TECHNOLOGY

Use of ClyA Hemolysin for Protein Export and Vaccines

OVERVIEW

The UMB inventor has engineered a novel protein export system for efficiently producing recombinant protein from a host cell, constructed with a genetically stabilized expression plasmid incorporating the protein of interest fused to the ClyA hemolysin of Salmonella enterica serovar Typhi. Used in a live-vector vaccine, this system allows the export of heterologous antigen for significant enhancement of vaccine immmunogenicity. The ClyA export system has proven efficacious for enhancing the immune response in several vaccine models, including in monkeys exposed to anthrax toxin using a mucosal priming dose followed by parenteral boost.

APPLICATIONS

Recombinant protein production.
Live-vector vaccines.

ADVANTAGES

-Offers exceptional versatility for constructing live-vector vaccines with enhanced immunogenicity.
-Minimizes metabolic burden on the recombinant host cell.
-Potential to express proteins normally toxic to host cells.
-No detectable host cell lysis.

STAGE OF DEVELOPMENT

Demonstrated utility for enhancing immune response in multiple animal vaccine models, including for anthrax and malaria vaccines.

R&D REQUIRED

May be readily employed for expression of a variety of proteins of commercial interest.

LICENSING POTENTIAL

UMB seeks a development partner in multiple fields.

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Additional Information

INSTITUTION

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PATENT STATUS

-U.S. Patent Serial Number 7,056,700 Use of ClyA Hemolysin for Excretion of Proteins, issued June 6, 2006; -U.S. Patent Serial Number 7,459,161 Methods for Eliciting an Immune Response Using Cytolysin and Hemolysin Fusion Proteins, issued December 2, 2008. -Issued Patents in the United Kingdom, France, Italy, Germay, Spain, Japan, Australia, and India.

CATEGORIES

- Therapeutics
- Vaccines

INVESTIGATOR(S)

James Galen

ATTACHMENTS

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EXTERNAL RESOURCES

- Mucosal immunization with attenuated Salmonella enterica serovar Typhi expressing protective antigen of anthrax toxin (PA83)...
- Adaptation of the endogenous Salmonella enterica serovar Typhi clyA-encoded hemolysin for antigen...
- Oral administration of a Salmonella enterica-based vaccine expressing Bacillus anthracis protective antigen....
- Enhanced immunity to Plasmodium falciparum circumsporozoite protein (PfCSP) by using Salmonella enterica...

JG-2001-022