CLAIMS

1. A mutant v3 or v2 fHbp which is:

   (A) a polypeptide comprising a mutant fHbp v2 amino acid sequence, wherein: (a) the amino acid sequence has at least 80% sequence identity to SEQ ID NO: 5 and/or comprises a fragment of SEQ ID NO: 5 which includes positions 32 and 123 from SEQ ID NO: 5; but (b) the amino acid sequence differs from SEQ ID NO: 5 by at least the substitutions S32V and L123R;

   or

   (B) a polypeptide comprising a mutant fHbp v3 amino acid sequence, wherein: (a) the amino acid sequence has at least 80% sequence identity to SEQ ID NO: 17 and/or comprises a fragment of SEQ ID NO: 17 which includes position 32 and 126 from SEQ ID NO: 17; but (b) the amino acid sequence differs from SEQ ID NO: 17 by at least the substitutions S32V and L126R.

2. The polypeptide of claim 1, wherein: (A) the amino acid sequence further differs from SEQ ID NO: 5 by substitution at one or more of V33, L39, L41, F69, V100, I113, F122, V124, S125, G126, L127, G128, S151, H239, and/or E240; for instance, where the substitution(s) are selected from the group consisting of: V33C; L39C; L41C; F69C; V100T; I113S; F122C; V124I; S125G or S125T; G126D; L127I; G128A; S151C; H239R; E240H; or (B) the amino acid sequence further differs from SEQ ID NO: 17 by substitution at one or more of I33, L39, L41, F72, V103, T116, F125, V127, S128, G129, L130, G131, S154, H242, and/or E243; for instance, where the substitution(s) are selected from the group consisting of: I33C; L39C; L41C; F72C; V103T; T116S; F125C; V127I; S128G or S128T; G129D; L130I; G131A; S154C; H242R; and E243H.

3. The polypeptide of claim 1(A), comprising substitutions at multiple residues, wherein the multiple residues are selected from groups 2J or 2O as follows:

   2J: residues 32, 123 and 125; or

   2O: residues 32, 123, 124, 125, 126, 127 and 128.

4. The polypeptide of claim 1(A) or claim 2(A), further comprising substitutions V124I, S125G, G126D, L127I, G128A; for instance, comprising SEQ ID NO: 20 or SEQ ID NO: 45 or SEQ ID NO: 58.

5. The polypeptide of claim 1(B), comprising substitutions at multiple residues, wherein the multiple residues are selected from groups 3J or 3O as follows:

   3J: residues 32, 126 and 128; or

   3O: residues 32, 126, 127, 128, 129, 130 and 131.

6. The polypeptide of claim 1(B) or claim 2(B), further comprising substitutions V127I, S128G, G129D, L130I, G131A; for instance, comprising SEQ ID NO: 44 or SEQ ID NO: 61.

7. The polypeptide of any one of claims 1 to 5, also including one or more further mutation(s) which disrupt(s) the polypeptide's ability to bind to human factor H; for instance, in v2 including a substitution at one or more of residues R73, D203, E210, G228, S121, F122, A192, E194, V199, I200, L201, T213, H215, F219, T231, and E240, or in v3 including a substitution at one or more of residues Q35, I178, L87, A88, V127, V202, E213, T216, H218, T234, V241, E243, and G248.

8. A polypeptide comprising:

- amino acid sequence SEQ ID NO: 45, optionally with 1, 2, 3, 4, or 5 single amino acid substitutions, deletions and/or insertions, wherein the polypeptide can elicit antibodies which bind to a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 2 (for example, comprising amino acid sequence SEQ ID NO: 45 with 1, 2, or 3 single amino acid substitutions), but not mutated at residue V32 or R123;
- amino acid sequence SEQ ID NO: 44, optionally with 1, 2, 3, 4, or 5 single amino acid substitutions, deletions and/or insertions, wherein the polypeptide can elicit antibodies which bind to a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 40 (for example, comprising amino acid sequence SEQ ID NO: 44 with 1, 2, or 3 single amino acid substitutions), but not mutated at residue V32 or R126;
- amino acid sequence SEQ ID NO: 58, optionally with 1, 2, 3, 4, or 5 single amino acid substitutions, deletions and/or insertions, wherein the polypeptide can elicit antibodies which bind to a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 2 (for example, comprising amino acid sequence SEQ ID NO: 58 with 1, 2, or 3 single amino acid substitutions), but not mutated at residue V32 or R123;
- amino acid sequence SEQ ID NO: 61, optionally with 1, 2, 3, 4, or 5 single amino acid substitutions, deletions and/or insertions, wherein the polypeptide can elicit antibodies which bind to a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 2 (for example, comprising amino acid sequence SEQ ID NO: 61 with 1, 2, or 3 single amino acid substitutions), but not mutated at residue V32 or R126;
- a fHbp v3 amino acid sequence, wherein the v3 amino acid sequence is identical to a v3 wild-type amino acid sequence except for the mutations S32V and L126R;
- a fHbp v2 amino acid sequence, wherein the v2 amino acid sequence is identical to a v2 wild-type amino acid sequence except for the mutations S32V and L123R; or
- amino acid sequence SEQ ID NO: 47, optionally with 1, 2, 3, 4, or 5 single amino acid substitutions, deletions and/or insertions, wherein the polypeptide can elicit antibodies which bind to each of: a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 46; a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 4; and a meningococcal fHbp polypeptide consisting of the amino acid sequence of SEQ ID NO: 40 (for instance, consisting of SEQ ID NO: 48).

9. A plasmid or other nucleic acid comprising a nucleotide sequence encoding the polypeptide of any one of claims 1 to 8.

10. A host cell transformed with the plasmid of claim 9; for example, wherein the cell is a meningococcal bacterium, such as a meningococcal bacterium having down-regulation or knockout of *mltA* and also optionally has down-regulation or knockout of: (i) at least one gene involved in rendering the lipid A portion of LPS toxic, particularly of *lpxl1;* and/or (ii) at least one gene involved in the capsular polysaccharide synthesis or export, particularly of *synX* and/or *ctrA*..

11. Membrane vesicles prepared from the host cell of claim 10, wherein the vesicles include a polypeptide of any one of claims 1 to 8.

12. An immunogenic composition comprising a polypeptide of any one of claims 1 to 8, or a vesicle of claim 11.

13. The composition of claim 12, further comprising a second polypeptide that, when administered to a mammal, elicits an antibody response that is bactericidal against meningococcus.

14. The composition of claim 12 or claim 13, further comprising (i) a conjugated capsular saccharide from *N.meningitidis* serogroup A, C, W135 and/or Y and/or (ii) a conjugated capsular saccharide from *S.pneumoniae*