Resistance-Resistant Antibiotics

Erin Carlson

Postdoctoral Fellow in 2008B.A in Chemistry 2000Ph.D. in Organic Chemistry 2005

CURRENT RESEARCH

Combining chemistry with biology to investigate new ways of antibiotics discovery and development

Due to the current lack of new antibacterial drugs and the continual evolution of microbial resistance, some fear that we have entered the "post-antibiotic era." Traditional drug discovery methods cannot prevent the scourge of antibiotic resistance that is redefining the 21st century battle against emerging, recalcitrant infectious diseases on their own. Therefore, there is a significant need to expand on the strategies utilized in antibiotic discovery to include cross-disciplinary research. Dr. Erin E. Carlson, Associate Professor of Chemistry at the University of Minnesota, unites tools from chemistry and biology to explore and exploit the master regulators of microbial behavior and generate a deeper understanding of how to blind, silence, and eliminate bacteria. Her basic research thus has a tremendous potential for translational applications, that may help prevent the coming of the "post-antibiotic era," and open up a new frontier in the next generation of antimicrobial therapeutic agents.

The interdisciplinary research between chemistry and biology presents extraordinary opportunities for antibiotic discovery and development. The Carlson Lab develops innovative tools for validating systems and generates many different assays for exploration of difficult protein targets. Small molecules developed in Dr. Carlson's lab in collaboration with microbiologists will allow her and her team to perturb systems of interest in ways that weren't possible using genetics or traditional biological manipulations. Possessing the unique ability to design molecules, the Carlson Lab is able to apply synthetic and medicinal chemistry, biochemistry and pharmacology, as well as molecular and cellular microbiology to elucidate...

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AFFILIATION

University of Minnesota

EDUCATION

- Graduate Faculty Member, Biomedical Informatics and Computational Biology Program,University of Minnesota,2015 - Current
- Graduate Faculty Member, Medicinal Chemistry,University of Minnesota,2015 - Current
- Associate Professor, Chemistry,University of Minnesota,2014 - Current

AWARDS

- Sloan Research Fellowship, 2013
- Cottrell Scholar Award, 2012
- National Science Foundation CAREER Award, 2012
- NIH Director's New Innovator Award, 2011
- Pew Biomedical Scholar Award, 2010

RESEARCH AREAS

Life Science, Infectious, Proteomics, Drug Development

FUNDING REQUEST

Your contributions will support Dr. Erin Carlson and her team of 15 researchers at the University of Minnesota as they combine chemistry and biology to understand the mechanisms behind microbial resistance and identify new therapeutic targets. Donations will help fund personnel, supplies, and instrumentation and enable creative experiments. Fund Dr. Carlson's interdisciplinary research, to help provide both the tools and insights required to develop fundamentally new approaches to antibiotic discovery.