Figure S1 IHC staining reveals that HDF spheroids do not contain epithelial cells or express the breast cancer markers ER, PR, HER2 and GATA-3. (A) HDF spheroids were stained by IHC for epithelial marker (panCK) and fibroblast marker (vimentin). (B) Histogram analysis of panCK quantification shows that the HDF spheroids do not contain epithelial cells. ****, P value <0.0001. (C) HDF spheroids were stained by IHC for the breast cancer markers ER, PR, HER2 and GATA-3. HDF spheroids show no positive staining for any of the breast cancer markers. Scale bar: 100 μm. HDF, human dermal fibroblasts; panCK, pan cytokeratin; IHC, immunohistochemistry.

Table S1 Antibodies used in this study for IHC

Marker	Antibody	Catalogue number	Dilution
ER	Rabbit monoclonal anti-Human ER, clone SP1	Ventana cat#790-4325	RTU
PR	Mouse monoclonal anti-Human PRA, clone 16	Leica Cat#NCL-L-PGR-312	1:100
HER2	Rabbit monoclonal anti-Human Her2/new, clone 4B5	Ventana cat#790-2991	RTU
CK	Mouse monoclonal anti-Human cytokeratin, clone AE1/AE3	Dako cat#M3515	1:200
Gata3	Mouse monoclonal anti-Human Gata3, clone L50-823	Zytomed, cat#BMS054	RTU
Vimentin	Mouse monoclonal anti-Human Vimentin, clone V9	Dako, cat#M0725	1:1,000
Mammaglobin	Mouse monoclonal anti-Human Mammaglobin, clone 304-1A5	Dako, cat#IS074	RTU

IHC, immunohistochemistry; RTU, ready to use.

Table S2 Clinical data of all patient-derived samples used in this study

Patient	Tumor grade	Successful growth of spheroids yes, no	Genetic background	Subtype
1	3	Y	ER+ PR+ HER2+ Ki67 15%	Bii
2	N/A	Y	ER+ PR+ HER2– Ki67 8%	A
3	N/A	N	ER+ PR+ HER2+ Ki67 3%	Bii
4	3	Y	ER– PR– HER2– Ki67 40%	T
5	2	Y	ER+ PR+ HER2– Ki67 20%	A
6	2	Y	ER+ PR– HER2– Ki67 10%	Bi
7	2	Y	ER+ PR+ HER2– Ki67 5%	A
8	1–2	Y	ER+ PR+ HER2 N/A Ki67 N/A	N/A
9	2	Y	ER+ PR+ HER2– Ki67 4%	A
10	2–3	Y	ER+ PR– HER2– Ki67 N/A	Bi
11	N/A	Y	N/A	N/A
12	2	N	ER+ PR– HER2– Ki67 N/A	Bi
13	1–2	Y	ER+ PR– HER2– Ki67 3%	Bi
14	2–3	Y	ER+ PR+ HER2– Ki67 4%	A
15	N/A	Y	ER+ PR+ HER2– Ki67 5%	A
16	2	Y	ER+ PR+ HER2– Ki67 6%	A
17	2	Y	ER– PR– HER2– Ki67 10–15%	T
18	2–3	Y	ER+ PR– HER2– Ki67 2%	Bi
19	1–2	Y	ER+ PR+ HER2– Ki67 2%	A
20	N/A	Y	ER+ PR+ HER2+ Ki67 15%	Bii
21	N/A	Y	ER+ PR– HER2– Ki67 20%	Bi
22	3	Y	ER+ PR+ HER2+ Ki67 40%	Bii
23	3	N	ER+ PR– HER2– Ki67 N/A	Bi
24	2–3	Y	ER+ PR– HER2– Ki67 4%	Bi
25	NA	Y	ER+ PR+ HER2– Ki67 5–7%	A
26	3	Y	ER+ PR– HER2– Ki67 6–7%	Bi
27	1–2	Y	ER– PR– HER2– Ki67 10%	T
28	2	N	ER+ PR+ HER2– Ki67 5%	A
29	N/A	Y	ER+ PR+ HER2– Ki67 7%	A
30	N/A	Y	ER– PR– HER2– Ki67 40%	T
31	2	Y	ER+ PR– HER2– Ki67 20%	Bi

Y, yes; N, no; Bii, luminal B (ii); A, luminal A; T, triple neg; Bi, luminal B (i).