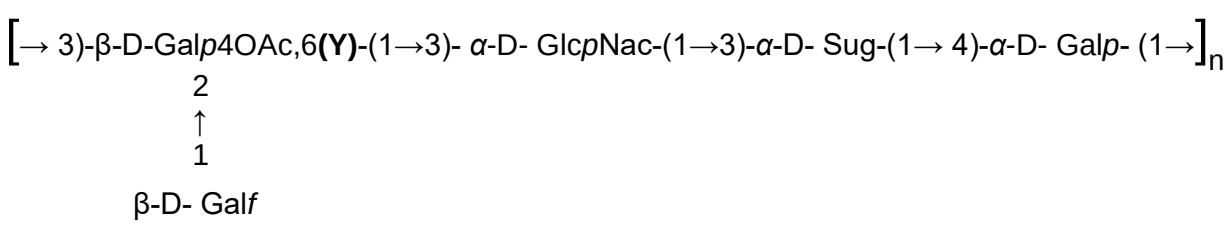
**Claims**

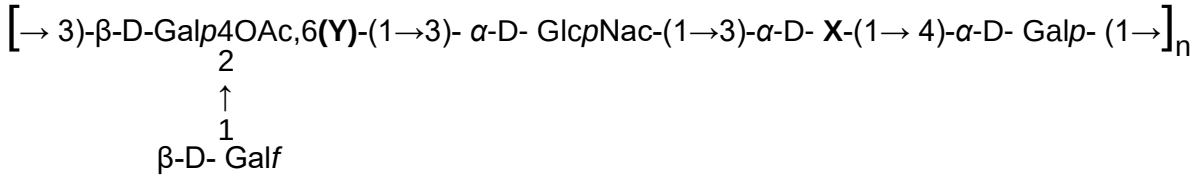
1. A glycoconjugate comprising an isolated *S. pneumoniae* serotype 38 saccharide with the following repeating unit:




where n represents the number of repeating units, wherein Y represents either a Serine or a Glycine residue, wherein all the repeating units comprise the same Y residue and wherein the O-acetyl group at position 4 of β-D-Gal*p*4OAc,6(Y) is present in about 0% to about 100% of the repeating units, conjugated to a carrier protein.

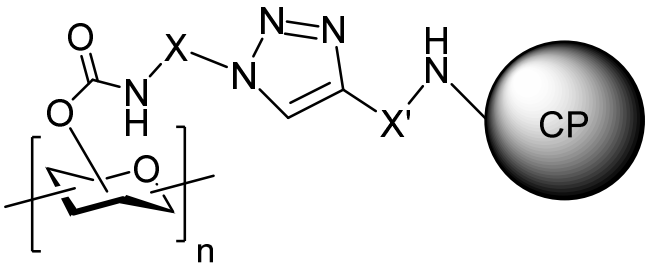
2. The serotype 38 glycoconjugate of claim 1 wherein said serotype 38 glycoconjugate is prepared by click chemistry.

3. A serotype 38 glycoconjugate comprising a serotype 38 capsular saccharide with the following repeating unit:




where n represents the number of repeating units, wherein Y represents either a Serine or a Glycine residue, wherein all the repeating units comprise the same Y residue and where X represents either a N-acetyl-D-fucosamine (D-FucNAc) residue or a N-acetyl-D-quinovosamine (D-QuiNAc) residue.

4. A serotype 38 glycoconjugate comprising a serotype 38 saccharide covalently conjugated to a carrier protein (CP) through a spacer and having the general formula (IV):




(IV),

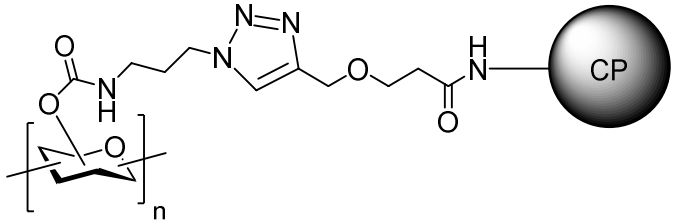
wherein X is selected from the group consisting of $CH_2(CH_2)_{n'}$, $(CH_2CH_2O)_mCH_2CH_2$, $NHCO(CH_2)_{n'}$, $NHCO(CH_2CH_2O)_mCH_2CH_2$, $OCH_2(CH_2)_{n'}$ and $O(CH_2CH_2O)_mCH_2CH_2$; where n' is selected from 1 to 10 and m is selected from 1 to 4,

wherein X' is selected from the group consisting of $CH_2O(CH_2)_{n''}CH_2C=O$, $CH_2O(CH_2CH_2O)_{m'}(CH_2)_{n''}CH_2C=O$, where n'' is selected from 0 to 10 and m' is selected from 0 to 4,

wherein the structure in square backet represents a repeat unit of the serotype 38 saccharide and wherein n represents the number of repeating units.

5. A serotype 38 glycoconjugate comprising a serotype 38 saccharide covalently conjugated to a carrier protein (CP) through a spacer and having the general formula (IV), wherein X is $CH_2(CH_2)_{n'}$, where n' is 2 and wherein X' is $CH_2O(CH_2)_{n''}CH_2C=O$ where n'' is 1.

6. A serotype 38 glycoconjugate comprising a serotype 38 saccharide covalently conjugated to a carrier protein (CP) through a spacer and having the general formula (V),




(V)

wherein the structure in square backet represents a repeat unit of the serotype 38 saccharide and wherein n represents the number of repeating units.

7. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa.

8. The glycoconjugate of any one of claims 1 to 7 wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa.

9. The glycoconjugate of any one of claims 1 to 8 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa and wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa.

10. The glycoconjugate of any one of claims 1 to 9 wherein the degree of conjugation of said serotype 38 glycoconjugate is between 2 and 15.

11. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa and wherein the degree of conjugation of said serotype 38 glycoconjugate is between 4 and 10.

12. The glycoconjugate of any one of claims 1 to 11 wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.7 and 1.1.

13. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa, wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.5 and 1.5 and wherein the degree of conjugation of said serotype 38 glycoconjugate is between 4 and 10.

14. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa, wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.7 and 1.1 and wherein the degree of conjugation of said serotype 38 glycoconjugate is between 4 and 10.

15. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa, wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.5 and 1.5, wherein the degree of conjugation of said serotype 38 glycoconjugate is between 4 and 10 and wherein said serotype 38 glycoconjugate comprises less than about 20% of free serotype 38 saccharide compared to the total amount of serotype 38 saccharide.

16. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa, wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.7 and 1.1, wherein the degree of

conjugation of said serotype 38 glycoconjugate is between 4 and 10 and wherein said serotype 38 glycoconjugate comprises less than about 20% of free serotype 38 saccharide compared to the total amount of serotype 38 saccharide.

17. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa, wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.5 and 1.5, wherein the degree of conjugation of said serotype 38 glycoconjugate is between 4 and 10, wherein said serotype 38 glycoconjugate comprises less than about 20% of free serotype 38 saccharide compared to the total amount of serotype 38 saccharide and wherein between 65% and 80% of the serotype 38 glycoconjugate has a $K_d$ below or equal to 0.3 in a CL-4B column.

18. The glycoconjugate of any one of claims 1 to 6 wherein the weight average molecular weight (Mw) of said *S. pneumoniae* serotype 38 saccharide before conjugation is between 150 kDa and 300 kDa, wherein said serotype 38 glycoconjugate has a weight average molecular weight (Mw) of between 1,000 kDa and 10,000 kDa, wherein the ratio of serotype 38 saccharide to carrier protein in the glycoconjugate (w/w) is between 0.7 and 1.1, wherein the degree of conjugation of said serotype 38 glycoconjugate is between 4 and 10, wherein said serotype 38 glycoconjugate comprises less than about 20% of free serotype 38 saccharide compared to the total amount of serotype 38 saccharide and wherein between 65% and 80% of the serotype 38 glycoconjugate has a $K_d$ below or equal to 0.3 in a CL-4B column.

19. The glycoconjugate of any one of claims 1 to 18 wherein the carrier protein of the serotype 38 saccharide glycoconjugate is selected in the group consisting of: TT, DT, DT mutants and a C5a peptidase from *Streptococcus* (SCP).

20. The glycoconjugate of any one of claims 1 to 18 wherein the carrier protein of the serotype 38 saccharide glycoconjugate is rhizavidin [aa 45-179J-GGGGSSS-SP1500- AAA-SP0785] (CP1) or Rhavi-linker-PdT(G294P)-linker-SP0435 [aa 62-185] fusion protein (SPP2).

21. The glycoconjugate of any one of claims 1 to 18 wherein the carrier protein of the serotype 38 saccharide glycoconjugate is $CRM_{197}$ or SCP.

22. An immunogenic composition comprising a *S. pneumoniae* serotype 38 saccharide glycoconjugate according to any one of claims 1-21.

23. The immunogenic composition of claim 22 further comprising glycoconjugates from *S. pneumoniae* serotypes 1, 2, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 10A, 11A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F and 33F.

24. The immunogenic composition of claim 22 further comprising glycoconjugates from *S. pneumoniae* serotypes 1, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 10A, 11A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23A, 23B, 23F, 24F, 33F and 35B.

25. The immunogenic composition of claim 24 wherein the *S. pneumoniae* saccharides from serotypes 1, 4, 5, 6A, 6B, 7F, 8, 9V, 10A, 11A, 12F, 14, 15A, 15B, 18C, 19A, 19F, 22F, 23A, 23B, 23F, 24F, 33F, 35B and 38 are conjugated to $CRM_{197}$ and the *S. pneumoniae* saccharide serotype 3 is conjugated to SCP.

26. The immunogenic composition of any one of claims 22-25 further comprising one adjuvant.

27. The immunogenic composition of any one of claims 22-26 for use as a vaccine.

28. The immunogenic composition of any one of claims 22-26 for use in a method of preventing, treating or ameliorating an infection, disease or condition associated with *S. pneumoniae* serotype 38 in a subject.

29. Use of the immunogenic composition of any one of claims 22 to 28 in the manufacture of a medicament for preventing, treating or ameliorating an infection, disease or condition associated with *S. pneumoniae* serotype 38.