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## PATHWAY ANALYSIS



Analysis Name: PCNSL\_vs\_M\_FC2.5\_FDR\_0.05\_subset\_177-refined - 2018-02-26 03:35 PM

Analysis Creation Date: 2018-02-26

Build version: 463341M

Content version: 42012434 (Release Date: 2017-12-07)

### Top Canonical Pathways

Name	p-value	Overlap
Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis	6.77E-05	3.2 % 10/312
IL-8 Signaling	7.26E-05	4.1 % 8/197
Estrogen-Dependent Breast Cancer Signaling	2.26E-04	6.3 % 5/79
Erythropoietin Signaling	2.54E-04	6.2 % 5/81
Macropinocytosis Signaling	2.54E-04	6.2 % 5/81

### Top Upstream Regulators

Upstream Regulator	p-value of overlap	Predicted Activation
CSF2	9.25E-06	
AHR	4.99E-05	
TGFBR1	5.54E-05	Inhibited
IKZF1	1.37E-04	
Cg	1.88E-04	

### Top Diseases and Bio Functions

#### Diseases and Disorders

Name	p-value	#Molecules
Cancer	5.66E-03 - 2.25E-11	149

Organismal Injury and Abnormalities	5.66E-03 - 2.25E-11	149
Inflammatory Response	5.62E-03 - 3.23E-08	61
Gastrointestinal Disease	5.40E-03 - 8.16E-07	139
Connective Tissue Disorders	4.47E-03 - 2.08E-06	46

### Molecular and Cellular Functions

Name	p-value	#Molecules
Cellular Movement	5.40E-03 - 3.63E-08	45
Cellular Function and Maintenance	5.37E-03 - 2.21E-07	48
Cellular Development	5.40E-03 - 7.61E-07	57
Cellular Growth and Proliferation	5.40E-03 - 7.61E-07	60
Cell Death and Survival	5.40E-03 - 1.21E-06	54

### Physiological System Development and Function

Name	p-value	#Molecules
Hematological System Development and Function	5.60E-03 - 2.13E-09	55
Tissue Morphology	5.60E-03 - 2.13E-09	52
Immune Cell Trafficking	5.40E-03 - 3.63E-08	33
Hematopoiesis	5.37E-03 - 7.61E-07	27
Lymphoid Tissue Structure and Development	5.60E-03 - 7.61E-07	44

### Top Tox Functions

#### Assays: Clinical Chemistry and Hematology

Name	p-value	#Molecules
Increased Levels of Hematocrit	4.53E-03 - 4.53E-03	4
Increased Levels of Creatinine	5.07E-03 - 5.07E-03	3
Decreased Levels of Albumin	8.03E-02 - 8.03E-02	1

Increased Levels of Blood Urea Nitrogen	1.18E-01 - 1.18E-01	1
Increased Levels of Red Blood Cells	1.58E-01 - 1.58E-01	2

**Cardiotoxicity**

Name	p-value	#Molecules
Cardiac Inflammation	2.07E-02 - 1.52E-03	4
Cardiac Dilation	3.38E-01 - 6.95E-03	6
Congenital Heart Anomaly	3.38E-01 - 6.95E-03	2
Cardiac Hypoplasia	9.93E-02 - 2.75E-02	2
Cardiac Infarction	8.67E-02 - 3.58E-02	5

**Hepatotoxicity**

Name	p-value	#Molecules
Liver Damage	3.99E-01 - 2.08E-04	5
Liver Inflammation/Hepatitis	3.99E-01 - 2.47E-04	11
Liver Hyperplasia/Hyperproliferation	2.22E-01 - 5.39E-03	95
Liver Necrosis/Cell Death	2.62E-01 - 1.50E-02	6
Liver Steatosis	2.44E-01 - 5.42E-02	6

**Nephrotoxicity**

Name	p-value	#Molecules
Renal Damage	3.04E-01 - 2.27E-03	6
Renal Tubule Injury	4.74E-03 - 4.74E-03	2
Renal Dysfunction	2.07E-02 - 1.01E-02	2
Renal Necrosis/Cell Death	4.20E-01 - 1.29E-02	8
Renal Proliferation	1.56E-01 - 2.07E-02	3

### Top Regulator Effect Networks

ID	Regulators	Diseases & Functions	Consistency Score
1	TNF	Cell death of macrophages (+5 more)	6.425
2	IL4,TGFBR1	Adhesion of blood cells,Binding of myeloid cells (+5 more)	6.325
3	TNF	Edema	-5.367
4	TGM2	Production of reactive oxygen species	-7.506

### Top Networks

ID	Associated Network Functions	Score
1	Hematological System Development and Function, Lymphoid Tissue Structure and Development, Tissue Morphology	43
2	Hair and Skin Development and Function, Cellular Movement, Developmental Disorder	38
3	Cellular Development, Cellular Growth and Proliferation, Hematological System Development and Function	36
4	Cell Death and Survival, Organismal Injury and Abnormalities, Embryonic Development	20
5	Protein Synthesis, Lipid Metabolism, Molecular Transport	18

### Top Tox Lists

Name	p-value	Overlap
<a href="#">Increases Liver Hepatitis</a>	1.00E-05	8.5 % 6/71
<a href="#">Increases Renal Damage</a>	4.81E-04	5.4 % 5/93
<a href="#">Hepatic Cholestasis</a>	9.87E-04	3.7 % 6/163
<a href="#">Increases Cardiac Dilation</a>	2.50E-03	7.7 % 3/39
<a href="#">NF-B Signaling</a>	2.92E-03	2.6 % 7/271

### Top Analysis-Ready Molecules

#### Expr Fold Change up-regulated

Molecules	Expr. Value	Expr. Chart
<b>ADORA3*</b>	↑ 45.085	
<b>CDH19*</b>	↑ 27.167	
<b>CDHR3</b>	↑ 11.250	
<b>ABCG2</b>	↑ 11.101	
<b>CCDC88A*</b>	↑ 10.694	
<b>BCL7A*</b>	↑ 10.267	
<b>LGR4</b>	↑ 9.063	
<b>GATM*</b>	↑ 8.764	
<b>GNAS</b>	↑ 7.618	
<b>PHGDH</b>	↑ 7.466	

**Expr Fold Change down-regulated**

Molecules	Expr. Value	Expr. Chart
<b>PAPLN</b>	↓ -20.407	
<b>CLMP*</b>	↓ -19.831	
<b>MRC1</b>	↓ -18.930	
<b>PRKCQ*</b>	↓ -15.617	
<b>PDE3B*</b>	↓ -14.861	
<b>XCR1</b>	↓ -14.392	
<b>FMO2*</b>	↓ -13.807	
<b>CRISPLD2</b>	↓ -13.422	
<b>PLVAP</b>	↓ -13.236	
<b>GAS1</b>	↓ -13.201	