disclosure refers to a method comprising the step detecting in a sample from a subject, the presence or absence of an antibody to SEQ ID NO1, wherein the antibody is an IgA class antibody. In still another aspect, the present disclosure refers to an *in vitro* use of a polypeptide comprising SEQ ID NO1 or a variant thereof, a diagnostically useful carrier comprising said polypeptide or a kit as disclosed herein or an IgA class antibody to SEQ ID NO1 for the reduction of cross reactivity in the diagnosis of a Zika virus infection. In a further aspect, the present disclosure refers to an *in vitro* use of a polypeptide comprising SEQ ID NO1 or a variant thereof, a diagnostically useful carrier comprising said polypeptide or a kit as disclosed herein or an IgA class antibody to SEQ ID NO1 for distinguishing a primary from a secondary Zika virus infection, wherein the use comprises detecting an IgA or IgM class antibody to SEQ ID NO1, and an IgG class antibody to SEQ ID NO1. In yet another aspect, the present disclosure refers to an *in vitro* use of a polypeptide comprising SEQ ID NO1 or a variant thereof, a diagnostically useful carrier comprising said polypeptide or a as disclosed herein or an IgA class antibody to SEQ ID NO1 for increasing the reliability of the diagnosis of a Zika virus infection. In yet another aspect, the present disclosure refers to an *in vitro* use of a kit as disclosed herein or an IgA class antibody to SEQ ID NO1 for the diagnosis of a Zika virus infection.

In a first example, the problem underlying the present invention is solved by a polypeptide comprising a sequence selected from the group comprising SEQ ID NO1, SEQ ID NO2, SEQ ID NO3, SEQ ID NO4, SEQ ID NO5, SEQ ID NO6, SEQ ID NO7, SEQ ID NO8, SEQ ID NO19 and SEQ ID NO9 or a variant thereof, preferably SEQ ID NO1 or a variant thereof, preferably a dimer and/or hexamer, more preferably a dimer, for the diagnosis of a disease.

In a second example, the problem is solved by a diagnostically useful carrier comprising a means for specifically capturing an antibody to SEQ ID NO1 in a sample from a subject.

In a preferred example, the carrier further comprises one or more than one means, which means is for specifically capturing an antibody to an antigen from the group comprising SEQ ID NO2, SEQ ID NO3, SEQ ID NO4, SEQ ID NO5, SEQ ID NO6, SEQ ID NO7, SEQ ID NO8, SEQ ID NO19 and SEQ ID NO9.

In a preferred example, the carrier is selected from the group comprising a bead, preferably a paramagnetic particle, a test strip, a microtiter plate, a blot, preferably from the group comprising western blot, line blot and dot blot, lateral flow test, a glass surface, a slide, a biochip and a membrane, and is preferably a bead a line blot or microtiter plate, more preferably a microtiter plate.

In a third example, the problem is solved by a kit comprising the diagnostically useful carrier according to the present disclosure, optionally as well as a means for specifically detecting a captured antibody.

Claims

1. A kit comprising a diagnostically useful carrier, wherein the kit further comprises a means for specifically detecting a captured antibody, wherein the diagnostically useful carrier is a carrier comprising a means for specifically capturing an antibody to SEQ ID NO1 in a sample from a subject, and wherein the means for specifically detecting a captured antibody is a secondary antibody binding to the constant region of IgA class antibodies.

2. A kit comprising a diagnostically useful carrier and a polypeptide,
wherein the diagnostically useful carrier comprises a means for specifically capturing all IgA class antibodies, which is an antibody binding to all IgA class antibodies,
wherein the polypeptide is a recombinant polypeptide comprising SEQ ID NO1 or a variant thereof.

3. A method comprising the step detecting in a sample from a subject, the presence or absence of an antibody to SEQ ID NO1, wherein the antibody is an IgA class antibody.

4. The method according to claim 3, wherein the sample is a blood or CSF sample.

5. The method according to claim 3 or 4, further comprising the step detecting the presence or absence of an antibody to SEQ ID NO1, wherein the antibody is an IgM and/or IgG class antibody.

6. The method according to any of claims 3 to 5, comprising the step contacting a diagnostically useful carrier with a sample from the subject.

7. The kit or method according to any of claims 1 to 6, wherein the carrier is selected from the group comprising a bead; a test strip, a microtiter plate, a blot; lateral flow test, a glass surface, a slide, a biochip and a membrane.

8. The method according to any of claims 3 to 7, wherein the presence or absence of an antibody to SEQ ID NO1 and the presence or absence of an antibody to one or more further antigens is detected in spatially separate binding reactions.

9. The method according to any of claims 3 to 8, comprising the step monitoring an IgA, IgM and/or IgG, for a time period of at least three days.

10. The method according to any of claims 3 to 9, wherein the method further comprises detecting the total concentration of IgM to SEQ ID NO1.

11. The kit or method according to any of claims 1 to 10, wherein the antibody is a mammalian antibody.

12. The kit according to any of claims 1, 2, and 11, wherein the kit comprises a secondary antibody binding to the constant region of IgG class antibodies.

13. The kit according to any of claims 1, 2, and 11 to 12, wherein the kit comprises a secondary antibody binding to the constant region of IgM class antibodies.

14. The kit according to any of claims 1, 2, and 11 to 13, further comprising one or more from the group comprising a sample dilution buffer, a washing buffer and a buffer comprising a means for detecting any specifically captured antibody, a chemical solution for carrying out a detection reaction, a positive control a negative controla and a standard solution comprising a SEQ ID NO1-binding antibody for preparing a calibration curve.

15. An *in vitro* use of a polypeptide comprising SEQ ID NO1 or a variant thereof, a diagnostically useful carrier comprising said polypeptide or a kit according to any of claims 1, 2, and 11 to 14 or an IgA class antibody to SEQ ID NO1 for the reduction of cross reactivity in the diagnosis of a Zika virus infection.

16. An *in vitro* use of a polypeptide comprising SEQ ID NO1 or a variant thereof, a diagnostically useful carrier comprising said polypeptide or a kit according to any of claims 1, 2, and 11 to 14 or an IgA class antibody to SEQ ID NO1 for distinguishing a primary from a secondary Zika virus infection, wherein the use comprises detecting an IgA or IgM class antibody to SEQ ID NO1, and an IgG class antibody to SEQ ID NO1.

17. An *in vitro* use of a polypeptide comprising SEQ ID NO1 or a variant thereof, a diagnostically useful carrier comprising said polypeptide or a kit according to any of claims 1, 2, and 11 to 14 or an IgA class antibody to SEQ ID NO1 for increasing the reliability of the diagnosis of a Zika virus infection.

18. The kit, method or use according to any of claims 1 to 17, wherein the antibody is detected using a method selected from the group comprising immunodiffusion techniques, immunoelectrophoretic techniques, light scattering immunoassays, agglutination techniques, labeled immunoassays such as those from the group comprising radiolabeled immunoassay, enzyme immunoassays such as colourimetric assays, chemiluminscence, immunoassays and immunofluorescence techniques.

19. The kit or use according to any of claims 2, 7 to 18, wherein the variant of SEQ ID NO1 has the ability to bind specifically to an antibody to SEQ ID NO1.

20. An *in vitro* use of a kit according to any of claims 1, 2, and 11 to 14 or an IgA class antibody to SEQ ID NO1 for the diagnosis of a Zika virus infection.