

Kenneth M. “Kenzyme” Roberts

Ph.D. Biochemistry, Washington State University, 2009. B.S. Biochemistry, University of Washington, 1996.

PROFESSIONAL EXPERIENCE

2021-Present Associate Professor of Chemistry, University of South Carolina Aiken
2015-2021 Assistant Professor of Chemistry, University of South Carolina Aiken
2011-2014 Adjunct Professor, St Mary’s University, San Antonio, TX
2010-2015 Post-Doctoral Associate, University of Texas Health Science Center at San Antonio, San Antonio, TX
2009-2010 Post-Doctoral Associate, Washington State University, Pullman, WA

TEACHING

CHEM A101 – Introduction to Chemistry
CHEM A105 (lab section) – Chemistry in Society
CHEM A111 – General Chemistry I
CHEM A112 – General Chemistry II
CHEM A331L – Organic Chemistry Lab I
CHEM A332L – Organic Chemistry Lab II
BIOL A541 (lab section) – Principles of Biochemistry
BIOL A542/CHEM A550 – Advanced Biochemistry (developed and implemented at USC Aiken)
Remote Teaching Certification, Office of Distance Learning, USC Aiken
Four different courses taught at St Mary’s University.

PUBLICATIONS (RECENT)

“The metal- and substrate-dependences of 2,4'-dihydroxyacetophenone dioxygenase.” **KMR**, GCC, CHC, GTR, CAP. *Arch. Biochem. Biophys.* **2020**, 691, 108441. <https://doi.org/10.1016/j.abb.2020.108441>
“Measurement of kinetic isotope effects in an enzyme-catalyzed reaction by continuous-flow mass spectrometry.” **KMR**, PFF. *Methods Enzymol.* **2017**, 596, 149-161. <https://doi.org/10.1016/bs.mie.2017.07.001>
“Structural and enzymatic insights into species-specific resistance to schistosome parasite drug therapy.” ABT, **KMR**, XC, NEC, SPH, ED, CMP, LP-M, RST, SFM, DC, PTL, PFF, PJH. *J Biol. Chem.* **2017**, 292(27), 11154-11164. <https://doi.org/10.1074/jbc.M116.766527>
“Metal dependence and branched RNA co-crystal structures of the RNA lariat debranching enzyme Dbr1.” NEC, AK, **KMR**, ABT, SPH, JPS, EJM, SWS, PFF, MJD, PJH. *PNAS USA* **2016**, 113(51), 14727–14732. <https://doi.org/10.1073/pnas.1612729114>
“Mechanism of the flavoprotein L-hydroxynicotine oxidase: kinetic mechanism, substrate specificity, reaction product, and roles of active-site residues.” PFF, FC, SZ, **KMR**, CSH. *Biochemistry* **2016**, 55(4), 697–703. <https://doi.org/10.1021/acs.biochem.5b01325>

REPRESENTATIVE PRESENTATIONS

“Oxidation by DAD: A novel reaction or an old dog with new tricks?” **KMR**, INVITED TALK, Department of Chemistry Graduate Seminar (University of Georgia, Athens, GA; October 10, 2019)
“Oxidation by DAD: A novel reaction or an old dog with new tricks?” **KMR**, INVITED TALK, Paul F. Fitzpatrick Retirement Symposium: Enzymes: From Isotope Effects to Allostery (University of Texas Health Science Center, San Antonio, TX; April 26-27, 2019)
“Oxidation by DAD: A novel reaction or an old dog with new tricks?” **KMR**, SEMINAR, Southeast Regional Meeting of the American Chemical Society 2018 (Augusta, GA; October 31 – November 3, 2018)
“Substrate Binding in 2,4'-Dihydroxyacetophenone Dioxygenase (DAD).” CHC, GCC, GTR, **KMR**, POSTER, 26th Enzyme Mechanism Conference (New Orleans, LA; January 6-9, 2019)
“Characterization of 2,4'-dihydroxyacetophenone dioxygenase (DAD).” **KMR**, JAW, VMS, EHF, GTR, POSTER, Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways 2016 (Waterville Valley, NH; July 24-29, 2016)

GRANTS AWARDED (RECENT)

Research Experience for Teachers (RET), SC INBRE, NIH. **\$5500**. May-July 2022.
“Expanded kinetic studies of the reaction of 2,4'-dihydroxyacetophenone dioxygenase.” ASPIRE-I Track 1, USC Office of the Vice President for Research. **\$15,000**. July 2021-Sept 2022.
“Solvent and substituent effects in the reaction of 2,4'-dihydroxyacetophenone dioxygenase.” RISE, USC Office of the VPR. **\$6000**. May-December 2021.
“2,4'-Dihydroxyacetophenone dioxygenase (DAD): metal-dependence and steady-state kinetics.” RISE, USC Office of the VPR. **\$6000**. May-December 2019.
“Acquisition of a liquid chromatography-mass spectrometer (LC/MS) for materials science and biochemical applications.” PI: CLL, Co-PI: GTR, NMM, **KMR**, CNH. ASPIRE-III, USC Office of the VPR. **\$100,000**. July 2017-Sept 2018.

“Anaerobic and oxygen-dependent studies of the mechanism of the 2,4’-dihydroxyacetophenone dioxygenase reaction.” ASPIRE-I Track 1, USC Office of the VPR. **\$15,000.** July 2017-Sept 2018.

“Validation of the proposed mechanisms for the 2,4’-dihydroxyacetophenone dioxygenase reaction.” RISE, USC Office of the VPR. **\$6000.** May-December 2017.

SERVICE AND ACTIVITIES

University Service:

Faculty Assembly Chair (2024-present)
Faculty Advisory Committee (2021-2024; Chair: 2022-2024)
CSE Dean’s Advisory Group (2020-present; Chair 2021-present)
Graduate Advisory Council (2018-2021, Chair AY20-21)
Orientation Planning Committee (2018-present)
University Judicial Board (2016-2024).

Departmental Service:

Course coordinator, CHEM A101 (2017-2021), CHEM A111/A112 (2021-present)
Recruitment and Retention Committee (2016-present)
Faculty Search Committees – various (2015-16, 2016-17, 2020-21, 2022-23)

Other Service:

Reviewer for *Archives of Biochemistry and Biophysics* (2020-present)
Advisor, ACS Chemistry Club (2019-present)
Summer-student proposal reviews for Presbyterian College (2019, 2020, 2023, 2024)
Local Section Coordinator for the American Chemical Society’s National Chemistry Olympiad (Lead Coordinator 2022-present; Co-coordinator 2016-2021)