

Table SI. ROC curve analysis of CTLA4 and HVEM gene expression.

ROC parameters	CTLA4	HVEM
AUC	0.6914062	0.7421875
SE.AUC	0.1028465	0.09728576
Lower Limit	0.4898309	0.5515109
Upper Limit	0.8929816	0.9328641
P-value	0.06273181	0.01279429
Cut-off point (Youden's index)	0.00283	0.06055
Sensitivity	0.688 (0.413-0.890)	0.625 (0.354-0.848)
Specificity	0.875 (0.617-0.984)	1.000 (0.794-NaN)
Positive predictive value	0.846 (0.558-0.953)	1.000 (0.707-1.000)
Negative predictive value	0.737 (0.473-0.962)	0.727 (0.468-NaN)
Positive likelihood ratio	5.500 (1.443-20.959)	Inf (NaN-Inf)
Negative likelihood ratio	0.357 (0.169-0.756)	0.375 (0.199-0.706)

Bold indicates a statistically significant result. ROC, receiver operating characteristic; CTLA4, cytotoxic T-lymphocyte-associated antigen 4; HVEM, herpesvirus entry mediator.

Table SII. Expression level of CTLA4 and HVEM in patients with malignant BC compared with non-malignant controls in association with the clinicopathological characteristics of patients.

Parameters	Categories	CTLA4					HVEM				
		Relative expression fold change	SEM	Median	IQR	P-value	Relative expression fold change	SEM	Median	IQR	P-value
Hormone receptor phenotype	Luminal-like	1.247	0.307	1.211	1.347	0.425	1.206	0.239	1.090	0.669	0.414
	HER2-enriched	5.984	0.243	5.984	0.0	0.002	3.530	0.209	3.530	0.0	0.009
	Triple negative	1.795	0.101	1.890	0.380	0.074	2.070	0.221	1.727	0.709	0.016
ER status	ER ⁺	1.247	0.307	1.211	1.347	0.425	1.206	0.239	1.090	0.669	0.414
	ER ⁻	1.945	0.142	1.956	0.363	0.030	2.005	0.186	1.719	0.536	0.012
PR status	PR ⁺	1.247	0.307	1.211	1.347	0.425	1.206	0.239	1.090	0.669	0.414
	PR ⁻	1.945	0.142	1.956	0.363	0.030	2.005	0.186	1.719	0.536	0.012
HER2 status	HER2 ⁺	1.346	0.299	1.492	1.832	0.274	1.245	0.221	1.136	0.721	0.321
	HER2 ⁻	1.795	0.101	1.890	0.380	0.074	2.070	0.221	1.727	0.709	0.016
Lymph node involvement	Negative	1.941	0.254	2.021	1.228	0.018	1.691	0.218	1.615	0.173	0.028
	Positive	1.007	0.504	1.069	0.359	0.989	1.580	1.163	2.121	1.416	0.347
Size of tumor, cm	≤2	1.320	0.372	1.410	1.651	0.364	1.401	0.304	1.292	1.017	0.197
	>2	1.665	0.285	1.831	0.662	0.107	1.580	0.303	1.614	0.266	0.106
Tumor grade	I	0.710	0.243	0.710	0.0	0.494	0.705	0.209	0.705	0.0	0.419
	II	2.642	0.318	1.657	1.259	0.281	1.276	0.164	1.470	0.624	0.284
	III	1.776	0.279	1.890	1.001	0.058	1.888	0.320	1.711	1.622	0.025
BC histotypes	DCIS	1.356	0.220	1.567	1.223	0.196	1.339	0.176	1.470	0.732	0.141
	LCIS			No samples					No samples		
Vascular invasion	Negative	1.674	0.291	2.021	0.756	0.070	1.677	0.292	1.548	0.988	0.046
	Positive	2.182	0.411	2.271	0.630	0.135	1.696	0.013	1.696	0.015	0.228
Margin	Negative	1.728	0.271	1.956	1.240	0.046	1.676	0.261	1.614	0.785	0.036
	Positive			No samples					No samples		

Bold indicates a statistically significant result. CTLA4, T-lymphocyte-associated antigen 4; HVEM, herpesvirus entry mediator; SEM, standard error of the mean; IQR, interquartile range HER2, human epidermal growth factor receptor-2; ER, estrogen receptor; PR, progesterone receptor.