Background

The gram positive human pathogen Streptococcus pyogenes (group A streptococcus; GAS) is the etiologic agent for a range of diseases including severe diseases such as sepsicaemia, streptococcal toxic shock syndrome and necrotizing fasciitis (flesh-eating disease). No vaccine is currently available for the treatment of GAS.

Technology

The inventors have isolated two surface level protein antigens that have potential as vaccine candidates for GAS - arginine deiminase (ADI, 46 kDa) and trigger factor (TF, 34 kDa). Both antigens are:

- highly conserved in all 13 published GAS genomes
- expressed in all GAS M types examined to date
- protective in a murine intraperitoneal challenge model following subcutaneous vaccination
- exhibit no identity to human proteins and
- not recognized by serum from patients suffering rheumatic fever and rheumatic heart disease
- display no cross-reactivity with human heart extract
- promote opsonophagocytosis of M1 GAS strain.

The advantage of this invention is the potential for development of a safe vaccine against GAS infection. Competing GAS vaccine technologies based on M protein fragments have encountered significant safety issues in relation to autoimmune complications.

Market

It is estimated that at least 517,000 deaths per year are due to severe GAS diseases (eg acute rheumatic fever, rheumatic heart disease, post-streptococcal glomerulonephritis, and invasive infections). The prevalence of severe GAS disease is at least 18.1 million cases, with over 700,000 new cases each year. The greatest burden is due to rheumatic heart disease with a prevalence of at least 15.6 million cases. These estimates suggest that, on a global scale, GAS is an important cause of morbidity and mortality, mainly in developing countries. For example the minimum estimate of over 500,000 death per year places GAS among the major human pathogens, only exceeded by HIV, tuberculosis, plasmodium, pneumonia and comparable to measles, influenza type b and Hepatitis B.

IP Position

The IP associated with the compositions and associated methods of treatment is covered by a US patent application with the University of Wollongong as the sole applicant. Complete chain-of-title exists w.r.t. IP ownership.

Commercialisation Strategy

We are seeking a commercial partner in order to further develop the technology.

MORE INFO:

To discuss your options, contact one of our Managers of Innovation and Commercialisation (MIC).

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