Roberto M. Alers Velázquez

University of Toledo
1567 Twin Oaks Dr.
Toledo, OH, 43615
787-922-6104
roberto.alers-velazquez@rockets.utoledo.edu

EDUCATIONAL BACKGROUND:

University of Toledo, Toledo, OH — 2015-Present
Doctor in Philosophy – Molecular Biology (In Progress)
College of Natural Sciences and Mathematics
PI: Dr. Scott Leisner

University of Puerto Rico, Aguadilla, PR — 2010 to 2014
Bachelor of Science
Mayor in Biomedical Sciences
Honors: Magna Cum Laude

Colegio San Antonio, Isabela, PR — 2010
High School Diploma
Honor Student

RESEARCH EXPERIENCE:

Ohio State University — July 2014 – July 2015
Project: Anthocyanin Biosynthesis pathway regulation
SiGuE Program- Research Fellow
The Dorothy M. Davis Heart & Lung Research Institute
Mentor: Dra. Andrea Doseff
Relevant Skills acquired:
DNA-Protein interaction assays
Yeast transformations
Transcription factor binding analysis

University of Colorado - Anschutz Medical Campus Summer 2013

Graduate Experience for Multicultural Students (GEMS)
Department of Neurology, Aurora, CO
En Passant Mutagenesis was done on VZV to determine if ORFs 63/70 plays a role in virus replication.
Mentor: Dr. Ravi Mahalingam

Relevant Skills acquired:
Primer Design for Mutagenesis
Bacmid DNA extraction
En Passant Mutagenesis
Red Recombination
Transfection
PCR
Ligation
Gel extraction and DNA cleanup

UPR Biology Department 2012 - 2013

University of Puerto Rico, Aguadilla, PR
Undergraduate Research- **Susceptibility of Halobacteria to Antibiotics**
Analysis of susceptibility of Halobacteria to certain antibiotics and determine the difference in behavior and which antibiotic is more effective toward the Halobacteria.
Mentor: Dr. Jose Planas
Relevant Skills acquired:
Preparation of Halobacteria Agar and Broth
Use of the Kirby-Bauer Test
Analyzing of culture behavior to the antibiotic
Serial-dilutions
Preparation of antibiotic solution for Kirby-Bauer test

UPR Biology Department 2010 – 2011

University of Puerto Rico, Aguadilla , P.R
Undergraduate research- **Macroinvertabrates in Riparians wetland**
Studied the biodiversity of micro-invertebrates in a riparian wetland along the Guajataca River (Quebradillas, Puerto Rico) that was rich in micro-invertebrates.

We found a great number of Odonata individuals living among the large amount of the plant Chara that lurked in that area.
Mentor: Dr. Robert Mayer
Relevant Skill acquired:
Statistical analysis of invertebrates in certain markers
Classification of invertebrates
Use of the dissecting microscope

University of Michigan Department of Biochemistry Summer 2012
University of Michigan, Ann Arbor, MI
REU Summer undergraduate Research- **College of Pharmacy**
FprA enzyme where reacted with NADPH and (4^2R)-NADPH and (4^2S)-NADPH to determine an Isotope effect to see if the enzyme is "sticky".
Mentor: Dr. Bruce Palfey
Relevant skills acquired:
Poured agar plates with ampicillin
Lyophilization
Flash Freezing
Affinity chromatography to purify protein obtained
pH Adjustments
Cultured bacteria from a -80°C freezer
Poured agar plates with and without antibiotics
Induced protein expression using IPTG
Poured and ran SDS-PAGE gels
Learned to troubleshoot pipette malfunctions
Learned to make cells chemically competent
Used a spectrophotometer
Learned how to use a Stop-Flow Spectrophotometer
Experienced with coomassie staining
Synthetized Isotopes for Reaction- (4^2R)-NADPH and (4^2S)-NADPH
Learned how to disrupt cells using a sonicator
Learned Desalting techniques- Desalting column
Learned how to prepare a variety of buffers for reactions done in the research
Experienced with the preparation of anaerobic reactions using a tonometer

PRESENTATIONS AND CONFERENCES:

Poster Presentations:
Annual Biomedical Research Conference for Minority Students
*"*Is Varicella-Zoster Virus ORF 63/70 expression required for virus Replication?
Nashville, TN November 2013
245th American Chemical Society National Meeting & Exposition.
"Analysis of Isotope Effects in FprA to determine whether a Substrate is "Sticky"
New Orleans, LA April 7-11, 2013
Annual Biomedical Research Conference for Minority Student
"Analysis of Isotope Effects in FprA to determine whether a Substrate is "Sticky"
San Jose, Ca November 2012

"Analysis of Isotope Effects in FprA to determine whether a Substrate is "Sticky"
Research Experience for Undergraduates, Ann Arbor, MI August 2012

American Society of Plant Biologist - Midwestern Section Annual Meeting
"Characterization of PALs Transcriptional Regulation in Maize"
Outstanding Poster Presentation – 1st place
Donald Danforth Plant Science Center, St. Louis, MO March 21-22, 2015

Oral Presentations:

"Is Varicella-Zoster Virus ORF 63/70 expression required for virus replication"
49th JTM/34rd PRISM Puerto Rico Louis Stokes Alliance For Minority Participation
University of Puerto Rico, Cayey, PR March 29, 2014

*"*Is Varicella-Zoster Virus ORF 63/70 expression required for virus Replication?"
245th American Chemical Society National Meeting & Exposition.
Dallas, TX March-16, 2014

*"*Is Varicella-Zoster Virus ORF 63/70 expression required for virus Replication?"
14th Undergraduate Research Symposium, University of Puerto Rico at Aguadilla
Aguadilla, PR April-3, 2014

"Analysis of Isotope Effects in FprA to determine whether a Substrate is "Sticky"
13th Undergraduate Research Symposium, University of Puerto Rico at Aguadilla
Aguadilla, PR March -7, 2013

"Analysis of Isotope Effects in FprA to determine whether a Substrate is "Sticky"
48th JTM/33rd PRISM Puerto Rico Louis Stokes Alliance For Minority Participation
Universidad del Turabo , PR March – 9, 2013

"Is Varicella-Zoster Virus ORF 63/70 expression required for virus Replication?"
NIH – Grad. Experience for Multicultural Students (GEMS), Denver, CO August -7 2013
Presentation of Vida Marina at San Carlos school
"*Importance of Sand Dunes and Leatherback turtles"* February 2011
Aguadilla, PR

Presentation of Vida Marina to 4H club
"Importance of Sand Dunes and Leatherback turtles" March 2011
Fajardo, *PR*

Tourism Festival representing Vida Marina November 2011
Aguada, PR

Vida Marina Orientation in Open house at University of Puerto
Aguadilla, PR November 2010

Presentation to the FFA about Vida Marina Project
"*Importance of Sand Dunes and Leatherback turtles"* November 2010
San Sebastian, PR

Professional Affiliations/Memberships

- American Chemical Society – Student Membership 2012-Present
- ACS Student Chapter , University of Puerto Rico, Aguadilla, PR 2012-2014
- ACS Student Chapter Green Chemistry Division-Assistant Director 2013-2014
- ACS Student Chapter Scientific Committee-Coordinator 2013-2014
- Caribbean Center for the Reduction of Aquatic Debris, Aguadilla, PR 2010-Present
- The Endocrine Society In-Training Associate Comp Member 2012-2013
- American Society for Microbiology 2013- Present

RELEVANT COURSEWORK:

University of Puerto Rico

Introduction to Biomedical Sciences
General Biology I, II
General Biology Lab I, II
General Chemistry I, II
Gen. Chemistry Lab I, II
Organic Chemistry I, II
Organic Chem. Lab I, II
Calculus I
Genetics
Genetics Lab
Microbiology
Microbiology Lab
Social Psychology
Cell & Molecular Biology
Cell & Molecular Biology
Physics I
Physics I Lab
Bioethics
Virology
Virology Lab
Immunology
Immunology Lab
Anatomy &Physiology I
Anatomy & Physiology Laboratory I
Anatomy & Physiology II
Anatomy & Physiology Lab II
Physics II
Stadistics
Advanced Molecular Biology
Research Methodology

ADDITIONAL SKILLS:

Introductory courses and demonstrations concerning:

Utilizing and preparing Agarose gel& SDS-PAGE
Scanning electron microscopy
Adobe Photoshop
Adobe Illustrator
KaleidaGraph
ChemDraw
PADI Certification:
Open Water Diver, Diver No. 12090G1235

Skills acquired from educational laboratory courses:

Micropipetting
Aseptic technique
Pour plating, spread plating, and streak plating
Gel electrophoresis and imaging
Use of Image J analysis
Induction of competency in *E. coli*
PCR
Transformation of *E.coli*
Photospectroscopy
Restriction digests
Creation of dilution series
Gram-staining, spore staining, capsule staining, and simple staining
Bacterial plate screens and selection
Electroporation
Gateway Cloning

References:

- Dr. Ravi Mahalingam – Contact information: (303) 724-4311/ ravi.mahalingam@ucdenver.edu
- Dr. Bruce Palfey – Contact Information: (734) 615-2452/ brupalf@umich.edu
- Dr. Carlos Ruiz-Martinez – Contact Information: (787) 319-5442/ carlos.ruiz8@upr.edu
- Dr. Jose Planas – Contact Information: (787) 646-5860/ jose.planas@upr.edu
- Dr. Scott Leisner- Contact information: scott.leisner@utoledo.edu