

# RCMI Newsletter

Volume 1, Issue 3



RCMI Program Grant U54MD007579



Administrative  
Core



Meet our New  
RCMI Recruit!



CTIHD - CEC



Publications

## EXTERNAL ADVISORY COMMITTEE MEETING



Hilton Ponce Golf & Casino  
Resort

November 16-18, 2022

Save the Date!

For more information, contact [rcmi@psm.edu](mailto:rcmi@psm.edu)



## Visit from San Lucas Summer Science Internship

The RCMI Program welcomed San Lucas' Summer Science Internship students to our campus and gave them a hands-on demonstration of a brain specimen provided by the Anatomy Department. In collaboration with Luis Rivera (Graduate, Biomedical sciences), Gustavo Christian, and Loraine Valentin (1st year MD students), we discussed brain anatomy, physiology, and associated diseases. We also talked about student academic life and how to prepare for a career in science. This was accompanied by an orientation from Agnes (Institution Ambassador) regarding the different programs and opportunities that PHSU has to offer.



“

*My interest in science and medicine has always been geared toward helping others. Since I started working at PRI, I have focused my efforts on providing aid to disadvantaged communities around Puerto Rico. My research interests are centered around finding ways to provide better access to health care to these communities.* ”



MEET

**LAURA DOMENECH, MD**  
(Senior Medical Officer)



# Administrative Core Awarded Supplements



**Cristina Peña-Vargas, Ph.D.**

Research Associate

## The role of emotion regulation and social support in grief, depression, and inflammation markers in breast cancer patients.

Women diagnosed with breast cancer (BC) experience several losses stemming from their diagnosis that could be potential predictors of grief and depression. Literature shows that loss of social support in BC patients leads to depression symptoms onset, and symbolic losses could lead to emotional distress. Grief can activate the HPA axis resulting in increased expression of inflammation markers associated with MDD and BC progression, which is why it is important to study grief using a

biopsychosocial approach. Grief has been widely studied in the context of the death of a loved one; however, studies concerning non-death-related losses and grief have been conducted using models that show poor consistency, highlighting the need for empirical studies. This study will investigate non-death-related losses due to a BC diagnosis in relation to grief and determine the potential role of emotional regulation and social support as protective factors against systemic inflammation upregulation and depression symptoms in Latina BC patients.

*Supported by the RCMI START Core*



**Marian Sepulveda-Orengo, Ph.D.**

Assistant Professor

## The Role of Midbrain to Prelimbic Cortex Glutamatergic projections in Stress-induced Drug Seeking

This project seeks to understand the brain's mechanisms and adaptations caused by a traumatic event that lead to increased susceptibility to the development of substance use disorder (SUD). More specifically, the objective is to elucidate how the VTA glutamatergic projections into the PL are affected by stress and how this influences cocaine-seeking behavior in male and female rats. This research is relevant to public health because

individuals with SUD and post-traumatic stress disorder (PTSD) comorbidity have poor adherence to treatment and high relapse rates. Understanding how the comorbidity of PTSD and SUD alters the neurophysiology of this circuitry may contribute to the development of functional therapeutic interventions and effective pharmacotherapeutic targets.



**Jessalyn G. Pla Tenorio**

PhD Candidate

Biomedical Sciences Program

## Interaction of HIV-1 Nef and glutamate homeostasis in the nucleus accumbens during cocaine addiction.

Jessalyn G. Pla Tenorio was awarded a predoctoral fellowship from the National Institute on Drug Abuse (NIDA) (F31DA054814) for her project: "Interaction of HIV-1 Nef and glutamate homeostasis in the nucleus accumbens during cocaine addiction." Jessalyn is a rising fifth-year student in the Biomedical Sciences PhD Program under the mentorship of two RCMI faculty (Dr. Richard Noel and Dr. Marian Sepúlveda).

Cocaine use disorder is more prevalent among HIV-1 infected individuals in the US and is a cause for worsened neuropsychological and neurocognitive function in this group. Jessalyn's hypothesis is that combined exposure to the early HIV-1 protein, Nef, and

cocaine increases glutamatergic excitation through effects on astrocytes in the reward circuitry, specifically the nucleus accumbens. This fellowship will support Jessalyn for two years and allow her to complete her thesis. Her next goals include post-doctoral studies outside of Puerto Rico, either abroad or in the continental US.

# Administrative Core Professional Development Activities

RCMI collaborated with PRI personnel in organizing professional development activities.



August 4, 2022 | INNO Team Building



## Seminar The Professional Development Seminar on the capabilities of the IVIS Lumina S5

August 9, 2022  
Zoom Meeting: 10:00AM - 11:30AM  
<https://phsu.zoom.us/j/86022338690>  
All welcome to join

\*August 11, 2022 - Hands-On Training  
Neuroscience Main Lab. Research Building II  
(CAIMED J)  
First Group - 9:00 AM - 12:00 PM  
Second Group - 1:30PM - 4:30PM  
\*Limited spaces, please reserve with  
Stephanie Batista - [sbatista@psm.edu](mailto:sbatista@psm.edu)

Sponsored by:  
RCMI Program (Grant #U54MD007579)

Kyle Klopping

Sr. Field Application Scientist  
University of Iowa

Preclinical Imaging at  
PerkinElmer, Inc.



August 9, 2022 | Seminar on the  
capabilities of the IVIS Lumina  
S5, by Kyle Klopping - Perkin  
Elmer, Inc

# Administrative Core Professional Development Activities

RCMI collaborated with PRI personnel in organizing professional development activities.



August 24, 2022 | Time  
Management Workshop



**Mary S. Rodríguez-Rabassa,**  
**PsyD. MSc**

**Speaker**

*Greetings colleagues, thank you all for the opportunity to participate in this Professional Workshop on Time Management. Thanks to Dr. Mary Rodríguez for the tools and strategies presented so that we can implement them and help us in our professional development. Thanks to María Santiago for organizing it and presenting a topic that concerns all of us Administrative Assistants. Excellent workshop.*

**- Elizabeth M Rivera (Purchasing)**

*Me uno a las palabras de Elizabeth. Excelente comienzo para la serie de talleres de crecimiento profesional para el equipo de trabajo institucional.*

**- Fernando Rosario, MPH**

*¡Excelente taller! Gracias Dra. Mary Rodríguez y a todo el equipo.*

**- Migdalia Cruz Soto**

# Recruitment Core

## Meet RCMI's newest recruit!



**Wilfredo De Jesús Rojas, MD**

Assistant Professor - Respiratory Physiology

As a Pediatric Pulmonologist and a Physician-Scientist, my long-term research career goal is to develop a career in clinical and translational research focused on diagnostic tools for rare respiratory ciliopathies and primary ciliary dyskinesia in Puerto Rico. Over the next year, we will work on the implementation of the technique called High-Speed Videomicroscopy Analysis (HSVA) to study the ciliary beat frequency and pattern of the respiratory epithelium in patients with Primary Ciliary Dyskinesia, other ciliopathies, and respiratory disorders.

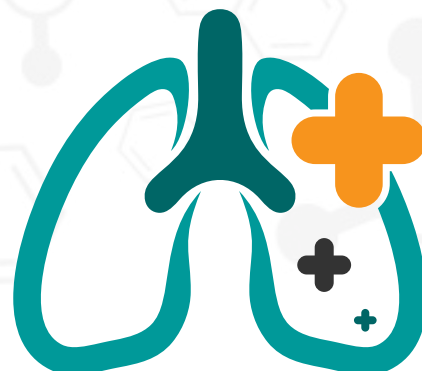
At the same time, we will explore the mechanism behind nitric oxide (NO) in the airway and its role in ciliary movement. Cilia in the respiratory epithelium play a vital function in the formation and metabolism of NO and other molecules. Nasal nitric oxide (nNO) levels are a non-invasive method used as part of the diagnostic algorithm of patients with congenital ciliary dysfunction known as Primary Ciliary Dyskinesia (PCD).

PCD is a rare genetic autosomal recessive disorder that affects the motile cilia. For this reason, we study new tools like HSVA as part of the diagnostic algorithm for PCD in Puerto Rico. Our laboratory focused on the development of a protocol to record the ciliary movement of subjects with PCD in Puerto Rico with the founder mutation in the RSPH4A gene, as previously published by our research team (De Jesus, 2021). Visualization and further characterization of the ciliary dysmotility and physics behind the ciliary motion in the respiratory epithelium will open the door to additional research questions in search of answers.

### Research Interests:

- **Primary Ciliary Dyskinesia (PCD)**
- **Ciliary Dysfunction**
- **Pediatric rare pulmonary ciliopathies in the Puerto Rican population**
- **Ciliary Genetics**
- **Primary Ciliary Dyskinesia**
- **Asthma**

Wilfredo De Jesus Rojas, MD, FAAP, MSc  
 Assistant Professor  
 Pediatric Pulmonologist  
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# STrategic Academic Research Training

Investigator Development Core

Enhances scientific diversity in junior faculty scholars.

## Pre-pilot | Long COVID 19 Symptoms and Needs in our Hispanic Population

The purpose of this study is to collect preliminary data about the symptoms and needs of Long Covid patients in our Hispanic population. The long-term goal is to establish a multi-disciplinary Long Covid 19 Clinic that will target their symptoms and provide treatment.



**Laura Domenech, MD**

Senior Medical Officer

**PHSU faculty can enroll in START through the following link:**



<https://bit.ly/3Ha23en>

## START Scholars participating in CTIHD - Community-based Participatory Research (CBPR) Course



**Maria Del Carmen Sánchez, Ph.D.**

Associante Professor  
School of Medicine



**Lynnette Ruiz Ortiz, Ph.D.**

Associante Professor  
School of Medicine



**Robert Rodríguez González, Dr. P.H., M.P.H.**

Assistant Professor  
Public Health Program



**Bárbara D. Barros Cartagena, Psy.D.**

Assistant Professor  
School of Behavioral & Brain  
Sciences



**Shannalee R. Martínez, Ph.D.**

Post-doctoral  
School of Medicine

# Community Engagement Core

CTIHD - Community-based Participatory Research (CBPR) Course

## A New Generation of Community Investigators and Health Promoters



**Fernando Rosario, MPH**

CEC Coordinator

The Community Training Institute for Health Disparities' (CTIHD) main goal is to establish an infrastructure for promoting health disparities research through strengthening our institutions' researchers and their partnerships with community members. Through this integration, we aspire to impact health disparity research, community health education, change the dynamic of Hispanic participation in research, and increase translational research.

On August 1st, a second cohort of more than 25 community members from the southern region of Puerto Rico started their training in two of our educational programs: Community Investigators and Community Health Promoters. Through these programs, we aim to promote the co-development of research proposals between the community and investigators and increase the amount of health educational plans to enhance community health outcomes.

Additionally, this year we have integrated five scholars from the **RCMI-START Core** into one of the Community Investigators Program courses to promote the active participation and sharing of ideas of potential research projects between the community members and researchers. We wish the new community trainees and researchers the best at the start of their new journey at the institute!



### NUESTRA VISIÓN

Ser un instituto líder de capacitación comunitaria que promueve el empoderamiento y la participación activa de los miembros de la comunidad en el campo de la promoción de la salud con proyección local y nacional.



### NUESTRA MISIÓN

Capacitar a miembros de la comunidad brindándole educación apoyada en recursos tecnológicos, para así poder incorporarse en actividades de investigación y de promoción de la salud dirigidas a reducir las desigualdades relacionadas con la prevención y control de enfermedades crónicas.

## ¿Quiénes Somos?

El Research Center for Minority Institutions (Centro de Investigación para Instituciones Minoritarias) (RCMI) de Ponce Health Sciences University creó el Instituto de Capacitación Comunitaria para las Disparidades de la Salud bajo el Programa de Participación Comunitaria con el objetivo de integrar las comunidades en programas de investigación y educación para la salud.



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# Full Research Project 1: Dr. James Porter

## Graduate Student's Experience



**Lubriel Sambolin-Escobales**

Ph.D. & Former RISE Program Trainee  
Dr. James Porter Laboratory

My first research experience took place during my master's degree in biotechnology in PUCPR under the mentorship of Dr. Gladys Chompré, where I was introduced to Neuroscience, specifically behavioral tests. After, I applied for the Ph.D. in Biomedical Sciences at PHSU, rotated in Dr. James Porter's Lab, and decided to stay under his mentorship. During my time in Dr. Porter's Lab, I learned to look at science from different points of view.

From the beginning, my thesis project proved to be a challenge, as it consisted of changing types of animal diets. It was also the first time that the lab would be involved in this type of research. Along the way, we had many

difficulties; we were not obtaining differences and had unexpected results, but we made the best of it. We spent countless hours, days, and weeks analyzing the results from different angles and perspectives, trying to solve any problems. With his consistency, tenacity, and calmness, Dr. Porter taught me to always look for answers even in the middle of the uncertainties surrounding research. After all of the obstacles, the project was ultimately successful.

My experience at Dr. Porter's Lab was great, enriching, and full of learning. Above all, Dr. Porter was "flexible" and understanding, always taking care of his students and watching out for their well-being. At the end of my Ph.D. training and under Dr. Porter's guidance, two articles regarding my thesis project have been published. This long race has shown to be fruitful and has opened doors for new opportunities.

Currently, I have accepted an offer as a Postdoc Fellow at The Jackson Laboratory in Bar Harbor, Maine, to study alterations in the middle ear and their effects on hearing loss by using mice models. The experience, knowledge, and skills acquired in Porter's Lab will help me succeed in my new endeavor.





# Publications



Melissa Marzán Rodríguez, Dr.P.H.

**Genomic surveillance of SARS-CoV-2 in Puerto Rico enabled early detection and tracking of variants**



Normarie Torres-Blasco, Ph.D.

**Psychosocial Intervention Cultural Adaptation for Latinx Patients and Caregivers Coping with Advanced Cancer**



Vanessa Rivera-Amill, Ph.D.

**Precision health diagnostic and surveillance network uses S gene target failure (SGTF) combined with sequencing technologies to track emerging SARS-CoV-2 variants**

**Announcements**

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*Save the Date!*



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