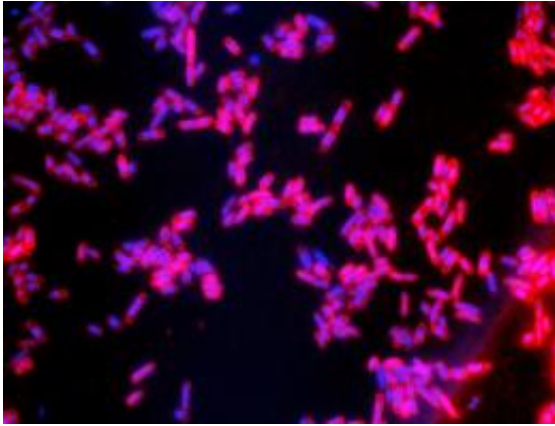


Potential treatment for deadly E. coli disease

7 June 2011



The probiotic bacterium (blue) with E. coli Shiga toxin (red) bound all over its surface

A potential life-saving treatment for severe E. coli food poisoning outbreaks - developed more than a decade ago - hasn't gone forward into clinical trials because of lack of commercial interest.

University of Adelaide researchers produced a "designer" probiotic [bacterium](#) which binds and neutralises the toxin produced by E. coli, which causes life-threatening attack on the kidneys and blood vessels.

The team of scientists - Dr Adrienne Paton, Associate Professor Renato Morona and Professor James Paton - showed that mice infected with a highly [virulent strain](#) of E. coli were completely protected by the probiotic bacterium.

The research was published in the prestigious journal *Nature Medicine* in 2000 and generated ongoing interest from the scientific and medical community - but the commercial sector hasn't taken up its development for progress into clinical trials in humans.

"Severe E. coli food poisoning outbreaks such as

that currently occurring in Europe are becoming increasingly common," said Professor Paton, Director, Research Centre for [Infectious Diseases](#) in the School of Molecular and Biomedical Science.

"They have the potential to cause widespread disease and many patients develop life-threatening complications including [kidney failure](#).

"The probiotic bacterium could be produced cheaply on a large scale. However, in spite of ongoing attention from the scientific and medical community, there has been a lack of interest from the commercial sector in taking this product forward into clinical trials.

"If this had been done, and the probiotic had been proven to be safe and efficacious in humans, it could have been deployed during the current European outbreak. This would undoubtedly have saved lives, as well as millions of dollars in current and future [health care costs](#)."

The researchers engineered a harmless bacterium to mimic binding receptors for the potentially fatal Shiga toxin on its surface.

Professor Paton said after diagnosis of E. coli infection there was a window of opportunity for therapeutic intervention before kidneys started to fail. Antibiotics are not used because they can increase the amount of toxin released in the gut.

Provided by University of Adelaide

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