

Publications

(As Postdoc)

1. **Abucayon, E. G.**; Khade, R.; Zhang, Y.; Richter-Addo, G. B. "Not limited to Iron: A Cobalt Heme–NO Model Facilitates N–N Coupling with External NO in the Presence of a Lewis Acid to Generate N₂O". *Angew. Chem. Int. Ed.* **2019**, *58*, 2-8.
2. **Abucayon, E. G.**; Khade, R. L.; Powell, D. R.; Zhang, Y.; Richter-Addo, G. B. "Lewis Acid Activation of the Ferrous Heme-NO Fragment Toward the N–N Coupling Reaction with NO to Generate N₂O." *J. Am. Chem. Soc.* **2018**, *140*, 4204-4207.
3. Zink, J.; **Abucayon, E. G.**; Ramuglia, A.; Fadamin, A.; Eilers, J.; Richter-Addo, G. B.; Shaw, M. J. "Electrochemical Investigation of the Kinetics of Chloride Substitution Upon Reduction of [Ru(por)(NO)Cl] Complexes in Tetrahydrofuran." *ChemElectroChem* **2018**, *5*, 861-871.
4. **Abucayon, E. G.**; Powell, D. R.; Richter-Addo, G. B. "Carbon-Nitrogen and Nitrogen-Nitrogen Bond Formation from Nucleophilic Attack at Coordinated Nitrosyls in Fe and Ru Heme Models." *J. Am. Chem. Soc.* **2017**, *139*, 9495-9498.
5. **Abucayon, E. G.**; Chu, J.-M.; Ayala, M.; Khade, R.; Powell, D.; Zhang, Y. and Richter-Addo. Insight Into the Preferential N-Binding versus O-Binding of Nitrosoarenes to Ferrous and Ferric Heme Centers. (Manuscript is currently under review in *Dalton. Trans.*)

(As Graduate Student)

6. **Abucayon, E. G.**; Khade, R. L.; Powell, D. R.; Zhang, Y.; Richter-Addo, G. B. "Over or Under: Hydride Attack at the Metal versus the Coordinated Nitrosyl Ligand in Ferric Nitrosyl Porphyrins." *Dalton Trans.* **2016**, *45*, 18259-18266.
7. **Abucayon, E. G.**; Khade, R. L.; Powell, D. R.; Zhang, Y.; Richter-Addo, G. B. "Hydride Attack on a Coordinated Ferric Nitrosyl: Experimental and DFT Evidence for the Formation of a Heme Model-HNO Derivative." *J. Am. Chem. Soc.* **2016**, *138*, 104-107.
8. Xu, N.; **Abucayon, E. G.**; Powell, D. R.; Richter-Addo, G. B. "A Bridged Di-Iron Porphyrin Hyponitrite Complex as a Model for Biological N₂O Production from Hyponitrite." *Nitric Oxide Biol. Chem.* **2016**, *52*, 16-20.
9. Xu, N.; Christian, J. H.; Dalal, N. S.; **Abucayon, E. G.**; Lingafelt, C.; Powell, D. R.; Richter-Addo, G. B. "Unusual Six-coordinate Ferric Porphyrins Containing Bidentate *N*-*t*-Butyl-*N*-nitrosohydroxylaminato Ligands: Structure, Magnetism, IR Spectroelectrochemistry, and Reactivity." *Dalton Trans.* **2015**, *24*, 20121-20130.
10. **Abucayon, E. G.**; Awasabisah, D.; Powell, D. R.; Richter-Addo, G. B. "(1-Methylimidazole)-(o-nitrosotoluene)(5,10,15,20-tetraphenylporphyrinato)iron(II) dichloromethane solvate." *Acta Cryst. E.* **2014**, *70*, m51-m52.
11. **Abucayon, E. G.**; Ke, N.; Cornut, R.; Patelunas, A.; Miller, D.; Nishiguchi, M. K.; Zoski, C. G. "Investigating Catalase Activity Through Hydrogen Peroxide Decomposition by Bacteria Biofilms in Real Time Using Scanning Electrochemical Microscopy." *Anal. Chem.* **2014**, *86*, 498-505.

(Manuscripts to be submitted shortly; all experimental/DFT work completed)

12. **Abucayon, E. G.**; Khade, R.; Zhang, Y.; Powell, D. R.; Richter-Addo, G. B. "Electronic Consequences of *trans*-Ligands in Ferric-NO Hemes: Structural and DFT studies", to be submitted in December 2020.
13. Ye, G.; **Abucayon, E. G.**; Khade, R.; Zhang, Y.; Powell, D. R.; Richter-Addo, G. B. "Unprecedented NO Insertion into Metal-Carbon Bonds in Metalloporphyrins", to be submitted in January 2021.

Presentations and Conferences Attended

- *National*. 257th ACS National Meeting, Orlando, FL. *Poster*: Nitroxyl Complexes of Ruthenium Porphyrins. Zink, J.; Abucayon, E. G. and Richter-Addo, G. B. (2019)
- *Local*. 64th Annual ACS Pentasectional Meeting, Norman, Oklahoma. *Oral*: Lewis Acid Activation of the Heme Ferrous–NO Toward the N–N Coupling Reaction with NO: Chemical Modeling of *bacNOR* Active Site. Abucayon, E. G. and Richter-Addo, G. B. (2019)
- *International*. Packaging Technology Division, Industrial Technology Development Institute, Department of Science and Technology, Philippines. *Invited talk*: Modeling of Unstable Intermediates in Heme- mediated NO_x-chemistry. Abucayon, E. G.; Khade, R.; Zhang, Y.; Richter-Addo, G. B. (2018)
- *International*. 10th International Conference on Porphyrins and Phthalocyanines (ICPP), Munich, Germany. *Oral presentation*: Probing the Chemical Reactivity of the Bound NO in Heme-NO Models. Abucayon, E. G.; Richter-Addo, G. B. (2018)
- *International*. 10th International Conference on Porphyrins and Phthalocyanines (ICPP), Munich, Germany. *Poster presentation*: Reactivities of Bound NO in Ferric Heme Models. Abucayon, E. G.; Khade, R.; Zhang, Y.; Richter-Addo, G. (2018)

- *Local*: OU Annual Undergraduate Research Day, University of Oklahoma, Norman. *Oral presentation*: Carbon-Nitrogen Bond Cleavage in Nitrosoalkanes Mediated by Heme Models." Giza, S.; Abucayon, E. G.; Richter-Addo, G. B. (2018)
- *National*: National Conference on Undergraduate Research, University of Central Oklahoma. *Oral presentation*: Carbon-Nitrogen Bond Cleavage in Nitrosoalkanes Mediated by Heme Models." Giza, S.; Abucayon, E. G.; Richter-Addo, G. B. (2018)
- *National*: 254th National American Chemical Society Meeting, Washington, D.C. *Oral presentation*: Fe-HNO vs (NO)Fe-H Formation from Hydride Attack at Ferric Nitrosyl Porphyrins. Abucayon, E. G.; Khade, R.; Powell, D. R.; Zhang, Y.; Richter-Addo, G. B. (2017)
- *Local*: OU Annual Freshmen FYRE Symposium Poster Session. *Poster presentation*: Carbon-Nitrogen Bond Cleavage in Nitrosoalkanes Mediated by Heme Models." Kim, A. K.; Giza, S., I.; Abucayon, E. G.; Richter-Addo, G. B. (2017)
- *International*: Gordon Research Conference-Bioinorganic Chemistry; Graduate Research Seminar, Ventura, CA. *Poster presentation*: Hydride Attack at the Ferric Nitrosyl Porphyrins to Generate Nitroxyl (por)Fe-HNO Derivatives. Abucayon, E. G.; Khade, R.; Powell, D. R.; Shaw, M. J.; Zhang, Y.; Richter-Addo, G. B. (2017)
- *International*: 9th International Conference on Porphyrins and Phthalocyanines, Nanjing, China. *Poster presentation*: Nitroxyl (HNO) Derivatives via Hydride Attack at the Coordinated Nitrosyls in Ferric Porphyrins. Abucayon, E. G.; Khade, R.; Zhang, Y.; Richter-Addo, G. B. (2016)
- *International*: 9th International Conference on Porphyrins and Phthalocyanines, Nanjing, China. *Invited oral presentation*: Hydride Attack at the Coordinated Nitrosyl in a Ferric Porphyrin Generates the Fe-HNO Derivative. Abucayon, E. G.; Khade, R.; Zhang, Y.; Richter-Addo, G. B. (2016)
- *Local*: NSF-sponsored Research Experience for Undergraduates (REU) Summer Research Poster Session, held at the SLSRC, OU-Norman campus. *Poster presentation*: Molecular Structures and Redox Behavior of Iron and Ruthenium Non-heme Model Complexes. Ross, B.; Abucayon, E. G.; Powell, D. R.; Richter-Addo, G. B. (2016)
- *National*: 251st National Meeting of the American Chemical Society, San Diego, CA. *Oral presentation*: Nitroxyl (HNO) Complexes of Iron Porphyrins. Abucayon, E. G.; Khade, R.; Zhang, Y.; Richter-Addo, G. B. (2016)
- *Local*: CHEM 5360 OU-Bioinorganic Chemistry Graduate class. I gave an invited lecture to this graduate class, on the theory and applications of electron paramagnetic resonance. (2015)
- *National*: Principles of EPR Workshop, Milwaukee, WI. *Poster presentation*: Unusual Six-coordinate Ferric Porphyrins Containing Bidentate *N-t*-Butyl-*N*-nitrosohydroxylaminato Ligands: Structure, Magnetism, and Reactivity. Abucayon, E. G.; Xu, N.; Christian, J. H.; Dalal, N. S.; Lingafelt, C.; Powell, D. R.; Richter-Addo, G. B. (2015)
- *Local*: NSF-sponsored Research Experience for Undergraduates (REU) Summer Research Poster Session, held at the SLSRC, OU-Norman campus. *Poster presentation*: Non-Porphyrin Iron Complexes and the Effects of RNO Binding to Myoglobin. Saltee, D.; Abucayon, E. G.; Richter-Addo, G. B. (2015)
- *Local*: OU Annual Freshmen First Year Research Experience (FYRE) Symposium Poster Session. *Poster presentation*: A New Non-heme Iron Complex: Synthesis, X-ray Crystallography, Electrochemistry, and Reactivity. Brown, C.; Snodell, A.; Abucayon, E. G.; Powell, D. R.; Richter-Addo, G. B. (2015)
- *Local*: OU Annual Freshmen First Year Research Experience (FYRE) Symposium Poster Session. *Poster presentation*: Synthesis, X-ray Crystallography, Electrochemistry, and Reactivity of a New Iron Complex. Snodell, A.; Brown, C.; Abucayon, E. G.; Powell, D. R.; Richter-Addo, G. B. (2015)
- *Regional*: 70th Southwest Meeting of the American Chemical Society, Fort Worth, TX. *Oral presentation*: Six-coordinate Ferric Porphyrins Containing Bidentate *N-t*-Butyl-*N*-nitrosohydroxylaminato Ligands: Structure, IR Spectroelectrochemistry, and Reactivity. Abucayon, E. G.; Xu, N.; Lingafelt, C.; Powell, D. R.; Richter-Addo, G. B. (2014)
- *International*: Penn State University Bioinorganic Training Workshop and Frontiers in Metallobiochemistry III, PA. *Poster presentation*: Model Complexes of Biological Heme-NO_x Reactions. Abucayon, E. G.; Awasabisah, D.; Powell, D. R.; Richter-Addo, G. B. (2014)