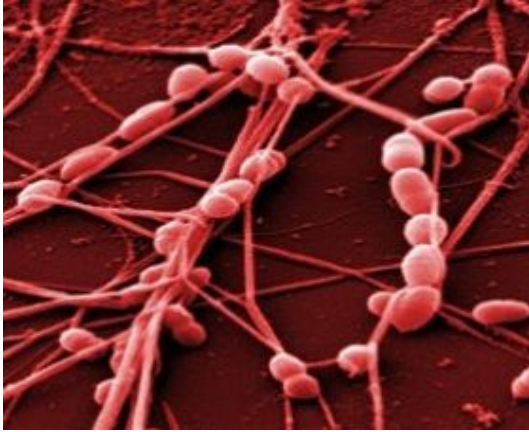


New research aims to eliminate Streptococcus infections



Streptococcus bacteria (red spheres in chains) adhering to collagen fibres.
Credit: A. Nobbs

Professor Howard Jenkinson in the Department of Oral & Dental Science (Dental School) has been awarded a grant of £285,000 from The Wellcome Trust to research ways to combat diseases caused by Streptococcus bacteria.

Familiar to those who suffer from ‘strep’ throat, Streptococcus are the most common bacteria in the human mouth and throat. They are linked to a number of health problems, some mild, some life-threatening, ranging from tooth and gum disease to meningitis, pneumonia, endocarditis (inflammation of the inner layer of the heart) and necrotizing fasciitis (‘flesh-eating disease’). Streptococcus are potent bacteria which are becoming increasingly resistant to treatment by antibiotics. The rate of severe invasive Streptococcus infections is about 60 per 100,000.

The bacteria cause disease in the body by first attaching to tissues. By looking at how this happens, Professor Jenkinson and his team will be able to develop new ways to block the bacteria. One goal is to reduce the rates at which disease-causing Streptococcus are transferred between humans. This could be achieved by developing user-friendly vaccines or natural biological products, which can be taken by mouth, to eliminate the harmful bacteria. This approach lessens antibiotic usage and would significantly decrease infection rates in those most susceptible e.g. children, expectant mothers and the elderly.

According to Professor Jenkinson,

‘Streptococcus bacteria are amongst the most commonly encountered in infections, and for the most part we depend totally on antibiotics to fight them. Our research will help develop new infection-control methods that do not rely on conventional antibiotics, and will also help identify people who are at higher risk of infections.’

The research will look at the interactions between a protein called AgI/II, which is found on the surface of Streptococcus bacteria, and a protein called gp340, which is found on teeth, in saliva and in airways. The team will measure how ‘sticky’ the Streptococcus bacteria proteins are as they attach to gp340 on tissue surfaces. By pinpointing the sticky parts of the protein, the team will be able to identify which are responsible for streptococci invading and attacking the body. The research will look at how to block this process and thus develop new ways to prevent bacterial infection.

The study involves Drs Michele Barbour, Linda Franklin and Sarah Maddocks, also from the Department of Oral & Dental Science; Dr Aras Kadioglu, University of Leicester and Dr Nicklas Strömberg, Umeå

University. The first results are due to be presented internationally in June 2008.

Source: University of Bristol

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