CLAIMS

1. An immunogenic composition comprising a *Staphylococcus aureus* Type 5 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 5 capsular saccharide conjugate, wherein the *S. aureus* Type 5 capsular saccharide conjugate is administered at a saccharide dose of 3-50μg, 5-25μg, 3-20μg, 3-12μg, 5-10μg, 7-20μg, 7-15μg or 8-12μg, for use in treatment or prevention of *Staphylococcus aureus* infection in which a human patient is immunised with a single dose of the immunogenic composition.

2. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of claim 1 wherein the immunogenic composition comprises a *S. aureus* Type 8 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 8 capsular saccharide conjugate, wherein the *S. aureus* Type 8 capsular saccharide conjugate is administered at a saccharide dose of 3-50μg, 5-25μg, 3-20μg, 3-12μg, 5-10μg, 7-20μg, 7-15μg or 8-12μg.

3. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of claim 1 or 2 wherein the *S. aureus* Type 5 capsular saccharide has a molecular weight of over 25kDa, 40kDa or 50kDa or between 25-300kDa, 50-250kDa, 70-150kDa, 25-125kDa, 90-125kDa, 30-100kDa, 35-75KDa or 40-70kDa.

4. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 1-3 wherein the *S. aureus* Type 8 capsular saccharide has a molecular weight of over 25kDa, 40kDa or 50kDa or between 25-300kDa, 50-250kDa, 70-150kDa, 25-125kDa, 90-125kDa, 30-100kDa, 35-75KDa or 40-70kDa.

5. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 1-4 wherein the *S. aureus* Type 5 capsular saccharide and /or the *S. aureus* Type 8 capsular saccharide is 50-100% or 75-100% O-acetylated.

6. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 1-5 wherein the ratio of polysaccharide to protein in the *S. aureus* Type 5 capsular saccharide conjugate is between 1:5 and 5:1 (w:w) or between 1:2 and 2:1 (w/w), 1:2 to 1:5 (w/w) or 1:1 and 1:2 (w/w).

7. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 1-6 wherein the ratio of polysaccharide to protein in the *S. aureus* Type 8 capsular saccharide conjugate is between 1:5 and 5:1 (w:w) or between 1:2 and 2:1 (w/w), 1:2 to 1:5 (w/w) or 1:1 and 1:2 (w/w).

8. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of ay one of claims 1-7 wherein the same saccharide dose of *S. aureus* Type 5 capsular

saccharide and *S. aureus* Type 8 capsular saccharide is present in the immunogenic composition.

9. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 1-8 wherein the immunogenic composition further comprises a ClfA protein or fragment thereof.

10. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of claim 9 wherein the ClfA protein or fragment thereof is at least 90% identical to the polypeptide sequence of any one of SEQ ID NO:3-12 or 15-18 along the full length thereof.

11. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 9-10 wherein the ClfA protein or fragment thereof contains an amino acid substitution which reduces the ability of ClfA to bind to fibrinogen.

12. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of claim 11 wherein the ClfA protein or fragment thereof contains an amino acid substitution at at least one of amino acids Ala254, Tyr256, Pro336, Tyr338, Ile387, Lys389, Tyr474, Glu526 or Val527.

13. The immunogenic composition for use in treatment or prevention of *S. aureus* infection of any one of claims 1-12 wherein the single dose of the immunogenic composition is administered 5-60, 6-40, 7-30 or 7-15 days before a planned hospital procedure.

14. An immunogenic composition comprising a *S. aureus* Type 5 capsular saccharide conjugated to a carrier protein, a *S. aureus* Type 8 capsular saccharide conjugated to a carrier protein, a ClfA protein or fragment thereof and an alpha toxoid.

15. A process for making the immunogenic composition of claim 14 comprising the steps of a) conjugating a *S. aureus* Type 5 capsular saccharide to a carrier protein to form a *S. aureus* Type 5 capsular saccharide conjugate, b) conjugating a *S. aureus* Type 8 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 8 capsular saccharide conjugate, and c) combining the *S. aureus* Type 5 capsular saccharide conjugate, the *S. aureus* Type 8 capsular saccharide conjugate, a ClfA protein or fragment thereof and an alpha toxoid to form the immunogenic composition.

16. Use of an immunogenic composition comprising a *Staphylococcus aureus* Type 5 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 5 capsular saccharide conjugate, in the manufacture of a medicament for use in treatment or prevention of *Staphylococcus aureus* infection in which a human patient is immunised with a single dose of the immunogenic composition, wherein the *S. aureus* Type 5 capsular saccharide

~~conjugate is to be administered at a saccharide dose of 3-50μg, 5-25μg, 3-20μg, 3-12μg,~~ 5-10μg, 7-20μg, 7-15μg or 8-12μg.

17. The use of claim 16, wherein the immunogenic composition comprises a *S. aureus* Type 8 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 8 capsular saccharide conjugate, wherein the *S. aureus* Type 8 capsular saccharide conjugate is to be administered at a saccharide dose of 3-50μg, 5-25μg, 3-20μg, 3-12μg, 5-10μg, 7-20μg, 7-15μg or 8-12μg.

18. The use of claim 16 or 17, wherein the *S. aureus* Type 5 capsular saccharide has a molecular weight of over 25kDa, 40kDa or 50kDa or between 25-300kDa, 50-250kDa, 70-150kDa, 25-125kDa, 90-125kDa, 30-100kDa, 35-75KDa or 40-70kDa.

19. The use of any one of claims 16-18, wherein *S. aureus* Type 8 capsular saccharide has a molecular weight of over 25kDa, 40kDa or 50kDa or between 25-300kDa, 50-250kDa, 70-150kDa, 25-125kDa, 90-125kDa, 30-100kDa, 35-75KDa or 40-70kDa.

20. The use of any one of claims 16-19, wherein the *S. aureus* Type 5 capsular saccharide and /or the *S. aureus* Type 8 capsular saccharide is 50-100% or 75-100% O-acetylated.

21. The use of any one of claims 16-20, wherein the ratio of polysaccharide to protein in the *S. aureus* Type 5 capsular saccharide conjugate is between 1:5 and 5:1 (w:w) or between 1:2 and 2:1 (w/w), 1:2 to 1:5 (w/w) or 1:1 and 1:2 (w/w).

22. The use of any one of claims 16-21, wherein the ratio of polysaccharide to protein in the *S. aureus* Type 8 capsular saccharide conjugate is between 1:5 and 5:1 (w:w) or between 1:2 and 2:1 (w/w), 1:2 to 1:5 (w/w) or 1:1 and 1:2 (w/w).

23. The use of any one of claims 16-22, wherein the same saccharide dose of *S. aureus* Type 5 capsular saccharide and *S. aureus* Type 8 capsular saccharide is present in the immunogenic composition.

24. The use of any one of claims 16-23, wherein the immunogenic composition further comprises a ClfA protein or fragment thereof.

25. The use of claim 24, wherein the ClfA protein or fragment thereof is at least 90% identical to the polypeptide sequence of any one of SEQ ID NO:3-12 or 15-18 along the full length thereof.

26. The use of any one of claims 24-25, wherein the ClfA protein or fragment thereof contains an amino acid substitution which reduces the ability of ClfA to bind to fibrinogen.

~~27. The use of claim 26, wherein the ClfA protein or fragment thereof contains an amino acid~~ substitution at at least one of amino acids Ala254, Tyr256, Pro336, Tyr338, Ile387, Lys389, Tyr474, Glu526 or Val527.

28. The use of any one of claims 16-27, wherein the single dose of the immunogenic composition is to be administered 5-60, 6-40, 7-30 or 7-15 days before a planned hospital procedure.

CLAIMS

1. Use of an immunogenic composition comprising a *Staphylococcus aureus* Type 5 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 5 capsular saccharide conjugate and a *S. aureus* Type 8 capsular saccharide conjugated to a carrier protein to form a *S. aureus* Type 8 capsular saccharide conjugate, wherein the *S. aureus* Type 5 capsular saccharide and the *S. aureus* Type 8 capsular saccharide are 75-100% O-acetylated, and wherein the same saccharide dose of *S. aureus* Type 5 capsular saccharide and *S. aureus* Type 8 capsular saccharide is present in the immunogenic composition, in the manufacture of a medicament for use in treatment or prevention of *Staphylococcus aureus* infection in which a human patient is to be immunised with a single dose of the immunogenic composition, wherein the *S. aureus* Type 5 and Type 8 capsular saccharide conjugates are to be administered at a saccharide dose of 3-20μg.

2. The use of claim 1 , wherein the *S. aureus* Type 5 capsular saccharide has a molecular weight of over 25kDa, 40kDa or 50kDa or between 25-300kDa, 50-250kDa, 70-150kDa, 25-125kDa, 90-125kDa, 30-100kDa, 35-75KDa or 40-70kDa.

3. The use of any one of claims 1-2, wherein *S. aureus* Type 8 capsular saccharide has a molecular weight of over 25kDa, 40kDa or 50kDa or between 25-300kDa, 50-250kDa, 70-150kDa, 25-125kDa, 90-125kDa, 30-100kDa, 35-75KDa or 40-70kDa.

4. The use of any one of claims 1-3, wherein the ratio of polysaccharide to protein in the *S. aureus* Type 5 capsular saccharide conjugate is between 1:5 and 5:1 (w:w) or between 1:2 and 2:1 (w/w), 1:2 to 1:5 (w/w) or 1:1 and 1:2 (w/w).

5. The use of any one of claims 1-4, wherein the ratio of polysaccharide to protein in the *S. aureus* Type 8 capsular saccharide conjugate is between 1:5 and 5:1 (w:w) or between 1:2 and 2:1 (w/w), 1:2 to 1:5 (w/w) or 1:1 and 1:2 (w/w).

6. The use of any one of claims 1-5, wherein the immunogenic composition further comprises a ClfA protein or fragment thereof comprising a N2 domain.

7. The use of claim 6, wherein the ClfA protein or fragment thereof is at least 90% identical to the polypeptide sequence of any one of SEQ ID NO:3-12 or 15-18 along the full length thereof.

8. The use of any one of claims 6-7, wherein the ClfA protein or fragment thereof contains an amino acid substitution which reduces the ability of ClfA to bind to fibrinogen.

9. The use of claim 8, wherein the ClfA protein or fragment thereof contains an amino acid substitution at least one of amino acids Ala254, Tyr256, Pro336, Tyr338, Ile387, Lys389, Tyr474, Glu526 or Val527.

10. The use of any one of claims 1-9, wherein the single dose of the immunogenic composition is to be administered 5-60, 6-40, 7-30 or 7-15 days before a planned hospital procedure.