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Department of Chemistry

Special Seminar

4 p.m. Friday, April 3, 2015 • 331 Smith Hall



Assistant Professor

Daniel Harki

Department of Medicinal Chemistry
University of Minnesota

Harnessing APOBEC3-Catalyzed Genome Mutation with Small Molecules

Research interests focus on the design, synthesis and biophysical characterization of small molecules that influence cellular function. Applications for these molecules range from anticancer drug discovery to new tools for modern biotechnology research. Our core science is organic chemistry. However, we use techniques of modern molecular biology, genetics, and genomics to probe the biological activities of the compounds we synthesize.

Website:

<http://www.pharmacy.umn.edu/medchem/directory/faculty/harki/>

Abstract

APOBEC3 enzymes are a family of human DNA cytosine-to-uracil deaminases that degrade foreign DNA as part of the innate immune response to pathogens. However, cytosolic APOBEC3 enzymes, namely APOBEC3G, has been implicated in promoting HIV-1 mutation, which contributes to viral genetic diversity and adaptability. The nuclear enzyme, APOBEC3B, has been recently discovered as a source of endogenous mutation in cancer. Using a combination of high-throughput screening and rational analogue synthesis, first-in-class chemical probes of APOBEC3G and APOBEC3B have been developed. This presentation will discuss our efforts to develop mechanistic chemical probes of both enzymes as well as ongoing work to identify new chemotypes with enhanced potency and specificity for cellular and animal studies.

Host: Professor Will Pomerantz