

## Organic Chemistry Research Project

Tanji Lewis, Chemistry B.S.

Dr. Stefan Bossmann, Professor of Organic Chemistry, Department of Chemistry  
Summer 2018

The research conducted under the Bossmann Group this summer was to learn the synthesis and techniques used in the synthesis of drug candidates against MRSA through copper binding. The underlying motivation for this project is/was to aide in the depletion and fight against antibiotic resistant strains and life-threatening infections. As an undergraduate student in the lab my role was to learn the techniques and skills required to perform the synthesis of such molecules, and furthermore to perform the reactions. Through the summer research project I learned many skills, including but not limited to; degassing, proper TLC plating, running chromatography columns, flame drying, how to perform water sensitive reactions, and proper NMR spectroscopy technique. These reactions can then be taken to do further research within the Bossmann Group and tested for Copper reactivity.

To meet the needs of this project molecule needed to be synthesized that were non-toxic when ingested but also had Copper binding capabilities. My role was to set up the reactions that my mentor Dr. Zhang recommended, and see them through. In many scenarios this involved leaving the starting reagents to react overnight to then TLC plate, run a chromatography column, and finally run an NMR spectroscopy scan to assess what compound had been created. If successful these were then passed on to our partners in the Bossmann Group for further evaluation. Through a similar technique five compounds were synthesized successfully between Dr. Zhang and myself this Summer that have the qualifications needed for the final steps of the Bossmann Groups' research.