



# Whooping Cough

## Novel Vaccine components for Whooping Cough

### Overview

Novel Toll-like receptor 2 (“TLR2”) agonists endogenously derived from *Bordetella pertussis*, have been discovered and have considerable potential for the development of a more effective vaccine capable of generating protective cellular immunity against pathogens and other conditions such as cancer or allergic diseases and in particular against the re-emerging *B. pertussis* pathogen.

### What Problems does it Solve / Advantages

In recent years there has been a dramatic resurgence in the incidence of disease not only in infants but also in adolescents and young adults.

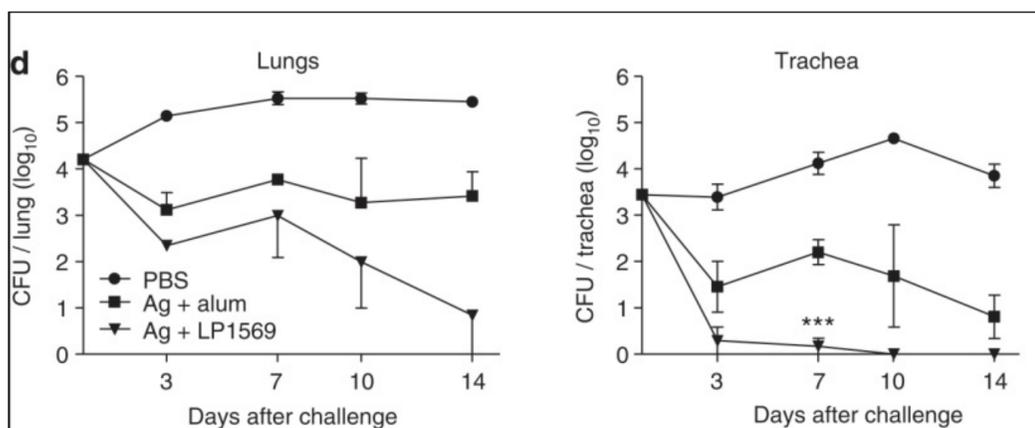
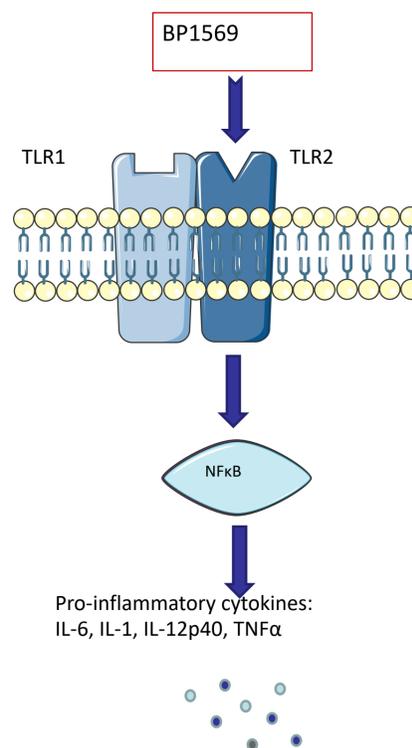
This is caused by antigenic variation in protective antigens and ineffective immunity induced with current vaccination regimes. Acellular vaccines, although safe, do not afford the same long-lasting immunity as the previously used whole-cell vaccine. Ultimately, improvements in the development of vaccines and in vaccination coverage will be essential to decrease the burden of pertussis on society.

### Technology Status – demonstrated proof of principal

- *Bordetella pertussis* lipoprotein BP1569 is a Toll-like receptor 2 (TLR2) agonist that promotes cytokine production and maturation of murine dendritic cells (DCs)
- BP1569 induces innate inflammatory cytokines and is immunogenic in vivo
- LP1569 acts as an adjuvant for an experimental acellular pertussis vaccine and promotes protective cellular immunity against *Bordetella pertussis*

### Applications

- Whooping Cough is the most common vaccine-preventable disease in the world
- 16 million cases worldwide per annum
- 300,000 pertussis deaths in children every year



### Publication

A novel TLR2 agonist from *Bordetella pertussis* is a potent adjuvant that promotes protective immunity with an acellular pertussis vaccine. Dunne et al., *Mucosal Immunology* 2015 May;8(3):607-17 <https://www.nature.com/articles/mi201493>

### Market

Therapeutics: Synthesis, Formulation, Processing and Drug Delivery

### IP Status

A European and US patent is pending

### Opportunity

Research collaboration,  
Available to license

### Researcher(s)

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### Reference:

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