

Supplementary Table 5. Upregulated genes based on biological process enrichment analysis

Biological process	p-value	Genes
Antigen processing and presentation of exogenous peptide antigen via MHC class II	6.69E-07	<i>CD74, HLA-DMA, HLA-DMB, FCER1G, HLA-DPB1, HLA-DRA, CTSF, HLA-DQA1, HLA-DPA1, HLA-DQB1</i>
Carbon dioxide transport	3.91E-06	<i>HBG2, HBG1, HBB, HBA2, HBD, HBA1, AQP1</i>
Peptide antigen assembly with MHC class II protein complex	9.82E-06	<i>HLA-DMA, HLA-DMB, HLA-DPB1, HLA-DRA, HLA-DQA1, HLA-DPA1, HLA-DQB1</i>
Immunoglobulin production involved in immunoglobulin mediated immune response	1.47E-05	<i>HLA-DMA, HLA-DMB, HLA-DPB1, HLA-DRA, HLA-DQA1, HLA-DPA1, HLA-DQB1</i>
Collagen fibril organization	3.54E-05	<i>COL3A1, COLGALT2, SFRP2, COL1A2, COL5A1, P4HA1, LUM, COL5A2, VIPAS39, FMOD, LOXLI</i>
Antigen processing and presentation of peptide or polysaccharide antigen via MHC class II	4.22E-05	<i>HLA-DMA, HLA-DMB, HLA-DPB1, HLA-DRA, HLA-DQA1, HLA-DPA1, HLA-DQB1</i>
Mast cell degranulation	1.01E-04	<i>LAT2, GRP, SCN11A, S100A13, PIK3CD, PTGDS, PIK3CG</i>
Oxygen transport	1.53E-04	<i>HBG2, HBG1, HBB, HBA2, HBD, HBA1</i>
Antigen processing and presentation	1.84E-04	<i>CD74, HLA-DMA, HLA-DMB, HLA-DPB1, HLA-DRA, HLA-C, HLA-DQA1, HLA-DPA1, HLA-DQB1</i>
Hydrogen peroxide catabolic process	3.24E-04	<i>PRDX4, HBG2, HBG1, HBB, HBA2, HBD, HBA1</i>
Nitric oxide transport	3.88E-04	<i>HBB, HBA2, HBA1, AQP1</i>
Heart development	6.15E-04	<i>ACVRI, SPARC, HEG1, FNI, FOXJ1, KCNAB1, PTN, SRI, PKD2, PKD1, COL3A1, ADAP2, POFUT1, APLNR, ID3, PLCE1, TEK, PDLIM5, EIF4G2</i>
Positive regulation of T cell activation	8.24E-04	<i>HLA-DMA, HLA-DMB, HLA-DPB1, HLA-DRA, HLA-DQA1, HLA-DPA1, HLA-DQB1</i>
Cell-matrix adhesion	0.001169	<i>COL3A1, VCAM1, ITGAM, ITGB5, FNI, EPDR1, ITGBL1, PKD1, LYVE1, FBLN5, VCL, JAM3</i>
Aging	0.00123	<i>PDGFRB, C1QA, VCAM1, GSN, MME, TGFB3, IGFBP2, DCN, SOD1, CREB1, COL4A2, KCNMB1, APEX1, TIMP2, RGN, SERPING1, FADS1</i>
Skin development	0.001774	<i>TFAP2B, COL3A1, COL5A1, SLC2A10, COL5A2, LTB, PKD1</i>
Response to glucocorticoid	0.002087	<i>SPARC, MDK, ABCA3, IGFBP2, LCAT, PTGDS, HNMT, AIF1, PPARGC1B</i>
Positive regulation of phosphatidylinositol 3-kinase signaling	0.002217	<i>PDGFRB, NCF1, PDGFD, IL18, FNI, TREM2, SEMA3E, TEK, HCST, DCN</i>
Positive regulation of bone mineralization	0.003388	<i>ACVRI, RXRA, TGFB3, TMEM119, ANO6, PTN, ATRAID</i>
Glomerular basement membrane development	0.004091	<i>COL4A4, MPV17, SULF1, SULF2</i>
Positive regulation of chemokine production	0.004272	<i>CSF1R, CD74, C5, CARD9, IL18, AIF1, TLR2</i>

Cellular oxidant detoxification	0.004991	<i>PRDX4, HBG2, HBG1, ALOX5AP, HBB, HBA2, HBD, HBA1, LTC4S</i>
Positive regulation of cell death	0.005314	<i>ACOX2, HBG2, HBG1, HBB, HBA2, HBD, HBA1</i>
Platelet aggregation	0.005314	<i>FIBP, GNAS, FN1, HBB, VCL, PIK3CG, ACTG1</i>
Peptidyl-proline hydroxylation to 4-hydroxy-L-proline	0.005482	<i>PRDX4, P4HA1, P4HA2, P4HB</i>
Cell adhesion	0.006044	<i>FBLN7, LGALS3BP, NLGN2, ITGAM, ITGB5, AMIGO2, CD99L2, PBXIP1, PCDH12, ISLR, NUA1, CDH2, PODXL, NCAM1, IGFBP7, MYH10, JAM3, VCAM1, GP1BB, PCDH7, FN1, LYVE1, CLDN11, CLEC4A, CLDN10, COL5A1, FAP, FEZ1, COL6A1, MXRA8, ITGBL1, VCL</i>
Response to drug	0.006557	<i>FZD1, TFAP2B, MAOB, ABCA3, CARD9, IGFBP2, TNFRSF11B, PTN, TERF1, SOD1, LDHA, CREB1, LGALS1, SFRP2, MDK, DAD1, SCN11A, APEX1, DPYSL2, TIMP2</i>
Positive regulation of smooth muscle cell chemotaxis	0.006809	<i>MDK, PDGFD, AIF1</i>
Purine nucleotide metabolic process	0.006809	<i>GUK1, GMPR2, FHIT</i>
Angiogenesis	0.006992	<i>PDGFRB, ACVR1, IL18, FN1, UBPI, VASH1, PIK3CG, ACTG1, NELL2, COL4A2, HEY1, FGF9, FAP, POFUT1, COL8A2, APLNR, TEK, JAM3</i>
Glycosaminoglycan catabolic process	0.007124	<i>GLB1, HYAL2, GUSB, LYVE1</i>
Elastic fiber assembly	0.007124	<i>COL3A1, EFEMP2, LTBP3, FBLN5</i>
Cellular response to interferon gamma	0.007199	<i>CCL8, GSN, CCL3L1, CCL3, VIM, AIF1, ACTG1, HLA-DPA1, TLR2, HLA-DQB1</i>
Positive regulation of phagocytosis	0.007211	<i>TUB, FCER1G, SFTPD, TREM2, PLA2G5, DOCK2, SOD1</i>
Ossification	0.008993	<i>EXT2, SPARC, THRA, MGP, CLEC11A, COL5A2, TMEM119, KAZALD1, PPARGC1B</i>
Kidney development	0.009148	<i>IFT20, TFAP2B, MME, WFS1, HYAL2, ALDH1A2, RGN, SULF1, PKD1, DCN, SULF2</i>
Response to axon injury	0.009423	<i>ARF4, LGALS1, TYROBP, TREM2, AIF1, SOD1</i>
Response to hydrogen peroxide	0.009555	<i>PDGFRB, LDHA, CAPN2, HBB, HBA2, HBA1, SOD1</i>
Tissue regeneration	0.009975	<i>GAP43, GSN, MDK, CPQ, PTN</i>

MHC, major histocompatibility complex.