CLAIMS

1. A conjugate of a *Neisseria meningitidis* serogroup X capsular polysaccharide and a carrier molecule.

2. The conjugate of claim 1, wherein the conjugate is obtainable by a process comprising the steps of: (a) oxidising a primary hydroxyl group in the capsular polysaccharide, to give an oxidised polysaccharide with an aldehyde group; and (b) coupling the oxidised polysaccharide to a carrier molecule via the aldehyde group, thereby giving the conjugate.

3. The conjugate of claim 2, where the oxidation in step (a) is of the primary hydroxyl group on between 1-10% of the residues in the capsular polysaccharide.

4. The conjugate of claim 2 or claim 3, where the coupling in step (b) is direct.

5. The conjugate of claim 1, wherein the conjugate is obtainable by a process comprising the steps of: (a) reductive amination of the reducing terminus of the capsular polysaccharide, to give a modified polysaccharide with a primary amine group bonded to the C-1 atom of the terminal subunit by a covalent bond; and (b) coupling the modified polysaccharide to a carrier molecule via the primary amine group, thereby giving the conjugate.

6. The conjugate of claim 1, wherein the conjugate is obtainable by a process comprising the steps of: (a) reduction of the reducing terminus of the capsular polysaccharide, to give a modified polysaccharide with two vicinal hydroxyl groups at that terminus; (b) oxidative cleavage of the vicinal hydroxyl groups, to give a further modified polysaccharide with an aldehyde group at the terminus; (c) reductive amination of the aldehyde group, to give a further modified polysaccharide with a primary amine group at the terminus and (d) coupling the further modified polysaccharide to a carrier molecule via the primary amine group, thereby giving the conjugate.

7. The conjugate of claim 5 or claim 6, where the coupling in step (d) is via a linker.

8. The conjugate of any one of the preceding claims, wherein the capsular polysaccharide is an oligosaccharide.

9. The conjugate of any preceding claim, wherein the carrier molecule is a diphtheria or tetanus toxoid, CRM197 or protein D.

10. The conjugate of any one of claims 1-8, wherein the carrier molecule comprises a spr0096 antigen and a spr2021 antigen.

11. An immunogenic composition comprising a serogroup X capsular polysaccharide, particularly in the form of a conjugate as defined in any one of the preceding claims.

12. The immunogenic composition of claim 11, further comprising one or more further antigens.

13. The immunogenic composition of claim 11 or claim 22, further comprising a serogroup A capsular polysaccharide.

14. The immunogenic composition of claim 13, wherein the serogroup A capsular polysaccharide is conjugated to a carrier molecule.

15. The immunogenic composition of any one of claims 11-14, wherein the composition is in an aqueous formulation.

16. A vaccine comprising the immunogenic composition of any one of claims 11-15.

17. A method of raising an immune response in a mammal comprising administering to the mammal the immunogenic composition of any one of claims 11-15.

18. A process for preparing a conjugate of a serogroup X capsular polysaccharide and a carrier molecule, wherein the process is as defined in any one of claims 2-7.

19. The process of claim 18, wherein the conjugate is as defined in any one of claims 8-10.

20. A pharmaceutical composition comprising (a) a serogroup X capsular polysaccharide and (b) a pharmaceutically acceptable carrier, wherein the composition is in an aqueous formulation.

21. The pharmaceutical composition of claim 20, wherein the serogroup X capsular polysaccharide is in the form of a conjugate as defined in any one of claims 1-10.

22. The pharmaceutical composition of claim 20 or claim 21, further comprising one or more further antigens as defined in claim 13 or claim 14.

23. A method for assaying a sample suspected to contain serogroup X capsular polysaccharide, comprising the steps of: (i) hydrolysing any serogroup X capsular polysaccharide in the sample, to give a hydrolysate; (ii) subjecting the hydrolysate to liquid chromatography; and (iii) detecting any glucosamine-4-phosphate separated in step (ii).

24. The method of claim 23, wherein conjugated and unconjugated serogroup X capsular polysaccharide in the sample are separated from each other prior to step (i).

25. A method for analysing a specimen suspected to contain serogroup X capsular polysaccharide, wherein the total serogroup X capsular polysaccharide content is measured by the method of claim 22 or claim 23, the unconjugated serogroup X capsular polysaccharide content is measured as described in claim 24, and thus the ratio of unconjugated to total serogroup X capsular polysaccharide can be calculated.

CLAIMS

1. An invention not claimed in any divisional application.