST00000446576	26,26,26,26,26,26,13,13,29,29,29,29,29,29,13,13,13,13	24821-24838	29543-29560	ACC,HNSC,LUSC,TGCT,UCEC
chrX:71529379:->chrX:71522784:-	chrX	71529592	71529379	-	chrX	71522784	71522660	-	TSF	ENST00000453707,ENST00000431381,ENST00000427412,ENST00000450875,ENST00000454225	17,17,44,44,44,44,44,15,15,15,15,15,17,17,17	24839-24853	29561-29575	BRCA,PRAD,THCA,UVM
chrX:76851182:->chrX:76849319:-	chrX	76851229	76851182	-	chrX	76849319	76849166	-	TSF	ENST00000373344,ENST00000395603	16,16,1,1,3,3	24854-24859	29576-29581	BLCA,BRCA,CESC,LUSC,READ,STAD,TGCT

Table 19

chrX:79986587:->chrX:79985519:-	chrX	79986798	79986587	-	chrX	79985519	79985415	-	TSF	ENST00000373275	14,9,12	24860-24862	29582-29584	STAD,TGCT
chrX:80467350:+>chrX:80532483:+	chrX	80467099	80467350	+	chrX	80532483	80532668	+	TSF	ENST00000373212	14,56,1	24863-24865	29585-29587	BRCA,STAD
chrX:80474722:+>chrX:80532483:+	chrX	80474528	80474722	+	chrX	80532483	80532668	+	TSF	ENST00000373212	65,4,16	24866-24868	29588-29590	BRCA
chrX:80518225:+>chrX:80532483:+	chrX	80517692	80518225	+	chrX	80532483	80532668	+	TSF	ENST00000373212	8,9,5	24869-24871	29591-29593	BRCA,SARC
chrX:80548905:+>chrX:80552694:+	chrX	80548900	80548905	+	chrX	80552694	80552726	+	TAF	ENST00000373212	2,1,1	24872-24874	29594-29596	ACC,BRCA,CESC,COAD,DLBC,GBM,HNSC,KICH,KIRC,KIRP,LGG,LUAD,LUSC,MESO,OV,PAAD,PCPG,PRAD,READ,SARC,SKCM,STAD,THCA,THYM,UCEC,UVM

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:193028315:->chr1:193022970:-	chr1	193028315,193028315,193028315,193028315,193028315	193028315	ENST00000367455,ENST00000367454,ENST00000367450,ENST00000367451,ENST00000367448,ENST00000367449	-	chr1	193022970	193023119	-	1-2	37,25	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr1:22263648:->chr1:22224962:-	chr1	22263648	22263648	ENST00000374695	-	chr1	22224962	22225012	-	3	21	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA
chr1:6531548:->chr1:6531300:-	chr1	6531548,6531548,6531548,6531548,6531548,6531548,6531548,6531548	6531548	ENST00000400913,ENST00000340850,ENST00000377748,ENST00000377725,ENST00000377728,ENST00000377732,ENST00000400915,ENST00000377740,ENST00000535355,ENST00000377737,ENST00000537245,ENST00000544978	-	chr1	6531300	6531418	-	4-9	483,464,496,427,504,506	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr10:104231153:+>chr10:104231667:+	chr10	104231139,104231030	104231153	ENST00000366277,ENST00000238936,ENST00000369931	+	chr10	104231667	104231733	+	10-12	5,125,276	CCLE-BLCA,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD
chr10:112572705:+>chr10:112576399:+	chr10	112572036	112572705	ENST00000369519	+	chr10	112576399	112576521	+	13-13	850	CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC
chr10:12280484:+>chr10:12301986:+	chr10	12280456,12280456,12280456	12280484	ENST00000281141,ENST00000378900,ENST00000440613	+	chr10	12301986	12302307	+	14-16	239,198,93	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LUSC,CCLE-MM,CCLE-PAAD
chr12:42835231:+>chr12:42836287:+	chr12	42835117,42835117,42835117,42835117,42835117,42835117,42835117,42835117	42835231	ENST00000549190,ENST00000395580,ENST00000337898,ENST00000358314,ENST00000395568,ENST00000256678,ENST00000449194,ENST00000552761,ENST00000317560,ENST00000432191	+	chr12	42836287	42836464	+	17-24	293,274,348,359,221,286,341,322	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC
chr12:57081782:->chr12:57080459:-	chr12	57081782,57081782,57081782,57081782,57081782	57081782	ENST00000262033,ENST00000414274,ENST00000436399,ENST00000448157,ENST00000456859	-	chr12	57080459	57080460	-	25-25	0	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD
chr12:7125578:->chr12:7120720:-	chr12	7125578,7125578,7125578,7125578,7125578	7125578	ENST00000535479,ENST00000261407,ENST00000540090,ENST00000543794,ENST00000536797,ENST00000538910	-	chr12	7120720	7120931	-	26-26	50	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr13:44432917:->chr13:44413224:-	chr13	44432917,44432917	44432917	ENST00000444614,ENST00000281508	-	chr13	44413224	44413313	-	27-27	224	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr16:21987564:+>chr16:21988399:+	chr16	21987488,22	21987564	ENST00000268379,ENST00000561553	+	chr16	21988399	21988688	+	28-28	374	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr17:25958330:+>chr17:25965125:+	chr17	25958292,25958292,25958292,25958292,25958292,25958292,25958292,25958292	25958330	ENST00000310394,ENST00000302228,ENST00000395473,ENST00000313648,ENST00000580779,ENST00000577392,ENST00000467111	+	chr17	25965125	25965196	+	29-29	13	CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-STAD
chr17:42188097:->chr17:42182463:-	chr17	42188097,42188097,42188097,42188097,42188097,42188097,42188097,42188097	42188097	ENST00000225983,ENST00000393622,ENST00000336057,ENST00000586802,ENST00000588703,ENST00000591714,ENST00000587135	-	chr17	42182463	42182465	-	30-33	50,32,31,22	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr17:43475315:->chr17:43474814:-	chr17	43475315,43475315,43475315,43475315,43475315,43475315,43475315,43475315	43475315	ENST00000532038,ENST00000376922,ENST00000528384,ENST00000455881,ENST00000428638,ENST00000442348,ENST00000532891	-	chr17	43474814	43475039	-	34-39	587,592,614,246,273,392	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-STAD
chr19:19976808:+>chr19:19982937:+	chr19	19976806	19976808	ENST00000589717	+	chr19	19982937	19983370	+	40-40	1	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr19:53119971:->chr19:53097557:-	chr19	53119971,53	53119971	ENST00000596930,ENST00000597161	-	chr19	53097557	53097606	-	41-41	100	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-PAAD
chr2:113956803:+>chr2:113966557:+	chr2	113956660,113956660,113956660	113956803	ENST00000245796,ENST00000441564,ENST00000409378	+	chr2	113966557	113966942	+	42-43	971,942	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-HNSC,CCLE-LUSC,CCLE-PAAD,CCLE-STAD
chr2:131840150:->chr2:131829742:-	chr2	131840150,1	131840150	ENST00000409185,ENST00000389915	-	chr2	131829742	131829995	-	44-44	23	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM
chr20:1532337:->chr20:1530245:-	chr20	1532337,153	1532337	ENST00000381621,ENST00000381623	-	chr20	1530245	1530251	-	45-45	140	CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-SARC,CCLE-THCA
chr20:17550856:+>chr20:17565018:+	chr20	17550854,18	17550856	ENST00000246069,ENST00000449141	+	chr20	17565018	17565313	+	46-46	1	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA

chr20:49307663:->chr20:49307455:-	chr20	49307663	49307663	ENST00000535356	-	chr20	49307455	49307533	-	47-47	1	CCLE-BLCA,CCLE-CESC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA
chr22:25019883:+>chr22:25023093:+	chr22	25019747,25019747,25019747,25019747,25019747,25019747,25019747	25019883	ENST00000248923,ENST00000412658,ENST00000400382,ENST00000400383,ENST00000400380,ENST00000406383,ENST00000425895	+	chr22	25023093	25023141	+	48-48	340	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD
chr22:37870550:->chr22:37861756:-	chr22	37870550,37870550,37870550	37870550	ENST00000416983,ENST00000356998,ENST00000454291	-	chr22	37861756	37862095	-	49-51	271,257,18	CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-MM
chr4:102117073:->chr4:102104428:-	chr4	102117073,102117073,102117073,102117073,102117073,102117073,102117073	102117073	ENST00000512215,ENST00000394854,ENST00000323055,ENST00000394853,ENST00000492351,ENST00000529324,ENST00000525819	-	chr4	102104428	102104622	-	52-53	36,86	CCLE-BRCA,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-UCEC
chr5:68551355:+>chr5:68551980:+	chr5	68551338,68551287,68551287,68551338	68551355	ENST00000506563,ENST00000256443,ENST00000514676,ENST00000502604	+	chr5	68551980	68552084	+	54-55	99,6	CCLE-BRCA,CCLE-DLBC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr6:129786434:+>chr6:129788349:+	chr6	129786290	129786434	ENST00000421865	+	chr6	129788349	129788676	+	56-56	2433	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr6:17837109:->chr6:17835895:-	chr6	17837109,17837109,17837109,17837109,17837109	17837109	ENST00000378814,ENST00000259711,ENST00000378843,ENST00000378826,ENST00000378816	-	chr6	17835895	17835938	-	57-58	385	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr6:34511797:->chr6:34511385:-	chr6	34511797,35	34511797	ENST00000374037,ENST00000544425	-	chr6	34511385	34511537	-	59-59	145	CCLE-BRCA,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-PRAD
chr7:56052571:+>chr7:56059164:+	chr7	56052540,56052540,56052540,56052540	56052571	ENST00000322090,ENST00000446778,ENST00000437587,ENST00000415967	+	chr7	56059164	56059459	+	60-63	205,166,65,113	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr8:38697785:+>chr8:38698832:+	chr8	38697742,38697742,38697742,38697742,38697742,38697742,38697742,38697742,38697742,38697742,38697742,38697742,38697742	38697785	ENST00000519416,ENST00000520615,ENST00000443286,ENST00000518415,ENST00000330691,ENST00000348567,ENST00000317827,ENST00000379931,ENST00000276520,ENST00000520973,ENST00000521866,ENST00000518809,ENST00000520611	+	chr8	38698832	38699148	+	64-76	243,653,665,91,215,227,579,640,457,458,429,303,411	CCLE-BLCA,CCLE-BRCA,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr8:74872000:->chr8:74871067:-	chr8	74872000,74872000,74872000,74872000,74872000,74872000,74872000,74872000	74872000	ENST00000602840,ENST00000518127,ENST00000520242,ENST00000519487,ENST00000284811,ENST00000522337,ENST00000523815,ENST00000519082	-	chr8	74871067	74871473	-	77-77	1	CCLE-BLCA,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr9:15506559:->chr9:15492223:-	chr9	15506559,15506559,15506559,15506559,15506559	15506559	ENST00000380738,ENST00000380733,ENST00000380715,ENST00000380716,ENST00000397519	-	chr9	15492223	15493546	-	78-78	49	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr9:97843062:+>chr9:97909493:+	chr9	97842976,97842976,97842976,97842976,97842976,97842976,97842976,97842976	97843062	ENST00000297979,ENST00000375315,ENST00000424143,ENST00000428313,ENST00000425634,ENST00000433691,ENST00000445181,ENST00000478473	+	chr9	97909493	97909522	+	79-86	555,674,773,135,114,497,138,134	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chrX:57620887:+>chrX:57667223:+	chrX	57618482	57620887	ENST00000374888	+	chrX	57667223	57667382	+	87-87	802	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:116206078:+>chr1:116206282:+	chr1	116205952	116206078	+	chr1	116206282	116206889,116206889,116206889,116206889	+	ENST00000355485,ENST00000369510,ENST00000310260,ENST00000369509	88-88	42	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM
chr1:160283437:->chr1:160282957:-	chr1	160283210	160283437	-	chr1	160282957	160282957,2	-	ENST00000368069,ENST00000241704	89-89	22	CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SKCM
chr1:178806756:+>chr1:178846633:+	chr1	178806683	178806756	+	chr1	178846633	178846770,178846770,178846770	+	ENST00000367635,ENST00000367634,ENST00000324778	90-90	24	CCLE-BRCA,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC
chr1:183107957:+>chr1:183109539:+	chr1	183107909	183107957	+	chr1	183109539	183109638	+	ENST00000258341	91-91	3	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr1:222838358:+>chr1:222838651:+	chr1	222838237	222838358	+	chr1	222838651	222838961,222838961,222838961	+	ENST00000344922,ENST00000344441,ENST00000340535	92-92	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-STAD
chr1:240569786:+>chr1:240601361:+	chr1	240569724	240569786	+	chr1	240601361	240601510,2	+	ENST00000319653,ENST00000545751	93-93	9	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr1:44680991:+>chr1:44683983:+	chr1	44680726	44680991	+	chr1	44683983	44684141,44684141,44684141,44684141,44684141,44684141	+	ENST00000361745,ENST00000446292,ENST00000440641,ENST00000437511,ENST00000315913,ENST00000372289	94-94	39	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD
chr1:45988450:->chr1:45981479:-	chr1	45988424	45988450	-	chr1	45981479	45981479,45981479,45981479,45981479	-	ENST00000262746,ENST00000319248,ENST00000447184,ENST00000424390	95-96	22	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA
chr1:51218110:->chr1:51210447:-	chr1	51217944	51218110	-	chr1	51210447	51210447,51	-	ENST00000396153,ENST00000371778	97-97	29	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,CCLE-PRAD
chr10:102711867:+>chr10:102716208:+	chr10	102711720	102711867	+	chr10	102716208	102716294,1	+	ENST00000238961,ENST00000370269	98-98	41	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr10:1100108:->chr10:1090111:-	chr10	1099853	1100108	-	chr10	1090111	1090111	-	ENST00000381344	99-99	41	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr10:11850845:->chr10:11873881:-	chr10	11850812	11850845	-	chr10	11873881	11873881,11873881	-	ENST00000392903,ENST00000260777,ENST00000355371	100-102	64	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV
chr10:28824988:+>chr10:28872328:+	chr10	28824890	28824988	+	chr10	28872328	28872434,28872434,28872434,28872434,28872434,28872434,28872434,28872434,28872365,28872434,28872434	+	ENST00000375664,ENST00000375646,ENST00000347934,ENST00000354911,ENST00000428935,ENST00000420266,ENST00000442148,ENST00000448193,ENST00000414108,ENST00000439676	103-104	33	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr10:51747031:+>chr10:51749068:+	chr10	51746893	51747031	+	chr10	51749068	51749136	+	ENST00000412531	105-105	46	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr10:6010739:->chr10:6008302:-	chr10	6010471	6010739	-	chr10	6008302	6008302,6008302,6008302,6008302,6008302,6008302	-	ENST00000379977,ENST00000528354,ENST00000532039,ENST00000397255,ENST00000530685,ENST00000429135	106-106	21	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr10:95225471:->chr10:95216694:-	chr10	95225282	95225471	-	chr10	95216694	95216694,95216694,95216694,95216694,95216694,95216694	-	ENST00000358334,ENST00000359263,ENST00000371501,ENST00000371502,ENST00000371489,ENST00000371488	107-112	25	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr11:129978600:+>chr11:129979324:+	chr11	129977262	129978600	+	chr11	129979324	129979497,129979497,129979497,129979497,129979497,129979497,129979497,129979497,129979497,129979497,129979497,129979497	+	ENST00000533195,ENST00000533713,ENST00000534582,ENST00000528499,ENST00000263574,ENST00000345598,ENST00000338167,ENST00000278756	113-113	19	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SKCM,CCLE-STAD
chr11:18491675:->chr11:18490765:-	chr11	18491478	18491675	-	chr11	18490765	18490765	-	ENST00000536719	114-114	23	CCLE-CESC,CCLE-COAD,CCLE-HNSC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SKCM
chr11:44960717:->chr11:44959917:-	chr11	44960655	44960717	-	chr11	44959917	44959917	-	ENST00000525138	115-115	9	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr11:64643083:->chr11:64641990:-	chr11	64643077	64643083	-	chr11	64641990	64641990,64641990,64641990,64641990,64641990,64641990	-	ENST00000320631,ENST00000359393,ENST00000433803,ENST00000457202,ENST00000411683	116-118	68	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr11:74830434:+>chr11:74873700:+	chr11	74830343	74830434	+	chr11	74873700	74873830	+	ENST00000289575	119-119	8	CCLE-KIRC,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SKCM

chr12:110470515:+>chr12:110471602:+	chr12	110470197	110470515	+	chr12	110471602	110471762,1	+	ENST00000261739,ENST00000547419	120-120	27	CCLE-BLCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr12:112149997:+>chr12:112150302:+	chr12	112149615	112149997	+	chr12	112150302	112150461,11215046 1,112150461,112150 461	+	ENST00000549590,ENST00000455480, ENST00000313698,ENST00000552706	121-123	47	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr12:112169999:+>chr12:112171727:+	chr12	112169907	112169999	+	chr12	112171727	112171872,11217187 2,112171872,112171 872,112171851	+	ENST00000392636,ENST00000549590, ENST00000455480,ENST00000313698, ENST00000552706	124-125	13	CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr12:22831248:+>chr12:22837417:+	chr12	22831166	22831248	+	chr12	22837417	22837490,23	+	ENST00000266517,ENST00000538218	126-127	27	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr12:42795298:+>chr12:42835117:+	chr12	42795223	42795298	+	chr12	42835117	42835311,42835311, 42835231,42835311, 42835231,42835231, 42835311,42835311, 42835231,42835231	+	ENST00000549190,ENST00000395580, ENST00000337898,ENST00000358314, ENST00000395568,ENST00000256678, ENST00000449194,ENST00000552761, ENST00000317560,ENST00000432191	128-128	8	CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-STAD
chr12:63961380:->chr12:63954442:-	chr12	63961130	63961380	-	chr12	63954442	63954442,64	-	ENST00000324472,ENST00000413230	129-129	17	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr12:69249761:->chr12:69236109:-	chr12	69249510	69249761	-	chr12	69236109	69236109	-	ENST00000551897	130-130	8	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr12:72301769:+>chr12:72307606:+	chr12	72301669	72301769	+	chr12	72307606	72307706,72307706, 72307706,72307706	+	ENST00000550746,ENST00000319106, ENST00000485960,ENST00000393309	131-131	11	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr12:79996543:->chr12:79990438:-	chr12	79996516	79996543	-	chr12	79990438	79990438	-	ENST00000328827	132-132	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr12:86274547:+>chr12:86276001:+	chr12	86274449	86274547	+	chr12	86276001	86276153,86	+	ENST00000551529,ENST00000256010	133-133	33	CCLE-BRCA,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr13:113897987:+>chr13:113898724:+	chr13	113897912	113897987	+	chr13	113898724	113898828,11389882 8,113898828,113898 828	+	ENST00000375441,ENST00000451881, ENST00000326335,ENST00000375440	134-134	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr13:115035095:+>chr13:115037659:+	chr13	115034935	115035095	+	chr13	115037659	115037918,11503791 8,115037918,115037 918,115037918,1150 37918,115037918	+	ENST00000360383,ENST00000375312, ENST00000356221,ENST00000375310, ENST00000252457,ENST00000375308, ENST00000252458	135-135	2	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr13:115049839:+>chr13:115051777:+	chr13	115049833	115049839	+	chr13	115051777	115051875	+	ENST00000375299	136-136	3	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr13:41835827:->chr13:41835011:-	chr13	41835733	41835827	-	chr13	41835011	41835043,41835043, 41835051,41835043	-	ENST00000379480,ENST00000379477, ENST00000430347,ENST00000452359	137-137	2	CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr13:45576476:+>chr13:45578440:+	chr13	45576285	45576476	+	chr13	45578440	45578572,45578572, 45578572	+	ENST00000379151,ENST00000497558, ENST00000361121	138-138	4	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SKCM
chr14:105335983:+>chr14:105342593:+	chr14	105335893	105335983	+	chr14	105342593	105342682,1	+	ENST00000453495,ENST00000414716	139-139	9	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr14:60442915:+>chr14:60443943:+	chr14	60442564	60442915	+	chr14	60443943	60444065,6	+	ENST00000254271,ENST00000445360	140-140	15	CCLE-BLCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-PRAD
chr14:97307963:+>chr14:97312432:+	chr14	97307913	97307963	+	chr14	97312432	97312501	+	ENST00000216639	141-141	17	CCLE-CESC,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr15:42151606:->chr15:42151178:-	chr15	42151360	42151606	-	chr15	42151178	42151178	-	ENST00000320955	142-142	17	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr15:49600974:+>chr15:49611801:+	chr15	49600845	49600974	+	chr15	49611801	49612002,49612002, 49612002,49612002, 49612002,49612002, 49612002	+	ENST00000327171,ENST00000560031, ENST00000396509,ENST00000544523, ENST00000559454,ENST00000558399, ENST00000559580	143-143	8	CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-OV,CCLE-SKCM
chr15:79168112:+>chr15:79170555:+	chr15	79167833	79168112	+	chr15	79170555	79170601,79170601, 79170601,79170601, 79170601	+	ENST00000379535,ENST00000426013, ENST00000331268,ENST00000558746, ENST00000560422	144-147	22	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-SKCM,CCLE-STAD

chr15:79649214:+>chr15:79703742:+	chr15	79649053	79649214	+	chr15	79703742	79703846	+	ENST00000424155	148-148	2	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr15:99433697:+>chr15:99434554:+	chr15	99433390	99433697	+	chr15	99434554	99434866,99434866,99434848	+	ENST00000268035,ENST00000558762,ENST00000558355	149-151	14	CCLE-BLCA,CCLE-BRCA,CCLE-ESCA,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM
chr16:2115231:+>chr16:2115520:+	chr16	2115133	2115231	+	chr16	2115520	2115636,2115636,2115636,2115636,2115636,2115636,2115636,2115636	+	ENST00000219476,ENST00000382538,ENST00000401874,ENST00000353929,ENST00000439673,ENST00000350773,ENST00000568454	152-156	11	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM
chr16:29692733:+>chr16:29705985:+	chr16	29692671	29692733	+	chr16	29705985	29706465,29706520,29706076	+	ENST00000449759,ENST00000395384,ENST00000562473	157-159	21	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-STAD
chr16:4667729:+>chr16:4700366:+	chr16	4667704	4667729	+	chr16	4700366	4700484,4700484,4700484,4700484,4700484,4700484,4700484,4700484	+	ENST00000262370,ENST00000415496,ENST00000536343,ENST00000587747,ENST00000399577,ENST00000588994,ENST00000586183	160-160	8	CCLE-BRCA,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,CCLE-STAD
chr16:82201145:->chr16:82197799:-	chr16	82200969	82201145	-	chr16	82197799	82197799,82197799,82197799	-	ENST00000258169,ENST00000568016,ENST00000569021	161-161	29	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr16:89607754:+>chr16:89611056:+	chr16	89607673	89607754	+	chr16	89611056	89611180,9	+	ENST00000268704,ENST00000569820	162-162	14	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr17:17735071:->chr17:17723835:-	chr17	17735005	17735071	-	chr17	17723835	17723835,17723835,17723835,17723835,17723835	-	ENST00000338854,ENST00000355815,ENST00000261646,ENST00000435530,ENST00000423161	163-163	12	CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-SARC,CCLE-SKCM
chr17:38177572:->chr17:38176606:-	chr17	38177416	38177572	-	chr17	38176606	38176606,38176606,38176606,38176606,38176735,38176606	-	ENST00000394126,ENST00000356271,ENST00000394128,ENST00000394127,ENST00000491466,ENST00000422942,ENST00000501516	164-165	3	CCLE-BLCA,CCLE-COAD,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr17:43536749:->chr17:43531638:-	chr17	43536525	43536749	-	chr17	43531638	43531638,44	-	ENST00000430334,ENST00000421073	166-166	22	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr17:45356073:+>chr17:45360720:+	chr17	45356022	45356073	+	chr17	45360720	45360915,45360915,45360915,45360915	+	ENST00000559488,ENST00000571680,ENST00000435993,ENST00000560629	167-169	11	CCLE-CESC,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr17:47441711:+>chr17:47450375:+	chr17	47441499	47441711	+	chr17	47450375	47450448	+	ENST00000576461	170-170	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr17:62609987:->chr17:62602758:-	chr17	62609863	62609987	-	chr17	62602758	62602758,63	-	ENST00000578386,ENST00000262435	171-171	15	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr17:65894534:+>chr17:65899905:+	chr17	65894489	65894534	+	chr17	65899905	65900034,65900034,65900034,65900034	+	ENST00000544778,ENST00000321892,ENST00000335221,ENST00000306378,ENST00000424123	172-172	15	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr17:78263365:+>chr17:78263458:+	chr17	78263107	78263365	+	chr17	78263458	78263636,78263636,78263636,78263636	+	ENST00000508628,ENST00000456466,ENST00000582970,ENST00000319921	173-175	32	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr18:19147325:->chr18:19146167:-	chr18	19147113	19147325	-	chr18	19146167	19146167,19	-	ENST00000269214,ENST00000383276	176-176	11	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr18:244302:->chr18:226901:-	chr18	244039	244302	-	chr18	226901	226901,2269	-	ENST00000261600,ENST00000579891	177-178	9	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr18:74574245:+>chr18:74580641:+	chr18	74574119	74574245	+	chr18	74580641	74580819,74580819,74580819,74580819	+	ENST00000320610,ENST00000253159,ENST00000543926,ENST00000579322	179-181	28	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM
chr18:8708134:+>chr18:8718422:+	chr18	8708124	8708134	+	chr18	8718422	8718646	+	ENST00000306329	182-182	3	CCLE-BLCA,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV
chr19:1045618:+>chr19:1046229:+	chr19	1045546	1045618	+	chr19	1046229	1046405,1046405,1046405	+	ENST00000263094,ENST00000433129,ENST00000435683	183-183	2	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-STAD,CCLE-THCA
chr19:20025631:+>chr19:20026089:+	chr19	20025593	20025631	+	chr19	20026089	20026215,20026215,20026215,20026215	+	ENST00000591366,ENST00000586021,ENST00000592160,ENST00000343769	184-187	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-STAD,CCLE-UCEC
chr19:4703015:->chr19:4702728:-	chr19	4702907	4703015	-	chr19	4702728	4702728,4702728,4702728,4702728,4702728,4702728	-	ENST00000594671,ENST00000262960,ENST00000598800,ENST00000599163,ENST00000597849,ENST00000597726	188-188	24	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM

chr19:49834874:->chr19:49797810:-	chr19	49834789	49834874	-	chr19	49797810	49797810,5	-	ENST00000335875,ENST00000454748	189-190	4	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-LGG,CCLE-LUSC,CCLE-OV
chr19:50010181:+>chr19:50027764:+	chr19	50010116	50010181	+	chr19	50027764	50028033,50028033,50028033	+	ENST00000221466,ENST00000426395,ENST00000596975	191-191	10	CCLE-BRCA,CCLE-CESC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-STAD
chr19:54502735:+>chr19:54515205:+	chr19	54502652	54502735	+	chr19	54515205	54515443,54515443,54515443	+	ENST00000352529,ENST00000252729,ENST00000346968	192-192	5	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-STAD
chr19:6365650:+>chr19:6366269:+	chr19	6365553	6365650	+	chr19	6366269	6366374,6366374,6366374,6366333	+	ENST00000245816,ENST00000597326,ENST00000596149,ENST00000596605	193-195	32	CCLE-CESC,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-PAAD
chr2:10135488:+>chr2:10136007:+	chr2	10135439	10135488	+	chr2	10136007	10136098,10136098,10136098,10136017	+	ENST00000405379,ENST00000324883,ENST00000324907,ENST00000472167	196-197	16	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-STAD,CCLE-THCA
chr2:131824664:->chr2:131813268:-	chr2	131824421	131824664	-	chr2	131813268	131813268,1	-	ENST00000409185,ENST00000389915	198-198	17	CCLE-BLCA,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM
chr2:219296440:+>chr2:219296580:+	chr2	219296373	219296440	+	chr2	219296580	219296680,2	+	ENST00000248444,ENST00000392114	199-199	18	CCLE-COAD,CCLE-LIHC,CCLE-LUSC
chr2:231040909:->chr2:231037675:-	chr2	231040659	231040909	-	chr2	231037675	231037675,2	-	ENST00000258381,ENST00000358662	200-200	10	CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-SARC,CCLE-STAD
chr2:28190310:+>chr2:28210860:+	chr2	28190037	28190310	+	chr2	28210860	28210954,28210954,28210954,28210954,28210954,28210954	+	ENST00000436924,ENST00000344773,ENST00000379624,ENST00000342045,ENST00000361704,ENST00000379632,ENST00000379629,ENST00000604932	201-201	8	CCLE-BRCA,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SARC,CCLE-SKCM,CCLE-THCA
chr2:37490123:->chr2:37487527:-	chr2	37489916	37490123	-	chr2	37487527	37487527,37487527,37487527	-	ENST00000379066,ENST00000234179,ENST00000443977	202-203	20	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr2:37520065:->chr2:37518142:-	chr2	37519789	37520065	-	chr2	37518142	37518142,37518142,37518142	-	ENST00000379066,ENST00000234179,ENST00000443187	204-205	8	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr2:37570066:+>chr2:37579932:+	chr2	37569837	37570066	+	chr2	37579932	37580078	+	ENST00000338415	206-206	77	CCLE-COAD,CCLE-KIRC,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-SKCM
chr2:42615589:->chr2:42580483:-	chr2	42615589	42615589	-	chr2	42580483	42580483,42580483,42580483,42580483	-	ENST00000468711,ENST00000378669,ENST00000234301,ENST00000463055	207-209	14	CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SKCM
chr2:43779972:->chr2:43779478:-	chr2	43779811	43779972	-	chr2	43779478	43779478,43779478,43779478,43779478,43779478,43779478	-	ENST00000330266,ENST00000405975,ENST00000415080,ENST00000407351,ENST00000405006,ENST00000402796,ENST00000402360	210-210	34	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr2:48593264:+>chr2:48600431:+	chr2	48593214	48593264	+	chr2	48600431	48600467,49	+	ENST00000413569,ENST00000340553	211-212	17	CCLE-BRCA,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-OV,CCLE-PAAD
chr2:98263129:+>chr2:98263530:+	chr2	98263029	98263129	+	chr2	98263530	98263603	+	ENST00000258424	213-213	11	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr2:99224633:->chr2:99220654:-	chr2	99224536	99224633	-	chr2	99220654	99220654,99	-	ENST00000328709,ENST00000409997	214-215	16	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr2:99224656:->chr2:99220650:-	chr2	99224536	99224656	-	chr2	99220650	99220654,99	-	ENST00000328709,ENST00000409997	216-217	9	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr2:99224660:->chr2:99220654:-	chr2	99224536	99224660	-	chr2	99220654	99220654,99	-	ENST00000328709,ENST00000409997	218-219	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr20:30254794:->chr20:30253889:-	chr20	30254782	30254794	-	chr20	30253889	30253889,30253889,30253889,30253889	-	ENST00000376062,ENST00000376055,ENST00000307677,ENST00000420653,ENST00000450273	220-221	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr20:32888526:->chr20:32883391:-	chr20	32888482	32888526	-	chr20	32883391	32883391	-	ENST00000217426	222-222	7	CCLE-BRCA,CCLE-COAD,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr20:34315958:->chr20:34313077:-	chr20	34315874	34315958	-	chr20	34313077	34313077,34313077,34313077,34313077,34313077,34313077	-	ENST00000253363,ENST00000361162,ENST00000338163,ENST00000528062,ENST00000448303,ENST00000374038,ENST00000434927	223-228	8	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr20:42212014:+>chr20:42213492:+	chr20	42211946	42212014	+	chr20	42213492	42213656,42213656,42213656,42213656	+	ENST00000373100,ENST00000373092,ENST00000373077,ENST00000423407,ENST00000341458,ENST00000426287	229-229	18	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr20:60835987:+>chr20:60838672:+	chr20	60835762	60835987	+	chr20	60838672	60838747,61	+	ENST00000313733,ENST00000358053	230-230	36	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr21:34973474:->chr21:34971554:-	chr21	34973240	34973474	-	chr21	34971554	34971554,34971554,34971554,34971554,34971554,34971554	-	ENST00000381554,ENST00000290244,ENST00000381540,ENST00000361534,ENST00000440526,ENST00000414079,ENST00000426935	231-231	23	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC

chr21:43290029:->chr21:43280481:-	chr21	43289853	43290029	-	chr21	43280481	43280481,43280481,43280481,43280481,43280481	-	ENST00000398548,ENST00000422911,ENST00000449395,ENST00000433067,ENST00000269844	232-232	9	CCLE-DLBC,CCLE-KIRC,CCLE-LUSC
chr22:18351213:->chr22:18348778:-	chr22	18351092	18351213	-	chr22	18348778	18348778,18348778,18348778,18348778,18348778,18348778,18348778,18348778	-	ENST00000441493,ENST00000400561,ENST00000444520,ENST00000414725,ENST00000383094,ENST00000207726,ENST00000429452,ENST00000461307,ENST00000585038	233-233	36	CCLE-HNSC,CCLE-KIRC,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-SKCM
chr22:31947110:+>chr22:31952928:+	chr22	31947045	31947110	+	chr22	31952928	31953045,31953045,31953045,31953045,31953045,31953045,31953045,31953045	+	ENST00000443326,ENST00000540643,ENST00000432498,ENST00000400289,ENST00000400288,ENST00000524296,ENST00000450787	234-237	22	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr22:32787416:->chr22:32784086:-	chr22	32787383	32787416	-	chr22	32784086	32784086	-	ENST00000216038	238-238	3	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr22:36007617:->chr22:36007153:-	chr22	36007545	36007617	-	chr22	36007153	36007153,36007153,36007153,36007153,36007153,36007153,36007153,36007153	-	ENST00000397326,ENST00000397328,ENST00000359787,ENST00000406324,ENST00000443033,ENST00000451685,ENST00000447607,ENST00000419229	239-239	11	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr22:42085308:+>chr22:42089467:+	chr22	42085084	42085308	+	chr22	42089467	42089982	+	ENST00000402966	240-240	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr22:46193106:+>chr22:46202839:+	chr22	46192682	46193106	+	chr22	46202839	46202902,46202902,46202902,46202984,46202902	+	ENST00000381061,ENST00000252934,ENST00000435026,ENST00000451241,ENST00000402380	241-241	24	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM
chr3:10160654:+>chr3:10167310:+	chr3	10160479	10160654	+	chr3	10167310	10167392,1	+	ENST00000530758,ENST00000256463	242-243	34	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr3:122863676:+>chr3:122864369:+	chr3	122863450	122863676	+	chr3	122864369	122864384,1	+	ENST00000489923,ENST00000316218	244-244	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr3:12604393:+>chr3:12610374:+	chr3	12604073	12604393	+	chr3	12610374	12610502,13	+	ENST00000170447,ENST00000448482	245-246	69	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr3:128828867:->chr3:128814012:-	chr3	128828702	128828867	-	chr3	128814012	128814012,128814012,128814012,128814012,128814012,128814012,128814012,128814012	-	ENST00000315150,ENST00000393304,ENST00000393308,ENST00000393307,ENST00000393305,ENST00000418265,ENST00000476465,ENST00000457077	247-250	38	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SKCM
chr3:136005373:+>chr3:136012598:+	chr3	136005115	136005373	+	chr3	136012598	136012706,136012706,136012706,136012706,136012706,136012706,136012706,136012706,136012706,136012706	+	ENST00000251654,ENST00000462637,ENST00000466072,ENST00000468777,ENST00000482086,ENST00000483687,ENST00000484181,ENST00000490504,ENST00000471595,ENST00000469217,ENST00000478469	251-251	10	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PRAD,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr3:15058779:+>chr3:15062260:+	chr3	15058757	15058779	+	chr3	15062260	15062439,15062439,15062439,15062442,15062439	+	ENST00000425241,ENST00000323373,ENST00000393102,ENST00000437120,ENST00000406272	252-252	7	CCLE-BLCA,CCLE-CESC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM
chr3:185370866:->chr3:185369956:-	chr3	185370627	185370866	-	chr3	185369956	185369956,185369956,185369956,185369956	-	ENST00000382199,ENST00000421047,ENST00000457616,ENST00000346192	253-253	16	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-UCEC
chr3:40555431:+>chr3:40557351:+	chr3	40555106	40555431	+	chr3	40557351	40557435,41	+	ENST00000420891,ENST00000314529	254-254	23	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD
chr3:53915693:->chr3:53914136:-	chr3	53915609	53915693	-	chr3	53914136	53914136	-	ENST00000335754	255-255	12	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr3:77121427:+>chr3:77147165:+	chr3	77121074	77121427	+	chr3	77147165	77147491,77147491,77147491,77147491,77147491	+	ENST00000487694,ENST00000602589,ENST00000461745,ENST00000332191,ENST00000473767	256-256	58	CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-STAD
chr5:1257816:->chr5:1255526:-	chr5	1257699	1257816	-	chr5	1255526	1255526,126	-	ENST00000310581,ENST00000334602	257-257	10	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr5:132253438:->chr5:132240096:-	chr5	132253393	132253438	-	chr5	132240096	132240096,132240096	-	ENST00000265343,ENST00000378595,ENST00000425658	258-260	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr5:133691774:->chr5:133686118:-	chr5	133691603	133691774	-	chr5	133686118	133686118,133686118,133686118,133686118	-	ENST00000265334,ENST00000521118,ENST00000523832,ENST00000435211	261-261	29	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr5:145153908:->chr5:145144563:-	chr5	145153683	145153908	-	chr5	145144563	145144563,145144563,145144563,145144563,145144563	-	ENST00000334744,ENST00000358004,ENST00000394450,ENST00000505416	262-262	2	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC

chr5:145540727:->chr5:145540049:-	chr5	145540564	145540727	-	chr5	145540049	145540049,14554004 9,145540049,145540 049	-	ENST00000394434,ENST00000545646, ENST00000274562,ENST00000510191	263-263	11	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr5:1475076:->chr5:1474800:-	chr5	1474878	1475076	-	chr5	1474800	1474800,147	-	ENST00000475622,ENST00000283415	264-264	15	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV
chr5:177450333:+>chr5:177462097:+	chr5	177450235	177450333	+	chr5	177462097	177462155,2	+	ENST00000511856,ENST00000511189	265-266	2	CCLE-BLCA,CCLE-BRCA,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA
chr5:179238682:+>chr5:179250858:+	chr5	179238653	179238682	+	chr5	179250858	179251087,17925108 7,179251087,179251 087,179251057,1792 51087,179251087,17 9251087	+	ENST00000376929,ENST00000514093, ENST00000422245,ENST00000389805, ENST00000504627,ENST00000402874, ENST00000510187,ENST00000360718	267-267	10	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM
chr5:414855:+>chr5:422844:+	chr5	414618	414855	+	chr5	422844	422973,422973,4228 75,422973	+	ENST00000505113,ENST00000316418, ENST00000510400,ENST00000506456	268-270	35	CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr5:86704905:->chr5:86704003:-	chr5	86704732	86704905	-	chr5	86704003	86704003,86704003, 86704003	-	ENST00000508855,ENST00000256897, ENST00000504878	271-271	2	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM
chr5:94876747:->chr5:94876534:-	chr5	94876664	94876747	-	chr5	94876534	94876534,95	-	ENST00000358746,ENST00000514952	272-273	13	CCLE-BLCA,CCLE-COAD,CCLE-ESCA,CCLE-LUSC,CCLE-OV,CCLE-PRAD,CCLE-SKCM
chr6:100379769:->chr6:100369131:-	chr6	100373713	100379769	-	chr6	100369131	100369131,1	-	ENST00000281806,ENST00000369212	274-274	32	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr6:130374597:+>chr6:130376316:+	chr6	130374499	130374597	+	chr6	130376316	130376400,13037640 0,130376400,130376 400,130376400,1303 76400	+	ENST00000529410,ENST00000533560, ENST00000361794,ENST00000368139, ENST00000526019,ENST00000368136	275-275	33	CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC
chr6:17835789:->chr6:17834302:-	chr6	17835759	17835789	-	chr6	17834302	17834302,17834302, 17834302,17834302, 17834302	-	ENST00000378814,ENST00000259711, ENST00000378843,ENST00000378826, ENST00000378816	276-279	13	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-SKCM,CCLE-STAD
chr6:30629093:->chr6:30628019:-	chr6	30628869	30629093	-	chr6	30628019	30628019,31	-	ENST00000376437,ENST00000376442	280-280	22	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr6:3432328:->chr6:3416089:-	chr6	3432245	3432328	-	chr6	3416089	3416089,3416089,34 16089,3416089,3416 089	-	ENST00000436008,ENST00000406686, ENST00000485307,ENST00000467177, ENST00000380298	281-281	3	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-PRAD,CCLE-SKCM,CCLE-STAD
chr7:102793520:+>chr7:102939015:+	chr7	102793255	102793520	+	chr7	102939015	102939155,10293915 5,102939155,102939 155,102939155	+	ENST00000249269,ENST00000428154, ENST00000456433,ENST00000443722, ENST00000453466	282-282	16	CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-STAD
chr7:107256834:+>chr7:107258773:+	chr7	107256472	107256834	+	chr7	107258773	107258808,10725880 8,107259050,107258 808,107259050	+	ENST00000005259,ENST00000465919, ENST00000445771,ENST00000379117, ENST00000379119	283-284	10	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr7:116555100:+>chr7:116556114:+	chr7	116555054	116555100	+	chr7	116556114	116556176	+	ENST00000361183	285-285	15	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD
chr7:129915476:+>chr7:129916468:+	chr7	129915447	129915476	+	chr7	129916468	129916578	+	ENST00000222481	286-286	10	CCLE-BRCA,CCLE-CESC,CCLE-LGG,CCLE-LUSC,CCLE-SARC,CCLE-UCEC
chr7:44883388:->chr7:44882953:-	chr7	44883161	44883388	-	chr7	44882953	44882953,44882953, 44882953,44882953, 44882953,44882953	-	ENST00000222690,ENST00000437072, ENST00000349299,ENST00000308153, ENST00000381124,ENST00000446531	287-292	6	CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-UCEC
chr7:50595367:->chr7:50571757:-	chr7	50595218	50595367	-	chr7	50571757	50571757,50571757, 50571757,50571757, 50571757,50571757, 50571757	-	ENST00000357936,ENST00000431062, ENST00000426377,ENST00000444733, ENST00000444124,ENST00000430300, ENST00000380984	293-294	19	CCLE-COAD,CCLE-ESCA,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-PRAD,CCLE-STAD,CCLE-THCA
chr7:72720556:->chr7:72719094:-	chr7	72720415	72720556	-	chr7	72719094	72719094,72719094, 72719094,72719094, 72719094	-	ENST00000428206,ENST00000252594, ENST00000438747,ENST00000310326, ENST00000455763	295-298	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr7:73776406:+>chr7:73778585:+	chr7	73776149	73776406	+	chr7	73778585	73778645,73778645, 73778645	+	ENST00000361545,ENST00000223398, ENST00000395060	299-300	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr7:75083158:->chr7:75070925:-	chr7	75082911	75083158	-	chr7	75070925	75070925	-	ENST00000257665	301-301	63	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SARC,CCLE-SKCM
chr7:84736037:->chr7:84727281:-	chr7	84735954	84736037	-	chr7	84727281	84727281,85	-	ENST00000284136,ENST00000444867	302-303	20	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr8:103282996:->chr8:103282411:-	chr8	103282751	103282996	-	chr8	103282411	103282411,10328241 1,103282411,103282 411	-	ENST00000520539,ENST00000220959, ENST00000518205,ENST00000521922	304-304	17	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr8:128749923:+>chr8:128750494:+	chr8	128749913	128749923	+	chr8	128750494	128751265	+	ENST00000377970	305-305	3	CCLE-BLCA,CCLE-CESC,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA

chr8:66633382:->chr8:66631730:-	chr8	66633042	66633382	-	chr8	66631730	66631730,67	-	ENST00000401827,ENST00000379419	306-306	12	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA
chr8:72942008:+>chr8:72964774:+	chr8	72941789	72942008	+	chr8	72964774	72964806,73	+	ENST00000524152,ENST00000519068	307-307	7	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LUSC,CCLE-SARC,CCLE-THCA
chr8:99648370:->chr8:99608397:-	chr8	99648359	99648370	-	chr8	99608397	99608397,99608397,99608397,99608397	-	ENST00000419617,ENST00000523601,ENST00000518165,ENST00000521649	308-309	4	CCLE-BRCA,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-MESO,CCLE-OV,CCLE-PAAD
chr9:119602892:->chr9:119583062:-	chr9	119602163	119602892	-	chr9	119583062	119583062,119583062,119583062,119583062	-	ENST00000373996,ENST00000313400,ENST00000373986,ENST00000361209	310-310	28	CCLE-BLCA,CCLE-ESCA,CCLE-HNSC,CCLE-LUSC,CCLE-MM
chr9:128421519:->chr9:128420078:-	chr9	128421464	128421519	-	chr9	128420078	128420078,128420078,128420078,128420078,128420078	-	ENST00000373511,ENST00000373498,ENST00000350766,ENST00000265960,ENST00000394060,ENST00000373496	311-315	42	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr9:130924301:+>chr9:130925722:+	chr9	130924283	130924301	+	chr9	130925722	130925894	+	ENST00000372994	316-316	6	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr9:21808999:+>chr9:21815432:+	chr9	21808844	21808999	+	chr9	21815432	21815518,21815518,21815518,21815518,21815543,21815518	+	ENST00000380172,ENST00000404796,ENST00000460874,ENST00000580900,ENST00000419385,ENST00000580718	317-321	52	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr9:88264917:->chr9:88261333:-	chr9	88264393	88264917	-	chr9	88261333	88261333,88261333,88261333,88261333	-	ENST00000376083,ENST00000357081,ENST00000376109,ENST00000432218	322-323	38	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD
chr9:96211969:->chr9:96209979:-	chr9	96211775	96211969	-	chr9	96209979	96209979,96209979,96209979	-	ENST00000423591,ENST00000375412,ENST00000428378	324-325	33	CCLE-BLCA,CCLE-BRCA,CCLE-ESCA,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr9:96211969:->chr9:96210771:-	chr9	96211775	96211969	-	chr9	96210771	96210771	-	ENST00000476484	326-326	33	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr9:97214855:+>chr9:97216240:+	chr9	97214597	97214855	+	chr9	97216240	97216352,97	+	ENST00000375344,ENST00000428393	327-327	87	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:117629144:+>chr1:117630672:+	chr1	117629039	117629144	ENST00000369466	+	chr1	117630672	117630710	+	01	720	CCLE-DLBC,CCLE-HNSC,CCLE-LUSC
chr1:145474732:+>chr1:145476653:+	chr1	145473329	145474732	ENST00000323397	+	chr1	145476653	145476760	+	02	468	CCLE-BRCA,CCLE-DLBC,CCLE-LCLL,CCLE-LUSC
chr1:160314616:+>chr1:230653304:+	chr1	160314512,160314512,160314512,160314512,160314512,160314512	160314616	ENST00000294785,ENST00000368063,ENST00000437169,ENST00000421914,ENST00000535857,ENST00000438008,ENST00000392212	+	chr1	230653304	230653504	+	03	63	CCLE-LUSC
chr1:92518215:+>chr1:92524420:+	chr1	92518067	92518215	ENST00000370383	+	chr1	92524420	92524604	+	04	285	CCLE-LUSC
chr10:104231153:+>chr10:104231667:+	chr10	104231139,104231030,104231030	104231153	ENST00000366277,ENST00000238936,ENST00000369931	+	chr10	104231667	104231733	+	05	5	CCLE-BLCA,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD,TCGA-STAD
chr10:112572705:+>chr10:112576399:+	chr10	112572036	112572705	ENST00000369519	+	chr10	112576399	112576521	+	06	850	CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC
chr10:64976967:->chr10:64445839:-	chr10	64976967,64976967,64976967,64976967	64976967	ENST00000399262,ENST00000402544,ENST00000399251,ENST00000542921	-	chr10	64445839	64445873	-	07	7	TCGA-LUSC
chr11:67352712:+>chr11:67361105:+	chr11	67352609,67	67352712	ENST00000398606,ENST00000398603	+	chr11	67361105	67361444	+	08	112	TCGA-DLBC,TCGA-HNSC,TCGA-LUSC
chr11:69063184:+>chr11:69084301:+	chr11	69063059,69063059,69063092	69063184	ENST00000441339,ENST00000308946,ENST00000535407	+	chr11	69084301	69084421	+	09	89	CCLE-BRCA,CCLE-COAD,CCLE-HNSC,CCLE-STAD,TCGA-LUSC
chr11:77850610:->chr11:77848691:-	chr11	77850540,77850540,77850540,77850540	77850610	ENST00000299626,ENST00000376156,ENST00000526737,ENST00000530454,ENST00000532050	-	chr11	77848691	77849035	-	10	8	CCLE-LUSC,CCLE-OV,CCLE-THCA,TCGA-BRCA
chr12:52639328:+>chr12:52645561:+	chr12	52639196	52639328	ENST00000331817	+	chr12	52645561	52645764	+	11	372	CCLE-LUSC
chr14:107048816:->chr14:107047602:-	chr14	107048672	107048816	ENST00000390627	-	chr14	107047602	107048228	-	12	68	TCGA-LUSC,TCGA-LUAD,TCGA-READ
chr14:90416441:->chr14:90416136:-	chr14	90416441,90416441,90416441,90416441,90416441,90416441,90416441	90416441	ENST00000316738,ENST00000555872,ENST00000557685,ENST00000556609,ENST00000267544,ENST00000538485,ENST00000556005	-	chr14	90416136	90416395	-	13-13	9	CCLE-LUSC
chr15:83103156:+>chr15:83193188:+	chr15	83102759,83	83103156	ENST00000561062,ENST00000358583	+	chr15	83193188	83193227	+	14-14	277	CCLE-LUSC
chr17:16285735:+>chr17:16300446:+	chr17	16285222,16285222,16285673,16285222,16285222	16285735	ENST00000302182,ENST00000577640,ENST00000535788,ENST00000395839,ENST00000395837	+	chr17	16300446	16300675	+	15-15	95	CCLE-LUSC
chr19:20278169:+>chr19:20281106:+	chr19	20278140,2	20278169	ENST00000597083,ENST00000335117	+	chr19	20281106	20281399	+	16-16	10	CCLE-LGG,CCLE-LUSC,CCLE-OV
chr19:39380329:->chr19:39380152:-	chr19	39380329,39380329,39380329,39380329,39380329,39380329	39380329	ENST00000249396,ENST00000392081,ENST00000358931,ENST00000414941,ENST00000420440,ENST00000407552,ENST00000381766	-	chr19	39380152	39380244	-	17-17	144	CCLE-COAD,TCGA-HNSC,TCGA-LGG,TCGA-LUSC
chr2:113956803:+>chr2:113966557:+	chr2	113956660,113956660,113956660	113956803	ENST00000245796,ENST00000441564,ENST00000409378	+	chr2	113966557	113966942	+	18-18	971	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-HNSC,CCLE-LUSC,CCLE-PAAD,CCLE-STAD
chr2:133425973:->chr2:133381838:-	chr2	133425973,1	133425973	ENST00000345008,ENST00000397463	-	chr2	133381838	133381971	-	19-19	11	CCLE-CESC,CCLE-LGG,CCLE-LIHC,CCLE-SARC,CCLE-THCA,TCGA-BLCA,TCGA-GBM,TCGA-HNSC,TCGA-LGG,TCGA-LIHC,TCGA-LUSC,TCGA-LUAD,TCGA-OV
chr2:203103163:->chr2:203098881:-	chr2	203103163,203103163,203103163,203103163,203103163,203103163,203103163	203103163	ENST00000392246,ENST00000392245,ENST00000409368,ENST00000392244,ENST00000409712,ENST00000409181,ENST00000409627	-	chr2	203098881	203098903	-	20-20	4	CCLE-LUSC,TCGA-LUAD,TCGA-PRAD
chr2:225400245:->chr2:225395962:-	chr2	225400245,225400245,225400245,225400245,225400245	225400245	ENST00000264414,ENST00000344951,ENST00000409096,ENST00000409777,ENST00000436172	-	chr2	225395962	225396104	-	21-21	102	CCLE-LUSC,TCGA-ESCA
chr2:89442543:->chr2:89438968:-	chr2	89442543	89442543	ENST00000492167	-	chr2	89438968	89439014	-	22-22	16	TCGA-LUAD
chr20:49307663:->chr20:49307455:-	chr20	49307663	49307663	ENST00000535356	-	chr20	49307455	49307533	-	23-23	1	CCLE-BLCA,CCLE-CESC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA,TCGA-LIHC
chr20:62284680:->chr20:62277869:-	chr20	62284680	62284680	ENST00000370053	-	chr20	62277869	62278005	-	24-24	6	CCLE-LUSC
chr22:21567354:->chr22:21564141:-	chr22	21567354,21567354,21567354	21567354	ENST00000405188,ENST00000401924,ENST00000424627	-	chr22	21564141	21564628	-	25-25	340	CCLE-KIRC,TCGA-BLCA,TCGA-KIRC,TCGA-LUSC,TCGA-LUAD,TCGA-THCA
chr22:37870550:->chr22:37861756:-	chr22	37870550,37870550,37870550	37870550	ENST00000416983,ENST00000356998,ENST00000454291	-	chr22	37861756	37862095	-	26-26	271	CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,TCGA-BLCA,TCGA-OV
chr3:107447807:+>chr3:107448789:+	chr3	107447612,107447612,107447612,107447612,107447612,107447612	107447807	ENST00000415149,ENST00000402543,ENST00000325805,ENST00000416476,ENST00000456419,ENST00000402163,ENST00000406780	+	chr3	107448789	107448940	+	27-27	200	CCLE-LUSC
chr3:4927407:->chr3:4898429:-	chr3	4927407,493	4927407	ENST00000449914,ENST00000441894	-	chr3	4898429	4898685	-	28-28	14	CCLE-BRCA,CCLE-DLBC,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-PAAD,TCGA-BLCA,TCGA-BRCA,TCGA-LIHC,TCGA-LUAD,TCGA-PRAD
chr4:102117073:->chr4:102104428:-	chr4	102117073,102117073,102117073,102117073,102117073,102117073	102117073	ENST00000512215,ENST00000394854,ENST00000323055,ENST00000394853,ENST00000492351,ENST00000052934,ENST00000525819	-	chr4	102104428	102104622	-	29-29	36	CCLE-BRCA,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-UCEC,TCGA-PRAD
chr4:2886393:+>chr4:2888303:+	chr4	2886242,2886242,2886242,2886242,2886242,2886242,2886242	2886393	ENST00000264758,ENST00000446856,ENST00000398125,ENST00000513328,ENST00000503455,ENST00000355842,ENST00000398123,ENST00000398129	+	chr4	2888303	2888408	+	30-30	170	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr5:140764890:+>chr5:140765965:+	chr5	140762467	140764890	ENST00000518325	+	chr5	140765965	140766087	+	31-31	808	CCLE-LUSC
chr5:68551355:+>chr5:68551980:+	chr5	68551338,68551287,68551287,68551338	68551355	ENST00000506563,ENST00000256443,ENST00000514676,ENST00000502604	+	chr5	68551980	68552084	+	32-32	6	CCLE-BRCA,CCLE-DLBC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr6:134528494:->chr6:134508473:-	chr6	134528494,1	134528494	ENST00000367858,ENST00000461976	-	chr6	134508473	134509638	-	33-33	120	CCLE-LCLL,CCLE-LUSC
chr6:24551662:->chr6:24541573:-	chr6	24551662,24551662,24551662,24551662	24551662	ENST00000430948,ENST00000535378,ENST00000378214,ENST00000543707	-	chr6	24541573	24541734	-	34-34	1013	CCLE-BLCA,CCLE-LUSC
chr6:39290104:->chr6:39289934:-	chr6	39290104,39290104,39290104,39290104	39290104	ENST00000373229,ENST00000425054,ENST00000507712,ENST00000437527	-	chr6	39289934	39289990	-	35-35	6	CCLE-LUSC,TCGA-PAAD
chr7:151329155:->chr7:151297948:-	chr7	151329155,151329155,151329155,151329155,151329155,151329155,151329155	151329155	ENST00000287878,ENST00000418337,ENST00000433631,ENST00000492843,ENST00000392801,ENST00000476632,ENST00000493872	-	chr7	151297948	151298124	-	36-36	10	CCLE-LUSC
chr7:5567728:->chr7:5522250:-	chr7	5567635	5567728	ENST00000331789	-	chr7	5522250	5522279	-	37-37	297	CCLE-LUSC,TCGA-BRCA,TCGA-OV,TCGA-THYM
chr7:56052571:+>chr7:56059164:+	chr7	56052540,56052540,56052540,56052540	56052571	ENST00000322090,ENST00000446778,ENST00000437587,ENST00000415967	+	chr7	56059164	56059459	+	38-38	205	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-GBM
chr7:99674926:->chr7:99674180:-	chr7	99674926,99674926,99674926,99674926,99674926,99674926,99674926	99674926	ENST00000413658,ENST00000424697,ENST00000303915,ENST00000299667,ENST00000449785,ENST00000428683,ENST00000415068	-	chr7	99674180	99674214	-	39-39	18	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-THCA
chr8:74209664:+>chr8:74216833:+	chr8	74209429,74209635,74209635	74209664	ENST00000240285,ENST00000521928,ENST00000519380	+	chr8	74216833	74216952	+	40-40	10	CCLE-LUSC
chr8:74872000:->chr8:74871067:-	chr8	74872000,74872000,74872000,74872000,74872000,74872000,74872000	74872000	ENST00000602840,ENST00000518127,ENST00000520242,ENST00000519487,ENST00000028481.1,ENST00000052233,ENST00000523815,ENST00000519082	-	chr8	74871067	74871473	-	41-41	1	CCLE-BLCA,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chrX:74280058:->chrX:74267940:-	chrX	74280058,74280058,74280058,74280058	74280058	ENST00000253577,ENST00000339447,ENST00000373394,ENST00000529949	-	chrX	74267940	74268611	-	42-42	655	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SARC,CCLE-STAD

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:10478650:+>chr1:10478883:+	chr1	10478552	10478650	+	chr1	10478883	10478982,10478982,10478982	+	ENST00000541529,ENST00000270776,ENST00000538557	43-43	33	CCLE-LUSC,TCGA-BLCA,TCGA-TGCT
chr1:19410263:->chr1:19408067:-	chr1	19410034	19410263	-	chr1	19408067	19408067,19408067,19408067,19408067,19408067,19408300,19408067,19408067	-	ENST00000375217,ENST00000375226,ENST00000375267,ENST00000375254,ENST00000375225,ENST00000429347,ENST00000375224,ENST00000543981	44-44	17	CCLE-LUSC
chr1:208254106:->chr1:208252795:-	chr1	208254087	208254106	-	chr1	208252795	208252795	-	ENST00000367033	45-45	31	CCLE-HNSC,CCLE-LGG,CCLE-LUSC,CCLE-PRAD,CCLE-SKCM,CCLE-STAD
chr1:21588222:->chr1:21586885:-	chr1	21588170	21588222	-	chr1	21586885	21586885,21586885,21586885,21586885,21586885	-	ENST00000415912,ENST00000357071,ENST00000374893,ENST00000436918,ENST00000264205,ENST00000473505	46-46	2	CCLE-BRCA,CCLE-LUSC,CCLE-OV
chr1:222838358:+>chr1:222838651:+	chr1	222838237	222838358	+	chr1	222838651	222838961,222838961,222838961	+	ENST00000344922,ENST00000344441,ENST00000340535	47-47	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-STAD,TCGA-ACC,TCGA-BRCA,TCGA-ESCA,TCGA-LIHC,TCGA-LUSC,TCGA-LUAD,TCGA-OV,TCGA-PRAD,TCGA-STAD,TCGA-UCEC
chr1:223852296:->chr1:223842101:-	chr1	223852104	223852296	-	chr1	223842101	223842101,223842101,223842101,223842101	-	ENST00000366872,ENST00000419193,ENST00000366873,ENST00000467384	48-48	5	CCLE-LUSC,TCGA-LUAD
chr1:36637320:+>chr1:36638065:+	chr1	36637256	36637320	+	chr1	36638065	36638228,36638228,36638228,36638228,36638141	+	ENST00000429533,ENST00000316156,ENST00000373150,ENST00000373151,ENST00000530729	49-49	21	CCLE-BLCA,CCLE-HNSC,CCLE-LGG,CCLE-LUSC,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-BRCA,TCGA-CESC,TCGA-ESCA,TCGA-HNSC,TCGA-SARC
chr1:53346501:+>chr1:53347143:+	chr1	53346099	53346501	+	chr1	53347143	53347337,53	+	ENST00000371532,ENST00000371528	50-50	14	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-BLCA,TCGA-BRCA,TCGA-LUSC,TCGA-LUAD,TCGA-TGCT
chr10:102711867:+>chr10:102716208:+	chr10	102711720	102711867	+	chr10	102716208	102716294,1	+	ENST00000238961,ENST00000370269	51-51	41	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-UCS
chr10:103896914:+>chr10:103897607:+	chr10	103896814	103896914	+	chr10	103897607	103897795,1	+	ENST00000278070,ENST00000413464	52-52	11	CCLE-ESCA,CCLE-LUSC,CCLE-PAAD,CCLE-SARC
chr10:1100108:->chr10:1090111:-	chr10	1099853	1100108	-	chr10	1090111	1090111	-	ENST00000381344	53-53	41	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-STAD
chr10:28247767:->chr10:28233891:-	chr10	28247615	28247767	-	chr10	28233891	28233891,28	-	ENST00000537576,ENST00000305242	54-54	20	CCLE-LUSC
chr11:125450741:+>chr11:125451107:+	chr11	125450691	125450741	+	chr11	125451107	125451218	+	ENST00000278903	55-55	17	CCLE-LUSC
chr11:14737526:+>chr11:14793483:+	chr11	14737455	14737526	+	chr11	14793483	14793533,15	+	ENST00000282096,ENST00000455098	56-56	6	CCLE-COAD,CCLE-LUSC,CCLE-PAAD
chr11:17098209:->chr11:17098094:-	chr11	17098119	17098209	-	chr11	17098094	17098094	-	ENST00000533969	57-57	8	CCLE-COAD,CCLE-LGG,CCLE-LUSC
chr11:58943356:+>chr11:58949212:+	chr11	58943264	58943356	+	chr11	58949212	58949935	+	ENST00000227451	58-58	1	TCGA-LUAD,TCGA-OV,TCGA-THCA
chr11:69488615:->chr11:69486587:-	chr11	69488458	69488615	-	chr11	69486587	69486587,69486587,69486587,69486587,69486587,69486587	-	ENST00000538554,ENST00000279147,ENST00000535657,ENST00000545562,ENST00000539414,ENST00000542341	59-59	1	CCLE-BRCA,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM
chr11:71728382:->chr11:71727576:-	chr11	71728310	71728382	-	chr11	71727576	71727576,71727576,71727576,71727576,71727576	-	ENST00000351960,ENST00000358965,ENST00000393695,ENST00000542977,ENST00000537217	60-60	12	CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-OV
chr11:73445789:->chr11:73441868:-	chr11	73445535	73445789	-	chr11	73441868	73441868,73441868,73441868,73441868,73441868,73441868,73441868,73441868	-	ENST00000310653,ENST00000336083,ENST00000541973,ENST00000541588,ENST00000545625,ENST00000540771,ENST00000537446,ENST00000400470	61-61	10	CCLE-ESCA,CCLE-LIHC,CCLE-PRAD,CCLE-SARC,TCGA-HNSC,TCGA-LUSC,TCGA-PRAD,TCGA-READ,TCGA-SARC
chr11:74830434:+>chr11:74873700:+	chr11	74830343	74830434	+	chr11	74873700	74873830	+	ENST00000289575	62-62	8	CCLE-KIRC,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SKCM,TCGA-KIRC
chr12:104518408:->chr12:104517201:-	chr12	104518299	104518408	-	chr12	104517201	104517201,104517201,104517201,104517201	-	ENST00000240055,ENST00000551727,ENST00000551446	63-63	8	CCLE-LUSC
chr12:104645612:+>chr12:104651797:+	chr12	104645562	104645612	+	chr12	104651797	104651857,1	+	ENST00000525566,ENST00000429002	64-64	17	CCLE-LUSC
chr12:104824437:+>chr12:104995684:+	chr12	104824237	104824437	+	chr12	104995684	104995799,104995769,104995769,104995799	+	ENST00000547956,ENST00000549260,ENST00000303694,ENST00000546689	65-65	12	CCLE-LUSC
chr12:124157140:+>chr12:124158165:+	chr12	124157002	124157140	+	chr12	124158165	124158357,1	+	ENST00000426174,ENST00000303372	66-66	14	CCLE-BRCA,CCLE-LUSC
chr12:15701267:+>chr12:15702028:+	chr12	15701006	15701267	+	chr12	15702028	15702160,15702160,15702160	+	ENST00000281171,ENST00000348962,ENST00000535311	67-67	11	CCLE-COAD,CCLE-LUSC,TCGA-BLCA,TCGA-COAD,TCGA-LUSC,TCGA-READ,TCGA-STAD
chr12:16168469:+>chr12:16185476:+	chr12	16168176	16168469	+	chr12	16185476	16185588,16185485,16185588,16185588,16185591,16185588	+	ENST00000428559,ENST00000531803,ENST00000532964,ENST00000533447,ENST00000526530	68-68	13	CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-OV,CCLE-PAAD
chr12:4948527:+>chr12:4959904:+	chr12	4948345	4948527	+	chr12	4959904	4960077	+	ENST00000542998	69-69	61	CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-STAD,TCGA-BLCA,TCGA-CESC,TCGA-COAD,TCGA-GBM,TCGA-LGG,TCGA-LUSC,TCGA-OV,TCGA-PAAD,TCGA-PCPG,TCGA-READ,TCGA-STAD,TCGA-TGCT,TCGA-UCS
chr12:76520433:->chr12:76443026:-	chr12	76520344	76520433	-	chr12	76443026	76443030,76443030,76443030,76443030,76443030,76443030,76443030,76443030	-	ENST00000261182,ENST00000552056,ENST00000393263,ENST00000431879,ENST00000547773,ENST00000544816,ENST00000542344	70-70	5	TCGA-LUSC
chr12:95596369:->chr12:95566520:-	chr12	95596343	95596369	-	chr12	95566520	95566520,95566520,95566520,95566520,95566520	-	ENST00000343958,ENST00000451107,ENST00000546711,ENST00000549499	71-71	33	CCLE-BLCA,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-UCEC
chr13:113897987:+>chr13:113898724:+	chr13	113897912	113897987	+	chr13	113898724	113898828,113898828,113898828,113898828	+	ENST00000375441,ENST00000451881,ENST00000326335,ENST00000375440	72-72	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr13:115049839:+>chr13:115051777:+	chr13	115049833	115049839	+	chr13	115051777	115051875	+	ENST00000375299	73-73	3	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr13:38183213:->chr13:38171419:-	chr13	38183157	38183213	-	chr13	38171419	38171419,38171419,38171419,38171419,38171419,38171419	-	ENST00000541179,ENST00000379749,ENST00000379747,ENST00000379743,ENST00000379742,ENST00000541481	74-74	41	CCLE-BRCA,CCLE-LUSC,TCGA-BRCA,TCGA-SARC
chr13:45576476:+>chr13:45578440:+	chr13	45576285	45576476	+	chr13	45578440	45578572,45578572,45578572	+	ENST00000379151,ENST00000497558,ENST00000361121	75-75	4	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SKCM,TCGA-COAD
chr13:96555382:->chr13:96592345:-	chr13	96594829	96595382	-	chr13	96592345	96592345	-	ENST00000376747	76-76	19	CCLE-CESC,CCLE-LUSC,CCLE-OV
chr14:105195833:+>chr14:105196166:+	chr14	105195807	105195833	+	chr14	105196166	105196232	+	ENST00000555486	77-77	9	CCLE-BRCA,CCLE-LUSC
chr14:106717516:->chr14:106641752:-	chr14	106717458	106717516	-	chr14	106641752	106641867	-	ENST00000390605	78-78	16	TCGA-CESC,TCGA-LUSC,TCGA-LUAD,TCGA-READ,TCGA-STAD,TCGA-TGCT,TCGA-THCA
chr14:106801819:->chr14:106518589:-	chr14	106801655	106801819	-	chr14	106518589	106518704	-	ENST00000390598	79-79	12	TCGA-LUAD
chr14:24530511:+>chr14:24530706:+	chr14	24530507	24530511	+	chr14	24530706	24530881	+	ENST00000342740	80-80	1	CCLE-DLBC,CCLE-LUSC
chr14:35778674:+>chr14:35779946:+	chr14	35778574	35778674	+	chr14	35779946	35780101,35780101,35780101,35780101,35780101,35780101	+	ENST00000540871,ENST00000261479,ENST00000554961,ENST00000553809,ENST00000555764,ENST00000556506	81-81	11	CCLE-COAD,CCLE-LUSC,CCLE-SKCM,CCLE-THCA,TCGA-BRCA,TCGA-LUSC,TCGA-LUAD
chr14:45702609:->chr14:45702023:-	chr14	45702088	45702609	-	chr14	45702023	45702023,45702023,45702023	-	ENST00000310806,ENST00000454990,ENST00000453142	82-82	9	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-LUSC
chr14:51362421:+>chr14:51368547:+	chr14	51360331	51362421	+	chr14	51368547	51368629,51368629,51368629	+	ENST00000337334,ENST00000353130,ENST00000395752	83-83	8	TCGA-BLCA,TCGA-COAD,TCGA-LUSC,TCGA-TGCT
chr14:60442915:+>chr14:60443943:+	chr14	60442564	60442915	+	chr14	60443943	60444065,6	+	ENST00000254271,ENST00000445360	84-84	15	CCLE-BLCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-PRAD,TCGA-LUAD

chr14:62187825:+>chr14:62188227:+	chr14	62187678	62187825	+	chr14	62188227	62188372,62188372,62188372,62188372,62188372	+	ENST00000337138,ENST00000394997,ENST00000323441,ENST00000539097,ENST00000557538	85-85	28	CCLE-LUSC,CCLE-THCA,TCGA-ESCA
chr14:94523351:->chr14:94521530:-	chr14	94523347	94523351	-	chr14	94521530	94521530,94521530,94521530	-	ENST00000330836,ENST00000544005,ENST00000555054	86-86	4	CCLE-LUSC
chr14:97307963:+>chr14:97312432:+	chr14	97307913	97307963	+	chr14	97312432	97312501	+	ENST00000216639	87-87	17	CCLE-CESC,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr15:29384448:+>chr15:29385278:+	chr15	29384249	29384448	+	chr15	29385278	29385423,29385423,29385423,29385423,29385423	+	ENST00000561069,ENST00000558402,ENST00000558330,ENST00000411764,ENST00000558259	88-88	20	CCLE-LUSC
chr15:51201329:+>chr15:51204275:+	chr15	51201299	51201329	+	chr15	51204275	51204346,51204346,51204346	+	ENST00000561441,ENST00000558439,ENST00000261842	89-89	8	CCLE-BRCA,CCLE-CESC,CCLE-LGG,CCLE-LUSC,CCLE-PRAD,CCLE-SKCM
chr15:60689166:->chr15:60656722:-	chr15	60689103	60689166	-	chr15	60656722	60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722	-	ENST00000396024,ENST00000451270,ENST00000332680,ENST00000560014,ENST00000421017,ENST00000559176,ENST00000559818,ENST00000560367,ENST00000558503,ENST00000560389,ENST00000560165,ENST00000557906,ENST00000559350,ENST00000558558,ENST00000558986,ENST00000559467,ENST00000559956,ENST00000559780,ENST00000560468,ENST00000557904,ENST00000559370	90-90	30	CCLE-CESC,CCLE-KIRC,CCLE-LUSC,TCGA-OV,TCGA-STAD
chr15:64365987:->chr15:64365216:-	chr15	64365816	64365987	-	chr15	64365216	64365227	-	ENST00000300030	91-91	11	CCLE-LUSC
chr15:72463983:->chr15:72462280:-	chr15	72463893	72463983	-	chr15	72462280	72462280,72462280,72462300,72462280,72462280	-	ENST00000309731,ENST00000564129,ENST00000568594,ENST00000570275,ENST00000562288	92-92	12	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-HNSC,CCLE-LUSC,CCLE-OV,CCLE-STAD,CCLE-THCA,TCGA-LUAD,TCGA-OV,TCGA-THCA,TCGA-UCEC
chr15:75629457:+>chr15:75630403:+	chr15	75629452	75629457	+	chr15	75630403	75630474,75630474,75630474,75630474,75630474,75630474,75630474,75630474	+	ENST00000267935,ENST00000567195,ENST00000564815,ENST00000562610,ENST00000338995,ENST00000567720,ENST00000480484,ENST00000568301	93-93	2	CCLE-LUSC,CCLE-OV
chr15:79649214:+>chr15:79703742:+	chr15	79649053	79649214	+	chr15	79703742	79703846	+	ENST00000424155	94-94	2	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr16:14738989:+>chr16:14742245:+	chr16	14738890	14738989	+	chr16	14742245	14742449,15	+	ENST00000261658,ENST00000570219	95-95	33	CCLE-BRCA,CCLE-LGG,TCGA-LUSC
chr16:18565603:->chr16:18540905:-	chr16	18565507	18565603	-	chr16	18540905	18540959,18540959,18540959,18540959,18540959	-	ENST00000330537,ENST00000381474,ENST00000543392,ENST00000569051	96-96	20	CCLE-LUSC
chr16:21059883:->chr16:21051265:-	chr16	21053994	21059883	-	chr16	21051265	21051265,21	-	ENST00000261383,ENST00000415178	97-97	47	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD,CCLE-UCEC,TCGA-OV
chr16:3718260:->chr16:3716119:-	chr16	3718223	3718260	-	chr16	3716119	3716119,3716119,3716119,3716119,3716119	-	ENST00000246957,ENST00000575671,ENST00000538171,ENST00000576335	98-98	11	CCLE-BRCA,TCGA-LUAD,TCGA-TGCT,TCGA-UCEC
chr16:4052808:->chr16:4043511:-	chr16	4052719	4052808	-	chr16	4043511	4043511,4043511,4043511	-	ENST00000294016,ENST00000571467,ENST00000572288	99-99	24	CCLE-BRCA,CCLE-LUSC
chr16:4667729:+>chr16:4700366:+	chr16	4667704	4667729	+	chr16	4700366	4700484,4700484,4700484,4700484,4700484,4700484,4700484,4700484	+	ENST00000262370,ENST00000415496,ENST00000536343,ENST00000587747,ENST00000399577,ENST00000588994,ENST00000586183	100-100	8	CCLE-BRCA,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,CCLE-STAD,TCGA-OV
chr16:50651682:+>chr16:50655550:+	chr16	50651663	50651682	+	chr16	50655550	50655619	+	ENST00000268459	101-101	7	CCLE-LUSC
chr16:57483993:+>chr16:57484952:+	chr16	57483531	57483993	+	chr16	57484952	57485120,57485120,57485120,57485120,57485120,57485120,57485120,57485120	+	ENST00000262507,ENST00000565964,ENST00000564655,ENST00000567115,ENST00000567072,ENST00000567933,ENST00000563166	102-102	5	CCLE-KIRC,CCLE-LUSC,CCLE-MM,CCLE-SARC
chr16:77786496:+>chr16:77850818:+	chr16	77786486	77786496	+	chr16	77850818	77850947	+	ENST00000302536	103-103	4	CCLE-LUSC
chr17:15939279:->chr17:15938258:-	chr17	15939156	15939279	-	chr17	15938258	15938258,15938258,15938258,15938258,15938258	-	ENST00000268712,ENST00000395851,ENST00000395849,ENST00000395857,ENST00000579573	104-104	12	CCLE-ESCA,CCLE-LUSC,CCLE-PAAD,CCLE-SKCM
chr17:27441216:->chr17:27441115:-	chr17	27441186	27441216	-	chr17	27441115	27441115,27441115,27441115,27441115,27441115	-	ENST00000354329,ENST00000533112,ENST00000531253,ENST00000527372	105-105	11	CCLE-DLBC,CCLE-UCEC,TCGA-COAD,TCGA-ESCA,TCGA-HNSC,TCGA-LGG,TCGA-LUAD,TCGA-STAD
chr17:38177572:->chr17:38176606:-	chr17	38177416	38177572	-	chr17	38176606	38176606,38176606,38176606,38176606,38176606,38176606,38176735,38176606	-	ENST00000394126,ENST00000356271,ENST00000394128,ENST00000394127,ENST00000491466,ENST00000422942,ENST00000501516	106-106	3	CCLE-BLCA,CCLE-COAD,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr17:40046175:->chr17:40043956:-	chr17	40045947	40046175	-	chr17	40043956	40043956,40043956,40043956,40043956,40043956	-	ENST00000352035,ENST00000590151,ENST00000353196,ENST00000537919,ENST00000393896	107-107	17	CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-SARC,CCLE-STAD,TCGA-BLCA,TCGA-ESCA,TCGA-KIRC,TCGA-KIRP,TCGA-LUAD,TCGA-STAD
chr17:421135:->chr17:420873:-	chr17	421101	421135	-	chr17	420873	420879	-	ENST00000574029	108-108	36	CCLE-LUSC
chr17:43026722:->chr17:43013726:-	chr17	43026697	43026722	-	chr17	43013726	43013739	-	ENST00000590129	109-109	14	CCLE-LUSC,TCGA-LGG
chr17:48743773:+>chr17:48744915:+	chr17	48743551	48743773	+	chr17	48744915	48745202,48745118,48744961,48745118	+	ENST00000427699,ENST00000285238,ENST00000502426,ENST00000505699	110-110	7	CCLE-BRCA,CCLE-ESCA,CCLE-LUSC,TCGA-ESCA
chr17:56588640:->chr17:56586202:-	chr17	56588480	56588640	-	chr17	56586202	56586202,56586202,56586202	-	ENST00000579925,ENST00000323456,ENST00000583656	111-111	3	CCLE-COAD,CCLE-LUSC,CCLE-OV,TCGA-BRCA
chr17:59856034:->chr17:59853923:-	chr17	59855937	59856034	-	chr17	59853923	59853923,6	-	ENST00000259008,ENST00000577598	112-112	1	CCLE-BLCA,CCLE-LUSC
chr17:62544114:->chr17:62499650:-	chr17	62544019	62544114	-	chr17	62499650	62499689,62499689,62499689,62499689,62499689	-	ENST00000225792,ENST00000450599,ENST00000578804,ENST00000577787,ENST00000577922	113-113	7	TCGA-LUSC
chr17:64403546:+>chr17:64492319:+	chr17	64403301	64403546	+	chr17	64492319	64492401,64492401,64492401	+	ENST00000578063,ENST00000413366,ENST00000284384	114-114	21	CCLE-DLBC,CCLE-LUSC
chr17:80441180:+>chr17:80443373:+	chr17	80440912	80441180	+	chr17	80443373	80443530,80443530,80443530,80443530,80443530	+	ENST00000390006,ENST00000309794,ENST00000345415,ENST00000457415,ENST00000584513	115-115	35	CCLE-DLBC,CCLE-LUSC
chr18:19241710:->chr18:19239304:-	chr18	19241640	19241710	-	chr18	19239304	19239304,19239304,19239304,19239304	-	ENST00000289119,ENST00000580981,ENST00000578270	116-116	7	CCLE-ESCA,CCLE-LUSC
chr18:20537359:+>chr18:20555116:+	chr18	20537112	20537359	+	chr18	20555116	20555182,20555182,20555182,20555182,20555182,20555182,20555182,20555182	+	ENST00000582354,ENST00000327155,ENST00000399722,ENST00000399725,ENST00000399721,ENST00000360790,ENST00000577445	117-117	3	CCLE-LUSC
chr18:8708134:+>chr18:8718422:+	chr18	8708124	8708134	+	chr18	8718422	8718646	+	ENST00000306329	118-118	3	CCLE-BLCA,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV
chr18:9766693:+>chr18:9775275:+	chr18	9766671	9766693	+	chr18	9775275	9775354,978	+	ENST00000578921,ENST00000581109	119-119	7	CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-PRAD,CCLE-SARC,CCLE-STAD,TCGA-BRCA,TCGA-HNSC,TCGA-LGG
chr19:12635610:->chr19:12577664:-	chr19	12635350	12635610	-	chr19	12577664	12577664,12577664,12577664,12577664,12577664	-	ENST00000598753,ENST00000397732,ENST00000428311,ENST00000455490	120-120	25	CCLE-COAD,CCLE-LUSC,CCLE-OV
chr19:15297447:->chr19:15296490:-	chr19	15297232	15297447	-	chr19	15296490	15296490,15	-	ENST00000263388,ENST00000601011	121-121	23	CCLE-BLCA,CCLE-BRCA,CCLE-LUSC,TCGA-CESC,TCGA-ESCA,TCGA-HNSC,TCGA-LUSC,TCGA-OV
chr19:39346300:->chr19:39338074:-	chr19	39345611	39346300	-	chr19	39338074	39338074,39338074,39338074,39338074,39338074	-	ENST00000221419,ENST00000601449,ENST00000600233,ENST00000601813	122-122	30	TCGA-LUSC

chr19:39833216:+>chr19:39866290:+	chr19	39833110	39833149	###	+	chr19	39866290	39866529,39866529	+	ENST00000598913,ENST00000314471,ENST00000596368	123-123	22	CCLE-LUSC,TCGA-OV
chr19:41438041:+>chr19:41509906:+	chr19	41438018	41438041	+	chr19	41509906	41510068,42	+	ENST00000330446,ENST00000324071	124-124	8	TCGA-LUAD	
chr19:42217314:+>chr19:42311149:+	chr19	42217251	42217314	+	chr19	42311149	42311258	+	ENST00000415495	125-125	2	CCLE-LUSC,CCLE-OV	
chr19:49834874:->chr19:49797810:-	chr19	49834789	49834874	-	chr19	49797810	49797810,5	-	ENST00000335875,ENST00000454748	126-126	4	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-LGG,CCLE-LUSC,CCLE-OV	
chr19:50809471:+>chr19:50812982:+	chr19	50809255	50809471	+	chr19	50812982	50813047,50813047,50813047,50813047,50813047,50813047,50813047	+	ENST00000598205,ENST00000376970,ENST00000425460,ENST00000440075,ENST00000601313,ENST00000262269,ENST00000596571	127-127	19	TCGA-LUSC	
chr19:9939645:+>chr19:9940641:+	chr19	9939625	9939645	+	chr19	9940641	9940684,9940684,9940684,9940661	+	ENST00000586895,ENST00000358666,ENST00000590068,ENST00000593087	128-128	7	TCGA-CESC,TCGA-HNSC,TCGA-LUSC,TCGA-OV	
chr2:177179106:+>chr2:177191553:+	chr2	177178880	177179106	+	chr2	177191553	177191629,177191629,177191629,177191629	+	ENST00000249442,ENST00000392529,ENST00000443241,ENST00000452865	129-129	7	CCLE-LUSC	
chr2:189861722:+>chr2:189861891:+	chr2	189861720	189861722	+	chr2	189861891	189861944,2	+	ENST00000304636,ENST00000317840	130-130	1	TCGA-BRCA,TCGA-ESCA,TCGA-HNSC,TCGA-LUSC,TCGA-MESO,TCGA-SARC,TCGA-UCS	
chr2:201751637:->chr2:201750495:-	chr2	201751554	201751637	-	chr2	201750495	201750495,201750495,201750495,201750495,201750495,201750495,201750495,201750495	-	ENST00000286175,ENST00000392283,ENST00000415562,ENST00000409264,ENST00000409361,ENST00000409449,ENST00000443398,ENST00000457063	131-131	17	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,TCGA-GBM	
chr2:207009280:->chr2:207008856:-	chr2	207009263	207009280	-	chr2	207008856	207008856,207008856,207008856,207008856,207008856,207008856,207008856	-	ENST00000233190,ENST00000423725,ENST00000457011,ENST00000440274,ENST00000455934,ENST00000449699,ENST00000432169	132-132	17	CCLE-LUSC	
chr2:211453855:+>chr2:211454830:+	chr2	211453619	211453855	+	chr2	211454830	211454958,2	+	ENST00000430249,ENST00000233072	133-133	14	CCLE-LUSC	
chr2:223509604:->chr2:223507626:-	chr2	223509344	223509604	-	chr2	223507626	223507724	-	ENST00000281828	134-134	24	CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-PRAD,CCLE-STAD,TCGA-BRCA	
chr2:224652913:->chr2:224642586:-	chr2	224652681	224652913	-	chr2	224642586	224642586,224642586,224642586,224642586,224642586,224642586,224642586,224642586	-	ENST00000443700,ENST00000415298,ENST00000334271,ENST00000396654,ENST00000396653,ENST00000446015,ENST00000409375,ENST00000423110	135-135	16	CCLE-LUSC	
chr2:228948057:->chr2:228892259:-	chr2	228947987	228948057	-	chr2	228892259	228892259,2	-	ENST00000392056,ENST00000344657	136-136	8	CCLE-LUSC	
chr2:231040909:->chr2:231037675:-	chr2	231040659	231040909	-	chr2	231037675	231037675,2	-	ENST00000258381,ENST00000358662	137-137	10	CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-SARC,CCLE-STAD	
chr2:25505735:->chr2:25505580:-	chr2	25505620	25505735	-	chr2	25505580	25505580,25505580,25505580,25505580	-	ENST00000321117,ENST00000264709,ENST00000380756,ENST00000406659	138-138	1	CCLE-LUSC	
chr2:270006:+>chr2:271866:+	chr2	269636	270006	+	chr2	271866	271939,271939,271939,271939,271916,271939,271916,271939,271939	+	ENST00000272067,ENST00000272065,ENST00000413140,ENST00000407983,ENST00000442386,ENST00000439645,ENST00000405364,ENST00000405233,ENST00000453390	139-139	34	CCLE-STAD,TCGA-CESC,TCGA-LUSC,TCGA-UCEC	
chr2:37520065:->chr2:37518142:-	chr2	37519789	37520065	-	chr2	37518142	37518142,37518142,37518142	-	ENST00000379066,ENST00000234179,ENST00000443187	140-140	8	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-BRCA,TCGA-ESCA,TCGA-OV,TCGA-UCEC	
chr2:74071187:+>chr2:74071940:+	chr2	74071101	74071187	+	chr2	74071940	74072015,74072015,74072015,74072015,74072015,74072015,74072015,74072015	+	ENST00000339566,ENST00000409707,ENST00000452725,ENST00000432295,ENST00000424659,ENST00000394073,ENST00000394070,ENST00000536064	141-141	9	CCLE-LUSC,CCLE-SKCM	
chr2:90074903:+>chr2:90139454:+	chr2	90073874	90074903	+	chr2	90139454	90139580	+	ENST00000492446	142-142	9	TCGA-LUAD	
chr2:95476942:+>chr2:95540521:+	chr2	95476910	95476942	+	chr2	95540521	95540743	+	ENST00000295201	143-143	11	CCLE-LUSC	
chr2:99224633:->chr2:99220654:-	chr2	99224536	99224633	-	chr2	99220654	99220654,99	-	ENST00000328709,ENST00000409997	144-144	16	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-GBM	
chr2:99224656:->chr2:99220650:-	chr2	99224536	99224656	-	chr2	99220650	99220654,99	-	ENST00000328709,ENST00000409997	145-145	9	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-DLBC,TCGA-GBM,TCGA-KIRC,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-PCPG,TCGA-PRAD,TCGA-THCA,TCGA-THYM	
chr20:30459529:->chr20:30457400:-	chr20	30459510	30459529	-	chr20	30457400	30457400,30457400,30457400	-	ENST00000278979,ENST00000375966,ENST00000339738	146-146	3	CCLE-LUSC	
chr20:32888526:->chr20:32883391:-	chr20	32888482	32888526	-	chr20	32883391	32883391	-	ENST00000217426	147-147	7	CCLE-BRCA,CCLE-COAD,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD	
chr22:21577153:->chr22:21104282:-	chr22	21576891	21577153	-	chr22	21104282	21104282,21	-	ENST00000255882,ENST00000572273	148-148	17	TCGA-LUSC	
chr22:23204348:+>chr22:23248706:+	chr22	23202946	23204348	+	chr22	23248706	23248831	+	ENST00000390325	149-149	10	TCGA-LUAD	
chr22:31947110:+>chr22:31952928:+	chr22	31947045	31947110	+	chr22	31952928	31953045,31953045,31953045,31953045,31953045,31953045,31953045	+	ENST00000443326,ENST00000540643,ENST00000432498,ENST00000400289,ENST00000400288,ENST00000524296,ENST00000450787	150-150	22	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BRCA	
chr22:32787416:->chr22:32784086:-	chr22	32787383	32787416	-	chr22	32784086	32784086	-	ENST00000216038	151-151	3	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA	
chr22:42085308:+>chr22:42089467:+	chr22	42085084	42085308	+	chr22	42089467	42089982	+	ENST00000402966	152-152	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC	
chr22:50947090:+>chr22:50954876:+	chr22	50947084	50947090	+	chr22	50954876	50954977,50954977,50954977,50954901,50954901,50954977	+	ENST00000420993,ENST00000395698,ENST00000395701,ENST00000518394,ENST00000418794,ENST00000299821	153-153	2	CCLE-BRCA,CCLE-CESC,CCLE-ESCA,CCLE-LGG,CCLE-LUSC,CCLE-THCA,TCGA-GBM,TCGA-SARC,TCGA-STAD	

chr3:128828867:->chr3:128814012:-	chr3	128828702	128828867	-	chr3	128814012	128814012,128814012,128814012,128814012,128814012,128814012	-	ENST00000315150,ENST00000393304,ENST00000393308,ENST00000393307,ENST00000393305,ENST00000418265,ENST00000476465,ENST00000457077	154-154	38	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SKCM
chr3:15058779:+>chr3:15062260:+	chr3	15058757	15058779	+	chr3	15062260	15062439,15062439,15062439,15062442,15062439	+	ENST00000425241,ENST00000323730,ENST00000393102,ENST00000437120,ENST00000406272	155-155	7	CCLE-BLCA,CCLE-CESC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM
chr3:185328562:+>chr3:185329439:+	chr3	185328464	185328562	+	chr3	185329439	185329533,185329533,185329533	+	ENST00000545472,ENST00000296257,ENST00000427465	156-156	33	CCLE-BRCA,CCLE-COAD,CCLE-LGG,CCLE-LUSC,CCLE-MM
chr3:185370866:->chr3:185369956:-	chr3	185370627	185370866	-	chr3	185369956	185369956,185369956,185369956,185369956	-	ENST00000382199,ENST00000421047,ENST00000457616,ENST00000346192	157-158	17,2	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-UCEC,TCGA-ESCA,TCGA-HNSC,TCGA-LUSC,TCGA-OV,TCGA-STAD
chr3:49096310:->chr3:49065271:-	chr3	49096059	49096310	-	chr3	49065271	49065349,49065349,49065349	-	ENST00000429182,ENST00000326739,ENST00000442157	159-159	17	CCLE-LUSC,TCGA-BRCA,TCGA-PRAD,TCGA-UCEC
chr3:72442890:->chr3:72428578:-	chr3	72442717	72442890	-	chr3	72428578	72428578	-	ENST00000477973	160-160	17	CCLE-LUSC
chr3:98618227:->chr3:98600611:-	chr3	98618095	98618227	-	chr3	98600611	98600611,98	-	ENST00000326840,ENST00000326857	161-161	2	CCLE-COAD,CCLE-LUSC,CCLE-THCA
chr4:109762023:->chr4:109755546:-	chr4	109761972	109762023	-	chr4	109755546	109755546,1	-	ENST00000494183,ENST00000399127	162-162	3	CCLE-LUSC
chr4:157831776:->chr4:157782641:-	chr4	157831506	157831776	-	chr4	157782641	157782641	-	ENST00000274071	163-163	7	CCLE-LCLL,CCLE-LUSC,CCLE-MM
chr4:2453586:+>chr4:2453869:+	chr4	2453560	2453586	+	chr4	2453869	2454073	+	ENST00000506607	164-164	9	CCLE-LUSC,TCGA-BLCA
chr4:25676447:+>chr4:25677757:+	chr4	25676322	25676447	+	chr4	25677757	25678371,25678371,25678371	+	ENST00000504570,ENST00000382051,ENST00000503434	165-165	11	TCGA-LUAD
chr5:139864383:+>chr5:139864706:+	chr5	139864293	139864383	+	chr5	139864706	139864833,139864833,139864833,139864833,139864833,139864833	+	ENST00000360839,ENST00000297183,ENST00000421134,ENST00000532219,ENST00000246149,ENST00000412116	166-166	9	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr5:153529506:+>chr5:153674376:+	chr5	153529490	153529506	+	chr5	153674376	153674478,153674478,153674478,153674478	+	ENST00000425427,ENST00000297107,ENST00000520647,ENST00000377661	167-167	6	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LGG,CCLE-LUSC,CCLE-PAAD,CCLE-PRAD,CCLE-SARC
chr5:179238682:+>chr5:179250858:+	chr5	179238653	179238682	+	chr5	179250858	179251087,179251087,179251087,179251087,179251057,179251087,179251087	+	ENST00000376929,ENST00000514093,ENST00000422245,ENST00000389805,ENST00000504627,ENST00000404074,ENST00000510187,ENST00000360718	168-168	10	CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,TCGA-ESCA,TCGA-KIRC,TCGA-KIRP,TCGA-LUAD,TCGA-OV,TCGA-STAD,TCGA-UCEC,TCGA-UCS
chr5:52197198:+>chr5:52201593:+	chr5	52196787	52197198	+	chr5	52201593	52201738	+	ENST00000282588	169-169	13	CCLE-LUSC,CCLE-SKCM
chr6:100379769:->chr6:100369131:-	chr6	100373713	100379769	-	chr6	100369131	100369131,1	-	ENST00000281806,ENST00000369212	170-170	32	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr6:110774731:->chr6:110768193:-	chr6	110774634	110774731	-	chr6	110768193	110768193,110768193,110768193,110768193,110768193,110768193	-	ENST00000451557,ENST00000368919,ENST00000330050,ENST00000439654,ENST00000434949,ENST00000437378,ENST00000424139	171-171	12	CCLE-DLBC,CCLE-LCLL,TCGA-LUAD,TCGA-UCEC
chr6:123549550:->chr6:123545276:-	chr6	123549469	123549550	-	chr6	123545276	123545276,1	-	ENST00000398178,ENST00000334268	172-172	8	CCLE-LCLL,CCLE-LUSC,TCGA-LUAD,TCGA-SARC
chr6:136924515:->chr6:136923117:-	chr6	136924315	136924515	-	chr6	136923117	136923117,1	-	ENST00000359015,ENST00000355845	173-173	11	CCLE-LUSC
chr6:144066592:+>chr6:144070122:+	chr6	144066439	144066592	+	chr6	144070122	144070202,144070202,144070202,144070202,144070202,144070202	+	ENST00000367584,ENST00000427704,ENST00000305766,ENST00000440869,ENST00000367582,ENST00000405182,ENST00000542769,ENST00000397980	174-174	5	CCLE-LUSC
chr6:147981955:+>chr6:148058453:+	chr6	147981647	147981955	+	chr6	148058453	148058584	+	ENST00000566741	175-175	17	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-STAD,CCLE-THCA,TCGA-HNSC,TCGA-KIRC,TCGA-LIHC,TCGA-LUAD,TCGA-OV,TCGA-SARC,TCGA-TGCT
chr6:17835789:->chr6:17834302:-	chr6	17835759	17835789	-	chr6	17834302	17834302,17834302,17834302,17834302,17834302	-	ENST00000378814,ENST00000259711,ENST00000378843,ENST00000378826,ENST00000378816	176-176	13	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-SKCM,CCLE-STAD
chr6:30629093:->chr6:30628019:-	chr6	30628869	30629093	-	chr6	30628019	30628019,31	-	ENST00000376437,ENST00000376442	177-177	22	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC,TCGA-PAAD
chr6:30690007:+>chr6:30690314:+	chr6	30689942	30690007	+	chr6	30690314	30690422,30690422,30690422	+	ENST00000327892,ENST00000435534,ENST00000396389	178-178	22	CCLE-BRCA,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,CCLE-UCEC,TCGA-BRCA,TCGA-HNSC,TCGA-LUSC,TCGA-PRAD,TCGA-SARC,TCGA-TGCT
chr7:117829683:+>chr7:117831971:+	chr7	117829639	117829683	+	chr7	117831971	117832056,1	+	ENST00000249299,ENST00000422760	179-179	15	CCLE-DLBC,TCGA-LUSC
chr7:127304880:+>chr7:127347646:+	chr7	127304405	127304880	+	chr7	127347646	127347701	+	ENST00000354725	180-180	4	TCGA-COAD,TCGA-KICH,TCGA-LUSC,TCGA-PRAD
chr7:130069134:->chr7:130067859:-	chr7	130068790	130069134	-	chr7	130067859	130067859,130067859,130067859,130067859,130067859,130067859	-	ENST00000223208,ENST00000541543,ENST00000484549,ENST00000349969,ENST00000477003,ENST00000471201,ENST00000489512	181-181	3	CCLE-LUSC
chr7:151865652:->chr7:151864463:-	chr7	151865489	151865652	-	chr7	151864463	151864463,151864463,151864463	-	ENST00000360104,ENST00000262189,ENST00000355193	182-182	24	CCLE-KIRC,CCLE-LGG,CCLE-LUSC,TCGA-BRCA
chr7:154793407:->chr7:154790494:-	chr7	154793210	154793407	-	chr7	154790494	154790494,154790494,154790494,154790494	-	ENST00000404141,ENST00000457196,ENST00000397192,ENST00000419436	183-183	11	CCLE-LUSC
chr7:156786005:->chr7:156786875:-	chr7	156788762	156789005	-	chr7	156786875	156786875,2	-	ENST00000469500,ENST00000479817	184-184	16	CCLE-LUSC
chr7:7498396:->chr7:7495743:-	chr7	7498255	7498396	-	chr7	7495743	7495743	-	ENST00000399429	185-185	13	CCLE-ESCA,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,TCGA-LUSC
chr8:128749923:+>chr8:128750494:+	chr8	128749913	128749923	+	chr8	128750494	128751265	+	ENST00000377970	186-186	3	CCLE-BLCA,CCLE-CESC,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-THCA,TCGA-BLCA,TCGA-BRCA,TCGA-CESC,TCGA-COAD,TCGA-ESCA,TCGA-HNSC,TCGA-KIRC,TCGA-KIRP,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-MESO,TCGA-OV,TCGA-PAAD,TCGA-PRAD,TCGA-READ,TCGA-SARC,TCGA-SKCM,TCGA-STAD,TCGA-THYM,TCGA-UCEC,TCGA-UVM
chr8:144745326:->chr8:144668944:-	chr8	144745033	144745326	-	chr8	144668944	144669015,144669015,144669022,144669015,144669015,144669022,144669015,144669015,144669022,144669015,144669015,144669015,144669015,144669015,144669015,144669015,144669015,144669015,144669015,144669022,144669015,144669015,144669015,144669022,144669015,144669015	-	ENST00000419152,ENST00000532400,ENST00000532741,ENST00000317198,ENST00000526838,ENST00000442189,ENST00000528610,ENST00000533833,ENST00000423316,ENST00000395119,ENST00000529272,ENST00000529007,ENST00000531621,ENST00000524624,ENST00000524397,ENST00000534380,ENST00000534377,ENST00000533204,ENST00000530191,ENST00000530616,ENST00000531218,ENST00000533494,ENST00000530445,ENST00000529516,ENST00000533749,ENST00000526340,ENST00000525223,ENST00000532543,ENST00000531931	187-187	2	TCGA-LUSC
chr8:95855580:+>chr8:95861690:+	chr8	95855516	95855580	+	chr8	95861690	95861760,95861760,95861760,95861760	+	ENST00000523731,ENST00000447247,ENST00000343161,ENST00000520526	188-188	22	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SKCM,TCGA-BRCA,TCGA-LUSC,TCGA-TGCT

chr9:112168615:->chr9:112166888:-	chr9	112168394	112168615	-	chr9	112166888	112166888,112166888,112166888,112166888	-	ENST00000412145,ENST00000446349,ENST00000374541,ENST00000398827,ENST00000262539	189-189	12	CCLE-DLBC,CCLE-LUSC,TCGA-KICH
chr9:123165587:->chr9:123165349:-	chr9	123165566	123165587	-	chr9	123165349	123165349,123165349,123165349,123165349	-	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000416449,ENST00000425647	190-190	13	TCGA-CESC,TCGA-HNSC,TCGA-LUSC
chr9:123334133:->chr9:123330666:-	chr9	123334105	123334133	-	chr9	123330666	123330666,123330666,123330666,123330666,123330666,123330666	-	ENST00000359309,ENST00000360822,ENST00000349780,ENST00000360190,ENST00000473282,ENST00000480112,ENST00000481266	191-191	4	CCLE-LUSC
chr9:127988405:+>chr9:127990189:+	chr9	127988272	127988405	+	chr9	127990189	127990338,127990338,127990338	+	ENST00000259460,ENST00000394125,ENST00000373538	192-192	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-BRCA,TCGA-COAD,TCGA-GBM,TCGA-LUSC,TCGA-SARC
chr9:128421519:->chr9:128420078:-	chr9	128421464	128421519	-	chr9	128420078	128420078,128420078,128420078,128420078,128420078,128420078	-	ENST00000373511,ENST00000373498,ENST00000350766,ENST00000265960,ENST00000394060,ENST00000373496	193-193	42	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BRCA,TCGA-GBM,TCGA-LGG
chr9:128638776:+>chr9:128677965:+	chr9	128638590	128638776	+	chr9	128677965	128678206,128678206,128678206,128678206,128678206,128678206	+	ENST00000342287,ENST00000373487,ENST00000373489,ENST00000491787,ENST00000447726,ENST00000428092	194-194	3	CCLE-LCLL,CCLE-LUSC,CCLE-SARC
chr9:140606077:+>chr9:140611078:+	chr9	140605760	140606077	+	chr9	140611078	140611634,1	+	ENST00000462484,ENST00000460843	195-195	31	CCLE-LUSC,CCLE-PRAD,CCLE-SARC,CCLE-SKCM
chr9:15573873:+>chr9:15578847:+	chr9	15573778	15573873	+	chr9	15578847	15579021,15579021,15579021	+	ENST00000535968,ENST00000297641,ENST00000380701	196-196	32	CCLE-LCLL,CCLE-LUSC,CCLE-SKCM,CCLE-STAD
chr9:20361021:->chr9:20360839:-	chr9	20360969	20361021	-	chr9	20360839	20360839,20360839,20360839,20360839	-	ENST00000380338,ENST00000355930,ENST00000429426,ENST00000380321	197-197	25	CCLE-LUSC,TCGA-BRCA,TCGA-COAD,TCGA-STAD
chr9:33878600:+>chr9:33886879:+	chr9	33878332	33878600	+	chr9	33886879	33886965	+	ENST00000263228	198-198	35	CCLE-LUSC
chr9:6566281:->chr9:6565429:-	chr9	6566257	6566281	-	chr9	6565429	6565429	-	ENST00000321612	199-199	2	CCLE-BLCA,CCLE-DLBC,CCLE-LUSC,CCLE-THCA
chrX:114878268:+>chrX:114879341:+	chrX	114878001	114878268	+	chrX	114879341	114879419,114879419,114879419,114879419,114879419,114879419	+	ENST00000355899,ENST00000537301,ENST00000289290,ENST00000420625,ENST00000539310,ENST00000497870	200-200	13	CCLE-LUSC
chrX:19072648:->chrX:19058342:-	chrX	19072550	19072648	-	chrX	19058342	19058342,19058342,19058342,19058342,19058342,19058342,19058342,19058342	-	ENST00000354791,ENST00000379873,ENST00000379876,ENST00000379878,ENST00000357991,ENST00000357544,ENST00000360279,ENST00000379869,ENST00000356606,ENST00000340581	201-201	5	CCLE-LUSC,CCLE-PAAD
chrX:40570189:->chrX:40569381:-	chrX	40570115	40570189	-	chrX	40569381	40569381	-	ENST00000324817	202-202	3	CCLE-KIRC,CCLE-LUSC,CCLE-MM
chrX:47312190:->chrX:47308873:-	chrX	47312061	47312190	-	chrX	47308873	47308873,47308873,47308873,47308873	-	ENST00000313116,ENST00000377065,ENST00000397050,ENST00000432977	203-203	25	CCLE-LUSC
chrX:63029083:->chrX:62944591:-	chrX	63029033	63029083	-	chrX	62944591	62944591,63	-	ENST00000253401,ENST00000374878	204-204	10	CCLE-LUSC,TCGA-PCPG

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:152006124:->chr1:152005339:-	chr1	152006124	152006124	ENST00000271638	-	chr1	152005339	152005526	-	1	52	CCLE-COAD,TCGA-BLCA,TCGA-BRCA,TCGA-CESC,TCGA-COAD,TCGA-ESCA,TCGA-GBM,TCGA-HNSC,TCGA-LIHC,TCGA-LUSC,TCGA-LUAD,TCGA-OV,TCGA-READ,TCGA-SARC,TCGA-STAD,TCGA-THCA
chr1:182920453:->chr1:182915515:-	chr1	182920453,2	182920453	ENST00000367547,ENST00000423786	-	chr1	182915515	182915731	-	2-3	185,7	CCLE-LUSC
chr1:212870303:->chr1:212869254:-	chr1	212870303	212870303	ENST00000243440	-	chr1	212869254	212869764	-	4	65	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-MESO
chr1:226016613:+>chr1:226018885:+	chr1	226016431,226016431,226016431,226016431	226016613	ENST00000445856,ENST00000272167,ENST00000448202,ENST00000366837	+	chr1	226018885	226018904	+	5	61	CCLE-LUSC,CCLE-THCA,TCGA-LIHC,TCGA-LUAD,TCGA-UCEC
chr1:243449699:+>chr1:243451519:+	chr1	243449574,243449574,243449574,243449589,243449656,243449685	243449699	ENST00000391846,ENST00000355875,ENST00000366541,ENST00000343783,ENST00000476722,ENST00000435549	+	chr1	243451519	243451791	+	6	5	CCLE-BLCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-SKCM
chr1:51946945:->chr1:51945188:-	chr1	51946945,51946945,51946945	51946945	ENST00000371730,ENST00000371733,ENST00000465467	-	chr1	51945188	51945255	-	7	25	CCLE-BRCA,CCLE-DLBC,CCLE-LUSC,CCLE-SKCM
chr10:64976967:->chr10:64445839:-	chr10	64976967,64976967,64976967,64976967	64976967	ENST00000399262,ENST00000402544,ENST00000399251,ENST00000542921	-	chr10	64445839	64445873	-	8	7	TCGA-LUSC
chr11:18373993:+>chr11:18374659:+	chr11	18373876,18373876,18373876,18373876,18373964	18373993	ENST00000453096,ENST00000534641,ENST00000265963,ENST00000530496,ENST00000526630	+	chr11	18374659	18374775	+	9	10	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-PAAD,TCGA-SARC,TCGA-UCEC
chr11:60665318:->chr11:60663297:-	chr11	60665318,61	60665318	ENST00000227524,ENST00000535326	-	chr11	60663297	60663653	-	10-11	472,9	CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BRCA,TCGA-LUSC,TCGA-READ,TCGA-TGCT,TCGA-THYM
chr11:684898:->chr11:681362:-	chr11	684898,684898,684898	684898	ENST00000527170,ENST00000338675,ENST00000382409	-	chr11	681362	681398	-	12	290	CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,CCLE-OV,CCLE-STAD
chr12:52910421:->chr12:52900057:-	chr12	52910421,53	52910421	ENST00000252242,ENST00000548409	-	chr12	52900057	52901495	-	13-13	479	TCGA-LUSC
chr12:6646556:+>chr12:6648679:+	chr12	6646475,6646475,6646475,6646475,6646475	6646556	ENST00000229239,ENST00000396856,ENST00000396861,ENST00000396859,ENST00000396858	+	chr12	6648679	6648724	+	14-16	100,175,133	CCLE-LUSC,TCGA-OV
chr13:92560311:+>chr13:92572670:+	chr13	92560191	92560311	ENST00000377067	+	chr13	92572670	92573160	+	17-17	467	CCLE-LUSC
chr14:106330435:->chr14:106301002:-	chr14	106330435	106330435	ENST00000461719	-	chr14	106301002	106301483	-	18-18	12	TCGA-LUAD
chr14:106552518:->chr14:106279761:-	chr14	106552285	106552518	ENST00000390600	-	chr14	106279761	106279832	-	19-19	40	TCGA-LUSC
chr14:106573251:->chr14:106558237:-	chr14	106573233	106573251	ENST00000390601	-	chr14	106558237	106558632	-	20-20	111	TCGA-LUSC
chr14:106815952:->chr14:106279761:-	chr14	106815722	106815952	ENST00000390615	-	chr14	106279761	106279832	-	21-21	40	TCGA-LUSC
chr14:106866613:->chr14:106764783:-	chr14	106866406	106866613	ENST00000390618	-	chr14	106764783	106764836	-	22-22	47	TCGA-LUSC
chr14:106877762:->chr14:106859351:-	chr14	106877619	106877762	ENST00000390619	-	chr14	106859351	106859576	-	23-23	77	TCGA-LUSC
chr14:107048875:->chr14:107025026:-	chr14	107048672	107048875	ENST00000390627	-	chr14	107025026	107025281	-	24-24	48	TCGA-LUSC
chr14:107131236:->chr14:107025026:-	chr14	107131033	107131236	ENST00000390632	-	chr14	107025026	107025281	-	25-25	48	TCGA-LUSC
chr14:107170059:->chr14:107126752:-	chr14	107169931	107170059	ENST00000390633	-	chr14	107126752	107127053	-	26-26	74	TCGA-HNSC,TCGA-KIRC,TCGA-KIRP,TCGA-LUSC,TCGA-LUAD
chr14:31588916:->chr14:31586842:-	chr14	31588916,31588916,31588916,31588916	31588916	ENST00000554882,ENST00000399332,ENST00000553700,ENST00000553957	-	chr14	31586842	31587049	-	27-28	1798	CCLE-DLBC,CCLE-LUSC,TCGA-BRCA,TCGA-LUAD,TCGA-THCA,TCGA-UVM
chr14:75593608:->chr14:75593104:-	chr14	75593406,76	75593608	ENST00000238616,ENST00000554258	-	chr14	75593104	75593199	-	29-29	5	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-SARC
chr16:84488590:+>chr16:84490583:+	chr16	84488424,84	84488590	ENST00000262429,ENST00000416219	+	chr16	84490583	84492114	+	30-30	715	CCLE-BRCA,CCLE-COAD,CCLE-LUSC,CCLE-PAAD
chr17:73725517:+>chr17:73726063:+	chr17	73725346,73725346,73725346,73725346	73725517	ENST00000579662,ENST00000339591,ENST00000200181,ENST00000450894,ENST00000449880	+	chr17	73726063	73726108	+	31-31	246	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-HNSC,CCLE-LUSC,CCLE-PAAD,CCLE-SKCM,CCLE-STAD,TCGA-ESCA,TCGA-HNSC,TCGA-STAD
chr19:17683411:+>chr19:17684363:+	chr19	17683292	17683411	ENST00000252599	+	chr19	17684363	17684528	+	32-32	316	CCLE-COAD,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,TCGA-BRCA
chr19:49055580:+>chr19:49066561:+	chr19	49055510	49055580	ENST00000201586	+	chr19	49066561	49066923	+	33-33	23	CCLE-BRCA,CCLE-LUSC,CCLE-PRAD,CCLE-STAD
chr19:49497180:+>chr19:49497762:+	chr19	49497169,49497169,49497169,49497169,49497169	49497180	ENST00000595090,ENST00000595811,ENST00000596247,ENST00000221413,ENST00000593570	+	chr19	49497762	49497831	+	34-34	4	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr19:53754789:->chr19:53750572:-	chr19	53754789,53754789,53754789,53754789,53754789,53754789,53754789	53754789	ENST00000333952,ENST00000598513,ENST00000594517,ENST00000599012,ENST00000594681,ENST00000598806,ENST00000601828,ENST00000601413	-	chr19	53750572	53750761	-	35-35	5	CCLE-BLCA,CCLE-BRCA,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-PAAD,CCLE-PRAD,CCLE-THCA,TCGA-OV
chr19:57999351:+>chr19:58024390:+	chr19	57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319,57999319	57999351	ENST00000354197,ENST00000426954,ENST00000523882,ENST00000520540,ENST00000442920,ENST00000601674,ENST00000523312,ENST00000424930,ENST00000347466,ENST00000523138,ENST00000415379,ENST00000521754,ENST00000599674,ENST00000221735,ENST00000518999,ENST00000521137	+	chr19	58024390	58024413	+	36-36	11	TCGA-LUSC
chr19:58288037:+>chr19:58308975:+	chr19	58288004,58	58288037	ENST00000391702,ENST00000396154	+	chr19	58308975	58309229	+	37-37	11	CCLE-LUSC
chr2:112896307:+>chr2:112896389:+	chr2	112896233,112896233,112896233,112896233	112896307	ENST00000331203,ENST00000409903,ENST00000409667,ENST00000409450	+	chr2	112896389	112896457	+	38-38	25	CCLE-LIHC,CCLE-LUSC,CCLE-OV,TCGA-ESCA,TCGA-UCEC
chr2:118715941:->chr2:118715754:-	chr2	118715941,1	118715941	ENST00000319432,ENST00000376300	-	chr2	118715754	118715872	-	39-40	335,3	CCLE-LUSC
chr2:164591413:->chr2:164561904:-	chr2	164591413,2	164591413	ENST00000409634,ENST00000333129	-	chr2	164561904	164562018	-	41-41	8	CCLE-LUSC
chr2:172725191:->chr2:172723793:-	chr2	172725191,172725191,172725191,172725191,172725191	172725191	ENST00000422440,ENST00000263812,ENST00000392592,ENST00000426896,ENST00000475360	-	chr2	172723793	172724171	-	42-42	1	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-BLCA,TCGA-BRCA,TCGA-CESC,TCGA-HNSC,TCGA-LUSC,TCGA-OV,TCGA-TGCT
chr2:180610440:->chr2:180493215:-	chr2	180610440	180610440	ENST00000409343	-	chr2	180493215	180493299	-	43-43	8	CCLE-BRCA,CCLE-LUSC,CCLE-PRAD
chr2:90199062:+>chr2:90207369:+	chr2	90198895	90199062	ENST00000390276	+	chr2	90207369	90208420	+	44-44	74	TCGA-BLCA,TCGA-LUSC,TCGA-LUAD
chr2:90537978:->chr2:89942712:-	chr2	90537839	90537978	ENST00000443397	-	chr2	89942712	89942935	-	45-45	73	TCGA-HNSC,TCGA-KIRC,TCGA-LUSC
chr3:4867430:->chr3:4859235:-	chr3	4867430	4867430	ENST00000449914	-	chr3	4859235	4859338	-	46-46	77	TCGA-BRCA,TCGA-LUAD,TCGA-PRAD,TCGA-THCA
chr4:102117073:->chr4:102104428:-	chr4	102117073,102117073,102117073,102117073,102117073	102117073	ENST00000512215,ENST00000394854,ENST00000323055,ENST00000394853,ENST00000492351,ENST00000529324,ENST00000525819	-	chr4	102104428	102104622	-	47-47	4	CCLE-BRCA,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-UCEC,TCGA-PRAD
chr4:5827221:->chr4:5744561:-	chr4	5827221,5827221,5827221	5827221	ENST00000324989,ENST00000397890,ENST00000512574	-	chr4	5744561	5745042	-	48-50	656,540,542	CCLE-LGG,CCLE-LUSC

chr5:149627335:->chr5:149626005:-	chr5	149627335,1	149627335	ENST00000348628,ENST00000398376	-	chr5	149626005	149626163	-	51-51	314	CCLE-HNSC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC
chr8:67968754:->chr8:67967541:-	chr8	67968754,68	67968754	ENST00000357849,ENST00000517736	-	chr8	67967541	67967737	-	52-52	219	TCGA-LUAD
chr8:74464247:->chr8:74420593:-	chr8	74464247,74464247,74464247,74464247,74464247,74464241,74464241,74464241,74464241,74464241	74464247	ENST00000522695,ENST00000524300,ENST00000523558,ENST00000521210,ENST00000523533,ENST00000355780,ENST00000519961,ENST00000521727,ENST00000521451,ENST00000522509,ENST00000517542	-	chr8	74420593	74420928	-	53-60	510,472,338,406,478,290,490,60,123	CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-THCA,TCGA-BRCA
chr8:99019829:+>chr8:99025486:+	chr8	99019707,99019707,99019707,99019707,99019707,99019707,99019707	99019829	ENST00000521689,ENST00000254898,ENST00000524308,ENST00000522025,ENST00000520016,ENST00000518154,ENST00000521952	+	chr8	99025486	99025607	+	61-63	240,524,483	CCLE-LUSC
chr9:130341201:->chr9:130334967:-	chr9	130341201	130341201	ENST00000373314	-	chr9	130334967	130335011	-	64-64	5	CCLE-LUSC,CCLE-MESO,CCLE-SARC
chr9:140458886:->chr9:140458662:-	chr9	140458886	140458886	ENST00000277540	-	chr9	140458662	140458810	-	65-65	316	CCLE-BRCA,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chrX:138286221:->chrX:138072779:-	chrX	138286221,138286221,138286221,138286221	138286221	ENST00000370603,ENST00000541469,ENST00000436198,ENST00000448673	-	chrX	138072779	138072952	-	66-66	16	CCLE-LGG,CCLE-LUSC,CCLE-PRAD,CCLE-SARC

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:153635838:->chr1:153635752:-	chr1	153635812	153635838	-	chr1	153635752	153635752	-	ENST00000361891	67-67	2	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-BLCA,TCGA-BRCA,TCGA-ESCA,TCGA-GBM,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-MESO,TCGA-OV,TCGA-SARC,TCGA-SKCM,TCGA-STAD,TCGA-TGCT,TCGA-THYM,TCGA-UCEC,TCGA-UCS
chr1:156962904:->chr1:156955965:-	chr1	156962838	156962904	-	chr1	156955965	156955965,2	-	ENST00000368194,ENST00000361409	68-69	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr1:183811061:+>chr1:183816700:+	chr1	183810956	183811061	+	chr1	183816700	183816908,183816908,183816908,183816908	+	ENST00000304685,ENST00000536277,ENST00000360851,ENST00000539189	70-71	1	CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-SKCM,TCGA-KIRC
chr1:217697476:->chr1:217688231:-	chr1	217696518	217697476	-	chr1	217688231	217688231	-	ENST00000366935	72-72	14	CCLE-COAD,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-OV,TCGA-BRCA,TCGA-ESCA,TCGA-HNSC,TCGA-PRAD,TCGA-THYM
chr1:234516671:+>chr1:234519469:+	chr1	234516510	234516671	+	chr1	234519469	234519564,234519564	+	ENST00000366615,ENST00000366613,ENST00000366612	73-73	15	TCGA-HNSC,TCGA-LUSC,TCGA-STAD
chr1:234538581:->chr1:234537008:-	chr1	234538318	234538581	-	chr1	234537008	234537008	-	ENST00000040877	74-74	17	CCLE-LUSC
chr1:46675049:+>chr1:46685371:+	chr1	46674991	46675049	+	chr1	46685371	46685892	+	ENST00000371980	75-75	20	CCLE-LUSC
chr1:94660048:->chr1:94655639:-	chr1	94659981	94660048	-	chr1	94655639	94655639,95	-	ENST00000552844,ENST00000260526	76-76	7	CCLE-LUSC,CCLE-SARC,TCGA-KIRP
chr10:22168673:->chr10:22095028:-	chr10	22168560	22168673	-	chr10	22095028	22095028	-	ENST00000376980	77-77	4	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BLCA,TCGA-BRCA,TCGA-ESCA,TCGA-KIRC,TCGA-SARC,TCGA-SKCM,TCGA-TGCT,TCGA-THYM
chr10:29778636:->chr10:29777685:-	chr10	29778476	29778636	-	chr10	29777685	29777685,29777685,29777685,29777685	-	ENST00000375400,ENST00000375398,ENST00000355867,ENST00000535393,ENST00000538146	78-78	20	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-KIRC,CCLE-LGG,CCLE-LUSC,CCLE-PAAD,CCLE-SKCM
chr10:5056964:->chr10:5037645:-	chr10	5056485	5056964	-	chr10	5037645	5037676,5037676,5037676	-	ENST00000380753,ENST00000421196,ENST00000407674	79-79	10	CCLE-LUSC,TCGA-READ
chr10:70722825:+>chr10:70723047:+	chr10	70722737	70722825	+	chr10	70723047	70723225	+	ENST00000354185	80-80	8	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-PAAD
chr10:95240482:->chr10:95216694:-	chr10	95240225	95240482	-	chr10	95216694	95216694,95216694,95216694,95216694,95216694	-	ENST00000358334,ENST00000359263,ENST00000371501,ENST00000371502,ENST00000371489,ENST00000371488	81-81	12	CCLE-LUSC
chr10:98044785:->chr10:98006805:-	chr10	98044707	98044785	-	chr10	98006805	98006805,98006805,98006805,98006805,98006805	-	ENST00000224337,ENST00000371176,ENST00000413476,ENST00000427367,ENST00000467799,ENST00000495266	82-82	9	CCLE-BLCA,CCLE-LCLL,CCLE-LUSC,TCGA-BLCA,TCGA-LUAD
chr11:64042841:+>chr11:64085797:+	chr11	64042827	64042841	+	chr11	64085797	64085858,64085858,64085858	+	ENST00000265462,ENST00000352435,ENST00000347941	83-84	5	TCGA-LUSC,TCGA-LUAD,TCGA-THCA
chr12:110873462:->chr12:110873022:-	chr12	110873443	110873462	-	chr12	110873022	110873022	-	ENST00000228825	85-85	3	CCLE-COAD,CCLE-KIRC,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-THCA
chr12:123839145:->chr12:123834988:-	chr12	123839132	123839145	-	chr12	123834988	123834988,123834988,123834988	-	ENST00000267176,ENST00000420886,ENST00000602750,ENST00000602398	86-86	20	CCLE-LUSC
chr12:49658051:+>chr12:49663248:+	chr12	49658018	49658051	+	chr12	49663248	49663470,49663252,49663470,49663470	+	ENST00000541364,ENST00000552125,ENST00000301072,ENST00000549183	87-88	11	CCLE-LUSC
chr12:56685415:->chr12:56680404:-	chr12	56685401	56685415	-	chr12	56680404	56680429,56680429,56680429,56680429,56680429,56680429,56680429,56680429,56680429	-	ENST00000351328,ENST00000542324,ENST00000548849,ENST00000546930,ENST00000548041,ENST00000055268,ENST00000550655,ENST00000551968,ENST00000552222,ENST00000549318,ENST00000547423	89-90	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-THCA,TCGA-SARC
chr13:33100704:+>chr19:41270986:+	chr13	33099859	33100704	+	chr19	41270986	41271072,41	+	ENST00000243563,ENST00000601393	91-92	4	CCLE-LUSC
chr13:77572426:+>chr13:77574593:+	chr13	77572418	77572426	+	chr13	77574593	77575104	+	ENST00000377453	93-93	3	TCGA-LUSC
chr14:106662989:->chr14:106641867:-	chr14	106661396	106662989	-	chr14	106641867	106641867	-	ENST00000390605	94-94	11	TCGA-COAD,TCGA-LUSC,TCGA-MESO,TCGA-OV
chr14:23350226:+>chr14:23353883:+	chr14	23349937	23350226	+	chr14	23353883	23354224,23	+	ENST00000267396,ENST00000536884	95-96	45	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-SARC,CCLE-STAD
chr14:50950778:->chr14:50949134:-	chr14	50950556	50950778	-	chr14	50949134	50949134,50949134,50949134	-	ENST00000013125,ENST00000555216,ENST00000557390	97-97	22	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-SARC,CCLE-STAD,CCLE-UCEC
chr14:51363531:+>chr14:51368547:+	chr14	51363110	51363531	+	chr14	51368547	51368629,51368629,51368629	+	ENST00000337334,ENST00000353130,ENST00000395752	98-98	45	CCLE-COAD,TCGA-BLCA,TCGA-CESC,TCGA-COAD,TCGA-HNSC,TCGA-LUSC,TCGA-READ,TCGA-TGCT
chr14:53079781:+>chr14:53211570:+	chr14	53079680	53079781	+	chr14	53211570	53211602,53	+	ENST00000442123,ENST00000354586	99-99	34	CCLE-BRCA,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,TCGA-BRCA
chr14:53108136:+>chr14:53211570:+	chr14	53108038	53108136	+	chr14	53211570	53211602,53	+	ENST00000442123,ENST00000354586	100-100	33	CCLE-BRCA,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,TCGA-BRCA
chr14:53201596:+>chr14:53211570:+	chr14	53201498	53201596	+	chr14	53211570	53211602,53	+	ENST00000442123,ENST00000354586	101-101	33	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BRCA

chr14:70383468:+>chr14:70418855:+	chr14	70381885	70383468	+	chr14	70418855	70419020,7	+	ENST00000361956,ENST00000381280	102-102	29	TCGA-LGG,TCGA-LUSC
chr14:73754128:->chr14:73754022:-	chr14	73754087	73754128	-	chr14	73754022	73754022,73754022,73754022,73754022,73754022,73754022,73754022,73754022,73754022,73754022	-	ENST00000554546,ENST00000356296,ENST00000557597,ENST00000555238,ENST00000556772,ENST00000355058,ENST00000359560,ENST00000555394,ENST00000454166,ENST00000544991,ENST00000554521,ENST00000555738,ENST00000559312,ENST00000560335,ENST00000535282,ENST00000555859,ENST00000555307,ENST00000554394	103-103	32	CCLE-LUSC,CCLE-STAD
chr14:78340168:+>chr14:78353434:+	chr14	78339937	78340168	+	chr14	78353434	78353592,78353592,78353592	+	ENST00000238561,ENST00000557501,ENST00000341211	104-104	8	CCLE-CESC,CCLE-LCLL,CCLE-LUSC
chr15:51201329:+>chr15:51204275:+	chr15	51201299	51201329	+	chr15	51204275	51204346,51204346,51204346	+	ENST00000561441,ENST00000558439,ENST00000261842	105-105	10	CCLE-BRCA,CCLE-CESC,CCLE-LGG,CCLE-LUSC,CCLE-PRAD,CCLE-SKCM
chr15:81281080:->chr15:81274523:-	chr15	81281025	81281080	-	chr15	81274523	81274523,81	-	ENST00000561312,ENST00000261758	106-106	13	CCLE-LUSC
chr15:83100895:+>chr15:83103066:+	chr15	83100823	83100895	+	chr15	83103066	83103327,83	+	ENST00000561062,ENST00000358583	107-107	19	CCLE-LUSC
chr16:16171648:+>chr16:16173209:+	chr16	16171624	16171648	+	chr16	16173209	16173335,16173335,16173335,16173335,16173335,16173335	+	ENST00000399410,ENST00000345148,ENST00000346370,ENST00000349029,ENST00000351154,ENST00000399408,ENST00000572882	108-110	9	CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-PRAD,TCGA-ESCA,TCGA-HNSC,TCGA-LUSC
chr17:37028428:+>chr17:37034339:+	chr17	37028336	37028428	+	chr17	37034339	37034433,37034433,37034433,37034433	+	ENST00000318008,ENST00000585841,ENST00000443937,ENST00000435347	111-111	13	CCLE-BRCA,CCLE-SARC,CCLE-SKCM,TCGA-LUSC
chr17:39696603:->chr17:39681525:-	chr17	39696593	39696603	-	chr17	39681525	39681525,4	-	ENST00000361566,ENST00000455635	112-112	15	CCLE-BRCA,CCLE-LUSC,CCLE-PRAD,TCGA-BRCA,TCGA-LUAD,TCGA-TGCT
chr17:39976301:+>chr17:39977199:+	chr17	39976225	39976301	+	chr17	39977199	39977341,39977341,39977341	+	ENST00000321562,ENST00000455106,ENST00000544340	113-113	8	CCLE-LUSC,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr17:43880005:+>chr17:43884376:+	chr17	43879729	43880005	+	chr17	43884376	43884463,43884463,43884463,43884463	+	ENST00000347197,ENST00000314537,ENST00000352855,ENST00000577353,ENST00000398285	114-115	76	CCLE-LUSC
chr17:5200809:+>chr17:5235244:+	chr17	5200792	5200809	+	chr17	5235244	5235447,5235447,5235447	+	ENST00000262477,ENST00000408982,ENST00000537505,ENST00000546142,ENST00000341923	116-116	6	CCLE-LUSC
chr17:53344521:+>chr17:53345112:+	chr17	53344409	53344521	+	chr17	53345112	53345447	+	ENST00000226067	117-117	30	CCLE-LUSC,CCLE-OV
chr17:62480081:->chr17:62479091:-	chr17	62479839	62480081	-	chr17	62479091	62479116,62	-	ENST00000539111,ENST00000581355	118-119	14	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-SARC,CCLE-STAD,TCGA-KIRP
chr18:33758286:+>chr18:33775220:+	chr18	33758263	33758286	+	chr18	33775220	33775309	+	ENST00000261326	120-120	8	TCGA-LUSC
chr18:66490653:+>chr18:66505943:+	chr18	66490085	66490653	+	chr18	66505943	66506163,66506163,66506163,66506163	+	ENST00000584775,ENST00000319445,ENST00000358653,ENST00000360242,ENST00000584156	121-121	52	CCLE-LUSC,CCLE-MM,CCLE-STAD,CCLE-THCA
chr18:9858290:+>chr18:9859225:+	chr18	9858107	9858290	+	chr18	9859225	9859322	+	ENST00000578921	122-122	42	CCLE-ESCA,CCLE-LUSC,TCGA-LUAD
chr19:10200199:+>chr19:10200333:+	chr19	10200082	10200199	+	chr19	10200333	10200371,10200371,10200351,10200371,10200371	+	ENST00000253110,ENST00000591813,ENST00000587710,ENST00000590378,ENST00000397881,ENST00000593131	123-126	12	CCLE-BLCA,CCLE-DLBC,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SKCM,CCLE-STAD
chr19:10561170:+>chr19:10561279:+	chr19	10560989	10561170	+	chr19	10561279	10561328,10561328,10561328,10561328	+	ENST00000592685,ENST00000380702,ENST00000352831,ENST00000293683,ENST00000440014	127-127	22	CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-SARC
chr19:16201431:+>chr19:16204346:+	chr19	16201364	16201431	+	chr19	16204346	16204354,16204374,16204391,16204408,16204408,16204408	+	ENST00000586833,ENST00000588507,ENST00000592138,ENST00000344824,ENST00000538887,ENST00000300933,ENST00000588032	128-128	9	CCLE-OV,TCGA-BRCA,TCGA-CESC,TCGA-HNSC,TCGA-KIRC,TCGA-LUAD,TCGA-OV,TCGA-PRAD,TCGA-STAD
chr19:17387073:+>chr19:17387304:+	chr19	17386874	17387073	+	chr19	17387304	17387433,17387433,17387334,17387433,17387433,17387365,17387359,17387411	+	ENST00000598188,ENST00000359435,ENST00000596542,ENST00000599474,ENST00000447614,ENST00000601043,ENST00000596335,ENST00000595632,ENST00000601938,ENST00000602066	129-133	17	CCLE-LUSC
chr19:18432008:->chr19:18426875:-	chr19	18431984	18432008	-	chr19	18426875	18426875,18426875,18426950	-	ENST00000593829,ENST00000600289,ENST00000594828,ENST00000599776	134-134	20	CCLE-CESC,CCLE-HNSC,CCLE-KIRC,CCLE-LUSC,CCLE-OV,TCGA-OV
chr19:32948256:+>chr19:32949006:+	chr19	32947912	32948256	+	chr19	32949006	32949079,32949079,32949079,32949079	+	ENST00000392250,ENST00000586987,ENST00000342179,ENST00000588648	135-138	14,4	CCLE-DLBC,CCLE-LUSC
chr19:3368020:+>chr19:3449012:+	chr19	3367942	3368020	+	chr19	3449012	3449137,3449137,3449137,3449137,3449137,3449137,3449137,3449137	+	ENST00000589123,ENST00000346156,ENST00000395111,ENST00000586919,ENST00000341919,ENST00000590282,ENST00000443272	139-141	4	CCLE-LUSC
chr19:39144970:+>chr19:39191240:+	chr19	39144921	39144970	+	chr19	39191240	39191354,39191344,39191354	+	ENST00000252699,ENST00000424234,ENST00000589528	142-142	17	CCLE-CESC,CCLE-COAD,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BLCA,TCGA-BRCA,TCGA-DLBC,TCGA-KIRP,TCGA-LUSC,TCGA-LUAD,TCGA-MESO,TCGA-OV,TCGA-READ,TCGA-STAD
chr19:55882935:->chr19:55880309:-	chr19	55882714	55882935	-	chr19	55880309	55880309,56	-	ENST00000264563,ENST00000585513	143-143	33	CCLE-COAD,CCLE-DLBC,CCLE-LGG,CCLE-LUSC,CCLE-MM
chr19:8529495:+>chr19:8530208:+	chr19	8529239	8529495	+	chr19	8530208	8530246,8530399,8530246,8530399,8530246	+	ENST00000348943,ENST00000325495,ENST00000600092,ENST00000594907,ENST00000596984,ENST00000601645	144-144	12	CCLE-LUSC,TCGA-COAD,TCGA-HNSC,TCGA-PRAD
chr2:102014362:->chr2:102014186:-	chr2	102014319	102014362	-	chr2	102014186	102014186,1	-	ENST00000376826,ENST00000428343	145-145	32	CCLE-LUSC
chr2:114668071:+>chr2:114670749:+	chr2	114667534	114668071	+	chr2	114670749	114670804,114670804,114670804	+	ENST00000263238,ENST00000415792,ENST00000446821	146-148	13	CCLE-KIRC,CCLE-LUSC,TCGA-LUSC
chr2:122259789:->chr2:122227536:-	chr2	122259766	122259789	-	chr2	122227536	122227536,122227536,122227536,122227536,122227536,122227536	-	ENST00000409078,ENST00000541859,ENST00000263710,ENST00000397587,ENST00000455322,ENST00000541377,ENST00000545861,ENST00000452274,ENST00000418989,ENST00000449975	149-158	3	CCLE-ESCA,CCLE-LUSC,CCLE-OV

chr2:131117848:+>chr2:131126706:+	chr2	131117443	131117848	+	chr2	131126706	131126774,1	+	ENST00000175756,ENST00000347849	159-159	18	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-STAD,TCGA-BLCA,TCGA-CESC,TCGA-ESCA,TCGA-LUSC,TCGA-PRAD,TCGA-STAD,TCGA-THYM
chr2:134035154:+>chr22:23248512:+	chr2	134034038	134035154	+	chr22	23248512	23248831	+	ENST00000390325	160-160	10	TCGA-LUAD
chr2:238451319:+>chr2:238454100:+	chr2	238451313	238451319	+	chr2	238454100	238454216	+	ENST00000445024	161-161	2	TCGA-LUAD
chr2:42612922:->chr2:42580483:-	chr2	42612671	42612922	-	chr2	42580483	42580483,42580483,42580483,42580483	-	ENST00000468711,ENST00000378669,ENST00000234301,ENST00000463055	162-162	22	CCLE-BRCA,CCLE-CESC,CCLE-LCLL,CCLE-LUSC,CCLE-OV,CCLE-STAD,TCGA-ACC,TCGA-BRCA,TCGA-COAD,TCGA-KIRC,TCGA-LGG,TCGA-PRAD,TCGA-SKCM,TCGA-THYM
chr2:90010195:->chr2:89246936:-	chr2	90009650	90010195	-	chr2	89246936	89247114	-	ENST00000496168	163-163	25	TCGA-LUAD,TCGA-READ
chr2:90214357:+>chr2:90249278:+	chr2	90214133	90214357	+	chr2	90249278	90249395	+	ENST00000468879	164-164	5	TCGA-HNSC,TCGA-LUSC
chr2:90214357:+>chr2:90260131:+	chr2	90214133	90214357	+	chr2	90260131	90260248	+	ENST00000471857	165-165	5	TCGA-HNSC,TCGA-LUSC,TCGA-STAD
chr2:99224660:->chr2:99220654:-	chr2	99224536	99224660	-	chr2	99220654	99220654,99	-	ENST00000328709,ENST00000409997	166-166	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-BRCA,TCGA-GBM,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-OV,TCGA-PCPG,TCGA-SARC,TCGA-SKCM
chr20:1106051:+>chr20:1106141:+	chr20	1105935	1106051	+	chr20	1106141	1106293,1106293,1106293,1106293,1106293	+	ENST00000333082,ENST00000381899,ENST00000246015,ENST00000335877,ENST00000438768	167-167	18	CCLE-BRCA,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,TCGA-GBM,TCGA-HNSC,TCGA-LGG,TCGA-PCPG,TCGA-PRAD,TCGA-READ,TCGA-STAD,TCGA-TGCT,TCGA-THCA
chr20:25838731:->chr20:25755948:-	chr20	25838602	25838731	-	chr20	25755948	25755948,26	-	ENST00000376403,ENST00000584071	168-168	25	CCLE-LUSC
chr20:33644499:->chr20:33642834:-	chr20	33644477	33644499	-	chr20	33642834	33642834,33642834,33642834	-	ENST00000451813,ENST00000252015,ENST00000432634	169-170	2	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr20:35116711:+>chr20:35125108:+	chr20	35116621	35116711	+	chr20	35125108	35125469,35125469,35125469,35125469,35125469	+	ENST00000373913,ENST00000401952,ENST00000373907,ENST00000339266,ENST00000340491	171-172	3	CCLE-LUSC,CCLE-OV
chr20:35779434:+>chr20:35812583:+	chr20	35778650	35779434	+	chr20	35812583	35812776,35812776,35812776	+	ENST00000237530,ENST00000373622,ENST00000373632	173-173	51	TCGA-BRCA,TCGA-ESCA,TCGA-HNSC,TCGA-KIRP,TCGA-LUSC,TCGA-OV,TCGA-STAD,TCGA-UCEC
chr20:43581385:+>chr20:43586984:+	chr20	43581305	43581385	+	chr20	43586984	43587052	+	ENST00000372826	174-174	9	CCLE-LUSC
chr20:44410315:->chr20:44404241:-	chr20	44410053	44410315	-	chr20	44404241	44404241,44404241,44404241,44404241	-	ENST00000337205,ENST00000243938,ENST00000372632,ENST00000372630	175-175	4	CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-LUSC,CCLE-MESO,CCLE-PAAD,CCLE-SKCM,TCGA-SARC
chr21:45165696:+>chr21:45165960:+	chr21	45165597	45165696	+	chr21	45165960	45166006,45166006,45166006	+	ENST00000468090,ENST00000291565,ENST00000467908	176-176	9	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SKCM,CCLE-STAD,CCLE-UCEC,TCGA-BLCA,TCGA-OV,TCGA-STAD,TCGA-UCEC
chr22:22689234:+>chr22:22712477:+	chr22	22686048	22689234	+	chr22	22712477	22712608	+	ENST00000390294	177-177	32	TCGA-LUSC
chr22:22689234:+>chr22:22735583:+	chr22	22686048	22689234	+	chr22	22735583	22735715	+	ENST00000390297	178-178	32	TCGA-LUSC
chr22:32787416:->chr22:32784086:-	chr22	32787383	32787416	-	chr22	32784086	32784086	-	ENST00000216038	179-179	3	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA
chr22:42077159:->chr22:42076368:-	chr22	42077073	42077159	-	chr22	42076368	42076368,42076368,42076368	-	ENST00000355257,ENST00000215956,ENST00000401959,ENST00000402458	180-180	12	CCLE-LUSC,TCGA-COAD,TCGA-OV
chr22:45565558:+>chr22:45566869:+	chr22	45565287	45565558	+	chr22	45566869	45566892,46	+	ENST00000434760,ENST00000419387	181-181	12	CCLE-LUSC
chr3:10237009:+>chr3:10242053:+	chr3	10236959	10237009	+	chr3	10242053	10242199	+	ENST00000256458	182-182	17	CCLE-LUSC
chr3:118831521:->chr3:118649122:-	chr3	118825434	118831521	-	chr3	118649122	118649122,118649122,118649122,118649122,118649122	-	ENST00000425327,ENST00000393775,ENST00000489689,ENST00000354673,ENST00000441144,ENST00000491903	183-183	24	CCLE-LUSC
chr3:194340620:->chr3:194337998:-	chr3	194340610	194340620	-	chr3	194337998	194337998,194337998,194337998,194337998,194337998	-	ENST00000392432,ENST00000273580,ENST00000381975,ENST00000347147,ENST00000473092	184-184	39	CCLE-BRCA,CCLE-LUSC
chr3:40501213:+>chr3:40502924:+	chr3	40501065	40501213	+	chr3	40502924	40502997,40502997,40502997	+	ENST00000338970,ENST00000396203,ENST00000416518	185-185	10	CCLE-LUSC
chr3:44887389:+>chr3:44889477:+	chr3	44887096	44887389	+	chr3	44889477	44889549,44889549,44889549	+	ENST00000326047,ENST00000425755,ENST00000422209	186-186	5	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr3:51405599:+>chr3:51411918:+	chr3	51405547	51405599	+	chr3	51411918	51412018	+	ENST00000266037	187-187	4	CCLE-DLBC,CCLE-LGG,CCLE-LUSC
chr3:51405623:+>chr3:51411918:+	chr3	51405547	51405623	+	chr3	51411918	51412018	+	ENST00000266037	188-188	12	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-STAD

chr3:9476785:+>chr3:9477412:+	chr3	9476647	9476785	+		chr3	9477412	9477509,9477590,9477590,9477590,9477590,9477590	+	ENST00000450326,ENST00000402198,ENST00000402466,ENST00000406341,ENST00000407969,ENST00000442373,ENST00000302463	189-189	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-BLCA,TCGA-ESCA,TCGA-GBM,TCGA-HNSC,TCGA-LGG,TCGA-OV,TCGA-PRAD,TCGA-SARC,TCGA-STAD,TCGA-UCS
chr4:17818661:+>chr4:17818884:+	chr4	17818476	17818661	+		chr4	17818884	17819076,18	+	ENST00000251496,ENST00000514176	190-190	36	CCLE-BLCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-SKCM
chr4:25395102:+>chr4:25395461:+	chr4	25395002	25395102	+		chr4	25395461	25395513,25	+	ENST00000315368,ENST00000510092	191-191	11	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-PAAD,CCLE-UCEC
chr4:55076146:->chr2:89160766:-	chr4	55075835	55076146	-		chr2	89160766	89160770	-	ENST00000390240	192-192	58	TCGA-LUSC
chr4:87716976:+>chr4:87718027:+	chr4	87715256	87716976	+		chr4	87718027	87718082,87718082,87718082,87718082,87718082	+	ENST00000427191,ENST00000436978,ENST00000316707,ENST00000411767,ENST00000511467	193-193	34	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-LGG,CCLE-LIHC,CCLE-MM,CCLE-PAAD,CCLE-SARC,TCGA-BLCA,TCGA-CESC,TCGA-ESCA,TCGA-LUAD,TCGA-THYM
chr5:302190:+>chr5:304292:+	chr5	302186	302190	+		chr5	304292	304336,304336,304336,304310,304336,304336	+	ENST00000264933,ENST00000505221,ENST00000507528,ENST00000505526,ENST00000506909,ENST00000507473	194-197	2	CCLE-BRCA,CCLE-LUSC,TCGA-LUSC,TCGA-LUAD
chr5:43583569:->chr5:43556101:-	chr5	43583316	43583569	-		chr5	43556101	43556101,43556101,43556101,43556101	-	ENST00000306846,ENST00000436644,ENST00000514514,ENST00000504639	198-198	32	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-STAD,TCGA-BLCA,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-PRAD
chr6:144066592:+>chr6:144070122:+	chr6	144066439	144066592	+		chr6	144070122	144070202,144070202,144070202,144070202,144070202,144070202,144070202	+	ENST00000367584,ENST00000427704,ENST00000305766,ENST00000440869,ENST00000367582,ENST00000451827,ENST00000542769,ENST00000397980	199-199	5	CCLE-LUSC
chr6:31360872:->chr6:31324570:-	chr6	31360644	31360872	-		chr6	31324570	31324734,31	-	ENST00000412585,ENST00000434333	200-200	22	TCGA-LUSC
chr6:35419093:+>chr6:35438040:+	chr6	35418888	35419093	+		chr6	35438040	35438128	+	ENST00000322203	201-201	2	TCGA-LUSC
chr6:74208780:+>chr6:74210297:+	chr6	74208750	74208780	+		chr6	74210297	74210458,74210458,74210458,74210458,74210310	+	ENST00000415954,ENST00000498286,ENST00000370305,ENST00000370300,ENST00000521156	202-202	11	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM
chr7:101810334:+>chr7:101813726:+	chr7	101810266	101810334	+		chr7	101813726	101813830,101813830,101813830,101813830,101813830,101813830,101813830,101813830,101813830,101813830	+	ENST00000437600,ENST00000292538,ENST00000393824,ENST00000547394,ENST00000360264,ENST00000425244,ENST00000292535,ENST00000546411,ENST00000549414,ENST00000550008,ENST00000556210	203-203	14	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-LUSC,CCLE-MM,TCGA-ESCA
chr7:116527485:+>chr7:116528181:+	chr7	116527299	116527485	+		chr7	116528181	116528244,116528244,116528244,116528244	+	ENST00000361183,ENST00000458284,ENST00000490693,ENST00000426421	204-207	30	CCLE-LUSC,CCLE-PAAD,TCGA-KIRC,TCGA-KIRP,TCGA-STAD
chr7:138950208:+>chr7:138951079:+	chr7	138949960	138950208	+		chr7	138951079	138951149,138951149,138951149	+	ENST00000288561,ENST00000473989,ENST00000483726	208-209	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD
chr7:156483036:->chr7:156480885:-	chr7	156482831	156483036	-		chr7	156480885	156480885,156480885,156480885	-	ENST00000353442,ENST00000415428,ENST00000354505	210-210	15	CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC
chr7:33001530:+>chr7:33014229:+	chr7	33001176	33001530	+		chr7	33014229	33014374,33	+	ENST00000242209,ENST00000538336	211-211	20	CCLE-LUSC,CCLE-STAD
chr7:37989696:+>chr7:37989802:+	chr7	37989134	37989696	+		chr7	37989802	37989998,37989998,37989998,37989805,37989998	+	ENST00000476620,ENST00000559325,ENST00000199448,ENST00000423717,ENST00000425345	212-212	16	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-KICH,TCGA-SARC,TCGA-THYM
chr7:37989704:+>chr7:37989802:+	chr7	37989134	37989704	+		chr7	37989802	37989998,37989998,37989998,37989805,37989998	+	ENST00000476620,ENST00000559325,ENST00000199448,ENST00000423717,ENST00000425345	213-213	28	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC,TCGA-COAD,TCGA-GBM,TCGA-KICH,TCGA-KIRC
chr7:6508832:->chr7:6505954:-	chr7	6508585	6508832	-		chr7	6505954	6505954	-	ENST00000258739	214-214	17	CCLE-ESCA,CCLE-LUSC,TCGA-BRCA
chr7:74461534:->chr7:74457217:-	chr7	74461367	74461534	-		chr7	74457217	74457217	-	ENST00000329959	215-215	23	CCLE-LUSC,CCLE-SARC
chr7:81946024:->chr7:81799925:-	chr7	81945941	81946024	-		chr7	81799925	81799925,81799925,81799925	-	ENST00000356860,ENST00000356253,ENST00000423588	216-216	8	CCLE-LUSC
chr7:94018589:+>chr7:94057721:+	chr7	94018505	94018589	+		chr7	94057721	94057789	+	ENST00000297268	217-217	3	TCGA-BRCA,TCGA-HNSC,TCGA-LUSC
chr8:105152976:+>chr8:105160835:+	chr8	105152952	105152976	+		chr8	105160835	105161076,1	+	ENST00000408894,ENST00000436393	218-218	3	CCLE-LUSC
chr8:141451863:->chr8:141449296:-	chr8	141451758	141451863	-		chr8	141449296	141449296,141449296,141449296,141449296	-	ENST00000389327,ENST00000389328,ENST00000520857,ENST00000438773	219-219	23	CCLE-LUSC
chr8:146016536:->chr8:146015855:-	chr8	146016442	146016536	-		chr8	146015855	146015855,146015855,146015855,146015855,146015855	-	ENST00000394920,ENST00000527914,ENST00000262584,ENST00000528957,ENST00000533397,ENST00000532702	220-220	4	CCLE-BRCA,CCLE-LUSC,CCLE-OV,TCGA-OV,TCGA-STAD,TCGA-UVM

chr8:54994449:->chr8:54978373:-	chr8	54994275	54994449	-	chr8	54978373	54978373,54978373,54978373	-	ENST00000316963,ENST00000343231,ENST00000518546	221-223	38	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-OV,TCGA-STAD
chr9:128638776:+>chr9:128677965:+	chr9	128638590	128638776	+	chr9	128677965	128678206,128678206,128678206,128678206,128678206	+	ENST00000342287,ENST00000373487,ENST00000373489,ENST00000491787,ENST00000447726,ENST00000428092	224-228	3	CCLE-LCLL,CCLE-LUSC,CCLE-SARC
chr9:130213388:->chr9:130213083:-	chr9	130213359	130213388	-	chr9	130213083	130213083,1	-	ENST00000361436,ENST00000536368	229-230	18	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-BLCA,TCGA-CESC,TCGA-HNSC,TCGA-LUSC,TCGA-LUAD,TCGA-OV,TCGA-PRAD,TCGA-READ,TCGA-SKCM,TCGA-STAD,TCGA-THCA,TCGA-UCEC,TCGA-UVM
chr9:15619847:+>chr9:15623265:+	chr9	15618978	15619847	+	chr9	15623265	15623411,15623411,15623411	+	ENST00000535968,ENST00000297641,ENST00000380701	231-233	5	CCLE-LUSC
chr9:18711328:+>chr9:18721534:+	chr9	18711232	18711328	+	chr9	18721534	18721663,19	+	ENST00000380548,ENST00000276935	234-234	32	CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LUSC,CCLE-SARC,CCLE-THCA
chrX:114878268:+>chrX:114879341:+	chrX	114878001	114878268	+	chrX	114879341	114879419,114879419,114879419,114879419,114879419	+	ENST00000355899,ENST00000537301,ENST00000289290,ENST00000420625,ENST00000539310,ENST00000497870	235-236	22	CCLE-LUSC
chrX:38015613:->chrX:38013836:-	chrX	38015578	38015613	-	chrX	38013836	38013836,38013836,38013836,38013836	-	ENST00000432886,ENST00000544439,ENST00000378533,ENST00000343800	237-237	4	CCLE-CESC,CCLE-LUSC,CCLE-SARC,CCLE-SKCM,TCGA-GBM,TCGA-HNSC,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-SARC,TCGA-SKCM,TCGA-UCEC,TCGA-UCS

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:151239815:+>chr1:151245271:+	chr1	151239649,151239649,151239649	151239815	ENST00000368884,ENST00000368881,ENST00000445776,ENST00000453615	+	chr1	151245271	151245553	+	1-4	376,379,192,83	CCLE-BLCA,CCLE-COAD,CCLE-LUSC,CCLE-SKCM
chr10:47173898:->chr10:47139994:-	chr10	47173898,47173898,47173898,47173898	47173898	ENST00000358140,ENST00000359178,ENST00000545298,ENST00000414655	-	chr10	47139994	47139994	-	5	7	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-BLCA,TCGA-ESCA,TCGA-HNSC,TCGA-LUSC,TCGA-MESO,TCGA-OV,TCGA-STAD
chr10:72644921:->chr10:72642242:-	chr10	72644909	72644921	ENST00000299299	-	chr10	72642242	72642557	-	6	68	TCGA-LUAD,TCGA-PRAD
chr13:99992819:+>chr13:100009388:+	chr13	99992574,99992574,99992574	99992819	ENST00000355700,ENST00000403766,ENST00000376440	+	chr13	100009388	100009596	+	7-9	234,269,135	CCLE-BLCA,CCLE-COAD,CCLE-LIHC,CCLE-LUSC,CCLE-SARC
chr14:75593406:->chr14:75593104:-	chr14	75593406,76	75593406	ENST00000238616,ENST00000554258	-	chr14	75593104	75593199	-	10	73	CCLE-LUSC,CCLE-MM
chr14:77914837:->chr14:77913291:-	chr14	77914837,77914837,77914837,77914837	77914837	ENST00000327028,ENST00000343765,ENST00000553888,ENST00000557658,ENST00000448935,ENST00000556412	-	chr14	77913291	77913294	-	11-14	155,168,119,194	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr16:30778197:+>chr16:30778878:+	chr16	30778062,30778062,30778062,30778062	30778197	ENST00000324685,ENST00000402121,ENST00000563683,ENST00000357890	+	chr16	30778878	30778979	+	15-18	168,476,376,436	CCLE-BLCA,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM
chr19:40478151:+>chr19:40491610:+	chr19	40478053,4	40478151	ENST00000157812,ENST00000455878	+	chr19	40491610	40491685	+	19-19	45	CCLE-SKCM,TCGA-HNSC,TCGA-LIHC,TCGA-LUSC,TCGA-OV,TCGA-SARC,TCGA-STAD,TCGA-UCEC
chr19:40540857:->chr19:40534017:-	chr19	40540264,41	40540857	ENST00000434248,ENST00000221355	-	chr19	40534017	40534240	-	20-21	488,636	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr2:70488518:+>chr2:70489942:+	chr2	70488344,70488344,70488344,70488344,70488344,70488344	70488518	ENST00000422380,ENST00000505044,ENST00000414812,ENST00000433351,ENST00000264441,ENST00000451279,ENST00000545138	+	chr2	70489942	70490009	+	22-24	164,87,86	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-UCEC
chr20:9457400:+>chr20:9484605:+	chr20	9457364,946	9457400	ENST00000334005,ENST00000378501	+	chr20	9484605	9485169	+	25-25	1165	CCLE-BRCA,CCLE-CESC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-STAD,TCGA-PCPG
chr3:120840551:+>chr3:120866822:+	chr3	120840488,120840488,120840488,120840488,120840488,120840488,120840488,120840488	120840551	ENST00000273666,ENST00000471454,ENST00000472879,ENST00000492541,ENST00000497029,ENST00000471262	+	chr3	120866822	120867003	+	26-26	223	CCLE-COAD,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,TCGA-BLCA
chr3:132948195:+>chr3:132969129:+	chr3	132948156,132948156,132948156,132948156,132948156,132948156,132948156,132948156	132948195	ENST00000321871,ENST00000393130,ENST00000512137,ENST00000511555,ENST00000508711,ENST00000515826,ENST00000510183	+	chr3	132969129	132969448	+	27-27	13	CCLE-LUSC

1	2	3	4	5	6	7	8	9	10	11	12	13
chr1:180975232:->chr1:180974599:-	chr1	180975197	180975232	-	chr1	180974599	180974599	-	ENST00000258301	28-28	13	CCLE-BLCA,CCLE-CESC,CCLE-DLBC,CCLE-LCLL,CCLE-LUSC,CCLE-PAAD
chr1:33142971:+>chr1:33145245:+	chr1	33142637	33142971	+	chr1	33145245	33145306,33145306,33145306,33145306,33145415,33145306,33145299	+	ENST00000414241,ENST00000373493,ENST00000544435,ENST00000458695,ENST00000463378,ENST00000460669,ENST00000482190	29-29	37	CCLE-CESC,CCLE-LUSC,TCGA-BLCA,TCGA-BRCA,TCGA-CESC,TCGA-COAD,TCGA-HNSC,TCGA-LUSC,TCGA-LUAD,TCGA-OV,TCGA-PRAD,TCGA-THCA,TCGA-UCS
chr1:38258152:+>chr1:38274660:+	chr1	38257891	38258152	+	chr1	38274660	38274745,38274745,38274745,38274806	+	ENST00000373043,ENST00000468084,ENST00000373042,ENST00000446260	30-30	8	TCGA-BRCA,TCGA-ESCA,TCGA-GBM,TCGA-LUSC,TCGA-LUAD,TCGA-OV,TCGA-PCPG,TCGA-PRAD,TCGA-STAD
chr1:45227052:+>chr1:45241706:+	chr1	45226996	45227052	+	chr1	45241706	45241812,45	+	ENST00000396651,ENST00000372209	31-31	19	CCLE-LUSC,TCGA-OV
chr10:120938004:->chr10:120936665:-	chr10	120937837	120938004	-	chr10	120936665	120936665,1	-	ENST00000356951,ENST00000298510	32-33	1	CCLE-LUSC,TCGA-BRCA,TCGA-COAD,TCGA-LIHC,TCGA-LUAD,TCGA-OV,TCGA-READ,TCGA-STAD,TCGA-THCA,TCGA-THYM
chr10:123969561:+>chr10:123969912:+	chr10	123969507	123969561	+	chr10	123969912	123971223,123971223,123971223,123971223,123971223,123971223,123971223,123971223,123971223,1239971223	+	ENST00000369005,ENST00000513429,ENST00000515273,ENST00000515603,ENST00000453444,ENST00000334433,ENST00000358010,ENST00000360561,ENST00000368999,ENST00000369004,ENST00000260733,ENST00000514539	34-34	18	CCLE-LUSC,CCLE-STAD
chr10:5058029:->chr10:5043873:-	chr10	5057939	5058029	-	chr10	5043873	5043873,5043873,5043873,5043873,5043873	-	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	35-38	13	CCLE-BLCA,CCLE-ESCA,CCLE-LUSC,TCGA-HNSC,TCGA-LUSC,TCGA-LUAD
chr10:5060092:->chr10:5043783:-	chr10	5059958	5060092	-	chr10	5043783	5043873,5043873,5043873,5043873,5043873,5043873	-	ENST00000380753,ENST00000421196,ENST00000407674,ENST00000604507,ENST00000455190	39-42	33	CCLE-BLCA,CCLE-ESCA,CCLE-LUSC,TCGA-CESC,TCGA-ESCA,TCGA-HNSC,TCGA-LIHC,TCGA-LUSC,TCGA-LUAD
chr10:99601433:+>chr10:99619215:+	chr10	99600727	99601433	+	chr10	99619215	99619340	+	ENST00000370602	43-43	27	CCLE-BLCA,CCLE-ESCA,CCLE-LUSC,CCLE-MM,CCLE-SKCM
chr11:102093793:+>chr11:102094353:+	chr11	102093694	102093793	+	chr11	102094353	102094483,102094483,102094483,102094483,102094483,102094483,102094483	+	ENST00000526343,ENST00000282441,ENST00000345877,ENST00000537274,ENST00000531439,ENST00000524575,ENST00000529029	44-44	24	CCLE-LUSC,CCLE-STAD,TCGA-MESO,TCGA-SARC
chr11:108084796:->chr11:108068147:-	chr11	108084619	108084796	-	chr11	108068147	108068147	-	ENST00000278612	45-45	20	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-SARC,CCLE-SKCM
chr11:117024976:+>chr11:117030650:+	chr11	117024922	117024976	+	chr11	117030650	117030739,117030739,117030739,117030739,11703073	+	ENST00000527958,ENST00000419197,ENST00000529887,ENST00000530272	46-46	2	CCLE-LUSC
chr11:118278445:+>chr11:118279715:+	chr11	118278321	118278445	+	chr11	118279715	118279813	+	ENST00000300688	47-47	30	TCGA-KIRC,TCGA-LUAD,TCGA-OV
chr11:13465223:->chr11:13443385:-	chr11	13465148	13465223	-	chr11	13443385	13443385,13443385,13443385,13443385,13443385	-	ENST00000278174,ENST00000527102,ENST00000530907,ENST00000529708,ENST00000526841	48-48	36	CCLE-LUSC
chr11:17486945:->chr11:17485151:-	chr11	17486885	17486945	-	chr11	17485151	17485151,17485151,17485151	-	ENST00000389817,ENST00000302539,ENST00000527905	49-49	19	CCLE-LUSC
chr11:19146727:+>chr11:19164530:+	chr11	19146614	19146727	+	chr11	19164530	19164670	+	ENST00000446113	50-50	14	CCLE-LCLL,CCLE-LUSC,CCLE-UCEC
chr11:44148906:+>chr11:44151595:+	chr11	44148850	44148906	+	chr11	44151595	44151688,44151688,44151688,44151688	+	ENST00000533608,ENST00000358681,ENST00000395673,ENST00000343631	51-51	19	CCLE-ESCA,CCLE-LUSC
chr11:61132342:+>chr11:61133517:+	chr11	61132079	61132342	+	chr11	61133517	61133688,61	+	ENST00000278826,ENST00000542946	52-52	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-COAD,TCGA-ESCA,TCGA-SKCM
chr11:61196370:->chr11:61189080:-	chr11	61196370	61196370	-	chr11	61189080	61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080,61189080	-	ENST00000340437,ENST00000394888,ENST00000439958,ENST00000448745,ENST00000477890,ENST00000539952,ENST00000535222,ENST00000544990,ENST00000544585,ENST00000413232,ENST00000537162,ENST00000543545,ENST00000541963,ENST00000536548,ENST00000450000,ENST00000449811,ENST00000413184,ENST00000536145	53-53	15	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BRCA,TCGA-ESCA,TCGA-GBM,TCGA-KIRC,TCGA-LGG,TCGA-LUSC,TCGA-OV,TCGA-STAD,TCGA-THCA
chr11:785039:+>chr11:810272:+	chr11	784898	785039	+	chr11	810272	810357,810357,810321	+	ENST00000321153,ENST00000530797,ENST00000530398	54-54	34	CCLE-LUSC,TCGA-COAD
chr12:104681628:+>chr12:104682709:+	chr12	104681506	104681628	+	chr12	104682709	104682818,104682818,104682818,104682818,10468281,104682818,1046828	+	ENST00000525566,ENST00000429002,ENST00000526691,ENST00000388854,ENST00000542918,ENST00000378070	55-55	15	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-KIRP,TCGA-LUSC,TCGA-LUAD
chr12:120659973:->chr12:120659561:-	chr12	120659921	120659973	-	chr12	120659561	120659561,120659561,120659561,120659561,12065956	-	ENST00000458477,ENST00000228307,ENST00000424649,ENST00000536957,ENST00000267257	56-58	18	CCLE-LUSC,CCLE-SKCM
chr12:20704505:+>chr20:57470710:+	chr12	20704358	20704505	+	chr20	57470710	57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739,57470739	+	ENST00000371100,ENST00000371102,ENST00000450130,ENST00000349036,ENST00000423897,ENST00000604005,ENST00000371095,ENST00000354359,ENST00000371085,ENST00000265620,ENST00000306090,ENST00000371081,ENST00000338783,ENST00000603546	59-59	7	CCLE-LUSC
chr12:41157000:+>chr12:41312441:+	chr12	41156671	41157000	+	chr12	41312441	41312573,41312534,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573,41312573	+	ENST00000547702,ENST00000551424,ENST00000551295,ENST00000548005,ENST00000552248,ENST00000547849,ENST00000552913,ENST00000360099,ENST00000347616,ENST00000348761	60-62	10	CCLE-LUSC

chr12:53835233:+>chr12:53836479:+	chr12	53835137	53835233	+	chr12	53836479	53836517	+	ENST00000547368	63-63	3	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-STAD,TCGA-ESCA,TCGA-OV,TCGA-STAD
chr12:54631910:+>chr12:54677621:+	chr12	54631694	54631910	+	chr12	54677621	54677651,54677662,54677751,54677751,54677751,54677751,54677751	+	ENST00000546500,ENST00000547708,ENST00000547566,ENST00000340913,ENST00000330752,ENST00000547276,ENST00000550482	64-65	19	TCGA-LUSC
chr12:54862609:->chr12:54857081:-	chr12	54862584	54862609	-	chr12	54857081	54857081,54857081,54857081	-	ENST00000546931,ENST00000552397,ENST00000305879	66-66	17	CCLE-BRCA,CCLE-DLBC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,CCLE-STAD
chr12:56867593:->chr12:56867378:-	chr12	56867552	56867593	-	chr12	56867378	56867378	-	ENST00000311966	67-67	58	CCLE-COAD,CCLE-LUSC
chr13:38183213:->chr13:38171419:-	chr13	38183157	38183213	-	chr13	38171419	38171419,38171419,38171419,38171419,38171419	-	ENST00000541179,ENST00000379749,ENST00000379747,ENST00000379743,ENST00000379742,ENST00000541481	68-68	29	CCLE-BRCA,CCLE-LUSC,TCGA-BRCA,TCGA-SARC
chr13:42456176:->chr13:42442613:-	chr13	42455523	42456176	-	chr13	42442613	42442613,42	-	ENST00000379310,ENST00000281496	69-69	38	CCLE-CESC,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SKCM,CCLE-STAD
chr13:53015205:->chr13:53013303:-	chr13	53014957	53015205	-	chr13	53013303	53013303	-	ENST00000378060	70-70	11	CCLE-COAD,CCLE-HNSC,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-PAAD
chr13:76192906:->chr13:76104323:-	chr13	76190856	76192906	-	chr13	76104323	76104402,76104402,76104402,76104402	-	ENST00000406936,ENST00000377615,ENST00000377619,ENST00000355801	71-72	30	TCGA-LUAD
chr14:102196928:+>chr14:102197694:+	chr14	102196918	102196928	+	chr14	102197694	102197805	+	ENST00000556973	73-73	3	CCLE-DLBC,CCLE-LUSC,CCLE-OV
chr14:107277425:->chr14:106478239:-	chr14	107277216	107277425	-	chr14	106478239	106478411	-	ENST00000390596	74-74	21	TCGA-BRCA,TCGA-ESCA,TCGA-LUAD,TCGA-TGCT,TCGA-THCA
chr14:24686695:->chr14:24686429:-	chr14	24686517	24686695	-	chr14	24686429	24686429,25	-	ENST00000605847,ENST00000250495	75-75	25	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC,TCGA-ESCA,TCGA-OV,TCGA-STAD
chr15:50744825:+>chr15:50751197:+	chr15	50744811	50744825	+	chr15	50751197	50751359,50751359,50751359,50751359,50751359,50751267	+	ENST00000307179,ENST00000433963,ENST00000396444,ENST00000425032,ENST00000559329,ENST00000558091	76-76	5	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-BRCA,TCGA-SARC,TCGA-SKCM
chr15:60657933:->chr15:60656722:-	chr15	60657768	60657933	-	chr15	60656722	60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722,60656722	-	ENST00000396024,ENST00000451270,ENST00000332680,ENST00000560014,ENST00000421017,ENST00000559176,ENST00000559818,ENST00000560367,ENST00000558503,ENST00000560389,ENST00000560165,ENST00000557906,ENST00000559350,ENST00000558558,ENST00000558986,ENST00000559467,ENST00000559956,ENST00000559780,ENST00000560468,ENST00000557904,ENST00000559370	77-77	23	CCLE-LUSC,TCGA-BRCA,TCGA-CESC,TCGA-ESCA,TCGA-HNSC,TCGA-KIRC,TCGA-LUSC,TCGA-PAAD,TCGA-SARC,TCGA-STAD
chr15:79168112:+>chr15:79170555:+	chr15	79167833	79168112	+	chr15	79170555	79170601,79170601,79170601,79170601,79170601	+	ENST00000379535,ENST00000426013,ENST00000331268,ENST00000558746,ENST00000560422	78-78	13	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-ESCA,CCLE-KIRC,CCLE-LCLL,CCLE-LUSC,CCLE-SKCM,CCLE-STAD
chr15:80254313:->chr15:80253516:-	chr15	80254221	80254313	-	chr15	80253516	80253516,8	-	ENST00000267953,ENST00000335661	79-79	9	TCGA-BRCA,TCGA-LUSC,TCGA-SKCM
chr16:47626347:+>chr16:47627411:+	chr16	47626052	47626347	+	chr16	47627411	47627468,47627468,47627468,47627468,47627468	+	ENST00000566044,ENST00000455779,ENST00000299167,ENST00000323584	80-81	37	TCGA-LUSC
chr16:69773838:->chr16:69752437:-	chr16	69773549	69773838	-	chr16	69752437	69752437,69752437,69752437,69752437,69752437	-	ENST00000561500,ENST00000379047,ENST00000320623,ENST00000379046,ENST00000439109	82-82	3	CCLE-LUSC
chr16:80584267:+>chr16:80584412:+	chr16	80584128	80584267	+	chr16	80584412	80584455,80584455,80584455,80584455	+	ENST00000562982,ENST00000305904,ENST00000568035	83-83	46	CCLE-UCEC,TCGA-BRCA,TCGA-GBM,TCGA-LUAD,TCGA-UCEC
chr17:25597844:+>chr17:25630393:+	chr17	25597568	25597844	+	chr17	25630393	25630448,25630661,25630661,25630661,25630661	+	ENST00000583742,ENST00000581440,ENST00000262394,ENST00000581185,ENST00000427287	84-84	19	TCGA-LUAD
chr17:34139989:+>chr17:34147028:+	chr17	34139850	34139989	+	chr17	34147028	34147079,34147079,34147079,34147079,34147079	+	ENST00000588240,ENST00000590273,ENST00000587272,ENST00000311979	85-87	47	CCLE-LUSC
chr17:57171332:->chr17:57168701:-	chr17	57171256	57171332	-	chr17	57168701	57168701,57168701,57168701,57168701,57168701,57168701,57168701	-	ENST00000393066,ENST00000577554,ENST00000262294,ENST00000393065,ENST00000580973,ENST00000580122,ENST00000584889	88-92	7	CCLE-LUSC,CCLE-STAD
chr17:67192427:->chr17:67190636:-	chr17	67191701	67192427	-	chr17	67190636	67190636,67190636,67190636	-	ENST00000416101,ENST00000269081,ENST00000523419	93-93	38	CCLE-LGG,CCLE-LUSC
chr19:3624569:->chr19:3624160:-	chr19	3624203	3624569	-	chr19	3624160	3624160,3624160,3624160,4160	-	ENST00000429344,ENST00000585942,ENST00000248420	94-94	4	CCLE-LUSC
chr19:3782560:->chr19:3781670:-	chr19	3782430	3782560	-	chr19	3781670	3781670,3781670,3781670,1670,3781670,3781670,3781670	-	ENST00000395040,ENST00000310132,ENST00000585778,ENST00000395045,ENST00000590493,ENST00000588983,ENST00000587180	95-96	23	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-SARC,CCLE-STAD,TCGA-BRCA,TCGA-HNSC,TCGA-MESO,TCGA-SARC
chr19:42217314:+>chr19:42311149:+	chr19	42217251	42217314	+	chr19	42311149	42311258	+	ENST00000415495	97-97	21	CCLE-LUSC,CCLE-OV
chr19:46646469:+>chr19:46663672:+	chr19	46646299	46646469	+	chr19	46663672	46663725,47	+	ENST00000434646,ENST00000377693	98-98	55	CCLE-LUSC
chr19:8323741:+>chr19:8326572:+	chr19	8323736	8323741	+	chr19	8326572	8326728,8326728,8326728	+	ENST00000558331,ENST00000251363,ENST00000559450	99-99	2	CCLE-LUSC,CCLE-MM,CCLE-PRAD,TCGA-BRCA,TCGA-CESC,TCGA-LIHC,TCGA-PRAD

chr2:158306719:->chr2:158300518:-	chr2	158306498	158306719	-	chr2	158300518	158300532,2	-	ENST00000264192,ENST00000457793	100-100	2	CCLE-COAD,CCLE-DLBC,CCLE-KIRC,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-STAD,CCLE-THCA,TCGA-BRCA,TCGA-KICH
chr2:171927080:->chr2:171917666:-	chr2	171926701	171927080	-	chr2	171917666	171917666,171917666,171917666,171917666,171917666,171917666	-	ENST00000360843,ENST00000431350,ENST00000442919,ENST00000521943,ENST00000434911,ENST00000409443,ENST00000453628	101-102	122	CCLE-LUSC
chr2:224817241:+>chr2:224824251:+	chr2	224816773	224817241	+	chr2	224824251	224824719	+	ENST00000258383	103-103	20	CCLE-LUSC
chr2:24029041:->chr2:24021193:-	chr2	24028227	24029041	-	chr2	24021193	24021193,24	-	ENST00000238789,ENST00000381024	104-104	29	CCLE-LCLL,CCLE-LUSC
chr2:24198120:+>chr2:24199839:+	chr2	24197875	24198120	+	chr2	24199839	24199945,24199945,24199945	+	ENST00000404924,ENST00000309033,ENST00000535786	105-105	8	CCLE-BRCA,CCLE-LUSC,CCLE-MM,CCLE-SKCM,CCLE-STAD
chr2:28859785:+>chr2:28863793:+	chr2	28859259	28859785	+	chr2	28863793	28863867,28863867,28863867,28863867	+	ENST00000327757,ENST00000422425,ENST00000404858,ENST00000541605	106-106	4	CCLE-LUSC
chr2:30856371:+>chr2:30862983:+	chr2	30856274	30856371	+	chr2	30862983	30863485,30863485,30863485	+	ENST00000379509,ENST00000309052,ENST00000540623	107-107	32	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,CCLE-MESO,CCLE-PRAD
chr2:44554937:+>chr16:75263893:-	chr2	44554718	44554937	+	chr16	75263893	75263921,75263921,75263921,75263921,75263921,75263921,75263921,75263921	-	ENST00000162330,ENST00000546196,ENST00000393422,ENST00000535626,ENST00000538440,ENST00000418647,ENST00000542031,ENST00000420641,ENST00000393420	108-108	51	CCLE-LUSC
chr2:89166769:->chr2:89157082:-	chr2	89166011	89166769	-	chr2	89157082	89157196	-	ENST00000390237	109-109	17	TCGA-LUSC
chr20:32408074:+>chr20:32436273:+	chr20	32408012	32408074	+	chr20	32436273	32436450	+	ENST00000217402	110-110	21	TCGA-LUSC
chr20:34710669:+>chr20:34761806:+	chr20	34710617	34710669	+	chr20	34761806	34761876,34761876,34761876,34761876,34761876,34761876	+	ENST00000406771,ENST00000452261,ENST00000447825,ENST00000427533,ENST00000338074,ENST00000373941	111-112	17	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-STAD,TCGA-BRCA,TCGA-CESC,TCGA-COAD,TCGA-ESCA,TCGA-HNSC,TCGA-KICH,TCGA-KIRP,TCGA-PAAD,TCGA-STAD
chr20:44540197:->chr20:44540102:-	chr20	44540195	44540197	-	chr20	44540102	44540151	-	ENST00000542937	113-113	32	CCLE-COAD,CCLE-HNSC,CCLE-LUSC,TCGA-GBM,TCGA-LGG,TCGA-THYM
chr20:45967949:->chr20:45938948:-	chr20	45967709	45967949	-	chr20	45938948	45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948,45938948	-	ENST00000311275,ENST00000360911,ENST00000458360,ENST00000262975,ENST00000471951,ENST00000352431,ENST00000396281,ENST00000446994,ENST00000536340,ENST00000355972,ENST00000372023,ENST00000461685,ENST00000540497,ENST00000435836,ENST00000446894,ENST00000441977	114-114	13	CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-OV,TCGA-STAD
chr20:60770037:+>chr20:60770858:+	chr20	60769972	60770037	+	chr20	60770858	60771005,60771005,60771005,60771005,60771005,60771005	+	ENST00000436421,ENST00000467101,ENST00000370823,ENST00000448254	115-115	22	CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-LUSC,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD
chr21:27105478:->chr21:27102112:-	chr21	27105472	27105478	-	chr21	27102112	27102112	-	ENST00000457143	116-116	7	CCLE-BLCA,CCLE-CESC,CCLE-LGG,CCLE-LUSC,TCGA-BLCA,TCGA-CHOL,TCGA-COAD,TCGA-DLBC,TCGA-ESCA,TCGA-HNSC,TCGA-LUSC,TCGA-OV,TCGA-UVM
chr21:27105526:->chr21:27102112:-	chr21	27105472	27105526	-	chr21	27102112	27102112	-	ENST00000457143	117-117	9	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-LUSC
chr22:19103521:->chr22:19077003:-	chr22	19103457	19103521	-	chr22	19077003	19077003,19	-	ENST00000263196,ENST00000545799	118-118	4	CCLE-LUSC
chr22:39716401:->chr22:39714597:-	chr22	39716331	39716401	-	chr22	39714597	39714597,39714597,39714597,39714597	-	ENST00000216146,ENST00000453303,ENST00000427905,ENST00000420536	119-119	4	CCLE-LIHC,CCLE-LUSC,CCLE-SKCM,TCGA-CHOL,TCGA-OV,TCGA-SARC,TCGA-THCA,TCGA-THYM
chr3:10160654:+>chr3:10188198:+	chr3	10160479	10160654	+	chr3	10188198	10188320	+	ENST00000256474	120-120	1	CCLE-ESCA,CCLE-LUSC
chr3:185198511:->chr3:185194935:-	chr3	185198429	185198511	-	chr3	185194935	185194935	-	ENST00000382227	121-121	54	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,CCLE-UCEC
chr4:123834362:->chr4:123833778:-	chr4	123834285	123834362	-	chr4	123833778	123833778	-	ENST00000304430	122-122	28	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,TCGA-SKCM
chr5:10384580:+>chr5:10387106:+	chr5	10384097	10384580	+	chr5	10387106	10387178,10387178,10387178	+	ENST00000449913,ENST00000503788,ENST00000274140	123-123	8	CCLE-BRCA,CCLE-LCLL,CCLE-LIHC,CCLE-LUSC,CCLE-OV
chr5:133406533:->chr5:133326845:-	chr5	133406479	133406533	-	chr5	133326845	133326845,133326845,133326845,13332684,5	-	ENST00000395044,ENST00000265333,ENST00000395047,ENST00000425992	124-124	7	CCLE-LCLL,CCLE-LUSC
chr5:134415207:->chr5:134367163:-	chr5	134415107	134415207	-	chr5	134367163	134367198,134367198,134367198,13436719,8,134367198	-	ENST00000265340,ENST00000506438,ENST00000503586,ENST00000507253,ENST00000502676	125-127	6	TCGA-LUAD
chr5:140080670:+>chr5:140081591:+	chr5	140080589	140080670	+	chr5	140081591	140081714,1	+	ENST00000274712,ENST00000506644	128-128	27	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC
chr5:1503092:->chr5:1501718:-	chr5	1503037	1503092	-	chr5	1501718	1501718,15	-	ENST00000475622,ENST00000283415	129-129	8	CCLE-COAD,CCLE-LUSC
chr5:43583569:->chr5:43556101:-	chr5	43583316	43583569	-	chr5	43556101	43556101,43556101,43556101,43556101,43556101,43556101	-	ENST00000306846,ENST00000436644,ENST00000514514,ENST00000504639	130-130	45	CCLE-BRCA,CCLE-COAD,CCLE-DLBC,CCLE-HNSC,CCLE-LGG,CCLE-LUSC,CCLE-MM,CCLE-PAAD,CCLE-STAD,TCGA-BLCA,TCGA-LGG,TCGA-LUSC,TCGA-LUAD,TCGA-PRAD

chr5:87546068:->chr5:87524345:-	chr5	87546032	87546068	-	chr5	87524345	87524345,87524345,87524345,87524345,87524345	-	ENST00000514135,ENST00000511087,ENST00000296595,ENST00000512429,ENST00000507872	131-131	31	CCLE-CESC,CCLE-COAD,CCLE-LCLL,CCLE-LUSC,CCLE-MM,CCLE-SKCM
chr6:109427293:+>chr6:109466422:+	chr6	109426948	109427293	+	chr6	109466422	109466584	+	ENST00000523787	132-132	19	CCLE-BLCA,CCLE-BRCA,CCLE-CESC,CCLE-COAD,CCLE-DLBC,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LCLL,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-MESO,CCLE-MM,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SARC,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-BRCA,TCGA-GBM,TCGA-HNSC,TCGA-KIRP,TCGA-LUSC,TCGA-OV,TCGA-READ,TCGA-STAD
chr6:43395970:+>chr6:43399880:+	chr6	43395962	43395970	+	chr6	43399880	43401098,43	+	ENST00000372530,ENST00000244533	133-133	3	CCLE-LUSC
chr6:7300909:->chr6:7299056:-	chr6	7300879	7300909	-	chr6	7299056	7299056,7299056,7299056,7299056,7299056,7299056,7299056,7299056	-	ENST00000474597,ENST00000244763,ENST00000397511,ENST00000534851,ENST00000489567,ENST00000479365,ENST00000479485,ENST00000462112	134-134	35	CCLE-LUSC
chr7:101514832:+>chr7:101559395:+	chr7	101514616	101514832	+	chr7	101559395	101559505,101559505,101559505,101559505,101559505,101559505,101559505,101559505,101559505	+	ENST00000437600,ENST00000292538,ENST00000547394,ENST00000360264,ENST00000425244,ENST00000292535,ENST00000546411,ENST00000549414,ENST00000550008,ENST00000556210	135-136	2	CCLE-LUSC
chr7:103845571:->chr7:103844682:-	chr7	103845535	103845571	-	chr7	103844682	103844682,103844682,103844682,103844682,10384468	-	ENST00000297431,ENST00000422497,ENST00000447452,ENST00000448563	137-137	15	CCLE-BRCA,CCLE-DLBC,CCLE-LIHC,CCLE-LUSC,TCGA-STAD
chr7:32555261:+>chr7:32582753:+	chr7	32554883	32555261	+	chr7	32582753	32582873,32582873,32582873	+	ENST00000318709,ENST00000409301,ENST00000404479	138-138	11	CCLE-BRCA,CCLE-COAD,CCLE-LUSC,CCLE-MM,TCGA-COAD,TCGA-LUSC,TCGA-READ,TCGA-TGCT
chr7:40618566:+>chr7:40789033:+	chr7	40618403	40618566	+	chr7	40789033	40789096,40789096,40789096	+	ENST00000309930,ENST00000401647,ENST00000335693	139-139	2	CCLE-LCLL,CCLE-LUSC,TCGA-PAAD
chr7:56036577:+>chr7:56045819:+	chr7	56036437	56036577	+	chr7	56045819	56045958,56045958,56045958	+	ENST00000322090,ENST00000446778,ENST00000456204	140-140	12	CCLE-BLCA,CCLE-ESCA,CCLE-LCLL,CCLE-LGG,CCLE-LUSC,TCGA-GBM,TCGA-HNSC,TCGA-LUSC
chr8:41859766:->chr8:41845081:-	chr8	41859568	41859766	-	chr8	41845081	41845081,41845081,41845081,41845081	-	ENST00000265713,ENST00000396930,ENST00000406337,ENST00000485568	141-141	16	CCLE-BLCA,CCLE-BRCA,CCLE-LCLL,CCLE-LUSC,TCGA-BRCA
chr9:101867407:+>chr9:101891137:+	chr9	101867374	101867407	+	chr9	101891137	101891382,101891382,101891382,101891382	+	ENST00000374994,ENST00000374990,ENST00000549766,ENST00000552516,ENST00000546584	142-142	11	CCLE-BLCA,CCLE-HNSC,CCLE-LUSC,CCLE-UCEC
chr9:136210283:+>chr9:136216428:+	chr9	136210211	136210283	+	chr9	136216428	136216555,1	+	ENST00000323345,ENST00000426651	143-143	9	CCLE-LIHC,CCLE-LUSC,TCGA-OV,TCGA-THCA
chr9:71770431:+>chr9:71827464:+	chr9	71770337	71770431	+	chr9	71827464	71827517,71827517,71827517,71827517,71827517	+	ENST00000377245,ENST00000348208,ENST00000265384,ENST00000535702,ENST00000539225	144-144	18	CCLE-BLCA,CCLE-BRCA,CCLE-COAD,CCLE-ESCA,CCLE-HNSC,CCLE-KIRC,CCLE-LGG,CCLE-LIHC,CCLE-LUSC,CCLE-OV,CCLE-PAAD,CCLE-PRAD,CCLE-SKCM,CCLE-STAD,CCLE-THCA,TCGA-STAD
chrX:122865506:->chrX:122846758:-	chrX	122865370	122865506	-	chrX	122846758	122846758,122846758	-	ENST00000245838,ENST00000355725,ENST00000433883	145-145	4	CCLE-LUSC

Description of the sequences :

SEQ ID NO:	Sequence description
1-4722	Translated peptides from transcripts table 9: exon donor
4723-29596	Translated peptides from transcripts table 10: TE donor
29597-29713	LUAD peptides of table 3 (117)
20714-29744	Additional peptides from figures 11-16 (31)
29745-29752	CDRs sequences table 4bis (8)
29753-29941	Table 5 peptides from MS (189)
29942-30152	Table 6 peptides from MS (211)
30153-30319	Table 7 peptides from MS (167)
30320-30433	Table 8 peptides from MS (114)
30434-30520	Translated peptides (JETs of table 11: exon donor) (87)
30521-30760	Translated peptides (JETs of table 12: TE donor) (240)
30761-30802	Translated peptides (JETs of table 13: exon donor) (42)
30803-30964	Translated peptides (JETs of table 14: TE donor) (162)
30965-31030	Translated peptides (JETs of table 15: exon donor) (66)
31031-31201	Translated peptides (JETs of table 16: TE donor) (171)
31202-31228	Translated peptides (JETs of table 17: exon donor) (27)
31229-31346	Translated peptides (JETs of table 18: TE donor) (118)

CLAIMS

1. An isolated tumor neoantigenic peptide comprising at least 4, 5, 6, 7 or 8 amino acids of any one of SEQ ID NO:1-29744 and 29753-31346.

2. An isolated tumor neoantigenic peptide, according to claim 1 wherein (a) the peptide is from any one of SEQ ID NO:1-29744 and 29753-31346 or a fragment thereof, and comprises at least a portion of TE-derived amino acid sequence from any one of SEQ ID NO:1-29744 and 29753-31346, optionally (i) a fragment that overlaps the breakpoint between, the TE-derived amino acid sequence and an exon-derived amino acid sequence or ., optionally (ii) a pure TE sequence; or (b) the peptide is from any one of SEQ ID NO: 1-29744 and 29753-31346 or a fragment thereof, and is encoded by a non-canonical ORF downstream of the junction between the TE-derived amino acid sequence and the exon-derived amino acid sequence.

3. The isolated tumor neoantigenic peptide according to any one of claim 1 or 2, wherein said neoantigenic peptide
   - is expressed at higher levels in tumor cells compared to normal healthy cells;
   - is expressed in at least 1 % of subjects from a population of subjects suffering from cancer; and/or
   - binds MHC class I or class II with a Kd binding affinity of less than about 10^{-5} M.

4. A population of autologous dendritic cells or antigen presenting cells that have been pulsed with one or more of the peptides as defined in any one of claims 1-3 or transfected with a polynucleotide encoding one or more of the peptides as defined in any one of claims 1-3.

5. A vaccine or immunogenic composition capable of raising a specific T-cell response comprising
   a. one or more neoantigenic peptides as defined in any one of claims 1-3, optionally with a physiologically acceptable buffer, carrier, or excipient, and/or optionally with an adjuvant or immunostimulant;

b. one or more polynucleotides encoding a neoantigenic peptide as defined in any one of claims 1-3, optionally linked to a heterologous regulatory control nucleotide sequence; and/or
c. a population of antigen presenting cells, as defined in claim 4.

6. An antibody, or an antigen-binding fragment thereof, a T cell receptor (TCR), or a chimeric antigen receptor (CAR) that specifically binds a neoantigenic peptide as defined in any one of claims 1-3, optionally in association with an MHC molecule, with a Kd affinity of about 10^{-6} M or less, optionally wherein the antibody is a TCR-like antibody or the CAR is a TCR-like antibody-based CAR.

7. A method of producing an antibody, TCR or CAR that specifically binds a neoantigenic peptide as defined in any one of claims 1-3, comprising the step of selecting an antibody, TCR or CAR that binds to a tumor neoantigen peptide of any of claims 1-3, optionally in association with an MHC or HLA molecule, or optionally expressed on the surface of a cell, with a Kd binding affinity of about 10^{-6} M or less.

8. An antibody, TCR or CAR produced by the method of claim 7.

9. A T cell receptor according to claim 8, wherein said T cell receptor is made soluble or a TCR-like antibody fused to an antibody fragment directed to a T cell antigen, optionally wherein the targeted antigen is CD3 or CD16.

10. An antibody, TCR or CAR according to any one of claims 6, 8 or 9, wherein said antibody is a multispecific antibody that further targets at least an immune cell antigen, optionally wherein the immune cell is a T cell, a NK cell or a dendritic cell, optionally wherein the targeted antigen is CD3, CD16, CD30 or a TCR, optionally wherein the immune cell is defective for the Suv39h1 gene.

11. A polynucleotide encoding a neoantigenic peptide as defined in claims 1-3, or an antibody, a CAR or a TCR as defined in any one of claims 6,8-10, optionally linked to a heterologous regulatory control sequence.

12. A vector comprising the polynucleotide of claim 11.

13. An immune cell that specifically binds to one or more neoantigenic peptides as defined in any one of claims 1-3, optionally wherein the immune cell is defective for the Suv39h1 gene.

14. The immune cell of claim 13, which is an allogenic or autologous cell selected from T cells, Natural Killer T cells, CD4+/CD8+ T cells, TILs/tumor derived CD8 T cells, central memory CD8+ T cells, Treg, MAIT, Yδ T cells, human embryonic stem cells, and pluripotent stem cells from which lymphoid cells may be differentiated.

15. A T cell according to claim 17, which comprises
- a T cell receptor that specifically binds one or more neoantigenic peptides as defined in any one of claims 1-3, or
- a TCR or a CAR of any one of claim 6 or 9, optionally wherein the CAR is an MHC-restricted antibody-based chimeric antigen receptor.

16. The neoantigenic peptide as defined in claims 1-3, the population of dendritic cells according to claim 4, the vaccine or immunogenic composition according to claim 5, the polynucleotide as defined in claim 11 or the vector according to claim 12, for use in inhibiting cancer cell proliferation, or for use in cancer vaccination therapy of a subject, or for treating cancer in a subject.

17. The antibody or the antigen-binding fragment thereof, the antibody, the TCR, the CAR, the polynucleotide, or the vector as defined in any one of claims 6-12 for use for inhibiting cancer cell proliferation, or for use in the treatment of cancer in a subject in need thereof.

18. An immune cell as defined in any one of claims 13-15, for use in in cell therapy of cancer.

19. The neoantigenic peptide, the population of dendritic cells, the vaccine or immunogenic composition, the polynucleotide or the vector for use according to claim 16, the antibody or the antigen-binding fragment thereof, the multispecific antibody, the TCR, the CAR, the polynucleotide, or the vector for use according to claim 17, or the population of immune cells for use according to claim 18, which is administered in combination with at least one further therapeutic agent.

20. The neoantigenic peptide, the population of dendritic cells, the vaccine or immunogenic composition, the polynucleotide, the vector for use according to claim 16, the antibody or the antigen-binding fragment thereof, the multispecific antibody, the TCR, the CAR, the polynucleotide, the vector for use according to claim 17, or the population of immune cells for use according to claim 18
wherein said at least one further therapeutic agent is a chemotherapeutic agent, or an immunotherapeutic agent, optionally a checkpoint inhibitor.