Vaccine Against Herpes Simplex Virus Infection

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BRIEF DESCRIPTION

Herpes simplex virus (HSV) infections affect billions of patients worldwide and can manifest its symptoms as painful blisters or ulcers at oral, ocular or genital locations. Symptomatic patients can currently only alleviate their pains with antiviral medication. This technology proposes a shift in focus toward novel protective epitopes as the foundation for new vaccines.

FULL DESCRIPTION

Herpes simplex virus type 1 (HSV-1), commonly referred to as herpes, is a virus infection that is mainly transmitted by oral-to-oral contact. The virus can manifest itself as oral, genital, or ocular herpes and is a lifelong disease. Symptomatic patients suffer from frequent bouts of painful blisters or ulcers at the sites of infection. In particular, symptomatic patients with ocular-related HSV-1 infection have recurrent corneal disease and can eventually become blind. Standard viral medications, such as acyclovir, famciclovir and valacyclovir, only reduce severity and frequency of HSV-1 symptoms. Ongoing clinical trials involving protein-based vaccines in this area have shown limited efficacy.

This technology utilizes an innovative strategy to develop a novel HSV-1 vaccine in incorporating newly discovered targets capable of eliciting an immune response. The vaccine will be able to harness the adaptive immunity of an infected patient to combat HSV-1 infection and disease. This vaccine strategy focuses on T-cell based cellular immunity rather than humoral immunity (involvement of B-cells to produce antibodies). The vaccine will activate the T cells (“prime”) and localize (“pull”) them to the site of infection. Since there is currently no cure for HSV-1 infections and resulting diseases, this new vaccine will be able to finally provide symptomatic patients a way to mitigate the recurrent blisters and ulcers.

SUGGESTED USES

- Prevention of herpes simplex virus infection and symptoms (such as oral, ocular, or genital)
- Possibly Vaccinate individuals who have not been exposed to the herpes simplex virus

ADVANTAGES

- High conservation: vaccine should be effected despite different HSV-1 strains
- Minimal side effects: vaccines avoid the potential for engaging other epitopes and accidentally triggering unwanted immune responses
- Localized: prime-pull technique will mediate protective immunity at infection site

STATE OF DEVELOPMENT

Studies examining safety, immunogenicity and protective abilities of HSV-1 vaccines have been tested in animals.

RELATED MATERIALS


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OTHER INFORMATION

CATEGORIZED AS

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