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(54) **ARTIFICIAL INVAPLEX**

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(52) **U.S. Cl.** ..... **424/203.1**; 424/234.1; 424/257.1;  
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(58) **Field of Classification Search** ..... None  
See application file for complete search history.

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(57) **ABSTRACT**

An artificial invasin complex is prepared from purified or recombinantly prepared invasins and gram negative bacteria lipopolysaccharides. Typically, IpaB is mixed with IpaC to form a IpaB:IpaC complex. This invasin protein complex is then mixed with the lipopolysaccharide to form an artificial invasin complex. Additional bioactive molecules can be incorporated into the complex during manufacture. This artificial invasin complex is similar in function to native Invaplex 24 or Invaplex 50. The artificial invasin complex has superior immunogenicity properties relative to the native complex and can be tailor made. Its method of preparation lends itself to scale up. The artificial invasin complex can facilitate transport of biomolecules, therapeutics and antibiotics across cell membranes in a manner similar to native *Shigella Invaplex*.

**23 Claims, 13 Drawing Sheets**