

Human trials target superbugs

March 6 2018



Dr Katharina Richter examines a golden staph sample as part of her research into defeating superbugs. Credit: Russell Millard/University of Adelaide

The first human trials of a new approach to fight superbugs by starving them of iron are underway in South Australia.

Superbugs, or [antibiotic-resistant bacteria](#) such as [golden staph](#), cannot be killed by existing methods and cause 700,000 deaths globally every year.

The threat from superbugs to human health is likely to worsen, with the World Health Organization predicting 10 million people will die each year due to antibiotic resistance by 2050.

Dr. Katharina Richter and colleagues from the University of Adelaide have developed and patented a novel approach to fight superbugs by targeting the bugs' favourite food – iron.

The South Australian researchers targeted how bacteria consume iron to make them vulnerable and ultimately kill them.

"Iron is like chocolate for bacteria. It gives them energy to grow, cause disease, and withstand attacks from our immune systems and antibiotics," said Dr. Richter.

"Using two different compounds, we first starve the bacteria of iron and then feed them the bacterial equivalent of poisonous chocolate, which the hungry bacteria find irresistible.

"This 'double whammy' approach has defeated superbugs like golden staph in laboratory and animal studies."

The treatment is being trialled at The Queen Elizabeth Hospital in Adelaide to help patients with antibiotic-resistant sinus infections – with the two compounds included in a wound-healing gel.

"The treatment is locally applied at the [infection](#) site, precisely where it is needed without interfering with the entire body," Dr. Richter said.

Dr. Richter said a key benefit of the treatment is that the risk for resistance is low because bacteria are unlikely to become resistant to their preferred food.

The team is recruiting patients with chronic recurring sinus infections for the trials and hopes the therapy can be refined so it can also be used to treat other [superbug](#) infections.

Ear, nose and throat surgeon at The Queen Elizabeth Hospital and chair of Otolaryngology, Head and Neck Surgery at the University of Adelaide Professor Peter-John Wormald said he hoped the treatment would improve the quality of life for patients after [sinus surgery](#)

"By better treating the [bacteria](#) causing their infections we hope to extend the period of time patients are symptom-free, and potentially reduce their need for further surgery."

Provided by The Lead

Citation: Human trials target superbugs (2018, March 6) retrieved 10 April 2024 from <https://medicalxpress.com/news/2018-03-human-trials-superbugs.html>

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