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(54) Title: CAPSULAR GRAM-POSITIVE BACTERIA BIOCONJUGATE VACCINES

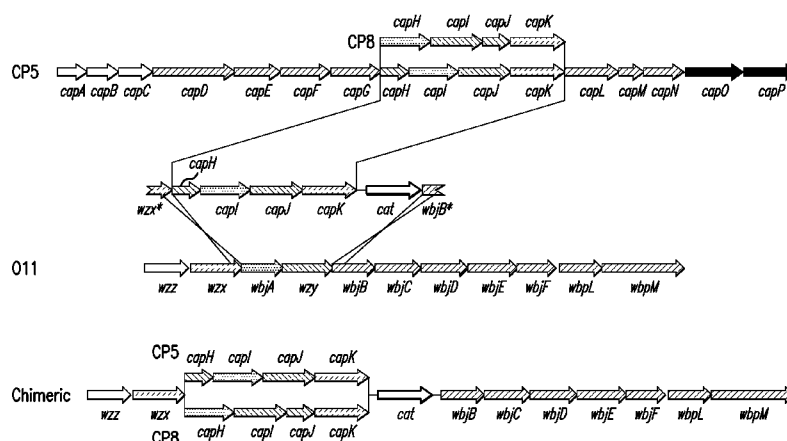


FIG. 6

(57) **Abstract:** An embodiment of the present invention is directed to a novel *S. aureus* bioconjugate vaccine. More generally, the invention is directed to Gram-positive and other bioconjugate vaccines comprising: a protein carrier comprising an inserted nucleic acid consensus sequence; at least one polysaccharide such as a capsular Gram-positive polysaccharide linked to the consensus sequence; and, optionally, an adjuvant or pharmaceutically acceptable carrier. In a further aspect, the instant invention is directed to methods of producing Gram-positive and other bioconjugate vaccines. In another aspect, an N-glycosylated protein is provided that comprises one or more polysaccharides such as Gram-positive polysaccharides. The present invention is additionally directed to engineered prokaryotic organisms comprising nucleotide sequences encoding a glycosyltransferase of a first prokaryotic organism and a glycosyltransferase of a second prokaryotic organism. The invention further includes plasmids and prokaryotic cells transformed with plasmids encoding polysaccharides and enzymes which produce an N-glycosylated protein and/or bioconjugate vaccine. Further, the invention is directed to methods of inducing an immune response in a mammal comprising administering said bioconjugate vaccines.