Challenges and Discoveries in Complex Polyketide Synthesis

Natural products have long been a rich source of structurally diverse and pharmacologically important compounds for drug discovery and continue to drive advances in organic synthesis and chemical biology. However, as the promising biological activity is often mirrored by their scarce natural abundance, total synthesis is often critical to help solve the supply problem and to access novel analogues. An overview of recent work from our group will be presented directed towards the stereocontrolled synthesis of several rare polyketides with potent antimitotic activity and potential therapeutic utility in cancer chemotherapy, including leiodermatolide (isolated from the lithistid marine sponge *Leiodermatium* sp.), the aplyronines (isolated from the Japanese sea hare *Aplysia kurodai*) and the chivosazoles (isolated from the myxobacteria *Sorangium cellulosum*). Each of the targets selected presents a distinct set of challenges for achieving an efficient synthesis, inspiring the development of new methods and strategies to circumvent the problems encountered.

**Leiodermatolide**

**Aplyronine A**

**Spirastrellolid A methyl ester**

**Monday, November 3**

**3:30 PM -- Room 1315 Chemistry**