

PROTEIN PRODUCT FOR THE TREATMENT OF SEPSIS OR OTHER INFLAMMATORY DISEASES OF INFECTIOUS ORIGIN

A research group, with wide experience in immunology has developed a recombinant soluble form of human CD6 with a new mechanism of action for the treatment of sepsis.

BACKGROUND

Sepsis is defined as the presence of an infection accompanied by evidence of a systemic response called the Systemic Inflammatory Response Syndrome (SIRS). The systemic inflammation and disordered coagulation can lead to organ failure or death. As disease, it is a major unmet medical need that has no satisfactory treatment.

The transmembrane receptors CD5 and CD6 are two lymphoid members who share important similarities at functional and structural level. However, whereas soluble and membrane forms of CD6 bind to the surface of Gram negative and Gram positive bacteria, cells that express CD5 in surface recognize and have more affinity for fungal cells.

TECHNOLOGY DESCRIPTION

The research group has developed a recombinant soluble form of the human CD6 protein that has proved to:

- Bind to bacteria (LPS from Gram negative and LTA from Gram positive), virus and fungus.
- Aggregate both gram positive and gram negative bacteria. This aggregation would facilitate both pathogen and endotoxin clearance from circulation, thus reducing subsequent inflammatory processes.
- Inhibit the activation and proliferation of T lymphocytes to different stimuli.

Data from preclinical studies demonstrate that CD6 provide significant benefit in a standard murine model of septic shock. Mice treated with the protein showed increased survival (up to 70%) and dramatically reduced inflammation with comparison to placebo-treated animals.

Hence, this agent has a therapeutic potential to treat sepsis in an efficient way, and might be an answer to overcoming this disease in the future.

ADVANTAGES

- Soluble CD6 is a physiologically existing molecule. Low safety risk is expected from the administration of CD6.
- CD6 has shown wide spectrum of action over pathogen agents and anti-inflammatory properties, providing promising results in reducing mortality in standard "in-vivo" murine model.
- New mechanism of action, potentially compatible and complementary to the current standard treatments.
- CD6 could be used for the treatment of other inflammatory processes due to its action over the adaptive immune system.

CURRENT STAGE OF DEVELOPMENT

In vivo preclinical studies in murine models

GOAL

We are searching companies interested in the acquisition of the license.

PATENT

Patent application number: ES200700893 and PCT extension: PCT/ES2008/000177.

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