CLAIMS

1. A polypeptide comprising a FimH lectin domain having an amino acid sequence with at least 90% sequence identity with SEQ ID NO: 1, ~~comprising Tyrosine (Y) or Tryptophan (W) at the position that corresponds to position 71 in SEQ ID NO: 1.~~

~~2. A polypeptide according to claim 1,~~ wherein the FimH lectin domain comprises Tyrosine (Y) at the position that corresponds to position 71 in SEQ ID NO: 1, and wherein the FimH lectin domain has a K_D for binding to a mannose ligand of at least 1000 nM or higher, as measured using surface plasmon resonance.

2~~3~~. A polypeptide according to claim 1 ~~or 2~~, wherein the polypeptide further ~~comprises an amino acid other than phenylalanine (F) at a position corresponding to position 144 in the amino acid sequence of SEQ ID NO: 1.~~

~~4. A polypeptide according to claim 3, wherein the polypeptide~~ 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.

3~~5~~. A polypeptide according to claim 1~~3~~ or 2~~4~~, wherein the FimH lectin domain comprises Valine (V) at the position that corresponds to position 144 in SEQ ID NO: 1.

~~6. A polypeptide according to any one of claims 1-5, wherein the FimH lectin domain has an amino acid sequence having at least 90% sequence identity with SEQ ID NO: 1, preferably wherein the FimH lectin domain comprises SEQ ID NO: 1 wherein the phenylalanine residue at position 71 is substituted by tyrosine.~~

~~7. A polypeptide according to claim 6, wherein the FimH lectin domain comprises SEQ ID NO: 1 wherein the phenylalanine residue at position 71 is substituted by tyrosine and wherein the phenylalanine residue at position 144 is substituted by valine.~~

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

59. A polypeptide according to any one of the preceding claims, wherein the polypeptide is a full length FimH having at least 90% sequence identity with SEQ ID NO: 2~~, preferably wherein the FimH lectin domain comprises SEQ ID NO: 2 wherein the phenylalanine residue at position 71 is substituted by tyrosine and wherein more preferably the FimH lectin domain comprises SEQ ID NO: 2 wherein the phenylalanine residue at position 71 is substituted by tyrosine and wherein the phenylalanine residue at position 144 is substituted by valine~~.

610. A polypeptide comprising a FimH lectin domain comprising the amino acid sequence of SEQ ID NO: 1, wherein the FimH lectin domain comprises Tyrosine (Y) at the position that corresponds to position 71 in SEQ ID NO: 1.

7. A FimH polypeptide comprising an amino acid sequence of at least one of SEQ ID NO's.: 2, 4, 5 and 6, or an amino acid sequence of at least one of SEQ ID NO: 23-45 and 55 as described in US6,737,063, wherein the FimH polypeptide comprises Tyrosine (Y) at the position that corresponds to position 71 in SEQ ID NO: 1.

8. A polypeptide according to claim 6 or 7, wherein the polypeptide further 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, preferably wherein the polypeptide comprises valine (V) at the position that corresponds to position 144 in SEQ ID NO: 1.

910. A polynucleotide encoding the polypeptide of any one of claims 1-89.

1011. A vector comprising a polynucleotide according to claim 910.

1112. A recombinant host cell comprising a polynucleotide according to claim 910 or a vector according to claim 1011.

1213. A pharmaceutical composition comprising a polypeptide according to any one of claims 1-89, a polynucleotide according to claim 910 or a vector according to claim 1011.

1314. A polypeptide according to claims 1-89, a polynucleotide according to claim 910, a vector according to claim 1011, or a pharmaceutical composition according to claim 12 for use in inducing an immune response against a bacterium of the family of Enterobacteriaceae, preferably, wherein the bacterium is *E. coli* or *Klebsiella*, preferably *E. coli*.

145. A polypeptide according to claims 1-89, a polynucleotide according to claim 910, a vector according to claim 1110, or a pharmaceutical composition according to claim 12 for use in the prevention or treatment of a urinary tract infection caused by *E. coli* in a subject.

156. A method for producing a polypeptide comprising a FimH lectin domain, the method comprising expressing the polypeptide from a recombinant cell containing the polynucleotide of claim 910 and/or the vector of claim 1011, optionally the method further comprising recovering and purifying the polypeptide which is optionally followed by formulation into a pharmaceutical composition of the polypeptide.