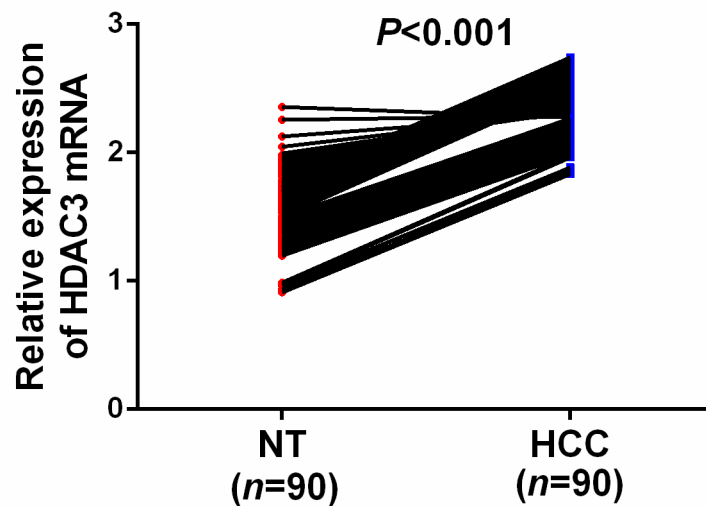
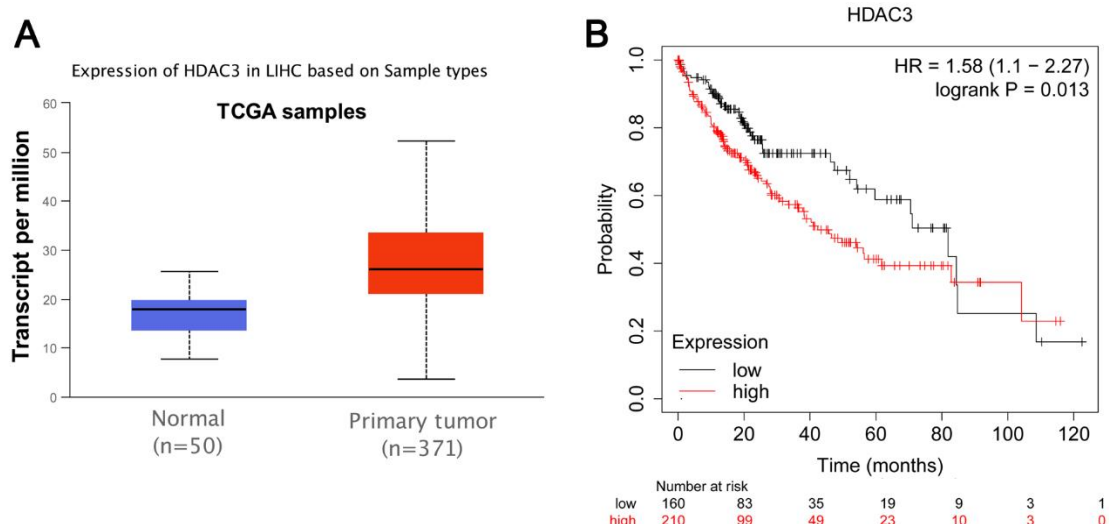


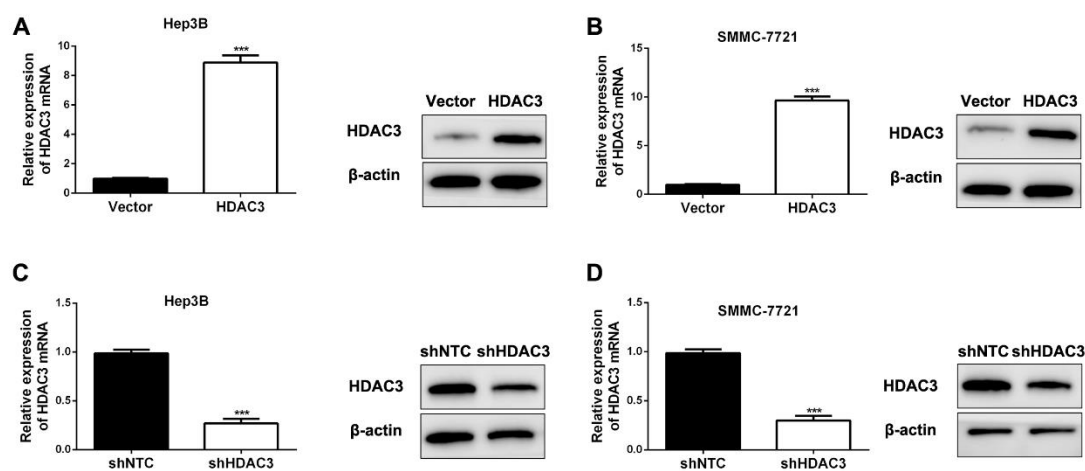
Supplementary Figure 1 HIF-1 α /2 α knockdown subclones are established. (A, B) Hep3B cells were stably transfected with lentiviral vectors encoding a non-targeting control (NTC) short hairpin RNA (shRNA) or shRNA targeting either HIF-1 α (shHIF-1 α) or HIF-2 α (shHIF-2 α). RT-qPCR and Western blot were applied to verify the knockdown efficiency. (C, D) SMMC-7721 cells were stably transfected with lentiviral vectors encoding a non-targeting control (NTC) short hairpin RNA (shRNA) or shRNA targeting either HIF-1 α (shHIF-1 α) or HIF-2 α (shHIF-2 α). RT-qPCR and Western blot were applied to verify the knockdown efficiency. (mean \pm SD; $n = 3$). *** $P < 0.001$, Student's t test.



Supplementary Figure 2 The expression of HDAC3 mRNA in 90 pairs of HCC and non-tumor tissues.

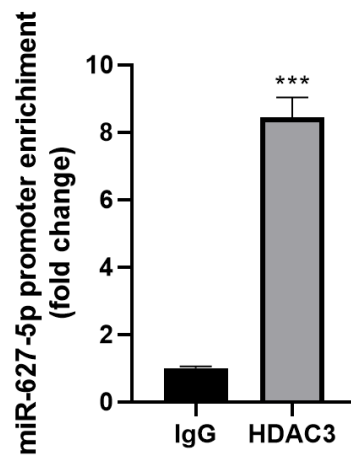


Supplementary Figure 3 The expression and prognostic significance of HDAC3 in HCC based on TCGA data. (A) TCGA data from GEPIA platform showed that HDAC3 expression in HCC tissues ($n=371$) was significantly higher than that in normal tissues ($n=50$). (Student's t test). (B) Data from Kaplan-Meier Plotter showed that HCC patients with higher HDAC3 expression had worse survival rate (Log-rank test).

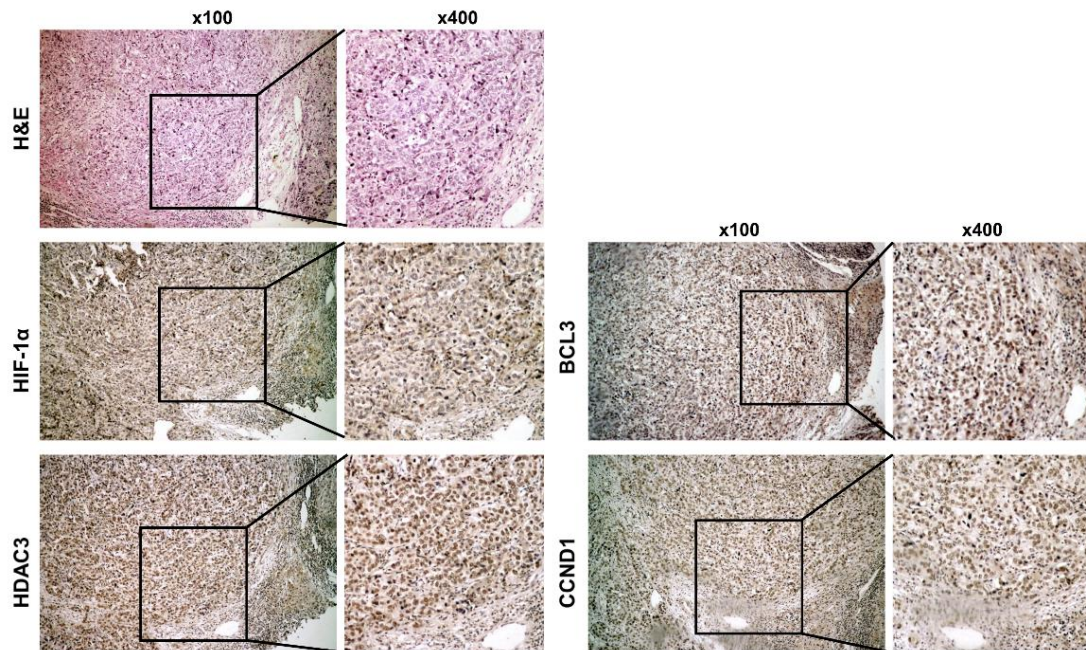


Supplementary Figure 4 HDAC3 knockdown or overexpressing subclones are established. The pcDNA/HDAC3 plasmid was used to overexpress HDAC3 expression of Hep3B cells (A) and SMMC-7721 (B) cells, and empty vector was the control. RT-qPCR and Western blot were applied to verify the knockdown efficiency. (mean \pm SD; $n = 3$). The lentiviral vectors encoding a NTC shRNA (shNTC) or shRNA targeting HDAC3 (shHDAC3) was applied to establish the HDAC3 knockdown or control subclones in Hep3B (C) and (D) SMMC-7721 cells. RT-qPCR and Western blot were applied to verify the knockdown efficiency. (mean \pm SD; $n = 3$). *** $P < 0.001$,

Student's *t* test.



Supplementary Figure 5 The interaction of HDAC3 and promoter region of miR-627-5p in Hep3B cells as suggested by CHIP. *** $P < 0.001$, Student's *t* test.



Supplementary Figure 6 The IHC staining of HIF-1 α , HDAC3, BCL3, and CCND1 and H&E staining is performed in the serial section of the HCC sample.