

## Control 1 (C1)

p\_value is from the negantive-binomial test for the detection differential genes over the two cell groups.

avg\_logFC is for the average logarithm values of fold difference.

pct.1 is for the percentage of cells that gives the signal on the designate gene on the target cell group/cluster.

pct.2 is for the percentage of cells that give the signal on the designate gene on the counterpart of the target cell group/cluster.

gene_name	p_val	avg_logFC	pct.1	pct.2	p_val_adj	Cluster_Ids
UGP2	1.04E-34	0.950975685	0.908	0.568	3.50E-30	CD24+
CPM	1.43E-29	0.676703619	0.95	0.668	4.80E-25	CD24+
SAT1	1.06E-28	0.55152349	0.986	0.898	3.58E-24	CD24+
MT2A	4.34E-27	0.745834952	0.991	0.927	1.46E-22	CD24+
CD24	5.24E-24	0.825322115	0.683	0.285	1.77E-19	CD24+
SEC14L2	1.87E-22	0.448208106	0.564	0.192	6.31E-18	CD24+
SRGN	1.88E-22	0.81960172	0.564	0.212	6.32E-18	CD24+
SMARCA1	8.60E-22	0.636089377	0.968	0.791	2.89E-17	CD24+
PTGES	1.82E-21	0.63049056	0.794	0.441	6.14E-17	CD24+
HSD11B1	2.87E-21	0.6440465	0.913	0.644	9.65E-17	CD24+
RGS2	5.30E-20	0.576207364	0.376	0.091	1.78E-15	CD24+
PRKX	1.80E-19	0.436166988	0.995	0.793	6.06E-15	CD24+
PEMT	1.39E-17	0.628694792	0.936	0.706	4.69E-13	CD24+
SMC6	1.78E-17	0.707089324	0.661	0.343	5.98E-13	CD24+
PDLIM1	2.94E-17	0.457433658	0.674	0.321	9.91E-13	CD24+
KIF13B	3.45E-16	0.434545224	0.867	0.552	1.16E-11	CD24+
GTF3C6	1.03E-15	0.442966255	0.716	0.381	3.47E-11	CD24+
ID4	3.09E-15	0.589318578	0.697	0.388	1.04E-10	CD24+
DBI	3.79E-15	0.48977489	0.89	0.65	1.28E-10	CD24+
SFRP5	1.06E-14	0.465239049	0.44	0.169	3.58E-10	CD24+
CRISPLD2	2.64E-14	0.353809444	0.633	0.321	8.89E-10	CD24+
FAM83A-AS1	3.06E-14	0.508796874	0.514	0.216	1.03E-09	CD24+
ATAD2	5.23E-14	0.424984475	0.532	0.234	1.76E-09	CD24+
RAD51C	6.08E-14	0.383086491	0.596	0.287	2.05E-09	CD24+
ADAMTS9	7.04E-14	0.46853662	0.372	0.125	2.37E-09	CD24+
VMP1	1.14E-13	0.361655866	0.826	0.503	3.83E-09	CD24+
SLC6A6	1.43E-13	0.37868069	0.628	0.314	4.82E-09	CD24+
SAMHD1	1.67E-13	0.425696333	0.734	0.448	5.62E-09	CD24+

ALAD	1. 70E-13	0. 462895578	0. 528	0. 241	5. 72E-09	CD24+
RAMP1	1. 90E-13	0. 442024318	0. 413	0. 149	6. 38E-09	CD24+
ASH1L	3. 21E-13	0. 28458201	0. 61	0. 29	1. 08E-08	CD24+
EMP2	3. 66E-13	0. 346986607	0. 573	0. 274	1. 23E-08	CD24+
CST2	3. 80E-13	0. 625129926	0. 427	0. 171	1. 28E-08	CD24+
MYO1B	4. 07E-13	0. 411287329	0. 477	0. 207	1. 37E-08	CD24+
ARHGAP18	6. 33E-13	0. 335917664	0. 463	0. 189	2. 13E-08	CD24+
SSX2IP	7. 71E-13	0. 384119652	0. 317	0. 098	2. 59E-08	CD24+
FKBP11	9. 20E-13	0. 412364156	0. 578	0. 298	3. 10E-08	CD24+
RASD1	1. 12E-12	0. 465625408	0. 427	0. 176	3. 77E-08	CD24+
IGFBP2	1. 29E-12	0. 341799719	0. 729	0. 428	4. 33E-08	CD24+
TECRL	1. 64E-12	0. 509336429	0. 349	0. 122	5. 52E-08	CD24+
PDIA5	1. 72E-12	0. 311190963	0. 408	0. 158	5. 80E-08	CD24+
ZFR	1. 77E-12	0. 450737257	0. 734	0. 443	5. 97E-08	CD24+
MDH1	1. 81E-12	0. 398333688	0. 752	0. 45	6. 09E-08	CD24+
TMEM132C	3. 11E-12	0. 297200708	0. 427	0. 169	1. 05E-07	CD24+
TNFAIP3	8. 21E-12	0. 335802232	0. 454	0. 2	2. 76E-07	CD24+
PHACTR4	8. 25E-12	0. 420835136	0. 78	0. 494	2. 78E-07	CD24+
LAMB1	1. 02E-11	0. 360903081	0. 486	0. 229	3. 43E-07	CD24+
FAM104A	1. 16E-11	0. 421067512	0. 381	0. 154	3. 92E-07	CD24+
IRS2	1. 24E-11	0. 365024886	0. 894	0. 621	4. 16E-07	CD24+
AMOTL1	2. 44E-11	0. 315336925	0. 743	0. 43	8. 21E-07	CD24+
GATA6-AS1	2. 74E-11	0. 361439292	0. 431	0. 192	9. 24E-07	CD24+
GADD45A	3. 57E-11	0. 387149034	0. 849	0. 572	1. 20E-06	CD24+
CBFB	6. 39E-11	0. 25185358	0. 592	0. 307	2. 15E-06	CD24+
TIPARP	7. 83E-11	0. 40624464	0. 312	0. 111	2. 64E-06	CD24+
STRBP	1. 63E-10	0. 317458614	0. 514	0. 272	5. 50E-06	CD24+
SYAP1	1. 65E-10	0. 309434311	0. 693	0. 396	5. 56E-06	CD24+
NR2F2	1. 75E-10	0. 301999171	0. 491	0. 236	5. 89E-06	CD24+
GAL	1. 81E-10	0. 857098638	0. 165	0. 029	6. 10E-06	CD24+
TGFBR3	1. 98E-10	0. 42327914	0. 339	0. 134	6. 65E-06	CD24+
TAF1D	2. 06E-10	0. 345155064	0. 743	0. 479	6. 94E-06	CD24+
GNG5	2. 09E-10	0. 355084931	0. 849	0. 599	7. 03E-06	CD24+
C1R	2. 97E-10	0. 313632672	0. 697	0. 41	9. 99E-06	CD24+
NUDT16	3. 24E-10	0. 324113587	0. 683	0. 414	1. 09E-05	CD24+
SLC02A1	3. 40E-10	0. 306728499	0. 757	0. 461	1. 15E-05	CD24+

RPS7	4.30E-10	0.292364843	0.913	0.666	1.45E-05	CD24+
ABHD12	4.80E-10	0.289347621	0.642	0.385	1.61E-05	CD24+
SKIL	4.98E-10	0.31955233	0.39	0.171	1.68E-05	CD24+
RBM22	5.35E-10	0.50944579	0.573	0.332	1.80E-05	CD24+
TMEM120A	6.82E-10	0.263137448	0.505	0.256	2.30E-05	CD24+
CUL4B	6.84E-10	0.376918199	0.569	0.316	2.30E-05	CD24+
ELL2	8.12E-10	0.266128089	0.468	0.229	2.73E-05	CD24+
APPL2	9.26E-10	0.311241674	0.651	0.394	3.12E-05	CD24+
PTGS2	9.36E-10	0.514430845	0.252	0.08	3.15E-05	CD24+
WDR60	9.93E-10	0.374016269	0.578	0.323	3.34E-05	CD24+
ARHGAP6	1.33E-09	0.317640272	0.803	0.521	4.48E-05	CD24+
PLEKHH2	1.39E-09	0.268513088	0.362	0.156	4.69E-05	CD24+
ZNF189	1.51E-09	0.268318393	0.358	0.151	5.08E-05	CD24+
KIAA1324L	1.68E-09	0.348442523	0.275	0.098	5.64E-05	CD24+
FST	1.76E-09	0.430340231	0.505	0.263	5.92E-05	CD24+
KLF6	1.82E-09	0.290756858	0.972	0.84	6.12E-05	CD24+
DNAJC1	1.91E-09	0.28760082	0.592	0.323	6.42E-05	CD24+
TOP1	2.46E-09	0.324706705	0.761	0.49	8.29E-05	CD24+
ZFP36	2.49E-09	0.276616239	0.573	0.323	8.38E-05	CD24+
CLU	2.70E-09	0.350654503	0.931	0.748	9.09E-05	CD24+
FAM46A	2.72E-09	0.31039204	0.514	0.263	9.15E-05	CD24+
PKP2	3.86E-09	0.295779758	0.358	0.158	0.000129957	CD24+
CEP89	4.00E-09	0.262074208	0.45	0.22	0.000134531	CD24+
C5orf30	4.18E-09	0.277721979	0.289	0.109	0.000140734	CD24+
GPC4	4.85E-09	0.333871998	0.266	0.096	0.000163357	CD24+
SPON2	5.82E-09	0.492416801	0.674	0.423	0.000195776	CD24+
7-Sep	6.62E-09	0.294512653	0.817	0.568	0.000222744	CD24+
WDR44	8.14E-09	0.317075316	0.307	0.129	0.000273865	CD24+
CD63	8.84E-09	0.279982912	0.972	0.842	0.000297482	CD24+
GBA2	9.87E-09	0.258534946	0.482	0.252	0.000332163	CD24+
ARGLU1	1.30E-08	0.356649887	0.757	0.514	0.000438631	CD24+
SRPX2	1.89E-08	0.264667354	0.587	0.343	0.000636288	CD24+
KIAA2026	2.11E-08	0.270855939	0.55	0.325	0.000708979	CD24+
TMEM37	2.29E-08	0.362570766	0.454	0.241	0.00077233	CD24+
FBXO25	2.52E-08	0.256497057	0.39	0.192	0.00084957	CD24+
ACTN2	2.84E-08	0.290024395	0.431	0.232	0.000956162	CD24+

UPF3A	3.11E-08	0.292165452	0.459	0.243	0.001048344	CD24+
HSD17B1	3.19E-08	0.254147537	0.362	0.169	0.001074627	CD24+
FKBP5	3.44E-08	0.252774414	0.954	0.824	0.001157325	CD24+
EIF4ENIF1	3.75E-08	0.303928491	0.294	0.122	0.00126147	CD24+
S100B	4.01E-08	0.28863625	0.193	0.058	0.001350746	CD24+
CMAS	4.35E-08	0.304218513	0.821	0.597	0.001464276	CD24+
ADAMTS1	4.76E-08	0.359292578	0.427	0.225	0.00160236	CD24+
HILPDA	5.06E-08	0.409611299	0.335	0.151	0.00170271	CD24+
MMD	8.77E-08	0.361171158	0.353	0.174	0.002952311	CD24+
RHOU	8.89E-08	0.317691173	0.624	0.381	0.002991827	CD24+
NR4A1	9.28E-08	0.277790205	0.716	0.479	0.00312313	CD24+
HS3ST1	1.98E-07	0.386814519	0.22	0.082	0.006677839	CD24+
EREG	2.08E-07	0.366087296	0.312	0.143	0.006995504	CD24+
IDI1	2.56E-07	0.253088807	0.56	0.33	0.008602057	CD24+
DUSP6	2.87E-07	0.268470532	0.266	0.111	0.009673048	CD24+

## Control 2 (C2)

p\_value is from the negantive-binomial test for the detection differential genes over the two cell groups.

avg\_logFC is for the average logarithm values of fold difference.

pct.1 is for the percentage of cells that gives the signal on the designate gene on the target cell group/cluster.

pct.2 is for the percentage of cells that give the signal on the designate gene on the counterpart of the target cell group/cluster.

gene_name	p_val	avg_logFC	pct.1	pct.2	p_val_adj	Cluster_Ids
UGP2	1.04E-34	0.950975685	0.908	0.568	3.50E-30	CD24+
CPM	1.43E-29	0.676703619	0.95	0.668	4.80E-25	CD24+
SAT1	1.06E-28	0.55152349	0.986	0.898	3.58E-24	CD24+
MT2A	4.34E-27	0.745834952	0.991	0.927	1.46E-22	CD24+
CD24	5.24E-24	0.825322115	0.683	0.285	1.77E-19	CD24+
SEC14L2	1.87E-22	0.448208106	0.564	0.192	6.31E-18	CD24+
SRGN	1.88E-22	0.81960172	0.564	0.212	6.32E-18	CD24+
SMARCA1	8.60E-22	0.636089377	0.968	0.791	2.89E-17	CD24+
PTGES	1.82E-21	0.63049056	0.794	0.441	6.14E-17	CD24+
HSD11B1	2.87E-21	0.6440465	0.913	0.644	9.65E-17	CD24+
RGS2	5.30E-20	0.576207364	0.376	0.091	1.78E-15	CD24+
PRKX	1.80E-19	0.436166988	0.995	0.793	6.06E-15	CD24+
PEMT	1.39E-17	0.628694792	0.936	0.706	4.69E-13	CD24+
SMC6	1.78E-17	0.707089324	0.661	0.343	5.98E-13	CD24+
PDLIM1	2.94E-17	0.457433658	0.674	0.321	9.91E-13	CD24+
KIF13B	3.45E-16	0.434545224	0.867	0.552	1.16E-11	CD24+
GTF3C6	1.03E-15	0.442966255	0.716	0.381	3.47E-11	CD24+
ID4	3.09E-15	0.589318578	0.697	0.388	1.04E-10	CD24+
DBI	3.79E-15	0.48977489	0.89	0.65	1.28E-10	CD24+
SFRP5	1.06E-14	0.465239049	0.44	0.169	3.58E-10	CD24+
CRISPLD2	2.64E-14	0.353809444	0.633	0.321	8.89E-10	CD24+
FAM83A-AS1	3.06E-14	0.508796874	0.514	0.216	1.03E-09	CD24+
ATAD2	5.23E-14	0.424984475	0.532	0.234	1.76E-09	CD24+
RAD51C	6.08E-14	0.383086491	0.596	0.287	2.05E-09	CD24+
ADAMTS9	7.04E-14	0.46853662	0.372	0.125	2.37E-09	CD24+
VMP1	1.14E-13	0.361655866	0.826	0.503	3.83E-09	CD24+
SLC6A6	1.43E-13	0.37868069	0.628	0.314	4.82E-09	CD24+
SAMHD1	1.67E-13	0.425696333	0.734	0.448	5.62E-09	CD24+

ALAD	1. 70E-13	0. 462895578	0. 528	0. 241	5. 72E-09	CD24+
RAMP1	1. 90E-13	0. 442024318	0. 413	0. 149	6. 38E-09	CD24+
ASH1L	3. 21E-13	0. 28458201	0. 61	0. 29	1. 08E-08	CD24+
EMP2	3. 66E-13	0. 346986607	0. 573	0. 274	1. 23E-08	CD24+
CST2	3. 80E-13	0. 625129926	0. 427	0. 171	1. 28E-08	CD24+
MYO1B	4. 07E-13	0. 411287329	0. 477	0. 207	1. 37E-08	CD24+
ARHGAP18	6. 33E-13	0. 335917664	0. 463	0. 189	2. 13E-08	CD24+
SSX2IP	7. 71E-13	0. 384119652	0. 317	0. 098	2. 59E-08	CD24+
FKBP11	9. 20E-13	0. 412364156	0. 578	0. 298	3. 10E-08	CD24+
RASD1	1. 12E-12	0. 465625408	0. 427	0. 176	3. 77E-08	CD24+
IGFBP2	1. 29E-12	0. 341799719	0. 729	0. 428	4. 33E-08	CD24+
TECRL	1. 64E-12	0. 509336429	0. 349	0. 122	5. 52E-08	CD24+
PDIA5	1. 72E-12	0. 311190963	0. 408	0. 158	5. 80E-08	CD24+
ZFR	1. 77E-12	0. 450737257	0. 734	0. 443	5. 97E-08	CD24+
MDH1	1. 81E-12	0. 398333688	0. 752	0. 45	6. 09E-08	CD24+
TMEM132C	3. 11E-12	0. 297200708	0. 427	0. 169	1. 05E-07	CD24+
TNFAIP3	8. 21E-12	0. 335802232	0. 454	0. 2	2. 76E-07	CD24+
PHACTR4	8. 25E-12	0. 420835136	0. 78	0. 494	2. 78E-07	CD24+
LAMB1	1. 02E-11	0. 360903081	0. 486	0. 229	3. 43E-07	CD24+
FAM104A	1. 16E-11	0. 421067512	0. 381	0. 154	3. 92E-07	CD24+
IRS2	1. 24E-11	0. 365024886	0. 894	0. 621	4. 16E-07	CD24+
AMOTL1	2. 44E-11	0. 315336925	0. 743	0. 43	8. 21E-07	CD24+
GATA6-AS1	2. 74E-11	0. 361439292	0. 431	0. 192	9. 24E-07	CD24+
GADD45A	3. 57E-11	0. 387149034	0. 849	0. 572	1. 20E-06	CD24+
CBFB	6. 39E-11	0. 25185358	0. 592	0. 307	2. 15E-06	CD24+
TIPARP	7. 83E-11	0. 40624464	0. 312	0. 111	2. 64E-06	CD24+
STRBP	1. 63E-10	0. 317458614	0. 514	0. 272	5. 50E-06	CD24+
SYAP1	1. 65E-10	0. 309434311	0. 693	0. 396	5. 56E-06	CD24+
NR2F2	1. 75E-10	0. 301999171	0. 491	0. 236	5. 89E-06	CD24+
GAL	1. 81E-10	0. 857098638	0. 165	0. 029	6. 10E-06	CD24+
TGFBR3	1. 98E-10	0. 42327914	0. 339	0. 134	6. 65E-06	CD24+
TAF1D	2. 06E-10	0. 345155064	0. 743	0. 479	6. 94E-06	CD24+
GNG5	2. 09E-10	0. 355084931	0. 849	0. 599	7. 03E-06	CD24+
C1R	2. 97E-10	0. 313632672	0. 697	0. 41	9. 99E-06	CD24+
NUDT16	3. 24E-10	0. 324113587	0. 683	0. 414	1. 09E-05	CD24+
SLC02A1	3. 40E-10	0. 306728499	0. 757	0. 461	1. 15E-05	CD24+

RPS7	4.30E-10	0.292364843	0.913	0.666	1.45E-05	CD24+
ABHD12	4.80E-10	0.289347621	0.642	0.385	1.61E-05	CD24+
SKIL	4.98E-10	0.31955233	0.39	0.171	1.68E-05	CD24+
RBM22	5.35E-10	0.50944579	0.573	0.332	1.80E-05	CD24+
TMEM120A	6.82E-10	0.263137448	0.505	0.256	2.30E-05	CD24+
CUL4B	6.84E-10	0.376918199	0.569	0.316	2.30E-05	CD24+
ELL2	8.12E-10	0.266128089	0.468	0.229	2.73E-05	CD24+
APPL2	9.26E-10	0.311241674	0.651	0.394	3.12E-05	CD24+
PTGS2	9.36E-10	0.514430845	0.252	0.08	3.15E-05	CD24+
WDR60	9.93E-10	0.374016269	0.578	0.323	3.34E-05	CD24+
ARHGAP6	1.33E-09	0.317640272	0.803	0.521	4.48E-05	CD24+
PLEKHH2	1.39E-09	0.268513088	0.362	0.156	4.69E-05	CD24+
ZNF189	1.51E-09	0.268318393	0.358	0.151	5.08E-05	CD24+
KIAA1324L	1.68E-09	0.348442523	0.275	0.098	5.64E-05	CD24+
FST	1.76E-09	0.430340231	0.505	0.263	5.92E-05	CD24+
KLF6	1.82E-09	0.290756858	0.972	0.84	6.12E-05	CD24+
DNAJC1	1.91E-09	0.28760082	0.592	0.323	6.42E-05	CD24+
TOP1	2.46E-09	0.324706705	0.761	0.49	8.29E-05	CD24+
ZFP36	2.49E-09	0.276616239	0.573	0.323	8.38E-05	CD24+
CLU	2.70E-09	0.350654503	0.931	0.748	9.09E-05	CD24+
FAM46A	2.72E-09	0.31039204	0.514	0.263	9.15E-05	CD24+
PKP2	3.86E-09	0.295779758	0.358	0.158	0.000129957	CD24+
CEP89	4.00E-09	0.262074208	0.45	0.22	0.000134531	CD24+
C5orf30	4.18E-09	0.277721979	0.289	0.109	0.000140734	CD24+
GPC4	4.85E-09	0.333871998	0.266	0.096	0.000163357	CD24+
SPON2	5.82E-09	0.492416801	0.674	0.423	0.000195776	CD24+
7-Sep	6.62E-09	0.294512653	0.817	0.568	0.000222744	CD24+
WDR44	8.14E-09	0.317075316	0.307	0.129	0.000273865	CD24+
CD63	8.84E-09	0.279982912	0.972	0.842	0.000297482	CD24+
GBA2	9.87E-09	0.258534946	0.482	0.252	0.000332163	CD24+
ARGLU1	1.30E-08	0.356649887	0.757	0.514	0.000438631	CD24+
SRPX2	1.89E-08	0.264667354	0.587	0.343	0.000636288	CD24+
KIAA2026	2.11E-08	0.270855939	0.55	0.325	0.000708979	CD24+
TMEM37	2.29E-08	0.362570766	0.454	0.241	0.00077233	CD24+
FBXO25	2.52E-08	0.256497057	0.39	0.192	0.00084957	CD24+
ACTN2	2.84E-08	0.290024395	0.431	0.232	0.000956162	CD24+

UPF3A	3.11E-08	0.292165452	0.459	0.243	0.001048344	CD24+
HSD17B1	3.19E-08	0.254147537	0.362	0.169	0.001074627	CD24+
FKBP5	3.44E-08	0.252774414	0.954	0.824	0.001157325	CD24+
EIF4ENIF1	3.75E-08	0.303928491	0.294	0.122	0.00126147	CD24+
S100B	4.01E-08	0.28863625	0.193	0.058	0.001350746	CD24+
CMAS	4.35E-08	0.304218513	0.821	0.597	0.001464276	CD24+
ADAMTS1	4.76E-08	0.359292578	0.427	0.225	0.00160236	CD24+
HILPDA	5.06E-08	0.409611299	0.335	0.151	0.00170271	CD24+
MMD	8.77E-08	0.361171158	0.353	0.174	0.002952311	CD24+
RHOU	8.89E-08	0.317691173	0.624	0.381	0.002991827	CD24+
NR4A1	9.28E-08	0.277790205	0.716	0.479	0.00312313	CD24+
HS3ST1	1.98E-07	0.386814519	0.22	0.082	0.006677839	CD24+
EREG	2.08E-07	0.366087296	0.312	0.143	0.006995504	CD24+
IDI1	2.56E-07	0.253088807	0.56	0.33	0.008602057	CD24+
DUSP6	2.87E-07	0.268470532	0.266	0.111	0.009673048	CD24+