

2009



Thanks to the RISE Staff-

Ms. Evelyn Rodríguez

Ms. Yadira Ortiz

Ms. Jannette Rodríguez

Coordinators

Dr. Eneida Díaz

Dr. Chantelle MacPhee

Dr. Mario Medina

Thanks for the collective effort of 36 Science Faculty
who interviewed & judged 69 posters.

Dr. Adolfo González
Dr. Alberto Marrero
Dr. Ana Acevedo
Dr. Belinda Román
Dr. Carlos Ortiz
Dr. Carlos Ricart
Dr. Carmen Umpierre
Dr. Chad Lozada
Dr. David Sanabria
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Dr. Vibha Bansal
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Prof. Brunilda Morales
Prof. Edgar Llera
Prof. Félix Velázquez
Prof. Gilberto Flores
Prof. Jairo Pardo
Prof. Luis Pérez

20th Annual

Student

Research

Symposium

Brochure by MORE - RISE Program

August 17- 29

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) arranging 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 28 faculty who evaluated poster presentations by students. Their talks presented the results of research at laboratories and universities in the United States. 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. 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. Gayle Slaughter from the Baylor College of Medicine

will speak on –
'Succeeding on Your Path in the Biomedical Sciences'

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

Financial Support & Mentoring were provided by the following institutions:

Baylor College of Medicine
City of Hope
Michigan State University
North Carolina State University
The Johns Hopkins University
The Pennsylvania State University
The State University of New York- Buffalo
Tufts University, Boston
University of Arizona
University of California - Los Angeles
University of Chicago
University of Colorado
University of Georgia - Athens
University of Iowa
University of Massachusetts - Amherst
University of Medicine and Dentistry of New Jersey – Newark
University of Miami
University of Minnesota
University of North Carolina at Chapel Hill
University of Northern Iowa
University of Pennsylvania
University of Pittsburgh
University of Puerto Rico- Cayey
University of Wisconsin-Madison

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GlaxoSmithKline Pharmaceuticals, Cidra, PR
Merck Pharmaceutical Co.
University of Puerto Rico– Cayey



67

Ms. Yaritza Figueroa

Modeling Mesophase Assembly of
Surface-Absorbed, Polar Nanoparticles
& Colloids

Greg Grason, Ph.D.

University of Massachusetts- Amherst



68

Ms. Zuleika Rivera

Building & Testing a Solar-Hydrogen Prototype

Katie Cadwell, Ph.D.

University of Wisconsin



69

Ms. Lydia Cortes

The Involvement of Cyclic AMP Signaling
In Ethanol Mediated Oligoprotection
Following Injury

Damien Pearse, Ph.D.

University of Miami

Poster Symposium – August 17- 28

Old Science Building – MMM
8:30– 2:00 Posters on Display

Program – Aug. 29, 2009

New Science Building - Auditorium

8:30 Coffee- Pastries

8:45 Welcoming Remarks –

José Molina Ph.D., UPR-Cayey, Biology Director
Robert Ross, Ph.D., RISE Program

9:00 Why Do We Need Ph.D.s? A Perspective

Homero Monsanto, Ph.D. – Merck Pharmaceutical, Inc.

9:20 UPR-Cayey Alumni Speak

From Cayey to Graduate School

Raúl Rodríguez, ABD.– UPR- Río Piedras

Edgardo García, ABD – Calif. Institute of Technology

10:20 Succeeding on Your Path in the Biomedical Sciences

Gayle Slaughter, Ph.D. – Baylor College of Medicine

11:40 Awarding of Certificates & Prizes

Refreshments will be provided from 9:00 until the end of the session.

Provided by the Chancellor's Office at UPR-Cayey



If you would like to email any of these speakers,
please speak with Robert Ross.



1

Mr. *Abdél Armaíz*

Construction of an $\Delta rppH \Delta yhbJ::Kan$
Double Mutant in *Escherichia coli*

Sidney Kushner, Ph.D.

University of Georgia



64

Ms. *Walmarie Torres*

Evaluating Alternative Glioma Models and
Tumor Cell Interactions with
Immortalized Neural Stem/ Progenitor Cells

Michael Barish, Ph.D.

City of Hope-California



61

Ms. *Sara Armaíz*

Controlling Collagen Gel Indenter, Mechanics, &
Analysis of Stiffness in Biological Tissues

Using a Milli-probe

Paul Janmey, Ph.D.

University of Pennsylvania



#4

Mr. *Andrés Betancourt*

Characterization of the Response of NOD Mice
To Regenerative Gene Therapy

Lawrence Chan, M.D., D. Science

Baylor College of Medicine



2

Ms. *Adriana Díaz*

Computer Modeling of sPDI Interacting
With MDMX and MDM2

Qing Lin, Ph.D.

The State University of New York- Buffalo



65

Ms. *Wilmarie Fuentes*

Identification of Optimal Structural Features for a
New Class of Polycationic Transfection Agents

Song Li, Ph.D.

University of Pittsburgh



62

Ms. *Sonia Caraballo*

The Major mRNA Isoform of the Olfactory
Calcium-Activated Chloride Channel, Ano2,
Uses a Novel Transcription Initiation Site

Dr. Haiqing Zhao, Ph.D.

The Johns Hopkins University



5

Ms. *Angela Rivera*

Methylmercury Induced Neurotoxicity
In Neuronal Cells Affects
Gene Expression in *C. elegans*

William Atchison, Ph.D.

Michigan State University



3

Ms. *Alejandra Aponte*

Differential Expression of Hippo Pathway
Components in Mouse & Human Cell Lines

Julian Martinez, Ph.D.

University of California -LA



66

Ms. *Yaislín Ruiz*

GABA Amide Agonists
For Probing Native GABA Receptors

James J. Chambers, Ph.D.

University of Massachusetts-Amherst



63

Ms. *Verónica Ortiz*

Parkin as a Potential Neuroprotective Agent in a
Mouse Model of Parkinson's Disease

Keith Lookingland, Ph.D.

Michigan State University



6

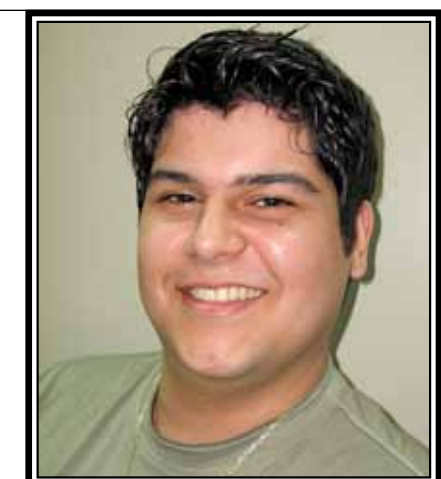
Mr. *Anthony González*

Detection of Novel Small Non-coding RNAs
in *Pyrococcus furiosus* Total RNA

Using Northern Blot Analysis

Michael Terns, Ph.D.

University of Georgia- Athens



7

Ms. Arlene González

Transcriptional Activity of SNPs at the GALNT2

Locus Associated with Human High-density

Lipoprotein Cholesterol Levels

Karen L. Mohlke, Ph.D.

University of North Carolina, Chapel Hill



#58

Ms. Rosan Nieves

Targeting FASN Using MicroRNAs miR-193b and

miR-15b: A Potential Novel Therapeutic

For the Treatment of Aggressive Breast Cancer

Jennifer Richer, Ph.D.

University of Colorado



55

Mr. Pedro González

Self-Assembly of Two Component

Metal Nanowires

Christine Keating, Ph.D.

The Pennsylvania State University



#10

Ms. Camille Montes

Potential Crosstalk Between Autophagy &

Apoptosis in Parotid Epithelial Cells

Mary Reyland, Ph.D.

University of Colorado



8

Ms. Bárbara Flores

Pentoxifylline Reduces Blood Pressure and Renal

Damage in Deoxycorticosterone Acetate (DOCA) –

Salt Hypertensive Rats

Anne Dorrance, Ph.D.

Michigan State University



59

Ms. Ruby Otero

Development of a

New Selectable Marker for *Candida albicans*

Judith Berman, Ph.D.

University of Minnesota



56

Mr. Ricardo Marrero

Purification and Refolding of Peptides

In Magnetically Aligned Bicelles and Nanopores

Alexander Nevzorov, Ph.D.

North Carolina State University



11

Ms. Caridad Arroyo

Applications & Generalizations

of Goursat's Lemma

Daniel Anderson, Ph.D.

Univ. of Iowa



9

Ms. Brenda Alcaraz

Antiestrogenic Effects

Of Glyceollin Analyzed

By High Throughput Microscopy

Michael Mancini, Ph.D.

Baylor School of Medicine



60

Ms. Ruth Maldonado

Characterization of

Kingella kingae Clinical Isolates

Scott Kachlany, Ph.D.

University of Medicine

& Dentistry of New Jersey



57

Ms. Roberta Lugo

Marker Assisted Inbreeding

In the Advanced Generations of the

Collaborative Cross: Chromosomes 7, 9 & 11

Fernando Pardo, Ph.D.

University of North Carolina, Chapel Hill



12

Mr. Carlos Román

R-type Calcium Channels and Inhibitory

Neurotransmission in the Enteric Nervous

System

Colleen Cosgrove, Ph.D.

Michigan State University



13

Ms. Carmen Ortiz
Preserving the Structure
Of Metal Oxide Monoliths

Luis Colón, Ph.D.
The State Univ. of New York- Buffalo



52

Ms. Nelly Rivera
Characterization of Upgraded Bio-Oil
For the Fast Pyrolysis Oil Stabilization

Surita Bhatia, Ph.D.
University of Massachusetts-Amherst



49

Ms. Michelle Vargas
Cloning of Human eEF1A Gene

Eric Chang, Ph.D.
Baylor College of Medicine



#16 Ms. Edmarie Martínez
The Role of Estrogen in SLE
(Systemic Lupus Erythematosus)

Thereza Imanishi, Ph.D.
Tufts Medical School



14

Mr. Christopher Quintanal
Detection of Complement Components in
Human Brochoalveolar Lavage Fluid
Edward Janoff, Ph.D.
University of Colorado



53

Ms. Nicole Del Valle
Pathogenesis of Pulmonary Hypertension:
Can angiostatin & T cells Attenuate
Endothelial Cell Proliferation?
Laima Taraseviciene, Ph.D.
University of Colorado



50

Ms. Myraida Rodríguez
Blockade of Brain Na⁺ channels
Attenuates Salt-sensitive Hypertension
John Osborn, Ph.D.
University of Minnesota



17

Mr. Elvín Morales
Synthesis of Gold Nanoparticles
Inside Engineered Ferritin
Ivan Dmochowski, Ph.D.
University of Wisconsin



15

Mr. Edgar Miranda
C. albican fre2Δ ΔMutant Complementation
Dana Davis, Ph.D.
University of Minnesota



54

Ms. Orielyz Flores
Analysis of PBDEs, PCBs, and Lipids
In Steelhead (*Oncorhynchus mykiss*) &
Liquid Fish Fertilizer
Diana Aga, Ph.D.
The State Univ. of New York- Buffalo



51

Ms. Nelitza Rivera
The Regulation of Neuronal Autophagy
By Insulin-Like Growth Factor-I
Mona Bains, Ph.D.
University of Colorado



18

Ms. Ericka Vélez
Effects of Cannabinoids
On Anti-HIV-Tat Induced Antibody Production
Norbert Kaminshi, Ph.D.
Michigan State University



19

Ms. Fabia Mendoza

The Role of TGF β Receptor 1 of DBA
And 129 Mice DNA Strains
In Muscular Dystrophy
Elizabeth McNally, Ph.D.
University of Chicago



46

Ms. Melissa Martinez

Analyzing Stability of Model Ecosystems

Ketih Stroyan, Ph.D.
University of Iowa



43

Ms. Maralísi Rivera

Role of MAPK Signaling Pathway on the Ex-
pression of Urokinase Plasminogen Activator
and Plasminogen Activator Inhibitor-1
Frank C. Church, Ph.D.
University of North Carolina at Chapel Hill



22

Mr. Hugo Fonseca

Introducing GFP into *Sinorhizobium* as a Tool
For *in vivo* Monitoring of Early Nodulation
In the Roots of *Medicago truncatula*
Betsy Martínez Ph.D.
University of Minnesota



20

Ms. Frances Rodríguez

Pontential Photochromic Proton Exchange
Membrane as an Alternative for PEMFC's

James J. Chambers, Ph.D.
University of Massachusetts Amherst



47

Mr. Melvín Aviles

Electrochemical Studies of Melatonin &
Nitric Oxide Using Boron-Doped Diamond
Microelectrode
Greg M. Swain, M.D.
Michigan State University



44

Ms. Maribel Vázquez

Role of the Vagus Nerve in Reefeding-Activated
Hypothalamic and Brainstem Nuerons in the Rat

Ronald Lechan, Ph.D.
Tufts Medical School



23

Ms. Isamar Ortíz

Amphiphilic Micro/nano-particles
For Advanced Oil Recovery

Ayusman Sen, Ph.D.
The Pennsylvania State University

21

Mr. Giovanni Cruz

Folding Thermodynamics and Kinetics
Of the de novo Peptide DS 119

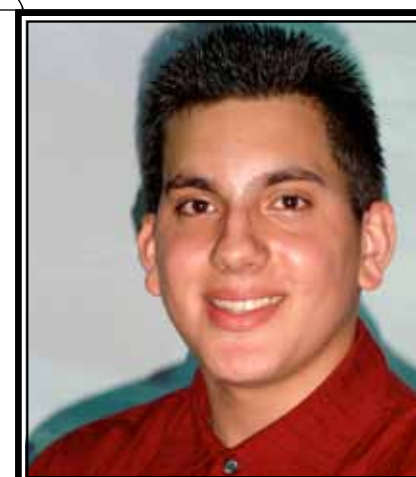
Feng Gai, Ph.D.
University of Pennsylvania



48

Mr. Michael Gómez

The Effect of Reduced Plasma Factor V
On Clot Structure
Alisa Wolberg, Ph.D.
University of North Carolina, Chapel Hill



45

Ms. Maryvi González

The Effects of LEMS on P/Q-type Calcium
Channel's Subunits, alpha-1A, and Their Re-
placements by N and R Type Channels
William Atchison, Ph.D.
Michigan State University



24

Ms. Janice Nieves

Characterization of Transgenic Mice
That Express hSULT2B1b in the Skin.

Wen Xie, Ph.D.
University of Pittsburgh



25

Ms. Jaritza Gómez

Synthesis of Silver Nanoparticles to Apply
In the Enhancement of the Two Photon Absorption
Of Non-linear Liquids

Thomas Mallouk, Ph.D.

The Pennsylvania State University



40

Ms. Leslie Montañez

CD38 Expression in Asthmatic HASM Cells:
Role of Phosphatidylinositol
3-Kinase/Akt (PI3K/Akt)

Mathur Kannan, Ph.D.

Univ. of Minnesota, College of Veterinary Medicine



37

Ms. Karla Torres

Electrophoretic Transport and Dynamics of T4
DNA Molecules in Percoll

Kristy Kounovsky, Ph.D.

University of Wisconsin



28

Ms. Jennifer Hernández

Development of a Trophoblast Cell Model
For Investigation of HIF-1 Responses

Nicholas Illsley, Ph.D.

UMDNJ-New Jersey Medical School



26

Ms. Jeaneishka Rivera

Understanding T cell Recognition
Of Beryllium Antigen

Andrew P. Fontenot, Ph.D.

University of Colorado



41

Mr. Luis DeJesus

Synthesis and Characterization of Glyoxalase 1 In-
hibitor: Bromobenzyl Glutathione and Ester Deriva-
tive Bromobenzyl Glutathione Cyclopentyl Diester

John Termini, Ph.D.

City of Hope - California



38

Ms. Lenis Berríos

Novel Amphiphiles for Solubilization &
Stabilization of Membrane Proteins

Pil Seokchae, Ph.D.

University of Wisconsin



29

Ms. Jesyca Meléndez

Local-Scale Landscape Genetics
Of the Salt Marsh Snail *Melampus bidentatus*

John Wares, Ph.D.

University of Georgia

27

Ms. Jeannelis Rabassa

Computing Cyclotomy Using
Representation Theory

Philip Kutzko, Ph.D.

University of Iowa



42

Mr. Luis López

Mapping the Interacting Domain
Of Tipin with Timeless

John McNulty, Ph.D.

University of North Carolina at Chapel Hill



39

Mr. LeRoy Pérez

Investigating the Role of Pancreatic Sensory
Innervation in Glucose Regulation

Ellen Lumpkin, Ph.D.

Baylor College of Medicine



30

Ms. Joahnibel Reyes

Complete Genome Amplification of SIVmne
Variants from Intra-Rectally Infected Pigtail
Macaques Demonstrating Control of Viremia

Roy Parker, Ph.D.

University of Arizona



31

Mr. Jorge Martínez

Effect of *Ornithodiplostomum ptychocheilus*
Metacercariae on Predatory Avoidance
Of Fathead Minnows

Biran Wisenden, Ph.D.

University of Minnesota



34

Mr. José Suárez

A Screen for Novel
Regulatory Agents of CYP2S1

Oliver Hankinson, Ph.D.

University of California- Los Angeles



32

Mr. Josantonio Del Valle

Heart Rate Response of *Daphnia* to Kairomones
From Familiar versus Unfamiliar Predators

Leif Hembre, Ph.D.

University of Minnesota



35

Mr. Juan Meléndez

AIDS Model

Douglas Mupasiri, Ph.D.

University of Northern Iowa



33

Mr. José Peña

Pre-Junctional Modulation of Sympathetic
Nerve Activity by 5-HT in Arteries and Veins
of DOCA-Salt Sensitive Hypertensive Rats

James J. Galligan, Ph.D.

Michigan State University



36

Ms. Karla Santos

Giant Vesicles as a
Model for Red Blood Cells

Jose Stoute, Ph.D.

The Pennsylvania State University

