**American Chemical Society**

**Central Massachusetts Section Meeting**

**Thursday, February 29th 2024**

**Fitchburg State University**

**Synergizing Phenotypic and Structure-Based Strategies in Infectious Disease Drug Discovery**

**Lori Ferrins, Ph.D.**

**Research Associate Professor**

**Neglected Diseases Laboratory**

**Department of Chemistry and Chemical Biology**

**Northeastern University**



**5:30 PM Social hour and Dinner**

**3rd floor lobby, SCI 314 and SC1 311**

**Antonucci Science Center**

**6:30 PM**

**Recognition of our CMSACS Outreach Volunteer of the year 2023, Karen Kowlzan**

**Seminar**

**Science Lecture Hall (SCI 211)**

**Abstract of talk:**

There is a symbiotic relationship between phenotypic and structure-based medicinal chemistry optimization strategies within the realm of rare and neglected disease drug discovery. Phenotypic screening, recognized for its target-agnostic nature, has historically unveiled more first-in-class drugs, while target-based screening has excelled in producing best-in-class drugs. The overarching objective of both is to identify compounds that elicit specific cellular responses, bind selectively to proteins, and minimize potential off-target toxicities, thereby advancing the understanding and application of innovative approaches in drug discovery for these diseases. With a lack of validated targets for many pathogens responsible for rare and neglected diseases, there is a need for both approaches and the lessons learned from two optimization campaigns will be presented to demonstrate our approach. The first, driven solely by phenotypic screening, implicated a kinase as a putative target. The second, integrated both phenotypic and structure-based approaches, leading to a holistic process where selectivity, potency, and drug-like properties could be optimized rationally.

**Directions:**

<https://www.fitchburgstate.edu/about/maps-and-directions>

**Parking: Available on upper and lower Weston Parking lot** (<https://www.fitchburgstate.edu/campus-life/campus-services/parking-services>)

**Antonucci Science Center is building across the street (333 North Street)**

**RSVP with dinner preference:**

<https://docs.google.com/forms/d/1UpO9fdb-gjAquc9l8R9-RHV5C682sQHJEIeIiLzbuhs/edit>