Supplementary

Table S1 The sequences of the specific primers for PIK3CA^{Oe}, PIK3CA^{E545K}, and PIK3CA^{H1047R} in plasmids

Primer	Sequence (5' to 3')
PIK3CA^{Oe}	Forward: GAGGATCCCCGGGTACCGGTCGCCACCATGCCTCCACGACCATCATCAGGTGAAC
	Reverse: TCCTTGTAGTCCATACCGTTCAATGCATGCTGTTTAATTGTGTG
PIK3CA^{E545K}	Forward: GAGGATCCCCGGGTACCGGTCGCCACCATGCCTCCACGACCATCATCAGGTGAAC
	Reverse: TCCTTGTAGTCCATACCGTTCAATGCATGCTGTTTAATTGTGTG
PIK3CA^{H1047R}	Forward: GAGGATCCCCGGGTACCGGTCGCCACCATGCCTCCACGACCATCATCAGGTG
	Reverse: TCCTTGTAGTCCATACCGTTCAATGCATGCTGTTTAATTGTGTGGAAGATCCAATCCATTTTTGTTG

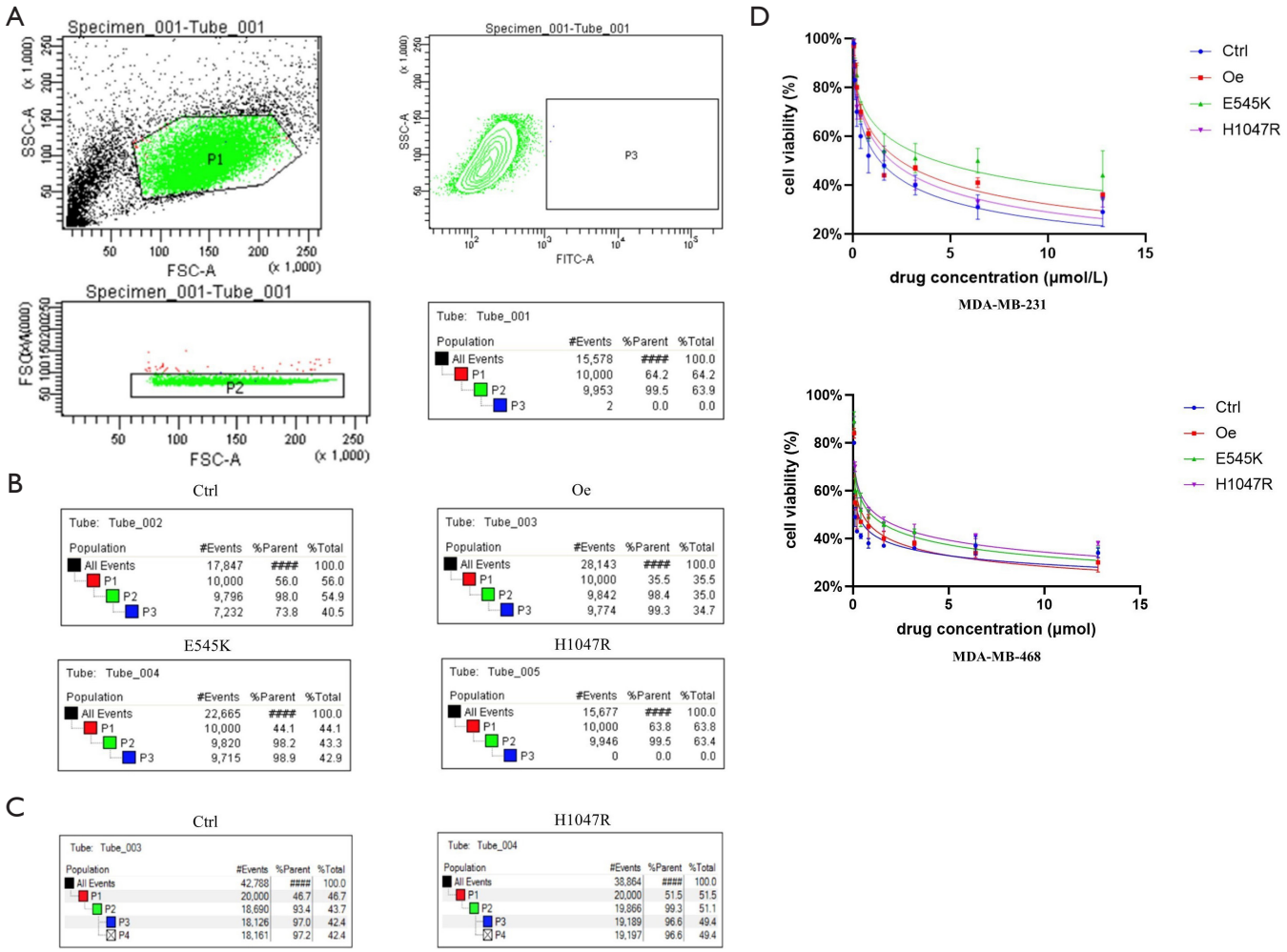

Figure S1 Isolation of single cell populations and IC_{50} analysis for epirubicin. (A) The procedure for isolating and characterizing transfected cells (e.g., MDA-MB-231, wild-type). The P3 section represents the cells isolated. In this figure, few cells can be seen in the P3 section, since wild-type cells did not carry the GFP protein. (B) Initial isolation of transfected populations of MDA-MB-231 cells. Proportion of cells carrying GFP: 73.8% for PIK3CA^{ctrl}, 99.3% for PIK3CA^{Oe}, 98.9% for PIK3CA^{E545K}, and 0% for PIK3CA^{H1047R}. (C) Second isolation of PIK3CA^{ctrl} and PIK3CA^{H1047R} MDA-MB-231 cells for their low proportions in initial isolation. Proportion of cells Vcarrying GFP: 97.2% for PIK3CA^{ctrl} and 96.6% for PIK3CA^{H1047R}. (D) The drug susceptivity of each cell line was determined by cellular drug resistance assay. Cell viability wase measured under different concentrations of epirubicin, and each IC_{50} value is listed in *Table S2*.

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Table S2 The IC_{50} value for epirubicin in each cell group (μmol/L)

Cell lines	$PIK3CA^{Ctrl}$	$PIK3CA^{Oe}$	$PIK3CA^{E545K}$	$PIK3CA^{H1047R}$
MDA-MB-231	1.38	2.43	4.23	1.97
MDA-MB-468	0.27	0.50	0.95	1.23

Table S3 Information of primary antibodies used in Western blot

Antibody	Dilution	Catalogue number	Manufacturer
PI3 Kinase p110α	1:1,000	4249	CST (Cell Signaling Technology)
AKT (pan)	1:2,000	2920	CST
p-AKT (Ser473)	1:2,000	4060	CST
p-AKT (Thr308)	1:1,000	13038	CST
p-mTOR (Ser2448)	1:1,000	5536	CST
p-p70 S6 Kinase (Thr389)	1:1,000	9206	CST
p-p70 S6 Kinase (Ser 371)	1:1,000	9208	CST
p-4E-BP1 (Thr37/46)	1:1,000	2855	CST
Xiap	1:1,000	14334	CST
Bcl-2	1:1,000	3498	CST
β-actin	1:200	47778	Santa Cruz
mTOR	1:200	517464	Santa Cruz
Pten	1:200	7974	Santa Cruz

Table S4 The sequences of the specific primer for mTOR, Pten, PIK3CA, AKT, EIF4EBP1 and β-actin in RT-qPCR

Primer	Sequence (5' to 3')
mTOR	Forward: GCCGCGCGAATATTAAAGGAA
	Reverse: TGGTTTCCTCATTCCGGCTC
Pten	Forward: ACCCACCACAGCTAGAACTT
	Reverse: GGGAATAGTTACTCCCTTTTTGTC
PIK3CA	Forward: TTACCCTCTTCTGCCGGAGG
	Reverse: AAGTGGATGCCCCACAGTTC
AKT	Forward: GAAGGACGGGAGCAGGC
	Reverse: CTCACGCGCTCCTCTCAG
EIF4EBP1	Forward: GGAGTGTCGGAACTCACCTG
	Reverse: ACACGATGGCTGGTGCTTTA
β-actin	Forward: CCGTTCCGAAAGTTGCCTTTT
	Reverse: ATCATCCATGGTGAGCTGGC

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