Biological warfare in bacteria offers hope for new antibiotics

July 2 2009

Scientists are to study a group of proteins that are highly effective at killing bacteria and which could hold the key to developing new types of antibiotics.

Researchers from the Universities of York and Leeds have been awarded £3.3m from the Biotechnology and Biological Sciences Research Council (BBSRC) to find out how a family of proteins known as colicins force their way into bacterial cells before destroying them.

The team, led by Professor Colin Kleanthous, from the University of York's Department of Biology, will develop earlier research that suggests colicins use decoys to mimic key parts of the cells' own protein machinery to evade their defences.

Professor Kleanthous said: "Colicins are the weapon used in the biological warfare that takes place between competing bacteria. Understanding how this group of proteins work could help scientists develop new drug delivery methods to target the bacteria that cause diseases in people."

"It's as though the colicins are carrying the equivalent of hand grenades which they can deploy without harming themselves," said Professor Sheena Radford of the University of Leeds' Faculty of Biological Sciences.

The five year programme of research aims to discover how colicins

specifically penetrate Gram-negative bacteria which are protected by two membrane barriers.

It will involve collaboration between six groups of scientists from the Departments of Biology and Chemistry at the University of York and the Astbury Centre for Structural and Molecular Biology, Faculty of Biological Sciences, at the University of Leeds.

Source: University of York