



RISE Lab Workshop: Handling Biohazard Waste



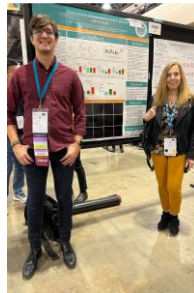
Sonia Feliciano Heredia, M.S.E.M.

On March 25th, 2022 the RISE Lab held a workshop “Biosafety: Handling Biohazard Waste”, in collaboration with ConWaste - Consolidated Waste Services, LLC. Sonia Feliciano Heredia, M.S.E.M. Compliance Officer from ConWaste gave a presentation on the basic terms and handling of biohazard material. Attendees had the opportunity to learn about the complete procedure from when the biomedical waste is generated, and how it is packed, collected, taken to treatment and finally deposited in the landfill. Mrs. Feliciano also discussed the regulations and laws that apply to the handling and disposal of Biomedical Waste in Puerto Rico. During the presentation there was a demonstration of how to pack correctly the biomedical waste for collection and transfer to the treatment locations. The workshop was broadcast via Zoom, where viewers had the opportunity to ask questions in addition to the students and audience present in the classroom.

EXPERIMENTAL BIOLOGY MEETING 2022

The very last Experimental Biology Meeting (EB) took place from April 2nd-6th, 2022 at the Pennsylvania Convention Center in Philadelphia. For over 20 years, EB has been the annual meeting of five societies presenting the latest research in anatomy, biochemistry and molecular biology, investigative pathology, pharmacology, and physiology. These are: The American Association for Anatomy (AAA), American Physiological Society (APS), American Society for Biochemistry and Molecular Biology (ASBMB), American Society for Investigative Pathology (ASIP), and American Society for Pharmacology and Experimental Therapeutics (ASPET). This multidisciplinary, scientific meeting featured plenary lectures, workshops, symposia, posters presentations, on-site career services, and exhibits. PHSU-PRI faculty, staff, graduate students, and collaborators attended, presented, networked and learned!

Under the mentorship of Dr. Caroline Appleyard, Luis Rivera Arce (former RISE trainee) presented his research in both oral and poster format and co-chaired a session. Dr. Idhaliz Flores (RISE IAC Member) gave an oral presentation titled “Systemic Inflammatory Mechanisms Associated with Endometriosis: From Genes to Environment” and talked about the ongoing studies at PHSU.



Luis Rivera (former RISE trainee) & Dr. Caroline Appleyard, RISE Program Director



Dr. Idhaliz Flores (RISE IAC Member)



Luis Rivera-Arce (4th year graduate student)



Dr. Caroline Appleyard & Jean Schmidt, RISE Program Coordinator



Our RISE Program Director, Dr. Caroline Appleyard received recognition for her outstanding contributions as Chair of the APS Career Opportunities in Physiology Committee from 2019-22!

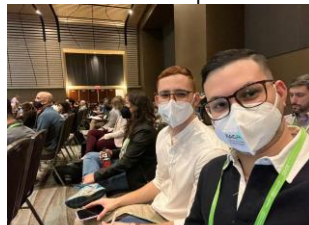
Congratulations, Dr. Appleyard, well deserved!

AACR ANNUAL MEETING 2022

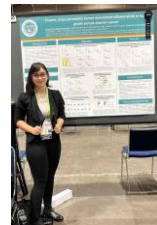


The American Association for Cancer Research (AACR) Annual Meeting was held from April 8th-13th, 2022, both in-person and virtually. This year’s meeting theme was “Decoding Cancer Complexity | Integrating Science | Transforming Patient Outcomes”. We were very well represented by Sheila Valle (3rd year RISE trainee), who under the mentorship of Dr. Pedro Santiago, presented her poster titled “Phosphorylation of the retinoblastoma protein at Serine 249 and the cadherin switch as clinically informative biomarkers for the discrimination between indolent and aggressive forms of prostate cancer” at the online poster session.

Also, our first year RISE trainees Elvin Hernández and Yadiel Rivera attended this meeting where they had the opportunity to participate in Educational Sessions, Methods Workshops and Networking Events. We want to recognize former RISE trainee, Alexandra Aquino, who was the recipient of the 2022 AACR Minority Scholar in Cancer in Research Award to present her research project titled “Chronic stress promotes tumor-associated inflammation in high-grade serous ovarian cancer”. Congrats!



Yadiel Rivera & Elvin Hernández (1st year RISE trainees)



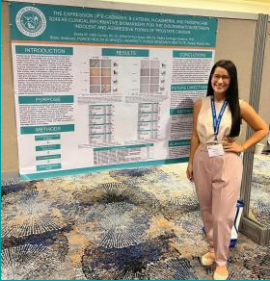
Alexandra Aquino (former RISE trainee)



Dr. Jalleene Pérez (former RISE trainee), Dr. Carlos Diaz, Alexandra Aquino, Dr. Shannalee Martínez, Yadiel Rivera & Elvin Hernández.



The American Urological Association (SESAUA) Annual Meeting 2022



The Southeastern Section of the American Urological Association (SESAUA) Annual Meeting, was held from March 16th-19th, 2022 in San Juan, PR, and we are very happy to share that our 3rd year RISE trainee, Sheila Valle, was awarded the first place for best poster in the Developmental Laboratory Science and Genetics category. She presented her poster titled "The Expression of E-Cadherin, B-Catenin, N-Cadherin, and Phospho-RB S249 as Clinically Informative Biomarkers for the Discrimination between Indolent and Aggressive Forms of Prostate Cancer". She works under the mentorship of Dr. Pedro Santiago and Dr. Gilberto Ruiz Deyá, and her research is focused on evaluating biomarkers that could be applied in the clinic and aid in the decision-making process and criteria regarding active surveillance versus a treatment intervention on prostate cancer patients. The purpose of her project is to reduce overtreatment among indolent prostate cancer patients.

Congratulations, Sheila!
Great job!

PD SESSION: STRATEGIES FOR PROMOTING YOUR RESEARCH AND ADVOCATING FOR YOURSELF

By: Yesenia Rivera-Escobales (3rd-year RISE trainee)

On Friday, March 11th, 2022, the RISE trainees received the visit of Dr. Edmarie Guzmán-Vélez, a neuropsychologist at the Massachusetts General Hospital and instructor at Harvard Medical School for professional development seminar about strategies for promoting their research and advocating for themselves. During the seminar, Dr. Guzmán-Vélez shared her journey as a neuroscientist and neuropsychologist and her research with the RISE trainees. Finally, she shared five strategies that have helped her during her career for promoting her research, finding job opportunities, and obtaining funding for her research. Those strategies are 1) talk to someone 2) email 3) LinkedIn 4) join a professional committee 5) social media. During the seminar, the students also had the opportunity to practice their elevator pitch. Dr. Guzmán-Vélez finalized the activity by sharing the grantsmanship strategies that have helped her obtain funding for the last 12 years.



MEDIA TRAINING

Aligned with our program's goal to enhance communication skills, our RISE trainees had the opportunity to attend two sessions of Media Training by Catherine Morales-Maurás, APR (Public Relations Consultant) on February 25th and March 4th. A media interview is a great opportunity for our trainees to deliver their story to the audience. Whether they are preparing themselves for an interview with a newspaper, television or radio correspondent, this training helps them interact with reporters and achieve good press! The first session focused on conveying a message to the media. Catherine gave some advice and tips on how to act during an interview, as well as the do's and don'ts. During the second session, trainees practiced what they learned and mock interviews were conducted and assessed. Our trainees learned the basics of:

- Media and news
- Effective communication
- Interview Strategy
- Editorial Control
- Handling reporters and difficult questions

It was a very pertinent, interactive and fun session!



Elvin Hernández (1st year RISE trainee)



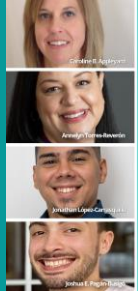
Paola Flores (1st year RISE trainee)



Jonathan López (3rd year RISE trainee)



PUBLICATION



RESEARCH ARTICLE

Más allá de la depresión y la ansiedad

Una revisión sistemática sobre el papel de los antagonistas de la hormona liberadora de corticotropina en las enfermedades de los órganos pélvicos y abdominales.



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This article explores the therapeutic role of corticotropin receptor antagonists. It focuses on the therapeutic capacity of these compounds in abdominal and peritoneal diseases, such as "Irritable Bowel Syndrome" and endometriosis. The article also makes a critical evaluation and recommendations for future experimentation with clinical applicability.

Congratulations to all authors!

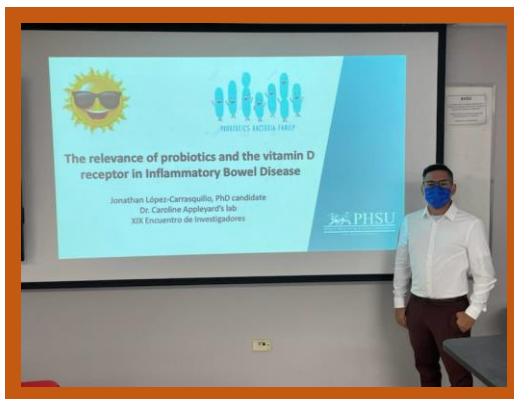
OUTREACH ACTIVITIES

EXPO-SALUD 2022

Ponce Health Sciences University celebrated *Expo-Salud 2022* from April 4th-6th 2022. The public had the opportunity to attend different activities and receive orientation as part of the *Stress Out Day* and *Cancer Awareness Day*. Trainees from our RISE Program, as well as their peer graduate students, gave orientation about infectious diseases such as Zika, Dengue and HIV. They also participated in informative tables, sharing information on ovarian, breast and prostate cancer prevention. Yadiel Rivera (1st year RISE trainee) gave a demonstration of a female rat ovary and shared its morphology with the public as well as its uses in research. Great job everyone!



VISIT TO ANA G. MÉNDEZ UNIVERSITY, GURABO PR



On Friday, April 29th, 2022, our 3rd year RISE trainee, Jonathan López, was invited as guest speaker for the PREMIER Research Team Session, as part of the University Ana G. Méndez (UAGM) XIX Research Forum. Jonathan gave a talk titled "My path to graduate school: from the environment to the gut" which was very inspiring for the new generation of scientists in the audience. Under the mentorship of Dr. Caroline Appleyard, he presented his research project titled: "The relevance of probiotics and the vitamin D receptor in Inflammatory Bowel Disease" and was evaluated as exemplary. His knowledge, solid understanding of the topic, and his excellent oral delivery were recognized, as well as his contributions to their students and scientific program. Good job, Jonathan, keep it up!

PHSU-SCHOOL OF MEDICINE AWARDS CEREMONY

Warmest congratulations to our RISE Program Director, Dr. Caroline Appleyard, who received the 2022 Faculty Excellence Award-Professor Basic Sciences at the School of Medicine Awards Ceremony! Dr. Idhaliz Flores & Dr. Marian Sepúlveda, members of our program's Internal Advisory Committee (IAC) were also recognized. Dr. Flores received the Outstanding Researcher Award and Dr. Sepúlveda received the Faculty Excellence Award-Assistant Professor Basic Sciences.



Congratulations to everyone, well deserved!



RISE GUEST SPEAKER



**Michelle Martínez
Montemayor, PhD**

On April 27th, 2022, Dr. Michelle M. Martínez Montemayor, Assistant Professor at Universidad Central del Caribe, offered an in-person conference titled: "Experimental therapeutics for aggressive breast cancer." Her research is focused on studying which chemical compounds of the *Ganoderma lucidum*, a mushroom used in traditional Chinese medicine as a natural alternative to treat cancer, are responsible for the anticancer properties. Of seven steroid compounds identified by chromatography, Ergosterol peroxide (EP) had significant anticancer activity when evaluated in inflammatory breast cancer (IBC) and triple-negative breast cancer (TNBC) cell models. It was not toxic in mice models. EP is a promising compound to treat IBC and TNBC without the secondary effects of conventional cancer therapy methods. Dr. Martínez is expanding her research to study the properties of endemic *Ganoderma* species against cancer.

After the conference, Dr. Martínez met with the RISE students and gave suggestions to improve their research and be successful scientists.

By: Nelly Arroyo (3rd year RISE trainee)

DATA BLITZ

Congratulations to our RISE trainees Yesenia Rivera-Escobales (3rd year), Paola Flores (1st year), Elvin Hernández (1st year), Yadiel Rivera (1st year) and Jonathan López (3rd year), for their excellent research presentations at our Data Blitz session held on April 29th, 2022. The works presented were:

- ❖ **Yesenia Rivera-Escobales:** "Identification of infralimbic cortex-hypothalamic circuits"
- ❖ **Paola N. Flores:** "Isolation and Characterization of Extracellular Vesicles Derived from Therapy-Resistant Prostate Cancer Cells"
- ❖ **Elvin Hernández:** "The Role of Restraint Stress in Macrophage Infiltration and Polarization in the Ovarian Tumor Microenvironment"
- ❖ **Yadiel Rivera:** "Characterization of Myeloid-Derived Suppressor Cells in response to restraint stress in preclinical models of ovarian cancer"
- ❖ **Jonathan López:** "The use of probiotics and butyrate to target macrophage vitamin D receptor"



Neural circuits of fear and pleasure in approach/avoidance conflict

By: Yobet A. Pérez-Pérez (2nd year RISE Trainee)



On March 2nd, 2022, RISE trainees attended Dr. Christian Bravo Rivera's seminar titled: "Neural circuits of fear and pleasure in approach/avoidance conflict." Dr. Bravo presented his work on the balance between approach and threat avoidance in the context of depression research. According to studies, 30% of depression patients are resistant to treatment, with the majority exhibiting maladaptive threat/conflict resolution behaviors such as excessive avoidance and/or excessive reward seeking. Importantly, as Dr. Bravo emphasized, motivation governs our daily behavior (GO OR DON'T GO). As a result, his research is primarily concerned with answering the question: "How do approach and avoidance compete in the brain?" to better understand approach and threat avoidance dysregulation in depression.

Dr. Bravo presented his research and experimental models, including fear conditioning and pavlovian conditioning tasks to study depression-related behavior, single unit recording for neuronal activity measurement based on neuron electrophysiology, and optogenetic neuronal activity manipulation to understand which brain regions control approach and threat avoidance. The Ventral Pallidum (VP), the core structure studied by Dr. Bravo, has been shown to be a component of the reward system, which is involved in the regulation of motivational behavior and emotions. Surprisingly, the data revealed how VP Glutamatergic neurons participate in punishment avoidance behavior and GABAergic neurons encode reward seeking in terms of reward approach. Most importantly, the workshop experience helped us understand the value of low and high conflict behavioral protocols, which are required for studying VP Glutamatergic and GABAergic neuron competence in approach vs avoidance circuit control.



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