Bridging the gap: Hope that all Meningitis strains will be vaccinated for

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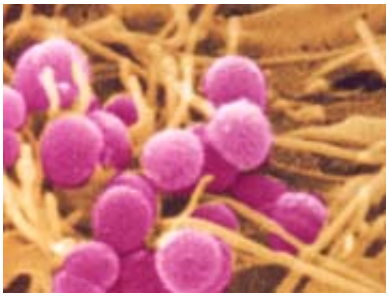

Neisseria meningitidis (MenB): the bacterium responsible for meningococcal disease'. Credit: MenUK

Scientists at the University of Southampton have taken a significant and important step in keeping people safe from the most common form of meningitis in the UK.

Meningitis B (also known as Meningococcal group B or MenB) is one of the deadliest strains of meningitis. Each year, an average of 1,870 people in the UK are affected by the disease with one in 10 people dying from it.

Recently the first potentially universal MenB vaccine was awarded a license for use throughout Europe, but it has been estimated that in this country, this new vaccine should protect against 73 per cent of the bacterial strains that cause the disease.

Now Dr Myron Christodoulides, Reader in Molecular Bacteriology/Microbiology at the University, and his team have discovered a potential way of protecting people against the other 27 per cent of strains of the disease.

In a study, published in *mBio* today (26 February 2013), the University of Southampton team discovered that a MenB protein called the Adhesin Complex Protein (ACP) is a new molecule that the MenB bacterium uses to stick to human cells.

Importantly, ACP also stimulates the production of antibodies that kill the bacteria. The team demonstrated that antibodies induced to an experimental ACP vaccine had the ability to stimulate protection against many more MenB strains.

Dr Christodoulides, who is also scientific Chairman for the Meningitis UK Scientific and Medical Panel, comments: "We are now starting to see the first generation of vaccines for Meningitis B, which is a fantastic development but we know that they may not be 100 per cent effective at this stage.

"There are already a number of successful vaccines that can prevent many cases of bacterial meningitis, including the Meningitis C, HIB and pneumococcal vaccines. These vaccines are made from the 'jelly-like' coats that surround these bacteria.

"But the issue with Meningitis B is that the coating of this bacterium has similar characteristics to a human protein found in the brain, and therefore if we used the same method, we would potentially create antibodies against the body's own protein."

ACP was identified from a previous study done by the team in Southampton, in which they analysed the types of protein that were

present in the membrane that is found underneath the 'jelly-like' coat of the bacterium. The team believed that because these proteins might be exposed on the surface of the membrane, they could conceivably be targeted by the human immune system. The team confirmed that ACP was indeed exposed on the bacterium's surface and also that it was present in all the strains of meningococci that they were able to examine.

Dr Christodoulides adds: "We believe that ACP is potentially something that will bridge the gap that the new universal vaccine does not appear to cover and break through into the second generation of vaccines for Meningitis B."

Dr Christodoulides and his team will continue preclinical work with the potential vaccine with an aim of taking it to Phase 1 trials.

Provided by University of Southampton