

Table SI. Antibodies used in the present study.

Type	Antibody	Manufacturer	Cat. no	Dilution used for western blotting
Primary antibody	NFATc1	Cell Signaling Technology, Inc.	8032	1:1,000
	α -tubulin	Cell Signaling Technology, Inc.	2144	1:5,000
	CtsK	Santa Cruz Biotechnology, Inc.	sc-48453	1:1,000
	SEMA3A	Santa Cruz Biotechnology, Inc.	sc-74554	1:1,000
	LGR4	Santa Cruz Biotechnology, Inc.	sc-390630	1:1,000
	TSG101	Santa Cruz Biotechnology, Inc.	sc-74554	1:1,000
	phospho-GSK-3 β	Santa Cruz Biotechnology, Inc.	sc-373800	1:1,000
	GSK-3 β	Santa Cruz Biotechnology, Inc.	sc-377213	1:1,000
	ALIX	Santa Cruz Biotechnology, Inc.	sc-53540	1:1,000
	Syntenin-1	Santa Cruz Biotechnology, Inc.	sc-100336	1:1,000
	β -actin	Santa Cruz Biotechnology, Inc.	sc-47778	1:1,000
	HSP70	Santa Cruz Biotechnology, Inc.	sc-32239	1:1,000
	HSP90	Santa Cruz Biotechnology, Inc.	sc-13119	1:1,000
	RelA/p65	Santa Cruz Biotechnology, Inc.	sc-8008	1:1,000
	p-ERK	Cell Signaling Technology, Inc.	9101S	1:2,000
	GM130	Abcam	Ab52649	1:1,000
Pan-Ras	MilliporeSigma	OP40	1:1,000	
Secondary antibody	Anti-rabbit IgG-HRP	Cell Signaling Technology, Inc.	7074	1:2,000
	Anti-mouse IgG-HRP	Cell Signaling Technology, Inc.	7076	1:2,000
	Anti-mouse secondary Alexa 488	Invitrogen; Thermo Fisher Scientific, Inc.	A-11001	-
	Anti-rabbit secondary Alexa 488	Invitrogen; Thermo Fisher Scientific, Inc.	A-11008	-

NFATc1, nuclear factor of activated T-cells 1; CtsK, cathepsin K; LGR4, leucine-rich repeat-containing G-protein coupled receptor 4; SEMA3A, semaphorin 3A; TSG101, tumor susceptibility gene 101; GSK-3 β , glycogen synthase kinase 3 β ; ALIX, apoptosis-linked gene 2-interacting protein X; HSP, heat shock protein; GM130, Golgi matrix protein 130.

Table SII. List of primers used for RT-qPCR for mRNAs.

Gene	Forward	Reverse
<i>ACP5</i>	ACTTGCGACCATTGTTAGCC	TTCGTTGATGTCGCACAGAG
<i>CtsK</i>	GACACCCAGTGGGAGCTATG	AGAGGCCTCCAGGTTATGGG
<i>DC-STAMP</i>	TGTTTCCACGAAGCCCTAGC	ACAGAAGAGAGCAGGGCAAC
<i>SEMA3A</i>	ATCAGTGGGTGCCTTACCAA	GCCAAATGTTTTACTGGGACA
<i>MMP9</i>	TGGGCAAGCAGTACTCTTCC	AACAGGCTGTACCCTTGGTC
<i>GAPDH</i>	TGAGCAAGAGAGGCCCTATC	AGGCCCTCCTGTTATTATG

ACP5, ACP5, acid phosphatase 5, tartrate resistant; DC-STAMP, dendrocyte expressed seven transmembrane protein; SEMA3A, semaphorin 3A; MMP9, matrix metalloproteinase 9.

Table SIII. Primer sequences used for RT-qPCR for miRNAs.

miRNA name	Forward primer (5' - to -3')
<i>hsa-miR-4466</i>	GGGTGCGGGCCGGCGGGG
<i>hsa-miR-6088</i>	AGAGATGAAGCGGGGGGGCG
<i>hsa-miR-4516</i>	GGGAGAAGGGTCGGGGC
<i>hsa-miR-4530</i>	CCCAGCAGGACGGGAGCG
<i>hsa-miR-6724-5p</i>	CTGGGCCCCGCGGCGGGCGTGGGG
<i>hsa-miR-1915-3p</i>	CCCCAGGGCGACGCGGCGGG
<i>hsa-miR-6821-5p</i>	GTGCGTGGTGGCTCGAGGCGGGG
<i>hsa-miR-4497</i>	CTCCGGGACGGCTGGGC
<i>hsa-miR-3665</i>	AGCAGGTGCGGGGGCGGCG
<i>hsa-miR-6125</i>	GCGGAAGGCGGAGCGGCGGA
<i>hsa-miR-1227-5p</i>	GTGGGGCCAGGCGGTGG
<i>hsa-miR-3196</i>	CGGGGCGGCAGGGGCCTC
<i>hsa-miR-4508</i>	GCGGGGCTGGGCGCGCG
<i>hsa-miR-6743-5p</i>	AAGGGGCAGGGACGGGTGGCCC
<i>hsa-miR-762</i>	GGGGCTGGGGCCGGGGCCGAGC
<i>hsa-miR-3138</i>	TGTGGACAGTGAGGTAGAGGGAGT
<i>hsa-miR-455-3p</i>	GCAGTCCATGGGCATATACAC
<i>hsa-miR-7704</i>	CGGGGTCGGCGGCGACGTG
<i>hsa-miR-4707-5p</i>	GCCCCGGCGCGGGCGGGTTCTGG
<i>hsa-miR-4687-3p</i>	TGGCTGTTGGAGGGGGCAGGC
<i>hsa-miR-6869-5p</i>	GTGAGTAGTGGCGCGGCGGCGG
<i>hsa-miR-6089</i>	GGAGGCCGGGGTGGGGCGGGGCGG
<i>hsa-miR-378h</i>	ACTGGACTTGGTGTGTCAGATGG
<i>hsa-miR-6794-5p</i>	CAGGGGGACTGGGGGTGAGC
<i>hsa-miR-6729-5p</i>	TGGGCGAGGGCGGCTGAGCGGC
<i>hsa-miR-3613-5p</i>	TGTTGTACTTTTTTTTTTTGTTC
<i>hsa-miR-3619-5p</i>	TCAGCAGGCAGGCTGGTGCAGC
<i>has-miR-494-3p</i>	TGAAACATACACGGGAAACCTC
<i>mmu-miR-494-3p</i>	TGAAACATACACGGGAAACCTC
U6 snRNA	CGCAAGGATGACACGCAAATTC

Table SIV. Clinicopathological characteristics of the breast tumor tissues from the patients.

No.	Age, years	TNM stage	ER (Allred score)	PR (Allred score)	HER2 (+/-)	Ki67 (%)
1	56	T1N1M0	8	4	+	5
2	58	T2N0M0	0	0	+	30
3	53	T2N0M0	8	4	+	10
4	62	T2N0M0	8	8	+	5
5	85	T1cN0M0	8	8	+	5
6	52	T1bN0M0	8	5	+	10
7	64	T1cN0M0	8	6	+	2
8	51	T1N0M0	0	0	+	10
9	63	T2N2M0	7	3	+	2
10	47	T2N2M0	7	8	+	10
11	60	T2N0M0	8	5	+	8
12	34	T2N3cM0	0	0	+	70
13	44	T2N0M0	8	6	+	15
14	55	T2N0M0	8	0	+	15
15	58	T2N0M0	0	0	+	60
16	65	T2N2M0	0	0	+	10
17	49	T1N0M0	0	0	+	30
18	74	T2N0M0	0	0	+	2
19	58	T1N1M0	8	7	+	15
20	53	T1cN0M0	0	0	-	3
21	64	T1cN0M0	0	0	-	1
22	63	T2N0M0	0	0	-	15
23	65	T1bN0M0	0	0	-	2
24	71	T1cNxM0	0	0	-	10
25	54	T2N0M0	0	0	-	30
26	52	T1cN1aM0	0	0	-	50
27	61	T1cN0M0	0	0	-	15
28	59	T1cN0M0	0	0	-	10
29	82	T2N0M0	0	0	-	15
30	66	T2N1aM0	0	0	-	20
31	48	T1bN0M0	0	0	-	10
23	64	T2N0M0	0	0	-	3
33	80	T1cN0M0	0	0	-	2
34	38	T2N0M0	0	0	-	20