CLAIMS

1. An immunogenic composition comprising a *Streptococcus pneumoniae* serotype 22F glycoconjugate, wherein the glycoconjugate has a molecular weight of between 1000 kDa and 12,500 kDa and comprises an isolated capsular polysaccharide from *S. pneumoniae* serotype 22F and a carrier protein, and wherein a ratio (w/w) of the polysaccharide to the carrier protein is between 0.4 and 2.

2. The immunogenic composition of claim 1, wherein the glycoconjugate comprises at least 0.1 mM acetate per mM polysaccharide.

3. The immunogenic composition of claim 1, wherein the composition further comprises a *S. pneumoniae* serotype 15B glycoconjugate and a *S. pneumoniae* serotype 33F glycoconjugate.

4. The immunogenic composition of claim 3, wherein the composition further comprises a *S. pneumoniae* serotype 12F glycoconjugate, a *S. pneumoniae* serotype 10A glycoconjugate, a *S. pneumoniae* serotype 11A glycoconjugate and a *S. pneumoniae* serotype 8 glycoconjugate.

5. The immunogenic composition of claim 1 further comprising glycoconjugates from *S. pneumoniae* serotypes 4, 6B, 9V, 14, 18C, 19F and 23F.

6. The immunogenic composition of claim 1 further comprising glycoconjugates from *S. pneumoniae* serotypes 1, 5 and 7F.

7. The immunogenic composition of claim 1 further comprising glycoconjugates from *S. pneumoniae* serotypes 6A and 19A.

8. The immunogenic composition of claim 1 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 3.

9. The immunogenic composition of claim 1, wherein the immunogenic composition is an 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20-valent pneumococcal conjugate composition.

10. The immunogenic composition of claim 1, wherein the carrier protein is selected from the group consisting of DT (Diphtheria toxin), TT (tetanus toxoid), CRM197, other DT mutants, PD (*Haemophilus influenzae* protein D), and immunologically functional equivalents thereof.

11. The immunogenic composition of claim 1, wherein said immunogenic composition further comprises a buffer, a salt, a divalent cation, a non-ionic detergent, a cryoprotectant, an anti-oxidant, or a combination thereof.

12. The immunogenic composition of claim 11, wherein the composition further comprises a buffer.

13. The immunogenic composition of claim 12, wherein the buffer is phosphate, succinate, histidine or citrate.

14. A syringe filled with the immunogenic composition of claim 1.

15. The syringe of claim 14, wherein the syringe is siliconized or made of glass.

16. The immunogenic composition of claim 10, wherein said carrier protein is CRM_{197}.

17. The immunogenic composition of claim 16, wherein said polysaccharide is individually conjugated to CRM_{197}.

18. The immunogenic composition of claim 1, wherein each dose of said immunogenic composition comprises 0.1 μg to 100 μg of the polysaccharide.

19. The immunogenic composition of claim 1, wherein each dose of said immunogenic composition comprises 10 μg to 150 μg of the carrier protein.

20. The immunogenic composition of claim 1, wherein said immunogenic composition further comprises an antigen from other pathogens.

21. The immunogenic composition of claim 20, wherein said antigen is selected from the group consisting of a diphtheria toxoid (D), a tetanus toxoid (T), a pertussis antigen (P), an acellular pertussis antigen (Pa), a hepatitis

B virus (HBV) surface antigen (HBsAg), a hepatitis A virus (HAV) antigen, a conjugated *Haemophilus influenzae* type b capsular saccharide (Hib), and an inactivated poliovirus vaccine (IPV) antigen.

22. The immunogenic composition of claim 1, wherein said immunogenic composition further comprises a conjugated *N. meningitidis* serogroup A capsular saccharide (MenA), a conjugated *N. meningitidis* serogroup W135 capsular saccharide (MenW135), a conjugated *N. meningitidis* serogroup Y capsular saccharide (MenY), or a conjugated *N. meningitidis* serogroup C capsular saccharide (MenC).

23. The immunogenic composition of claim 1, wherein said immunogenic composition further comprise at least one adjuvant.

24. The immunogenic composition of claim 23, wherein said at least one adjuvant is selected from the group consisting of aluminum, calcium phosphate, a liposome, an oil-in-water emulsion, and poly(D,L-lactide-co-glycolide) (PLG) microparticles or nanoparticles.

25. The immunogenic composition of claim 24, wherein said adjuvant is an aluminum adjuvant selected from the group consisting of aluminum phosphate, aluminum sulfate and aluminum hydroxide.

26. The immunogenic composition of claim 23, wherein said at least one adjuvant is a CpG Oligonucleotide.

27. The immunogenic composition of claim 1, wherein said immunogenic composition is formulated in liquid form.

28. The immunogenic composition of claim 1, wherein said immunogenic composition is formulated in a lyophilized form.

29. A container filled with the immunogenic composition of claim 1.

30. An immunogenic composition of claim 1 for use in the treatment of an infection, disease or condition associated with *S. pneumoniae*.

31. Use of an immunogenic composition of claim 1 in the manufacture of a medicament for the treatment of an infection, disease or condition associated with *S. pneumoniae*.

32. A method of preventing an infection caused by *S. pneumoniae* in a subject comprising administering to the subject an effective amount of the immunogenic composition of claim 1.

33. The use of claim 31, wherein the subject is a human being less than 2 years of age.

34. The use of claim 31, wherein the subject is a human adult 50 years of age or older.

35. The use of claim 31, wherein the subject is an immunocompromised human.

36. The use of claim 31, wherein the immunogenic composition is administered in a single dose schedule.

37. The use of claim 31, wherein the immunogenic composition is administered in a multiple dose schedule.

38. A method of inducing an immune response to *S. pneumoniae* serotype 22F in a subject comprising the step of administering an effective amount of the immunogenic composition of claim 1.

39. The immunogenic composition of claim 1, wherein at least 30% of the glycoconjugates have a K_d below or equal to 0.3 in a CL-4B column.

40. The immunogenic composition of claim 1, wherein the glycoconjugates comprise less than about 50% of free polysaccharide compared to a total amount of polysaccharide.

41. The immunogenic composition of claim 1, wherein a ratio of mM acetate per mM polysaccharide in the glycoconjugate to mM acetate per mM isolated polysaccharide is at least 0.6.

42. The immunogenic composition of claim 1, wherein said glycoconjugate is prepared using reductive amination.

43. The immunogenic composition of claim 42, wherein said reductive amination comprises:
    (a) oxidation of the polysaccharide to form an activated polysaccharide and

(b) reduction of the activated polysaccharide and a carrier protein to form the glycoconjugate.

44. The immunogenic composition of claim 43, wherein the ratio of mM acetate per mM polysaccharide in the glycoconjugate to mM acetate per mM polysaccharide in the activated polysaccharide is at least 0.6.

45. The immunogenic composition of claim 1, wherein the degree of conjugation of said glycoconjugate is between 2 and 15.

46. The immunogenic composition of claim 1, wherein the polysaccharide has a molecular weight of between 10 kDa and 2,000 kDa.

47. An immunogenic composition comprising at least one glycoconjugate from *S. pneumoniae* serotype 15B.

48. The immunogenic composition of claim 47 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 22F.

49. The immunogenic composition of claim 48 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 33F.

50. The immunogenic composition of any one of claims 47-49 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 12F.

51. The immunogenic composition of any one of claims 47-50 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 10A.

52. The immunogenic composition of any one of claims 47-51 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 11A.

53. The immunogenic composition of any one of claims 47-52 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 8.

54. The immunogenic composition of any one of claims 47-53 further comprising glycoconjugates from *S. pneumoniae* serotypes 4, 6B, 9V, 14, 18C, 19F and 23F.

55. The immunogenic composition of any one of claims 47-54 further comprising glycoconjugates from *S. pneumoniae* serotypes 1, 5 and 7F.

56. The immunogenic composition of any one of claims 47-55 further comprising glycoconjugates from *S. pneumoniae* serotypes 6A and 19A.

57. The immunogenic composition of any one of claims 47-56 further comprising at least one glycoconjugate from *S. pneumoniae* serotype 3.

58. The immunogenic composition of any one of claims 47-57 which is a 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20-valent pneumococcal conjugate composition.

59. The immunogenic composition of any one of claims 47-58 wherein, said serotype 15B glycoconjugate has a molecular weight of between 1000 kDa and 20,000 kDa.

60. The immunogenic composition of any one of claims 47-59 wherein, the ratio (w/w) of serotype 15B capsular polysaccharide to carrier protein in serotype 15B glycoconjugate is between 0.5 and 3.

61. The immunogenic composition of any one of claims 47-60 wherein said serotype 15B glycoconjugate comprises less than about 50% of free serotype 15B capsular polysaccharide compared to the total amount of serotype 15B capsular polysaccharide.

62. The immunogenic composition of any one of claims 47-61 wherein at least 40% of the serotype 15B glycoconjugates have a K_d below or equal to 0.3 in a CL-4B column.

63. The immunogenic composition of any one of claims 47-62 wherein said serotype 15B glycoconjugate comprises at least 0.1 mM acetate per mM serotype 15B capsular polysaccharide.

64. The immunogenic composition of any one of claims 47-63 wherein the ratio of mM acetate per mM serotype 15B capsular polysaccharide in the serotype 15B glycoconjugate to mM acetate per mM serotype 15B capsular polysaccharide in the isolated polysaccharide is at least 0.6.

65. The immunogenic composition of any one of claims 47-64 wherein the ratio of mM acetate per mM serotype 15B capsular polysaccharide in the serotype 15B glycoconjugate to mM acetate per mM serotype 15B capsular polysaccharide in the activated polysaccharide is at least 0.6.

66. The immunogenic composition of any one of claims 47-65 wherein said serotype 15B glycoconjugate comprises at least 0.1 mM glycerol per mM serotype 15B capsular polysaccharide.

67. The immunogenic composition of any one of claims 47-66 wherein the degree of conjugation of said serotype 15B glycoconjugate is between 2 and 15.

68. The immunogenic composition of any one of claims 47-67 wherein said serotype 15B glycoconjugate comprise a saccharide having a molecular weight of between 10 kDa and 1,500 kDa.

69. The immunogenic composition of any one of claims 47-68 wherein the carrier protein of said serotype 15B glycoconjugate is selected in the group consisiting of: DT (Diphtheria toxin), TT (tetanus toxid), CRM_{197}, other DT mutants, PD (*Haemophilus influenzae* protein D), or immunologically functional equivalents thereof.

70. The immunogenic composition of any one of claims 47-69 wherein said serotype 15B glycoconjugate is prepared using reductive amination.

71. The immunogenic composition of any one of claims 47-70 wherein each dose comprise 0.1 to 100 µg of polysaccharide of each serotype.

72. The immunogenic composition of any one of claims 47-71 wherein each dose comprise about 1.5 µg to about 3.0 µg of polysaccharide for each glycoconjugate from *S. pneumoniae* serotype 1, 3, 4, 5, 6A, 7F, 8, 9V, 10A, 11A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F and/or 33F, if present, and about 3.0 µg to about 6.0 µg of polysaccharide for glycoconjugate from *S. pneumoniae* serotype 6B, if present.

73. The immunogenic composition of any one of claims 47-72 wherein each dose comprises 10 µg to 150 µg of carrier protein.

74. The immunogenic composition of any one of claims 47-73 wherein said immunogenic composition further comprise antigens from other pathogens.

75. The immunogenic composition of any one of claims 47-73 wherein said immunogenic composition further comprise antigens selected from: a diphtheria toxoid 'D), a tetanus toxoid (T), a pertussis antigen (P), which

is typically acellular (Pa), a hepatitis B virus (HBV) surface antigen (HBsAg), a hepatitis A virus (HAV) antigen, a conjugated Haemophilus influenzae type b capsular saccharide (Hib), inactivated poliovirus vaccine (IPV).

76. The immunogenic composition of any one of claims 47-75 wherein said immunogenic composition further comprise a conjugated *N. meningitidis* serogroup A capsular saccharide (MenA), a conjugated *N. meningitidis* serogroup W135 capsular saccharide (MenW135), a conjugated *N. meningitidis* serogroup Y capsular saccharide (MenY), and/or a conjugated *N. meningitidis* serogroup C capsular saccharide (MenC).

77. The immunogenic composition of any one of claims 47-76 wherein said immunogenic composition further comprise at least one adjuvant.

78. The immunogenic composition of any one of claims 47-76 wherein said immunogenic composition further comprise at least one adjuvant selected from the group consisting of alum (e.g., aluminum phosphate, aluminum sulfate or aluminum hydroxide), calcium phosphate, liposomes, oil-in-water emulsions such as MF59 (4.3% w/v squalene, 0.5% w/v polysorbate 80 (Tween 80), 0.5% w/v sorbitan trioleate (Span 85)), water-in-oil emulsions such as Montanide, and poly(D,L-lactide-co-glycolide) (PLG) microparticles or nanoparticles.

79. The immunogenic composition of any one of claims 47-76 wherein said immunogenic composition further comprise at least one adjuvant selected from the group consisting of aluminum phosphate, aluminum sulfate and aluminum hydroxide.

80. The immunogenic composition of any one of claims 47-79 wherein said immunogenic composition comprise a CpG Oligonucleotide as adjuvant, preferabl any of the CpG oligonucleotide disclosed herein.

81. The immunogenic composition of any one of claims 47-80 formulated in liquid form.

82. The immunogenic composition of any one of claims 47-80 formulated in a lyophilized form.

83. The immunogenic composition of any one of claims 47-82 formulated in aqueous liquid form.

84. A container filled with any of the immunogenic composition defined at any one of claims 47-83.

85. A syringe filled with any of the immunogenic composition defined at any one of claims 47-83.

86. An immunogenic composition of any one of claims 47-83 for use in the treatment of an infection, disease or condition associated with *S. pneumoniae*.

87. Use of an immunogenic composition of any one of claims 47-83 in the manufacture of a medicament for the treatment of an infection, disease or condition associated with *S. pneumonia*.

88. A method of preventing an infection by *S. pneumoniae* in a subject, comprising administering to the subject an immunologically effective amount of an immunogenic composition of anyone of claims 47-83.

89. The immunogenic composition of any one of claims 47-83 which is able to induce the formation of antibodies capable of binding to *S. pneumonia* serotype 15B and 15C as measured by a standard ELISA assay when administered to a subject

90. The immunogenic composition of any one of claims 47-83 which is able, when administered to a subject, to induce the formation of antibodies capable of killing *S. pneumoniae* serotype 15B in an opsonophagocytosis assay.

91. The immunogenic composition of any one of claims 47-83 which is able, when administered to a subject, to induce the formation of antibodies capable of killing *S. pneumoniae* serotypes 15B and 15C in an opsonophagocytosis assay.

92. An immunogenic composition according to any one of claims 47-83 for use in the treatment of *S. pneumoniae* infection, disease or condition associated with *S. pneumoniae* serotype(s) 15A, 15B and/or 15C.

93. Use of an immunogenic composition of any one of claims 47-83 in the manufacture of a medicament for the treatment of *S. pneumoniae* infection, disease or condition associated with *S. pneumoniae* serotype(s) 15A, 15B and/or 15C.

94. A method of preventing a *S. pneumoniae* infection associated with *S. pneumoniae* serotype(s) 15B and/or 15C in a subject, the method comprising the step of administering prophylactically effective amount of an immunogenic composition according to any one of claims 47-83.

95. A method of inducing an immune response to *S. pneumoniae* serotype(s) 15A, 15B and/or 15C in a subject, the method comprising the step of administering a therapeutically or prophylactically effective amount of an immunogenic composition according to any one of claims 47-83.