Summer is for Science
by Wendy I. Pacheco-Rodriguez

Another summer break; another research internship! During the summer months UPR-PRISE program students exchange beaches, sand, and sun for pipettes, western blots, and cell cultures.

The UPR-PRISE program requires its students to spend 8 to 10 exciting weeks at some of the nation’s distinguished academic and research institutions. Summer days are spent in a lab working on the development of significant research projects. Students get to learn new scientific techniques, how to design experiments, analyze results, formulate hypotheses, and maintain a lab notebook, among other skills. Students also participate in lab meetings, journal clubs to analyze scientific literature, seminars and workshops. But it’s not all work all the time. Social activities, networking, meeting new people and touring the host city are also part of the agenda. The greatest benefit from a summer research opportunity is getting exposure to how science really works, which includes troubleshooting, collaborating and communicating (in English, of course!). Summer research internships are valuable experiences that greatly enhance students’ professional and scientific development. They also give students a competitive edge and direction for future career goals.

PRISE SUMMER RESEARCH INTERNSHIPS 2017

Elaine M. Camacho Hernández
New York University

Yoheilly Velázquez González
University of Pennsylvania

Alexandra M. Maldonado López
University of Pennsylvania

Gerardo A. Arroyo Martínez
National Nuclear Security Administration’s (NNSA), Lawrence Livermore National Laboratory, Livermore, CA

Nicole de la Rosa González
University of Iowa (pictured above)

Kevin Cintrón Arroyo - SCRIPPS Research Institute in San Diego, CA

Dormarie E. Rivera Rodríguez
Albert Einstein College of Medicine, NY

Jesús G. Ortíz Cintrón - Texas Tech Health Sciences Center, Lubbock, TX

Pedro L. Cruz Rosa (pictured above)
Cornell University, Ithaca, NY

Faviola Bernard Vázquez - Icahn School of Medicine at Mount Sinai, NY

Eric M. Rodríguez López (pictured above) University of Virginia

Grace Marie Olán García (adjunct) Penn State Chemistry REU Program, University of Pennsylvania

Angely M. Ortiz Rosado (adjunct) University of Arkansas for Medical Sciences Graduate School, Little Rock, AR
CONGRATULATIONS 2017 GRADUATES!

As the 2016/2017 academic year ends we say goodbye to 5 UP-PRISE members who earned their bachelor’s degrees in biology. Congratulations to this year’s PRISE graduates! We are proud of their achievements and look forward to seeing them succeed in their future endeavors. UPR-PRISE is honored to have been a part of their professional and scientific development and wish them all the best in the next step of their journey.

Lysmarie Figueroa Ríos, Ponce, PR - PRISE member since 2013
- Honor roll & Dean’s list
- Awardee for outstanding poster presentation at the 2016 Annual Biomedical Research Conference for Minority Students in Tampa, FL for her research in Orthopedic and Rehabilitation at University of Wisconsin
- Accepted to the Biomedical Engineering PhD program at University of Wisconsin-Madison

Mayra González Torres, Ponce PR - PRISE member since 2015
- Honor roll & Dean’s list
- Awardee for outstanding poster presentation at the 2016 Annual Biomedical Research Conference for Minority Students in Tampa, FL for her immunology research conducted at University of Minnesota
- Co-authored a paper published in the journal Histochemistry & Cytochemistry on research conducted in Dr. Caroline Appleyard’s gastrophysiology lab at Ponce Health Sciences University
- Received a post-baccalaureate research supplement at the University of Minnesota

César Torres Gutiérrez, Peñuelas PR - PRISE member since 2013
- Honor roll & Dean’s list
- Awardee for outstanding poster presentation at the 2014 Annual Biomedical Research Conference for Minority Students in San Antonio, Texas for research in genomics and proteomics conducted at University of Minnesota
- Awardee for 2nd place poster presentation at the University of Alabama Summer Expo for genetics and genomic science research conducted at University of Alabama at Birmingham
- Accepted to the UPR Medical Sciences Campus to pursue an MD/PhD

Abdon Lopez Torres, Peñuelas, PR - PRISE member since 2015
- Honor roll & Dean’s list
- Co-authored a paper published in the journal Histochemistry & Cytochemistry on research conducted in Dr. Caroline Appleyard’s gastrophysiology lab at Ponce Health Sciences University

Roberto Morales Silva, Ponce, PR, PRISE member since 2012
- Co-authored 2 papers; one published in the journal Learning and Memory for research conducted in Dr. James Porter’s neuroscience lab at Ponce Health Sciences University (PHSU) and another in Frontiers in Behavioral Neuroscience for research conducted under the mentorship of Dr. Annelyn Torres also at PHSU
- Accepted to the Biomedical Sciences PhD program at PHSU as an NIH-RISE trainee
Attending scientific conferences is an important component for the development of young scientists and an integral part of the UPR-PRISE program’s event calendar. Scientific conferences are excellent forums for researchers and students to present and discuss their work, learn about new developments in science, gain experience presenting, obtain feedback on their projects, and build a network of contacts. Particularly for our students, they are also excellent opportunities to explore graduate studies, summer internships, professional organizations, and specific fields of science.

This semester was especially active for our UPR-PRISE students with various scientific conferences taking place.

**Experimental Biology**

One of many meetings the UPR-PRISE program attends each year is Experimental Biology, which took place in Chicago, Illinois on April 22-26, 2017.

Experimental Biology (EB) is the annual meeting of six societies comprised of more than 14,000 scientists and 50 guest societies. Primary focus areas include anatomy, biochemistry and molecular biology, investigative pathology, nutrition, pharmacology, and physiology. This multidisciplinary, scientific meeting features plenary and award lectures, workshops, oral and posters presentations, on-site career services and exhibits spotlighting equipment, supplies and publications required for research labs and experimental study.

Our senior UPR-PRISE students presented their research in the poster sessions. The abstracts are also published in the FASEB journal.

**Gerardo Arroyo Martínez** - Molecular Genotyping of Transposable Element Insertions in a Population of Uniform Mu Events

**Faviola Bernard Vázquez** - The Role of DNA Polymerase Nu and Zeta in the Repair of DNA Interstrand Crosslinks

**Kevin Cintrón Arroyo** - A potential role for the novel human helicase, G4-Resolvase 1 in HIV-1 RNA packaging

**Nicole de la Rosa González** - Effects of Deceased Mitochondrial Ca²⁺ Uptake in an in vitro Model of Parkinson’s Disease

**Mayra I. González Torres** - The Role of Tumor Necrosis Factor Receptor 2 (TNFR2) in a Mouse Model of Valvular Inflammation and Fibrosis

**Abdón López Torres** - The Fungicidal Potential of Dimethyloxaglycine (DMOG) in Infected Bone Marrow Macrophages of C57 BL6-J mice

**Bryan Torres Collazo** - Developing Renal Organoids Using Human Embryonic Stem Cells

**César Torres Gutiérrez** - Dissecting the TORC1 Gene Interaction Network by Perturbing Different Subunits

**Ralphdy Vergne Montes** - Changes in DNA Damage Response Proteins During Tamoxifen Treatment and Resistance
**World Congress on Endometriosis**

Abdón López, senior UPR-PRISE student, attended the 13th World Congress on Endometriosis in Vancouver, Canada, 17-20 May 2017. The World Congress on Endometriosis brings together well-known experts in the field of endometriosis as well as newer investigators to explore the latest developments in basic science, surgery, medical treatments, and complementary therapies that may improve the quality of life of women with endometriosis. Plenary presentations ranged in topics from pathogenesis, genetics/epigenetics, precision medicine, and co-morbidities, to diagnosis, reproductive outcomes and pain physiology. Abdón presented the poster *Vitamin D receptor expression in a human endometriosis tissue microarray* from his work conducted at Ponce Health Science University under the mentorship of Dr. Caroline Appleyard.

**Society on NeuroImmune Pharmacology**

Kevin Cintrón Arroyo, senior UPR-PRISE student, attended the Society on Neuroimmune Pharmacology held in Philadelphia, PA on March 28-April 1, 2017. This international conference bridges the fields of immunology, pharmacology, and the neurosciences, with a special emphasis on how drugs of abuse and infectious diseases interact with the neuroimmune axis. Kevin presented the poster *Nef Expression in Astrocytes Promotes Astrogliosis and Synaptic Dysfunction* from research conducted under the mentorship of Dr. Richard Noel at Ponce Health Sciences University.

**PHSU 13th Annual Scientific Conference**

With the purpose of increasing awareness of research conducted at Ponce Health Sciences University and promote further research collaborations, Ponce Health Sciences University hosts their Annual Scientific Conference. In its 13th year, this year’s conference took place on May 13, 017 at the Complejo Ferial in Ponce. Students, faculty and medical residents from the academic community and partner institutions presented projects in oral and poster formats in the areas of biomedical sciences, clinical sciences/medicine, behavioral sciences and public health. A group of UPR-PRISE students attended while two presented: Abdón López, Vitamin D Receptor Expression in a Human Endometriosis Tissue Microarray (oral) and César Torres, Effect of Stress on the Bacterial Composition of Gut Microflora in a Female Rat Model of Endometriosis (poster).

**NIH-NIGMS Program Director's Meeting**

The NIH- NIGMS, our funding agency, held the 2017 Training, Workforce Development, and Diversity Program Directors' Meeting on June 18-21 in Baltimore, Maryland for the administrators of all student and predoctoral training programs including R25 (RISE Programs). This meeting serves to build and strengthen partnerships and networks within the academic-research community, learn more about other programs; establish connections with potential new partners, and collectively address the Institutes’ research training objectives. Plenary sessions and keynote talks covered the diversity of the U.S. research workforce, STEM training in NIH-funded biomedical
research, and innovative approaches for evaluating and assessing NIGMS/NIH training programs.

Poster sessions provided a forum to discuss best practices, progress and outcomes. UPR-PRISE Program Director Dr. Edu Suarez and Program Coordinator Wendy Pacheco presented the poster, Welcoming Future Scientists: engaging Puerto Rican High School Students in STEM through Community Based Learning and Outreach, which highlighted the favorable outcomes of our premier community outreach event.

Congratulations!

The UPR-PRISE program is exceptionally proud of the following former PRISE students who received acceptances to graduate programs- a huge milestone toward achieving their future goals. We look forward to tracking the progress of all former PRISE students and wish them much success in this new step of their journey.

- Roberto López Astacio, PRISE 2011, accepted to Cornell University, Immunology and Infectious Diseases Ph.D. program
- Luis M. Rivera Pérez, PRISE 2012, accepted to University of Michigan, Neurosciences Ph.D. program with the Rackham Merit Fellowship
- Kevin Muñoz Forti, PRISE 2013, accepted to University of Missouri, Biochemistry Ph.D. program with a Life Sciences Fellowship and T32 award
- Gustavo Santiago, PRISE adjunct, University of Missouri, Microbiology Ph.D. program

PRISE News

This summer, Maria Figueroa Rosado joined the UPR-PRISE team as our new Research Coordinator. In this role, Maria is responsible for training new students in basic laboratory techniques and overseeing ongoing research projects at the J-2 research lab. She holds a Bachelor of Science degree in biomedical sciences from UPR Ponce and a Master’s of Science in Biotechnology from Pontifical Catholic University of Puerto Rico in Ponce. Her area of research is focused in the expression of proteins associated to lung cancer in apoptotic pathways. In her free time, Maria enjoys costume making, playing Dungeon and Dragons, and video games.

Francisco-Gomez Rivera, former UPR-PRISE student and current M.S. student at University of Texas-San Antonio, is co-author on the paper Serum Neuroinflammatory Disease-Induced Central Nervous System Proteins Predict Clinical Onset of Experimental Autoimmune Encephalomyelitis published in the July issue of the journal Frontiers in Immunology. This publication is a result of research conducted under the mentorship of Dr. Thomas Forsthuber in the Department of Biology at the University of Texas at San Antonio.

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