



Figure S1 Patients' selection and study flow diagram. SEER database, the Surveillance, Epidemiology, and End Results database; TCGA, The Cancer Genome Atlas; ROC, receiver operating characteristic; K-M, Kaplan-Meier.

Table S1 Univariate and Multivariate Analysis for Screening Prognostic Parameters in Development Cohort.

Parameters	Univariate analysis		Multivariate analysis	
	HR (95% CI)	P value	HR (95% CI)	P value
Age				
<45 years	Reference		Reference	
45–59 years	2.278 (2.027–2.560)	<0.001	1.875 (1.668–2.107)	<0.001
60–74 years	3.774 (3.370–4.225)	<0.001	3.074 (2.745–3.443)	<0.001
≥75 years	7.511 (6.686–8.438)	<0.001	6.094 (5.421–6.849)	<0.001
Sex				
Male	Reference		Reference	
Female	0.803 (0.769–0.838)	<0.001	0.900 (0.862–0.939)	<0.001
Race				
Others*	Reference			
White	1.072 (0.990–1.162)	0.087		
Black	1.086 (0.984–1.198)	0.102		
Tumor grade				
I and II	Reference		Reference	
III and IV	2.222 (2.136–2.312)	<0.001	1.459 (1.398–1.523)	<0.001
AJCC stage				
I	Reference		Reference	
II	1.511 (1.409–1.621)	<0.001	0.862 (0.783–0.949)	0.002
III	2.538 (2.417–2.664)	<0.001	1.518 (1.426–1.616)	<0.001
IV	9.267 (8.764–9.799)	<0.001	5.133 (4.757–5.540)	<0.001
Tumor size (cm)				
≤4	Reference		Reference	
4–7	1.811 (1.723–1.903)	<0.001	1.372 (1.302–1.446)	<0.001
>7	3.249 (3.096–3.414)	<0.001	1.899 (1.761–2.048)	<0.001
Pathological types				
Papillary	Reference		Reference	
Chromophobe	1.691 (1.507–1.897)	<0.001	1.739 (1.549–1.953)	<0.001
Clear cell	1.689 (1.519–1.878)	<0.001	1.468 (1.320–1.633)	<0.001

HR, hazard ratio; CI, confidence interval; *Others: American Indian/AK Native, Asian/Pacific Islander; AJCC, American Joint Committee on Cancer.