

Table S1 413 differentially expressed genes between treatment and control groups

Gene	logFC	P.Value	regulated
C6orf47	2.08699416	2.03E-53	Up-Regulated
KCNJ4	1.36563882	4.04E-27	Up-Regulated
GRIA1	1.136142456	6.09E-23	Up-Regulated
BTNL8	2.411151643	6.74E-23	Up-Regulated
ADAMTS18	1.67518529	2.28E-18	Up-Regulated
CT47A1	4.335474495	2.80E-16	Up-Regulated
ITIH3	1.179854682	1.84E-16	Up-Regulated
CPB1	1.60485263	1.73E-15	Up-Regulated
GLT1D1	1.015470773	1.99E-15	Up-Regulated
ADRA1A	1.877512442	6.64E-15	Up-Regulated
HOXC9	1.352561092	6.03E-15	Up-Regulated
GPR101	1.503387032	1.77E-14	Up-Regulated
APOA1	1.582001267	4.06E-14	Up-Regulated
DCDC1	1.128209025	5.17E-14	Up-Regulated
ESRRB	1.290430572	1.54E-13	Up-Regulated
GSTT2B	1.245406763	3.14E-13	Up-Regulated
ITGAD	1.19388998	5.23E-13	Up-Regulated
KLHL40	2.121990831	8.43E-13	Up-Regulated
CTAGE6	1.080946641	1.45E-12	Up-Regulated
HHIPL2	1.028422025	1.88E-12	Up-Regulated
IRGC	2.185753375	4.15E-12	Up-Regulated
ATRNL1	2.074599083	3.24E-12	Up-Regulated
GRIA4	1.830179291	3.26E-12	Up-Regulated
EXOC3L4	1.128489768	3.93E-12	Up-Regulated
CACNB4	1.361029305	3.82E-12	Up-Regulated
ANO5	2.199970121	5.54E-12	Up-Regulated
FAM221B	1.446434541	7.24E-12	Up-Regulated
CCER1	1.689236109	1.30E-11	Up-Regulated
HNF1A	1.137184232	7.84E-12	Up-Regulated
ITIH1	1.390749576	1.04E-11	Up-Regulated
IGFBP1	2.046986249	1.88E-11	Up-Regulated
MAT1A	1.156409047	1.97E-11	Up-Regulated
IL27	1.846054095	2.65E-11	Up-Regulated
KLHL31	1.960572584	4.85E-11	Up-Regulated
CDH19	1.06849323	5.19E-11	Up-Regulated
AZU1	1.472572783	1.71E-10	Up-Regulated
DPYS	1.681437489	3.96E-10	Up-Regulated
LRRC71	1.772969263	4.24E-10	Up-Regulated
HEMGN	1.754424351	5.98E-10	Up-Regulated
CIDEC	1.947290902	9.39E-10	Up-Regulated
AFF2	1.370024017	7.26E-10	Up-Regulated
MAGEA9B	1.162642194	8.65E-10	Up-Regulated
ADRA2C	1.410384507	1.45E-09	Up-Regulated
CLDN6	1.450970429	1.62E-09	Up-Regulated
CRHR2	2.26811184	3.01E-09	Up-Regulated
CYP2A6	1.504305768	4.09E-09	Up-Regulated
CRIP3	1.424956391	4.46E-09	Up-Regulated
ITIH2	1.680857186	5.39E-09	Up-Regulated
KLHL41	1.191554895	9.65E-09	Up-Regulated
ADAM20	1.957879136	1.12E-08	Up-Regulated
CPLX2	1.968734937	1.51E-08	Up-Regulated
COL23A1	1.085961877	2.03E-08	Up-Regulated
CSMD2	1.228660669	2.42E-08	Up-Regulated
ASGR2	1.156916543	2.48E-08	Up-Regulated
HAS1	1.89284578	3.72E-08	Up-Regulated
GABRA2	1.655380551	3.36E-08	Up-Regulated
GPR55	1.80537569	5.27E-08	Up-Regulated
AMBP	1.324617853	4.57E-08	Up-Regulated
LRRC15	1.166193328	5.74E-08	Up-Regulated
ERC2	1.264720938	6.71E-08	Up-Regulated
CLEC9A	1.579851828	9.63E-08	Up-Regulated
C21orf62	1.412142956	1.27E-07	Up-Regulated
CNGA4	1.925464012	2.04E-07	Up-Regulated
EVX1	1.040034214	3.02E-07	Up-Regulated
MESP2	1.515980427	1.65E-07	Up-Regulated
LHX3	1.161073866	3.33E-07	Up-Regulated
EN1	1.862164956	2.72E-07	Up-Regulated
ELMOD1	1.238939169	2.23E-07	Up-Regulated
MNX1	1.37597319	3.53E-07	Up-Regulated
JPH4	1.554641976	4.35E-07	Up-Regulated
LRRC7	1.42327866	4.56E-07	Up-Regulated
CRHBP	1.609649885	6.00E-07	Up-Regulated
BRSK2	1.012315274	4.75E-07	Up-Regulated
MROH9	1.403422232	6.91E-07	Up-Regulated
KIRREL3	1.748819833	7.29E-07	Up-Regulated
ACTL7B	1.033873445	1.18E-06	Up-Regulated
FXYD7	1.810716962	1.11E-06	Up-Regulated
ACTN2	1.35097501	1.13E-06	Up-Regulated
HMX2	1.524131061	2.11E-06	Up-Regulated
FCER2	1.601937714	1.34E-06	Up-Regulated
MOV10L1	1.355873277	1.31E-06	Up-Regulated
IL31RA	1.696695025	1.71E-06	Up-Regulated
DUSP26	1.226398564	2.25E-06	Up-Regulated
LCN10	1.445397871	2.14E-06	Up-Regulated
FGB	1.201937964	1.98E-06	Up-Regulated
GJC3	1.735554072	3.65E-06	Up-Regulated
CLEC4G	1.184784983	2.90E-06	Up-Regulated
CDHR1	1.656426156	4.33E-06	Up-Regulated
ABRA	1.244227579	6.06E-06	Up-Regulated
HRH3	1.095131786	9.87E-06	Up-Regulated
FGF22	1.369817555	7.26E-06	Up-Regulated
METTL21C	1.494823645	1.16E-05	Up-Regulated
GLYATL1	1.024103982	1.09E-05	Up-Regulated
CNTN6	1.278734368	1.51E-05	Up-Regulated
APOL5	1.349870283	1.80E-05	Up-Regulated
AMH	1.252287627	1.40E-05	Up-Regulated
CELA1	1.518959408	2.65E-05	Up-Regulated
CTAGE1	1.50251076	4.48E-05	Up-Regulated
KCNG2	1.008319258	2.23E-05	Up-Regulated
ANKRD55	1.094072114	2.26E-05	Up-Regulated
ATP1A3	1.229869371	3.04E-05	Up-Regulated
HPSE2	1.526285886	3.97E-05	Up-Regulated
C9	1.943603005	6.00E-05	Up-Regulated
KRT84	1.214116528	9.45E-05	Up-Regulated
HTR5A	1.22218462	7.83E-05	Up-Regulated
LMOD2	1.108333012	6.46E-05	Up-Regulated
CLEC4M	1.475763264	7.99E-05	Up-Regulated
ART5	1.405111583	9.38E-05	Up-Regulated
GPA33	1.136550701	0.000116803	Up-Regulated
AGTR2	1.481081303	0.000138123	Up-Regulated
ACTC1	1.107697041	0.000198144	Up-Regulated
MPPED1	1.471589335	0.000193696	Up-Regulated
CWH43	1.442395886	0.000189464	Up-Regulated
ATP12A	1.16338363	0.000147286	Up-Regulated
KCNIP1	1.357990022	0.000200656	Up-Regulated
CNGB3	1.115052927	0.00015253	Up-Regulated
LCN8	1.46337145	0.000290528	Up-Regulated
CALML6	1.333720772	0.000316307	Up-Regulated
DCST1	1.175136288	0.000253686	Up-Regulated
LHFPL3	1.279401203	0.000365744	Up-Regulated
CT47A11	2.795519461	0.001911352	Up-Regulated
LIPI	1.234962693	0.000302042	Up-Regulated
C1QL2	1.115074577	0.000442531	Up-Regulated
HS3ST5	1.34982618	0.000381786	Up-Regulated
GSC	1.388355035	0.000491949	Up-Regulated
FAM228A	1.000020484	0.000436413	Up-Regulated
FATE1	1.446327081	0.000716938	Up-Regulated
KCTD16	1.152124203	0.000727179	Up-Regulated
ETV3L	1.075502496	0.001007522	Up-Regulated
IFNB1	1.369870417	0.000901119	Up-Regulated
DBH	1.245855847	0.000848464	Up-Regulated
C2orf66	1.229305306	0.000842437	Up-Regulated
HOXA9	1.037192221	0.000737268	Up-Regulated
KRT74	1.186407532	0.001300739	Up-Regulated

Table S1 (continued)

Table S1 (continued)

Gene	logFC	P.Value	regulated
MAPK4	1.04550698	0.001158834	Up-Regulated
BAAT	1.123960248	0.000918797	Up-Regulated
KRT75	1.022215207	0.001580981	Up-Regulated
CDY2A	4.11138023	0.010832674	Up-Regulated
AVPR2	1.206040636	0.001528478	Up-Regulated
MCHR1	1.1019485	0.001723687	Up-Regulated
CCL25	1.374210522	0.002394742	Up-Regulated
FOXL2	1.080649693	0.002090003	Up-Regulated
FOXI1	1.238754393	0.002045986	Up-Regulated
IL22RA2	1.053421394	0.002110631	Up-Regulated
FKBP6	1.205646749	0.002632151	Up-Regulated
KCNH3	1.111356623	0.002976799	Up-Regulated
C1orf94	1.308273451	0.004360828	Up-Regulated
BEND4	1.469856096	0.004374985	Up-Regulated
KCNQ2	1.026933254	0.003676375	Up-Regulated
LRR52	1.27978894	0.005032156	Up-Regulated
CYP2A13	1.05395305	0.005718576	Up-Regulated
ACTA1	1.095181731	0.006593026	Up-Regulated
ATP4B	1.014157637	0.010537325	Up-Regulated
FAM209A	-6.185721619	3.49E-122	Down-Regulated
CCDC73	-7.817493296	1.25E-126	Down-Regulated
C1QTNF9B	-4.88486346	4.24E-111	Down-Regulated
MIP	-4.097160698	1.20E-109	Down-Regulated
CBY3	-6.413551747	3.12E-130	Down-Regulated
KRTAP103	-4.031713108	1.62E-91	Down-Regulated
KCNJ13	-5.115936473	1.99E-104	Down-Regulated
CELA2B	-4.242122228	2.28E-87	Down-Regulated
ACSBG2	-4.494528776	2.63E-86	Down-Regulated
FITM1	-4.951710624	2.87E-96	Down-Regulated
IGSF22	-4.082959385	2.34E-83	Down-Regulated
KIR3DL1	-11.05703305	2.07E-85	Down-Regulated
FSD2	-7.792967345	4.46E-76	Down-Regulated
C1QTNF9	-3.949697895	2.93E-83	Down-Regulated
KCNH7	-3.184260225	2.90E-73	Down-Regulated
ARHGDI3	-8.028268659	1.96E-69	Down-Regulated
DCDC2B	-6.228959641	4.55E-66	Down-Regulated
ARHGAP36	-4.384006071	8.41E-63	Down-Regulated
ANGPTL6	-5.213822565	1.28E-61	Down-Regulated
GALNT8	-5.715808724	6.25E-56	Down-Regulated
GP6	-3.574102162	4.69E-54	Down-Regulated
KCNK4	-3.440042599	2.74E-53	Down-Regulated
GALR2	-5.578829431	5.91E-52	Down-Regulated
FABP1	-1.661783494	6.47E-52	Down-Regulated
DAB1	-4.686497812	1.98E-51	Down-Regulated
MAGEB2	-2.590276135	3.25E-51	Down-Regulated
FAM170B	-2.678817204	1.29E-48	Down-Regulated
LHFPL5	-5.074823558	9.41E-47	Down-Regulated
LEFTY1	-3.490969875	5.02E-44	Down-Regulated
CCR10	-3.822956396	7.41E-43	Down-Regulated
KRT9	-2.583312451	2.15E-38	Down-Regulated
BARHL2	-2.079746104	1.96E-37	Down-Regulated
MAG	-4.053870987	6.20E-37	Down-Regulated
MATN1	-2.99237996	8.29E-36	Down-Regulated
HOXC5	-2.962484449	1.72E-35	Down-Regulated
APOC4	-3.450284599	8.06E-35	Down-Regulated
FAM25A	-1.687779453	1.63E-34	Down-Regulated
IL17B	-4.459917809	2.99E-33	Down-Regulated
GPR26	-2.726764656	3.08E-32	Down-Regulated
ASB10	-1.758006471	1.31E-32	Down-Regulated
HDGFL1	-2.801580939	1.62E-32	Down-Regulated
HOXD11	-3.018391896	3.03E-32	Down-Regulated
CYP21A2	-3.320012746	8.43E-32	Down-Regulated
DYDC1	-1.487755668	6.61E-32	Down-Regulated
ISL1	-2.097284676	1.69E-31	Down-Regulated
CXorf58	-3.978194452	2.64E-30	Down-Regulated
FAM181B	-1.889151402	1.26E-29	Down-Regulated
HAO1	-1.630897363	1.56E-28	Down-Regulated
ELOVL3	-3.948208842	2.95E-28	Down-Regulated
C7orf61	-3.120175962	6.87E-28	Down-Regulated
MRGPRX2	-2.859961615	6.18E-28	Down-Regulated
FOXD1	-2.814029062	8.48E-28	Down-Regulated
KRTAP52	-3.871206448	5.27E-27	Down-Regulated
CHST4	-2.459966343	4.27E-26	Down-Regulated
MFSD2B	-4.567212104	2.79E-25	Down-Regulated
COL9A3	-2.054272014	9.13E-26	Down-Regulated
IRX1	-3.138342543	2.16E-25	Down-Regulated
ANXA10	-2.94748106	4.37E-25	Down-Regulated
HSPB3	-3.145965336	1.37E-24	Down-Regulated
HPX	-1.801954066	1.67E-24	Down-Regulated
GFRA4	-1.221292571	5.07E-24	Down-Regulated
MEIG1	-1.449654698	4.78E-24	Down-Regulated
ACOT6	-3.534678137	2.42E-23	Down-Regulated
FBXL22	-1.990157971	1.30E-23	Down-Regulated
FIGLA	-2.373507313	4.02E-23	Down-Regulated
CCT8L2	-1.937872341	5.68E-23	Down-Regulated
FGF5	-3.289518589	1.88E-22	Down-Regulated
KIR2DL4	-1.84297823	2.06E-22	Down-Regulated
MEIOB	-3.584458509	7.69E-22	Down-Regulated
APOA5	-1.097366797	4.34E-22	Down-Regulated
BPIFB4	-2.924425911	1.06E-21	Down-Regulated
GHRH	-1.62467665	1.02E-21	Down-Regulated
FSTL5	-2.88560713	2.10E-21	Down-Regulated
KBTBD13	-1.882661962	1.15E-20	Down-Regulated
HBG1	-2.267424356	8.16E-21	Down-Regulated
FRMPD4	-1.766154903	1.43E-19	Down-Regulated
MBL2	-2.295773186	4.50E-20	Down-Regulated
AMPD1	-2.406671962	5.67E-20	Down-Regulated
CYP2C19	-2.75874283	1.49E-19	Down-Regulated
CRH	-1.338059432	1.04E-19	Down-Regulated
HOXD12	-1.53784062	2.06E-19	Down-Regulated
HSPB2	-1.814535136	2.19E-19	Down-Regulated
BRINP1	-2.130703784	5.37E-19	Down-Regulated
KRT22	-3.810430666	7.98E-19	Down-Regulated
HOXB1	-2.161156458	6.71E-19	Down-Regulated
ACOT12	-1.335707958	1.26E-18	Down-Regulated
JSRP1	-5.262019404	4.85E-18	Down-Regulated
EMILIN3	-2.77276586	2.17E-17	Down-Regulated
CACNG6	-2.338156661	1.99E-17	Down-Regulated
ARG1	-1.326848941	2.19E-17	Down-Regulated
KRT6B	-1.511542411	3.37E-17	Down-Regulated
HTR1E	-1.428817095	4.88E-17	Down-Regulated
CYP4F2	-1.900643793	5.49E-17	Down-Regulated
CCDC33	-2.816062337	1.20E-16	Down-Regulated
MMP27	-2.263890136	9.50E-17	Down-Regulated
CAMK2N2	-2.268279515	1.81E-16	Down-Regulated
GRK7	-2.102375731	4.69E-16	Down-Regulated
GPR78	-2.318789428	7.28E-16	Down-Regulated
MFRP	-3.430634932	3.07E-15	Down-Regulated
DNTT	-1.748916306	3.98E-15	Down-Regulated
KRT6C	-1.320849338	1.77E-15	Down-Regulated
EFCAB3	-3.094699172	4.84E-15	Down-Regulated
HPCA	-4.171859973	1.15E-14	Down-Regulated
KLC3	-1.930261661	3.92E-15	Down-Regulated
ATOH1	-1.043126494	4.31E-15	Down-Regulated
GRM5	-1.742478861	1.01E-14	Down-Regulated
KCNJ11	-1.344794188	5.82E-15	Down-Regulated
DDC	-2.142414329	7.97E-15	Down-Regulated
CD1B	-1.646202721	1.09E-14	Down-Regulated
KCNMB2	-1.399393136	1.12E-14	Down-Regulated
GSX2	-1.931851913	1.47E-14	Down-Regulated
GLRA2	-2.755801748	2.44E-14	Down-Regulated
ADAM7	-1.760133386	2.10E-14	Down-Regulated
CDSN	-3.756052635	8.13E-14	Down-Regulated
ADM5	-1.469691809	3.03E-14	Down-Regulated

Table S1 (continued)

Table S1 (continued)

Gene	logFC	PValue	regulated
LGALS7B	-1.500966235	3.24E-14	Down-Regulated
LRRC55	-2.412060131	5.15E-14	Down-Regulated
HIPK4	-2.166605752	1.73E-13	Down-Regulated
KRT33A	-1.548070982	8.20E-14	Down-Regulated
CA10	-1.466861181	1.26E-13	Down-Regulated
CLCA4	-1.875697952	1.59E-13	Down-Regulated
LPO	-1.873381475	2.55E-13	Down-Regulated
KLRC1	-1.538368794	1.51E-13	Down-Regulated
KRTAP15	-1.775476295	2.34E-13	Down-Regulated
LCN1	-1.479011372	2.86E-13	Down-Regulated
CSH2	-1.145061801	4.73E-13	Down-Regulated
CGB1	-1.909918116	9.41E-13	Down-Regulated
CGB8	-2.50387234	1.31E-12	Down-Regulated
CRYBB3	-1.251151886	6.05E-13	Down-Regulated
ABCC11	-3.22197915	3.04E-12	Down-Regulated
FAM180B	-1.663581272	1.03E-12	Down-Regulated
GRM3	-2.042552726	2.58E-12	Down-Regulated
C11orf53	-1.826412365	1.51E-12	Down-Regulated
MROH2B	-1.741386789	2.06E-12	Down-Regulated
EEF1A2	-1.134530312	2.56E-12	Down-Regulated
ART1	-1.835329856	3.47E-12	Down-Regulated
LGALS7	-1.350544554	4.12E-12	Down-Regulated
FUT9	-2.116699981	1.67E-11	Down-Regulated
GABBR2	-1.564577139	1.90E-11	Down-Regulated
FAM135B	-2.583187581	2.61E-11	Down-Regulated
MAGEA11	-1.267052784	1.27E-11	Down-Regulated
MAGEB3	-1.106618009	1.30E-11	Down-Regulated
C19orf18	-1.0630004	2.06E-11	Down-Regulated
DRD3	-1.390133856	6.32E-11	Down-Regulated
ICAM4	-1.355706517	5.19E-11	Down-Regulated
CDKL4	-1.826808805	7.54E-11	Down-Regulated
GFRA2	-1.279277953	9.61E-11	Down-Regulated
ARMC12	-1.381620455	1.22E-10	Down-Regulated
FAM71A	-1.803704527	2.68E-10	Down-Regulated
KRTAP510	-1.811562255	2.12E-10	Down-Regulated
CGB2	-2.646321253	5.23E-10	Down-Regulated
KCNJ10	-1.727239123	3.06E-10	Down-Regulated
GLIS1	-1.322826444	7.95E-10	Down-Regulated
KRT76	-1.873209122	6.20E-10	Down-Regulated
AVPR1B	-1.719232686	5.86E-10	Down-Regulated
KANK3	-2.026290641	4.93E-10	Down-Regulated
CASQ2	-1.178732774	4.15E-10	Down-Regulated
ADRA1B	-1.244710989	5.47E-10	Down-Regulated
FRMD7	-1.051976861	1.28E-09	Down-Regulated
CABP7	-3.558333732	2.64E-09	Down-Regulated
ADH1A	-2.147098016	8.96E-10	Down-Regulated
FRMD1	-1.12836054	1.04E-09	Down-Regulated
CLVS1	-3.67642449	3.74E-09	Down-Regulated
LRRC3B	-1.516519748	1.93E-09	Down-Regulated
FAM71D	-1.304499533	1.97E-09	Down-Regulated
AMER2	-1.794146769	4.29E-09	Down-Regulated
LY6G6C	-1.228039659	2.13E-09	Down-Regulated
CT55	-1.240779601	3.54E-09	Down-Regulated
KCNJ12	-2.406673038	3.46E-09	Down-Regulated
KCNK15	-1.618903843	2.84E-09	Down-Regulated
GABRB3	-1.078386713	3.23E-09	Down-Regulated
FLG2	-1.513642506	8.57E-09	Down-Regulated
FAM187B	-1.314671772	4.69E-09	Down-Regulated
CGB5	-1.897567412	8.11E-09	Down-Regulated
CBLN2	-1.390914392	9.27E-09	Down-Regulated
FBXO40	-2.031423307	1.23E-08	Down-Regulated
IL36B	-1.119416234	6.58E-09	Down-Regulated
MFSD6L	-1.068435343	7.68E-09	Down-Regulated
ADAD2	-4.61270255	3.88E-08	Down-Regulated
HOXC13	-1.062874014	8.65E-09	Down-Regulated
AQP12B	-1.19765846	1.64E-08	Down-Regulated
KCNJ9	-1.482174967	1.62E-08	Down-Regulated
MORC1	-1.862835153	1.51E-08	Down-Regulated
GRB14	-1.06864238	1.27E-08	Down-Regulated
CSDC2	-1.037015572	1.38E-08	Down-Regulated
MOG	-1.547678231	1.78E-08	Down-Regulated
KCNH2	-1.658705093	2.22E-08	Down-Regulated
GPC5	-1.399591112	2.48E-08	Down-Regulated
CNGB1	-1.081288806	2.39E-08	Down-Regulated
ALLC	-1.045687036	3.27E-08	Down-Regulated
DSPP	-1.811872192	3.72E-08	Down-Regulated
EPYC	-1.500937569	4.76E-08	Down-Regulated
C5orf47	-1.439155659	1.10E-07	Down-Regulated
GJD3	-5.410813456	3.00E-07	Down-Regulated
HMGCS2	-1.327084324	6.37E-08	Down-Regulated
HSFX1	-1.758507613	9.34E-08	Down-Regulated
FUT5	-1.949415113	1.66E-07	Down-Regulated
ALX4	-1.476902557	2.06E-07	Down-Regulated
ABCG5	-1.572736661	1.10E-07	Down-Regulated
DMRT3	-1.397562683	1.63E-07	Down-Regulated
KLKB1	-1.510481752	2.37E-07	Down-Regulated
ACTL9	-2.449263024	4.83E-07	Down-Regulated
MRAP	-3.099713751	1.63E-06	Down-Regulated
BTNL3	-1.672410572	7.43E-07	Down-Regulated
CYP7A1	-1.425306165	9.50E-07	Down-Regulated
CALN1	-1.189374641	1.22E-06	Down-Regulated
KLRC3	-1.932403772	1.68E-06	Down-Regulated
LRRC73	-1.220555933	1.30E-06	Down-Regulated
HES7	-1.300811587	2.75E-06	Down-Regulated
HAPLN2	-1.057259346	1.54E-06	Down-Regulated
GLYATL2	-1.452249113	2.04E-06	Down-Regulated
CPA1	-1.114937476	5.59E-06	Down-Regulated
CSMD3	-1.218432675	4.52E-06	Down-Regulated
BPIFA2	-1.044100839	3.41E-06	Down-Regulated
CHRN3	-1.331309259	3.95E-06	Down-Regulated
GJB4	-1.161569208	3.98E-06	Down-Regulated
KEL	-1.119962149	4.66E-06	Down-Regulated
ACTN3	-1.16190641	1.32E-05	Down-Regulated
KCNK16	-1.105069783	7.42E-06	Down-Regulated
ASZ1	-1.622419547	8.44E-06	Down-Regulated
FREM3	-1.345778041	1.68E-05	Down-Regulated
KCNC2	-1.493139701	1.53E-05	Down-Regulated
HTR4	-1.530522426	2.08E-05	Down-Regulated
KRT20	-1.196292317	1.46E-05	Down-Regulated
FLRT1	-1.324246766	2.73E-05	Down-Regulated
ERVV1	-1.292456765	3.18E-05	Down-Regulated
DHH	-1.361088798	3.57E-05	Down-Regulated
GFI1B	-1.478836607	3.28E-05	Down-Regulated
GJA9	-1.314019623	3.49E-05	Down-Regulated
KLK9	-1.094999018	3.07E-05	Down-Regulated
CELF3	-1.065293555	5.92E-05	Down-Regulated
IQUB	-1.098198414	3.89E-05	Down-Regulated
CASR	-1.440249088	8.53E-05	Down-Regulated
GRM4	-1.104000015	9.67E-05	Down-Regulated
KCNH1	-1.060184829	0.000106798	Down-Regulated
C11orf87	-1.252554535	0.000180381	Down-Regulated
GRIN2C	-1.845211882	0.000194947	Down-Regulated
AXDND1	-1.007959155	0.000178254	Down-Regulated
GP5	-1.33872706	0.001440264	Down-Regulated
CRB1	-1.362141111	0.00022276	Down-Regulated
C8A	-1.014953232	0.000155578	Down-Regulated
BHMT	-1.019818129	0.000184254	Down-Regulated
C6orf58	-1.030719397	0.000207047	Down-Regulated
HOXC12	-1.532154024	0.000649384	Down-Regulated
MAB21L1	-1.356323233	0.000457668	Down-Regulated
CEBPE	-1.06625676	0.000621822	Down-Regulated
KCNB1	-1.133154433	0.000568996	Down-Regulated
GOLGA6B	-1.314672566	0.000649221	Down-Regulated
KIAA1210	-1.198279264	0.000536501	Down-Regulated
CPLX3	-1.163738645	0.000922329	Down-Regulated
GMNC	-1.447147617	0.00096991	Down-Regulated
GRM6	-1.01771292	0.001012773	Down-Regulated
CDH16	-1.039630074	0.001006313	Down-Regulated
CHRN2	-1.386075732	0.001706664	Down-Regulated
GOLGA6C	-2.439557695	0.005986451	Down-Regulated
FTCD	-1.062546329	0.001418408	Down-Regulated
DPEP3	-1.294195415	0.002857957	Down-Regulated
EPHA5	-1.062099145	0.003418292	Down-Regulated
EPX	-1.002590224	0.005226468	Down-Regulated
CCDC116	-1.175092446	0.011280577	Down-Regulated

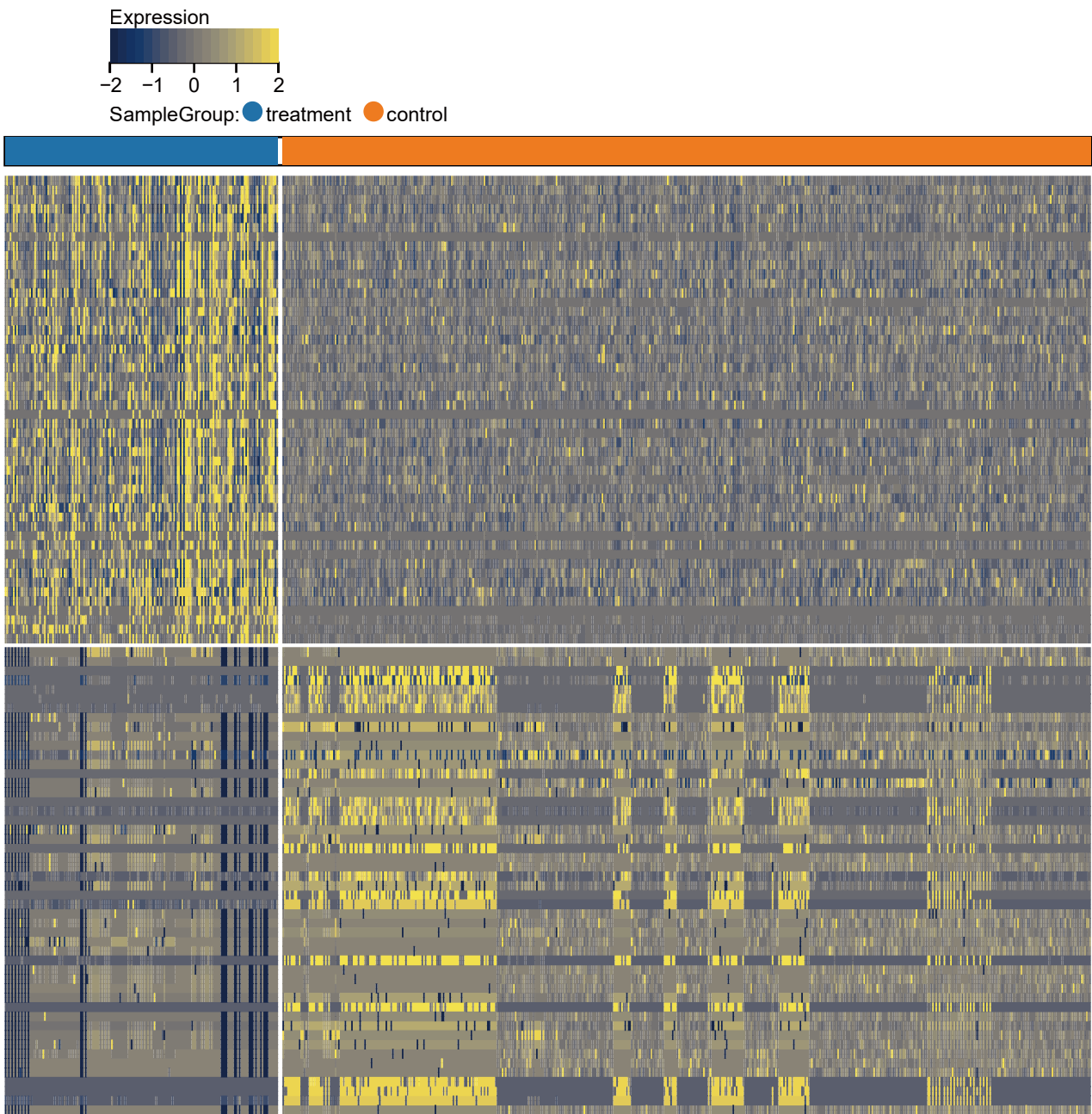


Figure 1 Clustering heatmap of all gene differences. Treatment: immunotherapy cohort; control: non-immunotherapy cohort; The immune checkpoints treatment group and the control group are well differentiated. As shown in the figure, there was significant heterogeneity between the two groups.

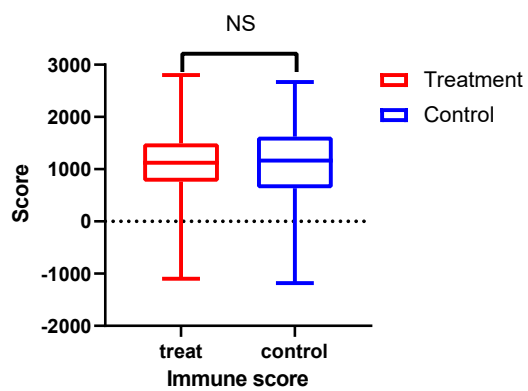
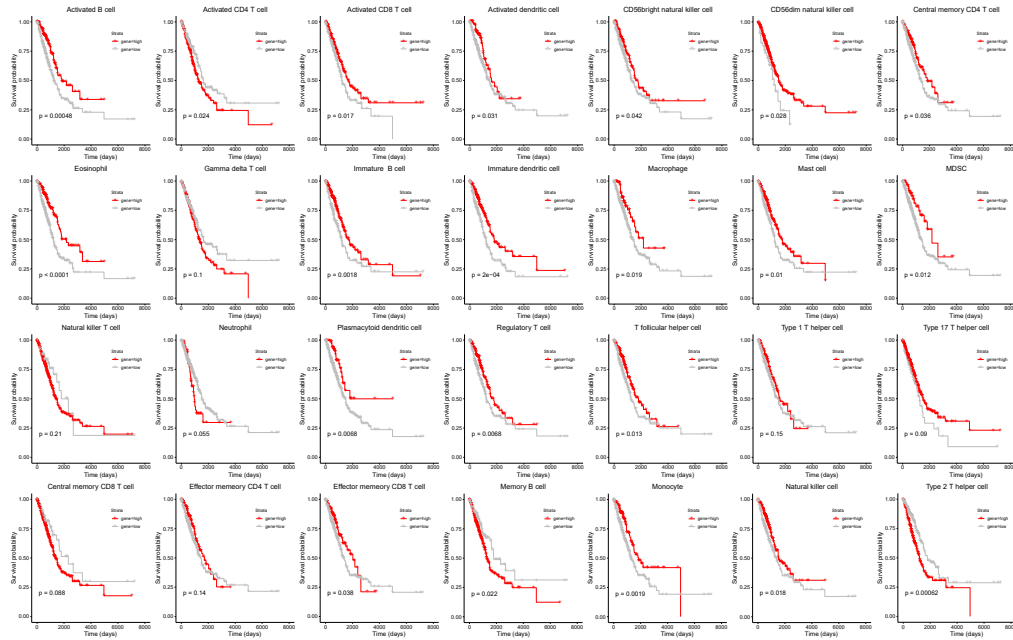


Figure S2 Immune scores for the treatment and control groups, showing no significant difference

A

LUAD



B

LUSC

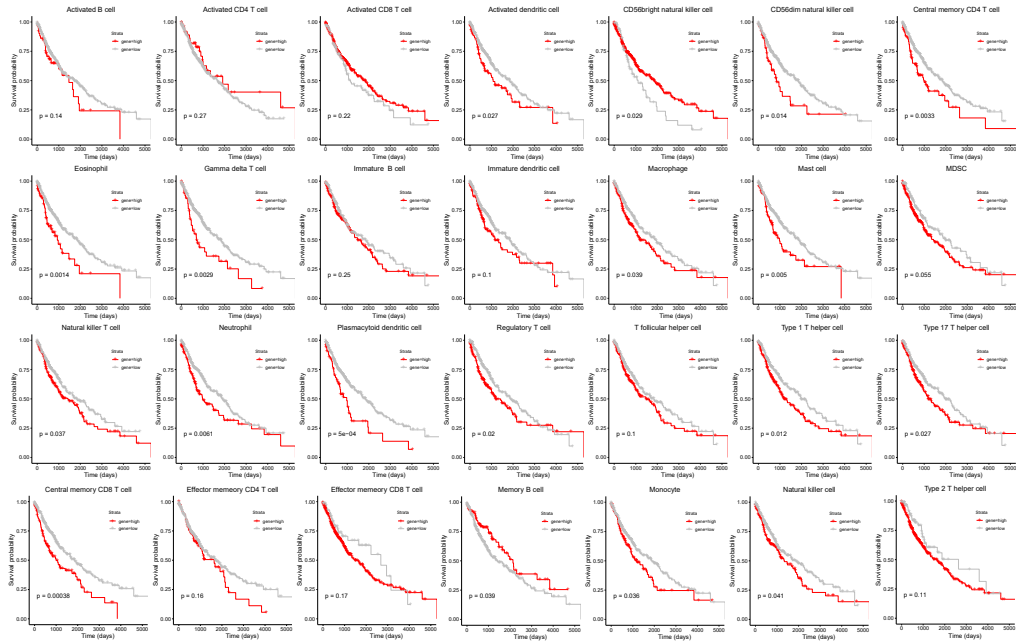


Figure S3 KM curves of immune cell subtype infiltration levels. (A) Effect of immune cell subtype infiltration on the prognosis of LUAD patients. (B) Effect of immune cell subtype infiltration on the prognosis of LUSC patients; LUAD, lung adenocarcinoma; LUSC, lung squamous carcinoma.

Table S2 23 immune signature genes in the blue module

Gene
APBB1IP
ARHGAP15
CD2
CD37
CD48
CD53
CD86
CTSS
CYBB
CYTH4
DOCK2
DOCK8
FGL2
GIMAP4
GIMAP5
HCST
IL10RA
IRF8
ITGB2
LAPTM5
LCP1
LPXN
MS4A6A

Table S3 18 immune signature genes in the yellow module

Gene
ASPM
AURKB
CCNB2
CDC25A
CDCA3
CDCA5
CDCA8
CENPF
CEP55
DLGAP5
FOXM1
KIF11
KIF23
KIF2C
MCM10
MCM2
MCM4
MELK

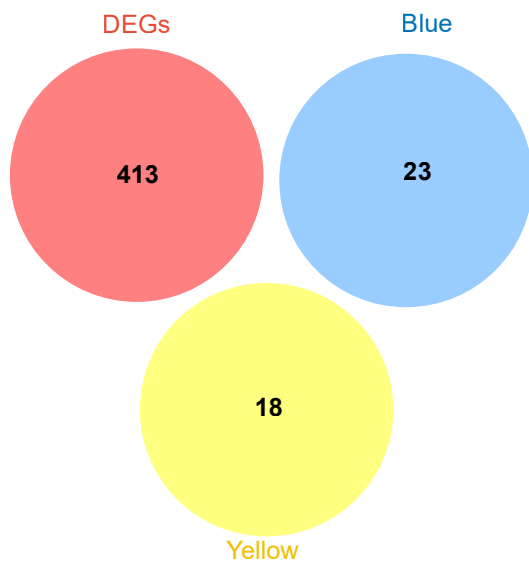


Figure S4 Venn diagram of DEGs and immune signature genes showing that there is no intersection of immune signature genes with differentially expressed genes in either the blue or the yellow module; DEGs, differentially expressed genes.

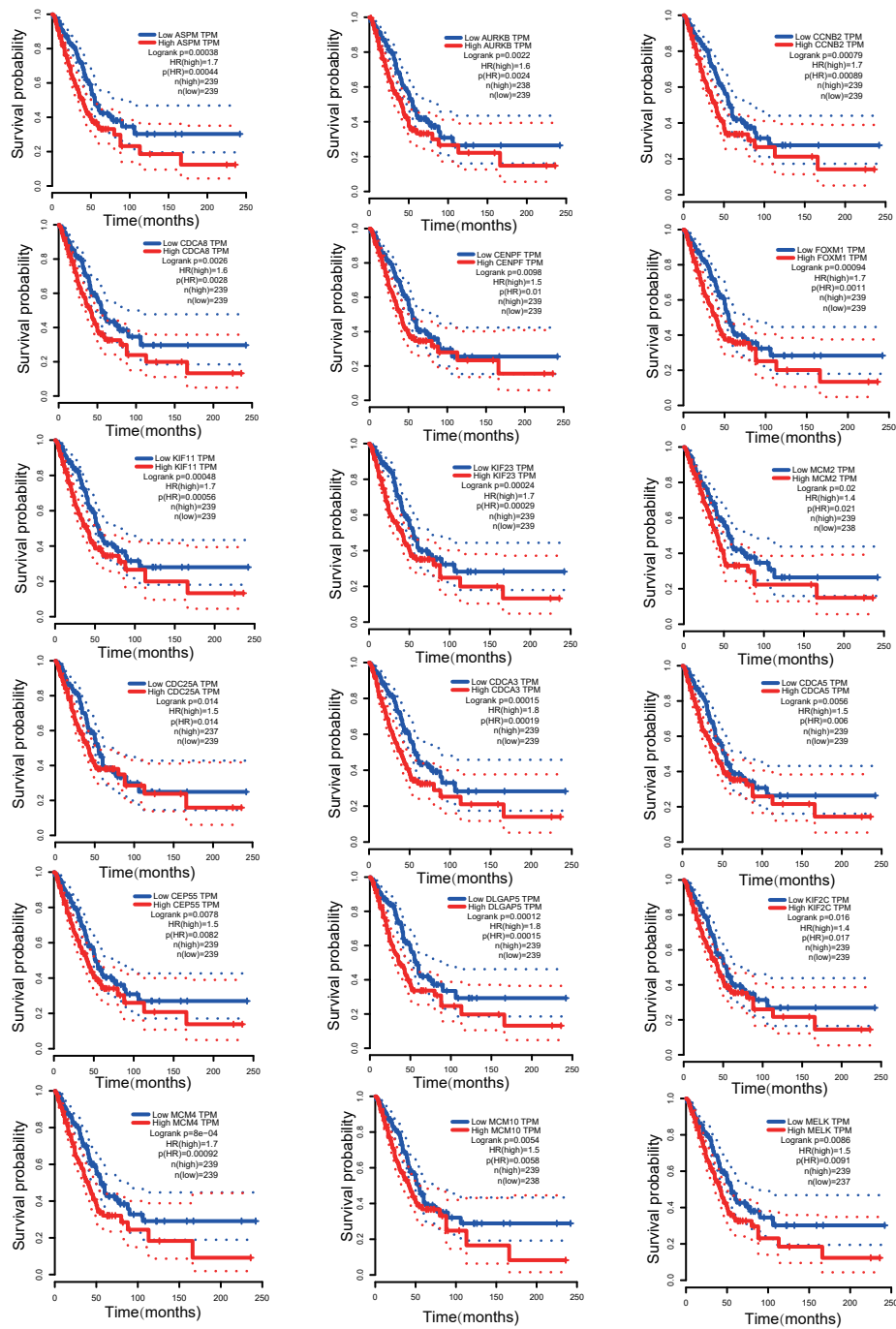


Figure S5 Univariate COX analysis and KM curves for immune signature genes in LUAD in the yellow module, showing HRs less than 1 ($P < 0.05$); KM, Kaplan-Meier; LUAD, lung adenocarcinoma; HRs, hazard ratios.

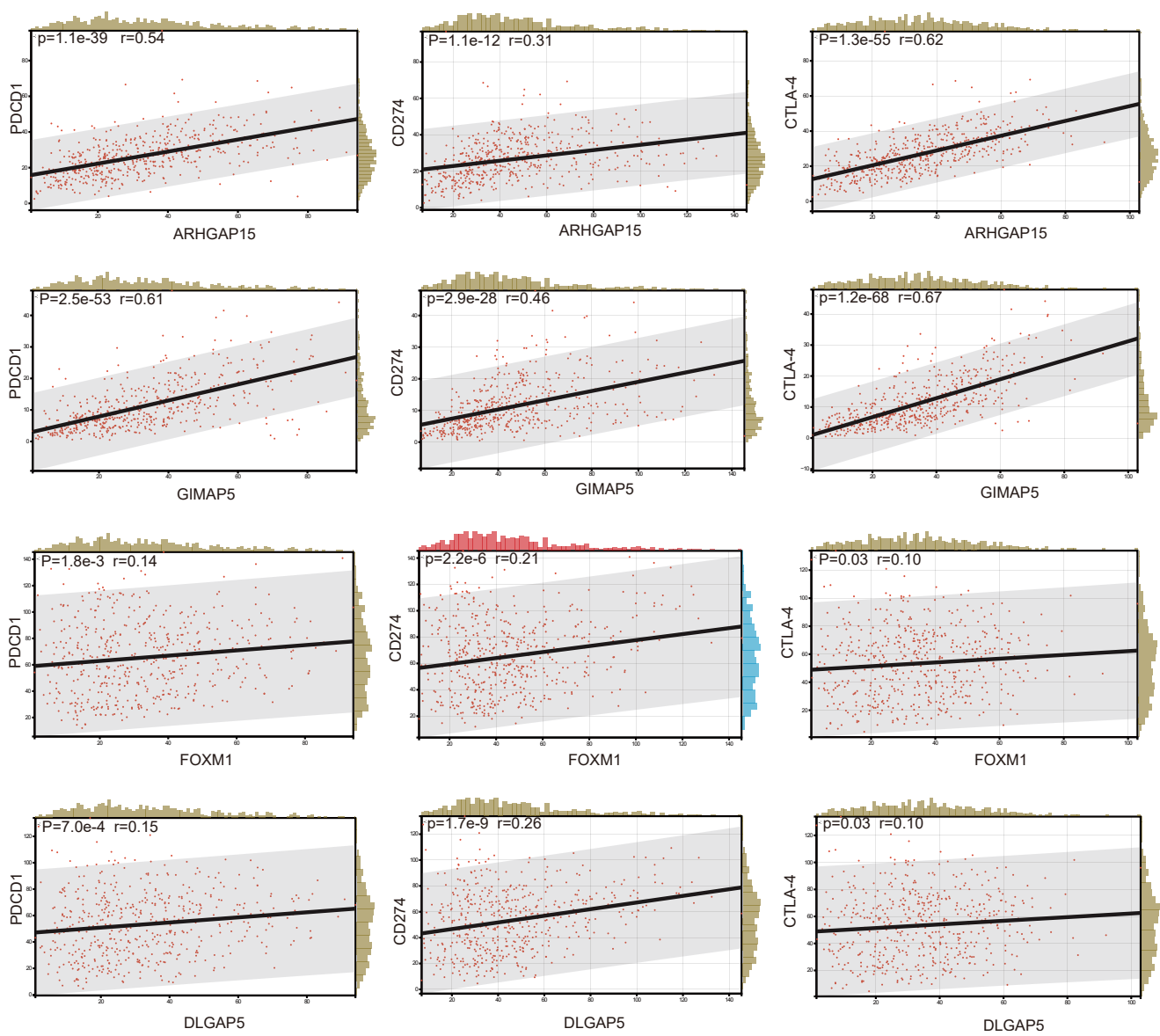


Figure S6 Scatter plots of the correlation between *ARHGAP15*, *GIMAP5*, *DLGAP5*, and *FOXM1* and ICGs.