

Figure S1. Cell proliferation in (A) T47D breast cancer cells, (B) MCF-7 breast cancer cells and (C) MCF-10A breast epithelial cells after treatment with BHB, β -hydroxybutyrate. Line graphs indicate means of two independent experiments with standard deviation. *Indicate significant difference from the control (0 mM BHB). Significant levels: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

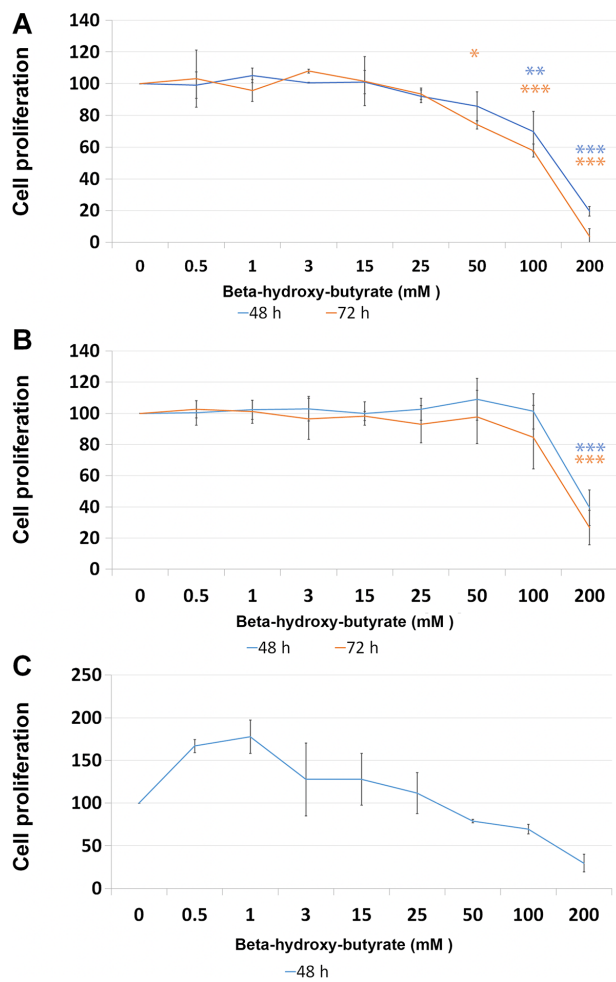


Table SI. Expression of enzymes responsible for ketone body catabolism in MCF-7 and T47D breast cancer cells.

A, MCF-7 cells glucose 100%_0 mM BHB vs. glucose 5%_0 mM BHB

Results	OXCT1	OXCT2	ACAT1	ACAT2	BDH1
log2FoldChange	-5.63E-04	2.03E-03	1.67E-02	1.10E-01	1.27E-02
Mean FPKM (glucose 100%_0 mM BHB)	11.27	0.15	12.24	30.66	20.64
Mean FPKM (glucose 5%_0 mM BHB)	10.92	0.23	15.70	40.83	26.79
P-adjusted value	1.00	1.00	1.00	1.00	1.00

B, MCF-7 cells glucose 5%_0 mM BHB vs. glucose 5%_10 mM BHB

Results	OXCT1	OXCT2	ACAT1	ACAT2	BDH1
log2FoldChange	-2.53E-04	-2.20E-05	-8.91E-05	-3.23E-04	6.76E-05
Mean FPKM (glucose 5%_0 mM BHB)	10.92	0.23	15.70	40.83	26.79
Mean FPKM (glucose 5%_10 mM BHB)	10.04	0.22	15.17	38.21	27.39
P-adjusted value	1.00	1.00	1.00	1.00	1.00

C, MCF-7 cells glucose 5%_0 mM BHB vs. glucose 5%_25 mM BHB

Results	OXCT1	OXCT2	ACAT1	ACAT2	BDH1
log2FoldChange	-8.62E-04	-5.14E-05	-1.10E-03	-7.76E-04	-2.29E-04
Mean FPKM (glucose 5%_0 mM BHB)	10.92	0.23	15.70	40.83	26.79
Mean FPKM (glucose 5%_25 mM BHB)	8.34	0.19	12.61	35.48	25.50
P-adjusted value	1.00	1.00	1.00	1.00	1.00

D, T47D cells glucose 100%_0 mM BHB vs. glucose 5%_0 mM BHB

Results	OXCT1	OXCT2	ACAT1	ACAT2	BDH1
log2FoldChange	-6.61E-02	-8.53E-02	2.49E-01	-4.93E-01	1.20E-01
Mean FPKM (glucose 100%_0 mM BHB)	1.49	0.25	81.49	35.01	39.35
Mean FPKM (glucose 5%_0 mM BHB)	1.34	0.14	99.09	23.47	43.88
P-adjusted value	1.00	1.00	1.00	0.51	1.00

E, T47D cells glucose 5%_0 mM BHB vs. glucose 5%_10 mM BHB

Results	OXCT1	OXCT2	ACAT1	ACAT2	BDH1
log2FoldChange	-5.29E-05	1.02E-05	6.02E-05	-2.90E-04	-2.01E-04
Mean FPKM (glucose 5%_0 mM BHB)	1.34	0.14	99.09	23.47	43.88
Mean FPKM (glucose 5%_10 mM BHB)	1.18	0.15	97.11	20.17	38.57
P-adjusted value	1.00	1.00	1.00	1.00	1.00

F, T47D cells glucose 5%_0 mM BHB vs. glucose 5%_25 mM BHB

Results	OXCT1	OXCT2	ACAT1	ACAT2	BDH1
log2FoldChange	3.63E-03	6.37E-04	-6.81E-03	-8.05E-02	-3.17E-02
Mean FPKM (glucose 5%_0 mM BHB)	1.34	0.14	99.09	23.47	43.88
Mean FPKM (glucose 5%_25 mM BHB)	1.49	0.17	90.19	17.60	34.76
P-adjusted value	1.00	1.00	1.00	1.00	1.00

FPKM, fragments per kilobase of transcript per million mapped reads; OXCT, 3-oxoacid CoA-transferase; ACAT, acetyl-CoA acetyltransferase; BDH, 3-hydroxybutyrate dehydrogenase; BHB, β -hydroxybutyrate.

Table SII. Co-expression of OXCT1 and BDH in TCGA patient samples.

Gene 1	Gene 2	Neither	Gene 1 not Gene 2	Gene 2 not Gene 1	Both	Log2 odds ratio	P-value	Tendency
OXCT1	OXCT2	9640	347	178	24	1.905	<0.001	Co-occurrence
BDH2	OXCT1	9768	50	358	13	2.827	<0.001	Co-occurrence
BDH1	OXCT1	9258	560	324	47	1.262	<0.001	Co-occurrence
BDH1	OXCT2	9407	580	175	27	1.323	<0.001	Co-occurrence
BDH2	OXCT2	9930	57	196	6	2.415	0.001	Co-occurrence
BDH1	BDH2	9528	598	54	9	1.409	0.012	Co-occurrence

OXCT, 3-oxoacid CoA-transferase; BDH, 3-hydroxybutyrate dehydrogenase; TCGA, The Cancer Genome Atlas.