

Vaccine for Secondary Influenza-Mediated *Streptococcus pneumoniae* Infection

OMV vaccines offer comprehensive protection from strep pneumonia

Background:

Streptococcus pneumoniae (Spn) is a common human nasopharyngeal microbiota, but it is also a leading pathogen that causes many non-invasive and invasive diseases with significant morbidity and mortality, especially in children under five years of age, the elderly, and immunocompromised individuals. Influenza infections can significantly increase the severity and likelihood of Spn infection. Co-infections can lead to higher morbidity and mortality rates from the combined effects of the virus and bacteria. During seasonal and pandemic influenza, secondary Spn infection is a known fatal complication of influenza, which was documented as early as the 1918 influenza pandemic and in subsequent influenza pandemics, including the 2009 H1N1 pandemic.



Source: <https://www.istockphoto.com>

Technology:

A scientist at Albany Medical College has developed a new vaccine platform to protect against *Streptococcus pneumoniae* (Spn) and other respiratory bacterial infections. This platform uses *Yersinia pestis* outer membrane vesicles (OMV) to deliver heterologous antigens to protect against corresponding respiratory bacterial infections. OMV vaccine platforms are known to trigger a comprehensive immune response. The protective efficacy of this new platform was evaluated against an H1N1 infection-mediated secondary Spn infection. Results demonstrated that intramuscular prime-boost immunization with OMV-PspA induced potent humoral and cellular immune responses in systemic and mucosal compartments and afforded significant protection against influenza-mediated secondary Spn infection.

Intellectual Property

Patent Pending

Technology Readiness

Available for Licensing

Ready for stage 1 clinical trials

Advantages:

- New vaccine to prevent *S. pneumoniae* infection
- Efficacious
- Alternative for people allergic to current vaccines

Applications:

- Protection for *S. pneumoniae*
- Can be used as a platform for future vaccines

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