**Figure S1:** Analysis of ILs expression in KIRC.(A-F) In GSE6344 GSE15641, GSE16441 GSE16449, GSE53757 IL1A and GSE71963 data set analysis, IL4, IL7, IL11, IL15, IL16, IL23A, IL26, IL27 and IL32 differentially expressed. Nonsignificant results are not shown.

**Figure S2:** Analysis of the co-expression of kinase and TFs with ILs in KIRC and the correlation with OS. (A) mRNA expression of LCK, LYN, SYK, JAK3, and FER in RCC tissues and normal kidney tissues (UALCAN). (B) Relationship between LCK, LYN, SYK, JAK3, FER expression, and OS in RCC patients (Kaplan-Meier Plotter).

**Figure S3:** Differential expression of ILs-related genes in KIRC and the correlation with OS. (A) mRNA expression of HOXA10, MYB, NFKB1, and RELA in RCC tissues and normal kidney tissues (UALCAN). (B) Relationship between HOXA10, MYB, NFKB1, RELA expression, and OS in RCC patients (Kaplan-Meier Plotter).

**Figure S4:** Differential expression of ILs, kinase, and TFs in HK-2 and Caki-1 cell lines. (A) Differences in interleukin mRNA expression between HK-2 and Caki-1 cells.mRNA expression of IL1A, IL7, IL11, IL15, IL16, IL23A, IL26, IL27, IL32 in HK-2 cell and Caki-1 cells. (B) Differences in interleukins at transcription factor targets and kinase targets mRNA expression between HK-2 and Caki-1 cells. mRNA expression of LCK, LYN, SYK, JAK3, FER, NFKB1 in HK-2 cell and Caki-1 cells. \*\*\*\**p* < 0.0001, \*\*\**p* < 0.001, \*\**p* < 0.01, \**p* < 0.05

**Figure S5:** Alterations in ILs expression following NFKB1 SiRNA treatment. (A)Transfection efficiency of siRNA NFKB1 was measured after small interference of NFKB1 in Caki-1 cells. (B) Regulatory effect of NFKB1 on IL1A, IL7, IL15, IL16, IL23A, IL32.\*\*\*\**p* < 0.0001.