

## Supplementary S1: Tables S1 and S2

**Table S1** Clinicopathological characteristics of breast cancer samples in datasets included in the analysis of associations between clinico-pathologic breast cancer characteristics and TAARs expression\*

Dataset ID	GSE20685	GSE2506	GSE58215	GSE80999	GSE102484	GSE119937	GSE131769
<b>Tumor's size and extent</b>							
T1	99	30	ND	ND	276	61	ND
T2	189	255	ND	ND	377	51	ND
T3	26	145	ND	ND	24	4	ND
T4	12	75	ND	ND	0	0	ND
<b>Lymph node involvement</b>							
N0	137	157	ND	ND	300	58	ND
N1	87	244	ND	ND	214	60	ND
N2	63	66	ND	ND	87	0	ND
N3	39	41	ND	ND	82		ND
<b>Distant metastases</b>							
M0	319	508	ND	ND	582	ND	ND
M1	8	0	ND	ND	101	ND	ND
<b>Disease stage</b>							
Stage I	ND	8	ND	ND	175	ND	77
Stage II	ND	272	ND	ND	328	ND	157
Stage III	ND	224	ND	ND	174	ND	62
Stage IV	ND	0	ND	ND	0	ND	0
<b>Tumor differentiation (grade)</b>							
G1	ND	32	43	52	ND	3	ND
G2	ND	190	109	151	ND	23	ND
G3	ND	284	283	153	ND	80	ND

\* The data are represented in accordance with series data from the GEO database and may be lost for the part of samples in the study groups.

**Table S2** The levels and frequency of TAARs mRNA expression in breast cancer samples described in RNA-seq generated datasets included in the analysis (in CPM).

Dataset ID		GSE119937	GSE184717	GSE113890	GSE113890
Sample characteristic		Primary tumor	Metastases	Metastases	CTC
TAAR1	min	0	0	0	0
	max	33.37	7.97	2.97	3.28
	mean	4.32	0.88	0.60	0.29
	% of positive	81.4	32.1	33.3	14.3
TAAR2	min	0	0	0	0
	max	28.45	20.60	5.43	38.77
	mean	4.93	2.28	0.82	2.54
	% of positive	83.1	42.9	33.3	33.3
TAAR5	min	0	0	0	0
	max	39.18	17.27	9.90	111.51
	mean	5.23	1.68	1.48	6.53
	% of positive	81.4	32.8	37.5	28.6
TAAR6	min	0	0	0	0
	max	242.12	9.30	4.94	11.54
	mean	15.40	1.06	0.89	1.99
	% of positive	87.3	39.3	33.3	33.3
TAAR8	min	0	0	0	0
	max	67.02	14.61	6.59	8.34
	mean	7.74	1.41	0.90	0.68
	% of positive	86.4	35.7	37.5	23.8
TAAR9	min	0	0	0	0
	max	79.98	12.51	3.76	2.31
	mean	8.20	1.12	0.68	0.18
	% of positive	84.7	28.6	33.3	9.5