

Breakthrough in the fight against deadly superbug

July 17 2008



University of Sunderland PhD student Alexandre Bedernjak takes a closer look at the new superbug test that could save thousands of lives.

(PhysOrg.com) -- The week the government's chief medical officer for England, Sir Liam Donaldson, has announced that the NHS aims to create immunisation against two of the most common superbugs, MRSA and *Clostridium difficile*, within the next decade. But a research team led by University of Sunderland scientists has made a major breakthrough in the fight against a deadly hospital infection which kills tens of thousands of people every year, and it will be available within the next year.

Experts have discovered a technique for the early detection of the superbug *pseudomonas aeruginosa* which particularly infects patients with cystic fibrosis.

70,000 people worldwide are affected by cystic fibrosis and on average around 50 percent of those will be infected with the superbug – 50 percent of those will die.

Although the research centred on the superbug's relation to cystic fibrosis, *Pseudomonas aeruginosa* also attacks patients with localized and systemic immune defects, such as those suffering with burns, patients with AIDS and cancer.

According to the Centre for Disease Control and Prevention in the USA, *Pseudomonas aeruginosa* accounts for 10 per cent of all hospital infections.

While the superbug is very difficult to cure as it is highly resistant to antibiotics, early detection makes a huge difference to a patient's chances of survival.

Now for the first time, the University of Sunderland-led team has discovered a technique that can identify the superbug within 24-48 hours of infection, greatly increasing a patient's chances of survival.

The team is led by Professor Paul Groundwater and Dr Roz Anderson at the University of Sunderland, in collaboration with colleagues Professor John Perry, Freeman Hospital, Newcastle, Professor Arthur James, Northumbria University and Dr Sylvain Orenge, bioMérieux, France

Prof Groundwater says: "This superbug has a massive impact on people who are immunocompromised, for example patients with severe burns, cancer and AIDS.

"It is calculated that 28 per cent of people who have undergone transplant surgery are infected by *Pseudomonas aeruginosa*. We hope our research will make a big difference in the survival rate of many

thousands of vulnerable people throughout the world.

“The bacteria infect the fluid on the lungs of cystic fibrosis sufferers. It also infects patients in intensive care units. It is really difficult to treat, and hospital staff need to know very quickly if someone has been infected by it.

“In our new diagnostic method a non-coloured compound reacts with an enzyme present in pseudomonas aeruginosa and produces a very distinctive purple colour which indicates the presence of the bacteria. This technique works on 99 per cent of the strains of this superbug.”

The research has been sponsored by the multinational biotechnology company bioMérieux. The company, based in France, designs, develops, and produces a wide range of diagnosis systems for medicine and industry.

“bioMérieux is very proud to have participated in and supported this research that will help in the fight against healthcare associated infections - a strategic focus for our company,” says Dr. Peter Kaspar, bioMérieux corporate vice-president of research and development. “This discovery will enable bioMérieux to bring additional high-medical value tests to clinicians and positively impact patients’ treatment and their follow-up care.”

Provided by University of Sunderland

Citation: Breakthrough in the fight against deadly superbug (2008, July 17) retrieved 26 April 2024 from <https://medicalxpress.com/news/2008-07-breakthrough-deadly-superbug.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.