CURRICULUM VITAE

Abel Baerga-Ortiz

Professor

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Education:

1996 - B.S., University of Puerto Rico, Rio Piedras - Chemistry
2001 - Ph.D., University of California, San Diego - Chemistry and Biochemistry
2005 - University of Cambridge, UK - Royal Society Postdoctoral Research Fellow

Positions and Honors:

- Professor, Department of Biochemistry, UPR – School of Medicine, 2020-
- Director Puerto Rico Center for Tropical Biodiversity and Bioprospecting, 2016-present
- Associate Professor, Department of Biochemistry, UPR – School of Medicine, 2014-2020
- Lecturer for the Employee Certification Program in Biochemistry at Bristol Myers Squibb - 2013-14
- Adjunct Lecturer, Continuing Education Program, Puerto Rico Chemist Association, 2009-present
- Invited Lecturer, Summer Course in Biophysics, University of North Carolina, June 2010
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- Invited Lecturer, Summer Course in Biophysics, University of North Carolina, June 2008
- Assistant Professor, Department of Biochemistry, UPR – School of Medicine, 2007-2014
- Applications Specialist, Akubio Acoustic Biosensors Ltd., Cambridge, United Kingdom, 2005-07
- Royal Society Postdoctoral Fellow, Department of Biochemistry, University of Cambridge, 2002-05
- Postdoctoral Fellow, Department of Chemistry and Biochemistry, UC-San Diego, 2001-02
- Chemistry Teacher, Miguel Such Vocational High School, San Juan, Puerto Rico, 1995-96

Awards:

- Elected to the Academic Senate - Medical Sciences Campus 2014-
- President of the Faculty Affairs Committee - UPR School of Medicine
- Finalist – Merck Innovation in Research Prize
- Symposium Organizer at the IUPAC World Congress (San Juan, Puerto Rico)
- President– Caribbean Division of the AAAS - 2011 – 13
- NSF Career Award 2010
- NSF Proposal Review Panel Member - Division of Chemistry – 2009-2010
- NSF Proposal Review Panel Member - Division of Chemistry – 2010-2011
- NSF Proposal Review Panel Member - Division of Biology – 2010-2011
- Consultant for the Puerto Rico Council for Higher Education 2008-present
- Young Investigator Award – UNESCO of Puerto Rico - 2007
- Royal Society-Postdoctoral Research Fellow, 2002-2005
- NIH-Heme and Blood Proteins Training Grant 2001-2002
- NIH-NRSA Predoctoral Fellowship 1997-2001
- Graduated with Honors in Chemistry University of Puerto Rico, 1996
- Medal of Natural Sciences, University of Puerto Rico, 1996

Courses Taught:

- Principles of Molecular Medicine (Biochemistry)
  topics: proteins, enzymes, oxygen transport, blood clotting, collagen, etc.
- Dental Biochemistry
  topics: proteins, enzymes, oxygen transport
- Graduate Course in Biochemistry
  topics: proteins, enzymes, oxygen transport
- Enzyme Kinetics and Mechanisms
- Biochemistry of Proteins
- Problem-based learning for Medical Students
- Responsible conduct of research

Publications:

- Mentz, S; de Lacalle, S; Baerga-Ortiz, A; Knauer, MF; Knauer, DJ; Komives, EA. Mechanism of thrombin clearance by human astrocytoma cells. Journal of Neurochemistry, 1999 Mar, 72(3):980-7.

- Baerga-Ortiz, A; Rezaie, AR; Komives, EA.Electrostatic dependence of the thrombin-thrombomodulin interaction. Journal of Molecular Biology, 2000 Feb 18, 296(2):651-8.

- Mandell, JG; Baerga-Ortiz, A; Akashi, S; Takio, K; Komives, EA. Solvent accessibility of the thrombin-thrombomodulin interface. Journal of Molecular Biology, 2001 Feb 23;306(3):575-89.

- Baerga-Ortiz,A; Hughes, CA; Mandell, JG; Komives, EA. Epitope mapping of a monoclonal antibody against human thrombin by H/D-exchange mass spectrometry reveals selection of a diverse sequence in a highly conserved protein. Protein Science 2002 Jun;11(6):1300-8.

- Leadlay, PF; Baerga-Ortiz, A. Mammalian Fatty Acid Synthase. Closure on a textbook mechanism? Chem Biol. 2003 Feb;10(2):101-3.

- Baerga-Ortiz A; Bergqvist S; Mandell JG; Komives EA. Two different proteins that compete for binding to thrombin have opposite kinetic and thermodynamic profiles. Protein Science, 2004 13(1):166-76.

- Mandell, JG; Baerga-Ortiz, A; Falick, AM; Komives, EA. Measurement of solvent accessibility at protein-protein interfaces. Methods Mol Biol, 2005; 305: 65-80.

- Siskos, AP; Baerga-Ortiz, A; Bali, S; Stein, V; Mamdani, H; Spiteller, D; Popovic, B; Spencer, JB; Staunton, J; Weissman, KJ; Leadlay, PF. Molecular basis of Celmer's rules: stereochemistry of catalysis by isolated ketoreductase domains from modular polyketide synthases. Chem Biol. 2005 Oct;12(10):1145-53.

- Baerga-Ortiz, A; Popovic, B; Siskos, AP; O'Hare, HM; Spiteller, D; Williams, MG; Campillo, N; Spencer, JB; Leadlay, PF. Directed mutagenesis alters the stereochemistry of catalysis by isolated ketoreductase domains from the erythromycin polyketide synthase. Chem Biol. 2006 Mar;13(3):277-85.

•O'Hare, HM; Baerga-Ortiz, A; Popovic, B; Spencer, JB; and Leadlay, PF. High-throughput mutagenesis to evaluate models of stereochemical control in ketoreductase domains from the erythromycin polyketide synthase. Chem Biol. 2006 Mar;13(3):287-96.

•Mandell, JG; Baerga-Ortiz, A; Croy, CH; Falick, AM; and Komives, EA. Application of amide proton exchange mass spectrometry for the study of protein-protein interactions.Curr Protoc Protein Sci. 2005 Jun; Chapter 20

•Koeppe, JR; Beach, MA; Baerga-Ortiz, A; Kerns, SJ; Komives, EA. Mutations in the fourth EGF-like domain affect thrombomodulin-induced changes in the active site of thrombin. Biochemistry. 2008 Oct 14;47(41):10933-9.

•Baerga-Ortiz, A. Biotechnology and biochemistry of marine natural products. P R Health Sci J. 2009 Sep;28(3):251-7.

•Pastrana-Mena, R; Dinglasan, RR; Franke-Fayard, B; Vega-Rodríguez, J; Fuentes-Caraballo, M; Baerga-Ortiz, A; Coppens, I; Jacobs-Lorena, M; Janse, CJ; Serrano, AE. Glutathione reductase-null malaria parasites have normal blood stage growth but arrest during development in the mosquito. J Biol Chem. 2010 Aug 27; 285(35):27045-56.

•Vergnolle, O; Hahn, F; Baerga-Ortiz, A; Leadlay, PF; Andexer, JN. Stereoselectivity of isolated dehydratase domains of the borrelidin polyketide synthase: implications for cis double bond formation. Chembiochem. 2011 May 2;12(7):1011-4.

•Trujillo, U; Vázquez-Rosa, E; Oyola-Robles, D; Stagg, LJ; Vassallo, DA; Vega, IE; Arold, ST; Baerga-Ortiz, A. Solution Structure of the Tandem Acyl Carrier Protein Domains from a Polyunsaturated Fatty Acid Synthase Reveals Beads-on-a-String Configuration. PLoS One. 2013;8(2):e57859.

•Rodríguez-Guilbe, M; Oyola-Robles, D; Schreiter, ER; Baerga-Ortiz, A. Structure, activity and substrate selectivity of the Orf6 thioesterase from Photobacterium profundum. J Biol Chem. 2013 Feb 21; 288(15):10841-8.

•Oyola-Robles, D; Gay, DC; Trujillo, U; Sánchez-Parés, JM; Bermúdez, ML; Rivera-Díaz, M; Carballeira, NM; Baerga-Ortiz, A. Identification of novel protein domains required for the expression of an active dehydratase fragment from a polyunsaturated fatty acid synthase. Protein Science, 2013 Jul; 22 (7): 954-63.

•Oyola-Robles, D; Rullán-Lind, C; Carballeira, NM; Baerga-Ortiz, A. Expression of dehydratase domains from a polyunsaturated fatty acid synthase increases the production of fatty acids in *Escherichia coli*. Enzyme Microb Technol. 2014 Feb 5;55:133-9.

•Gomez-Moreno, R; Robledo, IE; Baerga-Ortiz, A. Direct Detection and Quantification of Bacterial Genes Associated with Inflammation in DNA Isolated from Stool. Adv Microbiol. 2014 Nov;4(15):1065-1075.

•Cunci, L; Vargas, MM; Cunci, R; Gomez-Moreno, R; Perez, I; Baerga-Ortiz, A; Gonzalez, CI; Cabrera, CR. Real-Time Detection of Telomerase Activity in Cancer Cells using a Label-Free Electrochemical Impedimetric Biosensing Microchip. RSC Adv. 2014 Oct 15;4(94):52357-52365.

•Gómez-Moreno R, Robledo IE, Baerga-Ortiz A. Direct Detection and Quantification of Bacterial Genes Associated with Inflammation in DNA Isolated from Stool. *Adv Microbiol*. 2014;4(15):1065- 1075.

•Rullán-Lind C, Pietri RB, Vázquez-Cintrón M, Baerga-Ortiz A. Fused dimerization increases expression, solubility, and activity of bacterial dehydratase enzymes. *Protein Sci*. 2018;27(5):969- 975.

•Roche-Lima A, Carrasquillo-Carrión K, Gómez-Moreno R, et al. The Presence of Genotoxic and/or Pro-inflammatory Bacterial Genes in Gut Metagenomic Databases and Their Possible Link With Inflammatory Bowel Diseases. *Front Genet*. 2018;9:116.

•Gómez-Moreno R, González-Pons M, Soto-Salgado M, Cruz-Correa M, Baerga-Ortiz A. The Presence of Gut Microbial Genes Encoding Bacterial Genotoxins or Pro-Inflammatory Factors in Stool Samples from Individuals with Colorectal Neoplasia. Diseases. 2019;7(1):16.

•Gómez-Moreno R, Martínez-Ramírez R, Roche-Lima A, Carrasquillo-Carrión K, Pérez-Santiago J, Baerga-Ortiz A. Hotspots of Sequence Variability in Gut Microbial Genes Encoding Pro-Inflammatory Factors Revealed by Oligotyping. Front Genet. 2019;10:631. Published 2019 Jul 9.

•Rullán-Lind C, Ortiz-Rosario M, García-González A, et al. Artificial covalent linkage of bacterial acyl carrier proteins for fatty acid production. Sci Rep. 2019;9(1):16011.

•Colón-Lorenzo EE, Colón-López DD, Vega-Rodríguez J, et al. Structure-Based Screening of Plasmodium berghei Glutathione S-Transferase Identifies CB-27 as a Novel Antiplasmodial Compound. Front Pharmacol. 2020;11:246.