

**Supplementary material**

Table S1: RNA-seq dataset about the 7 PDAC patients. A total of 126 DEGs were identified incorporating 82 high-expressed genes and 44 low-expressed genes in PDAC tissues compared to adjacent normal samples.

Gene ID	Gene Symbol	Type	log2 (tumor / normal)	Qvalue (tumor / normal)	Average tumor	Average normal	Pvalue (tumor / normal)	Change
8972	MGAM	mRNA	-4.417738865	0.006503309	0.858571429	15.85571429	7.27E-05	Down
4118	MAL	mRNA	-4.293881358	0.001297963	2.068571429	38.5	7.22E-06	Down
4224	MEP1A	mRNA	-4.190668746	0.005167895	0.132857143	41.12857143	5.43E-05	Down
163175	LGI4	mRNA	-3.689066838	0.001674943	4.164285714	52.56571429	1.11E-05	Down
2890	GRIA1	mRNA	-3.066092453	0.008687364	0.07	0.404285714	1.05E-04	Down
255426	RASGEF1C	mRNA	-2.880620904	0.011349888	0.065714286	1.73	1.60E-04	Down
2555	GABRA2	mRNA	-2.749719596	0.089784505	1.614285714	0.601428571	0.005566249	Down
5166	PDK4	mRNA	-2.547069181	0.015198665	173.1542857	423.1785714	2.57E-04	Down
26084	ARHGEF2	mRNA	-2.429575542	0.004549718	4.79	25.56	4.54E-05	Down
2520	GAST	mRNA	-2.389350156	0.764036863	0	32.02428571	0.435738822	Down
9499	MYOT	mRNA	-2.333699548	0.017350321	0.721428571	3.215714286	3.20E-04	Down
1580	CYP4B1	mRNA	-2.280177074	0.145630876	2.305714286	7.458571429	0.013717039	Down
140628	GATA5	mRNA	-2.270176527	0.22740599	0.075714286	3.655714286	0.031859607	Down
3040	HBA2	mRNA	-2.177562374	0.282540262	315.5085714	14433.28857	0.051271185	Down
145270	PRIMA1	mRNA	-2.025823733	0.044251454	1.315714286	59.94428571	0.001608767	Down
2676	GFRA3	mRNA	-1.898986259	3.14E-04	1.75	16.67	1.01E-06	Down
3039	HBA1	mRNA	-1.816437326	0.401643188	275.2985714	11676.16286	0.104823712	Down
3043	HBB	mRNA	-1.695566544	0.46666414	285.4228571	11973.77429	0.141298634	Down
212	ALAS2	mRNA	-1.695376211	0.275493283	0.352857143	13.35714286	0.048567462	Down
114815	SORCS1	mRNA	-1.566608671	0.00495257	0.434285714	11.01571429	5.11E-05	Down
3977	LIFR	mRNA	-1.505189437	0.034763796	5.215714286	8.697142857	0.001064954	Down
1E+08	GIMD1	mRNA	-1.315677654	0.891798329	0	1.188571429	0.669718421	Down
5375	PMP2	mRNA	-1.299967738	0.185837125	0.291428571	13.85428571	0.021679548	Down
5354	PLP1	mRNA	-1.285893721	0.278101495	2.05	64.45428571	0.049655299	Down
2946	GSTM2	mRNA	-1.251085881	0.01630396	42.12714286	61.13	2.87E-04	Down
253559	CADM2	mRNA	-1.205378672	0.268996731	0.128571429	2.445714286	0.046364756	Down
5948	RBP2	mRNA	-1.157640119	0.537896256	0.442857143	599.5571429	0.191337968	Down
4359	MPZ	mRNA	-1.080402151	0.228094484	3.881428571	220.39	0.032232419	Down
2899	GRIK3	mRNA	-1.033939983	0.424052841	0.361428571	8.485714286	0.116878298	Down
340895	MALRD1	mRNA	-0.912875299	0.597082017	0.128571429	6.637142857	0.242159596	Down
4295	MLN	mRNA	-0.903482993	0.928383101	0.041428571	29.70142857	0.769595873	Down
4547	MTTP	mRNA	-0.783458955	0.753236724	0.041428571	47.78142857	0.419996759	Down
4311	MME	mRNA	-0.687489884	0.778865792	5.22	68.47	0.456399622	Down
2824	GPM6B	mRNA	-0.530604032	0.526876906	2.437142857	40.45	0.183079243	Down
407977	TNFSF12-T	mRNA	-0.526967535	0.954344183	1.845714286	0.815714286	0.829054308	Down
728588	MS4A18	mRNA	-0.491288251	0.960758937	0.014285714	2.617142857	0.871620969	Down
28513	CDH19	mRNA	-0.475444434	0.703061119	1.568571429	16.02285714	0.350817516	Down
63928	CHP2	mRNA	-0.343158291	0.716476654	1.69	44.62571429	0.367854942	Down
2168	FABP1	mRNA	-0.335522314	0.964748432	0.242857143	1147.687143	0.884998533	Down
3674	ITGA2B	mRNA	-0.235041589	0.9166807	0.448571429	4.701428571	0.729856208	Down
1373	CPS1	mRNA	-0.165909539	0.904887884	2.575714286	36.51	0.703384282	Down
6476	SI	mRNA	-0.079095632	0.993703704	0.157142857	85.24428571	0.979542638	Down
4225	MEP1B	mRNA	-0.076297295	0.959477531	1.027142857	46.87142857	0.842292181	Down
338	APOB	mRNA	-0.074107488	0.977562649	0.398571429	57.10571429	0.924400219	Down
1401	CRP	mRNA	0.167587805	0.968510665	15.99857143	4.012857143	0.894513569	UP
325	APCS	mRNA	0.418193247	0.928383101	6.374285714	1.192857143	0.76986962	UP
54209	TREM2	mRNA	0.488923532	0.830867687	30.50285714	7.411428571	0.542227478	UP
341	APOC1	mRNA	0.626665467	0.761996982	126.92	28.97714286	0.432386611	UP
2243	FGA	mRNA	0.653151614	0.869855471	6.51	1.435714286	0.613925144	UP
10537	UBD	mRNA	0.667793088	0.780551958	116.67	21.69571429	0.460097422	UP
56937	PMEPA1	mRNA	0.842986422	0.464044389	161.9342857	28.75428571	0.139795764	UP
3787	KCNS1	mRNA	0.848172517	0.66197281	1.107142857	0.224285714	0.304699608	UP
92312	MEX3A	mRNA	1.137349083	0.142937072	2.512857143	0.604285714	0.013242228	UP

219699	UNC5B	mRNA	1.143459816	0.073352619	17.39571429	2.587142857	0.003845605	UP
5754	PTK7	mRNA	1.235501026	0.088813595	38.26714286	5.421428571	0.005441432	UP
57552	NCEH1	mRNA	1.262463512	0.029046783	24.65	4.03	7.97E-04	UP
822	CAPG	mRNA	1.290568208	0.13217919	188.3242857	27.13714286	0.011439443	UP
9965	FGF19	mRNA	1.430523844	0.605777106	1.944285714	0.175714286	0.250822914	UP
5999	RGS4	mRNA	1.63415229	0.050983053	8.48	0.971428571	0.002022879	UP
3855	KRT7	mRNA	1.744739359	0.283821363	530.92	31.9	0.051827992	UP
10406	WFDC2	mRNA	1.921623674	0.140901261	320.4985714	21.89	0.012815106	UP
6804	STX1A	mRNA	1.940222691	0.002619689	40.50285714	3.864285714	1.96E-05	UP
27092	CACNG4	mRNA	2.093358246	0.065525955	4.128571429	0.281428571	0.003218715	UP
2266	FGG	mRNA	2.139975648	0.508147086	5.855714286	0.455714286	0.169091645	UP
128434	VSTM2L	mRNA	2.19896118	0.010500568	33.82142857	2.548571429	1.41E-04	UP
4316	MMP7	mRNA	2.237541168	0.198793407	1066.481429	48.65714286	0.02496937	UP
4973	OLR1	mRNA	2.363308198	0.03724583	29.32285714	1.641428571	0.001214601	UP
9620	CELSR1	mRNA	2.366466089	2.45E-05	15.35857143	1.232857143	4.84E-08	UP
84433	CARD11	mRNA	2.462859314	8.27E-04	33.83285714	3.017142857	3.96E-06	UP
64220	STRA6	mRNA	2.622716901	0.063993604	12.76142857	0.59	0.003060707	UP
1001	CDH3	mRNA	2.703761778	0.021615054	29.87142857	1.045714286	4.65E-04	UP
24141	LAMP5	mRNA	2.782721286	0.01192487	23.28285714	1.36	1.76E-04	UP
2646	GCKR	mRNA	2.965651882	0.003195102	11.80142857	0.56	2.72E-05	UP
389376	SFTA2	mRNA	2.979535191	0.016493953	47.17714286	1.247142857	2.92E-04	UP
1029	CDKN2A	mRNA	2.996592996	0.005070759	36.50285714	1.837142857	5.30E-05	UP
169044	COL22A1	mRNA	3.0219321	0.005799339	7.165714286	0.371428571	6.30E-05	UP
55083	KIF26B	mRNA	3.215816074	1.59E-05	6.337142857	0.284285714	2.73E-08	UP
3854	KRT6B	mRNA	3.267010592	0.078370952	12.5	0.311428571	0.004336958	UP
1087	CEACAM7	mRNA	3.520726251	0.119148179	95.71285714	1.412857143	0.009605226	UP
405753	DUOXA2	mRNA	3.669026071	0.11457371	63.80857143	0.954285714	0.008950419	UP
222	ALDH3B2	mRNA	3.685880798	0.03880935	3.344285714	0.067142857	0.001294553	UP
1E+08	TMED7-TIC	mRNA	3.842307109	0.487130346	3.53	0.02	0.154767863	UP
3918	LAMC2	mRNA	3.875564416	2.00E-05	140.4242857	3.165714286	3.65E-08	UP
1470	CST2	mRNA	3.879589452	0.001180342	35.86428571	0.731428571	6.38E-06	UP
3934	LCN2	mRNA	4.043874999	0.001436542	2761.927143	46.04	8.37E-06	UP
4148	MATN3	mRNA	4.19501018	1.23E-06	38.71285714	1.19	1.02E-09	UP
221393	ADGRF4	mRNA	4.300579672	0.001674943	2.71	0.038571429	1.10E-05	UP
5655	KLK10	mRNA	4.372571968	3.26E-05	67.94285714	1.257142857	7.11E-08	UP
11082	ESM1	mRNA	4.373764524	2.95E-06	6.021428571	0.162857143	3.68E-09	UP
6273	S100A2	mRNA	4.402055095	0.007810162	26.25571429	0.381428571	9.07E-05	UP
94025	MUC16	mRNA	4.405356951	0.003850315	4.717142857	0.062857143	3.54E-05	UP
653145	ANXA8	mRNA	4.436920589	0.004549718	30.28	0.462857143	4.54E-05	UP
4884	NPTX1	mRNA	4.460893312	1.42E-06	9.381428571	0.178571429	1.28E-09	UP
50506	DUOX2	mRNA	4.488553707	0.002742538	172.2042857	1.682857143	2.11E-05	UP
57094	CPA6	mRNA	4.551296901	0.001336449	3.561428571	0.087142857	7.58E-06	UP
728113	ANXA8L1	mRNA	4.562621768	0.044432406	14.24714286	0.134285714	0.0016269	UP
266977	ADGRF1	mRNA	4.66297612	2.69E-06	17.44	0.478571429	3.22E-09	UP
3868	KRT16	mRNA	4.673638489	6.45E-06	14.23857143	0.228571429	9.06E-09	UP
84929	FIBCD1	mRNA	4.771620096	3.89E-05	4.067142857	0.082857143	8.70E-08	UP
2707	GJB3	mRNA	4.889217959	3.55E-07	27.18285714	0.384285714	2.03E-10	UP
3872	KRT17	mRNA	4.899122058	0.002654547	408.44	3.468571429	2.02E-05	UP
6364	CCL20	mRNA	4.901992186	6.21E-05	51.54	0.774285714	1.49E-07	UP
23650	TRIM29	mRNA	4.917296757	1.00E-08	93.10714286	1.061428571	3.13E-12	UP
727897	MUC5B	mRNA	5.078026244	0.001678063	131.6314286	0.477142857	1.13E-05	UP
84951	TNS4	mRNA	5.13696992	1.78E-10	67.40857143	1.111428571	1.85E-14	UP
6291	SAA4	mRNA	5.227151642	0.344744521	3.644285714	0	0.075621347	UP
6374	CXCL5	mRNA	5.227228077	1.23E-06	89.83142857	1.17	1.02E-09	UP
3853	KRT6A	mRNA	5.310354537	0.01479947	19.89857143	0.108571429	2.41E-04	UP
10232	MSLN	mRNA	5.331819434	1.95E-06	158.93	1.347142857	2.23E-09	UP
1300	COL10A1	mRNA	5.358879367	5.26E-09	159.7414286	0.862857143	1.37E-12	UP
1E+08	TGIF2-RAE	mRNA	5.360042169	0.082698795	1.838571429	0	0.00484743	UP

4680	CEACAM6	mRNA	5.404768547	3.42E-07	1113.3	13.78571429	1.78E-10	UP
127534	GJB4	mRNA	5.41635051	2.10E-05	6.048571429	0.084285714	4.03E-08	UP
11254	SLC6A14	mRNA	5.436294993	1.01E-06	32.04571429	0.421428571	7.32E-10	UP
57214	CEMIP	mRNA	5.441987644	3.97E-08	31.75428571	0.325714286	1.65E-11	UP
5650	KLK7	mRNA	5.489144634	5.07E-07	71.25571429	0.827142857	3.43E-10	UP
6493	SIM2	mRNA	5.501678454	2.10E-05	5.33	0.08	3.93E-08	UP
26154	ABCA12	mRNA	5.520047979	1.41E-05	1.441428571	0.007142857	2.35E-08	UP
4585	MUC4	mRNA	5.557531996	1.93E-06	39.38142857	0.67	2.01E-09	UP
4320	MMP11	mRNA	5.660000347	1.38E-07	510.1971429	3.011428571	6.44E-11	UP
1301	COL11A1	mRNA	5.744210744	1.19E-08	81.91285714	0.621428571	4.34E-12	UP
1472	CST4	mRNA	6.003599046	3.26E-05	12.81	0.078571429	7.08E-08	UP
1048	CEACAM5	mRNA	6.120786596	1.84E-09	523.4042857	4.131428571	3.83E-13	UP
5653	KLK6	mRNA	6.736767868	4.61E-07	60.69	0.444285714	2.88E-10	UP
1469	CST1	mRNA	7.157357274	9.28E-16	516.9028571	2.748571429	4.83E-20	UP
29943	PADI1	mRNA	7.522617427	1.56E-06	33.91571429	0.034285714	1.54E-09	UP

**Supplementary Material**

Table S2: Sequences of primers for qRT-PCR

Gene symbol	Primers	Sequences of primers(5'to3')
CEACAM5	CEACAM5_1F	F: 5'- GCCACTCGGCCTCTAAC -3'
	CEACAM5_1R	F: 5'- TGTGTGTTGCTGCGGTAT -3'
KRT6A	KRT6A_2F	F: 5'-TGTGGCTCCTGATGGTG -3'
	KRT6A_2R	F: 5'-TCCTGCTTCTCTTCCCTCT-3'
KRT6B	KRT6B_2F	F: 5'-CCGGGTAGAGCTGGGAT -3'
	KRT6B_2R	F: 5'-CGCATGTCTGAGTGCTGAT-3'
KRT7	KRT7_1F	F: 5'-TGCCTCCTTCATCGACAA -3'
	KRT7_1R	F: 5'-GCAATCTGGGCCTCAAAG -3'
KRT17	KRT17_2F	F: 5'-GAGAGGATGCCCACCTGA -3'
	KRT17_2R	F: 5'-CCGGGGTAGCTGAGTCC -3'
GAPDH	GAPDH_1F	F: 5'-CCTTCCGTGTCCCCACT -3'
	GAPDH_1R	F: 5'-GCCTGCTTCACCACCTTC -3'