CLAIMS

1. A vaccine composition comprising a flavivirus peptide comprising one or more of the CD8+ T cell epitopes set out in SEQ ID NOs: 1 to 11, in which the flavivirus peptide is attached to a nanoparticle.

2. A vaccine composition according to Claim 1, in which the nanoparticle is a gold nanoparticle, a calcium phosphate nanoparticle, or a silicon nanoparticle, optionally in which the gold nanoparticle is coated with alpha-galactose and/or beta-GlcNHAc.

3. A vaccine composition according to Claim 1 or 2, in which the flavivirus peptide is attached to the nanoparticle via a linker.

4. A vaccine composition according to any preceding claim, which comprises two or more flavivirus peptides each comprising a different CD8+ T cell epitope, optionally in which each of the two or more flavivirus peptides comprises a CD8+ T cell epitope set out in SEQ ID NOs: 1 to 11.

5. A vaccine composition according to Claim 4, in which each of the two or more flavivirus peptides is attached to a nanoparticle.

6. A vaccine composition according to any preceding claim, comprising at least two flavivirus peptides comprising (i) a CD8+ T cell epitope, each of which interacts with a different HLA supertype; and/or (ii) at least one flavivirus peptide comprising a CD8+ T cell epitope that interacts with at least two different HLA supertypes.

7. A vaccine composition according to Claim 6, in which the at least two different HLA supertypes are selected from HLA-A1, HLA-A2, HLA-A3, HLA-A24, HLA-B7, HLA-B8, HLA-B27, HLA-B44, HLA-B58 and HLA-B62.

8. A vaccine composition according to Claim 7, in which the at least two different HLA supertypes are HLA-A2 and HLA-A24.

9. A vaccine composition according to any preceding claim, in which the CD8+ T cell epitope is conserved between flaviviruses.

10. A vaccine composition according to any preceding claim, in which the CD8+ T cell epitope is conserved between Zika viruses, West Nile viruses and/or Dengue viruses.

11. A vaccine composition according to any preceding claim, comprising a peptide comprising a CD4+ T cell epitope, optionally in which the CD4+ T cell epitope interacts with all HLA class II types.

12. A vaccine composition according to Claim 11, in which the CD4+ T cell epitope comprises the sequence set out in SEQ ID NO: 12 or 13.

13. A vaccine composition comprising (a) a polynucleotide that encodes a flavivirus peptide comprising one or more of the CD8+ T cell epitopes set out in SEQ ID NOs: 1 to 11, or (b) the full complement of a polynucleotide that encodes a flavivirus peptide comprising one or more of the CD8+ T cell epitopes set out in SEQ ID NOs: 1 to 11, in which the flavivirus peptide is attached to a nanoparticle.

14. A vaccine composition according to any preceding claim for use in a method of preventing or treating a flavivirus infection in a subject, in which the vaccine composition is to be administered to a subject infected with, or at risk of being infected with, a flavivirus.

15. A vaccine composition for use according to Claim 14, in which the flavivirus infection is a Zika virus infection, West Nile virus infection and/or Dengue virus infection, optionally in which:

(I) the Zika virus infection is an African Zika virus or an Asian Zika virus infection; and/or

(II) the Dengue virus infection is a Dengue virus 1, Dengue virus 2, Dengue virus 3, or Dengue virus 4 infection.

CLAIMS

1. A vaccine composition comprising a flavivirus peptide attached to a gold nanoparticle, in which:

(i) the flavivirus peptide is 8 to 30 amino acids in length, and comprises one or more of the CD8+ T cell epitopes set out in SEQ ID NOs: 1 to 11; and

(ii) the gold nanoparticle is coated with beta-GlcNHAc.

2. A vaccine composition according to Claim 1, in which the gold nanoparticle is coated with alpha-galactose and beta-GlcNHAc.

3. A vaccine composition according to Claim 1 or 2, in which the flavivirus peptide is attached to the nanoparticle via a linker.

4. A vaccine composition according to Claim 1, 2 or 3, in which the flavivirus peptide comprises one or more of the CD8+ T cell epitopes set out in SEQ ID NOs: 8 to 11.

5. A vaccine composition according to any preceding claim, which comprises two or more flavivirus peptides each of 8 to 30 amino acids in length, and comprising a different CD8+ T cell epitope.

6. A vaccine composition according to Claim 5, in which each of the two or more flavivirus peptides comprises a CD8+ T cell epitope set out in one of SEQ ID NOs: 1 to 11.

7. A vaccine composition according to Claim 5 or 6, in which each of the two or more flavivirus peptides is attached to a gold nanoparticle coated with alpha-galactose and/or beta-GlcNHAc.

8. A vaccine composition according to any preceding claim, comprising at least two flavivirus peptides comprising (i) a CD8+ T cell epitope, each of which interacts with a different HLA supertype; and/or (ii) at least one flavivirus peptide comprising a CD8+ T cell epitope that interacts with at least two different HLA supertypes.

9. A vaccine composition according to Claim 8, in which the at least two different HLA supertypes are selected from HLA-A1, HLA-A2, HLA-A3, HLA-A24, HLA-B7, HLA-B8, HLA-B27, HLA-B44, HLA-B58 and HLA-B62.

10. A vaccine composition according to Claim 9, in which the at least two different HLA supertypes are HLA-A2 and HLA-A24.

11. A vaccine composition according to any preceding claim, in which the CD8+ T cell epitope is conserved between flaviviruses.

12. A vaccine composition according to any preceding claim, in which the CD8+ T cell epitope is conserved between Zika viruses, West Nile viruses and/or Dengue viruses.

13. A vaccine composition according to any preceding claim, comprising a peptide comprising a CD4+ T cell epitope, optionally in which the CD4+ T cell epitope interacts with all HLA class II types.

14. A vaccine composition according to Claim 13, in which the CD4+ T cell epitope comprises the sequence set out in SEQ ID NO: 12 or 13.

15. A vaccine composition according to any preceding claim for use in a method of preventing or treating a flavivirus infection in a subject, in which the vaccine composition is to be administered to a subject infected with, or at risk of being infected with, a flavivirus.

16. A vaccine composition for use according to Claim 15, in which the flavivirus infection is a Zika virus infection, West Nile virus infection and/or Dengue virus infection, optionally in which:

(I) the Zika virus infection is an African Zika virus or an Asian Zika virus infection; and/or

(II) the Dengue virus infection is a Dengue virus 1, Dengue virus 2, Dengue virus 3, or Dengue virus 4 infection.