CLAIMS:

1. An immunogenic composition comprising at least one unconjugated *Streptococcus pneumoniae* protein selected from: pneumolysin and member(s) of the Polyhistidine Triad family; and an adjuvant comprising QS21, monophosphoryl lipid A (MPL), dioleoylphosphatidylcholine (DOPC) and sterol, presented in the form of a liposome.

2. An immunogenic composition as defined in claim 1 wherein the ratio of *Streptococcus pneumoniae* protein: monophosphoryl lipid A (MPL) is 0.05:1 to 3:1 (w/w).

3. An immunogenic composition as defined in claims 1-2 wherein the ratio of *Streptococcus pneumoniae* protein:QS21 is 0.05:1 to 3:1 (w/w).

4. An immunogenic composition as defined in claims 1-3 comprising 5 to 60, 45 to 55, 5 to 20, or 20 to 30 μg (e.g. 20, 25, 30, 35, 40, 45 or 50 μg) monophosphoryl lipid A (MPL).

5. An immunogenic composition as defined in claims 1-4 comprising 5 to 60, 45 to 55, 5 to 20, or 20 to 30 μg (e.g. 20, 25, 30, 35, 40, 45 or 50 μg) QS21.

6. An immunogenic composition as defined in claims 1-5 comprising 0.1 to 10mg, 0.2 to 7, 0.3 to 5, 0.4 to 2, or 0.5 to 1 mg (e.g. 0.4 to 0.6, 0.9 to 1.1, 0.5 or 1 mg) phospholipid.

7. An immunogenic composition as defined in claims 1-6 comprising 0.025 to 2.5, 0.05 to 1.5, 0.075 to 0.75, 0.1 to 0.3, or 0.125 to 0.25 mg (e.g. 0.2 to 0.3, 0.1 to 0.15, 0.25 or 0.125 mg) sterol.

8. An immunogenic composition as defined in claims 1-7 capable of stimulating IL-17 production.

9. The immunogenic composition as defined in claims 1-8 comprising 3 to 90, 3 to 20, 20 to 40 or 40 to 70 μg (e.g. 10, 30 or 60 μg) unconjugated pneumococcal pneumolysin, per human dose.

10. The immunogenic composition as defined in claims 1-9 comprising 3 to 90, 3 to 20, 20 to 40 or 40 to 70 µg (e.g. 10, 30 or 60 µg) unconjugated PhtD, per human dose.

11. An immunogenic composition as defined in claims 1-10 comprising one or more *S. pneumoniae* capsular saccharides.

12. An immunogenic composition as defined in any of the preceding claims wherein the dose volume is between 0.4 and 1.5 ml

13. A vaccine comprising the immunogenic composition as defined in claims 1-12.

14. Use of an immunogenic composition as defined in any one of claims 1-12 in the manufacture of a medicament for treating or preventing a disease caused by *Streptococcus pneumoniae* infection wherein said medicament is to be administered to a patient suffering from or susceptible to *Streptococcus pneumoniae* infection.

15. An immunogenic composition as defined in any one of claims 1-12 for use in treating or preventing a disease caused by *Streptococcus pneumoniae* infection.

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CLAIMS:

1. An immunogenic composition comprising at least one unconjugated *Streptococcus pneumoniae* protein selected from: pneumolysin and member(s) of the Polyhistidine Triad family; and an adjuvant comprising QS21, monophosphoryl lipid A (MPL), dioleoylphosphatidylcholine (DOPC) and sterol, presented in the form of a liposome.

2. An immunogenic composition as defined in claim 1 wherein the ratio of *Streptococcus pneumoniae* protein: monophosphoryl lipid A (MPL) is 0.05:1 to 3:1 (w/w).

3. An immunogenic composition as defined in claims 1-2 wherein the ratio of *Streptococcus pneumoniae* protein:QS21 is 0.05:1 to 3:1 (w/w).

4. An immunogenic composition as defined in claims 1-3 comprising 5 to 60, 45 to 55, 5 to 20, or 20 to 30 μg (e.g. 20, 25, 30, 35, 40, 45 or 50 μg) monophosphoryl lipid A (MPL).

5. An immunogenic composition as defined in claims 1-4 comprising 5 to 60, 45 to 55, 5 to 20, or 20 to 30 μg (e.g. 20, 25, 30, 35, 40, 45 or 50 μg) QS21.

6. An immunogenic composition as defined in claims 1-5 comprising 0.1 to 10mg, 0.2 to 7, 0.3 to 5, 0.4 to 2, or 0.5 to 1 mg (e.g. 0.4 to 0.6, 0.9 to 1.1, 0.5 or 1 mg) phospholipid.

7. An immunogenic composition as defined in claims 1-6 comprising 0.025 to 2.5, 0.05 to 1.5, 0.075 to 0.75, 0.1 to 0.3, or 0.125 to 0.25 mg (e.g. 0.2 to 0.3, 0.1 to 0.15, 0.25 or 0.125 mg) sterol.

8. An immunogenic composition as defined in claims 1-7 wherein the monophosphoryl lipid A (MPL) is 3-O-Deacylated monophosphoryl lipid A (3D-MPL).

9. An immunogenic composition as defined in claim 8 wherein the amount of 3D-MPL is 50 μg, per human dose.

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10. An immunogenic composition as defined in claims 1-9 wherein the amount of QS21 is 50 µg, per human dose.

11. An immunogenic composition as defined in claim 10 wherein the amount of DOPC is 1000 µg, per human dose.

12. An immunogenic composition as defined in claims 1-11 wherein sterol is cholesterol.

13. An immunogenic composition as defined in claim 12 wherein the amount of cholesterol is 250 µg, per human dose.

14. An immunogenic composition as defined in claims 1-13 capable of invoking a cytolytic T cell response in a mammal.

15. An immunogenic composition as defined in claims 1-14 capable of stimulating interferon γ production.

16. An immunogenic composition as defined in claims 1-15 capable of stimulating IL-17 production.

17. An immunogenic composition as defined in claims 1-16 wherein the pneumolysin is detoxified pneumolysin (dPly).

18. An immunogenic composition as defined in claim 17 wherein the pneumolysin has been chemically detoxified.

19. An immunogenic composition as defined in claim 17 or 18 wherein the pneumolysin has been genetically detoxified.

20. The immunogenic composition as defined in claims 1-19 comprising 3 to 90, 3 to 20, 20 to 40 or 40 to 70 µg (e.g. 10, 30 or 60 µg) unconjugated pneumococcal pneumolysin, per human dose.

21. The immunogenic composition as defined in claims 1-20 wherein the member of the Polyhistidine Triad family is PhtD.

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22. The immunogenic composition as defined in claim 21 wherein the PhtD comprises an amino acid sequence at least 90% identical to the sequence at amino acids 21-838 of Sequence ID No. 4 of WO00/37105.

23. The immunogenic composition as defined in claim 21 wherein the PhtD has an amino acid sequence at least 90% identical to the sequence at amino acids 21-838 of Sequence ID No. 4 of WO00/37105.

24. The immunogenic composition as defined in claim 21 wherein the PhtD has an amino acid sequence comprising amino acids 21 to 838 of Sequence ID NO: 4 of WO00/37105.

25. The immunogenic composition as defined in claim 21 wherein PhtD has an amino acid sequence comprising at least 10 contiguous amino acids from Sequence ID No. 4 of WO00/37105.

26. The immunogenic composition as defined in claims 1-25 comprising 3 to 90, 3 to 20, 20 to 40 or 40 to 70 µg (e.g. 10, 30 or 60 µg) unconjugated PhtD, per human dose.

27. The immunogenic composition as defined in claims 1-26 comprising unconjugated pneumolysin and unconjugated pneumococcal PhtD.

28. An immunogenic composition as defined in claims 1-27 comprising one or more further antigens.

29. An immunogenic composition as defined in claims 1-27 comprising one or more *S. pneumoniae* capsular saccharides.

30. An immunogenic composition as defined in any of the preceding claims wherein the dose volume is between 0.4 and 1.5 ml

31. An immunogenic composition as defined in claim 30 wherein said dose volume is 0.5 ml.

32. A vaccine comprising the immunogenic composition as defined in claims 1-31.

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33. A method of making a vaccine as claimed in claim 32 comprising the steps of mixing the unconjugated *Streptococcus pneumoniae* protein with the adjuvant composition.

34. A method of eliciting an immune response by immunising a mammal with the immunogenic composition of claims 1-31.

35. A method of treating or preventing a disease caused by *Streptococcus pneumoniae* infection comprising administering to a patient suffering from or susceptible to *Streptococcus pneumoniae* infection an immunogenic composition as defined in any one of claims 1-31.

36. A method of treating or preventing AE COPD (Acute Exacerbations of COPD) comprising administering to a patient suffering from or susceptible to AE COPD (Acute Exacerbations of COPD) an immunogenic composition as defined in any one of claims 1-31.

37. A method of treating or preventing a disease caused by *Streptococcus pneumoniae* infection comprising intramuscularly administering to a subject in need thereof comprising administering to said subject an immunogenic composition as defined in any one of claims 1-31.

38. A method of treating or preventing a disease caused by *Streptococcus pneumoniae* infection comprising intramuscularly administering to a human in need thereof comprising administering to said human an immunogenic composition as defined in any one of claims 1-31.

39. An immunogenic composition as defined in any one of claims 1-31 for use in treating or preventing a disease caused by *Streptococcus pneumoniae* infection.

40. An immunogenic composition as defined in any one of claims 1-31 for use in treating or preventing AE COPD (Acute Exacerbations of COPD).

41. Use of an immunogenic composition as defined in any of claims 1-31 in the manufacture of a medicament for use in treating or preventing a disease caused by *Streptococcus pneumoniae* infection.

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42. Use of an immunogenic composition as defined in any of claims 1-31 in the manufacture of an intramuscular vaccine for use in treating or preventing a disease caused by *Streptococcus pneumoniae* infection.

43. Use of an immunogenic composition as defined in any of claims 1-31 in the manufacture of a medicament for use in treating or preventing AE COPD (Acute Exacerbations of COPD).