CLAIMS

1. A method of identifying Zika virus (ZIKV) and/or dengue virus (DENV) infection in a subject, the method comprising determining whether a sample of the subject reacts with one or more peptide that is capable of being recognized more strongly by ZIKV- and/or DENV-induced antibody than a recognition of ~~consensus sequence~~ corresponding peptide of a~~the~~ non-ZIKV and/or non-DENV-flavivirus by the ZIKV- and/or DENV-induced antibody,

   wherein the corresponding peptide of the non-ZIKV flavivirus consists of corresponding amino acids at about the same position as the peptide of the ZIKV flavivirus,

   wherein the corresponding peptide of the non-DENV-flavivirus consists of corresponding amino acids at about the same position as the peptide of the DENV flavivirus, and

   wherein a reaction of the sample to the one or more peptide is indicative of ZIKV and/or DENV infection in the subject.

2. The method of claim 1, wherein the peptide is capable of being recognized more strongly by ZIKV- and/or DENV-induced antibody than the non-ZIKV and/or non-DENV- flavivirus induced antibody.

3. The method of any one of the preceding claims, wherein the peptide comprises an epitope, optionally a linear epitope, of ZIKV and/or DENV prM protein, ZIKV and/or DENV E glycoprotein or ZIKV and/or DENV NS1 protein.

4. The method of any one of the preceding claims, wherein the peptide comprises an epitope located in a solvent-exposed region of ZIKV and/or DENV prM protein, ZIKV and/or DENV E glycoprotein or ZIKV and/or DENV NS1 protein.

5. The method of any one of the preceding claims, wherein the peptide is from 15 to 20 amino acids long.

6. The method of any one of the preceding claims, wherein the peptide is selected from the group consisting of:

SEQ ID NO: 1 (HMCDATMSYECPMLDEGV) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 2 (TVSNMAEVRSYCYEASIS) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 3 (ISDMASDSRCPTQGEAYL) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 4 (TGVFVYNDVEAWRDRYKY) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 5 (REGYRTQMKGPWHSEELE) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 6 (TTLGMNKCYIQIMDLGHM) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 7 (CWCNTTSTWVVYGTCHHK) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 8 (TRSQTWLESREYTKHLIR) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 9 (HKKGEARRSRRAVTLPSH) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 10 (RNPGFALAAAAIAWLLGS) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 11 (EATLGGFGSLGLDCEPRT)~~ or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 12 (KAFEATVRGAKRMAVLGD)~~ or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~; and

SEQ ID NO: 13 (ELCEDTMTYKCPRITEA)~~ or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~.

7. The method of any one of the preceding claims, wherein the peptide is substantially incapable of being recognized by the non-ZIKV and/or non-DENV flavivirus-induced antibody.

8. The method of any of claims 1-7, wherein the ~~consensus sequence~~corresponding peptide of the non-ZIKV flavivirus is substantially incapable of being recognized by the ZIKV-induced antibody.

9. The method of any of claims 1-7, wherein the ~~consensus sequence~~corresponding peptide of the non-DENV flavivirus is substantially incapable of being recognized by the DENV-induced antibody.

10. The method of any one of claims 1 to 8, wherein the non-ZIKV flavivirus comprises yellow fever virus and/or dengue virus.

11. The method of any one of claims 1 to 8, wherein the non-DENV flavivirus comprises yellow fever virus and/or Zika virus.

12. The method of any one of the preceding claims, wherein the method comprises determining whether the sample of the subject reacts with at least two peptides that are capable of being recognized more strongly by the ZIKV- and/or DENY-induced antibody than the non-ZIKV and/or DENV-flavivirus-induced antibody.

13. The method of any one of the preceding claims, wherein the subject is a pregnant subject, and the method comprises determining whether a sample of

the subject reacts with a peptide selected from SEQ ID NO: 4 (TGVFVYNDVEAWRDRYKY) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto portions thereof~~.

14. The method of any one of the preceding claims, wherein determining whether a sample of the subject reacts with a peptide comprises performing an immunoassay to assess whether antibodies that are capable of binding to the peptide are present in the sample.

15. The method of any one of the preceding claims, wherein the method comprises a diagnostic method or a prognostic method.

~~16. The method of any one of the preceding claims, the method further comprising administering to the subject a ZIKV and/or DENV treatment regimen if the subject is indicated for ZIKV and/or DENV infection.~~

16~~17~~. A kit for identifying ZIKV and/or DENV infection in a subject, the kit comprising one or more peptide that is capable of being recognized more strongly by ZIKV- and/or DENV- induced antibody than a recognition of corresponding peptide of a non-ZIKV and/or non-DENV-flavivirus by the ZIKV- and/or DENV-induced antibody ~~a non-ZIKV and/or DENV- flavivirus-induced antibody.~~,
wherein the corresponding peptide of the non-ZIKV consists of corresponding amino acids at about the same position as the peptide of the ZIKV flavivirus, and
wherein the corresponding peptide of the non-DENV-flavivirus consists of corresponding amino acids at about the same position as the peptide of the DENV flavivirus.

17~~18~~. The kit of claim 16~~17~~, wherein the one or more peptide is selected from the group consisting of:

SEQ ID NO: 1 (HMCDATMSYECPMLDEGV) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 2 (TVSNMAEVRSYCYEASIS) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 3 (ISDMASDSRCPTQGEAYL) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 4 (TGVFVYNDVEAWRDRYKY) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 5 (REGYRTQMKGPWHSEELE) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 6 (TTLGMNKCYIQIMDLGHM) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 7 (CWCNTTSTWVVYGTCHHK) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 8 (TRSQTWLESREYTKHLIR) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 9 (HKKGEARRSRRAVTLPSH) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 10 (RNPGFALAAAAIAWLLGS) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 11 (EATLGGFGSLGLDCEPRT) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 12 (KAFEATVRGAKRMAVLGD) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~; and

SEQ ID NO: 13 (ELCEDTMTYKCPRITEA) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~.

18~~19~~. The kit of claim 16~~17~~ or claim 17~~18~~ further comprising one or more of the following:

a plate coated with a capture agent for anti-ZIKV and/or anti-DENV, and

a detection agent for detecting the presence of captured anti-ZIKV and/or anti-DENV,

wherein the capture agent and the detection agent comprise a ZIKV and/or DENV antigen and/or an anti-ZIKV and/or anti-DENV immunoglobulin.

19~~20~~. The method or the kit of any one of the preceding claims, wherein the subject comprises a human subject.

20~~21~~. The method or the kit of claim 19~~20~~, wherein the human subject comprises a pregnant human subject.

21~~22~~. An isolated peptide that is capable of being recognized more strongly by ZIKV- and/or DENV-induced antibody than a recognition of corresponding peptide of a non-ZIKV and/or non-DENV-flavivirus by the ZIKV- and/or DENV-induced antibody, wherein the peptide is one or more peptide selected from the group consisting of:

SEQ ID NO: 1 (HMCDATMSYECPMLDEGV) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 2 (TVSNMAEVRSYCYEASIS) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 3 (ISDMASDSRCPTQGEAYL) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 4 (TGVFVYNDVEAWRDRYKY) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 5 (REGYRTQMKGPWHSEELE) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 6 (TTLGMNKCYIQIMDLGHM) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 7 (CWCNTTSTWVVYGTCHHK) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 8 (TRSQTWLESREYTKHLIR) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 9 (HKKGEARRSRRAVTLPSH) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 10 (RNPGFALAAAAIAWLLGS) or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof;

SEQ ID NO: 11 (EATLGGFGSLGLDCEPRT) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 12 (KAFEATVRGAKRMAVLGD) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~; and

SEQ ID NO: 13 (ELCEDTMTYKCPRITEA) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof.~~,

wherein the corresponding peptide of the non-ZIKV consists of corresponding amino acids at about the same position as the peptide of the ZIKV flavivirus, and

wherein the corresponding peptide of the non-DENV-flavivirus consists of corresponding amino acids at about the same position as the peptide of the DENV flavivirus~~.~~

22~~23~~. An immune system stimulating composition comprising a peptide that is capable of being recognized more strongly by ZIKV- and/or DENV-induced antibody than a recognition of corresponding peptide of a non-ZIKV and/or non-DENV-flavivirus by the ZIKV- and/or DENV-induced antibody, wherein the peptide is one or more peptide selected from the group consisting of:

SEQ ID NO: 1 (HMCDATMSYECPMLDEGV) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 2 (TVSNMAEVRSYCYEASIS) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 3 (ISDMASDSRCPTQGEAYL) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 4 (TGVFVYNDVEAWRDRYKY) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 5 (REGYRTQMKGPWHSEELE) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 6 (TTLGMNKCYIQIMDLGHM) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 7 (CWCNTTSTWVVYGTCHHK) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 8 (TRSQTWLESREYTKHLIR) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 9 (HKKGEARRSRRAVTLPSH) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 10 (RNPGFALAAAAIAWLLGS) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 11 (EATLGGFGSLGLDCEPRT) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~;

SEQ ID NO: 12 (KAFEATVRGAKRMAVLGD) ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof~~; and

SEQ ID NO: 13 (ELCEDTMTYKCPRITEA)~~.~~ ~~or a sequence having at least 75% sequence identity thereto or a sequence differing by one, two, three or four amino acids thereto or portions thereof.~~,

wherein the corresponding peptide of the non-ZIKV consists corresponding amino acids at about the same position as the peptide of the ZIKV flavivirus, and wherein the corresponding peptide of the non-DENV-flavivirus consists corresponding amino acids at about the same position as the peptide of the DENV flavivirus.