**Table S3 : Microarray analysis**

 **Top 50 downregulated genes in *Nox1* KD**

|  |  |  |
| --- | --- | --- |
| Fold change  |  Gene symbol |  Gene description |
| -3.34  | Rnf213 | ring finger protein 213 |
| -2.58  | Tgtp1 | T-cell specific GTPase 1 |
| -2.19  | Mx2 | myxovirus (influenza virus) resistance 2 |
| -2.16  | Herc6 | hect domain and RLD 6 |
| -2.09  | Ddx60 | DEAD (Asp-Glu-Ala-Asp) box polypeptide 60 |
| -2.07  | Psmb8 | proteasome (prosome, macropain) subunit, beta type 8 (large multifunctional peptidase 7) |
| -2.07  | Gm12185 | predicted gene 12185 |
| -1.99  | Gbp6 | guanylate binding protein 6 |
| -1.96  | Defb47 | defensin beta 47 |
| -1.95  | Trim14 | tripartite motif-containing 14 |
| -1.92  | 4922501L14Rik | RIKEN cDNA 4922501L14 gene |
| -1.91  | Oas1a | 2'-5' oligoadenylate synthetase 1A |
| -1.90  | Irgm2 | immunity-related GTPase family M member 2 |
| -1.89  | Epsti1 | epithelial stromal interaction 1 (breast) |
| -1.88  | Tap1 | transporter 1, ATP-binding cassette, sub-family B (MDR/TAP) |
| -1.88  | Ifi44 | interferon-induced protein 44 |
| -1.84  | Gdap10 | ganglioside-induced differentiation-associated-protein 10 |
| -1.84  | H2-T22 | histocompatibility 2, T region locus 22  |
| -1.83  | Gm1527 | predicted gene 1527 |
| -1.82  | Oas1g | 2'-5' oligoadenylate synthetase 1G  |
| -1.80  | Isg20 | interferon-stimulated protein |
| -1.78  | Snap25 | synaptosomal-associated protein 25 |
| -1.77  | 2010002M12Rik | RIKEN cDNA 2010002M12 gene |
| -1.77  | Oas1c | 2'-5' oligoadenylate synthetase 1C |
| -1.76  | Gbp11 | guanylate binding protein 11  |
| -1.76  | Trim21 | tripartite motif-containing 21 |
| -1.76  | Cdc26 | cell division cycle 26 |
| -1.75  | D630029K05Rik | RIKEN cDNA D630029K05 gene |
| -1.73  | D130062J21Rik | RIKEN cDNA D130062J21 gene |
| -1.73  | Tcfap2a | transcription factor AP-2, alpha |
| -1.71  | Ftl1 | ferritin light chain 1  |
| -1.70  | Slc35f3 | solute carrier family 35, member F3 |
| -1.70  | Scarna8 | small Cajal body-specific RNA 8 |
| -1.69  | Zbp1 | Z-DNA binding protein 1 |
| -1.69  | Dnahc5 | dynein, axonemal, heavy chain 5 |
| -1.68  | Dhx58 | DEXH (Asp-Glu-X-His) box polypeptide 58 |
| -1.66  | Gbp3 | guanylate binding protein 3 |
| -1.65  | Mpa2l | macrophage activation 2 like  |
| -1.65  | A230050P20Rik | RIKEN cDNA A230050P20 gene |
| -1.64  | Gm1524 | predicted gene 1524 |
| -1.63  | Ctag2 | cancer/testis antigen 2 |
| -1.63  | Usp18 | ubiquitin specific peptidase 18 |
| -1.63  | Ms4a4d | membrane-spanning 4-domains, subfamily A, member 4D |
| -1.63  | Sp100 |  |
| -1.62  | Eif2ak2 | eukaryotic translation initiation factor 2-alpha kinase 2 |
| -1.62  | Ube2l6 | ubiquitin-conjugating enzyme E2L 6 |
| -1.62  | Gm5431 | predicted gene 5431 |
| -1.62  | Peg10 | paternally expressed 10 |
| -1.62  | Stat2 | signal transducer and activator of transcription 2 |
| -1.61  | Mx1 | myxovirus (influenza virus) resistance 1 |

 **Top 50 upregulated genes in *Nox1* KD**

|  |  |  |
| --- | --- | --- |
| Fold change  |  Gene symbol |  Gene description |
| 3.63  | Cxcl2 | chemokine (C-X-C motif) ligand 2 |
| 2.78  | Fcer1g | Fc receptor, IgE, high affinity I, gamma polypeptide |
| 2.61  | Lphn2 | latrophilin 2 |
| 2.43  | Acta2 | actin, alpha 2, smooth muscle, aorta |
| 2.33  | Gm10785 | predicted gene 10785 |
| 2.31  | Csn3 | casein kappa |
| 2.22  | Itpripl2 | inositol 1,4,5-triphosphate receptor interacting protein-like 2 |
| 2.19  | Anxa5 | annexin A5 |
| 2.19  | Gm10772 | predicted gene 10772 |
| 2.18  | Zfand2a | zinc finger, AN1-type domain 2A |
| 2.18  | Mpzl2 | myelin protein zero-like 2 |
| 2.15  | Olr1 | oxidized low density lipoprotein (lectin-like) receptor 1 |
| 2.13  | Il6 | interleukin 6 |
| 2.13  | Cxcl5 | chemokine (C-X-C motif) ligand 5 |
| 2.06  | Gm10857 | predicted gene 10857 |
| 2.05  | Cd59a | CD59a antigen |
| 2.04  | Gm5458 | predicted gene 5458 |
| 2.03  | BC013529 |  |
| 1.99  | Adh6b | alcohol dehydrogenase 6B (class V) |
| 1.97  | Gm3002 | alpha-takusan pseudogene  |
| 1.96  | Fam96a | family with sequence similarity 96, member A |
| 1.95  | Lox | lysyl oxidase |
| 1.95  | Tnfrsf23 | tumor necrosis factor receptor superfamily, member 23 |
| 1.95  | Ccl7 | chemokine (C-C motif) ligand 7 |
| 1.93  | Tsen15 | tRNA splicing endonuclease 15 homolog (S. cerevisiae) |
| 1.93  | Cd80 | CD80 antigen |
| 1.91  | Ube2w | ubiquitin-conjugating enzyme E2W (putative) |
| 1.90  | Unc13c | unc-13 homolog C (C. elegans) |
| 1.90  | Cenpq | centromere protein Q |
| 1.89  | Fah | fumarylacetoacetate hydrolase |
| 1.88  | AI607873 |  |
| 1.87  | Rpa3 | replication protein A3 |
| 1.86  | Tagln | transgelin |
| 1.86  | Phf20 | PHD finger protein 20 |
| 1.84  | Cript | cysteine-rich PDZ-binding protein |
| 1.84  | A630089N07Rik | RIKEN cDNA A630089N07 gene |
| 1.82  | 1700084J12Rik | RIKEN cDNA 1700084J12 gene |
| 1.82  | Csf1 | colony stimulating factor 1 (macrophage) |
| 1.82  | Arhgap42 | Rho GTPase activating protein 42 |
| 1.81  | Sumo1 | SMT3 suppressor of mif two 3 homolog 1 (yeast) |
| 1.80  | Gm13242 | predicted gene 13242 |
| 1.80  | Tbc1d7 | TBC1 domain family, member 7 |
| 1.79  | Ccbl2 | cysteine conjugate-beta lyase 2 |
| 1.79  | Rex2 | reduced expression 2  |
| 1.79  | Uprt | uracil phosphoribosyltransferase (FUR1) homolog (S. cerevisiae) |
| 1.79  | Prl2c3 | prolactin family 2, subfamily c, member 3 |
| 1.77  | Aspn | asporin |
| 1.76  | Gpx3 | glutathione peroxidase 3 |
| 1.76  | Ccdc80 | coiled-coil domain containing 80 |
| 1.76  | Slc25a5 | solute carrier family 25 (mitochondrial carrier, adenine nucleotide translocator), member 5 |

 **Top 50 downregulated genes in *Mapk7* KO**

|  |  |  |
| --- | --- | --- |
| Fold change  |  Gene symbol |  Gene description |
| -4.81  | Ifi205 | interferon activated gene 205 |
| -2.90  | Ccl11 | chemokine (C-C motif) ligand 11 |
| -2.86  | Ssty2 | spermiogenesis specific transcript on the Y 2  |
| -2.82  | Lum | lumican |
| -2.71  | Ly6a | lymphocyte antigen 6 complex, locus A |
| -2.67  | Dcn | decorin |
| -2.58  | LOC100042196 | y-linked testis-specific protein 1-like |
| -2.55  | LOC100039753 | spermiogenesis specific transcript on the Y family member  |
| -2.54  | LOC665746 | y-linked testis-specific protein 1-like |
| -2.53  | LOC100040223 | similar to spermiogenesis specific transcript on the Y 1 |
| -2.51  | LOC100039552 | y-linked testis-specific protein 1-like |
| -2.49  | LOC665406 | y-linked testis-specific protein 1-like |
| -2.47  | Ssty1 | spermiogenesis specific transcript on the Y 1  |
| -2.46  | LOC100041704 | y-linked testis-specific protein 1-like |
| -2.36  | LOC100041256 | hypothetical protein LOC100041256  |
| -2.34  | LOC100042359 | y-linked testis-specific protein 1-like |
| -2.25  | Igsf10 | immunoglobulin superfamily, member 10 |
| -2.25  | Steap4 | STEAP family member 4 |
| -2.24  | LOC100039147 | y-linked testis-specific protein 1-like |
| -2.24  | LOC100040031 | hypothetical protein LOC100040031  |
| -2.20  | Itm2a | integral membrane protein 2A |
| -2.20  | Ly6c1 | lymphocyte antigen 6 complex, locus C1 |
| -2.19  | LOC100040235 | y-linked testis-specific protein 1-like |
| -2.16  | LOC665128 | y-linked testis-specific protein 1-like |
| -2.15  | Igsf10 | immunoglobulin superfamily, member 10 |
| -2.08  | Rfc4 | replication factor C (activator 1) 4 |
| -2.08  | LOC380994 | similar to Sycp3 like Y-linked  |
| -2.08  | LOC665698 | y-linked testis-specific protein 1-like |
| -2.06  | Saa3 | serum amyloid A 3 |
| -2.05  | F3 | coagulation factor III |
| -2.04  | Sly | Sycp3 like Y-linked  |
| -1.98  | Vmn2r43 | vomeronasal 2, receptor 43  |
| -1.95  | Lss | lanosterol synthase |
| -1.95  | LOC380994 | similar to Sycp3 like Y-linked |
| -1.93  | Snord116 | small nucleolar RNA, C/D box 116 cluster |
| -1.92  | Egr2 | early growth response 2 |
| -1.91  | Sc4mol | sterol-C4-methyl oxidase-like |
| -1.91  | Serpina3n | serine (or cysteine) peptidase inhibitor, clade A, member 3N |
| -1.90  | Ptx3 | pentraxin related gene |
| -1.89  | Tgfbi | transforming growth factor, beta induced |
| -1.86  | Snord115 | Small nucleolar RNA, C/D Box 115 cluster |
| -1.86  | Igfbp3 | insulin-like growth factor binding protein 3 |
| -1.85  | Mmp13 | matrix metallopeptidase 13 |
| -1.84  | Thbs2 | thrombospondin 2 |
| -1.83  | Snord37 | small nucleolar RNA, C/D box 37 |
| -1.78  | Gm1943 | WD repeat domain 70 pseudogene |
| -1.78  | Vcan | versican |
| -1.77  | Mmp3 | matrix metallopeptidase 3 |
| -1.75  | Postn | periostin, osteoblast specific factor |
| -1.74  | Idi1 | isopentenyl-diphosphate delta isomerase |

 **Top 50 upregulated genes in *Mapk7* KO**

|  |  |  |
| --- | --- | --- |
| Fold change  |  Gene symbol |  Gene description |
| 4.25  | Crct1 | cysteine-rich C-terminal 1 |
| 2.42  | Lce1h | late cornified envelope 1H |
| 2.22  | Gsta4 | glutathione S-transferase, alpha 4 |
| 2.19  | Snord118 | small nucleolar RNA, C/D box 118 |
| 2.15  | Mustn1 | musculoskeletal, embryonic nuclear protein 1 |
| 2.13  | Tslp | thymic stromal lymphopoietin |
| 2.07  | Sema7a | sema domain, immunoglobulin domain (Ig), and GPI membrane anchor, (semaphorin) 7A |
| 1.97  | Fxyd5 | FXYD domain-containing ion transport regulator 5 |
| 1.95  | Stra8 | stimulated by retinoic acid gene 8 |
| 1.95  | Prl2c3 | prolactin family 2, subfamily c, member 3  |
| 1.92  | Timp1 | tissue inhibitor of metalloproteinase 1 |
| 1.82  | Cma2 | chymase 2, mast cell  |
| 1.78  | Cryab | crystallin, alpha B |
| 1.77  | Slain2 | SLAIN motif family, member 2 |
| 1.77  | Crabp2 | cellular retinoic acid binding protein II |
| 1.76  | Stmn2 | stathmin-like 2 |
| 1.76  | Vbp1 | von Hippel-Lindau binding protein 1 |
| 1.75  | Serinc2 | serine incorporator 2 |
| 1.74  | Selm | selenoprotein M |
| 1.73  | Rhoc | ras homolog gene family, member C |
| 1.73  | Tagln | transgelin |
| 1.72  | Enpp1 | ectonucleotide pyrophosphatase/phosphodiesterase 1 |
| 1.71  | Alcam | activated leukocyte cell adhesion molecule |
| 1.70  | Slco2a1 | solute carrier organic anion transporter family, member 2a1 |
| 1.69  | S100a6 | S100 calcium binding protein A6 (calcyclin) |
| 1.69  | Mcpt9 | mast cell protease 9  |
| 1.68  | Ank | progressive ankylosis |
| 1.67  | Mmp10 | matrix metallopeptidase 10 |
| 1.66  | Crmp1 | collapsin response mediator protein 1 |
| 1.66  | Mcpt8 | mast cell protease 8 |
| 1.66  | Ccbe1 | collagen and calcium binding EGF domains 1 |
| 1.66  | Hamp2 | hepcidin antimicrobial peptide 2 |
| 1.65  | Grem1 | gremlin 1 |
| 1.65  | A530064D06Rik | RIKEN cDNA A530064D06 gene |
| 1.65  | Pcbd1 | pterin 4 alpha carbinolamine dehydratase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1) 1 |
| 1.63  | Il33 | interleukin 33 |
| 1.63  | Raet1d | retinoic acid early transcript delta |
| 1.62  | Prg4 | proteoglycan 4 (megakaryocyte stimulating factor, articular superficial zone protein) |
| 1.61  | 1700013H16Rik | RIKEN cDNA 1700013H16 gene |
| 1.61  | Ttc9 | tetratricopeptide repeat domain 9 |
| 1.60  | Rnf7 | ring finger protein 7 |
| 1.60  | Fads3 | fatty acid desaturase 3 |
| 1.60  | Gal | galanin |
| 1.58  | 1700008I05Rik | RIKEN cDNA 1700008I05 gene |
| 1.57  | Runx3 | runt related transcription factor 3 |
| 1.57  | 9.Sep | septin 9 |
| 1.57  | Fgf2 | fibroblast growth factor 2 |
| 1.57  | Oaf | OAF homolog (Drosophila) |
| 1.56  | Cdh6 | cadherin 6 |
| 1.56  | Rhox4c | reproductive homeobox 4C  |

 **Top 50 downregulated genes in *Mapk14* KO**

|  |  |  |
| --- | --- | --- |
| Fold change  |  Gene symbol |  Gene description |
| -5.13  | Ednra | endothelin receptor type A |
| -4.49  | Inhba | inhibin beta-A |
| -4.11  | Prg4 | proteoglycan 4 (megakaryocyte stimulating factor, articular superficial zone protein) |
| -4.07  | Itga5 | integrin alpha 5 (fibronectin receptor alpha) |
| -3.92  | Mmp13 | matrix metallopeptidase 13 |
| -3.82  | Has2 | hyaluronan synthase 2 |
| -3.72  | Tfpi2 | tissue factor pathway inhibitor 2 |
| -3.71  | Prrx1 | paired related homeobox 1 |
| -3.62  | Anxa5 | annexin A5 |
| -3.62  | Tnfrsf23 | tumor necrosis factor receptor superfamily, member 23 |
| -3.61  | Stc1 | stanniocalcin 1 |
| -3.47  | Mmp10 | matrix metallopeptidase 10 |
| -3.43  | Cdh11 | cadherin 11 |
| -3.41  | Pdgfrb | platelet derived growth factor receptor, beta polypeptide |
| -3.40  | AI607873 |  |
| -3.40  | Ccl5 | chemokine (C-C motif) ligand 5 |
| -3.39  | Lgals3bp | lectin, galactoside-binding, soluble, 3 binding protein |
| -3.26  | Angptl2 | angiopoietin-like 2 |
| -3.15  | Hmga2 | high mobility group AT-hook 2 |
| -3.14  | Serpinb2 | serine (or cysteine) peptidase inhibitor, clade B, member 2 |
| -3.13  | Oaf | OAF homolog (Drosophila) |
| -3.09  | Ehd2 | EH-domain containing 2 |
| -3.08  | Acta2 | actin, alpha 2, smooth muscle, aorta |
| -3.07  | Pcdh7 | protocadherin 7 |
| -3.07  | S1pr3 | sphingosine-1-phosphate receptor 3 |
| -3.02  | Cd80 | CD80 antigen |
| -3.01  | Lox | lysyl oxidase |
| -2.94  | Ifi203 | interferon activated gene 203 |
| -2.93  | Olr1 | oxidized low density lipoprotein (lectin-like) receptor 1 |
| -2.90  | Cd97 | CD97 antigen |
| -2.88  | Ifi204 | interferon activated gene 204 |
| -2.88  | Ptges | prostaglandin E synthase |
| -2.81  | Gpx8 | glutathione peroxidase 8 (putative) |
| -2.80  | Antxr1 | anthrax toxin receptor 1 |
| -2.78  | Pi15 | peptidase inhibitor 15 |
| -2.78  | Ifitm3 | interferon induced transmembrane protein 3 |
| -2.77  | Ecm1 | extracellular matrix protein 1 |
| -2.77  | Ass1 | argininosuccinate synthetase 1  |
| -2.76  | Ly96 | lymphocyte antigen 96 |
| -2.75  | Grem1 | gremlin 1 |
| -2.74  | Cryab | crystallin, alpha B |
| -2.73  | Dab2 | disabled homolog 2 (Drosophila) |
| -2.71  | Ass1 | argininosuccinate synthetase 1  |
| -2.69  | Sema7a | sema domain, immunoglobulin domain (Ig), and GPI membrane anchor, (semaphorin) 7A |
| -2.68  | Penk | preproenkephalin |
| -2.67  | Igfbp7 | insulin-like growth factor binding protein 7 |
| -2.67  | Casp8 | caspase 8 |
| -2.66  | Fxyd5 | FXYD domain-containing ion transport regulator 5 |
| -2.66  | Cd109 | CD109 antigen |
| -2.65  | Cpe | carboxypeptidase E |

 **Top 50 upregulated genes in *Mapk14* KO**

|  |  |  |
| --- | --- | --- |
| Fold change  |  Gene symbol |  Gene description |
| 3.88  | Fosb | FBJ osteosarcoma oncogene B |
| 2.78  | Cxcl2 | chemokine (C-X-C motif) ligand 2 |
| 2.00  | Rsph4a | radial spoke head 4 homolog A (Chlamydomonas) |
| 1.98  | Lyz2 | lysozyme 2 |
| 1.94  | Fos | FBJ osteosarcoma oncogene |
| 1.93  | Ldlr | low density lipoprotein receptor |
| 1.92  | Cd274 | CD274 antigen |
| 1.88  | Fbxo32 | F-box protein 32 |
| 1.88  | Cyp51 | cytochrome P450, family 51 |
| 1.88  | Snora44 | small nucleolar RNA, H/ACA box 44 |
| 1.86  | Atf3 | activating transcription factor 3 |
| 1.84  | Syne2 | synaptic nuclear envelope 2 |
| 1.83  | Egr1 | early growth response 1 |
| 1.79  | Sc4mol | sterol-C4-methyl oxidase-like |
| 1.77  | Idi1 | isopentenyl-diphosphate delta isomerase |
| 1.75  | Zfp36 | zinc finger protein 36 |
| 1.73  | Nobox | NOBOX oogenesis homeobox |
| 1.73  | Speer8-ps1 | spermatogenesis associated glutamate (E)-rich protein 8, pseudogene 1 |
| 1.72  | Syne2 | synaptic nuclear envelope 2 |
| 1.72  | Dusp1 | dual specificity phosphatase 1 |
| 1.71  | Tmc3 | transmembrane channel-like gene family 3 |
| 1.71  | Tnfaip3 | tumor necrosis factor, alpha-induced protein 3 |
| 1.68  | Hmgcs1 | 3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 |
| 1.65  | Insig1 | insulin induced gene 1 |
| 1.65  | Meig1 | meiosis expressed gene 1 |
| 1.64  | Ptch1 | patched homolog 1 |
| 1.63  | Fbxo47 | F-box protein 47 |
| 1.62  | Egr4 | early growth response 4 |
| 1.61  | Sqle | squalene epoxidase |
| 1.60  | Hnrnph3 | heterogeneous nuclear ribonucleoprotein H3 |
| 1.59  | Zfp872 | zinc finger protein 872 |
| 1.59  | Rsad2 | radical S-adenosyl methionine domain containing 2 |
| 1.58  | Pramef12 | PRAME family member 12 |
| 1.58  | Sertad4 | SERTA domain containing 4 |
| 1.57  | Sgk1 | serum/glucocorticoid regulated kinase 1 |
| 1.56  | Nefm | neurofilament, medium polypeptide |
| 1.56  | Lss | lanosterol synthase |
| 1.56  | Efhb | EF hand domain family, member B |
| 1.55  | Dhcr7 | 7-dehydrocholesterol reductase |
| 1.55  | Dusp18 | dual specificity phosphatase 18 |
| 1.55  | 1700028J19Rik | RIKEN cDNA 1700028J19 gene |
| 1.54  | Dgke | diacylglycerol kinase, epsilon |
| 1.54  | Ppp1r15a | protein phosphatase 1, regulatory (inhibitor) subunit 15A |
| 1.53  | Chd7 | chromodomain helicase DNA binding protein 7 |
| 1.51  | 4930583H14Rik | RIKEN cDNA 4930583H14 gene |
| 1.51  | Tcerg1l | transcription elongation regulator 1-like |
| 1.51  | Rrad | Ras-related associated with diabetes |
| 1.51  | Trim12a | tripartite motif-containing 12A |
| 1.51  | Tbx20 | T-box 20 |
| 1.50  | Mt1 | metallothionein 1 |