THE UNIVERSITY OF TOLEDO
1872

# Department of Chemistry and Biochemistry

## Colloquium Speaker

# Professor William Maio

New Mexico State University

## "The Taumycin A Macrocycle: Asymmetric Total Synthesis and Revision of Relative Stereochemistry"

**Abstract:** The symbiotic association of marine microorganisms with their host sponges continues to be an extraordinary source of hybrid polyketide / non-ribosomal secondary metabolites that often possess unique structures in conjunction with interesting biological activity. Recently, taumycins A and B were isolated from a Madagascar sponge of genus *Fascaplysinopsis*. Of particular note, taumycin A was shown to inhibit UT-7 cell growth in the micromolar range, extensive biological evaluation has not yet been performed and the mechanism of action of remains unknown. Herein, we report the first asymmetric total synthesis and revision of the relative configuration of the 12-membered taumycin A macrocycle via the synthesis of taumycin aldehyde – a known degradation product . Key to the success of this work was a novel alpha-keto ketene macrocyclization that provided an efficient means by which to access two diastereomers of the desired macrolide without the need to employ additional coupling agents or unnecessary oxidation state adjustments.

**Monday, December 1st, 2014**
**4:00 p.m.**
**BO 1059**

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