

Dr. Pablo Sobrado

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EDUCATION

Ph.D. in Biochemistry, Texas A&M University, College Station, TX (August 2003) Advisor: Dr. Paul F. Fitzpatrick
B.A. in Biology, Merrimack College, North Andover, MA (May 1997)

PROFESSIONAL EXPERIENCE

2021-2023 Program Director, Division of Chemistry, National Science Foundation
2016- Professor, Department of Biochemistry, Virginia Tech, Blacksburg, VA
2016- Professor of Health Sciences, Virginia Tech, Blacksburg, VA
2019-2021 Associate Department Head, Department of Biochemistry, Virginia Tech, Blacksburg, VA
2019-2021 Associate Director, Virginia Tech Center for Drug Discovery, Virginia Tech, Blacksburg, VA
2015-2021 Graduate Program Director, Department of Biochemistry, Virginia Tech, Blacksburg, VA
2012-2021 Director, Virginia Tech Drug Screening Laboratory, Virginia Tech, Blacksburg, VA
2010-2020 Adjunct Professor, Department of Biology, Costa Rica Institute of Technology, Cartago, Costa Rica
2012-2016 Associate Professor, Department of Biochemistry, Virginia Tech, Blacksburg, VA
2014-2016 Associate Professor of Health Sciences, Virginia Tech, Blacksburg, VA
2007-2012 Assistant Professor, Department of Biochemistry, Virginia Tech, Blacksburg, VA
2004-2007 Research Associate, Department of Biochemistry, University of Wisconsin, Madison, WI Advisor: Dr. Brian G. Fox
2003-2004 Postdoctoral Fellow, Instituto de Ciencias Biomédicas, Facultad de Medicina, Universidad de Chile, Santiago, Chile, Advisor: Dr. Jorge E. Allende

HONORS

2021 Martin H. Freeman Lecture, Middlebury College, Middlebury, VT
2017 Keynote Speaker, 8th Southeast Enzyme Conference, Atlanta, GA
2014 Excellence in Basic Research Award from the College of Agriculture and Life Sciences
2014 ASBMB Research Spotlight for the month of March
2013 Everson Lecture, University of Wisconsin, Madison, WI
2011 National Technology Prize, Clodomiro Picado Twilight, Costa Rica
2011 Grand Marshal, Central America Independence Day Celebration, Los Angeles, CA
2010 J. Shelton Horsley Research Award from the Virginia Academy of Sciences
2009 Allan T. Gwathmey Chemistry Award from the Virginia Academy of Sciences
2009 Ralph Powe Junior Faculty Enhancement Award from the Oak Ridge Associated Universities (ORAU)
2005-07 American Heart Association Postdoctoral Fellowship
2004-05 Postdoctoral Fellowship from the National Center for Technology and Scientific Investigation (CONICIT) of Costa Rica
2004 The International Centre for Genetic Engineering and Biotechnology (ICGEB), Fellowship to Participate in the Course: Petroleum and Biotechnology
2004 Red Latinoamericana de Ciencias Biológicas (RELAB) Travel Award Fellowship
2002 NIH Travel Grant to attend the 14th International Symposium on Flavins and Flavoproteins, Cambridge University, United Kingdom
2002-03 Predoctoral Fellowship from the National Center for Technology and Scientific Investigation (CONICIT) of Costa Rica
2002 International Education Scholarship, Texas A&M University
1994-96 Dean's List, Merrimack College

PROFESSIONAL ACTIVITIES

2022-23	Co-Chair, Gordon Research Conference on Enzymes, Co-Enzymes, and Metabolic Pathways
2021-22	Co-Vice-Chair, Gordon Research Conference on Enzymes, Co-Enzymes, and Metabolic Pathways
2020	Program Review Committee Member (undergraduate program), University of California, Riverside
2016-20	National Institute of Health-Macromolecular Structure and Function- A, Permanent Member
2019	Organizer: "Enzymes: From Isotope Effects to Allostery" Symposium, University of Texas Medical Center, April 26-27, 2019, San Antonio, TX
2019	Organizer and Chair: "Catalysis and Enzyme Action" Session Organizer and Chair, American Society for Biochemistry and Molecular Biology, April 6-9, 2019, Orlando FL
2017	Co-Guest Editor, Archives of Biochemistry and Biophysics, Special Issue: "Flavoproteins: Beyond the Classics"
2016	Chair, 7 th Southeast Enzyme Conference
2011	Founding Member, Virginia Tech Center for Drug Discovery (VTCDD)
2015	National Science Foundation, CAREER Award Advisory Panel
2015	Alzheimer's and Related Diseases Research Fund (ARDRAF) Panel
2015	National Institutes of Health, Fellowship Review Study Section
2015	National Science Foundation, Mechanistic Biophysics Advisory Panel
2014	National Institutes of Health, Fellowship Review Study Section
2014	National Institutes of Health, Biological Chemistry and Macromolecular Biophysics Study Section
2014	Alzheimer's and Related Diseases Research Fund (ARDRAF) Panel
2013	National Institute of Health, Macromolecular Structure and Function- E Study Section
2012	National Science Foundation, Structural Biochemistry Advisory Panel
2012	National Institute of Health, Macromolecular Structure and Function- E Study Section
2010	National Science Foundation, Structural Biochemistry Advisory Panel
2010	Alzheimer's and Related Diseases Research Fund (ARDRAF) Panel

Associate Editor

2022- present	Archives of Biochemistry and Biophysics
2022-present	Frontiers in Microbiology-Antimicrobial, Resistance and Chemotherapy

Editorial Boards

2019- present	Journal of Biological Chemistry
2014- 2023	Journal of Fungi
2013- 2022	Archives of Biochemistry and Biophysics

RESEARCH SUPPORT

Active Research Support

1. National Institute of Food and Agriculture (06/2022-06/2025) Jelesko, J (61% PI) Sobrado, P., (39% Co-PI). Characterization of the Last Metabolic Step in Poison Ivy Urushiol Biosynthesis. Amount: \$649,000.
2. National Science Foundation (CHE-2106188), (07/2021-06/2024) Tanko, J (55% PI) Sobrado, P., (45% Co-PI). Proton coupled electron transfer and the mechanism of MAO catalysis. Amount: \$525,663.
3. National Science Foundation (CHE-2003658), (07/2020-06/2024-NCE) Sobrado, P., (PI). Collaborative Project: Structure and Function of Flavin-Dependent N-Monooxygenases. Amount: \$402,000.

4. USDA (08/2019-07/2023- NCE) (Inzana, T (PI), Sobrado, P (10%) (Co-PI)). Further Characterization and Resolution of Polymicrobial Biofilms in Bovine Respiratory Disease. \$500,000.

Previous Research Support

1. National Institutes of Health (NIGMS-R01GM094469), (05/2018-04/2022 NCE) Sobrado, P. & Tanner, JJ, (MPI). Mechanistic and Structural Studies of Eukaryotic UDP-Galactopyranose Mutases. Amount: \$557,456.
2. National Science Foundation (CHE-1506206), (2015-2019-NCE) Sobrado, P., (PI). Noncanonical Reactions Catalyzed by Atypical Flavoenzymes. Amount: \$480,000.
3. National Science Foundation (MCB-161038), (2016-2019) Sobrado (Co-PI (50%)). Modeling the Regulatory Network if Inositol Phosphate Signaling in Plants". Amount: \$186,809
4. National Institutes of Health (NIGMS-R01GM094469), (2010-2017- no-cost extension) Sobrado, P., (PI). Mechanistic and Structural Studies of Eukaryotic UDP-Galactopyranose Mutases. Amount: \$1,444,412.
5. National Science Foundation (MCB- 1021384), (2010-2017- no-cost extension) Sobrado, P., (PI). Mechanistic and Structural Studies of N-hydroxylating Flavin-Dependent Enzymes. Amount: \$1,113,000.
6. Elanco Animal Health. "Biochemical Characterization of Alkaline Phosphatases" (2017-2018) Sobrado, P (PI). Amount: \$ 151,299
7. Biodesign and Bioprocessing Research Center, Virginia Tech (2011-2013) Sobrado, P., (PI). Engineering of Flavin Dependent Monooxygenases. Amount \$45,000.
8. National Institutes of Health (NIAID), (2010-2012) Sobrado, P., (Co-PI). A Drug Discovery Consortium for Chagas' Disease. Amount: \$2,000,000. (Co-PI Portion \$250,000).
9. United Soybean Board, (2011-2012) Sobrado, P., (Co-PI). Enzymatic Determination of Digestible Lysine. Amount \$ 99,965.
10. Jeffress Fund, (2008-2011) Sobrado, P., (PI). Experimental and Computational Approaches to Identify Selective Inhibitors of Casein Kinase 1 from *Trypanosoma cruzi*. Amount: \$40,000.
11. Virginia Academy of Sciences (2010) Sobrado, P., (PI). Biosynthesis of Siderophores. Amount: \$10,000.
12. Petroleum Research Fund, (2008-2010) Sobrado, P., (PI) Studies on Group 5 Diiron Monooxygenases: Insight into the Mechanism of Regulation of the Diiron Center. Amount: \$50,000.
13. Oak Ridge Associated Universities, (2009-2010) Sobrado, P., (PI). Biochemical and Structural Studies of Flavin-Dependent Siderophore Hydroxylating Enzymes. Amount: \$10,000.
14. Fralin Life Science Institute-Virginia Biotechnology Institute, (2009-2010) Sobrado, P., (Co-PI). *Brucella* Siderophore Biosynthesis. Amount: \$7,500.

PATENTS/DISCLOSURES

1. Sobrado, P., Del Campo, J.S., Vogelaar, N., Growth suppression of siderophore-producing pathogens by by small molecule inhibitions of flavin dependent monooxygenases. IP disclosure VTIP17-078
2. Sobrado, P., Jun, Q., High-throughput Assay for the Identification of Inhibitors Against Eukaryotic UDP-

galactopyranose Mutases. U.S. Patent Application No.: 61/406,604. 2011.

3. Sobrado, P., Expression System for the Production of Functional Bacterial and Fungal Flavin-Dependent N-hydroxylating Enzymes. U.S. Patent Application No.: 61/363,419. 2010.
4. Fox, B., and Sobrado, P. Expression System for Functional Membrane Polypeptides. US 8088601 B2.
5. Fox, B., Sobrado, P., and Chang, Y., Expression System for Mammalian and Mycobacterium Desaturases. WO/2008/028146.

PUBLICATIONS (Total = 87 Citations: 2112 h-index: 29 i10-index= 51)

1. Sobrado, P., Daubner, S.C. and Fitzpatrick, P.F. (2001) Probing the Relative Timing of Hydrogen Abstraction in the Flavocytochrome b_2 Reaction with Primary and Solvent Deuterium Isotope Effects and Mutant Enzymes. *Biochemistry*. 40. 994-1001.
2. Sobrado, P., Sura, G. and Fitzpatrick, P.F. (2002) Identification of Catalytic Residues in Tryptophan 2-Monooxygenase a Homologue of L-Amino Acid Oxidase. In *Flavins and Flavoproteins* (Chapman, S., Scrutton, N., Perham, R., eds.) 369-374.
3. Sobrado, P., and Fitzpatrick P. F. (2002) Analysis of the Roles of Amino Acid Residues in the Flavoprotein Tryptophan 2-Monooxygenase Modified by 2-Oxo-3-pentynoate: Characterization of His338, Cys339 and C511 Mutant Enzymes. *Arch. Biochem. Biophys.* 402. 24-30.
4. Sobrado, P., and Fitzpatrick, P.F. (2003) Identification of Tyr413 as an Active Site Residue in the Flavoprotein Tryptophan 2-Monooxygenase and Analysis of Its Contribution to Catalysis. *Biochemistry* .42. 13826-13832.
5. Sobrado, P., and Fitzpatrick, P.F. (2003) Analysis of the Role of the Active Site Residue Arg98 in the Flavoprotein Tryptophan 2-Monooxygenase, a Member of the L-Amino Oxidase Family. *Biochemistry*. 42. 13833-13838.
6. Sobrado, P., and Fitzpatrick, P.F. (2003) Solvent and Primary Deuterium Isotope Effects Show that Lactate CH and OH Bond Cleavage Are Concerted in Y254F Flavocytochrome b_2 , Consistent With a Hydride Transfer Mechanism. *Biochemistry*. 42.15208-15214. (Selected as Hot Article)
7. Sobrado, P. (2004) Postdoctoral training in South America: Opportunities in Chile. *Electronic Journal of Biotechnology* [on line]. Vol. 7. No. 3.
8. Sobrado, P., Jedliki, A., Bustos, V.H., Allende, C. C. and Allende, E.J. (2005) The Basic Region of Residues 228-231 of Protein Kinase CK1 is Involved in its Interaction with Axin: Binding to axin does not affect kinase activity. *J. Cell. Biochem.* 94. 217-224. (Fast Track)
9. Sobrado, P., Kyle, K., Kaul, S., Marwah, A., Arabshahi, I., Turco, M. and Fox, B.G. (2006) Identification of the Binding Region of the [2Fe-2S] Ferredoxin in Stearoyl Acyl Carrier Protein Desaturase: Insight in to the Catalytic Complex and Mechanism of Action. *Biochemistry*.45.4848-4858.
10. LeBlanc-Straceski, J., Sobrado, P., Ricketts, S., Donoghue, J., and Morgan, K. (2006) Screening of lambda phage libraries by the lift pool method. *Electronic Journal of Biotechnology* [on line]. Vol. 9. No. 4.
11. Tsai, C-L., Gokulan, K., Sobrado, P., Sacchettini, J.C. and Fitzpatrick, F.P. (2007) Mechanistic and Structural Studies of H373Q Flavocytochrome b_2 . *Biochemistry*.46.7844-7851.
12. Sobrado, P., Gorem, M.A., James, D., Amundson, C.K., and Fox, B.G. (2008) A Protein Structure Initiative Approach to Expression, Purification, and In situ Delivery of Human Cytochrome b_5 to Membrane Vesicles. *Protein Expr. Purif.* 2. 229-41.
13. Sobrado, P. (2008) Functional Expression and Purification of UDP-Galactopyranose Mutase from *Trypanosoma cruzi*. In *Flavins and Flavoproteins* (Frago, S., Gomez-Moreno, C, Medina, M. eds.) 509-513.
14. LeBlanc-Straceski, J., Sokac, A., Bement, W., Sobrado, P., and Lemoine, L., (2009) Developmental Expression of *Xenopus Myosin 1d* (XIMyo1d) and Identification of a Myo1d tail Homology that Overlaps TH1. *Develop. Growth Differ.* 51. 443-51.
15. Oppenheimer, M., Pierce, S.B., Crowford, A.J., Ray, K., Helm, R., and Sobrado, P. (2010) Recombinant Expression, Purification, and Characterization of ThmD, the Oxidoreductase Component of Tetrahydrofuran Monooxygenase. *Arch. Biochem. Biophys.* 496.123-31.

16. Oppenheimer, M, Poulin MB, Lowary TL, Helm RF, and Sobrado P. (2010) Characterization of UDP-Galactopyranose Mutase From *Aspergillus fumigatus*. *Arch. Biochem. Biophys.* 502. 31–38.
17. Chocklett, W.S, and Sobrado, P. (2010) *Aspergillus fumigatus* SidA is a Highly Specific Ornithine Hydroxylase with Bound Flavin Cofactor. *Biochemistry.* 49. 6777-83.
18. Sobrado, P., (2010) Teaching principles of Enzyme Structure, Evolution, and Catalysis Using Bioinformatics. *KMB Journal of Science Education.* 1. 7-12.
19. Oppenheimer, M., Valenciano, A.L., and Sobrado, P. (2011) Characterization of *Leishmania major* Virulence Factor UDP-Galactopyranose Mutase. *Biophys. Biochem. Res. Comm.* 407. 552-6.
20. Oppenheimer, M., Valenciano, A.L., and Sobrado, P. (2011) Biosynthesis of Galactofuranose in kinetoplastids: Novel Therapeutics Targets for Treating Leishmaniasis and Chagas' Disease. *Enzyme Research.* vol. 2011, Article ID 415976, 13 pages. Review
21. Qi, J., Oppenheimer, M., and Sobrado, P. (2011) Fluorescence Polarization Binding Assay for *Aspergillus fumigatus* Virulence factor UDP-Galactopyranose Mutase. *Enzyme Research.* vol. 2011, Article ID 513905, 9 pages.
22. Robinson, R., and Sobrado, P. (2011) Substrate Binding Modulates the Activity of *Mycobacterium smegmatis* G (MbsG), a Flavin-Dependent Monooxygenase Involved in the Biosynthesis of Hydroxamate-Containing Siderophores. *Biochemistry.* 50. 8489-96.
23. Dhatwalia, R., Singh, H., Oppenheimer, M., Karr, D.B., Nix, J.C., and Sobrado, P., and Tanner, J.J., (2012) Crystal structures and small-angle X-ray scattering analysis of UDP-galactopyranose mutase from the pathogenic fungus *Aspergillus fumigatus*. *J. Biol. Chem.* 286. 9041-51.
24. Oppenheimer, M., Valenciano, A.L., Kizjakina, K., Qi, J., and Sobrado, P., (2012) Chemical Mechanism of UDP-Galactopyranose Mutase from *Trypanosoma cruzi*: a Potential Drug Target Against Chagas' Disease, *PLoS ONE.* 7(3) e32918.
25. Romero, E., Robinson, R., and Sobrado, P., (2012) Monitoring the Reductive and Oxidative Half-Reactions of a Flavin Dependent Monooxygenase Using Stopped-flow Spectrophotometer. *JoVe.* 61.
26. Qi, J., Kizjakina, K., Robinson, R., Tolani, K., and Sobrado, P. (2012) A Fluorescence Polarization Binding Assay to Identify Inhibitors of Flavin-Dependent Monooxygenases. *Analytical Biochemistry.* 425. 80-7.
27. Romero, E., Fedkenheuer, M., Chocklett, S.W., Qi, J., Oppenheimer, M., and Sobrado, P. (2012). Dual role of NADP(H) in the reaction of a flavin dependent N-hydroxylating monooxygenase. *Biochim. Biophys. Acta.* 6. 850-7.
28. Dhatwalia, R., Singh, H., Oppenheimer, M., Sobrado, P., and Tanner, J.J. (2012) Crystal Structures of *Trypanosoma cruzi* UDP-Galactopyranose Mutase Implicate Flexibility of the Histidine Loop in Enzyme Activation. *Biochemistry.* 51. 4968-79.
29. Franceschini S, Fedkenheuer M, Vogelaar NJ, Robinson HH, Sobrado P., and Mattevi, A. (2012) Structural insight into the mechanism of oxygen activation and substrate selectivity of flavin-dependent N-hydroxylating monooxygenases. *Biochemistry.* 51.7043-5. Rapid Report
30. Sobrado, P., Noncanonical reactions of flavoenzymes. (2012) *Int. J. Mol. Sci.* 13. 14219-14242. Review
31. Dhatwalia, R., Singh, H., Solano, L.M., Oppenheimer, M., Robinson, R., Ellerbrock, J.E., Sobrado P., and Tanner, J.J. (2012) Identification of the NAD(P)H Binding Site of Eukaryotic UDP-Galactopyranose Mutase. *J. Am. Chem. Soc.* 134. 18132-8. (recommended by Faculty of 1000)
32. Han, A., Robinson, R., Badieyan, S., Ellerbrock, J., and Sobrado, P. (2013) Tryptophan-47 in the active site of *Methylophaga* sp. Strain SK1 flavin monooxygenase is important for hydride transfer. *Arch. Biochem. Biophys.* 532. 46-53.
33. Kizjakina, K., Tanner, J.J., and Sobrado, P. (2013). Targeting UDP-galactopyranose Mutases from Eukaryotic Human Pathogen. *Current Pharmaceutical Design.* 19. 2561-73. Review
34. Robinson, R., and Sobrado, P. (2013) Flavin-Dependent Monooxygenases in Siderophore Biosynthesis. In *Flavin and Flavoprotein Handbook.* De Gruyter. (Hille, Miller, Palfey Eds). pp. 29-50. Review
35. Badieyan, S., and Sobrado, P. (2013) Inhibition of siderophore biosynthesis by targeting *A. fumigatus* ornithine hydroxylase: A structure-based virtual screening study. In *Microbial Pathogens and Strategies to Combat Them: Science, Technology and Education.* Mendez-Vilas, A., Ed. Formatex Research Center. Badajoz, Spain.430-438.

36. Boechi, L., de Oliveira, C.A., da Fonseca, I., Kizjakina, K., Sobrado, P., Tanner, J.J., and McCammon J.A, (2013) Substrate-dependent dynamics of UDP-Galactopyranose Mutase: implications for drug design. *Protein Science*. 11. 1490-501.
37. Sobrado, P. (2013) Flavin-Dependent N-Hydroxylating monooxygenases in Bacterial and Fungi Siderophore Biosynthesis. In *Flavins and Flavoproteins* (Miller, S., Hille, R., Palfey, B., Eds). 265-276. Raleigh, NC: Lulu.
38. Oppenheimer, M., Valenciano, A.L., Qi, J., and Sobrado, P. (2013) Eukaryotic UDP-Galactopyranose Mutases are Bi-functional Enzymes: Insights into a Unique Non-redox Reaction. In *Flavins and Flavoproteins* (Miller, S., Hille, R., Palfey, B., Eds). 67-73. Raleigh, NC: Lulu.
39. Romero, E., Avila, D., and Sobrado, P. (2013) Effect of pH on the Reductive and Oxidative Half-Reactions of *Aspergillus fumigatus* Siderophore A. In *Flavins and Flavoproteins* (Miller, S., Hille, R., Palfey, B., Eds). 289-294. Raleigh, NC: Lulu.
40. Da Fonseca, I., Kizjakina, K., and Sobrado, P. (2013). UDP-galactopyranose mutases from *Leishmania* species that cause visceral and cutaneous leishmaniasis. *Arch. Biochem. Biophys.* 538. 103-110.
41. Shirey, C., Badeyan, S., and Sobrado, P. (2013) Role of S257 in the sliding mechanism of NADP(H) in the reaction catalyzed by *A. fumigatus* flavin-dependent ornithine N⁵- monooxygenase SidA. *J. Biol. Chem.* 288:32440-8.
42. Komachi, Y., Hatakeyama, S., Motomatsu, H., Futagami, T., Kizjakina, K., and Sobrado, P., Ekino, K., Takegawa, K., Goto, M., Nomura Y., Oka, T. (2013) *gfsA* encodes a novel galactofuranosyltransferase involved in biosynthesis of galactofuranose antigen of O-glycan in *Aspergillus nidulans* and *A. fumigatus* . *Molecular Microbiology*. 90. 1054-73.
43. Robinson, R., Basieyan, S., and Sobrado, P. (2013) C4a-hydroperoxyflavin formation in N-hydroxylating flavin monooxygenases is mediated by the 2'-OH of the nicotinamide ribose of NADP⁺. *Biochemistry*. 52. 9089-9091. Rapid Report
44. Tanner, J., Boechi, L., McCammon, J.A., and Sobrado, P. (2014) Structure, Mechanism, and Dynamics of UDP-Galactopyranose Mutase. *Arch. Biochem. Biophys.* 544. 128-141. Review. Selected for the Cover
45. Robinson, R., Franceschini, S., Fedkenheuer, M., Rodriguez, P., Ellerbrock, P., Romero, E., Echandi, M.P., Martin del Campo, J., and Sobrado, P. (2014) Arg279 is the key regulator of coenzyme selectivity in the flavin-dependent ornithine monooxygenase SidA. *Biochim. Biophys. Acta*. 1844. 778-784.
46. Robinson, R., Rodriguez, P., and Sobrado, P. (2014) Mechanistic studies on the flavin-dependent N⁶-lysine monooxygenase MbsG reveal an unusual control for catalysis. *Arch. Biochem. Biophys.* 550-551, 58-66.
47. Da Fonseca, I., Qureshi, I.A., Mehra-Chaudharay, R., Kizjakina, K., Tanner, J.J., and Sobrado, P. (2014) Contributions of Unique Active Site Residues of Eukaryotic UDP-Galactopyranose Mutases to Substrate Recognition and Active Site Dynamics. *Biochemistry*. 53, 7794-7804.
48. Sohrobi, R., Huh, JH, Badiyan, S., Harinantenaina, L., Kingston DGI, Kliebensten, D., and Sobrado, P., and Tholl, D.,(2015) In Planta Variation of Volatile Biosynthesis: An alternative Biosynthetic Route to the Formation of the Pathogen-Induced Volatile Homoterpene DMNT via Triterpene Degradation in *Arabidopsis* Roots, *Plant Cell*, 27, 874-90.
49. Badiyan, S, Bach, R., and Sobrado, P. (2015) Mechanism of N-Hydroxylation Catalyzed by Flavin-dependent Monooxygenases . *J. Org. Chem.* 80, 2139-47.
50. Guo S, Liang Y, Murphy SF, Huang A, Shen H, Kelly DF, Sobrado P, and Sheng, Z. (2015) A rapid and high content assay that measures cyto-ID-stained autophagic compartments and estimates autophagy flux with potential clinical applications. *Autophagy*. 11, 560-72.
51. Binda, C., Robinson, R., Martin del Campo, J.S., Keul, N., Rodriguez, P., Robinson, H.H., Mattevi, A., and Sobrado, P. (2015) An unprecedented NADPH-domain conformation in Lysine Monooxygenase NbtG provides insights into uncoupling of oxygen consumption from substrate hydroxylation. *J. Biol. Chem.* 290:12676-88.
52. Bai, Y., McCoy, J., Levin, E., and Sobrado, P., Rajashankar, K., Fox, B.G., and Zhang, M. (2015) X-ray Structure of Mammalian Stearoyl-CoA desaturase. *Nature*. 524:252-6.
53. Robinson, R, Qureshi, I.A., Klancher, C.A., Rodriguez, P.J., Tanner JJ, and Sobrado P. (2015) Contribution to catalysis of ornithine binding residues in ornithine N5-monooxygenase. *Arch Biochem Biophys.* 585:25-31.
54. Mehra-Chaudhary R, Dai Y, Sobrado P., and Tanner JJ. (2016) In Crystallo Capture of a Covalent Intermediate in the UDP-Galactopyranose Mutase Reaction. *Biochemistry*. 55:833-6.

55. Abdelwahab, H., Robinson, R., Rodriguez, P., Adly, C., El-Sohaimy, S., and Sobrado, P. (2016) Identification of structural determinants of NAD(P)H selectivity and lysine binding in lysine N6-mmonooxygenase. *Arch. Biochem. Biophys.* 55: 833-6.
56. Abdelwahab, H., Martin Del Campo, J.S., Dai, Y., Adly, C., El-Sohaimy, S., and Sobrado, P. (2016) Mechanism of Rifampicin inactivation in *Nocardia farcinica*. *PLoS One.* 11(10): e0162578.
57. Liu, L.K., Abdelwahab, H., Martin Del Campo, J.S., Mehra-Chaudhary, R., and Sobrado, P., Tanner, J.J. The Structure of the Antibiotic Deactivating, N-hydroxylating Rifampicin Monooxygenase (2016) *J. Biol. Chem.* 291: 21553-21562.
58. Martin Del Campo, J.S., Vogelaar, N., Tolani, K., Kizjakina, K., Harich, K., and Sobrado, P. (2016) Inhibition of the flavin-dependent monooxygenase Siderophore A (SidA) blocks siderophore biosynthesis and *Aspergillus fumigatus* growth. *ACS Chem. Biol.* 11: 3035-3042
59. Sobrado, P., and Gadda, G., Introduction to flavoproteins: Beyond the classical paradigms.(2017) *Arch. Biochem. Biophys.* 632:1-3.
60. Sobrado, P., and Tanner, J.J. (2017) Multiple functionalities of reduced flavin in the non-redox reaction catalyzed by UDP-galactopyranose mutase. *Arch. Biochem. Biophys.* 632:59-65.
61. Webb, B., Compton, K., Martin Del Campo, J.S., Taylor, D., and Sobrado, P., Scharf, B.E. (2017) *Sinorhizobium meliloti* chemotaxis to multiple amino acids is mediated by chemoreceptor McpU. *Mol. Plat. Microbe. Interact.* 10: 770-777.
62. Martin Del Campo, J.S., M. Eckshtain-Levi, N. Vogelaar, and Sobrado, P (2017) Identification of *Aspergillus fumigatus* UDP-galactopyranose mutase inhibitors. *Sci Rep.* 7:10836.
63. Martin Del Campo, J.S., M. Eckshtain-Levi, and Sobrado, P. (2017) Identification of eukaryotic UDP-galactopyranose mutase inhibitors using the ThermoFAD assay. *Biochem. Biophys. Res. Commun.* 493:58-63.
64. Sobrado, P., and Gadda, G. (2017) Introduction to flavoproteins: Beyond the classical paradigms. *Arch. Biochem. Biophys.* 632:1-3
65. Bufkin, K., and Sobrado, P. (2017) Characterization of the Ornithine Hydroxylation Step in Albachelin Biosynthesis. *Molecules* 22:1652.
66. Dai, Y., Kizjakina, K., Campbell, A.C., Korasick, D.A., Tanner, J.J, and Sobrado, P. (2018) Flavin-N5 Covalent Intermediate in the Non-redox Dehalogenation Reaction Catalyzed by an Atypical Flavoenzyme. *ChemBioChem.* 19:53-57.
67. Li-Kai, L., Dai, Y., Abdelwahad, H., and Sobrado, P., Tanner, J.J. (2018) Structural evidence for rifampicin monooxygenase inactivating rifampicin by cleaving its ansa-bridge. *Biochemistry.* 57:2065-68.
68. Gadda, G., and Sobrado, P. (2018) Kinetic Solvent Viscosity Effects as Probes to Study the Mechanisms Enzyme Action. *Biochemistry.* 57:3445-34453.
69. Pierdominici-Sottile, G., Cossio-Perez, R., Da Fonseca, L, Kizjakina, K., Tanner, J.J., and Sobrado, P. (2018) Steric Control of the Rate Limiting-Step of UDP-Galactopyranose Mutase. *Biochemistry.* 57:3713-3721
70. Dai, Y., Valentino, H., and Sobrado, P. (2018) Evidence for Formation of a Radical-Mediated Flavin-N5 Covalent Intermediate. *ChemBioChem.* 54:3713-3721.
71. Mehnert, M., Heine, T., Sobrado, P., Tischler, D. (2018) Identification of a gene cluster involved in desferrioxamine biosynthesis in *Gordonia rubripertincta* and *Pimelobacter simplex*. In *Exploring Microorganism: Recent Advancements in Applied Microbiology* (Mendez-Vilas, A. Ed) 31-34. Brown Walker Press: Irvine, CA, USA, 2018; pp. 31–34.
72. Robinson, R., Klancher, C., Rodriguez, P., and Sobrado, P. (2019) Flavin oxidation in flavin dependent N-monooxygenase. *Protein Science,* 1:90-99.
73. Valentino, H., and Sobrado, P.(2019) Performing anaerobic stopped-flow spectrophotometry inside of an anaerobic chamber. *Methods Enzymol.* 2019;620:51-88.
74. Cossio-Pérez R., Pierdominici-Sottile G, Sobrado, P., and Palma J. (2019) Molecular Dynamics Simulations of Substrate Release from *Trypanosoma cruzi* UDP-Galactopyranose Mutase. *J Chem Inf Model.* Feb 25;59(2):809-817.
75. Hofmann M., Martin Del Campo, J.S., Sobrado, P, Tischler D. (2020) Biosynthesis of desferrioxamine siderophores initiated by decarboxylases: A functional investigation of two lysine/ornithine-decarboxylases from *Gordonia rubripertincta* CWB2 and *Pimelobacter simplex* 3E. *Arch. Biochem. Biophys.* 689:108429

76. Valentino H., Campbell, A.C., Schuermann, J.P., Sultana, N, Nam H.G., LeBlanc, S, Tanner, J.J., Sobrado P. (2020) Structure and Function of a Flavin-Dependent S-monooxygenase From Garlic (*Allium sativum*). *J. Biol. Chem.* 295:13239-13249. doi: 10.1074/jbc.RA120.014484 (selected Best of 2020 in Enzymology)
77. Campbell A.C., Stiers K.M., Martin Del Campo, J.S., Mehra-Chaudhary, R., Sobrado P., Tanner J.J. (2020) Trapping conformational states of a flavin-dependent N-monooxygenase in crystallo reveals protein and flavin dynamics. *J. Biol. Chem.* 295:13239-13249. doi: 10.1074/jbc.RA120.014750
78. Campbell, A.C., Robinson, R., Mena-Aguilar, D., Sobrado, P., Tanner, J.J. (2020) Structural determinants of flavin dynamics in a class B monooxygenase. *Biochemistry.* 59:4609-4616. doi: 10.1021/acs.biochem.0c00783
79. Li, H., Forson, B., Eckshtain-Levi, M., Valentino, H., Martin Del Campo, J., Tanner, J.J., Sobrado, P. (2020) Biochemical Characterization of the Two-Component Flavin-Dependent Monooxygenase involved in Valanimycin Biosynthesis. *Biochemistry*, doi: 10.1021/acs.biochem.0c00679
80. Sobrado, P. (2021) Role of reduced flavin in dehalogenation reactions. *Arch. Biochem. Biophys.* 699:108765. doi: 10.1016/j.abb.2020.108696
81. Dye, K.J., Vogelaar, N.J., Sobrado, P., Yang, Z. (2021) High-throughput screen for inhibitors of the Type IV Pilus Assembly ATPase PilB. *6: e00129-2.* doi: 10.1128/mSphere.00129-21
82. Reis, R., Li, H., Johnson, M., Sobrado, P. *Frontier in flavin-dependent monooxygenases.* *Arch. Biochem. Biophys.* 699:108765. doi: 10.1016/j.abb.2021.108765
83. Valentino, H., Korasick, A.D., Bohac, T.J., Shapiro, J.A., Wencewicz, A.T., Tanner, J.J., and Sobrado, P. (2021) *ACS Omega* 6(28):18537-18547. doi: 10.1021/acs.omega.1c03047
84. Valentino, H., and Sobrado, P. (2021) Characterization of nitro-forming enzyme involved in fosfazinomycin biosynthesis. *Biochemistry.* 60:2851-2864. doi: 10.1021/acs.biochem.1c00512
85. Dye, KJ, Vogelaar, NJ, O'Hara, M, Sobrado, P, Santos W, Carlier PR, and Yang Z. (2022) Discovery of Two Inhibitors of the Type IV Pilus Assembly ATPase PilB as Potential Antivirulence Compounds. *Microbiol Spectr.* Nov 15:e0387722. doi: 10.1128/spectrum.03877-22.
86. Lyons, NS, Bogner, AN, Tanner, JJ, and Sobrado, P. (2022) Kinetic and Structural Characterization of a Flavin-Dependent Putrescine N-Hydroxylase from *Acinetobacter baumannii*. *Biochemistry.* 2022 Nov 15;61(22):2607-2620. doi: 10.1021/acs.biochem.2c00493.
87. Sobrado, P., and Neira, J.L., Paul F. Fitzpatrick: A life of editorial duties and elucidating the mechanism of enzyme action. *Arch. Biochem. Biophys.* In press doi: 10.1016/j.abb.2023.109635

PUBLISHED ABSTRACTS

1. Sobrado, P., Robinson, R., Britt, K. Flavin Dehydration in a Class B monooxygenase (2021, May) In *FASEB JOURNAL* (Vol. 35). Rockville Pike, Bethesda, MD 20814-3998 USA.
2. Campell, A. Mehra-Chaudhary, R., Del Campo, J.S., Sobrado, P., & Tanner, J.J. Trapping conformational states of SidA ornithine hydroxylase in crystallo. *Acta. Cryst.* (2017) A73. A232.
3. Robinson, R., Rodriguez, P., Keul, N., & Sobrado, P. (2014) Mechanistic studies of a flavin-dependent monooxygenase from *Nocardia farcinia*. *Va. J. Sci.* 64 (1&2). 100.
4. Badiyan, S., & Sobrado, P. (2014) Inhibition of siderophore biosynthesis by targeting *A. fumigatus* ornithine hydroxylase: A structure-based virtual screening study. *Va. J. Sci.* 64 (1&2). 102.
5. Gringer, A., Da Fonseca, I., & Sobrado, P., (2014) Characterization of a flavin dependent monooxygenase from *Cupriavidus taiwanensis*. *Va. J. Sci.* 64 (1&2). 106.
6. Ryan, W.T., Kizjakina, K., Sobrado, P., (2014) Characterization of UDP-arabinopyranose as a substrate of eukaryotic UDP-galactopyranose mutases. *Va. J. Sci.* 64 (1&2). 106.108.
7. Ellerbrock, J., Han, A., & Sobrado, P. (2013, April). Role of conserved tryptophan 47 in the active site of flavin-monooxygenase from *Methylophaga* sp. strain sk1. In *Abstracts of papers of the American Chemical Society* (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.
8. Da Fonseca, I., Kizjakina, K., & Sobrado, P. (2013, April). Functional expression and characterization of UDP-galactopyranose mutases from *Leishmania infantum* and *Leishmania mexicana*. In *Abstracts of papers of the American Chemical Society* (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.

9. Shirey, C., & Sobrado, P. (2013, April). Role of S257 in the sliding mechanism of NADP (H) in *Aspergillus fumigatus* SidA. In Abstracts of papers of the American Chemical Society (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.
10. Sobrado, P., Briggs, M., Dhatwalia, R., Singh, H., & Tanner, J. J. (2013, April). Structural and mechanistic insight into the mechanism of flavin activation in eukaryotic UDP-galactopyranose mutases. In Abstracts of papers of the American Chemical Society (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.
11. Robinson, R., & Sobrado, P. (2013, April). pH, primary, and solvent kinetic isotope effects on the reaction catalyzed by lysine N-6-monooxygenase from *M. smegmatis*. In Abstracts of papers of the American Chemical Society (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.
12. Rodriguez, P., Robinson, R., Keul, N., & Sobrado, P. (2013, April). Lys64 is important for substrate binding in the flavoprotein nocobactin G. In Abstracts of papers of the American Chemical Society (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.
13. Keul, N., Robinson, R., & Sobrado, P. (2013, April). Mechanistic studies on NbtG, a flavin dependent N-6-lysine monooxygenase. In Abstracts of papers of the American Chemical Society (Vol. 245). 1155 16TH ST, NW, Washington, DC 20036 USA.
14. Romero, E., Fedkenheuer, M., & Sobrado, P. (2011, April). Primary and Solvent Kinetic Isotope Effects on Catalysis by *Aspergillus fumigatus* Ornithine Hydroxylase. In FASEB JOURNAL (Vol. 25). 9650 Rockville Pike, Bethesda, MD 20814-3998 USA.
15. Qi, J., Oppenheimer, M., & Sobrado, P. (2011, April). High throughput assay to identify inhibitors against UDP-galactopyranose mutase from eukaryotic pathogens. In FASEB JOURNAL (Vol. 25). 9650 Rockville Pike, Bethesda, MD 20814-3998 USA.
16. Oppenheimer, M., Valenciano, A. L., & Sobrado, P. (2011, April). Functional expression and characterization of UDP-galactopyranose mutase from *Leishmania major*. In FASEB JOURNAL (Vol. 25). Rockville Pike, Bethesda, MD 20814-3998 USA.
17. Sobrado, P., & Chocklett, W.S., (2010) Characterization of Recombinant *Aspergillus fumigatus* SidA: A Flavin-Dependent N-Hydroxylase with Bound Flavin Cofactor. *Va. J. Sci.* 61(1 & 2): 66.
18. Kannan, S., Sobrado, P., & Bevan, D. (2010) Experimental and Computational Approaches to Identify Selective Inhibitors of Casein Kinase 1 from *Trypanosoma cruzi*. *Va. J. Sci.* 61(1 & 2): 38.
19. Oppenheimer, M.L., Blumer, A., Poulin, M., Helm, R.F., Lowary, T.L., & Sobrado, P. (2010) Mechanistic Studies on UDP-Galactopyranose Mutases from *Aspergillus fumigatus* and *Trypanosoma cruzi*. *FASEB J.* 24:513.2.
20. Sobrado, P., Chocklett, W., & Robinson, R. (2010, April). Flavin-dependent N-hydroxylating enzymes from *Mycobacterium smegmatis* and *Aspergillus fumigatus*. In FASEB JL (Vol. 24). 9650 Rockville Pike, Bethesda, MD 20814-3998 USA.
21. Robinson, R., Oppenheimer, M., Llanos-Velazquez, J., Chocklett, S.W., & Sobrado, P. (2009) Group 5 Bacterial Multicomponent monooxygenases. *Va. J. Sci.* 60. 2. p81.
22. Oppenheimer, M., & Sobrado, P. (2009) Characterization of *Aspergillus fumigatus* UDP-Galactopyranose Mutase. *Va. J. Sci.* 60. 2. p80.
23. LeBlanc-Straceski, J., Bement W., S. Ricketts, Sobrado, P., Morgan, K., Donoghue, J., & Pavao, S. (1999) Expression of a *Xenopus* homologue of myosin 1myr4 [XIMyo1d] detected in embryonic spinal cord by in situ hybridization. *Mol. Biol. Cell.* 10, 161a.

INVITED COLLOQUIA

- Department of Chemistry, SUNY-Buffalo, March 17th, 2023.
- Department of Chemistry and Biochemistry, Loyola University-Chicago, IL, February 16, 2023.
- International Flavin Meeting, Graz, Austria, September 5-9, 2021.
- Department of Biology, Middlebury College, Middlebury, VT, February 10, 2021.
- ACS Spring 2021 Annual Meeting, Protein Studies Session, Online, April 12, 2021.
- Department of Biomolecular Sciences, University of Kansas, October, 22, 2019.
- Burnett School of Biomedical Sciences, University of Central Florida, May 10, 2018.
- GRC, Enzymes, Coenzymes, and Metabolic Pathways, Waterville Valley, NH, July 16-21, 2017.

- Department of Biochemistry, University of California-Riverside, April 11, 2017.
- Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, February 14, 2017.
- International Conference on Cofactors (Plenary Lecture), Unazuki, Japan, September 4-8, 2016.
- 7th Southeast Enzyme Conference (Keynote Speaker), Atlanta, GA, April 16, 2016.
- International Conference on Clinical Sciences and Drug Discovery (Plenary Lecture), Baltimore, MD, November 02-04, 2015.
- ACS Southwest /Southeast Regional Meeting (Invited Speaker), Memphis, TN, November 04-07, 2015.
- Division of Medicinal Chemistry and Pharmacognosy, Ohio State University, October 19-21, 2015.
- Laboratory of Computational Biology, NIH, Bethesda, MD, March 19, 2015.
- Department of Chemistry and Biochemistry, University of Toledo, OH, September 15, 2014.
- 4th International Conference on Cofactors, Parma, Italy, August 24-28, 2014.
- Department of Chemistry and Biochemistry, University of North Carolina-Greensboro, NC, January 24, 2014.
- Department of Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA, December 5, 2013.
- Department of Chemistry, University of Alabama, Tuscaloosa, AL, April 27, 2014.
- Department of Biochemistry, University of Wisconsin-Madison, WI, March 11, 2013.
- Department of Chemistry, University of Missouri, MO, September 21, 2012.
- ACS Hampton Roads Sections, Old Dominion University, Norfolk, VA, September 15, 2012.
- Virginia Tech Carilion School of Medicine, Roanoke, VA, August 17, 2012.
- Department of Biochemistry, Wake Forest School of Medicine, Salem, NC, March 6, 2012.
- Department of Biology, Costa Rica Institute of Technology, Cartago, Costa Rica, May 14, 2012.
- Department of Pharmacology, University of Costa Rica, San Jose, Costa Rica, May 15, 2012.
- Department of Chemistry and Biochemistry, University of Texas, Arlington, TX, April 27, 2012.
- International Congress of Bioinformatics and Systems Biology, San Jose, Costa Rica, March 28, 2012.
- 17th International Symposium in Flavins and Flavoproteins, Berkeley, CA, July 27th, 2011.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 14th, 2011.
- Department of Biochemistry and Molecular Biology, University of Kansas Medical Center, May 13th, 2011.
- Department of Biochemistry and Biophysics, Texas A&M University, College Station, TX, February 19th, 2011.
- Department of Chemistry, University of Richmond, Richmond, VA, February 8th, 2011.
- Department of Chemistry and Biochemistry, University of Wisconsin, Milwaukee, WI, February 4th, 2011.
- Drug Discovery Consortium for Chagas' Disease, Atlanta, GA, November 3rd, 2010.
- Department of Biology, Concord University, September 2nd, 2010.
- 88th Meeting of the Virginia Academy of Sciences, JMU, Harrisonburg, VA, May 20-22, 2010.
- Protein Structure and Function Symposium, Virginia Tech, April 7th, 2010.
- Department of Entomology, Virginia Tech, Blacksburg, VA, March 4th, 2010.
- Department of Chemistry, Radford University, December 4, 2009.
- Department of Biology, West Virginia State University, West Virginia, October 8, 2009.
- Department of Biotechnology, Costa Rica Institute of Technology, San Jose, Costa Rica, October 28, 2009.
- 2nd National Institute of Health Career Symposium, Bethesda, May 19, 2009.
- 3rd Virginia Tech Structural Biology Symposium, Virginia Tech, March 28, 2008.
- Biochemistry Department, Virginia Tech, February 8, 2007.
- Chemistry Department, Purdue University, February 1, 2007.
- Biology Department, Northeastern Illinois University, January 22, 2007.
- Chemistry and Biochemistry Department, Clarkson University, December 11, 2006.
- Section in Molecular and Cellular Biology, UC-Davis, December 4, 2006.
- Chemistry and Biochemistry Department, Clark University, November 15, 2006.
- Advance Enzyme Seminar, invited by W.W. Cleland, UW-Madison, May 4, 2006.
- Institute "Clodomiro Picado Twilight", Universidad de Costa Rica, Costa Rica, August 5, 2004.
- Seminario Centro FONDAP de Estudios Moleculares de la Célula. Facultad de Medicina, Universidad de Chile, July 1, 2004.
- Venezuelan Institute for Scientific Research (IVIC), Caracas, Venezuela, May 26, 2004.

- Scientific Center “Man of the Desert”, Universidad de Tarapacá, Arica, Chile. November 24, 2003.
- Institute for Biomedical Research, Facultad de Medicina, Universidad de Chile, Santiago, Chile, September 16, 2003.
- Department of Biochemistry, University of Wisconsin, Madison, WI, July 2, 2003.

PROFESSIONAL MEETINGS

- 13th Southeast Enzyme Conference, Atlanta, GA, April 22nd, 2023.
- ASBMB National Meeting, Seattle, WA, March 25-28, 2023.
- 12th Southeast Enzyme Conference, Atlanta, GA, April 23rd, 2022.
- 27th Enzyme Mechanisms Conference, Tucson, AZ, January 2-6, 2022.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 24-29, 2022
- ASBMB National Meeting, Online, April 25-29, 2021.
- ACS National Meeting, Online, April 5-30, 2021.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 21-26, 2019
- ASBMB National Meeting, Orlando, FL, April 6-10, 2019.
- 26th Enzyme Mechanisms Conference, New Orleans, January 6-9, 2019
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 22-27, 2018.
- 9th Southeast Enzyme Conference, Atlanta, GA, April 7, 2018.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 16-21, 2017.
- 8th Southeast Enzyme Conference, Atlanta, GA, April 8, 2017.
- 19th International Flavin and Flavoproteins Symposium, Groningen, The Netherlands, July 2-6, 2017
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 24-29, 2016.
- 7th Southeast Enzyme Conference, Atlanta, GA, April 16, 2016.
- The Biochemistry and Chemistry of Biocatalysis: From Understanding to Design, Oulu, Finland, June 12-15, 2016.
- VirginiaBrainRx, Richmond, VA, March 23-24,
- 14th International Conference on the Chemistry of Antibiotics and other Bioactive Compounds, Galveston Texas, TX, October 13-16, 2015.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 12-17, 2015.
- 6th Southeast Enzyme Conference, Atlanta, GA, April 11, 2015.
- 18th International Symposium in Flavins and Flavoproteins, Pechaburi, Thailand, July 27-August 1, 2014.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 13-18, 2014.
- EMBO Conference “Enzyme Mechanisms by Biological Systems”, Manchester, UK, June 1-4, 2014.
- 36th Steenbock Symposium, Madison, WI, May 22-24, 2014.
- 5th Southeast Enzyme Conference, Atlanta, GA, April 5, 2014.
- 2nd Zing-Enzyme, Coenzymes, & Metabolic Pathways Conference, Cancun, Mexico, November 17-21, 2013.
- 3rd Virginia Tech Symposium on Vector-Borne Disease Research, Virginia Tech, Blacksburg, VA, March 8-9-2013.
- 91st Virginia Academy of Science Meeting, May 22-24, 2013, Blacksburg, VA, 24061.
- 23rd Enzyme Mechanisms Conference, Coronado, CA, January 4-7, 2013.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 10-15, 2012.
- 90th Virginia Academy of Science Meeting, Norfolk State University, Norfolk, VA May 23-25, 2012.
- 10th Undergraduate Research Conference, Virginia Tech, Blacksburg, VA, April 19, 2012.
- 3rd Southeast Enzyme Conference, Atlanta, GA, April 14, 2012.
- 2nd Virginia Tech Vector Borne Disease Research Symposium, April 9-10, 2012.
- Catalytic Mechanism of Biological Systems, Groningen, The Netherlands, October 7-10, 2012.
- International Congress of Bioinformatics and System Biology, San Jose, Costa Rica, March 28-30, 2012.

- 17th International Symposium in Flavins and Flavoproteins, Berkeley, CA, July 24-29, 2011.
- Gordon Research Conference on Enzymes and Cofactors, Waterville Valley, NH, July 10-15, 2011.
- 89th Virginia Academy of Science Conference, University of Richmond, Richmond, VA, May 25-27, 2011.
- American Society for Biochemistry and Molecular Biology 20101, Washington, DC., April 9-13, 2011.
- 22nd Enzyme Mechanisms Conference, St. Pete's Beach, FL, January 2-6, 2011.
- Mid-Atlantic BioConference, Washington, DC, October 27-29, 2010.
- 1st Southeast Enzyme Conference, Atlanta, GA, April 10, 2010.
- American Society for Biochemistry and Molecular Biology 2010, Anaheim, CA, April 24-28, 2010.
- ACS National Meeting, Washington, DC, August 16-20, 2009.
- 2nd Frontiers at the Interface of Chemistry and Biology, University of Maryland, May 2, 2009.
- Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways, Waterville, NH, July 5-10, 2009.
- 86th Virginia Academy of Science Conference, VCU, Richmond, VA. May 26-28, 2009.
- 2nd Frontiers at the Interface of Chemistry and Biology, University of Maryland, May 2, 2009.
- 2nd International Interdisciplinary Conference on Vitamins, Coenzymes, and Biofactors, Athens, Georgia, October 26-31, 2008.
- 16th Symposium on Flavins and Flavoproteins, Jaca, Spain, June 8-13, 2008.
- 20th Enzyme Mechanism Conference, St. Pete Beach, Florida, January 3-6, 2007.
- 6th Annual Signal Transduction Research Training Symposium, Madison, WI, October 3, 2006.
- XXVI Midwest Enzyme Chemistry Conference, Evanston, Illinois, September 30, 2006.
- 2006 Great Lakes Regional Meeting, American Chemical Society, Milwaukee, WI, May 31-June 1, 2006.
- 5th Annual Signal Transduction Research Training Symposium, Madison, WI, September 29, 2005.
- 12th International Conference on Biological Inorganic Chemistry, Ann Arbor, MI, July 31-August 5, 2005.
- 31st Steenbock Symposium, Madison, WI, May 19-22, 2005.
- Biotechnology and Petroleum, Institute for Advanced Studies, Caracas, Venezuela, May 30- June 4, 2004.
- International Postgraduate Workshop in Endothelial Dysfunction in Vascular Disorders, Valparaiso, Chile, November 2003.
- 29th Steenbock Symposium, Madison, WI, May 29-June 1, 2003.
- 18th Enzyme Mechanism Conference, Galveston Island, TX, January 4-8, 2003.
- Center for Advanced Biomolecular Research (CABR), Biochemistry Department, Camp Allen, Texas, December 2002.
- 14th International Symposium on Flavins and Flavoproteins, St John's College, University of Cambridge, UK, July 2002.
- Industry University Chemistry Program, Texas A & M University, Chemistry Department, TX, October 2001.
- Center for Advanced Biomolecular Research (CABR), Biochemistry Department, Camp Allen, TX, November 2001.
- Gordon Research Conference on Isotopes in Biological and Chemical Science, Ventura, California, January 2000.
- XV Lost Pines Conference, Science Park-Research Division, Smithville, TX, October 1999.
- Northeast Regional Developmental Biology Conference, Marine Biological Laboratory, Woods Hole, MA, March 1999.
- Northeastern Biological Conference. Colby-Sawyer College, New London, New Hampshire, September, 1996.

RESEARCH PRESENTATIONS MADE BY POSTDOCS, GRADUATE, AND UNDERGRADUATE STUDENTS

Oral presentations

(Bold-lead Author, *Undergraduate Student, **Graduate Student, ***Postdocs)

1. ****Noah, L., Sobrado, P.** Kinetic Characterization of the Auxin-Producing Flavin-Dependent Monooxygenase YUC10. 13th Southeast Enzyme Conference, Atlanta, GA, April 22nd, 2023

2. **Johnson, S.; Li, H.; **Valentino, H.; Sobrado, P. Biochemical Characterization of OxaD, a Nitron Forming Flavin-Dependent Monooxygenases. 41st Midwest Enzyme Conference, October 23rd, 2021. Online.
3. **Johnson, S.; Sobrado, P. Kinetic Characterization of Novel N-Monooxygenases, CreE and PcxL, involved in Nitro and Oxime Functional Group Formation. 11th Southeast Enzyme Conference, April 10th, 2021. Online.
4. **Valentino, H., Sobrado, P. I clove you, AsFMO. Characterization of flavin containing S-monooxygenase from Garlic. Smith College, October 7th, 2020.
5. ***Dai, Y.; ***Kisjakina, K.; Tanner, J.; Sobrado, P., New Function of Flavin Dependent Enzymes: The Mechanism of 2-Haloacrylate Hydratase. 93th meeting of the Virginia Academic of Science, Richmond, VA, May 15th - May 17th, 2016.
6. ***Dai, Y.; ***Kisjakina, K.; Tanner, J.; Sobrado, P., New Function of Flavin Dependent Enzymes: the Mechanism of 2-Haloacrylate Hydratase. American Chemistry Society, Annual Meeting, Philadelphia, PA, Aug 20th - Aug 26th, 2016.
7. **Abdelwahab, H., & Sobrado, P. Drug resistance in *Nocardia farcinica*: Mechanism of rifampicin inactivation. 6th Southeast Enzyme Conference, Atlanta, GA, April 11, 2015.
8. **Robinson, R., *Keul, N., *Rodriguez, P., & Sobrado, P. The flavin-dependent N6-lysine monooxygenase NbtG from *Nocardia farcinica* hydroxylates both L- and D- lysine. 18th International Symposium on Flavins and Flavoproteins, Phechaburi, Thailand, July 27-August 1, 2014.
9. **Robinson R., *Rodriguez, P., *Keul, N., & Sobrado, P., Mechanistic Studies of a Flavin-Dependent Lysine monooxygenase from *Nocardia farcinica*. 91st Annual Meeting of the Virginia Academy of Science, Virginia Tech, Blacksburg, VA, May 22-24, 2014.
10. ***Badieyan S., & Sobrado, P. Inhibition of Siderophore Biosynthesis by Targetin A. *fumigatus* ornithine hydroxylase: A structure-base virtual screening study. 91st Annual Meeting of the Virginia Academy of Science, Virginia Tech, Blacksburg, VA, May 22-24, 2013.
11. *Ellerbrock, J., **Oppenheimer, M., Dhatwalia, R., Tanner, J.J., & Sobrado, P. Structural and functional analysis of *Trypanosoma cruzi* UDP-galactopyranose mutase. 90th Annual Meeting of the Virginia Academy of Science, Norfolk State University, Norfolk, VA, May 23-25, 2012.
12. *Keul, N., **Robinson, R., & Sobrado, P., Expression, Purification, and Preliminary Characterization of Members of the N- hydroxylating Monooxygenase Family. 90th Annual Meeting of the Virginia Academy of Science, Norfolk State University, Norfolk, VA, May 23-25, 2012.
13. *Shirey, C., **Fedkenheuer, M., Franceschini, S., Mattevi, A., & Sobrado, P. Substrate Binding Mechanism of *Aspergillus fumigatus* Siderophore A. 3rd Southeast Enzyme Conference. Atlanta, GA, April 14, 2012.
14. **Oppenheimer, M., & Sobrado, P., Mechanistic Studies of Eukaryotic UDP-Galactopyranose mutases. Virginia Tech, Vector Borne Group, Minisymposium, Blacksburg, VA, 2011.
15. **Oppenheimer, M., & Sobrado, P., Mechanism of Action of UDP-galactopyranose mutase from *Trypanosoma cruzi*. 89th Annual Meeting of the Virginia Academy of Science, University of Richmond, Richmond, VA, May 25 – 27, 2011.
16. ***Qi, J., & Sobrado, P. High-Throughput Assay to Identify Inhibitors Against UDP-Galactopyranose Mutase From Eukaryotic Pathogens., 89th Annual Meeting of the Virginia Academy of Science, University of Richmond, Richmond, VA, May 25-27, 2011.
17. ***Qi, J., & Sobrado, P. High-throughput assay to identify inhibitors against UDP-galactopyranose mutase from eukaryotic pathogens. ACC Interdisciplinary Forum for Discovery in Life Sciences, Virginia Tech, Blacksburg, VA, October 3-6, 2010.
18. *Moliva, J., & Sobrado, P. Probing the C-H bond cleavage step catalyzed by the enzyme siderophore hydroxylase A from *Aspergillus fumigatus*. REU- Research Day, Virginia Bioinformatics Institute, Blacksburg, VA, June 14, 2010.
19. **Oppenheimer, M., & Sobrado, P. Identification of active site residues in *Trypanosoma cruzi* UDP-galactopyranose mutase, 1st Southeast Enzyme Conference Atlanta, GA, April 10, 2010.
20. **Oppenheimer, M., & Sobrado, P. Examination of two eukaryotic UDP-galactopyranose mutases. 26th Annual Graduate Student Assembly Research Symposium, Virginia Tech, Blacksburg, VA, March 24, 2010.
21. *Blumer, A., & Sobrado, P. Structural and Functional Studies of *Trypanosoma cruzi* UDP-Galactopyranose Mutase, 8th Annual undergraduate and prospective graduate student conference. March 12, 2010.

22. *Khanna, S., & Sobrado, P. Experiment and Computational Approaches to Identify Selective Inhibitors of Casein Kinase 1 from *Trypanosoma cruzi*. 88th Annual Meeting of the Virginia Academy of Science, James Madison University, Fredericksburg, VA, May 21, 2010.
23. **Oppenheimer, M., & Sobrado, P., Characterization of *A. fumigatus* UDP-galactopyranose mutase. 86th Annual Meeting of the Virginia Academy of Science, Virginia Commonwealth University, Richmond, VA, May 26-28, 2009.
24. **Chocklett, W.S., & Sobrado, P., Hydroxamate formation in siderophore biosynthesis. 86th Annual Meeting of the Virginia Academy of Science, Virginia Commonwealth University, Richmond, VA, May, 26-28, 2009. (awarded best presentation prize)
25. *Robinson, R., & Sobrado, P. Characterization of Casein kinases 1 from *Trypanosoma cruzi*. Fralin Life Science Institute 2009 SURF Symposium, Virginia Tech, Blacksburg, VA, August 6, 2009.
26. *Jordan, R., Sobrado, P. Structural studies on ThmD: the oxidoreductase component of tetrahydrofuran monooxygenase. MAOP Summer Symposium. Virginia Tech, Blacksburg, VA, July 28, 2009.
27. *MacFarlane, A., & Sobrado, P. Expression and characterization of casein kinase 1 from *Trypanosoma cruzi*. MAOP Summer Symposium. Virginia Tech, Blacksburg, VA. July 28th, 2009.
28. *Robinson, R., & Sobrado, P. Group 5 bacterial multicomponent monooxygenases, 7th Annual Virginia Tech Undergraduate Research and Prospective Graduate Student Conference, Virginia Tech, April 7th, 2009.

Posters presented at professional meetings

(Bold-Lead author, *Undergraduate Student, **Graduate Student, ***Postdocs)

1. *Nimmo, A., **Lyons, N., **Sobrado, P.**, Identification of active site residues in YUC10 from *Arabidopsis thaliana*. MAOP Summer Research, Virginia Tech, Blacksburg, VA, August 3, 2023
2. **Johnson, S., *Paasch, K., **Sobrado, P.** Biochemical Characterization of a Flavin-Dependent Monooxygenase Involved in Plant Alkaloid Resistance, ZvFMO. 12th Southeast Enzyme Conference, Atlanta, GA, April 23rd, 2022.
3. **Johnson, S., **Sobrado, P.** Structural and Kinetic Characterization of a Nitro-Forming Flavin Dependent Monooxygenase, CreE. 27th Enzyme Mechanisms Conference, Tucson, AZ, January 2-6, 2022.
4. Lyons, N., **Sobrado, P.**, Kinetic and Biochemical Characterization of the *Arabidopsis thaliana* Flavin Monooxygenase YUC10. 12th Southeast Enzyme Conference, Atlanta, GA, April 23rd, 2022.
5. *Johnson, M., **Johnson, S., **Sobrado, P.**, Characterization of a Two-Component Flavin Monooxygenase (Sky39/40) from *Streptomyces* sp. Acta 2897. 12th Southeast Enzyme Conference, Atlanta, GA, April 23rd, 2022.
6. **Lyons, N.; Yang, J.; Wenczewicz, T.; and **Sobrado, P.**; Kinetic and Biochemical Characterization of the Putrescine Hydroxylase FbsI from *Acinetobacter baumannii* 41st Midwest Enzyme Conference, October 23rd, 2021. Online.
7. **Britt, K.; **Robinson, R., **Johnson, S.; and **Sobrado, P.** Characterization of Ornithine Monooxygenase, SdiA, R144K mutant. 41st Midwest Enzyme Conference, October 23rd, 2021. Online.
8. **Valentino, H., Korasick, D.A., Bohac, T.J, Shapiro, J.S., Wenczewicz, T., Tanner, J.J., and **Sobrado, P.** Structural and Biochemical Characterization of the Flavin-Dependent Siderophore-Interacting Protein from *Acinetobacter baumannii*. 11th Southeast Enzyme Conference, Online, April 11th, 2021
9. **Johnson, S., and Sobrado, P. Kinetic Characterization of Novel N-Monooxygenases, CreE and PcXL, involved in Nitro and Oxime Functional Group Formation. 11th Southeast Enzyme Conference, Online, April 10th, 2021.
10. **Mena, D., Campbell, A., Tanner, J.J., and **Sobrado, P.** Biochemical and crystallization studies of diamine monooxygenase. VTCDD Research Day, Blacksburg, VA. November, 2, 2017.
11. **Valentino, H., and **Sobrado, P.** Characterization of an N-hydroxylating monooxygenase (FzmM) involved in fosfazinomycin biosynthesis. VTCDD Research Day, Blacksburg, VA. November, 2, 2017.
12. **Mehnert, M., ***Martin Del Campo, J. S., and **Sobrado, P.**, D. Tischler. Characterization of two decarboxylases involved in biosynthesis of deferrioxamine siderophores. BioMicroWorld Conference, Madrid, Spain, October 15-20, 2017
13. **Bufkin, K., and **Sobrado, P.** Hydroxamate formation in the siderophore albachelin. 8th Southeast Enzyme Conference, Atlanta, GA, April, 8, 2017.

14. **Nam, H., and **Sobrado, P.** Enzymatic studies on AsFMO1, a flavin dependent monooxygenase found in garlic allicin biosynthetic pathway. 8th Southeast Enzyme Conference, Atlanta, GA, April, 8, 2017.
15. ***Eckshtain-Levi, M., **Forson, B., ***Martin Del Campo, J.S., and **Sobrado, P.** Kinetic Mechanism of the two-component flavin-dependent monooxygenase involved in valanimycin biosynthesis. 8th Southeast Enzyme Conference, Atlanta, GA, April, 8, 2017.
16. ***Martin Del Campo, J.S., ***Vogelaar, N., and **Sobrado, P.** Discovery of inhibitors of UDP-galactopyranose mutase from *Aspergillus fumigatus*. 8th Southeast Enzyme Conference, Atlanta, GA, April, 8, 2017.
17. **Mena, D., ***Martin Del Campo, J.S., and **Sobrado, P.** Characterization of a thermophilic N-hydroxylating monooxygenase. 8th Southeast Enzyme Conference, Atlanta, GA, April, 8, 2017.
18. **Valentino, H., and **Sobrado, P.** Characterization of an N-hydroxylating monooxygenase (FzmM) involved in fosfazinomycin biosynthesis in *Streptomyces* species XY332. 8th Southeast Enzyme Conference, Atlanta, GA, April, 8, 2017.
19. *Marcus, M., Harich, K., ***Del Campo, J., and **Sobrado, P.** Exploring Novel Flavin-Dependent Chemistry: The Mechanism of Oleate Hydratase from *Elizabethkingia meningoseptica*. Virginia Academy of Science 94th Annual Meeting, Fredericksburg, VA, May 18-20, 2016.
20. **Sobrado, P.**, ***Del Campo, J., ***Vogelaar, N., and Kingston, D.G.I., The Virginia Tech Center for Drug Discovery Screening Laboratory (VTCDDSL). VirginiaBrainRX Symposium, Richmond, VA, July 15, 2016.
21. **Bufkin, K., ***Del Campo, J., ***Vogelaar, N., and **Sobrado, P.** High-throughput screening for inhibitors against Siderophore A from *A. fumigatus*. VTCDD Research Day, Blacksburg, VA. November, 2016
22. *Marcus, M., Harich, K., ***Del Campo, J., and **Sobrado, P.** Exploring Novel Flavin-Dependent Chemistry: The Mechanism of Oleate Hydratase from *Elizabethkingia meningoseptica*. 7th Southeast Enzyme Conference, Atlanta, GA. April 16, 2016.
23. **Abdelwahab, H., ***Da Fonseca, I., El-Sohaimy, S., Adly, C., and **Sobrado, P.** New insights into L-lysine hydroxylation mechanism by *Nocardia farcinica* lysine monooxygenase (NbtG). 7th Southeast Enzyme Conference, Atlanta, GA. April 16, 2016.
24. **Medrano, M., and **Sobrado, P.** Biochemical Characterization of *Amycolatopsis Alba* AMO: A Flavin Dependent N-hydroxylating Monooxygenase. 7th Southeast Enzyme Conference, Atlanta, GA. April 16, 2016.
25. **Forson, B., ***Del Campo, J., ***Da Fonseca, I., and **Sobrado, P.**, Biochemical characterization of the two-component flavoproteins; Isobutylamine-N-hydroxylase (IBAH) and flavin reductase (FRED). 7th Southeast Enzyme Conference, Atlanta, GA. April 16, 2016.
26. ***Del Campo, J., ***Vogelaar, N., and **Sobrado, P.**, Targeting Iron acquisition in *Aspergillus fumigatus*: Inhibition of Siderophore. 7th Southeast Enzyme Conference, Atlanta, GA. April 16, 2016.
27. **Medrano, M., and **Sobrado, P.**, Biochemical Studies on a N-hydroxylating monooxygenase from *Amycolatopsis alba*. VTCDD Research Day. Virginia Tech, October 26, 2015.
28. **Forson, B., ***Del Campo, J.S., ***Da Fonseca, L., and **Sobrado, P.**, Mechanistic Studies of two-component isobutylamine-N-hydroxylase monooxygenase system. VTCDD Research Day. Virginia Tech. October 26, 2015.
29. Binda, C., **Robinson, R., ***Del Campo, J., *Keul, N., *Rodriguez, P., Robinson, H., Mattevi, A., and **Sobrado, P.** An unprecedented NADPH domain conformation in Lysine Monooxygenase NbtG provides insights into uncoupling of oxygen consumption from substrate hydroxylation. 6th Southeast Enzyme Conference, Atlanta, GA, April 15, 2015.
30. **Abdelwahab, H., and **Sobrado, P.** Drug resistance in *Nocardia farcinica*: Mechanism of rifampicin inactivation. 6th Southeast Enzyme Conference, Atlanta, GA, April 15th, 2015
31. *Klancher, K., **Robinson, R., and **Sobrado, P.**, Characterization of mutant isoforms of Siderophore A from *Aspergillus fumigatus*. Molecular Biophysics Symposium, Virginia Tech, Blacksburg, VA, November 6th, 2014.
32. **Robinson R., *Rodriguez, P., *Keul, N., and **Sobrado, P.** The flavin-dependent N⁶-lysine monooxygenase NbtG from *Nocardia farcinica* hydroxylates both L- and D-lysine. 18th International Symposium in Flavins and Flavoproteins, Pechaburi, Thailand, July 27-August 1, 2014.
33. *Gringer, A., ***Da Fonseca, I., and **Sobrado, P.**, (2014) Characterization of a flavin dependent monooxygenase from *Cupriavidus taiwanensis*. Va. J. Sci. 64 (1&2). 106. 91st Annual Meeting of the Virginia Academy of Science, Virginia Tech, Blacksburg, VA, May 22-24, 2013.

34. *Ryan, W.T., ***Kizjakina, K., and **Sobrado, P.**, (2014) Characterization of UDP-arabinopyranose as a substrate of eukaryotic UDP-galactopyranose mutases. *Va. J. Sci.* 64 (1&2). 106.108. 91st Annual Meeting of the Virginia Academy of Science, Virginia Tech, Blacksburg, VA, May 22-24, 2013.
35. ***Kizjakina, K., *Kraft, L., and **Sobrado, P.** Insight into the non-canonical flavin-dependent reaction catalyzed by 2-haloacrylate hydratase. ACS 245th Annual Meeting, New Orleans, LA, April 7-11, 2013.
36. *Shirey, C., and Sobrado, P. Role of S257 in the sliding mechanism of NADP(H) in *Aspergillus fumigatus* SidA. ACS 245th Annual Meeting, New Orleans, LA, April 7-11, 2013.
37. *Rodriguez, P., *Keul, N., **Robinson, R., and **Sobrado, P.** Lys64 plays a role in ornithine binding in nocobactin 6 monooxygenase. ACS 245th Annual Meeting, New Orleans, LA, April 7-11, 2013.
38. *Keul, N., **Robinson, R., and **Sobrado, P.** Mechanistic studies on NbtG, a flavin dependent N⁶- lysine monooxygenase. ACS 245th Annual Meeting, New Orleans, LA, April 7-11, 2013.
39. *Ellerbrock, J., *Han, A., and **Sobrado, P.**, Role of conserved tryptophan 47 in the active site of flavin-monooxygenase from *Methylophaga* sp. strain sk1. ACS 245th Annual Meeting, New Orleans, LA, April 7-11, 2013.
40. ***Da Fonseca, ***Kizjakina, K., and **Sobrado, P.** Functional expression and characterization of UDP-galactopyranose mutases from *Leishmania infantum* and *Leishmania mexicana*. ACS 245th Annual Meeting, New Orleans, LA, April 7-11, 2013.
41. **Robinson, R., *Keul, N., *Rodriguez, P., and **Sobrado, P.** NbtG is a flavin dependent N⁶- lysine monooxygenase that is loosely stereospecific. 23rd Enzyme Mechanisms Conference, Coronado, CA, January 4-7, 2013.
42. *Solano, L.M., and **Sobrado, P.** Identification of Structural Determinants of Coenzyme Selectivity in Eukaryotic UDP-Galactopyranose Mutases. 90th Annual Virginia Academy of Science Meeting, Norfolk State University, Norfolk, VA, May 23-25, 2012.
43. *Ellerbrock, J., **Oppenheimer, M., Dhatwalia, R., Tanner, J.J., and **Sobrado, P.** Structural and functional analysis of *Trypanosoma cruzi* UDP-galactopyranose mutase. 3rd Southeast Enzyme Conference. Atlanta, GA, April 14, 2012.
44. *Keul, N., **Robinson, R., and **Sobrado, P.**, Expression, Purification, and Preliminary Characterization of Members of the N- hydroxylating Monooxygenase Family. 3rd Southeast Enzyme Conference. Atlanta, GA, April 14, 2012.
45. *Tolani, K., ***Kizjakina, K., ***Vogelaar, N., and **Sobrado, P.** High-throughput screening for inhibitors of *Aspergillus fumigatus* siderophore A. 3rd Southeast Enzyme Conference. Atlanta, GA, April 14, 2012.
46. ***Romero, E., *Avila, D., and **Sobrado, P.** Effect of pH on the reductive and oxidative half-reactions of *Aspergillus fumigatus* siderophore A. 17th International Symposium on Flavins and Flavoproteins, Berkeley, CA, July 24-29, 2011.
47. **Oppenheimer, M., *Valenciano, A.L., ***Qi, J., and **Sobrado, P.** Eukaryotic UDP-galactopyranose mutases are bi-functional enzymes: Insights into a unique non-redox reaction. 17th International Symposium in Flavins and Flavoproteins, Berkeley, CA, July 24-29, 2011.
48. ***Romero, E., **Fedkenheuer, M., and **Sobrado, P.** Primary and solvent kinetic isotope effects on the catalysis by *Aspergillus fumigatus* ornithine hydroxylase. American Society for Biochemistry and Molecular Biology (ASBMB) meeting, Washington DC, April 8-13, 2011.
49. ***Jun, A., **Oppenheimer, M., and **Sobrado, P.** High throughput assay to identify inhibitors against UDP-galactopyranose mutase from eukaryotic pathogens. American Society for Biochemistry and Molecular Biology (ASBMB) meeting, Washington DC, April 8-13, 2011.
50. *Valenciano, A.L., and **Sobrado, P.** Functional expression and characterization of UDP-galactopyranose mutase from *Leishmania major*. VT-Vector Borne Group, Minisymposium, Virginia Tech, Blacksburg, VA, March 9-11, 2011.
51. ***Qi, J., and **Sobrado, P.**, Trapping of a covalent intermediate in the non-redox reaction catalyzed by UDP-galactopyranose. 1st Southeast Enzyme Conference, Georgia State University, Atlanta, GA, April 10, 2010.
52. *Reeder, R., and **Sobrado, P.** The Lysine N⁶-monooxygenase MbsG from *Mycobacterium smegmatis* is regulated by substrate binding, 1st Southeast Enzyme Mechanism Conference, Georgia State University, Atlanta, GA, April 10, 2010.

53. *Blumer, A., **Oppenheimer, M., and **Sobrado, P.** Identification of active site residues in *Trypanosoma cruzi* UDP-Galactopyranose mutase. 1st Southeast Enzyme Mechanism Conference, Georgia State University, Atlanta, GA, April 10, 2010.
54. **Oppenheimer, M., *Blumer, A., Poulin, M.B., Helm, F. R, Lowary, T.L., and **Sobrado, P.** Mechanistic studies on UDP-galactopyranose mutase from *Aspergillus fumigatus* and *Trypanosoma cruzi*, American Society for Biochemistry and Molecular Biology 2010 Annual Meeting, Anaheim, CA, April 24-28, 2010.
55. **Chocklett, S.W., and **Sobrado, P.** Biochemical characterization of flavin-dependent N-hydroxylating enzymes from *Mycobacterium smegmatis* and *Aspergillus fumigatus*. 238th ACS National Meeting, Washington, DC, August 16-20, 2009.
56. **Chocklett, S.W., and **Sobrado, P.** Identification of novel drug targets against tuberculosis and related diseases. 25th Graduate Student Assembly, Virginia Tech, Blacksburg, VA, March 25th, 2009.
57. **Oppenheimer, M., and **Sobrado, P.** Studies of UDP-galactopyranose mutase from *Trypanosoma cruzi*: A novel drug target against Chagas' disease. 25th Graduate Student Assembly, Virginia Tech, Blacksburg, VA, March 25, 2009.
58. **Oppenheimer, M., and **Sobrado, P.** Characterization of UDP-galactopyranose mutase from *Aspergillus fumigatus*: An essential enzyme in cell wall biosynthesis. 3rd Virginia Tech Structural Biology Symposium, Blacksburg, VA, March 27, 2009.
59. *Robinson, R., *Llanos-Velasquez, J., and **Sobrado, P.** Group 5 Bacterial multicomponent monooxygenases. 86th Virginia Academy of Science Conference, Virginia Commonwealth University, Richmond, VA. May 26-28, 2009.
60. **Chocklett, S.W., and **Sobrado, P.** Amine hydroxylating enzymes Involved in siderophore biosynthesis from microbial pathogens. 3rd Virginia Tech Structural Biology Symposium. Virginia Tech, Blacksburg, VA, March 27, 2009.
61. **Chocklett, S.W., and **Sobrado, P.** Biochemical characterization of flavin adenine dinucleotide dependent monooxygenases from *Mycobacterium smegmatis* and *Aspergillus fumigatus* involved in siderophore biosynthesis. Second International Interdisciplinary Conference on Vitamins, Coenzymes, and Biofactors, Athens, GA, October 26-31, 2008.
62. **Oppenheimer, M., and **Sobrado, P.** Expression, purification and characterization of ThmD, the oxidoreductase component of tetrahydrofuran monooxygenase from *Pseudonocardia* sp. strain K1. Second International Interdisciplinary Conference on Vitamins, Coenzymes, and Biofactors, Athens, GA, October 26-31, 2008.
63. **Chocklett, S.W., and **Sobrado, P.** Expression, purification and biochemical characterization of a flavin adenine dinucleotide-dependent monooxygenase from *Mycobacterium smegmatis* involved in mycobactin biosynthesis. Deans' Forum on Infectious Diseases, Virginia Tech, Blacksburg, VA, September 28-29, 2008.
64. **Oppenheimer, M., and **Sobrado, P.** Functional expression and purification of UDP-galactopyranose mutases from *Leishmania major*, *Aspergillus fumigatus* and *Trypanosoma cruzi*. Deans' Forum on Infectious Diseases, Virginia Tech, Blacksburg, VA, September 28-29, 2008.

TEACHING EXPERIENCE

Courses Taught

- Biochemistry Seminar (BCHM 5004) Department of Biochemistry, Virginia Tech, Spring 2012-15.
- Protein Structure and Function (BCHM 5242) Department of Biochemistry, Virginia Tech, Fall 2008-11 and 2013.
- Biochemistry Laboratory (BCHM 4224) Department of Biochemistry, Virginia Tech, Spring 2010.
- Biochemical Calculations (BCHM 2114) Department of Biochemistry, Virginia Tech, Spring 2014-20.

UNIVERSITY, COLLEGE, AND DEPARTMENTAL SERVICE

Department of Biochemistry

- Mentor of Junior Faculty: Dr. Brandon Jutras (2018- present)
- Mentor of Junior Faculty: Dr. Justin Lemkul (201-present)
- Member of the Advisory Committee (2016-2021)

- Chair of the Graduate Program (2015-2021)
- Biochemistry Faculty Search Committee (2016,2017, 2018)
- Biochemistry Department Head Search Committee (2014-2015)
- Chair of Teaching Evaluation Committee (2014, 2017)
- Graduate Recruiting Committee (2007-present)
- Awards Committee (2013-2015)
- Promotion and Tenure Committee (2009)(2013-2016)(2017)(2019-2021)
- Teaching Evaluation Committee (2001,2011,2013, 2018,2020)
- Chronic Human Diseases Faculty Search (2010)
- Mentor of Junior Faculty- Dr. Belen Cassera (2010-2012)

University and Interdisciplinary Programs

- Member of VT Senior Administrator Review Committee (2021)
- Member of the University Cluster Operations and Hiring Committee (2017-2018)
- Member of the College of Science Recruiting Committee (2015- 2016)
- Member of the University Task Force on Inclusive Excellence (2013-2014)
- Member of the Graduate Program in Translational Biology, Medicine, & Health- Infection/Immunity Group proposal committee (2012-2013)
- Founding member of Virginia Tech Center for Drug Discovery and steering Committee member (2011- present)
- Chemistry Faculty Search (2012-2013)
- University Graduate Curriculum Committee (2011-2014)
- Microbiology Graduate Recruiting Committee (2007-2010)
- HHMI-Sciencering Program Mentor (2011-2014)
- Member of the Vector Borne Research Group (2007-present)
- Microbiology in the Post Genomic Era- REU Recruiting committee (2011)
- Multicultural Academic Opportunity Program Selection Committee/Mentor (2008-present)
- Member of the Institute for Critical Technology and Applied Science, Sustainable Energy Group (2008-2012)

REVIEWER ACTIVITIES

Ad hoc reviewer of grant proposals

- 2013-present National Institutes of Health (NIH)
- 2013-present Medical Research Council (MRC), UK
- 2008-present National Science Foundation (NSF)
- 2008-present American Chemical Society (ACS)
- 2008-present Alzheimer's Association (AA)

Ad hoc manuscript reviewer

- 2018-present Nature Chemical Biology
- 2016-present Frontiers Microbiology
- 2015-present Scientific Reports
- 2015-present Nature Chemical Biology
- 2014-present ACS Journal of Physical Chemistry
- 2013-present Biochimica et Biophysica Acta
- 2013-present FEBS J
- 2012-present JACS
- 2012-present PloS ONE
- 2012-present Enzyme Research
- 2012-present Molecular Microbiology
- 2011-present Journal of the American Chemical Society
- 2011-present Journal of Inorganic Biochemistry

- 2009-present BMC Biochemistry
- 2007-present Biochemistry

RESEARCH MENTORING ACTIVITIES

Former Postdoctoral Scientists

1. Dr. Nancy Vogelaar, Ph.D. Department of Chemistry, California Institute of Technology, July 2011-2017
Current Position: VTCDD Screening Center, Manager
2. Dr. Renata Reis, Ph.D, Department of Chemistry, University of Sao Paolo, Brazil, 2019-2020. Current position: Scientist I Theos Medicines, Boston, MA.
3. Dr. Hao Li, Ph.D., Department of Chemistry, Virginia Tech, Blacksburg, VA 2019-2020. Current position: Postdoc, Tekada Scientific, Boston, MA.
4. Dr. Meital Eckshtain-Levi, Ph.D. Chemistry, Bar Ilan University, Israel, 2016-2017. Current position: Senior Scientist, Pfizer, NY
5. Dr. Julia Martin Del Campo, Ph.D. Biological Systems Engineering, University of Merida, Mexico and Virginia Tech, August 2013-2017. Current position: Research Scientist, Department of Biochemistry, Virginia Tech
6. Dr. Isabel Da Fonseca, Ph.D. Department of Biochemistry, University of Rio Grande, Porto Alegre, Brazil, March 2012-2016. Current Position: Owner of Gaucho Brazilian Restaurant.
7. Dr. Yumin Dai, Ph.D. Chemistry, Virginia Tech, March 2014-March 2015. Current position: Research Scientists at Takeda,, Boston, MA.
8. Dr. Somaye Somayesadat, PhD Department of Biological Systems Engineering, Biological Sciences, January 2012- July 2013. Current position: Postdoctoral Fellow at the University of Michigan, MI with Prof. Neil Marsh.
9. Dr. Karina Kizjakina, Ph.D Department of Chemistry, Virginia Tech, January 2011- March 2013. Current position: Research Biochemist at Breonics Inc, Albany, NY.
10. Dr. Jun Qi, Ph.D Department of Chemistry, Virginia Tech, January 2009-December 2011. Current position: Senior Research Scientist at Dow Chemicals, Philadelphia, PA.
11. Dr. Elvira Romero, Ph.D Department of Biological Sciences, Spanish Scientific Council, October 2010- December 2011. Current position: AstraZenica, Sweden

Current Graduate Students

- Sydney Johnson, Ph.D., 2019-
- Noah Lyons, Ph.D., 2020-
- Brittany Hart, Ph.D., 2020-

Former Graduate Students

1. Hannah Valentino, Ph.D. (2016- 2021). Current Position: Senior Scientist II, Birch Biosciences, Portland, OR
2. Yuan-Pu Chiu, M.S. Biochemistry (2019-2020). Current Position: applying to graduate schools
3. Didier Mena, MS Biochemistry (2016-2018). Current Position: Instructor, Department of Chemistry, University of Oklahoma, Norman, OK.
4. Hangu Nam, MS Biochemistry (2016-2017). Current Position: Research Associate, Vigene Biosciences, Rockville, MD.
5. Kendra Bufkin, MS Biochemistry (2015-2016). Current Position: Clinical Laboratory Program, Augusta University, GA
6. Benedicta Forson, MS Biochemistry (2014-2016). Current Position: SeraCare Life Sciences, Gaithersburg, MD.
7. Heba Abdelwahab, PhD (2013-2018), Biochemistry. Current Position: Assistant Professor, Department of Chemistry, Damietta University, Egypt.
8. Mynor Medrano, MS Biochemistry (2014-2016). Current Position: Unknown
9. Reeder Robinson, PhD Biochemistry, (2010-2015). Outstanding Graduate Student- Department of Biochemistry. Current position: Research Assistant Professor at the Medical University of South Carolina.
10. Michelle Oppenheimer, PhD Biochemistry, (2007-2012). Outstanding Graduate Student- Department of Biochemistry. Current position: Instructor, Department of Chemistry, Mary Washington University.

11. Mike Fedkenheuer, MS Biochemistry, (2010-2012). Outstanding Master's student in CALS. Obtained a Ph.D. in Plant Molecular Biology at Virginia Tech. Current position: Postdoc at NIH
12. Wyatt Chocklett, MS Biochemistry, 2007-2009- Outstanding Master's student in CALS. Current position: Chief Operating Officer, Doctors Hospital of Sarasota, FL

Current Graduate Committees

1. Jacob Chappell, Ph.D. Chemistry, 2019-
2. Nathan Price, Ph.D., Chemistry, 2020
3. Enab Salama, Ph.D., Biomedical Sciences and Pathology, 2020-
4. Maxwell Brooks, MS. Biochemistry, 2020-
5. Desiany Ferreira, Ph.D., Biological Systems Engineering, 2020-

Past Graduate Committees

1. Aaron Brock, Ph.D. Biochemistry, 2019-2023
2. Tanner DeHart, M.S., Biochemistry, 2019- 2022
3. Justin McKinney, MS, Biochemistry, 2020-2022
4. Rowan Woodbridge, M.S., Biochemistry, 2021-2022
5. Mara Kushelman, M.S., Biochemistry, 2021-2022
6. Korliss Britt, M.S., Biochemistry 2020-2022
7. Tam Nguyen, Ph.D., Biochemistry, 2020- 2022
8. Alexa Salsbury, Ph.D. Biochemistry, 2018- 2021
9. Caitlin Cridland, Biochemistry, 2018- 2022
10. Ryan Antal, M.S. Biochemistry, 2019-2020
11. Herbert Hattanus, Biological Systems Engineering, 2017-2019
12. Courtney Long, Ph.D. TBMH, 2015-2019
13. Adepoju Olusegun, Ph.D. Biochemistry, 2016- 2019
14. Michael Casasanta, Ph.D. Biochemistry, Biochemistry, 2015-2019
15. Britton Hipple, MS. Biochemistry, 2017-2018
16. Andreas Sukmana, Biological Sciences, 2017-2018
17. Amanda Fisher, PhD. Biological Systems Engineering, 2013-2017
18. Paul Velander, Ph.D. Biochemistry, 2014-2017
19. Valery McDonald, Biological Sciences, 2015
20. Sulaiman Matarneh, Ph.D. Animal and Poultry Sciences, 2013-2017
21. Sung-Ho, Ph.D., Biological Systems Engineering, 2014-2017
22. Aaron Ramsey, Ph.D. Biochemistry, 2013-2015
23. Daniele Miller, Ph.D. Biochemistry, 2012-2017
24. Eric England, Ph.D. Animal and Poultry Sciences, 2009-2012
25. Zahra Mashadi, Ph.D. Biochemistry, 2007-2011
26. Aida Nourbakhsh, Ph.D. Biochemistry, 2008-2012
27. Somaye Somayasadat, Ph.D. Biological Systems Engineering, 2008- 2012
28. Tracy James, Ph.D. Biological Sciences, 2007-2012
29. Chevron Thorpe, Ph.D. Biochemistry, 2007-2012
30. Linda M. Villa, Ph.D. Biological Sciences, 2009-2012
31. Tracy Scheffler, Ph.D. Animal and Poultry Sciences, 2009-2012
32. Justin Lemkul, Ph.D. Biochemistry, 2007-2012
33. Jenna Hess, MS Biochemistry, 2008-2011
34. Zahra Mashhadi, Ph.D. Biochemistry, 2007-2010
35. Evren Kocabas, MS Biochemistry, 2008-2011

Current Undergraduate Students

1. Kaleigh Ballagh
2. Abigail Nimmo
3. Amy Poyner

Former Undergraduate Students from Virginia Tech

1. Kathryn Paarsch, 2020-2023
2. Alysa Lainer, 2020-2023
3. Emely Mechnick, 2021-2022
4. Maxim Johnson, 2020-2022
5. Starlina Shapher, Summer 2021
6. Jash Patel, Summer 2021
7. Lauren Hall, 2018-2019
8. Eric Merten, 2018-2020
9. Lexie Kroeger, Spring 2019
10. Sebastian Jaques, Summer 2019
11. Angelica Quiroz, Spring 2018-2019
12. Ryan Nasser, Fall 2018-2019
13. Will Stone Summer- Fall 2018
14. Sophia LeBlanc Summer 2016
15. Irene Jenkins Fall 2015- 2016
16. Madeline Marcus Fall 2015-Spring 2016
17. Jendeya O'Grady Fall 2015-Spring 2016
18. McKay Hanna Fall 2015-Spring 2016
19. Jessica Minionis Summer-Fall-2015
20. Catherine Klancher Fall 2014-Spring 2015
21. Jordan Tyrell Summer 2013-Fall 2013
22. Kaysha Perrin Fall 2013-Summer 2014
23. William Ryan, Summer 2013-Fall 2014
24. Aaron Gringer, Summer 2013-Fall 2014
25. Jacob Ellerbrock, 2011-Spring 2013
26. Carolyn M. Shirey, 2011-Spring 2013
27. Karishma Tolani, 2011-Spring 2013
28. Nick Keul, Summer 2011-Spring 2013
29. Bismarck Mensah, Spring 2011
30. Katherine Mlynczak, Spring 2011
31. Andre Han, Honors Thesis Biochemistry, Summer 2010-Spring 2011
32. Allison Blumer, Honors Thesis Spring 2009- Spring 2011
33. Reeder Robinson, Senior Thesis Spring 2009-Spring 2010
34. Sahil Kahanna, Honors Thesis Spring 2009-Spring 2010
35. Young Choe, Fall 2007-Spring 2008
36. Brittney Bibb, Summer 2008
37. Travis Schrecengost Summer 2008
38. Anthony Irwin Fall 2007- Summer-2008.
39. Michael Niebanck, Biochemistry, Fall 2007- Summer-2008.
40. Janice Llanos-Velazquez- Fall 2007- Spring 2009
41. Azure MacFarlane, Spring 2009-Summer 2009
42. Jordan Riojas, Summer 2009
43. James Miles, Summer 2009
44. Britni Souther, Spring 2009- Summer 2009

Former Undergraduate Students from Other Universities

1. Taylor Enrico (Colby College, ME) Summer 2015
2. Lauren Kraft (Lehigh U. PA) Summer 2012
3. Juan Moliva (Penn State, PA) Summer 2011
4. Kaitlynn Wolfe (Columbia U.), Summer 2022

Former Students from the Costa Rica Institute of Technology- Undergraduate Senior Thesis

1. Ana Lisa Valenciano, Summer 2010 and 2011
2. Daniel Avila Quiros, Summer 2011
3. Maria Gabriela Moraga, Summer-Fall 2011
4. Luis Miguel Solano, Spring 2012
5. Ariana Umaña- Spring 2015

Former Students from other Universities in Costa Rica- Undergraduate Senior Thesis

1. Maria Paulina Echandi, Fall 2011- Central University
2. Adriana Alfaro, Summer 2011- National University of Costa Rica

Former Students from Spain- Undergraduate Senior Thesis

- Veronica Casado, University of Barcelona.

MENTOR/HOST

1. Marika Mehnert, Fulbright Scholar (2016), TU Bergakademie, Germany
2. Dr. Gustavo Pierdominici, Fulbright Scholar (2021), Universidad de Quilmes, Argentina.
3. Dr. Mallika Vijayanathan, (2023) University of Copenhagen, Denmark

ACADEMIC ADVISING ACTIVITIES

Advisor of 50 Biochemistry undergraduate students 2012-2016.

EXTERNAL DISSERTATION EXAMINER

1. Mrs. Carla Meints, University of British Columbia, Canada, 2015
2. Mrs. Nourhan Mohamed Abdel-Aziz Abdo, Alexandria University, 2020

EXTERNAL EVALUATOR FOR FACULTY PROMOTION

1. University of Alabama, Tuscaloosa, AL, 2023
2. Purdue University, West Lafayette, IN, 2021
3. University of Alabama, Tuscaloosa, AL, 2020
4. Pomona College, Claremont, CA, 2020
5. Virginia Commonwealth University, Richmond, VA, 2013
6. University of North Florida, Jacksonville, FL., 2015 and 2016