CLAIMS:

1. A polypeptide composition comprising one or more polypeptides, which polypeptides are immunogenic in a vertebrate such that they cause the vertebrate to produce immune system cells capable of recognising at least one epitope from an arthropod saliva protein fraction, wherein the arthropod saliva protein fraction has a mass of 40kDa or less, and wherein the polypeptides are selected independently from:

(a) the polypeptide sequences of SEQ ID 1-44 or sub-sequences from these sequences, the sub-sequences having 7 amino acids or more:

SEQ ID 1 HLTLFTVAVLLLAAAALLLLLPPAYSTTLTPP
SEQ ID 2 PLSYCHLFLTHTLARALSFSRSDCL
SEQ ID 3 KNVFFALLLVVLVCCLVSVQGNEI
SEQ ID 4 KLLVLLICLFFYHTHCTTAYLWLAMGV
SEQ ID 5 FLKGSFPRFQMCVMLIGFFSSAKCL
SEQ ID 6 NDYQALLGLCCPWIDLAAADLPMRRHAKA
SEQ ID 7 FYSVGKLVKVLLVMAVCCLLLCTAPTGADPL
SEQ ID 8 MKFAFAFVLIALFAVFAVSQALPQPEQAAA
SEQ ID 9 DGASAITKIVLELTPEQAAAV
SEQ ID 10 TLFIFLVCCQIPLFGIMSSDSADPFYWIRVILA
SEQ ID 11 GRVMCLLRLMSTLLVVLSIVGK
SEQ ID 12 LYSGYRLLVLLVMTVCCLLLFIAPTGADPLPGQTQRTL
SEQ ID 13 MYCVIKGKTGGYCNSEGLCTCRAEDLHFLLKPIINKD
SEQ ID 14 NAEDPRTELIGCGSVLFHLAANRLSLQLEEFAVCKR
SEQ ID 15 ALIGLLLCSVQSVTANDPVDALGACSGNLFGLLMTRL
SEQ ID 16 SKLFVLAFLCLALVVVVQSAPQYARGDVPT
SEQ ID 17 SMLVAFATLSVALVVVVAIPANFNYGGGGGYFINGTGQ
SEQ ID 18 IYEKLPAYLSEVSARVNVLQVSLQHDLPNLQ
SEQ ID 19 EMKLAKVALVTISLWFMAWTPYLVINFTGI
SEQ ID 20 LLPAKVIPDKTAAYVAYGGQETLVEHVEVLV
SEQ ID 21 FYTCFLGTSSLAGFKNAVDYDELLKAG

SEQ ID 22 VLEVLGFVEDNGELVFQELLGVLKMVDPDGD

SEQ ID 23 KLTPTVVVVLLCLTFVADALTIQELRAQIAQQRIQQRYGVTVATT

SEQ ID 24 SLSDYGLIELKEHCLECCQKDTEADSKLKVYPAAVLEV

SEQ ID 25 TYICFILHGVSEIIPQQQKKTMKFLLLVASVLCLVLI

SEQ ID 26 RYFVVIALICPLIIVETLAV

SEQ ID 27 LLLYLDAADLRRALHQYQLLAAQGDRHLPQQIVKFV

SEQ ID 28 VLLTPALQAYIMDEHNLNRSNIALGRIRPYPSAVKMP

SEQ ID 29 VLKGETHKALKLKDGGHYLVEFKSIYM

SEQ ID 30 VLHSMLVNASLAEMVKESYQTHGADGRMVVRMLKFVRLLP

SEQ ID 31 RVRALRALLETLLQHQGEQNNDVYLIRLAHET

SEQ ID 32 ELQQALSSLNAGSGSCAEVFNAYLPVHNKYIGVSRKI

SEQ ID 33 KFYRLISTLLVVVVIAPRHQCSPFFFQYNRPYL

SEQ ID 34 NYVPDVSALEQDIIEVDPETKEMLKHLDFNNIVVQL

SEQ ID 35 QYSMECLEAAEPKYLDGLKTLADETAQC

SEQ ID 36 EYAQVTKMLGNGRLEAMCFDGVKRLCHIRGKL

SEQ ID 37 KLFLTLLSTLSVAMVFALPAHHHSRG

SEQ ID 38 ELEEARLVAEELEERQQELDYLKRYLVGRLQAV

SEQ ID 39 SYFLTVCLLALVQSETVQD

SEQ ID 40 AMTNANLVGLTISLAYAIFFLLYTPPTGRSS

SEQ ID 41 SFAWLLYGIILRSNFLVVQNLMALALSAVQLSLFII

SEQ ID 42 AFPFISGFLSCFMWLKYGVLTEESTLILVNFIGSAL

SEQ ID 43 GLLCCCLAVLFFASPLTMLAHVIR

SEQ ID 44 LLLAMVLLPLLLLESVVPYAAAEKVW

(b) the sequences defined by the following amino acid residues of an arthropod saliva protein, or sub-sequences from these sequences, the sub-sequences having 7 amino acids or more:

residues 2-33 of >gi|18389913|gb|AAL68793.1|AF457563_1 hypothetical protein 16 [Anopheles gambiae]

residues 2-26 of >gi|18389909|gb|AAL68791.1|AF457561_1 hypothetical protein 14 [Anopheles gambiae]

residues 2-25 of >gi|18389907|gb|AAL68790.1|AF457560_1 hypothetical protein 13 [Anopheles gambiae]

residues 10-36 of >gi|18389903|gb|AAL68788.1|AF457558_1 hypothetical protein 11 [Anopheles gambiae]

residues 2-26 of >gi|62546227|gb|AAX86005.1| hyp3.5 precursor [Anopheles gambiae]

residues 14-42 of gi|18389899|gb|AAL68786.1|AF457556_1 salivary gland 7-like protein [Anopheles gambiae]

residues 3-33 of >gi|18389911|gb|AAL68792.1|AF457562_1 hypothetical protein 15 [Anopheles gambiae]

residues 1-30 of >gi|62546225|gb|AAX86004.1| hyp6.3 precursor [Anopheles gambiae]

residues 34-54 of >gi|62546225|gb|AAX86004.1| hyp6.3 precursor [Anopheles gambiae]

residues 38-70 of >gi|17026153|emb|CAD12038.1| Sec61 protein [Anopheles gambiae]

residues 2-23 of >gi|62546223|gb|AAX86003.1| hyp6.2 precursor [Anopheles gambiae]

residues 17-54 of >gi|18389915|gb|AAL68794.1|AF457564_1 hypothetical protein 17 [Anopheles gambiae]

residues 57-93 of >gi|87080391|gb|ABD18596.1| defensin [Anopheles gambiae]

residues 22-57 of >gi|18389901|gb|AAL68787.1|AF457557_1 hypothetical protein 10 [Anopheles gambiae]

residues 7-43 of >gi|18389905|gb|AAL68789.1|AF457559_1 hypothetical protein 12 [Anopheles gambiae]

residues 3-32 of >gi|4127344|emb|CAA76832.1| cE5 protein [Anopheles gambiae]

residues 3-40 of >gi|4210617|emb|CAA10259.1| SG2 protein [Anopheles gambiae]

residues 91-121 of >gi|4127309|emb|CAA76820.1| hypothetical protein [Anopheles gambiae]

residues 65-94 of >gi|4375824|emb|CAA76825.1| opsin [Anopheles gambiae]

residues 41-71 of >gi|62546233|gb|AAX86008.1| unknown [Anopheles gambiae]

residues 117-143 of >gi|3378531|emb|CAA03872.1| D7r2 protein [Anopheles gambiae]

residues 63-93 of >gi|3378529|emb|CAA03871.1| D7r3 protein [Anopheles gambiae]

residues 23-67 of >gi|18389893|gb|AAL68783.1|AF457553_1 mucin-like protein [Anopheles gambiae]

residues 43-80 of >gi|18389881|gb|AAL68777.1|AF457547_1 selenoprotein [Anopheles gambiae]

residues 6-42 of >gi|18389879|gb|AAL68776.1|AF457546_1 30 kDa protein [Anopheles gambiae]

residues 4-23 of >gi|18378603|gb|AAL68639.1|AF458073_1 D7-related 5 protein [Anopheles gambiae]

residues 20-55 of >gi|18389897|gb|AAL68785.1|AF457555_1 salivary gland 1-like 4 protein [Anopheles gambiae]

residues 59-95 of >gi|18389883|gb|AAL68778.1|AF457548_1 antigen 5-related 1 protein [Anopheles gambiae]

residues 158-184 of >gi|83016748|dbj|BAE53441.1| DsRed [synthetic construct]

residues 37-76 of >gi|18389895|gb|AAL68784.1|AF457554_1 salivary gland 1-like 3 protein [Anopheles gambiae]

residues 191-222 of >gi|18389895|gb|AAL68784.1|AF457554_1 salivary gland 1-like 3 protein [Anopheles gambiae]

residues 113-149 of >gi|18389891|gb|AAL68782.1|AF457552_1 D7 protein long form [Anopheles gambiae]

residues 1-37 of >emb|CAC35527.1| gSG9 protein [Anopheles gambiae]

residues 81-120 of >sp|Q9U9L1|RS17_ANOGA 40S ribosomal protein S17

residues 111 to 142 of >emb|CAC35523.1| gSG7 protein [Anopheles gambiae]

residues 32-67 of >gb|AAD47075.1|AF164151_1 translation initiation factor 4C (1A) [Anopheles gambiae]

residues 1-29 of >emb|CAC35519.1| gSG2-like protein [Anopheles gambiae]

residues 106-142 of >emb|CAC35451.1| hypothetical protein [Anopheles gambiae]

residues 6-28 of > emb|CAC35524.1| D7r4 protein [Anopheles gambiae]

residues 70-104 of >ref|XP_001230998.1| ENSANGP00000014906 [Anopheles gambiae str. PEST]

residues 174-213 of >ref|XP_316361.2| ENSANGP00000012984 [Anopheles gambiae str. PEST]

residues 41-80 of >ref|XP_314140.3| ENSANGP00000015780 [Anopheles gambiae str. PEST]

residues 126-153 of >ref|XP_314140.3| ENSANGP00000015780 [Anopheles gambiae str. PEST]

residues 5-34 of >emb|CAC35522.1| gSG6 protein [Anopheles gambiae]

(c) or from polypeptide sequences having 85% homology or more with one or more of the sequences in (a) or (b) and contained in one or more of the following databases: GenBank, Protein Data Bank (PDB), SwissProt, Protein Information Resource (PIR), Protein Research Foundation (PRF), or CDS translations of these.

2. A polypeptide composition according to claim 1, wherein the polypeptides are selected independently from SEQ ID 1-6, 20, 28, 30-32 and 35, or sub-sequences from these sequences, the sub-sequences having 7 amino acids or more, or from polypeptide sequences having 85% homology or more with one of these sequences and contained in one or more of the following databases: GenBank, Protein Data Bank (PDB), SwissProt, Protein Information Resource (PIR), Protein Research Foundation (PRF), or CDS translations of these.

3. A polypeptide composition according to claim 1 or claim 2, which composition comprises 2 or more polypeptides, preferably from 2 to 12 polypeptides, or more preferably from 2-6 polypeptides.

4. A polypeptide composition according to any preceding claim, wherein the arthropod saliva protein fraction has a mass of from 20kDa to 40kDa, or has a mass of 20kDa or less.

5. A polypeptide composition according to any preceding claim, wherein the one or more polypeptides are cytotoxic T lymphocyte (CTL) epitopes, and/or the one or more polypeptides are T helper lymphocyte (Th) epitopes, and/or the one or more polypeptides are B lymphocyte epitopes.

6. A polypeptide composition according to any preceding claim, comprising 2, 3, 4, 5, 6 or more epitopes.

7. A polypeptide according to any preceding claim, which is immunogenic against a plurality of arthropod salivary proteins.

8. A polypeptide composition according to any preceding claim, wherein the arthropod saliva protein fraction is a mosquito saliva protein fraction from any mosquito species, preferably from anopheles gambiae.

9. A polypeptide composition according to any preceding claim, further comprising one or more further sequences from an arthropod salivary protein.

10. A polypeptide composition according to any preceding claim, wherein the sub-sequence comprises 8, 9, 10, or 11 amino acids or more.

11. A polypeptide composition according to any preceding claim, wherein each polypeptide comprises no more than 100 amino acids, preferably from 15-75 amino acid residues, and more preferably from 17-55 amino acid residues.

12. A polypeptide composition according to any preceding claim, consisting substantially of one ore more polypeptides having a sequence from the sequences SEQ ID 1-44.

13. A polypeptide composition according to any preceding claim, in which polypeptides having sequences of SEQ ID 1-6 are all present, and/or in which polypeptides having sequences of SEQ ID 20, 28, 30-32 and 35 are all present.

14. A polypeptide composition, as defined in any preceding claim for use in medicine.

15. A polypeptide composition, as defined in any preceding claim for veterinary use.

16. A method of producing a polypeptide composition as defined in any preceding claim, which method comprises mixing or combining one or more polypeptides as defined in any preceding claim with one or more further polypeptides as defined in any preceding claim, and/or with one or more further components, such as a carrier, an excipient, an adjuvant, a buffer, or a stabiliser.

17. A polypeptide construct, which construct comprises a polypeptide composition as defined in any of claims 1-15 and a carrier.

18. A method of producing a polypeptide construct as defined in claim 17, which method comprises attaching, combining or mixing a polypeptide composition as defined in any of claims 1-15 with the carrier.

19. A polypeptide construct or a method according to claim 17 or claim 18, wherein the carrier comprises an adjuvant and/or an excipient.

20. A nucleic acid construct comprising one or more nucleic acids comprising the coding sequence of the one or more polypeptides in the polypeptide composition as defined in any of claims 1-15.

21. A nucleic acid construct according to claim 20, which is a DNA or RNA construct.

22. A nucleic acid construct according to claim 20 or claim 21, which comprises a plasmid or a recombinant virus.

23. A medicament or vaccine composition against an arthropod borne disease, comprising a polypeptide composition, polypeptide construct, or nucleic acid construct as defined in any of claims 1-15, 17, and 19-22 and optionally an appropriate excipient and/or adjuvant.

24. A method of producing a medicament or vaccine composition as defined in claim 23, which method comprises attaching, combining or mixing a polypeptide composition, a polypeptide construct and/or a nucleic acid construct, as defined in any of claims 1-15, 17 and 19-22 with an appropriate excipient and/or adjuvant.

25. Use of a polypeptide composition, a polypeptide construct, a nucleic acid construct, or a medicament or vaccine composition as defined in any of claims 1-15, 17 and 19-23 in the manufacture of a medicament or vaccine, effective in the treatment or prevention of an arthropod borne disease.

26. A method of treating or preventing an arthropod borne disease, which method comprises administering a polypeptide composition, a polypeptide construct, a nucleic acid construct, or a medicament or vaccine composition, as defined in any of claims -15, 17 and 19-23 to a vertebrate.

27. A method according to claim 26, wherein the vertebrate is selected from a mammal, a bird, a reptile and a fish, and preferably from a human, a domestic animal, or a farm animal, a bovine animal, or a fowl.

28. A polypeptide composition, polypeptide construct, nucleic acid construct, method, medicament, vaccine or use according to any preceding claim, wherein the arthropod is a hematophagous arthropod.

29. A polypeptide composition, polypeptide construct, nucleic acid construct, method, medicament, vaccine or use according to claim 28, wherein the hematophagous arthropod is selected from mosquitoes, ticks, sandflies, mites, and fleas.

30. A medicament, vaccine composition, method, or use according to any of claims 23-29, wherein the arthropod borne disease is a disease selected from malaria, filariasis, trypanosomiasis, leishmaniasis, onchocerciasis, dengue, lyme disease, tularaemia, relapsing fever, typhus, plague, yellow fever, rift valley fever, and encephalitis, such as St. Louis encephalitis, west Nile fever, eastern equine encephalitis, La Crosse encephalitis and eastern equine encephalitis.

31. A polypeptide composition, polypeptide construct, nucleic acid construct, method, medicament, vaccine or use according to any preceding claim, wherein the arthropod is selected from *Anopheles sp., Aedes sp., Culex sp., Mansonia sp., Chrysops sp., Simulium sp., Triatoma sp., Rhodnius sp., Panstrongylus sp., Glossina sp., Tabanus sp., Phlebotomus sp., Lutzomyia sp., Pediculus sp, Ornithodoros sp., Ixodes sp., Pediculus sp., Pulex sp., Hemagogous spegazzani., Ochlerotatus sp.,* and *Coquillettidia sp.*

Claims

1. A polypeptide having 23 to 50 amino acids, which polypeptide comprises one or more sequences of SEQ ID NO: 35, a sequence having 85% or more identity with SEQ ID NO: 35, or one or more epitopes having 23 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 35 that has the same length as the epitope,

   wherein the polypeptide is immunogenic in a vertebrate expressing a major histocompatibility complex (MHC) allele.

2. The polypeptide according to Claim 1, which polypeptide comprises one or more sequences of SEQ ID NO: 35 or a sequence having 85% or more identity with SEQ ID NO: 35.

3. The polypeptide according to Claim 2, which polypeptide comprises one or more sequences of SEQ ID NO: 35.

4. The polypeptide according to any one of Claims 1-2, wherein the identity is 95% or more.

5. The polypeptide according to any one of Claims 1-4, which polypeptide is SEQ ID NO: 35 or SEQ ID NO: 35 having from 1-5 further amino acids at each terminus of SEQ ID NO: 35.

6. The polypeptide according to any one of Claims 1-3, which polypeptide is SEQ ID NO: 120.

7. The polypeptide according to any one of Claims 1-6, comprising 2 or more epitopes.

8. The polypeptide according to any of Claims 1-7, wherein the epitope comprises 8, 9, 10 or 11 amino acids or more.

9. The polypeptide according to any one of Claims 1-2, wherein the polypeptide is a sequence having 85% or more identity with SEQ ID NO: 35 or a sequence having 85% or more identity with SEQ ID NO: 35 and having from 1-5 further amino acids at each terminus of the sequence.

10. The polypeptide according to any one of Claims 1-9, which is immunogenic due to an epitope within the sequence of SEQ ID NO: 35.

11. An immunogenic multi-epitope polypeptide, which multi-epitope polypeptide comprises two or more polypeptides wherein the two or more polypeptides comprise one or more sequences according to any one of claims 1-10.

12. The immunogenic multi-epitope polypeptide according to claim 11, further comprising one or more polypeptides having 7 to 100 amino acids, which one or more polypeptides comprises SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32, a sequence having 85% or more identity with SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32, or one or more epitopes having 7 amino acids or more, each epitope having 100% or more identity with a sub sequence of SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32 that has the same length as the epitope.

13. The immunogenic multi-epitope polypeptide according to Claim 12, comprising two or more polypeptides.

14. The immunogenic multi-epitope polypeptide according to Claim 12 or Claim 13, wherein the identity is 95% or more.

15. The immunogenic multi-epitope polypeptide according to any one of Claims 11-14, wherein the one or more polypeptides have a length of 8-75 amino acid residues, 15-75 amino acid residues, 20-55 amino acid residues, or 23-50 amino acid residues.

16. A polypeptide composition comprising one or more polypeptides according to any of claims 1-15.

17. The polypeptide composition according to Claim 16, further comprising one or more polypeptides having 7 to 100 amino acids, which one or more polypeptides comprises SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32, a sequence having 85% or more identity with SEQ ID NO: 6, SEQ ID NO: 20,

SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32 that has the same length as the epitope.

18. The polypeptide composition according to Claim 17, which one or more polypeptides comprises SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32, or a sequence having 85% or more identity with SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32.

19. The polypeptide composition according to Claim 17 or Claim 18, which one or more polypeptides comprises 2, 3, 4, 5 or more epitopes.

20. The polypeptide composition according to any of Claims 17-19, wherein the epitope comprises 8, 9 10 or 11 amino acids or more.

21. The polypeptide composition according to any one of Claims 17-20, wherein the identity is 95% or more.

22. The polypeptide composition according to any one of Claims 17-21, which one or more polypeptides have a length of 8-75 amino acid residues, 15-75 amino acid residues, 20-55 amino acid residues, or 23-50 amino acid residues.

23. The polypeptide composition according to any one of Claims 17-22, wherein the one or more polypeptides are immunogenic due to an epitope within any of SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, or SEQ ID NO: 32.

24. The polypeptide composition according to any one of Claims 17-23, comprising:

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 20, a sequence having 85% or more identity with SEQ ID NO: 20, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 20 that has the same length as the epitope;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 28, a sequence having 85% or more identity with SEQ ID NO: 28, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 28 that has the same length as the epitope;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 30, a sequence having 85% or more identity with SEQ ID NO: 30, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 30 that has the same length as the epitope;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 31, a sequence having 85% or more identity with SEQ ID NO: 31, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 31 that has the same length as the epitope;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 32, a sequence having 85% or more identity with SEQ ID NO: 32, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 32 that has the same length as the epitope; and

a polypeptide of 23 to 50 amino acids and comprising one or more sequences of SEQ ID NO: 35, a sequence having 85% or more identity with SEQ ID NO: 35, or one or more epitopes having 23 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 35 that has the same length as the epitope.

25. The polypeptide composition according to Claim 24, comprising:

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 20 or a sequence having 85% or more identity with SEQ ID NO: 20;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 28 or a sequence having 85% or more identity with SEQ ID NO: 28;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID

NO: 30 or a sequence having 85% or more identity with SEQ ID NO: 30;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 31 or a sequence having 85% or more identity with SEQ ID NO: 31;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 32 or a sequence having 85% or more identity with SEQ ID NO: 32; and

a polypeptide of 23 to 50 amino acids and comprising one or more sequences of SEQ ID NO: 35 or a sequence having 85% or more identity with SEQ ID NO: 35.

26. The polypeptide composition according to Claim 25, comprising a polypeptide that is SEQ ID NO: 20, a polypeptide that is SEQ ID NO: 28, a polypeptide that is SEQ ID NO: 30, a polypeptide that is SEQ ID NO: 31, a polypeptide that is SEQ ID NO: 32 and a polypeptide that is SEQ ID NO: 35.

27. The polypeptide composition according to Claim 25, comprising a polypeptide that is SEQ ID NO: 105, a polypeptide that is SEQ ID NO: 113, a polypeptide that is SEQ ID NO: 115, a polypeptide that is SEQ ID NO: 116, a polypeptide that is SEQ ID NO: 117 and a polypeptide that is SEQ ID NO: 120.

28. The polypeptide composition according to any one of Claims 17-23, comprising:

one or more sequences of SEQ ID NO: 6, a sequence having 85% or more identity with SEQ ID NO: 6, or one or more epitopes having 7 amino acids or more, each epitope having 85% or more identity with a sub sequence of SEQ ID NO: 6 that has the same length as the epitope;

one or more sequences of SEQ ID NO: 30, a sequence having 85% or more identity with SEQ ID NO: 30, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 30 that has the same length as the epitope;

one or more sequences of SEQ ID NO: 31, a sequence having 85% or more identity with

SEQ ID NO: 31, or one or more epitopes having 7 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 31 that has the same length as the epitope; and

one or more sequences of SEQ ID NO: 35, a sequence having 85% or more identity with SEQ ID NO: 35, or one or more epitopes having 23 amino acids or more, each epitope having 100% identity with a sub sequence of SEQ ID NO: 35 that has the same length as the epitope.

29. The polypeptide composition according to Claim 28, comprising:

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 6 or a sequence having 85% or more identity with SEQ ID NO: 6;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 30 or a sequence having 85% or more identity with SEQ ID NO: 30;

a polypeptide of 7 to 100 amino acids and comprising one or more sequences of SEQ ID NO: 31 or a sequence having 85% or more identity with SEQ ID NO: 31; and

a polypeptide of 23 to 50 amino acids and comprising one or more sequences of SEQ ID NO: 35 or a sequence having 85% or more identity with SEQ ID NO: 35.

30. The polypeptide composition according to Claim 29, comprising a polypeptide that is SEQ ID NO: 6, a polypeptide that is SEQ ID NO: 30, a polypeptide that is SEQ ID NO: 31, and a polypeptide that is SEQ ID NO: 35.

31. The polypeptide composition according to Claim 29, comprising a polypeptide that is SEQ ID NO: 91, a polypeptide that is SEQ ID NO: 115, a polypeptide that is SEQ ID NO: 116 and a polypeptide that is SEQ ID NO: 120.

32. The polypeptide composition according to any one of Claims 16-31, which is immunogenic due to an epitope within the sequence of any one of SEQ ID NO: 6, SEQ ID NO: 20, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 31, SEQ ID NO: 32 or SEQ ID NO: 35.

33. A method of producing a polypeptide according to any of Claims 1-10, which method comprises combining two or more epitopes to form the polypeptide.

34. A polypeptide construct, which construct comprises a polypeptide according to any of Claims 1-10 and a carrier.

35. A method of producing a polypeptide construct according to Claim 34, which method comprises combining two or more epitopes and/or a polypeptide with the carrier.

36. A polypeptide construct according to Claim 34 or a method according to Claim 35, wherein the carrier comprises an adjuvant and/or an excipient.