Novel Vaccine Adjuvant

The University of North Dakota has developed a recombinant protein product, which enhances immune response in a recipient host. Used with an antigen, this technology serves as a new adjuvant in a vaccine preparation.

Adjuvants

Adjuvants are used in a vaccine preparation to augment the effectiveness of the vaccine. Experimentally, agents which activates the host’s immune responses or stabilizes the vaccine antigen at the site of injection, such as bacterial toxins or lipid emulsions, respectively, have been used as adjuvants. These adjuvants, however, cause great discomfort and irritations in the host and therefore only alum is an approved for human use in the United States. A new generation of adjuvants with greater efficacy and suitability for human use are being sought and explored.

Our Technology:

This patent-pending technology is a recombinant gene product derived from a bacterial protein. Our researchers recently discovered that the derivative product greatly stimulated inflammatory responses in a host animal by increasing cytokine and chemokine releases (Fig. 1). New data indicated that this novel protein product activated Toll-like receptor 2 signal transduction, and the animals vaccinated with the protein product as an adjuvant were better protected from the subsequent infection challenge than those without any adjuvant. Thus, this protein derivative technology can be used as a new vaccine adjuvant to enhance immunogenicity of an antigen.

Advantages:

- Shown to activate cytokine and chemokine productions
- Protects immunized mice from infection challenge
- Non-pathogenic

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Patent pending

A Novel Derivative Product of a Bacterial Protein as an Inducer of Proinflammatory Immune Responses

Fig 1. Serum cytokine and chemokine levels induced by a novel recombinant protein products. C57BL/6N mice were vaccinated with either wild-type bacterial protein product or its derivative. The derivative product induces much greater proinflammatory immune responses in the host animals than the wild-type.

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