

Pathway description	Gene count	FDR	Matching proteins in network
Jak-STAT signaling pathway	24	8.44E-15	IL22,IL20,IL24,IL20RA,IL20RB,IL22RA2,IFNL2,IFNL1,STAT4,JAK2,JAK3,IFNL3,JAK1,STAT5A,STAT5B,STAT1,IL10RB,STAT2,STAT3,IL19,PTPN11,IFNLR1,TYK2,IL22RA1
Jak-STAT signaling pathway	24	8.44E-15	IL22,IL20,IL24,IL20RA,IL20RB,IL22RA2,IFNL2,IFNL1,STAT4,JAK2,JAK3,IFNL3,JAK1,STAT5A,STAT5B,STAT1,IL10RB,STAT2,STAT3,IL19,PTPN11,IFNLR1,TYK2,IL22RA1
Cytokine-cytokine receptor interaction	14	8.44E-15	IL22,IL20,IL26,IL24,IL20RA,IL20RB,IL22RA2,IFNL2,IFNL1,IFNL3,IL10RB,IL19,IFNLR1,IL22RA1
IL27-mediated signaling events	8	5.06E-14	STAT4,JAK2,JAK1,STAT5A,STAT1,STAT2,STAT3,TYK2
IL23-mediated signaling events	8	6.64E-13	IL24,STAT4,JAK2,STAT5A,STAT1,STAT3,IL19,TYK2
Interleukin-2 family signaling	8	1.04E-12	STAT4,JAK2,JAK3,JAK1,STAT5A,STAT5B,STAT1,STAT3
il22 soluble receptor signaling pathway	6	2.85E-12	IL22,IL22RA2,JAK2,STAT5A,STAT1,STAT3
Necroptosis	10	2.98E-11	STAT4,JAK2,JAK3,JAK1,STAT5A,STAT5B,STAT1,STAT2,STAT3,TYK2
Th17 cell differentiation	9	2.98E-11	IL22,JAK2,JAK3,JAK1,STAT5A,STAT5B,STAT1,STAT3,TYK2
Measles	9	2.19E-10	JAK2,JAK3,JAK1,STAT5A,STAT5B,STAT1,STAT2,STAT3,TYK2
Th1 and Th2 cell differentiation	8	4.00E-10	STAT4,JAK2,JAK3,JAK1,STAT5A,STAT5B,STAT1,TYK2
IL2-mediated signaling events	7	5.17E-10	JAK3,JAK1,STAT5A,STAT5B,STAT1,STAT3,PTPN11
Signaling by Leptin	5	8.17E-10	JAK2,STAT5A,STAT5B,STAT3,PTPN11
il 6 signaling pathway	5	1.77E-09	JAK2,JAK3,JAK1,STAT3,PTPN11
Signaling events mediated by TCPTP	6	2.37E-09	JAK3,JAK1,STAT5A,STAT5B,STAT1,STAT3
GM-CSF-mediated signaling events	6	3.08E-09	JAK2,STAT5A,STAT5B,STAT1,STAT3,PTPN11
Interleukin-3, 5 and GM-CSF signaling	6	3.35E-09	JAK2,JAK3,JAK1,STAT5A,STAT5B,PTPN11
Signaling by SCF-KIT	6	4.85E-09	JAK2,STAT5A,STAT5B,STAT1,STAT3,PTPN11

CXCR4-mediated signaling events	7	4.93E-09	JAK2,STAT5A,STAT5B,STAT1,STAT2,STAT3,PTPN11
IL6-mediated signaling events	6	1.00E-08	JAK2,JAK1,STAT1,STAT3,PTPN11, TYK2
stat3 signaling pathway	4	1.04E-08	JAK2,JAK3,JAK1,STAT3
Interleukin-7 signaling	5	1.51E-08	JAK3,JAK1,STAT5A,STAT5B,STAT3
Interleukin-6 family signaling	5	1.70E-08	JAK2,JAK1,STAT1,STAT3,PTPN11
Interleukin-12 family signaling	6	2.08E-08	STAT4,JAK2,JAK1,STAT1,STAT3, TYK2
Growth hormone receptor signaling	5	2.10E-08	JAK2,STAT5A,STAT5B,STAT1,STAT3
Other interleukin signaling	5	2.28E-08	IFNL1,JAK1,IL10RB,IFNLR1, TYK2
IL12-mediated signaling events	6	3.41E-08	STAT4,JAK2,STAT5A,STAT1,STAT3, TYK2
EPO signaling pathway	5	9.04E-08	JAK2,STAT5A,STAT5B,STAT1,PTPN11
Hepatitis B	7	1.77E-07	STAT4,JAK1,STAT5A,STAT5B,STAT1,STAT2,STAT3
IL5-mediated signaling events	4	2.13E-07	JAK2,STAT5A,STAT5B,PTPN11
Prolactin receptor signaling	4	2.80E-07	JAK2,STAT5A,STAT5B,PTPN11
Interferon-gamma signaling pathway	4	2.80E-07	JAK2,JAK1,STAT1,PTPN11
Signaling by PDGF	5	5.82E-07	STAT5A,STAT5B,STAT1,STAT3,PTPN11
SHP2 signaling	5	5.82E-07	JAK2,JAK3,JAK1,STAT1,PTPN11
Signaling events mediated by Stem cell factor receptor (c-Kit)	5	6.40E-07	JAK2,STAT5A,STAT1,STAT3,PTPN11
Signaling events mediated by PTP1B	5	6.40E-07	JAK2,STAT5A,STAT5B,STAT3, TYK2
Interleukin-4 and 13 signaling	6	8.18E-07	JAK2,JAK3,JAK1,STAT1,STAT3, TYK2
Toxoplasmosis	6	1.13E-06	JAK2,JAK1,STAT1,IL10RB,STAT3, TYK2
PDGFR-beta signaling pathway	6	1.13E-06	JAK2,STAT5A,STAT5B,STAT1,STAT3,PTPN11
IL4-mediated signaling events	5	1.48E-06	JAK2,JAK3,JAK1,STAT5A,STAT5B
tpo signaling pathway	4	1.52E-06	JAK2,STAT5A,STAT1,STAT3
IL3-mediated signaling events	4	1.77E-06	JAK2,STAT5A,STAT5B,PTPN11
bioactive peptide induced signaling pathway	4	1.77E-06	JAK2,STAT5A,STAT1,STAT3
Interferon alpha/beta signaling	5	2.11E-06	JAK1,STAT1,STAT2,PTPN11, TYK2
role of erbb2 in signal transduction	4	2.11E-06	JAK2,JAK3,JAK1,STAT3

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Prolactin signaling pathway	5	2.11E-06	JAK2,STAT5A,STAT5B,STAT1,STAT3
ifn alpha signaling pathway	3	3.33E-06	JAK2,STAT1,STAT2
EGF receptor signaling pathway	5	3.98E-06	STAT4,STAT5A,STAT5B,STAT1,STAT3
IFN-gamma pathway	4	7.79E-06	JAK2,JAK1,STAT1,PTPN11
Kaposi's sarcoma-associated herpesvirus infection	6	9.45E-06	JAK2,JAK1,STAT1,STAT2,STAT3,TYK2
AGE-RAGE signaling pathway in diabetic complications	5	1.10E-05	JAK2,STAT5A,STAT5B,STAT1,STAT3
Herpes simplex infection	6	1.11E-05	JAK2,JAK1,STAT1,STAT2,PTPN11,TYK2
epo signaling pathway	3	1.12E-05	JAK2,STAT5A,PTPN11
Chemokine signaling pathway	6	1.18E-05	JAK2,JAK3,STAT5B,STAT1,STAT2,STAT3
il 3 signaling pathway	3	1.42E-05	JAK2,STAT5A,PTPN11
Interleukin-10 signaling	4	1.47E-05	JAK1,IL10RB,STAT3,TYK2
GPVI-mediated activation cascade	4	1.73E-05	JAK2,JAK3,JAK1,PTPN11
RAF-independent MAPK1/3 activation	3	1.97E-05	JAK2,JAK1,PTPN11
Interleukin signaling pathway	4	2.04E-05	IL20RA,JAK3,STAT5A,STAT5B
Hepatitis C	5	3.10E-05	JAK1,STAT1,STAT2,STAT3,TYK2
Inflammatory bowel disease (IBD)	4	3.92E-05	IL22,STAT4,STAT1,STAT3
egf signaling pathway	3	4.43E-05	JAK2,STAT1,STAT3
erk1/erk2 mapk signaling pathway	3	4.43E-05	JAK2,STAT3,PTPN11
growth hormone signaling pathway	3	4.43E-05	JAK2,STAT5A,PTPN11
inhibition of cellular proliferation by gleevec	3	5.08E-05	JAK2,STAT5A,STAT1
Interferon gamma signaling	4	6.17E-05	JAK2,JAK1,STAT1,PTPN11
pdgf signaling pathway	3	8.34E-05	JAK2,STAT1,STAT3
IL2 signaling events mediated by STAT5	3	1.04E-04	JAK3,JAK1,PTPN11
ErbB4 signaling events	3	1.04E-04	JAK2,STAT5A,STAT5B
ifn gamma signaling pathway	2	1.14E-04	JAK2,STAT1
Influenza A	5	1.15E-04	JAK2,JAK1,STAT1,STAT2,TYK2
EGF receptor (ErbB1) signaling pathway	3	1.15E-04	STAT1,STAT3,PTPN11
G-protein beta:gamma signalling	3	1.54E-04	JAK2,JAK3,JAK1
IL2 signaling events mediated by PI3K	3	1.58E-04	JAK3,JAK1,PTPN11
Viral carcinogenesis	5	1.58E-04	JAK3,JAK1,STAT5A,STAT5B,STAT3

ErbB2/ErbB3 signaling events	3	1.58E-04	JAK2,STAT3,PTPN11
Epstein-Barr virus infection	5	1.58E-04	JAK3,JAK1,IL10RB,STAT3,TYK2
cell to cell adhesion signaling	2	1.71E-04	JAK2,PTPN11
il-2 receptor beta chain in t cell activation	3	2.62E-04	JAK2,STAT5A,PTPN11
FGF signaling pathway	3	3.18E-04	STAT5B,STAT1,PTPN11
Angiopoietin receptor Tie2-mediated signaling	3	3.82E-04	STAT5A,STAT5B,PTPN11
Osteoclast differentiation	4	4.02E-04	JAK1,STAT1,STAT2,TYK2
no2-dependent il-12 pathway in nk cells	2	4.73E-04	STAT4,JAK2
Signaling pathways regulating pluripotency of stem cells	4	5.31E-04	JAK2,JAK3,JAK1,STAT3
Acute myeloid leukemia	3	5.59E-04	STAT5A,STAT5B,STAT3
il-7 signal transduction	2	5.71E-04	JAK2,STAT5A
lck and fyn tyrosine kinases in initiation of tcr activation	2	5.71E-04	JAK2,PTPN11
il 2 signaling pathway	2	5.71E-04	JAK2,STAT5A
il-10 anti-inflammatory signaling pathway	2	6.79E-04	JAK2,IL10RB
il12 and stat4 dependent signaling pathway in th1 development	2	7.96E-04	STAT4,JAK2
Pancreatic cancer	3	8.57E-04	JAK1,STAT1,STAT3
Angiogenesis	3	8.57E-04	JAK1,STAT1,STAT3
Adipocytokine signaling pathway	3	1.02E-03	JAK2,STAT3,PTPN11
NOD-like receptor signaling pathway	4	1.04E-03	JAK1,STAT1,STAT2,TYK2
Leishmaniasis	3	1.15E-03	JAK2,JAK1,STAT1
Chronic myeloid leukemia	3	1.15E-03	STAT5A,STAT5B,PTPN11
Tuberculosis	4	1.27E-03	JAK2,JAK1,STAT1,IL10RB
EGFR tyrosine kinase inhibitor resistance	3	1.55E-03	JAK2,JAK1,STAT3
the co-stimulatory signal during t-cell activation	2	1.87E-03	JAK2,PTPN11
cell cycle: g1/s check point	2	2.05E-03	JAK2,PTPN11
how progesterone initiates the oocyte maturation	2	2.05E-03	JAK2,PTPN11
role of mef2d in t-cell apoptosis	2	2.46E-03	JAK2,PTPN11
ras-independent pathway in nk cell-mediated cytotoxicity	2	2.90E-03	JAK2,PTPN11
Pathways in cancer	5	3.30E-03	JAK1,STAT5A,STAT5B,STAT1,STAT3
CD40/CD40L signaling	2	3.88E-03	JAK3,STAT5A
IL12 signaling mediated by	2	4.42E-03	STAT4,STAT3

STAT4			
HTLV-I infection	4	4.86E-03	JAK3,JAK1,STAT5A,STAT5B
Huma papillomavirus infection	4	8.73E-03	JAK1,STAT1,STAT2,TYK2
Notch-mediated HES/HEY network	2	8.73E-03	JAK2,STAT3
t cell receptor signaling pathway	2	8.73E-03	JAK2,PTPN11
Signaling by MET	2	8.73E-03	STAT3,PTPN11
RAC1 signaling pathway	2	8.73E-03	STAT5A,STAT3
hiv-1 defeats host-mediated resistance by cem15	1	8.73E-03	JAK2
Neurotrophic factor-mediated Trk receptor signaling	2	8.73E-03	STAT3,PTPN11
Ras Pathway	2	8.73E-03	STAT1,STAT3
ISG15 antiviral mechanism	2	9.82E-03	JAK1,STAT1
RAF/MAP kinase cascade	3	9.93E-03	JAK2,JAK3,JAK1
Inflammation mediated by chemokine and cytokine signaling pathway	2	0.0113	JAK2,STAT3
cdc25 and chk1 regulatory pathway in response to dna damage	1	0.0133	JAK2
neuroregulin receptor degradation protein-1 controls erbb3 receptor recycling	1	0.0133	JAK2
pelp1 modulation of estrogen receptor activity	1	0.0133	JAK2
cbl mediated ligand-induced downregulation of egf receptors pathway	1	0.0155	JAK2
ErbB signaling pathway	2	0.0165	STAT5A,STAT5B
chaperones modulate interferon signaling pathway	1	0.0177	JAK2
tsp-1 induced apoptosis in microvascular endothelial cell	1	0.0177	JAK2
regulation of splicing through sam68	1	0.0199	JAK2
ErbB1 downstream signaling	2	0.0209	STAT1,STAT3
g-secretase mediated erbb4 signaling pathway	1	0.0221	JAK2
rb tumor suppressor/checkpoint signaling in response to dna damage	1	0.0243	JAK2
Insulin resistance	2	0.0245	STAT3,PTPN11
gamma-aminobutyric acid	1	0.0265	JAK2

receptor life cycle pathway			
insulin signaling pathway	1	0.0265	PTPN11
Signal regulatory protein family interactions	1	0.0265	PTPN11
erythropoietin mediated neuroprotection through nf-kb	1	0.0265	JAK2
il 4 signaling pathway	1	0.0308	JAK2
atm signaling pathway	1	0.033	JAK2
ucalpain and friends in cell spread	1	0.033	JAK2
calcium signaling by hbv of hepatitis b virus	1	0.033	JAK2
y branching of actin filaments	1	0.0351	JAK2
role of nicotinic acetylcholine receptors in the regulation of apoptosis	1	0.0351	JAK2
pten dependent cell cycle arrest and apoptosis	1	0.0373	JAK2
phosphoinositides and their downstream targets	1	0.0373	JAK2
cell cycle: g2/m checkpoint	1	0.0373	JAK2
Interleukin-1 family signaling	2	0.0373	STAT3,PTPN11
PI3K-Akt signaling pathway	3	0.0395	JAK2,JAK3,JAK1
sprouty regulation of tyrosine kinase signals	1	0.0416	JAK2
cyclins and cell cycle regulation	1	0.0416	PTPN11
fas signaling pathway (cd95)	1	0.0416	PTPN11
lissencephaly gene (lis1) in neuronal migration and development	1	0.0437	JAK2
PDGFR-alpha signaling pathway	1	0.0459	JAK1
igf-1 signaling pathway	1	0.0459	PTPN11
ccr3 signaling in eosinophils	1	0.048	JAK2
links between pyk2 and map kinases	1	0.0502	JAK2
role of erk5 in neuronal survival pathway	1	0.0502	JAK2
p53 pathway feedback loops 2	1	0.0523	STAT1
S1P3 pathway	1	0.0544	JAK2
fc epsilon receptor i signaling in mast cells	1	0.0544	JAK2
bcr signaling pathway	1	0.0565	JAK2
mcaspain and friends in cell motility	1	0.0565	JAK2
thrombin signaling and protease-	1	0.0586	JAK2

activated receptors			
VEGFR1 specific signals	1	0.0586	PTPN11
vegf hypoxia and angiogenesis	1	0.0607	JAK2
IGF1 pathway	1	0.0649	PTPN11
erk and pi-3 kinase are necessary for collagen binding in corneal epithelia	1	0.0649	JAK2
phospholipids as signalling intermediaries	1	0.067	JAK2
p38 mapk signaling pathway	1	0.067	STAT1
N-cadherin signaling events	1	0.0712	PTPN11
angiotensin ii mediated activation of jnk pathway via pyk2 dependent signaling	1	0.0712	JAK2
integrin signaling pathway	1	0.0712	JAK2
Proteoglycans in cancer	2	0.0763	STAT3,PTPN11
Trk receptor signaling mediated by PI3K and PLC-gamma	1	0.0774	STAT5A
Transcriptional regulation of pluripotent stem cells	1	0.0774	STAT3
RET signaling	1	0.0774	PTPN11
Primary immunodeficiency	1	0.0795	JAK3
Signaling events regulated by Ret tyrosine kinase	1	0.0836	PTPN11
Signaling by FGFR3	1	0.0857	PTPN11
Oxidative stress response	1	0.0857	STAT1
activation of csk by camp-dependent protein kinase inhibits signaling through the t cell receptor	1	0.0877	JAK2
Signaling by FGFR4	1	0.0877	PTPN11
Signaling by EGFR	1	0.0877	PTPN11
Signaling by ERBB4	1	0.0918	STAT5A
Signaling by NOTCH3	1	0.0918	STAT1
agrin in postsynaptic differentiation	1	0.0959	JAK2
Insulin Pathway	1	0.0959	PTPN11
TNF receptor signaling pathway	1	0.0979	STAT1
Integrins in angiogenesis	1	0.0999	PTPN11
Netrin-1 signaling	1	0.1039	PTPN11
Signaling by FGFR1	1	0.1039	PTPN11
Signaling by Non-Receptor Tyrosine Kinases	1	0.1079	STAT3
Signaling by Type 1 Insulin-like	1	0.1079	PTPN11

Growth Factor 1 Receptor (IGF1R)			
Senescence-Associated Secretory Phenotype (SASP)	1	0.1099	STAT3
mapkinase signaling pathway	1	0.1119	STAT1
Signaling events mediated by HDAC Class I	1	0.1179	STAT3
Platelet homeostasis	1	0.1238	PTPN11
Fc-epsilon receptor I signaling in mast cells	1	0.1297	PTPN11
Endothelins	1	0.1297	JAK2
Validated nuclear estrogen receptor alpha network	1	0.1297	STAT5A
Signaling events mediated by VEGFR1 and VEGFR2	1	0.1317	PTPN11
Protein folding	1	0.1336	STAT3
Downstream signaling in CD8+ T cells	1	0.1336	STAT4
Costimulation by the CD28 family	1	0.1356	PTPN11
Renal cell carcinoma	1	0.1394	PTPN11
TCR signaling in CD4+ T cells	1	0.1394	PTPN11
Epithelial cell signaling in Helicobacter pylori infection	1	0.1414	PTPN11
Signaling by FGFR2	1	0.1472	PTPN11
Signaling by Insulin receptor	1	0.1529	PTPN11
p73 transcription factor network	1	0.1548	JAK1
Glucocorticoid receptor regulatory network	1	0.1605	STAT1
Signaling events mediated by Hepatocyte Growth Factor Receptor (c-Met)	1	0.1642	PTPN11
FGF signaling pathway	1	0.1865	PTPN11
HIF-1 signaling pathway	1	0.2065	STAT3
Toll-like receptor signaling pathway	1	0.2118	STAT1
Cholinergic synapse	1	0.2206	JAK2
Factors involved in megakaryocyte development and platelet production	1	0.2206	JAK2
Leukocyte transendothelial migration	1	0.2294	PTPN11
Thyroid hormone signaling pathway	1	0.2329	STAT1
Neurotrophin signaling pathway	1	0.2381	PTPN11
