

Figure S1 Box plots were generated to compare differences in validation metrics between patients with different stages. (A) The CRP levels differed between patients with different stages. Further analysis showed significant differences in CRP between stage III and stage I and between stage III and stage II. (B) Differences in IBI between different stage subgroups. Further analysis showed that IBI differed significantly between stage III and stage I, and between stage III and stage II. **, $P < 0.01$; ***, $P < 0.001$.

Table S1 Comparison between the continuous variables in the CR-POPF and non-CR-POPF groups (Mann-Whitney *U*-test)

Characteristic	CR-POPF	Non-CR-POPF	P value
Age (years)	66 (61–74)	65 (60–71)	0.627
BMI (kg/m ²)	21.8 (19.9–24.9)	22.3 (20.1–24.2)	0.998
Tumor size (cm)	3.7 (2.8–4.5)	3 (2.5–4.5)	0.277
CA19-9 (IU/mL)	179.5 (16.5–570.0)	165.5 (12.6–807.3)	0.738
Hospital stay (days)	25 (18–38)	18 (15–22)	0.054
ALB (g/L)	39.1 (37.0–42.05)	39.3 (36.6–42.7)	0.611
WBC (×10 ⁹ /L)	6.1 (5.3–7.3)	5.7 (4.5–6.9)	0.014
MO (×10 ⁹ /L)	0.51 (0.375–0.615)	0.4 (0.3–0.6)	0.002
LDLC (mmol/L)	2.82 (2.095–3.28)	2.7 (2.1–3.4)	0.951
CRP (mg/L)	6.51 (2.265–13.95)	3.7 (1.3–8.7)	0.001
TG (mmol/L)	1.42 (1.125–2.175)	1.5 (1.1–2.1)	0.891
HDLC (mmol/L)	0.98 (0.755–1.19)	1 (0.8–1.3)	0.686
ALT (U/L)	33.7 (15.9–151.25)	33.3 (15–145)	0.797
AST (U/L)	31.3 (18.85–112.2)	30.6 (18.6–102)	0.924
HCT (L/L)	0.38 (0.35–0.41)	0.37 (0.34–0.41)	0.080
RDW (%)	13.2 (12.6–14.15)	13.2 (12.6–14.6)	0.785
RBC (×10 ¹² /L)	4.15 (3.83–4.59)	4.1 (3.7–4.4)	0.203
MCV (fl)	91.8 (89.1–93.65)	91.2 (88.3–94.7)	0.478
MCH (pg)	30.5 (29.6–31.7)	30.4 (29.3–31.7)	0.337
MCHC (g/L)	334 (328–341)	332 (326–341)	0.223
CK (U/L)	56.7 (39.5–78.0)	56.0 (37.2–79.0)	0.750
IBIL (μmol/L)	12.5 (7.5–37.05)	12.3 (7.5–34.3)	0.758
ALP (U/L)	105.7 (66.35–325.7)	107.6 (70.6–366)	0.692
LY (×10 ⁹ /L)	1.42 (1.09–1.835)	1.4 (1.0–1.7)	0.468
PAB (mg/L)	191.5 (145.6–258.05)	191.5 (152–230.1)	0.467
GLB (g/L)	26.5 (23.7–29.75)	26.3 (23.9–29.6)	0.787
LDH (U/L)	188.7 (170.3–211.3)	188.7 (161.5–220.7)	0.857
BA (μmol/L)	0.03 (0.02–0.04)	0.03 (0.02–0.04)	0.186
HGB (g/L)	126 (114.5–138.5)	123 (112–136)	0.137
PLT (×10 ⁹ /L)	207 (163.5–262.5)	199 (152–239)	0.331
DBIL (μmol/L)	7.7 (4.25–97.7)	11.2 (4.5–100)	0.472
NE (×10 ⁹ /L)	3.9 (3.2–5.1)	3.6 (2.7–4.8)	0.034
TC (mmol/L)	4.71 (3.805–5.48)	4.7 (4.0–5.9)	0.463
TBIL (μmol/L)	22 (13.2–124.2)	26.4 (12.4–134.5)	0.810
TP (g/L)	65.2 (61.45–70.7)	65.9 (61.6–70.9)	0.780
PNI	46.6 (42.8–50.5)	46.6 (42.8–50.4)	0.922
PLR	207.0 (163.5–262.5)	144.4 (108.6–195.4)	0.793
NLR	2.8 (1.9–4.3)	2.6 (1.8–3.7)	0.248
IBI	18.8 (5.6–38.4)	9.3 (2.9–25.0)	0.002
MLR	0.33 (0.26–0.48)	0.30 (0.22–0.45)	0.071
SII	659.5 (344.4–851.6)	502.9 (319.6–804.7)	0.080

Data are presented as median (Q1–Q3). IBI: CRP × NLR. PNI: albumin + lymphocyte ×5. SII: platelet count × neutrophil count/lymphocyte count.

Table S2 Comparison between the continuous variables in the Clavien-Dindo score 0–2 and Clavien-Dindo score 3–5 groups (Mann-Whitney U-test)

Characteristic	Clavien-Dindo score 0–2	Clavien-Dindo score 3–5	P value
Age (years)	65 (60–72)	63 (57.5–70.5)	0.398
BMI (kg/m ²)	22.2 (20.0–24.2)	22.6 (20.5–24.9)	0.574
Tumor size (cm)	3 (2.5–4.5)	3.7 (3–4.4)	0.165
CA19-9 (IU/mL)	165.74 (11.88–757.51)	232.76 (57.255–782.89)	0.196
Hospital stay (days)	19 (15–23)	39 (30.5–62)	<0.001
ALB (g/L)	39.3 (36.7–42.6)	38.9 (37.2–40.75)	0.433
WBC (×10 ⁹ /L)	5.8 (4.69–7.02)	6.07 (4.72–6.79)	0.623
MO (×10 ⁹ /L)	0.42 (0.33–0.58)	0.47 (0.385–0.64)	0.151
LDLC (mmol/L)	2.67 (2.12–3.39)	2.91 (1.89–3.565)	0.990
CRP (mg/L)	3.78 (1.5–9.45)	12.05 (3.145–15.015)	0.001
TG (mmol/L)	1.48 (1.06–2.09)	1.43 (1.225–2.24)	0.647
HDL (mmol/L)	1 (0.8–1.23)	0.88 (0.605–1.31)	0.361
ALT (U/L)	31 (14.9–145)	73.4 (37.05–268.95)	0.016
AST (U/L)	29.5 (18.5–100)	62.4 (36.7–138.7)	0.024
HCT (L/L)	0.374 (0.34–0.407)	0.38 (0.344–0.4105)	0.699
RDW (%)	13.2 (12.6–14.5)	13.2 (12.6–14.5)	0.709
RBC (×10 ¹² /L)	4.09 (3.73–4.47)	4.01 (3.82–4.445)	0.987
MCV (fl)	91.2 (88.4–94.3)	92.4 (88.2–95.05)	0.518
MCH (pg)	30.4 (29.4–31.7)	30.8 (29.65–31.7)	0.420
MCHC (g/L)	332 (326–341)	334 (327–343)	0.595
CK (U/L)	57 (38.2–80.6)	53.8 (36.7–67.65)	0.295
IBIL (μmol/L)	11.8 (7.4–34.3)	24.1 (9.55–58.3)	0.019
ALP (U/L)	104.8 (69.3–355.8)	266.2 (99.2–416.8)	0.052
LY (×10 ⁹ /L)	1.37 (1.06–1.73)	1.34 (0.965–1.51)	0.345
PAB (mg/L)	194.5 (152–235.4)	168.2 (130.1–224.25)	0.225
GLB (g/L)	26.4 (24–29.6)	25 (22.75–30.1)	0.310
LDH (U/L)	187.5 (164–216.3)	203.5 (172.5–219)	0.200
BA (μmol/L)	0.03 (0.02–0.04)	0.03 (0.02–0.03)	0.615
HGB (g/L)	124 (112–136)	122 (115.5–137.5)	0.939
PLT (×10 ⁹ /L)	201 (154–249)	170 (132.5–216)	0.055
DBIL (μmol/L)	8.9 (4.3–98.2)	45.6 (6.65–153.55)	0.043
NE (×10 ⁹ /L)	3.71 (2.8–4.83)	3.9 (3.245–4.46)	0.370
TC (mmol/L)	4.66 (3.96–5.85)	4.77 (3.58–5.3)	0.404
TBIL (μmol/L)	23 (12.3–132.4)	69.5 (16.9–236.25)	0.039
TP (g/L)	65.9 (61.6–71)	64.6 (59.95–68.35)	0.189
PNI	46.55 (42.8–50.7)	46.55 (42.1–48.8)	0.421
PLR	145.89 (108.99–198.23)	143.06 (101.95–171.52)	0.462
NLR	2.64 (1.80–3.88)	3.25 (2.25–4.51)	0.106
IBI	9.87 (3.23–26.97)	32.12 (9.61–73.96)	0.001
MLR	0.31 (0.23–0.49)	0.34 (0.30–0.64)	0.057
SII	529.25 (324.41–808.95)	568.84 (326.55–831.71)	0.792

Data are presented as median (Q1–Q3). IBI: CRP × NLR. PNI: albumin + lymphocyte ×5. SII: platelet count × neutrophil count/lymphocyte count.

Table S3 Univariate survival analysis according to pre-operative features

Characteristic	HR	95% CI	p
CRP	1.058	1.036–1.081	<0.001
Radiological BR	1.922	1.435–2.575	<0.001
CA199	1.638	1.216–2.207	0.001
Tumor size	1.141	1.052–1.237	0.001
GPS	1.398	1.137–1.719	0.001
IBI	1.003	1.001–1.005	0.003
PAB	0.997	0.995–0.999	0.004
NLR	1.075	1.019–1.135	0.009
IBIL	1.006	1.001–1.011	0.014
Age	1.384	1.039–1.842	0.026
TBIL	1.001	1.001–1.003	0.031
SII	1.00026	1.00002–1.00049	0.033
Distal pancreas	0.741	0.553–0.993	0.045

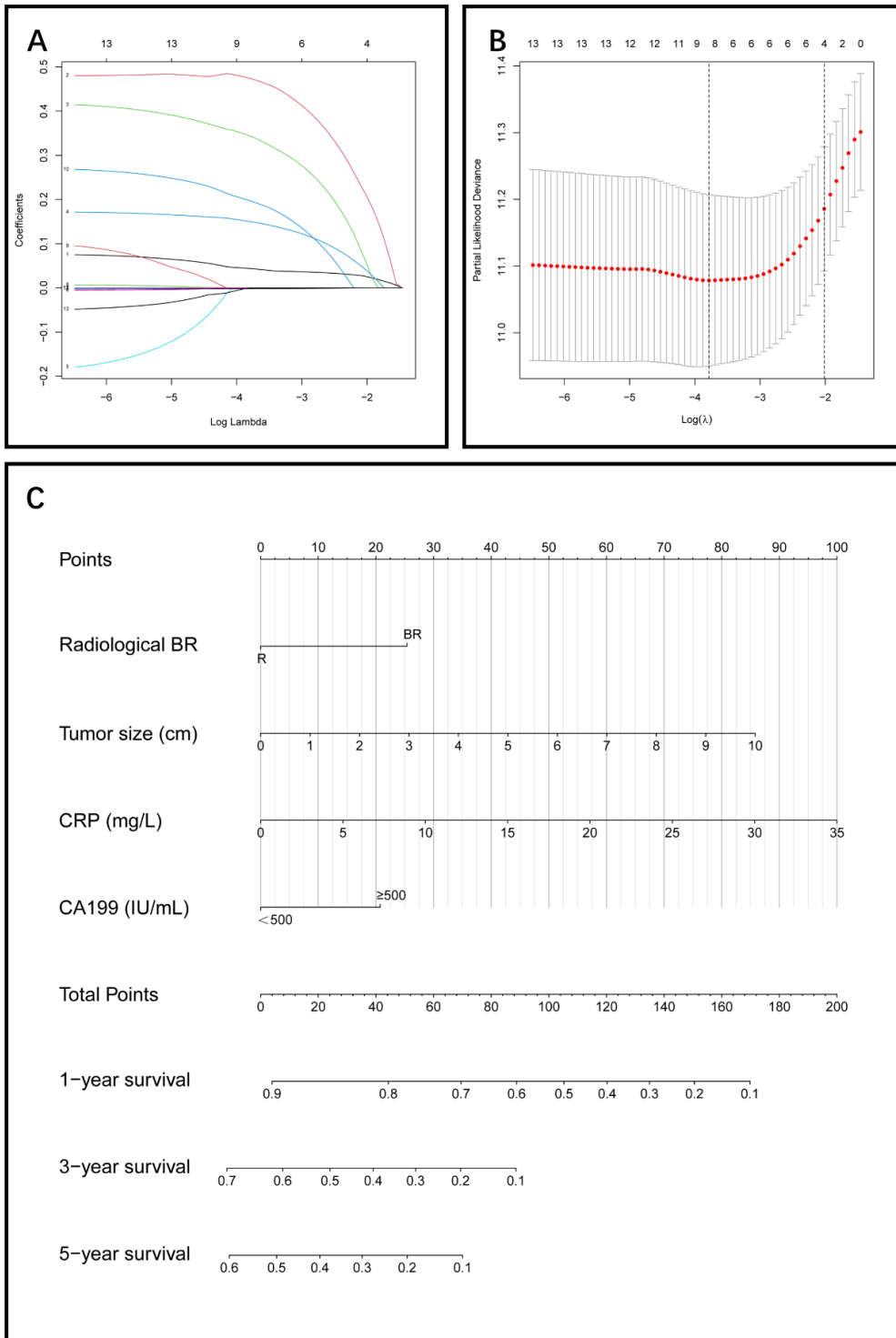


Figure S2 Construction of a predictive nomogram for post-operative survival in PDAC. (A,B) LASSO regression of survival-related risk factors derived from the univariate Cox analysis. For a λ value of 0.13317, four risk variables including radiological BR, CRP, CA19-9 above 500 IU/mL, and tumor diameter were identified as predictive of survival. (C) Predictive post-operative survival nomogram for PDAC based on the LASSO regression and multivariate Cox results. The four risk variables corresponded to a predictive score on the nomogram. The combined value of these risk factors provides the total predictive score for 1-, 3-, and 5-year survival.

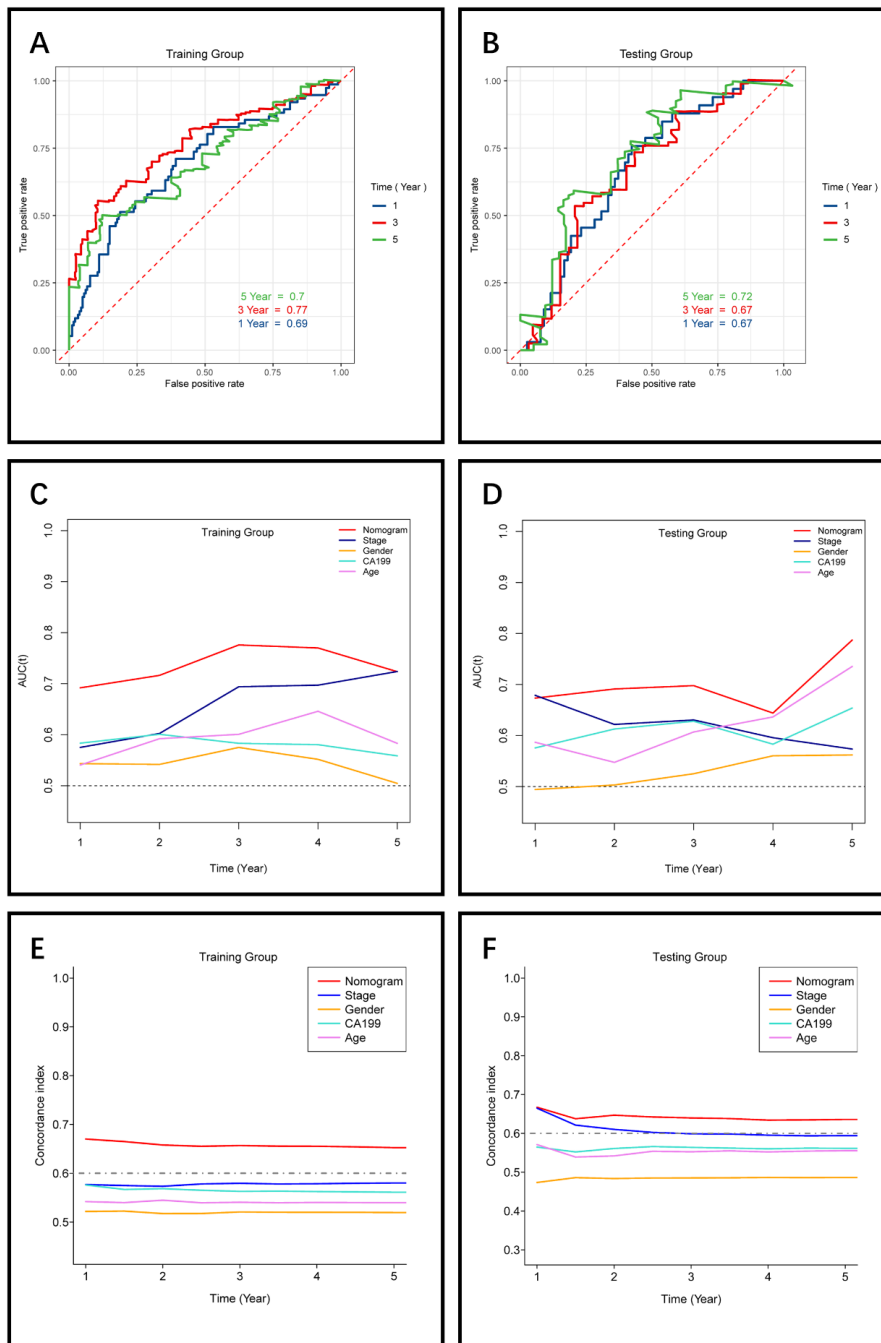


Figure S3 Evaluation of the predictive performance of the prognostic nomogram. (A,B) ROC survival curve analysis for the nomogram for the training (A) and validation (B) datasets. The AUC for 1-year survival was 0.69, for 3-year survival it was 0.77, and for 5-year survival, it was 0.70. B: In the validation set, the AUC for 1-year survival was 0.67, for 3-year survival it was 0.67, and for 5-year survival, it was 0.72. (C,D) Time-dependent ROC curves comparing the prediction ability of our nomogram in determining post-operative survival in relation to the four other individual risk factors (stage, gender, CA199, and age). When compared with the four other risk factors, our nomogram showed a superior performance in predicting survival in both the training (A) and validation (B) datasets. (E,F) Time-dependent C-index curves comparing our nomogram with the four other individual risk factors. Our nomogram achieved a C-index for predicting 5-year survival of 0.68 and 0.65 for the training (E) and validation (F) datasets indicating a good discrimination performance. The C-index of our nomogram was higher than all other clinical variables in both the training and validation datasets.