

GUEST SPEAKER


Héctor De Jesús, PhD

On September 2nd, 2020 Dr. Héctor De Jesús-Cortés, gave us a virtual scientific seminar, titled “Re-opening of juvenile-like plasticity using digital and pharmacological approaches in mice.” Dr. De Jesús-Cortés is a post-doctoral fellow in Mark Bear’s laboratory at the Picower Institute for Learning and Memory at the Massachusetts Institute of Technology. His research focuses on understanding the physiology of synaptic plasticity and how it can be affected by experience and pharmacological treatments, with the aim of developing new pharmacological treatments for neurodegenerative disorders. During the seminar, he presented a pharmacological and digital therapeutic approach that was able to restore plasticity in mice adult brain as seen in juvenile mice. In addition, the trainees had the opportunity to meet and socialize with Dr. De Jesús after the seminar. Throughout the virtual lunch, he spoke about his career path, the importance of mentoring, and offered valuable advice related to training opportunities and fellowship applications.

By: **Yesenia Rivera (2nd year RISE trainee)**

PORTER PHYSIOLOGY DEVELOPMENT FELLOWSHIP AWARD



We are pleased to announce that RISE trainee-Luis A Rivera- Arce was recently awarded the Porter Physiology Development Fellowship Award from the American Physiological Society, effective September 1st 2020. This fellowship will support part of Luis’ thesis research which focuses on understanding the role of the enteric glia in the pathophysiology of endometriosis with a view to finding new targets for treating endometriosis-associated symptoms under the mentorship of Dr. Caroline Appleyard. Luis was accepted into the PhD Program in Biomedical Sciences at Ponce Health Sciences University in 2018 after completing his undergraduate studies at the University of Puerto Rico in Cayey. As an undergraduate Luis participated in the Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science program funded by the Howard Hughes Medical Institute, and later researched the impact of Hurricane Maria on tree diversity in the island. He also became involved in various STEM and community outreach activities.

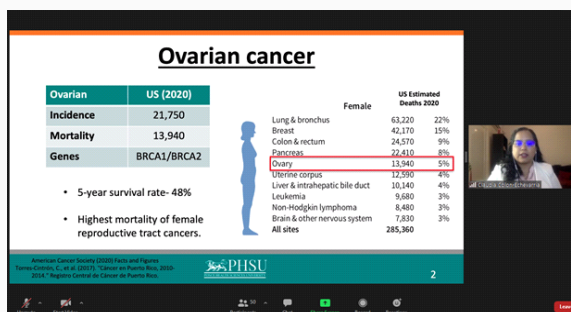
Luis is an author on several poster presentations from preliminary work leading to his proposal that were accepted for presentation at Experimental Biology and the Society for Reproductive Investigation, and recently passed his qualifying exam. Luis will continue to be involved with RISE as a peer mentor and we look forward to Luis continued success!

The goal of the Porter Physiology Development Program is to encourage diversity among students pursuing full-time studies toward the Ph.D. in the physiological sciences and to encourage their participation in the American Physiological Society. Ponce Health Sciences University has had several students receive these fellowships in the past. Application details can be found here: https://www.physiology.org/professional-development/awards/trainees/porter_fellowship?SSO=Y

THESIS DEFENSE

On September 29th, 2020, our former RISE trainee and current Internal Advisory Committee (IAC) member, Claudia Colón, successfully defended and approved her thesis dissertation titled “Chronic stress promotes cancer associated inflammatory processes”. Under the mentorship of Dr. Guillermo Armaiz, she investigated the role of chronic stress in promoting pro-inflammatory networks and cancer progression.

We congratulate Claudia, for her outstanding path through our program and RISE, and for her participation as a member of our IAC for the past year. We wish you all the best in your next step as a postdoc in the Moffitt Cancer Center, in Tampa, FL! Congrats, Dr. Colón-Echevarría!



Claudia Colón-Echevarría



L-R: Dr. Pedro Santiago, Dr. Caroline Appleyard, Dr. Guillermo Armaiz (Chair), Dr. Christina Annunziata, Dr. Harold Saavedra, Dr. Vanessa Rivera-Committee members-



GUEST SPEAKER



Luis Martínez, PhD

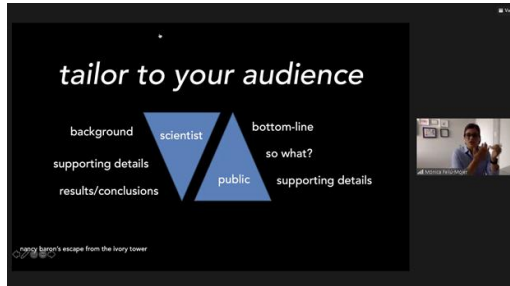
On September 16th, Dr. Luis Martínez, from the University of Florida, presented a seminar on his research titled "Decrypting *Cryptococcus neoformans* Mechanisms of Brain Invasion and Immunity." Dr. Martínez obtained his bachelor's degree from the University of Puerto Rico, Mayagüez Campus, his master's degree from the University of Long Island in New York, and his doctoral degree from the Albert Einstein College of Medicine in New York. Currently, he is an associate professor at the University of Florida College of Dentistry, focusing on *Cryptococcus neoformans* opportunistic infections and the different mechanisms by which these invade the nervous system. His research has earned him over 81 publications and many awards, including the University of Texas at El Paso Edge Fellowship.

During his presentation, he explained the role of *C. neoformans* capsules, how these enhance immune system evasion, and stimulate brain tissue invasion. Afterward, Dr. Martínez met with all the RISE trainees to share his career path and give advice to us all.

By: Elliot Rodríguez (3rd year RISE trainee)

SCIENCE COMMUNICATION TO THE PUBLIC

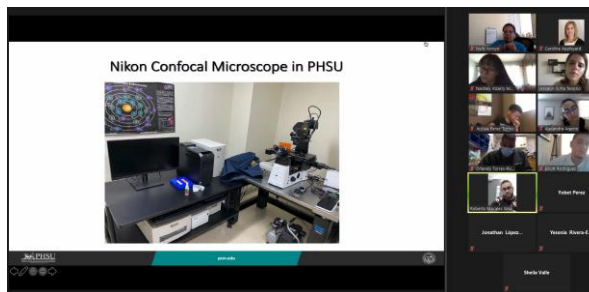
By: Jonathan López (2nd year RISE trainee)



As scientists, it is always important to not only perform research, but to communicate with peers and the general community. On, October 9th, 2020, our RISE trainees participated in a Professional Development Seminar by Dr. Mónica Feliú-Mójer, Director of Communications and Science Outreach for Ciencia PR, titled: "Communicating your science effectively with the public". During this workshop, Dr. Feliú taught trainees the key principles and strategies to engage and discuss science with those

unrelated to the field. To make the seminar more dynamic, activities where trainees had to think of an audience, define a goal to deliver a message, and share with their peers were performed. Another topic discussed was the effective use of social network platforms to further distribute scientific knowledge. As part of the RISE program, trainees are constantly participating in outreach activities with middle and high schoolers where the concepts learned in this workshop will help them to effectively deliver a message.

EXTERNAL TRAINING UPDATES AND FEEDBACK



On October 23rd, 2020 our RISE trainees, Sheila Valle (2nd year), Jessalyn Pla (3rd year) & former RISE trainee, Luis Rivera (3rd year) conducted a professional development session titled: *External Training: Updates & Feedback*. They provided us with their experiences in recent external trainings they received. Sheila talked about the *Evaluation of Biomarkers and Risk Models* training that she took in July 2020, from the University of Washington.

This covered methodology for evaluating biomarkers and risk prediction models through principles, concepts, metrics, and graphical tools. She also talked about the *Developing prognostic and predictive biomarkers with high dimensional data* training which introduced participants to ideas in high dimensional predictive modeling, model validation, and testing. Information about these trainings can be accessed through:

<https://si.biostat.washington.edu/suminst/siscer2020/modules>. On the other hand, Jessalyn and Luis talked about the Virtual International Workshop in Confocal Microscopy and Quantitative Histology training that they took from August 10-14, 2020. They spoke about the sample preparation, microscope use, proper imaging construction, and ethics training that they received, which provided comprehensive background, analysis, instructions, and practice for using a confocal microscope, a new instrument available to our students at Ponce Research Institute. **Thank you all for your excellent presentations!**

PREPARING AND UPDATING THE GRADUATE STUDENT PORTFOLIO

By: Jean Schmidt (RISE Program Coordinator)

Our students are required to keep a career portfolio as it is a very useful tool to evaluate their performance and track their improvement. It also provides insight and is evidence of what they have achieved. These are reviewed by their mentors twice a year to monitor progress and address areas of strengths and improvement. On Friday, September 4th, 2020, our Program Coordinator, Jean M. Schmidt, conducted a virtual portfolio review session with emphasis on its short- and long-term utility. She discussed the basics on how to build, maintain and update this. Students were then advised by their senior peers, who showed them their portfolios and shared feedback given by the mentors during the revision of these. Students had the opportunity to ask questions and get feedback for artifacts that can be included and, also, on how to improve their portfolios. Students have stated that "this presentation helped me to structure better my portfolio because I had some missing things that are very important". "I liked the student feedback session about their experiences with their mentor evaluation of the portfolio". "I really enjoyed that we got the opportunity to have an open discussion and exchange of ideas and suggestions about the information that should go into the portfolio and the importance of keeping it updated".



GUEST SPEAKER



On October 7th, 2020, we had the privilege of listening to Dr. Heather Richardson speak about her laboratory investigation titled "Differential effects of alcohol on the developing brain in adolescent male and female rats." Her studies' main goal is to uncover sex differences in the effect of alcohol and the mechanism by which these differences can act in the brains of adolescent rats. Changes in the white matter of the adolescent brain could be causing cognitive impairment in adulthood. Therefore, her research focus is at a microstructural level, studying myelin surrounding neurons in the white matter. Dr. Richardson's work will prove valuable for future studies on behavioral sciences related to alcohol abuse.

By: Jessalyn Pla (3rd year RISE trainee)

IGCS Digital 2020 Meeting- Alexandra



The xDigital Annual Global Meeting of the International Gynecologic Cancer Society (IGCS 2020) took place on September 10-13, 2020 in a fully digital environment. We were very well represented by 3rd year RISE trainee, Alexandra Aquino, who exhibited her E-Poster titled "Restraint Stress Promotes Tumor Growth Syngeneic Mouse Model of Ovarian Cancer." This meeting provided participants with the opportunity to learn about the latest clinical advances as well as international developments in research, practice and treatment for women with gynecological cancer. We are very proud of Alexandra, as she is part of the scientific community that, under the mentorship of Dr. Guillermo Armaiz, keeps contributing in the fight against gynecologic cancer despite this challenging time. Great job, Alexandra!

DATA BLITZ

Our first virtual data blitz of the current academic year was held on September 25th, 2020. We congratulate our RISE trainees Alexandra Aquino (3rd year), Orlando Torres (5th year), Roberto Morales (4th year) as well as Luis Rivera (3rd year), for their excellent research presentations. The works presented were:

- ❖ **Luis Rivera:** "Cheese whiz and peanut butter: A non-invasive way to administer drugs orally" (Dr. Appleyard's lab)
- ❖ **Orlando Torres:** "ICV administration of a P2X7R antagonist prevents SPS-induced PTSD-related behaviors in male and female rats" (Dr. Porter's lab)
- ❖ **Roberto Morales:** "Effects of chronic stress on cocaine seeking behavior of male and female rats" (Dr. Sepúlveda's lab)
- ❖ **Alexandra Aquino:** "Role of chronic stress on anti-tumor T-cell responses in ovarian cancer" (Dr. Armaiz' lab)

STUDENT NEWS!

Jessalyn Pla & Elliott Rodríguez (third year RISE trainees), successfully defended and passed their thesis proposal defense. Congratulations to both, and keep up the good job!

RISE LAB WORKSHOP: CELL IMAGING



On Friday October 16th, 2020, the RISE Teaching Lab held the workshop "Cell Imaging" as part of the 'Back to Basics' series of workshops. During this activity Moisés D. Gamero Hernández from Thermo Fisher Scientific guided the students through the most common strategies for photographing cells with fluorescence microscopy.

Topics covered included: controls and experiment design, live- and fixed-cell imaging, automated imaging platforms, as well as fluorescence applications. At the end of the discussion students had a question and answer session where they were able to clarify doubts and received feedback for their ongoing experiments.



Welcome to our new RISE trainee!



Nashaly Irizarry Méndez is originally from Peñuelas, PR. She holds a bachelor's degree in Biology from the University of Puerto Rico, in Mayaguez. She collaborated in different research projects as an undergraduate. She also worked as a volunteer in Dr. James Porter's lab at Ponce Health Sciences University (PHSU), collaborating on projects "Can fear extinction memory be disrupted by a combination of a high fat diet and a microglial activation with lipopolysaccharides?" and "Reducing FKBP5 Expression in the ventral hippocampus produces a PTSD like phenotype". Nashaly was supported with a full-time scholarship as a Track and Field Varsity Athlete as an undergrad. Her hobbies include listening to music and drawing.

Welcome to our RISE team, Nashaly, we wish you much success!

FORMER RISE TRAINEE UPDATES!

➤ Dr. Emmanuel Cruz



Congratulations to former RISE trainee, Dr. Emmanuel Cruz for his recent appointment as Assistant Professor at the Pontifical Catholic University of Puerto Rico (PUCPR), in Ponce. Dr. Cruz completed his postdoc under the mentorship of Dr. Cristina Alberini at New York University. His achievements as a postdoc include 3 publications, one patent, 3 grants and 3 ongoing papers. He was awarded with a prestigious NARSAD Young Investigator Award to study the role of astrocytic lactate metabolism in long-term memory formation, with which he will establish his own lab at PUCPR. We look forward to collaborating with Dr. Cruz through our university's animal research facilities that will help him in his ongoing research projects. Congrats, Dr. Cruz, and welcome back to PR!

➤ Dr. Ángel Núñez

Congratulations to our former RISE trainee, Dr. Ángel Núñez on the publication of his thesis article titled "SNPs in the interleukin-12 signaling pathway are associated with breast cancer risk in Puerto Rican women". It can be accessed through: <https://doi.org/10.18632/oncotarget.27707>

➤ Dr. Rocío D. Lamboy

Dr. Lamboy was recently hired by Abbvie as a QC Scientist. We congratulate and wish her all the best!

MENTORING AND NETWORKING



The Athinoula A. Martinos Center Women in Science (WiS) coalition is an initiative that aims to empower and increase the visibility of women in STEM. Our 2nd year RISE trainee, Yesenia Rivera, was recently invited to participate in their seminar *Encouraging the success of junior colleagues* (queen bee phenomenon). This was offered by Dr. Margaret Ormiston, associate professor at the Management School of Business at George Washington University. Her research focuses on understanding how top management teams and small groups become successful. She raised the question on how women can be good leaders

how they can support each other in work environments, especially male dominated ones, with the goal of fostering an environment that supports women colleagues. She focused on discussing the so-called "queen bee phenomenon," occurring when women hold positions of power in a company or institution. This phenomenon describes females who tend to discriminate and avoid other female colleagues, promoting gender inequality in male dominated workplaces. Those who experience this syndrome lean toward presenting themselves more like men, physically or psychologically distance themselves from other women, and appear biased against women as an attempt to not exhibit favoritism. Consequently, junior women in a company or academia position experience increased feelings of anger, sadness, anxiety, and belonging uncertainty. She emphasized that each one's behaviors and beliefs affect everyone, having a significant effect on them. She underscored that the term "queen bee" is misleading, as women in leadership positions are also victims of gender discrimination and experience different expectations compared to men. This phenomenon is not particular to females, but to individuals who are underrepresented in their field. Some suggested approaches in dealing with the queen bee phenomenon are: to normalize belonging uncertainty in women working in a company or academia setting, finding similarities between employees, and build up junior female colleagues' confidence. The chance to participate in this activity is an example of how important mentoring and networking is, especially in the national conferences that the RISE program allows trainees to attend.

(By Yesenia Rivera, 2nd year RISE trainee)



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