**STAR - 2.7.8a parameters**

| **Option** | **Value** |
| --- | --- |
| Generate unaligned reads | false |
| Filter unaligned reads | true |
| Max junctions | 1000000 |
| Type of filtering | Normal |
| Multimap score range | 1 |
| Max read mapping | 10 |
| Max mismatches | 10 |
| Mismatch mapped ratio | 0.3 |
| Mismatch read ratio | 1.0 |
| Min score | 0 |
| Normalized min score | 0.66 |
| Min matched bases | 0 |
| Normalized min matched bases | 0.66 |
| Filter alignment using their motifs | None |
| Collapsed splice junctions reads | All |
| Max junction gap | 50000 100000 200000 |
| Non-canonical motifs | true |
| Min overhang length for splice junctions | 30 |
| Min unique map read count per junction | 3 |
| Min total read count per junction | 3 |
| Min distance to other junctions' donor/acceptor | 10 |
| GT/AG motif | true |
| Min overhang length for splice junctions | 12 |
| Min unique map read count per junction | 1 |
| Min total read count per junction | 1 |
| Min distance to other junctions' donor/acceptor | 0 |
| GC/AG motif | true |
| Min overhang length for splice junctions | 12 |
| Min unique map read count per junction | 1 |
| Min total read count per junction | 1 |
| Min distance to other junctions' donor/acceptor | 5 |
| AT/AC motif | true |
| Min overhang length for splice junctions | 12 |
| Min unique map read count per junction | 1 |
| Min total read count per junction | 1 |
| Min distance to other junctions' donor/acceptor | 10 |
| Extra alignment score | 2 |
| Gap open penalty | 0 |
| Non-canonical gap open penalty | -8 |
| GC/AG gap open penalty | -4 |
| AT/AC gap open penalty | -8 |
| Extra score | -0.25 |
| Deletion open penalty | -2 |
| Deletion extension penalty per base | -2 |
| Insertion open penalty | -2 |
| Insertion extension penalty per base | -2 |
| Max score reduction | 1 |
| Search start point | 50 |
| Normalized search start point | 1.0 |
| Max seed length |  |
| Max mapping for stitching | 10000 |
| Max seeds per read | 1000 |
| Max seeds per window | 50 |
| Max one seed loci per window | 10 |
| Min intron size | 21 |
| Max intron size |  |
| Min spliced alignment overhang | 5 |
| Min annotated spliced alignment overhang | 3 |
| Max windows per read | 10000 |
| Max transcripts per window | 100 |
| Max hits | 10000 |
| Read ends alignment type | Local |
| Soft-clip past reference end | Yes |
| Max loci anchors | 50 |
| Bin size for windows/clustering | 16 |
| Max bins between two anchors | 9 |
| Left and right flanking region size | 4 |
| Chimeric alignment | false |
| Two pass mapping | None |
| Cufflinks-like strand field flag | intronMotif |
| SAM attributes | Standard |
| Add to quality score | 0 |
| WASP filtering | false |
| Max splice junction stitching mismatches | Non-canonical: 0 GT/AG and CT/AC: -1 GC/AG and CT/GC: 0 AT/AC and GT/AT: 0 |
| Flush ambiguous insertion positions | None |
| Min overlap for mate merging and realignment | 0 |
| Max mismatched bases in overlap area | 0.01 |

All selected values are the defaults.

**Qiagen Ingenuity Pathway Biomarker Analysis Settings**

Consider only molecules where (species = Mouse OR Human OR Rat) AND (tissues = Pre-B lymphocytes OR Lung OR Other Tissues and Primary Cells OR Spinal Cord OR Organ Systems not otherwise specified OR Stomach OR Neurons not otherwise specified OR Microvascular endothelial cells OR Mature monocyte-derived dendritic cells OR BDCA-3+ dendritic cells OR Activated CD56bright NK cells OR Activated CD56dim NK cells OR Tissues and Primary Cells not otherwise specified OR Hepatocytes OR Peripheral blood lymphocytes OR Mononuclear leukocytes not otherwise specified OR Other Bone marrow cells OR Brain OR Plasmacytoid dendritic cells OR Other Granulocytes OR Monocyte-derived macrophage OR Immature monocyte-derived dendritic cells OR Immune cells not otherwise specified OR Ventricular Zone OR Retina OR Lens OR Other Epithelial cells OR Cerebral Cortex OR Putamen OR Other NK cells OR Vd1 Gamma-delta T cells OR Skin OR Cells not otherwise specified OR Bone marrow-derived dendritic cells OR Smooth muscle cells not otherwise specified OR Adipose OR Intraepithelial T lymphocytes OR Bone marrow cells not otherwise specified OR Mesenchymal stem cells OR Naive helper T cells OR Cerebral Ventricles OR Mast cells OR Cardiomyocytes OR Subventricular Zone OR Smooth Muscle OR Small Intestine OR Spleen OR Granulocytes not otherwise specified OR Activated helper T cells OR Other Monocytes OR Other Cells OR Choroid Plexus OR Brainstem OR Blood platelets OR Endothelial cells not otherwise specified OR Bone marrow-derived macrophages OR Vascular smooth muscle cells OR Heart OR Myeloid dendritic cells OR Effector memory cytotoxic T cells OR Peripheral blood monocytes OR Fibroblasts OR Activated Vd1 Gamma-delta T cells OR Pituitary Gland OR Cytotoxic T cells OR Pyramidal neurons OR Other Nervous System OR Other Organ Systems OR CD56bright NK cells OR Salivary Gland OR Other Macrophages OR Th2 cells OR Other Immune cells OR Naive B cells OR Substantia Nigra OR Monocyte-derived dendritic cells not otherwise specified OR Melanocytes OR Granule Cell Layer OR Beta islet cells OR Medulla Oblongata OR Cornea OR Activated Vd2 Gamma-delta T cells OR Effector T cells OR Caudate Nucleus OR Peripheral blood leukocytes not otherwise specified OR Other Mononuclear leukocytes OR T lymphocytes not otherwise specified OR CD56dim NK cells OR B lymphocytes not otherwise specified OR Other Stem cells OR Epidermis OR Uterus OR Thymus OR CD4+ T-lymphocytes OR Parietal Lobe OR CD34+ cells OR Liver OR Crypt OR Dermis OR Placenta OR Corpus Callosum OR Microglia OR PBMCs OR Lymph node OR Th1 cells OR Pancreas OR Trigeminal Ganglion OR BDCA-1+ dendritic cells OR Other Peripheral blood leukocytes OR Central memory helper T cells OR Mammary Gland OR Murine NKT cells OR Effector memory RA+ cytotoxic T cells OR Large Intestine OR Central memory cytotoxic T cells OR Other Smooth muscle cells OR Forestomach OR Astrocytes OR Plasma cells OR Nucleus Accumbens OR Chondrocytes OR Osteoblasts OR Olfactory Bulb OR Memory T lymphocytes not otherwise specified OR Thyroid Gland OR Cartilage Tissue OR Hematopoietic progenitor cells OR Sciatic Nerve OR Macrophages not otherwise specified OR White Matter OR Other Dendritic cells OR Other Monocyte-derived dendritic cells OR Pro-B lymphocytes OR Dorsal Root Ganglion OR Skeletal Muscle OR Prostate Gland OR Granulosa cells OR Cortical neurons OR Peritoneal macrophages OR Gray Matter OR Stem cells not otherwise specified OR Eosinophils OR Other Memory T lymphocytes OR Amygdala OR Bladder OR Sertoli cells OR Other Endothelial cells OR Hippocampus OR Langerhans cells OR Granule cells OR Monocytes not otherwise specified OR Effector memory helper T cells OR Nervous System not otherwise specified OR Testis OR Trachea OR Purkinje cells OR Keratinocytes OR Adipocytes OR Other Lymphocytes OR Esophagus OR Other T lymphocytes OR Embryonic stem cells OR Ovary OR Adrenal Gland OR Memory B cells OR Thymocytes OR Other Neurons OR Oocytes OR Hypothalamus OR Striatum OR Thalamus OR Vd2 Gamma-delta T cells OR Dendritic cells not otherwise specified OR Other B lymphocytes OR Lymphocytes not otherwise specified OR Neutrophils OR Natural T-regulatory cells OR NK cells not otherwise specified OR Megakaryocytes OR Cerebellum OR Stromal cells OR Calvaria OR HUVEC cells OR Th17 cells OR Splenocytes OR Epithelial cells not otherwise specified OR Kidney) AND ((biomarker applications = All Biomarker Applications) AND (biomarker diseases = All Diseases))

**Qiagen Ingenuity Pathway Core Analysis Settings**

Reference set: Ingenuity Knowledge Base (Genes Only)

Relationship to include: Direct and Indirect

Includes Endogenous Chemicals

Filter Summary:

Consider only molecules and/or relationships where (species = Rat OR Human OR Uncategorized OR Mouse) AND (confidence = Experimentally Observed) AND (tissues/cell lines = Other T lymphocytes OR Pyramidal neurons OR T47-D OR Leukemia Cell Lines not otherwise specified OR Hep3B OR HMC-1 OR Prostate Cancer Cell Lines not otherwise specified OR Other Immune cell lines OR Memory B cells OR Thyroid Gland OR Other Macrophage Cancer Cell Lines OR Oocytes OR KM-12 OR Osteoblasts OR CCRF-CEM OR Substantia Nigra OR PBMCs OR Choroid Plexus OR PC-12 cells OR Cervical cancer cell line not otherwise specified OR BDCA-1+ dendritic cells OR Myeloid dendritic cells OR Other Peripheral blood leukocytes OR NIH/3T3 cells OR Effector memory RA+ cytotoxic T cells OR Eosinophils OR Parietal Lobe OR Stem cells not otherwise specified OR Dermis OR M14 OR RXF-393 OR Microglia OR UO-31 OR Activated Vd2 Gamma-delta T cells OR Natural T-regulatory cells OR Hepatoma Cell Lines not otherwise specified OR Other Kidney Cancer Cell Lines OR Cerebellum OR NK cells not otherwise specified OR Calvaria OR Epidermis OR Other Pheochromocytoma cell lines OR BT-474 OR Astrocytes OR Mononuclear leukocytes not otherwise specified OR Teratocarcinoma Cell Lines not otherwise specified OR Adrenal Gland OR H460 OR THP-1 OR Osteosarcoma Cell Lines not otherwise specified OR Bladder OR Tissues and Primary Cells not otherwise specified OR DU-145 OR Th1 cells OR BDCA-3+ dendritic cells OR Langerhans cells OR Vascular smooth muscle cells OR Mammary Gland OR Purkinje cells OR Pituitary Gland OR SR OR Cerebral Ventricles OR Immune cell lines not otherwise specified OR Liver OR Small Intestine OR HL-60 OR MALME-3M OR HEL OR UACC-257 OR MDA-MB-231 OR Sciatic Nerve OR Cerebral Cortex OR Other Kidney cell lines OR HCC-2998 OR Macrophages not otherwise specified OR Pancreatic Cancer Cell Lines not otherwise specified OR Other Myeloma Cell Lines OR Adipose OR Smooth muscle cells not otherwise specified OR Myeloma Cell Lines not otherwise specified OR Dorsal Root Ganglion OR Intraepithelial T lymphocytes OR Mesenchymal stem cells OR Keratinocytes OR Peripheral blood lymphocytes OR MEF cells OR Adipocytes OR Ovary OR 293 cells OR HuH7 OR Other Immune cells OR Immature monocyte-derived dendritic cells OR Caco2 cells OR Activated helper T cells OR Other Prostate Cancer Cell Lines OR Blood platelets OR J774 OR Hippocampus OR CNS Cell Lines not otherwise specified OR Endothelial cells not otherwise specified OR Activated CD56dim NK cells OR Effector memory cytotoxic T cells OR Effector memory helper T cells OR Cell Line not otherwise specified OR Hepatocytes OR Other Monocytes OR Pre-B lymphocytes OR Other Tissues and Primary Cells OR Lung OR Mast cells OR P19 OR Jurkat OR MG-63 OR Spleen OR MDA-MB-435 OR Min6 OR Other B lymphocytes OR 786-0 OR Effector T cells OR NCI-H226 OR Other Mononuclear leukocytes OR HUVEC cells OR SK-MEL-5 OR CD56dim NK cells OR Thymus OR Other Colon Cancer Cell Lines OR Retina OR Other Osteosarcoma Cell Lines OR Lung Cancer Cell Lines not otherwise specified OR A2780 OR COLO205 OR Embryonic stem cells OR RAW 264.7 OR Hypothalamus OR Plasmacytoid dendritic cells OR A498 OR SK-N-SH OR Other Macrophages OR ACHN OR Memory T lymphocytes not otherwise specified OR Naive B cells OR HCT-15 OR Immune cells not otherwise specified OR U266 OR SNB-75 OR EKVX OR Other Pancreatic Cancer Cell Lines OR Mature monocyte-derived dendritic cells OR Central memory helper T cells OR MOLT-4 OR Melanoma Cell Lines not otherwise specified OR Murine NKT cells OR Breast Cancer Cell Lines not otherwise specified OR Other CNS Cell Lines OR TK-10 OR U937 OR Smooth Muscle OR Macrophage Cancer Cell Lines not otherwise specified OR MDA-MB-468 OR Subventricular Zone OR SK-OV-3 OR Other Epithelial cells OR Putamen OR NCI-ADR-RES OR LOX IMVI OR HS 578T OR Cytotoxic T cells OR SF-268 OR Nucleus Accumbens OR Olfactory Bulb OR Other Melanoma Cell Lines OR Other Cell Line OR Granule cells OR SN12C OR Lymph node OR Brainstem OR Other Endothelial cells OR Sertolicells OR Trigeminal Ganglion OR Thymocytes OR OVCAR-8 OR HepG2 OR OVCAR-4 OR Large Intestine OR Naive helper T cells OR NCIH332M OR RPMI-8266 OR CD34+ cells OR SK-MEL-2 OR Granulocytes not otherwise specified OR SF-539 OR Monocyte-derived dendritic cells not otherwise specified OR J-774A.1 OR Cornea OR Medulla Oblongata OR Melanocytes OR Beta islet cells OR Neutrophils OR Splenocytes OR Stromal cells OR HT29 OR Other Lymphoma Cell Lines OR T lymphocytes not otherwise specified OR NCI-H23 OR Other Stem cells OR Central memory cytotoxic T cells OR Other Organ Systems OR Forestomach OR RBL-2H3 OR Other Breast Cancer Cell Lines OR Plasma cells OR Caudate Nucleus OR Chondrocytes OR WEHI-231 OR Colon Cancer Cell Lines not otherwise specified OR Vd2 Gammadelta T cells OR Pheochromocytoma cell lines not otherwise specified OR MCF7 OR Striatum OR Ventricular Zone OR Other Cells OR A375 OR Pancreas OR CAKI-1 OR Bone marrow-derived macrophages OR Nervous System not otherwise specified OR Fibroblasts OR Granulosa cells OR Other Neuroblastoma Cell Lines OR UACC-62 OR Amygdala OR RKO OR Spinal Cord OR HOP-92 OR Placenta OR Organ Systems not otherwise specified OR Corpus Callosum OR Other Memory T lymphocytes OR 3T3-L1 cells OR U251 OR Lens OR Hematopoietic progenitor cells OR BT-549 OR Other Hepatoma Cell Lines OR Other Ovarian Cancer Cell Lines OR Other Dendritic cells OR Other Monocyte-derived dendritic cells OR White Matter OR Bone marrow-derived dendritic cells OR Cells not otherwise specified OR Cos-7 cells OR Skeletal Muscle OR HCT-116 OR SF-295 OR Th17 cells OR PANC-1 OR Fibroblast cell lines not otherwise specified OR Other Bone marrow cells OR Brain OR Esophagus OR Other Nervous System OR Other Fibroblast cell lines OR Other Neurons OR Salivary Gland OR Ovarian Cancer Cell Lines not otherwise specified OR Monocyte-derived macrophage OR Other Granulocytes OR Thalamus OR Stomach OR NCI-H522 OR Neurons not otherwise specified OR NT2/D1 OR Activated CD56bright NK cells OR IGROV1 OR Peripheral blood monocytes OR Swiss 3T3 cells OR Other Lung Cancer Cell Lines OR Activated Vd1 Gamma-delta T cells OR Other Leukemia Cell Lines OR Neuroblastoma Cell Lines not otherwise specified OR Peritoneal macrophages OR MDA-MB-361 OR Cardiomyocytes OR PC-3 OR Gray Matter OR HOP-62 OR Lymphoma Cell Lines not otherwise specified OR Dendritic cells not otherwise specified OR BA/F3 OR Granule Cell Layer OR Lymphocytes not otherwise specified OR SK-MEL-28 OR Peripheral blood leukocytes not otherwise specified OR SW-480 OR Epithelial cells not otherwise specified OR B lymphocytes not otherwise specified OR Uterus OR U2OS OR Kidney OR Other Smooth muscle cells OR INS-1 OR Other Lymphocytes OR CD56bright NK cells OR Megakaryocytes OR Kidney Cancer Cell Lines not otherwise specified OR NB4 OR A549-ATCC OR Th2 cells OR Kidney cell lines not otherwise specified OR Microvascular endothelial cells OR Heart OR OVCAR-3 OR Monocytes not otherwise specified OR Testis OR Trachea OR K-562 OR SW-620 OR Other Teratocarcinoma Cell Lines OR CD4+ T-lymphocytes OR Prostate Gland OR Cortical neurons OR MDA-N OR HeLa OR Crypt OR Other Cervical cancer cell line OR OVCAR-5 OR Cartilage Tissue OR LNCaP cells OR U87MG OR Other NK cells OR Skin OR Vd1 Gamma-delta T cells OR Pro-B lymphocytes OR Bone marrow cells not otherwise specified) AND (mol. types = biologic drug OR canonical pathway OR chemical - endogenous mammalian OR chemical - endogenous non-mammalian OR chemical - kinase inhibitor OR chemical - other OR chemical - protease inhibitor OR chemical drug OR chemical reagent OR chemical toxicant OR complex OR cytokine OR disease OR enzyme OR function OR fusion gene/product OR G-protein coupled receptor OR group OR growth factor OR ion channel OR kinase OR ligand-dependent nuclear receptor OR mature microRNA OR microRNA OR other OR peptidase OR phosphatase OR transcription regulator OR translation regulator OR transmembrane receptor OR transporter) AND (data sources = An Open Access Database of Genome-wide Association Results OR BIND OR BioGRID OR Catalogue Of Somatic Mutations In Cancer (COSMIC) OR Chemical Carcinogenesis Research Information System (CCRIS) OR Clinical Genome Resource (ClinGen) OR ClinicalTrials.gov OR ClinVar OR Cognia OR DIP OR DrugBank OR Gene Ontology (GO) OR GVK Biosciences OR Hazardous Substances Data Bank (HSDB) OR HumanCyc OR Ingenuity Expert Findings OR Ingenuity ExpertAssist Findings OR IntAct OR Interactome studies OR MIPS OR miRBase OR miRecords OR Mouse Genome Database (MGD) OR Obesity Gene Map Database OR Online Mendelian Inheritance in Man (OMIM) OR Reactome OR TarBase OR TargetScan Human OR TargetScan Mouse)