Figure S1. Melanocytes are present in P7 and P30 AoV and MV leaflets. A-D: Representative Dct, pHH3 and CD45 staining on P7 AoV (A), P7 MV (B), P30 AoV (C) and P30 MV (D) leaflet sections. **A'-D':** higher magnification with white arrows pointing to a melanocyte positive for Dct (A',B') or in regions forming melanin (C'-D') as shown in bright field (G,H). **E-H:** Bright field (BF) shows localization of melanocytes (arrowheads) at P7 (E,F) and brown melanin staining at P30 (G, H) (representative of n=5). A"-B": 40X objective magnification with Dct staining in P7 heart valve leaflets. Scale bar = 50 µm.
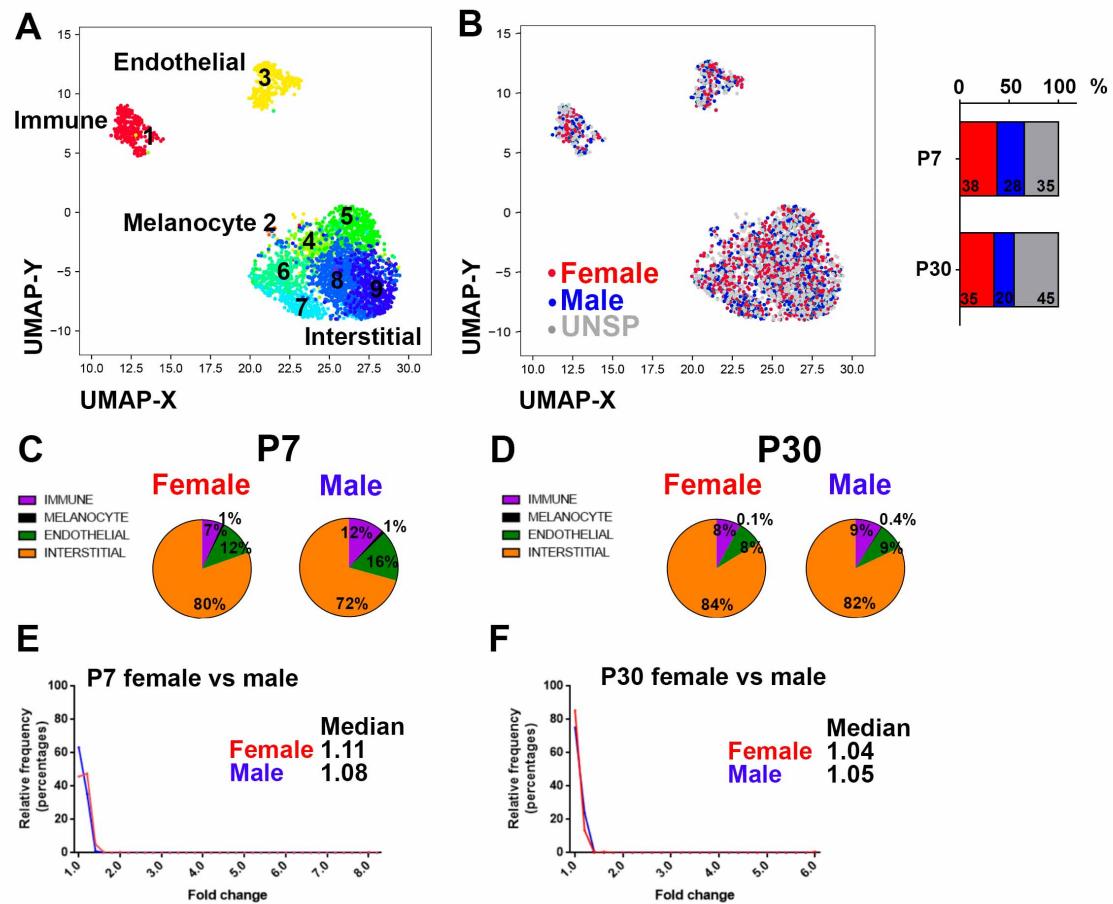
Figure S2. Cells of female and male origin are similarly represented in heart valve cell clusters. A: UMAP representation derived from ICGS heatmaps shows the 9 cell clusters. **B:** UMAP representation derived from ICGS heatmaps shows female (red), male (blue) cells and unspecified cells (UNSP, grey) with their percentage in each developmental stage (right panel). **C,D:** Pie charts display percentages of male and female cells in each major heart valve cell cluster at P7 (**C**) and P30 (**D**). **E,F:** Graph of fold-changes for expressed genes in female (red) versus male (blue) cells at P7 (**E**) and P30 (**F**).
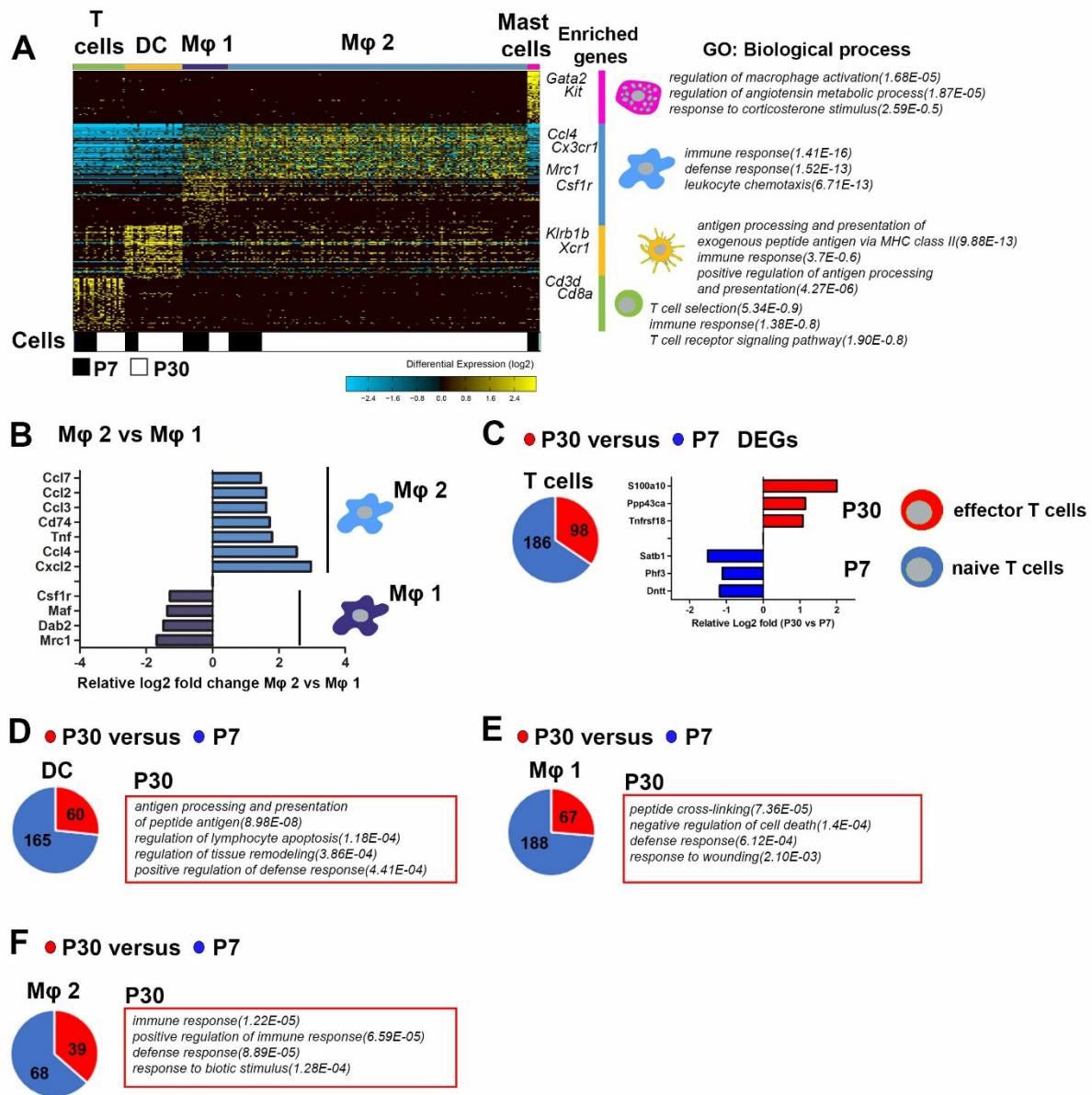
Figure S3. Heart valve immune cells consist of 5 populations with differentially expressed genes in P30 versus P7 developmental stages. A: Marker finder performed on immune cell clusters of P7 and P30 single cells and top 3 biological processes for cell subpopulations are indicated (n=226 individual cells). **B:** Differentially expressed genes (DEGs) between macrophages Mφ1 and Mφ2 populations. **C:** At least 2-fold DEGs between P30 and P7 T cells. **D-F:** At least 2-fold DEGs between P30 and P7 DC (D), Mφ1 (E) and Mφ2 (F) with the top 4 enriched biological processes for DEGs at P30.
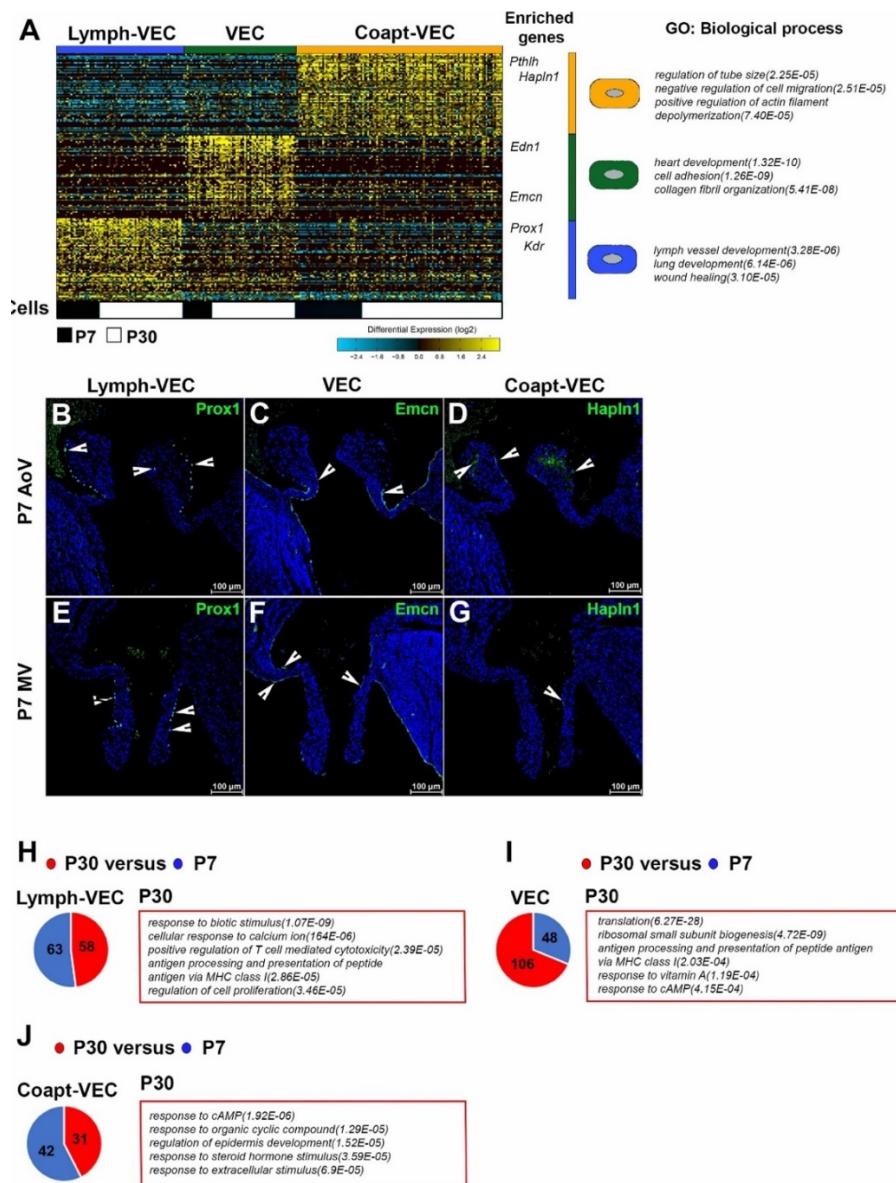
Figure S4. Endothelial cells include 3 subpopulations present at P7 and P30. A: Marker finder from ICGS performed on endothelial cell clusters of P7 and P30 single cells and top 3 biological processes for cell subpopulations (n=257 cells). **B-G:** Representative immunohistochemistry staining of Prox1 (B,E, Lymph-VEC), Emcn (C,F, VEC) and Hapln1 (D,G, Coapt-VEC) in P7 mouse AoV and MV leaflets. **H-J:** At least 2-fold DEGs between P30 and P7 for lymph-VEC (H), VEC (I), Coapt-VEC (J) subpopulations along with enriched biological processes for P30 DEGs. Scale bar:100μm
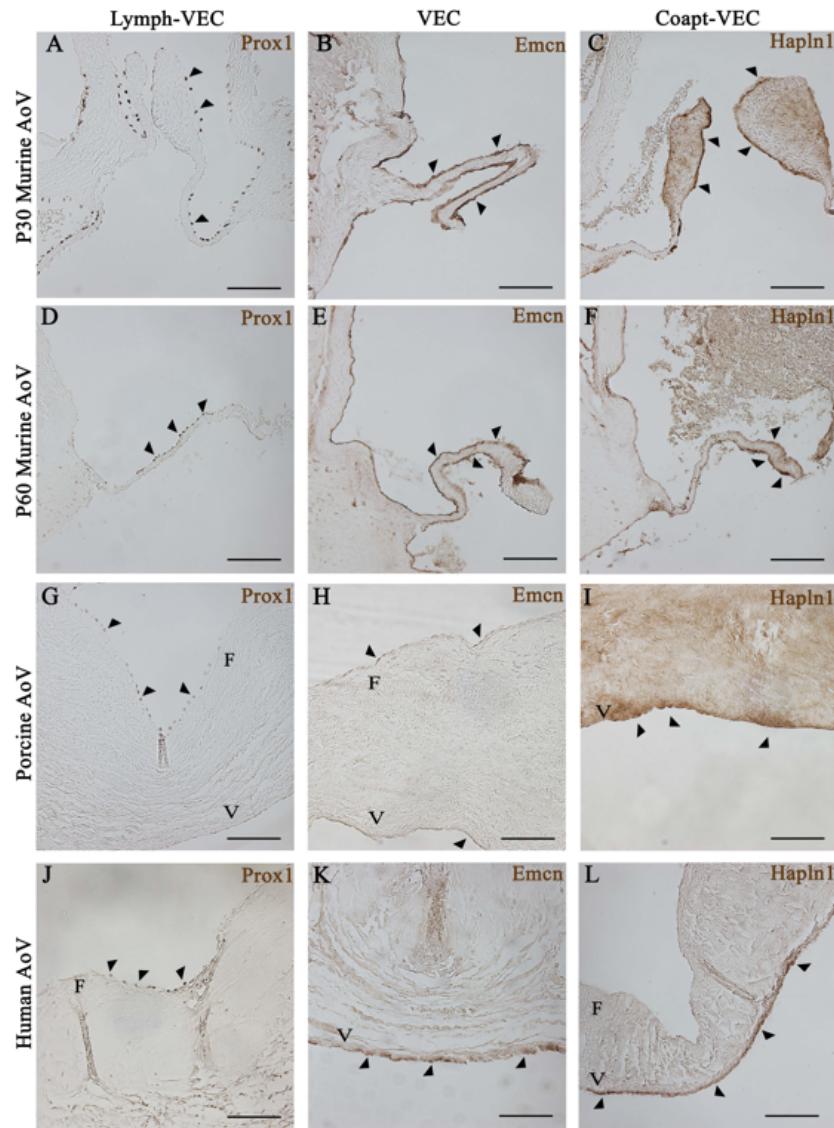
Figure S5. Endothelial cell subpopulations are present in adult murine, porcine and human aortic valves. A-C: Representative immunohistochemistry of Prox1 staining for Lymph-VEC (**A**, arrows, brown), Emcn for VEC (**B**), and Hapln1 for Coapt-VEC (**C**) in P30 murine AoV leaflets. **D-F:** Representative immunohistochemistry staining of Prox1 (**D**), Emcn (**E**), and Hapln1 (**F**) in P60 murine AoV leaflets. **G-I:** Representative immunohistochemistry of Prox1 staining (**G**), Emcn (**H**), and Hapln1 (**I**) in 6month-3yr porcine AoV leaflets. **J-L:** Representative immunohistochemistry staining (arrows, brown) of Prox1 (**J**), Emcn (**K**), and Hapln1 (L) in human right coronary AoV leaflets. Images are representative of n=2-3. Scale bar = 100 μm.
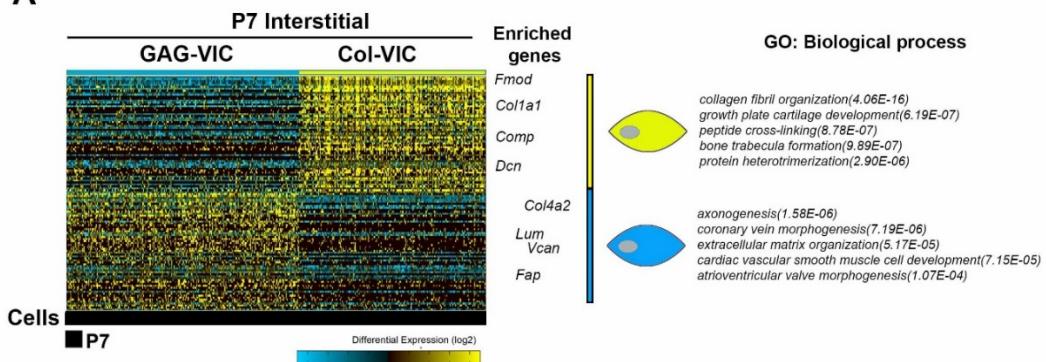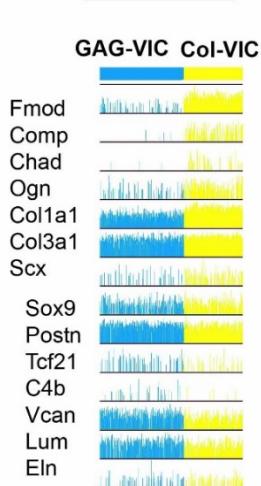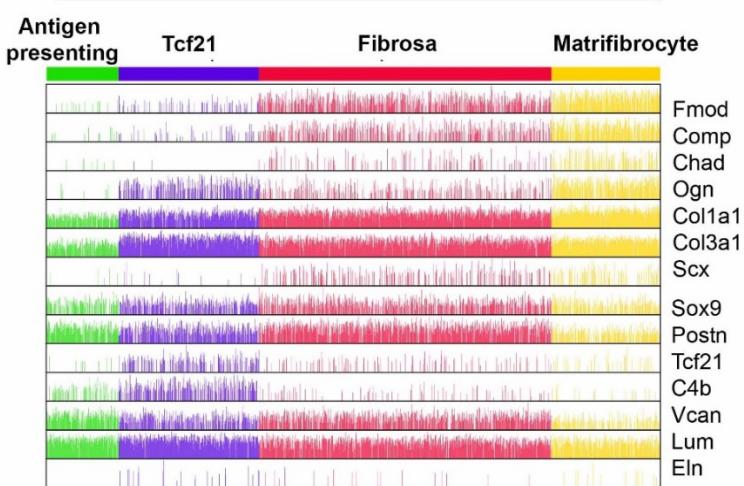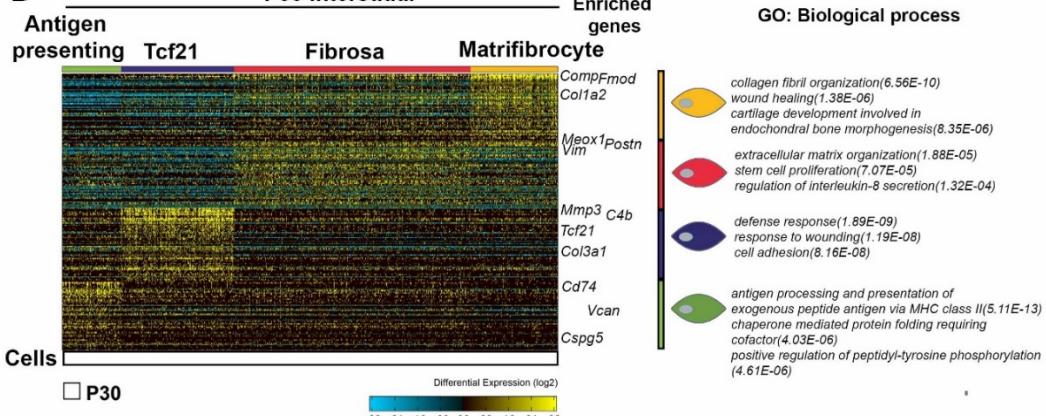
Figure S6. Valve interstitial cells include 2 subpopulations at P7 and 4 subpopulations in P30 AoV and MV leaflets. A: Marker finder performed on interstitial cells of P7 and top 5 biological processes for cell subpopulations (n=457 cells). **B,C:** Comb plots for selected ECM genes in P7 (**B**) and P30 (**C**) interstitial cell populations. **D:** Marker finder performed on interstitial cells of P30 and top 5 biological processes shown in **C** (n=1889 individual cells).

Table S1: List of differentially expressed genes (fold > 2) between **P30 and P7 T cell** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P30 vs P7)	P value (P30 vs P7)
mt-Rnr2	3.71	6.49E-08
Tmsb4x	3.45	4.74E-06
Malat1	3.35	6.83E-06
Trbc1	3.26	2.50E-06
H2-D1	3.07	9.24E-06
Vim	2.90	8.51E-05
B2m	2.67	6.52E-05
Cst3	2.64	1.04E-02
H2-K1	2.51	6.39E-04
Nr4a2	2.41	6.81E-04
Ahnak	2.33	9.28E-06
Hspa5	2.26	2.00E-04
Cd52	2.17	1.63E-02
Id2	2.10	1.59E-03
Tmsb10	2.10	9.76E-03
Igfbp7	2.04	1.59E-02
S100a10	2.00	7.09E-04
Hsp90b1	1.94	1.39E-02
Bcl2a1b	1.94	1.07E-03
S100a11	1.90	6.88E-04
Mgp	1.88	3.71E-04
Sparc	1.88	1.59E-02
Klf6	1.85	2.31E-03
Dpt	1.77	1.72E-02
Crip1	1.74	7.01E-03
Col1a2	1.71	2.28E-02
Anxa1	1.69	3.34E-03
Ifi203	1.68	1.09E-03
Zfp36l1	1.67	1.60E-03
Bcl2a1d	1.67	4.87E-03
S100a6	1.66	1.63E-03
S100a4	1.63	3.69E-03
Anxa5	1.62	1.93E-03
Rgs2	1.61	1.77E-02
Jund	1.60	5.03E-03
Junb	1.58	1.87E-02

Timp3	1.58	1.25E-02
Mndal	1.56	7.68E-03
Cd74	1.54	3.96E-02
Serf2	1.52	6.41E-03
Cyb5r3	1.51	1.63E-03
Cyba	1.50	1.20E-03
Fth1	1.50	4.15E-03
Dcn	1.50	4.11E-02
Samsn1	1.49	2.00E-02
Ifi205	1.45	1.54E-02
Klf4	1.43	5.53E-03
Vps37b	1.40	1.66E-02
D17Wsu104e	1.40	4.19E-03
Calm1	1.39	5.24E-03
Irf8	1.39	5.36E-03
Smap1	1.39	3.07E-03
Sh3bgrl3	1.38	2.48E-02
Arpc1b	1.36	1.11E-03
Nkg7	1.35	3.36E-02
Atp2b1	1.34	3.26E-02
Tbca	1.34	6.38E-03
H2-Q7	1.34	9.34E-03
AW112010	1.33	1.10E-02
Ifitm3	1.33	1.69E-02
mt-Rnr1	1.33	3.60E-02
Esf1	1.32	6.73E-03
Lcp1	1.30	3.25E-02
Calr	1.30	3.59E-02
Tpm4	1.30	1.32E-02
Gadd45b	1.30	1.10E-02
Bcl2a1a	1.28	3.75E-03
Zbtb20	1.27	4.17E-02
Apoe	1.26	1.66E-02
Rbms1	1.25	1.51E-02
Btg1	1.23	4.28E-02
Cwc15	1.23	8.27E-03
Crem	1.23	3.12E-02
P4hb	1.21	6.90E-03
Lyar	1.21	1.85E-02
Purb	1.20	1.01E-02
Klrk1	1.15	1.09E-02

Ppp3ca	1.15	9.00E-03
Ubc	1.15	1.45E-02
Psma4	1.14	2.90E-02
Sec62	1.12	1.85E-02
Cd9	1.11	4.59E-02
Ppp1r12a	1.10	1.89E-02
Mrpl52	1.10	1.65E-02
Ier2	1.10	2.68E-02
Tnfrsf18	1.08	2.97E-02
Ndufa12	1.08	1.42E-02
Mnda	1.07	3.66E-02
Sra1	1.06	3.43E-03
Arf4	1.06	9.47E-03
Cnn2	1.06	4.80E-02
Ndufa2	1.05	2.58E-02
Casp4	1.05	2.80E-02
Naaa	1.03	3.53E-02
Actr2	1.03	2.81E-02
Cdkn1a	1.03	4.64E-02
Syn3	1.02	2.43E-02
Ccdc12	1.01	1.31E-02
Ppp1r15a	1.00	2.90E-02
Rpap3	-1.00	7.93E-03
Rpl7a-ps3	-1.00	1.57E-02
Sumo2	-1.00	3.98E-02
Rpl13-ps3	-1.01	4.78E-02
Atic	-1.01	9.40E-04
Gm8225	-1.01	1.36E-02
mt-Atp6	-1.01	3.76E-02
Snx6	-1.02	1.70E-02
Dtymk	-1.02	2.36E-02
Ablim1	-1.02	4.62E-02
Polr3k	-1.02	9.55E-04
Rhoh	-1.03	3.54E-03
Snrnp70	-1.03	1.45E-02
Hnrnpa1	-1.03	3.45E-02
Ppp2r5c	-1.04	2.84E-02
Hist1h2al	-1.04	2.77E-03
Tipin	-1.04	5.49E-03
Sla	-1.04	3.50E-02
Gm7964	-1.06	2.01E-02

Ube2d3	-1.06	3.31E-02
Eri1	-1.07	1.59E-03
Gm17541	-1.07	2.89E-02
Gm4978	-1.07	2.16E-02
Cnot2	-1.08	8.90E-04
Tmpo	-1.08	2.52E-02
Itga4	-1.08	5.62E-03
Strbp	-1.08	4.65E-03
Tcf12	-1.09	1.34E-02
Caprin1	-1.09	3.15E-02
Angel2	-1.09	1.27E-03
Ewsr1	-1.10	1.54E-02
Mif	-1.10	3.76E-02
Hspa8	-1.10	1.74E-02
Pgls	-1.10	6.20E-03
Rpl3	-1.11	4.88E-02
Phf3	-1.11	4.21E-02
Mrps33	-1.11	1.20E-02
Pex13	-1.11	1.38E-03
Rps2-ps10	-1.12	3.64E-02
Hist2h2ab	-1.13	1.20E-02
Cd3d	-1.13	4.82E-02
Gm16477	-1.13	4.25E-02
Hmga1	-1.14	9.84E-03
Hnrnpk	-1.14	2.28E-02
Ube2i	-1.15	2.91E-02
Chd1	-1.15	1.18E-02
Gm17669	-1.15	1.06E-02
Coro1a	-1.15	2.68E-02
Mcm6	-1.16	8.33E-03
Gmps	-1.16	1.71E-03
Pgk1-rs7	-1.16	4.35E-03
Gm12728	-1.16	1.48E-02
Gm10123	-1.16	6.77E-03
Gm10263	-1.16	1.08E-02
Gm18025	-1.16	4.45E-03
Ddx6	-1.17	3.22E-02
Rtn3	-1.17	3.21E-02
Dntt	-1.18	1.22E-02
Zfp280d	-1.19	2.80E-03
Paics	-1.19	1.88E-03

Cdca7	-1.19	3.57E-02
Brd2	-1.19	3.36E-02
Gm6483	-1.19	1.57E-03
Smu1	-1.19	1.66E-04
Cd8b1	-1.19	4.87E-02
Uba2	-1.20	6.56E-04
Rpl30	-1.20	2.02E-02
Fyb	-1.21	4.66E-02
Lat	-1.21	1.77E-02
Naca	-1.21	6.11E-03
Pds5b	-1.22	4.15E-03
Rpl10a	-1.22	2.72E-02
Endou	-1.22	9.25E-04
Hbb-bs	-1.23	3.77E-02
Hist2h2ac	-1.24	1.00E-02
Hnrnpa3	-1.24	2.31E-02
Cmip	-1.25	6.43E-03
Gm5619	-1.25	1.83E-02
Gm5641	-1.25	2.24E-02
mt-Nd1	-1.26	8.52E-03
Rpl7a	-1.26	2.95E-02
Eif3f	-1.26	9.85E-03
Rps3a1	-1.27	2.84E-02
Tcp1	-1.27	1.19E-03
H3f3a	-1.27	2.41E-02
Rgcc	-1.27	9.38E-03
Lck	-1.28	8.28E-03
Clk4	-1.29	1.69E-04
Gm5093	-1.29	4.70E-02
Ctage5	-1.30	3.83E-02
Gm15013	-1.30	2.32E-02
Hnrnpm	-1.31	3.63E-02
Sf3b2	-1.31	8.48E-03
Sfpq	-1.33	1.86E-02
Srsf11	-1.33	1.07E-02
Lztfl1	-1.33	1.04E-03
Gm12355	-1.34	7.72E-03
Gmfg	-1.34	2.80E-03
Gm8730	-1.35	1.16E-03
Rpl7a-ps5	-1.36	1.63E-02
Pgk1	-1.37	7.78E-04

Smc4	-1.41	2.07E-02
mt-Nd4l	-1.42	8.33E-03
Atp5b	-1.43	5.77E-03
Hdac7	-1.43	2.59E-04
Gm5160	-1.44	1.21E-02
Ucp2	-1.44	1.33E-04
Hist2h2aa2	-1.45	1.97E-02
Matr3	-1.45	8.29E-04
Rrm1	-1.45	1.02E-04
Tia1	-1.46	2.69E-03
Top2a	-1.46	4.64E-02
Rps6	-1.46	7.03E-03
Gm21092	-1.46	6.70E-04
Rpl21	-1.47	1.90E-03
Gm5611	-1.47	1.46E-02
Rrm2	-1.48	4.57E-03
Cfl1	-1.50	1.03E-02
Gm10222	-1.50	4.68E-03
Gm9242	-1.50	3.24E-03
Gm7808	-1.51	4.31E-03
Satb1	-1.51	9.39E-03
mt-Nd4	-1.51	8.77E-03
Srsf3	-1.51	5.15E-03
Anp32e	-1.53	1.33E-02
Gm4968	-1.53	2.71E-03
Gins1	-1.55	6.49E-05
Arpp21	-1.60	8.35E-04
Tuba1b	-1.60	1.83E-02
mt-Atp8	-1.60	3.28E-03
H2afz	-1.61	1.20E-02
mt-Nd5	-1.61	1.10E-02
2810417H13Rik	-1.62	1.68E-02
Tsc22d4	-1.63	1.05E-03
Cdkn1b	-1.66	2.74E-03
AC123611.1	-1.66	3.61E-03
Gm17087	-1.67	5.33E-04
Gm6793	-1.68	6.25E-03
Cd8a	-1.70	3.50E-04
Rpl13a-ps1	-1.72	6.15E-03
AC121131.2	-1.73	2.60E-03
Cd3g	-1.73	2.40E-03

Gm6576	-1.73	7.02E-04
H2afx	-1.74	5.40E-03
Ccr9	-1.75	7.95E-04
Gm10126	-1.76	1.74E-03
Hba-a1	-1.78	1.08E-03
Hnrnpf	-1.78	5.15E-04
Rbm3	-1.79	3.27E-04
Dusp5	-1.80	4.74E-04
Incenp	-1.80	1.11E-04
Cd24a	-1.82	2.61E-04
Hist1h2ab	-1.88	1.54E-02
Stmn1	-1.90	2.44E-03
Rpl10a-ps2	-1.96	3.91E-04
Bcl11b	-1.96	8.61E-04
Eef2	-1.96	7.91E-04
Tubb2b	-1.98	2.34E-04
Hist1h2ad	-1.99	1.93E-02
Thy1	-1.99	4.57E-04
Hmgb1	-1.99	2.75E-04
AC167036.1	-2.00	2.56E-05
Gm6139	-2.06	2.04E-04
Hist1h2ak	-2.06	6.04E-03
Hist1h2an	-2.09	1.12E-02
Gm8991	-2.09	3.57E-05
Tubb2a	-2.12	8.66E-04
Hist1h2ai	-2.12	1.00E-02
Thrap3	-2.12	2.23E-05
Mier1	-2.14	4.90E-04
Gm5239	-2.15	2.04E-04
Gclm	-2.17	3.11E-04
Myb	-2.19	2.15E-06
Hist1h2ae	-2.23	3.39E-03
Hba-a2	-2.25	6.10E-05
Hist1h2ah	-2.26	6.15E-03
Hist1h2af	-2.44	2.36E-03
Hist1h2ag	-2.49	3.89E-03
Hist1h2ac	-2.49	2.82E-03
Hmgn2	-2.64	5.02E-06
Gm10282	-2.71	2.75E-05
Hist1h2ap	-2.73	2.36E-03
Hist1h2ao	-2.81	1.85E-03

Tcf7	-3.26	1.85E-07
Trbc2	-3.36	6.83E-05
Trbc1	-3.63	2.50E-06

Table S2: List of differentially expressed genes (fold > 2) between **P30 and P7 dendritic cell** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P30 vs P7)	P value (P30 vs P7)
mt-Rnr2	4.05	4.84E-09
Cst3	2.88	8.70E-04
Malat1	2.40	2.88E-06
Jund	2.23	5.93E-05
Ppt1	2.14	2.52E-03
H2-Aa	2.07	1.11E-02
Cox7b	2.03	5.77E-04
Tbca	1.99	1.85E-05
H2-K1	1.96	7.45E-04
Hspa5	1.92	7.83E-03
Tomm7	1.80	1.32E-03
Cd74	1.76	1.02E-02
Fosb	1.76	1.34E-02
5430435G22Rik	1.74	4.63E-03
B2m	1.74	1.68E-04
Irf8	1.72	1.29E-02
Cox6a1	1.70	5.58E-03
Eif5b	1.66	1.13E-02
Prrc2c	1.66	1.75E-02
Rgs10	1.63	1.88E-03
Crip1	1.58	1.24E-03
Psma4	1.58	6.33E-03
Ran	1.57	3.76E-03
Ckb	1.53	1.53E-02
Myl6	1.53	1.48E-03
Mpeg1	1.50	2.92E-02
Cox6c	1.49	7.90E-03
Tmsb4x	1.48	1.26E-05
Atp5e	1.48	8.75E-03
Llph	1.48	5.72E-03
Zfp36l1	1.41	3.25E-02
Cadm1	1.36	1.52E-02

Cd44	1.35	2.90E-02
H2-D1	1.34	9.44E-04
Abracl	1.33	1.40E-02
Xcr1	1.30	3.72E-02
Top1	1.25	2.21E-02
Csf2ra	1.25	4.36E-02
Mgp	1.24	1.69E-02
Ubash3b	1.24	1.15E-02
Cox7a2	1.23	9.82E-03
Rala	1.20	3.28E-02
Rabep1	1.19	1.46E-02
Hp1bp3	1.17	3.92E-02
M6pr	1.17	4.83E-02
Myl12b	1.14	1.57E-02
Sumo1	1.13	1.73E-02
Psme2	1.13	4.24E-02
Ndufa3	1.12	4.56E-02
Lsp1	1.12	3.66E-02
Timm13	1.10	3.88E-02
Dad1	1.09	4.19E-02
Sema4a	1.06	4.00E-02
Zfr	1.05	4.16E-02
Gm8420	1.05	3.91E-02
Adam8	1.04	3.59E-02
Entpd1	1.04	4.62E-02
Cd24a	1.04	4.44E-02
Rps14	1.03	8.92E-03
Bzw1	1.01	4.09E-02
Ccnc	-1.00	1.76E-04
Lrrc41	-1.00	1.37E-03
Psmd12	-1.01	1.53E-02
mt-Nd1	-1.01	1.94E-02
Rps12	-1.01	1.67E-02
Il6ra	-1.02	4.51E-02
Akirin1	-1.02	4.30E-03
Gm9803	-1.02	3.01E-03
Cul4a	-1.03	2.56E-03
Mir692-2a	-1.03	1.54E-02
Gm8225	-1.03	2.95E-03
Gm12728	-1.03	2.06E-02
Eif2s1	-1.03	2.12E-02

Rpgrip1	-1.03	2.11E-03
8430429K09Rik	-1.04	1.03E-02
Gm26623	-1.04	2.07E-03
Rassf2	-1.04	1.19E-02
Mb21d1	-1.04	3.30E-03
Cfl1	-1.05	4.90E-02
Gm4204	-1.05	3.58E-02
Gm7808	-1.05	6.69E-03
Gadl1	-1.05	9.14E-03
Ptpn6	-1.06	4.41E-02
Mecp2	-1.06	2.80E-03
Slc30a5	-1.06	4.19E-03
G3bp2	-1.06	4.65E-02
Rps2-ps10	-1.06	4.69E-02
Luc7l2	-1.06	4.13E-02
Cct6a	-1.06	4.09E-02
Rrm2b	-1.06	1.52E-04
Dkc1	-1.07	4.40E-02
Snx5	-1.07	1.69E-02
Tob2	-1.07	1.86E-02
Ap2a2	-1.07	6.21E-03
Rad54l	-1.07	1.32E-04
Gxylt1	-1.08	6.32E-03
Cbwd1	-1.08	1.36E-04
Zfp362	-1.08	1.36E-04
Eif4b	-1.08	4.44E-02
Rpl6	-1.09	1.59E-02
Cox5b	-1.10	4.50E-02
Aldh9a1	-1.11	1.97E-03
Sap30bp	-1.11	1.09E-04
1110004F10Rik	-1.11	1.86E-02
Psip1	-1.11	2.33E-02
Gm15987	-1.12	1.12E-04
Zkscan3	-1.12	1.52E-04
Gm17511	-1.12	1.64E-02
Selt	-1.12	2.64E-03
Tcp1	-1.12	5.19E-03
Rabl6	-1.13	1.88E-02
Acp1	-1.13	2.75E-03
Snrnp40	-1.13	8.52E-04
Kif15	-1.14	3.90E-02

Ubl3	-1.14	1.96E-02
Wdr26	-1.14	3.69E-02
AC121131.2	-1.14	3.82E-02
Actr2	-1.14	3.79E-02
Cope	-1.14	9.42E-03
Gm10269	-1.14	3.10E-03
Ogt	-1.15	3.61E-03
Sh3glb1	-1.16	2.78E-02
Smarce1	-1.16	1.24E-02
Cnot3	-1.16	4.72E-03
Gm22774	-1.16	6.87E-03
Sp1	-1.17	4.06E-03
Wdhd1	-1.17	1.39E-04
Hist1h2al	-1.17	7.33E-04
Runx1	-1.17	3.38E-03
Rps2-ps6	-1.18	3.75E-02
Cdc37	-1.18	3.56E-02
Hspa8	-1.18	2.53E-02
Safb2	-1.19	1.42E-02
Hba-a2	-1.19	2.21E-02
Gm8730	-1.19	3.01E-02
Nfkb1	-1.20	2.75E-03
Gm5239	-1.21	2.34E-02
Skil	-1.21	4.13E-02
Xrn2	-1.22	4.51E-02
Crlf3	-1.22	2.97E-03
Rbm39	-1.23	2.17E-02
Rpl10a-ps2	-1.24	3.45E-02
Emd	-1.24	4.89E-02
Gclm	-1.25	4.02E-02
Atp5o	-1.25	2.73E-02
Gm3839	-1.25	4.19E-04
H2-DMb2	-1.25	2.25E-02
Gm26825	-1.25	6.50E-04
Rbm5	-1.26	8.84E-03
Cmpk1	-1.26	2.47E-05
Adam10	-1.26	1.54E-03
mt-Nd4	-1.26	2.51E-02
Taok1	-1.26	1.29E-03
Exosc8	-1.27	2.80E-03
Acta1	-1.27	2.31E-04

Ccdc50	-1.28	2.79E-02
mt-Ts1	-1.28	1.15E-04
Csnk2a1	-1.28	9.66E-03
Ezh2	-1.28	4.59E-02
Psmc3	-1.29	2.30E-02
Tceb3	-1.29	2.47E-03
Gm5070	-1.30	9.58E-05
Srrm2	-1.31	2.23E-02
Hnrnpa1	-1.31	1.46E-02
Ddx5	-1.32	3.98E-02
Gm5428	-1.33	1.28E-04
Pcf11	-1.34	9.40E-03
Rps3a1	-1.35	1.56E-02
Hnrnpk	-1.36	1.53E-02
Wdr38	-1.36	9.41E-04
Hnrnpa3	-1.36	3.01E-02
Eif5	-1.38	2.51E-02
Gm5641	-1.38	2.26E-02
Rac2	-1.39	6.17E-03
Gm6139	-1.39	1.31E-02
Fam111a	-1.40	3.42E-02
Prelid1	-1.41	6.46E-03
Gm17669	-1.42	7.43E-04
Nap1l1	-1.42	2.95E-02
Slc38a1	-1.43	4.00E-04
Vps37b	-1.43	5.67E-05
H3f3a	-1.44	2.46E-02
Ddx3y	-1.45	8.44E-05
Rpl23a	-1.46	1.63E-02
Snrnp70	-1.46	6.04E-03
Gdi2	-1.46	1.54E-02
Psmd6	-1.47	4.48E-04
Phip	-1.47	2.74E-05
Fus	-1.48	6.11E-03
Ptbp3	-1.49	9.33E-03
Caprin1	-1.49	3.75E-03
Gng5	-1.49	1.85E-03
H2afy	-1.51	1.57E-02
Hist1h2ai	-1.53	5.09E-04
Hirip3	-1.55	1.24E-03
Capg	-1.56	1.45E-03

Dhx9	-1.57	4.29E-04
Gm5093	-1.57	6.18E-04
Gm5506	-1.58	6.65E-05
Cd2ap	-1.61	1.09E-02
Gm12355	-1.62	7.98E-04
Coro1a	-1.67	6.89E-04
Rbm3	-1.69	3.17E-04
Hbb-bs	-1.70	2.04E-03
Gm22751	-1.72	1.91E-05
Gm5263	-1.73	2.98E-05
Gm8991	-1.75	2.27E-03
Fam120a	-1.76	2.32E-05
Safb	-1.79	1.24E-04
Eif4a1	-1.79	1.62E-03
Gm11273	-1.80	7.22E-04
Gm10020	-1.84	4.81E-04
Ctsh	-1.88	5.83E-04
Gm9242	-1.91	1.70E-04
Shisa5	-1.91	1.33E-05
Eno1	-1.92	2.91E-05
Emb	-1.95	6.87E-06
Pak2	-2.01	4.21E-04
Hmgb1	-2.03	5.04E-03
Tardbp	-2.05	6.21E-05
Gsk3b	-2.06	3.18E-07
Hbb-bt	-2.17	1.33E-05
Gm5244	-2.18	5.69E-05
Gm15013	-2.20	2.19E-04
Gm17087	-2.23	2.87E-04

Table S3: List of differentially expressed genes (fold > 2) between **P30 and P7 Mφ1** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

Gene ID	Log2fold (P30 vs P7)	P value (P30 vs P7)
mt-Rnr2	5.11	3.61E-12
Malat1	3.59	1.32E-05
F13a1	2.99	1.02E-05
Cbr2	2.64	2.83E-05
Ifi27l2a	2.57	3.12E-03
Lyz2	2.22	1.90E-04
Pltp	2.08	2.46E-06
Folr2	1.99	1.61E-05
Crip1	1.91	4.91E-03
Maf	1.90	1.44E-03
mt-Rnr1	1.80	1.94E-04
Slfn2	1.77	1.21E-03
Prrc2c	1.73	1.35E-02
Wfdc17	1.72	3.89E-03
Ifitm3	1.63	7.64E-03
Ly6e	1.61	2.38E-02
H2-K1	1.54	6.20E-03
Bax	1.51	4.64E-04
Mcl1	1.50	6.89E-03
mt-Co2	1.50	8.90E-04
Cd163	1.48	2.52E-02
Srsf11	1.47	8.92E-03
Zranb2	1.46	2.02E-03
C1qc	1.45	1.92E-04
Spop	1.40	7.81E-03
Tsc22d3	1.40	1.59E-02
Tax1bp1	1.36	3.51E-02
Igf1	1.36	2.76E-02
Rock1	1.36	1.98E-02
Ahnak	1.33	2.33E-02
Tagln2	1.31	2.26E-02
Ccnl1	1.30	1.20E-02
Psmd8	1.30	4.77E-03
Matr3	1.30	1.53E-02
Jund	1.29	1.38E-02
Ppig	1.28	2.10E-02

Mndal	1.27	3.92E-02
Atrx	1.26	2.33E-02
Gm8420	1.25	9.28E-03
Zcchc6	1.25	3.14E-02
Ccl9	1.22	3.34E-02
Wwp1	1.21	4.41E-02
Psmb8	1.21	2.28E-02
Tcf4	1.20	1.64E-02
Laptm4a	1.19	3.74E-02
Fam46a	1.17	1.38E-02
Trafd1	1.16	4.72E-03
mt-Co3	1.15	1.04E-02
1810037I17Rik	1.15	3.17E-02
Ddx60	1.14	1.00E-02
Cfdp1	1.14	3.12E-02
Ly86	1.14	3.00E-02
Prpf38b	1.13	4.65E-02
Csde1	1.10	1.35E-02
Dnaja1	1.08	2.56E-02
Smc3	1.08	5.00E-02
Anxa1	1.07	1.22E-02
Snrpe	1.06	3.35E-02
Cst3	1.06	2.50E-03
Slc9a9	1.06	9.78E-03
Hist1h2bc	1.04	4.39E-02
Dst	1.04	2.50E-02
Dcn	1.03	9.47E-03
Wbp5	1.02	4.97E-02
Zc3h18	1.02	1.28E-02
Chkb	1.01	1.13E-02
Rap2b	1.00	4.71E-02
Oaz1	-1.00	1.20E-02
Cnn2	-1.01	3.31E-02
Srgap2	-1.01	3.25E-02
Hspd1	-1.01	3.67E-02
Amd1	-1.01	1.46E-02
Etfb	-1.01	1.47E-02
Gm10335	-1.01	2.49E-02
Cdk4	-1.02	8.39E-03
Tifab	-1.02	1.52E-02
Arl6ip1	-1.02	4.44E-02

Rps18	-1.02	1.49E-02
Eno1	-1.03	3.33E-02
Csf1r	-1.03	2.48E-02
Atp5a1	-1.03	4.54E-02
Fstl1	-1.04	1.52E-02
Phf14	-1.04	8.32E-03
Gm10094	-1.04	2.20E-02
Milr1	-1.04	1.33E-02
Ube2n	-1.04	8.12E-03
Gm8994	-1.04	2.08E-03
Syf2	-1.05	1.66E-02
mt-Atp6	-1.05	3.18E-02
St13	-1.06	2.68E-02
Rpl6	-1.06	5.93E-04
Klf3	-1.06	1.61E-02
Csf2rb	-1.06	1.07E-02
Gm10064	-1.07	5.51E-03
Csf2ra	-1.07	2.26E-02
Gm25241	-1.07	5.28E-03
Rhob	-1.08	3.20E-02
1110008F13Rik	-1.08	2.01E-02
Grn	-1.10	3.09E-02
Psma1	-1.10	6.13E-03
Vamp3	-1.10	5.33E-03
Vdac2	-1.10	9.16E-03
Syngr2	-1.10	6.71E-03
Ptplad2	-1.11	1.85E-02
Wdr45b	-1.11	5.55E-03
Dnm1l	-1.12	6.37E-03
Gnas	-1.13	2.70E-02
Cyth4	-1.14	3.00E-02
Arhgdib	-1.14	3.24E-02
AC123611.1	-1.15	4.19E-02
Myl12a	-1.15	3.80E-02
Eif3e	-1.15	2.95E-02
Tuba1a	-1.15	2.64E-02
Gm13251	-1.15	1.54E-02
Rps3a1	-1.16	9.32E-03
Ccni	-1.17	6.38E-03
Gm13248	-1.18	1.87E-02
Gm12728	-1.18	1.48E-03

Gm16477	-1.19	2.85E-02
Hmha1	-1.19	1.68E-02
Arf1	-1.19	3.01E-02
Srsf3	-1.19	2.07E-02
Brd2	-1.19	1.27E-02
Gm10709	-1.20	5.66E-03
Gm5093	-1.20	2.93E-02
Gm8225	-1.20	9.51E-03
Rbm3	-1.20	8.65E-03
Rpl18a	-1.21	1.02E-02
Gm7729	-1.21	1.41E-03
Gm22774	-1.21	5.32E-03
Set	-1.21	3.50E-02
Gm3940	-1.22	1.83E-02
Gm6576	-1.22	2.86E-02
Igsf6	-1.23	3.18E-02
Fam49b	-1.23	2.78E-02
Adipor1	-1.23	5.13E-03
Nek7	-1.24	5.06E-03
Rpl23a-ps3	-1.24	3.28E-02
Tmem234	-1.24	7.19E-03
Hba-a1	-1.25	2.74E-02
Gm18025	-1.25	5.07E-03
Bzw2	-1.25	2.33E-03
Rpl18	-1.25	1.03E-02
Lsp1	-1.25	4.81E-03
Gm8226	-1.26	1.08E-02
Tm9sf3	-1.26	1.03E-02
Atf4	-1.26	9.20E-03
Pfn1	-1.27	3.42E-02
Npm1	-1.28	2.07E-02
Ppia	-1.28	5.75E-03
Gm22759	-1.28	4.64E-03
Eif4a1	-1.29	2.79E-02
Nop58	-1.29	1.15E-02
Gm12355	-1.29	4.98E-03
Sap18	-1.29	4.13E-03
Fermt3	-1.29	9.23E-03
Rps27a	-1.30	6.01E-03
Rpl21-ps4	-1.31	2.00E-02
Rbm17	-1.32	6.22E-03

Gm7536	-1.32	2.15E-03
Tcf25	-1.33	3.17E-02
Cox7a2l	-1.33	5.91E-03
2410018M08Rik	-1.35	3.38E-03
Dnajb6	-1.35	8.72E-03
Gm5786	-1.35	1.01E-02
Vps26a	-1.35	4.33E-03
Pea15a	-1.35	4.74E-03
Rab7	-1.36	3.49E-03
Ucp2	-1.36	4.04E-03
Gm24276	-1.36	3.60E-03
Serbp1	-1.37	5.10E-03
mt-Nd4l	-1.38	1.98E-02
Gm26384	-1.38	1.79E-02
Gm10126	-1.38	1.70E-02
Rpl27a	-1.38	1.79E-02
Cfl1	-1.38	1.10E-02
Gm6139	-1.38	1.92E-02
Gm5506	-1.39	3.79E-03
Gm17541	-1.39	8.20E-03
Hnrnpa3	-1.39	2.13E-02
Rpl10	-1.40	7.21E-03
Rpl5	-1.40	2.50E-02
Sirpa	-1.40	5.15E-03
Rps19	-1.40	1.05E-02
Ptma	-1.41	1.08E-03
Man2b1	-1.41	7.33E-03
Cdc42	-1.41	1.85E-02
Gm4076	-1.41	1.64E-03
Rpl10-ps3	-1.41	6.90E-03
Pa2g4	-1.41	8.19E-03
Rps2-ps10	-1.41	1.65E-02
Rpl36a	-1.42	2.17E-02
Rpl7a-ps5	-1.42	3.75E-03
Gm9242	-1.44	2.85E-03
Rps6	-1.44	8.81E-05
Mir692-2a	-1.45	4.85E-03
Gm10020	-1.45	2.23E-03
Rpl21	-1.45	5.96E-03
Rpl29	-1.46	6.23E-03
Ifngr1	-1.46	1.30E-02

Bcl2a1d	-1.46	8.91E-03
Gm10263	-1.48	1.87E-03
Rps18-ps3	-1.48	4.44E-03
Gm5641	-1.49	5.10E-03
Gm16372	-1.50	2.99E-04
Dnajc19	-1.50	1.09E-03
Hspa8	-1.50	1.25E-02
Lrrc58	-1.52	7.24E-07
Myl6	-1.52	2.80E-03
Gm26445	-1.54	9.46E-03
Gm9396	-1.54	8.69E-03
Gm10282	-1.55	3.39E-03
Gm10260	-1.57	1.53E-03
Rps4x	-1.58	2.95E-03
Bcl2a1b	-1.59	4.31E-03
Actr3	-1.59	2.99E-03
Gm5619	-1.60	6.99E-04
Hbb-bt	-1.61	1.29E-02
Serp1	-1.61	6.75E-04
Bcl2a1a	-1.61	8.90E-04
Rpl23a	-1.62	2.40E-03
Gm17511	-1.63	5.05E-03
Hmgn2	-1.66	1.52E-03
Gm4968	-1.67	2.95E-04
Gm8991	-1.68	3.15E-04
Hbb-bs	-1.69	4.22E-03
Rpl15	-1.72	1.42E-03
Tram1	-1.73	2.74E-06
Gm7808	-1.75	7.92E-03
Rpl21-ps6	-1.77	3.42E-03
Hba-a2	-1.77	1.30E-03
Fcrls	-1.77	2.31E-03
Rps12	-1.80	3.19E-04
Ppp1r15a	-1.81	2.68E-03
Gm22426	-1.82	3.43E-04
Gm6793	-1.82	3.82E-04
Gm5160	-1.88	1.41E-04
Rps2	-1.93	9.33E-04
Gm5244	-1.93	2.33E-04
Gm24865	-1.94	1.56E-04
AC167036.1	-1.96	5.53E-05

Gm5611	-2.04	3.25E-05
Rpl10a-ps2	-2.05	2.63E-05
Gm5239	-2.06	1.25E-03
Rpl13a-ps1	-2.07	2.74E-05
Gnb2l1	-2.09	7.04E-05
Rps2-ps6	-2.17	5.73E-05
Gm8730	-2.37	1.92E-05
Rplp0	-2.45	1.16E-04
Eef1a1	-2.57	2.09E-05
Gm15013	-2.59	1.83E-06
Rpl10a	-2.59	5.97E-05
Gclm	-2.80	2.36E-08
Actg1	-3.04	1.69E-06
Gm17087	-3.23	1.76E-08

Table S4: List of differentially expressed genes (fold > 2) between **P30 and P7 Mφ2** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P30 vs P7)	P value (P30 vs P7)
mt-Rnr2	3.65	3.73E-27
Cd74	3.02	4.27E-05
H2-Ab1	2.80	1.44E-04
H2-Eb1	2.59	4.34E-04
H2-Aa	2.51	4.41E-04
Malat1	2.24	1.39E-16
Ifi27l2a	2.20	2.86E-05
Lyz2	1.99	3.33E-04
Mndal	1.73	5.08E-05
Ly6e	1.64	6.16E-05
Ifitm3	1.57	1.27E-04
Jund	1.45	3.62E-04
Vim	1.41	4.08E-03
Atp6v1a	1.36	2.36E-04
C1qb	1.30	6.36E-09
Cxcl1	1.29	2.49E-02
H2-DMa	1.28	5.09E-04
Ccnd1	1.26	3.42E-03
Cdkn1a	1.25	4.45E-03
mt-Rnr1	1.25	4.03E-03
Cst3	1.20	4.15E-08

C1qc	1.20	3.76E-06
Ifi203	1.18	5.34E-03
Dcn	1.16	1.55E-03
Prrc2c	1.15	7.43E-03
Cd52	1.11	4.93E-03
Ncl	1.11	4.36E-04
Hmgb2	1.10	3.47E-02
Mnda	1.09	7.75E-03
Cd81	1.08	3.21E-03
Ccdc88a	1.08	2.28E-03
Tsc22d3	1.06	3.95E-03
S100a10	1.05	1.86E-02
Sh3bgrl3	1.04	1.95E-03
Ythdc1	1.04	1.32E-02
Psmb8	1.03	5.77E-03
Casp4	1.02	1.16E-02
Crip1	1.00	4.16E-02
Smc1a	1.00	4.11E-03
Gm3550	-1.01	1.16E-08
Gm5786	-1.02	2.87E-03
Rps6	-1.02	1.44E-03
Etf1	-1.03	1.47E-03
Ucp2	-1.03	1.40E-04
Sdc4	-1.04	2.60E-02
Clk1	-1.06	1.73E-03
Twf1	-1.06	2.10E-06
mt-Nd4l	-1.07	1.07E-03
Clec4n	-1.07	4.12E-03
Cdc42	-1.07	2.29E-03
Gm7729	-1.09	9.53E-10
Rps3a2	-1.09	1.44E-03
Tceb3	-1.09	7.58E-06
Pf4	-1.09	3.20E-02
Dab2	-1.10	1.13E-02
Kif5b	-1.10	1.76E-03
Gm22426	-1.10	1.76E-03
AC167036.1	-1.11	4.58E-04
2410018M08Rik	-1.11	2.33E-05
Gm5160	-1.11	1.44E-04
Gm6139	-1.11	1.31E-03
Lrrc58	-1.12	1.95E-07

Gm12728	-1.13	2.93E-05
Gm5093	-1.14	1.26E-03
Rps7	-1.15	5.26E-04
Maf	-1.16	2.06E-02
Rpl21-ps6	-1.16	1.21E-03
Sqstm1	-1.16	6.91E-03
Gm6576	-1.17	2.15E-04
Mef2c	-1.18	3.34E-03
Hba-a2	-1.18	1.19E-03
Dusp1	-1.18	1.30E-02
Rps12	-1.19	8.01E-04
AC121131.2	-1.21	2.98E-04
Rps3a1	-1.22	3.50E-04
Hbb-bs	-1.24	8.54E-04
Gm24865	-1.25	1.84E-04
Snx6	-1.26	7.38E-04
Gm5244	-1.31	1.31E-05
Hspd1	-1.31	1.25E-04
Snx5	-1.32	1.83E-04
Ctsl	-1.35	2.18E-04
AC123611.1	-1.38	4.56E-05
Eef1a1	-1.39	5.77E-06
Gm10116	-1.41	9.83E-08
Eef1g	-1.42	5.38E-05
Mir692-1	-1.45	7.84E-12
Rpl3	-1.47	3.93E-05
Gm17669	-1.51	7.01E-11
Ier3	-1.53	5.08E-04
Actg1	-1.55	4.17E-07
Ftl1	-1.56	2.83E-06
Gm7808	-1.58	1.22E-05
Gm10709	-1.61	1.54E-09
Gm5239	-1.68	7.26E-06
Hbb-bt	-1.74	3.80E-08
Fos	-1.76	2.54E-03
Gm22751	-1.80	5.00E-07
Cxcl3	-1.86	3.25E-05
Hba-a1	-1.94	2.10E-08
Mir692-2a	-1.95	7.80E-08
Rpl29	-1.97	3.73E-09
Gm26445	-2.14	2.25E-10

Gclm	-2.17	2.25E-10
Gm22774	-2.24	3.19E-10
Gm15013	-2.30	3.29E-12
Gm17087	-2.81	3.50E-15

Table S5: List of differentially expressed genes (fold > 2) between **P30 and P7 Lymph-VEC** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P30 vs P7)	P value (P30 vs P7)
mt-Rnr2	3.46	4.12E-19
H2-K1	3.03	7.02E-14
B2m	2.74	2.97E-11
H2-D1	2.69	3.68E-11
Crip1	2.62	1.10E-08
Mgp	2.60	1.11E-07
Klf4	2.08	4.64E-08
Clu	2.05	2.28E-08
Fosb	1.96	1.39E-05
Gpr116	1.92	3.65E-08
Ifi27l2a	1.90	3.54E-05
Jund	1.90	9.12E-09
Malat1	1.88	3.12E-13
Cd9	1.76	7.80E-07
Igfbp5	1.73	3.67E-04
Klf2	1.73	1.74E-05
Nfkbia	1.72	1.52E-06
mt-Rnr1	1.67	1.89E-05
Ifitm3	1.66	3.48E-05
Rock2	1.61	1.46E-05
Cst3	1.52	8.91E-06
Junb	1.51	1.70E-04
Dcn	1.50	1.38E-04
Klf9	1.47	3.72E-05
Heg1	1.46	7.40E-05
Tax1bp1	1.37	9.19E-05
Sdpr	1.36	2.93E-04
Foxp1	1.34	2.29E-05
Cytl1	1.33	7.20E-05
S100a10	1.31	8.65E-05
Tsc22d3	1.29	5.64E-05

Actn1	1.26	3.33E-04
Ier3	1.24	2.96E-03
Ubc	1.20	2.74E-03
Akap13	1.20	1.10E-03
Slfn5	1.19	1.20E-04
Gpx1	1.17	1.42E-03
Egr1	1.17	3.12E-03
Cfh	1.17	3.97E-03
Fos	1.16	8.50E-03
Golm1	1.15	1.48E-03
Serinc3	1.15	7.33E-05
Ctla2a	1.14	9.58E-03
Itm2b	1.14	3.75E-04
Ccdc80	1.14	3.09E-03
Ptgs1	1.10	5.09E-04
Gbp7	1.10	5.14E-04
Tob1	1.09	1.12E-04
Neat1	1.07	2.45E-03
Actb	1.06	1.00E-03
Cd47	1.06	2.14E-04
Arid4b	1.03	1.56E-03
Prrc2c	1.03	4.54E-03
Dstn	1.03	2.97E-03
Hspb1	1.02	1.40E-03
Capzb	1.02	5.16E-04
Palmd	1.02	3.61E-03
Ltbp4	1.02	1.11E-03
Rps6	-1.00	6.54E-05
Gm17669	-1.01	6.02E-07
Rps13	-1.01	4.34E-03
Rpl6	-1.02	1.91E-03
Gm8730	-1.02	2.51E-03
Gm10269	-1.04	1.33E-03
Gm6483	-1.04	7.19E-06
Gm10335	-1.04	1.22E-03
Rps3a2	-1.05	6.11E-05
Gclm	-1.05	1.21E-03
Tspan18	-1.05	1.47E-04
mt-Nd4l	-1.06	1.23E-03
Tmsb10	-1.07	2.30E-03
Ank3	-1.08	1.82E-05

Gm5641	-1.08	7.11E-04
Hnrnpa1	-1.09	3.39E-05
Cd59a	-1.09	1.82E-03
Gm7729	-1.10	4.29E-06
Rpl10a	-1.10	1.03E-03
Gm4968	-1.10	2.85E-06
Gm9396	-1.10	2.08E-04
Gm21092	-1.10	8.96E-06
Gm5093	-1.10	1.06E-03
Sparc	-1.11	5.34E-03
Rps19	-1.12	1.75E-04
Marcks	-1.14	8.04E-04
Gm6139	-1.15	3.57E-04
Gm9242	-1.15	2.30E-05
Gm5428	-1.16	2.83E-04
Gm16477	-1.16	7.40E-05
Rpl21-ps4	-1.19	5.10E-05
Rpl3	-1.20	3.37E-04
Gm5786	-1.24	5.74E-05
Hnrnpa2b1	-1.27	2.94E-04
Fstl1	-1.27	1.45E-04
Gm6793	-1.29	4.13E-05
Gm5244	-1.29	1.05E-05
Rpl29	-1.30	6.32E-06
Cd59b	-1.31	2.25E-07
Gm17511	-1.32	1.89E-05
Gm18025	-1.36	1.70E-08
Rps3a1	-1.36	3.13E-05
AC102758.1	-1.36	2.80E-07
Rps2-ps10	-1.39	7.03E-06
Gm10222	-1.41	5.94E-06
Hbb-bt	-1.42	7.19E-04
Rpl13a-ps1	-1.47	1.46E-05
Hba-a2	-1.49	4.00E-04
Hba-a1	-1.51	2.98E-04
Gm7808	-1.53	5.03E-06
AC167036.1	-1.57	1.13E-07
Hmgn2	-1.60	2.35E-06
Fbn2	-1.62	1.60E-07
Hbb-bs	-1.62	2.19E-04
Mdk	-1.66	2.26E-10

Gm5239	-1.75	1.40E-07
Postn	-1.79	2.57E-06
AC123611.1	-1.88	1.40E-08
Gm10282	-1.96	1.13E-09
Gm15013	-2.00	6.47E-12
Pdgfra	-2.04	4.14E-09
AC121131.2	-2.23	7.42E-12
H19	-2.39	1.40E-04

Table S6: List of differentially expressed genes (fold > 2) between **P30 and P7 VEC** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P30 vs P7)	P value (P30 vs P7)
Timp3	2.97	2.02E-08
mt-Rnr2	2.95	1.50E-14
Dcn	2.57	6.25E-06
Cst3	2.50	6.58E-12
Cytl1	2.21	7.13E-06
Mgp	2.20	5.27E-06
Klf4	2.20	4.19E-06
Gm9843	2.08	6.49E-08
Tm4sf1	1.96	4.40E-04
Tpt1	1.95	4.00E-08
Syn3	1.94	1.89E-05
Rpl22	1.93	3.32E-08
Gm9846	1.92	9.16E-07
Fmo2	1.89	2.26E-03
Cfh	1.86	1.41E-04
Jund	1.83	1.98E-09
Rps29	1.79	6.29E-08
Rpl34	1.78	1.11E-06
Malat1	1.75	2.79E-10
Fau	1.75	2.59E-06
Rps24	1.73	2.61E-05
Fosb	1.70	1.39E-03
Rps27	1.63	2.88E-06
Nfkbia	1.63	2.12E-04
Sdpr	1.55	1.17E-04
B2m	1.54	9.51E-05
Sepp1	1.54	7.08E-04

Slc25a4	1.54	1.37E-04
Rps9	1.52	6.02E-05
Aldh2	1.49	1.84E-05
Klf9	1.48	3.21E-04
Rps20	1.48	4.50E-05
Ifitm3	1.47	2.04E-04
Rps14	1.46	8.99E-06
Ndufa7	1.45	1.69E-07
Tinagl1	1.45	1.69E-05
Fth1	1.43	2.33E-05
Fos	1.43	4.19E-03
Uqcrh	1.42	1.12E-04
Tmsb4x	1.39	7.84E-05
Egr1	1.39	1.26E-02
Aqp1	1.36	1.04E-03
Clu	1.35	2.87E-03
Rps10-ps1	1.35	1.36E-04
Dusp1	1.34	1.86E-03
Apoe	1.33	1.29E-02
Crip1	1.33	3.00E-03
Tmem256	1.32	6.82E-05
Rock1	1.32	3.65E-04
Atf3	1.31	1.94E-02
Cox6b1	1.30	2.78E-04
Ncl	1.29	4.22E-05
Myl6	1.29	1.93E-04
Rpl36	1.26	6.43E-05
Gabarapl1	1.26	4.41E-03
H2-K1	1.26	1.28E-03
Tbca	1.23	2.11E-04
Nop58	1.22	4.56E-03
Rpl23a-ps3	1.21	6.01E-04
Rpl32	1.21	1.80E-04
S100a13	1.21	3.10E-05
Rpl26	1.19	4.97E-04
Rpl37	1.18	9.74E-04
Rps26	1.17	2.68E-04
Plvap	1.16	4.00E-03
Igfbp7	1.14	1.59E-02
Ifitm2	1.14	1.52E-03
Lum	1.14	1.16E-02

Rpl41	1.14	4.67E-04
Rbp1	1.13	5.80E-03
Rpl22l1	1.13	7.73E-04
Pfdn5	1.13	8.57E-04
Gstm1	1.12	2.16E-04
Ifi27l2a	1.12	3.36E-03
Atp5j	1.11	2.23E-03
Tax1bp1	1.11	2.22E-03
Bmx	1.11	2.79E-02
Cox8a	1.11	4.08E-04
Gm11808	1.11	3.51E-04
Rsrc2	1.10	4.30E-04
Psma7	1.10	3.17E-03
Klf2	1.10	1.19E-02
Gm7536	1.10	5.75E-04
Actn4	1.09	1.17E-03
Rps19	1.09	1.75E-03
Rps25	1.08	1.83E-03
Dusp6	1.07	2.43E-03
Rpl13a	1.06	1.51E-03
Wdr89	1.06	7.42E-05
S100a6	1.06	1.14E-02
Rplp1	1.05	3.81E-04
Rock2	1.05	2.89E-03
Tomm7	1.05	9.10E-04
Rpl23	1.05	5.36E-04
Rpl14	1.04	1.61E-03
Cd9	1.04	7.28E-03
Chchd2	1.03	2.33E-03
Cpe	1.03	1.37E-02
Gm10288	1.03	3.65E-03
Zcchc6	1.02	1.19E-03
Rps4x	1.02	2.22E-03
Crim1	1.02	1.22E-02
H2-D1	1.01	8.93E-03
Nrp1	1.00	4.22E-02
Rps15	1.00	1.15E-03
Nedd8	1.00	1.22E-03
Gm8991	-1.00	1.39E-04
Gm5244	-1.00	1.76E-03
Mki67	-1.02	1.05E-03

Cttn	-1.02	2.79E-06
Gm7729	-1.02	3.44E-05
Fus	-1.03	1.43E-03
Igf2	-1.03	3.59E-03
Gm5160	-1.03	3.77E-05
Dot1l	-1.04	1.07E-05
Tmpo	-1.05	2.27E-04
Srsf10	-1.06	2.00E-04
Mxra8	-1.06	4.42E-04
mt-Nd4	-1.06	2.33E-04
Ankrd10	-1.07	1.03E-06
Hmgn2	-1.07	1.43E-03
Gapdh	-1.07	1.02E-04
Top2a	-1.09	7.03E-04
Gm9242	-1.11	7.34E-06
Stmn1	-1.15	5.50E-06
Srsf5	-1.19	2.25E-04
Fnbp1l	-1.22	1.59E-05
Postn	-1.22	1.42E-02
H19	-1.24	4.13E-05
Hnrnpa1	-1.25	1.25E-04
Nedd4	-1.25	6.68E-05
Srrm2	-1.27	9.27E-04
Hnrnpa3	-1.28	1.78E-04
Sparc	-1.29	5.88E-04
Gm17087	-1.33	8.22E-06
Fstl1	-1.41	3.07E-04
Gm5641	-1.43	6.16E-06
Eln	-1.46	7.82E-07
Col3a1	-1.46	3.93E-03
Dync1li2	-1.47	2.00E-08
Fbln2	-1.51	8.60E-05
mt-Atp8	-1.53	1.23E-05
Vcan	-1.56	3.80E-04
mt-Nd1	-1.56	3.85E-06
Sele	-1.62	1.27E-03
mt-Nd5	-1.67	7.30E-05
mt-Nd4l	-1.76	5.09E-07
Gm10222	-1.77	1.37E-05
Gm4076	-1.78	1.31E-09
Col5a2	-1.91	1.37E-08

Hbb-bt	-2.11	3.33E-05
Hbb-bs	-2.16	2.85E-05
Hba-a1	-2.19	2.19E-05
Hba-a2	-2.24	1.37E-05

Table S7: List of differentially expressed genes (fold > 2) between **P30 and P7 Coapt-VEC** subclusters. p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P30 vs P7)	P value (P30 vs P7)
mt-Rnr2	3.35	5.67E-32
Malat1	2.79	2.62E-25
Ifi27l2a	2.26	3.94E-12
Egr1	2.02	3.79E-09
Igfbp5	2.00	7.49E-05
Fos	1.87	6.37E-10
Inhba	1.84	4.53E-06
mt-Rnr1	1.76	1.82E-11
Timp3	1.68	1.92E-06
Ly6a	1.46	5.17E-05
Cst3	1.45	6.26E-10
B2m	1.44	2.34E-09
Fosb	1.36	6.80E-05
Atf3	1.32	2.63E-04
Ankrd12	1.31	5.74E-08
Jund	1.30	3.30E-09
Hsp90aa1	1.28	4.48E-06
Rock1	1.25	1.63E-07
Klf4	1.19	1.28E-05
Hmgn5	1.18	9.79E-07
Ackr3	1.14	7.62E-06
Gpx1	1.11	4.17E-05
Rock2	1.09	5.77E-05
Dusp1	1.07	1.84E-05
Atrx	1.06	1.22E-04
Sepp1	1.06	1.96E-05
Gng11	1.04	1.15E-05
Nfkbia	1.03	3.13E-04
Cox17	1.01	1.20E-06
Hist1h2bc	1.01	8.00E-05
Mgp	1.00	3.33E-03

Krt75	-1.00	2.69E-13
Gm15013	-1.00	2.21E-07
Hnrnpa3	-1.01	3.25E-05
Rpl3	-1.02	1.13E-06
Rps2-ps10	-1.02	3.79E-06
Gm5611	-1.03	2.51E-06
AC123611.1	-1.04	5.45E-07
Rpl15	-1.07	5.31E-06
Gapdh	-1.08	7.36E-09
mt-Atp8	-1.09	2.23E-06
Hnrnpa1	-1.09	1.56E-08
Hnrnpk	-1.12	1.37E-07
Hnrnpf	-1.13	4.40E-10
Rpl13a-ps1	-1.13	1.23E-07
Gm7964	-1.14	8.94E-10
Gm10020	-1.15	5.11E-07
Gm6139	-1.17	9.94E-08
Vcan	-1.17	3.51E-05
Gm4076	-1.18	4.18E-09
2410018M08Rik	-1.19	4.59E-08
Hbb-bt	-1.20	1.12E-05
Hba-a1	-1.26	6.59E-06
Gm8991	-1.27	6.09E-13
Afap1l1	-1.28	3.56E-08
Hba-a2	-1.30	5.30E-07
Gm9242	-1.31	5.29E-14
Gm8225	-1.32	8.98E-15
mt-Nd1	-1.34	1.44E-08
Gm17087	-1.35	9.47E-15
Gm5641	-1.35	7.65E-11
Gm6793	-1.39	1.99E-12
Gm10222	-1.43	4.38E-08
Sparc	-1.47	2.68E-07
Hbb-bs	-1.50	3.60E-08
Gm5160	-1.52	9.16E-14
mt-Nd4l	-1.53	3.06E-09
mt-Nd5	-1.55	7.17E-09
Fstl1	-1.66	3.71E-12
Tmsb10	-1.67	7.99E-09
Gclm	-1.75	2.67E-12
Igf2	-2.77	2.39E-09

GeneID		
H19	-3.18	3.55E-10

Table S8: List of differentially expressed genes (fold > 2) between **P30 and P7 VICs.** p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (P7 vs P30)	P value (P7 vs P30)
Postn	2.43	3.14E-160
Nrep	2.21	3.56E-268
Sfrp2	2.11	8.01E-117
Col3a1	1.92	7.67E-147
mt-Nd4l	1.84	6.95E-156
Gm10222	1.78	2.10E-135
Gm17087	1.71	8.89E-255
Hba-a2	1.63	4.49E-95
Hbb-bt	1.59	5.68E-98
Hbb-bs	1.58	1.72E-83
Hba-a1	1.53	2.38E-82
Fbn2	1.49	1.02E-201
Itih5	1.48	8.98E-66
Col5a2	1.47	1.17E-77
mt-Nd5	1.44	5.21E-91
Fstl1	1.42	1.72E-142
Gm5641	1.33	2.68E-100
Col1a1	1.32	1.52E-74
Gm15013	1.30	8.60E-96
Gclm	1.29	1.55E-93
Gm6793	1.27	1.43E-114
Lrrc58	1.25	1.71E-108
Nedd4	1.23	3.22E-76
Col5a1	1.21	2.82E-67
Gm8991	1.21	1.24E-128
Gm9242	1.20	4.79E-123
Cthrc1	1.18	4.27E-117
Gm4076	1.16	1.89E-102
Mdk	1.14	1.10E-69
Fbln2	1.10	4.62E-61
Gm10282	1.10	1.69E-65
Hmgn2	1.10	5.65E-63
RP23-103I12.13	1.09	3.38E-48
Actg1	1.07	9.50E-53

Lox	1.07	4.89E-111
Htra1	1.07	7.55E-49
Tuba1c	1.07	1.53E-61
Hnrnpa3	1.07	4.24E-56
Fbn1	1.06	1.69E-52
Sox4	1.06	1.14E-67
AC123611.1	1.04	8.91E-63
mt-Atp8	1.04	6.79E-54
Eif4g2	1.03	2.67E-61
Gm8225	1.02	9.09E-124
AC121131.2	1.01	7.54E-58
Loxl2	1.01	1.67E-34
Marcks	1.01	1.10E-41
Sfrp1	1.01	2.48E-32
Cxcl1	-1.00	2.46E-24
Igfbp7	-1.03	1.41E-119
Cd59a	-1.04	1.48E-50
Anxa1	-1.04	5.85E-34
Crip1	-1.05	1.97E-38
Rpl39	-1.05	9.08E-66
S100a10	-1.06	5.40E-40
Tmsb4x	-1.07	2.92E-54
Serpinf1	-1.08	7.97E-51
Clu	-1.08	2.33E-34
Mfap5	-1.11	1.42E-41
Sepp1	-1.16	2.59E-51
Fosb	-1.17	1.78E-51
Cdkn1a	-1.20	9.80E-48
Timp3	-1.23	8.48E-70
Nupr1	-1.28	9.01E-53
Apoe	-1.28	4.06E-44
Dcn	-1.30	1.23E-148
Rpl22	-1.32	2.37E-101
Ifi27l2a	-1.41	3.71E-53
S100a6	-1.41	1.14E-80
Wif1	-1.43	1.26E-35
Nfkbia	-1.46	5.38E-70
Dpt	-1.47	2.16E-148
Jund	-1.55	7.45E-116
H2-D1	-1.57	4.03E-93
Ifitm3	-1.61	1.08E-90

Prg4	-1.61	2.52E-28
1500015O10Rik	-1.63	3.80E-49
Cfh	-1.67	2.22E-93
Ccdc80	-1.72	5.43E-165
Crispld2	-1.73	3.73E-84
Klf4	-1.75	3.62E-82
Fth1	-2.10	6.01E-264
B2m	-2.15	2.96E-197
Mgp	-2.26	1.24E-122
Malat1	-2.30	0.00E+00
Cst3	-2.56	1.88E-211
mt-Rnr2	-2.83	0.00E+00
Gsn	-3.30	1.41E-319

Table S9: List of differentially expressed genes (fold > 1.5) between **P7 Col-VIC and P7 GAG-VIC** p<0.05 determined with empirical Bayes moderated t-test.

GeneID	Log2fold (Col-VIC vs GAG-VIC)	P value (Col-VIC vs GAG-VIC)
Prg4	3.60	1.11E-55
Fmod	3.26	4.55E-98
Abi3bp	3.07	1.07E-78
Sfrp2	2.56	7.58E-31
1500015O10Rik	2.51	4.97E-56
Prelp	2.35	1.81E-57
Col1a1	2.02	6.42E-63
Htra1	1.98	1.12E-39
Fibin	1.95	1.21E-45
Col1a2	1.91	1.38E-70
Cfh	1.87	2.49E-36
Fbln5	1.80	9.35E-36
Thbs1	1.77	6.89E-23
Wif1	1.70	9.07E-26
Col11a1	1.68	2.08E-38
Gm26771	1.51	1.46E-19
Fxyd6	1.48	2.02E-27
Cthrc1	1.44	2.75E-26
Cyp26a1	1.43	2.88E-39
Pamr1	1.43	4.04E-31
Mmp2	1.39	7.09E-27

Olfml2b	1.36	1.63E-24
Col11a2	1.31	1.59E-28
Aspn	1.31	4.87E-16
Fbn2	1.30	4.92E-20
Fos	1.30	2.43E-14
Matn4	1.29	1.35E-29
Rin2	1.28	6.56E-27
Col5a2	1.28	1.16E-24
Kcnj15	1.26	2.35E-29
Loxl2	1.25	1.13E-18
Dkk3	1.25	2.47E-21
Ctgf	1.24	1.57E-13
Mfap4	1.24	5.28E-17
Col9a1	1.22	9.74E-20
Tgfbi	1.19	6.51E-21
Klf2	1.15	3.49E-16
Col5a1	1.15	3.26E-17
Ltbp2	1.13	6.99E-25
Timp3	1.13	1.82E-15
Ogn	1.13	3.07E-15
Bgn	1.09	4.41E-24
Meox1	1.07	2.94E-14
Ecm2	1.07	2.54E-15
Lox	1.06	2.07E-15
RP23-103I12.13	1.05	2.79E-13
Rasl11b	1.05	8.41E-20
Sparc	1.04	4.04E-40
Comp	1.03	2.28E-24
Pam	1.03	1.04E-16
Dcn	1.03	6.47E-18
Pdgfrl	0.99	2.13E-15
Col6a2	0.97	3.07E-14
Fosb	0.96	2.97E-08
Plod2	0.95	3.23E-13
Gas1	0.93	2.07E-12
Angptl7	0.93	1.48E-20
Cst3	0.92	2.15E-09
Klf4	0.90	1.03E-10
Syn3	0.86	1.55E-08
Picalm	0.85	3.76E-12
Adamts2	0.84	1.72E-09

Cyr61	0.83	1.69E-06
Ssc5d	0.83	1.19E-16
Col12a1	0.83	1.03E-11
Chrdl1	0.83	8.52E-20
Palld	0.83	1.80E-13
Tbx20	0.82	2.39E-10
Emp1	0.81	6.40E-10
Serpinf1	0.81	1.78E-10
Cilp2	0.79	6.55E-19
Papss2	0.77	1.87E-13
Srpx2	0.77	5.72E-18
Gsn	0.76	3.63E-07
Ptgis	0.76	6.10E-09
Col6a3	0.74	6.08E-09
Crispld2	0.73	6.65E-11
Pmp22	0.73	1.83E-08
Npy	0.73	7.57E-09
Meg3	0.73	2.14E-06
Pkd1	0.72	7.57E-16
Itgbl1	0.72	2.01E-19
Grb10	0.72	8.38E-11
Ctsk	0.72	9.06E-12
Col6a1	0.71	3.02E-08
Spats2l	0.70	5.29E-09
Mgp	0.70	9.19E-05
Pkd2	0.69	4.81E-09
Timp2	0.68	1.69E-08
Socs3	0.65	1.63E-07
Fndc3b	0.64	3.09E-08
Gm4788	0.64	4.35E-14
Ddah1	0.63	7.12E-10
Cfhr2	0.63	2.14E-15
Nfix	0.62	9.00E-07
Mpped2	0.61	5.41E-12
Sat1	0.61	1.85E-05
Rrbp1	0.61	2.07E-07
Wwtr1	0.61	5.24E-07
Jun	0.60	1.21E-05
Col8a2	0.60	2.22E-18
Igsf10	0.59	5.54E-08
Mfap5	0.59	2.55E-09

Rps6	-0.58	1.24E-05
Rpl23	-0.59	3.09E-05
Rpl23a	-0.59	3.52E-05
Tmsb10	-0.59	6.70E-05
Klf7	-0.59	2.79E-06
Rps18-ps3	-0.59	8.09E-06
Rpl39	-0.60	0.000184
Rplp1	-0.60	7.87E-05
Rps19	-0.60	2.76E-05
Nrp1	-0.60	1.83E-05
Zeb2	-0.61	6.79E-06
Rpl32	-0.61	3.42E-05
Zfp36l1	-0.62	5.09E-05
Daam1	-0.62	6.23E-07
Gm10073	-0.62	5.18E-05
Stxbp6	-0.63	3.87E-12
Gm10335	-0.63	1.94E-05
Cygb	-0.63	1.32E-08
Gucy1a3	-0.63	1.28E-12
Clca1	-0.64	4.35E-10
Rpl23a-ps3	-0.64	1.59E-05
Col18a1	-0.65	1.27E-11
Kitl	-0.65	3.88E-09
Gm17087	-0.65	1.20E-07
Nfkbiz	-0.66	3.75E-05
Ifitm3	-0.68	1.90E-07
Nid1	-0.68	4.98E-08
Gm10269	-0.69	9.23E-06
Rps29	-0.70	4.91E-07
Spon1	-0.70	1.66E-13
Rpl35	-0.71	1.85E-06
Tagln2	-0.72	1.26E-07
Nes	-0.73	1.08E-09
Dbi	-0.73	2.57E-06
Rps5	-0.76	7.34E-08
Gm2000	-0.76	1.07E-06
Vcan	-0.88	1.36E-08
Co l4a2	-0.89	2.60E-13
Serpine2	-0.89	1.59E-14
Filip1l	-0.90	1.79E-09
Lum	-0.93	2.29E-09

Col4a1	-0.96	9.30E-13
Fkbp1a	-0.98	4.56E-13
Fbln2	-1.03	6.31E-14
Nudt4	-1.04	1.69E-15
Ptn	-1.16	1.00E-11
Dclk1	-1.20	7.28E-18
Dpt	-1.23	9.13E-22
Apoe	-1.40	2.56E-14
Map1b	-1.47	5.26E-23
Atp1b1	-1.61	4.70E-31