

Washington University in St. Louis

Washington University Open Scholarship

Volume 13

Washington University
Undergraduate Research Digest

Spring 2018

Multi-Functional Supramolecular Metal-Binding Nanocomponents:Synthesis and Study of Thiocalix[4]arene Derivatives

Troy K. Kincaid
Washington University in St. Louis

Follow this and additional works at: https://openscholarship.wustl.edu/wuurd_vol13

Recommended Citation

Kincaid, Troy K., "Multi-Functional Supramolecular Metal-Binding Nanocomponents:Synthesis and Study of Thiocalix[4]arene Derivatives" (2018). *Volume 13*. 103.
https://openscholarship.wustl.edu/wuurd_vol13/103

This Abstracts J-R is brought to you for free and open access by the Washington University Undergraduate Research Digest at Washington University Open Scholarship. It has been accepted for inclusion in Volume 13 by an authorized administrator of Washington University Open Scholarship. For more information, please contact digital@wumail.wustl.edu.

TOWARD A BETTER UNDERSTANDING OF...

MULTI-FUNCTIONAL SUPRAMOLECULAR
METAL-BINDING NANOCOMPONENTS:
SYNTHESIS AND STUDY OF
THIACALIX[4]ARENE DERIVATIVES

Troy K. Kincaid

Mentor: Jonathan C. Barnes

Recently, the rise in bacterial resistance rendering both new and old antibiotics ineffective has driven researchers to explore supramolecular molecules as a novel means to target and treat infection. The current work of the Barnes Research Group focuses on combating antibiotic-resistant bacteria via the potent combinatorial treatment of antibiotics with metal ions. In this study, we aimed to investigate the metal-binding nanocomponent of a multi-functional polymeric platform, a thiacalix[4]arene ring. Specifically, a series of modifications along the upper-rim of the ring were constructed to optimize the metal-ion binding and solubility properties of the nanocomponent. This library of derivatives was synthesized in order to enhance the bactericidal activity of the drug-delivery platform, while reducing the system's cytotoxicity.