

Supplementary Table 2. All canonical pathways associated with neurocognitive dysfunction in 10 Gy-treated mice. Overlapping proteins that met statistical significance for differential expression in 10 Gy-treated animals (10 Gy vs. Control) comparisons were uploaded into Ingenuity Pathway Analysis (IPA) to identify enriched pathways.

Top Canonical Pathways	P-value
Synaptogenesis Signaling Pathway	1.49E+01
Sirtuin Signaling Pathway	1.40E+01
EIF2 Signaling	1.37E+01
Mitochondrial Dysfunction	1.11E+01
Rac Signaling	9.97E+00
mTOR Signaling	9.59E+00
Remodeling of Epithelial Adherens Junctions	9.40E+00
Opioid Signaling Pathway	8.95E+00
Synaptic Long Term Potentiation	8.66E+00
Regulation of eIF4 and p70S6K Signaling	8.40E+00
Breast Cancer Regulation by Stathmin1	8.15E+00
Integrin Signaling	8.13E+00
±-Adrenergic Signaling	7.95E+00
Clathrin-mediated Endocytosis Signaling	7.86E+00
Ephrin Receptor Signaling	7.85E+00
Thrombin Signaling	7.78E+00
Oxidative Phosphorylation	7.73E+00
GNRH Signaling	7.55E+00
Chemokine Signaling	7.48E+00
14-3-3-mediated Signaling	7.33E+00
Melatonin Signaling	7.30E+00
fMLP Signaling in Neutrophils	7.28E+00
Gap Junction Signaling	7.02E+00
Role of NFAT in Cardiac Hypertrophy	6.93E+00
Signaling by Rho Family GTPases	6.92E+00
Actin Cytoskeleton Signaling	6.73E+00
Endocannabinoid Developing Neuron Pathway	6.62E+00
RhoGDI Signaling	6.60E+00
CXCR4 Signaling	6.58E+00
Protein Kinase A Signaling	6.46E+00
Fc γ 3 Receptor-mediated Phagocytosis in Macrophages and Monocytes	6.46E+00
Regulation of Actin-based Motility by Rho	6.46E+00
Glioma Signaling	6.21E+00
CCR3 Signaling in Eosinophils	6.12E+00
CREB Signaling in Neurons	6.08E+00
Protein Ubiquitination Pathway	5.89E+00
AMPK Signaling	5.89E+00
p70S6K Signaling	5.86E+00
Virus Entry via Endocytic Pathways	5.68E+00
Ephrin B Signaling	5.66E+00
Glycolysis I	5.52E+00
Phagosome Maturation	5.51E+00
ERK/MAPK Signaling	5.50E+00
Apelin Endothelial Signaling Pathway	5.26E+00
Germ Cell-Sertoli Cell Junction Signaling	5.19E+00

IGF-1 Signaling	5.17E+00
NRF2-mediated Oxidative Stress Response	5.07E+00
Cardiac Hypertrophy Signaling	4.95E+00
G Beta Gamma Signaling	4.93E+00
Actin Nucleation by ARP-WASP Complex	4.90E+00
Axonal Guidance Signaling	4.85E+00
Mechanisms of Viral Exit from Host Cells	4.81E+00
Insulin Receptor Signaling	4.79E+00
B Cell Receptor Signaling	4.72E+00
Molecular Mechanisms of Cancer	4.54E+00
Renin-Angiotensin Signaling	4.50E+00
Stearate Biosynthesis I (Animals)	4.47E+00
Cholecystokinin/Gastrin-mediated Signaling	4.45E+00
Tec Kinase Signaling	4.39E+00
ErbB Signaling	4.36E+00
LPS-stimulated MAPK Signaling	4.32E+00
IL-8 Signaling	4.26E+00
Tight Junction Signaling	4.25E+00
Sertoli Cell-Sertoli Cell Junction Signaling	4.17E+00
P2Y Purigenic Receptor Signaling Pathway	4.12E+00
Caveolar-mediated Endocytosis Signaling	4.12E+00
G β +q Signaling	4.11E+00
VEGF Signaling	4.08E+00
Endocannabinoid Neuronal Synapse Pathway	4.08E+00
Endocannabinoid Cancer Inhibition Pathway	4.07E+00
Neuropathic Pain Signaling In Dorsal Horn Neurons	4.03E+00
UVC-Induced MAPK Signaling	4.02E+00
Macropinocytosis Signaling	3.96E+00
Acute Myeloid Leukemia Signaling	3.96E+00
PI3K/AKT Signaling	3.93E+00
Myc Mediated Apoptosis Signaling	3.88E+00
IL-1 Signaling	3.87E+00
IL-3 Signaling	3.81E+00
Epithelial Adherens Junction Signaling	3.73E+00
RhoA Signaling	3.72E+00
FAK Signaling	3.69E+00
GABA Receptor Signaling	3.69E+00
G-Protein Coupled Receptor Signaling	3.67E+00
GM-CSF Signaling	3.60E+00
Calcium Signaling	3.59E+00
Phospholipase C Signaling	3.59E+00
nNOS Signaling in Neurons	3.52E+00
Nitric Oxide Signaling in the Cardiovascular System	3.52E+00
ERK5 Signaling	3.50E+00
Corticotropin Releasing Hormone Signaling	3.48E+00
Semaphorin Signaling in Neurons	3.46E+00
Superpathway of Methionine Degradation	3.43E+00
Dopamine-DARPP32 Feedback in cAMP Signaling	3.41E+00
Fc Epsilon RI Signaling	3.39E+00
Role of NFAT in Regulation of the Immune Response	3.36E+00
3-phosphoinositide Biosynthesis	3.35E+00
Agrin Interactions at Neuromuscular Junction	3.22E+00
PI3K Signaling in B Lymphocytes	3.20E+00

CDP-diacylglycerol Biosynthesis I	3.17E+00
Paxillin Signaling	3.14E+00
CCR5 Signaling in Macrophages	3.14E+00
PPAR α /RXR α Activation	3.12E+00
D-myo-inositol (1,4,5,6)-Tetrakisphosphate Biosynthesis	3.11E+00
D-myo-inositol (3,4,5,6)-tetrakisphosphate Biosynthesis	3.11E+00
G β Signaling	3.11E+00
Apelin Adipocyte Signaling Pathway	3.09E+00
HGF Signaling	3.06E+00
PAK Signaling	3.03E+00
Acyl-CoA Hydrolysis	2.99E+00
Phosphatidylglycerol Biosynthesis II (Non-plastidic)	2.97E+00
Adrenomedullin signaling pathway	2.95E+00
Apelin Cardiomyocyte Signaling Pathway	2.95E+00
Glutamate Receptor Signaling	2.94E+00
Leukocyte Extravasation Signaling	2.92E+00
Superpathway of Inositol Phosphate Compounds	2.92E+00
Glutamate Dependent Acid Resistance	2.86E+00
Cdc42 Signaling	2.84E+00
PFKFB4 Signaling Pathway	2.84E+00
Natural Killer Cell Signaling	2.80E+00
Glioma Invasiveness Signaling	2.79E+00
Hypoxia Signaling in the Cardiovascular System	2.79E+00
Cysteine Biosynthesis III (mammalia)	2.78E+00
Synaptic Long Term Depression	2.77E+00
Regulation of IL-2 Expression in Activated and Anergic T Lymphocytes	2.77E+00
Androgen Signaling	2.77E+00
3-phosphoinositide Degradation	2.71E+00
Erythropoietin Signaling	2.70E+00
D-myo-inositol-5-phosphate Metabolism	2.68E+00
Antiproliferative Role of Somatostatin Receptor 2	2.66E+00
CDK5 Signaling	2.65E+00
Thrombopoietin Signaling	2.65E+00
Gluconeogenesis I	2.62E+00
PTEN Signaling	2.59E+00
Xenobiotic Metabolism Signaling	2.59E+00
Amyloid Processing	2.58E+00
UVB-Induced MAPK Signaling	2.53E+00
GPCR-Mediated Nutrient Sensing in Enteroendocrine Cells	2.52E+00
Prolactin Signaling	2.51E+00
Amyotrophic Lateral Sclerosis Signaling	2.49E+00
Huntington's Disease Signaling	2.47E+00
Sucrose Degradation V (Mammalian)	2.44E+00
ErbB4 Signaling	2.44E+00
Relaxin Signaling	2.43E+00
Methylglyoxal Degradation I	2.39E+00
Thiosulfate Disproportionation III (Rhodanese)	2.39E+00
BMP signaling pathway	2.37E+00
HIPPO signaling	2.37E+00
PDGF Signaling	2.34E+00

Production of Nitric Oxide and Reactive Oxygen Species in Macrophages	2.34E+00
Cardiac Hypertrophy Signaling (Enhanced)	2.32E+00
Sumoylation Pathway	2.30E+00
CD28 Signaling in T Helper Cells	2.29E+00
Role of Tissue Factor in Cancer	2.29E+00
T Cell Receptor Signaling	2.25E+00
Ovarian Cancer Signaling	2.24E+00
Autophagy	2.14E+00
Induction of Apoptosis by HIV1	2.14E+00
Ephrin A Signaling	2.12E+00
Melanocyte Development and Pigmentation Signaling	2.09E+00
Methionine Degradation I (to Homocysteine)	2.09E+00
White Adipose Tissue Browning Pathway	2.06E+00
Neuregulin Signaling	2.03E+00
Cell Cycle: G2/M DNA Damage Checkpoint Regulation	2.03E+00
IL-17 Signaling	2.02E+00
Renal Cell Carcinoma Signaling	2.02E+00
Cellular Effects of Sildenafil (Viagra)	2.01E+00
ErbB2-ErbB3 Signaling	1.99E+00
TCA Cycle II (Eukaryotic)	1.96E+00
NF- κ B Activation by Viruses	1.96E+00
cAMP-mediated signaling	1.96E+00
Apoptosis Signaling	1.95E+00
ILK Signaling	1.92E+00
HER-2 Signaling in Breast Cancer	1.90E+00
VEGF Family Ligand-Receptor Interactions	1.90E+00
Glutamate Degradation III (via 4-aminobutyrate)	1.89E+00
Trans, trans-farnesyl Diphosphate Biosynthesis	1.89E+00
PKC δ Signaling in T Lymphocytes	1.88E+00
Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis	1.88E+00
Colorectal Cancer Metastasis Signaling	1.86E+00
tRNA Charging	1.85E+00
Aldosterone Signaling in Epithelial Cells	1.82E+00
Cardiac β -adrenergic Signaling	1.81E+00
Neuroinflammation Signaling Pathway	1.77E+00
Superpathway of Cholesterol Biosynthesis	1.72E+00
Parkinson's Signaling	1.70E+00
Glioblastoma Multiforme Signaling	1.69E+00
Cancer Drug Resistance By Drug Efflux	1.69E+00
Oncostatin M Signaling	1.68E+00
GDNF Family Ligand-Receptor Interactions	1.65E+00
Neurotrophin/TRK Signaling	1.65E+00
CNTF Signaling	1.63E+00
Endometrial Cancer Signaling	1.63E+00
Superpathway of Geranylgeranyldiphosphate Biosynthesis I (via Mevalonate)	1.63E+00
Dopamine Receptor Signaling	1.62E+00
Reelin Signaling in Neurons	1.59E+00
Role of MAPK Signaling in the Pathogenesis of Influenza	1.59E+00
NGF Signaling	1.58E+00

Salvage Pathways of Pyrimidine Ribonucleotides	1.56E+00
Methylglyoxal Degradation III	1.56E+00
4-1BB Signaling in T Lymphocytes	1.53E+00
RAR Activation	1.53E+00
Sphingosine-1-phosphate Signaling	1.52E+00
PEDF Signaling	1.49E+00
Netrin Signaling	1.48E+00
Pyridoxal 5'-phosphate Salvage Pathway	1.48E+00
GP6 Signaling Pathway	1.48E+00
Superoxide Radicals Degradation	1.48E+00
Calcium-induced T Lymphocyte Apoptosis	1.45E+00
Regulation of Cellular Mechanics by Calpain Protease	1.45E+00
eNOS Signaling	1.45E+00
Inhibition of Angiogenesis by TSP1	1.44E+00
Melanoma Signaling	1.43E+00
Adenine and Adenosine Salvage VI	1.43E+00
D-mannose Degradation	1.43E+00
Glutamine Biosynthesis I	1.43E+00
Sulfite Oxidation IV	1.43E+00
Sperm Motility	1.43E+00
Thyroid Cancer Signaling	1.40E+00
SPINK1 General Cancer Pathway	1.37E+00
Systemic Lupus Erythematosus In T Cell Signaling Pathway	1.35E+00
HMGB1 Signaling	1.35E+00
G β \pm s Signaling	1.34E+00
Endothelin-1 Signaling	1.34E+00
Glucocorticoid Receptor Signaling	1.33E+00
IL-15 Signaling	1.32E+00
Calcium Transport I	1.29E+00
Prostate Cancer Signaling	1.28E+00
Superpathway of D-myo-inositol (1,4,5)-trisphosphate Metabolism	1.28E+00
GPCR-Mediated Integration of Enteroendocrine Signaling Exemplified by an L Cell	1.27E+00
Non-Small Cell Lung Cancer Signaling	1.27E+00
G β \pm 12/13 Signaling	1.27E+00
Estrogen-Dependent Breast Cancer Signaling	1.25E+00
IL-12 Signaling and Production in Macrophages	1.24E+00
$\dot{\text{I}}^3$ -glutamyl Cycle	1.22E+00
Angiopoietin Signaling	1.22E+00
Triacylglycerol Biosynthesis	1.19E+00
Tryptophan Degradation X (Mammalian, via Tryptamine)	1.19E+00
TGF- $\dot{\text{I}}^2$ Signaling	1.18E+00
Guanosine Nucleotides Degradation III	1.15E+00
Antiproliferative Role of TOB in T Cell Signaling	1.15E+00
Apelin Liver Signaling Pathway	1.15E+00
Lipid Antigen Presentation by CD1	1.15E+00
NAD Salvage Pathway II	1.15E+00
4-hydroxyproline Degradation I	1.14E+00
Asparagine Degradation I	1.14E+00
Cysteine Biosynthesis/Homocysteine Degradation	1.14E+00
Fatty Acid Biosynthesis Initiation II	1.14E+00

Formaldehyde Oxidation II (Glutathione-dependent)	1.14E+00
L-cysteine Degradation III	1.14E+00
L-glutamine Biosynthesis II (tRNA-dependent)	1.14E+00
Palmitate Biosynthesis I (Animals)	1.14E+00
IL-2 Signaling	1.12E+00
Apelin Pancreas Signaling Pathway	1.10E+00
Mevalonate Pathway I	1.09E+00
Urate Biosynthesis/Inosine 5'-phosphate Degradation	1.09E+00
Type II Diabetes Mellitus Signaling	1.08E+00
FLT3 Signaling in Hematopoietic Progenitor Cells	1.06E+00
Role of PI3K/AKT Signaling in the Pathogenesis of Influenza	1.05E+00
Chronic Myeloid Leukemia Signaling	1.05E+00
Mouse Embryonic Stem Cell Pluripotency	1.05E+00
Role of p14/p19ARF in Tumor Suppression	1.04E+00
IL-6 Signaling	1.03E+00
CD40 Signaling	1.03E+00
Glutaryl-CoA Degradation	1.03E+00
Phenylalanine Degradation IV (Mammalian, via Side Chain)	1.03E+00
Sonic Hedgehog Signaling	1.01E+00
Adenosine Nucleotides Degradation II	9.78E-01
5-aminoimidazole Ribonucleotide Biosynthesis I	9.69E-01
Aspartate Biosynthesis	9.69E-01
Geranylgeranyldiphosphate Biosynthesis	9.69E-01
Glutamate Degradation II	9.69E-01
NADH Repair	9.69E-01
Proline Degradation	9.69E-01
S-adenosyl-L-methionine Biosynthesis	9.69E-01
RANK Signaling in Osteoclasts	9.63E-01
Crosstalk between Dendritic Cells and Natural Killer Cells	9.46E-01
Granzyme B Signaling	9.31E-01
Vitamin-C Transport	9.31E-01
Growth Hormone Signaling	9.08E-01
D-myo-inositol (1,4,5)-trisphosphate Degradation	8.87E-01
Ubiquinol-10 Biosynthesis (Eukaryotic)	8.87E-01
Δ^3 -linolenate Biosynthesis II (Animals)	8.87E-01
Acute Phase Response Signaling	8.84E-01
CD27 Signaling in Lymphocytes	8.75E-01
Iron homeostasis signaling pathway	8.60E-01
Noradrenaline and Adrenaline Degradation	8.55E-01
Role of IL-17A in Arthritis	8.54E-01
Leptin Signaling in Obesity	8.53E-01
Arginine Degradation I (Arginase Pathway)	8.52E-01
Ascorbate Recycling (Cytosolic)	8.52E-01
Glutathione Redox Reactions II	8.52E-01
Heme Biosynthesis from Uroporphyrinogen-III I	8.52E-01
Heme Degradation	8.52E-01
L-cysteine Degradation I	8.52E-01
Melatonin Degradation II	8.52E-01
Molybdenum Cofactor Biosynthesis	8.52E-01
Spermine and Spermidine Degradation I	8.52E-01
1D-myo-inositol Hexakisphosphate Biosynthesis II	8.46E-01

(Mammalian)	
D-myo-inositol (1,3,4)-trisphosphate Biosynthesis	8.46E-01
FAT10 Signaling Pathway	8.46E-01
Purine Nucleotides Degradation II (Aerobic)	8.46E-01
Fc γ RIIB Signaling in B Lymphocytes	8.36E-01
Systemic Lupus Erythematosus In B Cell Signaling Pathway	8.36E-01
EGF Signaling	8.33E-01
Bladder Cancer Signaling	8.18E-01
Role of NANOG in Mammalian Embryonic Stem Cell Pluripotency	8.12E-01
UVA-Induced MAPK Signaling	8.04E-01
IL-7 Signaling Pathway	7.86E-01
Granzyme A Signaling	7.72E-01
The Visual Cycle	7.72E-01
Creatine-phosphate Biosynthesis	7.64E-01
Myo-inositol Biosynthesis	7.64E-01
JAK/Stat Signaling	7.54E-01
Regulation of the Epithelial-Mesenchymal Transition Pathway	7.40E-01
Endoplasmic Reticulum Stress Pathway	7.39E-01
Putrescine Degradation III	7.39E-01
Phagosome Formation	7.37E-01
PPAR Signaling	7.22E-01
B Cell Activating Factor Signaling	7.12E-01
nNOS Signaling in Skeletal Muscle Cells	7.12E-01
Polyamine Regulation in Colon Cancer	7.08E-01
Tryptophan Degradation III (Eukaryotic)	7.08E-01
TR/RXR Activation	6.95E-01
GDP-mannose Biosynthesis	6.92E-01
Lactose Degradation III	6.92E-01
Pyruvate Fermentation to Lactate	6.92E-01
Telomerase Signaling	6.84E-01
IL-4 Signaling	6.81E-01
Ethanol Degradation IV	6.79E-01
IL-17A Signaling in Airway Cells	6.70E-01
BAG2 Signaling Pathway	6.70E-01
Pancreatic Adenocarcinoma Signaling	6.60E-01
IL-22 Signaling	6.51E-01
Ceramide Signaling	6.41E-01
iCOS-iCOSL Signaling in T Helper Cells	6.36E-01
Acetyl-CoA Biosynthesis I (Pyruvate Dehydrogenase Complex)	6.33E-01
Aspartate Degradation II	6.33E-01
Thioredoxin Pathway	6.33E-01
STAT3 Pathway	6.26E-01
D-myo-inositol (1,4,5)-Trisphosphate Biosynthesis	6.25E-01
IL-17A Signaling in Gastric Cells	6.25E-01
Role of JAK family kinases in IL-6-type Cytokine Signaling	6.25E-01
HIF1 α Signaling	6.14E-01
Death Receptor Signaling	6.03E-01
IL-10 Signaling	5.96E-01
Role of JAK1 and JAK3 in \hat{I}^3c Cytokine Signaling	5.96E-01

Neuroprotective Role of THOP1 in Alzheimer's Disease	5.82E-01
Factors Promoting Cardiogenesis in Vertebrates	5.79E-01
Heme Biosynthesis II	5.40E-01
Leucine Degradation I	5.40E-01
Phosphatidylethanolamine Biosynthesis II	5.40E-01
Prostanoid Biosynthesis	5.40E-01
Dopamine Degradation	5.13E-01
Toll-like Receptor Signaling	5.06E-01
Phototransduction Pathway	5.03E-01
Dolichyl-diphosphooligosaccharide Biosynthesis	5.02E-01
Ketogenesis	5.02E-01
G Protein Signaling Mediated by Tubby	4.94E-01
VDR/RXR Activation	4.83E-01
SAPK/JNK Signaling	4.83E-01
Ethanol Degradation II	4.76E-01
Fatty Acid β -oxidation I	4.76E-01
Purine Nucleotides De Novo Biosynthesis II	4.68E-01
Role of BRCA1 in DNA Damage Response	4.61E-01
NF- κ B Signaling	4.59E-01
Cleavage and Polyadenylation of Pre-mRNA	4.38E-01
Glycogen Degradation II	4.38E-01
IL-17A Signaling in Fibroblasts	4.26E-01
Hepatic Cholestasis	4.25E-01
FGF Signaling	4.20E-01
SPINK1 Pancreatic Cancer Pathway	4.14E-01
Assembly of RNA Polymerase III Complex	4.11E-01
Cholesterol Biosynthesis I	4.11E-01
Cholesterol Biosynthesis II (via 24,25-dihydrolanosterol)	4.11E-01
Cholesterol Biosynthesis III (via Desmosterol)	4.11E-01
Fatty Acid Activation	4.11E-01
NAD Phosphorylation and Dephosphorylation	4.11E-01
Oleate Biosynthesis II (Animals)	4.11E-01
Type I Diabetes Mellitus Signaling	4.03E-01
PCP pathway	4.02E-01
Estrogen Receptor Signaling	3.99E-01
Wnt/Ca ⁺ pathway	3.91E-01
Colanic Acid Building Blocks Biosynthesis	3.86E-01
Glycogen Degradation III	3.86E-01
Docosahexaenoic Acid (DHA) Signaling	3.82E-01
Hereditary Breast Cancer Signaling	3.77E-01
CTLA4 Signaling in Cytotoxic T Lymphocytes	3.75E-01
April Mediated Signaling	3.69E-01
PXR/RXR Activation	3.61E-01
Estrogen Biosynthesis	3.44E-01
Role of PKR in Interferon Induction and Antiviral Response	3.44E-01
LPS/IL-1 Mediated Inhibition of RXR Function	3.44E-01
Chondroitin Sulfate Degradation (Metazoa)	3.43E-01
Extrinsic Prothrombin Activation Pathway	3.43E-01
Serotonin Degradation	3.41E-01
MIF Regulation of Innate Immunity	3.32E-01
Pyrimidine Ribonucleotides Interconversion	3.32E-01

IL-15 Production	3.29E-01
Histamine Degradation	3.24E-01
Mitochondrial L-carnitine Shuttle Pathway	3.24E-01
RAN Signaling	3.24E-01
Serotonin Receptor Signaling	3.21E-01
Systemic Lupus Erythematosus Signaling	3.15E-01
Pyrimidine Ribonucleotides De Novo Biosynthesis	3.10E-01
Role of IL-17F in Allergic Inflammatory Airway Diseases	2.99E-01
iNOS Signaling	2.99E-01
Role of Pattern Recognition Receptors in Recognition of Bacteria and Viruses	2.92E-01
Apelin Muscle Signaling Pathway	2.90E-01
Oxidative Ethanol Degradation III	2.90E-01
FAT10 Cancer Signaling Pathway	2.89E-01
Fatty Acid β -oxidation	2.75E-01
TNFR1 Signaling	2.53E-01
Antioxidant Action of Vitamin C	2.48E-01
Pyrimidine Deoxyribonucleotides De Novo Biosynthesis I	2.48E-01
Apelin Cardiac Fibroblast Signaling Pathway	2.36E-01
Lymphotoxin β Receptor Signaling	2.29E-01
Glutathione Redox Reactions I	2.24E-01
Tumoricidal Function of Hepatic Natural Killer Cells	2.24E-01
ATM Signaling	0.00E+00
Acetone Degradation I (to Methylglyoxal)	0.00E+00
Activation of IRF by Cytosolic Pattern Recognition Receptors	0.00E+00
Adipogenesis pathway	0.00E+00
Agranulocyte Adhesion and Diapedesis	0.00E+00
Antigen Presentation Pathway	0.00E+00
Aryl Hydrocarbon Receptor Signaling	0.00E+00
Atherosclerosis Signaling	0.00E+00
Basal Cell Carcinoma Signaling	0.00E+00
Cell Cycle: G1/S Checkpoint Regulation	0.00E+00
Chondroitin Sulfate Biosynthesis	0.00E+00
Chondroitin Sulfate Biosynthesis (Late Stages)	0.00E+00
Circadian Rhythm Signaling	0.00E+00
Coagulation System	0.00E+00
Cyclins and Cell Cycle Regulation	0.00E+00
Cytotoxic T Lymphocyte-mediated Apoptosis of Target Cells	0.00E+00
Dendritic Cell Maturation	0.00E+00
Dermatan Sulfate Biosynthesis	0.00E+00
Dermatan Sulfate Biosynthesis (Late Stages)	0.00E+00
FXR/RXR Activation	0.00E+00
Granulocyte Adhesion and Diapedesis	0.00E+00
Gustation Pathway	0.00E+00
HOTAIR Regulatory Pathway	0.00E+00
Heparan Sulfate Biosynthesis	0.00E+00
Heparan Sulfate Biosynthesis (Late Stages)	0.00E+00
Human Embryonic Stem Cell Pluripotency	0.00E+00
LXR/RXR Activation	0.00E+00
MIF-mediated Glucocorticoid Regulation	0.00E+00

Network 3	<p>Associated network functions: Developmental Disorder, Neurological Disease, Organismal Injury and Abnormalities</p> <p>Number of “focus molecules” contained in the network: 30</p> <p>IPA p-score: 42</p> <p>Network proteins: 14-3-3 (Î²,Î¼,Î¶),ACTB,ATAT1,C2orf72,CD81,DCPS,EEF1A1,EMD,Gm10358,HIST1H1C,HTRA2,IFN</p>
Network 4	<p>Associated network functions: Protein Synthesis, Cellular Compromise, Inflammatory Response</p> <p>Number of “focus molecules” contained in the network: 29</p> <p>IPA p-score: 39</p> <p>Network proteins: ARSB,CPED1,CROCC,CST3,CTSA,CTSZ,Cathepsin,ENDOD1,ERGIC1,Ephb,FIS1,GLB1,Glycoprotein</p>
Network 5	<p>Associated network functions: Cellular Movement, Molecular Transport, Developmental Disorder</p> <p>Number of “focus molecules” contained in the network: 29</p> <p>IPA p-score: 39</p> <p>Network proteins: 14-3-3(Î²,Î³,Î±,Î¶),14-3-3(Î±,Î¶),ANXA3,ATAD3A,CA2,CA4,CADM3,CALB1,CLNS1A,CYFIP2,EPB41L2,EPB41L3, FN3KRP,IDI1,IGSF21,IMPA1,Integrin alpha 3 beta 1,KCNMA1,LIN7A,MARK1,MPC1,MPC2,MPP1,MPP2,NPL,PLL,PLPP3,SARNP,SERPINB6, SLC4A4,TLR7/8,Vegf,WDR45,YWHAH,c- Src</p>
Network 6	<p>Associated network functions: RNA Post-Transcriptional Modification, Cellular Assembly and Organization, RNA Trafficking</p> <p>Number of “focus molecules” contained in the network: 29</p> <p>IPA p-score: 39</p> <p>Network proteins: AIMP1,ARHGEF2,ASPA,Akr1b7,Bola2,C11orf58,CDK4/6,CIAPIN1,CIT,Cadherin,DARS,DEC R1,FAM120A,GGCT,GGPS1,GTPase,Hnrnpa3,IARS,IMPACT,Ktn1,LARS,MYL12A,Nuclear factor 1,OSGEP,PKP4,RHOA,RRAS2,SLC25A22,SLC44A1,STMN3,SWI-SNF,TSNAX,VCPIP1,Wasl,aminoacylase</p>
Network 7	<p>Associated network functions: Cellular Assembly and Organization, Cell Morphology, Cellular Function and Maintenance</p> <p>Number of “focus molecules” contained in the network: 29</p> <p>IPA p-score: 39</p> <p>Network proteins: ARMCX3,ATG,ATG5,ATG9A,CALCOCO1,CAVIN1,CFAP57,EEF1A2,ERLIN2,EXOC1,Fgfr, GABARAPL2,GBA,GRIPAP1,HCCS,IntegrinÎ²,MAP1LC3,MAP1LC3A,PITHD1,PTK2,RAB14, RAB1A,RAB21,RAB2A,RAB7A,RHOT1,RPRD1A,RPRD1B,SNX1,Srebp,UFD1,VPS26B,VPS29,WDFY3,collagen type i (family)</p>

Network 8	<p>Associated network functions: Lipid Metabolism, Nucleic Acid Metabolism, Small Molecule Biochemistry</p> <p>Number of “focus molecules” contained in the network: 29</p> <p>IPA p-score: 39</p> <p>Network proteins: ACOT11,ACOT7,ACOT9,AHSA1,ALDOA,ALDOC,CLPB,DBI,DDX1,DNM1L,EGLN,EXO,G RHPR,Hif1,IDH1,IDH3B,Insulin,LDHA,LZTFL1,MPI,PGK1,PPT1,PSMA3,Pgk,RAB1B,RAB35, RTCB,RTRAF,Rp132,S100A14,SLC16A1,THSD7A,TPI1,acyl-CoA hydrolase,palmitoyl-CoA hydrolase</p>
Network 9	<p>Associated network functions: Cellular Assembly and Organization, Infectious Diseases, Cell Morphology</p> <p>Number of “focus molecules” contained in the network: 28</p> <p>IPA p-score: 37</p> <p>Network proteins: AK1,Ant,CMTM5,COPA,COPB2,COPE,ENAH,FAM192A,GIPC1,GRPEL1,H1F0,KRT77,Mapk, Mpt</p>
Network 10	<p>Associated network functions: Protein Synthesis, RNA Damage and Repair, Cancer</p> <p>Number of “focus molecules” contained in the network: 28</p> <p>IPA p-score: 37</p> <p>Network proteins: 60S ribosomal</p>
Network 11	<p>Associated network functions: Infectious Diseases, Organismal Injury and Abnormalities, Neurological Disease</p> <p>Number of “focus molecules” contained in the network: 27</p> <p>IPA p-score: 35</p> <p>Network proteins: AIP,ATXN10,BASP1,CACYBP,CENPV,Complement,DNAJB2,DNAJB6,DNAJC3,DNAJC8,FA RSA,FYN,HSP,HSPA12A,Hdac,Hsp22/Hsp40/Hsp90,Hsp70,Hsp90,LACTB,MHC Class II (complex),MLF2,MPST,MRPS16,MYO18A,NBEA,POLDIP2,PPP1R12A,PTGES3,RNH1,SMYD 5,SYNPO,TMEM132A,TUBA1C,Tlr,YTHDF3</p>
Network 12	<p>Associated network functions: Post-Translational Modification, Cellular Development, Cellular Growth and Proliferation</p> <p>Number of “focus molecules” contained in the network: 26</p> <p>IPA p-score: 33</p> <p>Network proteins: 19S proteasome,ANKS1B,ASRGL1,CLASP2,Cops2,GSK3B,Immunoproteasome Pa28/20s,LXN,METTL7A,MOB1B,NT5DC3,P</p>

	glycoprotein,PDP1,PPP1R2,PRXL2A,PSMB,PSMB2,PSMB3,PSMD,PSMD13,Pdi,Proteasome PA700/20s,RTN1,Rbx1,TRIM3,TUBAL3,UBE2,UBE2D2,UBE2E2,UBE2J1,UBE2M,UBE2O,UBE2R2,UBE2V2,Ubiquitin
Network 13	<p>Associated network functions: RNA Damage and Repair, Cancer, Cell Death and Survival</p> <p>Number of “focus molecules” contained in the network: 26</p> <p>IPA p-score: 33</p> <p>Network proteins: Atrial Natriuretic Peptide,CCAR2,CTNND1,FTO,Fcer1,GSK3A,HAGH,HLA-DR,HNRNPC,HSD17B4,KIF5B,MAGOH,P-TEFb,PI3K (family),PI3K p85,PPM1A,RALY,RPS11,RPS13,RPS15A,RPS17,RPS18,RPS25,RPS7,RPS8,Rac,Rsk,SF3A1,SF3A3,SF3B1,SNRNP40,SNRPF,SNRPN,Srsf5,snRNP</p>
Network 14	<p>Associated network functions: Cellular Function and Maintenance, Small Molecule Biochemistry, Molecular Transport</p> <p>Number of “focus molecules” contained in the network: 25</p> <p>IPA p-score: 31</p> <p>Network proteins: AAK1,AP2S1,ATP1A2,ATP1A3,ATP1A4,ATP1B1,ATP1B2,Ap2 alpha,Ap2b1,Beta adaptin,CADPS,CAPRIN1,CPOX,CYFIP1,ERK1/2,FXYD7,GABA receptor,GABA-A receptor,GABRB2,GABRG2,GPHN,ITPR,ITSN1,MLC1,NWASP,Na+,K+ - ATPase,Na-k-atpase,Ncx,PHACTR1,RAB11FIP2,SGIP1,SNAP91,SV2A,TPD52L2,WNK2</p>
Network 15	<p>Associated network functions: Developmental Disorder, Hereditary Disorder, Metabolic Disease</p> <p>Number of “focus molecules” contained in the network: 25</p> <p>IPA p-score: 31</p> <p>Network proteins: ADK,Akt,CNTN2,Cytochrome bc1,DIP2A,FBXO2,GLO1,Hif,IBA57,KCNA1,LGI1,MCU,MT-ND3,Mitochondrial complex 1,NADH dehydrogenase,NDUFA12,NDUFB4,NDUFB6,NDUFV1,NFASC,OPCML,Oxphos,PDGF-DD,PDK,PDK3,RMDN3,SCN2A,SLC17A7,SPTBN4,UQCRC1,UQCRC2,UQCRFS1,UQCRHL, pyruvate dehydrogenase,voltage-gated sodium channel</p>
Network 16	<p>Associated network functions: Carbohydrate Metabolism, Small Molecule Biochemistry, Cell Morphology</p> <p>Number of “focus molecules” contained in the network: 25</p> <p>IPA p-score: 31</p> <p>Network proteins: 6-phosphofructokinase,AIDA,ARF3,ARF6,Adaptor protein 1,Angiotensin II receptor type 1,Arf,BTBD8,COP I,COPG1,DDAH1,Dgk,ECHDC1,ELMOD1,FSD1,GGA1,GGA3,HMGCS1,IL-1R,Jnk,MKK1/4,MTCH1,NCLN,NUDC,PFKL,PFKM,PFKP,PYGB,RABGAP1,SLC1A2,SLK,SYNRG,TSPAN2,WIPI2,phosphofructokinase</p>
Network 17	<p>Associated network functions: Post-Translational Modification, Gene Expression, RNA Damage and Repair</p>

	<p>Number of “focus molecules” contained in the network: 24</p> <p>IPA p-score: 29</p> <p>Network proteins: 20s proteasome,26s Proteasome,ABRAXAS2,ATPase,Alpha</p>
Network 18	<p>Associated network functions: Cardiovascular System Development and Function, Organ Development, Cellular Assembly and Organization</p> <p>Number of “focus molecules” contained in the network: 23</p> <p>IPA p-score:27</p> <p>Network proteins: ACP1,ARHGDI A,Calcineurin A,Ck2,EPHX2,Histone H1,IGBP1,IPO7,Importin alpha,Importin beta,KIFAP3,NUDT5,PFK,PLP1,PPFIA2,PPFIA3,PPM1H,PPP1R13B,PPP1R1A,PPP1R7,PPP3CA,PRKACB,PTPN23,Pdgf (complex),Pp1c,RAN,RIMS3,RPS6KB1,Ras homolog,S100A13,SYNJ1,VPS25,amylase,cAMP-dependent protein kinase,phosphatase</p>
Network 19	<p>Associated network functions: Protein Synthesis, Cardiac Arrhythmia, Cardiovascular Disease</p> <p>Number of “focus molecules” contained in the network: 22</p> <p>IPA p-score: 26</p> <p>Network proteins: API5,ARHGAP35,ATP6V1C1,ATXN2L,CFDP1,CRTC1,DPP6,EIF3,EIF3J,EIF3M,EIF4A,EIF4A1,EIF4F,EIF4G3,ERK,Eif4g,IDH3G,KHSRP,MATR3,NADP Isocitrate</p>
Network 20	<p>Associated network functions: Cell Signaling, Cellular Assembly and Organization, Energy Production</p> <p>Number of “focus molecules” contained in the network: 22</p> <p>IPA p-score: 26</p> <p>Network proteins: ABI-2-CYFIP2-HSPC300-NCKAP1-WAVE,ABI2,ABR,ARHGAP44,ARHGEF,ATP synthase,ATP5MF,ATP5PB,ATP5PD,ATP5PO,ATP6AP1,ATP6V0A1,ATP6V1H,BRK1,CPNE1,Diap,Enolase,Erm,F0 ATP synthase,H+-transporting two-sector ATPase,HACD3,KIAA1217,LAMTOR5,NCKAP1,NDUFS3,PIP5K,PITPNM2,RAC1,RRAGB,Rho gdi,TENM4,TSM,Vacuolar H+ ATPase,adenosine-tetraphosphatase,aldo</p>
Network 21	<p>Associated network functions: Cell Cycle, Renal and Urological System Development and Function, Embryonic Development</p> <p>Number of “focus molecules” contained in the network: 22</p> <p>IPA p-score: 26</p> <p>Network proteins: AHCY,AHCYL1,AHCYL2,AMPK,APC,BORCS5,CD34,CDS2,CLIP1,COQ3,CS,CTBP1,Cyclin A,Cyclin D,Cyclin E,E2f,GCN1,GJA1,GRN,HDL,IDH2,IL12</p>

	(family),MCCC2,PA2G4,PAFAH1B1,PRKAB2,RPS4Y1,Rb,SYNE1,TCF,TMED7,adenosylhomo cysteinase,glutathione peroxidase,mediator,succinate dehydrogenase
Network 22	<p>Associated network functions: Drug Metabolism, Molecular Transport, Lipid Metabolism</p> <p>Number of “focus molecules” contained in the network: 21</p> <p>IPA p-score: 24</p> <p>Network proteins: ABCB1,AP2M1,ATP8A1,ATP9A,Actin,Adaptor protein,Adaptor protein 2,Ap1 gamma,Ap2,Beta Arrestin,CAB39L,CLTC,Clathrin,Endophilin,FBXL16,GRIN1,Gpcr,HIP1R,HPCAL4,L1CAM,Lfa-1,MARK2,Mg2+-ATPase,NCALD,NDUFA3,NDUFAF1,NDUFB5,NRXN1,PPP1R21,RAB,Rab11,SH3GL1,Spectrin,TFRC,TMEM30A</p>
Network 23	<p>Associated network functions: Cellular Assembly and Organization, RNA Post-Transcriptional Modification, Protein Trafficking</p> <p>Number of “focus molecules” contained in the network: 21</p> <p>IPA p-score: 24</p> <p>Network proteins: Alp,Alpha catenin,BSG,BTAF1,CD3,CHORDC1,DDI2,ELAVL3,GLUL,HABP4,HGS,HNRNPM,HTT,IKK (complex),IL12 (complex),Interferon alpha,JAK1/2,MAP2K4,Metalloprotease,PRKCG,Pdgfr,Pro-inflammatory Cytokine,Rbfox3,Rock,SDCBP,SERBP1,SGTB,SRSF2,Sfk,TJP1,TLN2,Tnf (family),UBE2I,USP9X,chemokine</p>
Network 24	<p>Associated network functions: Cellular Assembly and Organization, Cell-To-Cell Signaling and Interaction, Nervous System Development and Function</p> <p>Number of “focus molecules” contained in the network: 20</p> <p>IPA p-score: 22</p> <p>Network proteins: ATP6V0C,Caveolin,Dynamin,GDI1,GDI2,GRI,N-type Calcium Channel,NAPG,NSF,Neurexin,PACSIN2,PITPNB,Par6,Pkc(s),RAB4,RAB5A,RABEP1,Rab5,SLC6A9,SNAP25,SNAP29,STX12,STX2,STX4,STX6,SYP,Snare,Synapsin,Synaptotagmin,Syntaxin,Syntaxin1,VAMP1,VAMP2,YKT6,tubulin (family)</p>
Network 25	<p>Associated network functions: Cellular Assembly and Organization, Lipid Metabolism, Small Molecule Biochemistry</p> <p>Number of “focus molecules” contained in the network: 19</p> <p>IPA p-score: 20</p> <p>Network proteins: 1-acylglycerol-3-phosphate O-acyltransferase,ABCB7,ACSL6,ACTR2,AGPAT3,ARPC1A,ARPC3,ARPC4,Aconitase,Alpha actin,Ampa Receptor,BETA TUBULIN,CAMK2,CD3 group,CD82,DLG1,Dlg,Dynein,EF-1 alpha,GPM6A,GRIA3,Guk,LPCAT4,MBOAT7,MEF2,METAP2,MPP6,N-Cadherin,P38 MAPK,PDCL3,PGRMC1,PKC alpha/beta,Pp2b,SNCB,SUCLA2</p>