

Supplementary Materials: CD133 Modulate HIF-1 α Expression under Hypoxia in EMT Phenotype Pancreatic Cancer Stem-Like Cells

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Table S1. DNA microarray analysis of epithelial mesenchymal transition (EMT)-related genes. The data represent a comparison of EMT-related genes expression between Capan1M9 and shCD133M9 cells by DNA microarray.

Gene Symbol	Description	Signal		
		M9	shCD133M9	shSlugM9
<i>VIM</i>	Homo sapiens vimentin (VIM), mRNA [NM_003380]	269.405575	14.5888225	92.51209401
<i>FN1</i>	Homo sapiens fibronectin 1 (FN1), transcript variant 7, mRNA [NM_054034]	23.34250625	3.9644705	5.527785483
<i>SNAI2</i>	Homo sapiens snail homolog 2 (Drosophila) (SNAI2), mRNA [NM_003068]	56.742035	7.067408625	21.28878
<i>CDH2</i>	Homo sapiens cadherin 2, type 1, N-cadherin (neuronal) (CDH2), mRNA [NM_001792]	695.0580281	257.1971135	241.3556833
<i>NOTCH1</i>	Homo sapiens notch 1 (NOTCH1), mRNA [NM_017617]	675.14325	247.6606125	291.6518125
<i>IL1RN</i>	Homo sapiens interleukin 1 receptor antagonist (IL1RN), transcript variant 4, mRNA [NM_173843]	15554.5	4020.711	10842.87788
<i>COL5A2</i>	Homo sapiens collagen, type V, α 2 (COL5A2), mRNA [NM_000393]	115.58975	87.9014825	40.24735375
<i>KRT14</i>	Homo sapiens keratin 14 (KRT14), mRNA [NM_000526]	723.035525	327.4258219	482.6625007
<i>MITF</i>	Homo sapiens microphthalmia-associated transcription factor (MITF), transcript variant 1, mRNA [NM_198159]	1677.09075	554.6804375	1361.508872
<i>ITGAV</i>	Homo sapiens integrin, α V (vitronectin receptor, α polypeptide, antigen CD51) (ITGAV), transcript variant 1, mRNA [NM_002210]	10146.99361	4141.590421	7773.431025
<i>TGFB2</i>	Homo sapiens transforming growth factor, β 2 (TGFB2), transcript variant 2, mRNA [NM_003238]	654.2277412	283.6823875	505.3588487
<i>MSN</i>	Homo sapiens moesin (MSN), mRNA [NM_002444]	536.432725	479.7053125	186.072775
<i>FZD7</i>	Homo sapiens frizzled family receptor 7 (FZD7), mRNA [NM_003507]	817.834408	320.1853875	734.7740634
<i>TMEM132A</i>	Homo sapiens transmembrane protein 132A (TMEM132A), transcript variant 1, mRNA [NM_017870]	11660.30125	6088.394125	9303.731625
<i>ITGB1</i>	Homo sapiens integrin, β 1 (fibronectin receptor, β polypeptide, antigen CD29 includes MDF2, MSK12) (ITGB1), transcript variant 1E, mRNA [NM_133376]	1941.083113	1362.83509	1243.129072

Table S1. Cont.

Gene Symbol	Description	Signal		
		M9	shCD133M9	shSlugM9
<i>KRT7</i>	Homo sapiens keratin 7 (KRT7), mRNA [NM_005556]	205747.9875	108527.3875	183474.725
<i>MMP9</i>	Homo sapiens matrix metalloproteinase 9 (gelatinase B, 92 kDa gelatinase, 92 kDa type IV collagenase) (MMP9), mRNA [NM_004994]	181.6547384	75.3131224	183.5654288
<i>FOXC2</i>	Homo sapiens forkhead box C2 (MFH-1, mesenchyme forkhead 1) (FOXC2), mRNA [NM_005251]	23.70205	6.620899	27.35915625
<i>ZEB1</i>	Homo sapiens zinc finger E-box binding homeobox 1 (ZEB1), transcript variant 1, mRNA [NM_001128128]	26.05846125	16.5438525	25.28960125
<i>CAV2</i>	Homo sapiens caveolin 2 (CAV2), transcript variant 1, mRNA [NM_001233]	607.0546613	605.8412483	369.5984673
<i>STEAP1</i>	Homo sapiens six transmembrane epithelial antigen of the prostate 1 (STEAP1), mRNA [NM_012449]	2937.4265	1382.112792	3367.506625
<i>TSPAN13</i>	Homo sapiens tetraspanin 13 (TSPAN13), mRNA [NM_014399]	2238.7915	1407.64225	2330.256879
<i>SNAI1</i>	Homo sapiens snail homolog 1 (Drosophila) (SNAI1), mRNA [NM_005985]	128.0035525	104.0177297	117.4491913
<i>EGFR</i>	Homo sapiens epidermal growth factor receptor (EGFR), transcript variant 1, mRNA [NM_005228]	289.3324763	219.9080181	286.204883
<i>GNG11</i>	Homo sapiens guanine nucleotide binding protein (G protein), gamma 11 (GNG11), mRNA [NM_004126]	202.7561704	139.2596253	217.1940395
<i>PLEK2</i>	Homo sapiens pleckstrin 2 (PLEK2), mRNA [NM_016445]	5031.790125	3903.478625	5310.925875
<i>PTK2</i>	Homo sapiens PTK2 protein tyrosine kinase 2 (PTK2), transcript variant 1, mRNA [NM_153831]	848.3526125	502.7078875	1069.863417
<i>ITGA5</i>	Homo sapiens integrin, α 5 (fibronectin receptor, α polypeptide) (ITGA5), mRNA [NM_002205]	174.6968625	136.31525	190.7827375
<i>F11R</i>	Homo sapiens F11 receptor (F11R), mRNA [NM_016946]	28024.39125	26077.105	27275.0425
<i>SERPINE1</i>	Homo sapiens serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1 (SERPINE1), transcript variant 1, mRNA [NM_000602]	13.14648905	15.30358359	10.38988336
<i>CDH1</i>	Homo sapiens cadherin 1, type 1, E-cadherin (epithelial) (CDH1), mRNA [NM_004360]	9811.239324	10611.02271	8684.681088
<i>ILK</i>	Homo sapiens integrin-linked kinase (ILK), transcript variant 3, mRNA [NM_001014795]	2126.26939	1718.618748	2515.711173
<i>CAMK2N1</i>	Homo sapiens calcium/calmodulin-dependent protein kinase II inhibitor 1 (CAMK2N1), mRNA [NM_018584]	5600.74683	4019.404653	7821.859197
<i>FGFBP1</i>	Homo sapiens fibroblast growth factor binding protein 1 (FGFBP1), mRNA [NM_005130]	2031.222625	3695.347	919.887475
<i>ESR1</i>	Homo sapiens estrogen receptor 1 (ESR1), transcript variant 1, mRNA [NM_000125]	28.5033525	40.367195	25.51461

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Gene Symbol	Description	Signal		
		M9	shCD133M9	shSlugM9
<i>TGFB1</i>	Homo sapiens transforming growth factor, β 1 (TGF β 1), mRNA [NM_000660]	820.4119617	897.561245	1017.6701
<i>OCLN</i>	Homo sapiens occludin (OCLN), transcript variant 1, mRNA [NM_002538]	432.1801625	643.668125	367.4899
<i>SNAI3</i>	Homo sapiens snail homolog 3 (Drosophila) (SNAI3), mRNA [NM_178310]	86.723435	104.0595921	109.3763113
<i>TIMP1</i>	Homo sapiens TIMP metalloproteinase inhibitor 1 (TIMP1), mRNA [NM_003254]	3068.434625	3628.826375	4213.724439
<i>DSP</i>	Homo sapiens desmoplakin (DSP), transcript variant 1, mRNA [NM_004415]	3972.784375	9276.67825	2570.304472
<i>IGFBP4</i>	Homo sapiens insulin-like growth factor binding protein 4 (IGFBP4), mRNA [NM_001552]	446.6832875	706.3216625	666.6703875
<i>ERBB3</i>	Homo sapiens v-erb-b2 erythroblastic leukemia viral oncogene homolog 3 (avian) (ERBB3), transcript variant 1, mRNA [NM_001982]	3384.575438	6670.921	4453.137855
<i>JAG1</i>	Homo sapiens jagged 1 (JAG1), mRNA [NM_000214]	76.85549875	206.2662629	72.55606
<i>CALD1</i>	Homo sapiens caldesmon 1 (CALD1), transcript variant 1, mRNA [NM_033138]	146.2501125	527.5935875	71.47478
<i>DSC2</i>	Homo sapiens desmocollin 2 (DSC2), transcript variant Dsc2a, mRNA [NM_024422]	147.7242	724.674875	140.49815
<i>RGS2</i>	Homo sapiens regulator of G-protein signaling 2, 24 kDa (RGS2), mRNA [NM_002923]	308.1948151	1625.207484	332.2243848
<i>TCF4</i>	Homo sapiens transcription factor 4 (TCF4), transcript variant 2, mRNA [NM_003199]	34.24982982	192.5447125	25.61543875
<i>WNT11</i>	Homo sapiens wingless-type MMTV integration site family, member 11 (WNT11), mRNA [NM_004626]	71.56063	396.12025	94.65079553

Table S2. Primers list for real-time reverse transcriptase-polymerase chain reaction.

Genes	Primer Sets Forward (5'-3')	Primer Sets Reverse (5'-3')
<i>HIF1A</i>	CCACAGGACAGTACAGGATG	TCAAGTCGTGCTGAATAATACC
<i>N-cadherin</i>	CATCAACCGGCTTAATGGTG	ACTTTCACACGCAGGATGGA
<i>Snail</i>	TCGGAAGCCTAACTACAGCGA	AGATGAGCATTGGCAGCGAG
<i>Slug</i>	AAGCATTTC AACGCCTCCAAA	GGATCTCTGGTTGTGGTATGACA
<i>GAPDH</i>	CAGGAGCGAGATCCCT	GGTGCTAAGCAGTTGGT

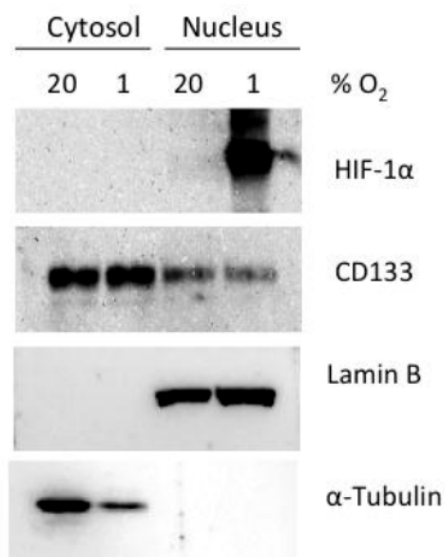


Figure S1. CD133 expression both in nucleus and cytosol. CD133 expresses both in nucleus and cytosol. Western blot assays of HIF-1 α , CD133, Lamin B and α -tubulin protein in nuclear and cytosolic lysates prepared from Capan1M9 cells exposed to 20% or 1% O₂ for 6 h. Anti-CD133 antibody directed against AC133, an extracellular epitope of CD133 was detected not only in cytosol but also in nucleus. This result suggests CD133 might exist in nucleus.

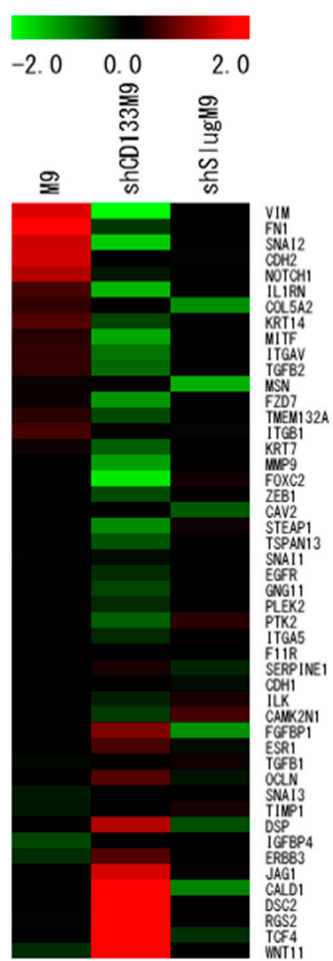


Figure S2. A heatmap of the DNA microarray demonstrates the distinct molecular profiles of Capan1M9 and shCD133M9 cells.