CLAIMS

1. A gram-negative bacterial host cell comprising:

(a) a carrier protein comprising at least one glycosylation consensus sequence;

(b) an *E. coli* O18 *rfb* locus; and,

(c) an oligosaccharyltransferase for transfer of oligosaccharides to N-glycosylation sites on the carrier protein;

wherein the cell comprises a polypeptide having Wzy O-antigen polymerase activity, which polypeptide comprises an amino acid sequence with at least 95% identity with SEQ ID NO: 1, wherein the amino acid sequence comprises:

i) isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1;

ii) threonine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and valine at a position that corresponds to position 395 in SEQ ID NO: 1;

iii) threonine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1;

iv) isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and valine at a position that corresponds to position 395 in SEQ ID NO: 1; or

v) isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, methionine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1.

2. A host cell according to claim 1, wherein the polypeptide having Wzy O-antigen polymerase activity comprises the amino acid sequence of SEQ ID NO: 1, except that the amino acid sequence comprises:

i) isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1;

ii) threonine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and valine at a position that corresponds to position 395 in SEQ ID NO: 1;

iii) threonine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1;

iv) isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and valine at a position that corresponds to position 395 in SEQ ID NO: 1; or

v) isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, methionine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1.

3. A host cell according to claim 1 or 2, wherein the polypeptide having Wzy O-antigen polymerase activity comprises isoleucine at a position that corresponds to position 199 in SEQ ID NO: 1, lysine at a position that corresponds to position 377 in SEQ ID NO: 1, and alanine at a position that corresponds to position 395 in SEQ ID NO: 1.

4. A host cell according to any one of claims 1 - 3, wherein a polynucleotide or vector encoding the polypeptide having Wzy O-antigen polymerase activity is integrated into the genome of the host cell.

5. A host cell according to any one of claims 1 - 4, wherein the host cell is an *Escherichia coli* host cell.

6. A host cell according to claim 5, wherein the host cell is an *E. coli* K-12 strain, preferably strain W3110.

7. A host cell according to any one of claims 1 - 6, wherein at least one of:

a) the oligosaccharyl transferase comprises an amino acid sequence with at least 95% sequence identity to SEQ ID NO: 6;

b) the carrier protein comprises SEQ. ID NO. 3; and,

c) the *E. coli* O18 *rfb* locus is an *rfb* locus of an *E. coli* strain having serotype O18A.

8. A host cell according to any one of claims 1 - 7, wherein the oligosaccharyl transferase comprises the amino acid sequence of SEQ ID NO: 6.

9. A host cell according to any one of claims 1 - 8, wherein the host cell comprises an *E. coli* O18 *rfb* locus with a nucleotide sequence encoding a Wzy O-antigen polymerase that encodes a polypeptide having Wzy O-antigen polymerase activity and having a sequence as defined in any one of claims 1 – 3.

10. A method for producing a bioconjugate of an *E. coli* O18 antigen polysaccharide conjugated to a carrier protein, the method comprising: culturing a host cell according to any one of claims 1 - 9 to produce the bioconjugate.

11. A method according to claim 10, further comprising recovery of the bioconjugate.

12. A method according to claim 11, further comprising formulating the recovered bioconjugate into a pharmaceutical composition.

13. A method according to claim 12, further comprising adding one or more additional bioconjugates of *E. coli* O-antigen polysaccharides conjugated to a carrier protein to the pharmaceutical composition to obtain a multivalent bioconjugate composition.

14. A method according to claim 13, wherein the one or more additional bioconjugates comprise at least one O-antigen polysaccharide selected from the group consisting of *E. coli* serotypes O1, O2, O4, O6, O8, O15, O16, O25 and O75.

15. A method according to claim 14, wherein the multivalent bioconjugate composition comprises:

(i) the bioconjugate of an *E. coli* O18A antigen polysaccharide conjugated to a carrier protein;

(ii) a bioconjugate of an *E. coli* O1A antigen polysaccharide conjugated to a carrier protein;

(iii) a bioconjugate of an *E. coli* O2 antigen polysaccharide conjugated to a carrier protein;

(iv) a bioconjugate of an *E. coli* glucosylated O4 antigen polysaccharide conjugated to a carrier protein;

(v) a bioconjugate of an *E. coli* O6A antigen polysaccharide conjugated to a carrier protein;

(vi) a bioconjugate of an *E. coli* O15 antigen polysaccharide conjugated to a carrier protein;

(vii) a bioconjugate of an *E. coli* O16 antigen polysaccharide conjugated to a carrier protein;

(viii) a bioconjugate of an *E. coli* O25B antigen polysaccharide conjugated to a carrier protein; and,

(ix) a bioconjugate of an *E. coli* O75 antigen polysaccharide conjugated to a carrier protein,

wherein preferably the carrier protein in each bioconjugate comprises SEQ ID NO: 3.

16. A method according to claim 15, wherein the multivalent bioconjugate composition further comprises:

(x) a bioconjugate of an *E. coli* O8 antigen polysaccharide conjugated to a carrier protein,

wherein preferably the carrier protein comprises SEQ ID NO: 3.