

Table SI. Clinical information for 8 patients before the initiation of treatment.

	Age	Sex	Tumor location	Resectability	Tumor size (mm)	serum CA19-9 level (U/ml)	SUV max
#1	67	Female	Ph	BR	34.3	390.3	14.1
#2	59	Female	Ph	R	26.9	0.4	9.8
#3	55	Male	Pb	R	23.4	177.1	6.4
#4	65	Male	Ph	R	32.9	2530.6	6.7
#5	53	Female	Pb	R	9.5	0.4	4.4
#6	77	Male	Ph	R	22.0	50.2	3.8
#7	72	Female	Ph	BR	17.9	481.1	4.5
#8	77	Female	Ph	BR	26.7	1304.5	10.6

Ph, pancreatic head; Pb, pancreatic body; BR, borderline resectable; R, resectable; CA19-9, carbohydrate antigen 19-9.

Table SII. Detailed clinical information for six cases before and after neoadjuvant chemotherapy.

	Neoadjuvant therapy	Tumor size before neoadjuvant chemotherapy (mm)	Tumor size after neoadjuvant chemotherapy (mm)	Tumor size ratio	Evans Grade
#1	GnP	34.3	23.8	0.694	II a
#2	GnP	26.9	17.7	0.658	II a
#4	GS	32.9	23.6	0.717	II a
#6	GS	22.0	17.6	0.800	II a
#7	GnP	17.9	16.8	0.939	I
#8	GnP	26.7	24.8	0.929	II a

GnP, gemcitabine plus nab-paclitaxel; GS, gemcitabine plus S-1. Tumor size ratio = (Tumor size after neoadjuvant chemotherapy)/(Tumor size before neoadjuvant chemotherapy).

Table SIII. Ranking of genes expressed by CAFs, for which the RNA level strongly correlates with PC cell proliferation in co-culture assays (all 162 genes).

	Gene	R	R ²	P-value	Category
1	MICB	0.93809528	0.88002276	0.00056588	Antigen presentation
2	ACKR3	0.91177175	0.83132772	0.00160536	Chemokine Receptors
3	TP53	0.85589685	0.73255941	0.00669579	Senescence pathway
4	HIF1A	0.85280849	0.72728232	0.00711819	Transcription factors
5	IL1B	0.85013216	0.72272469	0.00749769	Interleukins
6	IL6	0.84553845	0.71493526	0.00817868	Interleukins
7	NFKB1	0.83867626	0.70337786	0.00926727	Transcription factors
8	MYC	0.83630634	0.6994083	0.0096635	p53 signaling
9	CDKN2C	0.83025102	0.68931675	0.01072423	p53 signaling
10	IL15	0.82956877	0.68818435	0.01084816	Interleukins
11	GLB1	0.82418807	0.67928597	0.01185738	Senescence response genes
12	CXCL12	0.82326029	0.67775751	0.01203716	Chemokines
13	SPP1	0.8116443	0.65876646	0.01443503	Cytokines
14	MIF	0.80859887	0.65383213	0.01510959	Immunosuppressive factors
15	PLAU	0.80833026	0.65339781	0.01517002	p53 signaling
16	CDKN2A	0.80213546	0.64342129	0.016606	Senescence pathway
17	HLA-A	0.79876429	0.63802439	0.01742193	Antigen presentation
18	ATM	0.77915049	0.60707548	0.02266605	Senescence pathway
19	CDKN2D	0.77733289	0.60424643	0.02319601	Senescence pathway
20	PCNA	0.77189716	0.59582523	0.02482654	DNA Damage & repair
21	COL1A1	0.77171915	0.59555045	0.0248811	Cell adhesion molecules
22	KITLG	0.77157043	0.59532093	0.02492674	Cytokines
23	IGFBP7	0.76868641	0.59087879	0.02582207	Insulin growth factor related
24	COL3A1	0.76772351	0.58939939	0.02612535	Cell adhesion molecules
25	CREG1	0.75763135	0.57400526	0.02943698	p53 signaling
26	STAT3	0.7573919	0.57364249	0.02951852	Transcription factors
27	CDKN1A	0.75092162	0.56388328	0.03177478	Senescence pathway
28	FN1	0.74839941	0.56010168	0.03268208	Cytoskeleton regulators
29	TGFB1	0.74411056	0.55370053	0.03426099	Growth factors & receptors
30	BCL2L1	0.74306419	0.55214439	0.03465314	Anti-apoptotic
31	CCNB1	0.74150515	0.54982989	0.03524249	p53 signaling

32	TNFSF10	0.74007056	0.54770443	0.03579018	Interferon-responsive genes
33	IGF1	0.73434132	0.53925717	0.03802911	Insulin growth factor related
34	NOX4	0.72532687	0.52609907	0.04172081	Oxidative stress
35	TLR4	0.7245056	0.52490837	0.0420675	Toll-Like receptor signaling
36	HLA-B	0.72432847	0.52465173	0.04214251	Antigen presentation
37	RBL2	0.71391034	0.50966798	0.04669726	Senescence pathway
38	TP53BP1	0.71126184	0.5058934	0.04790043	DNA damage & repair
39	MAPK14	0.70378978	0.49532006	0.05139472	MAP kinase signaling
40	CCR10	0.70080073	0.49112167	0.0528341	Chemokine receptors
41	MICA	0.69721479	0.48610846	0.05459246	Antigen presentation
42	ID1	0.69210519	0.4790096	0.05715767	p53 signaling
43	VEGFA	0.68950703	0.47541995	0.0584891	Immunosuppressive factors
44	CCL20	0.6893705	0.47523168	0.05855957	Chemokines
45	CDKN2B	0.68904428	0.47478202	0.05872816	p53 signaling
46	IL12B	0.68863157	0.47421344	0.05894185	Interleukins
47	CCL2	0.67912863	0.4612157	0.06399073	Chemokines
48	MAP2K1	0.67797317	0.45964763	0.06462146	MAP kinase signaling
49	CDKN1C	0.67402474	0.45430935	0.06680454	p53 signaling
50	EGFR	0.67333269	0.45337692	0.06719159	Growth factors and receptors
51	PTEN	0.67163167	0.4510891	0.06814857	Senescence response genes
52	GBP1	0.66830697	0.44663421	0.07004214	Interferon signaling
53	SOD2	0.66742757	0.44545957	0.07054812	Oxidative stress
54	IL4	-0.66109463	0.43704611	0.0742554	Interleukins
55	IRF1	0.66038941	0.43611417	0.07467515	Interferon signaling
56	BMI1	0.62595017	0.39181361	0.09687772	Senescence pathway
57	IL10	0.6224199	0.38740653	0.09934392	Interleukins
58	GADD45A	0.61723754	0.38098218	0.10302883	DNA damage and repair
59	TNF	0.61452294	0.37763844	0.10498975	Immunostimulatory factors
60	FASLG	0.60935329	0.37131143	0.10878256	Pro-apoptotic
61	CXCL10	0.60498053	0.36600144	0.11205066	Chemokines
62	MAP2K6	0.60244782	0.36294338	0.1139687	MAP kinase signaling
63	SOD1	0.59702252	0.35643589	0.11813948	Oxidative stress
64	IGFBP3	0.58957398	0.34759747	0.12400382	Insulin growth factor related
65	TWIST1	0.58580691	0.34316973	0.12703062	Senescence pathway

66	ETS2	0.58415279	0.34123448	0.12837262	Senescence pathway
67	CDK4	0.56173141	0.31554218	0.14734236	Senescence pathway
68	SPARC	0.55818718	0.31157292	0.15047374	p53 signaling
69	CCNE1	0.55570057	0.30880312	0.1526923	Senescence pathway
70	CCR7	0.55458455	0.30756402	0.15369381	Chemokine receptors
71	IL12A	0.5539694	0.30688209	0.15424738	Interleukins
72	TLR3	0.54702708	0.29923862	0.1605702	Toll-Like receptor signaling
73	NBN	0.54273575	0.29456209	0.1645479	DNA damage and repair
74	CDKN1B	0.5361217	0.28742648	0.1707821	Interferon signaling
75	CALR	0.53105176	0.28201598	0.17564574	p21 effectors
76	PTGS2	0.52579575	0.27646117	0.18076549	Immunosuppressive factors
77	SERPINE1	0.51116567	0.26129034	0.1954307	p53 signaling
78	ALDH1A3	0.5083239	0.25839319	0.19834975	p53 signaling
79	STAT1	0.50681264	0.25685905	0.19991141	Transcription factors
80	MDM2	0.50628791	0.25632745	0.20045514	Senescence pathway
81	MYD88	0.50411947	0.25413644	0.20271038	Toll-Like receptor signaling
82	RBL1	-0.49314587	0.24319285	0.21432617	p53 signaling
83	CDC25C	0.49012405	0.24022158	0.21758414	p53 signaling
84	PRKCD	0.4789186	0.22936302	0.2298874	Oxidative stress
85	CHEK1	0.47792432	0.22841165	0.23099593	Senescence pathway
86	EGF	-0.47235615	0.22312033	0.23725436	Growth factors and receptors
87	AKT1	0.46863162	0.2196156	0.24148826	p53 signaling
88	VIM	0.46272886	0.214118	0.24827616	Cytoskeleton regulators
89	CCL18	0.45778996	0.20957165	0.25402872	Chemokines
90	CXCL8	0.44980542	0.20232492	0.26346853	Chemokines
91	MAP2K3	0.44236437	0.19568623	0.27242027	MAP kinase signaling
92	TBX2	0.44234428	0.19566846	0.27244463	p16 effectors
93	ABL1	0.44110336	0.19457218	0.27395196	p53 signaling
94	CXCR4	0.44104707	0.19452252	0.27402043	Chemokine receptors
95	MORC3	0.43696476	0.1909382	0.27900869	p53 signaling
96	RB1	0.43106253	0.1858149	0.2862988	Senescence pathway
97	CXCL2	0.4269243	0.18226436	0.29146483	Chemokines
98	IL23A	0.42144107	0.17761257	0.29837896	Interleukins
99	CCR1	0.42002477	0.17642081	0.30017757	Chemokine Receptors

100	GZMA	0.41906823	0.17561818	0.30139527	Enzymatic modulators of inflammation
101	IL1A	0.41831095	0.17498405	0.30236098	Interleukins
102	CD44	0.40476661	0.16383601	0.31988248	Cell adhesion molecules
103	CCND1	0.40111298	0.16089162	0.32468909	Senescence pathway
104	IDO1	0.39837711	0.15870432	0.3283104	Immunosuppressive factors
105	CXCL5	0.39712384	0.15770734	0.32997557	Chemokines
106	IRF3	0.3956777	0.15656084	0.33190189	Interferon signaling
107	CCR2	-0.39306613	0.15450098	0.33539387	Chemokine receptors
108	IGF1R	0.39257467	0.15411487	0.33605292	Insulin growth factor related
109	CCNA2	0.39171155	0.15343794	0.33721181	p53 signaling
110	FOXP3	0.39118412	0.15302501	0.33792089	Transcription factors
111	IGFBP5	0.38898477	0.15130915	0.34088516	Insulin growth factor related
112	NOS2	0.36911187	0.13624357	0.3682073	Immunosuppressive factors
113	EGR1	-0.36868659	0.1359298	0.36880244	Interferon signaling
114	TERF2	0.36862306	0.13588296	0.36889138	DNA damage and repair
115	CCR9	0.36617833	0.13408657	0.37232128	Chemokine receptors
116	CXCR5	-0.36350645	0.13213694	0.37608611	Chemokine receptors
117	E2F3	0.3479858	0.12109411	0.39828688	Senescence pathway
118	PIK3CA	0.34750941	0.12076279	0.39897712	p53 signaling
119	CCR4	-0.34618984	0.1198474	0.40089182	Chemokine receptors
120	THBS1	0.34001546	0.11561052	0.40990349	Cell adhesion molecules
121	CSF3	0.33107441	0.10961027	0.4231053	Growth factors and receptors
122	ING1	0.32862278	0.10799293	0.42675625	p53 signaling
123	CXCR3	-0.32284465	0.10422867	0.43541314	Chemokine receptors
124	CDK6	0.32090986	0.10298314	0.4383281	Senescence pathway
125	CXCL9	0.31934008	0.10197809	0.44069909	Chemokines
126	GSK3B	0.31734128	0.10070549	0.44372573	p53 signaling
127	CTLA4	-0.3126477	0.09774858	0.45086642	Immunosuppressive factors
128	CITED2	0.30404544	0.09244363	0.46407425	p53 signaling
129	TERT	-0.29257407	0.08559958	0.48192498	DNA damage and repair
130	CXCL11	0.28920772	0.0836411	0.48721388	Chemokines
131	SERPINB2	-0.28263296	0.07988139	0.49760829	p53 signaling
132	TBX3	0.27977451	0.07827378	0.50215376	p16 effectors

133	SIRT1	0.25255784	0.06378546	0.54620561	p53 signaling
134	CD274	-0.24263874	0.05887356	0.56259324	Immunosuppressive factors
135	CCL28	0.22958059	0.05270725	0.58442293	Chemokines
136	CCL21	-0.22842718	0.05217898	0.58636468	Chemokines
137	TLR2	-0.19800387	0.03920553	0.63833218	Toll-Like receptor signaling
138	PDCD1	-0.19763845	0.03906096	0.63896475	Immunosuppressive factors
139	CXCR1	0.19535818	0.03816482	0.64291647	Chemokine receptors
140	E2F1	-0.19403257	0.03764864	0.64521712	Senescence pathway
141	BCL2	0.19294963	0.03722956	0.64709845	Anti-apoptotic
142	CCL22	0.18259916	0.03334245	0.66516083	Chemokines
143	CCL4	-0.17667725	0.03121485	0.6755593	Chemokines
144	IRF7	-0.15778105	0.02489486	0.70903378	Interferon signaling
145	ETS1	0.15650334	0.02449329	0.71131264	Senescence pathway
146	IL17A	0.15412374	0.02375413	0.71556172	Interleukins
147	HRAS	0.14477158	0.02095881	0.73232224	p53 effectors
148	CDK2	0.14180153	0.02010767	0.73766475	Senescence pathway
149	CXCL1	0.13900816	0.01932327	0.74269785	Chemokines
150	CXCR2	-0.12929244	0.01671654	0.76026477	Chemokine receptors
151	IL13	0.11855714	0.01405579	0.77977961	Interleukins
152	IFNG	0.11749042	0.013804	0.78172436	Interferon signaling
153	IL2	0.11607098	0.01347247	0.78431372	Interleukins
154	HLA-C	-0.10577277	0.01118788	0.80315031	Antigen presentation
155	TGFB111	0.09920791	0.00984221	0.8152021	Cell adhesion molecules
156	CHEK2	-0.09762836	0.0095313	0.81810666	Senescence pathway
157	CCL5	0.08902914	0.00792619	0.83395034	Chemokines
158	CSF2	-0.08219872	0.00675663	0.84657022	Growth factors and receptors
159	CSF1	0.07237686	0.00523841	0.86476658	Growth factors and receptors
160	IRF5	-0.05763252	0.00332151	0.89217807	Interferon signaling
161	AICDA	0.01650579	0.00027244	0.96905727	Enzymatic modulators of immunity
162	GZMB	0.00307045	9.4277E-06	0.99424293	Enzymatic modulators of inflammation