

## New vaccine could prevent deadly infections

A new generation of vaccines is being developed by UK scientists to protect against lethal infections such as meningitis, TB, pneumonia and the hospital superbug *C. difficile*.

### The need

Immunisation programmes have proved successful against some of the world's most deadly diseases, but vaccines are still not available to counteract many infections. While vaccines can protect against some strains of bacteria causing meningitis, Group B meningococcal disease has proved difficult to combat: no protection is available against all the major six deadly 'B' strains in the UK. Infection can be fatal or lead to deafness and brain damage.

Meningitis Research Foundation estimates that there are around 3,300 cases of bacterial meningitis and associated septicaemia every year in the UK and Ireland. This means that every day nine people become ill with the diseases. Babies are particularly vulnerable.

### The results

Following a two-year study in the UK, scientists have achieved a breakthrough in developing a new type of vaccine that could eventually protect against all forms of the lethal infection.

ImmunoBiology Ltd (ImmBio), a Cambridge-based vaccine development company, builds on recent advances in our understanding of how the immune system operates and is achieving revolutionary breakthroughs in combating some of the world's deadliest diseases, including meningitis.

ImmBio's first success was in identifying a promising vaccine for TB, now in later development, and its progress laid the foundations for ImmBio's second research project on meningitis, funded by the Technology Strategy Board. For two years it has worked with the University of Bristol Medical School, ERA and

the UK's Health Protection Agency (HPA) to develop a vaccine for Meningitis B, which could eventually offer protection against all forms of meningitis in a single vaccine.

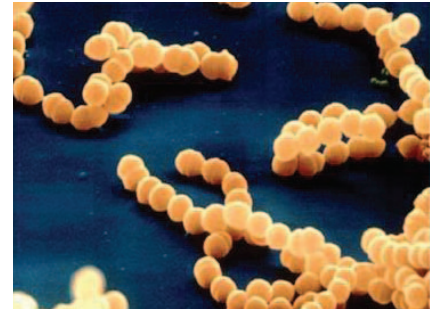
In all the tests conducted so far the new vaccine provides protection against all variations of the bacteria studied, including all the major B strains. The project has also developed a commercially viable manufacturing process at a standard expected by health regulatory authorities.

The HPA is continuing to work with ImmBio on further development of the meningitis vaccine, supported by the Medical Research Council. Based on its success ImmBio has also begun further research programmes into vaccines against the hospital superbug *Clostridium difficile* and *streptococcus pneumoniae*, a respiratory infection affecting the young and elderly.

## The market

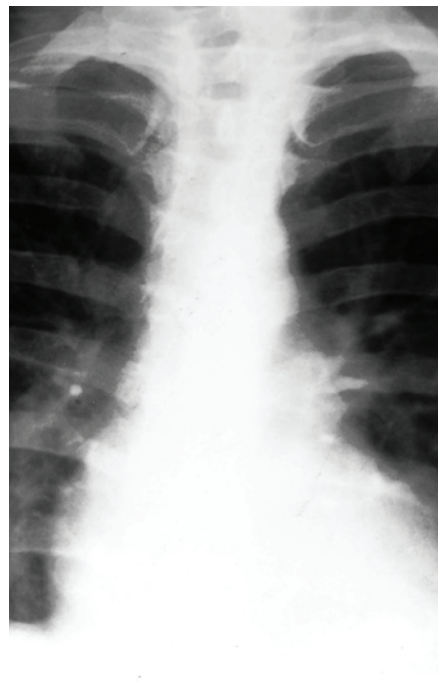
With prevention better than cure, vaccines have an increasingly important role to play in modern healthcare. In 2009 the global vaccines market generated revenue of £22bn and this market is forecast to grow. However, vaccines are available against some, but not all, major infectious diseases. New products could bring quality of life and health economic benefits globally, with

infectious diseases the dominant cause of death in developing countries and the second biggest cause of death in the UK. Recent scientific insights into how the human immune system works has enabled the development of new approaches to vaccines, which have the capacity to drive future profitable growth for successful companies.



“The technology developed in this project offers the prospect of a new generation of vaccines which could address many of the major unmet global healthcare needs.”

GRAHAM J CLARKE, CEO OF  
IMMUNO BIOLOGY LTD



## Next steps

There are additional stages to complete in the development of the meningitis vaccine but those behind the project believe it has the potential to save many lives in the future. It will require several years of human clinical trials, but data published so far has already attracted substantial commercial interest. Andrew

Gorringe, section leader at the UK's Health Protection Agency says: 'Meningitis B has proved particularly difficult to address but this data is significantly the most promising anyone has generated to date, in terms of the strength and breadth of likely protection, and from a single vaccine.'

### Technology Strategy Board

Driving Innovation

Collaborative research and development projects are one of the tools that the Technology Strategy Board uses to drive innovation in the UK. The Technology Strategy Board is a business-led executive non-departmental public

body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the Department for Business, Innovation and Skills (BIS).

Tel: 01793 442700 [www.innovateuk.org](http://www.innovateuk.org)

**Project No:** M0025G

**Partners:**

ImmunoBiology (ImmBio)  
University of Bristol  
ERA consulting  
HPA Porton Down

**Duration:**

September 2007 –  
August 2009

**Technology Strategy Board**

**investment:**

£600k

**Total project investment:**

£2m

**Project contact details:**

Graham J Clarke,  
ImmunoBiology Ltd.,  
Babraham Research  
Campus, Babraham,  
Cambridge CB22 3AT  
E [graham.clarke@immbio.com](mailto:graham.clarke@immbio.com)  
T 01223 496117  
W [www.immbio.com](http://www.immbio.com)  
W [www.bristol.ac.uk](http://www.bristol.ac.uk)  
W [www.eraconsulting.com](http://www.eraconsulting.com)  
W [www.hpa.org.uk](http://www.hpa.org.uk)