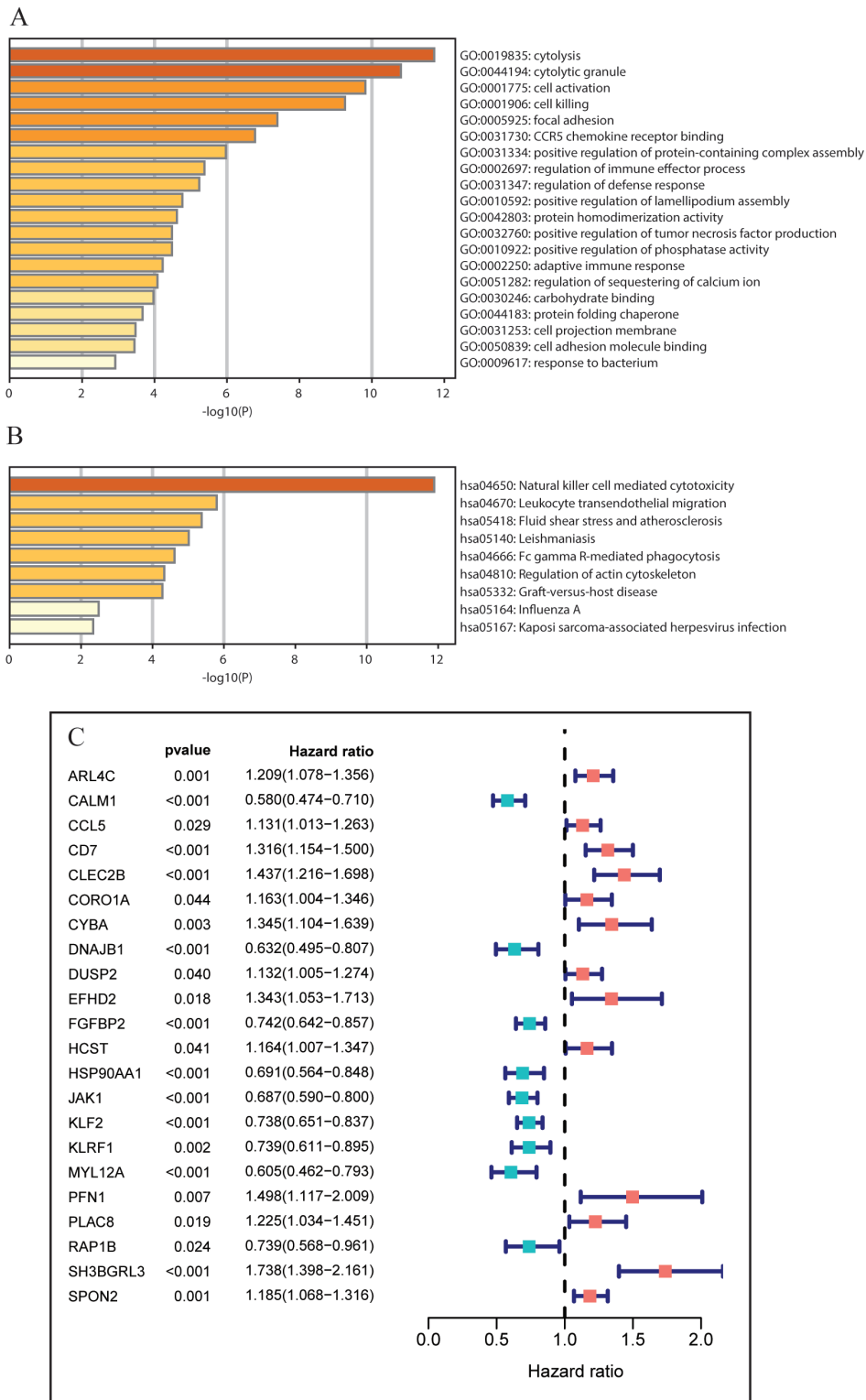
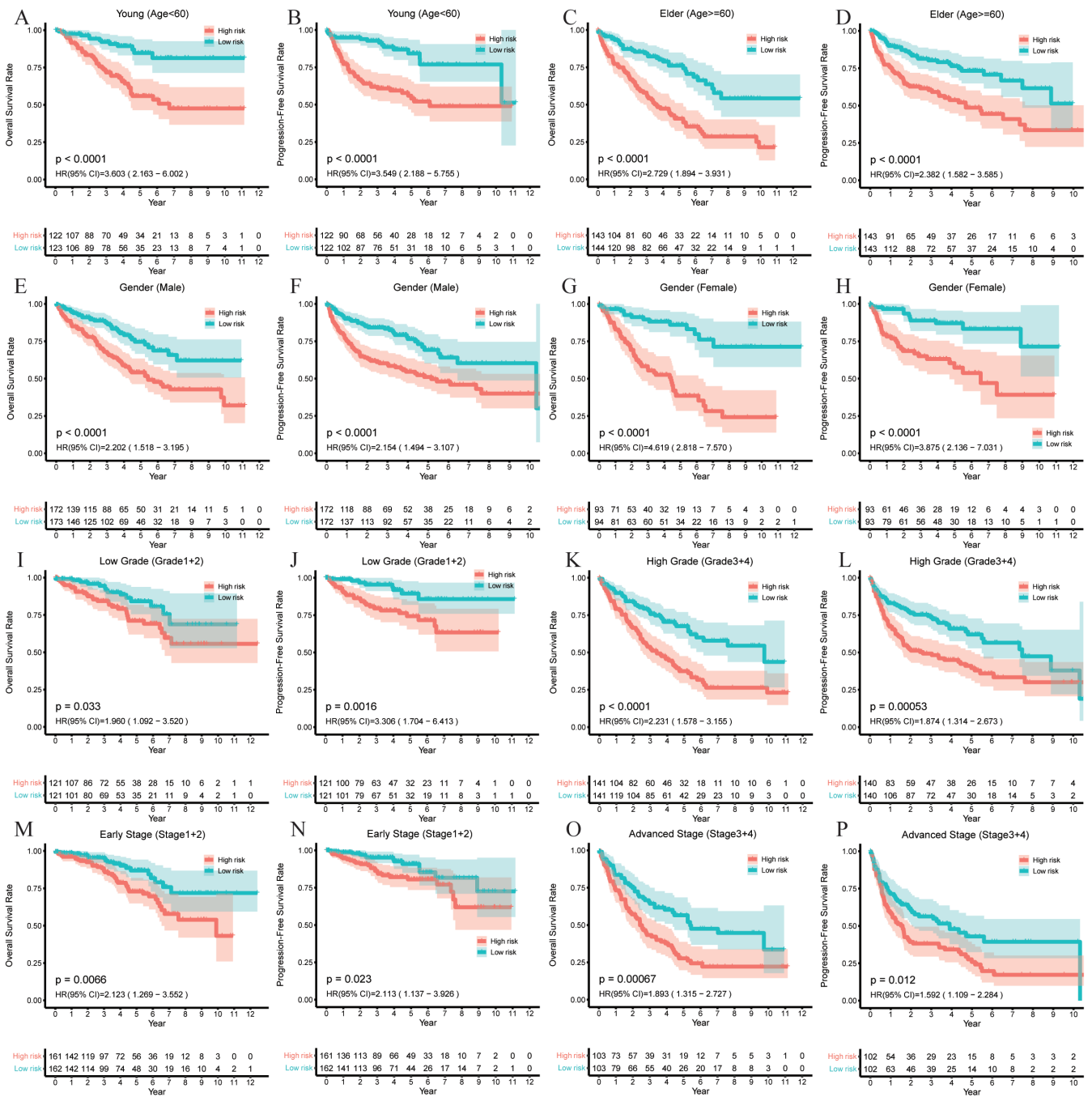


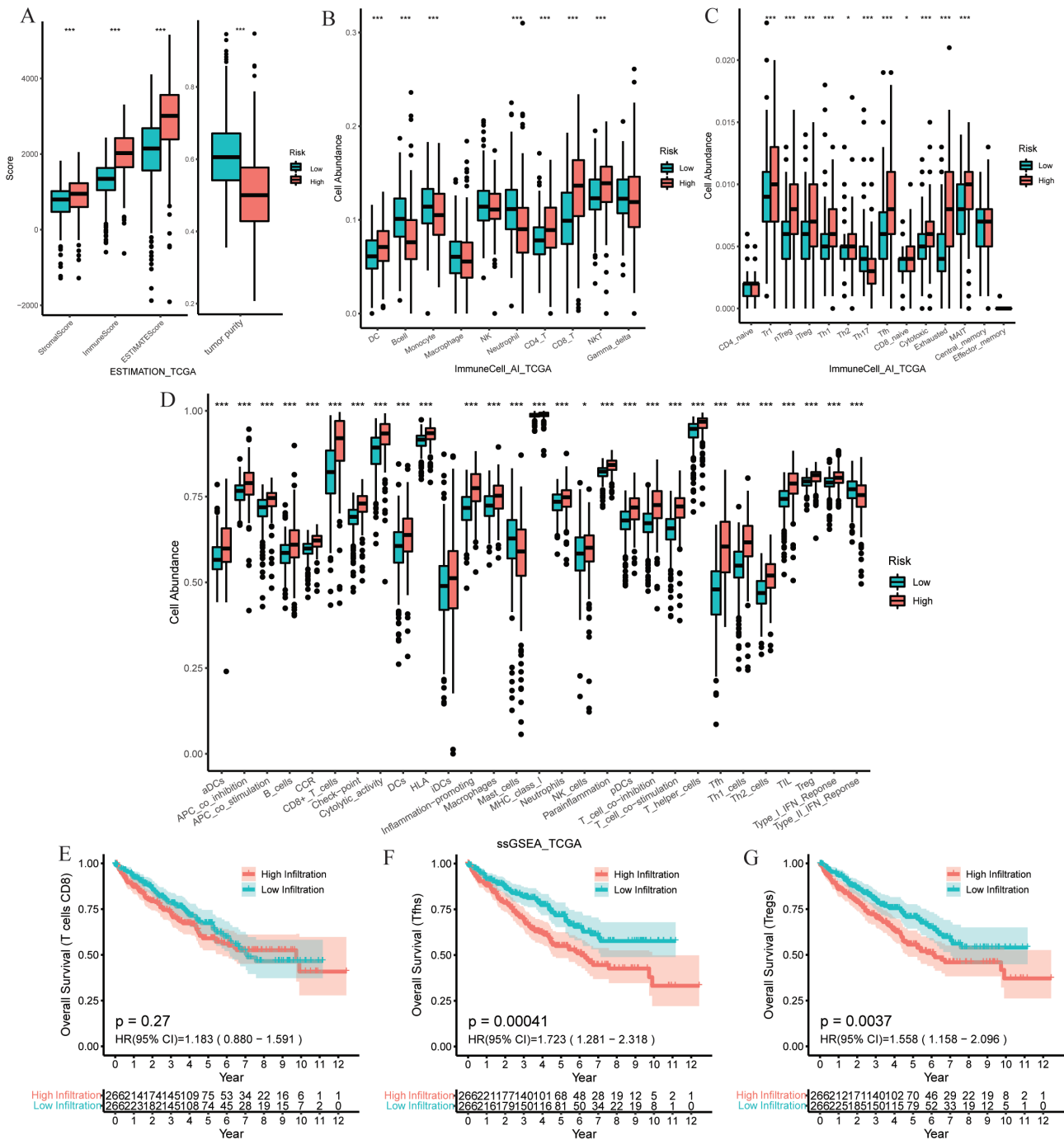
**Figure S1** Characteristics of included ccRCC samples and marker genes of identified cell clusters. (A) Violin plot visualized characteristics of 9 ccRCC sample. (B) Heatmap visualized top 5 marker genes among all 25 cell clusters with resolution 0.3. ccRCC, clear cell renal cell carcinoma.



**Figure S2** Enrichment analysis of NK cell marker genes and identification of prognostic genes. (A) GO and (B) KEGG analysis of 52 NK cell marker genes. (C) Univariate Cox regression analysis of 52 NK cell marker genes identified 22 prognostic genes. NK, nature killer; GO, Vgene ontology; KEGG, Kyoko Encyclopedia of Genes and Genomes.



**Figure S3** Kaplan-Meier analysis showed that patients in high-risk group suffered shorter OS and PFS stratified by young (A,B) or elder (C,D), male (E,F) or female (G,H), low (I,J) or high (K,L) Fuhrman grade, early (M,N) or advanced (O,P) AJCC stage. HR, hazard ratio; CI, confidence interval; OS, overall survival; PFS, progression-free survival; AJCC, American Joint Committee on Cancer.



**Figure S4** The immune infiltration landscape evaluated by ESTIMATE (A), ImmuneCell\_AI (B,C) and ssGSEA (D) algorithms in TCGA. (E-G) Kaplan-Meier analysis showed correlation between tumor-infiltrating CD8<sup>+</sup> T cells (E), Tfh (F), Tregs (G) and OS of ccRCC patients. \*, P<0.05; \*\*\*, P<0.001. TCGA, The Cancer Genome Atlas; DC, dendritic cell; NK, nature killer; NKT, natural killer T; nTreg, natural regulatory T; iTreg, inducible regulatory T; Th, helper T; Tfh, follicular helper T; MAIT, mucosal-associated invariant T; aDCs, activated dendritic cells; APC, antigen-presenting cell; CCR, cytokine-cytokine receptor; HLA, human leukocyte antigen; MHC, major histocompatibility complex; iDCs, interdigitating dendritic cells; pDCs, plasmacytoid dendritic cells; TIL, tumor-infiltrating lymphocytes; Treg, regulatory T; IFN, interferon; ssGSEA, single sample gene set enrichment analysis; HR, hazard ratio; CI, confidence interval; OS, overall survival; ccRCC, clear cell renal cell carcinoma.