

Novel Group A Streptococcal Vaccine and Therapeutics

Tech ID: 22219 / UC Case 2012-011-0

BACKGROUND

Group A *streptococcus* (GAS) is a ubiquitous human pathogen behind a spectrum of diseases. Worldwide, invasive *S. pyogenes* infections result in excess of half a million deaths each year. To date, there has been no effective GAS vaccine developed in part because there are more than 150 serotypes. A diagnostic for GAS has been developed utilizing the carbohydrate structure of the GAS called Group A carbohydrate (GAC) consisting of a rhamnose backbone and an immunodominant N-acetylglucosamine (GlcNAc) side chain. Initially, utilizing this same structure as a potential vaccine produced good outcomes in animals but safety concerns were raised since antibodies generated against the GlcNAc side chain could precipitate other conditions (e.g. rheumatic carditis and Sydenham's chorea).

TECHNOLOGY DESCRIPTION

Scientists at UC San Diego have developed novel genetic GAS mutants expressing GAC without the GlcNAc side chain. This invention is the use of the A-variant carbohydrate purified from the mutant as a vaccine, which will induce anti-GAC antibodies that would be protective against all serotypes of GAS. The mutant GAC may also be used as a vaccine strategy against other medically important pathogens including groups C and G *Streptococcus* (GCS, GGS).

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20170196962	07/13/2017	2012-011

RELATED MATERIALS

- van Sorge, N.M. et al. 2011. *Streptococcus Pyogenes* Group A Carbohydrate as Virulence Factor and Vaccine Candidate. [Microbial Pathogenesis and Host Response Symposium](#), Cold Spring Harbor, New York.
- Cole JN, Barnett TC, Nizet V, Walker MJ. Molecular Insight Into Invasive Group A Streptococcal Disease. [Nat Rev Microbiol](#). 2011 Sep 16;9(10):724-36.

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
 - Disease: Infectious Diseases
 - Vaccines

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