

Breakthrough could lead to new antimicrobial drugs

June 10 2009

After 25 years of painstaking studies - led by Professor Ian Booth at the University of Aberdeen and Dr Tarmo Roosild at Nevada Cancer Institute in Las Vegas - scientists have figured out the mechanics of 'channels' in bacteria which stay shut if all is normal and are triggered to open if they need to mount a defence.

The breakthrough finding published in the journal *Structure* paves the way for the development of new methods for tackling *E.coli*, salmonella and brucella infections; as well as the bacteria *Pseudomonas*, which often colonise the lungs of cystic fibrosis patients and also cause infection in those whose immune systems are compromised.

Professor Booth collaborated with Nevada Cancer Institute and the Salk Institute in San Diego, California on the research which received funding by the Wellcome Trust.

The research focused on *E.coli* but the protective channel system is common to many pathogens that cause infection and disease.

Professor Booth said: "I started work to understand this system in 1984 so it is tremendously exciting to have made this breakthrough in understanding the molecular workings of these protective channels that are found in several pathogens, many of which are increasingly resistant to traditional antibiotics.

"Our next challenge is to design chemicals that fool the bacterium into

locking the channel open all the time, which will then impair its growth, or we could lock it shut so it can't protect itself."

Dr Roosild added: "Discovery of new drugs through the structural analysis of proteins that underlie diseases, including [cancer](#), and are potentially molecular targets for therapeutic intervention, is the primary focus of our research.

"The hope is that these particular studies will eventually lead to the development of new medicines that will cure people with deep seated bacterial infections such as those in intensive care."

Source: University of Aberdeen

Citation: Breakthrough could lead to new antimicrobial drugs (2009, June 10) retrieved 4 May 2024 from <https://medicalxpress.com/news/2009-06-breakthrough-antimicrobial-drugs.html>

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