CLAIMS

1. A nucleic acid molecule encoding a synthetic antibody comprising a nucleic acid sequence having at least about 95% identity over an entire length of the nucleic acid sequence selected from the group consisting of:

(a) a nucleic acid sequence as set forth in SEQ ID NO:67;

(b) a nucleic acid sequence as set forth in SEQ ID NO:69;

(c) a nucleic acid sequence as set forth in SEQ ID NO:71;

(d) a nucleic acid sequence as set forth in SEQ ID NO:73;

(e) a nucleic acid sequence as set forth in SEQ ID NO:75;

(f) a nucleic acid sequence as set forth in SEQ ID NO:77;

(g) a nucleic acid sequence as set forth in SEQ ID NO:65.

2. The nucleic acid molecule of claim 1, wherein the nucleic acid sequence is selected from the group consisting of:

(a) the nucleic acid sequence as set forth in SEQ ID NO:67;

(b) the nucleic acid sequence as set forth in SEQ ID NO:69;

(c) the nucleic acid sequence as set forth in SEQ ID NO:71;

(d) the nucleic acid sequence as set forth in SEQ ID NO:73;

(e) the nucleic acid sequence as set forth in SEQ ID NO:75;

(f) the nucleic acid sequence as set forth in SEQ ID NO:77; and

(g) the nucleic acid sequence as set forth in SEQ ID NO:65.

3. A nucleic acid molecule encoding a synthetic antibody comprising a nucleic acid sequence encoding a protein having at least about 95% identity over an entire length of the amino acid sequence selected from the group consisting of:

(a) an amino acid sequence as set forth in SEQ ID NO:68;

(b) an amino acid sequence as set forth in SEQ ID NO:70;

(c) an amino acid sequence as set forth in SEQ ID NO:72;

(d) an amino acid sequence as set forth in SEQ ID NO:74;

(e) an amino acid sequence as set forth in SEQ ID NO:76;

(f) an amino acid sequence as set forth in SEQ ID NO:78; and

(g) an amino acid sequence as set forth in SEQ ID NO:66.

4. The nucleic acid molecule of claim 3, wherein the nucleic acid encodes a protein having the amino acid sequence selected from the group consisting of:

(a) an amino acid sequence as set forth in SEQ ID NO:68;

(b) an amino acid sequence as set forth in SEQ ID NO:70;
(c) an amino acid sequence as set forth in SEQ ID NO:72;
(d) an amino acid sequence as set forth in SEQ ID NO:74;
(e) an amino acid sequence as set forth in SEQ ID NO:76;
(f) an amino acid sequence as set forth in SEQ ID NO:78; and
(g) an amino acid sequence as set forth in SEQ ID NO:66.

5. The nucleic acid molecule of claim 1, wherein the nucleic acid sequence encodes a light chain polypeptide, a heavy chain polypeptide, both a light chain polypeptide and a heavy chain polypeptide, or fragments thereof.

6. The nucleic acid molecule of claim 5, wherein when the nucleic acid sequence encodes a light chain polypeptide and a heavy chain polypeptide, the nucleic acid sequence also encodes a protease cleavage site.

7. The nucleic acid molecule of claim 6, wherein the protease cleavage site is located between the light chain polypeptide and the heavy chain polypeptide and wherein the protease cleavage site includes a furin cleavage site and 2A peptide sequence.

8. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule further encodes an immunoglobulin (Ig) signal peptide.

9. The nucleic acid molecule of claim 8, wherein the Ig signal peptide comprises an IgE signal peptide.

10. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule comprises an expression vector.

11. A composition comprising the nucleic acid molecule of claim 1.

12. The composition of claim 11 further comprising a pharmaceutically acceptable excipient.

13. A method of preventing a disease in a subject in need thereof, the method comprising administering the nucleic acid molecule of claim 1.

14. The method of claim 13, wherein the disease is infection by Chikungunya virus (CHIKV) or Dengue virus (DENV).

15. The method of claim 14, wherein when the disease is infection by CHIKV, the nucleic

acid sequence is the nucleic acid sequence as set forth in SEQ ID NO:65.

16. The method of claim 14, wherein when the disease is infection by DENV, the nucleic acid sequence is selected from the group consisting of:

(a) the nucleic acid sequence as set forth in SEQ ID NO:67;

(b) the nucleic acid sequence as set forth in SEQ ID NO:69;

(c) the nucleic acid sequence as set forth in SEQ ID NO:71;

(d) the nucleic acid sequence as set forth in SEQ ID NO:73;

(e) the nucleic acid sequence as set forth in SEQ ID NO:75; and

(f) the nucleic acid sequence as set forth in SEQ ID NO:77.

17. The method of claim 14, wherein when the disease is infection by CHIKV, the amino acid sequence is the amino acid sequence as set forth in SEQ ID NO:66.

18. The method of claim 14, wherein when the disease is infection by DENV, the amino acid sequence is selected from the group consisting of:

(a) the amino acid sequence as set forth in SEQ ID NO:68;

(b) the amino acid sequence as set forth in SEQ ID NO:70;

(c) the amino acid sequence as set forth in SEQ ID NO:72;

(d) the amino acid sequence as set forth in SEQ ID NO:74;

(e) the amino acid sequence as set forth in SEQ ID NO:76; and

(f) the amino acid sequence as set forth in SEQ ID NO:78.

19. The method of claim 13, wherein administering includes at least one of electroporation and injection.

20. A method of treating a disease in a subject in need thereof, the method comprising administering the nucleic acid molecule of claim 1 to the subject.

21. The method of claim 20, wherein the disease is infection by Chikungunya virus (CHIKV) or Dengue virus (DENV).

22. The method of claim 21, wherein when the disease is infection by CHIKV, the nucleic acid sequence is the nucleic acid sequence as set forth in SEQ ID NO:65.

23. The method of claim 21, wherein when the disease is infection by DENV, the nucleic acid sequence is selected from the group consisting of:

(a) the nucleic acid sequence as set forth in SEQ ID NO:67;

(b) the nucleic acid sequence as set forth in SEQ ID NO:69;

(c) the nucleic acid sequence as set forth in SEQ ID NO:71;

(d) the nucleic acid sequence as set forth in SEQ ID NO:73;

(e) the nucleic acid sequence as set forth in SEQ ID NO:75; and

(f) the nucleic acid sequence as set forth in SEQ ID NO:77.

24. The method of claim 21, wherein when the disease is infection by CHIKV, the amino acid sequence is the nucleic acid sequence as set forth in SEQ ID NO:66.

25. The method of claim 21, wherein when the disease is infection by DENV, the amino acid sequence is selected from the group consisting of:

(a) the amino acid sequence as set forth in SEQ ID NO:68;

(b) the amino acid sequence as set forth in SEQ ID NO:70;

(c) the amino acid sequence as set forth in SEQ ID NO:72;

(d) the amino acid sequence as set forth in SEQ ID NO:74;

(e) the amino acid sequence as set forth in SEQ ID NO:76; and

(f) the amino acid sequence as set forth in SEQ ID NO:78.

26. The method of claim 20, wherein administering includes at least one of electroporation and injection.

27. A method of generating an anti-CHIKV synthetic antibody or anti-DENV synthetic antibody in a cell, the method comprising administering to the cell a composition comprising a recombinant nucleic acid sequence encoding an anti-CHIKV or anti-DENV antibody or an antigen binding fragment thereof, wherein the recombinant nucleic acid sequence is expressed in the cell to generate the synthetic antibody,

wherein the anti-CHIKV or anti-DENV antibody comprises an amino acid sequence having at least about 95% identity over an entire length of the amino acid sequence selected from the group consisting of:

(a) an amino acid sequence as set forth in SEQ ID NO:68;

(b) an amino acid sequence as set forth in SEQ ID NO:70;

(c) an amino acid sequence as set forth in SEQ ID NO:72;

(d) an amino acid sequence as set forth in SEQ ID NO:74;

(e) an amino acid sequence as set forth in SEQ ID NO:76;

(f) an amino acid sequence as set forth in SEQ ID NO:78; and

(g) an amino acid sequence as set forth in SEQ ID NO:66.

28. The method of claim 27, wherein the anti-CHIKV or anti-DENV antibody comprises an amino acid sequence selected from the group consisting of

(a) an amino acid sequence as set forth in SEQ ID NO:68;

(b) an amino acid sequence as set forth in SEQ ID NO:70;

(c) an amino acid sequence as set forth in SEQ ID NO:72;

(d) an amino acid sequence as set forth in SEQ ID NO:74;

(e) an amino acid sequence as set forth in SEQ ID NO:76;

(f) an amino acid sequence as set forth in SEQ ID NO:78; and

(g) an amino acid sequence as set forth in SEQ ID NO:66.

29. The method of claim 27, wherein the recombinant nucleic acid sequence comprises a nucleic acid sequence having at least about 95% identity over an entire length of the nucleic acid sequence selected from the group consisting of:

(a) a nucleic acid sequence as set forth in SEQ ID NO:69;

(b) a nucleic acid sequence as set forth in SEQ ID NO:71;

(c) a nucleic acid sequence as set forth in SEQ ID NO:73;

(d) a nucleic acid sequence as set forth in SEQ ID NO:75;

(e) a nucleic acid sequence as set forth in SEQ ID NO:77; and

(f) a nucleic acid sequence as set forth in SEQ ID NO:65.

30. The method of claim 29, wherein the recombinant nucleic acid sequence comprises a nucleic acid sequence selected from the group consisting of:

(a) the nucleic acid sequence as set forth in SEQ ID NO:67;

(b) the nucleic acid sequence as set forth in SEQ ID NO:69;

(c) the nucleic acid sequence as set forth in SEQ ID NO:71;

(d) the nucleic acid sequence as set forth in SEQ ID NO:73;

(e) the nucleic acid sequence as set forth in SEQ ID NO:75;

(f) the nucleic acid sequence as set forth in SEQ ID NO:77; and

(g) the nucleic acid sequence as set forth in SEQ ID NO:65.

31. A composition comprising two or more recombinant nucleic acid sequences, wherein each recombinant nucleic acid sequence encodes an antibody, wherein the antibody comprises an amino acid sequence having at least about 95% identity over an entire length of an amino acid sequence selected from the group consisting of:

(a) an amino acid sequence as set forth in SEQ ID NO:68;

(b) an amino acid sequence as set forth in SEQ ID NO:70;

(c) an amino acid sequence as set forth in SEQ ID NO:72;

(d) an amino acid sequence as set forth in SEQ ID NO:74;

(e) an amino acid sequence as set forth in SEQ ID NO:76;

(f) an amino acid sequence as set forth in SEQ ID NO:78.