Figure S1 High expression of OPN3 in TNBC patients was associated with poorer OS and PFS. (A-B) Kaplan-Meier analysis of the OS and PFS of TNBC patients with the OPN3 expression (high *vs.* low, log-rank test, P=0.3545, P=0.3777). OPN3, Opsin3; TNBC, triple-negative breast cancer; OS, overall survival; PFS, progression-free survival.
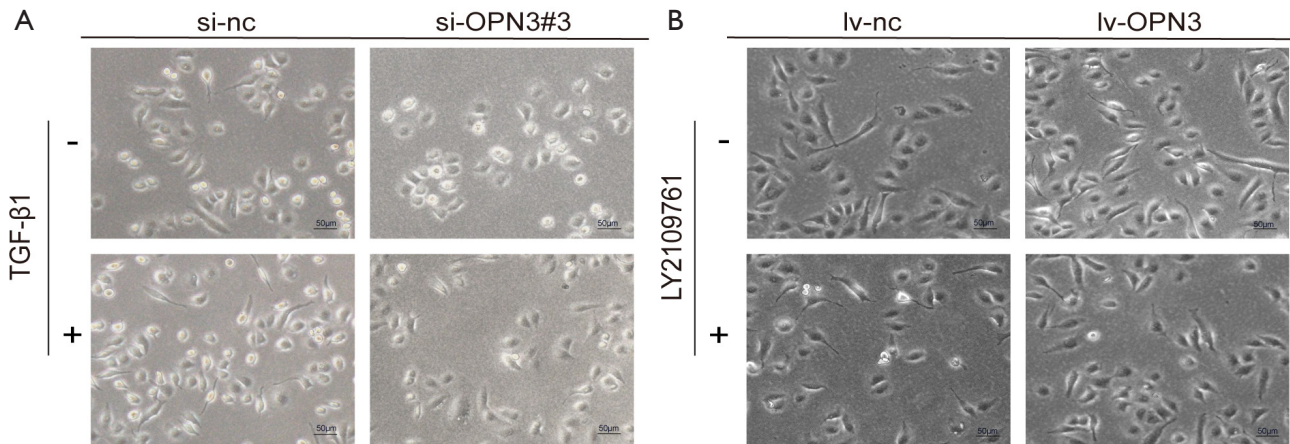

Figure S2 Morphological changes of cells when different groups of BT-549 cells were treated with LY2109761 or TGF-β1. (A-B) Cellular morphology changes after treated withLY2109761 (1 μmol) or TGF-β1 (10 ng/mL) following OPN3 overexpression or silenced were examined in BT-549 cells (400×) (50 μm). OPN3, Opsin3.

Table S1 Primer sequences

Gene	Species	Primer
OPN3 Forward	Human	5'-TGGACGTACACGGACTAGG-3'
OPN3 Reverse	Human	5'-TCTTCCACACAACGAAGCATT-3'
E-cadherin Forward	Human	5'-CGAGAGCTACACGTTCACGG-3'
E-cadherin Reverse	Human	5'-GGGTGTCGAGGGAAAAATAGG-3'
N-cadherin Forward	Human	5'-TCAGGCGTCTGTAGAGGCTT-3'
N-cadherin Reverse	Human	5'-ATGCACATCCTTCGATAAGACTG-3'
Vimentin Forward	Human	5'-GACGCCATCAACACCGAGTT-3'
Vimentin Reverse	Human	5'-CTTTGTCGTTGGTTAGCTGGT-3'
Snail Forward	Human	5'-AATGCTCATCTGGGACTCTGTC-3'
Snail Reverse	Human	5'-TTTCCCACTGTCCTCATCTGAC-3'
TGF-β Forward	Human	5'-GGCCAGATCCTGTCCAAGC-3'
TGF-β Reverse	Human	5'-GTGGGTTTCCACCATTAGCAC-3'
Smad2 Forward	Human	5'-CGTCCATCTTGCCATTCACG-3'
Smad2 Reverse	Human	5'-CTCAAGCTCATCTAATCGTCCTG-3'
GAPDH Forward	Human	5'-GAGAAGTATGACAACAGCCTCAA-3'
GAPDH Reverse	Human	5'-GCCATCACGCCACAGTTT-3'

Table S2 Correlation between clinical characteristics and OPN3 mRNA expression in BRCA patients from TCGA data

Characteristics	Low expression of OPN3	High expression of OPN3	P value
n	543	544	
Pathologic T stage, n (%)			0.35
T1	134 (12.4%)	144 (13.3%)	
T2	312 (28.8%)	319 (29.4%)	
T3&T4	96 (8.9%)	79 (7.3%)	
Pathologic N stage, n (%)			0.90
N0	254 (23.8%)	262 (24.5%)	
N1	178 (16.7%)	181 (16.9%)	
N2	61 (5.7%)	55 (5.1%)	
N3	40 (3.7%)	37 (3.5%)	
Age(years), n (%)			0.002
≤60	276 (25.4%)	327 (30.1%)	
> 60	267 (24.6%)	217 (20%)	
Pathologic M stage, n (%)			0.049
M0	433 (46.8%)	472 (51%)	
M1	14 (1.5%)	6 (0.6%)	
Menopause status, n (%)			0.28
Pre	107 (11%)	123 (12.6%)	
Peri	17 (1.7%)	23 (2.4%)	
Post	363 (37.2%)	343 (35.1%)	
Pathologic stage,n(%)			
Stage I	90 (8.5%)	92 (8.7%)	0.33
Stage II	302 (28.4%)	317 (29.8%)	
Stage III	130 (12.2%)	114 (10.7%)	
Stage IV	12 (1.1%)	6 (0.6%)	
OS event, n (%)			0.39
Alive	472 (43.4%)	463 (42.6%)	
Dead	71 (6.5%)	81 (7.5%)	

OPN3, Opsin3; BRCA, breast invasive carcinoma; TCGA, The Cancer Genome Atlas; T, Tumor; N, Node; M, Metastasis; OS, overall survival.