

Table S1 RNA oligo used for cell transfection

RNA oligo type	Sequence (5'-3')
si-NC (same as NC mimics)	UUCUCCGAACGUGUCACGUTT ACGUGACACGUUCGGAGAATT
si-KCNQ1OT1-1714	GGUAGAAUAGUUCUGUCUUTT AAGACAGAACUAAUUCUACCTT
si-KCNQ1OT1-2143	GCAUGUCCAAAUUCAGAUATT UAUCUGAAUUGGACAUGCTT
si-KCNQ1OT1-4320	GCCAACACUUCUCCUCAATT UUGAGGAAGAAGUGUUGGCTT
si-CDC7-468	GCUGAACUUCAGUGCCUAATT UUAGGCACUGAAGUUCAGCTT
si-CDC7-590	GGACAUUCUGAAUUCUCUUTT AAGAGAAUUCAGAAUGUCCTT
si-CDC7-661	GCAUUCAUCAGUUUGGUAUTT AUACCAAACUGAUGAAUGCTT
miR-335-5p mimics	UCAAGAGCAAUAACGAAAAAUGU AUUUUUCGUUAUUGCUCUUGAUU
NC inhibitors	CAGUACUUUUGUGUAGUACAA
miR-335-5p inhibitors	ACAUUUUUCGUUAUUGCUCUUGA

NC, negative control.

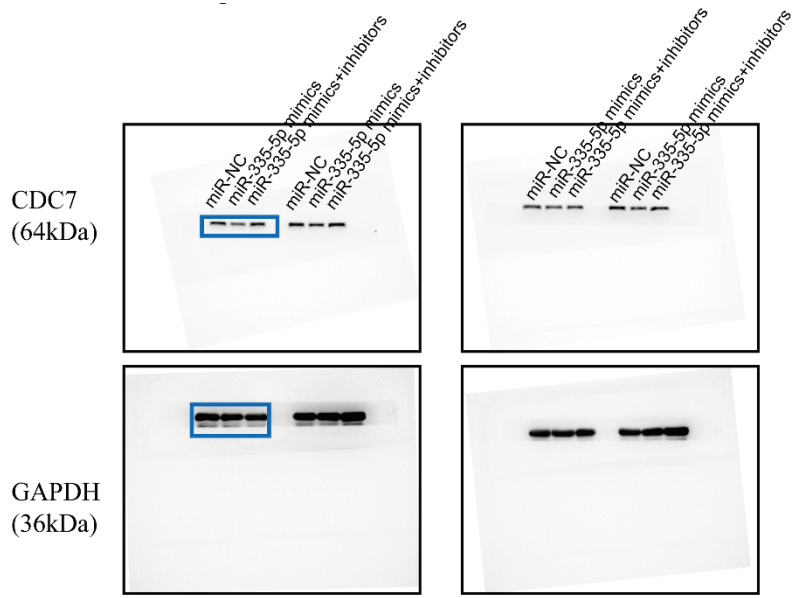
Table S2 Primers used for qRT-PCR amplification

Primer name		Sequence (5'-3')
GAPDH (52)	F	GGACCTGACCTGCCGTCTAG
	R	GTAGCCCAGGATGCCCTTGA
KCNQ1OT1	F	ACAACAGCTCCCACCACCAT
	R	TCCAGGCTTGCCATTCTC
CDC7	F	GCCTGACCTGTGACTGCTATGC
	R	TGAATCCTGGTGACCTGCCCTAG
U6	RT	GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTG GATACGACAAAAAT
	F	GCTTCGGCAGCACATATACTAAAAT
	R	CGCTTCACGAATTTGCGTGTGCAT
miR-335-5p	RT	TCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACACATTT
	F	CGCGTCAAGAGCAATAACGAA
	R	AGTGCAGGGTCCGAGGTATT CTTCTCCACGGTGAGGTTGAC

F, forward primer; R, reverse primer; RT, reverse transcription primer.

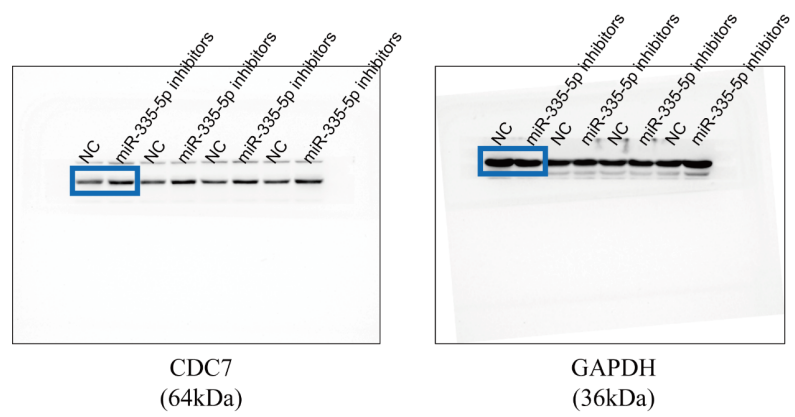
References

52. Yu X, Chen Y, Cui L, et al. CXCL8, CXCL9, CXCL10, and CXCL11 as biomarkers of liver injury caused by chronic hepatitis B. *Front Microbiol* 2022;13:1052917.



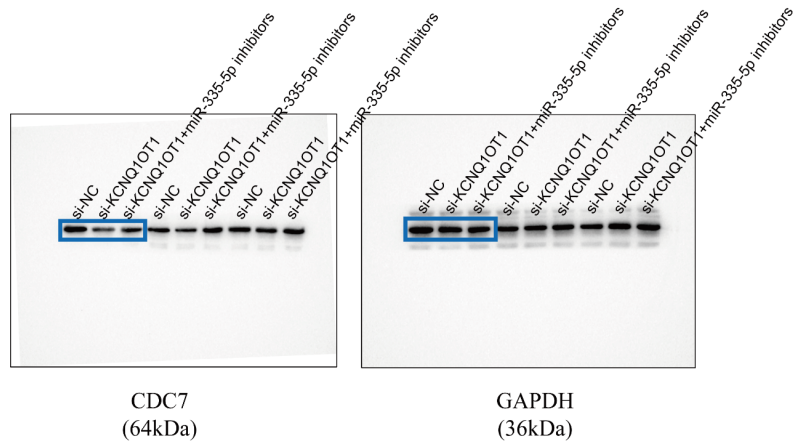
(Notice: The blue marked bands were used for Figure display.)

Figure S1 Expression of CDC7 protein after transfection with miR-335-5p mimics or co-transfected with miR-335-5p mimics and inhibitors in SMMC-7721 cells. Related to *Figure 4G*.



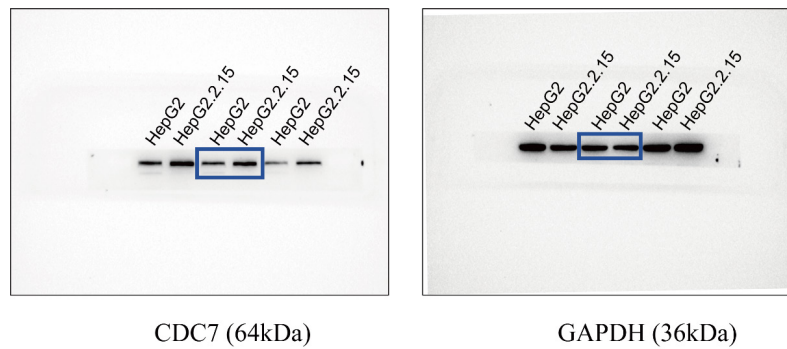
(Notice: The blue marked bands were used for Figure display.)

Figure S2 Expression of CDC7 protein after transfection with miR-335-5p inhibitors in SMMC-7721 cells. Related to *Figure 4f*.



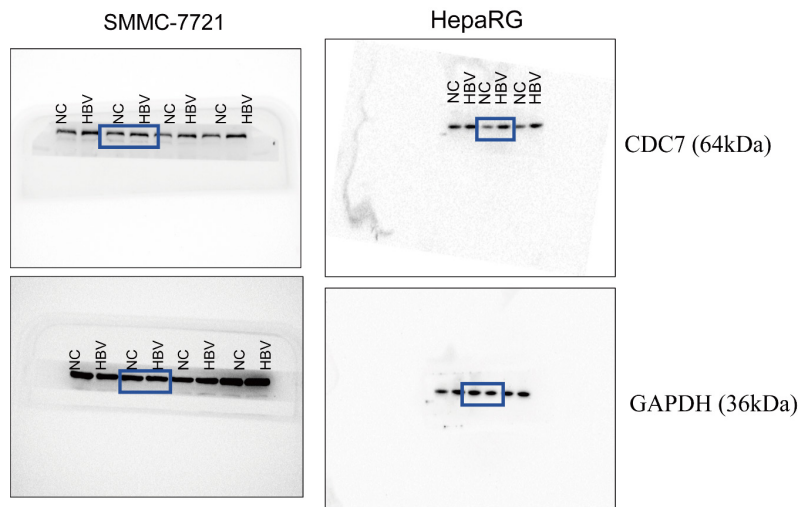
(Notice: The blue marked bands were used for Figure display.)

Figure S3 Expression of CDC7 protein after transfection with si-NC, si-KCNQ1OT1 or co-transfected with si-KCNQ1OT1 and miR-335-5p inhibitors in SMMC-7721 cells. Related to *Figure 5A*.



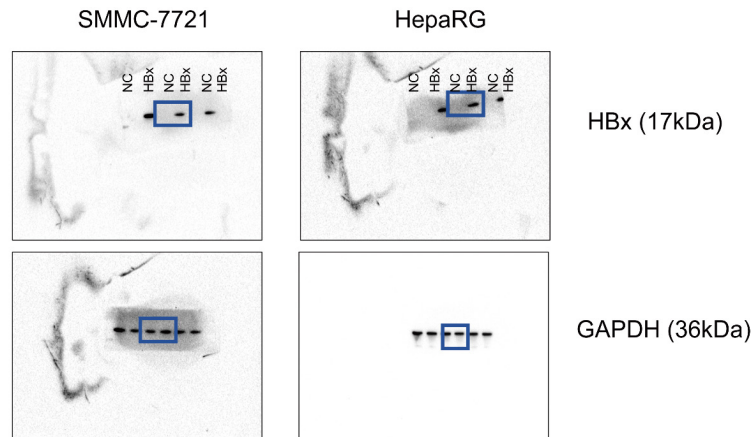
(Notice: The blue marked bands were used for Figure display.)

Figure S4 Expression of CDC7 protein in HepG2 and HepG2.215 cells. Related to *Figure 6D*.



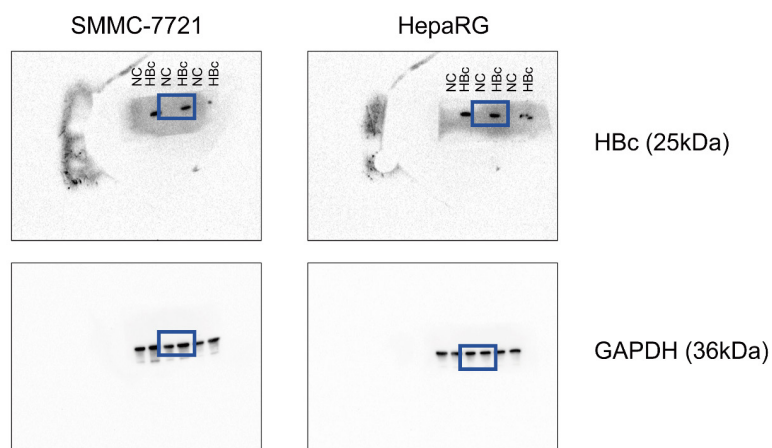
(Notice: The blue marked bands were used for Figure display.)

Figure S5 Expression of CDC7 protein after transfection with a 1.3-fold HBV whole genome plasmid in SMMC-7721 and differentiated HepaRG cells. Related to *Figure 6H*.



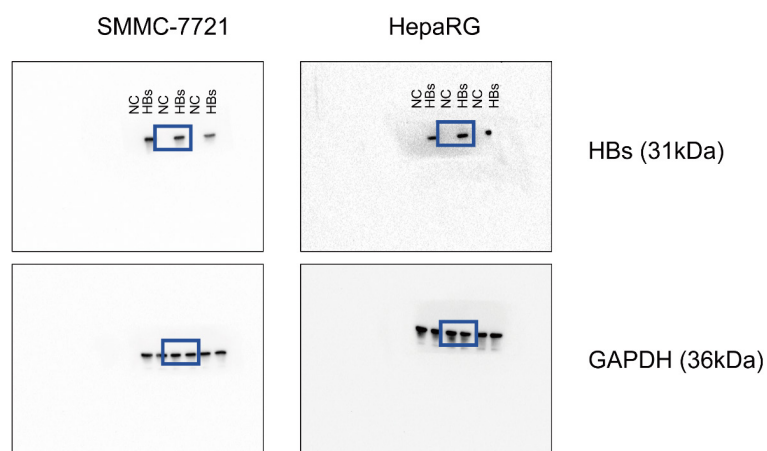
(Notice: The blue marked bands were used for Figure display.)

Figure S6 WB of HBx, HBs and HBc protein expression in SMMC-7721 and differentiated HepaRG cells transfected with HBx, HBs and HBc recombinant plasmids, separately. Related to *Figure 6I*.



(Notice: The blue marked bands were used for Figure display.)

Figure S7 WB of HBx, HBs and HBc protein expression in SMMC-7721 and differentiated HepaRG cells transfected with HBx, HBs and HBc recombinant plasmids, separately. Related to *Figure 6I*.



(Notice: The blue marked bands were used for Figure display.)

Figure S8 WB of HBx, HBs and HBc protein expression in SMMC-7721 and differentiated HepaRG cells transfected with HBx, HBs and HBc recombinant plasmids, separately. Related to *Figure 6I*.

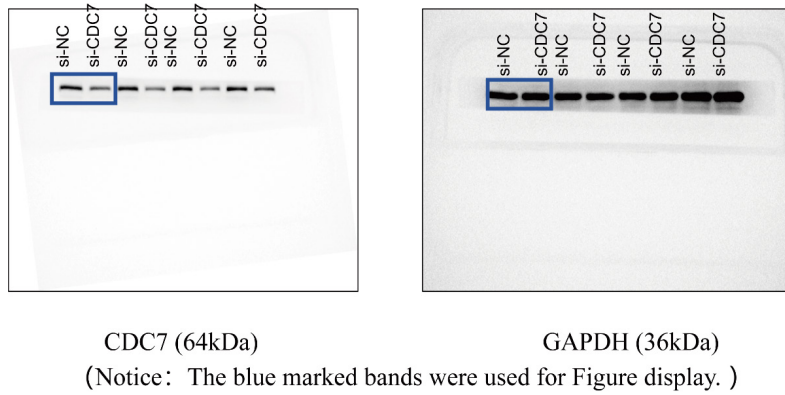


Figure S9 Expression of CDC7 protein after transfection with si-NC and si-CDC7 in SMMC-7721 cells. Related to *Figure 3D*.

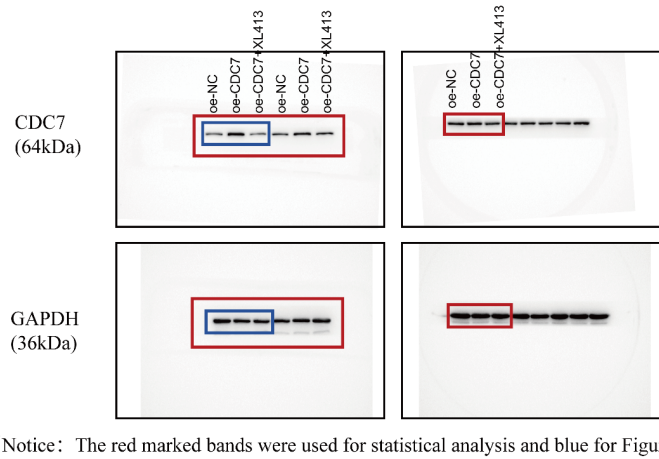


Figure S10 Expression of CDC7 protein after transfection with oe-NC, oe-CDC7 or co-transfected with oe-CDC7 and XL413 in SMMC-7721 cells. Related to *Figure 3E*.

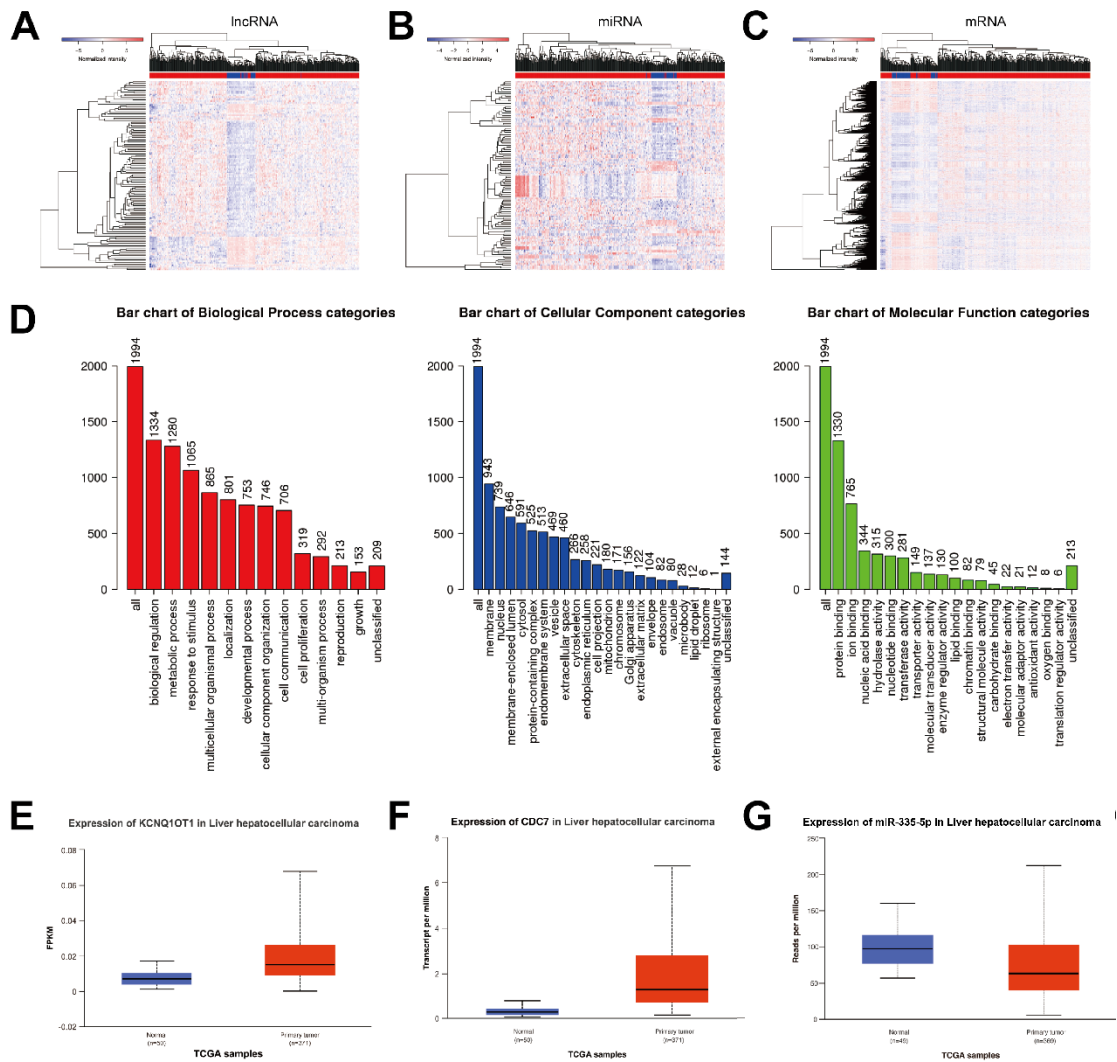


Figure S11 Analyses of differentially expressed RNAs in HCC. Heatmaps of DE lncRNAs (A), miRNAs (B) and mRNAs (C) in HCC tissues and normal tissues from the TCGA database. (D) GO annotation enrichment analysis of the DE mRNAs. The expression levels of KCNQ10T1 (E), CDC7 (F), and miR-335 (G) were analyzed using the UALCAN database.

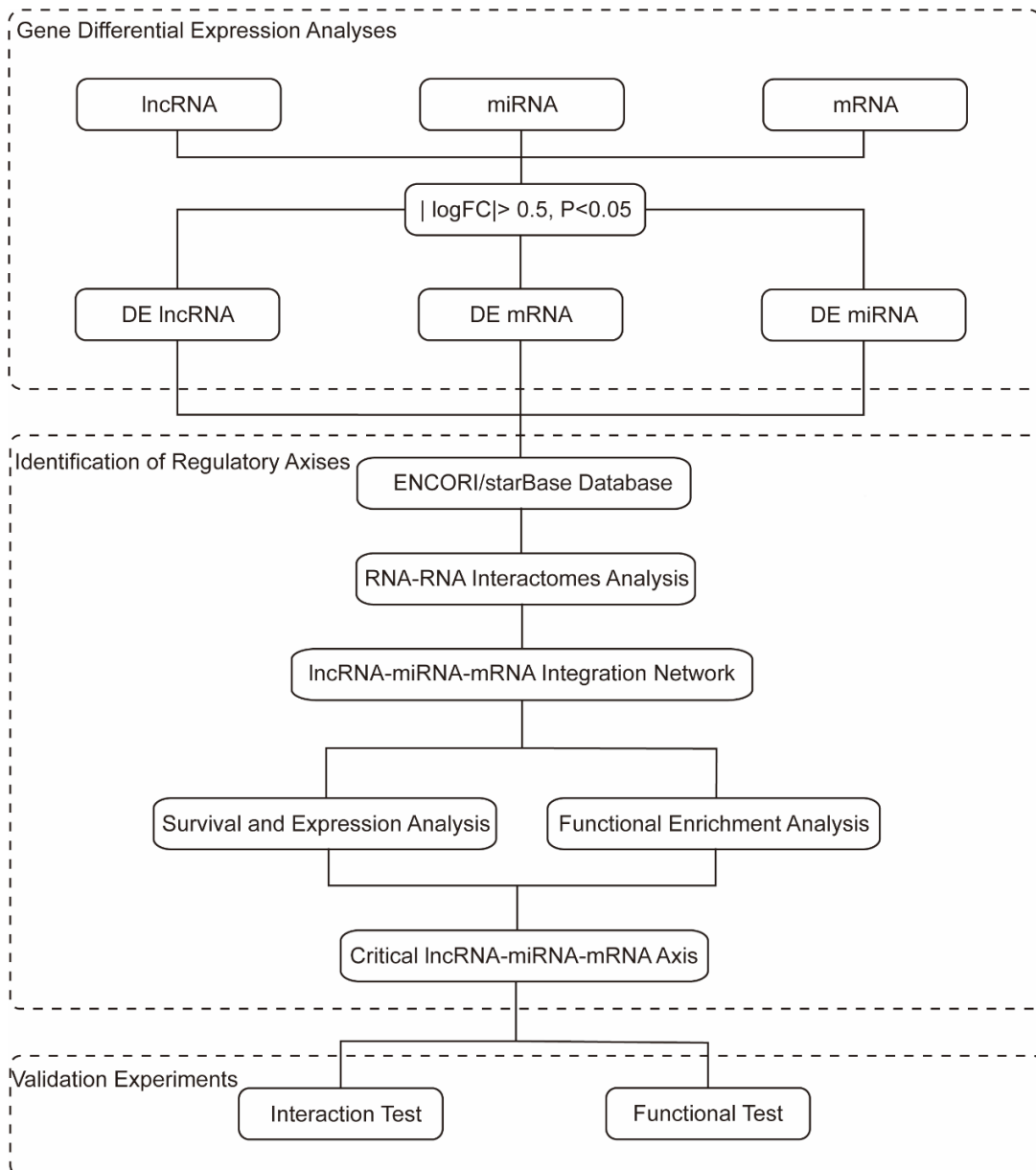


Figure S12 Roadmap of lncRNA-miRNA-mRNA regulatory axis construction and validation.

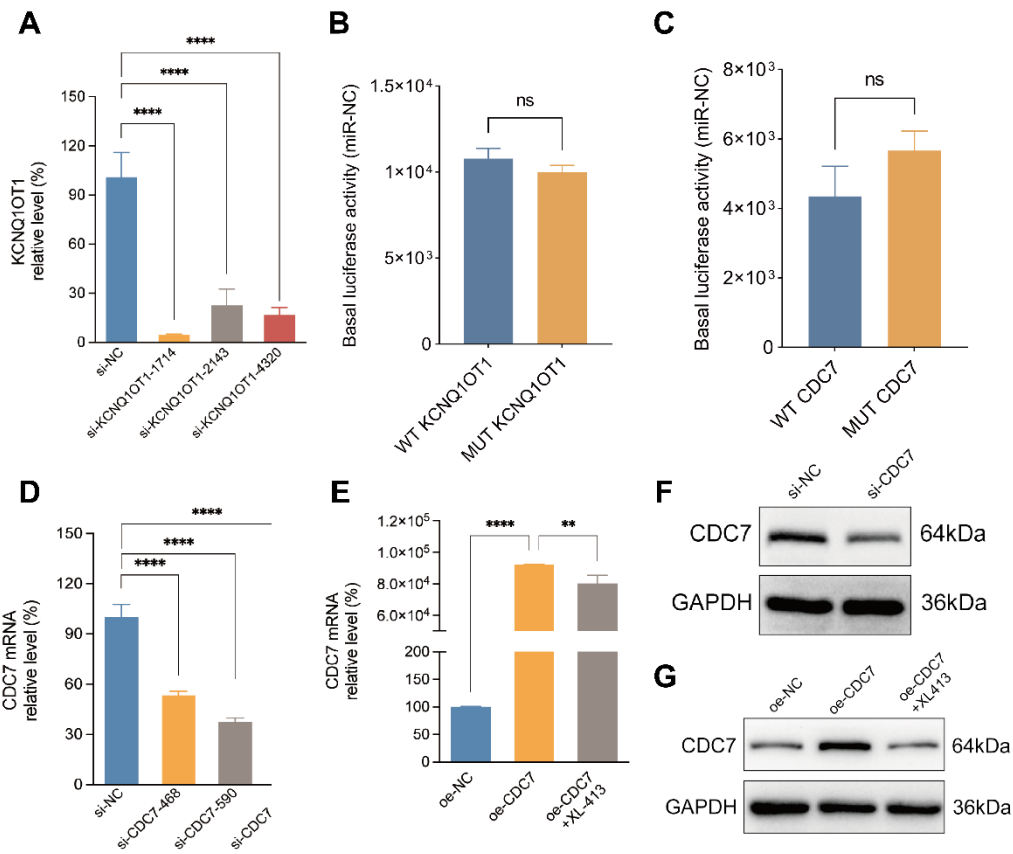


Figure S13 Identifying the most potent siRNA sequence for KCNQ1OT1 (A) and CDC7 (D) knockdown by qRT-PCR. (B) Dual luciferase assay was used to detect the basal luciferase activity after transfection of WT-KCNQ1OT1 and MUT-KCNQ1OT1 in SMMC-7721 cells. (C) Dual luciferase assay was used to detect the basal luciferase activity after transfection of WT-CDC7 and MUT-CDC7 in SMMC-7721 cells. (E) CDC7 mRNA expression level in SMMC-7721 cells transfected with oe-NC, oe-CDC7 or co-transfected with oe-CDC7 and XL413. (F) CDC7 protein expression in SMMC-7721 cells transfected with si-CDC7. (G) CDC7 protein expression in SMMC-7721 cells transfected with oe-NC, oe-CDC7 or co-transfected with oe-CDC7 and XL413. **, $P < 0.01$; ****, $P < 0.0001$. ns, no significance.

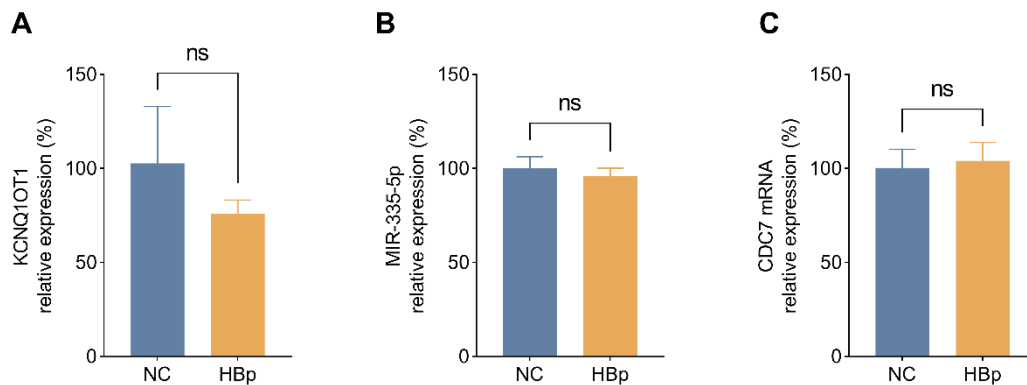


Figure S14 Expression of KCNQ1OT1 (A), miR-335-5p (B) and CDC7 (C) in SMMC-7721 cells transfected with NC and HBp recombinant plasmids. ns, no significance.