

Leroy B. Townsend Seminar Series

Hosted by the
Department of Medicinal Chemistry

Integrated Approaches to Natural Product Discovery

Presented by John B. MacMillan, Ph.D.



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September 24, 2026 | 11:00 AM

Palmer Commons – Forum Hall

The MacMillan lab focuses on the discovery and biological characterization of bioactive molecules, including natural products from microbial sources. We approach this through an integration of innovative high-throughput screening and analytical chemistry to identify new natural products with activity against cancer and infectious disease. Determining the functional role and mechanism of action of natural products remains a complex challenge. Profound advances in the functional annotation of the protein-coding elements of the human genome have transformed discovery science aimed at the mechanistic basis of human disease. Taking advantage of this wealth of information, we have developed technology platforms to investigate the mechanism of action of entire natural product libraries and crude mixtures in the context of cancer, inflammation, and infectious disease. In this talk, I will highlight how we have used our unique screening approaches to identify active natural products, and describe our efforts to characterize their mechanisms of action and optimize their biological activity. Examples include ikarugamycin, the discoipyrroles, and bohemamines.