INGENUITY
PATHWAY ANALYSIS

Analysis Name: IPA_UPREGULATED_shEGR1_SIMULATION - 2019-05-01 02:39 PM
Analysis Creation Date: 2019-05-01
Build version: exported
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Experiment Metadata

Name	Value

Analysis Settings

Reference set: Ingenuity Knowledge Base (Genes Only)
Relationship to include: Direct and Indirect
Does not Include Endogenous Chemicals
Optional Analyses: My Pathways My List

Filter Summary:
Consider only molecules and/or relationships where
(species = Human OR Mouse OR Rat) AND
(confidence = Experimentally Observed) AND
(tissues/cell lines = ACHN OR Heart OR Gray Matter OR Other Osteosarcoma Cell Lines OR Smooth Muscle OR Bladder OR Pro-B lymphocytes OR Dorsal Root Ganglion OR A498 OR Kidney OR HCC-2998 OR Thymus OR Macrophages not otherwise specified OR Teratocarcinoma Cell Lines not otherwise specified OR Other Monocytes OR Cerebellum OR Microglia OR Other Cervical cancer cell line OR

Human)

Top Canonical Pathways

Name	p-value	Overlap
Cell Cycle Control of Chromosomal Replication	1.08E-07	17.9 % 10/56
Fc Receptor-mediated Phagocytosis in Macrophages and Monocytes	1.42E-05	10.6 % 10/94
Sumoylation Pathway	3.17E-05	9.7 % 10/103
Role of Tissue Factor in Cancer	6.59E-05	8.1 % 11/135
ATM Signaling	1.12E-04	9.3 % 9/97

Top Upstream Regulators

Name	p-value	Predicted Activation
TP53	7.36E-12	
ERBB2	7.51E-09	
E2F4	1.39E-08	
INSIG2	2.46E-07	
RRP1B	2.70E-07	

Top Diseases and Bio Functions

Diseases and Disorders

Name	p-value range	# Molecules
Cancer	2.59E-04 - 8.09E-25	408
Endocrine System Disorders	1.98E-04 - 8.09E-25	369
Organismal Injury and Abnormalities	2.98E-04 - 8.09E-25	412
Gastrointestinal Disease	1.98E-04 - 1.13E-23	382
Reproductive System Disease	2.07E-04 - 1.26E-19	300

Molecular and Cellular Functions

Name	p-value range	# Molecules
DNA Replication, Recombination, and Repair	1.38E-04 - 3.98E-12	86
Gene Expression	2.25E-04 - 1.53E-11	129
Cell Death and Survival	2.75E-04 - 9.87E-11	167
Cellular Movement	2.54E-04 - 1.98E-10	121
Cellular Development	2.48E-04 - 3.78E-10	138

Physiological System Development and Function

Name	p-value range	# Molecules
Organismal Survival	2.67E-04 - 1.18E-10	134
Organismal Development	2.48E-04 - 1.88E-08	137
Embryonic Development	2.54E-04 - 3.29E-07	77
Hematological System Development and Function	1.49E-04 - 3.29E-07	104

Hematopoiesis	9.42E-05 - 3.29E-07	69

Top Tox Functions

Assays: Clinical Chemistry and Hematology

Name	p-value range	# Molecules
Decreased Levels of Albumin	9.32E-02 - 9.32E-02	1
Increased Levels of Creatinine	2.45E-01 - 2.40E-01	2
Increased Levels of Potassium	2.83E-01 - 2.83E-01	1
Increased Levels of AST	2.97E-01 - 2.97E-01	1
Increased Levels of Red Blood Cells	3.22E-01 - 3.22E-01	3

Cardiotoxicity

Name	p-value range	# Molecules
Cardiac Enlargement	4.22E-01 - 7.90E-06	32
Cardiac Arteriopathy	2.69E-01 - 2.19E-03	11
Cardiac Dilation	4.96E-01 - 2.21E-03	15
Cardiac Necrosis/Cell Death	3.24E-01 - 2.72E-03	12
Cardiac Dysfunction	5.77E-01 - 3.01E-03	12

Hepatotoxicity

Name	p-value range	# Molecules
Liver Hyperplasia/Hyperproliferation	3.75E-01 - 3.49E-16	229
Hepatocellular carcinoma	3.75E-01 - 6.35E-05	44
Liver Cirrhosis	2.25E-01 - 9.33E-04	13
Dysfunction of liver	2.19E-03 - 2.19E-03	2
Liver Necrosis/Cell Death	5.06E-01 - 2.54E-03	10

Nephrotoxicity

Name	p-value range	# Molecules
Renal Enlargement	1.83E-02 - 2.34E-04	7
Renal Necrosis/Cell Death	5.94E-01 - 2.35E-03	19
Renal Damage	5.40E-01 - 1.63E-02	12
Glomerular Injury	1.00E00 - 1.80E-02	9
Kidney Failure	1.00E00 - 1.94E-02	10

Top Regulator Effect Networks

Top Networks

ID	Associated Network Functions	Score

1	DNA Replication, Recombination, and Repair, Cell Cycle, Developmental Disorder	46
2	DNA Replication, Recombination, and Repair, Cell Cycle, Cell Morphology	46
3	Cellular Growth and Proliferation, Organ Development, Cell Morphology	39
4	Cancer, Neurological Disease, Organismal Injury and Abnormalities	37
5	Cell Morphology, Cellular Development, Cellular Movement	31

Top Tox Lists

Name	p-value	Overlap
Swelling of Mitochondria	1.60E-04	26.7 % 4/15
Decreases Transmembrane Potential of Mitochondria and Mitochondrial Membrane	1.99E-04	7.8 % 10/128
Renal Necrosis/Cell Death	2.88E-04	4.3 % 24/563
Increases Heart Failure	1.48E-03	15.4 % 4/26
p53 Signaling	1.71E-03	7.0 % 8/114

Top My Lists

Name	p-value	Overlap
Lung Cancer	1.43E-04	4.8 % 21/438
Prostate Adhesion and Invasion	3.31E-01	3.3 % 2/61

Top My Pathways

Name	p-value	Overlap
Lung Cancer	1.43E-04	4.8 % 21/438
RelB and immune response	1.40E-01	5.9 % 2/34
Prostate Adhesion and Invasion	3.31E-01	3.3 % 2/61

Top Analysis-Ready Molecules