## CLAIMS

1. An immunogenic composition comprising a combination of *Neisseria meningitidis* serogroup B antigens, said combination comprising at least one factor H binding protein (fHBP) A and at least one factor H binding protein (fHBP) B, and an aluminum hydroxyphosphate ($AlPO_4$) adjuvant, the $AlPO_4$ adjuvant being selected as having a point of zero charge (PZC) below 5.

2. The immunogenic composition according to claim 1, wherein the $AlPO_4$ adjuvant is selected to have a PZC ranging from about 4.1 to less than 5, or ranging from about 4.2 to about 4.9, or ranging from about 4.3 to about 4.8, or to be about 4.5.

3. The immunogenic compositions according to any one of claims 1 to 2, wherein the difference between the PZC of the $AlPO_4$ adjuvant and a pH of the composition is ranging from about 0.6 to about 2.9.

4. The immunogenic composition according to any one of claims 1 to 3, wherein the composition has a pH ranging from about 5.5 to about 7.0 or being about 6.0.

5. The immunogenic composition according to any one of claims 1 to 4, further comprising at least one detergent-extracted Outer Membrane Vesicle (dOMV) , in particular present in an amount ranging from about 5 µg/dose to about 400 µg/dose, or from about 10 µg/dose to about 300 µg/dose, or from about 25 µg/dose to about 250 µg/dose, or from about 35 µg/dose to about 225 µg/dose, or from about 50 µg/dose to about 200 µg/dose, or from about 75 µg/dose to about 180 µg/dose, or from about 100 µg/dose to about 150 µg/dose, or from about 110 µg/dose to about 125 µg/dose, or at about 25 µg/dose, or at about 50 µg/dose, or at about 125 µg/dose,

and/or at least one Neisseria adhesin A (NadA) protein, in particular present in an amount ranging from about 20 µg/dose to about 200 µg/dose, or from about 25 µg/dose to about 180 µg/dose, or from about 40 µg/dose to about 140 µg/dose, or from about 50 µg/dose to about 120 µg/dose, or from about 75 µg/dose to about 100 µg/dose, or at about 50 µg/dose.

6. The immunogenic composition according to any one of claims 1 to 5, wherein the fHBPs are adsorbed onto $AlPO_4$ at an amount of 85%, or less, of the total amount of fHBPs of the composition, or at an amount ranging from about 50% to less than 85% of the total amount of fHBPs of the composition.

7. The immunogenic composition according to any one of claims 1 to 6, wherein the fHBP B has an isoelectric point (pI) ranging from about 5.0 to about 7.0, or from 5.2 to about 6.5, or from about 5.3 to about 6, or is about 5.46 and/or wherein the fHBP A has an isoelectric point (pI) ranging from about 5 to about 7, or from 5.2 to about 6.5, or from about 5.4 to about 6, or is about 5.86.

8. The immunogenic composition according to any one of claims 1 to 7, wherein the fHBP B and/or the fHBP A is non-lipidated.

9. The immunogenic composition according to any one of claims 1 to 8, wherein the fHBP B is a mutated fHBP B comprising at least one mutation reducing or suppressing the binding of the fHBP B to the human factor H (fH), and/or is a mutated fHBP B comprising at least about 85% identity with SEQ ID NO: 3, and/or is a mutated fHBP B comprising at least one amino acid substitution selected from at least one of: a) an amino acid substitution of the glutamine at amino acid 38 (Q38); b) an amino acid substitution of the glutamic acid at amino acid 92 (E92); c) an amino acid substitution of the arginine at amino acid 130 (R130); d) an amino acid substitution of the serine at amino acid 223 (S223); and e) an amino acid substitution of the histidine at amino acid 248 (H248), based on the numbering of SEQ ID NO:6, and/or comprises or consists of SEQ ID NO: 4, and/or comprises or consists of SEQ ID NO: 9.

10. The immunogenic composition according to any one of claims 1 to 9, wherein the fHBP A is a mutated fHBP A comprising at least one mutation reducing or suppressing the binding of the fHBP A to the human factor H (fH), and/or is a mutated protein comprising at least about 85% identity with SEQ ID NO: 1, and/or is a mutated fHBP A comprising at least one amino acid substitution selected from at least one of: a) an amino acid substitution of the asparagine at amino acid 115 (N115); b) an amino acid substitution of the aspartic acid at amino acid 121 (D121); c) an amino acid substitution of the serine at amino acid 128 (S128); d) an amino acid substitution of the phenylalanine at amino acid 129 (F129); e) an amino acid substitution of the leucine at amino acid 130 (L130); f) an amino acid substitution of the valine at position 131 (V131); g) an amino acid substitution of the glycine at position 133 (G133); h) an amino acid substitution of the lysine at position 219 (K219); and i) an amino acid substitution of the glycine at position 220 (G220), based on the numbering of SEQ ID NO:6, and/or comprises or consists of SEQ ID NO: 2, and/or comprises or consists of SEQ ID NO: 8.

11. The immunogenic composition according to any one of claims 1 to 10, wherein the fHBP A and/or the fHBP B are each present in an amount ranging from about 20 µg/dose to about 200 µg/dose, or from about 25 µg/dose to about 180 µg/dose, or from about 40 µg/dose to about 140 µg/dose, or from about 50 µg/dose to about 120 µg/dose, or from about 75 µg/dose to about 100 µg/dose, or at an amount of about 50 µg/dose, or about 100 µg/dose.

12. The immunogenic composition according to any one of claims 5 to 11, wherein the NadA protein is NadA1 protein, or comprises at least about 85% identity with SEQ ID NO: 5 or comprises or consists of SEQ ID NO:5.

13. The immunogenic composition according to any one of claims 5 to 12, wherein the dOMV comprises a porin A (PorA) protein, in particular comprises a porin A (PorA) protein selected among PorA VR2 subtypes or is a PorA VR2 P1.2.

14. The immunogenic composition according to any one of claims 1 to 13, wherein the composition further comprises a buffer, in particular a buffer selected among a Tris buffer, an acetate buffer, a citrate buffer, a phosphate buffer, an HEPES buffer, or a histidine buffer, more particularly the buffer is a sodium acetate buffer.

15. The immunogenic composition according to any one of claims 1 to 14, comprising or consisting of 25 to 100 µg/dose of a non-lipidated mutated fHBP A consisting of SEQ ID NO: 2 or of a non-lipidated mutated fHBP A consisting of SEQ ID NO: 8, 25 to 100 µg/dose of a non-lipidated mutated fHBP B consisting of SEQ ID NO: 4 or of a non-lipidated mutated fHBP B consisting of SEQ ID NO: 9, 25 to 100 µg/dose of a NadA protein consisting of SEQ ID NO: 5, 20 to 250 µg/dose of dOMV from a MenB strain expressing PorA VR2 P1.2, 100 to 800 µg/dose of an $AlPO_4$ adjuvant selected as having a PZC of about 4.5, 50 mM of acetate buffer and pH 6.0

16. The immunogenic composition according to any one of claims 1 to 15, further comprising at least a capsular saccharide from one or more of *Neisseria meningitidis* serogroups A, C, W135 and/or Y conjugated to a carrier protein, in particular wherein the conjugated capsular saccharide is conjugated to a tetanus toxoid carrier.

17. A vaccine comprising an immunogenic composition according to any one of claims 1 to 16.

18. An immunogenic composition according to any one of claims 1 to 16 or a vaccine according to claim 17, for use in a method for inducing an immune response against a *Neisseria meningitidis* B strain.

19. Use of an $AlPO_4$ adjuvant having a PZC below 5 for enhancing an immune response induced by a composition comprising a *N. meningitidis* fHBP B antigen against a *N. meningitidis* serogroup B strain expressing a fHBP B antigen heterologous to said fHBP B antigen of said composition, or

for stabilizing at least one of fHBP A and NadA protein in an immunogenic composition, or

for stabilizing a time of onset of sedimentation ($T_{onset}$) of a composition comprising a combination of *Neisseria meningitidis* serogroup B antigens, said combination comprising at least one factor H binding protein (fHBP) A and at least one factor H binding protein (fHBP) B, in a range from about 3.5 min to about 10 min, or

for adjuvanting an immunogenic composition comprising a combination of *Neisseria meningitidis* serogroup B antigens, said combination comprising at least one factor H binding protein (fHBP) A and at least one factor H binding protein (fHBP) B, or

for manufacturing an immunogenic composition comprising a combination of *Neisseria meningitidis* serogroup B antigens, said combination comprising at least one factor H binding protein (fHBP) A and at least one factor H binding protein (fHBP) B.

20. A method for manufacturing an immunogenic composition comprising a combination of *Neisseria meningitidis* serogroup B antigens, said combination comprising at least one factor H binding protein (fHBP) A and one factor H binding protein (fHBP) B, and an $AlPO_4$ adjuvant, the method comprising at least the steps of:

a) selecting an $AlPO_4$ adjuvant having a PZC below 5, and

b) combining the $AlPO_4$ adjuvant selected at step a) with at least one factor H binding protein (fHBP) A and at least one factor H binding protein (fHBP) B, the combination being carried out in any order.

21. A method for stabilizing at least one of fHBP A and NadA protein in an immunogenic composition, the method comprising at least the steps of:

a) selecting an $AlPO_4$ adjuvant having a PZC below 5, and

b) combining the $AlPO_4$ adjuvant selected at step a) with a fHBP A or NadA protein, and

c) obtaining an immunogenic composition in which said fHBP A or NadA protein is stabilized.

22. A method for preparing an immunogenic composition comprising a *N. meningitidis* fHBP B antigen, said composition inducing an enhanced immune response against a *N. meningitidis* serogroup B strain expressing a fHBP B heterologous to said fHBP B antigen of said composition, the method comprising at least the steps of:

a) selecting an $AlPO_4$ adjuvant having a PZC below 5, and

b) combining the $AlPO_4$ adjuvant selected at step a) with said fHBP B antigen, and

c) obtaining said immunogenic composition.

23. The use according to claim 19 or the method according to any one of claims 20 to 22, wherein the $AlPO_4$ adjuvant is according to claim 2 or 3.

24. The use according to claim 19 or 23 or the method according to any one of claims 21 to 23, wherein the immunogenic composition is according to any one of claims 1 to 16.