

# INGENUITY<sup>®</sup>

## PATHWAY ANALYSIS



Analysis Name: x581\_309\_A - 2020-11-22 06:41 PM

Analysis Creation Date: 2020-11-22

Build version: exported

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### Experiment Metadata

Name	Value
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### Analysis Settings

Reference set: Ingenuity Knowledge Base (Genes Only)

Relationship to include: Direct and Indirect

Includes Endogenous Chemicals

Optional Analyses: My Pathways My List

Filter Summary:

Consider only molecules and/or relationships where

(species = Human OR Rat OR Mouse OR Uncategorized) AND

(confidence = Experimentally Observed) AND

(tissues/cell lines = Skeletal Muscle OR Cytotoxic T cells OR Other Cervical cancer cell line OR RXF-393 OR HCC-2998 OR Cornea OR Other

Monocyte-derived dendritic cells OR Olfactory Bulb OR SNB-75 OR A498 OR Trigeminal Ganglion OR NIH/3T3 cells OR Placenta OR

Granulocytes not otherwise specified OR T lymphocytes not otherwise specified OR Sertoli cells OR CD34+ cells OR Pancreas OR T47-D OR

U266 OR Brainstem OR Naive helper T cells OR Other Macrophage Cancer Cell Lines OR Large Intestine OR Medulla Oblongata OR KM-12 OR Bone marrow-derived macrophages OR Other Endothelial cells OR Lymph node OR MDA-MB-231 OR Monocyte-derived dendritic cells not otherwise specified OR Thymocytes OR LNCaP cells OR Melanocytes OR U87MG OR Hep3B OR Prostate Cancer Cell Lines not otherwise specified OR Caudate Nucleus OR Other Immune cell lines OR Other Osteosarcoma Cell Lines OR HEL OR Nervous System not otherwise specified OR Embryonic stem cells OR Fibroblasts OR NCI-H522 OR Splenocytes OR Central memory cytotoxic T cells OR Other Organ Systems OR Stromal cells OR Lens OR 786-0 OR Chondrocytes OR Vd2 Gamma-delta T cells OR Neutrophils OR Other Cells OR U937 OR Other Leukemia Cell Lines OR Caco2 cells OR IGROV1 OR Striatum OR Corpus Callosum OR Cells not otherwise specified OR Teratocarcinoma Cell Lines not otherwise specified OR Amygdala OR HMC-1 OR Ovarian Cancer Cell Lines not otherwise specified OR Granulosa cells OR Other Dendritic cells OR HCT-15 OR White Matter OR Hepatocytes OR Ventricular Zone OR Granule cells OR Hematopoietic progenitor cells OR SK-MEL-5 OR Forestomach OR A2780 OR Organ Systems not otherwise specified OR Plasma cells OR BT-474 OR Other Memory T lymphocytes OR Spinal Cord OR UO-31 OR Bone marrow-derived dendritic cells OR Brain OR Th17 cells OR MALME-3M OR P19 OR Other Bone marrow cells OR Activated CD56bright NK cells OR SR OR Other Nervous System OR Other Neuroblastoma Cell Lines OR Breast Cancer Cell Lines not otherwise specified OR SK-OV-3 OR B lymphocytes not otherwise specified OR Dendritic cells not otherwise specified OR MG-63 OR HOP-92 OR Other NK cells OR J774 OR Other Lung Cancer Cell Lines OR Smooth muscle cells not otherwise specified OR Other Neurons OR EKVX OR Other Pancreatic Cancer Cell Lines OR MDA-MB-435 OR CAKI-1 OR H460 OR Neurons not otherwise specified OR MOLT-4 OR Stomach OR Thalamus OR Melanoma Cell Lines not otherwise specified OR COLO205 OR Small Intestine OR 293 cells OR Peritoneal macrophages OR MEF cells OR HuH7 OR RBL-2H3 OR Swiss 3T3 cells OR Lymphocytes not otherwise specified OR Monocytes not otherwise specified OR Microvascular endothelial cells OR Macrophage Cancer Cell Lines not otherwise specified OR BT-549 OR LOX IMVI OR MDA-MB-468 OR Other Hepatoma Cell Lines OR Epithelial cells not otherwise specified OR Granule Cell Layer OR Peripheral blood leukocytes not otherwise specified OR Esophagus OR Other Lymphocytes OR Other Myeloma Cell Lines OR Salivary Gland OR Osteosarcoma Cell Lines not otherwise specified OR NCI-ADR-RES OR HCT-116 OR Pancreatic Cancer Cell Lines not otherwise specified OR Other CNS Cell Lines OR SK-MEL-2 OR CD56bright NK cells OR Uterus OR Vd1 Gamma-delta T cells OR Bone marrow cells not otherwise specified OR Jurkat OR U251 OR Trachea OR HL-60 OR OVCAR-4 OR Th2 cells OR Testis OR Cortical neurons OR Beta islet cells OR Other Smooth muscle cells OR OVCAR-8 OR Prostate Gland OR Leukemia Cell Lines not otherwise specified OR Cardiomyocytes OR Peripheral blood monocytes OR ACHN OR WEHI-231 OR Pro-B lymphocytes OR Crypt OR CNS Cell Lines not otherwise specified OR Activated Vd1 Gamma-delta T cells OR THP-1 OR CD4+ T-lymphocytes OR DU-145 OR Other Breast Cancer Cell Lines OR Skin OR Other Colon Cancer Cell Lines OR Heart OR HT29 OR M14 OR NCI-H226 OR Other Pheochromocytoma cell lines OR SF-268 OR Thyroid Gland OR TK-10 OR Other T lymphocytes OR Memory B cells OR MDA-N OR SF-539 OR Pyramidal neurons OR Effector memory RA+ cytotoxic T cells OR Cartilage Tissue OR Dermis OR Sciatic Nerve OR NK cells not otherwise specified OR BDCA-1+ dendritic cells OR Myeloid dendritic cells

OR Other Peripheral blood leukocytes OR PBMCs OR Substantia Nigra OR HepG2 OR Epidermis OR Cos-7 cells OR Calvaria OR Other Cell Line OR Parietal Lobe OR Activated Vd2 Gamma-delta T cells OR Pituitary Gland OR Other Melanoma Cell Lines OR Kidney Cancer Cell Lines not otherwise specified OR Other Ovarian Cancer Cell Lines OR Th1 cells OR Choroid Plexus OR Oocytes OR Natural T-regulatory cells OR Cerebellum OR Microglia OR HS 578T OR RAW 264.7 OR SF-295 OR Stem cells not otherwise specified OR Kidney OR Purkinje cells OR OVCAR-5 OR Adrenal Gland OR Langerhans cells OR Megakaryocytes OR Min6 OR SN12C OR Other Prostate Cancer Cell Lines OR RKO OR RPMI-8266 OR BDCA-3+ dendritic cells OR Tissues and Primary Cells not otherwise specified OR Vascular smooth muscle cells OR Gray Matter OR Astrocytes OR A375 OR Cerebral Cortex OR Cerebral Ventricles OR SW-620 OR Eosinophils OR OVCAR-3 OR PANC-1 OR Lung Cancer Cell Lines not otherwise specified OR Other Lymphoma Cell Lines OR NCI-H23 OR Intraepithelial T lymphocytes OR Pheochromocytoma cell lines not otherwise specified OR Liver OR SW-480 OR Dorsal Root Ganglion OR Mammary Gland OR J-774A.1 OR Macrophages not otherwise specified OR SK-N-SH OR Bladder OR Mononuclear leukocytes not otherwise specified OR SK-MEL-28 OR Immature monocyte-derived dendritic cells OR Other Granulocytes OR Monocyte-derived macrophage OR Activated CD56dim NK cells OR Mesenchymal stem cells OR U2OS OR UACC-257 OR PC-3 OR Ovary OR MDA-MB-361 OR Adipocytes OR Putamen OR Adipose OR Effector memory cytotoxic T cells OR MCF7 OR Blood platelets OR Other Tissues and Primary Cells OR Hippocampus OR Peripheral blood lymphocytes OR K-562 OR Other Teratocarcinoma Cell Lines OR Cell Line not otherwise specified OR UACC-62 OR Kidney cell lines not otherwise specified OR Mast cells OR Other Fibroblast cell lines OR Effector memory helper T cells OR Effector T cells OR Lung OR INS-1 OR Activated helper T cells OR CD56dim NK cells OR Other Monocytes OR Colon Cancer Cell Lines not otherwise specified OR Myeloma Cell Lines not otherwise specified OR Other Kidney cell lines OR HUVEC cells OR Other Immune cells OR Pre-B lymphocytes OR Hypothalamus OR Keratinocytes OR Other B lymphocytes OR HeLa OR Immune cell lines not otherwise specified OR Thymus OR HOP-62 OR Other Mononuclear leukocytes OR Other Stem cells OR Other Macrophages OR NT2/D1 OR Murine NKT cells OR 3T3-L1 cells OR Cervical cancer cell line not otherwise specified OR Memory T lymphocytes not otherwise specified OR Naive B cells OR Central memory helper T cells OR Spleen OR Subventricular Zone OR Mature monocyte-derived dendritic cells OR A549-ATCC OR Fibroblast cell lines not otherwise specified OR Other Epithelial cells OR NB4 OR PC-12 cells OR CCRF-CEM OR Other Kidney Cancer Cell Lines OR Endothelial cells not otherwise specified OR Nucleus Accumbens OR Osteoblasts OR Lymphoma Cell Lines not otherwise specified OR Plasmacytoid dendritic cells OR BA/F3 OR Smooth Muscle OR Immune cells not otherwise specified OR Hepatoma Cell Lines not otherwise specified OR Retina OR Neuroblastoma Cell Lines not otherwise specified OR NCI-H332M) 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 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 ClinicalTrials.gov OR ClinVar OR Cognition 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 TarBase OR TargetScan Human)

### Top Canonical Pathways

### Top Upstream Regulators

### Top Diseases and Bio Functions

#### Diseases and Disorders

Name	p-value range	# Molecules
<b>Cancer</b>	4.36E-02 - 3.21E-20	43
<b>Organismal Injury and Abnormalities</b>	4.36E-02 - 3.21E-20	54
<b>Reproductive System Disease</b>	4.07E-02 - 3.21E-20	32
<b>Neurological Disease</b>	3.60E-02 - 2.26E-15	28
<b>Inflammatory Disease</b>	4.31E-02 - 1.04E-14	33

**Molecular and Cellular Functions**

Name	p-value range	# Molecules
<b>Cellular Development</b>	4.82E-02 - 6.89E-06	30
<b>Cellular Growth and Proliferation</b>	4.07E-02 - 6.89E-06	27
<b>Cell Cycle</b>	4.82E-02 - 1.48E-03	4
<b>Cell-To-Cell Signaling and Interaction</b>	4.82E-02 - 1.48E-03	13
<b>Cellular Movement</b>	4.32E-02 - 2.63E-03	13

**Physiological System Development and Function**

Name	p-value range	# Molecules
<b>Digestive System Development and Function</b>	1.46E-05 - 1.46E-05	4
<b>Hepatic System Development and Function</b>	1.46E-05 - 1.46E-05	4
<b>Organ Development</b>	1.80E-02 - 1.46E-05	5
<b>Skeletal and Muscular System Development and Function</b>	2.06E-02 - 4.57E-05	6
<b>Tissue Morphology</b>	2.82E-02 - 4.57E-05	7

**Top Tox Functions****Cardiotoxicity**

Name	p-value range	# Molecules
<b>Cardiac Fibrosis</b>	9.88E-02 - 6.22E-04	5

<b>Cardiac Enlargement</b>	7.36E-02 - 1.54E-03	8
<b>Cardiac Dilation</b>	5.81E-03 - 5.81E-03	5
<b>Congenital Heart Anomaly</b>	7.27E-02 - 7.27E-02	1
<b>Heart Failure</b>	2.66E-01 - 2.66E-01	2

**Hepatotoxicity**

Name	p-value range	# Molecules
<b>Liver Inflammation/Hepatitis</b>	1.46E-05 - 1.46E-05	4
<b>Liver Cirrhosis</b>	4.34E-03 - 3.90E-05	7
<b>Liver Fibrosis</b>	4.34E-03 - 4.34E-03	4
<b>Hepatocellular carcinoma</b>	3.79E-02 - 3.79E-02	10
<b>Liver Hyperplasia/Hyperproliferation</b>	1.00E00 - 3.79E-02	17

**Nephrotoxicity**

Name	p-value range	# Molecules
<b>Glomerular Injury</b>	1.04E-14 - 1.04E-14	11
<b>Renal Inflammation</b>	1.04E-14 - 1.04E-14	11
<b>Renal Nephritis</b>	1.04E-14 - 1.04E-14	11
<b>Renal Necrosis/Cell Death</b>	5.45E-01 - 2.07E-01	2

**Top Regulator Effect Networks**

## Top Networks

ID	Associated Network Functions	Score
1	Organismal Injury and Abnormalities, Reproductive System Disease, Cancer	37
2	Inflammatory Response, Organismal Injury and Abnormalities, Cell Morphology	18
3	Gene Expression, Organismal Injury and Abnormalities, Reproductive System Disease	18
4	Cancer, Organismal Injury and Abnormalities, Reproductive System Disease	18
5	Developmental Disorder, Hereditary Disorder, Organismal Functions	15

## Top Tox Lists

Name	p-value	Overlap
<b>Renal Ischemia-Reperfusion Injury MicroRNA Biomarker Panel (Mouse)</b>	2.06E-02	12.5 % 1/8

**Decreases Transmembrane Potential of Mitochondria and Mitochondrial Membrane**

2.91E-01

0.8 % 1/132

**Top My Lists**

**Top My Pathways**

**Top Analysis-Ready Molecules**