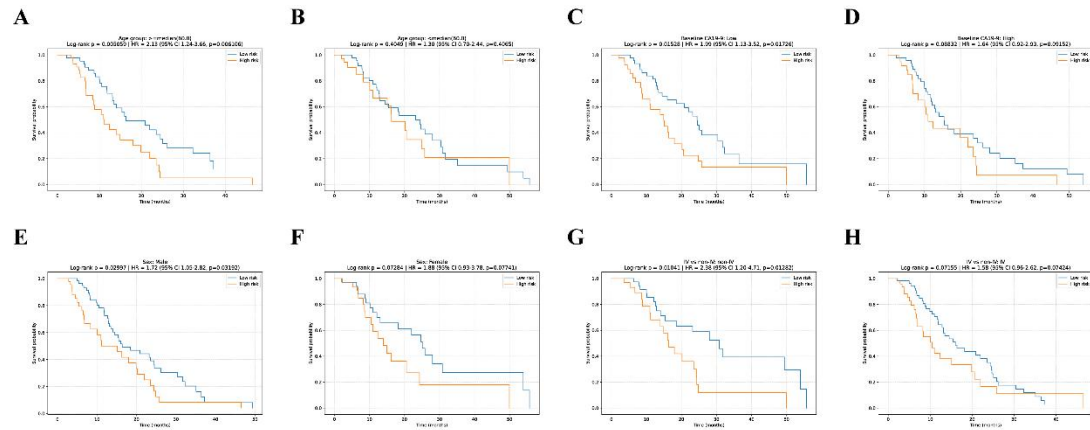
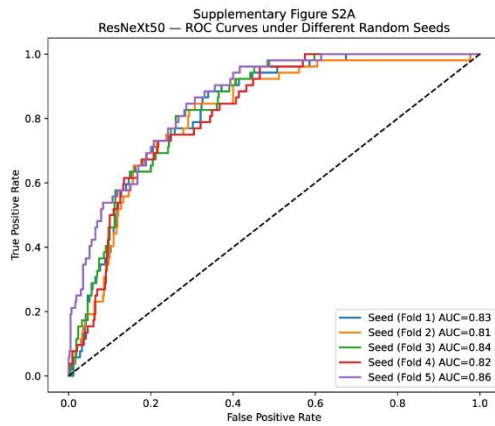
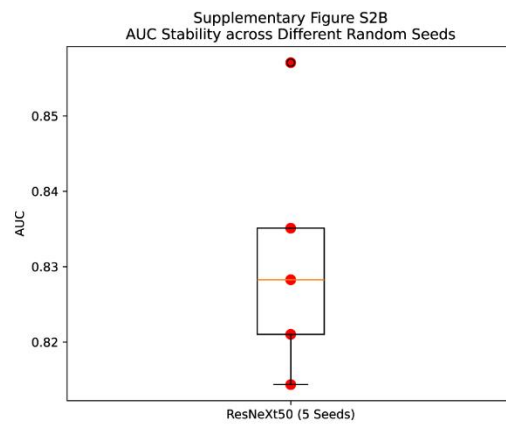
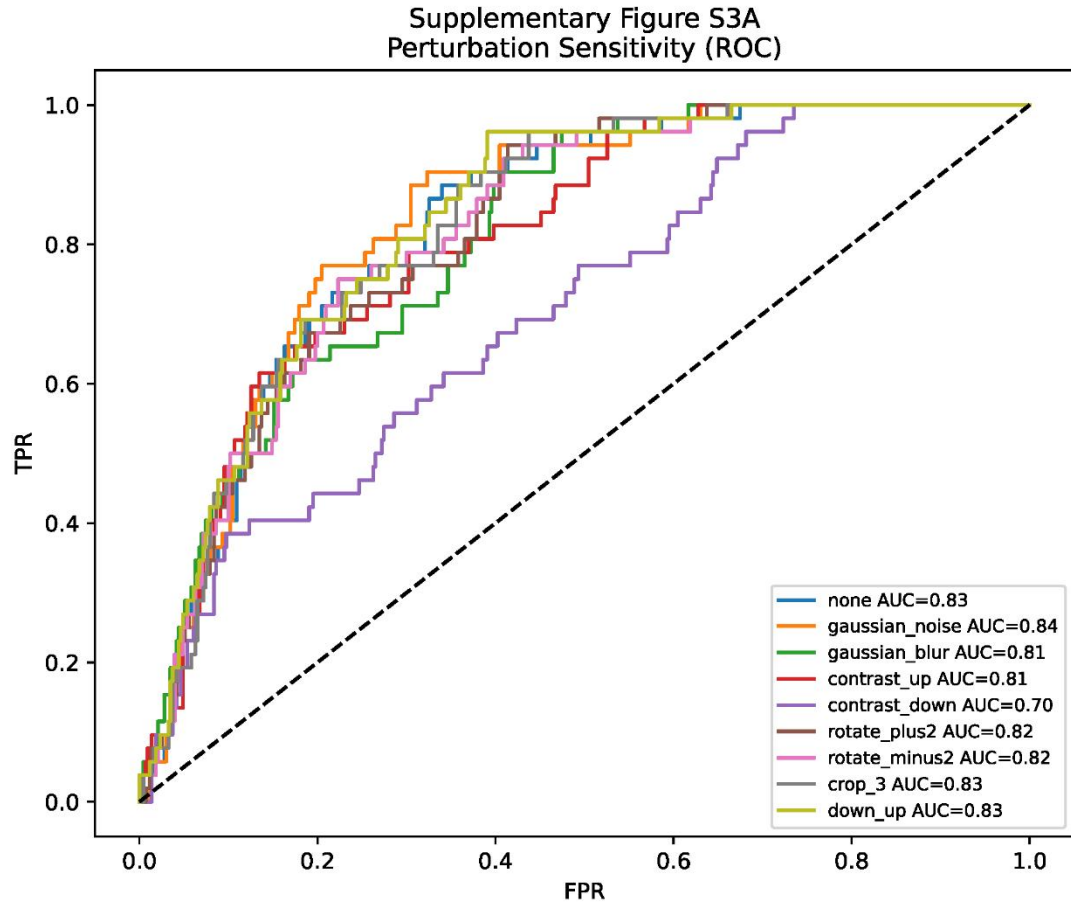




Supplementary Figure 1 Subgroup Kaplan-Meier analyses of overall survival based on ResNeXt50-derived risk stratification. (A) baseline CA19-9 < median; (B) baseline CA19-9 $\geq$ median; (C) AJCC clinical stage non-IV; (D) AJCC clinical stage IV; (E) T stage non-T4; (F) T stage T4; (G) N stage N0; (H) N stage N+ (N1-N3). Hazard ratios (HRs) with 95% confidence intervals (CIs) were estimated using Cox proportional hazards models within each subgroup, and corresponding log-rank P values are indicated in each panel.

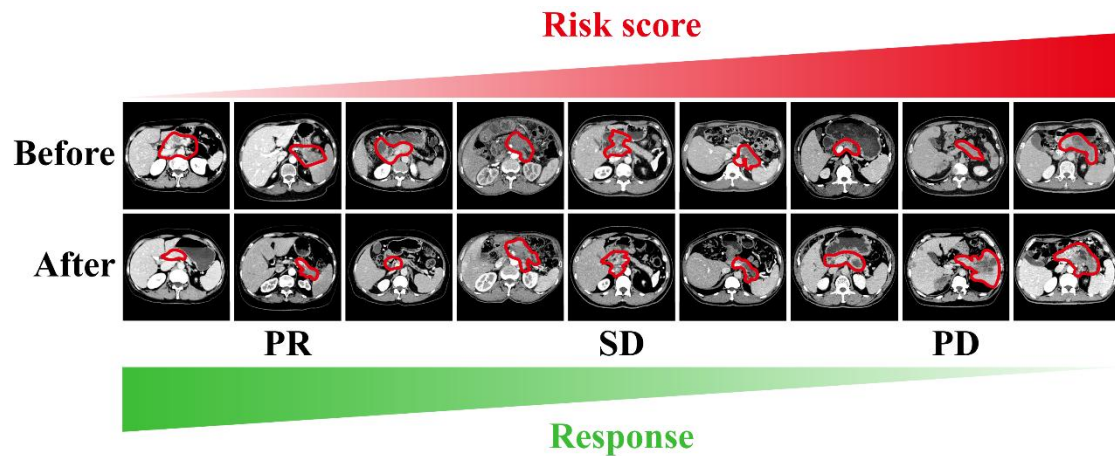
A**B**

Supplementary Figure 2 Robustness and reproducibility of the ResNeXt50 model across different random initializations. (A) Receiver operating characteristic (ROC) curves of the ResNeXt50 model retrained five times using identical training, validation, and test splits but different random seeds. All ROC curves evaluated on the same independent test cohort showed highly overlapping profiles with consistently high AUC values, indicating that model discrimination performance was stable and minimally influenced by random initialization. (B) Distribution of test-set AUC values across the five random seeds. The narrow interquartile range and limited dispersion of AUC values reflect low variability in model performance, further supporting the robustness and reproducibility of the ResNeXt50 model.



Supplementary Figure 3 Perturbation sensitivity analysis of the ResNeXt50 model. Receiver operating characteristic (ROC) curves of the ResNeXt50 model evaluated on the independent test cohort under a series of controlled preprocessing perturbations applied to EUS images. Perturbations included Gaussian noise addition, Gaussian blur, contrast enhancement and reduction, small-angle rotations ($\pm 2^\circ$), mild center cropping (3%), and downsampling-upsampling to simulate reduced image resolution. Across most perturbation conditions, ROC curves and corresponding AUC values remained comparable to the unperturbed baseline, indicating that the model preserved robust discriminative performance under common variations in image quality, spatial distortion, and resolution. A moderate performance degradation was observed under pronounced contrast reduction, suggesting that extreme alterations in image contrast may partially affect model discrimination. Overall, these results demonstrate that the ResNeXt50 model

is robust to clinically relevant acquisition variability while highlighting contrast as a potential sensitivity factor.



Supplementary Figure 4 Representative contrast-enhanced CT images illustrating the concordance between AI-derived risk scores and chemotherapy response. Representative axial contrast-enhanced CT images of pancreatic ductal adenocarcinoma before and after chemotherapy are shown, ordered from left to right according to increasing AI-derived risk scores predicted by the ResNeXt50 model. Tumor regions are outlined in red. Patients with lower predicted risk scores predominantly exhibited favorable radiologic responses, including partial response (PR) or stable disease (SD), whereas patients with higher predicted risk scores more frequently demonstrated progressive disease (PD).

Supplementary Table 1 Detailed breakdown of first-line chemotherapy regimens in the study cohort

Regimen	n	% of cohort (N = 190)
<i>mFOLFIRINOX-based regimens (n = 55)</i>		
FOLFIRINOX	35	18.4%
mFOLFIRINOX (modified FOLFIRINOX)	9	4.7%
NALIRIFOX (nal-IRI + oxaliplatin + 5-FU/LV)	4	2.1%
mFOLFOXIRI	1	0.5%
FOLFOXIRI	1	0.5%
FOLFIRINOX + surufatinib + toripalimab	2	1.1%
FOLFIRINOX + sintilimab + surufatinib	2	1.1%
FOLFIRINOX + nivolumab	1	0.5%
<i>Gemcitabine + nab-paclitaxel-based regimens (n = 80)</i>		
Gemcitabine + nab-paclitaxel (AG)	66	34.7%
AG + sintilimab + paricalcitol	3	1.6%
AG + pirfenidone	4	2.1%
AG + sintilimab + surufatinib	3	1.6%
AG + nimotuzumab	1	0.5%
AG + anti-PD-1 antibody	1	0.5%
AG + cisplatin	1	0.5%
AG + anti-PD-1 + surufatinib	1	0.5%
<i>Other regimens (n = 55)</i>		
SOXIRI (S-1 + oxaliplatin + irinotecan)	24	12.6%

Gemcitabine + S-1 (GS)	11	5.8%
S-1 monotherapy	4	2.1%
S-1 + irinotecan + oxaliplatin	3	1.6%
Oxaliplatin + nal-IRI + 5-FU (NALIRIFOX-equivalent)	3	1.6%
Gemcitabine + cisplatin + nab-paclitaxel (GAP)	2	1.1%
Gemcitabine + capecitabine	1	0.5%
GEMOX (gemcitabine + oxaliplatin)	1	0.5%
Gemcitabine + erlotinib	1	0.5%
Gemcitabine + nimotuzumab	1	0.5%
Gemcitabine + toripalimab	1	0.5%
Gemcitabine monotherapy	1	0.5%
Paclitaxel + lobaplatin + bevacizumab	1	0.5%
Surufatinib-based investigational clinical trial regimen	1	0.5%
Total	190	100.0%

AG, gemcitabine + nab-paclitaxel; FOLFIRINOX, oxaliplatin + irinotecan + leucovorin + 5-fluorouracil; mFOLFIRINOX, modified FOLFIRINOX; FOLFOXIRI, 5-fluorouracil + leucovorin + oxaliplatin + irinotecan; mFOLFOXIRI, modified FOLFOXIRI; NALIRIFOX, nano-liposomal irinotecan + oxaliplatin + 5-fluorouracil + leucovorin; nal-IRI, nano-liposomal irinotecan; SOXIRI, S-1 + oxaliplatin + irinotecan; GS, gemcitabine + S-1; GEMOX, gemcitabine + oxaliplatin; GAP, gemcitabine + nab-paclitaxel + cisplatin; S-1, tegafur/gimeracil/oteracil; PD-1, programmed cell death protein 1; nab-paclitaxel, nanoparticle albumin-bound paclitaxel.

Notes: Sintilimab, toripalimab, and nivolumab are anti-PD-1 monoclonal antibodies. Nimotuzumab is an anti-EGFR monoclonal antibody. Surufatinib and bevacizumab are anti-angiogenic agents (multi-kinase VEGFR inhibitor and anti-VEGF monoclonal antibody, respectively). Erlotinib is an EGFR tyrosine kinase inhibitor. Pirfenidone is an antifibrotic agent. Paricalcitol is a vitamin D receptor agonist.