Figure S1. ROC analysis of the four-long non-coding RNA signature in predicting the overall survival rate of patients with different breast cancer stages. (A) ROC curves of stage I. (B) ROC curves of stage II. (C) ROC curves of stage III. (D) ROC curves of stage IV. ROC, receiver operating characteristic; AUC, area under the curve.
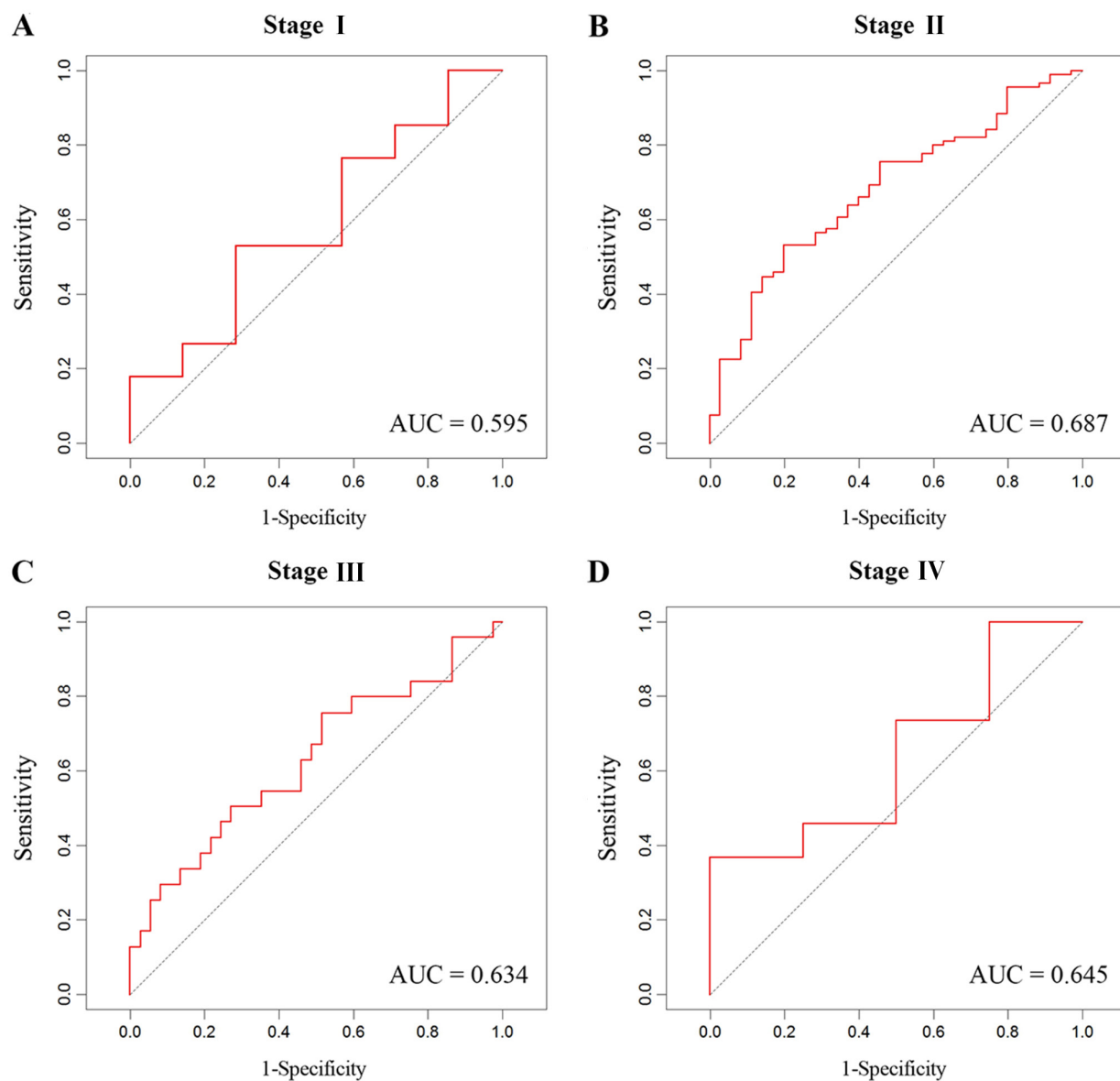
Figure S2. ROC analysis of the four-long non-coding RNA signature in predicting the overall survival of patients with different breast cancer subtypes. (A) ROC curves of luminal-A subtype. (B) ROC curves of luminal-B subtype. (C) ROC curves of HER2-amplified subtype. (D) ROC curves of triple-negative subtype. HER2, human epidermal growth factor receptor 2; ROC, receiver operating characteristic; AUC, area under the curve.
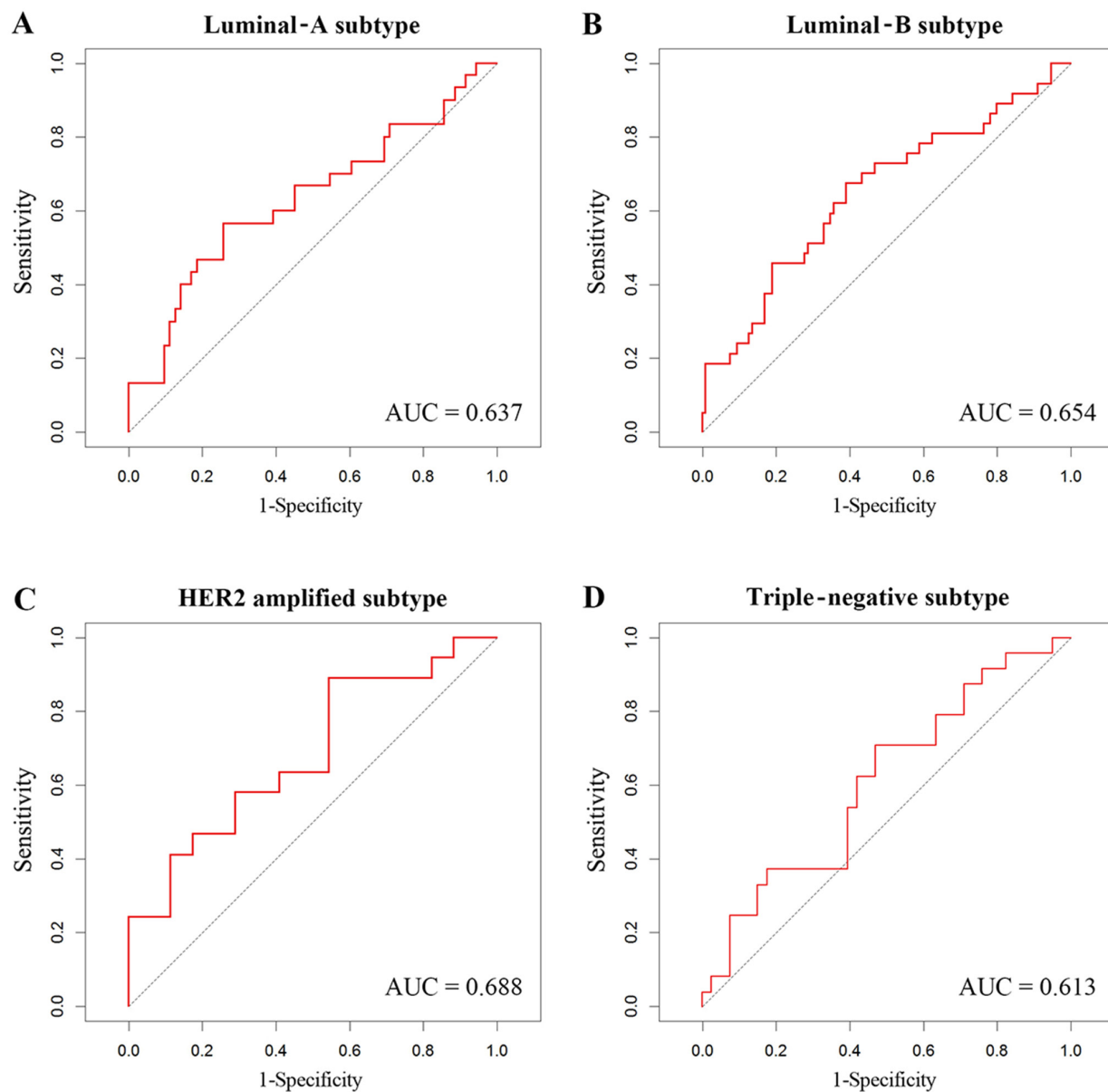
Figure S3. ROC analysis of the four individual long non-coding RNAs in predicting the overall survival of patients with breast cancer. (A) ROC curves of *PVT1*. (B) ROC curves of *MAPT-AS1*. (C) ROC curves of *LINC00667*. (D) ROC curves of *LINC00938*. ROC, receiver operating characteristic; AUC, area under the curve.
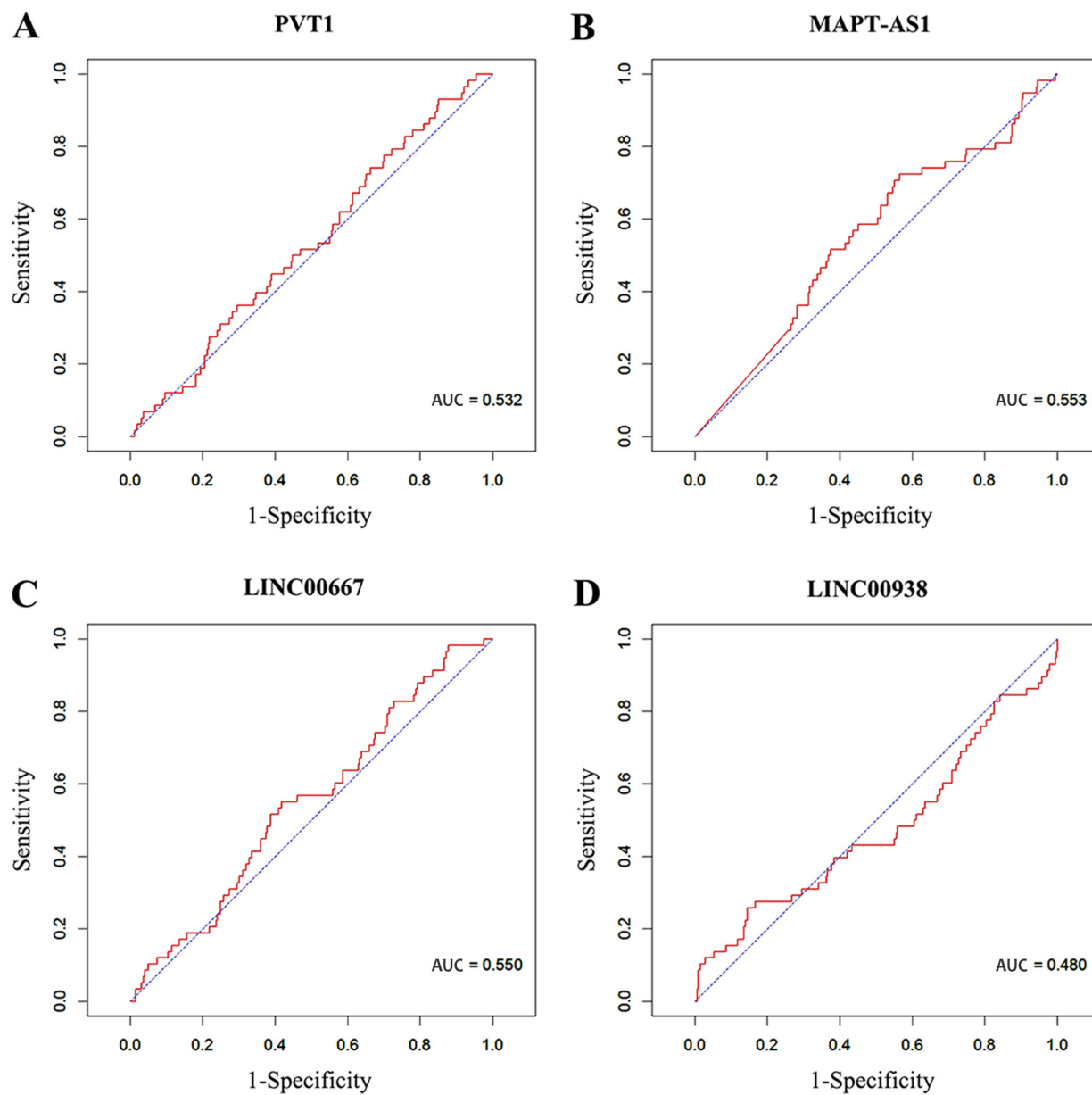
Figure S4. Kaplan-Meier analysis of the four individual long non-coding RNAs for patients in the validation set. (A) *PVT1* expression and overall survival rate of patients. (B) *MAPT-AS1* expression and overall survival rate of patients. (C) *LINC00667* expression and overall survival rate of patients. (D) *LINC00938* expression and overall survival rate of patients. ROC, receiver operating characteristic; AUC, area under the curve.
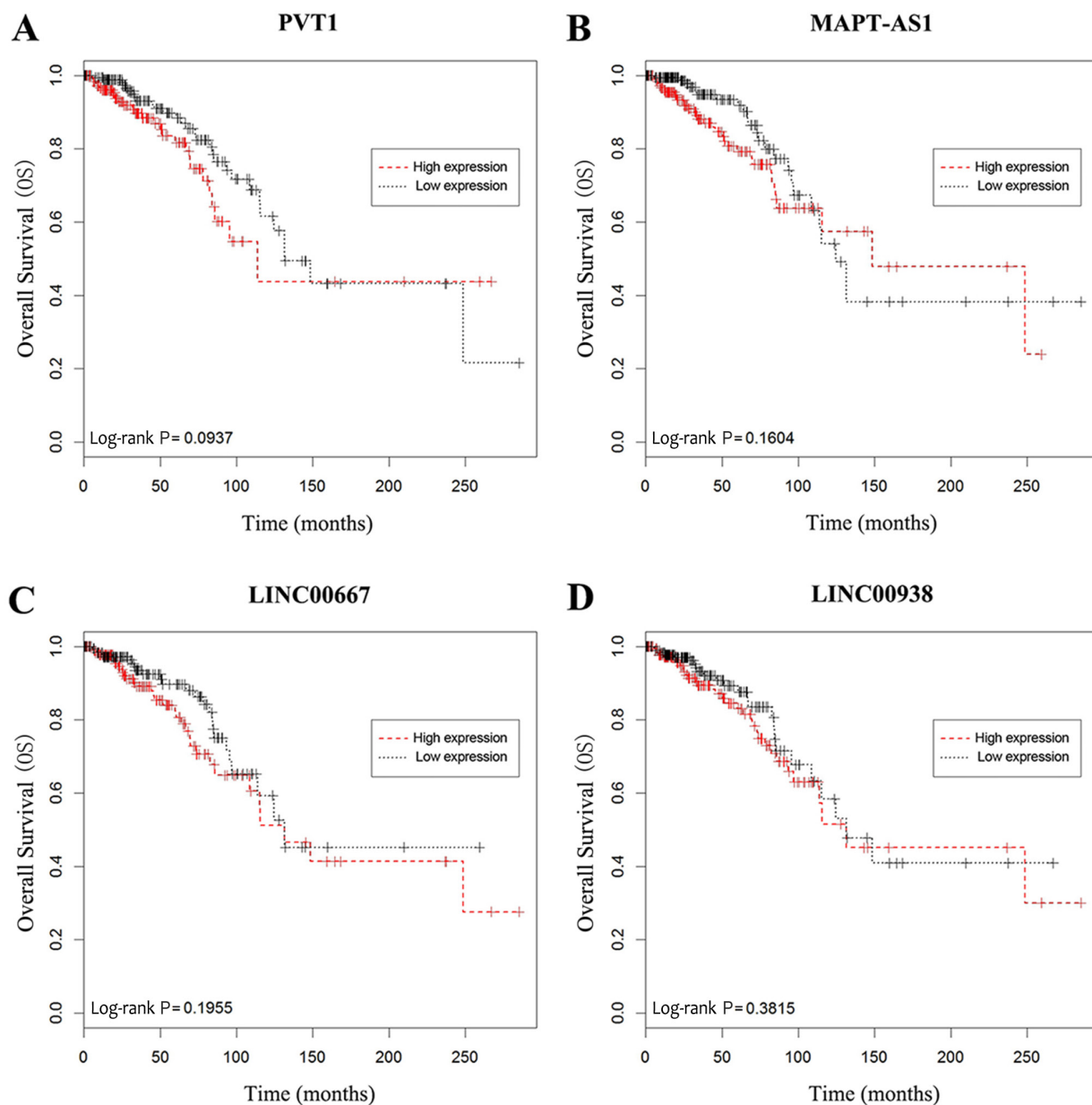
Table SI. Identified multi-gene-based prognostic signatures.

Equation	Gene list	P-value for model	Coefficients
Equation 5890	PVT1	0.011237	-0.011912
	LINC00426		-2.425667
	MAPT-AS1		-0.208763
	LINC00284		0.048413
Equation 6962[a]	PVT1	0.012978	-0.014933
	MAPT-AS1		-0.192908
	LINC00667		-0.115852
	LINC00938		0.097700
Equation 7110	PVT1	0.033481	-0.014241
	MAPT-AS1		-0.208820
	LINC00938		0.077830
	ZBED3-AS1		-0.802399
Equation 7119	PVT1	0.029604	-0.015102
	MAPT-AS1		-0.152013
	LINC00938		0.095360
	BAIAP2-AS1		-0.074602
Equation 7127	PVT1	0.034159	-0.019291
	MAPT-AS1		-0.190000
	LINC00938		0.081094
	TRHDE-AS1		-2.105226
Equation 7419	PVT1	0.041101	-0.016929
	LINC00667		-0.097757
	LINC00938		0.097434
	BAIAP2-AS1		-0.100830
Equation 9036	PVT1	0.045329	-0.021785
	LINC00938		0.085743
	BAIAP2-AS1		-0.109909
	TRHDE-AS1		-2.162419

[a]Equation was selected as the final prognostic signature for its performance in ROC analysis.