WHAT IS CLAIMED IS:

1. A probe combination for detecting cancer, comprising:

one or more sets of partial hepatitis B virus (HBV) targeting probes,

wherein when sequences of each of the sets of partial HBV targeting probes are aligned, an overall sequence of the aligned set of partial HBV targeting probes matches a reference sequence of a direct repeat (DR) region on a genome of a HBV genotype,

in the aligned set of partial HBV targeting probes, each of the partial HBV targeting probes overlap with one or two adjacent partial HBV targeting probes by a portion of a length of the partial HBV targeting probe, and

wherein the reference sequence of the DR region comprises SEQ ID NOs: 3-32.

2. The probe combination according to claim 1, wherein the HBV genotype comprises genotype A, genotype B, genotype C, genotype D, genotype E, genotype F, genotype G, genotype H, genotype I and genotype J.

3. The probe combination according to claim 1, further comprising:

one or more sets of full HBV targeting probes,

wherein when sequences of each of the sets of full HBV targeting probes are aligned, an overall sequence of the aligned set of full HBV targeting probes matches a reference sequence of the genome of the HBV genotype,

in the aligned set of full HBV targeting probes, each of the full HBV targeting probes overlap with one or two adjacent full HBV targeting probes by a portion of a length of the full HBV targeting probe, and

wherein the reference sequence of the genome comprises SEQ ID NOs: 1-2.

4. The probe combination according to claim 3, further comprising:

one or more sets of hotspot gene targeting probes,

wherein when sequences of each of the sets of hotspot gene targeting probes are aligned, an overall sequence of the aligned set of hotspot gene targeting probes matches a reference sequence of a cancer hotspot gene, and

in the aligned set of hotspot gene targeting probes, each of the hotspot gene targeting probes overlap with one or two adjacent hotspot gene targeting probes by a portion of a length of the hotspot gene targeting probe.

5. The probe combination according to claim 4, further comprising:

one or more sets of exogenous gene targeting probes,

wherein when sequences of each of the sets of exogenous gene targeting probes are aligned, an overall sequence of the aligned set of exogenous gene targeting probes matches a reference sequence of an exogenous gene, and

in the aligned set of exogenous gene targeting probes, each of the exogenous gene targeting probes overlap with one or two adjacent exogenous gene targeting probes by a portion of a length of the exogenous gene targeting probe.

6. The probe combination according to claim 5, further comprising:

one or more set of endogenous gene targeting probes,

wherein when sequences of each set of endogenous gene targeting probes are aligned, an overall sequence of the aligned set of endogenous gene targeting probes matches a reference sequence of an endogenous gene, and

in the aligned set of endogenous gene targeting probes, each of the endogenous gene targeting probes overlap with one or two adjacent endogenous gene targeting probes by a portion of a length of the endogenous gene targeting probe.

7. The probe combination according to claim 1, wherein the cancer comprises hepatocellular carcinoma.

8. The probe combination according to claim 1, used for capturing target nucleotide fragments having viral-host junctions from DNA obtained for a specimen of a subject infected with HBV.

9. The probe combination according to claim 8, wherein the DNA comprises genomic DNA and circulating tumor DNA of the subject.

10. A probe combination for detecting cancer, comprising:

one or more sets of full HBV targeting probes,

wherein when sequences of each of the sets of full HBV targeting probes are aligned, an overall sequence of the aligned set of full HBV targeting probes matches a reference sequence of a genome of a HBV genotype,

in the aligned set of full HBV targeting probes, each of the full HBV targeting probes overlap with one or two adjacent full HBV targeting probes by a portion of a length of the full HBV targeting probe, and

wherein the reference sequence of the genome comprises SEQ ID NOs :1-2.

11. The probe combination according to claim 10, further comprising:

one or more sets of partial hepatitis B virus (HBV) targeting probes,

wherein when sequences of each of the sets of partial HBV targeting probes are aligned, an overall sequence of the aligned set of partial HBV targeting probes matches a reference sequence of a direct repeat (DR) region on the genome of the HBV genotype,

in the aligned set of partial HBV targeting probes, each of the partial HBV targeting probes overlap with one or two adjacent partial HBV targeting probes by a portion of a length of the partial HBV targeting probe, and

wherein the reference sequence of the DR region comprises SEQ ID NOs: 3-32.

12. The probe combination according to claim 11, further comprising:

one or more sets of hotspot gene targeting probes,

wherein when sequences of each of the sets of hotspot gene targeting probes are aligned, an overall sequence of the aligned set of hotspot gene targeting probes matches a reference sequence of a cancer hotspot gene, and

in the aligned set of hotspot gene targeting probes, each of the hotspot gene targeting probes overlap with one or two adjacent hotspot gene targeting probes by a portion of a length of the hotspot gene targeting probe.

13. The probe combination according to claim 12, further comprising:

one or more sets of exogenous gene targeting probes,

wherein when sequences of each of the sets of exogenous gene targeting probes are aligned, an overall sequence of the aligned set of exogenous gene targeting probes matches a reference sequence of an exogenous gene, and

in the aligned set of exogenous gene targeting probes, each of the exogenous gene targeting probes overlap with one or two adjacent exogenous gene targeting probes by a portion of a length of the exogenous gene targeting probe.

14. The probe combination according to claim 13, further comprising:

one or more set of endogenous gene targeting probes,

wherein when sequences of each set of endogenous gene targeting probes are aligned, an overall sequence of the aligned set of endogenous gene targeting probes matches a reference sequence of an endogenous gene, and

in the aligned set of endogenous gene targeting probes, each of the endogenous gene targeting probes overlap with one or two adjacent endogenous gene targeting probes by a portion of a length of the endogenous gene targeting probe.

15. The probe combination according to claim 10, wherein the cancer comprises hepatocellular carcinoma.

16. The probe combination according to claim 10, used for capturing target nucleotide fragments having viral-host junctions from DNA obtained for a specimen of a subject infected with HBV.

17. The probe combination according to claim 16, wherein the DNA comprises genomic DNA and circulating tumor DNA of the subject.