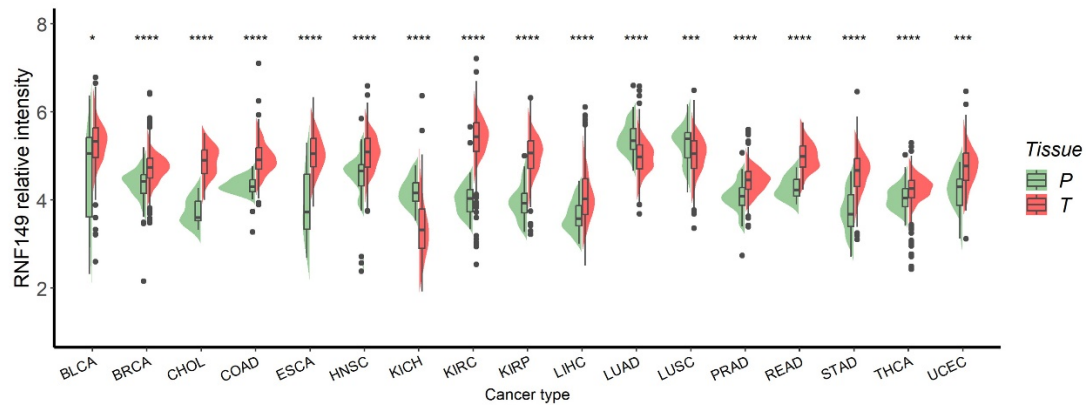
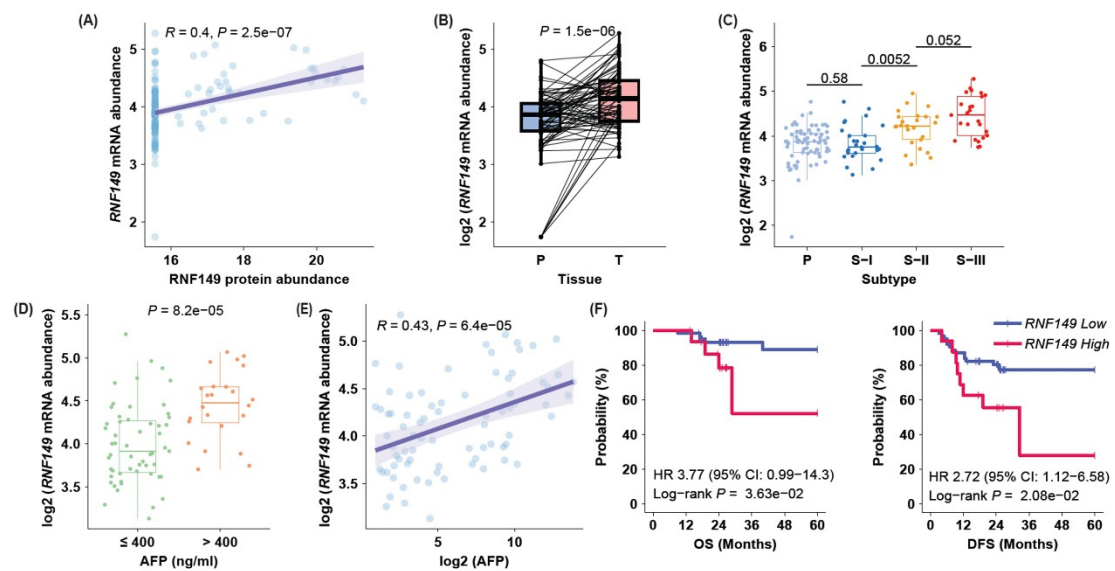


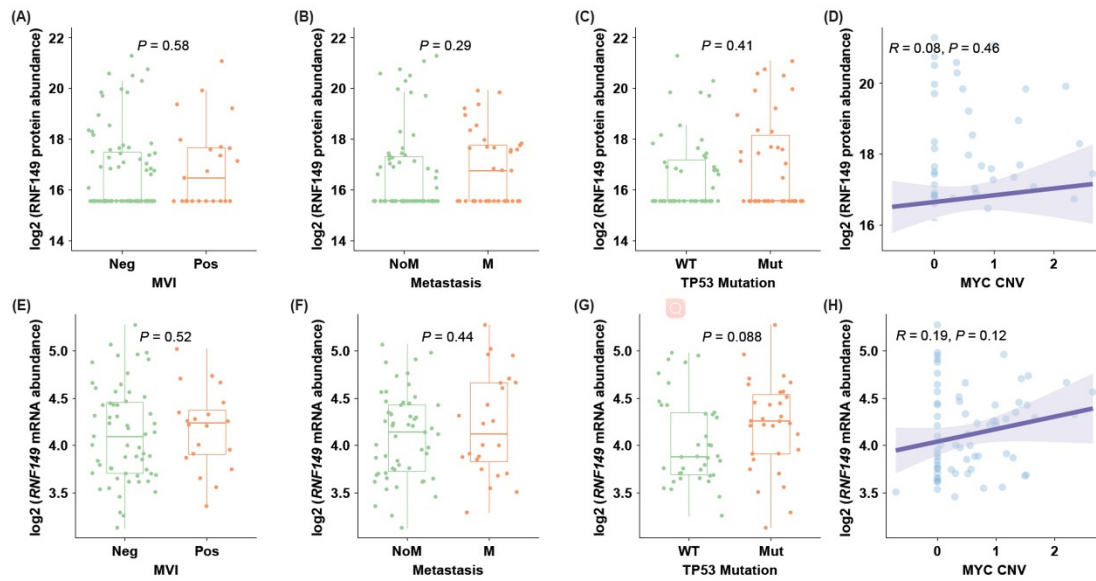
Supplementary Materials



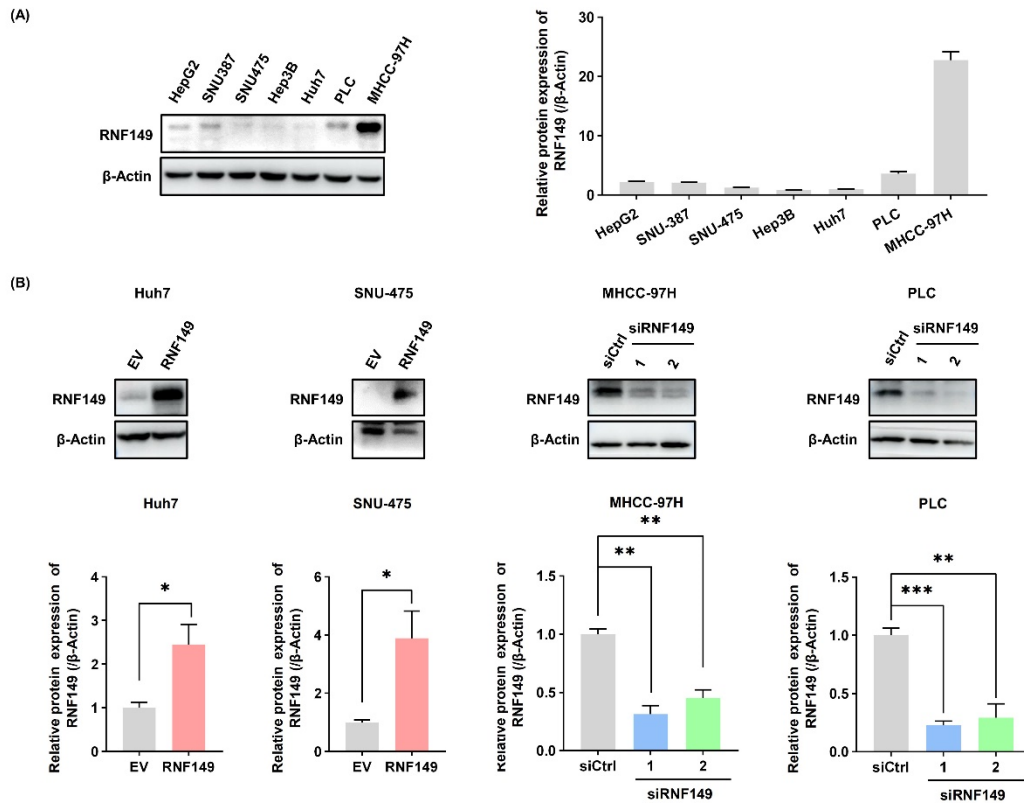
Supplementary Figure S1. The expression of *RNF149* in pan-cancer. TCGA transcriptomics data were used to analyze the expression pattern of *RNF149*. * $P < 0.05$, *** $P < 0.001$, **** $P < 0.001$.



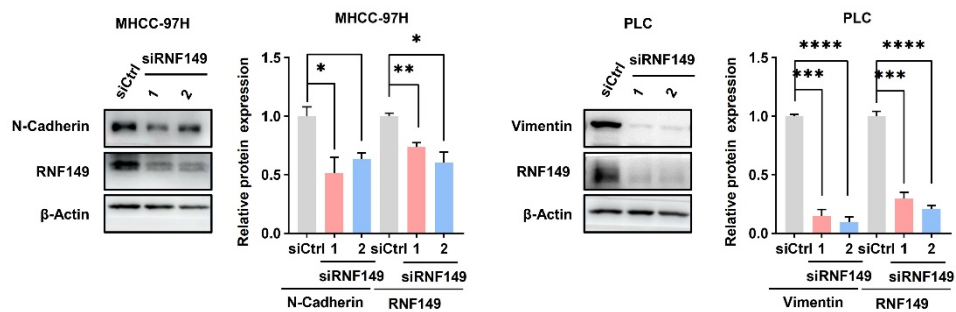
Supplementary Figure S2. The mRNA expression of *RNF149* is positively correlated with the protein abundance, and high mRNA level of *RNF149* expression is correlated with poor prognosis of HCC. (A) Correlation analysis between the mRNA and protein expression level of *RNF149*. (B) Expression of *RNF149* mRNA in HCC tissues and paracancerous tissues. (C) *RNF149* mRNA expression among three subtypes of HCC tissues. (D) *RNF149* mRNA expression in AFP-low (≤ 400 ng/mL) and AFP-high (> 400 ng/mL) groups. (E) Correlation analysis between the serum AFP levels and *RNF149* mRNA expression. (F) Kaplan-Meier survival analysis for OS and DFS of HCC patients with different *RNF149* mRNA expression under the optimal cut-off value.



Supplementary Figure S3. The correlation between the RNF149 protein and mRNA expression and MVI, metastasis, TP53 mutation, MYC amplification. (A) RNF149 protein expression in MVI positive and negative groups. (B) Difference of RNF149 protein expression between metastasis and non-metastasis groups. (C) Expression of RNF149 protein in TP53 mutant and non-mutant group. (D) Correlation analysis between the RNF149 protein expression and MYC copy number variation. (E) RNF149 mRNA expression in MVI positive and negative groups. (F) Difference of RNF149 mRNA expression between metastasis and non-metastasis groups. (G) Expression of RNF149 mRNA in TP53 mutant and non-mutant group. (H) Correlation analysis between the RNF149 mRNA expression and MYC copy number variation.



Supplementary Figure S4. The basal expression of RNF149 in multiple HCC cell lines and the efficiency of RNF149 overexpression or knockdown in cells. (A) The basal protein expression of RNF149 in different HCC cell lines was detected by WB. (B) Huh7, SNU-475, MHCC-97H and PLC cells were transfected with indicated plasmids or siRNAs, and RNF149 levels were detected by WB. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.



Supplementary Figure S5. Knockdown of RNF149 resulted in decreased EMT in HCC cells. MHCC-97H and PLC/PRF/5 cells were transfected with indicated siRNAs and EMT marker was determined using WB. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, **** $P < 0.0001$.

Whole Western Blot Figures

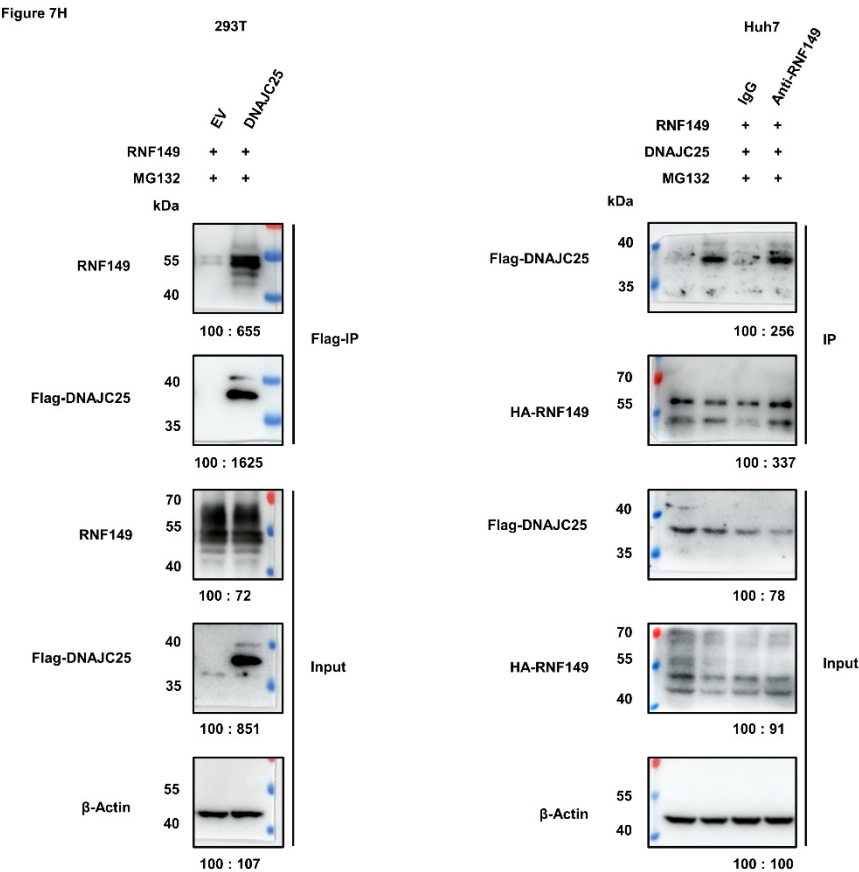
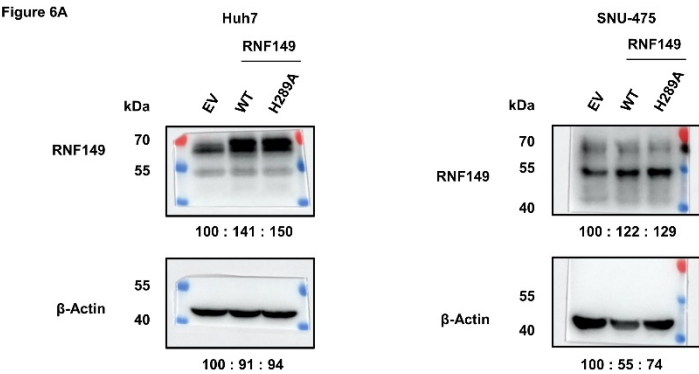
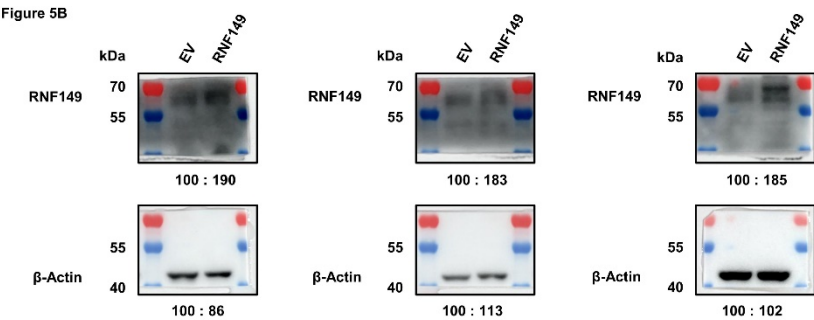


Figure 7I

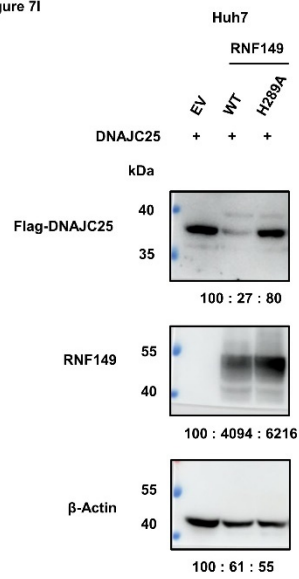


Figure 7J

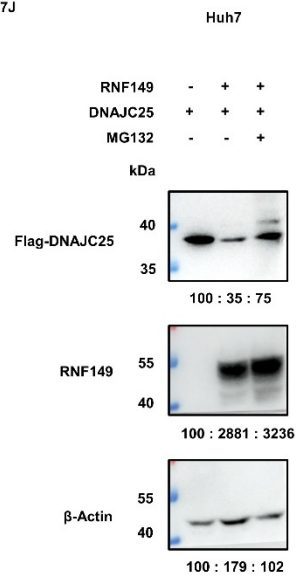


Figure S4A

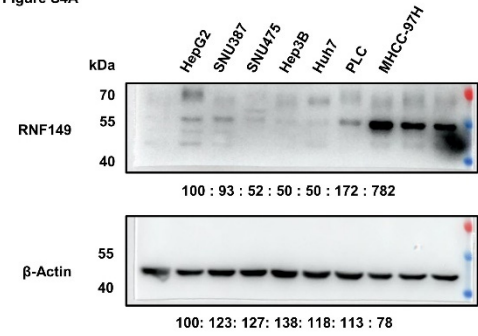


Figure S4B

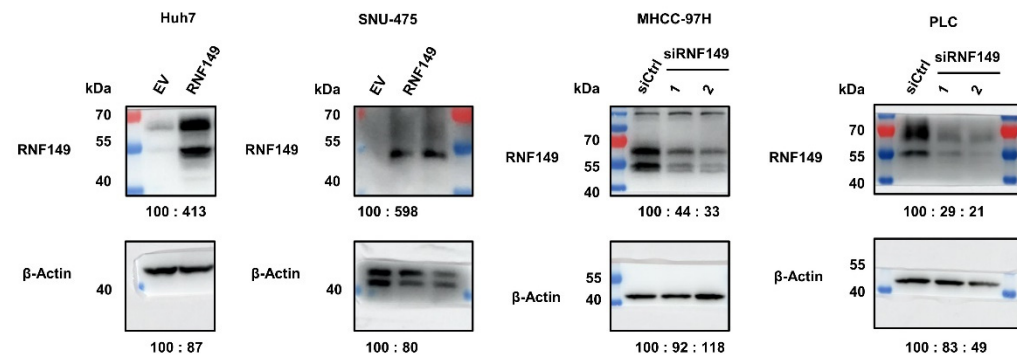


Figure S5

