

Key found to kill cystic fibrosis superbug

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Researchers from the Schulich School of Medicine & Dentistry at The University of Western Ontario , working with a group from Edinburgh, have discovered a way to kill the cystic fibrosis superbug, *Burkholderia cenocepacia*.

These investigators, under the leadership of Dr. Miguel Valvano, Department of Microbiology and Immunology, have had their research published in the May issue of the *Journal of Bacteriology*, and highlighted in *Nature Reviews/Microbiology*.

B. cenocepacia is a multi-drug resistant microorganism that lives in damp or wet places and causes rot in plants such as onions. While it rarely causes infection in healthy people, it can be fatal for people with cystic fibrosis (CF), an inherited disease where the lungs become clogged with thick mucus, often leading to chronic respiratory infections.

The team of researchers has identified a weakness in the armour that protects the *B. cenocepacia* bacterium from the effects of antibiotics. They hypothesize that preventing the synthesis of a key sugar required for this armour, 4-amino-4-deoxy-L-arabinose (Ara4N), may lead to a susceptibility within the cell membrane to antibiotics.

"We are very excited with these findings, as they will let us come up with novel molecules to disrupt the making of Ara4N," says Valvano. "These molecules could then be tested as novel antibiotics." Valvano is a Professor and Chair of the Department of Microbiology and

Immunology, a Canada Research Chair in Infectious Diseases and Microbial Pathogenesis, and leader of the Infectious Diseases Research Group at the Siebens-Drake Research Institute.

"We're delighted by this news," says Cathleen Morrison, CEO of the Canadian Cystic Fibrosis Foundation. "The possibility of a life-saving antibiotic to fight *B. cenocepacia* is tremendously encouraging to adults and children who have cystic fibrosis."

Dr. Bhagirath Singh, Scientific Director of the CIHR Institute of Infection and Immunity, says "This discovery provides new hope for the eradication of these bugs from cystic fibrosis patients and to improve their quality of life by developing new treatments."

Source: Canadian Institutes of Health Research

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