

Implantation of engineered adipocytes suppresses tumor progression in cancer models

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Supplementary Table 2. Breast cancer organoid characteristics.

Name	ER	PR	HER2	Metastatic	Inflammatory?	Source of adipocytes?
TOR40	Negative	Negative	Negative	no	yes	ad-1 (unmatched breast)
TOR120	Negative	Negative	Negative	yes	no	ad-2 (unmatched breast)
TOR127	Positive	Positive	Negative	yes	no	ad-3 (unmatched breast)
TOR124	Negative	Negative	Negative	yes	no	ad-4 (unmatched breast)
TOR41	Negative	Negative	Negative	no	yes	ad-5 (matched breast)

Name	Gene	Germline mutation	Cancer history	Source of adipocytes?
ORG150	<i>BRCA2</i>	6174delT	Two breast cancers	ad-6 (matched breast)
ORG158	<i>BRCA1</i>	c.5266dup	Ductal carcinoma in situ (DCIS)	ad-7 (matched breast)
ORG164	<i>RAD51D</i>	c.270_271dupTA	Breast cancer	ad-8 (matched breast)

Supplementary Table 3. Sequences of primers for RT-qPCR, cloning, genotyping and gRNAs.

Gene/Use/sgRNA	Primers
<i>GAPDH</i>	GTC TCC TCT GAC TTC AAC AGC G
	ACC ACC CTG TTG CTG TAG CCA A
<i>UCP1</i>	TGG AAT AGC GGC GTG CTT G
	CTC ATC AGA TTG GGA GTA G
<i>PPARGC1A</i>	CCA AAG GAT GCG CTC TCG TTC A
	CGG TGT CTG TAG TGG CTT GAC T
<i>ADIPOQ</i>	CAG GCC GTG ATG GCA GAG ATG
	GGT TTC ACC GAT GTC TCC CTT AG
<i>PLIN1</i>	GCG GAA TTT GCT GCC AAC ACT C
	AGA CTT CTG GGC TTG CTG GTG T
<i>FABP4</i>	ACG AGA GGA TGA TAA ACT GGT GG
	GCG AAC TTC AGT CCA GGT CAA C
<i>MKI67</i>	GAA AGA GTG GCA ACC TGC CTT C
	GCA CCA AGT TTT ACT ACA TCT GCC
<i>CD36</i>	CAG GTC AAC CTA TTG GTC AAG CC
	GCC TTC TCA TCA CCA ATG GTC C
<i>GLUT4</i>	TGG GCT TCT TCA TCT TCA CC
	GTG CTG GGT TTC ACC TCC T
<i>GCK</i>	CAT CTC CGA CTT CCT GGA CAA G
	TGG TCC AGT TGA GAA GGA TGC C
<i>CPT1b</i>	TGT ATC GCC GTA AAC TGG ACC G
	TGT CTG AGA GGT GCT GTA GCA C
<i>TFAM</i>	GTG GTT TTC ATC TGT CTT GGC AAG
	TTC CCT CCA ACG CTG GGC AAT T
<i>DIO2</i>	TTG AGC CGC TCC AAG TCC ACT C
	CTG TAC TGG AGA CAT GCA CCA C
<i>Gapdh</i>	TGC ACC ACC AAC TGC TTA G
	GGA TGC AGG GAT GAT GTT C
<i>Ucp1</i>	GTG AAC CCG ACA ACT TCC GAA
	TGA AAC TCC GGC TGA GAA GAT
<i>Ppargc1a</i>	ACA GCT TTC TGG GTG GAT TG
	TGT CTC TGT GAG GAC CGC TA
<i>Prdm16</i>	TAT GGA GTG ACA TAG AGT GTG CT
	CCA CTT CAA TCC ACC CAG AAA G
<i>Glut4</i>	GTA ACT TCA TTG TCG GCA TGG
	AGC TGA GAT CTG GTC AAA CG
<i>Gck</i>	GCA TCT CTG ACT TCC TGG ACA AG
	CTT GGT CCA GTT GAG CAG GAT G
<i>Cd36</i>	GGA CAT TGA GAT TCT TTT CCT CTG
	GCA AAG GCA TTG GCT GGA AGA AC
<i>Cpt1b</i>	ATG TAT CGC CGC AAA CTG GAC C

	CTC TGA GAG GTG CTG TAG CAA G
<i>Mki67</i>	GAG GAG AAA CGC CAA CCA AGA G
	TTT GTC CTC GGT GGC GTT ATC C
<i>MTOR</i>	
	AGC ATC GGA TGC TTA GGA GTG G
	CAG CCA GTC ATC TTT GGA GAC C
<i>CK5</i>	ACG TCC ACT CTG CGA GAA TG CGA TCA GGC TGT ACG TCA TCT
<i>CK8</i>	ACA AGG TAG AGC TGG AGT CTC G
	AGC ACC ACA GAT GTG TCC GAG A
<i>CK17</i>	ATC CTG CTG GAT GTG AAG ACG C
	TCC ACA ATG GTA CGC ACC TGA C
<i>UPP1</i>	CTC CAA CGT CAC TAT CAT CCG C
	CTG CCT TGA AGC AGG TAT CCA C
<i>Cas9</i>	ATC ACCC CCC ACC AGA TCA AGC
	GTC CTT GTC GTA CAG GCC GTT CA
<i>UCP1 gRNA-1</i>	CCCGAGGCACCGAGCGAGAAT
<i>UCP1 gRNA-2</i>	GCAGGGCTCCCGAGGCACCGA
<i>UCP1 gRNA-3</i>	AGGGCTCCCGAGGCACCGAGC
<i>UCP1 gRNA-4</i>	ACCGAGCGAGAATGGGAATGG
<i>UCP1 gRNA-5</i>	GCACCGAGCGAGAATGGGAAT
<i>PPARGC1a gRNA-1</i>	CACTGAAGCAGAGGGGCTGCCT
<i>PPARGC1a gRNA-2</i>	TTAGAGCAGCAAGCTGCACAG
<i>PPARGC1a gRNA-3</i>	GTTAGAGCAGCAAGCTGCACA
<i>PPARGC1a gRNA-4</i>	GGGCTGCCTTTGAGTGACGTC
<i>PPARGC1a gRNA-5</i>	AGTTAGAGCAGCAAGCTGCAC
<i>PRDM16 gRNA-1</i>	CGGCGGCGGCGGCGCGACGAT
<i>PRDM16 gRNA-2</i>	GGCGGCGGCGACGATGAGGATG
<i>PRDM16 gRNA-3</i>	GCCGCCGCCGCCGCCTCGGCG
<i>PRDM16 gRNA-4</i>	CGCCGCCGCCGCCGCCTCGGC
<i>PRDM16 gRNA-5</i>	GGCGGCGGCGGCGGCGCGACG
<i>Ucp1 gRNA-1</i>	GGGACTTGGCAGGGGCGTGCC
<i>Ucp1 gRNA-2</i>	CTGAGCCGGCCCAGGTCTCCA
<i>Ucp1 gRNA-3</i>	CAGGTCTCCAAAGAGCTGCTA
<i>Ucp1 gRNA-4</i>	CTTTGGGAGTGACGCGCGGCT
<i>Ucp1 gRNA-5</i>	GGCTTTGGGAGTGACGCGCGG
<i>UPP1 gRNA-1</i>	GCGAACTCAGCTGACCGCATC
<i>UPP1 gRNA-2</i>	GGGCTTGTCTGCGGGATGGCC
<i>UPP1 gRNA-3</i>	GATGGCCCAGGATGCGGTCAG
<i>UPP1 gRNA-4</i>	GGTCAGCTGAGTTCGCCGGCC
<i>UPP1 gRNA-5</i>	AGTTCGCCGGCCCAGGGCAGG

Supplementary Table 4. List of antibodies.

Name	Vendor	Concentration	Catalog number
Ki67 (SolA15)	Fisher Scientific	5ug/ml	14-5698-82
Carbonic Anhydrase	Fisher Scientific	3ug/ml	AF2188
CD31	Fisher Scientific	10ug/ml	BBA7
Caspase 3	Cell Signaling	1:400	9661
CK19	Abcam	1:200	Ab203444
GAPDH	Cell Signaling	1:1000	5174
UCP1	R&D	0.5ug/ml	MAB6158
Goat anti-rat, Alexa Fluor 647	Fisher Scientific	1:1000	A21247
Goat anti-mouse, Alexa Fluor 594	Life Technologies	1:500	A11032
Donkey anti-goat, Alexa Fluor 594	Fisher Scientific	1:1000	A11055