

**Tuesday, November 7, 2023
4:30 PM, WTHR 104**

**Reception immediately following the seminar
in the Leighty Commons (5:30-6:30 PM)**

***“Structures, Mechanisms and Diversity of
Assembly-Line Polyketide Synthases”***



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ABSTRACT: Many polyketide antibiotics are synthesized by multi-enzyme systems that operate in an assembly line-like fashion. Their apparently modular architecture has opened the door to engineering of new antibiotics by rationally manipulating the DNA encoding these megasynthases. Elucidating the structures and mechanisms of these assembly lines represents a challenging frontier in physical and chemical enzymology. While much progress has been made on some fronts over the past three decades, our understanding of other fundamental features of these enzymatic assembly lines is rudimentary. My lecture will provide an overview of what we know and what we don't know, with a focus on the 6-deoxyerythronolide B synthase, a prototypical assembly-line polyketide synthase.

CHAITAN KHOSLA is a professor in the departments of Chemistry and Chemical Engineering at Stanford University. He is also the founding director of Stanford's Innovative Medicines Accelerator (a partnership between Stanford Medicine and Sarafan ChEM-H). Chaitan received his PhD in 1990 at Caltech. After completing postdoctoral studies at the John Innes Centre in the UK, he joined Stanford University in 1992. His work on antibiotic biosynthetic mechanisms led to new methods for engineering enzyme assembly lines to make novel anti-infective agents. He and his collaborators have also studied the molecular basis of celiac disease, a widespread but overlooked autoimmune disorder. He has co-authored over 400 peer-reviewed publications and 75 issued U.S. patents. He is an elected member of the American Academy for Arts and Science, the U.S. National Academy of Engineering, and the U.S. National Academy of Sciences. Over the past three decades, he has founded four biotechnology companies.