

## Supplementary materials

**Table S1** Summary of differentially expressed lncRNAs between cancer and adjacent tissues

<b>lncRNA</b>	<b>Entrez ID</b>	<b>Normal</b>	<b>Tumor</b>	<b>Fold change</b>	<b>P-value</b>	<b>FDR</b>
LINC00588	26138	0.89	63.63	71.49438202	3.80E-06	2.45E-05
SLC26A4-AS1	286002	3.76	56.89	15.13031915	8.90E-06	5.20E-05
BAALC-AS2	157556	2.05	29.99	14.62926829	1.00E-07	1.14E-06
LINC00265	349114	85.92	850.18	9.895018622	<1e-07	<1e07
UCKL1-AS1	100113386	6.52	61.53	9.437116564	<1e07	<1e07
LINC00239	145200	2.17	18.35	8.456221198	8.00E-07	6.83E-06
PART1	25859	31.08	248.86	8.007078507	2.74E-05	0.000134
PACRG-AS1	285796	1.37	10.76	7.854014599	<1e07	<1E-07
KRTAP5-AS1	338651	12.65	91.88	7.263241107	<1e07	<1e07
CDKN2B-AS1	100048912	0.75	5.36	7.146666667	6.10E-06	3.66E-05
LINC00889	158696	2.74	18.11	6.609489051	7.00E-07	6.09E-06
LINC00669	647946	1.14	7.82	6.859649123	3.40E-06	2.29E-05
LINC00930	100144604	0.93	6.22	6.688172043	0.0004678	0.00153
LINC00598	646982	1.64	8.25	5.030487805	1.48E-05	7.97E-05
LINC00482	284185	19.23	89.46	4.652106084	5.70E-06	3.52E-05
OLMALINC	90271	56.14	253.98	4.524047025	<1e07	<1e07
LINC00336	401253	2.97	12.69	4.272727273	3.60E-06	2.39E-05
HCG26	352961	34.32	141.93	4.13548951	5.00E-07	4.83E-06
LINC00957	255031	190.49	617.41	3.241167515	6.00E-07	5.55E-06
TMEM51-AS1	200197	148.27	456.88	3.081405544	4.47E-05	2.00E-04

FAM95B1	100133036	10.45	33.17	3.174162679	9.71E-05	0.000375
ATP6V0E2-AS1	401431	94.69	286.61	3.026824374	3.22E-05	0.000152
ARRDC3-AS1	100129716	8.73	25.46	2.916380298	7.60E-06	4.50E-05
LINC00964	157381	1.21	3.19	2.636363636	0.0005465	0.00175
INE2	8551	11.16	27.65	2.477598566	0.0005974	0.00185
CHKB-AS1	100144603	5.45	13.16	2.414678899	4.00E-07	4.13E-06
HCP5	10866	757.33	1841.51	2.431582005	9.01E-05	0.000354
MIR600HG	81571	97.78	228.46	2.336469626	0.00019	0.000664
LINC00282	283521	3.12	6.87	2.201923077	4.72E-05	0.000207
RBAKDN	389458	2.17	4.86	2.239631336	0.0001716	0.00061
ASMTL-AS1	80161	35.65	77.98	2.187377279	0.0001058	0.000401
INE1	8552	9.17	19.68	2.14612868	7.00E-07	6.09E-06
ZNF252P-AS1	286103	10.74	22.39	2.084729981	<1e07	<1e07
FBXO22-AS1	692224	36.21	75.5	2.085059376	3.00E-07	3.25E-06
ANP32A-IT1	80035	1.55	3.26	2.103225806	0.0008286	0.00254
LINC01590	63914	8.01	14.74	1.84019975	4.28E-05	0.000194
STARD7-AS1	285033	32.97	59.44	1.802851077	1.00E-07	1.14E-06
SNHG7	84973	590.56	1063.32	1.800528312	0.0002363	0.00082
FAM13A-AS1	285512	25.48	42.75	1.677786499	0.0007419	0.00229
SNHG1	23642	364.36	589.93	1.61908552	0.0004258	0.0014
ST20-AS1	283687	76	115.82	1.523947368	8.68E-05	0.00035
SNHG20	654434	117.07	80.55	0.688049885	0.0005631	0.00177
LINC01128	643837	123.31	78.86	0.639526397	0.000257	0.000875
THAP7-AS1	439931	102.87	63.47	0.61699232	6.04E-05	0.000255

LINC00909	400657	305.28	183.3	0.60043239	8.12E-05	0.000334
ILF3-AS1	147727	1443.94	846.72	0.586395557	1.33E-05	7.20E-05
LINC00339	29092	290.38	168.51	0.580308561	<1e07	1.14E-06
ZNF674-AS1	401588	128.05	72.51	0.566263178	0.000903	0.00273
NUTM2A-AS1	728190	195.94	108.28	0.552618148	0.0002583	0.000875
ZEB1-AS1	220930	187.88	99.94	0.531935278	2.60E-06	1.86E-05
DNMBP-AS1	100188954	4.59	2.41	0.525054466	0.0003889	0.0013
LOH12CR2	503693	88.02	44.83	0.509316065	2.54E-05	0.000125
LINC00910	100130581	74.53	37.9	0.508520059	<1e07	1.14E-06
LINC00526	147525	91.24	46.36	0.508110478	2.07E-05	0.000106
WEE2-AS1	285962	69.64	34.92	0.501435956	0.0003588	0.00121
PWARSN	347746	243.19	118.94	0.48908261	0.0005357	0.00172
LINC00883	344595	151.22	73.94	0.488956487	0.0001318	0.00048
ZNF205-AS1	81854	19.28	9.36	0.485477178	1.30E-06	1.03E-05
HCG18	414777	553	267.36	0.483471971	<1e-07	1.14E-06
ASH1L-AS1	645676	60.21	29.13	0.483806677	7.00E-07	6.09E-06
PSMD5-AS1	253039	400.02	192.64	0.481575921	3.49E-05	0.000161
DLGAP1-AS1	649446	246.35	115.85	0.470265882	3.72E-05	0.00017
HCG4B	80868	7.7	3.61	0.468831169	0.0001023	0.000392
ATP1A1-AS1	84852	138.6	64.79	0.467460317	2.10E-06	1.53E-05
DANCR	57291	1391.66	637.37	0.457992613	2.39E-05	0.000121
LINC00467	84791	179.48	80.64	0.449297972	3.33E-05	0.000156
ST7-AS1	93653	79.96	34.79	0.435092546	<1e-07	<1e-07
LINC00998	401397	1041.02	450.55	0.43279668	<1e-07	1.14E-06

FLVCR1-AS1	642946	32.24	13.93	0.43207196	9.90E-06	5.64E-05
A2M-AS1	144571	67.92	29.01	0.427120141	9.00E-07	7.40E-06
XIST	7503	268.61	114.26	0.425375079	1.60E-06	1.20E-05
LINC00937	389634	2.74	1.16	0.423357664	0.0004125	0.00137
LINC00936	338758	106.51	44.88	0.421368886	8.26E-05	0.000336
MAFG-AS1	92659	52.44	21.98	0.41914569	6.00E-05	0.000255
GHRLOS	100126793	10.07	4.21	0.418073486	8.98E-05	0.000354
BAIAP2-AS1	440465	774.83	321.16	0.414490921	2.70E-06	1.90E-05
WWC2-AS2	152641	46.56	18.77	0.403135739	0.0001171	0.000433
MIR503HG	84848	50.25	19.32	0.384477612	1.14E-05	6.25E-05
FAM66C	440078	47.54	18.16	0.38199411	5.80E-06	3.53E-05
LINC00346	283487	119.25	44.78	0.375513627	0.0005568	0.00177
LINC00472	79940	391.02	145.55	0.372231599	3.70E-06	2.42E-05
MIR17HG	407975	12.65	4.55	0.359683794	2.80E-06	1.91E-05
LINC00324	284029	69.25	24.65	0.355956679	<1e-07	<1e-07
MIR143HG	728264	118.17	41.61	0.352119827	4.95E-05	0.000213
TIPARP-AS1	100287227	10.5	3.66	0.348571429	1.14E-05	6.25E-05
LINC00094	266655	955.9	325.32	0.340328486	<1e-07	<1e-07
RPL34-AS1	285456	6.38	2.12	0.332288401	0.0001636	0.000586
LINC00173	100287569	5.97	1.97	0.32998325	2.48E-05	0.000124
LINC01011	401232	44.53	14.66	0.329216259	<1e-07	<1e-07
C21orf62-AS1	54067	20.36	6.67	0.327603143	1.00E-07	1.14E-06
CECR5-AS1	100130717	6.24	2.05	0.328525641	9.43E-05	0.000367
URB1-AS1	84996	216.89	69.51	0.320485038	<1e-07	<1e-07

LINC01341	149134	10.25	3.27	0.31902439	0.0001124	0.000423
LINC01144	400752	69.15	21.98	0.317859725	3.00E-07	3.25E-06
LINC00310	114036	10.82	3.43	0.317005545	4.68E-05	0.000207
CYP1B1-AS1	285154	8.6	2.7	0.313953488	1.72E-05	8.88E-05
LINC01547	84536	65.5	19.97	0.304885496	4.70E-06	2.98E-05
LBX2-AS1	151534	134.18	40.36	0.300789984	8.95E-05	0.000354
LINC00476	100128782	383.7	110.53	0.288063591	<1e-07	<1e-07
LINC01558	26238	22.2	6.21	0.27972973	1.08E-05	6.07E-05
LINC01119	100134259	8.36	2.16	0.258373206	<1e-07	<1e-07
AGPAT4-IT1	79992	3.45	0.89	0.257971014	0.0001452	0.000524
PSMG3-AS1	114796	383.59	96.88	0.252561329	<1e-07	<1e-07
LINC00240	100133205	8.75	2.19	0.250285714	1.60E-06	1.20E-05
WDFY3-AS2	404201	254.91	61.96	0.24306618	2.80E-06	1.91E-05
LINC00961	158376	127.41	29.87	0.234439997	<1e-07	1.14E-06
C1RL-AS1	283314	145.32	33.8	0.232590146	1.00E-07	1.14E-06
CEP83-AS1	144486	18.83	4.29	0.227827934	1.90E-06	1.41E-05
PAX8-AS1	654433	42.17	9.26	0.219587384	1.00E-07	1.14E-06
HOTAIR	100124700	9.24	2.03	0.21969697	5.00E-06	3.13E-05
TMEM254-AS1	219347	56.36	12.27	0.217707594	<1e-07	<1e-07
MLLT4-AS1	653483	39.73	8.55	0.215202618	<1e-07	<1e-07
SOX2-OT	347689	6.85	1.46	0.213138686	9.70E-06	5.59E-05
MIR99AHG	388815	127.73	26.57	0.208016911	8.06E-05	0.000334
NR2F1-AS1	441094	205.24	39.46	0.192262717	<1e-07	<1e-07
LINC00882	100302640	24.91	4.56	0.183059012	3.00E-05	0.000143

LINC00242	401288	5.01	0.92	0.183632735	0.0001844	0.00065
LINC01554	202299	17.95	3.06	0.170473538	1.53E-05	8.09E-05
CASC2	255082	135.55	22.88	0.168793803	<1e-07	<1e-07
LINC00312	29931	30.8	4.94	0.16038961	<1e-07	<1e-07
TINCR	257000	30.49	4.73	0.15513283	9.00E-07	7.40E-06
LINC00092	100188953	17.48	2.11	0.120709382	<1e-07	<1e-07
HCG4	54435	110.57	13.32	0.120466673	<1e-07	<1e-07
HNF1A-AS1	283460	42.28	4.94	0.116840114	0.0001282	0.00047
LOC145837	145837	51.18	5.82	0.113716295	1.50E-06	1.17E-05
MEG3	55384	25.74	2.83	0.10994561	6.00E-07	5.55E-06
LINC00839	84856	137.79	13.3	0.096523695	0.0001146	0.000428
LOC285768	285768	13.25	1.27	0.095849057	0.0005679	0.00178
ADORA2A-AS1	646023	34.64	2.91	0.084006928	1.20E-06	9.69E-06
GATA3-AS1	399717	184.72	15.01	0.08125812	4.77E-05	0.000208
LINC00924	145820	257.89	20.63	0.079995347	<1e-07	<1e-07
BRE-AS1	100302650	809.36	64.02	0.079099535	1.00E-07	1.14E-06
UCA1	652995	14.36	1.12	0.077994429	8.13E-05	0.000334
EGOT	100126791	122.39	9.42	0.076967072	<1e-07	1.14E-06
LINC00908	284276	12.85	0.96	0.074708171	<1e-07	<1e-07
LINC00671	388387	101.52	6.48	0.063829787	<1e-07	<1e-07
LINC00271	100131814	45.98	2.57	0.055893867	<1e-07	<1e-07
COL18A1-AS1	378832	47.28	2.39	0.050549915	5.00E-07	4.83E-06
LINC01550	388011	74.63	3.22	0.043146188	4.00E-07	4.13E-06
WT1-AS	51352	18.5	0.6	0.032432432	5.00E-07	4.83E-06

LINC01139	339535	362.32	2.11	0.005823581	1.67E-05	8.72E-05
LINC00473	90632	219.08	1.1	0.005020997	<1e-07	<1e-07
LHFPL3-AS2	723809	234.39	1.14	0.004863689	<1e-07	<1e-07

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**Abbreviations:** FDR: false discovery rate; lncRNA, long noncoding RNA.

**Table S2** Differentially expressed microRNAs between cancer and adjacent tissues with fold change  $\geq 5$ ,  $P < 0.001$ 

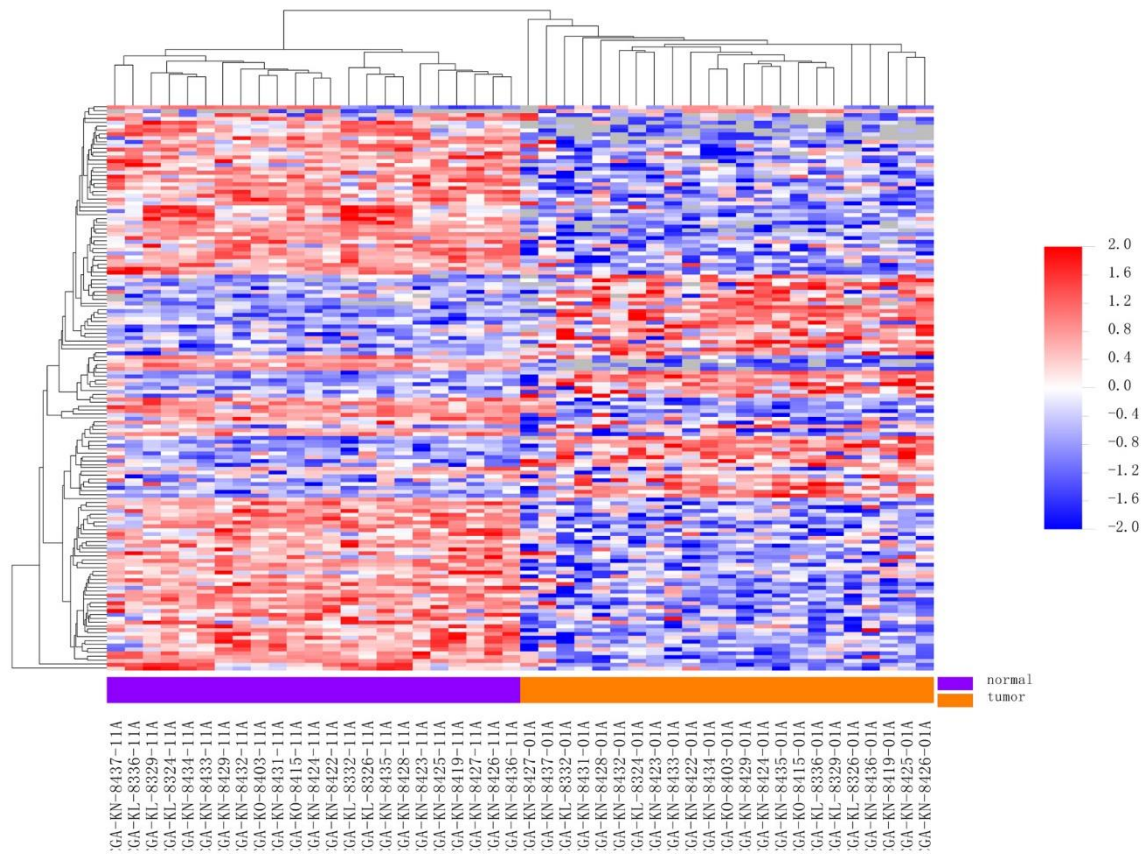
<b>MicroRNA</b>	<b>Normal</b>	<b>Tumor</b>	<b>Fold change</b>	<b>P-value</b>	<b>FDR</b>
hsa-mir-891a	54.54	6433.58	117.9607627	<1e-07	<1e-07
hsa-mir-221	127.83	1393.57	10.9017445	<1e-07	<1e-07
hsa-mir-222	34.97	340.03	9.723477266	<1e-07	<1e-07
hsa-mir-874	31.79	263.89	8.301038062	<1e-07	<1e-07
hsa-mir-187	15.99	128.41	8.030644153	0.0001303	0.000386
hsa-mir-96	3.74	27.01	7.221925134	<1e-07	<1e-07
hsa-mir-182	2824.9	19895.56	7.042925413	<1e-07	0.00000063
hsa-mir-183	1022.37	6374.99	6.235501824	0.0000003	0.00000166
hsa-mir-651	2.12	11.9	5.613207547	0.0000145	0.0000505
hsa-mir-582	184.02	923.65	5.019291381	<1e-07	<1e-07
hsa-mir-9-2	597.12	119.37	0.199909566	0.0009766	0.0022
hsa-mir-217	32.13	6.11	0.193223432	0.0001985	0.000213
hsa-mir-9-1	613.72	118.69	0.193394382	0.0006961	0.00163
hsa-mir-335	43.94	8.22	0.187073282	<1e-07	0.00000063
hsa-mir-196a-1	456.46	82.94	0.181702668	<1e-07	<1e-07
hsa-mir-381	18.35	3.29	0.179291553	<1e-07	<1e-07
hsa-mir-190	17.38	2.69	0.154775604	0.0000007	0.00000344
hsa-mir-134	96.66	14.43	0.149286158	<1e-07	<1e-07
hsa-mir-127	402.26	56.19	0.139685775	<1e-07	<1e-07
hsa-mir-379	275.38	36.68	0.133197763	<1e-07	<1e-07
hsa-mir-130a	112.46	13.6	0.120931887	<1e-07	<1e-07
hsa-mir-194-1	594	69.93	0.117727273	0.0000004	0.00000216



hsa-mir-194-2	699.88	75.72	0.108189975	0.0000002	0.00000117
hsa-mir-136	24.14	2.59	0.107290804	<1e-07	<1e-07
hsa-mir-199a-1	1004.4	98.66	0.098227798	<1e-07	<1e-07
hsa-mir-199a-2	1771.14	169.6	0.095757535	<1e-07	<1e-07
hsa-mir-192	4493.73	414.7	0.092284138	0.0000005	0.00000257
hsa-mir-199b	2654.09	224.32	0.084518611	<1e-07	<1e-07
hsa-mir-455	423.35	27.34	0.064580135	<1e-07	<1e-07
hsa-mir-675	73.02	4.04	0.055327308	0.0000005	0.00000257
hsa-mir-204	587.92	6.8	0.011566199	<1e-07	<1e-07

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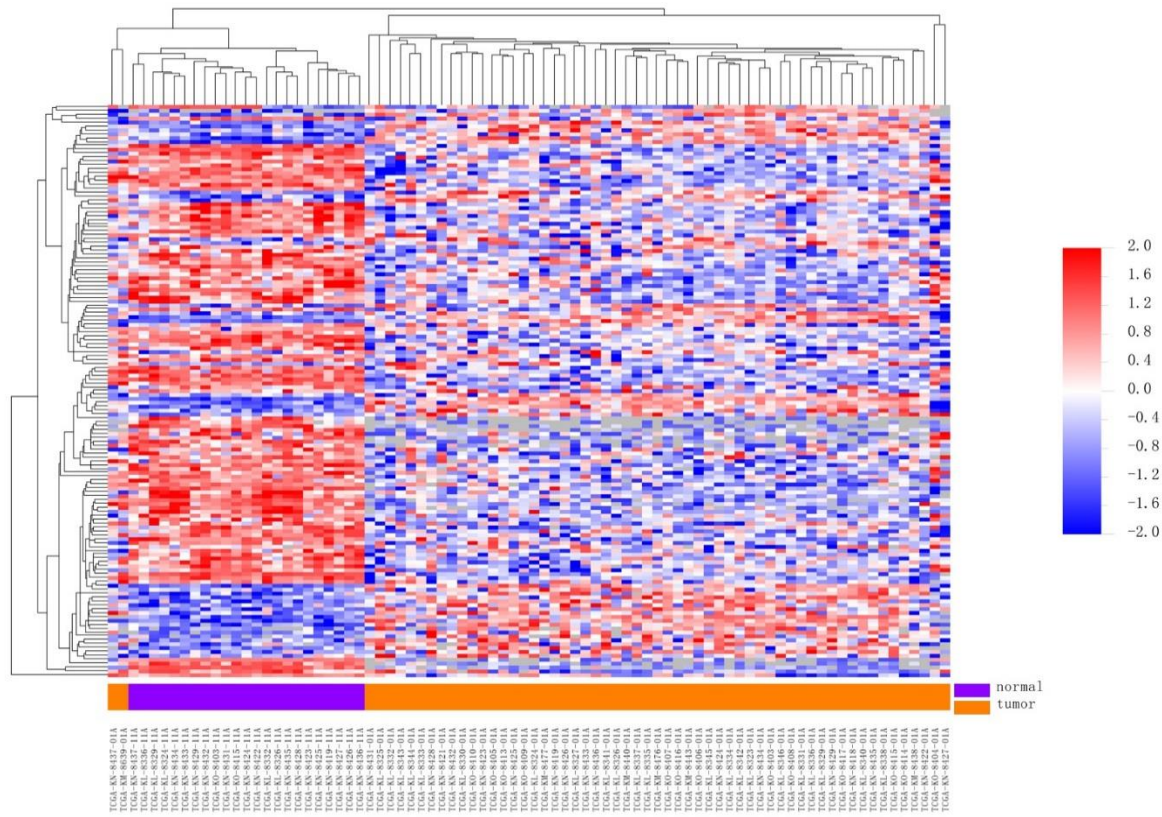
**Abbreviation:** FDR, false discovery rate.



**Figure S1** Unsupervised hierarchical cluster analysis of 143 differentially expressed lncRNAs with paired samples.

**Abbreviation:** lncRNA, long noncoding RNA.





**Figure S2** Unsupervised hierarchical cluster analysis of 143 differentially expressed lncRNAs with unpaired samples.

**Abbreviation:** lncRNA, long noncoding RNA.

