SUPPLEMENTARY TABLES

Supplementary Table 1. Effects of Mito-ChM on ECAR, ATP-linked OCR and maximal OCR in MCF-7 and MCF-10A cells. Cells were treated with Mito-ChM (1-10 μM) as indicated in Figure 3. The quantitative changes in bioenergetic function following treatment and washout with time are shown.

Supplementary Table 2. The effect of Mito-ChM on intracellular ATP levels in MCF-7 cells. Cells were treated with Mito-ChM (1-20 μM) for indicated periods of time. After treatment, cells were washed with complete media and either assayed immediately, or returned to cell culture incubator for 24, 48 or 72 h. Intracellular ATP levels were measured using a luciferase-based assay. Data are represented as the calculated absolute levels of ATP (nmol ATP/mg protein). Data shown are the mean ± SEM, n=4.

Supplementary Table 3. The effect of Mito-ChM on intracellular ATP levels in MDA-MB-231 cells. Cells were treated with Mito-ChM (1-20 μM) for indicated periods of time. After treatment, cells were washed with complete media and either assayed immediately, or returned to cell culture incubator for 24, 48 or 72 h. Intracellular ATP levels were measured using a luciferase-based assay. Data are represented as the calculated absolute levels of ATP (nmol ATP/mg protein). Data shown are the mean ± SEM, n=4.

Supplementary Table 4. The effect of Mito-ChM on intracellular ATP levels in MCF-10A cells. Cells were treated with Mito-ChM (1-20 μM) for indicated periods of time. After treatment, cells were washed with complete media and either assayed immediately, or returned to cell culture incubator for 24, 48 or 72 h. Intracellular ATP levels were measured using a luciferase-based assay. Data are represented as the calculated absolute levels of ATP (nmol ATP/mg protein). Data shown are the mean ± SEM, n=4.

Supplementary Table 5. Effects of Mito-ChM on body weight and tissue weight in xenograft mouse models. Data shown are the mean ± SEM, (n=10, control group and n=9, Mito-ChM treated group)

Supplementary Table 1. Effects of Mito-ChM on ECAR, ATP-linked OCR and maximal OCR in MCF-7 and MCF-10A cells.

	4 h treatment					
	ECAR		**ATP-Linked OCR**		**Maximal OCR**	
	MCF-7	**MCF-10A**	**MCF-7**	**MCF-10A**	**MCF-7**	**MCF-10A**
Control	100.0 ± 8.7	100.0 ± 16.1	100.0 ± 7.3	100.0 ± 2.6	100.0 ± 1.8	100.0 ± 4.5
Mito-ChM 1 µM	228.9 ± 28.9*	327.5 ± 15.4	7.2 ± 4.6*	-6.6 ± 0.9	27.6 ± 3.4	31.5 ± 1.4
Mito-ChM 3 µM	189.0 ± 9.8**	274.9 ± 15.4	8.5 ± 4.8	9.1 ± 1.3	15.8 ± 4.7	10.0 ± 0.7
Mito-ChM 10 µM	45.3 ± 15.9**	257.3 ± 17.8	-1.7 ± 0.5*	2.8 ± 0.9	1.0 ± 0.7	0.3 ± 0.8

	4 h treatment with washout for 24 h					
	ECAR		**ATP-Linked OCR**		**Maximal OCR**	
	MCF-7	**MCF-10A**	**MCF-7**	**MCF-10A**	**MCF-7**	**MCF-10A**
Control	100.0 ± 5.8	100.0 ± 13.6	100.0 ± 9.1	100.0 ± 8.0	100.0 ± 9.0	100.0 ± 4.8
Mito-ChM 1 µM	138.9 ± 18.5	134.7 ± 21.2	69.1 ± 8.3	81.6 ± 5.7	81.4 ± 8.2	81.7 ± 6.4
Mito-ChM 3 µM	159.9 ± 11.3	163.8 ± 21.6	12.6 ± 3.1**	48.1 ± 1.3	39.3 ± 4.6	43.9 ± 1.7
Mito-ChM 10 µM	2.9 ± 1.2**	171.5 ± 18.4	-2.7 ± 2.2	2.7 ± 1.7	0.1 ± 0.2	2.0 ± 1.7

	4 h treatment with washout for 48 h					
	ECAR		**ATP-Linked OCR**		**Maximal OCR**	
	MCF-7	**MCF-10A**	**MCF-7**	**MCF-10A**	**MCF-7**	**MCF-10A**
Control	100.0 ± 10.3	100.0 ± 7.8	100.0 ± 7.8	100.0 ± 2.2	100.0 ± 8.8	100.0 ± 6.3
Mito-ChM 1 µM	106.8 ± 9.1	129.5 ± 15.1	58.5 ± 2.5**	116.0 ± 9.8	75.7 ± 3.4**	109.4 ± 5.6
Mito-ChM 3 µM	112.5 ± 5.4	141.4 ± 15.7	15.8 ± 2.8**	90.9 ± 1.2	48.0 ± 5.5**	95.1 ± 2.7
Mito-ChM 10 µM	0.8 ± 0.5**	138.6 ± 9.2	0.02 ± 0.03**	60.9 ± 3.9	0.05 ± 0.1**	56.4 ± 1.5

	4 h treatment with washout for 72 h					
	ECAR		**ATP-Linked OCR**		**Maximal OCR**	
	MCF-7	**MCF-10A**	**MCF-7**	**MCF-10A**	**MCF-7**	**MCF-10A**
Control	100.0 ± 6.2	100.0 ± 14.1	100.0 ± 2.0	100.0 ± 6.3	100.0 ± 2.0	100.0 ± 3.1
Mito-ChM 1 µM	116.8 ± 11.9	100.7 ± 6.3	53.7 ± 3.9**	116.1 ± 2.6	76.1 ± 5.1**	116.9 ± 4.8
Mito-ChM 3 µM	109.0 ± 19.8	101.4 ± 8.7	4.6 ± 3.1**	106.5 ± 5.9	26.9 ± 5.1**	99.6 ± 2.4
Mito-ChM 10 µM	0.7 ± 0.2**	143.5 ± 22.4	0.02 ± 0.02**	85.6 ± 7.4	0.01 ± 0.01**	79.4 ± 5.3

Supplementary Table 2. The effect of Mito-ChM on intracellular ATP levels in MCF-7 cells.

	Incubation time without washout				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	25.6 ± 2.2	24.5 ± 1.8	26.6 ± 1.6	26.0 ± 1.7	26.1 ± 1.9
1	20.2 ± 2.0	19.8 ± 1.0	21.7 ± 1.0	23.3 ± 1.5	23.4 ± 1.5
3	23.3 ± 1.9	24.5 ± 1.7	27.6 ± 2.1	29.1 ± 2.1	27.0 ± 2.1
5	24.1 ± 1.8	27.1 ± 1.8	26.0 ± 2.3	28.3 ± 2.3	28.3 ± 1.8
10	25.7 ± 1.8	24.9 ± 2.0	27.7 ± 2.3	25.9 ± 2.9	24.2 ± 3.5
15	24.8 ± 1.8	25.8 ± 1.7	23.0 ± 3.0	19.6 ± 3.8	9.3 ± 2.0
20	22.5 ± 2.6	22.2 ± 2.9	18.2 ± 3.2	10.0 ± 2.5	3.1 ± 1.0
	Incubation time with washout for 24 h				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	23.9 ± 0.6	24.8 ± 0.5	26.0 ± 0.9	25.6 ± 0.4	24.8 ± 0.7
1	23.2 ± 0.4	23.2 ± 0.7	23.3 ± 0.7	24.8 ± 0.4	24.7 ± 0.4
3	21.6 ± 1.0	22.2 ± 0.8	23.9 ± 0.8	22.3 ± 1.4	21.8 ± 1.4
5	19.7 ± 0.9	20.4 ± 1.4	24.1 ± 0.1	22.9 ± 0.4	24.5 ± 1.6
10	22.7 ± 0.6	22.1 ± 0.9	21.4 ± 0.6	18.5 ± 0.7	12.7 ± 0.6
15	21.7 ± 1.0	20.5 ± 1.1	12.4 ± 0.7	6.3 ± 1.1	1.1 ± 0.2
20	21.0 ± 0.5	14.5 ± 1.3	4.2 ± 0.5	0.7 ± 0.1	0.7 ± 0.1
	Incubation time with washout for 48 h				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	21.7 ± 0.7	21.9 ± 0.9	22.3 ± 0.6	22.5 ± 0.7	22.7 ± 1.0
1	21.0 ± 0.8	20.8 ± 0.6	21.0 ± 0.6	21.6 ± 0.5	21.0 ± 0.4
3	18.4 ± 1.1	18.8 ± 0.6	18.3 ± 1.2	18.2 ± 0.7	18.1 ± 0.5
5	17.7 ± 0.6	17.9 ± 0.2	18.7 ± 0.7	18.8 ± 0.5	16.9 ± 1.2
10	18.4 ± 0.5	18.7 ± 0.3	14.2 ± 1.0	10.6 ± 0.8	4.9 ± 0.6
15	17.6 ± 1.0	13.1 ± 0.6	3.3 ± 0.2	0.9 ± 0.0	0.6 ± 0.0
20	14.0 ± 0.9	6.3 ± 1.1	0.6 ± 0.1	0.3 ± 0.0	0.5 ± 0.1
	Incubation time with washout for 72 h				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	23.6 ± 0.4	23.7 ± 0.4	24.1 ± 0.6	20.2 ± 1.0	21.7 ± 0.9
1	20.6 ± 0.8	21.5 ± 0.9	20.8 ± 0.3	20.8 ± 0.4	19.3 ± 0.8
3	17.0 ± 0.5	16.2 ± 0.7	12.9 ± 0.6	13.9 ± 1.2	15.7 ± 0.6
5	14.4 ± 0.8	15.8 ± 0.6	14.4 ± 0.2	15.3 ± 0.8	15.0 ± 0.6
10	15.4 ± 0.7	12.1 ± 0.6	6.4 ± 0.8	4.2 ± 0.7	2.2 ± 0.5
15	11.4 ± 0.6	4.6 ± 0.8	0.6 ± 0.1	0.4 ± 0.0	0.4 ± 0.0
20	7.8 ± 0.9	1.9 ± 0.5	0.3 ± 0.0	0.3 ± 0.0	0.4 ± 0.1

Supplementary Table 3. The effect of Mito-ChM on intracellular ATP levels in MDA-MB-231 cells.

	Incubation time without washout				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	36.2 ± 0.8	33.3 ± 3.2	36.3 ± 1.4	35.3 ± 1.2	35.9 ± 1.7
1	31.4 ± 2.1	35.0 ± 0.9	36.0 ± 0.9	34.5 ± 2.2	37.7 ± 0.4
3	36.0 ± 1.8	34.9 ± 0.9	34.0 ± 1.7	34.4 ± 1.1	38.7 ± 1.0
5	34.1 ± 0.7	30.0 ± 2.1	31.4 ± 2.8	37.2 ± 1.0	35.1 ± 2.9
10	33.8 ± 2.1	30.8 ± 1.3	34.4 ± 1.5	37.4 ± 0.5	36.4 ± 0.5
15	33.3 ± 2.0	35.1 ± 1.6	34.0 ± 1.6	32.3 ± 1.8	28.6 ± 0.9
20	33.5 ± 0.6	30.5 ± 3.6	30.0 ± 2.4	23.8 ± 2.2	9.5 ± 2.0
	Incubation time with washout for 24 h				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	28.2 ± 1.6	29.7 ± 0.7	28.4 ± 0.8	28.7 ± 2.0	27.3 ± 1.0
1	28.1 ± 0.5	27.3 ± 0.5	29.9 ± 1.2	29.9 ± 0.5	27.2 ± 1.5
3	32.3 ± 0.8	30.8 ± 2.5	32.8 ± 2.4	34.0 ± 1.2	34.0 ± 0.4
5	32.7 ± 3.3	32.9 ± 0.1	27.9 ± 3.1	31.0 ± 0.6	30.0 ± 1.1
10	30.4 ± 0.8	27.3 ± 1.8	27.3 ± 1.0	26.1 ± 0.8	19.8 ± 1.1
15	29.0 ± 2.8	25.2 ± 2.2	18.8 ± 1.1	6.5 ± 1.0	1.5 ± 0.2
20	28.2 ± 1.1	23.8 ± 0.4	3.4 ± 0.6	0.9 ± 0.1	1.1 ± 0.1
	Incubation time with washout for 48 h				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	26.9 ± 0.9	27.0 ± 0.6	26.0 ± 0.9	25.6 ± 1.1	26.6 ± 0.4
1	28.2 ± 0.4	28.2 ± 0.2	25.4 ± 2.1	25.7 ± 2.4	27.0 ± 0.7
3	22.5 ± 1.3	25.5 ± 0.4	24.1 ± 1.2	24.4 ± 0.5	24.6 ± 0.2
5	26.2 ± 0.3	26.7 ± 0.8	25.4 ± 0.9	25.6 ± 0.2	24.2 ± 0.5
10	25.0 ± 0.5	23.6 ± 0.8	21.3 ± 0.4	16.8 ± 0.3	13.1 ± 1.6
15	21.9 ± 0.2	18.5 ± 0.9	7.1 ± 1.3	0.8 ± 0.1	0.7 ± 0.0
20	20.4 ± 0.6	12.3 ± 0.7	0.7 ± 0.1	0.5 ± 0.1	0.6 ± 0.0
	Incubation time with washout for 72 h				
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	28.5 ± 0.8	27.6 ± 1.0	27.8 ± 1.3	28.8 ± 1.1	27.9 ± 0.7
1	27.9 ± 1.1	29.0 ± 0.7	27.5 ± 1.6	25.9 ± 1.0	27.2 ± 1.4
3	26.2 ± 0.9	26.3 ± 0.9	25.2 ± 1.6	25.5 ± 1.3	25.4 ± 0.8
5	24.0 ± 1.3	23.3 ± 1.6	24.3 ± 1.4	22.7 ± 0.9	19.9 ± 0.3
10	20.2 ± 1.0	18.5 ± 0.8	13.9 ± 1.5	10.5 ± 0.7	6.6 ± 0.5
15	15.6 ± 1.0	8.6 ± 0.4	1.3 ± 0.5	0.5 ± 0.0	0.6 ± 0.1
20	12.3 ± 0.5	2.5 ± 0.3	0.5 ± 0.0	0.4 ± 0.0	0.5 ± 0.1

Supplementary Table 4. The effect of Mito-ChM on intracellular ATP levels in MCF-10A cells.

			Incubation time without washout		
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	25.0 ± 0.5	24.6 ± 1.1	26.6 ± 0.5	24.6 ± 1.5	25.6 ± 1.0
1	20.3 ± 0.8	22.4 ± 0.6	26.2 ± 1.1	28.1 ± 1.5	31.6 ± 1.7
3	29.8 ± 0.2	29.9 ± 0.8	32.6 ± 1.4	33.9 ± 0.7	35.1 ± 1.1
5	29.1 ± 1.0	30.9 ± 0.2	30.9 ± 1.0	32.9 ± 0.7	32.5 ± 0.7
10	28.7 ± 1.0	29.9 ± 0.8	29.5 ± 1.4	28.6 ± 1.4	27.1 ± 1.7
15	27.9 ± 0.5	28.4 ± 1.4	27.0 ± 1.6	29.1 ± 0.3	28.9 ± 0.7
20	27.0 ± 1.2	29.8 ± 1.1	29.0 ± 0.5	27.7 ± 0.8	26.2 ± 0.6
			Incubation time with washout for 24 h		
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	27.4 ± 0.6	27.4 ± 0.7	26.9 ± 0.9	27.2 ± 0.7	27.3 ± 0.5
1	27.7 ± 0.5	27.3 ± 0.6	27.6 ± 0.7	26.9 ± 1.0	28.4 ± 1.0
3	31.2 ± 0.8	31.6 ± 0.7	32.1 ± 0.8	31.8 ± 0.4	31.7 ± 0.8
5	31.7 ± 1.2	33.3 ± 0.9	33.9 ± 0.8	32.4 ± 0.6	33.6 ± 1.0
10	34.4 ± 0.8	33.5 ± 1.0	33.4 ± 0.8	32.0 ± 1.3	32.6 ± 0.6
15	33.9 ± 1.8	34.5 ± 1.2	32.5 ± 0.9	32.8 ± 1.0	33.0 ± 0.8
20	33.8 ± 1.1	35.0 ± 1.1	33.4 ± 0.7	31.4 ± 0.8	32.2 ± 0.7
			Incubation time with washout for 48 h		
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	25.7 ± 0.2	25.2 ± 0.6	25.6 ± 0.4	26.8 ± 0.5	26.3 ± 0.4
1	28.3 ± 0.8	26.5 ± 0.8	27.1 ± 0.7	26.8 ± 0.5	27.1 ± 0.3
3	27.1 ± 0.8	26.3 ± 0.4	25.8 ± 0.3	25.9 ± 0.3	25.4 ± 0.4
5	24.7 ± 0.6	24.7 ± 0.9	24.9 ± 0.6	25.1 ± 0.7	25.3 ± 0.4
10	25.3 ± 0.6	26.1 ± 1.1	25.3 ± 0.9	24.4 ± 1.1	23.7 ± 0.9
15	27.6 ± 0.9	25.3 ± 0.9	21.9 ± 1.2	21.9 ± 1.4	20.6 ± 0.5
20	27.2 ± 1.0	23.7 ± 1.7	22.1 ± 0.9	20.8 ± 1.3	19.7 ± 1.0
			Incubation time with washout for 72 h		
Mito-ChM (μM)	***1 h***	***2 h***	***4 h***	***6 h***	***8 h***
0	29.9 ± 0.7	30.7 ± 0.4	30.4 ± 1.0	30.3 ± 0.8	30.6 ± 0.2
1	30.8 ± 0.7	30.4 ± 0.8	30.1 ± 0.4	30.0 ± 0.2	29.2 ± 0.4
3	30.3 ± 0.9	30.0 ± 0.7	30.0 ± 0.6	29.4 ± 0.5	27.8 ± 0.9
5	29.5 ± 0.5	30.1 ± 0.4	29.6 ± 0.3	28.7 ± 1.2	27.8 ± 0.3
10	27.9 ± 0.6	27.9 ± 1.2	28.2 ± 0.5	27.8 ± 0.3	25.1 ± 0.7
15	28.2 ± 0.9	29.4 ± 0.7	27.6 ± 0.7	24.3 ± 1.3	21.3 ± 0.2
20	29.5 ± 1.8	29.3 ± 0.7	25.6 ± 0.8	23.0 ± 0.2	18.6 ± 0.7

Supplementary Table 5. Effects of Mito-ChM on body weight and tissue weight in xenograft mouse models. Data shown are the mean ± SEM, (n=10, control group and n=9, Mito-ChM treated group)

	Body weight (g)	Kidney (mg)	Liver (mg)	Heart (mg)
Control	21.7 ± 0.4	148.6 ± 4.3	1163.8 ± 50.2	136.1 ± 6.2
Mito-ChM (60 mg/kg)	19.1 ± 0.7*	140.6 ± 5.3	1022.4 ± 53.1	123.2 ± 6.6