

Supplementary Table 1 Univariate Cox regression results in training cohort

Characteristic	Training Cohort (<i>n</i> = 741)	95%CI	p-value
Sex			0.915
Male	298		
Female	443	0.80, 1.29	
Age	741	0.99, 1.01	0.851
BMI	741	0.99, 1.00	0.108
Family History of Cancer			0.952
None	621		
Yes	120	0.66, 1.54	
Tobacco and Alcohol History			0.564
None;	523		
Smoking	111	0.58, 1.19	
Alcohol	16	0.28, 2.01	
Both	91	0.85, 1.70	
History of Intra-Abdominal Surgery			0.627
None	698		
Yes	43	0.63, 2.13	
History of Coronary Heart Disease			0.572
None	702		
Yes	39	0.70, 1.92	
History of Hypertension			0.664
None	554		
Yes	187	0.71, 1.25	
History of Diabetes			0.956

Characteristic	Training Cohort (<i>n</i> = 741)	95%CI	p-value
None	622		
Yes	119	0.72, 1.41	
Blood Type			0.072
A	215		
AB	66	0.49, 1.21	
B	247	0.62, 1.10	
O	213	0.55, 1.03	
Albumin	741	0.97, 1.00	0.059
Globulin	741	0.99, 1.05	0.152
Direct Bilirubin	741	1.01, 1.02	< 0.001
Indirect Bilirubin	741	1.00, 1.00	0.711
Alkaline Phosphatase	741	1.00, 1.00	0.291
Gamma-Glutamyl Transferase	741	1.00, 1.00	< 0.001
Alanine Aminotransferase (ALT)	741	1.00, 1.00	0.270
Aspartate Aminotransferase (AST)	741	1.00, 1.00	0.023
Total Cholesterol	741	0.71, 1.01	0.060
Total Bile Acids	741	0.99, 1.01	0.753
Triglycerides	741	0.60, 0.95	0.316
High-Density Lipoprotein (HDL)	741	0.34, 1.02	0.057
Low-Density Lipoprotein (LDL)	741	0.74, 1.13	0.412
Urea	741	0.93, 1.05	0.722

Characteristic	Training Cohort (<i>n</i> = 741)	95%CI	p-value
Uric Acid	741	1.00, 1.00	0.634
Creatinine	741	1.00, 1.01	0.606
Glucose	741	0.91, 1.02	0.185
Sodium	741	0.93, 0.99	0.008
Potassium	741	0.62, 1.06	0.124
Chloride	741	0.91, 0.96	< 0.001
Cystatin C	741	1.08, 2.72	0.023
Total Calcium	741	0.45, 1.46	0.488
Alpha-Fetoprotein (AFP)	741	1.00, 1.00	0.612
Carcinoembryonic Antigen (CEA)	741	1.00, 1.00	< 0.001
Carbohydrate Antigen 19-9 (CA19-9)	741	1.00, 1.00	0.014
Carbohydrate Antigen 125 (CA125)	741	1.00, 1.00	0.073
White Blood Cell Count	741	0.99, 1.06	0.191
Neutrophil Percentage	741	0.25, 1.41	0.237
Lymphocyte Percentage	741	0.46, 4.00	0.586
Eosinophil Percentage)	741	0.01, 1.30	0.591
Basophil Percentage	741	0.29,1.21	0.738
Red Blood Cell Count	741	0.76, 1.11	0.382
Hemoglobin	741	0.99, 1.00	0.475
Hematocrit	741	0.05, 2.68	0.326
Platelet Count	741	1.00, 1.00	0.352
D-Dimer	741	1.00, 1.00	0.002
Activated Partial	741	1.03, 1.06	< 0.001

Characteristic		Training Cohort (<i>n</i> = 741)	95%CI	p-value
Thromboplastin Time (APTT)				
Prothrombin Time (PT)		741	1.12, 1.31	< 0.001
Histological Classification				
Common adenocarcinoma		18		
Adenosquamous carcinoma		6	0.17, 3.46	0.720
Mucinous adenocarcinoma		702	0.47, 1.66	0.691
Squamous cell carcinoma		4	0.12, 7.18	0.933
Neuroendocrine carcinoma		7	0.38, 5.02	0.630
Signet ring cell carcinoma		4	0.46, 9.58	0.342
T Stage				0.736
T1		218	0.59, 1.45	
T2		98	0.42, 1.11	
T3		298	0.48, 1.08	
T4		127	0.62, 1.50	
N Stage				0.001
N0		298		
N1		271	1.20, 2.11	
N2		172	1.82, 3.35	
Microsatellite Instability Status				0.048
dMMR		182		
pMMR		559	0.59, 1.00	
Perineural Invasion				0.293
negative		86		
positive		655	0.84, 1.78	

Characteristic	Training Cohort (<i>n</i> = 741)	95%CI	p-value
Vascular Invasion			
negative	225		
positive	516	1.57, 2.73	< 0.001
CI = Confidence Interval			

SupplementaryTable 2 Results of Multivariate Cox regression for training cohort

Characteristic	Training Cohort (<i>n</i> = 741)	95%CI ¹	p-value
GGT	741	1.00, 1.21	< 0.001
APTT	741	1.02, 1.05	< 0.001
Chlorine	741	0.94, 1.00	0.025
N stage			< 0.001
N0	298		
N1	271	1.11, 2.02	
N2	172	1.64, 3.13	
Vascular Invasion			0.004
Negative	225		
Positive	526	1.15, 2.07	

CI: Confidence Interval, GGT:Gamma-glutamyltransferase, APTT: Activated partial thromboplastintime.

Supplementary Table 3: Baseline Comparison between the External Validation Set and the internal Dataset

Characteristic	Group		p-value
	Internal Cohort	External Test Cohort	
	N = 1,059	N = 97	
sex			0.355 ²
0	422 (39.8%)	34 (35.1%)	
1	637 (60.2%)	63 (64.9%)	
age	58 ± 13	58 ± 12	0.476 ¹
Blood type			0.662 ²
A	296 (28.0%)	28 (28.9%)	
AB	100 (9.4%)	7 (7.2%)	
B	355 (33.5%)	29 (29.9%)	
O	308 (29.1%)	33 (34.0%)	
Albumin level	40 ± 6	40 ± 5	0.350 ¹
Globulin level	27.0 ± 4.5	27.1 ± 4.0	0.553 ¹
Direct bilirubin	6.12 ± 14.10	5.79 ± 3.97	0.580 ¹
GGT	49 ± 100	48 ± 98	0.719 ¹
AST	28 ± 29	28 ± 27	0.945 ¹
Chlorine	103.3 ± 4.0	103.5 ± 3.8	0.634 ¹
Cystatin C	0.92 ± 0.23	0.91 ± 0.19	0.730 ¹
AFP	2.64 (1.71, 3.78)	2.74 (1.65, 4.13)	0.197 ¹
CEA	7 (3, 33)	6 (3, 41)	0.228 ¹
CA-199	22 (8, 82)	24 (7, 77)	0.316 ¹
CA125	14 (10, 26)	15 (8, 28)	0.144 ¹
White blood cell	7.6 ± 3.5	7.4 ± 3.1	0.494 ¹
Neutral lymphoid ratio	0.73 ± 0.14	0.73 ± 0.13	0.726 ¹
Lymphocyte ratio	0.19 ± 0.11	0.19 ± 0.11	0.632 ¹
Eosinophils ratio	0.015 ± 0.020	0.014 ± 0.015	0.522 ¹
Platelet level	231 ± 96	218 ± 98	0.234 ¹
D-Dimer	813 ± 1,962	819 ± 1871	0.611 ¹
APTT	32 ± 8	31 ± 7	0.175 ¹
Tumor type			0.910 ³
Common adenocarcinoma	28 (2.6%)	1 (1.0%)	
Adenosquamous carcinoma	6 (0.6%)	0 (0.0%)	
Mucinous adenocarcinoma	1,005 (94.9%)	96 (99.0%)	
Squamous cell carcinoma	4 (0.4%)	0 (0.0%)	
Neuroendocrine	8 (0.8%)	0 (0.0%)	

carcinoma			
Signet ring cell carcinoma	8 (0.8%)	0 (0.0%)	
T stage			0.480 ²
T0	96 (9.1%)	7 (7.2%)	
T1	212 (20.0%)	18 (18.6%)	
T2	135 (12.7%)	11 (11.3%)	
T3	437 (41.3%)	49 (50.5%)	
T4	179 (16.9%)	12 (12.4%)	
N stage			0.685 ²
N0	420 (39.7%)	42 (43.3%)	
N1	407 (38.4%)	37 (38.1%)	
N2	232 (21.9%)	18 (18.6%)	
MMR			0.349 ²
dMMR	252 (23.8%)	19 (19.6%)	
pMMR	807 (76.2%)	78 (80.4%)	
Perineural invasion			0.663 ²
Negative	126 (11.9%)	13 (13.4%)	
Positive	933 (88.1%)	84 (86.6%)	
Vascular invasion			0.570 ²
Negative	320 (30.2%)	32 (33.0%)	
Positive	739 (69.8%)	65 (67.0%)	
