Table S2 GO enrichment pathway of downregulated DEGs related to immune cells

Immune cells	ID	Description
M0 macrophages	GO:0022613	ribonucleoprotein complex biogenesis
M0 macrophages	GO:0034660	ncRNA metabolic process
M0 macrophages	GO:0008380	RNA splicing
Follicular helper T cells	GO:0008380	RNA splicing
M0 macrophages	GO:0006401	RNA catabolic process
M0 macrophages	GO:0006402	mRNA catabolic process
M0 macrophages	GO:0034470	ncRNA processing
M0 macrophages	GO:0006605	protein targeting
Follicular helper T cells	GO:0000375	RNA splicing, via transesterification reactions
Eosinophils	GO:0022613	ribonucleoprotein complex biogenesis
Follicular helper T cells	GO:0000377	RNA splicing, via transesterification reactions with bulged adenosine as nucleophile
M0 macrophages	GO:0000375	RNA splicing, via transesterification reactions
Follicular helper T cells	GO:0000398	mRNA splicing, via spliceosome
M0 macrophages	GO:0000377	RNA splicing, via transesterification reactions with bulged adenosine as nucleophile
M0 macrophages	GO:0042254	ribosome biogenesis
M0 macrophages	GO:0010498	proteasomal protein catabolic process
M0 macrophages	GO:0000398	mRNA splicing, via spliceosome
Follicular helper T cells	GO:0022613	ribonucleoprotein complex biogenesis
M0 macrophages	GO:1901987	regulation of cell cycle phase transition
M0 macrophages	GO:0002446	neutrophil mediated immunity
M0 macrophages	GO:0042119	neutrophil activation
M0 macrophages	GO:0043312	neutrophil degranulation
M0 macrophages	GO:0002283	neutrophil activation involved in immune response
M0 macrophages	GO:0048285	organelle fission
Eosinophils	GO:0034660	ncRNA metabolic process
M0 macrophages	GO:0090150	establishment of protein localization to membrane
M0 macrophages	GO:1901990	regulation of mitotic cell cycle phase transition
Follicular helper T cells	GO:1901987	regulation of cell cycle phase transition
M0 macrophages	GO:0043161	proteasome-mediated ubiquitin-dependent protein catabolic process
M0 macrophages	GO:0034248	regulation of cellular amide metabolic process
M0 macrophages	GO:0016569	covalent chromatin modification
M0 macrophages	GO:0010256	endomembrane system organization
Follicular helper T	GO:1901990	regulation of mitotic cell cycle phase transition

cells		
Follicular helper T cells	GO:0034660	ncRNA metabolic process
M0 macrophages	GO:0016570	histone modification
M0 macrophages	GO:0000280	nuclear division
Follicular helper T cells	GO:0006401	RNA catabolic process
Follicular helper T cells	GO:0048285	organelle fission
Eosinophils	GO:0008380	RNA splicing
M0 macrophages	GO:0006417	regulation of translation
M0 macrophages	GO:0051169	nuclear transport
M0 macrophages	GO:0051656	establishment of organelle localization
M0 macrophages	GO:0006913	nucleocytoplasmic transport
Follicular helper T cells	GO:0000280	nuclear division
M0 macrophages	GO:0010948	negative regulation of cell cycle process
M0 macrophages	GO:0043254	regulation of protein-containing complex assembly
Follicular helper T cells	GO:0042119	neutrophil activation
M0 macrophages	GO:1903311	regulation of mRNA metabolic process
Follicular helper T cells	GO:0002446	neutrophil mediated immunity
Eosinophils	GO:0034470	ncRNA processing
Follicular helper T cells	GO:0043312	neutrophil degranulation
Follicular helper T cells	GO:0002283	neutrophil activation involved in immune response
Follicular helper T cells	GO:0034470	ncRNA processing
Follicular helper T cells	GO:0006402	mRNA catabolic process
M0 macrophages	GO:0007059	chromosome segregation
M0 macrophages	GO:0071900	regulation of protein serine/threonine kinase activity
Follicular helper T cells	GO:1903311	regulation of mRNA metabolic process
M0 macrophages	GO:0016072	rRNA metabolic process
Follicular helper T cells	GO:0010948	negative regulation of cell cycle process
M0 macrophages	GO:0048193	Golgi vesicle transport
Follicular helper T cells	GO:0007059	chromosome segregation

mast cells resting	GO:0044282	small molecule catabolic process
Follicular helper T cells	GO:0016569	covalent chromatin modification
M0 macrophages	GO:1903793	positive regulation of anion transport
M0 macrophages	GO:0042176	regulation of protein catabolic process
M0 macrophages	GO:0140014	mitotic nuclear division
M0 macrophages	GO:0006364	rRNA processing
M0 macrophages	GO:0018205	peptidyl-lysine modification
M0 macrophages	GO:0016311	dephosphorylation
Eosinophils	GO:0000375	RNA splicing, via transesterification reactions
Follicular helper T cells	GO:0016570	histone modification
Follicular helper T cells	GO:0010498	proteasomal protein catabolic process
M0 macrophages	GO:0019080	viral gene expression
Eosinophils	GO:0000377	RNA splicing, via transesterification reactions with bulged adenosine as nucleophile
M0 macrophages	GO:0009896	positive regulation of catabolic process
Eosinophils	GO:0000398	mRNA splicing, via spliceosome
M0 macrophages	GO:0006413	translational initiation
Eosinophils	GO:0042254	ribosome biogenesis
M0 macrophages	GO:0032386	regulation of intracellular transport
Follicular helper T cells	GO:0002757	immune response-activating signal transduction
Follicular helper T cells	GO:0002429	immune response-activating cell surface receptor signaling pathway
M0 macrophages	GO:0051052	regulation of DNA metabolic process
M0 macrophages	GO:0000956	nuclear-transcribed mRNA catabolic process
Follicular helper T cells	GO:0140014	mitotic nuclear division
Follicular helper T cells	GO:0042110	T cell activation
M0 macrophages	GO:0019693	ribose phosphate metabolic process
Follicular helper T cells	GO:0071103	DNA conformation change
Follicular helper T cells	GO:0051169	nuclear transport
Follicular helper T cells	GO:0043161	proteasome-mediated ubiquitin-dependent protein catabolic process
Eosinophils	GO:0016569	covalent chromatin modification
Follicular helper T cells	GO:0006913	nucleocytoplasmic transport
Eosinophils	GO:0051169	nuclear transport

Eosinophils	GO:0006913	nucleocytoplasmic transport
Eosinophils	GO:1901987	regulation of cell cycle phase transition
Eosinophils	GO:0016570	histone modification
Follicular helper T cells	GO:0043254	regulation of protein-containing complex assembly
Follicular helper T cells	GO:0034248	regulation of cellular amide metabolic process
Eosinophils	GO:0048285	organelle fission
Follicular helper T cells	GO:0042254	ribosome biogenesis
Eosinophils	GO:0010498	proteasomal protein catabolic process
Follicular helper T cells	GO:0018205	peptidyl-lysine modification
Follicular helper T cells	GO:0045930	negative regulation of mitotic cell cycle
Eosinophils	GO:1901990	regulation of mitotic cell cycle phase transition
Eosinophils	GO:0034248	regulation of cellular amide metabolic process
Eosinophils	GO:1903311	regulation of mRNA metabolic process
Follicular helper T cells	GO:0033044	regulation of chromosome organization
Follicular helper T cells	GO:1901988	negative regulation of cell cycle phase transition
Follicular helper T cells	GO:0002831	regulation of response to biotic stimulus
mast cells resting	GO:0016054	organic acid catabolic process
Follicular helper T cells	GO:0098813	nuclear chromosome segregation
Follicular helper T cells	GO:0044839	cell cycle G2/M phase transition
Eosinophils	GO:0006401	RNA catabolic process
Follicular helper T cells	GO:0051052	regulation of DNA metabolic process
Follicular helper T cells	GO:0071900	regulation of protein serine/threonine kinase activity
Follicular helper T cells	GO:0022407	regulation of cell-cell adhesion
Follicular helper T cells	GO:0045787	positive regulation of cell cycle
Follicular helper T cells	GO:0051656	establishment of organelle localization
Eosinophils	GO:0010256	endomembrane system organization
Follicular helper T cells	GO:0006260	DNA replication

Follicular helper T cells	GO:0009314	response to radiation
Follicular helper T cells	GO:1901991	negative regulation of mitotic cell cycle phase transition
mast cells resting	GO:0006631	fatty acid metabolic process
mast cells resting	GO:0046395	carboxylic acid catabolic process
Follicular helper T cells	GO:0060249	anatomical structure homeostasis
Eosinophils	GO:0006417	regulation of translation
Eosinophils	GO:0000280	nuclear division
Eosinophils	GO:0007059	chromosome segregation
Eosinophils	GO:0043161	proteasome-mediated ubiquitin-dependent protein catabolic process
Eosinophils	GO:0006403	RNA localization
Eosinophils	GO:0031503	protein-containing complex localization
Eosinophils	GO:0006402	mRNA catabolic process
Eosinophils	GO:0016072	rRNA metabolic process
Eosinophils	GO:0006364	rRNA processing
Eosinophils	GO:0018205	peptidyl-lysine modification
Eosinophils	GO:0002446	neutrophil mediated immunity
Eosinophils	GO:0051656	establishment of organelle localization
Eosinophils	GO:0042119	neutrophil activation
Eosinophils	GO:0043312	neutrophil degranulation
Eosinophils	GO:0002283	neutrophil activation involved in immune response
Eosinophils	GO:0015931	nucleobase-containing compound transport
Eosinophils	GO:0060249	anatomical structure homeostasis
Eosinophils	GO:0051052	regulation of DNA metabolic process
Eosinophils	GO:0010948	negative regulation of cell cycle process
Eosinophils	GO:0140014	mitotic nuclear division
Eosinophils	GO:0043254	regulation of protein-containing complex assembly
Eosinophils	GO:0033044	regulation of chromosome organization
Eosinophils	GO:0034504	protein localization to nucleus
Eosinophils	GO:1903793	positive regulation of anion transport
Eosinophils	GO:0016236	macroautophagy
mast cells resting	GO:0016042	lipid catabolic process
Eosinophils	GO:0071103	DNA conformation change
mast cells resting	GO:0008202	steroid metabolic process
mast cells resting	GO:0016053	organic acid biosynthetic process
Eosinophils	GO:0032259	methylation
mast cells resting	GO:0006520	cellular amino acid metabolic process
Eosinophils	GO:0050658	RNA transport
Eosinophils	GO:0050657	nucleic acid transport
Eosinophils	GO:0051236	establishment of RNA localization

B cells naive	GO:0044282	small molecule catabolic process
mast cells resting	GO:0046394	carboxylic acid biosynthetic process
mast cells resting	GO:0006066	alcohol metabolic process
mast cells resting	GO:0006790	sulfur compound metabolic process
B cells naive	GO:0008202	steroid metabolic process
B cells naive	GO:0006631	fatty acid metabolic process
mast cells resting	GO:0019216	regulation of lipid metabolic process
B cells naive	GO:0019216	regulation of lipid metabolic process
mast cells resting	GO:0072521	purine-containing compound metabolic process
mast cells resting	GO:0019693	ribose phosphate metabolic process
B cells naive	GO:0062012	regulation of small molecule metabolic process
mast cells resting	GO:0006163	purine nucleotide metabolic process
B cells naive	GO:0016054	organic acid catabolic process
mast cells resting	GO:0044242	cellular lipid catabolic process
mast cells resting	GO:1901605	alpha-amino acid metabolic process
mast cells resting	GO:0015711	organic anion transport
mast cells resting	GO:0009259	ribonucleotide metabolic process
mast cells resting	GO:0072329	monocarboxylic acid catabolic process
mast cells resting	GO:0006869	lipid transport
B cells naive	GO:0006066	alcohol metabolic process
B cells naive	GO:0046395	carboxylic acid catabolic process
mast cells resting	GO:0009150	purine ribonucleotide metabolic process
gamma delta T cells	GO:0044282	small molecule catabolic process
B cells naive	GO:0006869	lipid transport
mast cells resting	GO:0015849	organic acid transport
B cells naive	GO:0016053	organic acid biosynthetic process
mast cells resting	GO:0030258	lipid modification
mast cells resting	GO:0072330	monocarboxylic acid biosynthetic process
B cells naive	GO:0016042	lipid catabolic process
B cells naive	GO:0009991	response to extracellular stimulus
mast cells resting	GO:0031667	response to nutrient levels
mast cells resting	GO:0009991	response to extracellular stimulus
mast cells resting	GO:0062012	regulation of small molecule metabolic process
mast cells resting	GO:0046942	carboxylic acid transport
B cells naive	GO:0046394	carboxylic acid biosynthetic process
B cells naive	GO:0031667	response to nutrient levels
B cells naive	GO:0010498	proteasomal protein catabolic process
B cells naive	GO:0009896	positive regulation of catabolic process
CD4 T cells memory resting	GO:0043062	extracellular structure organization
CD4 T cells memory resting	GO:0030198	extracellular matrix organization
CD4 T cells	GO:0045229	external encapsulating structure organization

memory resting		
mast cells resting	GO:0043434	response to peptide hormone
B cells naive	GO:0072521	purine-containing compound metabolic process
B cells naive	GO:0019693	ribose phosphate metabolic process
B cells naive	GO:0009259	ribonucleotide metabolic process
B cells naive	GO:0043434	response to peptide hormone
B cells naive	GO:0006163	purine nucleotide metabolic process
B cells naive	GO:0015711	organic anion transport
gamma delta T cells	GO:0016054	organic acid catabolic process
B cells naive	GO:0016311	dephosphorylation
mast cells resting	GO:0042180	cellular ketone metabolic process
B cells naive	GO:0006520	cellular amino acid metabolic process
gamma delta T cells	GO:0042110	T cell activation
B cells naive	GO:0009150	purine ribonucleotide metabolic process
mast cells resting	GO:0006605	protein targeting
B cells naive	GO:1903793	positive regulation of anion transport
mast cells resting	GO:0042445	hormone metabolic process
mast cells resting	GO:0046486	glycerolipid metabolic process
gamma delta T cells	GO:0046395	carboxylic acid catabolic process
B cells naive	GO:0030258	lipid modification
B cells naive	GO:1901653	cellular response to peptide
B cells naive	GO:0031331	positive regulation of cellular catabolic process
mast cells resting	GO:1903793	positive regulation of anion transport
mast cells resting	GO:0009063	cellular amino acid catabolic process
B cells naive	GO:0048732	gland development
mast cells resting	GO:0009062	fatty acid catabolic process
mast cells resting	GO:0006694	steroid biosynthetic process
B cells naive	GO:0043161	proteasome-mediated ubiquitin-dependent protein catabolic process
mast cells resting	GO:1901617	organic hydroxy compound biosynthetic process
B cells naive	GO:0015849	organic acid transport
mast cells resting	GO:0006805	xenobiotic metabolic process
B cells naive	GO:0006790	sulfur compound metabolic process
mast cells resting	GO:0016125	sterol metabolic process
mast cells resting	GO:0009410	response to xenobiotic stimulus
mast cells resting	GO:0071466	cellular response to xenobiotic stimulus
mast cells resting	GO:0042493	response to drug
B cells naive	GO:0051346	negative regulation of hydrolase activity
mast cells resting	GO:0005996	monosaccharide metabolic process
B cells naive	GO:0046486	glycerolipid metabolic process
mast cells resting	GO:1901653	cellular response to peptide
mast cells resting	GO:0006575	cellular modified amino acid metabolic process
B cells naive	GO:0044242	cellular lipid catabolic process

mast cells resting	GO:0033875	ribonucleoside bisphosphate metabolic process
gamma delta T cells	GO:0002697	regulation of immune effector process
mast cells resting	GO:0034032	purine nucleoside bisphosphate metabolic process
B cells naive	GO:1901617	organic hydroxy compound biosynthetic process
mast cells resting	GO:0033865	nucleoside bisphosphate metabolic process
B cells naive	GO:0048193	Golgi vesicle transport
B cells naive	GO:0016569	covalent chromatin modification
B cells naive	GO:0006694	steroid biosynthetic process
B cells naive	GO:1902652	secondary alcohol metabolic process
gamma delta T cells	GO:0007159	leukocyte cell-cell adhesion
B cells naive	GO:0030522	intracellular receptor signaling pathway
B cells naive	GO:0016570	histone modification
gamma delta T cells	GO:0006631	fatty acid metabolic process
CD4 T cells memory resting	GO:0050673	epithelial cell proliferation
B cells naive	GO:0071375	cellular response to peptide hormone stimulus
gamma delta T cells	GO:0006520	cellular amino acid metabolic process
B cells naive	GO:0016125	sterol metabolic process
gamma delta T cells	GO:0022407	regulation of cell-cell adhesion
B cells naive	GO:0006605	protein targeting
B cells naive	GO:0005996	monosaccharide metabolic process
B cells naive	GO:0046942	carboxylic acid transport
CD4 T cells memory resting	GO:1901342	regulation of vasculature development
gamma delta T cells	GO:0050863	regulation of T cell activation
CD4 T cells memory resting	GO:0045765	regulation of angiogenesis
B cells naive	GO:0006644	phospholipid metabolic process
gamma delta T cells	GO:0009615	response to virus
gamma delta T cells	GO:1903037	regulation of leukocyte cell-cell adhesion
B cells naive	GO:0072329	monocarboxylic acid catabolic process
gamma delta T cells	GO:0009991	response to extracellular stimulus
gamma delta T cells	GO:0050867	positive regulation of cell activation
gamma delta T cells	GO:0016042	lipid catabolic process
CD4 T cells memory resting	GO:0006979	response to oxidative stress
gamma delta T cells	GO:0002696	positive regulation of leukocyte activation
gamma delta T cells	GO:0045785	positive regulation of cell adhesion
gamma delta T cells	GO:0016053	organic acid biosynthetic process
gamma delta T cells	GO:0002683	negative regulation of immune system process
gamma delta T cells	GO:0002449	lymphocyte mediated immunity
gamma delta T cells	GO:0070661	leukocyte proliferation
gamma delta T cells	GO:0008202	steroid metabolic process

gamma delta T cells	GO:0002237	response to molecule of bacterial origin
CD4 T cells memory resting	GO:0052547	regulation of peptidase activity
gamma delta T cells	GO:0032943	mononuclear cell proliferation
gamma delta T cells	GO:0046651	lymphocyte proliferation
CD4 T cells memory resting	GO:0034329	cell junction assembly
gamma delta T cells	GO:0046394	carboxylic acid biosynthetic process
gamma delta T cells	GO:0006066	alcohol metabolic process
gamma delta T cells	GO:0002460	adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains
gamma delta T cells	GO:0031667	response to nutrient levels
CD4 T cells memory resting	GO:0010038	response to metal ion
gamma delta T cells	GO:0032496	response to lipopolysaccharide
CD4 T cells memory resting	GO:0090287	regulation of cellular response to growth factor stimulus
CD4 T cells memory resting	GO:0003018	vascular process in circulatory system
CD4 T cells memory resting	GO:0001501	skeletal system development
gamma delta T cells	GO:0034341	response to interferon-gamma
gamma delta T cells	GO:0070663	regulation of leukocyte proliferation
CD4 T cells memory resting	GO:0050678	regulation of epithelial cell proliferation
CD4 T cells memory resting	GO:0052548	regulation of endopeptidase activity
gamma delta T cells	GO:0051251	positive regulation of lymphocyte activation
CD4 T cells memory resting	GO:0007599	hemostasis
CD4 T cells memory resting	GO:0050817	coagulation
CD4 T cells memory resting	GO:0007596	blood coagulation
CD4 T cells memory resting	GO:0043434	response to peptide hormone
gamma delta T cells	GO:0032944	regulation of mononuclear cell proliferation
gamma delta T cells	GO:0050670	regulation of lymphocyte proliferation
gamma delta T cells	GO:1903706	regulation of hemopoiesis
CD4 T cells memory resting	GO:0051346	negative regulation of hydrolase activity
gamma delta T cells	GO:1903131	mononuclear cell differentiation

CD4 T cells memory resting	GO:0006869	lipid transport
gamma delta T cells	GO:0002757	immune response-activating signal transduction
gamma delta T cells	GO:0002429	immune response-activating cell surface receptor signaling pathway
CD4 T cells memory resting	GO:0031589	cell-substrate adhesion
gamma delta T cells	GO:1901605	alpha-amino acid metabolic process
gamma delta T cells	GO:0001819	positive regulation of cytokine production
gamma delta T cells	GO:0071346	cellular response to interferon-gamma
CD4 T cells memory resting	GO:0007178	transmembrane receptor protein serine/threonine kinase signaling pathway
CD4 T cells memory resting	GO:0071559	response to transforming growth factor beta
CD4 T cells memory resting	GO:0048545	response to steroid hormone
CD4 T cells memory resting	GO:0002237	response to molecule of bacterial origin
CD4 T cells memory resting	GO:0032496	response to lipopolysaccharide
CD4 T cells memory resting	GO:0009991	response to extracellular stimulus
CD4 T cells memory resting	GO:0019216	regulation of lipid metabolic process
CD4 T cells memory resting	GO:0022407	regulation of cell-cell adhesion
gamma delta T cells	GO:0022409	positive regulation of cell-cell adhesion
CD4 T cells memory resting	GO:0045785	positive regulation of cell adhesion
CD4 T cells memory resting	GO:0045861	negative regulation of proteolysis
gamma delta T cells	GO:0030098	lymphocyte differentiation
CD4 T cells memory resting	GO:0006959	humoral immune response
CD4 T cells memory resting	GO:0048732	gland development
gamma delta T cells	GO:0051607	defense response to virus
gamma delta T cells	GO:0140546	defense response to symbiont
CD4 T cells memory resting	GO:0071560	cellular response to transforming growth factor beta stimulus
CD4 T cells memory resting	GO:0001667	ameboidal-type cell migration
CD4 T cells	GO:0070482	response to oxygen levels

memory resting		
gamma delta T cells	GO:1903039	positive regulation of leukocyte cell-cell adhesion
CD4 T cells memory resting	GO:0032102	negative regulation of response to external stimulus
gamma delta T cells	GO:0072329	monocarboxylic acid catabolic process
CD4 T cells memory resting	GO:0030001	metal ion transport
gamma delta T cells	GO:0060326	cell chemotaxis
CD4 T cells memory resting	GO:0044282	small molecule catabolic process
CD4 T cells memory resting	GO:0071900	regulation of protein serine/threonine kinase activity
CD4 T cells memory resting	GO:0040013	negative regulation of locomotion
gamma delta T cells	GO:0030595	leukocyte chemotaxis
CD4 T cells memory resting	GO:1901653	cellular response to peptide
CD4 T cells memory resting	GO:0070372	regulation of ERK1 and ERK2 cascade
CD4 T cells memory resting	GO:0018108	peptidyl-tyrosine phosphorylation
CD4 T cells memory resting	GO:0051271	negative regulation of cellular component movement
CD4 T cells memory resting	GO:2000146	negative regulation of cell motility
CD4 T cells memory resting	GO:0030336	negative regulation of cell migration
CD4 T cells memory resting	GO:0070371	ERK1 and ERK2 cascade
CD4 T cells memory resting	GO:0002064	epithelial cell development