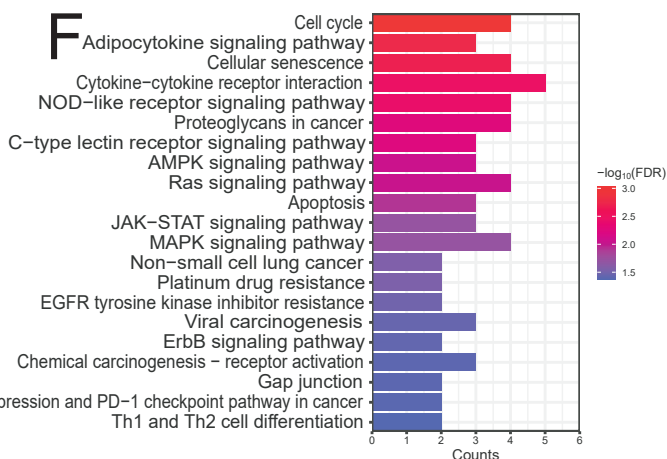
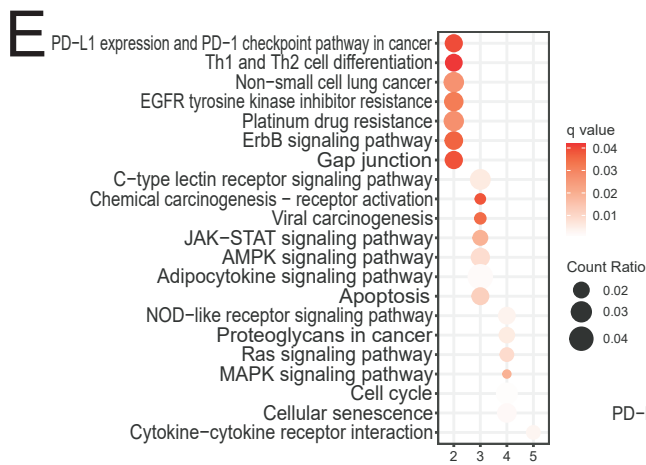
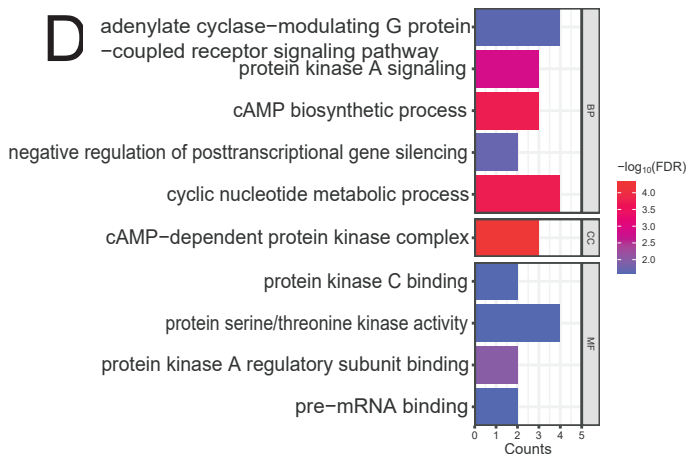
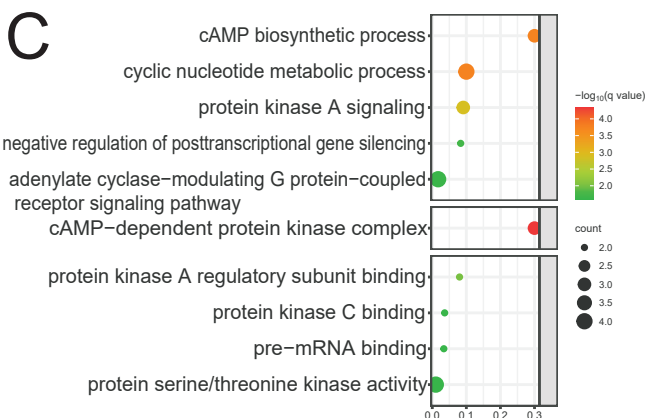
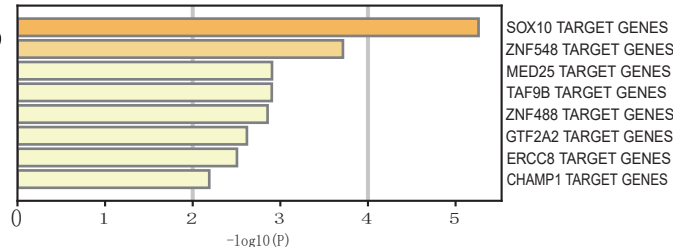
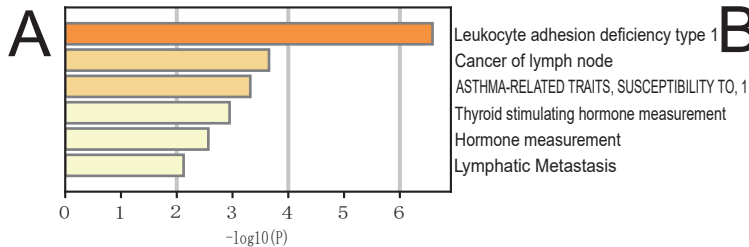
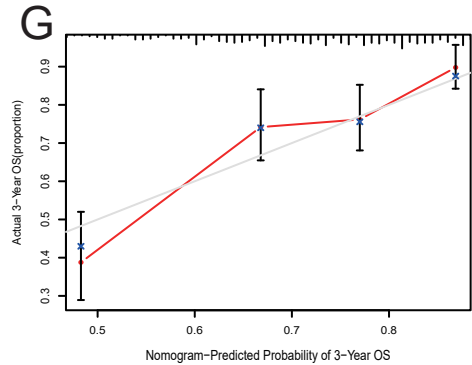
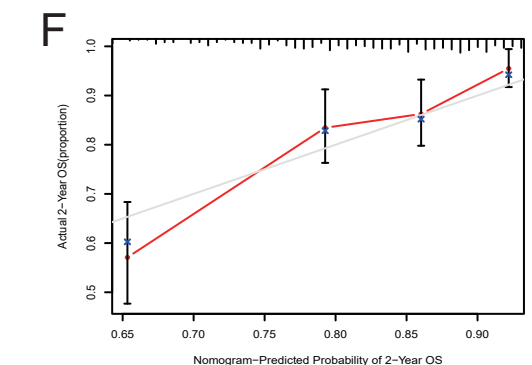
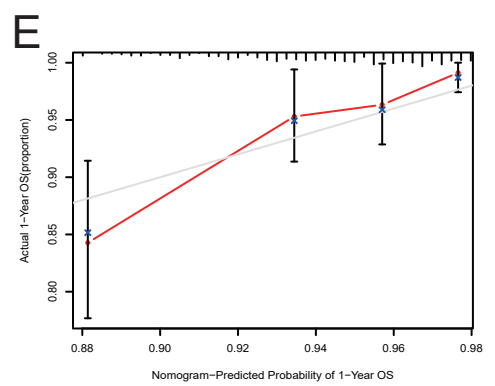
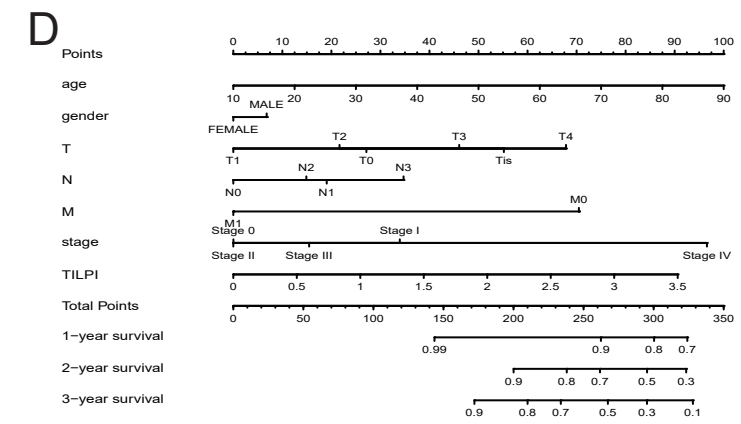
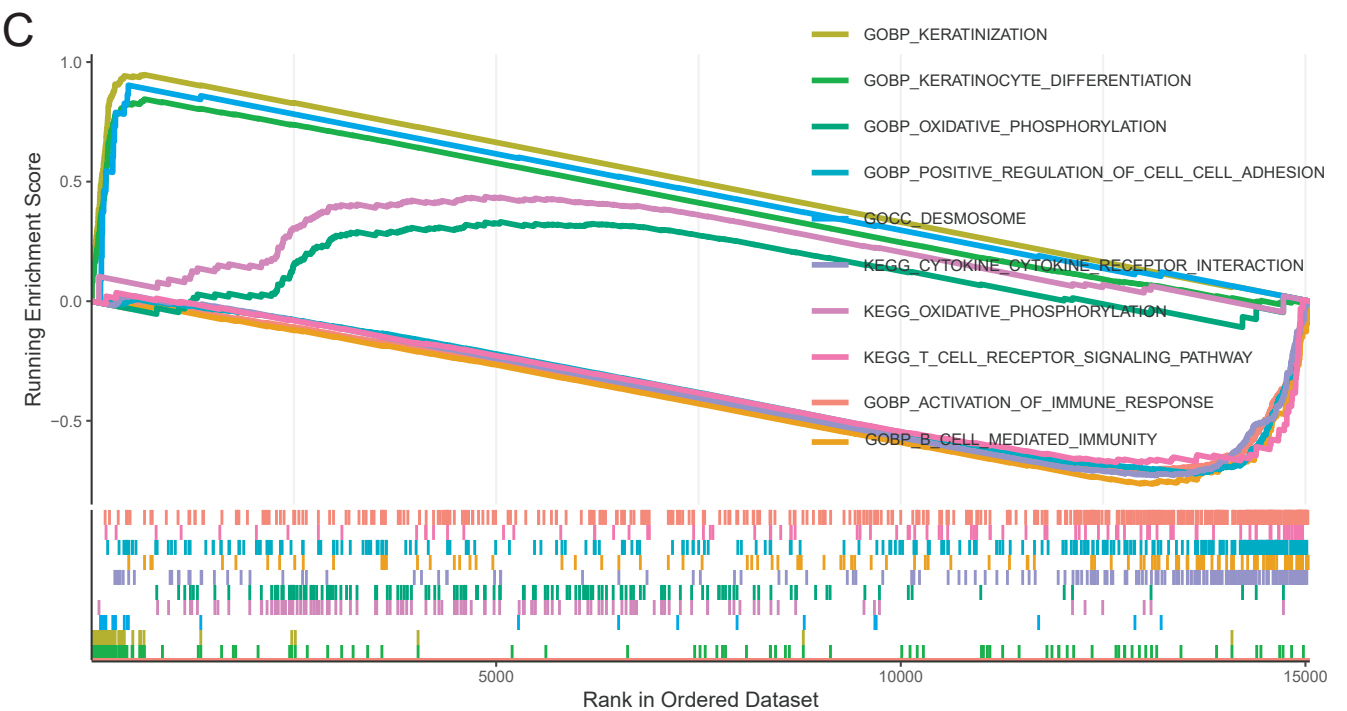
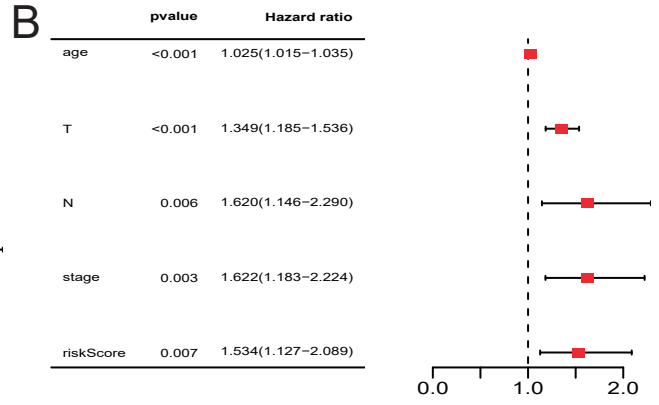
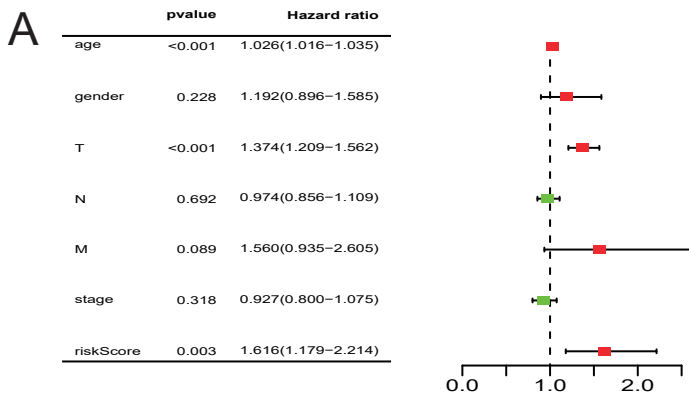


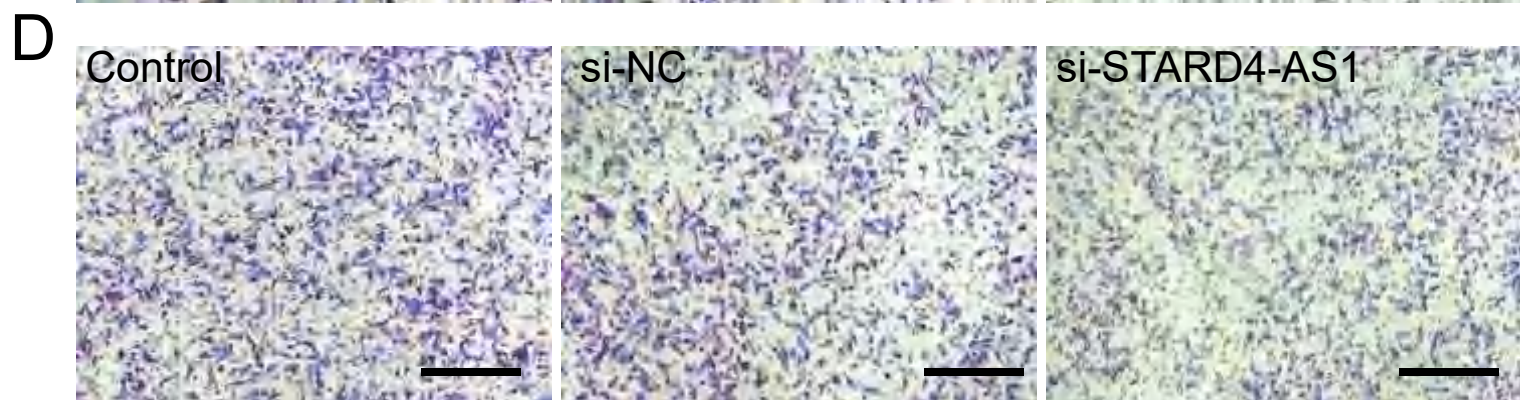
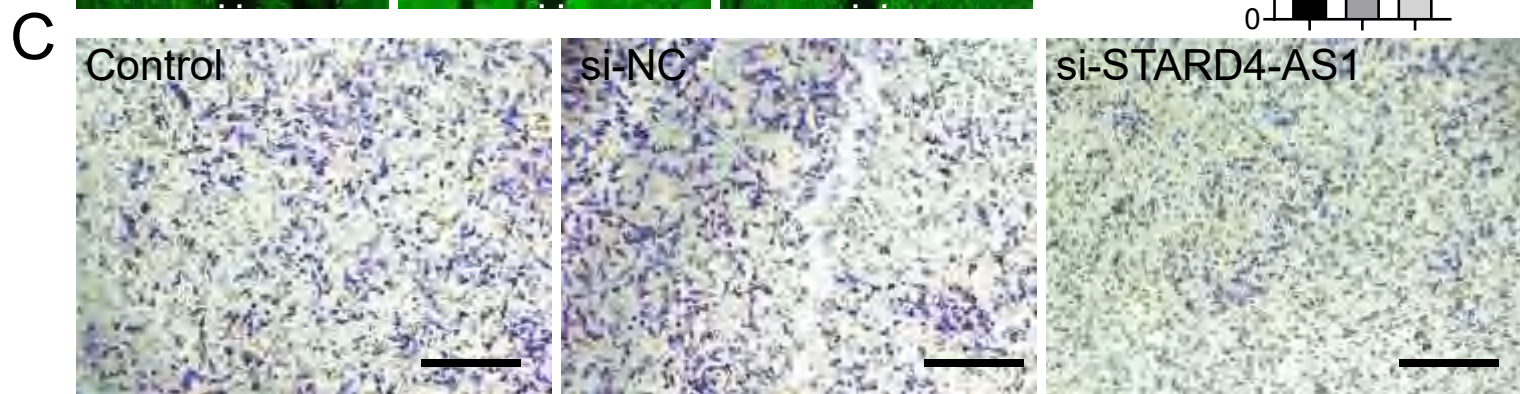
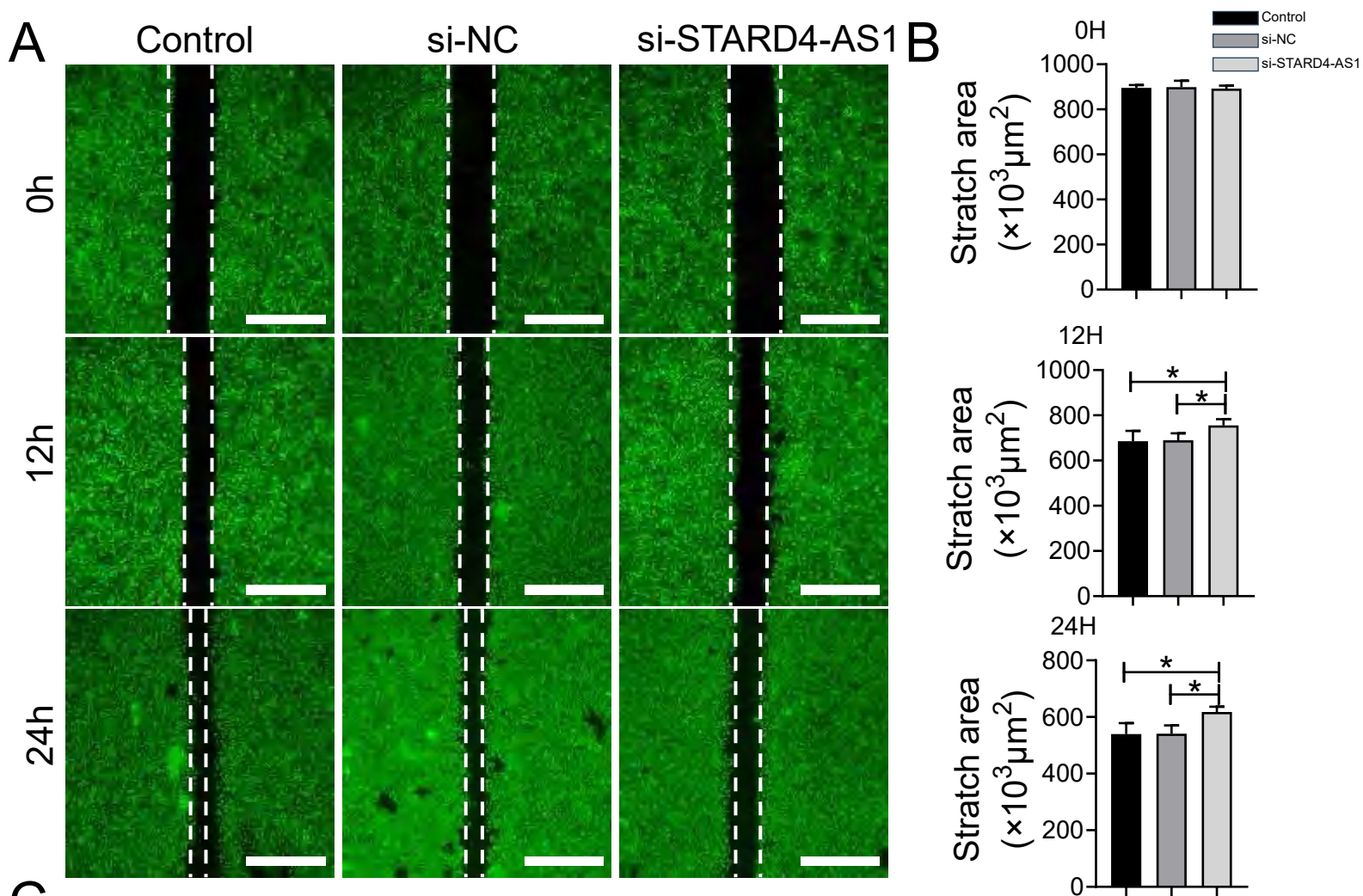
**Construction of a Tumor Mutational Burden-Derived LncRNA  
Prognostic Computational Framework Associated with Therapy  
Sensitivity in Skin Cutaneous Melanoma**

**Supplementary Materials**

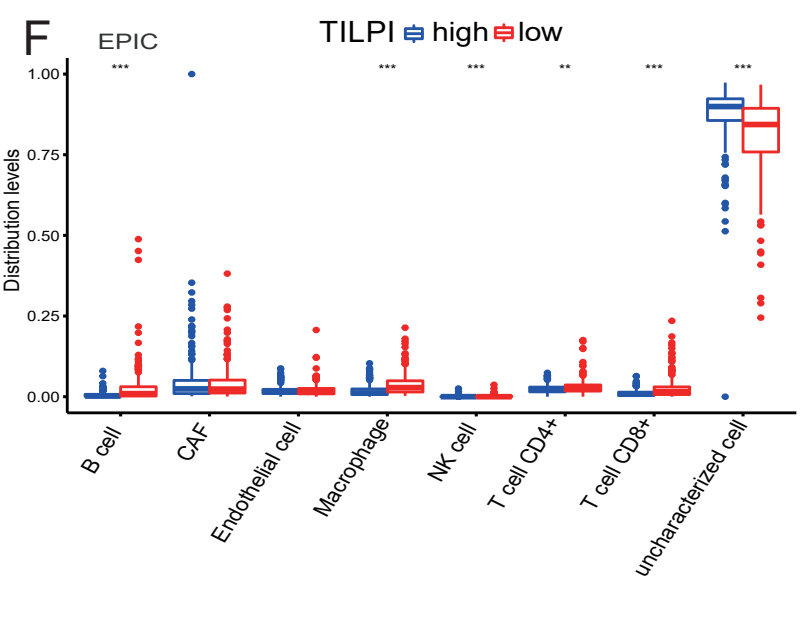
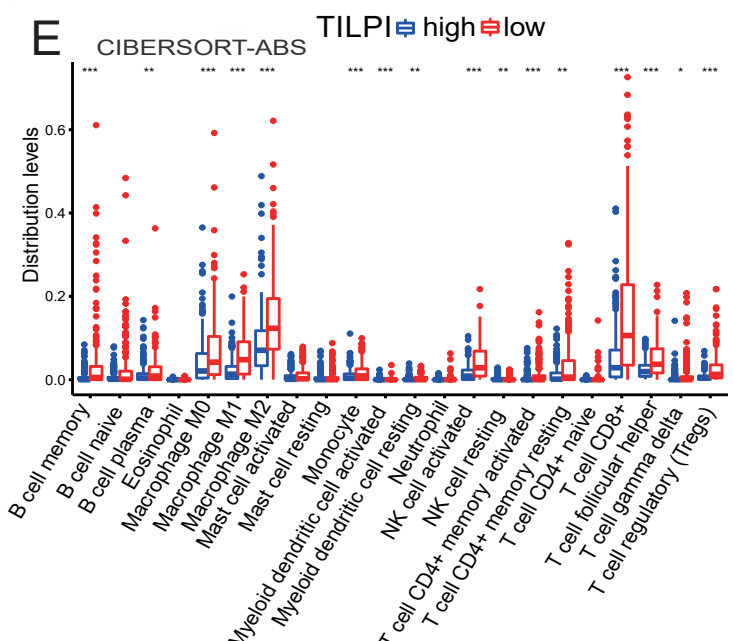
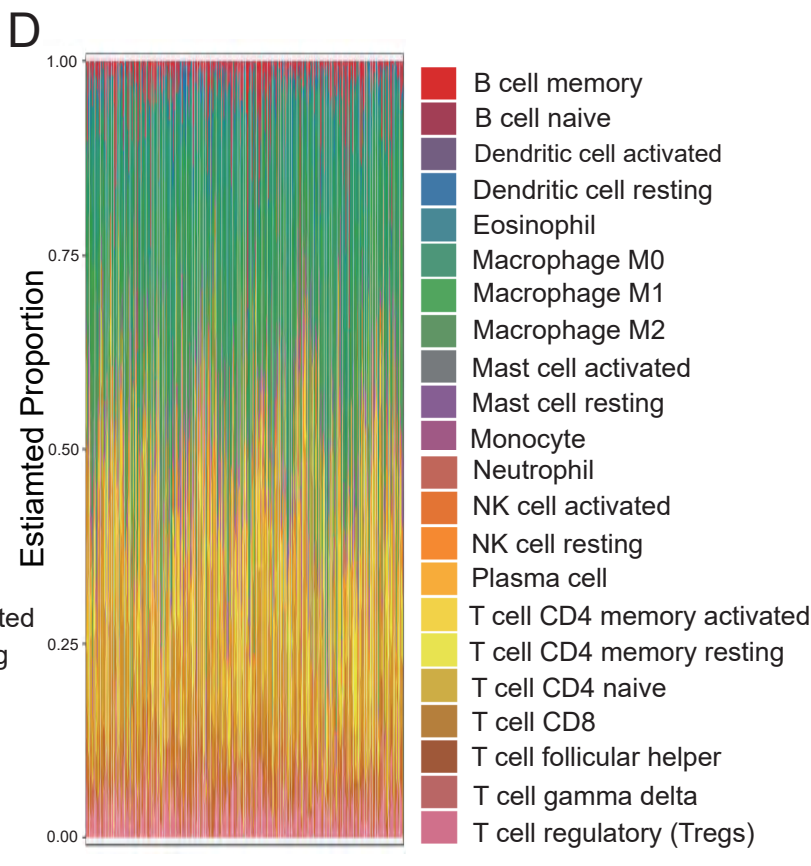
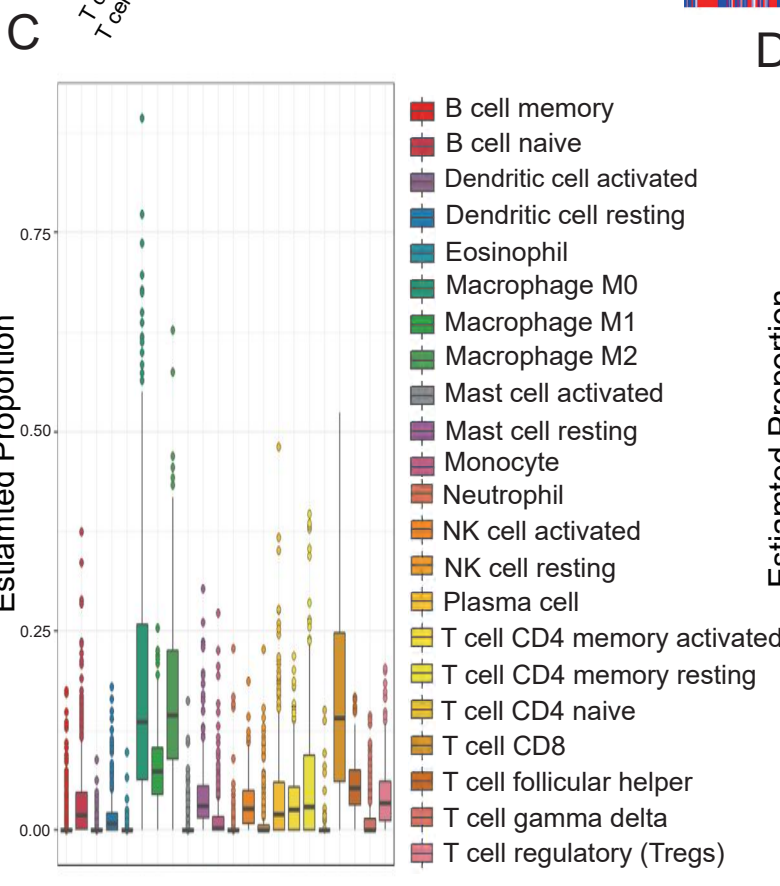
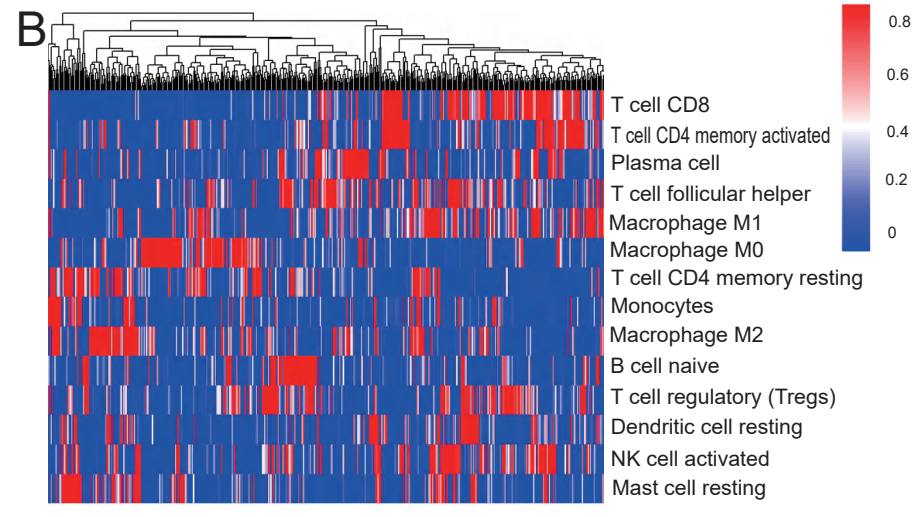
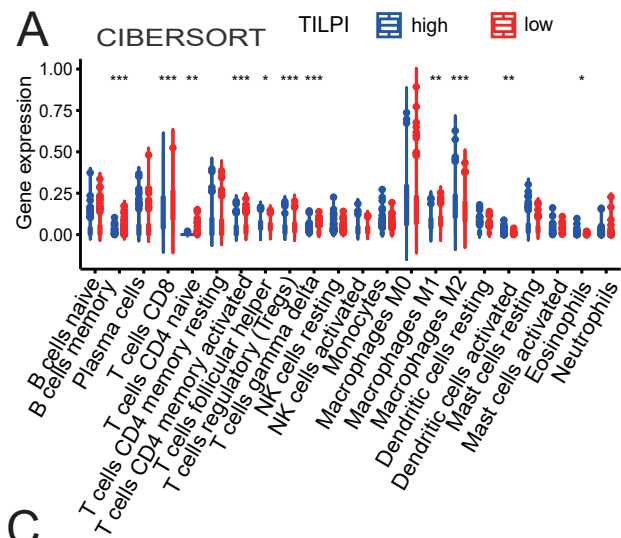
Fig. S1.....	2
Fig. S2.....	3
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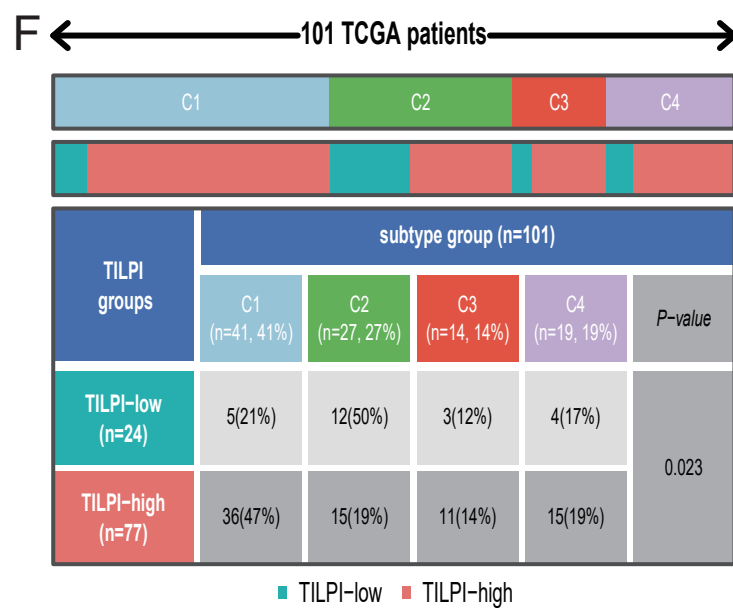
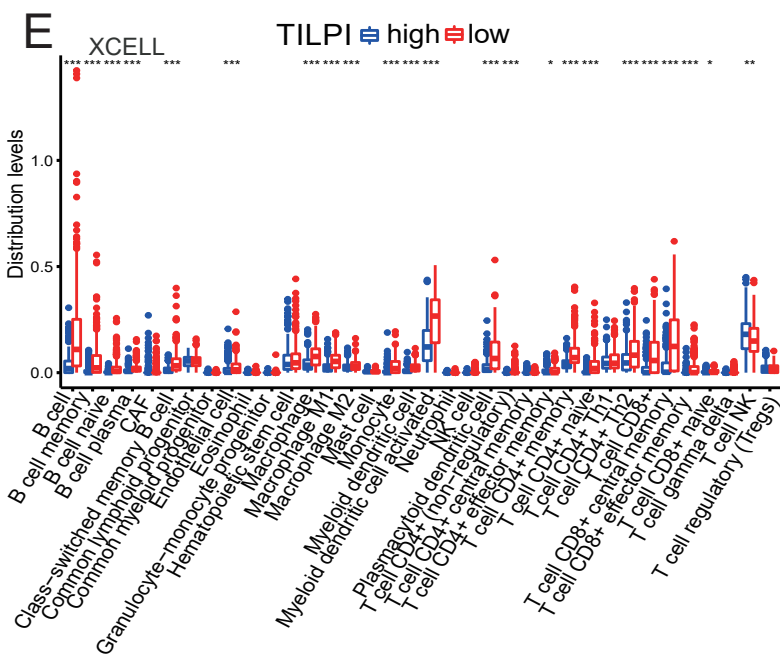
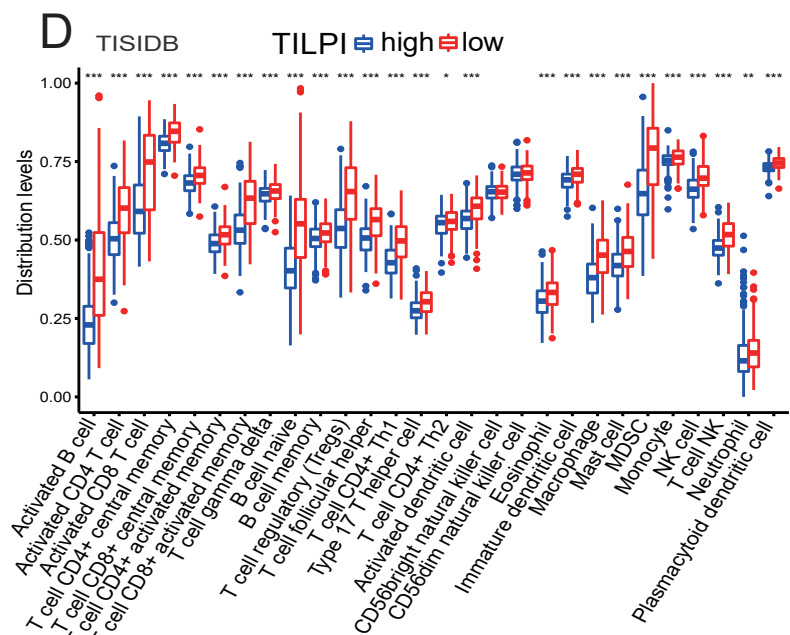
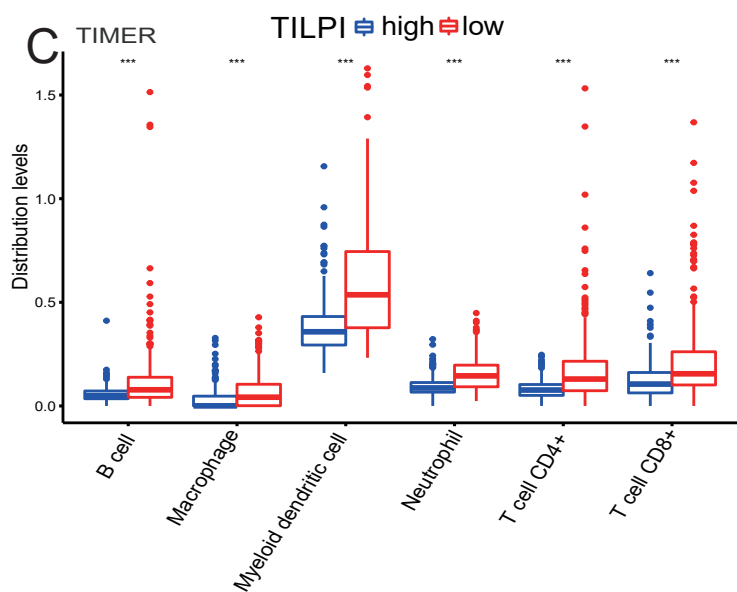
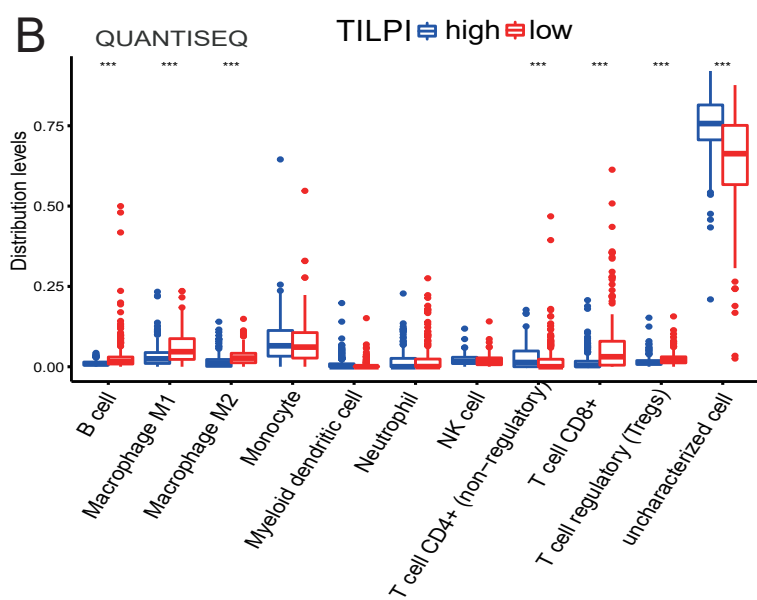
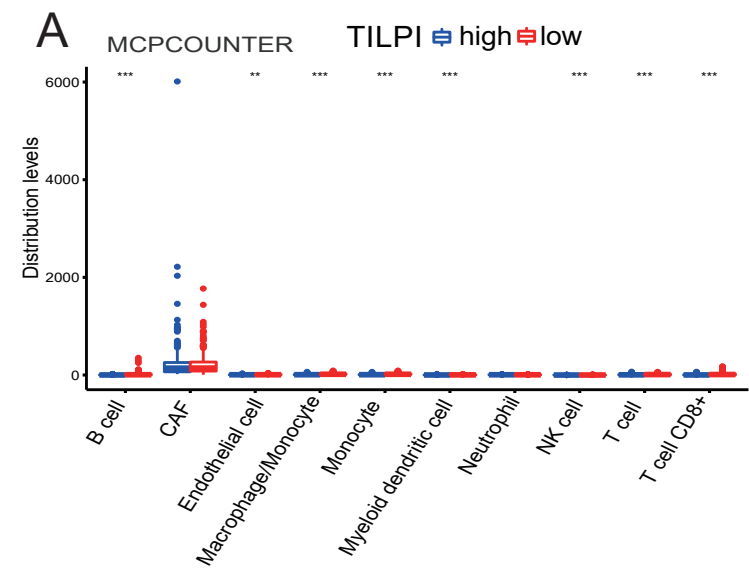


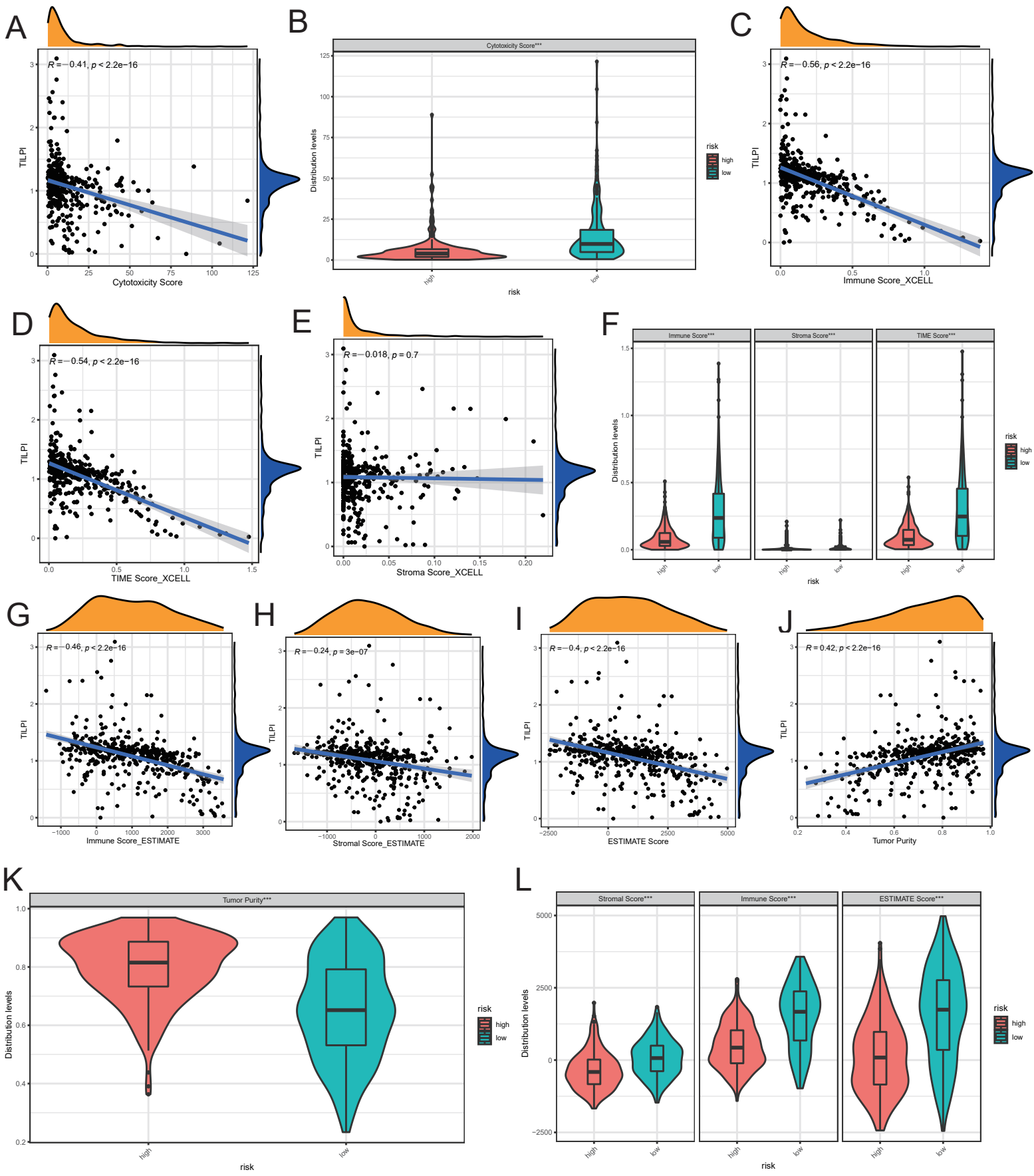


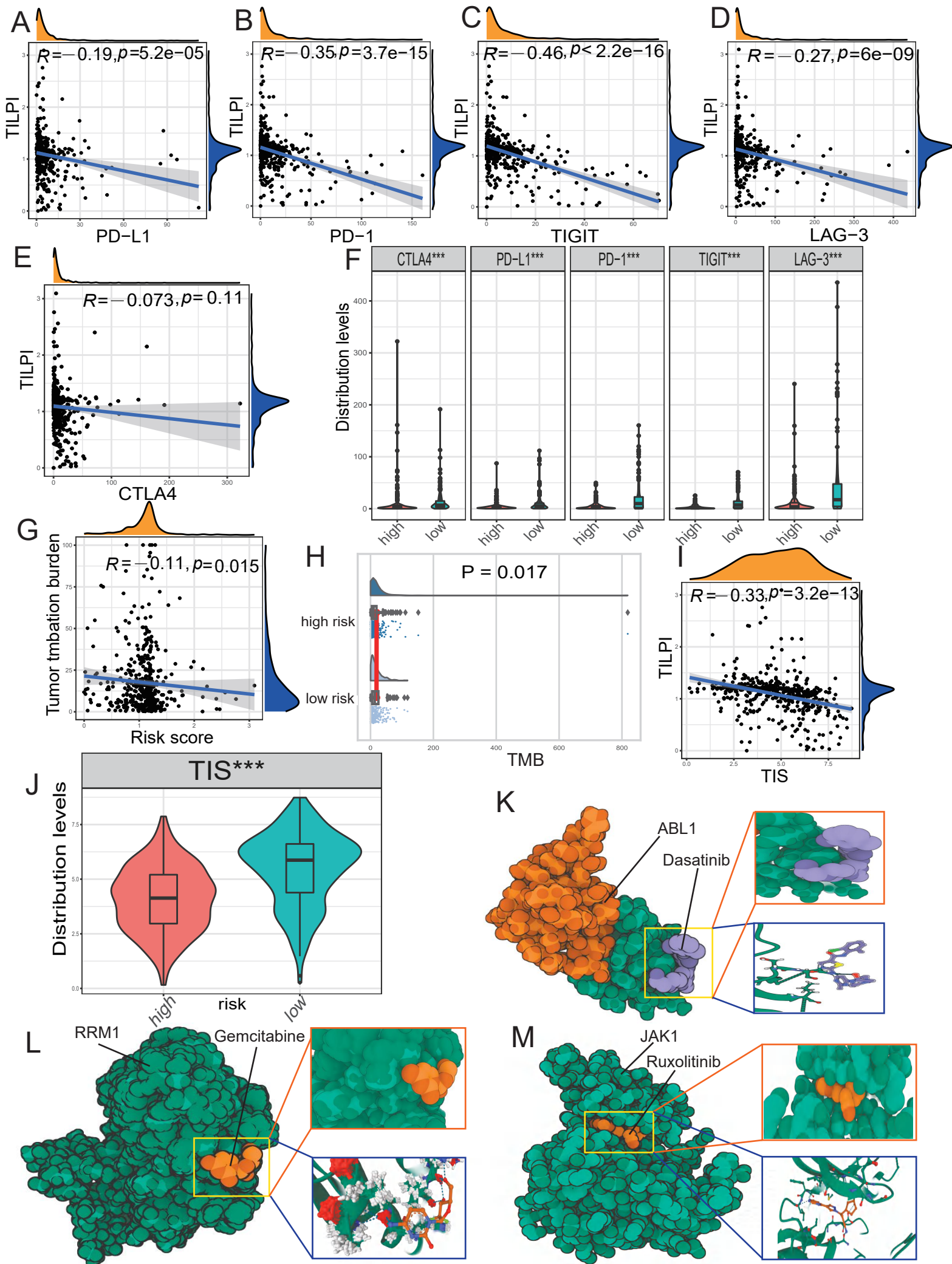














1 **Fig. S1.** Enrichment Analysis of TIgeneSet. (A-B) The enrichment results of  
2 TIgeneSet based on DisGeNET and TRRUST. (C-D): Gene Ontology (GO)  
3 enrichment analysis of TIgeneSet, categorized into three domains: Biological  
4 Processes (BP), Cellular Components (CC), and Molecular Functions (MF). (E-F):  
5 Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analysis of  
6 TIgeneSet ( $P < 0.05$ ).

7  
8 **Fig. S2.** Validation and Prognostic Modeling of TILPI with Pathway Enrichment and Survival  
9 Analysis. (A-B) The univariate and multivariate Cox analyses prove the independent prognostic  
10 hazard of TILPI. (C) 10 significantly enriched pathways more existed in different risk subgroups  
11 based on GSEA analysis. (D) A new model was constructed consisting of TILPI and several  
12 clinical characteristics (age, gender, pathological stage, and pathological TNM). (E-G) The 1, 2,  
13 and 3-year survival rate prediction of new model all had a good fit with the actual survival time.

14  
15 **Fig. S3.** Assessment of Cell Proliferation, Migration, and Invasion in Control, si-NC,  
16 and si-STAR4-AS1 Groups. (A) The proliferation ability of cells in the Control,  
17 si-NC, and si-STAR4-AS1 groups at 0, 12, and 24 hours was detected by scratch  
18 test (Scale bar represents 200  $\mu\text{m}$ ). (B) Experimental area analysis of scratches. (C)  
19 Cell migration ability was detected in each group (Scale bar represents 200 $\mu\text{m}$ ). (D)  
20 Cell invasion ability was detected in each group (Scale bar represents 200 $\mu\text{m}$ ).  
21 Statistical differences were determined by utilizing One-way ANOVA with  
22 Bonferroni's multiple comparison tests when comparing three groups. When

23 comparing two groups, the unpaired t-test was utilized. ( $*P < 0.05$ ,  $**P < 0.01$ , and  
24  $***P < 0.001$ ).

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26 **Fig. S4. Analysis of Differential Immune Cell Distributions Between High and Low TILPI**

27 **Subgroups Using CIBERSORT and Other Algorithms.** (A-D) The differential distributions of

28 immune cell between high and low TILPI subgroups in CIBERSORT. (E-F) The differential

29 distributions of immune cell in different TILPI subgroups were analyzed by different algorithms.

30

31 **Fig. S5. Differential Immune Cell Distributions and Association of TILPI Grouping with Immune**

32 **Subtypes.** (A-E) The differential distributions of immune cell in different TILPI subgroups were

33 analyzed by different algorithms. (F) The grouping of TILPI was associated with the immune

34 subtype, only 101 samples corresponded to immune subtypes. They were classified into four

35 subtypes, with the low TILPI subgroup being more frequently distributed in immune C2, while

36 most samples in the high TILPI subgroup were distributed in immune C1. P-values were

37 calculated using the Chi-square test.

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39 **Fig. S6. Correlation of TILPI with Cytotoxicity, Immune and Stroma Scores, and TME Metrics.**

40 (A-B) TILPI is negatively correlated with cytotoxicity score. (C-F) Immune score, stroma score,

41 and TME score of XCELL were all negatively correlated with TILPI. (G-L) Stromal score,

42 immune score, and ESTIMATE score of ESTIMATE were all negatively correlated with TILPI,

43 while tumor purity was opposite.

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45 **Fig. S7.** Correlation of TILPI with Immune Checkpoint Proteins, Tumor Mutational  
46 Burden, TIS Score, and Drug Affinities. (A-F) The immune checkpoint proteins were  
47 all negatively correlated with TILPI, which included PD-L1, PD-1, TIGIT, LAG-3,  
48 and CTLA4. (G-H) TILPI were negatively correlated with TMB. (I-J) The TIS score  
49 was also negatively correlated with TILPI. (K-M) Dasatinib and Ruxolitinib had  
50 excellent affinity for their targets, but Gemcitabine had low affinity for its targets.

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67 **Supplementary table 1.** Statistics of clinical characteristics for three groups.

<b>Covariates</b>	<b>Type</b>	<b>The training group</b>	<b>The testing group</b>	<b>The TCGA group</b>	<b>P value</b>
<b>Survival status</b>	dead	102(43.97%)	115(49.78%)	217(46.87%)	0.2456
	alive	130(56.03%)	116(50.22%)	246(53.13%)	
<b>OS (years)</b>	<1	29(12.5%)	35(15.15%)	64(13.82%)	0.3563
	[1,5)	129(55.6%)	111(48.05%)	240(51.84%)	
	[5,10)	41(17.67%)	42(18.18%)	83(17.93%)	
	>=10	33(14.22%)	43(18.61%)	76(16.41%)	
<b>Age</b>	<=65	147(63.36%)	152(65.8%)	299(64.58%)	0.6517
	>65	85(36.64%)	79(34.2%)	164(35.42%)	
<b>Gender</b>	FEMALE	80(34.48%)	96(41.56%)	176(38.01%)	0.1409
	MALE	152(65.52%)	135(58.44%)	287(61.99%)	
<b>T</b>	T0	16(6.9%)	7(3.03%)	23(4.97%)	0.2581
	T1	25(10.78%)	20(8.66%)	45(9.72%)	
	T2	43(18.53%)	41(17.75%)	84(18.14%)	
	T3	40(17.24%)	54(23.38%)	94(20.3%)	
	T4	83(35.78%)	76(32.9%)	159(34.34%)	
	Tis	3(1.29%)	5(2.16%)	8(1.73%)	
	TX	22(9.48%)	28(12.12%)	50(10.8%)	
<b>N</b>	N0	114(49.14%)	124(53.68%)	238(51.4%)	0.4032
	N1	43(18.53%)	30(12.99%)	73(15.77%)	
	N2	24(10.34%)	25(10.82%)	49(10.58%)	
	N3	33(14.22%)	28(12.12%)	61(13.17%)	
	NX	18(7.76%)	24(10.39%)	42(9.07%)	
<b>M</b>	M0	213(91.81%)	220(95.24%)	433(93.52%)	0.1904
	M1	19(8.19%)	11(4.76%)	30(6.48%)	
<b>Stage</b>	I/II NOS	6(2.59%)	13(5.63%)	19(4.1%)	0.0629
	Stage 0	2(0.86%)	5(2.16%)	7(1.51%)	
	Stage I	48(20.69%)	36(15.58%)	84(18.14%)	
	Stage II	63(27.16%)	83(35.93%)	146(31.53%)	
	Stage III	95(40.95%)	82(35.5%)	177(38.23%)	
	Stage IV	18(7.76%)	12(5.19%)	30(6.48%)	

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72 **Supplementary table 2.** The sequence of small-interfering RNAs against STARD4-AS1

73 (si-STARD4-AS1).

Group	Species		Sequence
Treat	Mus musculus	SS sequence	5'- CGAGAGAGUUUGUUGAUUUTT -3'
Treat	Mus musculus	AS sequence	5'- AAAUCAACAAACUCUCUCGTT -3'
Control	Mus musculus	SS sequence	5'- UUCUCCGAACGUGUCACGUTT -3'
Control	Mus musculus	AS sequence	5'- ACGUGACACGUUCGGAGAATT -3'

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78 **Supplementary table 3.** Primers for real-time quantitative polymerase chain reaction (RT-qPCR).

Primer	Species		Sequence
LINC00189	Homo sapiens	F	5'- CAGGAAGGATGCAATTCTGGC -3'
LINC00189	Homo sapiens	R	5'- GCAAAGGTTGCCATGCAGTC -3'
LINC00861	Homo sapiens	F	5'- GAGCAATCCTGACCTGGGAC -3'
LINC00861	Homo sapiens	R	5'- CGGTCTCCACTCTTGTTC -3'
STARD4	Homo sapiens	F	5'- ACAAGTTGGCTGCTGTCCG -3'
STARD4	Homo sapiens	R	5'- GGTGAAGCAAGGACGTGGAA -3'
STARD4-AS1	Homo sapiens	F	5'- TCCAGCACGTATTTGTGCCA -3'
STARD4-AS1	Homo sapiens	R	5'- CACCCCGAGGCACATTA -3'
GAPDH	Homo sapiens	F	5'- TGACCACAGTCCATGCCATCAC -3'
GAPDH	Homo sapiens	R	5'- GCCTGCTTCACCACCTTCTTGA -3'

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97 **Supplementary table 4. The 793 differentially expressed lncRNAs between normal samples**  
 98 **and SKCM samples.**

<b>LncRNA</b>	<b>conMean</b>	<b>treatMean</b>	<b>logFC</b>	<b>pValue</b>	<b>fdR</b>
AC027307.2	9.54E-07	43.43701	25.44023	2.42E-256	1.05E-254
AC016747.1	9.54E-07	13.73151	23.7788	2.45E-256	1.05E-254
AC012306.2	9.54E-07	9.668116	23.27261	2.45E-256	1.05E-254
AL359853.1	9.54E-07	9.445714	23.23904	7.77E-144	2.05E-143
AL118506.1	9.54E-07	8.907434	23.15439	2.45E-256	1.05E-254
AC009495.1	9.54E-07	7.521709	22.91044	2.08E-233	3.02E-232
AC009237.14	9.54E-07	6.34011	22.66389	2.45E-256	1.05E-254
AC090559.1	9.54E-07	5.758311	22.52503	2.46E-256	1.05E-254
AC131254.1	9.54E-07	5.15821	22.36625	2.06E-240	3.32E-239
AL645728.1	9.54E-07	4.877595	22.28555	2.46E-256	1.05E-254
AC011450.1	9.54E-07	4.783322	22.25739	1.58E-255	6.18E-254
AC017104.1	9.54E-07	4.28299	22.098	2.46E-256	1.05E-254
U52111.1	9.54E-07	3.944766	21.97932	2.46E-256	1.05E-254
AC011477.1	9.54E-07	3.891134	21.95957	6.55E-254	1.96E-252
AC073046.1	9.54E-07	3.715152	21.8928	1.06E-250	2.30E-249
AC017028.2	9.54E-07	3.696999	21.88573	4.12E-253	1.09E-251
AL365361.1	9.54E-07	3.659409	21.87099	4.17E-253	1.09E-251
AL928654.1	9.54E-07	3.540132	21.82318	2.46E-256	1.05E-254
AC091057.1	9.54E-07	3.437043	21.78055	2.46E-256	1.05E-254
AL031587.1	9.54E-07	3.410763	21.76947	2.63E-248	5.35E-247
AL512791.1	9.54E-07	3.323344	21.73202	1.01E-246	1.94E-245
AC004846.1	9.54E-07	3.290257	21.71758	2.46E-256	1.05E-254
AC018690.1	9.54E-07	3.215713	21.68452	6.47E-254	1.96E-252
AL606500.1	9.54E-07	3.210537	21.68219	1.23E-174	4.69E-174
AL662791.1	9.54E-07	2.929518	21.55004	2.63E-248	5.35E-247
AC017076.1	9.54E-07	2.863901	21.51736	4.56E-238	7.03E-237
AC034236.2	9.54E-07	2.65579	21.40852	2.49E-256	1.05E-254
AC007611.1	9.54E-07	2.586887	21.3706	2.46E-256	1.05E-254
AC084357.2	9.54E-07	2.35296	21.23386	6.34E-246	1.19E-244
AC114296.1	9.54E-07	2.352789	21.23375	1.16E-185	5.85E-185
AC092275.1	9.54E-07	2.330296	21.21989	1.64E-247	3.21E-246
AC090692.1	9.54E-07	2.326581	21.21759	1.22E-132	2.90E-132
AC093110.1	9.54E-07	2.325102	21.21667	1.68E-251	3.88E-250
AC024361.1	9.54E-07	2.070508	21.04936	1.68E-251	3.88E-250
AC007773.1	9.54E-07	1.958577	20.96919	6.55E-254	1.96E-252
AC004492.1	9.54E-07	1.901669	20.92665	1.68E-251	3.88E-250
AC107068.1	9.54E-07	1.866316	20.89957	2.46E-256	1.05E-254
AL596330.1	9.54E-07	1.855815	20.89143	3.00E-171	1.08E-170
AC106771.1	9.54E-07	1.836176	20.87608	3.48E-103	6.61E-103
AC093788.1	9.54E-07	1.728194	20.78865	9.16E-243	1.61E-241
AC084262.1	9.54E-07	1.692268	20.75834	4.12E-253	1.09E-251

AC099778.1	9.54E-07	1.685702	20.75273	2.46E-256	1.05E-254
AC016727.1	9.54E-07	1.658492	20.72925	2.46E-256	1.05E-254
FP671120.7	9.54E-07	1.594479	20.67246	2.46E-256	1.05E-254
AC084262.2	9.54E-07	1.564958	20.6455	2.46E-256	1.05E-254
AC092614.1	9.54E-07	1.550536	20.63215	1.06E-250	2.30E-249
AC012181.2	9.54E-07	1.532792	20.61554	6.55E-254	1.96E-252
AL139383.1	9.54E-07	1.513713	20.59747	6.47E-254	1.96E-252
AC090825.1	9.54E-07	1.505809	20.58992	2.46E-256	1.05E-254
AC009831.1	9.54E-07	1.470905	20.55608	1.58E-255	6.18E-254
AC093157.1	9.54E-07	1.446682	20.53213	2.46E-256	1.05E-254
AC011363.1	9.54E-07	1.443993	20.52944	6.74E-205	8.46E-204
AL162586.1	9.54E-07	1.427357	20.51273	2.46E-256	1.05E-254
AC141002.1	9.54E-07	1.413981	20.49914	9.16E-243	1.61E-241
AC073370.1	9.54E-07	1.406281	20.49126	1.08E-216	1.41E-215
AC004816.1	9.54E-07	1.401134	20.48597	2.06E-240	3.32E-239
AL136040.1	9.54E-07	1.380161	20.46422	1.01E-254	3.68E-253
AC026803.1	9.54E-07	1.35409	20.4367	9.05E-243	1.61E-241
AL121655.1	9.54E-07	1.350571	20.43295	1.26E-239	2.01E-238
AP005242.1	9.54E-07	1.324147	20.40444	5.87E-123	1.30E-122
AC020915.1	9.54E-07	1.317596	20.39729	2.42E-244	4.48E-243
AL442067.1	9.54E-07	1.255122	20.32721	2.84E-201	3.25E-200
AP000787.1	9.54E-07	1.252189	20.32383	2.46E-256	1.05E-254
AL161891.1	9.54E-07	1.247637	20.31858	2.46E-256	1.05E-254
AC131011.1	9.54E-07	1.212596	20.27748	7.26E-232	1.04E-230
AC145124.1	9.54E-07	1.172231	20.22864	2.63E-248	5.35E-247
AC097639.1	9.54E-07	1.137094	20.18473	1.64E-247	3.21E-246
AC091185.1	9.54E-07	1.128074	20.17324	2.93E-227	3.92E-226
LINC01502	0.001348	41.61541	14.91403	3.50E-161	1.09E-160
AC092687.3	0.000293	5.469433	14.19019	4.28E-254	1.50E-252
BANCR	0.027395	341.4825	13.60562	3.68E-226	4.85E-225
AC103563.7	0.000193	2.358749	13.58074	2.89E-167	9.85E-167
AC010967.1	0.002509	15.01263	12.54691	6.35E-228	8.72E-227
AL589986.2	0.000289	1.526645	12.3657	1.67E-203	1.95E-202
MYCNUT	0.001301	4.251195	11.67413	1.82E-130	4.24E-130
PLCH1-AS1	0.002478	6.70502	11.40187	4.78E-117	1.02E-116
LINC00488	0.000872	2.275552	11.34887	8.53E-173	3.14E-172
AC005281.1	0.003022	4.927954	10.67113	2.43E-92	4.29E-92
AC005019.2	0.000881	1.323973	10.5533	2.99E-183	1.41E-182
LINC00355	0.001392	1.860139	10.38444	1.08E-152	3.11E-152
FAM230C	0.001323	1.402147	10.04987	1.96E-127	4.49E-127
AC012506.2	0.001407	1.321996	9.876262	5.96E-96	1.07E-95
LHFPL3-AS1	0.322059	296.785	9.847879	7.11E-151	1.98E-150
LINC01443	0.160603	125.3642	9.608415	5.50E-100	1.02E-99
OVAAL	0.007537	5.31763	9.462637	1.07E-115	2.23E-115

AC009065.4	0.002761	1.824591	9.368251	8.20E-254	2.38E-252
AC023469.1	0.004352	2.848369	9.354404	1.21E-145	3.23E-145
LINC01518	0.002816	1.683512	9.223538	1.03E-154	3.03E-154
LINC00221	0.006451	3.771836	9.191615	3.02E-125	6.75E-125
LINC00456	0.007621	4.347253	9.155925	3.88E-187	2.06E-186
AF131215.6	0.008508	4.152972	8.931033	2.74E-241	4.73E-240
AC112220.2	0.006624	2.921508	8.7847	1.08E-251	2.68E-250
LINC00518	0.344153	142.4099	8.692785	3.21E-177	1.27E-176
AC017074.1	0.00448	1.804075	8.653389	9.10E-241	1.52E-239
LINC01474	0.103604	41.59326	8.649124	6.22E-70	9.46E-70
LINC00698	0.007695	2.955076	8.585068	1.12E-115	2.32E-115
AC079807.1	0.004127	1.575933	8.576953	1.84E-252	4.67E-251
LINC01036	0.003451	1.308081	8.566206	2.11E-235	3.11E-234
HPN-AS1	0.033356	10.95775	8.359772	4.72E-142	1.22E-141
AC021078.1	0.007256	2.277799	8.294294	8.13E-255	3.06E-253
DSCR8	0.028832	9.027098	8.290446	4.26E-73	6.56E-73
LINC01293	0.066736	18.55044	8.118769	3.37E-165	1.12E-164
LINC00589	0.070971	19.67301	8.114765	2.26E-151	6.36E-151
LINC00322	0.011691	2.965944	7.987003	8.69E-123	1.92E-122
AC015726.1	0.02028	5.121552	7.980396	4.12E-241	6.98E-240
LINC00520	0.28554	71.82386	7.974624	4.36E-110	8.72E-110
AC073409.1	0.023928	5.655755	7.884891	1.66E-125	3.74E-125
LINC01034	0.005555	1.109215	7.641576	7.90E-169	2.72E-168
AC020915.2	0.018596	3.662342	7.621618	1.74E-227	2.36E-226
LINC00052	0.013638	2.684934	7.621091	4.75E-78	7.57E-78
HCCAT5	0.00847	1.641066	7.597988	5.04E-177	1.99E-176
ELFN1-AS1	0.112701	21.36944	7.56691	1.78E-97	3.26E-97
AC083843.2	0.046153	8.169656	7.46771	1.45E-207	1.85E-206
LINC01531	0.045039	7.732987	7.423714	3.65E-99	6.74E-99
THCAT158	0.209648	32.08957	7.257992	2.04E-157	6.20E-157
AC074290.1	0.016586	2.361641	7.153695	7.74E-145	2.05E-144
LINC00326	0.009976	1.242638	6.960702	1.70E-120	3.72E-120
LINC00920	0.426908	48.20671	6.819165	2.31E-186	1.19E-185
AC021087.1	0.025865	2.913305	6.815484	3.55E-253	1.00E-251
MNX1-AS1	0.025484	2.711405	6.733318	4.67E-82	7.76E-82
LINC00645	0.013926	1.461043	6.713072	6.12E-42	8.01E-42
PIK3CD-AS2	0.95788	92.23352	6.589302	2.61E-192	1.68E-191
AC007391.2	0.051747	4.66348	6.493776	9.58E-154	2.78E-153
AP000439.2	0.020617	1.805892	6.452768	3.87E-45	5.20E-45
TRBV11-2	0.041569	3.633314	6.449628	3.49E-143	9.07E-143
HCG20	0.12374	10.18721	6.363307	2.18E-145	5.79E-145
AC097359.2	0.162387	12.55272	6.272417	8.90E-199	9.33E-198
ROR1-AS1	0.067806	5.07285	6.225234	4.03E-52	5.60E-52
FEZF1-AS1	0.018491	1.290369	6.12485	2.29E-57	3.29E-57



AP000696.2	0.022747	1.517497	6.059885	5.14E-54	7.23E-54
LINC01505	0.017054	1.131634	6.052139	1.48E-195	1.42E-194
FOXD3-AS1	0.830788	53.01395	5.995748	3.79E-185	1.86E-184
AC112721.1	0.115137	6.619204	5.84524	2.59E-83	4.35E-83
LINC01320	0.063571	3.638367	5.838769	8.68E-101	1.62E-100
CASC9	0.022201	1.254419	5.820279	3.24E-90	5.67E-90
PCAT7	0.039136	2.198754	5.812058	1.30E-109	2.58E-109
AC008991.1	0.123946	6.643949	5.744252	1.42E-81	2.34E-81
LINC01215	0.043057	2.300857	5.739771	2.46E-56	3.51E-56
AP002381.2	0.047519	2.519745	5.728622	5.13E-214	6.61E-213
LINC01447	0.077479	4.069912	5.71504	9.29E-08	9.95E-08
AL589843.1	0.022545	1.168504	5.695738	7.81E-251	1.77E-249
AC011239.1	0.058273	2.861381	5.617729	1.85E-38	2.38E-38
AL021807.1	0.104685	4.863075	5.537749	8.76E-237	1.31E-235
FLJ16779	0.091023	4.132313	5.504573	3.54E-69	5.35E-69
AC009495.2	0.171251	7.703962	5.491416	4.76E-151	1.33E-150
AL049794.1	0.024198	1.064514	5.459137	1.23E-177	4.96E-177
LINC00681	1.59893	69.0017	5.431453	9.71E-79	1.56E-78
RHPN1-AS1	0.269536	11.07395	5.360546	3.22E-194	2.43E-193
HAGLR	0.919272	37.76821	5.360537	3.01E-172	1.10E-171
LBX2-AS1	2.356988	90.2023	5.258148	5.67E-189	3.17E-188
LINC01597	0.038511	1.458239	5.242803	8.38E-100	1.56E-99
KIF25-AS1	0.039208	1.412794	5.171246	1.22E-07	1.31E-07
AC104532.2	0.127256	4.398267	5.111135	4.31E-199	4.66E-198
LINC01143	0.048058	1.587117	5.045484	9.45E-134	2.29E-133
AC016735.1	0.048666	1.599299	5.038378	9.83E-81	1.61E-80
LINC00622	0.8644	27.78862	5.006651	2.30E-182	1.04E-181
OSTN-AS1	0.033092	1.063654	5.006383	3.48E-90	6.07E-90
CCDC140	0.11393	3.611757	4.986477	6.57E-182	2.92E-181
TRPM2-AS	0.192344	6.076412	4.981461	2.98E-73	4.60E-73
AC112721.2	0.290029	8.96567	4.950145	1.18E-80	1.93E-80
HAGLROS	0.260317	8.024718	4.946109	1.54E-133	3.71E-133
ALG13-AS1	0.050059	1.437547	4.843837	1.92E-178	7.99E-178
AC003956.1	0.067772	1.920363	4.824539	3.64E-176	1.42E-175
EWSAT1	0.179231	4.902501	4.773626	5.78E-108	1.13E-107
LINC01234	0.075069	2.037536	4.76246	1.20E-133	2.90E-133
ZFPM2-AS1	0.345192	9.074111	4.716287	8.18E-81	1.34E-80
KCNH1-IT1	0.046963	1.225662	4.705904	6.53E-81	1.07E-80
LINC00462	0.607389	15.00783	4.626951	2.63E-35	3.32E-35
L3MBTL4-AS1	0.048683	1.174325	4.592272	3.36E-154	9.86E-154
AC135050.5	0.079735	1.918344	4.588505	2.25E-197	2.31E-196
FOXD2-AS1	1.19627	28.47169	4.572912	3.69E-183	1.74E-182
LINC00189	0.278941	6.621585	4.569143	1.89E-22	2.25E-22
LINC01611	0.043518	1.02493	4.557756	5.64E-49	7.74E-49

LINC01444	0.099784	2.307208	4.531199	1.70E-74	2.66E-74
LINC01411	0.093383	2.083887	4.47998	2.45E-22	2.91E-22
FAM222A-AS1	0.092629	2.043531	4.463449	5.56E-146	1.50E-145
MGC16275	0.380839	7.867947	4.368732	6.24E-157	1.89E-156
SUCLA2-AS1	0.117235	2.391339	4.350348	5.59E-194	4.12E-193
AC093484.4	0.183629	3.679233	4.324543	1.44E-181	6.35E-181
LINC01366	0.201063	4.007257	4.316896	1.16E-173	4.33E-173
LINC00996	0.059831	1.154381	4.27009	1.76E-105	3.39E-105
AC092652.1	0.098897	1.891048	4.257118	2.33E-34	2.92E-34
EPHA5-AS1	0.084104	1.599266	4.249095	1.92E-93	3.41E-93
LINC01556	0.059849	1.110382	4.213575	5.49E-115	1.14E-114
AC061992.2	0.188675	3.316387	4.135636	3.72E-147	1.01E-146
GAPLINC	1.280479	21.73119	4.085011	6.93E-149	1.88E-148
LINC01050	0.120973	2.043997	4.07864	3.00E-88	5.22E-88
LINC01352	0.133344	2.252201	4.078114	2.51E-129	5.83E-129
AC096921.2	0.067985	1.110463	4.029804	2.29E-190	1.35E-189
ATP6V0E2-AS1	0.414472	6.768027	4.02939	2.83E-186	1.44E-185
LINC01010	0.158381	2.466656	3.961083	2.57E-38	3.30E-38
AL590764.1	0.116133	1.750069	3.913559	5.82E-237	8.84E-236
NFIA-AS2	0.096499	1.423523	3.882815	7.93E-108	1.54E-107
LINC01389	0.134711	1.97563	3.87437	2.21E-134	5.37E-134
DNM1P35	0.157148	2.303647	3.873721	1.90E-132	4.50E-132
NBAT1	0.087139	1.248714	3.84098	9.43E-121	2.06E-120
CH17-340M24.3	4.019179	55.99788	3.8004	3.99E-191	2.40E-190
SLCO4A1-AS1	5.283304	73.10258	3.79041	5.89E-72	9.04E-72
AC004637.1	0.09093	1.251821	3.783136	0.00015947	0.000165491
MIR155HG	0.875446	12.03196	3.780709	8.58E-58	1.24E-57
ST3GAL5-AS1	0.270693	3.698738	3.772302	2.56E-164	8.24E-164
TFAP2A-AS1	1.430393	19.12483	3.740963	7.95E-133	1.89E-132
LINC00973	0.393243	5.221596	3.730998	1.85E-86	3.21E-86
LINC00337	0.099534	1.312742	3.721253	9.12E-129	2.11E-128
LINC00237	0.092992	1.186604	3.673595	8.06E-13	8.90E-13
LEF1-AS1	0.251738	3.10786	3.625926	1.00E-104	1.92E-104
LINC01563	0.221101	2.713125	3.617181	4.79E-82	7.95E-82
LINC01587	0.088929	1.055629	3.569299	2.28E-47	3.08E-47
ST3GAL6-AS1	0.515468	6.065133	3.556584	2.77E-168	9.52E-168
LINC00861	0.114232	1.337906	3.549935	1.59E-36	2.01E-36
LYPLAL1-AS1	0.125868	1.456646	3.532668	1.66E-24	2.00E-24
ACVR2B-AS1	0.513016	5.808103	3.500991	7.58E-154	2.21E-153
AC006538.1	0.371767	4.167274	3.486634	7.09E-164	2.27E-163
LINC01102	0.12343	1.30966	3.407425	1.26E-51	1.75E-51
LINC00239	0.357509	3.776018	3.400815	9.95E-76	1.56E-75
LINC00853	0.357617	3.657189	3.354247	3.45E-135	8.43E-135
FOXP4-AS1	0.398942	3.942169	3.304738	6.00E-133	1.43E-132

AGBL5-IT1	0.29849	2.884229	3.272431	9.72E-180	4.12E-179
PDCD4-AS1	1.798127	17.33418	3.269052	1.49E-192	9.92E-192
AC010642.2	0.13029	1.235552	3.245359	1.95E-193	1.40E-192
TSPEAR-AS2	0.3347	3.164563	3.241065	0.001327208	0.001363405
AC008906.1	0.127393	1.171404	3.200883	4.96E-230	7.00E-229
LINC00896	0.17551	1.572515	3.163452	9.43E-74	1.46E-73
AC079922.2	0.582358	5.210686	3.161495	4.12E-167	1.40E-166
AC090673.1	0.342639	3.062794	3.160085	6.67E-180	2.84E-179
PRRT3-AS1	1.829143	16.26405	3.152446	6.27E-139	1.57E-138
AL009179.1	0.183842	1.631235	3.149425	1.03E-177	4.17E-177
BAALC-AS2	0.309679	2.720603	3.135082	8.11E-83	1.35E-82
CARD8-AS1	0.870304	7.540881	3.115142	1.37E-175	5.29E-175
SATB2-AS1	0.18788	1.624439	3.112059	2.92E-149	7.95E-149
LINC01063	0.298257	2.577273	3.111217	2.32E-140	5.87E-140
LINC01480	0.657816	5.544488	3.075298	4.06E-69	6.13E-69
ETV5-AS1	0.231294	1.936121	3.065372	3.58E-114	7.36E-114
USP12-AS2	0.153811	1.272922	3.048913	1.99E-96	3.61E-96
FGD5-AS1	37.47693	307.8664	3.03823	3.12E-160	9.67E-160
AC003092.1	1.457684	11.92038	3.03168	5.47E-53	7.64E-53
LINC01291	0.835178	6.796711	3.024682	3.20E-85	5.47E-85
AF186192.1	0.291425	2.304517	2.983268	3.12E-14	3.49E-14
ARHGAP5-AS1	2.358676	18.47909	2.969844	1.68E-174	6.35E-174
SERPINB9P1	0.436449	3.405292	2.963894	1.26E-62	1.86E-62
LINC00906	0.149342	1.162038	2.959964	3.12E-10	3.38E-10
OCIAD1-AS1	0.229631	1.775194	2.950586	1.50E-143	3.92E-143
SOS1-IT1	0.668455	5.141456	2.943276	4.44E-172	1.62E-171
LINC00460	0.26966	2.060546	2.933811	9.46E-19	1.09E-18
DBH-AS1	0.403905	3.051997	2.917667	9.70E-57	1.39E-56
SMARCA5-AS1	0.163711	1.233565	2.913609	1.26E-141	3.21E-141
LINC00638	0.417348	3.078419	2.882866	1.27E-155	3.78E-155
HCG11	3.123456	22.35381	2.839306	1.44E-85	2.47E-85
TMPO-AS1	0.484399	3.452322	2.833298	7.34E-170	2.57E-169
LINC01116	4.899387	34.60989	2.820511	9.69E-107	1.88E-106
ERICD	0.335451	2.3577	2.813205	2.99E-163	9.52E-163
AC009495.3	0.206747	1.381732	2.740537	3.11E-74	4.83E-74
ANKRD10-IT1	6.768831	45.0509	2.734577	2.58E-96	4.67E-96
ZNF197-AS1	0.147383	0.968391	2.716019	1.39E-111	2.81E-111
HCG15	0.304293	1.996753	2.714125	4.49E-120	9.74E-120
ARHGAP31-AS1	0.354405	2.271824	2.680381	8.23E-150	2.26E-149
AC064836.3	0.234247	1.500125	2.678982	1.60E-127	3.67E-127
GLIS2-AS1	0.490821	3.128853	2.672365	2.68E-74	4.17E-74
LINC00839	1.08473	6.88224	2.665543	2.24E-49	3.08E-49
BOLA3-AS1	1.666576	10.56509	2.664346	6.59E-157	1.99E-156
LINC00997	1.323582	8.343439	2.656195	9.60E-182	4.25E-181

LOH12CR2	0.62199	3.823545	2.619948	4.28E-168	1.46E-167
PRSS30P	0.402026	2.455754	2.610806	0.002491387	0.002554173
A2M-AS1	0.63454	3.778437	2.574008	5.58E-85	9.50E-85
ZBTB11-AS1	1.173	6.977696	2.572548	9.48E-189	5.27E-188
LINC00323	0.435881	2.546444	2.546476	3.67E-42	4.82E-42
LINC01521	0.84634	4.920487	2.539491	2.48E-143	6.46E-143
SEMA3B-AS1	0.486978	2.811525	2.529425	3.23E-55	4.57E-55
PCED1B-AS1	1.424377	8.102831	2.508095	6.02E-40	7.79E-40
AC007389.3	0.198403	1.104572	2.476979	4.73E-50	6.53E-50
KMT2E-AS1	3.947146	21.61667	2.453263	6.39E-179	2.66E-178
LINC00205	2.571261	13.96066	2.440819	5.39E-167	1.82E-166
LINC00482	0.636857	3.434843	2.431202	3.27E-32	4.05E-32
TBX2-AS1	2.783237	14.82262	2.412965	1.93E-116	4.06E-116
NNT-AS1	2.955067	15.71029	2.410446	3.85E-156	1.16E-155
HHLA3	8.904371	46.59729	2.38766	1.48E-137	3.68E-137
AGAP1-IT1	0.20318	1.057383	2.379667	2.66E-57	3.81E-57
LINC00987	0.463683	2.378452	2.358813	3.98E-16	4.50E-16
URB1-AS1	6.567856	33.51782	2.351434	7.23E-173	2.67E-172
OGFRP1	0.322136	1.64183	2.349562	2.19E-155	6.49E-155
LINC01220	0.23518	1.195406	2.345663	9.23E-122	2.03E-121
TRG-AS1	0.275419	1.395407	2.340986	9.96E-33	1.24E-32
ATP2A1-AS1	0.982788	4.877654	2.311236	1.24E-107	2.42E-107
PSMG3-AS1	2.883514	14.27594	2.307686	7.16E-104	1.36E-103
CLDN10-AS1	0.280958	1.377675	2.293812	9.43E-09	1.02E-08
LINC00426	0.624301	3.015029	2.271858	5.83E-31	7.15E-31
NKILA	0.364442	1.757536	2.269791	5.35E-12	5.89E-12
PCAT6	9.224441	44.0269	2.254852	6.48E-109	1.28E-108
AC099850.1	0.806384	3.82176	2.244698	1.42E-162	4.49E-162
GAS5-AS1	1.032289	4.83161	2.226657	2.06E-174	7.75E-174
DLGAP1-AS2	1.597275	7.455251	2.222644	3.57E-121	7.83E-121
EXOC3-AS1	3.164663	14.65672	2.211439	6.06E-165	2.00E-164
UPK1A-AS1	0.484344	2.237225	2.207606	2.34E-20	2.73E-20
SNHG6	123.9086	563.2246	2.184434	1.20E-170	4.27E-170
LURAP1L-AS1	0.232629	1.043578	2.165435	8.12E-20	9.43E-20
AC144652.1	1.477716	6.596118	2.158249	3.14E-142	8.12E-142
AC156455.1	1.362329	6.060378	2.153332	4.99E-65	7.44E-65
AC062029.1	0.676104	2.984531	2.142187	1.16E-136	2.87E-136
CTB-178M22.2	0.370272	1.633363	2.141188	1.26E-07	1.34E-07
FOXN3-AS1	2.146279	9.44092	2.13709	1.61E-128	3.73E-128
LINC01560	1.950522	8.536504	2.129785	8.22E-183	3.82E-182
HM13-IT1	0.701909	3.071409	2.129545	1.62E-126	3.69E-126
USP30-AS1	0.253416	1.095341	2.111798	4.83E-16	5.45E-16
ST8SIA6-AS1	0.288216	1.243257	2.108905	2.38E-59	3.45E-59
FLJ37453	1.512047	6.462653	2.095624	7.65E-178	3.11E-177



HAR1A	0.328916	1.385693	2.074817	0.000789824	0.000813831
C1orf229	0.230307	0.968517	2.072218	1.22E-40	1.59E-40
LINC00539	0.283165	1.183898	2.063829	4.94E-162	1.56E-161
WAC-AS1	8.163877	34.01632	2.058901	1.58E-174	5.98E-174
DLGAP1-AS1	5.056698	20.68649	2.032422	6.68E-109	1.32E-108
XXYLT1-AS2	0.262441	1.069966	2.027503	4.73E-49	6.50E-49
LINC01023	4.443956	18.05867	2.022775	2.29E-114	4.72E-114
AC025171.1	1.220469	4.935777	2.015841	3.45E-149	9.38E-149
LINC01003	3.49168	13.9905	2.002454	2.07E-152	5.92E-152
LINC01198	0.694549	2.76568	1.993485	5.06E-26	6.11E-26
PLS3-AS1	0.337308	1.325668	1.974579	7.59E-77	1.20E-76
AC093382.1	0.4458	1.718355	1.94656	1.47E-75	2.30E-75
AL513327.1	0.42347	1.62063	1.936223	3.49E-238	5.46E-237
OIP5-AS1	16.83807	64.36897	1.934639	4.39E-126	9.91E-126
MIR181A2HG	1.040601	3.941641	1.921379	8.00E-70	1.21E-69
FBXL19-AS1	0.599284	2.251607	1.909643	3.94E-130	9.18E-130
BACH1-IT1	0.275317	1.019002	1.887991	1.97E-76	3.11E-76
TRAPPC12-AS1	0.829211	3.049063	1.878555	1.63E-97	3.00E-97
HEXA-AS1	0.249416	0.91685	1.878131	1.29E-69	1.95E-69
IDH1-AS1	0.833822	3.046928	1.869545	5.23E-83	8.74E-83
TMEM44-AS1	2.320114	8.45541	1.865679	9.70E-172	3.52E-171
UBAC2-AS1	0.662414	2.397781	1.855896	2.88E-125	6.47E-125
AC022098.1	0.660491	2.381771	1.850424	2.06E-228	2.87E-227
TONSL-AS1	0.433286	1.532994	1.82296	8.62E-85	1.46E-84
VPS9D1-AS1	3.7527	13.19402	1.813883	1.30E-47	1.77E-47
HMGA1P4	0.36826	1.288658	1.807075	2.86E-61	4.20E-61
CCDC13-AS1	0.286571	0.977048	1.769536	1.17E-29	1.42E-29
MIS18A-AS1	0.214903	0.732378	1.768904	5.31E-101	9.96E-101
LPP-AS2	1.224868	4.159762	1.763875	2.30E-117	4.92E-117
RASAL2-AS1	0.776724	2.636121	1.762942	3.45E-98	6.33E-98
YTHDF3-AS1	2.025592	6.861892	1.760263	1.68E-119	3.62E-119
LINC00327	0.767934	2.593484	1.755837	1.15E-29	1.41E-29
PRR34	0.351296	1.18382	1.752689	1.01E-105	1.95E-105
ST20-AS1	1.705122	5.73659	1.750318	1.70E-126	3.86E-126
CASC15	0.832202	2.790722	1.745633	4.69E-42	6.16E-42
AP001372.2	2.226703	7.226111	1.69831	5.81E-135	1.42E-134
GS1-124K5.4	3.274162	10.59853	1.694666	3.32E-104	6.33E-104
ALMS1-IT1	0.573592	1.855927	1.694043	5.21E-72	8.01E-72
PAN3-AS1	1.226121	3.953654	1.689085	3.00E-119	6.44E-119
BRWD1-AS2	0.576334	1.850617	1.683031	6.56E-86	1.13E-85
ARIH2OS	1.660812	5.311628	1.677265	1.31E-155	3.91E-155
ZNF503-AS2	1.499696	4.776255	1.671209	6.07E-111	1.22E-110
SP2-AS1	1.14894	3.62347	1.657069	1.74E-108	3.43E-108
LINC01117	0.601515	1.889117	1.65104	9.40E-61	1.38E-60

IDI2-AS1	0.814547	2.535848	1.638398	6.57E-64	9.74E-64
VIM-AS1	1.271256	3.948325	1.634986	2.96E-98	5.44E-98
CHL1-AS1	0.230799	0.710799	1.622807	2.98E-20	3.48E-20
LINC00324	1.536862	4.702198	1.613348	1.21E-79	1.96E-79
AC008982.2	0.672674	2.057339	1.612801	3.88E-65	5.81E-65
SNHG19	72.68274	221.672	1.608742	3.56E-38	4.55E-38
AC253576.2	0.232038	0.70634	1.605999	1.25E-196	1.26E-195
LINC01235	0.791601	2.392608	1.595739	7.55E-19	8.70E-19
PRKAG2-AS1	2.796659	8.42652	1.591233	2.68E-24	3.21E-24
SNHG4	5.330879	16.02487	1.587867	5.07E-57	7.25E-57
USP27X-AS1	0.695682	2.067596	1.571455	5.62E-150	1.55E-149
LINC00294	5.412315	16.08432	1.571337	2.28E-150	6.31E-150
PAXIP1-AS1	6.403235	18.94989	1.565316	8.69E-140	2.18E-139
AC009961.3	0.831881	2.361836	1.50546	1.44E-39	1.85E-39
HLA-DQB1-AS1	1.820508	5.161743	1.503517	3.90E-11	4.27E-11
FGF14-AS2	2.349179	6.584003	1.486808	8.72E-25	1.05E-24
LINC01058	0.278124	0.775653	1.479686	3.37E-24	4.03E-24
PRR26	0.319518	0.888843	1.476032	0.001739886	0.001785534
TAF1A-AS1	0.980365	2.719319	1.471854	1.66E-101	3.13E-101
FMR1-IT1	0.475327	1.316722	1.46996	1.07E-45	1.44E-45
HLX-AS1	0.420014	1.142429	1.443594	1.52E-14	1.70E-14
LINC00467	2.431646	6.593495	1.43911	1.06E-109	2.11E-109
AL133243.2	1.170227	3.172913	1.43902	1.08E-89	1.87E-89
WDR86-AS1	0.294391	0.797866	1.438412	7.22E-15	8.10E-15
AC009506.1	1.255494	3.320998	1.403362	5.69E-102	1.08E-101
LINC00235	0.538323	1.420842	1.400201	1.17E-42	1.54E-42
FAM225A	0.702489	1.853212	1.399481	4.15E-27	5.03E-27
DGCR11	1.765069	4.649175	1.39725	2.41E-84	4.06E-84
JARID2-AS1	0.328572	0.860499	1.388963	2.73E-37	3.47E-37
LINC01004	2.419395	6.307633	1.382452	2.45E-58	3.53E-58
CEBPB-AS1	0.630193	1.639807	1.37966	1.44E-76	2.28E-76
RBPMS-AS1	1.198658	3.11331	1.37703	1.30E-34	1.63E-34
CHL1-AS2	0.557909	1.435084	1.363033	5.78E-18	6.60E-18
RARA-AS1	1.45364	3.72588	1.357911	8.95E-95	1.61E-94
CIRBP-AS1	1.723901	4.33375	1.329939	3.82E-100	7.12E-100
TRIM52-AS1	13.28432	33.35112	1.328011	6.72E-101	1.26E-100
AL157871.2	2.050402	5.121784	1.32074	8.47E-20	9.82E-20
NRAV	4.408626	10.99101	1.317923	1.20E-143	3.15E-143
TMCC1-AS1	1.388941	3.451797	1.313363	3.51E-66	5.26E-66
FLJ20021	9.936491	24.28279	1.289126	5.51E-70	8.39E-70
PRKAR2A-AS1	0.524661	1.273618	1.279474	2.38E-63	3.51E-63
EP300-AS1	0.762822	1.839776	1.270113	5.81E-45	7.78E-45
TNKS2-AS1	0.989115	2.373444	1.262772	1.43E-43	1.91E-43
PRR7-AS1	1.337965	3.194674	1.255629	6.97E-56	9.88E-56

LINC00526	1.719093	4.066776	1.242238	2.35E-113	4.80E-113
TOLLIP-AS1	2.31396	5.468431	1.240763	8.26E-55	1.17E-54
GCC2-AS1	0.340328	0.803904	1.240097	2.53E-56	3.60E-56
UGDH-AS1	0.723735	1.70499	1.23623	2.64E-104	5.04E-104
LINC00106	2.458354	5.790205	1.235922	6.58E-22	7.79E-22
LINC01144	1.263749	2.925982	1.211211	4.11E-61	6.02E-61
WWC2-AS2	0.399669	0.904746	1.178706	2.35E-37	2.99E-37
MKLN1-AS	1.491716	3.33939	1.162612	6.99E-97	1.27E-96
ZNF32-AS1	0.325606	0.728389	1.16158	2.59E-33	3.23E-33
LINC00471	0.354702	0.787772	1.151173	1.07E-58	1.54E-58
LINC01270	0.487923	1.080367	1.146796	1.06E-20	1.24E-20
NCBP2-AS1	0.337254	0.744738	1.142896	6.74E-32	8.33E-32
LINC00957	2.744364	6.045929	1.139493	1.05E-43	1.40E-43
C22orf34	0.462606	1.013326	1.131243	4.74E-13	5.24E-13
ZSCAN16-AS1	3.044913	6.610623	1.118385	1.29E-85	2.22E-85
LINC00654	0.629415	1.346637	1.097278	3.63E-05	3.80E-05
SNHG9	30.22074	64.33847	1.090143	1.83E-07	1.95E-07
FALEC	0.425069	0.904549	1.089499	1.23E-42	1.62E-42
MED14OS	0.629918	1.330386	1.078609	2.41E-51	3.34E-51
HMGN3-AS1	0.694675	1.457289	1.068876	3.67E-61	5.38E-61
ZNF674-AS1	2.712686	5.514625	1.023541	2.27E-94	4.07E-94
KCTD21-AS1	1.331021	2.685861	1.012851	1.91E-17	2.17E-17
SLC25A5-AS1	0.872683	1.753306	1.006549	6.78E-83	1.13E-82
AC034243.1	0.504839	1.012894	1.004589	9.56E-05	9.96E-05
LINC01315	4.645368	9.30883	1.002807	2.03E-07	2.16E-07
LINC01301	0.606928	0.300946	-1.01202	1.89E-33	2.35E-33
CD27-AS1	31.57672	15.64355	-1.01329	9.34E-117	1.98E-116
TSC22D1-AS1	0.801936	0.388186	-1.04674	1.61E-53	2.26E-53
SLC16A1-AS1	2.552395	1.213722	-1.07241	3.44E-93	6.11E-93
MMP25-AS1	5.695728	2.687242	-1.08375	1.40E-116	2.95E-116
TRAF3IP2-AS1	5.07792	2.383753	-1.091	1.05E-114	2.17E-114
MIR22HG	32.35661	15.14266	-1.09544	2.56E-58	3.69E-58
FAM106A	0.537174	0.24858	-1.11168	2.01E-47	2.72E-47
TMEM9B-AS1	3.570387	1.646083	-1.11704	1.41E-79	2.27E-79
LINC00847	7.331322	3.378873	-1.11753	4.46E-133	1.07E-132
LINC01128	8.363266	3.809314	-1.13454	1.24E-141	3.17E-141
C2orf27A	2.70748	1.226804	-1.14205	4.09E-83	6.85E-83
ERICH6-AS1	1.062701	0.48049	-1.14516	7.89E-76	1.24E-75
MAGI2-AS3	20.28247	9.02409	-1.16838	1.15E-19	1.33E-19
FTX	2.925292	1.298086	-1.17219	2.23E-126	5.04E-126
FAM87B	0.596878	0.26257	-1.18473	1.04E-119	2.25E-119
AC005753.1	0.701451	0.307574	-1.18941	3.98E-22	4.71E-22
AC144831.1	3.973196	1.693093	-1.23064	5.46E-70	8.33E-70
ATP1A1-AS1	5.167659	2.192476	-1.23695	3.41E-78	5.45E-78

LINC00115	2.933706	1.236442	-1.24653	1.04E-110	2.09E-110
LINC00472	1.224524	0.513618	-1.25345	3.07E-86	5.32E-86
LINC00342	9.317081	3.884256	-1.26224	9.45E-119	2.02E-118
RNF139-AS1	2.781444	1.147663	-1.27713	2.35E-116	4.94E-116
DICER1-AS1	4.176449	1.7112	-1.28727	6.50E-140	1.64E-139
FAM27C	2.328157	0.942268	-1.30498	7.64E-94	1.36E-93
AC092171.4	3.27597	1.317052	-1.31461	2.57E-108	5.05E-108
MATN1-AS1	3.034086	1.217014	-1.31792	7.04E-80	1.14E-79
LINC01237	1.37556	0.547064	-1.33024	1.05E-84	1.78E-84
TMEM51-AS1	1.140276	0.452656	-1.3329	2.73E-31	3.37E-31
IQCH-AS1	2.59655	1.030544	-1.33319	3.93E-112	7.98E-112
KCNK15-AS1	2.094085	0.8167	-1.35844	2.21E-60	3.23E-60
FAM41C	0.723566	0.282067	-1.35909	9.60E-166	3.20E-165
DLG5-AS1	1.27203	0.494211	-1.36393	2.03E-92	3.59E-92
RPARP-AS1	7.578983	2.933654	-1.36931	3.04E-85	5.20E-85
SBF2-AS1	5.693369	2.193364	-1.37614	1.05E-73	1.62E-73
HEIH	26.53925	10.19256	-1.38061	2.09E-143	5.47E-143
EXTL3-AS1	0.955767	0.366801	-1.38166	4.72E-112	9.57E-112
WDFY3-AS2	1.390576	0.533491	-1.38215	9.66E-113	1.97E-112
LINC01473	1.180829	0.45101	-1.38857	1.70E-92	3.01E-92
PSMD6-AS2	1.218122	0.464718	-1.39023	8.68E-114	1.78E-113
ZNF436-AS1	4.281816	1.625256	-1.39756	4.33E-141	1.10E-140
LINC00857	0.786787	0.296427	-1.4083	3.67E-48	5.00E-48
MIATNB	4.499227	1.681066	-1.4203	1.10E-164	3.60E-164
TMEM220-AS1	1.275603	0.472562	-1.43261	1.03E-102	1.94E-102
FAM66C	1.940232	0.715776	-1.43865	3.56E-120	7.74E-120
HOTAIR	5.175646	1.897256	-1.44782	6.26E-116	1.31E-115
SEC24B-AS1	1.190602	0.434914	-1.45289	4.10E-164	1.32E-163
AC027601.1	0.927283	0.337428	-1.45843	4.04E-147	1.09E-146
TMEM147-AS1	10.95642	3.964966	-1.4664	9.88E-160	3.06E-159
LINC00960	3.157714	1.139571	-1.47039	1.47E-73	2.27E-73
AP4B1-AS1	0.825218	0.297034	-1.47415	1.62E-130	3.78E-130
UNC5B-AS1	1.794475	0.645899	-1.47418	1.52E-85	2.60E-85
NPTN-IT1	2.490533	0.896017	-1.47486	2.00E-127	4.58E-127
STARD4-AS1	1.744129	0.627431	-1.47498	1.37E-84	2.31E-84
LINC00886	2.295413	0.812359	-1.49856	7.68E-83	1.28E-82
PTOV1-AS2	12.26277	4.324117	-1.50381	1.23E-145	3.29E-145
GHRLOS	0.914448	0.321531	-1.50794	7.84E-131	1.84E-130
MIR222HG	12.64234	4.391506	-1.52548	1.62E-93	2.88E-93
SNHG17	37.29175	12.86697	-1.53518	4.76E-155	1.41E-154
HHIP-AS1	1.206213	0.402472	-1.58352	2.00E-101	3.75E-101
DGUOK-AS1	4.862538	1.608649	-1.59586	1.21E-105	2.34E-105
AC002066.1	0.729583	0.240092	-1.60349	1.76E-10	1.92E-10
RUSC1-AS1	7.610564	2.474916	-1.62062	1.09E-153	3.15E-153



GLIDR	1.195052	0.388012	-1.6229	1.74E-151	4.90E-151
NR2F2-AS1	2.107132	0.677098	-1.63784	8.25E-113	1.69E-112
LOXL1-AS1	4.999562	1.600946	-1.64288	9.76E-100	1.81E-99
LINC00662	6.068909	1.939989	-1.64539	1.14E-141	2.92E-141
SSBP3-AS1	1.177762	0.375565	-1.64891	5.88E-136	1.45E-135
LINC01138	3.84182	1.224727	-1.64933	6.66E-165	2.19E-164
LINC01184	14.49388	4.606442	-1.65372	4.01E-189	2.27E-188
HOXC13-AS	3.883176	1.231393	-1.65695	5.51E-91	9.70E-91
ZNF790-AS1	3.799811	1.200989	-1.6617	3.46E-168	1.18E-167
MALAT1	265.0748	83.4514	-1.66739	2.80E-99	5.18E-99
RBAKDN	0.548688	0.170696	-1.68456	8.64E-54	1.21E-53
HOXA11-AS	2.289868	0.711316	-1.6867	2.52E-97	4.61E-97
C21orf62-AS1	0.717889	0.221939	-1.6936	1.06E-140	2.70E-140
KDM4A-AS1	3.244744	0.994129	-1.7066	7.58E-140	1.91E-139
LINC00173	5.416911	1.642629	-1.72146	2.52E-64	3.75E-64
WEE2-AS1	1.698465	0.513337	-1.72625	4.19E-131	9.85E-131
TMC3-AS1	1.089987	0.32117	-1.7629	2.91E-44	3.89E-44
SNHG21	6.004422	1.762485	-1.76841	1.16E-175	4.48E-175
SNHG12	35.29739	10.31989	-1.77413	2.44E-165	8.11E-165
TMEM254-AS1	2.772941	0.804599	-1.78507	1.49E-96	2.69E-96
ARF4-AS1	1.071622	0.309801	-1.79038	2.00E-110	3.99E-110
LINC00958	2.792322	0.805406	-1.79368	3.20E-51	4.43E-51
AP000442.1	2.080708	0.583692	-1.8338	9.33E-171	3.33E-170
LINC01089	19.34098	5.39602	-1.84169	1.21E-155	3.63E-155
LINC00240	1.178665	0.328297	-1.84408	4.86E-131	1.14E-130
N4BP2L2-IT2	3.542802	0.973475	-1.86368	1.21E-112	2.47E-112
LINC01214	1.007774	0.274222	-1.87775	7.48E-53	1.04E-52
SH3BP5-AS1	9.621414	2.612614	-1.88075	2.28E-139	5.72E-139
CASC2	0.813802	0.216678	-1.90913	7.31E-120	1.58E-119
PITRM1-AS1	0.73605	0.193562	-1.92701	4.10E-166	1.38E-165
MCM3AP-AS1	3.725463	0.977754	-1.92988	3.12E-188	1.71E-187
SNHG10	6.437947	1.664296	-1.95169	2.43E-181	1.05E-180
TOB1-AS1	1.564278	0.400684	-1.96496	1.30E-121	2.86E-121
PITPNA-AS1	10.40829	2.645216	-1.97628	5.46E-183	2.55E-182
CRNDE	26.49867	6.667861	-1.99062	1.97E-182	9.00E-182
COX10-AS1	8.662634	2.17784	-1.99191	3.09E-182	1.38E-181
ZNF561-AS1	8.361328	2.040265	-2.03498	2.32E-182	1.04E-181
LINC00624	0.643884	0.157012	-2.03592	2.38E-156	7.18E-156
DANCR	50.2063	12.18849	-2.04235	1.60E-181	7.00E-181
TTC28-AS1	8.171652	1.959044	-2.06048	2.16E-182	9.84E-182
SRD5A3-AS1	1.594809	0.377592	-2.07848	5.20E-178	2.13E-177
AP000350.5	0.588467	0.136968	-2.10312	3.08E-81	5.07E-81
LINC01341	1.285594	0.297794	-2.11005	1.33E-136	3.28E-136
AC010894.3	1.462065	0.338371	-2.11133	1.89E-109	3.76E-109

LINC00844	1.084993	0.250498	-2.11481	3.11E-78	4.98E-78
EIF1B-AS1	0.833219	0.190063	-2.13222	4.37E-170	1.54E-169
B4GALT1-AS1	2.104602	0.475864	-2.14493	5.16E-172	1.88E-171
SCOC-AS1	1.394303	0.313597	-2.15256	1.03E-160	3.20E-160
STX18-AS1	2.137795	0.477735	-2.16184	3.74E-191	2.26E-190
DLEU2L	0.731059	0.163223	-2.16314	1.34E-149	3.66E-149
ALOX12-AS1	5.975582	1.333281	-2.1641	5.85E-193	4.04E-192
PPP3CB-AS1	4.078556	0.896311	-2.18599	1.35E-183	6.43E-183
YEATS2-AS1	1.904684	0.417888	-2.18836	9.78E-184	4.67E-183
TNK2-AS1	0.61699	0.134265	-2.20016	6.54E-85	1.11E-84
UBR5-AS1	2.725501	0.592388	-2.20191	4.71E-183	2.21E-182
LINC00607	1.3581	0.292687	-2.21416	1.84E-17	2.09E-17
LINC00702	6.278735	1.348521	-2.2191	1.39E-96	2.53E-96
MYLK-AS1	1.772424	0.380395	-2.22015	2.46E-178	1.02E-177
MIR210HG	35.19525	7.51888	-2.22679	2.80E-114	5.77E-114
LINC-PINT	6.993744	1.488888	-2.23183	3.13E-179	1.31E-178
AC010976.2	2.204004	0.460902	-2.25759	3.16E-161	9.89E-161
SFTA1P	1.32082	0.275281	-2.26246	5.80E-11	6.33E-11
LINC00992	0.807257	0.168235	-2.26255	1.98E-51	2.75E-51
THUMPD3-AS1	23.09105	4.746008	-2.28255	8.47E-193	5.78E-192
DNAJC27-AS1	1.977827	0.406045	-2.2842	2.18E-133	5.22E-133
TRHDE-AS1	1.165521	0.238996	-2.28592	4.34E-162	1.37E-161
KLF3-AS1	2.496687	0.508847	-2.29471	6.11E-123	1.35E-122
LINC00565	1.960455	0.399536	-2.29479	3.14E-23	3.75E-23
HOXA-AS3	1.435904	0.292352	-2.29618	4.31E-151	1.21E-150
MCCC1-AS1	2.399251	0.479305	-2.32357	1.10E-127	2.54E-127
ZNF213-AS1	10.08761	1.989211	-2.34232	9.21E-192	5.71E-191
SLC2A1-AS1	1.475545	0.290484	-2.34471	8.94E-139	2.23E-138
CTC-338M12.4	7.64274	1.504286	-2.34501	4.69E-192	2.98E-191
PAX8-AS1	16.76119	3.219863	-2.38005	9.20E-136	2.26E-135
OSMR-AS1	0.934124	0.178669	-2.38633	5.60E-151	1.56E-150
SAP30L-AS1	1.167237	0.219779	-2.40897	3.96E-173	1.47E-172
FLJ12825	0.570884	0.106606	-2.42091	6.57E-158	2.01E-157
SEMA3F-AS1	2.974292	0.551603	-2.43084	1.70E-171	6.12E-171
C10orf55	0.630503	0.116902	-2.43121	6.46E-153	1.86E-152
TPT1-AS1	22.47214	4.154585	-2.43536	6.60E-187	3.46E-186
HOTAIRM1	16.23258	2.987165	-2.44204	1.37E-176	5.39E-176
LIFR-AS1	0.762903	0.139757	-2.44858	1.80E-149	4.92E-149
DPP9-AS1	0.71603	0.126864	-2.49673	1.97E-152	5.63E-152
PRC1-AS1	0.598213	0.105891	-2.49807	1.45E-145	3.86E-145
ZNF667-AS1	13.6643	2.413193	-2.5014	2.14E-177	8.53E-177
DARS-AS1	2.239853	0.394587	-2.50499	7.18E-154	2.10E-153
RRN3P2	1.297496	0.226163	-2.52029	1.45E-158	4.45E-158
AC007292.3	0.592693	0.102475	-2.53201	3.19E-152	9.08E-152

MIRLET7BHG	8.935342	1.507051	-2.5678	6.68E-162	2.10E-161
LINC01127	0.634039	0.10681	-2.56953	2.12E-142	5.51E-142
C1RL-AS1	3.695522	0.619459	-2.5767	7.52E-171	2.69E-170
LINC00630	1.67996	0.281428	-2.57759	6.14E-188	3.36E-187
BDNF-AS	2.606779	0.432934	-2.59005	3.71E-190	2.18E-189
STXBP5-AS1	1.689337	0.276875	-2.60915	1.02E-173	3.82E-173
DLEU1	6.443384	1.033297	-2.64056	1.90E-184	9.24E-184
LINC00882	1.332636	0.213647	-2.64098	1.82E-125	4.10E-125
LINC01572	0.776909	0.119061	-2.70605	3.00E-120	6.54E-120
TMEM161B-AS1	7.986859	1.223576	-2.70652	1.40E-192	9.38E-192
FAM66B	1.646565	0.249542	-2.7221	1.74E-155	5.18E-155
SNHG14	11.03843	1.624535	-2.76444	3.07E-189	1.74E-188
TBX5-AS1	1.458977	0.214368	-2.76679	1.15E-116	2.43E-116
MAFTRR	1.241478	0.181619	-2.77307	1.02E-57	1.47E-57
DIRC1	1.130975	0.165444	-2.77315	2.65E-18	3.03E-18
CYP4F26P	1.173408	0.166647	-2.81584	1.07E-41	1.40E-41
SNHG8	180.2256	25.49341	-2.82161	1.64E-192	1.08E-191
MBNL1-AS1	2.314569	0.325058	-2.83198	1.11E-179	4.68E-179
NEAT1	1094.211	153.3718	-2.83479	4.90E-192	3.10E-191
AC069213.1	2.077805	0.290534	-2.83828	1.06E-89	1.85E-89
LINC01503	10.94274	1.521668	-2.84625	1.11E-166	3.75E-166
CA3-AS1	0.883275	0.122195	-2.85368	2.62E-40	3.40E-40
FSIP2-AS1	0.638019	0.087888	-2.85986	3.56E-77	5.66E-77
AC007743.1	0.735893	0.09939	-2.88833	5.46E-166	1.83E-165
LINC00877	0.743305	0.10012	-2.89222	3.39E-56	4.82E-56
LAMTOR5-AS1	2.065491	0.276136	-2.90303	3.49E-193	2.45E-192
NEXN-AS1	0.609118	0.08093	-2.91198	9.87E-82	1.63E-81
PART1	0.900483	0.11909	-2.91865	1.69E-124	3.76E-124
PXN-AS1	8.531238	1.11831	-2.93144	2.12E-192	1.37E-191
NUTM2A-AS1	18.48931	2.409426	-2.93993	7.95E-192	4.96E-191
STARD13-AS	0.689054	0.088936	-2.95378	4.95E-124	1.10E-123
ADAMTS9-AS2	1.100387	0.134816	-3.02895	3.93E-170	1.39E-169
LINC01554	3.673193	0.443863	-3.04885	1.07E-133	2.58E-133
FENRR	0.923243	0.111434	-3.05052	6.04E-80	9.83E-80
LINC01197	1.022178	0.123329	-3.05106	2.30E-94	4.11E-94
LINC01176	6.340285	0.745498	-3.08827	1.03E-108	2.04E-108
BMS1P4	1.329254	0.152295	-3.12568	5.30E-189	2.98E-188
ITGA9-AS1	5.657126	0.637267	-3.1501	1.15E-194	9.23E-194
NR2F1-AS1	7.18983	0.808055	-3.15343	5.51E-123	1.22E-122
FAM201A	0.979206	0.107776	-3.18357	1.92E-60	2.80E-60
LRP4-AS1	2.701738	0.295101	-3.19461	1.69E-140	4.27E-140
LINC00885	1.241804	0.131859	-3.23537	2.91E-55	4.12E-55
AC006449.2	21.20827	2.215057	-3.25921	6.89E-188	3.75E-187
AF230666.2	0.840705	0.087741	-3.26028	2.66E-180	1.14E-179

XIST	44.50989	4.618574	-3.26861	5.74E-60	8.37E-60
FAM182B	3.696428	0.37978	-3.2829	9.77E-102	1.84E-101
TP53TG1	26.58336	2.720649	-3.2885	1.31E-191	8.10E-191
ADAMTSL4-AS1	0.724721	0.073187	-3.30776	1.77E-186	9.17E-186
SNHG5	391.0873	38.91113	-3.32924	3.16E-185	1.57E-184
ARRDC3-AS1	1.174326	0.113745	-3.36796	1.40E-191	8.59E-191
LIPE-AS1	4.895971	0.467848	-3.38748	6.91E-190	4.02E-189
LINC00894	4.17842	0.397354	-3.39446	1.13E-188	6.25E-188
AC016747.3	3.266458	0.310003	-3.39737	7.79E-165	2.55E-164
LINC00592	0.826191	0.07765	-3.41141	9.07E-119	1.95E-118
LINC01451	2.379028	0.222446	-3.41885	1.04E-54	1.46E-54
AL133243.1	1.432385	0.133841	-3.41982	1.40E-192	9.38E-192
SOX21-AS1	2.508564	0.22695	-3.46641	5.78E-71	8.82E-71
AC024560.3	16.64115	1.49571	-3.47585	1.71E-192	1.12E-191
FLNB-AS1	1.701279	0.148711	-3.51604	3.00E-186	1.53E-185
LINC01305	0.611235	0.053405	-3.51668	1.18E-131	2.78E-131
SPAG5-AS1	2.448316	0.211883	-3.53045	2.64E-194	2.02E-193
MLIP-IT1	0.732129	0.06208	-3.5599	6.09E-73	9.36E-73
RGS5	10.65814	0.881316	-3.59615	2.17E-182	9.84E-182
PVT1	25.80178	2.119278	-3.60583	1.32E-180	5.67E-180
LINC01348	0.662106	0.053263	-3.63586	7.09E-150	1.95E-149
HOXC-AS3	2.971296	0.23457	-3.663	1.09E-187	5.82E-187
ADAMTS9-AS1	0.930023	0.072472	-3.68177	3.89E-99	7.17E-99
OVOL1-AS1	2.797523	0.212193	-3.7207	1.48E-57	2.13E-57
C3orf35	2.694203	0.20232	-3.73515	1.99E-180	8.53E-180
LINC01140	4.073884	0.302385	-3.75195	1.60E-184	7.83E-184
POLR2J4	4.59284	0.338483	-3.76223	1.62E-192	1.07E-191
STX17-AS1	2.464528	0.181461	-3.76358	4.51E-86	7.79E-86
AC009120.5	1.124951	0.082457	-3.77007	4.61E-169	1.60E-168
AC007036.5	0.60884	0.044595	-3.7711	1.12E-83	1.89E-83
CADM3-AS1	1.436371	0.104326	-3.78325	7.12E-169	2.47E-168
LINC01515	2.525153	0.182362	-3.79149	1.14E-116	2.42E-116
NUTM2B-AS1	15.3575	1.104632	-3.79731	1.42E-194	1.13E-193
LINC01119	3.913548	0.27417	-3.83534	1.46E-114	3.02E-114
KRT73-AS1	0.653321	0.045459	-3.84515	2.90E-61	4.26E-61
ADD3-AS1	0.747305	0.050379	-3.89079	2.30E-184	1.11E-183
PTOV1-AS1	5.926586	0.390231	-3.9248	9.08E-195	7.66E-194
AC009950.1	1.541153	0.099865	-3.94788	8.74E-80	1.42E-79
FZD10-AS1	2.804088	0.181584	-3.94883	9.03E-80	1.46E-79
MIR205HG	101.3149	6.348227	-3.99635	5.49E-137	1.36E-136
LINC00632	1.807521	0.112731	-4.00305	7.14E-170	2.51E-169
MRPL23-AS1	0.714265	0.043828	-4.02654	3.27E-152	9.28E-152
CBR3-AS1	4.996921	0.303785	-4.03992	6.20E-191	3.71E-190
SCGB1B2P	93.56536	5.595267	-4.0637	2.67E-42	3.51E-42

LMO7-AS1	4.683839	0.272984	-4.1008	8.52E-125	1.90E-124
PCBP1-AS1	29.07037	1.682738	-4.11067	1.09E-194	8.78E-194
EMX2OS	8.190331	0.449573	-4.18729	2.34E-186	1.20E-185
AC129492.1	1.94256	0.106197	-4.19314	3.14E-135	7.69E-135
PRKG1-AS1	0.759046	0.041377	-4.1973	1.14E-22	1.36E-22
ZFAS1	205.2696	11.03358	-4.21755	1.32E-195	1.27E-194
GUSBP11	14.14364	0.752095	-4.2331	8.98E-195	7.66E-194
OR2A1-AS1	13.13706	0.69207	-4.24658	7.72E-192	4.85E-191
EDRF1-AS1	1.232653	0.064268	-4.26152	8.14E-188	4.40E-187
RBM5-AS1	2.850777	0.148024	-4.26746	1.54E-189	8.88E-189
LINC01123	2.235056	0.115304	-4.2768	3.29E-179	1.38E-178
LINC01550	5.726773	0.2951	-4.27845	1.03E-145	2.76E-145
LINC01106	3.582221	0.18429	-4.2808	2.08E-177	8.34E-177
C5orf66	1.872402	0.096283	-4.28147	2.05E-189	1.18E-188
PRMT5-AS1	0.801153	0.04108	-4.28556	1.97E-181	8.58E-181
LINC00339	14.65497	0.746392	-4.29531	9.01E-195	7.66E-194
SCARNA9	3.008926	0.150802	-4.31852	5.39E-186	2.73E-185
ADIRF-AS1	32.744	1.639957	-4.3195	1.19E-164	3.86E-164
AL450992.2	1.903489	0.092622	-4.36115	3.07E-159	9.46E-159
LINC01088	3.692961	0.178902	-4.36754	1.06E-171	3.82E-171
EGFR-AS1	0.628534	0.030374	-4.37109	9.72E-188	5.23E-187
LINC00578	2.213516	0.105317	-4.39352	2.42E-21	2.84E-21
FAM13A-AS1	6.753153	0.317635	-4.41012	5.55E-193	3.87E-192
AC083843.1	1.818573	0.085229	-4.41531	2.29E-193	1.62E-192
AC068580.5	0.930637	0.041384	-4.49108	3.35E-79	5.40E-79
SOX9-AS1	5.93884	0.250386	-4.56796	4.80E-64	7.13E-64
CALML3-AS1	3.875714	0.159134	-4.60615	3.97E-74	6.16E-74
INTS6-AS1	4.451123	0.181446	-4.61656	9.32E-195	7.71E-194
LINC00964	1.689212	0.068519	-4.6237	1.73E-126	3.92E-126
SAPCD1-AS1	3.030352	0.120237	-4.65553	5.77E-108	1.13E-107
MIR4435-2HG	51.65867	1.973336	-4.7103	1.85E-185	9.22E-185
LIMD1-AS1	6.329953	0.241096	-4.71451	2.02E-194	1.58E-193
CFLAR-AS1	1.782883	0.066234	-4.7505	9.65E-193	6.54E-192
LINC00640	5.320488	0.193214	-4.78329	9.97E-152	2.83E-151
GATA3-AS1	1.075225	0.037778	-4.83094	6.98E-116	1.46E-115
NEBL-AS1	0.978412	0.033857	-4.8529	7.96E-133	1.89E-132
PLA2G4E-AS1	2.992208	0.103075	-4.85945	2.94E-46	3.96E-46
CYP1B1-AS1	2.392674	0.081734	-4.87155	4.92E-190	2.88E-189
LINC00452	0.693591	0.022929	-4.91883	1.89E-43	2.51E-43
MEG9	1.58736	0.052299	-4.92371	8.63E-175	3.30E-174
MAGI1-IT1	0.665472	0.021834	-4.92974	3.90E-176	1.51E-175
DSG1-AS1	0.652787	0.021034	-4.9558	3.71E-71	5.68E-71
LINC00545	0.706293	0.022678	-4.96092	2.46E-106	4.76E-106
PGM5-AS1	1.193583	0.037814	-4.98023	9.94E-78	1.58E-77

BCRP3	1.60415	0.049876	-5.00733	6.61E-187	3.46E-186
RFPL3S	1.754774	0.053012	-5.04883	4.27E-194	3.20E-193
TTY14	4.479372	0.126687	-5.14395	4.86E-47	6.56E-47
ENTPD1-AS1	3.524306	0.099574	-5.14542	9.25E-195	7.71E-194
USP3-AS1	2.606759	0.073602	-5.14637	9.52E-195	7.81E-194
HCG25	19.02362	0.532655	-5.15845	4.68E-194	3.48E-193
ACTA2-AS1	14.89918	0.409567	-5.18499	2.79E-174	1.05E-173
LINC00893	7.920509	0.217357	-5.18745	1.98E-194	1.56E-193
FAM215B	1.686869	0.044651	-5.2395	8.75E-195	7.66E-194
MEG3	96.1555	2.313153	-5.37744	1.45E-186	7.58E-186
GTF3C2-AS1	1.348029	0.0322	-5.38766	1.36E-182	6.28E-182
AC058791.1	1.380499	0.032348	-5.41535	7.39E-191	4.40E-190
THRB-AS1	0.697376	0.016058	-5.44054	9.74E-183	4.50E-182
LINC01133	8.209187	0.184869	-5.47266	2.54E-191	1.55E-190
AC113404.1	2.13514	0.042858	-5.63862	6.48E-195	5.99E-194
AC253572.1	3.460683	0.06857	-5.65734	1.70E-164	5.49E-164
MIR99AHG	4.685855	0.09182	-5.67336	2.09E-194	1.62E-193
SNHG22	3.490571	0.06612	-5.72224	3.22E-192	2.06E-191
AC074286.1	3.163813	0.056345	-5.81123	2.35E-194	1.81E-193
AP001437.1	0.782453	0.013764	-5.82906	2.42E-176	9.46E-176
AC005562.1	3.919947	0.066897	-5.87275	8.02E-194	5.82E-193
DIO3OS	11.17794	0.184503	-5.92087	8.84E-165	2.89E-164
HAND2-AS1	4.298149	0.070549	-5.92895	2.84E-189	1.62E-188
AC005538.3	1.052256	0.016492	-5.99562	1.89E-111	3.81E-111
MIR497HG	3.018223	0.0473	-5.99572	3.00E-194	2.28E-193
FAM157C	4.472202	0.068181	-6.03547	8.39E-193	5.77E-192
TTN-AS1	10.71096	0.159295	-6.07125	9.00E-195	7.66E-194
AC009403.2	3.238505	0.048157	-6.07143	2.05E-193	1.46E-192
AP006222.2	2.575104	0.034981	-6.2019	1.30E-197	1.35E-196
AC007620.3	11.44544	0.147233	-6.28052	1.33E-193	9.58E-193
LINC01229	2.524878	0.031407	-6.32899	1.25E-42	1.65E-42
LINC01300	0.637882	0.007747	-6.36358	2.35E-90	4.13E-90
RASSF1-AS1	1.015024	0.012275	-6.36967	1.03E-196	1.05E-195
LINC00968	8.345095	0.100259	-6.37913	3.00E-170	1.06E-169
TEX26-AS1	0.858822	0.010137	-6.40464	7.51E-169	2.60E-168
AC073052.1	0.831954	0.009291	-6.48451	2.32E-184	1.12E-183
MEG8	1.361271	0.013632	-6.64177	5.41E-85	9.23E-85
EML2-AS1	1.125717	0.011093	-6.66499	1.68E-185	8.43E-185
FAM182A	4.218696	0.041496	-6.66767	7.28E-163	2.31E-162
HOXA10-AS	4.699957	0.045778	-6.68185	7.25E-194	5.31E-193
AP000432.1	0.962951	0.009338	-6.68827	3.17E-200	3.58E-199
IL20RB-AS1	3.832061	0.034773	-6.78403	2.03E-134	4.94E-134
AGAP11	3.129764	0.028007	-6.8041	2.48E-187	1.32E-186
AP001189.4	0.975477	0.008209	-6.89283	5.19E-196	5.13E-195

PP7080	14.3535	0.114268	-6.97284	8.84E-195	7.66E-194
AC009303.2	0.957118	0.00746	-7.00336	4.92E-195	4.59E-194
VIPR1-AS1	3.262545	0.02541	-7.00444	1.16E-71	1.77E-71
SLC8A1-AS1	2.009647	0.015198	-7.04693	3.09E-175	1.19E-174
AC245100.1	1.840171	0.013897	-7.04895	2.43E-195	2.29E-194
AC017074.2	0.656251	0.004797	-7.09599	3.58E-185	1.77E-184
JPX	14.17769	0.089405	-7.30905	8.95E-195	7.66E-194
ABALON	0.754611	0.004332	-7.44449	1.09E-194	8.78E-194
AC133644.2	3.069197	0.017448	-7.45862	6.31E-184	3.03E-183
AF131215.2	2.008859	0.01101	-7.51146	1.78E-195	1.70E-194
DTX2P1-UPK3BP1- PMS2P11	7.593458	0.038585	-7.62059	9.12E-195	7.66E-194
LINC01001	17.62141	0.085443	-7.68815	9.03E-195	7.66E-194
AC108142.1	1.17557	0.005349	-7.77995	4.81E-127	1.10E-126
AP000439.3	1.329026	0.005148	-8.01224	3.68E-100	6.87E-100
MYCBP2-AS1	1.420594	0.005136	-8.11151	1.59E-181	6.96E-181
AC016629.3	3.511403	0.010436	-8.39431	2.61E-182	1.17E-181
LINC01002	39.87939	0.117425	-8.40776	8.34E-195	7.58E-194
AC010168.1	51.36694	0.095412	-9.07245	6.94E-154	2.03E-153
AC110615.1	1.959932	0.002902	-9.39969	4.92E-67	7.37E-67
AC017002.1	0.859906	0.001253	-9.42252	1.39E-164	4.51E-164
SMAD5-AS1	1.317425	0.001857	-9.47057	3.60E-178	1.48E-177
FAM223A	0.785587	0.001094	-9.48736	3.26E-199	3.57E-198
LINC01527	2.22996	0.002884	-9.59456	3.93E-109	7.79E-109
STAG3L5P-PVRIG2 P-PILRB	34.80403	0.042604	-9.67405	7.83E-195	7.18E-194
CERS6-AS1	12.54412	0.013815	-9.8266	3.22E-178	1.33E-177
SLX1A-SULT1A3	9.758825	0.004309	-11.1451	1.59E-196	1.58E-195
SLX1B-SULT1A4	3.833238	0.001523	-11.2977	4.60E-199	4.92E-198
AC021066.1	23.77139	0.007589	-11.613	1.67E-90	2.93E-90
ZSWIM8-AS1	2.600811	0.000683	-11.8957	6.81E-196	6.66E-195
CCDC39	2.098981	0.000214	-13.2569	7.89E-204	9.44E-203
RMRP	6.053714	0.000603	-13.2925	3.02E-177	1.20E-176
AP002518.1	55.15734	0.004461	-13.5938	2.02E-76	3.18E-76
AL589743.1	1.643619	0.000126	-13.6754	4.95E-202	5.73E-201
AC138035.2	9.487859	0.000395	-14.5506	1.20E-203	1.42E-202
AL162151.3	496.8335	0.014072	-15.1077	8.37E-159	2.57E-158
AC159540.1	14.75844	0.000386	-15.221	2.79E-204	3.37E-203
AC055736.1	124.3866	0.002881	-15.3977	6.96E-82	1.15E-81
AC007009.1	1.035929	1.90E-07	-22.3821	4.34E-116	9.10E-116
LINC01260	1.152847	1.90E-07	-22.5364	7.01E-199	7.42E-198
TGFB2-OT1	1.382961	1.90E-07	-22.799	1.48E-177	5.94E-177
LINC00941	1.622732	1.90E-07	-23.0296	4.40E-153	1.27E-152
AC234582.1	1.747141	1.90E-07	-23.1362	1.21E-151	3.42E-151



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NAV2-AS1	2.2499	1.90E-07	-23.5011	2.82E-144	7.45E-144
AC005253.2	3.087425	1.90E-07	-23.9576	1.79E-204	2.19E-203
RNF185-AS1	3.98891	1.90E-07	-24.3272	3.27E-142	8.44E-142
PAPPA-AS1	4.059257	1.90E-07	-24.3524	9.74E-200	1.09E-198
FOXD1-AS1	8.620759	1.90E-07	-25.439	2.60E-199	2.87E-198
AC005523.2	17.71446	1.90E-07	-26.478	1.76E-204	2.18E-203

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**Supplementary table 5.** Mapping of immune landscape based on computational framework.

	<b>More in low-risk subgroup</b>	<b>More in high-risk subgroup</b>	<b>Meaninglessly</b>
<b>CIBERSORT</b>	B cell memory, T cell CD8, T cell CD4 na ěve, CD4 memory activated, T cell regulatory (Tregs), T cell gamma delta, Macrophage M1	T cell follicular helper, Macrophages M2, Dendritic cell activated, Eosinophils	B cell na ěve, Plasma cell, T cell CD4 memory resting, NK cell resting, NK cell activated, Monocytes, Macrophages M0, Dendritic cell resting, Mast cell resting, Mast cell activated, Neutrophils
<b>CIBERSORT-ABS</b>	B cell memory, B cell plasma, Macrophage M0, Macrophage M1, Macrophage M2, Monocyte, NK cell activated, T cell CD4 memory activated, T cell CD4 memory resting, T cell CD8, T cell follicular helper, T cell gamma delta, T cell regulatory (Tregs), Myeloid dendritic cell resting	Myeloid dendritic cell activated, NK cell resting	B cell naive, Eosinophil, Mast cell activated, Mast cell resting, Neutrophil, T cell CD4 naive
<b>EPIC</b>	B cell, Macrophage, T cell CD4, T cell CD8	NK cell, uncharacterized cells	Cancer associated fibroblast, Endothelial cell
<b>MCPCOUNTER</b>	B cell, Endothelial cell, Macrophage/Monocyte, Monocyte, Myeloid dendritic cell, NK cell, T cell, T cell CD8	-	Cancer associated fibroblast, Neutrophil
<b>QUANTISEQ</b>	B cell, Macrophage M1, Macrophage M2, T cell CD8, T cell regulatory (Tregs)	T cell CD4 (non-regulatory), uncharacterized cells	Monocyte, Myeloid dendritic cell, Neutrophil, NK cell
<b>TIMER</b>	B cell, Macrophage, Myeloid dendritic cell, Neutrophil, T cell CD4, T cell CD8	-	-
<b>TISIDB</b>	Activated B cell, Activated CD4 T cell, Activated CD8 T cell, T cell CD4 central memory, T cell CD8 central memory, T cell CD4 activated memory, T cell CD8 activated memory, T cell gamma delta, B cell naive, B cell memory, T cell regulatory (Tregs), T	-	CD56bright natural killer cell, CD56dim natural killer cell

cell follicular helper, T cell CD4 Th1, Type 17 T helper cell, T cell CD4 Th2, Activated dendritic cell, Eosinophil, Immature dendritic cell, Macrophage, Mast cell, MDSC, Monocyte, NK cell, T cell NK, Neutrophil, Plasmacytoid dendritic cell

B cell, B cell memory, B cell naive, B cell plasma, Class-switched memory B cell, Endothelial cell, Macrophage, Macrophage M1, Macrophage M2, Monocyte, Myeloid dendritic cell, Myeloid dendritic cell activated, Plasmacytoid dendritic cell, T cell CD4 (non-regulatory), T cell CD4 effector memory, T cell CD4 memory, T cell CD4 naive, T cell CD4 Th2, T cell CD8, T cell CD8 central memory, T cell CD8 effector memory, T cell CD8 naive

**XCELL**

T cell NK

Cancer associated fibroblast, Common lymphoid progenitor, Common myeloid progenitor, Eosinophil, Granulocyte-monocyte progenitor, Hematopoietic stem cell, Mast cell, Neutrophil, NK cell, T cell CD4 central memory, T cell CD4 Th1, T cell gamma delta, T cell regulatory (Tregs)

**Results of intersection**

T cell CD8, B cell memory, Macrophage M1

uncharacterized cells

Cancer associated fibroblast