
UNIVERSITY OF RHODE ISLAND

Department of Chemistry

SEMINAR

Room 234 Pastore Hall

3:00 p.m, Wednesday, April 20, 2016

Jeff Canaria

Graduate Student

Chemistry Department

URI

**“Total Synthesis of (+)-Gliocladin
C Enabled by Visible-Light Photoredox
Catalysis”**

HOST

Louis Kirschenbaum

Department of Chemistry

401-874-2340

Total Synthesis of (+)-Gliocladin C Enabled by Visible-Light Photoredox Catalysis:

The total synthesis of (+)-Gliocladin C has been achieved in ten steps from commercially available Boc-D-tryptophan methyl ester in 30% overall yield. (+)-Gliocladin C is an indole alkaloid which has found use as a cytotoxic agent against P-388 lymphocytic leukemia cell lines. The key C3-C3' bond formation to form the bisindole alkaloid core was accessed via visible-light photoredox catalysis that was enabled by the photocatalyst, [Ru(bpy)₃]Cl₂. The strategy employed helps to demonstrate photoredox catalysis as a general, mild, and robust technique that could potentially be applied to the synthesis of a wide variety of molecules.

References:

- Furst, L.; Narayanam, J.M.R.; Stephenson, C.R.J. *Angew. Chem. Int. Ed.*, **2011**, *50*, 9655-9659.
Tucker, J.W.; Stephenson, C.R.J. *J. Org. Chem.*, **2012**, *77*, 1617-1622.
Tucker, J.W.; Narayanam, J.M.R.; Krabbe, S.W.; Stephenson, C.R.J. *Org. Lett.*, **2010**, *12*, 368-371.
- Reckenthaler, M.; Griesbeck, A.G. *Adv. Synth. Catal.*, **2013**, *355*, 2727-2754.
Allevi, P.; Cribiu, R.; Anastasia, M. *Tetrahedron Letters*, **2004**, *45*, 5841-5843.
IUPAC Gold Book. <http://goldbook.iupac.org> (accessed April 17, 2016).
-