

HBV conserved regions after screening (134bp)

TTTCGCAAAATTCCTATGGGGAGTGGGCCTCAGTCCGTTTCTCCTGGCTCAG
 TTTACTAGTGCCATTTGTTTCAGTGGTTCGTAGGGCTTTCCCCCACTGTTTGG
 CTTTCAGTTATATGGGATGATGTGGTATTGGG

Fig. S1. Sequence alignment of conserved regions of HBV DNA. 10,000 conserved sequences of HBV downloaded from NCBI were compared through the software Jalview and a 134bp HBV DNA conserved sequence was obtained.

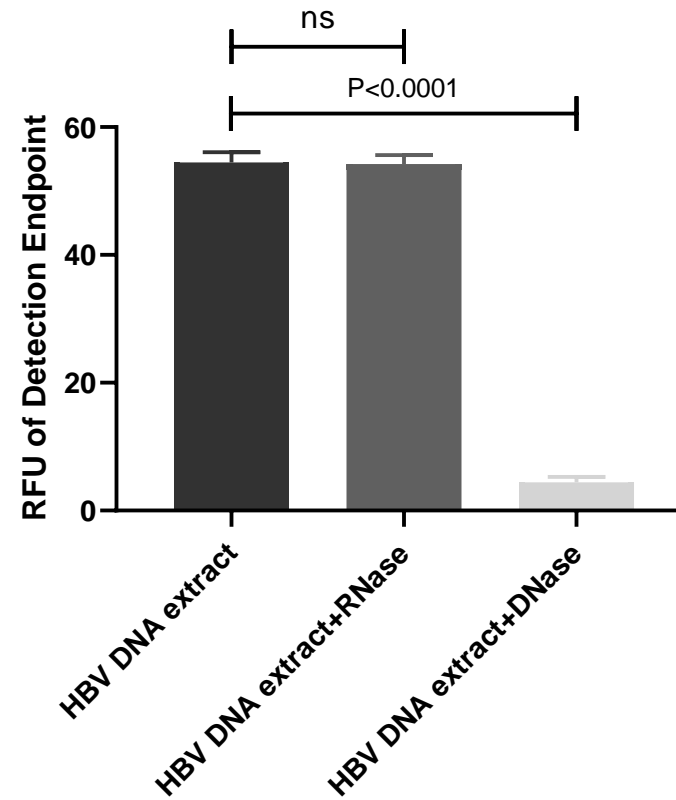


Fig. S2. HBV DNA extract quality control experiment. HBV DNA extracts, HBV DNA extracts with RNase A (Solarbio Science&Technology Co.,Ltd.) and HBV DNA extracts with RNase-Free DNase (Solarbio Science&Technology Co.,Ltd.) were subjected to RAA amplification and Cas13a-crRNA Detection, respectively.

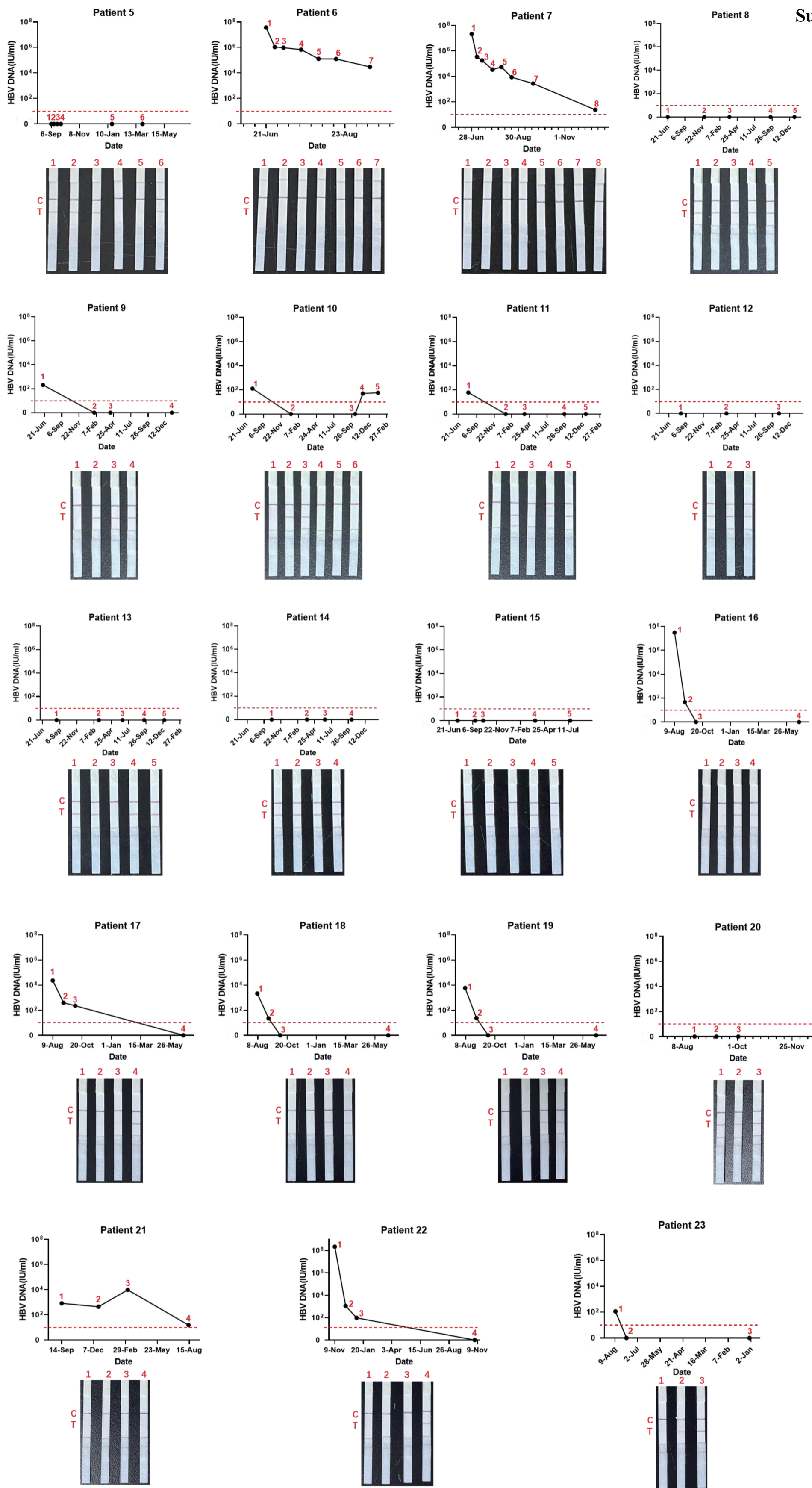


Fig. S3. Cas13a-crRNA-assisted HBV DNA POCT Assay in Antiviral Therapy Patients. The dynamic line chart by GraphPad Prism shows the changes of HBV DNA levels in patients treated with antiviral therapy, and plasma samples were assayed by Cas13a-crRNA Nucleic Acid Detection Strip.

Supplementary Table 1. Clinical Characteristics of the Enrolled Patients and Healthy Subjects

	Healthy Individuals (n=25)	HBV-Infected Patients (n=180)			
		Negative Patients (n=15)	Patients with different viral loads (n=42)	Patients with LLV (n=100)	Patients on antiviral treatment (n=23)
Age	32.2±7.15	30.4±9.9	45.65	41.50±18.21	38.72
Male/Female	14/11	6/9	22/20	58/42	13/10
WBC (×10 ⁹ /L)	5.17±1.03	5.21±1.76	5.35	5.59±2.26	5.81
RBC (×10 ¹² /L)	4.85±0.98	4.43±1.23	4.75	4.32±1.81	4.21
HGB (g/L)	123.80±20.36	116.75±18.76	129.63	131.30±23.96	130.47
PLT (×10 ⁹ /L)	225.32±24.85	216.45±28.32	237.76	199.80±68.46	220.61
ALT (U/L)	16.21±4.02	24.54±15.43	132.45±267.65	89.21±318.3	79.75±452.76
AST (U/L)	17.01±3.87	28.34±17.32	127.76±176.39	64.81±147.4	63.32±286.38
TBil (μmol/L)	16.95±4.32	19.43±4.76	53.73±89.54	41.04±76.52	37.87±86.76
DBil (μmol/L)	5.81±0.21	6.11±1.32	36.81±63.19	23.04±54.13	29.90±49.31
TP (g/L)	78.55±0.43	74.32±1.65	68.80±9.62	71.92±8.04	70.91±12.60
ALB (g/L)	50.82±0.19	46.43±1.92	40.62±8.47	41.97±7.85	42.59±10.62
PT %	110±5.87	103.78±9.69	94.20±33.25	85.88±22.4	88.81±29.96
HBsAg (log ₁₀ IU/ml)	-	2.13±0.81	4.65±1.03	4.10±3.77	3.02±5.75
HBV DNA (log ₁₀ IU/ml)	-	-	4.02±4.76	2.80±2.82	5.39±6.32

All data are expressed as mean±standard deviation. WBC: White blood cell, RBC: Red blood cell, HGB: Hemoglobin, PLT: Platelets, ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, TBil: Total bilirubin, DBil: Direct bilirubin, TP: Total protein, ALB: Albumin, PT%: Prothrombin time activity

Supplementary Table2. Sequences and positions of HBV DNA RPA primers

Name	Sequences	Positions
R1	5'-ACCACATCATCCATATARCTGAAAGCCARA-3' 5'- AATTCTAATACGACTCACTATAGGG	723-752
F1	CCTATGGGAGTGGGCCTCAGYCCGTTTCTC-3'	637-666
R2	5'-ACATCATCCATATARCTGAAAGCCARACAG-3' 5'- AATTCTAATACGACTCACTATAGGG	720-749
F2	ARATWCCTATGGGAGTGGGCCTCAGYCCGT-3'	632-661
R3	5'-ATATARCTGAAAGCCARACAGTGGGGGAAAG-3' 5'- AATTCTAATACGACTCACTATAGGG	723-752
F3	TTTCGSAARATWCCTATGGGAGTGGGCCTCAG-3'	625-656
R4	5'-CCCAASACCACATCATCCATATARCTGAAAGC-3' 5'- AATTCTAATACGACTCACTATAGGG	727-758
F4	AGTGGGCCTCAGYCCGTTTCTCYTGGCTCA-3'	645-674

T7 promoter sequences are colored in red.

Supplementary Table3. CRISPR/Cas13a-related crRNA sequences

Name	Sequences
HBV DNA crRNA1	GGGGAUUUAGACUACCCCAAAAACGAAGGGGACUAAAAC ACUGAACAAAUGGCACUAGUAAACUGAG
HBV DNA crRNA2	GGGGAUUUAGACUACCCCAAAAACGAAGGGGACUAAAAC GAACCACUGAACAAAUGGCACUAGUAAA
HBV DNA crRNA3	GGGGAUUUAGACUACCCCAAAAACGAAGGGGACUAAAAC UACGAACCACUGAACAAAUGGCACUAGU
HBV DNA crRNA4	GGGGAUUUAGACUACCCCAAAAACGAAGGGGACUAAAAC AAAGCCCUACGAACCACUGAACAAAUGG
HBV DNA crRNA5	GGGGAUUUAGACUACCCCAAAAACGAAGGGGACUAAAAC GGGGGAAAGCCCUACGAACCACUGAACA