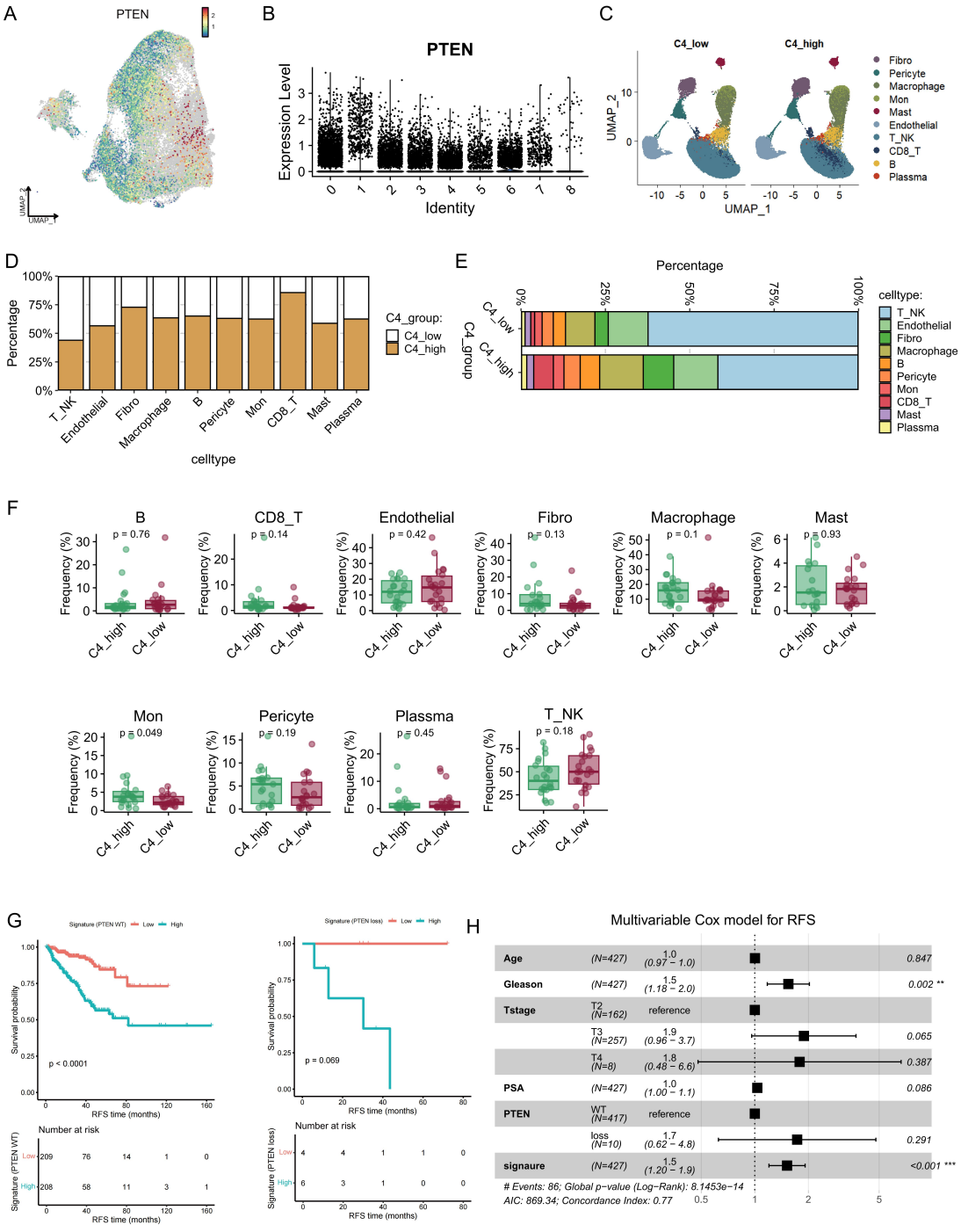


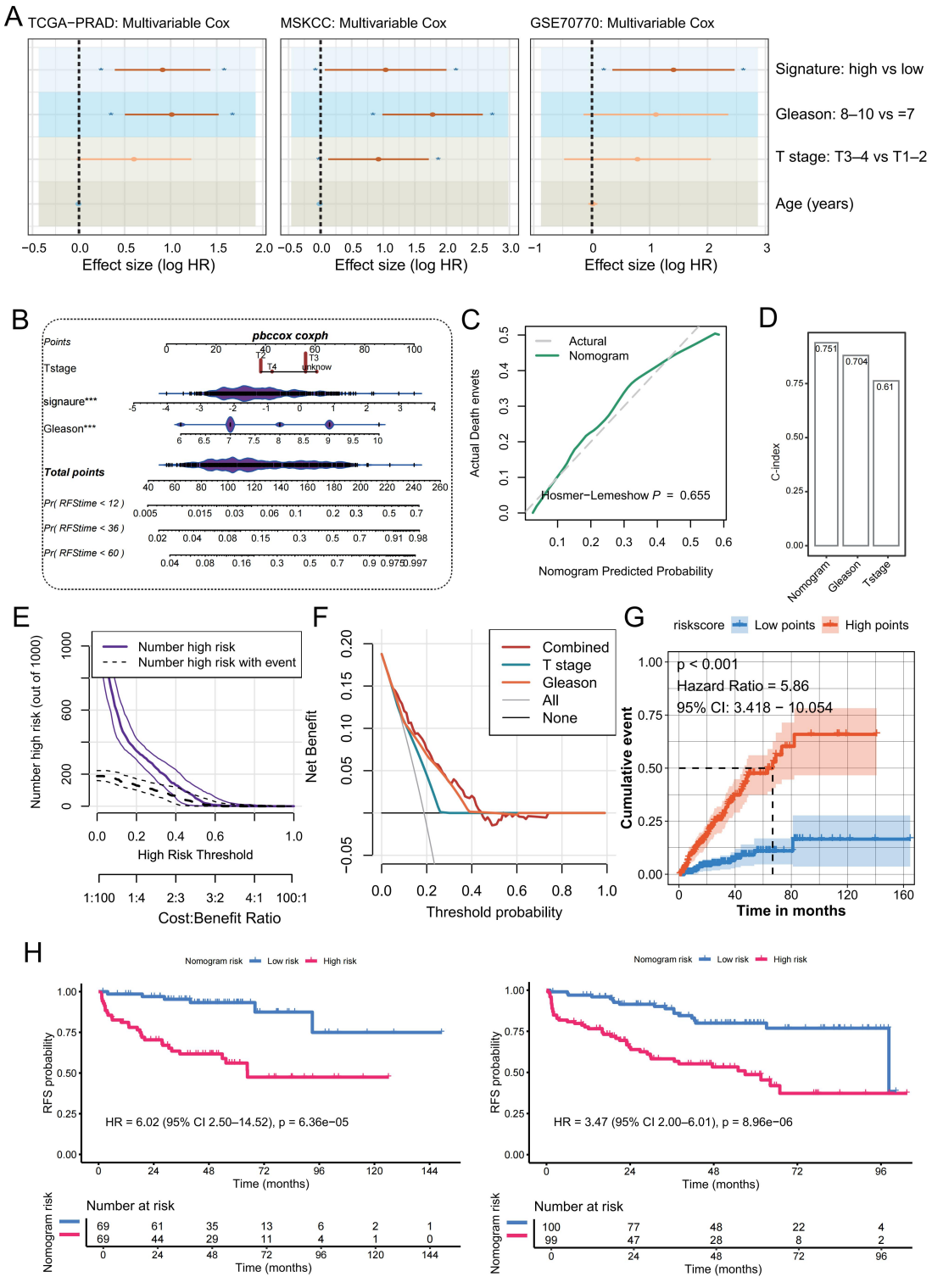
Supplementary Figure 1. Relationship between the C4 signature and PTEN-loss features.

(A-B) PTEN expression across epithelial clusters C0-C8 at the single-cell level.

(C-F) Differences in immune and stromal cell fractions between high- and low-C4 risk score groups.

(G) Kaplan-Meier curves of recurrence-free survival stratified by the C4 risk score within PTEN wild-type and PTEN loss-of-function subgroups in TCGA-PRAD.

(H) Multivariable Cox model including age, Gleason score, T stage, PSA and PTEN status showing that the C4 risk score remains an independent predictor of recurrence.



Supplementary Figure 2. Construction and validation of a nomogram integrating the C4-based risk score and clinicopathologic variables.

(A) Forest plots of multivariable Cox regression in TCGA-PRAD, MSKCC and GSE70770.

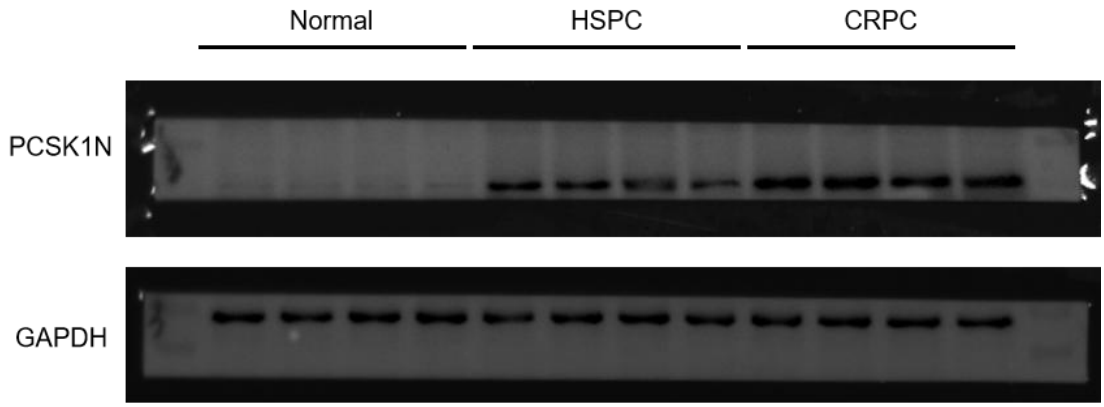
(B) Nomogram for predicting 3- and 5-year recurrence-free survival (RFS).

(C) Calibration curve for 5-year RFS in the TCGA-PRAD cohort.

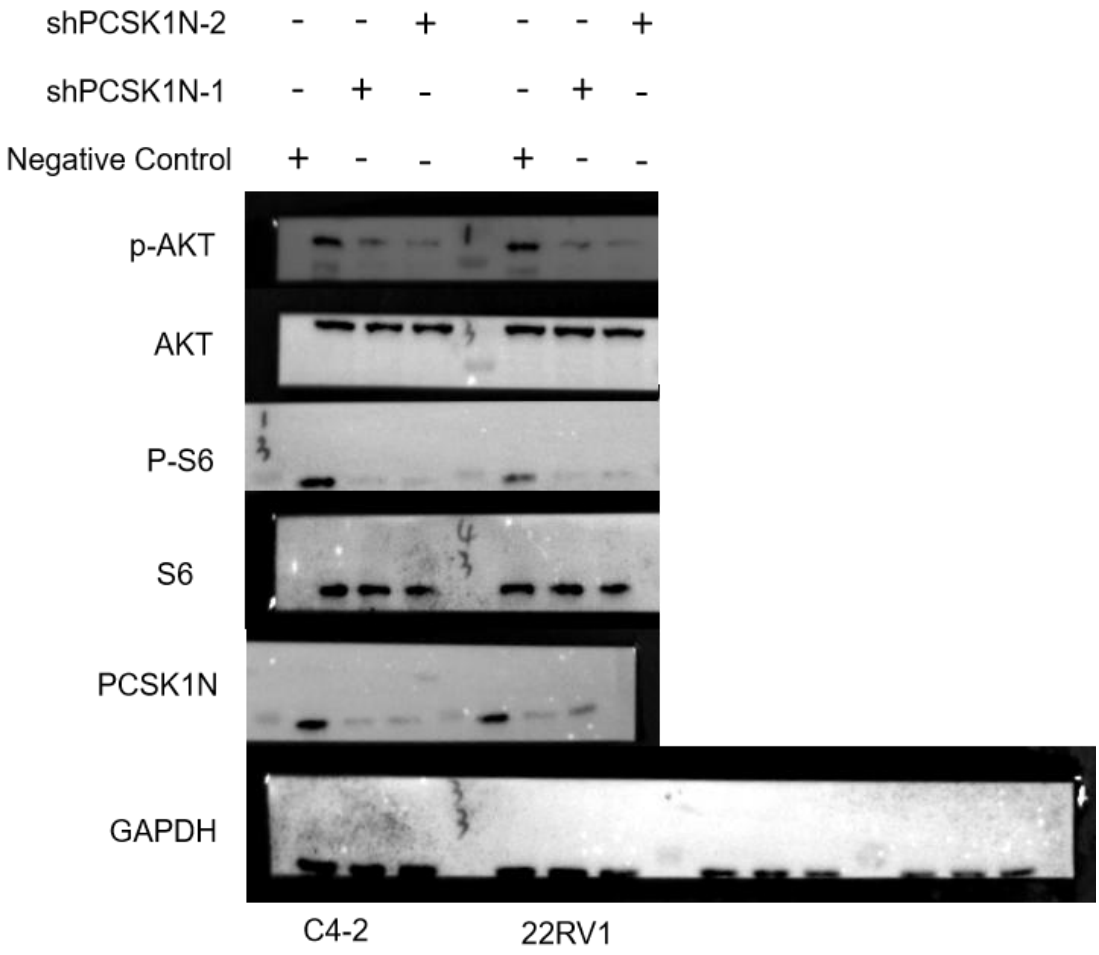
(D) Concordance index in the TCGA-PRAD cohort.

(E) Clinical impact curve showing, across a range of risk thresholds.

(F) Decision curve analysis comparing the net benefit of the combined nomogram with strategies based on T stage, Gleason score alone or treating all/none.
(G) Cumulative incidence curves of recurrence for patients.
(H) Kaplan-Meier curves of RFS in the MSKCC (left) and GSE70770 cohorts (right).



Supplementary Figure 3. Uncropped Western blot scans of Figure 9C. PCSK1N is upregulated from normal prostate to CRPC.



Supplementary Figure 4. Uncropped Western blot scans of Figure 10F. Western blot analysis of PCSK1N, p-AKT, total AKT, p-S6, total S6 and GAPDH following PCSK1N knockdown.