CLAIMS

1. A *Neisseria meningitidis* vaccine composition comprising:

   a) a first conjugate of MenA capsular polysaccharide to a carrier protein;

   b) a second conjugate of MenC capsular polysaccharide to a carrier protein;

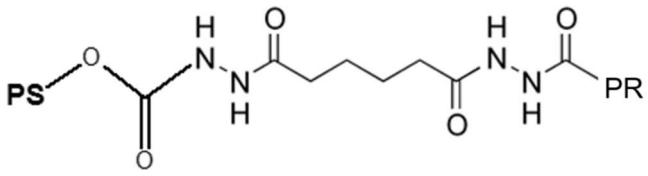
   c) a third conjugate of MenW-135 capsular polysaccharide to a carrier protein; and

   d) a fourth conjugate of MenY capsular polysaccharide to a carrier protein;

   wherein:

   (i) the second conjugate is a population comprising double-end-linked conjugated polysaccharides and single-end-linked conjugated polysaccharides, wherein the polysaccharides of the second conjugate have an O-acetylation level of 0.3 µmol/mg polysaccharide to 1.6 µmol/mg polysaccharide;

   (ii) the MenA capsular polysaccharide is attached to the carrier protein through a linker of formula (I):



(I)

   wherein PS indicates attachment to the polysaccharide and PR indicates attachment to the carrier protein,

   and the first conjugate has a polysaccharide to carrier protein mass ratio of 0.3 to 1.5;

   (iii) the MenC, MenW-135, and MenY capsular polysaccharides are directly attached to the carrier protein through a secondary amine and at least one of the conjugates has a weight average molecular weight ranging from 300 kDa to 1500 kDa;

   (iv) the carrier protein is tetanus toxoid; and

   (v) the composition comprises less than 20% free polysaccharide by weight relative to total polysaccharide.

2. The *Neisseria meningitidis* vaccine composition of claim 1, wherein the first, second, third, and/or fourth conjugates are a population comprising molecules with a molecular weight in the range of 700 kDa to 1400 kDa or 800 kDa to 1300 kDa.

3. A *Neisseria meningitidis* vaccine composition comprising:

   a) a first conjugate of MenA capsular polysaccharide to a carrier protein;

   b) a second conjugate of MenC capsular polysaccharide to a carrier protein, wherein the second conjugate is a population comprising double-end-linked conjugated

polysaccharides and single-end-linked conjugated polysaccharides which are both directly attached to the carrier protein through a secondary amine, and the polysaccharides of the conjugate of MenC capsular polysaccharide to the carrier protein have an O-acetylation level ranging from 0.3 µmol/mg polysaccharide to 1.6 µmol/mg polysaccharide, and wherein the MenC polysaccharide is reduced in size by 3x-8x relative to native MenC polysaccharide;

c) a third conjugate of MenW-135 capsular polysaccharide to a carrier protein; and

d) a fourth conjugate of MenY capsular polysaccharide to a carrier protein;

wherein the carrier protein is tetanus toxoid; and wherein:

(i) the first conjugate has a MenA capsular polysaccharide to carrier protein mass ratio of 0.5 to 1.5 or 0.7 to 1.4;

(ii) the second conjugate has a MenC capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.1;

(iii) the third conjugate has a MenY capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.1; and/or

(iv) the fourth conjugate has a MenW-135 capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.3.

4. The *Neisseria meningitidis* vaccine composition of claim 3, wherein the second conjugate:

   (a) has a weight average molecular weight ranging from 300 kDa to 1500 kDa; or

   (b) is a population comprising molecules having a molecular weight in the range of 700 kDa to 1400 kDa or 800 kDa to 1300 kDa.

5. The *Neisseria meningitidis* vaccine composition of any one of claims 1 to 4, wherein the MenC polysaccharide has a degree of O-acetylation ranging from 0.6 to 1.5 µmol/mg polysaccharide or 0.8 to 1.4 µmol/mg polysaccharide.

6. The *Neisseria meningitidis* vaccine composition of any one of claims 1 to 5, wherein the conjugate comprising MenC polysaccharide comprises one or more modifications selected from (i) a primary hydroxyl at the 7 position, (ii) a (2-hydroxy)ethoxy at the reducing end, and (iii) a conjugation to the carrier protein, wherein the modifications are present at no less than 25 nmol/mg polysaccharide.

7. The *Neisseria meningitidis* vaccine composition of any one of claims 1, 2, 5, or 6, wherein the MenC polysaccharide is reduced in size by 3x-8x relative to native MenC polysaccharide.

8. The *Neisseria meningitidis* vaccine composition of any one of claims 1, 2, or 4 to 7, wherein:

   (i) the first conjugate has a MenA capsular polysaccharide to carrier protein mass ratio of 0.5 to 1.5 or 0.7 to 1.4;

   (ii) the second conjugate has a MenC capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.1;

   (iii) the third conjugate has a MenY capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.1; and/or

   (iv) the fourth conjugate has a MenW-135 capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.3.

9. The *Neisseria meningitidis* vaccine composition of any one of claims 3 to 8, wherein the second conjugate has a MenC capsular polysaccharide to carrier protein mass ratio of 0.3 to 1.1.

10. The *Neisseria meningitidis* vaccine composition of any one of claims 1 to 9, which is free of adjuvant.

11. The *Neisseria meningitidis* vaccine composition of any one of claims 1 to 10, comprising acetate buffer with a pH of 5.5 to 6.5.

12. A single unit dose of the *Neisseria meningitidis* vaccine composition of any one of claims 1 to 11, comprising from 6 µg to 15 µg of each of the MenA, MenC, MenW-135, and MenY polysaccharides.

13. The *Neisseria meningitidis* vaccine composition of any one of claims 1 to 11, or the single unit dose of claim 12, for use in immunizing a subject against *Neisseria meningitidis*.

14. Use of the *Neisseria meningitidis* vaccine composition of any one of claims 1 to 11, or the single unit dose of claim 12, for the manufacture of a medicament for immunizing a subject against *Neisseria meningitidis*.

15. The *Neisseria meningitidis* vaccine composition for use according to claim 13, or the use of the *Neisseria meningitidis* vaccine composition of claim 14, wherein the *Neisseria meningitidis* vaccine composition is to be administered intramuscularly.

16. The *Neisseria meningitidis* vaccine composition for use according to claim 13 or 15, or the use of the *Neisseria meningitidis* vaccine composition of claim 14 or 15, wherein the

Neisseria meningitidis vaccine composition is to be administered to a subject of age 6 weeks to 3 years or age 50 years or more.