

Shaomeng Wang Drug Discovery  
Distinguished Lecture Series

# Leveraging the Actinobacteria Strain Collection and Genome Database at NPDC for Natural Products and Drug Discovery

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College of Pharmacy, 1544 NUB

Natural products continue to inspire chemistry, biology, and medicine. Progress in DNA sequencing and microbial genomics has fundamentally transformed the current paradigm of natural products discovery, revealing the vast diversity of natural product biosynthetic gene clusters that far exceeds the number of NPs known to date.

The Natural Products Discovery Center (NPDC) at Herbert Wertheim UF Scripps Institute for Biomedical Innovation & Technology houses one of the world's largest Actinobacteria strain collections, totaling 122,550 strains. These strains, isolated over the last eight decades and from 77 different countries, represent microbial and natural product diversities that are impossible to reproduce in laboratory settings today. The Actinobacteria Genome Database, containing ~19,000 sequenced and curated genomes, represents the largest Actinobacteria Genome Database with the sequenced strains publicly available. We have launched an interactive NPDC web portal to establish the Actinobacteria Strain Collection and Genome Database at NPDC as a Community Resource (<https://npdc.rc.ufl.edu/home>).

The NPDC web portal consists of (i) the Strain Collection, (ii) the Genome Database, and (iii) the Interactive Search Interface, allowing users-driven searches cross the Strain Collection and Genome Database at NPDC and requesting strains of interests to enable physical experimentation. Selected examples from our research will be presented to showcase how such a community resource could radically transform the current paradigm of natural products research and drug discovery.