

GUEST SPEAKER



Dr. Rochellys Díaz

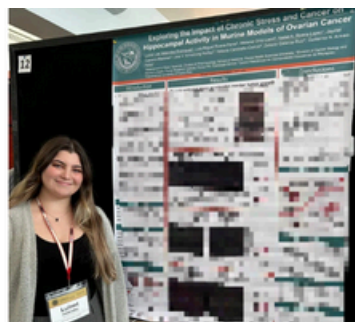
Dr. Rochellys Díaz, invited guest speaker for the PR Neuroscience Conference, gave a seminar titled 'Microbiota-Gut-Brain Interactions: Exploring New Mechanisms and Therapeutics in Neurodevelopmental Disorders.' During her talk, she discussed how her research team was among the first to demonstrate that the normal gut microbiota influences brain development and behavior, a discovery that significantly contributed to the rapidly growing field of the microbiota-gut-brain axis. She also shared her lab's discovery of how bacterial peptidoglycans from the gut microbiota can translocate into the developing brain, where they are detected by innate immune receptors under physiological conditions. Dr. Díaz Heijtz concluded her talk by presenting exciting new findings on the interactions between the gut microbiota and the brain in the context of ASD and ADHD. Specifically, she described microbiome-based strategies aimed at enhancing motor and cognitive functions, as well as the potential impact of probiotics on host metabolism and brain health. These innovative studies are opening new avenues for understanding and treating neurodevelopmental and psychiatric disorders, especially those associated with gastrointestinal dysfunctions.

By: Ana Vargas (1st year G-RISE trainee)

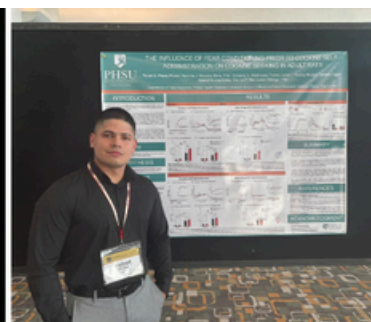
32ND PUERTO RICO NEURO CONFERENCE 2024

By: Paola Flores (4th year G-RISE trainee)

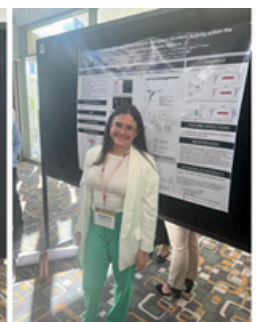
On December 7th, 2024, G-RISE trainees attended the 32nd Puerto Rico Neuroscience Conference at La Concha Renaissance Resort, San Juan. The event highlighted cutting-edge neuroscience research and featured distinguished speakers. Dr. Colin Nichols discussed his research on Cantu Syndrome, Dr. Erik Herzog addressed circadian biology's role in medical science, and Dr. Jennifer Morgan explored synaptic dysfunction in Parkinson's disease. G-RISE's invited speaker, Dr. Rochellys Díaz Heijtz, presented novel mechanisms and therapeutic approaches in neurodevelopmental disorders, focusing on microbiota-gut interactions. The conference also included the Neuroblitz session, where neuroscientists shared brief updates on their work, and a poster presentation session. Former G-RISE trainee Yobet Pérez, now in his 5th year, presented "The Influence of Fear Conditioning Prior to Cocaine Self-Administration on Cocaine Seeking in Adult Rats." Another former G-RISE trainee, Yesenia Escobales, currently in her 6th year, shared "Investigating Acute Stress-Induced Changes in Neuronal Activity within the Posterior Hypothalamic Nucleus." Current G-RISE trainee Luinet Meléndez, in her 3rd year, showcased "Exploring the Impact of Chronic Stress and Cancer on Hippocampal Activity in Murine Models of Ovarian Cancer." The event fostered collaboration and provided a platform for trainees to engage with experts, receive valuable feedback on their research, and build meaningful connections within the neuroscience community.



Luinet Meléndez (4th year)



Yobet Pérez (5th year)



Yesenia Rivera (6th year)



G-RISE trainees & Dr. Rochellys Díaz

THE NIH BIOSKETCH

On November 11th, 2024, Tacia M. Torres, Contract Grant Writer from Written Rewards, LLC, conducted the NIH Biosketch session. The NIH Biosketch is a critical document for researchers, highlighting their accomplishments and qualifications in funding applications. The session focused on understanding research valuable insights into how to effectively present academic achievements, contributions to science and how to craft their personal statement relevant to current research, collaborations, and research accomplishments in a clear and impactful way. Mrs. Torres also shared examples and tips on writing biosketches in a way that align with specific funding opportunities, ensuring participants are well-prepared for future submissions. She also encouraged all PhD students to start writing their own NIH Biosketch which is mandatory for many funding applications.



By: Axel Ufarry (1st year G-RISE trainee)

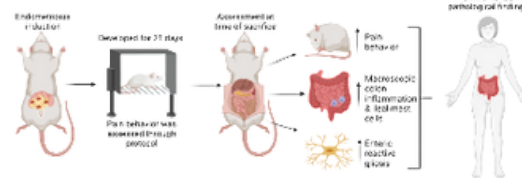
PUBLICATIONS



Congratulations to our former G-RISE trainee, Dr. Luis A. Rivera Arce on his recent publication!

The purpose of this research was to assess the changes that endometriosis induces on the gastrointestinal tract. Based on our results, endometriosis alters the gastrointestinal homeostasis resulting in changes similar to those observed in irritable bowel syndrome (IBS). Taken together, endometriosis can mimic IBS histopathology beyond the symptomatology, reinforcing this disease's complexity and the need to treat it beyond the gynecological setting.

The implication of enteric glia on the IBS-like colonic inflammation associated with endometriosis



Rivera-Arce LA, Cruz ML, Rodriguez-Cintron U, Torres-Pirela JP, Appleyard CB Implication of the enteric glia in the IBS-like colonic inflammation associated with endometriosis - BMC Women's Health

DATA BLITZ FALL 2024

Our second and third data blitz were held on November 22nd & December 13th, 2024. The following trainees presented their research work in ten-minute presentations:

- Dorca Marcano: "How Pre-Existing Immunity Mediates Neutrophil Activation in Dengue Pathogenesis"
- James Torres: "Impact of Exercise on Uncoupling Protein 1 and Macrophage Phenotype in Mesenteric Adipose Tissue in an Animal Model of Endometriosis"
- Lourdes M. Caro: "The Interplay Between Neutrophil Activation and Pulmonary Fibrosis in Hermansky-Pudlak Syndrome Type 1"
- Gretchen Albarrán: "Investigating if TTK inhibition sensitizes metastatic triple-negative breast cancer cell lines to CDK4/6 inhibition"
- Vivianka Ramos: "The Effects of Probiotic and High Dietary Vitamin D Supplementation on M1 Macrophage Polarization in TNBS-Induced Acute Colitis in Mice"
- Axel Ufarry: "Measuring Synaptic Proteins Expression of Nucleus Accumbens from Female and Male rats Expressing HIV-1 Nef and Exposed to Cocaine"
- Adrián Márquez: "Comparative Analysis of Dengue Virus IgA and IgG Responses to NS1 and Envelope Proteins: Implications for Neutrophil Activation and Pathogenesis"
- Ana Vargas: "Characterizing the role of Nitric Oxide in Primary Ciliary Dyskinesia with the RSPH4A Founder Mutation"

Congratulations on your excellent presentations! Keep up the good work!



G - RISE LAB MICROPLATES WORKSHOP



Dr. Grisell Tirado

On Friday November 1st, the G-RISE Lab held the workshop, "The secret side of microplates: color, shape and performance" with Grissell Tirado, PhD, Assistant Professor and Laboratory Supervisor of the G-RISE Lab. The workshop consisted of a presentation and discussion that provided the Trainees with the opportunity to gain knowledge about the different materials in which microplates are available, their specific qualities and the various sizes and formats currently available to perform different research applications. One of the topics discussed was an algorithm useful to guide the selection of microplates, going from the best material, the ideal well shape and plate format depending on the particulars of a proposed assay. During the session, the Trainees were presented with examples of applications for each type of material as well as their advantages and disadvantages. Among other topics presented, was a short account from the conception of the microplate in the 1950's and its fast evolution to the numerous current day forms. During this workshop, the Attendees had the opportunity to ask questions and exchange ideas related to their research projects.

SHIFT PROGRAM

Paola Flores (4th year G-RISE trainee) recently completed her participation in the inaugural SHIFT Program, organized by the School of Graduate Studies at Meharry Medical College and sponsored by NIGMS. This 9-month program is designed to help graduate students in Biomedical Sciences develop transferable skills essential for a successful research career. The program began in March with self-assessments, including the Herrmann Brain Dominance Instrument, Myers-Briggs Type Indicator, and Strengths Finder. Monthly virtual meetings followed, where she engaged in case studies and discussions reinforcing the skills learned. A major highlight of the program was the in-person course held from June 10th-14th, 2024, in Washington, D.C. During this time, SHIFT trainees attended workshops on project management, budgeting, marketing, and career branding. They also visited the NIH campus, where they had the opportunity to meet program directors, explore career opportunities, and learn about the wide range of programs offered at NIH. Networking with prominent scientists during this course was an invaluable experience, providing both guidance and inspiration for her career. As an underrepresented student in biomedical sciences, the SHIFT Program offered Paola a transformative opportunity to expand her knowledge, develop an Individual Development Plan (IDP), and open doors to new professional opportunities. This program played a key role in Paola's professional and personal growth, strengthening her foundation for a future in biomedical research.

Congrats, Paola, so proud of you!



F-32 AWARD -DR. LUBRIEL SAMBOLIN-



We would like to extend our heartfelt congratulations to Dr. Lubriel Sambolin, a former G-RISE trainee, on being awarded the prestigious F-32 grant (1F32DC022781-01). His research project, titled "The Role of Aco2 in Progressive Hearing Loss," is a testament to his hard work, dedication, and the significant impact of his research. We are proud of his accomplishments and excited to see the continued success of his career. Dr. Sambolin is currently a Postdoctoral Fellow at Jackson Laboratory in Bar Harbor, ME.

Congratulations, well deserved!

NEW MEMBER APS DEI COMMITTEE



Our former G-RISE trainee, Jonathan López has been selected by the American Physiological Society Board of Directors to serve as the trainee member on their Diversity, Equity & Inclusion (DEI) Committee.

In this important role, Jonathan will contribute to initiatives that foster diversity within the APS community, such as managing the Porter Physiology Development Program, selecting Porter Fellows, and coordinating career development for underrepresented groups.

This appointment, which runs from April 2025 to 2028, highlights Jonathan's commitment to advancing equity in the field of physiology.

Congratulations, Jonathan!

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE ANNUAL MEETING (ASTMH)

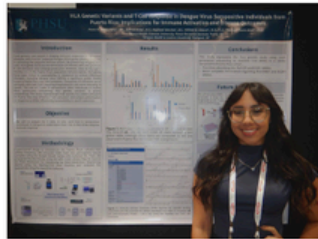
We are excited to have had three of our G-RISE trainees, Paola Flores (4th year), Lourdes M. Caro, & Dorca Marcano (2nd year), attending the 2024 ASTMH Annual Meeting in New Orleans, LA from November 13th-17th!

This meeting brings together global experts at the ASTMH Annual Meeting to explore cutting-edge research, clinical updates, and discussions on tropical medicine, hygiene, and global health, tackling today's most pressing health challenges.

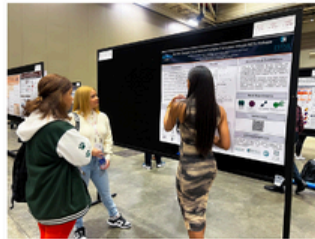
Paola Flores (4th year) and Dorca Marcano (2nd year) presented their research, contributing to important discussions on global health and tropical medicine.

- Paola's poster title: "HLA Genetic Variants and T-Cell Response in Dengue Virus Seropositive Individuals from Puerto Rico: Implications for Immune Activation and Disease Outcomes"
- Dorca's poster title: "Ex Vivo Dengue Virus Immune Complex Formation Induces NETs Release"
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We are very proud of their dedication and the way they represented our program on an international platform. Way to go, Paola and Dorca!



Paola Flores



Dorca Marcano



Lourdes M. Caro & Dorca Marcano

HAPPY HOLIDAYS!



**OUR G-RISE TEAM WISHES YOU A MERRY CHRISTMAS AND A
HAPPY & HEALTHY NEW YEAR 2025!**



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PHSU RISE Graduate Training Program