Claims

1. A carrier polypeptide comprising an amino acid sequence which (i) has at least 90% sequence identity to SEQ ID NO: 1; (ii) is free from an Arg-Arg dipeptide sequence; and (iii) comprises non-natural amino acid (nnAA) residues substituted for K33, K212, K244, K264, K385, and K526 in SEQ ID NO:1.

2. The carrier polypeptide of claim 1, wherein Arg-193 of SEQ ID NO: 1 is substituted with a different amino acid, such as Asn.

3. The carrier polypeptide of claim 1 or claim 2, wherein the carrier polypeptide comprises an amino acid sequence which has at least 95%, at least 96%, at least 97% or at least 98% sequence identity to SEQ ID NO:1.

4. The carrier polypeptide of any one of claims 1-3, wherein the carrier polypeptide comprises amino acid sequence SEQ ID NO: 4.

5. The carrier polypeptide of any one of claims 1-4, wherein the nnAA residues include a functional group which is suitable for a “click” chemistry reaction with a functional group on an antigen.

6. The carrier polypeptide of any one of claims 1-5, wherein each nnAA is 2-amino-3-(4-(azidomethyl)phenyl)propanoic acid.

7. An immunogenic conjugate comprising the carrier polypeptide of any one of claims 1-6, conjugated via nnAA residues therein to an antigen.

8. The immunogenic conjugate of claim 7, wherein the antigen has an alkyne group which is conjugated to the nnAA via an azido group.

9. An immunogenic conjugate comprising the carrier polypeptide of any one of claims 4-6 and a saccharide antigen, wherein (i) the carrier polypeptide comprises amino acid sequence SEQ ID NO: 4; and (ii) the saccharide antigen is covalently bonded to the carrier polypeptide via at least one nnAA residue within SEQ ID NO: 4.

10. The immunogenic conjugate of any one of claims 7-9, wherein the antigen is a bacterial capsular saccharide; for example, a capsular saccharide from a bacterium selected

from the group consisting of *Streptococcus pneumoniae*, *Neisseria meningitidis*, *Haemophilus influenzae*, *Streptococcus pyogenes, Streptococcus agalactiae,* and *Porphyromonas gingivalis*.

11. The immunogenic conjugate of any one of claims 7-10, wherein the antigen is a capsular saccharide of a *S. pneumoniae* serotype selected from the group consisting of 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F.

12. The immunogenic conjugate of any one of claims 7-10, wherein the antigen is a capsular saccharide of a *S. pneumoniae* serotype selected from the group consisting of 6C, 7C, 15A, 15C, 16F, 20A, 20B, 23A, 23B, 24B, 31, 34, 35B, 35F, 37 and 38.

13. The immunogenic conjugate of any one of claims 7-12, wherein the conjugate has a molecular weight of at least 500kDa.

14. The immunogenic conjugate of claim 13, wherein the conjugate has a molecular weight between 900kDa and 5MDa.

15. A pharmaceutical composition comprising two or more different immunogenic conjugates according to any one of claims 7-12.

16. The pharmaceutical composition of claim 15, wherein the immunogenic conjugates are conjugates of pneumococcal serotypes, and wherein the ratio of pneumococcal saccharide to carrier polypeptide (w/w) for the composition is greater than 1.

17. The pharmaceutical composition of claim 15 or claim 16, wherein the pharmaceutical composition comprises:

conjugates of capsular saccharides from 2 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 14 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 15 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 20 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 21 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 24 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 25 or more different pneumococcal serotypes selected from the group consisting of serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 9N, 10A, 11A, 12F, 13, 14, 15B, 16, 17F, 18C, 19A, 19F, 20, 22F, 23F, 24F, 31, and 33F;

conjugates of capsular saccharides from 4 or more different meningococcal serogroups selected from the group consisting of serogroups A, C, W135, X, and Y; or

conjugates of capsular saccharides from 2 or more different *P.gingivals* serotypes selected from the group consisting of serotypes K1, K2, K3, K4, K5, and K6.

18. The use of the pharmaceutical composition according to any one of claims 15-17 in the manufacture of a medicament for eliciting a protective antibody response.

19. The immunogenic conjugate according to any one of claims 7-14, or the pharmaceutical composition according to any one of claims 15-17, for use as a medicament.