CLAIMS

1. A polypeptide comprising a FimH lectin domain, wherein the FimH lectin domain comprises an amino acid selected from the group consisting of valine (V), isoleucine (I), leucine (L), glycine (G), methionine (M), and alanine (A) at the position that corresponds to position 144 in SEQ ID NO: 1, wherein the FimH lectin domain has an amino acid sequence having at least 95% sequence identity with SEQ ID NO: 1.

2. A polypeptide according to claim 1, wherein the polypeptide comprises a mutation and wherein the mutation is a F144V substitution.

3. A polypeptide according to claim 1 or 2, wherein the FimH lectin domain has an amino acid sequence having at least 97% sequence identity with SEQ ID NO: 1.

4. The polypeptide of clam 3, wherein the FimH lectin domain has an amino acid sequence having at least 99% sequence identity with SEQ ID NO: 1.

5. The polypeptide of claim 1, wherein the FimH lectin domain comprises the amino acid sequence of SEQ ID NO: 1, wherein the phenylalanine residue at position 144 is replaced with valine.

6. A polypeptide according to any one the preceding claims, wherein the polypeptide further comprises a FimH pilin domain.

7. A polypeptide according to any one of the preceding claims, wherein the polypeptide is a full length FimH having at least 95% sequence identity with SEQ ID NO: 2.

8. A polypeptide according to claim 7, wherein the polypeptide is a full length FimH having at least 97% sequence identity with SEQ ID NO: 2.

9. A polypeptide according to claim 8, wherein the polypeptide is a full length FimH having at least 99% sequence identity with SEQ ID NO: 2.

10. A polypeptide according to claim 9, wherein the FimH comprises SEQ ID NO: 2 wherein the phenylalanine residue at position 144 is substituted by valine.

11. A complex comprising a polypeptide according to any one of claims 6-10 and FimC (FimCH).

12. A polynucleotide encoding the polypeptide of any one of claims 1-10.

13. The polynucleotide of claim 12, wherein said polypeptide further comprises a signal peptide.

14. The polynucleotide of claim 13, wherein said signal peptide is a FimH signal peptide.

15. The polynucleotide of any one of claims 12-14, wherein said polynucleotide is DNA.

16. The polynucleotide of any one of claims 12-14, wherein said polynucleotide is RNA.

17. A vector comprising the polynucleotide any one of claims 12-14, wherein the polynucleotide is operably linked to a promoter.

18. A pharmaceutical composition comprising a polypeptide according to any one of claims 1-10, a complex according to claim 11, or a polynucleotide according to any one of claims 12-16 or vector of claim 17.

19. A pharmaceutical composition according to claim 18, wherein the composition further comprises an adjuvant.

20. A polypeptide according to any one of claims 1-10, a complex according to claim 11, a polynucleotide according to any of claims 12-16, a vector of claim 17, or a pharmaceutical composition according to claim 18 or 19, for use as a medicament.

21. Use of a polypeptide according to any one of claims 1-10, a complex according to claim 11, a polynucleotide according to any one of claims 12-16, a vector of claim 17, or a

pharmaceutical composition according to claim 18 or 19, in the manufacture of a medicament for the prevention or treatment of an infection caused by a bacterium of the family of Enterobacteriaceae in a subject.

22. The use according to claim 21, wherein the bacterium is *E.colii*.

23. The use according to claim 22, wherein the infection is a urinary tract infection.

24. A method for producing a polypeptide comprising a FimH lectin domain, comprising expressing the polypeptide from a recombinant cell containing the polynucleotide of any one of claims 12-16 and/or the vector of claim 17, recovering and purifying the polypeptide, followed by formulation into a pharmaceutical composition of the polypeptide.