

Researchers in early stages of developing compound to fight drug-resistant bacteria

October 21 2014, by Marc Ransford

Ball State University faculty and students together with researchers at the University of New Mexico are in the preliminary stages of developing a new class of drugs designed to fight bacteria resistant to antibiotics.

A team led by Susan McDowell, a Ball State biology professor, and Robert Sammelson, chemistry department chair—in conjunction with Larry Sklar and Mark Haynes, researchers at the University of New Mexico's Center for Molecular Discovery—have synthesized new compounds to battle MRSA (methicillin-resistant *Staphylococcus aureus*), a superbug responsible for several difficult-to-treat infections.

After four years of intense work, McDowell, Sammelson, Sklar and Haynes, have applied for a patent application for new compounds that would work at the cellular level.

"While we are at a very preliminary stage, we believe our new type of therapy would be successful because it would not rely on antibiotics to fight infections," McDowell said. "Instead of creating another antibiotic, we want our therapy to limit the ability of the bacteria to spread and then allow the body's natural immune system to fight the disease."

Infections often life-threatening

McDowell said decades of excessive antibiotic use contributed to MRSA and other bacteria unaffected by current treatments. Most MRSA health

issues are skin infections, but MRSA can cause life-threatening bloodstream infections, pneumonia and [surgical site infections](#).

A 2013 report in *JAMA Internal Medicine* found that nearly 80,000 develop these life-threatening invasive infections annually in the U.S. alone, with an estimated mortality nearing 11,000, or more than one in eight.

Patients in hospitals and facilities such as nursing homes are at greatest risk of contracting MRSA, and it is most commonly found in people over age of 65. But MRSA can infect healthy people who have no recent history of hospitalization or any type of medical procedure.

"We desperately need something to fight back," McDowell said. "This is primarily a First World problem because it is found mostly in medical facilities, causing incredible suffering around the world."

Ball State's research team and its New Mexico partners will continue to seek compounds until a drug therapy is finalized. A pharmaceutical company will then develop a commercial application. The entire process could take another 10 years.

Preparing future health professionals

While still years away from a new drug therapy reaching the market, McDowell believes the hundreds of hours spent by Ball State students in the labs of Cooper Science Complex have been invaluable for preparing the next generation of health professionals.

"We've already published several papers that have our students as co-authors, which speaks to the high level of work they've been doing," she said. "At the same time, students from the chemistry and biology departments have been working side by side with faculty on a daily

basis, learning how to communicate across two very different environments. All of this should put them ahead of the curve when they enter the job market."

Provided by Ball State University

Citation: Researchers in early stages of developing compound to fight drug-resistant bacteria (2014, October 21) retrieved 27 April 2024 from <https://medicalxpress.com/news/2014-10-early-stages-compound-drug-resistant-bacteria.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.