

Cynthia A. Tope

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EDUCATION

- University of Georgia** Athens, GA
Ph.D., Analytical Chemistry In Progress
- Western Kentucky University** Bowling Green, KY
B.S., Chemistry 2015
Honors thesis: *Relative Reaction Rates of the Amino Acids Cysteine, Methionine, and Histidine with Analogs of the Anti-Cancer Drug Cisplatin*

RESEARCH EXPERIENCE

- University of Georgia** Athens, GA
Graduate Research Assistant with Dr. Jeffrey Urbauer 2016-present
- Investigate the binding of calmodulin (CaM) and the membrane phospholipid dipalmitoylphosphatidylinositol 3,4,5-triphosphate (PIP₃) to regulators of G-protein signaling (RGS) proteins by defining the binding epitopes and the structural changes accompanying these interactions.
 - Use of a wide range of analytical techniques (NMR spectroscopy, fluorescence spectroscopy, circular dichroism, column chromatography, reverse phase HPLC, and isothermal titration calorimetry) to study the CaM and PIP₃ interactions with RGS proteins.
- Western Kentucky University** Bowling Green, KY
Undergraduate Research Assistant with Dr. Kevin Williams 2011-2015
- Synthesized and characterized triamine Pt(II) compounds using NMR spectroscopy.
 - Determined the effect of steric ligand bulk on the relative reaction rates of triamine Pt(II) compounds with cysteine, methionine, and histidine using NMR spectroscopy.
- Student Research Participant with Drs. Rodney King and Claire Rinehart 2009-2010
- Participated in the Genome Discovery Exploration Program sponsored by the Howard Hughes Medical Institute.
 - Isolated and characterized a new *Mycobacterium* phage, Backyardigan, from a local soil sample and purified its genomic DNA.
 - Annotated the genome of Backyardigan and submitted the results to GenBank.

TEACHING EXPERIENCE AND TECHNICAL ASSISTANCE

- University of Georgia** Athens, GA
Guest Lecturer, GRSC 8200: Communicating Research and Scholarship September 16, 2019
- Introduced graduate students to the topic of science policy and how they can communicate their research to elected officials.
 - Described my experience at the Catalyzing Advocacy in Science and Engineering Workshop, hosted by the American Association for the Advancement of Science.
 - Led a workshop where students conducted mock meetings with the local representative to the US Congress.

General Chemistry Lecture Teaching Assistant

Summer 2019

- Developed a molecular modeling exercise using the AMPAC Agui software designed for students to explore chemical bond lengths, angles, and other molecular properties.
- Led the interactive modeling exercise for a lecture course consisting of approximating 110 students.

UGA Chemical Sciences NMR Facility Service Assistant

2017-2019

- Performed routine maintenance of 400 MHz Bruker and 500 MHz Varian NMR spectrometers, including cryogen fills, and attended to any instrument malfunctions on an on-call basis.
- Trained new users on the operation of spectrometers and supervised facility users daily.
- Managed the monthly user fee billing and supply orders beginning August 30, 2019.
- Assisted users with special nuclei (including ^{11}B , ^{31}P , ^{15}N , ^{29}Si) and variable temperature experiments on a 500 MHz Varian instrument.

Graduate NMR Course Assistant

2017-2019

- Assisted students with hands-on laboratory assignments, including performing and analyzing 1D and 2D NMR experiments.
- Prepared samples and set up assigned laboratory experiments.
- Troubleshoot and assisted in fixing problems with the laboratory experiments.

General Chemistry Laboratory Assistant

2016-2019

- Instructed weekly general chemistry laboratory sessions of approximately 24 students.
- Hosted weekly tutoring sessions in both general and organic chemistry laboratory and lecture material.
- Administered and graded mass general chemistry exams.

General Chemistry Make-up Laboratory Assistant

2019

- Conducted laboratories for general chemistry students who are unable to attend their regularly scheduled laboratory sessions.
- Coordinated with other teaching assistants to accommodate student schedules for lab attendance.
- Communicated daily with the laboratory coordinator and students to approve attendance for laboratory sessions.

LEADERSHIP AND OUTREACH

Chemistry Department Representative, Graduate Student Council

2019-2020

- Attended monthly meetings to represent the chemistry department graduate student interests at the university graduate student governing body.

Mentor, Summer Undergraduate Research Opportunities Program

2019

- Trained and supervised the research performed by an undergraduate student during the summer semester.

Event Judge, Clarke County School District Elementary Young Scientist Fair

2019

- Evaluated the Clarke Invents K-2 event participants on their ability to solve a real-world problem with a unique invention and create a model of the solution.
- Judged K-2 participants in the Aeronautics event where students developed paper airplanes to compete in three separate categories.

Forensic Event Supervisor, Science Olympiad Competition 2018-2019

- Coordinated with event leadership to create and conduct the forensic event for high school teams.
- Established safety expectations for participants and staff for the laboratory experiments.

Judge, University of Georgia Young Dawgs Research Program Research Presentations 2016-2019

- Mentored high school participants in laboratory research.
- Critiqued participants on effective communication skills during their presentations.
- Judged research seminars presented by high school students.

PROFESSIONAL AFFILIATIONS

Graduate Student Council, Chemistry Representative 2019-present

American Association for the Advancement of Science, Member 2018-present

UGA Science Policy Education, Advocacy, and Research, Member 2018-present

Chemistry Graduate Student Organization, Member, President (2019) 2016-present

American Chemical Society, Member 2012-present

AWARDS

First Place in Graduate Poster Competition, UGA Department of Chemistry Research Symposium, August 2019

UGA Graduate School Sponsorship, AAAS Catalyzing Advocacy in Science and Engineering Workshop, 2019

UGA Graduate School Travel Grant Award, University of Georgia, 2018

Best Undergraduate Presentation in Session, WKU Student Research Conference, 2012, 2014

PUBLICATIONS

2019 **Tope, C.**, Hooks, S., Bieber Urbauer, R., Urbauer, J. "Differential Regulation of RGS4 and RGS10 by Calmodulin and PIP3," *in preparation*.

CONFERENCE PRESENTATIONS

2020 **Tope, C.** "Regulating the Regulators: The Complex Interaction of Calmodulin with RGS10 Proteins," Annual Meeting of the American Association for the Advancement of Science, Seattle, WA, February 2020.

2019 **Tope, C.**, Rojas, K., Hooks, S., Bieber Urbauer, R., Urbauer, J. "Regulation of G-Protein Signaling: Interaction of RGS10 Proteins with Calmodulin and the G-alpha Subunit," Southeastern Regional Meeting of the American Chemical Society, Savannah, GA, October 2019.

Tope, C., Rojas, K., Hooks, S., Bieber Urbauer, R., Urbauer, J. "Regulation of G-Protein Signaling: Interaction of RGS10 Proteins with Calmodulin and the G-alpha Subunit," UGA Department of Chemistry Research Symposium, Athens, GA, August 2019.

Tope, C., Hooks, S., Bieber Urbauer, R., Urbauer, J. "Regulation of G-Protein Signaling: Production and Characterization of RGS10 Proteins and Their Interactions with Calmodulin," Annual GSPS Research Day at UGA, Athens, GA, June 2019.

Tope, C., Hooks, S., Bieber Urbauer, R., Urbauer, J. "Regulation of G-Protein Signaling: Production and Characterization of RGS10 Proteins and Their Interactions with Calmodulin," Southeastern and Greater Atlanta Chemical Biology Symposium, Athens, GA, May 2019.

- 2018 **Tope, C.**, Hooks, S., Bieber Urbauer, R., Urbauer, J. "Production and Characterization of RGS Proteins and their Interactions with Calmodulin," Southeastern Regional Meeting of the American Chemical Society, Augusta, GA, November 2018.
- Tope, C.**, Hooks, S., Bieber Urbauer, R., Urbauer, J. "Production of RGS10 and the Effect of Ionic Strength on its Interaction with Calmodulin," Annual GSPS Research Day at UGA, Athens, GA, April 2018.
- 2017 **Tope, C.**, Hooks, S., Bieber Urbauer, R., Urbauer, J. "Production of RGS Proteins for Physical Studies," Southeastern Regional Meeting of the American Chemical Society, Charlotte, NC, November 2017.
- 2015 **Tope, C.**, Williams, K. "Relative Reaction Rates of the Amino Acids Cysteine, Methionine, and Histidine with Analogs of the Anticancer Drug Cisplatin," Western Kentucky University Student Research Conference, Bowling Green, KY, March 2015.
- 2014 **Tope, C.**, Williams, K. "Reaction Rates of the Amino Acids Cysteine, Methionine, and Histidine with Analogs of the Anticancer Drug Cisplatin," Western Kentucky University Student Research Conference, Bowling Green, KY, March 2014.
- 2013 **Tope, C.**, Williams, K. "Reaction Rates of the Amino Acids Cysteine, Methionine, and Histidine with Analogs of the Anticancer Drug Cisplatin," National Meeting of the American Chemical Society, Indianapolis, Indiana, September 2013.
- Tope, C.**, Williams, K. "Reaction Rates of the Amino Acids Cysteine, Methionine, and Histidine with Analogs of the Anticancer Drug Cisplatin," Western Kentucky University Student Research Conference, Bowling Green, KY March 2013.
- 2012 **Tope, C.**, Williams, K. "Reaction Rates of the Amino Acids Cysteine, Methionine, and Histidine with Analogs of the Anticancer Drug Cisplatin," Kentucky Academy of Science, Richmond, KY, October 2012.
- Tope, C.**, Williams, K. "Reactions of the Amino Acid Cysteine with Analogs of the Anticancer Drug Cisplatin," Western Kentucky University Student Research Conference, Bowling Green, KY, March 2012.
- 2010 Anyanwu, E., Cole, K., Driver, K., Falcone, A., Farnsworth, E., Howard, B., Howard, B, Howard, C., King, R.A., Olberding, J., Perkins, M., Rinehart, C.A., Sayre, H., Scaff, T., Schrader, S., Parthasarathy, P.T., **Tope, C.** "Sequence and Annotation of the Wizard007 Mycobacteriophage Genome," UT-ORNL-KBRIN Bioinformatics Summit, Lake Barkley, Cadiz, KY, March 2010.

PUBLISHED ABSTRACTS

- 2010 Anyanwu, E., Cole, K., Driver, K., Falcone, A., Farnsworth, E., Howard, B., Howard, B, Howard, C., King, R.A., Olberding, J., Perkins, M., Rinehart, C.A., Sayre, H., Scaff, T., Schrader, S., Parthasarathy, P.T., **Tope, C.** "Sequence and Annotation of the Wizard007 Mycobacteriophage Genome." UT-ORNL-KBRIN Bioinformatics Summit, Lake Barkley, Cadiz, KY, March 2010. Abstract published in BioMed Central-Bioinformatics.