

**FALL 2021
CHEMISTRY
SEMINAR SERIES**



**DR. JOEL S.
FREUNDLICH**

*Ernest Mario
School of Pharmacy*

*New Jersey
Medical School (NJMS)*

**HOST:
DR. ZHANG**

**ALL THOSE
INTERESTED ARE
WELCOME TO
ATTEND**

**“Engineering Platforms for Infectious
Disease Research”**

Friday, November 12, 2021, 11:30 AM
Seminar Via Zoom

Biographical sketch: Joel S. Freundlich, Ph.D., is an Associate Professor of Pharmacology, Physiology and Neuroscience and of Medicine at Rutgers University–New Jersey Medical School. Prior to his return to academic research, he spent eight years in the pharmaceutical industry as a medicinal chemist. His undergraduate and master’s degree training were in chemical engineering at Cornell University as a McMullen Dean’s Scholar. He received his doctorate in organic chemistry from the Massachusetts Institute of Technology under the tutelage of 2005 Nobel Prize in Chemistry awardee Richard Schrock.

Abstract: Infectious diseases caused by bacteria are responsible for millions of new infections and deaths per year. The continued spread of drug resistance, both in terms of geography and extent of resistance to approved therapies, represents a global health pandemic. With this goal in mind, we have pursued programs principally focused on the causative agent of tuberculosis, *Mycobacterium tuberculosis*, and the ESKAPE bacteria. We have sought to learn about the ideal characteristics of an antibacterial drug and its companion bacterial drug target/s. A new antibacterial critically must modulate the activity of a primary target distinct from those perturbed by current drugs. To translate toward successful outcomes, we have developed novel platforms in computation (machine learning) and biology (intrabacterial drug metabolism) which have been blended with medicinal chemistry heuristics. Applications of these platforms will be discussed as to their relevance to seeding new antibacterial therapeutic approaches.

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