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(54) **USE OF *SHIGELLA* INVAPLEX TO TRANSPORT FUNCTIONAL PROTEINS AND TRANSCRIPTIONALLY ACTIVE NUCLEIC ACIDS ACROSS MAMMALIAN CELL MEMBRANES IN VITRO AND IN VIVO**

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C07H 21/04 (2006.01)
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(52) **U.S. Cl.** **435/69.1**; 536/23.1

(58) **Field of Classification Search** 435/252.3
See application file for complete search history.

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(57) **ABSTRACT**

The in vivo and in vitro use of Invaplex to transport materials, including functional proteins and biologically active nucleic acids, across eukaryotic cell membranes. The eukaryotic cells include a variety of cell types, e.g. insect, reptile, fish, mammal and tumor cells. The suitable materials for transport include biochemicals such as reporter molecules, antibiotics, biopharmaceuticals and carbohydrates including polysaccharides, lipopolysaccharides, polynucleotides, such as DNA and RNA, and glycoproteins and proteins including antigens, enzymes, antibodies, receptors and hormones. In addition, Invaplex enhances the immune response to DNA vaccines and also can function by itself as a vaccine against shigellosis.

7 Claims, 16 Drawing Sheets