

# Octapeptin: 'Forgotten' antibiotic offers hope against worst superbugs

January 25 2018

---



Staphylococcus aureus - Antibiotics Test plate. Credit: CDC

An antibiotic overlooked since its discovery 40 years ago could help develop new drugs against life-threatening infections caused by some of

the world's most dangerous superbugs.

University of Queensland Institute for Molecular Bioscience (IMB) researchers synthesised the antibiotic, and increased its effectiveness against extensively drug-resistant bacteria, then collaborated with Monash University to evaluate the drug using animal models of infection.

Professor Matt Cooper, Director of IMB's Centre for Superbug Solutions, said the study was prompted by the urgent need for [new drugs](#) to counter widespread resistance to last-resort treatments.

"Octapeptins were discovered in the late 1970s but were not selected for development at the time, as there was an abundance of [new antibiotics](#) with thousands of people working in antibiotic research and development," Professor Cooper said.

"Given the very few researchers left in this field now, and the sparse pipeline for new antibiotics, we've used modern drug discovery procedures to re-evaluate its effectiveness against superbugs."

Professor Cooper said there were no new classes of antibiotics available for Gram-negative bacteria, with increasing incidence of extensive drug resistance around the world.

"Gram-negative bacteria are harder to kill as disease organisms, because they have an extra membrane to penetrate that is often hidden by a capsule or slime layer which acts to camouflage them from drugs and our immune system," he said.

"The emergence of resistance to meropenem, and now colistin, the antibiotic of last resort, means multi-drug and extensively [drug](#)-resistant bacteria are now a reality confronting clinicians.

"Octapeptin showed superior antimicrobial activity to colistin against extensively resistant Gram-negative bacteria in early pre-clinical testing.

"In addition, octapeptin was shown to be potentially less toxic to the kidneys than colistin."

Professor Cooper said the study laid the foundation for the development of a new generation of [antibiotics](#) to treat life-threatening infections.

The study is published in *Cell Chemical Biology*.

**More information:** *Cell Chemical Biology* (2018). [DOI: 10.1016/j.chembiol.2018.01.005](#)

Provided by University of Queensland

Citation: Octapeptin: 'Forgotten' antibiotic offers hope against worst superbugs (2018, January 25) retrieved 24 April 2024 from <https://phys.org/news/2018-01-octapeptin-forgotten-antibiotic-worst-superbugs.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.