

Science graduates – **From Cayey** are discovering a bright future through research.

Future Scientists – Since 2004 42 RISE summer interns are pursuing the PhD.

Name of Student	Dept of Study	Institution of Study	Graduate	PhD	
Ivonne M. Ferrer	Analytical Chemistry	Univ. at Buffalo	2004	2013	
Lisandra Santiago		Univ. at Buffalo	2008		
Alnenis Rodriguez		Purdue University	2005		
Leiddy Z. Alvarado	Chemistry Bio-analytical	Purdue University	2006	2012	
Andres Betancourt	Biomedical Science	Univ. of California, San Diego	2011		
Olga D. Gonzalez		UMD New Jersey	2009		
Guermarie Velazquez	Cancer Biology	Texas A&M Univ.	2001	2012	
Xiomaris Cotto	Cell & Molecular Biology	NYU School of Med.	2007	2012	
Orielyz Flores	Chemistry	Univ. of Central Florida	2010		
Mary C. Quinones		North Carolina State Univ.	2007		
Jesus Velazquez		Univ. at Buffalo	2004	2012	
Amaris C. Borges		Univ. at Buffalo	2013		
Vivian Rodriguez		Univ. at Buffalo	2013		
Ramon Figueroa		UPRRP	2010		
Vimary Vazquez		UCLA	2001	2010	
Frances Rodriguez		Univ. of California, Berkeley	2011		
Luis de Jesus		Univ. of Texas	2012		
Isamar Ortiz		Material Chemistry	Penn State Univ.	2011	
Jaritzza Gomez			U of Wisconsin–Madison	2011	
Joan Roque		Chemical Education	North Carolina State Univ.	2009	
Elvin A. Morales			U of Wisconsin–Madison	2011	
Dennise A. De Jesus	Microbiology	Tufts University	2005	2013	
Olgary Figueroa		UPR- Medical Science	2006	2014	
Tanya M. Cruz		Univ. of Rochester	2009		
Wanda Figueroa		Univ. of Missouri, Columbia	2012		
Elvin E. Morales		Univ. of Notre Dame	2013		
Jorge Martinez		Univ. of Michigan	2010		
Melissa Medina		Pharmacology & toxicology	Univ. at Buffalo	2013	
Janice M. Diaz	Michigan State Univ.		2013		
Yadilette Rivera	Biochem and molecular	Univ. Of Massachusetts	2008	2013	
Ormarie Vazquez		University of Georgia	2013		
Gabriel Porrata	Math	Univ. of Iowa	2010		
Jose Suarez	Comparative Medicine	Michigan State Univ.	2010		
Monica Rios		Michigan State Univ.	2012		
Eileen S. Rodriguez	Neuroscience	Michigan State Univ.	2009		
Jose Peña		Medical University of South	2010		
Jennifer Ocasio		North Carolina Chapel Hill	2013		
Eydhith Comenencia		Tufts University	2006	2012	
Jessica Torres	Organic Chemistry	North Carolina State	2009		
Roselin Rosario		Univ. of New Jersey, Rutgers	2008	2013	
Jessian L. Munoz	Stem Cell (MD/PhD)	UMD New Jersey	2009	2013	
Dorianmarie Vargas	Genetics & Genomics	Univ. of Central Florida	2013		

2014

26<sup>th</sup> Annual  
Student  
Research  
Symposium

## Program & Symposium Goals

The RISE Program encourages and provides research opportunities for undergraduates. This goal is accomplished with four components

- (1) inviting scientists to present seminars and workshops
- (2) freshmen enrolled in introductory research courses
- (3) activities for improving English language skills
- (4) arrange for students to participate in research with established scientists during the academic year or in summer programs in the United States of America.

Today's symposium follows two weeks of judging by 27 faculty who evaluated 58 poster presentations by students. Their talks presented the results of research at laboratories and universities. Their projects were conducted under the supervision of a supporting faculty member (mentor) in their labs. Most students received research credits at Cayey for their efforts and their poster presentations are part of the research experience. Posters can be seen in the South Science Building (MMM).

Graduate education is essential for Cayey alumni to become scientists and improve the world's health and environment. Today we will hear why and how graduate school is a source of innovation and discovery. Future opportunities will be awarded to UPRC alumni that are prepared.

In addition to the testimonials from alumni pictured on the right Dr. Homero Monsanto from Merck Sharp & Dohme Caribbean will speak on 'Why do We need Ph.D.s?' And Dr. Carlos Gonzalez from UPR-Río Piedras will speak on 'How to apply for the Ph.D.'

If you are interested or have a question, please ask the speaker. Your interest acknowledges the success of the presenter.

# 59

**Ms. Stephanie Santos**

Multi-electron Transfer Catalyst  
for Chlorpyrifos Degradation

Sherine Obare, Ph.D.

Western Michigan State University



Thanks to the RISE Staff- Mr. Giovanni Cruz, Ms. Lourdes Alvarez & Mr. Michael Vicente & RISE Coordinators- Dr. Eneida Díaz & Dr. Elena González



Thanks for the collective effort of 26 Science Faculty who interviewed & judged 58 posters.

Dr. Ana Acevedo  
Dr. Belinda Román  
Dr. Carlos Ricart  
Dr. Carlos Moran  
Dr. Chad Lozada  
Dr. Claudia Ospina  
Dr. Edwin Vázquez  
Dr. Elena González

Dr. Eneida Díaz  
Dr. Enrique Rodríguez  
Dr. Giselle Gierbelini  
Dr. Jorge Rodríguez  
Dr. José Molina  
Dr. Lucas Koscielski  
Dr. Marcos Echeagaray  
Dr. Mayra Pagan  
Dr. Michael Rubin

Dr. Olgary Figueroa  
Dr. Ricardo Chiesa  
Dr. Rosann O'neil  
Dr. Víctor Pantojas  
Dr. Vicente Sanchez  
Dr. Wilfredo Resto  
Dr. Zuleika Medina  
Prof. Edgar Llera  
Prof. Edgardo Ortiz

# 55

**Ms. Shuleika López**

The Detection of Cancer Cells in Femurs  
of Mice with Bone Metastasis  
Andrea Mastro, M.D.  
Pennsylvania State University

# 56 **Ms. Sofia Giraldo- Fall Exchange prog.**



# 57

**Ms. Stephanie Medina**

Cell Migration Inhibition of Human Breast Cancer BT-20 and Fibrosarcoma HT-1080 Cell Lines Induced by r-Moj-DM Disintegrin  
Julio Soto, Ph.D.  
San José State University

# 58

**Ms. Stephanie Pastrana**

Production and Purification of P.69T 2K for Mimicking its Secretion Through its Own Translocator Domain  
Patricia Clark, Ph.D.  
Notre Dame University



Poster Presentations – August 19- Sept. 5 North Science Building

Program – September 6 Science Building- Auditorium

**8:30 Coffee- Pastries**

**8:45 Welcoming Remarks –**  
*Mario Medina, Ph.D.*,  
– UPR-Cayey, Chancellor

**9:00 Why Do We Need Ph.D.s?**  
*Homero Monsanto, Ph.D.*  
– Merck Sharp & Dohme Corp.

**9:20 How to apply for the Ph.D.**  
*Carlos Gonzalez Ph.D.*  
– Univ. of PR.-RíoPiedras

**9:50 UPR-Cayey Alumni Speak**  
**From Cayey to Graduate School**  
*Nelson Lopez, Ph.D.* – Amgen  
*Olgary Figueroa, Ph.D.* – UPR-Cayey  
*Ivonne Ferrer, Ph.D.* – Cal Tech  
*Jesus Velazquez, Ph.D.* – Cal Tech

**11:20 Awarding of Certificates**

Refreshments will be provided  
from 8:30 until the end of the session.

Provided by the Chancellor's Office at UPR-Cayey



# 1

**Ms. Aida Vargas**

GABA, a-subtype Mutant Mice:  
Midazolam Treatment and Social Approach

Klaus Miczek, Ph.D.  
Tufts Medical School



# 52

**Ms. Patricia Claudio**

Advancing Mussel Farming  
with Research in the Shellfish Hatchery

Scott Lindell, M.D.  
Marine Biological Laboratory-Woods Hole



# 49

**Mr. Pablo González**

The Role of Somatostatin and  
Parvalbumin Expressing Interneurons  
in Freeze Lesion Mouse Model

Chris Dulla, Ph.D.  
Tufts Medical School



#4

**Mr. Andrés Diaz**

Oligoribonuclease is Dependent  
On RNase T for Cell Viability  
in *Escherichia coli*

Sydney Kushner, Ph.D.  
University of Georgia- Athens



# 2

**Ms. Amanda Icazatti**

Characterizing Novel Factors  
Involved in the CEI Maintenance

Rosangela Sozzani, Ph.D.  
North Carolina State University  
**Fall Exchange prog.**



# 53

**Ms. Raquel Montañez**

*Macaca fascicularis* Population structuring Dictates  
Distribution of Genetic Variation in Blastocystis  
Across Two Islands in Southeast Asia

Hope Hollocher, Ph.D.  
University of Notre Dame



# 50

**Ms. Paola Caballero**

Effect of Bacterial Contamination  
on Colloid Surface Properties and Stability

Darrell Velegol, Ph.D.  
Penn State University



# 5 **Mr. Anthony Maldonado**

Identifying Targets of the SEUSS Transcrip-  
tional Co-regulators During Ovule and Seed  
Development in *Arabidopsis thaliana*

Bob Franks, Ph.D.  
North Carolina State University  
**Fall Exchange prog.**

# 3

**Ms. Andrea Ramos**

Synthesis of Janus Dendrimers

Virgil Percec, Ph.D.  
Univ. of Pennsylvania



# 54

**Ms. Sebastián González**

Designing Primers for the  
Parasite *Blastocystis spp*

Hope Hollocher, Ph.D.  
University of Notre Dame



# 51

**Ms. Paola Pérez**

Endocrine Study of Mouse Tissues

Laura Hernández, PhD  
University of Wisconsin



# 6

**Mr. Carlos Carrión**

Microfluidics Cell Culture of Human Nephron Segments  
for the Analysis of Natriuresis as Regulated by Dopa-  
mine: A Pilot Study for the Treatment of Hypertension

Robin Felder, Ph.D.  
University Virginia



# 7

**Ms. Carolina Montañez**

Effects of Socieal Stress on Fetal Development and Growth in Female Rhesus Macaques

Mark Wilson, Ph.D.

University of Georgia

**Fall Exchange prog.**



#46

**Ms. Nicolle Rosa**

Inter Effect of Hypoxia on Iron-regulating Proteins in Ovarian Cancer

Sundaram Ramakrishnan, Ph.D.

University of Minnesota



# 43

**Ms. Natalia Maldonado**

Interaction Between BcpA-CTToxin with *B. thailandensis* Susceptible Mutants

Peggy Cotter, Ph.D.

University of North Carolina-Chapel Hill



#10

**Mr. Christopher Bernard**

Synthesis of Cobaltocenium Containing Polymers

Michael Hickner, Ph.D.

Penn State University



# 8

**Ms. Charlene Rivera**

The Effects of Irritants in the Mouse Olfactory Epithelium (OE) Tissue

Colleen Hegg, Ph.D.

Michigan State University



# 47

**Mr. Omar Alsina**

Behavioral Differences in Adult Freshwater Prawns Maintained in Enriched and Deprived Environments

Maria Sosa, Ph.D.

UPR- Neurobiology Institute

**Fall Exchange prog.**



# 44

**Ms. Nellieane Figueroa**

Synthesis of a Macrocyclic Ligand for Catalysis Applications

Steven Diver, Ph.D.

University of Buffalo



# 11 **Ms. Cosette Rivera**

Glucose 6-phosphate Transport Across the Chloroplast Membrane

Sean Weise, Ph.D.

Michigan State University



# 9

**Mr. Christian Agosto**

The Role of the Insulin Receptor and Obesity in Colon Crypt Apoptosis and Proliferation After Radiation

María Cristiana, Ph.D.

University of North Carolina- Chapel Hill



# 48

**Mr. Omar Padilla**

Synthesis and Breakdown Study of Polypropylene Copolymers Cotaining Hidered Phenol Functional Groups

Mike Chung, Ph.D.

Pennsylvania State University



# 45

**Ms. Nicole Colón**

Identification of a cis-regulatory Module that Controls the Expression of Ultrabithorax in the T3 Leg of *Drosophila melanogaster*

Teresa Vales, Ph.D.

University of Illinois



# 12

**Ms. Crystal Colón**

Assessing GABAergic Signaling in Zebrafish (*Danio rerio*)

James Lauderdale, Ph.D.

University of Georgia- Athens



# 13

**Mr. Daniel DeJesus**

Inhibition of HT-1080 and  
BT-20 Cell Proliferation

By the r-Moj-DN Peptide

Julio Soto, Ph.D.

San José State University



# 40

**Ms. Mónica Del Moral**

Examining the Biology of Secreted Mucins  
in Breast Cancer

Britta Jacobsen, Ph.D.

University of Colorado



# 37

**Ms. María Rivera**

Electron Transfer at Quantum Dot-Molecule-Semi-  
conductor Interfaces: Do Amine-bearing Ligands

Promote Improved Charge Separation?

David Watson, Ph.D.

University of Buffalo



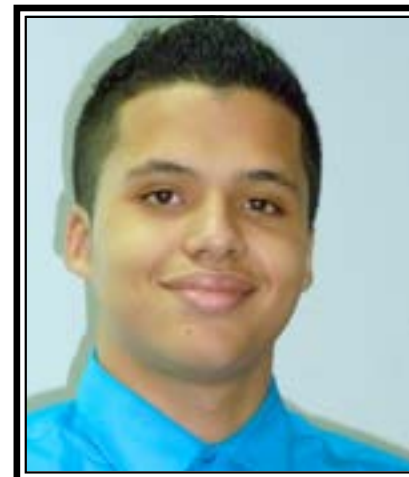
# 16

**Ms. Ly Garcia**

The Effect of C6 in the Oxidative Stress  
Survival of *Vibrio fischeri*

Zomary Flores, Ph.D.

University of Puerto Rico- Río Piedras



# 14

**Mr. Danilo Pérez**

Determining the Significance of Matrix Metallo-  
proteinase 9 in Recovery of Brain Morphology and  
Sensorimotor Ability after a Traumatic Brain injury

Zezong Gu, Ph.D.

University of Missouri-Columbia



# 41

**Ms. Mónica Rivera**

Testing the Effect of AR-degraders in  
ER+breast cancer

Jennifer Richer, Ph.D.

University of Colorado



# 38

**Ms. Mariana León**

Effects of Hydration and Confinement  
on an Unstructured Peptide

Feng Gai, Ph.D.

University of Pennsylvania



# 17

**Mr. Edwin Alvarado**

Longer Loops of Pseudoknots with Appropriate  
Sequence Form Local Triplex Segments that  
Stabilize DNA Molecules

Luis Marky, Ph.D.

University of Nebraska

# 15

**Mr. Darryl López**

Study of Peptides by Incorporation of Bro-  
mophenyl Compounds using Suzuki Cross  
Coupling Reaction

Carlos Gartner, Ph.D.

University of Notre Dame



# 42

**Ms. Myrielis Rivera**

Phagocytic Activity in HIV Infected  
THP-1 Macrophage-like Cells

Amy Jacobs, Ph.D.

University of Buffalo



# 39

**Mr. Martín Roldán**

Development of a Dexamethasone  
Culture Protocol for  
Peripheral Blood Mononuclear Cells

Gretchen Neigh, Ph.D.

Emory University



# 18

**Mr. Eliezer Rovira**

Alternative Splicing of RBP-JK  
Regulates KSHV Lytic Reactivation

Olga González, Ph.D.

Rutgers University



# 19

**Ms. Elys Rodríguez**

Synthesis and Oxidation Chemistry  
of Vanadium Nitrides

Daniel Mindiola, Ph.D.

University of Pennsylvania



# 34

**Ms. Kimberly Guzman**

Directed Assembly of Partially Etched  
Nanowires in Electrical Fields  
to Form Lattice Structures

Sarah Boehm, Ph.D.

Pennsylvania State University



# 31

**Ms. Kathia Molina**

Prevention of Colonic Inflammation *in vitro*  
by Coca Polyphenols Human Cell Culture,  
Enzyme Linked Immunoassays

Joshua Lambert, Ph.D.

Pennsylvania State University



# 22

**Ms. Hazel Cruz**

Anemia in Hospitalized Adults with Cystic Fibrosis

Vin Tangpricha, Ph.D.

Emory University

**Fall Exchange prog.**



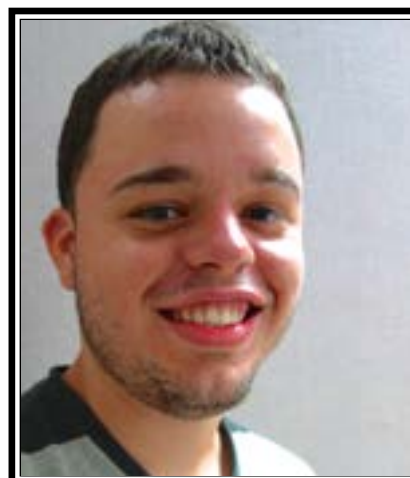
# 20

**Mr. Fernando Fernández**

Are *Mimulus* Hybrid Lethality  
Alleles Polymorphic?

Andrea Sweigart, Ph.D.

University of Georgia



# 35

**Ms. Leyda Villagrasa**

Positive and Negative  
Regulators of Neurogenesis

Miranda Staples, Ph.D.

Scripps Research Institute- La Jolla



# 32

**Ms. Keila Mestey**

Effects of Diet Induced Obesity on Exitatory  
Cholinergic Motor Neurons  
in the Myenteric Plexus of Mouse Distal Colon

James Galligan, Ph.D.

Michigan State University



# 23

**Mr. Héctor Delgado**

Increased Sensitivity of Group III and  
Group IV Afferents From Obese Muscle  
Exposed to Lactic Acid

Katherine Wilkinson, Ph.D.

San José State University



# 21

**Mr. Gustavo Martínez**

Characterization of Exosomes from  
Erwing's Sarcoma Cell Lines Using Flow FISH

Mona Batish, Ph.D.

Rutgers University



# 36

**Ms. Lizbeth Pérez**

Contribution of Muscarinic Acetylcholine Re-  
ceptors on Methylmercury (MeHg)  
Induced Cytotoxicity

William Atchison, Ph.D.

Michigan State University



# 33

**Mr. Kenny Colón**

Measuring Transport  
Across Artificial Cell Membranes

Matthew Holden, Ph.D.

University of Massachusetts- Amherst



# 24

**Mr. Hernán Méndez**

Effects of the Ih Current Blocker ZD 7288  
on Aversive and Appetitive Learning in the  
Honey Bee *Apis mellifera*

José Agosto, Ph.D.

University of Puerto Rico-Río Piedras



# 25

**Mr. Jorge Chévez**

Substrate Stiffness-dependent Changes  
in the Biophysical Properties  
of a Prostate Cancer Derived Cell Line (LNCaP)

Paul Janmey, Ph.D.

University of Pennsylvania



# 28

**Mr. Jasmely Vélez**

Electrophoretic Desalting  
for Capillary Isoelectric Focusing

Luis Colón, Ph.D.

University of Buffalo



# 26

**Mr. José Cruz**

Surface Expression of Enolase on Pathogenic  
Bacteria Mimics Apoptotic Cells and  
Elicits Immunosuppression

David Ucker, Ph.D.

University of Illinois-Chicago



# 29

**Mr. Juan Apiz**

Characterization of Imd Pathway Activation  
in Blood Cells upon Injury  
in *Drosophila melanogaster*

Cory Evans, Ph.D.

Univ. of Calif.-Los Angeles



# 27

**Mr. Joseph Perez**

Cellular Gene Expression  
in *Toxoplasma gondii* Infected Mice

Ira Blader, Ph.D.

University of Buffalo



# 30

**Mr. Juan Maldonado**

The Expression of ITPK in Normal Colon and  
Colateral Cancer Cells

Lawrence Gaspers, Ph.D.

Rutgers University

