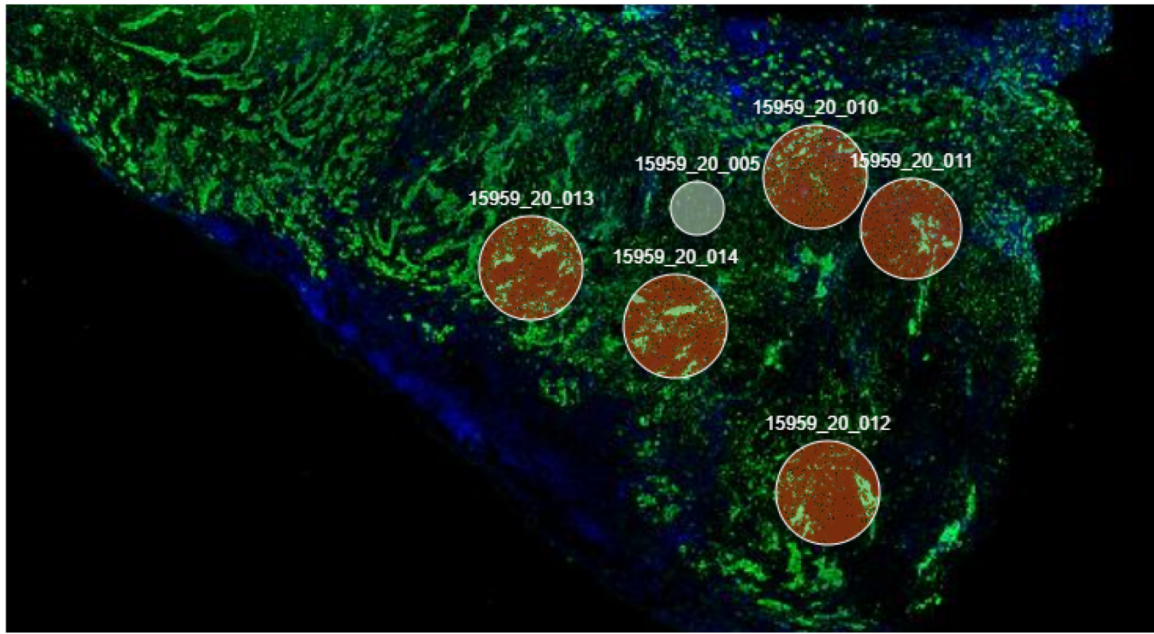


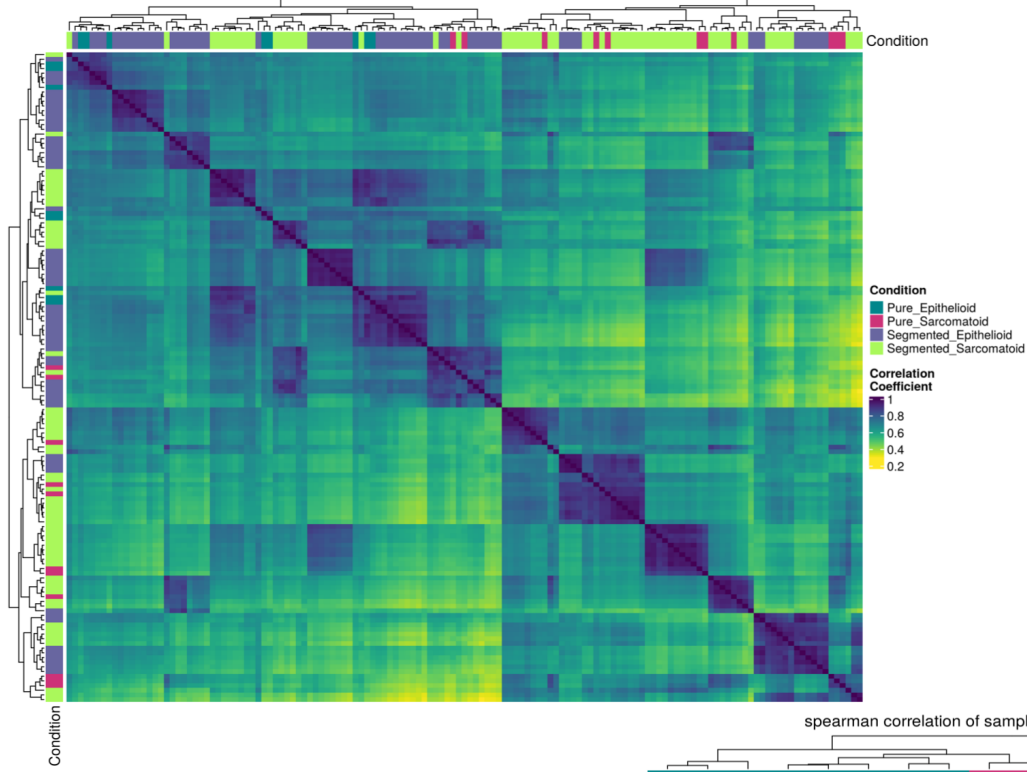
# Supplementary FIGURE1

A

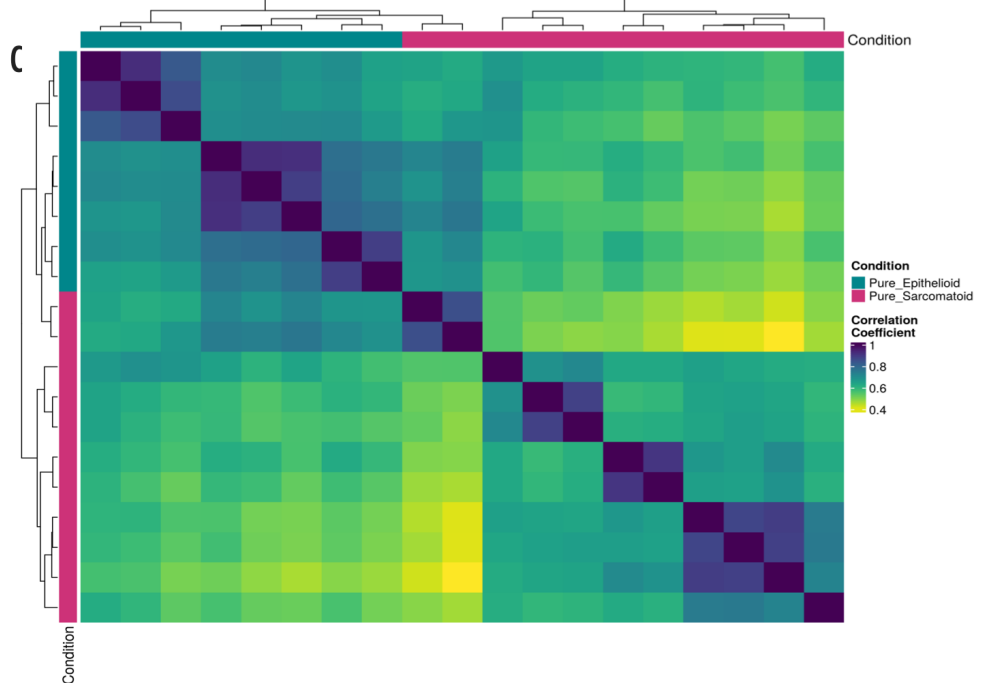


B

spearman correlation of samples on log2\_norm\_counts\_all

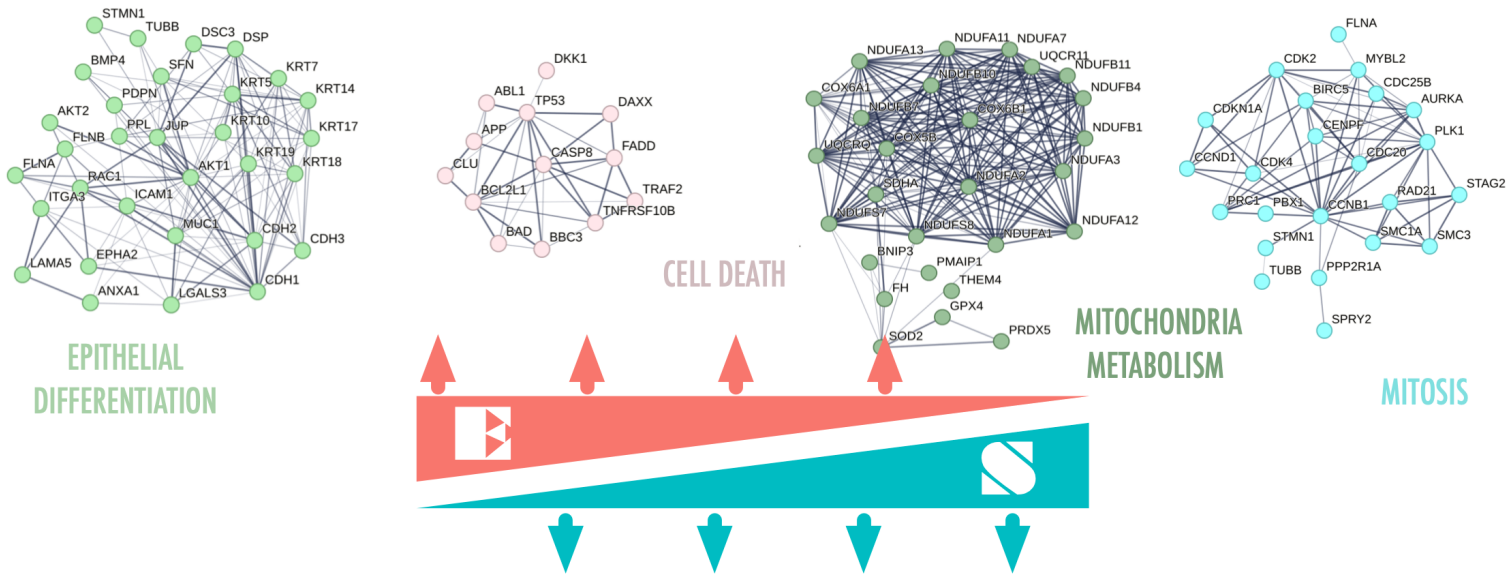


spearman correlation of samples on log2\_norm\_counts\_pure

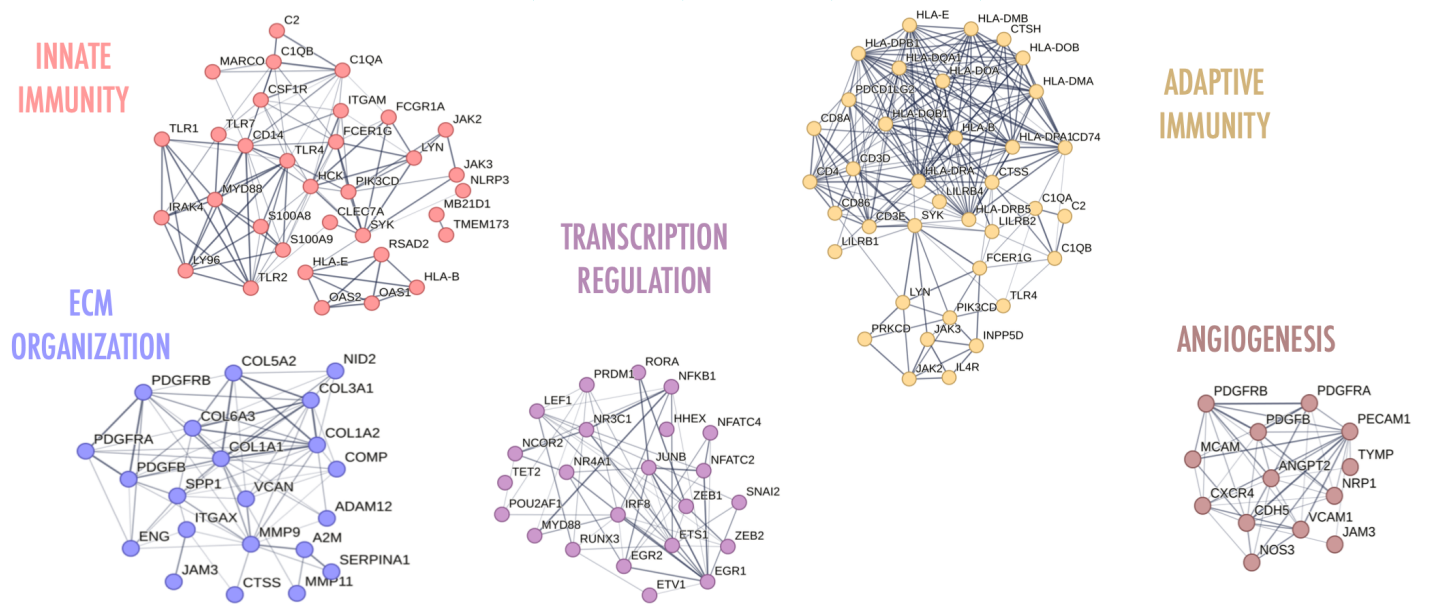


SUPPLEMENTARY FIGURE 2

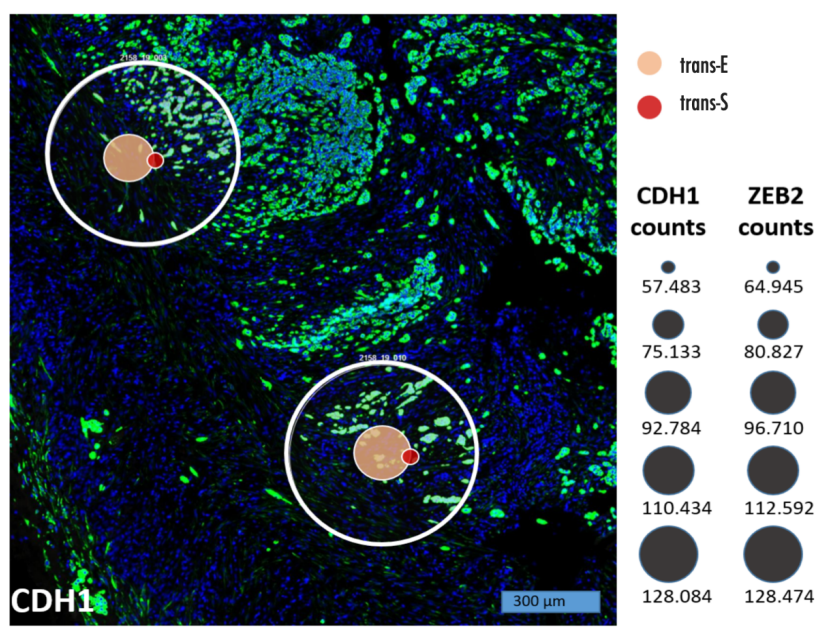
A



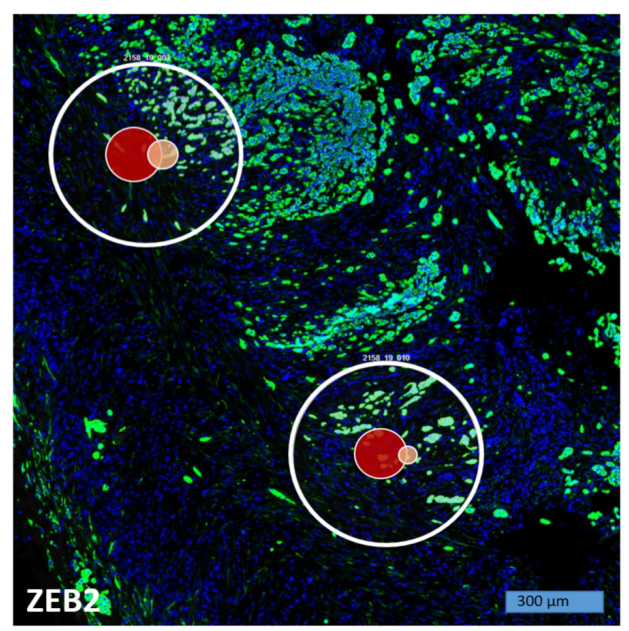
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C

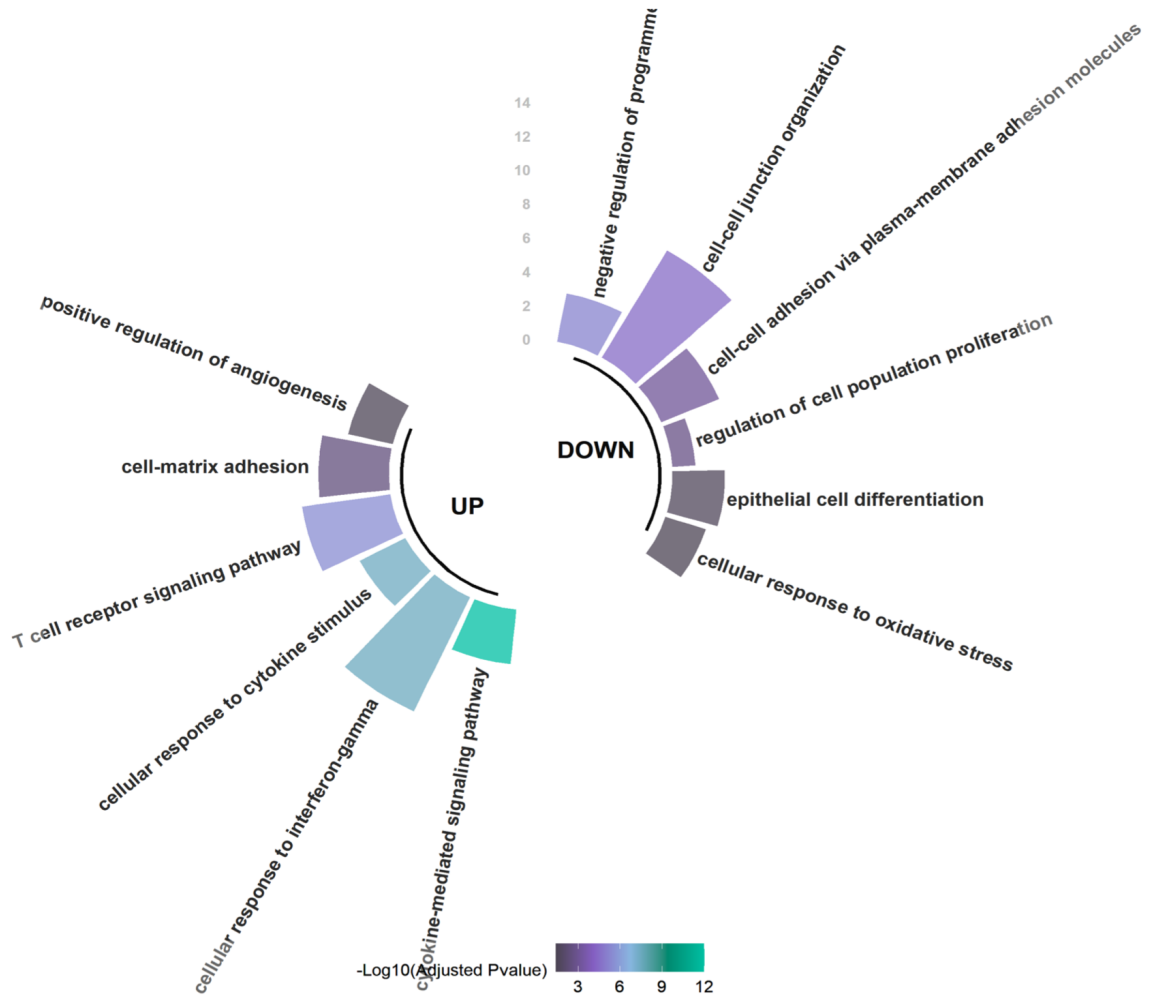


D



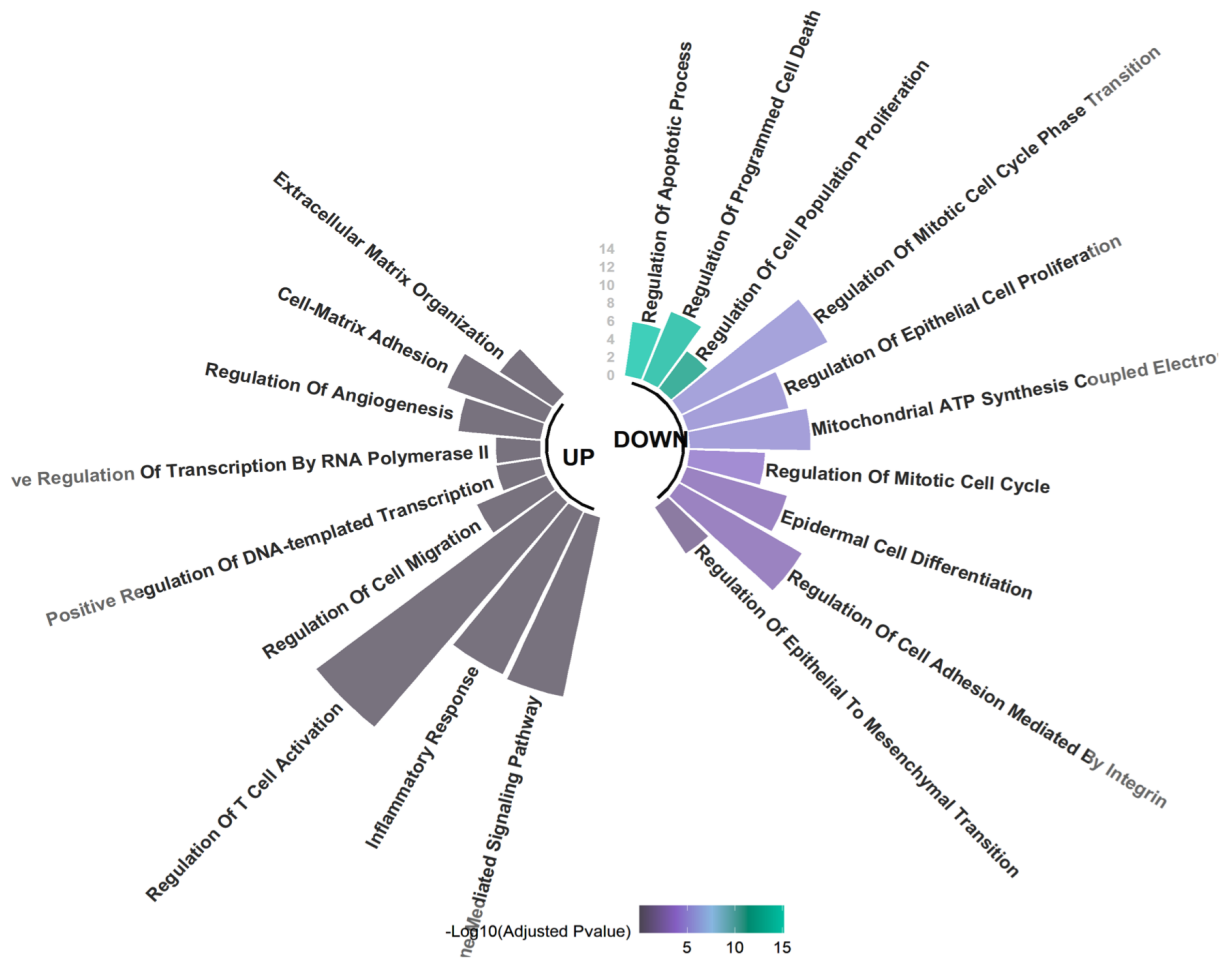
pS-AOIs vs pE-AOIs

A

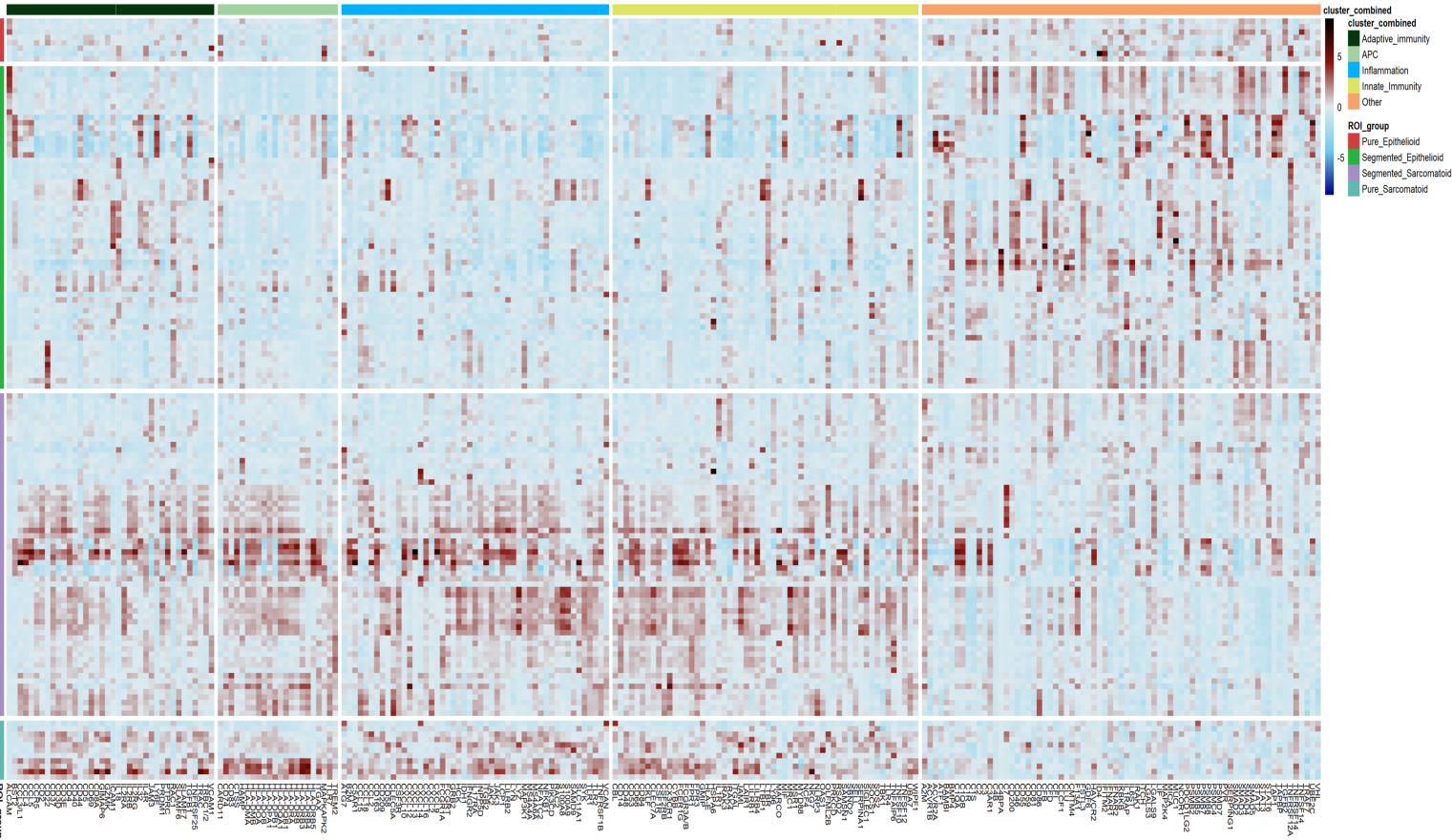


tS-AOIs vs tE-AOIs

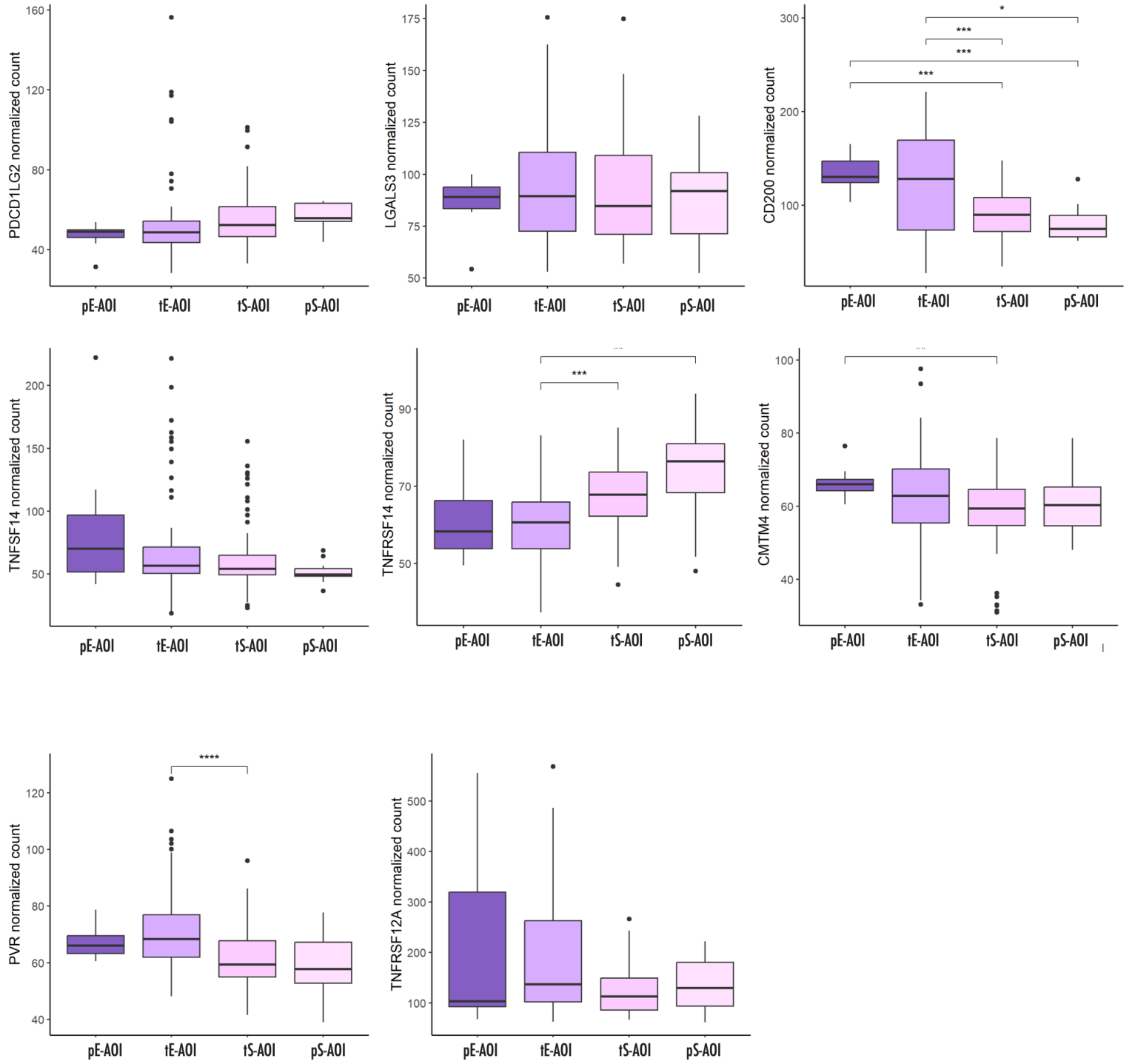
B



Supplementary Figure 4

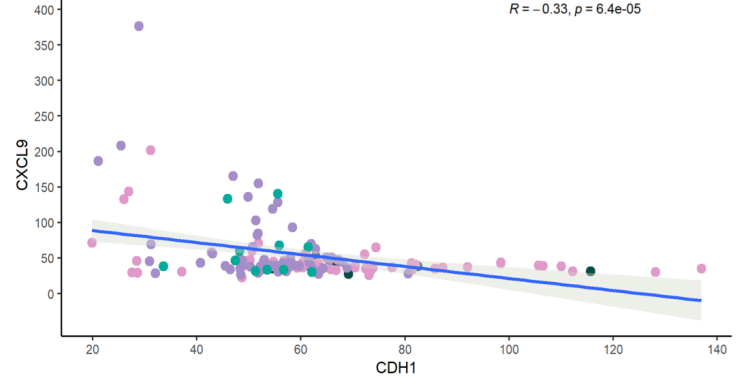
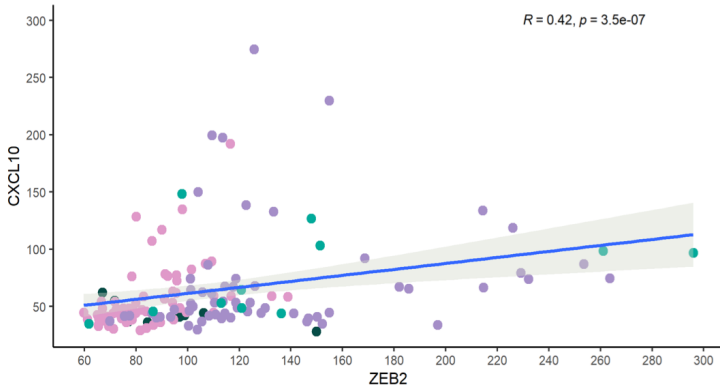
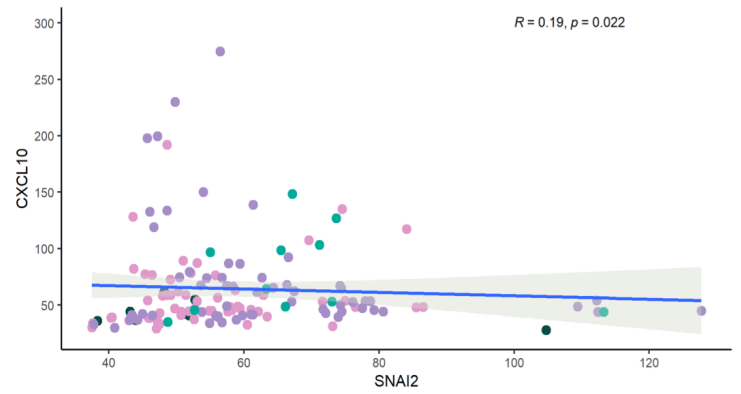
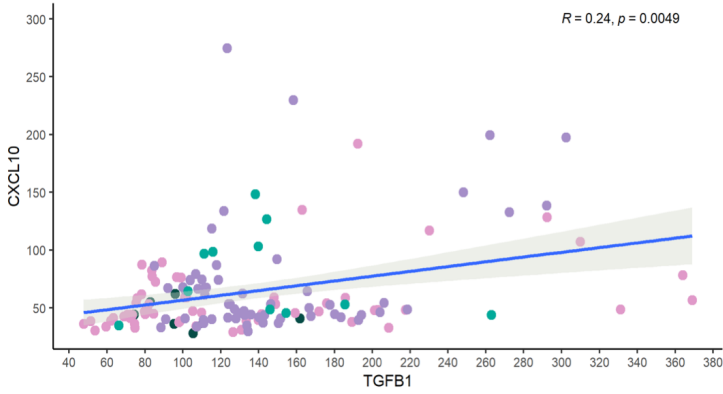
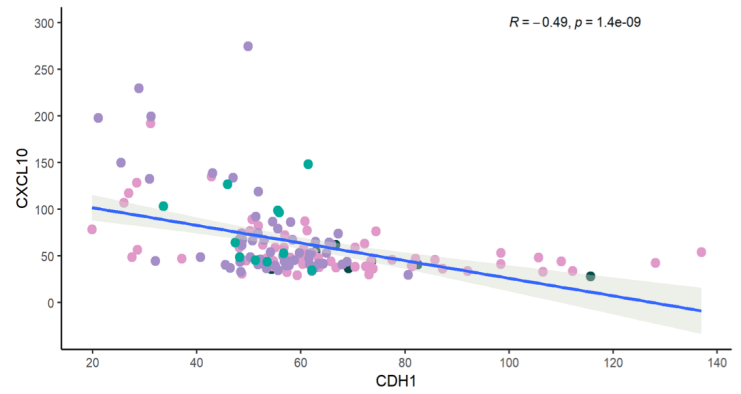
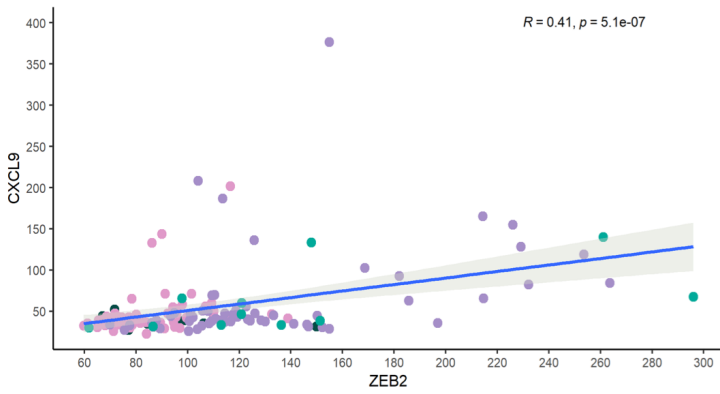
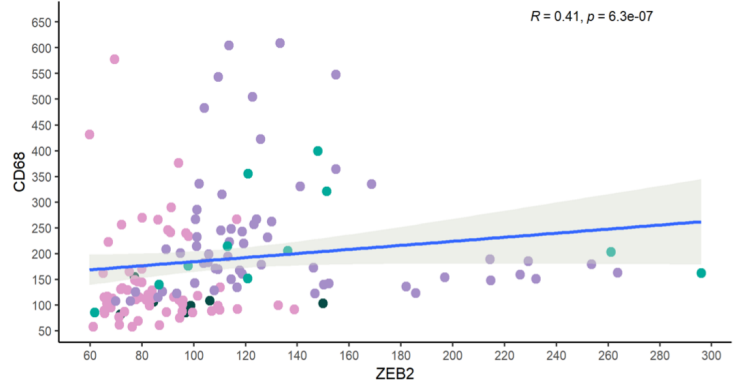
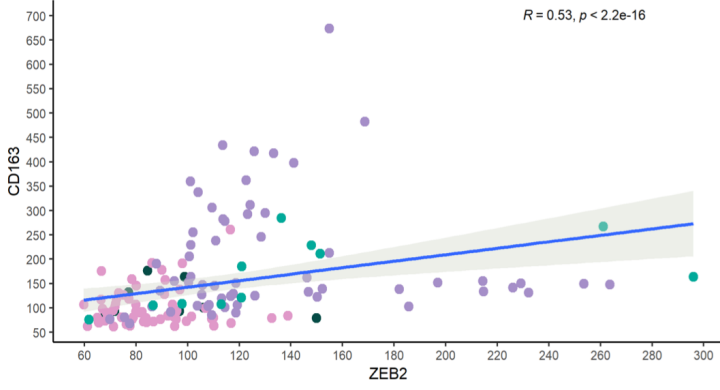


# Supplementary Figure 5

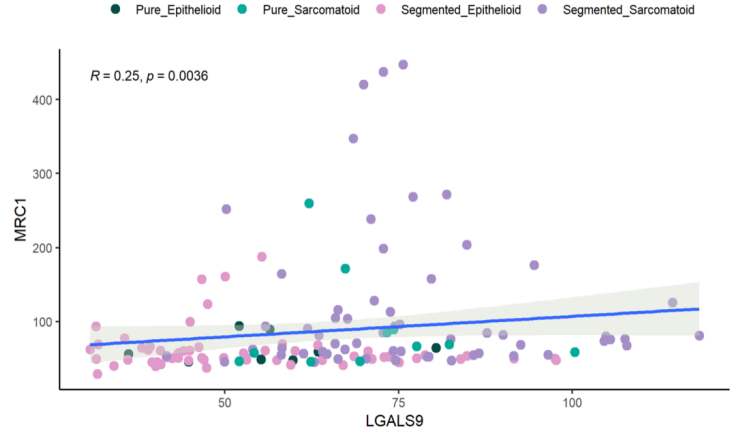
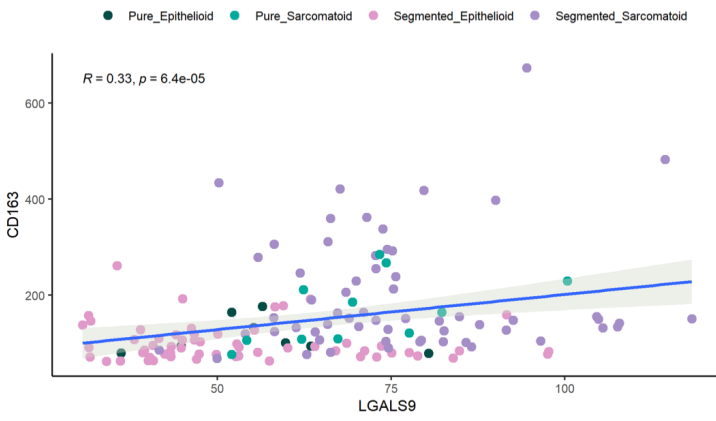
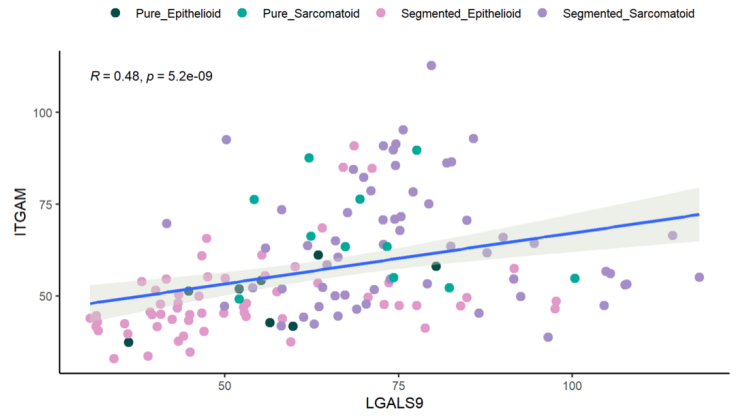
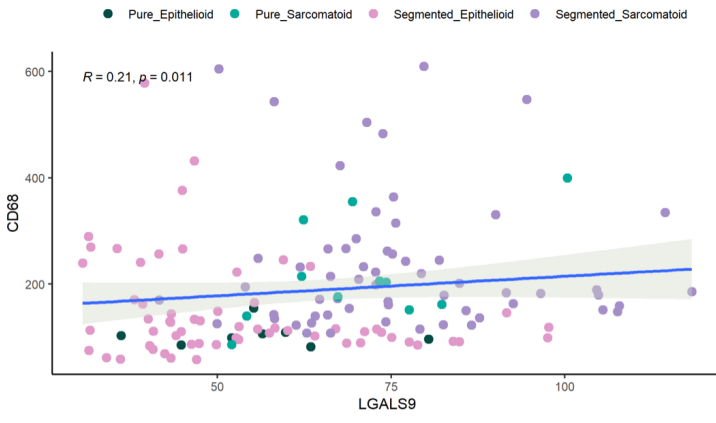


# Supplementary Figure 6

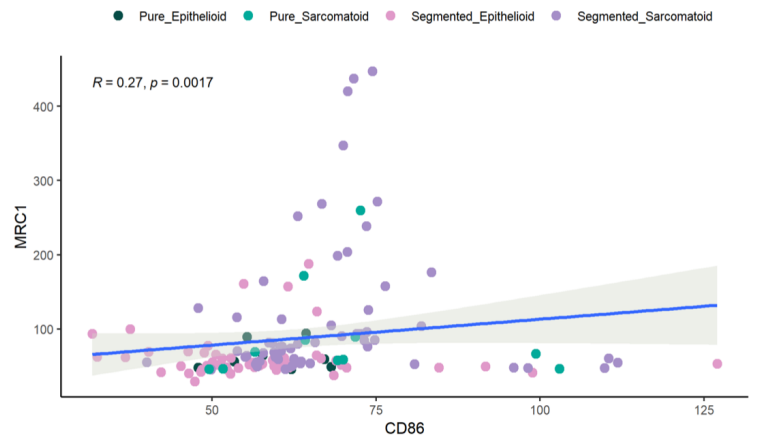
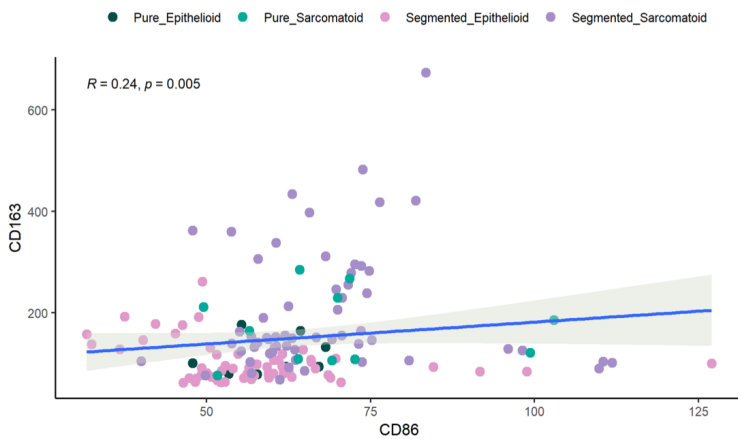
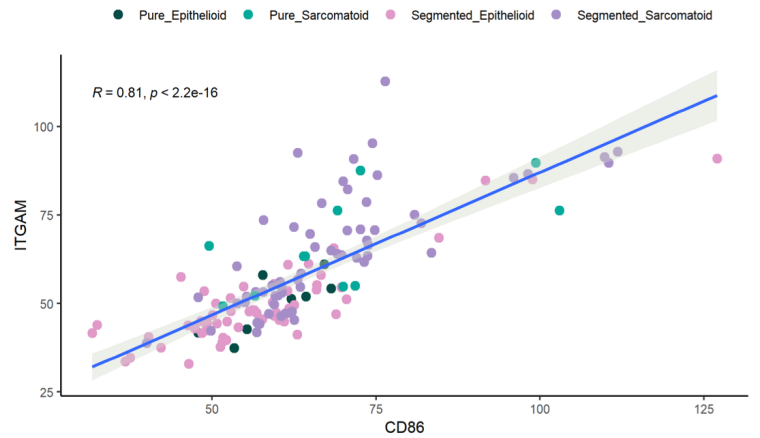
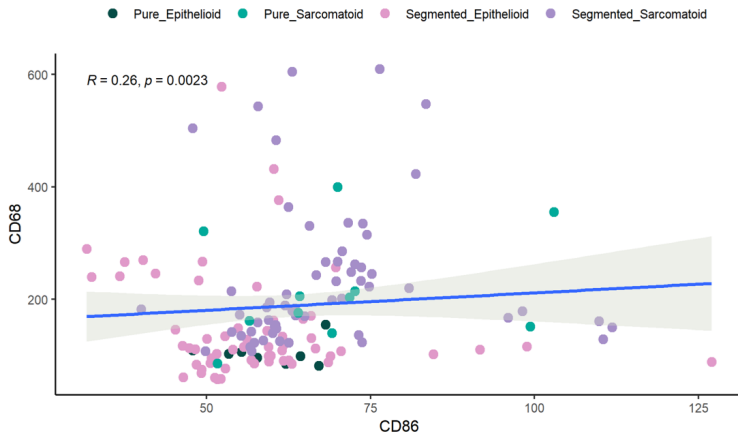
● pE-AOIs   
 ● tE-AOIs   
 ● tS-AOIs   
 ● tS-AOIs



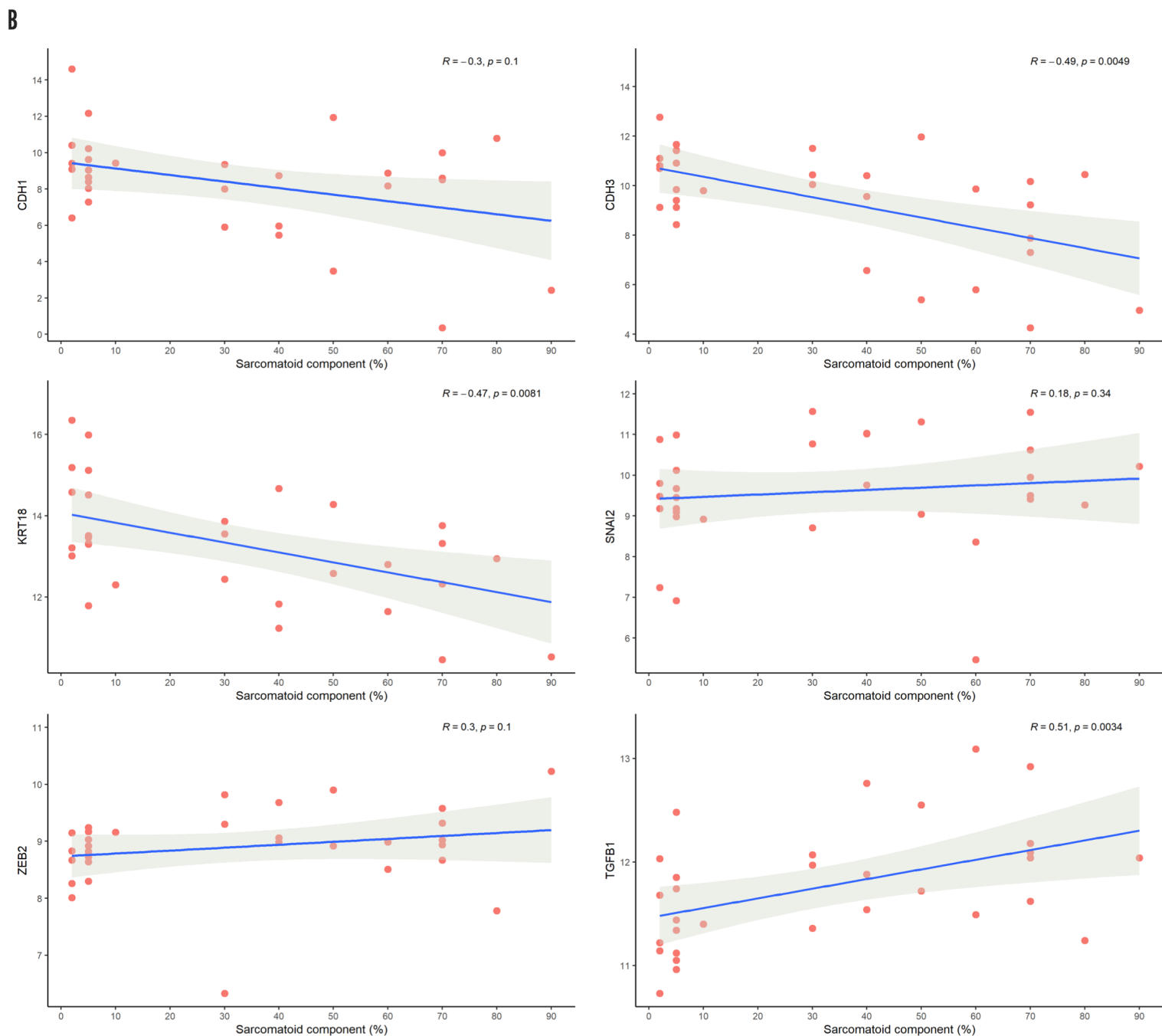
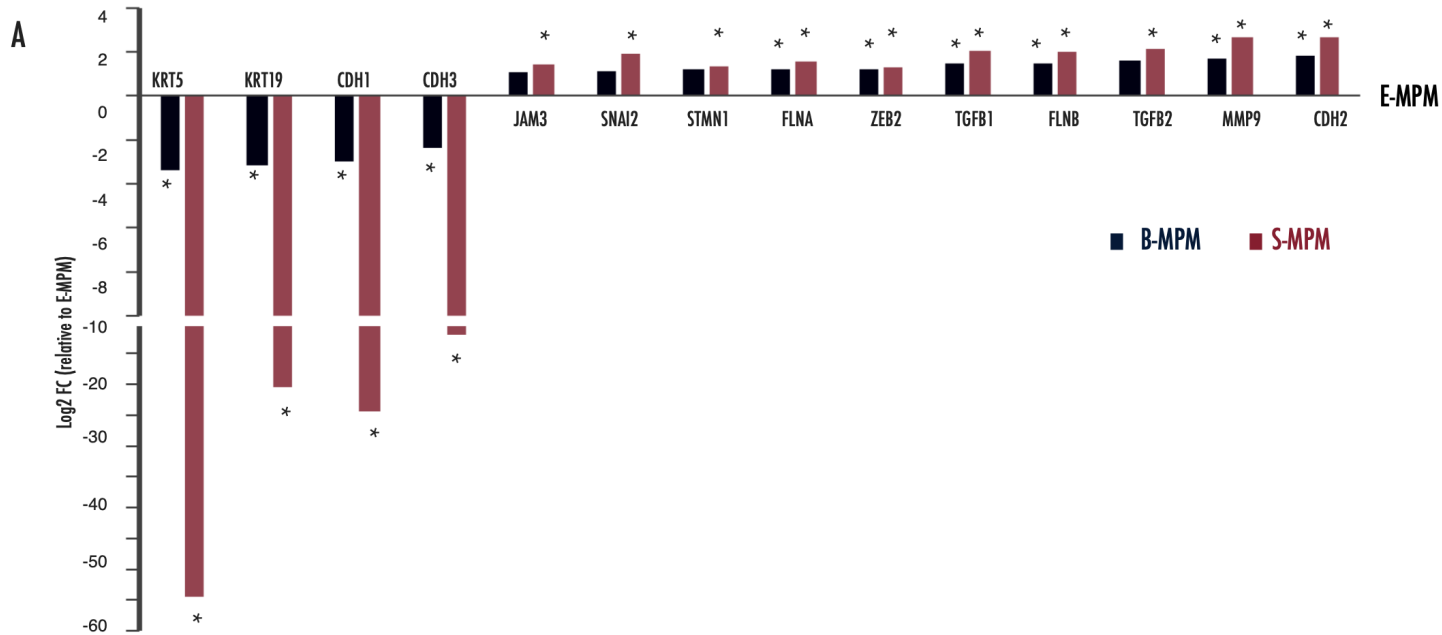
LGALS9



CD86

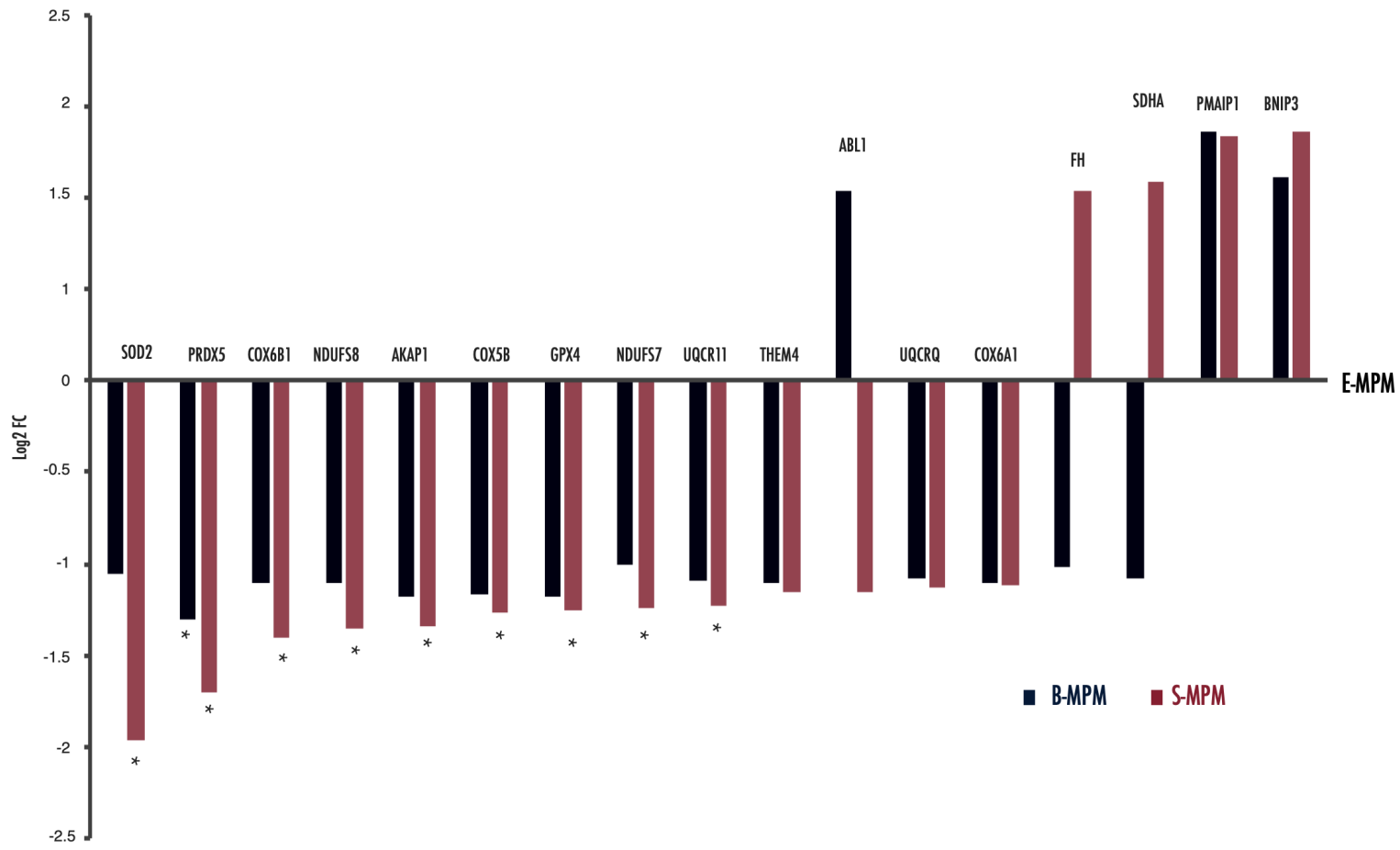


# SUPPLEMENTARY FIGURE 8





SUPPLEMENTARY FIGURE 9



## **Supplementary Figure Legends**

### *Supplementary Figure 1*

A) GeoMx DSP scan showing AOIs from a representative B-MPM collected from a surgical pleurectomy. Large circles indicate segmented transitional AOIs while small circles circle indicate pure AOIs. B-C) Correlation analysis on all AOIs (B) or pure AOIs only (C)

### *Supplementary Figure 2*

A-B) STRING interaction networks summarizing principal genes involved in the indicated GO categories and their association with either E (A) or S (B) compartment. The networks are representative of the categories emerged in the GO analysis reported in Figure 2C. C-D) Bubble plots showing expression of CDH1(C) and ZEB1 (D) in two representative transitional areas, showing the complementary of the signals.

### *Supplementary Figure 3*

A) GO analysis on the genes differentially expressed between pS-AOIs and pE-AOIs. Full list of genes is provided in Supplementary Table 3. P value for GO categories is reported in Supplementary Table 4. B) GO analysis on the genes differentially expressed between tS-AOIs and tE-AOIs. Full list of genes is provided in Supplementary Table 5. P value for GO categories is reported in Supplementary Table 6.

### *Supplementary Figure 4*

Heatmap representing expression of all deregulated immune related genes in the 4 AOI groups. Color gradient expresses the z-score of each gene in each sample.

### *Supplementary Figure 5*

Box plots representing the expression level of indicated immune checkpoints in the different AOIs.

### *Supplementary Figure 6*

Scatter plots showing the direct expression correlation of TAMs related markers with EMT TFs and markers across all AOIs.

### *Supplementary Figure 7*

Scatter plots showing the direct expression correlation of TAMs related markers with immune checkpoints across all AOIs.

*Supplementary Figure 8*

A) Histograms reporting the relative expression of a panel of EMT markers in S-MPMs and biphasic MPMs (B-MPM) compared to E-MPMs. B) Scatter plots showing the correlation between the estimated percentage of sarcomatoid component and the expression of EMT markers in the B-MPMs subgroup included in our validation cohort.

*Supplementary Figure 9*

Histograms reporting the relative expression of a panel of genes involved in oxidative respiration and mitochondrial function in S-MPMs and biphasic MPMs (B-MPM) compared to E-MPMs.

Supplementary Table 1: Full list of differentially expressed genes in S vs E AOs

<i>Target name</i>	<i>Log2 Fold Change (S-AOIs/E-AOIs)</i>	<i>Pvalue</i>	<i>Adjusted pvalue</i>
<i>CSF1R</i>	1.011133	1.92E-35	2.01E-32
<i>A2M</i>	1.263878	8.03E-35	4.21E-32
<i>ITGA3</i>	-1.18751	7.46E-33	2.02E-30
<i>ENG</i>	0.922176	7.69E-33	2.02E-30
<i>FCER1G</i>	0.835464	1.36E-32	2.85E-30
<i>CTSS</i>	0.892046	8.16E-32	1.43E-29
<i>HLA-DMB</i>	0.800581	1.08E-31	1.62E-29
<i>FCGR3A/B</i>	1.071155	2.61E-31	3.37E-29
<i>CD4</i>	0.769253	2.89E-31	3.37E-29
<i>CD53</i>	0.737308	1.06E-30	1.11E-28
<i>C1QA</i>	1.355796	2.16E-30	2.06E-28
<i>C1QB</i>	1.210335	4.63E-30	4.04E-28
<i>PECAM1</i>	0.813283	1.41E-29	1.06E-27
<i>MS4A6A</i>	0.834868	1.42E-29	1.06E-27
<i>HLA-DMA</i>	0.797812	3.62E-29	2.37E-27
<i>ITGB2</i>	0.711527	3.54E-29	2.37E-27
<i>CD14</i>	1.111031	7.34E-29	4.53E-27
<i>HLA-DPA1</i>	0.835945	1.48E-28	8.61E-27
<i>LCP1</i>	0.732087	2.02E-28	1.11E-26
<i>HLA-DRB</i>	1.43533	2.25E-28	1.18E-26
<i>CYBB</i>	0.830303	4.01E-28	2.00E-26
<i>LAIR1</i>	0.60908	7.92E-28	3.78E-26
<i>FGCR2A/B</i>	1.103551	1.95E-27	8.90E-26
<i>WIPF1</i>	0.498167	1.70E-26	7.43E-25
<i>HLA-DRA</i>	1.468951	2.02E-26	8.46E-25
<i>TNFRSF1B</i>	0.494245	4.26E-26	1.72E-24
<i>HLA-DRB3</i>	1.006682	8.68E-26	3.37E-24
<i>PTPRC</i>	0.724594	3.35E-25	1.26E-23
<i>KRT18</i>	-1.69168	4.42E-25	1.60E-23
<i>LAMA5</i>	-1.18119	8.77E-25	3.07E-23
<i>GIMAP4</i>	0.600613	1.37E-24	4.64E-23
<i>CD74</i>	1.655193	1.52E-24	4.99E-23
<i>FCGR1A</i>	0.642232	3.62E-24	1.15E-22
<i>CD163</i>	0.813758	4.30E-24	1.33E-22
<i>IL10RA</i>	0.576967	5.55E-24	1.66E-22
<i>ZEB2</i>	0.58503	7.83E-24	2.28E-22

<i>HLA-DQA1</i>	0.722306	8.96E-24	2.54E-22
<i>KRT19</i>	-1.68545	2.49E-23	6.87E-22
<i>C3AR1</i>	0.510641	3.47E-23	9.32E-22
<i>LILRB4</i>	0.598296	4.66E-23	1.22E-21
<i>CLEC7A</i>	0.560096	1.15E-22	2.95E-21
<i>ITGB4</i>	-0.93849	2.76E-22	6.74E-21
<i>LYZ</i>	1.341299	2.75E-22	6.74E-21
<i>TBXAS1</i>	0.489776	3.48E-22	8.29E-21
<i>CD84</i>	0.407021	6.26E-22	1.46E-20
<i>FPR3</i>	0.402665	8.04E-22	1.83E-20
<i>LAMC2</i>	-0.7411	1.56E-21	3.49E-20
<i>EPHA2</i>	-0.54279	2.05E-21	4.47E-20
<i>PRKDC</i>	-0.43854	3.59E-21	7.69E-20
<i>CD37</i>	0.446635	5.69E-21	1.19E-19
<i>SPRED1</i>	0.341705	9.36E-21	1.92E-19
<i>SLC39A6</i>	-0.27555	1.69E-20	3.40E-19
<i>CXCL16</i>	0.392065	2.72E-20	5.38E-19
<i>MS4A4A</i>	0.505259	3.05E-20	5.93E-19
<i>CFB</i>	-1.28994	4.31E-20	8.21E-19
<i>NCF4</i>	0.423397	5.03E-20	9.42E-19
<i>HLA-DOA</i>	0.50412	5.20E-20	9.57E-19
<i>CDH2</i>	-0.70999	8.03E-20	1.45E-18
<i>HLA-DRB4</i>	0.812502	1.03E-19	1.80E-18
<i>MET</i>	-0.73598	1.01E-19	1.80E-18
<i>IGF1R</i>	-0.51112	1.13E-19	1.95E-18
<i>CXADR</i>	-0.4737	1.18E-19	1.99E-18
<i>PPL</i>	-0.65079	1.65E-19	2.75E-18
<i>TLR1</i>	0.365261	1.76E-19	2.88E-18
<i>HCK</i>	0.376192	5.39E-19	8.69E-18
<i>INPP5D</i>	0.430494	6.72E-19	1.07E-17
<i>LGALS9</i>	0.524902	6.90E-19	1.08E-17
<i>DSP</i>	-0.72458	2.33E-18	3.60E-17
<i>FSTL3</i>	-0.61115	9.79E-18	1.49E-16
<i>FZD6</i>	-0.35898	1.21E-17	1.81E-16
<i>MRC1</i>	0.627983	1.36E-17	1.98E-16
<i>CD68</i>	0.727373	1.34E-17	1.98E-16
<i>FPR1</i>	0.362439	1.84E-17	2.64E-16
<i>CD9</i>	-0.70204	2.00E-17	2.83E-16
<i>FGF9</i>	-0.53115	3.79E-17	5.30E-16
<i>JAK3</i>	0.401846	4.69E-17	6.47E-16
<i>GIMAP6</i>	0.391801	5.28E-17	7.19E-16
<i>FLNC</i>	-0.77458	8.01E-17	1.08E-15
<i>CD34</i>	0.451966	1.55E-16	2.06E-15
<i>HAVCR2</i>	0.340373	2.13E-16	2.79E-15

<i>COL6A3</i>	1.332912	2.24E-16	2.89E-15
<i>TLR2</i>	0.430028	2.90E-16	3.67E-15
<i>SAMSN1</i>	0.391422	2.87E-16	3.67E-15
<i>ITGA1</i>	0.596449	5.54E-16	6.92E-15
<i>PDGFRB</i>	0.77377	6.07E-16	7.49E-15
<i>ITGA4</i>	0.348064	6.37E-16	7.77E-15
<i>CXCL12</i>	0.547031	6.79E-16	8.19E-15
<i>TP53</i>	-0.36318	7.77E-16	9.26E-15
<i>CSF3R</i>	0.363416	9.98E-16	1.18E-14
<i>COX6A1</i>	-0.41151	1.44E-15	1.68E-14
<i>GMIP</i>	0.241928	2.12E-15	2.44E-14
<i>SMARCA4</i>	-0.36585	3.38E-15	3.85E-14
<i>PTGER4</i>	0.288235	6.46E-15	7.29E-14
<i>IRF8</i>	0.431974	8.44E-15	9.42E-14
<i>TNFSF12</i>	0.292745	8.70E-15	9.60E-14
<i>HSP90B1</i>	-0.56841	9.01E-15	9.84E-14
<i>GPSM3</i>	0.29494	1.01E-14	1.09E-13
<i>SYK</i>	0.319652	1.24E-14	1.33E-13
<i>THY1</i>	0.61562	1.36E-14	1.44E-13
<i>MUC1</i>	-0.55425	1.63E-14	1.71E-13
<i>SIGLEC1</i>	0.42458	1.70E-14	1.77E-13
<i>LY6E</i>	-0.61207	2.09E-14	2.15E-13
<i>ITGAX</i>	0.390248	2.57E-14	2.62E-13
<i>NID2</i>	0.46234	3.43E-14	3.46E-13
<i>MSR1</i>	0.400176	3.65E-14	3.64E-13
<i>GLS</i>	-0.66658	5.84E-14	5.78E-13
<i>EFNA1</i>	-0.4241	7.92E-14	7.77E-13
<i>SKP2</i>	-0.36431	9.21E-14	8.94E-13
<i>RASA4</i>	0.292567	9.59E-14	9.15E-13
<i>CAPN2</i>	-0.41913	9.58E-14	9.15E-13
<i>S100A9</i>	0.682518	1.49E-13	1.41E-12
<i>F13A1</i>	0.811226	1.68E-13	1.57E-12
<i>ACTA2</i>	0.733924	1.91E-13	1.77E-12
<i>PVR</i>	-0.21645	2.70E-13	2.48E-12
<i>SFRP4</i>	0.657073	2.96E-13	2.70E-12
<i>C4B</i>	-1.31006	3.00E-13	2.71E-12
<i>JAML</i>	0.445249	3.47E-13	3.11E-12
<i>PRDX5</i>	-0.328	4.48E-13	3.98E-12
<i>EGFR</i>	-0.56388	7.19E-13	6.28E-12
<i>LILRB1</i>	0.315144	7.15E-13	6.28E-12
<i>TFRC</i>	-0.38001	7.83E-13	6.79E-12
<i>RAC2</i>	0.390937	9.66E-13	8.31E-12
<i>TLR4</i>	0.312615	1.04E-12	8.90E-12
<i>ERBB2</i>	-0.32928	1.16E-12	9.78E-12

<i>CDH3</i>	-0.40994	1.52E-12	1.28E-11
<i>PRDM1</i>	0.291707	2.25E-12	1.87E-11
<i>ITGB8</i>	-0.28415	2.34E-12	1.93E-11
<i>EFNA5</i>	-0.37854	3.10E-12	2.54E-11
<i>ELMO1</i>	0.315471	3.21E-12	2.61E-11
<i>HLA-DQB1</i>	0.348572	3.95E-12	3.19E-11
<i>C1S</i>	-0.73027	4.19E-12	3.35E-11
<i>ARNT2</i>	-0.21299	4.50E-12	3.58E-11
<i>ITGAL</i>	0.374261	4.63E-12	3.65E-11
<i>ATP2A2</i>	-0.37016	4.98E-12	3.90E-11
<i>WEE1</i>	-0.29392	5.03E-12	3.91E-11
<i>SFRP2</i>	0.773609	5.08E-12	3.92E-11
<i>TREM2</i>	0.304756	5.16E-12	3.95E-11
<i>YTHDF2</i>	-0.21862	6.63E-12	5.04E-11
<i>ILF3</i>	-0.3736	6.96E-12	5.25E-11
<i>TNFRSF10B</i>	-0.25682	7.79E-12	5.83E-11
<i>SLC16A1</i>	-0.54001	7.92E-12	5.89E-11
<i>NOTCH2</i>	-0.47509	8.59E-12	6.35E-11
<i>MERTK</i>	0.265167	8.89E-12	6.52E-11
<i>ITGAM</i>	0.379229	9.34E-12	6.76E-11
<i>LILRB2</i>	0.468208	9.31E-12	6.76E-11
<i>CD46</i>	-0.24684	1.48E-11	1.06E-10
<i>MCAM</i>	0.499208	1.80E-11	1.29E-10
<i>PLOD2</i>	-0.85263	1.93E-11	1.37E-10
<i>NDUFA13</i>	-0.33889	2.00E-11	1.41E-10
<i>TPR</i>	-0.23764	2.09E-11	1.46E-10
<i>LYN</i>	0.223166	2.53E-11	1.76E-10
<i>API5</i>	-0.19476	2.61E-11	1.80E-10
<i>NRP1</i>	0.54055	3.25E-11	2.23E-10
<i>WT1</i>	-0.48921	3.90E-11	2.66E-10
<i>KRT5</i>	-0.64177	4.48E-11	3.03E-10
<i>GAS1</i>	-0.69393	4.79E-11	3.22E-10
<i>MST1R</i>	-0.31824	5.18E-11	3.46E-10
<i>RAD21</i>	-0.39823	5.22E-11	3.47E-10
<i>NECTIN2</i>	-0.47488	5.80E-11	3.82E-10
<i>C5AR1</i>	0.287622	7.39E-11	4.85E-10
<i>NDUFS8</i>	-0.2476	8.24E-11	5.37E-10
<i>PSMB10</i>	0.239819	8.43E-11	5.46E-10
<i>EIF4EBP1</i>	-0.29937	9.06E-11	5.83E-10
<i>IL2RB</i>	0.327839	9.30E-11	5.95E-10
<i>NUP107</i>	-0.20811	9.96E-11	6.33E-10
<i>PUM1</i>	-0.23473	1.01E-10	6.35E-10
<i>TRAC</i>	0.436342	1.04E-10	6.56E-10
<i>MIF</i>	-0.57136	1.27E-10	7.95E-10

<i>CDH5</i>	0.34026	1.32E-10	8.22E-10
<i>OLFML2B</i>	0.421618	1.39E-10	8.60E-10
<i>LIF</i>	-0.33737	1.47E-10	8.99E-10
<i>NDUFA7</i>	-0.19868	1.66E-10	1.01E-09
<i>CLU</i>	-0.85908	1.80E-10	1.09E-09
<i>DSC3</i>	-0.25615	1.87E-10	1.13E-09
<i>GTF3C1</i>	-0.25896	1.91E-10	1.15E-09
<i>ALCAM</i>	-0.57583	2.05E-10	1.22E-09
<i>SERINC3</i>	-0.18859	2.11E-10	1.25E-09
<i>PSMB7</i>	-0.32828	2.29E-10	1.35E-09
<i>STAG2</i>	-0.17272	2.38E-10	1.40E-09
<i>C7</i>	0.851285	2.50E-10	1.46E-09
<i>ASNS</i>	-0.24815	2.86E-10	1.66E-09
<i>TNFRSF1A</i>	-0.26952	3.60E-10	2.07E-09
<i>CCL3/L1</i>	0.40565	3.78E-10	2.17E-09
<i>CACNB3</i>	-0.28114	4.37E-10	2.49E-09
<i>CD36</i>	0.354452	4.83E-10	2.74E-09
<i>SIN3A</i>	-0.14567	5.40E-10	3.04E-09
<i>VCAN</i>	0.755108	6.23E-10	3.50E-09
<i>KEAP1</i>	-0.16498	6.68E-10	3.73E-09
<i>SOD1</i>	-0.2851	7.24E-10	4.02E-09
<i>MAP3K7</i>	-0.19139	7.89E-10	4.35E-09
<i>NDUFB10</i>	-0.19283	9.94E-10	5.43E-09
<i>AXIN1</i>	-0.19317	9.93E-10	5.43E-09
<i>MSH6</i>	-0.19899	1.13E-09	6.15E-09
<i>GOT2</i>	-0.16908	1.14E-09	6.15E-09
<i>MCM7</i>	-0.28625	1.18E-09	6.37E-09
<i>RIPK3</i>	0.204609	1.21E-09	6.47E-09
<i>FLNB</i>	-0.40747	1.22E-09	6.49E-09
<i>IL4R</i>	0.171963	1.36E-09	7.22E-09
<i>PPP2R1A</i>	-0.28259	1.42E-09	7.48E-09
<i>CD200</i>	-0.39922	1.47E-09	7.71E-09
<i>BMP4</i>	-0.41149	1.61E-09	8.38E-09
<i>CIC</i>	-0.17645	1.61E-09	8.38E-09
<i>FCGRT</i>	0.288929	1.69E-09	8.68E-09
<i>C1R</i>	-0.55416	1.69E-09	8.68E-09
<i>COL3A1</i>	0.607205	1.77E-09	9.06E-09
<i>SLC11A1</i>	0.330345	1.93E-09	9.85E-09
<i>CMKLR1</i>	0.297513	3.01E-09	1.53E-08
<i>ANLN</i>	-0.25485	3.08E-09	1.55E-08
<i>CDK6</i>	-0.48132	3.23E-09	1.62E-08
<i>DNAJC14</i>	-0.15028	3.45E-09	1.73E-08
<i>MAP3K20</i>	-0.25984	3.90E-09	1.94E-08
<i>TNFRSF12A</i>	-0.36664	4.05E-09	2.01E-08



REL	0.211566	4.45E-09	2.19E-08
TLR7	0.254655	4.53E-09	2.22E-08
PRKCD	0.170845	5.15E-09	2.51E-08
MCM4	-0.22748	5.23E-09	2.54E-08
BBS1	-0.1559	5.83E-09	2.82E-08
APP	-0.53077	6.40E-09	3.08E-08
NDUFA1	-0.20942	6.46E-09	3.10E-08
SMAD3	-0.19904	6.57E-09	3.13E-08
IL17RA	0.215204	6.72E-09	3.19E-08
ANXA1	-0.37111	6.92E-09	3.27E-08
BAD	-0.19519	7.66E-09	3.60E-08
HSPA6	0.513136	8.05E-09	3.77E-08
C1QBP	-0.22892	8.50E-09	3.96E-08
IFNGR2	0.262482	1.08E-08	5.01E-08
TYMP	0.332293	1.18E-08	5.47E-08
NUMBL	-0.24598	1.26E-08	5.80E-08
COL1A2	0.696029	1.30E-08	5.95E-08
FLT1	0.309169	1.35E-08	6.18E-08
CSF2RB	0.252021	1.56E-08	7.10E-08
PRKAR1B	-0.24644	1.58E-08	7.16E-08
CASP1	0.239581	1.74E-08	7.83E-08
PSMC4	-0.13169	1.84E-08	8.26E-08
PDGFC	-0.22369	1.93E-08	8.63E-08
STMN1	-0.23648	2.00E-08	8.87E-08
IL2RA	0.292979	2.09E-08	9.27E-08
ETS1	0.261692	2.27E-08	1.00E-07
APLNR	0.288806	2.44E-08	1.07E-07
TNKS	-0.13662	2.50E-08	1.09E-07
COX6B1	-0.24415	2.58E-08	1.12E-07
HLA-DRB5	0.237889	2.58E-08	1.12E-07
TUBB	-0.4146	2.63E-08	1.13E-07
IL2RG	0.293012	2.70E-08	1.16E-07
TGFB2	-0.7393	2.73E-08	1.17E-07
PHGDH	-0.30327	2.75E-08	1.17E-07
TRBC1/2	0.545807	3.00E-08	1.28E-07
HDAC6	-0.13761	3.08E-08	1.30E-07
FGF18	-0.29148	3.42E-08	1.44E-07
VCAM1	0.289027	3.50E-08	1.47E-07
IL21R	0.231736	3.74E-08	1.56E-07
POLR2H	-0.18683	3.81E-08	1.58E-07
AKT2	-0.22174	4.14E-08	1.72E-07
PIK3CD	0.198624	4.39E-08	1.81E-07
IL1R1	0.231761	5.48E-08	2.24E-07
FGFR1	-0.3553	5.46E-08	2.24E-07

<i>RRAS2</i>	-0.1975	5.48E-08	2.24E-07
<i>SERINC1</i>	-0.21611	5.78E-08	2.35E-07
<i>CCNB1</i>	-0.21688	5.80E-08	2.35E-07
<i>SMC1A</i>	-0.14292	6.16E-08	2.49E-07
<i>NDUFB7</i>	-0.1337	6.57E-08	2.64E-07
<i>CD48</i>	0.239847	6.78E-08	2.72E-07
<i>THEM4</i>	-0.14663	7.02E-08	2.80E-07
<i>ITGA6</i>	-0.17314	7.56E-08	3.00E-07
<i>NDUFA11</i>	-0.23717	7.80E-08	3.09E-07
<i>SMPD3</i>	-0.49242	7.98E-08	3.15E-07
<i>NKG7</i>	0.29034	8.31E-08	3.26E-07
<i>STAT3</i>	-0.29646	8.44E-08	3.30E-07
<i>FOXC1</i>	-0.21379	8.95E-08	3.49E-07
<i>CKLF</i>	0.242249	9.31E-08	3.61E-07
<i>WNT2B</i>	-0.52325	9.31E-08	3.61E-07
<i>ICAM1</i>	-0.44791	9.88E-08	3.81E-07
<i>HACD2</i>	-0.24299	1.01E-07	3.89E-07
<i>UQCR11</i>	-0.11729	1.06E-07	4.05E-07
<i>CNOT2</i>	-0.12343	1.32E-07	5.02E-07
<i>CCL4</i>	0.358323	1.33E-07	5.05E-07
<i>S100A8</i>	0.394993	1.36E-07	5.15E-07
<i>RPL23</i>	-0.40287	1.64E-07	6.15E-07
<i>U2AF1</i>	-0.24714	1.64E-07	6.15E-07
<i>MDM2</i>	-0.31399	1.73E-07	6.42E-07
<i>CX3CR1</i>	0.347282	1.73E-07	6.42E-07
<i>TMEM140</i>	0.209458	1.94E-07	7.21E-07
<i>KRT7</i>	-0.56868	2.01E-07	7.43E-07
<i>PPP2CB</i>	-0.23075	2.09E-07	7.70E-07
<i>CDK4</i>	-0.21753	2.30E-07	8.44E-07
<i>TOP2A</i>	-0.32738	2.33E-07	8.50E-07
<i>CD55</i>	-0.20731	2.39E-07	8.69E-07
<i>NDUFB4</i>	-0.18874	2.51E-07	9.12E-07
<i>ANP32B</i>	-0.24397	2.76E-07	9.97E-07
<i>SFXN1</i>	-0.1617	2.77E-07	9.97E-07
<i>CCL5</i>	0.390667	2.93E-07	1.05E-06
<i>CD2</i>	0.282315	2.96E-07	1.06E-06
<i>TRAF7</i>	-0.16929	3.05E-07	1.09E-06
<i>RUNX3</i>	0.221669	3.32E-07	1.18E-06
<i>ITCH</i>	-0.20451	3.35E-07	1.19E-06
<i>RB1</i>	0.128938	3.45E-07	1.22E-06
<i>ERCC3</i>	-0.14377	3.71E-07	1.31E-06
<i>COX5B</i>	-0.21632	3.90E-07	1.37E-06
<i>PLA2G2A</i>	-0.5338	4.19E-07	1.47E-06
<i>CTSH</i>	0.306831	4.73E-07	1.64E-06

<i>MAPK9</i>	-0.10472	4.72E-07	1.64E-06
<i>IL18</i>	-0.38205	4.92E-07	1.70E-06
<i>LDHB</i>	-0.33068	4.99E-07	1.72E-06
<i>CD83</i>	0.232294	5.31E-07	1.82E-06
<i>ANKRD28</i>	-0.18854	5.78E-07	1.98E-06
<i>MSH2</i>	-0.14059	5.80E-07	1.98E-06
<i>UBA7</i>	0.17068	6.55E-07	2.22E-06
<i>MAP3K1</i>	0.164434	6.60E-07	2.23E-06
<i>PSMB2</i>	-0.10063	7.39E-07	2.49E-06
<i>COL1A1</i>	0.52775	7.48E-07	2.51E-06
<i>B2M</i>	0.508611	8.07E-07	2.71E-06
<i>ERCC2</i>	-0.16073	8.20E-07	2.74E-06
<i>RAF1</i>	-0.13711	8.56E-07	2.85E-06
<i>BST2</i>	-0.22846	8.68E-07	2.88E-06
<i>NPM1</i>	-0.19704	9.75E-07	3.23E-06
<i>GNA11</i>	-0.14911	1.05E-06	3.46E-06
<i>PTPN11</i>	-0.14803	1.07E-06	3.50E-06
<i>CXCR4</i>	0.459678	1.08E-06	3.53E-06
<i>PEBP1</i>	-0.28578	1.09E-06	3.56E-06
<i>NF1</i>	-0.17544	1.18E-06	3.83E-06
<i>MRPL19</i>	-0.14359	1.26E-06	4.09E-06
<i>MEN1</i>	-0.15629	1.39E-06	4.49E-06
<i>AKAP1</i>	-0.14987	1.60E-06	5.17E-06
<i>RAC1</i>	-0.23297	1.78E-06	5.74E-06
<i>NDUFA12</i>	-0.10921	1.82E-06	5.84E-06
<i>CCR5</i>	0.229333	1.94E-06	6.21E-06
<i>BRD3</i>	-0.21992	2.12E-06	6.77E-06
<i>CDC25B</i>	-0.24738	2.25E-06	7.12E-06
<i>HDAC2</i>	-0.20922	2.24E-06	7.12E-06
<i>CDH1</i>	-0.26031	2.44E-06	7.70E-06
<i>SFN</i>	-0.2068	2.48E-06	7.81E-06
<i>TRAF2</i>	-0.13944	2.89E-06	9.06E-06
<i>IL1RAP</i>	-0.21141	2.90E-06	9.07E-06
<i>CD47</i>	-0.19401	2.91E-06	9.09E-06
<i>NSD3</i>	-0.15501	3.05E-06	9.48E-06
<i>NLRC5</i>	0.187998	3.21E-06	9.95E-06
<i>SRSF2</i>	-0.20186	3.31E-06	1.02E-05
<i>CD86</i>	0.246606	3.35E-06	1.03E-05
<i>MFNG</i>	0.16072	3.37E-06	1.04E-05
<i>GNG12</i>	-0.14149	3.40E-06	1.04E-05
<i>EGR2</i>	0.25951	3.45E-06	1.06E-05
<i>BCL2</i>	0.195452	3.60E-06	1.10E-05
<i>ACY1</i>	-0.14471	3.62E-06	1.10E-05
<i>SMC3</i>	-0.1106	3.70E-06	1.12E-05

<i>CENPF</i>	-0.20534	4.11E-06	1.24E-05
<i>FLNA</i>	-0.35701	4.57E-06	1.38E-05
<i>SAA1</i>	-0.61135	4.78E-06	1.44E-05
<i>SDHA</i>	-0.17386	4.94E-06	1.48E-05
<i>SMAD4</i>	-0.15137	5.19E-06	1.55E-05
<i>TAPBP</i>	-0.12957	5.33E-06	1.59E-05
<i>ANGPT2</i>	0.223532	5.40E-06	1.60E-05
<i>CCND2</i>	0.239758	5.68E-06	1.68E-05
<i>FANCF</i>	-0.125	5.92E-06	1.75E-05
<i>CTSW</i>	0.197295	5.96E-06	1.76E-05
<i>CACNG4</i>	-0.1854	5.99E-06	1.76E-05
<i>PDPN</i>	-0.33676	6.51E-06	1.91E-05
<i>POLR2A</i>	-0.17203	6.97E-06	2.04E-05
<i>ARNT</i>	-0.13812	7.09E-06	2.07E-05
<i>COL4A5</i>	-0.27425	7.21E-06	2.09E-05
<i>POLR2D</i>	-0.12765	7.22E-06	2.09E-05
<i>H2AX</i>	-0.20398	7.36E-06	2.13E-05
<i>LTBR</i>	-0.16592	7.49E-06	2.16E-05
<i>MIB1</i>	-0.11281	9.17E-06	2.63E-05
<i>C2</i>	0.214297	9.45E-06	2.70E-05
<i>MYC</i>	-0.32905	9.81E-06	2.80E-05
<i>NFATC2</i>	0.16967	1.01E-05	2.88E-05
<i>PCNA</i>	-0.19601	1.12E-05	3.17E-05
<i>GTF2H3</i>	-0.10131	1.16E-05	3.29E-05
<i>SOS2</i>	0.112683	1.20E-05	3.38E-05
<i>RAD50</i>	-0.11461	1.25E-05	3.51E-05
<i>JUP</i>	-0.14144	1.28E-05	3.59E-05
<i>DIPK2B</i>	0.242099	1.34E-05	3.75E-05
<i>ALDOA</i>	-0.41327	1.64E-05	4.57E-05
<i>ADAM12</i>	0.201032	1.69E-05	4.69E-05
<i>TNFRSF14</i>	0.164197	1.78E-05	4.95E-05
<i>MAVS</i>	-0.13468	1.86E-05	5.16E-05
<i>JAM3</i>	0.136364	1.94E-05	5.36E-05
<i>JAK2</i>	0.153036	1.96E-05	5.41E-05
<i>CPSF7</i>	-0.16164	2.08E-05	5.72E-05
<i>CD3E</i>	0.221651	2.17E-05	5.94E-05
<i>MAP2K2</i>	-0.17644	2.28E-05	6.23E-05
<i>NFE2L2</i>	-0.16535	2.34E-05	6.38E-05
<i>NOTCH3</i>	0.417147	2.39E-05	6.48E-05
<i>TFE3</i>	-0.13268	2.49E-05	6.76E-05
<i>NSD2</i>	-0.13151	2.58E-05	6.96E-05
<i>TET2</i>	0.127417	2.67E-05	7.17E-05
<i>BAMBI</i>	-0.15289	2.66E-05	7.17E-05
<i>PDGFB</i>	0.199203	2.67E-05	7.17E-05

RRAD	-0.25499	2.85E-05	7.64E-05
UBC	-0.27498	3.00E-05	8.00E-05
ABCF1	-0.12127	3.10E-05	8.26E-05
RICTOR	-0.10823	3.24E-05	8.60E-05
NDUFA3	-0.11417	3.56E-05	9.42E-05
BRD4	-0.22659	3.62E-05	9.57E-05
TBP	-0.10672	3.68E-05	9.70E-05
FUBP1	-0.16627	3.75E-05	9.85E-05
CD81	-0.32966	3.90E-05	0.000102
IRAK1	-0.21545	3.95E-05	0.000103
RPL7A	-0.42034	4.11E-05	0.000107
LEF1	0.23489	4.22E-05	0.000109
CCND1	-0.26113	4.37E-05	0.000113
CD8A	0.206745	4.38E-05	0.000113
HHIP	-0.44276	4.41E-05	0.000114
ATF1	-0.10827	4.51E-05	0.000116
C4BPA	-0.27924	4.57E-05	0.000117
IL6ST	-0.2142	4.74E-05	0.000121
STK11	-0.14036	4.75E-05	0.000121
STING1	0.122967	4.73E-05	0.000121
ATP5ME	-0.11196	4.75E-05	0.000121
TNFRSF11B	-0.17061	4.79E-05	0.000121
MAP3K12	-0.14819	4.86E-05	0.000123
CACNA1C	0.16008	5.05E-05	0.000127
GPI	-0.39912	5.38E-05	0.000135
IDH2	0.103414	5.93E-05	0.000149
GBP4	0.210449	6.03E-05	0.000151
TFDP1	-0.11404	6.04E-05	0.000151
LFNG	0.236907	6.09E-05	0.000151
BCL6	-0.13044	6.25E-05	0.000155
CDK2	-0.13179	6.45E-05	0.00016
C3	-0.83235	6.70E-05	0.000165
PIK3R2	-0.12006	6.75E-05	0.000166
SPRY4	0.243104	6.92E-05	0.00017
GZMK	0.214865	7.40E-05	0.000181
TWF1	-0.12207	7.41E-05	0.000181
GPX4	-0.10541	7.52E-05	0.000183
KDM6A	-0.15781	7.67E-05	0.000187
SHC1	-0.28991	8.48E-05	0.000206
KRT10	-0.12007	8.51E-05	0.000206
ID4	-0.25324	8.60E-05	0.000208
PSEN1	-0.13012	8.82E-05	0.000213
HHEX	0.212081	9.14E-05	0.00022
LY96	0.15711	9.18E-05	0.00022

<i>SHC2</i>	-0.28786	9.27E-05	0.000222
<i>RIMKLB</i>	-0.17313	1.07E-04	0.000256
<i>PYCR2</i>	-0.1593	1.12E-04	0.000267
<i>RANBP2</i>	-0.11221	1.13E-04	0.000268
<i>ELOB</i>	-0.11577	1.14E-04	0.000271
<i>SERPINA1</i>	0.908558	1.28E-04	0.0003
<i>HLA-E</i>	0.252519	1.28E-04	0.0003
<i>PLK1</i>	-0.14871	1.36E-04	0.000318
<i>PDGFRA</i>	0.27936	1.55E-04	0.000361
<i>TPSAB1/B2</i>	0.265569	1.56E-04	0.000363
<i>SNAI2</i>	0.214216	1.59E-04	0.00037
<i>CXCL10</i>	0.282236	1.62E-04	0.000376
<i>SLC2A1</i>	-0.46292	1.67E-04	0.000386
<i>RPS27A</i>	-0.20312	1.72E-04	0.000397
<i>SMAP1</i>	-0.11389	1.76E-04	0.000406
<i>H3-5</i>	-0.1828	1.83E-04	0.00042
<i>TCF3</i>	-0.1306	1.84E-04	0.00042
<i>CD40</i>	0.175711	1.86E-04	0.000424
<i>CEBPB</i>	-0.13001	1.86E-04	0.000424
<i>TDO2</i>	0.324547	1.86E-04	0.000424
<i>PKM</i>	-0.19334	1.97E-04	0.000446
<i>FAP</i>	0.378625	2.02E-04	0.000455
<i>CARD11</i>	-0.11453	2.04E-04	0.000459
<i>L1CAM</i>	-0.27334	2.06E-04	0.000462
<i>ZEB1</i>	0.119228	2.14E-04	0.00048
<i>HRAS</i>	-0.11531	2.16E-04	0.000482
<i>PNMA1</i>	-0.13133	2.29E-04	0.000511
<i>ARID2</i>	-0.11092	2.46E-04	0.000547
<i>BCL2L1</i>	-0.11889	2.48E-04	0.000549
<i>COMP</i>	0.314497	2.62E-04	0.000579
<i>PBX1</i>	-0.254	2.63E-04	0.000582
<i>BIRC5</i>	-0.16724	2.67E-04	0.000588
<i>SELL</i>	0.171086	2.67E-04	0.000588
<i>MCM2</i>	-0.12852	2.77E-04	0.000607
<i>SLC25A1</i>	-0.16027	2.97E-04	0.00065
<i>PFKFB3</i>	0.199671	3.00E-04	0.000656
<i>CD58</i>	0.250883	3.19E-04	0.000695
<i>CDC20</i>	-0.16801	3.26E-04	0.000709
<i>TBL1XR1</i>	-0.28654	3.40E-04	0.000736
<i>RUNX1T1</i>	0.172785	3.41E-04	0.000737
<i>KMT2C</i>	-0.13206	3.50E-04	0.000755
<i>NDUFB1</i>	-0.12332	3.56E-04	0.000767
<i>CDKN1C</i>	-0.13547	3.62E-04	0.000778
<i>KRT17</i>	-0.32127	3.65E-04	0.000783

<i>PRC1</i>	-0.1268	3.68E-04	0.000789
<i>DKK1</i>	-0.23906	3.86E-04	0.000824
<i>FEN1</i>	-0.10968	4.04E-04	0.00086
<i>NFKBIZ</i>	-0.21488	4.04E-04	0.00086
<i>HAMP</i>	0.167328	4.08E-04	0.000867
<i>SOCS1</i>	0.162203	4.13E-04	0.000876
<i>CXCL13</i>	0.241536	4.40E-04	0.000931
<i>PPP2R3A</i>	-0.13228	4.46E-04	0.000942
<i>STAT6</i>	-0.20663	4.59E-04	0.000967
<i>PDGFA</i>	-0.14992	4.63E-04	0.000973
<i>NBN</i>	-0.10342	4.70E-04	0.000986
<i>ATR</i>	-0.12379	4.77E-04	0.000999
<i>MMP9</i>	0.610445	4.83E-04	0.00101
<i>ETV1</i>	0.232747	6.00E-04	0.001248
<i>CFI</i>	-0.33685	6.07E-04	0.00126
<i>BRD2</i>	-0.16593	6.16E-04	0.001278
<i>NDC1</i>	-0.11083	6.39E-04	0.001322
<i>TNFAIP6</i>	0.191442	6.49E-04	0.00134
<i>TGFB1</i>	0.30779	6.61E-04	0.001359
<i>SPRY2</i>	-0.10675	6.75E-04	0.001385
<i>EWSR1</i>	-0.16085	7.33E-04	0.001499
<i>ATF2</i>	-0.12201	8.23E-04	0.001679
<i>CD3D</i>	0.205263	8.74E-04	0.001774
<i>RGMB</i>	0.136516	9.10E-04	0.001839
<i>DAXX</i>	-0.10038	9.64E-04	0.001937
<i>CDKN1A</i>	-0.23511	9.71E-04	0.001948
<i>ACVR2A</i>	-0.11204	0.001037	0.002072
<i>XCL1/2</i>	0.138288	0.001139	0.002263
<i>CXCL9</i>	0.303233	0.001152	0.002284
<i>SP1</i>	-0.10355	0.001161	0.002297
<i>UBE2C</i>	-0.19705	0.00117	0.002312
<i>PSEN2</i>	-0.11302	0.001209	0.002385
<i>ATRX</i>	-0.11458	0.001245	0.002449
<i>RPTOR</i>	-0.11974	0.001266	0.002483
<i>RFC4</i>	-0.11319	0.001272	0.00249
<i>PIM1</i>	-0.1942	0.001287	0.002513
<i>CD69</i>	0.186422	0.001293	0.00252
<i>ST6GAL1</i>	-0.14349	0.001321	0.002571
<i>LRP5</i>	-0.16038	0.001351	0.002625
<i>HLA-DOB</i>	0.14753	0.001377	0.002666
<i>CREBBP</i>	-0.13323	0.001395	0.002694
<i>SOD2</i>	-0.48593	0.001457	0.002809
<i>ATP5F1D</i>	-0.12677	0.001515	0.002916
<i>TYMS</i>	-0.19123	0.001521	0.002923

<i>P2RY13</i>	0.143491	0.001531	0.002936
<i>MMP11</i>	0.239085	0.001536	0.002936
<i>OAS2</i>	0.186292	0.001537	0.002936
<i>CD209</i>	0.207617	0.00157	0.002983
<i>GSK3B</i>	-0.10419	0.001568	0.002983
<i>MME</i>	-0.30236	0.001566	0.002983
<i>IL15RA</i>	0.130705	0.001649	0.003129
<i>RELA</i>	-0.14096	0.001693	0.003205
<i>CACNA2D1</i>	0.117009	0.00183	0.003446
<i>IRS1</i>	0.171293	0.001848	0.003467
<i>LTBP1</i>	0.294029	0.001879	0.003519
<i>RSAD2</i>	0.151042	0.001886	0.003527
<i>PIK3R1</i>	0.129889	0.001926	0.003595
<i>HLA-B</i>	0.35059	0.002007	0.003739
<i>SLAMF6</i>	0.138186	0.002106	0.003918
<i>DAB2</i>	0.171392	0.002346	0.004355
<i>ELK1</i>	-0.10408	0.002648	0.004882
<i>CD22</i>	-0.14605	0.002708	0.004984
<i>COL5A2</i>	0.154931	0.002718	0.004994
<i>IGF1</i>	0.182797	0.002752	0.005047
<i>RORA</i>	0.17271	0.002764	0.005061
<i>TSPAN7</i>	-0.10276	0.002951	0.005393
<i>NFATC4</i>	0.149101	0.003007	0.005487
<i>HES1</i>	-0.13628	0.003016	0.005493
<i>TNFSF10</i>	0.234891	0.003241	0.005883
<i>NR3C1</i>	0.15955	0.003661	0.006598
<i>BCAT1</i>	-0.23775	0.003693	0.006645
<i>MAPK12</i>	-0.11939	0.003958	0.007109
<i>CD44</i>	-0.20376	0.003998	0.00717
<i>P4HA2</i>	-0.16101	0.004219	0.00754
<i>SBNO2</i>	-0.1559	0.00425	0.007582
<i>CFD</i>	0.161861	0.004295	0.007648
<i>H3C8</i>	-0.1983	0.004576	0.008122
<i>NR4A1</i>	0.21909	0.005001	0.008831
<i>OAT</i>	-0.11005	0.005144	0.009069
<i>ARID1B</i>	-0.13224	0.005264	0.009265
<i>H3C2</i>	-0.27805	0.005275	0.009269
<i>FGF2</i>	-0.13509	0.005288	0.009276
<i>DTX3</i>	-0.13446	0.005405	0.009449
<i>TAP1</i>	-0.18067	0.006017	0.010468
<i>SERPING1</i>	-0.33819	0.006251	0.010838
<i>H3-3A</i>	-0.19066	0.006268	0.01085
<i>DDIT4</i>	0.203269	0.006388	0.01104
<i>DDB2</i>	-0.11316	0.006463	0.011132



<i>HLA-DPB1</i>	0.166026	0.006656	0.011427
<i>FOXM1</i>	-0.12879	0.006649	0.011427
<i>OAS1</i>	0.153971	0.007817	0.01329
<i>TNFSF14</i>	-0.18377	0.007842	0.013312
<i>DGLUCY</i>	-0.11095	0.007898	0.013384
<i>EGR1</i>	0.343399	0.007934	0.013423
<i>DEPTOR</i>	0.150232	0.008384	0.01414
<i>PSMB5</i>	-0.14496	0.008501	0.014291
<i>CCL18</i>	0.239631	0.008761	0.014705
<i>MYBL2</i>	-0.17256	0.008911	0.014885
<i>MXI1</i>	-0.14292	0.008893	0.014885
<i>JUNB</i>	0.297041	0.009411	0.01567
<i>SERINC5</i>	-0.16093	0.010863	0.017974
<i>MARCO</i>	0.168362	0.010918	0.018037
<i>FZD4</i>	0.140201	0.01113	0.018358
<i>MAPK14</i>	-0.10431	0.01225	0.020078
<i>SMO</i>	-0.13889	0.012277	0.020091
<i>STAT2</i>	-0.11699	0.012471	0.020314
<i>CCL2</i>	0.233028	0.012528	0.020375
<i>SPP1</i>	0.556547	0.013807	0.022385
<i>JAG1</i>	0.218975	0.014322	0.023149
<i>PCK1</i>	-0.1968	0.014867	0.023957
<i>RAB7A</i>	-0.10096	0.015134	0.024349
<i>IER3</i>	0.169431	0.015318	0.024608
<i>SF3B1</i>	-0.13482	0.015632	0.025073
<i>NLRP3</i>	0.121291	0.015701	0.025145
<i>CXCL2</i>	0.173123	0.015831	0.025315
<i>IDH1</i>	0.112115	0.017155	0.027266
<i>POU2AF1</i>	0.139312	0.018255	0.028839
<i>IL33</i>	0.152226	0.019245	0.030266
<i>ENO1</i>	-0.12966	0.019349	0.030385
<i>NOS3</i>	0.151361	0.019689	0.030827
<i>HELLS</i>	-0.11028	0.019953	0.031193
<i>CD5</i>	0.116861	0.020487	0.031886
<i>AMH</i>	-0.12491	0.020794	0.032219
<i>CLEC5A</i>	0.174335	0.021799	0.03348
<i>AXL</i>	-0.19686	0.02252	0.034487
<i>FZD1</i>	-0.19589	0.023132	0.035372
<i>KDR</i>	-0.16461	0.023184	0.035386
<i>TNFRSF25</i>	0.106914	0.025722	0.039162
<i>DUSP1</i>	-0.33872	0.026359	0.040015
<i>CXCL14</i>	0.203815	0.026906	0.040728
<i>ABL1</i>	-0.17153	0.027472	0.041431
<i>CCL15</i>	0.223177	0.027489	0.041431

<i>SFRP1</i>	0.15676	0.027949	0.041824
<i>GDF6</i>	-0.11601	0.029467	0.043882
<i>LGR5</i>	0.150877	0.029988	0.044431
<i>HSPB1</i>	-0.12121	0.030149	0.044607
<i>BNIP3</i>	-0.16791	0.030259	0.044707
<i>MYCT1</i>	0.145242	0.030709	0.045308
<i>IFITM2</i>	-0.26886	0.031233	0.045823
<i>RPS6</i>	-0.29715	0.031573	0.046258
<i>MKI67</i>	-0.15588	0.03251	0.047431
<i>IL32</i>	0.176961	0.033709	0.048975

Supplementary Table 2: list of GO categories (S-AOIs vs E-AOIs)

	GO-BIOLOGICAL PROCESS	FRACTION OF GENES	ADJUSTED PVALUE
<b>GENES UP IN S vs E</b>	cytokine-mediated signaling pathway	83/621	4.17E-57
	cellular response to cytokine stimulus	61/482	3.03E-39
	inflammatory response	41/230	1.20E-31
	cellular response to interferon-gamma	33/121	1.20E-31
	cellular response to oxygen-containing compound	28/323	2.99E-13
	extracellular matrix organization	27/300	3.52E-13
	positive regulation of cell migration	24/269	1.18E-11
	positive regulation of cell motility	22/221	1.32E-11
	regulation of cell migration	28/408	5.74E-11
	regulation of angiogenesis	18/203	8.01E-09
	positive regulation of transcription, DNA-templated	44/1183	1.23E-08
	positive regulation of vasculature development	13/102	2.73E-08
	positive regulation of transcription by RNA polymerase II	34/908	7.88E-07
	cell-matrix adhesion	10/100	1.17E-05
	extracellular matrix disassembly	6/66	0.0014
<b>GENES DOWN IN S vs E</b>	regulation of apoptotic process	64/742	8.18E-23
	regulation of programmed cell death	46/381	7.35E-22
	regulation of cell population proliferation	57/764	1.18E-17
	mitochondrial ATP synthesis coupled electron transport	16/71	1.29E-11
	mitochondrial electron transport, NADH to ubiquinone	11/39	4.38E-09
	regulation of mitotic cell cycle	20/178	4.89E-09
	regulation of cell differentiation	23/258	1.75E-08
	regulation of mitotic cell cycle phase transition	17/188	1.80E-06
	mitotic cell cycle phase transition	17/209	6.63E-06
	regulation of cell adhesion	13/133	1.85E-05
	morphogenesis of an epithelial	8/44	2.19E-05
	apoptotic mitochondrial changes	7/33	3.40E-05
	regulation of cell adhesion	9/80	1.89E-04

cellular response to oxidative stress	11/125	2.17E-04
epidermal cell differentiation	7/53	5.17E-04
oxidative stress-induced apoptotic signaling pathway	4/18	0.0021
positive regulation of epithelial cell differentiation	4/20	0.0029

Supplementary Table 3: Full list of differentially expressed genes in pS-AOIs vs pE AOIs

<b>Target name</b>	<b>Log2 Fold Change (pS-AOIs/pE-AOIs)</b>	<b>Pvalue</b>	<b>Adjusted pvalue</b>
CD9	-0.7121	5.78E-07	0.000606
KRT19	-2.21512	2.94E-06	0.00108
ZEB2	0.567412	3.12E-06	0.00108
NRP1	0.560456	4.51E-06	0.00108
TGFB2	-1.71604	5.15E-06	0.00108
ABL1	-0.47597	7.16E-06	0.001131
ALCAM	-1.37571	9.11E-06	0.001131
ITGB4	-0.52457	9.70E-06	0.001131
PSMB7	-0.44332	9.67E-06	0.001131
ITGA3	-0.708	1.54E-05	0.001616
PDGFRB	0.386086	1.90E-05	0.00181
KRT17	0.105967	2.22E-05	0.001848
C4B	-2.54173	2.29E-05	0.001848
MUC1	-0.74713	3.13E-05	0.002192
IL1R1	0.133191	5.60E-05	0.003454
MS4A6A	0.824062	5.38E-05	0.003454
MIF	-0.8078	6.54E-05	0.003813
COL6A3	2.38131	8.21E-05	0.004534
SFXN1	-0.25399	9.52E-05	0.004992
RPL7A	-0.92139	0.000102	0.005084
GLS	-1.16076	0.000108	0.005156
LAMA5	-1.43205	0.000127	0.005807
GMIP	0.216553	0.00014	0.00613
HHIP	-1.2952	0.000146	0.006139
HLA-DPA1	0.89495	0.000162	0.00645
KRT18	-2.15803	0.000166	0.00645
NFE2L2	-0.27149	0.000192	0.00709
CDH3	-0.66459	0.000196	0.00709
CFB	-1.27931	0.00021	0.007207

<i>ITGA4</i>	0.428465	0.000229	0.007207
<i>CD53</i>	0.849941	0.000234	0.007207
<i>CTSS</i>	0.799561	0.00023	0.007207
<i>PLOD2</i>	-1.47426	0.000224	0.007207
<i>ENG</i>	0.583545	0.000271	0.008121
<i>IL33</i>	0.265983	0.000288	0.008395
<i>FGF9</i>	-0.55751	0.000304	0.008617
<i>CIC</i>	-0.33946	0.000325	0.00898
<i>LCP1</i>	0.952195	0.000343	0.009219
<i>THY1</i>	0.90332	0.000419	0.01098
<i>SOCS1</i>	0.4133	0.000431	0.011032
<i>TNFSF10</i>	0.676232	0.000462	0.011536
<i>COX5B</i>	-0.2953	0.000498	0.012146
<i>CD4</i>	0.785785	0.000547	0.013047
<i>HLA-DRB</i>	1.394209	0.000723	0.01549
<i>CD81</i>	-0.65648	0.00069	0.01549
<i>NUP107</i>	-0.30659	0.000691	0.01549
<i>C1QB</i>	0.879413	0.000715	0.01549
<i>ALDOA</i>	-0.46929	0.000724	0.01549
<i>GPI</i>	-0.38842	0.000744	0.015613
<i>IL32</i>	1.186843	0.000828	0.017031
<i>PECAM1</i>	0.423698	0.000863	0.017409
<i>HLA-DRA</i>	1.554849	0.000883	0.017482
<i>CD63</i>	0.308092	0.000924	0.017849
<i>FCER1G</i>	0.758319	0.000936	0.017849
<i>API5</i>	-0.2895	0.000955	0.017885
<i>WT1</i>	-0.41709	0.000983	0.018093
<i>ETS1</i>	0.544085	0.001039	0.018275
<i>TYMP</i>	0.746784	0.001141	0.019613
<i>CD74</i>	1.633992	0.001199	0.020283
<i>C1QA</i>	1.059668	0.00123	0.020488
<i>JAK3</i>	0.570569	0.001401	0.02193
<i>C7</i>	0.621166	0.00137	0.02193
<i>HLA-DQA1</i>	0.720239	0.001371	0.02193
<i>MAP3K20</i>	-0.80192	0.001386	0.02193
<i>CXADR</i>	-0.60434	0.001425	0.02198
<i>PRDX5</i>	-0.36382	0.001459	0.021986
<i>FGF18</i>	-0.50938	0.001467	0.021986
<i>SMAD3</i>	-0.53784	0.001489	0.021994
<i>CXCL12</i>	1.021535	0.001597	0.023039
<i>ANP32B</i>	-0.54361	0.001603	0.023039
<i>GBP4</i>	0.482947	0.001652	0.023421
<i>CSF1</i>	0.509754	0.00168	0.023493
<i>GIMAP4</i>	0.641213	0.001712	0.023628

LAMP1	0.329204	0.001799	0.024505
IGF1R	-0.1378	0.001884	0.025331
PCK1	-0.53454	0.001936	0.025708
CCND2	0.62909	0.002009	0.026348
ANXA1	-0.31186	0.002045	0.026489
RPL23	-0.59317	0.00211	0.026987
NLRC5	0.504206	0.002245	0.028372
GBP1	0.447898	0.002359	0.029119
MCAM	0.364252	0.002358	0.029119
SREBF1	-0.1063	0.002405	0.029337
VCAN	1.486343	0.002445	0.029477
HLA-DMB	0.787171	0.002654	0.02982
PDPN	-0.21102	0.002672	0.02982
CYBB	0.788057	0.002529	0.02982
TECR	0.342523	0.002574	0.02982
IFITM2	-0.92127	0.002615	0.02982
CARD11	-0.18141	0.002664	0.02982
CD68	1.003557	0.002605	0.02982
RPS27A	-0.36181	0.002814	0.031071
IFNGR2	0.380294	0.002901	0.0317
CD200	-0.68927	0.003026	0.032388
CD84	0.503753	0.003003	0.032388
HLA-B	1.446477	0.003146	0.032998
WIPF1	0.533989	0.003129	0.032998
PIK3CD	0.377819	0.003244	0.033689
PTPRC	0.845836	0.003324	0.034188
SPP1	-0.57925	0.003655	0.03722
BRD3	-0.46792	0.003866	0.03899
TFRC	-0.58594	0.003919	0.03907
NECTIN2	-0.63782	0.003948	0.03907
FCGR1A	0.699172	0.004247	0.041634
IFI27	-0.14019	0.004287	0.041644
MET	-0.77898	0.004511	0.043409
CD3D	0.486173	0.00459	0.043775
TRBC1/2	1.1333	0.004644	0.04389
HSPB1	0.233773	0.004782	0.044792
SLC16A1	-0.24404	0.004909	0.045571
GPSM3	0.467942	0.005086	0.046798
DNMT1	0.130718	0.005502	0.048911
ITGB2	0.679288	0.005453	0.048911
IRF8	0.49282	0.005422	0.048911
CDH2	-0.37247	0.005492	0.048911
COL27A1	-0.1501	0.005578	0.04917

Supplementary Table 4: list of GO categories (pS-AOIs vs pE-AOIs)

	GO-BIOLOGICAL PROCESS	FRACTION OF GENES	ADJUSTED PVALUE
<b>GENES UP IN pS vs pE</b>	cytokine-mediated signaling pathway	20/621	9.80E-13
	cellular response to interferon-gamma	9/121	3.59E-08
	cellular response to cytokine stimulus	14/482	3.71E-08
	T cell receptor signaling pathway	8/158	3.41E-06
	cell-matrix adhesion	4/100	0.0038
	positive regulation of angiogenesis	3/116	0.031
<b>GENES DOWN IN pS vs pE</b>	negative regulation of programmed cell death	11/381	6.90E-06
	cell-cell junction organization	6/82	3.49E-05
	cell-cell adhesion via plasma-membrane adhesion molecules	6/170	7.58E-04
	regulation of cell population proliferation	10/764	0.0021
	epithelial cell differentiation	3/101	0.024
	cellular response to oxidative stress	3/125	0.037

Supplementary Table 5: Full list of differentially expressed genes in tS-AOIs vs tE AOIs

<i>Target name</i>	<i>Log2 Fold Change (tS-AOIs/tE-AOIs)</i>	<i>Pvalue</i>	<i>Adjusted pvalue</i>
<i>CSF1R</i>	1.10914	2.42E-39	2.54E-36
<i>FCGR3A/B</i>	1.153437	5.45E-38	2.86E-35
<i>A2M</i>	1.408031	1.39E-36	3.82E-34
<i>CTSS</i>	0.964824	1.46E-36	3.82E-34
<i>HLA-DMB</i>	0.859538	2.10E-36	4.41E-34
<i>HLA-DMA</i>	0.857178	5.00E-36	8.75E-34
<i>C1QA</i>	1.465104	2.79E-34	4.18E-32
<i>HLA-DRB</i>	1.511025	4.42E-34	5.80E-32
<i>C1QB</i>	1.326793	5.32E-34	6.20E-32
<i>WIPF1</i>	0.553683	1.01E-33	1.05E-31
<i>FCER1G</i>	0.907124	1.16E-33	1.11E-31
<i>ENG</i>	1.036452	2.66E-33	2.32E-31
<i>HLA-DRA</i>	1.522005	4.27E-33	3.44E-31
<i>HLA-DPA1</i>	0.887067	2.49E-32	1.87E-30
<i>ITGB2</i>	0.773146	5.11E-32	3.57E-30
<i>FGCR2A/B</i>	1.174236	7.80E-32	5.11E-30
<i>PECAM1</i>	0.935411	1.18E-31	7.29E-30
<i>CD14</i>	1.222408	1.93E-31	1.12E-29

<i>ITGA3</i>	-1.20197	2.27E-30	1.25E-28
<i>CD4</i>	0.823755	7.53E-30	3.95E-28
<i>MS4A6A</i>	0.893596	8.10E-30	4.04E-28
<i>CYBB</i>	0.898197	1.19E-29	5.65E-28
<i>HLA-DRB3</i>	1.051696	2.31E-29	1.05E-27
<i>LCP1</i>	0.755256	2.03E-28	8.89E-27
<i>CD53</i>	0.778913	3.56E-28	1.49E-26
<i>LAIR1</i>	0.680223	4.30E-28	1.73E-26
<i>CD74</i>	1.724037	4.85E-28	1.88E-26
<i>HLA-DQA1</i>	0.788391	2.67E-27	9.98E-26
<i>ZEB2</i>	0.643603	1.31E-26	4.74E-25
<i>LAMA5</i>	-1.06907	6.04E-25	2.11E-23
<i>PTPRC</i>	0.762855	1.04E-24	3.50E-23
<i>CD163</i>	0.915364	1.78E-24	5.49E-23
<i>LYZ</i>	1.3319	1.72E-24	5.49E-23
<i>GIMAP4</i>	0.649961	1.75E-24	5.49E-23
<i>TNFRSF1B</i>	0.563233	7.95E-24	2.38E-22
<i>KRT18</i>	-1.55351	9.15E-24	2.67E-22
<i>LILRB4</i>	0.639777	1.09E-23	3.10E-22
<i>IL10RA</i>	0.641259	2.44E-23	6.72E-22
<i>FCGR1A</i>	0.689691	4.37E-23	1.18E-21
<i>CXCL16</i>	0.455362	1.12E-22	2.95E-21
<i>TBXAS1</i>	0.559124	3.54E-22	9.05E-21
<i>PRKDC</i>	-0.35824	4.30E-22	1.07E-20
<i>C3AR1</i>	0.587337	2.14E-21	5.21E-20
<i>EPHA2</i>	-0.52364	2.64E-21	6.29E-20
<i>HLA-DRB4</i>	0.79993	4.68E-21	1.09E-19
<i>FPR3</i>	0.464175	6.32E-21	1.44E-19
<i>CLEC7A</i>	0.606788	7.16E-21	1.60E-19
<i>SPRED1</i>	0.415766	7.90E-21	1.73E-19
<i>KRT19</i>	-1.52624	9.27E-21	1.98E-19
<i>MS4A4A</i>	0.606814	2.00E-20	4.19E-19
<i>ITGB4</i>	-0.93642	2.04E-20	4.19E-19
<i>CD37</i>	0.515784	2.82E-20	5.68E-19
<i>LAMC2</i>	-0.86581	3.94E-20	7.81E-19
<i>HLA-DOA</i>	0.552108	4.56E-20	8.86E-19
<i>LGALS9</i>	0.607422	1.89E-19	3.61E-18
<i>CD68</i>	0.751857	6.00E-19	1.12E-17
<i>CD84</i>	0.447495	7.25E-19	1.33E-17
<i>TLR1</i>	0.436588	1.35E-18	2.44E-17
<i>CDH2</i>	-0.68879	1.94E-18	3.46E-17
<i>CD9</i>	-0.65144	3.12E-18	5.46E-17
<i>PPL</i>	-0.60038	3.68E-18	6.33E-17
<i>NCF4</i>	0.498891	6.93E-18	1.17E-16



<i>INPP5D</i>	0.491371	7.06E-18	1.17E-16
<i>ITGA1</i>	0.694361	1.40E-17	2.26E-16
<i>MRC1</i>	0.73359	1.40E-17	2.26E-16
<i>CD34</i>	0.537159	1.70E-17	2.70E-16
<i>MET</i>	-0.67194	5.16E-17	8.08E-16
<i>FSTL3</i>	-0.66675	5.65E-17	8.71E-16
<i>DSP</i>	-0.62615	6.87E-17	1.04E-15
<i>CFB</i>	-1.2262	7.67E-17	1.13E-15
<i>IGF1R</i>	-0.50756	7.59E-17	1.13E-15
<i>FPR1</i>	0.426982	9.02E-17	1.31E-15
<i>HAVCR2</i>	0.411101	2.18E-16	3.13E-15
<i>HCK</i>	0.433541	4.00E-16	5.68E-15
<i>PDGFRB</i>	0.89574	4.74E-16	6.63E-15
<i>TLR2</i>	0.463847	1.03E-15	1.42E-14
<i>GIMAP6</i>	0.438975	1.57E-15	2.14E-14
<i>GMIP</i>	0.301947	1.64E-15	2.21E-14
<i>SAMSN1</i>	0.469576	2.07E-15	2.74E-14
<i>THY1</i>	0.63317	4.37E-15	5.73E-14
<i>CSF3R</i>	0.413956	7.10E-15	9.19E-14
<i>CXCL12</i>	0.535564	8.65E-15	1.11E-13
<i>FLNC</i>	-0.65732	9.18E-15	1.16E-13
<i>SMARCA4</i>	-0.31895	9.60E-15	1.20E-13
<i>TNFSF12</i>	0.346444	1.21E-14	1.49E-13
<i>SLC39A6</i>	-0.2435	1.27E-14	1.54E-13
<i>F13A1</i>	0.875524	1.31E-14	1.58E-13
<i>SFRP2</i>	0.972489	1.34E-14	1.60E-13
<i>COL6A3</i>	1.245364	1.46E-14	1.71E-13
<i>NID2</i>	0.586004	1.47E-14	1.71E-13
<i>HSP90B1</i>	-0.57464	2.18E-14	2.51E-13
<i>ITGAX</i>	0.443284	2.24E-14	2.55E-13
<i>FZD6</i>	-0.31945	2.39E-14	2.69E-13
<i>JAK3</i>	0.432649	2.44E-14	2.72E-13
<i>RASA4</i>	0.360224	2.47E-14	2.73E-13
<i>COX6A1</i>	-0.36482	2.75E-14	3.01E-13
<i>TP53</i>	-0.31337	3.07E-14	3.32E-13
<i>CXADR</i>	-0.3978	5.34E-14	5.71E-13
<i>IRF8</i>	0.477844	8.85E-14	9.38E-13
<i>SIGLEC1</i>	0.493679	9.21E-14	9.66E-13
<i>MSR1</i>	0.451595	1.12E-13	1.16E-12
<i>SYK</i>	0.391625	1.39E-13	1.43E-12
<i>PTGER4</i>	0.360206	1.41E-13	1.43E-12
<i>FCGRT</i>	0.352675	1.91E-13	1.92E-12
<i>ITGA4</i>	0.388346	2.39E-13	2.39E-12
<i>SFRP4</i>	0.693202	2.63E-13	2.61E-12

<i>ACTA2</i>	0.788018	3.15E-13	3.09E-12
<i>HLA-DQB1</i>	0.4149	4.66E-13	4.53E-12
<i>FGF9</i>	-0.46617	6.18E-13	5.95E-12
<i>LILRB1</i>	0.37341	6.83E-13	6.51E-12
<i>TREM2</i>	0.399659	7.06E-13	6.67E-12
<i>GPSM3</i>	0.327271	7.46E-13	6.99E-12
<i>GLS</i>	-0.53429	9.04E-13	8.39E-12
<i>MCAM</i>	0.584475	9.29E-13	8.55E-12
<i>CAPN2</i>	-0.41126	1.14E-12	1.03E-11
<i>RAC2</i>	0.406327	1.14E-12	1.03E-11
<i>LY6E</i>	-0.52372	1.42E-12	1.27E-11
<i>C5AR1</i>	0.381977	1.57E-12	1.40E-11
<i>S100A9</i>	0.723128	1.83E-12	1.61E-11
<i>NOTCH2</i>	-0.34221	2.27E-12	1.99E-11
<i>MERTK</i>	0.358646	2.36E-12	2.05E-11
<i>ELMO1</i>	0.361084	3.26E-12	2.80E-11
<i>CDH5</i>	0.455242	3.50E-12	2.99E-11
<i>ITGAM</i>	0.425842	4.61E-12	3.85E-11
<i>ILF3</i>	-0.33293	4.63E-12	3.85E-11
<i>TLR4</i>	0.376632	4.60E-12	3.85E-11
<i>JAML</i>	0.481838	6.22E-12	5.14E-11
<i>PSMB10</i>	0.273381	8.05E-12	6.60E-11
<i>CD36</i>	0.458652	1.42E-11	1.15E-10
<i>C7</i>	0.948297	1.83E-11	1.47E-10
<i>ITGAL</i>	0.398233	2.10E-11	1.68E-10
<i>ATP2A2</i>	-0.30873	2.22E-11	1.77E-10
<i>LYN</i>	0.279508	2.46E-11	1.94E-10
<i>OLFML2B</i>	0.545158	2.58E-11	2.02E-10
<i>NRP1</i>	0.600464	3.02E-11	2.35E-10
<i>IFNGR2</i>	0.303908	3.12E-11	2.40E-10
<i>PRDM1</i>	0.365617	3.59E-11	2.75E-10
<i>LILRB2</i>	0.548701	4.01E-11	3.05E-10
<i>ERBB2</i>	-0.29089	4.37E-11	3.30E-10
<i>SLC16A1</i>	-0.52694	5.11E-11	3.83E-10
<i>C1S</i>	-0.67934	5.61E-11	4.17E-10
<i>RB1</i>	0.193921	5.79E-11	4.28E-10
<i>EFNA1</i>	-0.37609	8.61E-11	6.31E-10
<i>CCL3/L1</i>	0.464743	8.90E-11	6.48E-10
<i>MUC1</i>	-0.46739	9.62E-11	6.96E-10
<i>SKP2</i>	-0.29517	1.31E-10	9.40E-10
<i>CMKLR1</i>	0.372886	1.35E-10	9.65E-10
<i>TRAC</i>	0.416815	1.60E-10	1.13E-09
<i>EGFR</i>	-0.53759	1.83E-10	1.29E-09
<i>C4B</i>	-1.06417	1.92E-10	1.34E-09

<i>EFNA5</i>	-0.335	1.99E-10	1.38E-09
<i>PSMB7</i>	-0.24736	4.31E-10	2.97E-09
<i>CASP1</i>	0.265283	4.87E-10	3.34E-09
<i>RAD21</i>	-0.31638	5.13E-10	3.50E-09
<i>GAS1</i>	-0.65513	5.79E-10	3.92E-09
<i>NDUFA13</i>	-0.28905	6.25E-10	4.21E-09
<i>ITGB8</i>	-0.2806	6.94E-10	4.64E-09
<i>SLC11A1</i>	0.427407	7.85E-10	5.21E-09
<i>PRDX5</i>	-0.25925	9.99E-10	6.59E-09
<i>IL4R</i>	0.251814	1.08E-09	7.11E-09
<i>PLOD2</i>	-0.70081	1.12E-09	7.28E-09
<i>COL3A1</i>	0.701836	1.14E-09	7.39E-09
<i>RIPK3</i>	0.266629	2.36E-09	1.52E-08
<i>FLT1</i>	0.396788	2.53E-09	1.62E-08
<i>WT1</i>	-0.44074	3.42E-09	2.18E-08
<i>TFRC</i>	-0.28427	4.96E-09	3.06E-08
<i>YTHDF2</i>	-0.16356	4.89E-09	3.06E-08
<i>CTSH</i>	0.330647	4.96E-09	3.06E-08
<i>UBA7</i>	0.187126	4.95E-09	3.06E-08
<i>FLNB</i>	-0.38822	4.90E-09	3.06E-08
<i>CKLF</i>	0.262008	5.33E-09	3.27E-08
<i>TYMP</i>	0.332809	5.73E-09	3.49E-08
<i>EIF4EBP1</i>	-0.27219	5.91E-09	3.59E-08
<i>CDH3</i>	-0.31618	7.12E-09	4.27E-08
<i>IL2RB</i>	0.352129	7.10E-09	4.27E-08
<i>NECTIN2</i>	-0.38641	7.18E-09	4.28E-08
<i>HLA-DRB5</i>	0.363444	7.36E-09	4.36E-08
<i>IL2RA</i>	0.381626	7.67E-09	4.52E-08
<i>HSPA6</i>	0.565313	9.66E-09	5.66E-08
<i>TUBB</i>	-0.35813	1.13E-08	6.56E-08
<i>TLR7</i>	0.288431	1.22E-08	7.04E-08
<i>NDUFS8</i>	-0.19761	1.23E-08	7.12E-08
<i>PIK3CD</i>	0.230218	1.26E-08	7.22E-08
<i>VCAN</i>	0.697927	1.28E-08	7.31E-08
<i>APLNR</i>	0.36643	1.37E-08	7.80E-08
<i>CLU</i>	-0.78652	1.46E-08	8.25E-08
<i>REL</i>	0.251698	1.62E-08	9.11E-08
<i>CX3CR1</i>	0.388757	1.77E-08	9.86E-08
<i>C1R</i>	-0.53685	1.81E-08	1.00E-07
<i>TNFRSF1A</i>	-0.22162	2.18E-08	1.21E-07
<i>ANXA1</i>	-0.31659	2.26E-08	1.24E-07
<i>C2</i>	0.321669	2.38E-08	1.30E-07
<i>TPR</i>	-0.18579	2.41E-08	1.31E-07
<i>ETS1</i>	0.282293	2.64E-08	1.43E-07

<i>MIF</i>	-0.46874	3.22E-08	1.73E-07
<i>WEE1</i>	-0.2488	3.29E-08	1.76E-07
<i>CDK6</i>	-0.40995	3.33E-08	1.77E-07
<i>CSF2RB</i>	0.296112	3.54E-08	1.88E-07
<i>PUM1</i>	-0.16164	3.65E-08	1.92E-07
<i>VCAM1</i>	0.364302	3.75E-08	1.97E-07
<i>APP</i>	-0.47894	3.96E-08	2.07E-07
<i>IL1R1</i>	0.30458	4.05E-08	2.11E-07
<i>IL17RA</i>	0.25974	4.09E-08	2.11E-07
<i>COL1A2</i>	0.696975	4.26E-08	2.19E-07
<i>PPP2R1A</i>	-0.2099	4.70E-08	2.40E-07
<i>KRT5</i>	-0.5501	4.70E-08	2.40E-07
<i>CD46</i>	-0.19077	4.86E-08	2.46E-07
<i>LIF</i>	-0.32591	5.21E-08	2.63E-07
<i>SOD1</i>	-0.25243	6.05E-08	3.03E-07
<i>PRKCD</i>	0.229021	6.69E-08	3.34E-07
<i>TRBC1/2</i>	0.511916	6.99E-08	3.48E-07
<i>GTF3C1</i>	-0.19009	7.13E-08	3.53E-07
<i>PVR</i>	-0.16102	8.92E-08	4.39E-07
<i>IL2RG</i>	0.310916	9.44E-08	4.63E-07
<i>TNFRSF10B</i>	-0.18898	1.02E-07	4.98E-07
<i>S100A8</i>	0.454512	1.04E-07	5.04E-07
<i>ARNT2</i>	-0.1669	1.09E-07	5.25E-07
<i>SERINC3</i>	-0.16412	1.13E-07	5.43E-07
<i>TDO2</i>	0.392132	1.23E-07	5.90E-07
<i>DSC3</i>	-0.282	1.34E-07	6.39E-07
<i>BMP4</i>	-0.39217	1.51E-07	7.19E-07
<i>ANGPT2</i>	0.31458	1.79E-07	8.46E-07
<i>TMEM140</i>	0.248305	1.80E-07	8.46E-07
<i>ZEB1</i>	0.200254	1.89E-07	8.84E-07
<i>ALCAM</i>	-0.39151	2.09E-07	9.73E-07
<i>NUMBL</i>	-0.16337	2.21E-07	1.03E-06
<i>API5</i>	-0.12228	2.22E-07	1.03E-06
<i>CD86</i>	0.30355	2.44E-07	1.12E-06
<i>STING1</i>	0.180534	2.57E-07	1.18E-06
<i>IDH2</i>	0.189383	2.61E-07	1.19E-06
<i>NKG7</i>	0.297218	2.64E-07	1.20E-06
<i>RUNX3</i>	0.272315	2.69E-07	1.22E-06
<i>CCL4</i>	0.384282	2.71E-07	1.22E-06
<i>IL21R</i>	0.274438	2.85E-07	1.28E-06
<i>CXCR4</i>	0.48438	2.86E-07	1.28E-06
<i>B2M</i>	0.500592	3.26E-07	1.45E-06
<i>MCM7</i>	-0.21009	3.82E-07	1.69E-06
<i>NDUFB10</i>	-0.1336	4.10E-07	1.80E-06

<i>MST1R</i>	-0.26646	4.11E-07	1.80E-06
<i>MCM4</i>	-0.18048	4.37E-07	1.91E-06
<i>PHGDH</i>	-0.22985	4.49E-07	1.96E-06
<i>NDUFA7</i>	-0.15002	4.66E-07	2.02E-06
<i>MAP3K1</i>	0.210306	4.77E-07	2.06E-06
<i>FGFR1</i>	-0.34085	5.20E-07	2.22E-06
<i>GRB2</i>	0.153812	5.18E-07	2.22E-06
<i>U2AF1</i>	-0.18533	5.17E-07	2.22E-06
<i>CCND2</i>	0.235942	5.47E-07	2.32E-06
<i>TNFRSF12A</i>	-0.3182	5.80E-07	2.45E-06
<i>MAPKAPK2</i>	0.119412	6.81E-07	2.87E-06
<i>FOXC1</i>	-0.15093	7.64E-07	3.21E-06
<i>TGFB2</i>	-0.53426	8.41E-07	3.51E-06
<i>CACNB3</i>	-0.19906	1.07E-06	4.47E-06
<i>CCL5</i>	0.374775	1.12E-06	4.65E-06
<i>COL1A1</i>	0.522294	1.16E-06	4.79E-06
<i>CD83</i>	0.266168	1.27E-06	5.22E-06
<i>TOP2A</i>	-0.28209	1.27E-06	5.22E-06
<i>FLNA</i>	-0.33762	1.35E-06	5.52E-06
<i>CD200</i>	-0.29852	1.59E-06	6.48E-06
<i>CD48</i>	0.279232	1.69E-06	6.85E-06
<i>C1QBP</i>	-0.15096	1.71E-06	6.92E-06
<i>ASNS</i>	-0.17428	1.75E-06	7.04E-06
<i>BCL2</i>	0.237863	1.83E-06	7.33E-06
<i>LY96</i>	0.209723	1.87E-06	7.45E-06
<i>STMN1</i>	-0.17921	1.92E-06	7.63E-06
<i>PFKFB3</i>	0.291719	2.03E-06	8.02E-06
<i>ANLN</i>	-0.21701	2.05E-06	8.07E-06
<i>CD2</i>	0.308778	2.06E-06	8.09E-06
<i>SOS2</i>	0.178564	2.21E-06	8.65E-06
<i>NDUFA11</i>	-0.1866	2.50E-06	9.75E-06
<i>MFNG</i>	0.221843	2.51E-06	9.76E-06
<i>NOTCH3</i>	0.608585	2.67E-06	1.03E-05
<i>JAM3</i>	0.186697	2.92E-06	1.12E-05
<i>PDGFC</i>	-0.21076	3.08E-06	1.18E-05
<i>COX6B1</i>	-0.19385	3.16E-06	1.21E-05
<i>CCNB1</i>	-0.17625	3.33E-06	1.27E-05
<i>TNFRSF14</i>	0.202535	3.34E-06	1.27E-05
<i>JAK2</i>	0.213609	3.38E-06	1.28E-05
<i>NLRC5</i>	0.199798	3.75E-06	1.41E-05
<i>STAT3</i>	-0.20977	3.91E-06	1.47E-05
<i>KRT7</i>	-0.60898	4.43E-06	1.66E-05
<i>DIPK2B</i>	0.285108	4.46E-06	1.67E-05
<i>CTSW</i>	0.231756	4.58E-06	1.70E-05

<i>NDUFA1</i>	-0.14164	4.63E-06	1.71E-05
<i>AKT2</i>	-0.17932	4.64E-06	1.71E-05
<i>ICAM1</i>	-0.42725	4.73E-06	1.74E-05
<i>DAB2</i>	0.242201	4.92E-06	1.80E-05
<i>CACNA1C</i>	0.1928	5.22E-06	1.91E-05
<i>EGR2</i>	0.259918	5.49E-06	2.00E-05
<i>LEF1</i>	0.28207	5.72E-06	2.08E-05
<i>RPL23</i>	-0.31226	6.38E-06	2.31E-05
<i>SPRY4</i>	0.291263	6.55E-06	2.36E-05
<i>CCR5</i>	0.259639	7.35E-06	2.63E-05
<i>PTEN</i>	0.146787	7.35E-06	2.63E-05
<i>SERINC1</i>	-0.15039	7.45E-06	2.66E-05
<i>NFATC2</i>	0.215583	7.88E-06	2.77E-05
<i>PDGFB</i>	0.25864	7.83E-06	2.77E-05
<i>SRSF2</i>	-0.15429	7.88E-06	2.77E-05
<i>SMPD3</i>	-0.38924	8.91E-06	3.13E-05
<i>BST2</i>	-0.21442	9.09E-06	3.18E-05
<i>MDM2</i>	-0.24947	9.58E-06	3.34E-05
<i>NUP107</i>	-0.1353	1.07E-05	3.72E-05
<i>HACD2</i>	-0.20391	1.12E-05	3.89E-05
<i>LDHB</i>	-0.2416	1.17E-05	4.02E-05
<i>TET2</i>	0.186442	1.17E-05	4.03E-05
<i>MSH6</i>	-0.14141	1.42E-05	4.87E-05
<i>NFKB1</i>	0.128765	1.43E-05	4.88E-05
<i>GOT2</i>	-0.10587	1.45E-05	4.93E-05
<i>CBL</i>	0.125182	1.47E-05	4.98E-05
<i>PIK3R1</i>	0.203527	1.59E-05	5.37E-05
<i>HHEX</i>	0.26263	1.59E-05	5.37E-05
<i>ITGA6</i>	-0.13097	1.63E-05	5.49E-05
<i>PCNA</i>	-0.1613	1.71E-05	5.72E-05
<i>CD8A</i>	0.250672	1.75E-05	5.84E-05
<i>ITCH</i>	-0.13407	1.79E-05	5.96E-05
<i>CD209</i>	0.252672	1.99E-05	6.59E-05
<i>TPSAB1/B2</i>	0.38302	1.99E-05	6.59E-05
<i>RUNX1T1</i>	0.190874	2.18E-05	7.18E-05
<i>CD3E</i>	0.260486	2.42E-05	7.95E-05
<i>NPM1</i>	-0.18002	2.50E-05	8.18E-05
<i>CD55</i>	-0.20828	2.63E-05	8.60E-05
<i>HAMP</i>	0.239318	2.76E-05	9.00E-05
<i>OAS1</i>	0.211716	3.14E-05	0.000102
<i>HLA-E</i>	0.245115	3.14E-05	0.000102
<i>PLA2G2A</i>	-0.46703	3.20E-05	0.000103
<i>SNAI2</i>	0.243039	3.29E-05	0.000106
<i>NDUFB4</i>	-0.13125	3.49E-05	0.000111

<i>PPP2CB</i>	-0.14036	3.47E-05	0.000111
<i>WNT2B</i>	-0.37588	3.48E-05	0.000111
<i>NR3C1</i>	0.188621	3.68E-05	0.000117
<i>BRD4</i>	-0.17265	4.13E-05	0.000131
<i>KEAP1</i>	-0.11171	4.28E-05	0.000135
<i>COMP</i>	0.374406	4.39E-05	0.000138
<i>CD40</i>	0.222637	4.62E-05	0.000145
<i>MYD88</i>	0.13885	5.30E-05	0.000165
<i>ANKRD28</i>	-0.16156	5.67E-05	0.000177
<i>JAK1</i>	0.100802	5.96E-05	0.000185
<i>CDC25B</i>	-0.18305	5.98E-05	0.000185
<i>ADAM12</i>	0.242638	6.27E-05	0.000193
<i>RAC1</i>	-0.18362	6.36E-05	0.000196
<i>MMP9</i>	0.724119	6.82E-05	0.000209
<i>TAPBP</i>	-0.10024	6.86E-05	0.00021
<i>POLR2A</i>	-0.11134	6.95E-05	0.000212
<i>TNFAIP6</i>	0.253332	6.98E-05	0.000212
<i>IL18</i>	-0.32705	7.16E-05	0.000217
<i>PEBP1</i>	-0.20799	7.19E-05	0.000217
<i>IDH1</i>	0.176883	7.59E-05	0.000228
<i>FAP</i>	0.343616	7.65E-05	0.000229
<i>PDGFRA</i>	0.28783	7.81E-05	0.000233
<i>GBP4</i>	0.227959	7.81E-05	0.000233
<i>GZMK</i>	0.235027	8.27E-05	0.000245
<i>FUBP1</i>	-0.12178	8.28E-05	0.000245
<i>MAP3K5</i>	0.165559	8.88E-05	0.000262
<i>COL4A5</i>	-0.23072	9.14E-05	0.000269
<i>ETV1</i>	0.248098	9.25E-05	0.000272
<i>LFNG</i>	0.259102	9.31E-05	0.000272
<i>TGFB1</i>	0.340819	9.30E-05	0.000272
<i>OAS2</i>	0.214342	9.58E-05	0.000279
<i>RGMB</i>	0.202039	0.00011	0.000318
<i>COX5B</i>	-0.14175	0.000111	0.000322
<i>CDK4</i>	-0.14288	0.000113	0.000328
<i>MAP3K20</i>	-0.12536	0.000114	0.000328
<i>FGF18</i>	-0.20341	0.000122	0.00035
<i>IL1RAP</i>	-0.15984	0.000127	0.000363
<i>SAA1</i>	-0.59426	0.000146	0.000415
<i>RSAD2</i>	0.218193	0.000163	0.000463
<i>DEPTOR</i>	0.217998	0.000165	0.000465
<i>BRD2</i>	-0.13031	0.000167	0.00047
<i>POLR2H</i>	-0.11692	0.000177	0.000498
<i>MAP3K7</i>	-0.10499	0.000197	0.000551
<i>PRKAR1B</i>	-0.17233	0.000199	0.000556

<i>HDAC2</i>	-0.13048	0.000206	0.000573
<i>UBC</i>	-0.2545	0.000212	0.000589
<i>SERPINA1</i>	0.862852	0.000234	0.000644
<i>H2AX</i>	-0.15175	0.00024	0.000657
<i>MYC</i>	-0.25349	0.000241	0.000658
<i>NFATC3</i>	0.113825	0.000248	0.000676
<i>EWSR1</i>	-0.12099	0.000251	0.000682
<i>CACNA2D1</i>	0.171247	0.000272	0.000736
<i>RPL7A</i>	-0.28209	0.000275	0.000743
<i>CXCL10</i>	0.265214	0.000295	0.000796
<i>CD47</i>	-0.18051	0.0003	0.000808
<i>CCND1</i>	-0.25319	0.000319	0.000856
<i>SDHA</i>	-0.12011	0.000332	0.000889
<i>MAP2K2</i>	-0.1251	0.000343	0.000915
<i>SELL</i>	0.205723	0.000348	0.000927
<i>IRS1</i>	0.213385	0.000373	0.000989
<i>ANP32B</i>	-0.13502	0.000373	0.000989
<i>CD58</i>	0.259111	0.000419	0.001106
<i>BAD</i>	-0.11784	0.000429	0.001128
<i>CD69</i>	0.2443	0.000457	0.001198
<i>CENPF</i>	-0.16383	0.000486	0.00127
<i>GNA11</i>	-0.10326	0.00049	0.001279
<i>CLEC5A</i>	0.238186	0.000496	0.001291
<i>AXIN1</i>	-0.11956	0.000499	0.001296
<i>CFD</i>	0.266642	0.000507	0.001312
<i>CASP7</i>	0.11293	0.000525	0.001356
<i>HDAC1</i>	0.120881	0.000528	0.00136
<i>HLA-DOB</i>	0.195557	0.000574	0.001472
<i>MAPK3</i>	0.110951	0.000607	0.001549
<i>LTBR</i>	-0.11969	0.000621	0.001581
<i>TBL1XR1</i>	-0.1734	0.00067	0.001698
<i>XCL1/2</i>	0.172636	0.000678	0.001713
<i>SLAMF6</i>	0.179089	0.000707	0.001775
<i>NSD2</i>	-0.10227	0.000707	0.001775
<i>TAP1</i>	-0.22032	0.000707	0.001775
<i>MMP11</i>	0.318985	0.000725	0.001814
<i>LTBP1</i>	0.307898	0.000737	0.00184
<i>IL15RA</i>	0.165277	0.000742	0.001845
<i>IL6ST</i>	-0.14738	0.000769	0.001901
<i>RORA</i>	0.192663	0.000767	0.001901
<i>SPP1</i>	0.792038	0.000784	0.001931
<i>ALDOA</i>	-0.345	0.000813	0.001998
<i>C3</i>	-0.67478	0.000851	0.002081
<i>BRD3</i>	-0.1233	0.00088	0.002141



<i>DDIT4</i>	0.257404	0.000936	0.002268
<i>H3C2</i>	-0.24714	0.000936	0.002268
<i>PDPN</i>	-0.28983	0.001016	0.002454
<i>P2RY13</i>	0.184421	0.001021	0.002454
<i>CGAS</i>	0.135387	0.001019	0.002454
<i>IRAK4</i>	0.127968	0.001022	0.002454
<i>NOS3</i>	0.217324	0.001051	0.002517
<i>CXCL13</i>	0.249667	0.001099	0.002627
<i>IGF1</i>	0.19683	0.001107	0.002639
<i>MARCO</i>	0.264531	0.001141	0.002708
<i>JAG2</i>	0.138787	0.001171	0.002773
<i>HHIP</i>	-0.27057	0.001217	0.00287
<i>NOTCH1</i>	0.178353	0.001217	0.00287
<i>NFATC4</i>	0.182321	0.001273	0.002993
<i>POU2AF1</i>	0.201652	0.00128	0.003004
<i>JUP</i>	-0.10514	0.001325	0.003096
<i>IER3</i>	0.196505	0.001332	0.003106
<i>FZD4</i>	0.256904	0.001392	0.003238
<i>SOCS1</i>	0.179492	0.001405	0.003251
<i>CXCL9</i>	0.327471	0.001404	0.003251
<i>ERCC2</i>	-0.1179	0.001407	0.003251
<i>TNFRSF25</i>	0.158444	0.001418	0.003264
<i>THEM4</i>	-0.10083	0.001442	0.00331
<i>CASP10</i>	0.135739	0.001456	0.003335
<i>STAT5B</i>	0.119547	0.001468	0.003356
<i>HLA-DPB1</i>	0.201771	0.001504	0.00343
<i>PRKACB</i>	0.156968	0.001545	0.003517
<i>RUNX1</i>	0.136124	0.001757	0.003947
<i>C4BPA</i>	-0.26713	0.001762	0.003949
<i>CDH1</i>	-0.17699	0.001858	0.004146
<i>HLA-B</i>	0.255971	0.002196	0.004891
<i>NLRP3</i>	0.172477	0.002248	0.004975
<i>GPI</i>	-0.34077	0.002376	0.005248
<i>TICAM2</i>	0.129036	0.002438	0.005373
<i>SH2B2</i>	0.154019	0.002545	0.005584
<i>TNFSF10</i>	0.234857	0.002873	0.006265
<i>CCL18</i>	0.299259	0.002938	0.006381
<i>CD3D</i>	0.213395	0.003027	0.00656
<i>TNFRSF11B</i>	-0.1464	0.003044	0.006585
<i>CD81</i>	-0.2167	0.003083	0.006654
<i>JAG1</i>	0.32479	0.003204	0.006873
<i>CXCL14</i>	0.268334	0.00345	0.007341
<i>IRAK3</i>	0.146043	0.003615	0.007677
<i>H3-5</i>	-0.12955	0.003624	0.00768

<i>NFKBIZ</i>	-0.21072	0.003824	0.008071
<i>KRT17</i>	-0.31613	0.00392	0.008256
<i>COL5A2</i>	0.179502	0.004197	0.008771
<i>CD5</i>	0.169978	0.00425	0.008863
<i>SFN</i>	-0.12298	0.004338	0.009029
<i>NANOG</i>	0.152803	0.00455	0.009415
<i>CEBPB</i>	-0.11553	0.004545	0.009415
<i>RIMKLB</i>	-0.12652	0.004977	0.010276
<i>SLC2A1</i>	-0.40295	0.005091	0.01045
<i>UBE2C</i>	-0.18387	0.005086	0.01045
<i>NR4A1</i>	0.27166	0.005106	0.010462
<i>RRAD</i>	-0.20045	0.005236	0.010685
<i>CCL2</i>	0.259225	0.00532	0.010773
<i>ID4</i>	-0.15452	0.00531	0.010773
<i>SHC2</i>	-0.17152	0.005301	0.010773
<i>CACNG4</i>	-0.12739	0.005348	0.01081
<i>PKM</i>	-0.16379	0.005628	0.011354
<i>TNFSF13B</i>	0.167351	0.005792	0.011662
<i>CXCL2</i>	0.209933	0.005808	0.011672
<i>BAMBI</i>	-0.12707	0.005853	0.011739
<i>L1CAM</i>	-0.21719	0.006291	0.01257
<i>CD44</i>	-0.26016	0.006417	0.012797
<i>IRAK1</i>	-0.12534	0.006554	0.013021
<i>SFRP1</i>	0.156669	0.006607	0.013102
<i>JUNB</i>	0.324537	0.006926	0.013683
<i>SHC1</i>	-0.1727	0.007025	0.013851
<i>BCAT1</i>	-0.28819	0.007172	0.014115
<i>PURA</i>	0.102511	0.007365	0.014413
<i>RPS27A</i>	-0.12045	0.007389	0.014417
<i>RRAS2</i>	-0.10199	0.007394	0.014417
<i>ID2</i>	0.14255	0.007508	0.014611
<i>MYCT1</i>	0.17381	0.00777	0.015095
<i>ALDOC</i>	0.167271	0.008409	0.016305
<i>IRF2</i>	0.102345	0.00877	0.016912
<i>DDX58</i>	0.108227	0.008968	0.017261
<i>LGR5</i>	0.157531	0.00907	0.017425
<i>PYCARD</i>	0.114103	0.010033	0.019206
<i>PBX1</i>	-0.15213	0.010144	0.019383
<i>TGFB3</i>	0.220825	0.010195	0.019446
<i>ICAM3</i>	0.136342	0.010226	0.019469
<i>PIM1</i>	-0.15069	0.01038	0.01969
<i>STC1</i>	0.265675	0.011964	0.022532
<i>SLC25A1</i>	-0.10283	0.012096	0.02274
<i>SOD2</i>	-0.4016	0.012594	0.023591

<i>CDKN1A</i>	-0.16661	0.01296	0.024148
<i>HK1</i>	0.101509	0.01341	0.024942
<i>HDAC5</i>	0.111649	0.013452	0.024976
<i>FZD7</i>	0.124073	0.013664	0.025325
<i>DKK1</i>	-0.15628	0.015131	0.027895
<i>CYLD</i>	0.103731	0.015321	0.028123
<i>CCL15</i>	0.189022	0.015377	0.02815
<i>H3-3A</i>	-0.12643	0.015479	0.028288
<i>NGFR</i>	0.156817	0.015953	0.029053
<i>BIRC5</i>	-0.10207	0.016434	0.029774
<i>SETBP1</i>	0.142547	0.016758	0.030309
<i>SLAMF7</i>	0.12887	0.017174	0.031007
<i>IL34</i>	0.165402	0.018516	0.033146
<i>CDC20</i>	-0.10918	0.018818	0.033514
<i>IL12RB1</i>	0.160397	0.019958	0.035424
<i>H3C8</i>	-0.14695	0.020192	0.035779
<i>TGFBR1</i>	0.10573	0.020379	0.03605
<i>TPM1</i>	-0.18294	0.020955	0.036944
<i>IL7R</i>	0.154988	0.021166	0.037192
<i>TYMS</i>	-0.11276	0.022607	0.039591
<i>DUSP1</i>	-0.32255	0.023017	0.040242
<i>CFI</i>	-0.22507	0.023608	0.041206
<i>PDCD1LG2</i>	0.123873	0.023718	0.041329
<i>IL33</i>	0.196439	0.023866	0.041517
<i>FUT8</i>	0.120268	0.024989	0.043328
<i>ADH1A/B/C</i>	0.301462	0.025147	0.04353
<i>TNF</i>	0.143829	0.025267	0.043666
<i>SERPING1</i>	-0.2771	0.026855	0.046107
<i>SBNO2</i>	-0.12616	0.027813	0.047517
<i>AXL</i>	-0.20523	0.028244	0.04788
<i>CCND3</i>	0.114919	0.028589	0.048292
<i>EGR1</i>	0.320636	0.029332	0.049388

Supplementary Table 6: list of GO categories (tS-AOIs vs tE-AOIs)

	GO-BIOLOGICAL PROCESS	FRACTION OF GENES	ADJUSTED PVALUE
<b>GENES UP IN tS vs tE</b>	Cytokine-Mediated Signaling Pathway	52/257	9.20E-43
	Inflammatory Response	47/236	2.59E-38
	Regulation Of T Cell Activation	20/62	2.02E-21
	Regulation Of Cell Migration	35/434	1.69E-15
	Positive Regulation Of DNA-templated Transcription	60/1243	3.18E-15
	Positive Regulation Of Transcription By RNA Polymerase II	44/938	6.52E-11
	Regulation Of Angiogenesis	18/205	3.92E-09
	Cell-Matrix Adhesion	12/109	1.37E-07
	Extracellular Matrix Organization	12/176	2.16E-05
<b>GENES DOWN IN tS vs tE</b>	Regulation Of Apoptotic Process	42/705	6.57E-16
	Regulation Of Programmed Cell Death	31/381	4.26E-15
	Regulation Of Cell Population Proliferation	39/766	4.93E-13
	Regulation Of Mitotic Cell Cycle Phase Transition	11/63	3.55E-06
	Regulation Of Epithelial Cell Proliferation	10/91	6.22E-06
	Mitochondrial ATP Synthesis Coupled Electron Transport	9/70	6.71E-06
	Regulation Of Mitotic Cell Cycle	10/125	6.25E-05
	Epidermal Cell Differentiation	6/54	7.47E-04
	Regulation Of Cell Adhesion Mediated By Integrin	5/33	7.57E-04
Regulation Of Epithelial To Mesenchymal Transition	5/83	0.018	

Supplementary Table 7: immunity related genes (Chord Plot)

CATEGORIES	GENES
<b>ADAPTIVE IMMUNITY</b>	CCL4, CCL5, CCR5, CD2, CD37, CD3D, CD3E, CD4, CD40, CD69, CD8A, GIMAP6, GZMK, IL2RA, IL2RB, IL2RG, IL32, IL4R, JAM3, PRDM1, PTPRC, SLAMF6, TGFB1, TNFRSF25, TRAC
<b>ANTIGEN PRESENTATION</b>	CD74, CD83, CTSS, HAMP, HLA-DMA, HLA-DMB, HLA-DOA, HLA-DOB, HLA-DPA1, HLA-DPB1, HLA-DQA1, HLA-DQB1, HLA-DRA, HLA-DRB, HLA-DRB3, HLA-DRB4, HLA-DRB5, ITGAX, TLR7, TREM2
<b>INFLAMMATION</b>	B2M, C5AR1, CCL15, CCL2, CD163, CD209, CD58, CLEC5A, CSF3R, CXCL10, CXCL12, CXCL13, CXCL14, CXCL16, CXCL2, CXCL9, FCGR1A, FCGR2, HCK, IDH1, IFNGR2, IL17RA, INPP5D, ITGB2, JAK3, LCP1, LILRB2, LYN, LYZ, MAP3K1, MS4A4A, MS4A6A, NFATC2, PIK3CD, RAC2, S100A8, S100A9, SLC11A1, SYK, TLR1, TLR2, TNFRSF1B, VCAN
<b>INNATE IMMUNITY</b>	CD14, CD48, CD53, CD68, CD84, CKLF, CLEC7A, CSF1R, CSF2RB, CX3CR1, CYBB, FCER1G, FPR1, FPR3, GMIP, HLA-E, HSPA6, IL1R1, ITGAL, JAML, LAIR1, LILRB1, LILRB4, LTBP1, LY96, MARCO, MRC1, MSR1, NCF4, NKG7, NLRP3, OAS1, OLFML2B, PRKCD, SAMSN1, SELL, SERPINA1, SIGLEC1, SOCS1, TLR4, TNFAIP6, TNFSF10, TNFSF12, UBA7, WIPF1
<b>OTHER</b>	A2M, C1QA, C1QB, C2, C3AR1, C7, CD86, F13A1, HAVCR2, LGALS9, TNFRSF14

Supplementary Table 8: genes included in the validation panel subdivided for categories

CATEGORIES	GENES
<b>ANGIOGENESIS</b>	ANGPT2, CXCL12, CXCR4, ENG, ETS1, FGF2, FLT1, NOS3, NRP1, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, PECAM1, SPRY2, TYMP, VCAM1
<b>INFLAMMATION/IMMUNITY</b>	ATF1, BAMBI, BMP4, CBL, CCL4, CCL5, CCR5, CD4, CD40, CD68, CD8A, CLEC5A, CSF1R, CTSS, CX3CR1, CXCL12, CXCL16, ICAM1, ID4, IFNGR2, IL10RA, IL32, IL33, IRF8, ITGAL, ITGAM, ITGAX, ITGB2, JAK2, JAK3, JAM3, LGALS3, MARCO, MAVS, MRC1, MUC1, MYD88, NDUFS7, PRDM1, S100A8, S100A9, SBNO2, SELL, SERPINA1, SMAD2
<b>OXIDATIVE STRESS</b>	ABL1, AKAP1, BNIP3, COX5B, COX6A1, COX6B1, FH, GPX4, NDUFS7, NDUFS8, PMAIP1, PRDX5, SDHA, SOD2, THEM4, UQCR11, UQCRQ
<b>SIGNALING</b>	BAMBI, BMP4, CMKLR1, EGFR, ERBB2, FGF9, FGFR1, GSK3B, HHIP, IGF1, IGF1R, IRS1, JAG1, JAG2, MERTK, MET, NOTCH1, NOTCH2, NOTCH3, NR3C1, OAT, PDGFA, PDGFB, PDGFC, PDGFRA, PDGFRB, RICTOR, RPTOR, SERPINB5, TGFB1, TGFB2, TSC1
<b>STRUCTURE/EMT</b>	CDH1, CDH2, CDH3, CDH5, DSC3, DSP, EFNA1, EFNA5, EPHA2, FAP, FLNA, FLNB, ICAM1, ITGA1, ITGA2, ITGA3, ITGA4, ITGA6, ITGAL, ITGAM, ITGAX, ITGB2, ITGB4, ITGB8, JUP, KRT10, KRT14, KRT17, KRT18, KRT19, KRT5, KRT7, L1CAM, LAMA5, LAMC2, MCAM, MMP9, PDPN, PPL, SNAI2, SPP1, STMN1, TGFB1, TGFB2, ZEB1, ZEB2
<b>TRANSCRIPTION FACTORS</b>	ARNT2, ATF1, ATF2, CEBPB, E2F3, EGR1, EGR2, ELK1, EP300, ETS1, ETV1, ETV4, FOXC1, HES1, HIF1A, ID4, JUNB, LEF1, MYC, MYD88, NFATC2, NFATC4, NFKB1, PBX1, PRDM1, RORA, RUNX3, SMAD2, SMAD3, SMAD4, SMAD5, SNAI2, SREBF1, STAT3, STAT6, TCF3, VHL, WT1, ZEB1, ZEB2

OTHERS

APC, ARID1B, ARID2, ATRX, AXIN1, BAP1, BRD2, BRD3, BRD4, BRD7, CREBBP, CTSH, CTSW, DKK1, ELMO1, ERCC2, FZD1, FZD2, FZD4, FZD6, HHEX, linc00941, LRP5, MAML2, MDM2, MDM4, MED12, MEN1, MXI1, NFE2L2, NR4A1, PBRM1, PSEN1, PUM1, SBNO2, SETD2, SFRP1, SFRP2, SIN3A, SMARCA4, TET2, TNKS, WNT2B, WNT5B, TET2, TNKS, WNT2B, WNT5B