CLAIMS

1. An antibody agent comprising two heavy chains and two light chains, wherein:

the heavy chain CDRs are identical to reference CDRs found between residues 53 and 58, and residues 100 and 106 of SEQ ID NO:29 and differs by a single amino acid substitution relative to a reference CDR found between residues 27 and 33 of SEQ ID NO:29;

the light chain CDRs are identical to reference CDRs found between residues 24 and 38, residues 54 and 60, and residues 93 and 101 of SEQ ID NO:30;

the antibody agent has a higher affinity binding to Dengue virus serotype 3 (DV3) and/or Dengue virus serotype 4 (DV4) as compared to the binding affinity of a reference 4E5A antibody to the serotype, the reference 4E5A antibody having heavy chain sequences set forth in SEQ ID NO:29 and light chain sequences set forth in SEQ ID NO:30.

2. A cell line expressing an antibody agent according to claim 1.

3. A pharmaceutical composition comprising:

one or more antibody agents according to claim 1; and

a pharmaceutically acceptable carrier or excipient.

4. The pharmaceutical composition of claim 3, further comprising at least one additional antiviral agent.

5. The antibody agent according to claim 1 for use in treating a subject in need thereof.

6. The pharmaceutical composition according to claim 3 for use in treating a subject in need thereof.

7. A kit comprising:

at least one antibody agent according to claim 1;

a syringe, needle, or applicator for administration of the at least one antibody or fragment to a subject; and

instructions for use.

8. A method of manufacturing a pharmaceutical composition, the method comprising steps of:

providing an antibody agent according to claim 1; and

formulating the antibody agent with at least one pharmaceutically acceptable carrier or excipient,

so that a pharmaceutical composition is generated.

9. The antibody agent according to claim 1, wherein the antibody agent is an IgG antibody.

10. The antibody agent according to claim 1, wherein the antibody agent is selected from the group consisting of: a mouse antibody, humanized antibody, a human antibody, and a chimeric antibody.

11. The antibody agent according to claim 1, wherein the antibody agent is selected from the group consisting of: a purified antibody, and an isolated antibody.

12. The antibody agent according to claim 1, wherein the antibody agent is a monoclonal antibody.

13. The antibody agent according to claim 1, wherein the antibody agent is a polyclonal antibody.

14. The antibody agent according to claim 1, wherein the antigen binding fragment is selected from the group consisting of: a Fab fragment, a Fab' fragment, a $F(ab')_2$ fragment, a Fd fragment, a Fd' fragment, a Fv fragment, a dAb fragment, a scFv fragment, an isolated CDR region, a dsFv diabody, a single chain antibody, and combinations thereof.

15. A vaccine composition comprising the antibody agent of claim 1.

16. The use of the vaccine composition of claim 15 in the manufacture of a medicament that is to be administered to a subject who is suffering from or susceptible to dengue virus infection.

17. A method of detecting dengue virus, the method comprising steps of:

contacting an environmental sample with an antibody agent of claim 1; and

detecting dengue virus by detecting binding of the antibody to the sample.

18. The method of claim 17, wherein the environmental sample is or comprises one or more of soil, water and flora.

19. A diagnostic method comprising steps of:

contacting a patient sample with an antibody agent of claim 1; and

diagnosing the patient as suffering from infection with dengue virus by detecting binding of the antibody to the sample.

20. The method of claim 19, wherein the sample from a patient is selected from the group consisting of blood, serum/plasma, peripheral blood mononuclear cells/peripheral blood lymphocytes (PBMC/PBL), sputum, urine, feces, throat swabs, dermal lesion swabs, cerebrospinal fluids, cervical smears, pus samples, food matrices, and tissues from various parts of the body such as brain, spleen, and liver.

21. The antibody agent according to claim 1, wherein the heavy chain CDRs include one of the following residues: 55Glu or 55Asp.

22. The antibody agent according to claim 1, wherein the heavy chain has a deletion of Ser26 relative to SEQ ID NO:29.

23. The antibody agent according to claim 1, wherein the heavy chain has a deletion of Gly27 relative to SEQ ID NO:29.

24. The antibody agent according to claim 1, wherein the heavy chain has a 27Ala.