

Alyssa DeLucia
Chemistry PhD Candidate
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EDUCATION

Chemistry PhD Candidate

Fall 2018- Present

University of Illinois at Urbana-Champaign, Champaign, IL

Advisor: Dr. Lisa Olshansky

B.A. in Chemistry (Summa Cum Laude)

May 2018

Rollins College, Winter Park, FL

Thesis: Developing Iron Catalysts for Organic Reactions

Advisor: Dr. Laurel Goj Habgood

RESEARCH EXPERIENCE

Doctoral Research

November 2018-Present

University of Illinois at Urbana-Champaign

Advisor: Dr. Lisa Olshansky

- Synthesize biomimetic bis(μ -hydroxo)dicobalt complexes in which substituents on various ligands are modified to control the intramolecular hydrogen bonding network and subsequent proton and electron transfer capabilities
- Characterize complexes with NMR, FT-IR, EPR, and UV-vis spectroscopies and X-ray Crystallography, mass spectrometry and elemental analysis
- Trained in variable temperature and NOSEY NMR, EPR and Stopped-flow UV-vis spectroscopies, and electrochemical methods
- As a founding member, mentored fellow graduate students, aided in creation of laboratory policies, and crafted guidelines for manuscripts and general operating protocols

Undergraduate Research

Fall 2016-Spring 2018

Rollins College

Advisor: Dr. Laurel Goj Habgood

- Synthesized and characterized iron-NHC complexes utilizing air-free (Schlenk and glove-box) techniques and FT-IR and ^1H -NMR for structural confirmation
- Screened the complexes for catalytic ability on Kumada, Aza-Michael, and Michael additions
- Analyzed catalytic activity of iron complexes in cross-coupling reactions utilizing gas chromatography and ^1H -NMR for a pedological experiment

Georgia Tech Research Experience for Undergraduates

Summer 2017

Georgia Institute of Technology

Advisor: Dr. Joseph Sadighi Mentor: Kevin Omolo

- Synthesized PNP pincer ligands and formation of complexes with palladium and cobalt utilizing air-free techniques and ^1H -NMR, ^{31}P -NMR and FT-IR spectroscopies for characterization

Summer Program for the Advancement of Research Knowledge

Summer 2016

Moffitt Cancer Center

Advisor: Dr. Jin Q. Cheng Mentor: Dr. Yajuan Li

- Screened modified small molecule inhibitors on lung cancer cell lines using MTT assays, western blots, luciferase assays, and cell migration assays

PUBLICATIONS

Alyssa A. DeLucia^{††}, Kimberly A. Kelly^{††}, Kevin A. Herrera, Danielle L. Gray, and Lisa Olshansky. These ^{††} authors contributed equally to the work. Intramolecular Hydrogen-Bond Interactions Tune Reactivity in Biomimetic Bis(μ -hydroxo)dicobalt Complexes. *Inorganic Chemistry*. **2021**, 60, 15599–15609.

Verónica A. Segarra, Alexandra A. DeLucia^{††}, **Alyssa A. DeLucia**^{††}, Renee Fonseca^{††}, Michael P. Penfold^{††}, Katlyn M. Sawyer^{††} et al. These ^{††} authors contributed equally to the work. Self-Driven Service Learning: Community-Student-Faculty Collaboratives Outside of the Classroom. *Journal of Microbiology & Biology Education*. **2015**, 16, 260-262.

POSTERS AND PRESENTATIONS

A. DeLucia, L. Olshansky. "Scaling the Oxo-Wall with a Hydrogen Bond" *Gordon Research Conference Bioinorganic Active Sites that Drive Challenging Chemical Conversions*, Newport, RI, 2020. Accepted.

A. DeLucia, K. Omolo, J. Sadighi, L. Habgood. "Synthesis of Transition-Metal Catalysts with Diverse Potential Reactivity" *American Chemical Society National Meeting and Exposition*, New Orleans, LA, 2018. ABS # 2867652. Poster.

A. DeLucia, K. Omolo, J. Sadighi. "Synthesis of Unconstrained PNP Pincer Complexes for Potential use in Nitrogen Fixation" *Georgia Tech Research Experience for Undergraduates Symposium*, Atlanta, GA, 2017. Poster and Presentation.

A. DeLucia, Y. Li., J. Q. Cheng. "Analysis of Small Molecule Inhibitor of MicroRNA-155" *Moffitt Cancer Center Research Day*, Tampa, FL, 2016. Presentation.

SCIENCE EDUCATION OUTREACH AND LEADERSHIP

Women in Chemistry Conference Planning Committee

Summer 2021

University of Illinois at Urbana-Champaign

Science Education Outreach

- St. Elmo Brady Academy Leader at Booker T. Washington STEM Academy *Fall 2021*
- Encouraging Tomorrow's Chemists demonstrations at Urbana Middle School *Spring 2019/Fall 2020*
- Women's Chemist Committee Day Camp for Girls Station Leader *Dec 2020/June 2021*
- Orlando Science Center Cell Day Station Leader *Spring 2015*

Mentorship

Certified mentor by University of Illinois at Urbana-Champaign Graduate College

- University of Illinois at Urbana-Champaign ADJUST mentoring program *Fall 2021*
- Research mentor for undergraduate in Olshansky Lab *Fall 2020-Present*
- Women's Chemist Committee Mentor *Fall 2019*

Student Affiliates of American Chemical Society Chapter (SAACS)

Fall 2016 – Spring 2018

President

Rollins College

TEACHING EXPERIENCE

Teaching Assistant

University of Illinois at Urbana-Champaign

- Inorganic Laboratory *Spring 2019 / 2020*
- Inorganic Lecture *Fall 2019*
- General Chemistry, Ranked as Excellent by Students *Fall 2018*

Tutor at Tutoring and Writing Center

Spring 2015-2018

Rollins College

SELECTED AWARDS

Phillip W. Rhymer Graduate Fellowship for Outstanding Inorganic Preliminary Exam and Research *2021*

NSF GRFP Honorable Mention *2020*

American Institute of Chemists Outstanding Senior Chemistry Major Award, *Rollins College* *2018*

Goldwater Scholar *2017*

George Allen Award for Outstanding Undergraduate Research, *Rollins College* *2017*

Thomas R. Baker Memorial Prize for Most Promising Junior in Chemistry, *Rollins College* *2017*