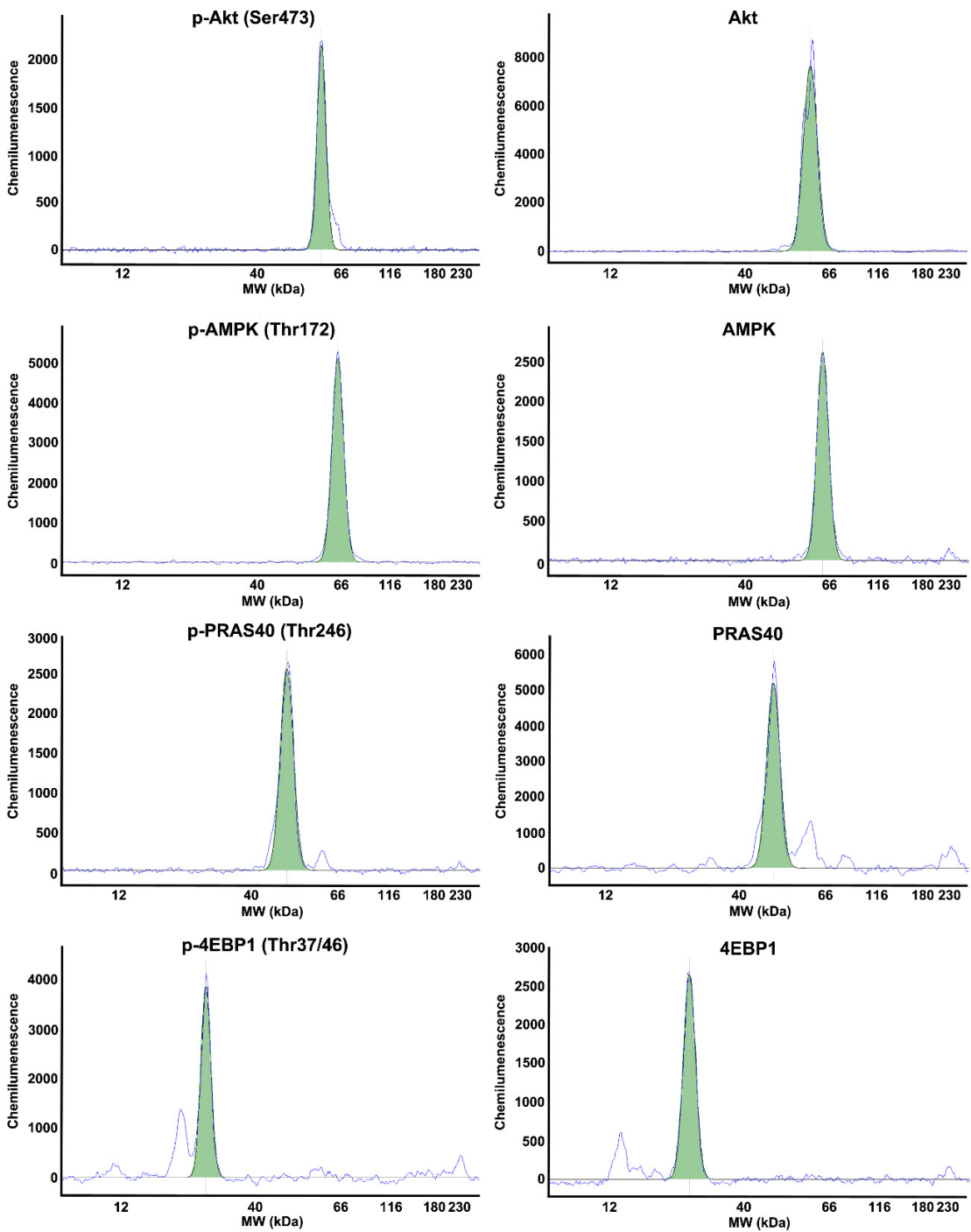
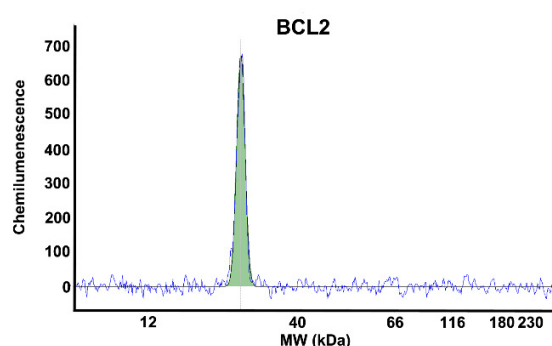
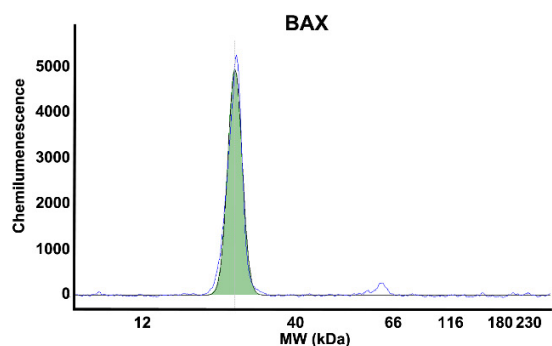
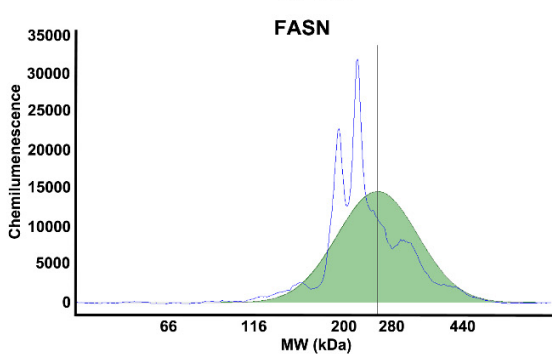
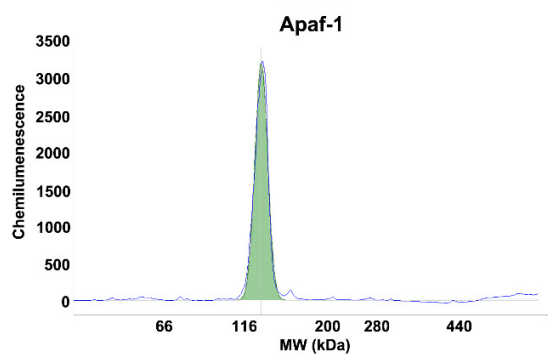
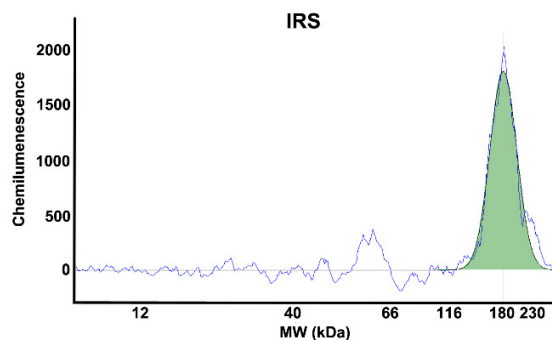
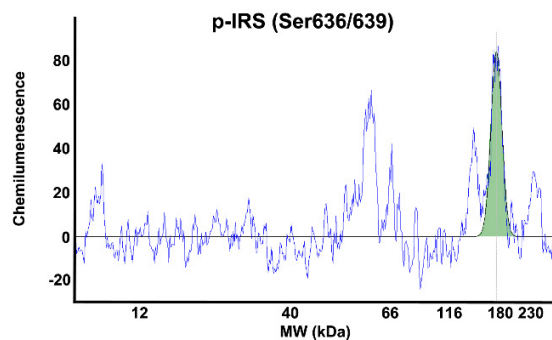
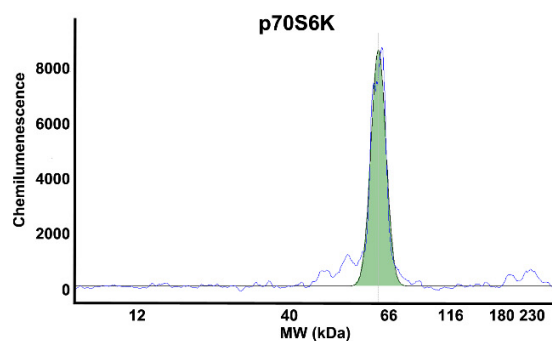
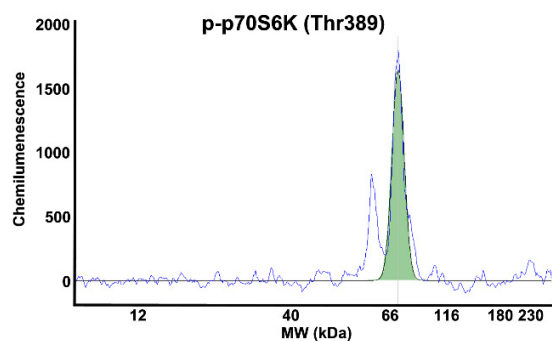
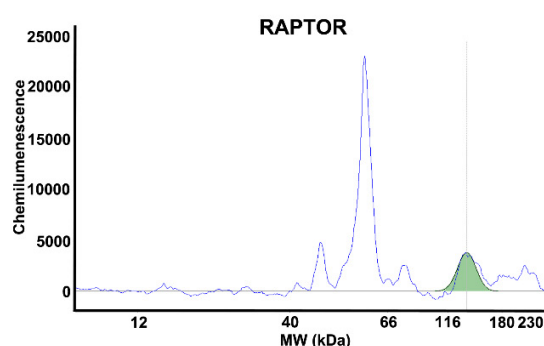
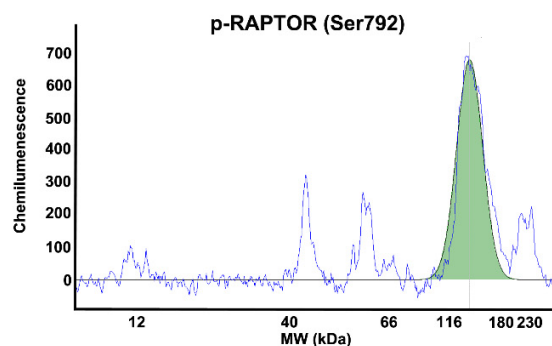
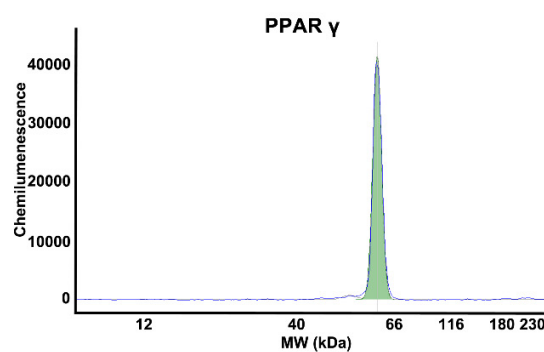
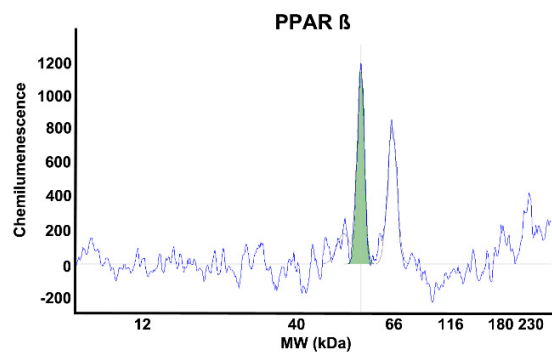
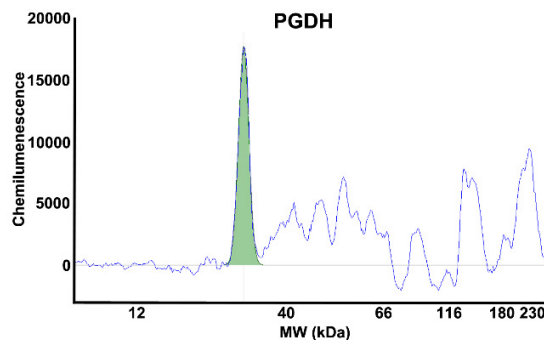
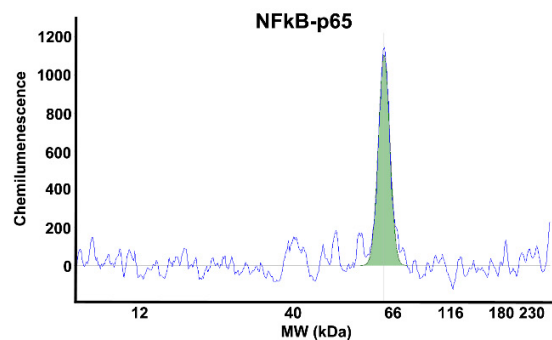
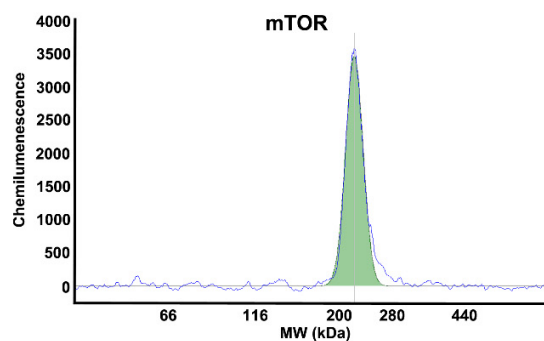
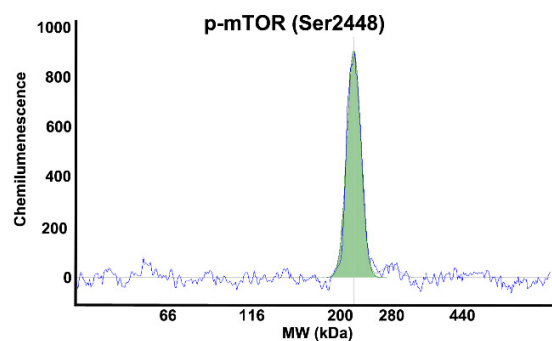
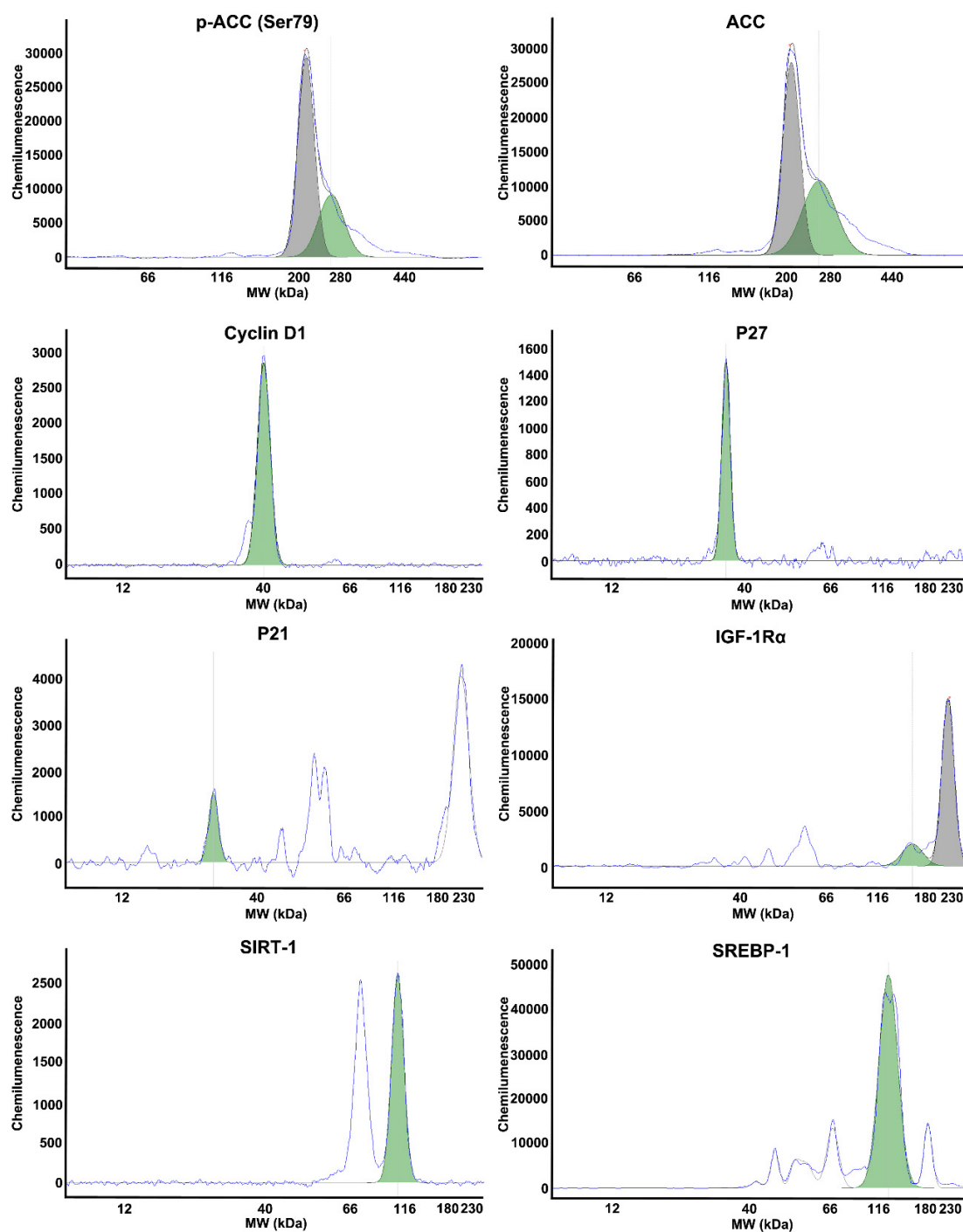


Supplemental Data

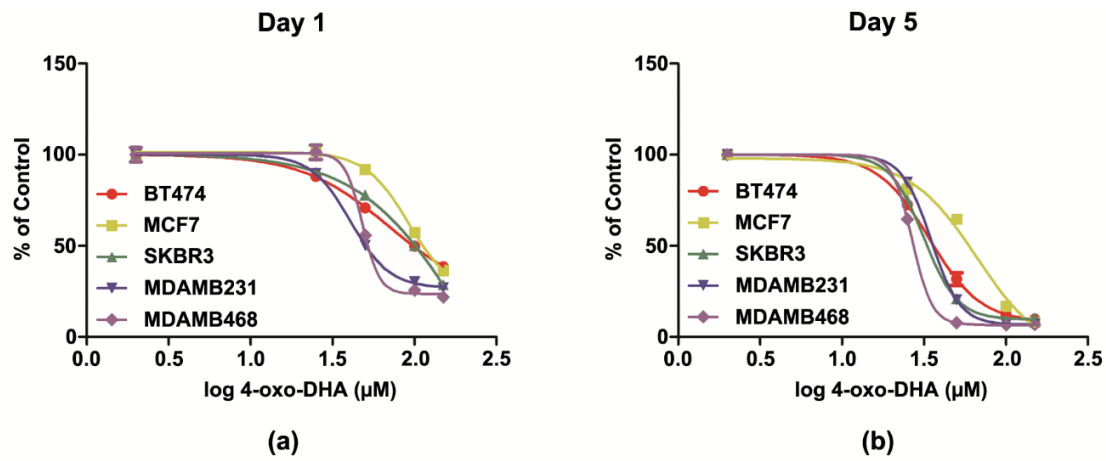








**Figure S1.** Electropherogram profiles of key primary antibodies used for western blotting.



**Figure S2.** Dose- and time-dependent effects of 4-oxo-DHA on the growth of five subtype human breast cancer cells (BT474, MCF7, SKBR3, MDAMB231, and MDAMB468) graphed using the half maximal inhibitory concentration (IC<sub>50</sub>) as percent of untreated control for 1 and 5 days treatment.

## Analysis Comparison 2



## phospho-log fold-3 cell



**Figure S3.** Heatmaps of canonical pathways associated with 4-oxo-DHA treatment across common molecular subtypes of breast cancer.

**Table S1.** Primary antibodies.

<b>Antibody</b>	<b>Vendor</b>	<b>Catalog #</b>
phospho-ACC <sup>Ser79</sup>	Cell Signaling	3661
ACC	Cell Signaling	3676
$\beta$ Actin	Sigma Aldrich	A5441
phospho-Akt <sup>Ser473</sup>	Cell Signaling	4058
Akt	Cell Signaling	9272
phospho-AMPK <sup>Thr172</sup>	Cell Signaling	2535
AMPK	Cell Signaling	2603
Apaf-1	Cell Signaling	8723
Bax	BD Biosciences	556467
Bcl-2	BD Biosciences	610538
cyclin-D1	BD Biosciences	556470
phospho-4E-BP1 <sup>Thr37/46</sup>	Cell Signaling	9459
4E-BP1	Cell Signaling	9452
FASN	Cell Signaling	3180
phospho-FOXO1 <sup>Thr24</sup> & FOXO3 <sup>Thr32</sup>	Cell Signaling	9464
FOXO1 & FOXO3	Cell Signaling	9462
GADD153	Novus Biologicals	NB600-1335
GPR120	Novus Biologicals	NBP1-00858
Hif-1 $\alpha$	Novus Biologicals	NB100-105
HMGCR	Santa Cruz	sc-27578
IGF1R $\alpha$	Santa Cruz	sc-712
IGFR-1	Santa Cruz	sc-7952
phospho-IRS <sup>Ser636/639</sup>	Cell Signaling	2388
IRS	Cell Signaling	2382
phospho-mTOR <sup>Ser2448</sup>	Cell Signaling	2971
mTOR	Cell Signaling	2972
NFkB-p65	Cell Signaling	3987
p21Cip1	Santa Cruz	sc-6246
p27Kip1	BD Biosciences	610241
Phospho-p70S6K <sup>Thr389</sup>	Cell Signaling	9205
p70S6K	Cell Signaling	2708
PARP	Cell Signaling	9542
PGDH	Santa Cruz	sc-48908
PI3Kp110	Cell Signaling	4255
PPAR $\beta$ , $\gamma$	Santa Cruz	sc-365615
phospho-PRAS40 <sup>Thr246</sup>	Cell Signaling	2997
PRAS40	Cell Signaling	2691
phospho-Raptor <sup>Ser792</sup>	Cell Signaling	2083
Raptor	Cell Signaling	2280
phospho-RB <sup>Ser780</sup>	Cell Signaling	9307
RB	Cell Signaling	9313
SIRT-1	Cell Signaling	9475
SREBP-1	Santa Cruz	sc-365513

**Table S2.** Disease and Function Annotations from IPA.

Type	Cell Line	Diseases or Functions Annotation	z-Score	Predicted	p-value	# Molecules
NP	BT474	Cell proliferation of breast cancer cell lines	-3.524	Decreased	2.88E-25	22
	BT474	Proliferation of lymphocytes	-3.157	Decreased	4.49E-16	18
	BT474	Proliferation of B lymphocytes	-3.087	Decreased	2.8E-15	13
	BT474	Proliferation of immune cells	-2.958	Decreased	6.38E-17	19
	BT474	Growth of tumor	-2.903	Decreased	7.09E-27	27
	SKBR3	Inflammation of body cavity	-2.681	Decreased	8.56E-12	17
	SKBR3	Proliferation of hepatocytes	-2.478	Decreased	4.27E-12	9
	SKBR3	Cell cycle progression of tumor cell lines	-2.396	Decreased	2.22E-22	17
	SKBR3	Cell proliferation of fibroblasts	-2.293	Decreased	1.17E-12	12
	SKBR3	Inflammation of absolute anatomical region	-2.263	Decreased	7.84E-13	19
	MDAMB 468	Colony formation of cells	-2.749	Decreased	5.69E-25	22
	MDAMB 468	Migration of cells	-2.702	Decreased	5.76E-21	29
	MDAMB 468	Senescence of tumor cell lines	2.559	Increased	6.99E-12	8
	MDAMB 468	Differentiation of adipocytes	2.513	Increased	4.86E-15	13
	MDAMB 468	Proliferation of hepatocytes	-2.478	Decreased	4.27E-12	9
P	BT474	Activation of blood cells	-2.449	Decreased	1.26E-06	7
	BT474	Consumption of oxygen	2.425	Increased	3.69E-09	6
	BT474	Apoptosis of tumor cell lines	2.396	Increased	2.74E-14	13
	BT474	Size of animal	-2.364	Decreased	1.2E-09	6
	BT474	Secretion of molecule	-2.335	Decreased	9.18E-08	7
	SKBR3	Proliferation of B lymphocytes	2.213	Increased	1.54E-06	5
	SKBR3	Organismal death	-2.14	Decreased	2.9E-06	10
	SKBR3	Concentration of lipid	-2.044	Decreased	6.35E-09	9
	SKBR3	Apoptosis of prostate cancer cell lines	2.011	Increased	1.4E-11	7
	MDAMB 468	Cell death of immune cells	-2.804	Decreased	5.36E-14	11
	MDAMB 468	Cell death of central nervous system cells	-2.406	Decreased	1.6E-11	8
	MDAMB 468	Apoptosis of leukocyte cell lines	-2.403	Decreased	5.25E-12	7
	MDAMB 468	Quantity of monosaccharide	-2.224	Decreased	5.86E-09	7
	MDAMB 468	Invasion of breast cancer cell lines	-2.219	Decreased	1.31E-07	6
R	BT474	Immune response of cells	2.506	Increased	9.75E-10	9
	BT474	Activation of lymphocytes	-2.442	Decreased	3.78E-09	8
	BT474	Size of animal	-2.364	Decreased	3.44E-09	6
	BT474	Secretion of molecule	-2.335	Decreased	3.24E-07	7
	BT474	Concentration of lipid	-2.287	Decreased	2.53E-11	11
	SKBR3	Immune response of cells	2.506	Increased	9.75E-10	9
	SKBR3	Quantity of protein in blood	-2.433	Decreased	1.62E-07	7



SKBR3	Proliferation of neuroglia	-2.215	Decreased	1.03E-07	5
SKBR3	Accumulation of lipid	-2.213	Decreased	2.65E-07	6
SKBR3	Oxidation of fatty acid	2.201	Increased	1.08E-10	7
MDAMB 468	Immune response of cells	2.506	Increased	9.75E-10	9
MDAMB 468	Activation of lymphocytes	-2.442	Decreased	3.78E-09	8
MDAMB 468	Size of animal	-2.364	Decreased	3.44E-09	6
MDAMB 468	Secretion of molecule	-2.335	Decreased	3.24E-07	7
MDAMB 468	Concentration of lipid	-2.287	Decreased	2.53E-11	11

NP, non-phosphorylated; P, phosphorylated; R, ratio.

**Table S3:** Analysis Match results (Separate excel file).