

SMS Spring 2023 O’Keeffe Lecture
Friday Feb 10 | 3pm | Biodesign Auditorium

Biosynthesis and Engineering of Macrocyclic Peptide Natural Products

The genome sequencing efforts of the past 20 years have revealed that ribosomally synthesized and post-translationally modified peptides (RiPPs) constitute a large class of peptide natural products. These molecules are produced in all three domains of life, their biosynthetic genes are ubiquitous in the currently sequenced genomes, and their structural diversity is vast. Furthermore, they are increasingly recognized for their involvement in fighting or causing human disease. This presentation will discuss the use of genome mining and synthetic biology for the discovery of new RiPPs via an automated platform and efforts to understand the remarkable enzymes that carry out the macrocyclization chemistry.

Wilfred van der Donk, PhD

A Professor, University of Illinois Urbana-Champaign

Wilfred van der Donk was born in the Netherlands and received his B.S. and M.S. from Leiden University. He moved to the USA in 1989 to pursue his Ph.D. in chemistry at Rice University with Kevin Burgess. After postdoctoral work at MIT with JoAnne Stubbe, he joined the faculty at the University of Illinois in 1997, where he currently holds the Richard E. Heckert Chair in Chemistry. Since 2008, he is an Investigator of the Howard Hughes Medical Institute. Research in his laboratory uses chemistry, enzymology and molecular biology to better understand enzyme catalysis and to use that knowledge for synthetic biology. He has co-authored more than 300 publications and is a recipient of an ACS Cope Scholar Award (2006), the Jeremy Knowles Award of the Royal Society of Chemistry (2010), the Emil Thomas Kaiser Award of the Protein Society (2013), and the Vincent du Vigneaud Award of the American Peptide Society (2017). He is a member of the American Academy of Microbiology, the American Academy of Arts and Sciences, and the National Academy of Sciences.

