

Department of Chemistry and Molecular Biology
Seminar
September 17, 2009
3:45 pm in Dunbar 152

“Progress Towards the Total Synthesis of Diazonamide A”

Dr. Tarek Sammakia

Professor, Department of Chemistry,
University of Colorado, Boulder

Abstract

Diazonamide A is a marine-derived natural product that has been the subject of intense study by the chemical community. The structure was first described in 1991 by Fenical and Clardy, and the natural product was shown to be a potent anti-proliferative agent. The published structure was synthesized by Harran et. al. in 2001, but found to be different from the natural product. Harran proposed an alternate structure that was then synthesized by Nicolaou's lab and Harann's lab, and shown to be the true structure of the compound. Subsequent studies by Harran and Wang have revealed a novel mechanism of action that does not involve tubulin binding as initially thought. While these syntheses are truly landmark efforts, there is still a need for a more efficient synthesis should this compound ever become a viable drug candidate. The difficulty encountered in all approaches to this molecule revolve around the construction of an exceptionally hindered carbon-carbon bond (see C atom labeled with * below). In this talk, our approach to forming this C-C bond, which has led to a highly stereoselective synthesis of an advanced synthetic intermediate, will be described.

