

Supplemental Table 5 – Top 10 activated pathways upon IFN- γ *in vitro* treatment based on p-values

Description	pValue	Padj	Corrected pValue	pSetRank	setRank	size
C1						
Type II interferon signaling (IFNG)	1,25E-15	7,73E-14	1,55E-14	9,19E-271	9,42E-02	45.0
Targets of transcription factor IKZF1	1,91E+00	7,73E-14	1,91E+00	6,81E-02	4,88E-03	114.0
Interferon gamma signaling	6,20E-08	7,73E-14	2,29E+01	7,41E-80	1,79E-02	57.0
Cytoplasmic Ribosomal Proteins	5,79E+03	7,73E-14	5,79E+03	1,00E+00	8,52E+10	117.0
B Cell Receptor Signaling Pathway	2,49E+03	7,73E-14	1,61E+04	1,56E-10	6,07E-03	147.0
Targets of transcription factor SUZ12	6,18E+05	7,73E-14	6,18E+05	1,00E+00	9,32E+10	217.0
regulation of lymphocyte activation	1,56E+04	7,73E-14	2,01E+06	3,22E-06	5,47E-03	241.0
protection from natural killer cell mediated cytotoxicity	2,33E+06	7,73E-14	2,33E+06	1,00E+00	6,90E+10	3.0
Class I MHC mediated antigen processing & presentation	5,32E-01	7,73E-14	2,51E+07	1,45E-04	5,11E-03	221.0
response to endoplasmic reticulum stress	3,49E+05	7,73E-14	2,97E+07	1,00E+00	1,81E-03	126.0
C2						
Type II interferon signaling (IFNG)	5,09E-12	8,14E-11	5,09E-12	1,13E-132	9,09E-02	41.0
Interferon gamma signaling	8,93E-09	8,14E-11	8,41E-03	6,41E-58	3,19E-02	53.0
HIF-1-alpha transcription factor network	1,49E+01	8,14E-11	5,95E+03	3,13E+09	5,55E-03	40.0
Cytoplasmic Ribosomal Proteins	6,80E+03	8,14E-11	6,80E+03	1,00E+00	1,50E-03	111.0
cell surface	9,83E-02	8,14E-11	8,87E+03	1,51E-33	2,03E-02	243.0
Targets of transcription factor IKZF1	5,59E+04	8,14E-11	3,90E+05	1,00E+00	2,88E-03	101.0
Immunoproteasome	3,28E+06	8,14E-11	3,28E+06	1,00E+00	7,35E+10	16.0
MicroRNAs in cancer	1,25E+06	8,14E-11	3,77E+06	1,00E+00	2,53E-03	112.0
IRF8 targets	4,78E+01	8,14E-11	4,96E+06	2,64E-02	4,57E-03	22.0

Aminoacyl-tRNA biosynthesis, eukaryotes	1,62E-03	6,67E+08	4,44E+07	1,00E+00	1,40E-03	36.0
C3						
cell adhesion	2,78E+03	1,09E+04	8,38E+03	4,89E+07	6,04E-03	208.0
Interferon gamma signaling	1,05E-04	1,09E+04	1,25E+04	5,87E-63	3,05E-02	47.0
ER-Phagosome pathway	8,68E-03	1,09E+04	4,01E+05	1,78E-27	1,53E-02	56.0
Immunoproteasome	7,57E+05	1,09E+04	7,57E+05	1,00E+00	9,14E+10	14.0
immune response-activating signal transduction	2,87E+04	1,09E+04	2,07E+06	1,57E+06	6,46E-03	197.0
Type II interferon signaling (IFNG)	1,45E+03	1,09E+04	2,75E+06	1,49E-28	1,67E-02	38.0
PARP9 targets	4,12E+01	1,09E+04	2,96E+07	1,00E+00	1,40E-03	13.0
negative regulation of immune system process	3,61E+04	1,09E+04	2,99E+07	0.001714 23407155 791	4,98E-03	103.0
IRF8 targets	2,99E+02	1,09E+04	3,93E+07	1,00E+00	2,74E-03	20.0
Interferon alpha/beta signaling	2,32E-01	1,09E+04	1,34E+08	4,78E-05	9,41E-03	41.0
C4						
Interferon alpha/beta signaling	1,02E-12	3,83E+03	2,55E+03	7,96E-21	2,86E-02	42.0
Interferon Signaling	2,12E-14	3,83E+03	2,43E+05	7,88E-74	1,01E-01	130.0
Immunoproteasome	5,56E+05	3,83E+03	5,56E+05	1,00E+00	1,13E-03	16.0
Type II interferon signaling (IFNG)	2,86E-01	3,83E+03	2,00E+06	2,77E+09	7,97E-03	40.0
PARP9 targets	9,01E+01	3,83E+03	1,53E+07	1,00E+00	1,37E-03	13.0
Interferon gamma signaling	1,41E-09	3,83E+03	2,24E+07	1,75E-19	2,75E-02	52.0
DTX3L targets	5,73E+03	3,83E+03	7,74E+07	1,00E+00	1,20E-03	13.0
Targets of transcription factor IKZF1	2,39E+07	3,83E+03	1,02E+08	1,00E+00	2,07E-03	102.0
ER-Phagosome pathway	6,73E-02	3,83E+03	1,15E+08	1,76E-02	6,31E-03	60.0
cellular response to interferon-gamma	4,50E-07	3,83E+03	4,98E+08	4,08E-14	2,31E-02	63.0

C5						
Type II interferon signaling (IFNG)	1,65E-20	1,78E-04	2,54E-05	5,28E-231	6,54E-02	44.0
Interferon alpha/beta signaling	8,91E-21	1,78E-04	4,24E-05	4,06E-100	2,13E-02	46.0
Protein processing in endoplasmic reticulum	3,48E+00	1,78E-04	2,02E+01	4,79E+04	3,84E-03	150.0
Interferon gamma signaling	1,83E-11	1,78E-04	3,80E+02	4,09E-83	1,77E-02	57.0
Targets of transcription factor IKZF1	1,16E+01	1,78E-04	1,13E+03	4,63E+09	3,27E-03	112.0
DTX3L targets	1,31E+00	1,78E-04	3,97E+03	1,00E+00	1,24E-03	13.0
Interferon Signaling	1,98E-18	1,78E-04	2,07E+04	1,17E-280	9,21E-02	140.0
FGD2 targets	9,66E+04	1,78E-04	9,66E+04	1,00E+00	8,53E+09	11.0
negative regulation of immune system process	6,90E-01	1,78E-04	1,10E+05	1,79E-35	9,35E-03	131.0
response to virus	5,90E-09	1,78E-04	1,94E+05	5,21E-63	1,38E-02	173.0
D1						
Systemic lupus erythematosus	1,56E-22	8,35E-18	6,43E-19	1,41E-52	9,53E-02	86.0
extracellular space	1,82E-07	8,35E-18	1,51E-02	2,87E-21	4,01E-02	235.0
Type II interferon signaling (IFNG)	2,47E-09	8,35E-18	1,36E+01	2,83E-09	2,60E-02	38.0
Cytoplasmic Ribosomal Proteins	3,35E+02	8,35E-18	3,35E+02	1,00E+00	3,90E-03	108.0
HIF-1-alpha transcription factor network	1,10E+00	8,35E-18	3,27E+05	1,35E+10	9,45E-03	37.0
monocarboxylic acid metabolic process	3,25E+03	8,35E-18	4,53E+07	1,00E+00	5,22E-03	186.0
Immunoproteasome	2,64E+08	8,35E-18	2,64E+08	1,00E+00	1,35E-03	14.0
transmembrane signaling receptor activity	1,45E+04	8,35E-18	4,25E+08	1,00E+00	5,93E-03	126.0
Viral carcinogenesis	2,37E-03	8,35E-18	4,45E+08	8,56E-13	2,98E-02	157.0
N-terminal myristoylation domain binding	9,91E+08	8,35E-18	9,91E+08	1,00E+00	1,17E-03	3.0

D2						
Interferon gamma signaling	2,75E-06	6,00E-01	1,50E-01	1,28E-138	1,74E-02	54.0
Cytoplasmic Ribosomal Proteins	4,07E-01	6,00E-01	4,07E-01	1,00E+00	1,37E-03	115.0
DTX3L targets	1,22E+02	6,00E-01	1,22E+02	1,00E+00	1,01E-03	13.0
hematopoietic or lymphoid organ development	3,52E+03	6,00E-01	1,91E+04	3,13E-87	1,11E-02	335.0
mRNA processing	1,12E+05	6,00E-01	1,12E+05	1,00E+00	1,68E-03	376.0
defense response to other organism	1,56E+03	6,00E-01	1,60E+05	4,39E-16	4,60E-03	169.0
reproductive process	2,49E+05	6,00E-01	4,25E+05	3,25E-40	6,52E-03	494.0
integral component of plasma membrane	2,76E+02	6,00E-01	4,33E+05	8,49E-67	9,05E-03	381.0
Targets of transcription factor GTF3C2	6,03E+07	6,00E-01	5,24E+05	1,00E+00	6,01E+10	493.0
cell adhesion	4,48E+02	6,00E-01	1,77E+06	9,09E-42	6,74E-03	282.0
D3						
Interferon alpha/beta signaling	3,54E-13	8,16E-07	1,17E-06	1,05E-105	9,47E-03	51.0
positive regulation of immune system process	1,92E-09	8,16E-07	3,30E-01	5,01E-179	1,59E-02	443.0
Type II interferon signaling (IFNG)	4,18E-06	8,16E-07	2,16E+01	1,67E-97	8,85E-03	46.0
modification by symbiont of host morphology or physiology	5,10E+02	8,16E-07	4,78E+04	4,83E-64	6,54E-03	306.0
Direct p53 effectors	9,47E+03	8,16E-07	1,52E+05	0.036065 97010434 4	1,88E-03	101.0
cell adhesion	2,20E+03	8,16E-07	2,07E+05	1,51E+03	2,54E-03	319.0
Adaptive Immune System	4,51E-02	8,16E-07	2,88E+06	5,04E-73	7,13E-03	468.0
Targets of transcription factor NFE2	1,60E+07	8,16E-07	6,14E+06	1,00E+00	5,59E+10	430.0
carbohydrate derivative biosynthetic process	8,47E+05	8,16E-07	1,25E+07	1,00E+00	9,17E+09	398.0

Targets of transcription factor IKZF1	4,76E+06	8,16E-07	2,12E+07	1,00E+00	5,41E+10	113.0
D4						
RMTs methylate histone arginines	3,31E-17	3,64E-16	3,31E-17	0.159713 68592434 7	1,92E-02	65.0
protein homodimerization activity	1,49E+07	3,64E-16	1,49E+07	0.071585 79650051 51	2,10E-02	195.0
MYST3 targets	4,10E+08	3,64E-16	4,10E+08	0.494806 62190737 7	1,68E-02	48.0
mRNA splicing, via spliceosome	2,94E+09	3,64E-16	2,94E+09	1,00E+00	1,03E-02	143.0
MBNL1 targets	5,10E+08	3,64E-16	3,24E+09	1,00E+00	1,42E-02	85.0
ZNF207 targets	2,94E+09	3,64E-16	7,63E+09	4,55E+09	3,96E-02	204.0
tRNA processing	7,89E+09	7,89E+10	7,89E+09	1,00E+00	1,84E-03	30.0
Pathways in cancer	2,65E+09	3,64E-16	1,88E+10	2,07E-02	2,38E-02	126.0
Targets of transcription factor POU5F1	1,90E+10	0.001713 06783053 034	1,90E+10	1,00E+00	2,37E-03	119.0
UTP15 targets	2,66E+09	3,64E-16	3,43E+10	1,00E+00	6,32E-03	105.0
N1						
Chromatin organization	9,36E-25	6,27E+04	4,18E+03	2,63E-03	1,07E-01	119.0
RNA splicing, via transesterification reactions with bulged adenosine as nucleophile	4,17E+10	6,27E+04	9,87E+07	1,00E+00	5,44E-03	90.0
RNA processing	4,93E+08	6,27E+04	1,95E+08	1,00E+00	2,09E-02	244.0
HNRPD targets	3,79E+08	6,27E+04	4,96E+08	1,00E+00	2,32E-02	76.0
Mitotic Prophase	1,17E-21	6,27E+04	4,18E+09	2,81E+10	1,46E-01	85.0
Targets of transcription factor NFE2	1,10E+10	6,27E+04	1,10E+10	1,00E+00	4,59E-03	159.0
mitotic prophase	1,15E-05	6,27E+04	1,41E+10	1,00E+00	1,02E-02	41.0

protein homodimerization activity	9,53E+07	6,27E+04	1,81E+10	1,00E+00	1,03E-02	132.0
spermatogenesis	6,59E+09	6,27E+04	1,83E+10	1,00E+00	3,80E-03	68.0
phosphatidylinositol binding	9,77E+09	6,27E+04	3,48E+10	1,00E+00	3,72E-03	44.0
N2						
NONO targets	7,07E-07	7,10E-06	2,37E-06	0,00E+00	5,98E-03	224.0
Focal Adhesion	1,88E-04	7,10E-06	9,25E-04	1,24E-281	3,89E-03	178.0
stem cell differentiation	8,15E-08	7,10E-06	1,12E-03	0,00E+00	1,43E-02	218.0
regulation of binding	5,60E-08	7,10E-06	5,61E-03	0,00E+00	1,39E-02	199.0
negative regulation of mitotic cell cycle phase transition	6,57E-04	7,10E-06	1,15E-02	1,84E-147	2,11E-03	189.0
MAPK signaling pathway	1,72E-05	7,10E-06	2,08E-02	0,00E+00	4,92E-03	235.0
small GTPase binding	6,13E-03	7,10E-06	5,27E-02	3,11E-13	7,68E+10	202.0
RANBP1 targets	2,63E-06	7,10E-06	8,86E-01	3,01E-175	2,44E-03	221.0
post-translational protein modification	3,35E-01	7,10E-06	2,08E+00	1,00E+00	3,17E+10	205.0
TGF-beta Receptor Signaling Pathway	6,48E-03	7,10E-06	3,24E+00	8,03E-112	1,72E-03	153.0
N3						
Cytoplasmic Ribosomal Proteins	1,67E+06	4,14E+08	2,30E+07	1,00E+00	1,80E-02	99.0
nucleosome organization	8,64E-05	4,14E+08	6,06E+07	0.255115 83389306 1	5,36E-02	100.0
protein domain specific binding	2,77E+08	4,14E+08	2,77E+08	1,00E+00	1,22E-02	152.0
regulation of growth hormone secretion	5,93E+08	1,01E+09	5,93E+08	1,00E+00	3,83E-03	4.0
Chk1 substrates	1,51E+09	4,14E+08	1,51E+09	1,00E+00	1,39E-02	69.0
meiotic cell cycle	2,05E+10	4,14E+08	5,95E+09	1,00E+00	1,07E-02	35.0
E2F4 targets	9,77E+10	0.001269 87892328 02	7,94E+09	1,00E+00	1,01E-02	42.0

mRNA processing	4,91E+07	4,14E+08	1,38E+10	1,00E+00	2,65E-02	175.0
NLRP1 targets	0.006230 65023914 192	0.001269 87892328 02	1,53E+10	1,00E+00	5,46E-03	48.0
RNF170 targets	0.001418 09875155 092	0.001269 87892328 02	1,53E+10	1,00E+00	3,83E-03	23.0
N4						
RMTs methylate histone arginines	3,31E-17	3,64E-16	3,31E-17	1,60E-01	1,92E-02	65.0
protein homodimerization activity	1,49E+07	3,64E-16	1,49E+07	7,16E-02	2,10E-02	195.0
MYST3 targets	4,10E+08	3,64E-16	4,10E+08	4,95E-01	1,68E-02	48.0
mRNA splicing, via spliceosome	2,94E+09	3,64E-16	2,94E+09	1,00E+00	1,03E-02	143.0
MBNL1 targets	5,10E+08	3,64E-16	3,24E+09	1,00E+00	1,42E-02	85.0
ZNF207 targets	2,94E+09	3,64E-16	7,63E+09	4,55E+09	3,96E-02	204.0
tRNA processing	7,89E+09	7,89E+10	7,89E+09	1,00E+00	1,84E-03	30.0
Pathways in cancer	2,65E+09	3,64E-16	1,88E+10	2,07E-02	2,38E-02	126.0
Targets of transcription factor POU5F1	1,90E+10	1,71E-03	1,90E+10	1,00E+00	2,37E-03	119.0
UTP15 targets	2,66E+09	3,64E-16	3,43E+10	1,00E+00	6,32E-03	105.0
N5						
Chromatin organization	2,58E+07	3,09E+09	2,58E+07	8,70E+02	3,03E-02	176.0
CCNB1 targets	9,37E+06	3,09E+09	1,21E+09	2,70E+03	2,91E-02	241.0
TNF-alpha/NF-kB Signaling Pathway	4,80E+08	3,09E+09	2,00E+09	2,79E-02	1,12E-02	148.0
RNGTT targets	5,03E+08	3,09E+09	3,91E+09	9,72E+08	1,74E-02	237.0
positive regulation of transport	4,06E+09	3,09E+09	6,82E+09	2,34E+05	2,48E-02	195.0
ncRNA metabolic process	1,31E+09	3,09E+09	6,86E+09	1,00E+00	3,79E-03	203.0
RNA transport	1,66E+09	3,09E+09	8,58E+09	1,00E+00	6,93E-03	111.0
ribosomal small subunit assembly	3,54E-03	3,09E+09	1,76E+10	1,00E+00	1,31E-03	7.0

Targets of transcription factor PRDM1	2,10E+10	3,09E+09	2,10E+10	1,00E+00	1,15E-03	103.0
NONO targets	3,59E+09	3,09E+09	2,15E+10	1,00E+00	8,32E-03	191.0
N6						
Cytoplasmic Ribosomal Proteins	8,76E-24	1,93E-22	8,76E-24	1,00E+00	2,16E-02	102.0
Systemic lupus erythematosus	2,15E-29	1,93E-22	5,35E-18	8,80E-03	9,31E-02	82.0
histone H4-K20 demethylation	4,98E-04	1,93E-22	4,98E-04	1,00E+00	3,56E-03	14.0
NLE1 targets	1,63E+09	1,93E-22	1,37E+09	1,00E+00	2,54E-02	68.0
actin cytoskeleton organization	1,98E+09	1,93E-22	1,76E+09	1,00E+00	1,72E-02	106.0
intracellular ferritin complex	4,82E+09	1,93E-22	4,82E+09	1,00E+00	3,56E-03	2.0
HIST2H2AA3 targets	6,18E+09	1,93E-22	6,18E+09	1,00E+00	6,58E-03	3.0
ARID2 targets	2,03E+10	1,93E-22	3,40E+10	1,00E+00	1,29E-02	50.0
Telomere Maintenance	2,35E-07	1,93E-22	4,28E+10	1,00E+00	2,28E-02	53.0
positive regulation of transcription from RNA polymerase II promoter	2,17E+10	1,93E-22	5,05E+10	1,00E+00	7,88E-03	196.0