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

Future Scientists – Since 2004 42 RISE summer interns are pursueing 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 Rodríguez		Purdue University	2005	
Leiddy Z. Alvarado	Chemistry Bio-analytical	Purdue University	2006	2012
Andrés Betancourt	Biomedical Science	Univ. of California, San Diego	2011	
Olga D. González		UMD New Jersey	2009	
Guermarie Velazquez	Cancer Biology	Texas A&M Univ.	2001	
Xiomaris Cotto	Cell and Molecular Biology	NYU School of Med.	2007	2012
Orielyz Flores	Chemistry	Univ. of Central Florida	2010	
Mary C. Quinones		North Carolina State Univ.	2007	
Jesús Velazquez		Univ. at Buffalo	2004	2012
Ramón Figueroa		UPRRP	2010	
Vimary Vázquez		UCLA	2001	2010
Frances Rodriguez		Univ. of California, Berkeley	2011	
Luis de Jesus		Univ. at Buffalo	2012	
Isamar Ortiz	Material Chemistry	Penn State Univ.	2011	
Jaritza Gomez		U of Wisconsin–Madison	2011	
Joan Roque	Chemical Education	North Carolina State Univ.	2009	
Elvin A. Morales		U of Wisconsin–Madison	2011	
Jose O. Cotto	Dentistry (DDS/PhD)	Univ. of Minnesota	2009	
Jorge Leon	Math Ed	University of Iowa	2011	
Natalia Rodriguez	Meteorology	Florida State Univ.	2009	
Dennise A. De Jesus	Microbiology	Tufts University	2005	
Eydith Comenencia		Tufts University	2006	2012
Olgary Figueroa		UPR- Medical Science	2006	2012
Tanya M. Cruz		Univ. of Rochester	2009	
Wanda Figueroa		Univ. of Missouri, Columbia	2012	
Melissa Medina		Univ. at Buffalo	2013	
Elvin E. Morales		Univ. of Notre Dame	2013	
Jennifer Ocasio	Biological and Biomedical	Univ. of North Carolina	2013	
Yadilette Rivera	Biochem and molecular	Univ. of Massachusetts	2008	2013
Gabriel Porrata	Math	Univ. of Iowa	2010	
José Suárez	Comparative Medicine	Michigan State Univ.	2010	
Mónica Ríos		Michigan State Univ.	2012	
Eileen S. Rodríguez	Neuroscience	Michigan State Univ.	2009	
José Peña		Medical Univ of SC	2010	
Jessica Torres	Organic Chemistry	North Carolina State	2009	
Roselin Rosario	Organic Materials Chem	Univ. of New Jersey, Rutgers	2008	2013
Suheiry Cabán	Psychology	Alliant International Univ.	2007	2009
Jessian L. Muñoz	Cell Biol. (MD/PhD)	UMD New Jersey	2009	2013,PhD
Dorianmarie Vargas	Genetics and Genomics	Univ. of Central Florida	2013	
Eric Calderón	Biochemistry	UPR School of Medicine	2013	

2013

25th Annual

Student Research Symposium

Brochure by MORE - RISE Program
August 12- 31

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 Carribean will speak on 'Why do We need Ph.D.s?' And Dr. Migdalisel Colón 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.

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Mr. Carlos Báez

Lyotropic Liquid Crystal Behavior of

Gemini Dicarboxylates: Even Versus Odd Spacers

Mahesh K. Mahanthappa, Ph.D.

University of Wisconsin

Thanks to the RISE Staff- Mr. Roberto Cora, Ms. Noelia López, & Mr. Giovanni Cruz
& 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. Chad Lozada
Dr. Claudia Ospina
Dr. Edwin Vázquez
Dr. Elena González
Dr. Eneida Díaz
Dr. Enrique Rodríguez
Dr. Javier Arce
Dr. Jorge Rodríguez
Dr. José Molina
Dr. Lucas Koscielski
Dr. Marcos Echegaray
Dr. Michael Rubin
Dr. Olgary Figueroa
Dr. Raúl Castro
Dr. Rosa Torres
Dr. Rosann O'neil
Dr. Vibha Bansal
Dr. Víctor Pantojas
Dr. Wilfredo Resto
Dr. Zuleika Medina
Prof. Edgar Llera
Prof. Félix Velázquez
Prof. Gilberto Flores

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Ms. Zuleika Velázquez

Influences of Marcellus Shale and Natural Gas Drilling Activities on Air Quality

Douglas Martins, M.D.

Penn State University

56

Ms. Natalia Maldonado

Engineering Cercospora disease-resistant Plants Using Fungal-toxin Resistance Genes

Margater Daub, Ph.D.

North Carolina State University

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Ms. María Alvarez

Traslational Research on Pancreatic Cancer: Migration and Invasion

Keping Xie, Ph.D.

The University of Texas, MD Anderson

Program – August 31 **Science Building- Auditorium**

8:30 **Coffee- Pastries**

8:45 **Welcoming Remarks –**
José Caraballo, 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.**
Migdalisel Colón, Ph.D.
– Univ. of PR.-RíoPiedras

9:50 **UPR-Cayey Alumni Speak**

From Cayey to Graduate School

Nelson Lopez, Ph.D. – Amgen

José Molina, Ph.D. – Biology Faculty

Wilfredo Resto, Ph.D. – Chemistry Director

Frances Rodríguez– Univ. of Calif.-Berkeley

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

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1

Mr. Abimael Santos

Synthesis of [5-13C] HOPDA as a Probe for a Carbanionic Intermediate in the Reaction Catalyzed by a meta-Cleavage Product Hydrolase

Andrew Murkin, Ph.D.

University of Buffalo

2

Mr. Alberto Cintrón

Response of *Aspergillus Fumigaatus*-Specific T- Cells to other Fungi

Amariliz Rivera, Ph.D.

Rutgers University

3

Ms. Andrea Hernández

Cholinergic Modulation of Spatiotemporal Dynamics of Interlaminar Signaling within the Rodent Superior Colliculus

Meyer Jackson, Ph.D.

Univ. of Wisconsin - Madison

52

Mr. Víctor Vivas

Synthesis and Characterization of New Ferrielectric Layer Perovskites

Megan Strayer, M.D.

Penn State University

53

Ms. Wilmarie Morales

Localization of Sirtuin 3 in the Enteric Nervous System in Health and Disease

Brian Gulbransen, Ph.D.

Michigan State University

54

Ms. Yllen Hernandez

Overexpression of Fox n1 and Cyclin on Thymic Epithelial Cells Effects T thymus Development

Nancy Manley, Ph.D.

University of Georgia

49

Ms. Stephanie Santos

Chemical Reduction of Chlorpyrifos Driven
by Flavin Mononucleotide Functionalized
Titanium Dioxide

Sherine Obare, Ph.D.

Univ. of Western Michigan

50

Ms. Stephany Nieves

Calculating the Transfer Free Energy
of Methylsulfonate

Scott Milner, Ph.D.

Penn State University

51

Ms. Valeria Rivera

Proliferation and Apoptosis in Zebrafish,
Danio rerio, fantome mutants

Pamela Yelick, PhD

Tufts Medical School

4

Ms. Angélica González

The Effect of UV Radiation on Steroidogenic
Gene Expression and Hormone Production
in H295R Human Adrenocortical Cells

Marion Sewer, Ph.D.

Univ. of California - San Diego

5

Mr. Antonio Romero

Hierarchical Assembly and
Sorting of Active and Inactive Particles

Ayusman Sen, Ph.D.

Penn State University

6

Ms. Arelys Flores

Affinity Maturation of a Human
Monoclonal Antibody to Mesothelin
by Phage Display Technology

Mitchell Ho, Ph.D.

National Cancer Institute

7

Ms. Astrid Díaz

Role of BMP7

in Human Granulosa Cell Tumor Development

Stephanie Pangas, Ph.D.

Baylor College of Medicine

8

Mr. Carlos Santos

Dax 1 and WT 1:

Novel Regulators of the LHß Transcription

Margaret Shupnik, Ph.D.

University of Virginia

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Ms. Carolina Montañez

Characterization of Androgen Receptor

in Epithelial Ovarian Cancer

Lisa Kay Mullany, Ph.D.

Baylor College of Medicine

#46

Ms. Rosa Cruz

The Study of Interesting and Unique Transcript on

the *Varicella Zoster* Virus Genome

Randall Cohrs, Ph.D.

University of Colorado

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Ms. Sharon Vicenty

Encapsulation of 5-flourouracil in Calcium

Phosphosilicate Nanoparticles

for Pancreatic Cancer Treatment

James Adair, Ph.D.

Penn State University

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Ms. Sofia Girald

Bacterial Enterotoxin LT-llc Induces

Autophagy and Cell Death

in Breast Cancer Cells

Patricia Masso-Welch, Ph.D.

University of Buffalo

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Mr. Omar Padilla

Quantitative Study of Bacterial Detachment from Nanopatterned Thermo-Responsive Polymer Brushes

Gabriel López, Ph.D.

Duke University

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Mr. Osavldo Vega

r-Moj Disintegrin as Inhibitors for Cell Migration

Julio Soto, Ph.D.

San Jose State University

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Ms. Paola Pérez

Targeting Androgen Receptior Activity in Triple Negative Breast Cancer

Jennifer Richer, Ph.D.

University of Colorado

#10

Ms. Celitzbets Colón

Comparing the Effect of Methyl Mercury to Cell Death of Differentially Over-Expressed GABA Receptors in HEK293 Cells

William Atchison, Ph.D.

Michigan State University

11 ***Ms. Charlene Rivera***

Metabotropic Glutamate Receptor 5(mGluR5) Positive Allosteric Modulator (PAM) Role in the Nucleus Accumbens (NAc) Shell during Environmental Elicited Cocaine Conditioning in Rats

Carmen Maldonado, Ph.D.

University of Puerto Rico- Río Piedras

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Ms. Crystal Colón

The Role of Nicotinic Acetylcholine Receptors (nAChRs) in Methylmercury (MeHg)-Induced Cytotoxicity in PC12 cells

William Atchison, Ph.D.

Michigan State University

13

Mr. Darryl López

Development of an ATP Biosensor

Greg Swain, Ph.D.

Michigan State University

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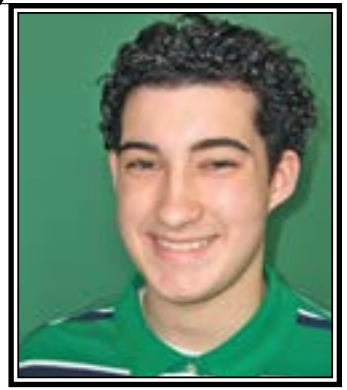
Ms. Delaine Zayas-Bazan

NQO1, NAD (P)H Dependent Cytosolic Oxidoreductase, Modulates β-cell Redox Status and H_2O_2Levels in Pancreatic β-Cells

Emma Heart, Ph.D.

Marine Biological Laboratory- Woods Hole



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Mr. Eduardo Rivera

Inhibiting eHsp90,
a Possible Breakthrough for Metastasis

Daniel Jay, Ph.D.

Tufts University

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Ms. Natalia Rivera

Adsorption of Organic dyes to Semiconductor Thin Films and Photoelectricchemical Characterization with Surface Coverage Analysis of Organic Dye-sensitized Cell

David Watson, Ph.D.

University of Buffalo

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Ms. Nicole Colón

Effexts of the Overexpression of Programmed Cell Death Related Genes MmBid, MmBax and AtCyt c in *Arabidopsis thaliana*

Ronghui Pan, Ph.D.

Michigan State University

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Ms. Nicolle Rosa

Evaluation of the Role of the Alternatively Spliced RBP-Jk Isoforms in Kaposi's Sarcoma-Associated Herpesvirus Reactivation

David Lukac, Ph.D.

Rutgers University

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Ms. Mónica Rivera

Dynamic Regulation of the Transcription Factor FOXO1 in Pituary Gonadotropes

Varykina Thackray, Ph.D.

University of Calif.- San Diego

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Ms. Myrielis Rivera

Differential Expression of IGFBPs and IRS1 on Breast Cancer Subtype

Melissa Davis, Ph.D.

University of Georgia

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Ms. Nasla Durán

Device Fabrication and Testing of Block Copolymer Solar Cells

Enrique Gómez, Ph.D.

Penn State University

#16

Mr. Edwin Alvarado

Transcriptional Effectors of Ras/MAPK Signaling during *Drosophila* Visceral Muscle Development

Marc Halfon, Ph.D.

Univ. of Buffalo

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Mr. Eliezer Rovira

Studying the Role of HOPS Complex in Vacuole Fusion

Susan Carson, Ph.D.

North Carolina State University

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Mr. Eliezer Pérez

IL-23 Prodution by Bone Marrow derived Microphages and Kuffer cells rely on Selection Dependant trafficking to the Liver

Lantz Mackey, Ph.D.

University of North Carolina

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Mr. Gerardo Zayas

The Contribution of Peripheral Network Intersegmental Connection and Coordination of a Rythmic Motor Pattern in the Medicinal Leech

John Jellies, Ph.D.

University of Western Michigan

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Ms. Grisselle Burgos

IGF1R Loss Promotes Cell Cycle Arrest in the Small Intestinal Crypts Following Radiation Induced Genetic Damage

María Angostina, Ph.D.

Univ. of North Carolina-Chapel Hill

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Ms. Hazel Cruz

Effect of Estrogen Signaling in the Promotion of Brain Metastasis: Validation of Human Inmortalized Astrocytes as a Model

Carol Sartorius, Ph.D.

University of Colorado

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Ms. Mariana León

Fluorescence of p-cyanophenylanaline as a pH Sensor

Feng Gai, Ph.D.

Univeristy of Pennsylvania

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Ms. Marimer Rivera

Sequential Enzyme Colocalization within Aqueous Two Phase Systems

Christine Kearing, Ph.D.

Penn State University

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Ms. Michelle Guzmán

Carbon Dots Modified Silica Particles for High Performance Liquid Chromatography (HPLC)

Luis Colón, Ph.D.

University of Buffalo

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Ms. Laura Vicente

Role of Andregen Receptors and Muscle Fibers Composition in Loss of Motor Function of Fast and Slow Twitch Muscles from Transgenic Mouse Model of SBMA

Cindy Jordan, Ph.D.

Michigan State University

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Ms. Ly García

Gene Expression

During Genital Tubercle Development of *Anolis sagrei*

Douglas Menke, Ph.D.

University of Georgia

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Mr. Lysander Borrero

Using Next-Generation Sequencing combined with Primer ID to Reveal Genetic Structure of Viral Population of HIV-1

Shuntai Zhou, Ph.D.

University of North Carolina - Chapel Hill

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Mr. Héctor Cay

Phenotype Pubertally Born Cells in the Acurate Nucleus of Male and Female Rats

Cheryl Sisk, Ph.D.

Michigan State University

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Mr. Joel Soler

Circadian Regulation of Acquisition and Object Recognition in a Diurnal Species, the Nile Grass Rat (*Arvicanthis niloticus*)

Antonio Nuñez, Ph.D.

Michigan State University

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Mr. Joseph Pérez

Requirements for Bacteriophage Growth: Using High Throughput Sequencing to Determine Gene Essentiality

Graham Hatfull, Ph.D.

University of Pittsburgh

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Mr. Joshua Rosario

Structure Analysis of Human Red Cell Spectrin
Using Homobifunctional Chemical Crosslinkers
and High Resolution Mass Spectrometry

David Speicher, Ph.D.

University of Pennsylvania

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Mr. Juan Torres

Stability Analysis of Transthyretin

Natalia Reixach, Ph.D.

Scripps Research Institute

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Mr. Juan Velázquez

Exosome- derived miRNA from Glioblasto-
mas Cells Regulative T-Cell Function

Pranella Rameshwar, Ph.D.

Rutgers University

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Ms. Kamille Camacho

Understanding How Race
Influences Plasma Peptide YY
in the Aging Population

Pei-an Shih, Ph.D.

University of Calif. -San Diego

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Ms. Karina Nieves

Unique and Interesting ORFs
in the VZV Genome

Enrique de la Cruz Ph.D.

Yale University

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Ms. Kathia Molina

Study of Photoluminescence Properties
of Graphene Quantum Dots
through Passivation Reactions

Luis Colón, Ph.D.

Buffalo University