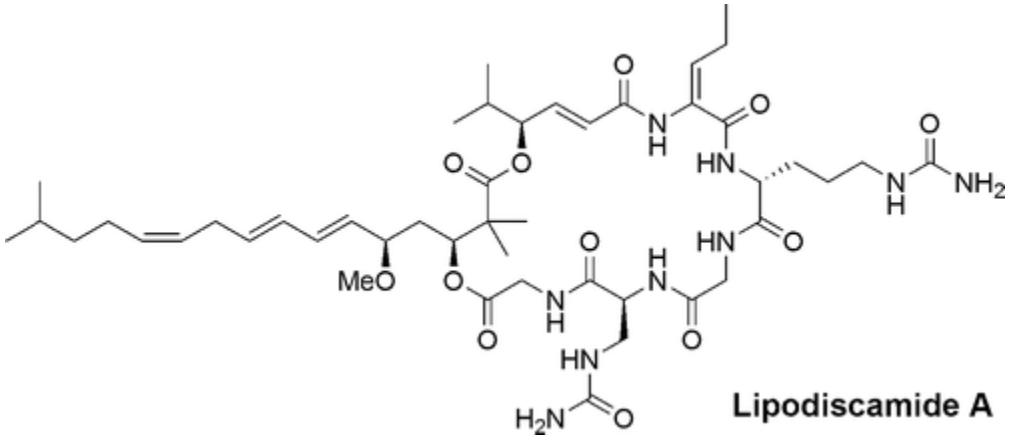
Synthetic Challenge #8
August 27, 2015

Total Synthesis of Lipodiscamide A



The goal of this Challenge is to develop and defend a synthetic strategy for the total synthesis of lipodiscamide A. This depsipeptide was isolated from the sponge *Discodermia kiiensis* (Tan *et al. Org. Lett.* **2014**, *16*, 3256-3259). Its structure and relative configuration was determined from HRMS, as well as 1D and 2D NMR analysis. The absolute configuration was determined from degradation experiments and comparison to known enantiomerically enriched samples. No significant biological activity has been reported, other than mild cytotoxicity.

Your presentation should consist of a brief retrosynthetic analysis explaining the reasons behind important disconnections, followed by a synthetic plan which details the reagents used and possible protecting groups. As would be the case for a real research proposal, issues of chemo- and diastereoselectivity must be addressed. You route doesn't have to be enantioselective, but it would be useful to confirm the absolute configuration. Your synthesis should possess a good balance between originality and feasibility. In this regard, it would be beneficial to briefly show some precedent for the most difficult/uncertain steps in the sequence. Each team's synthesis should take ~30 minutes to present.

Your team has to consist of members of at least two research groups. Please provide the name of your team and a list of team members to Dr. Gravel at your earliest convenience.