

# Research Mini-Symposium



and

## Partner Programs

REU in Advanced Materials  
REU in Cellular Bioengineering  
Ernest Mario School of Pharmacy -  
Summer Undergraduate Research Fellowship (SURF)  
REU in Green Energy Technology  
INSPIRE Training Program  
Rutgers University Pipeline – IMSD

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Sponsored by Rutgers, The State University of New Jersey:  
School of Graduate Studies

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**July 20, 2018**

**New Pharmacy Building, Rooms PH130/PH131  
Ernest Mario School of Pharmacy, Busch Campus**

## **Welcome to the 2018 “RISE at Rutgers” Scholars’ 5-Minute Presentation (5MP) Mini-Symposium!**

The **5-Minute Presentation (5MP)** is modeled after the acclaimed national and international 3MT (3 Minute Thesis) competition. 3MT prepares students to communicate clearly, concisely, and effectively to both specialists and non-specialists and promotes engagement across disciplines. The School of Graduate Studies launched a successful 3MT at Rutgers this past spring, and we are excited to extend this opportunity to our Summer Scholars.

The Mini-Symposium highlights the scholarship and research of the undergraduate participants of several cooperating summer programs who worked under Rutgers faculty mentors, often assisted by post-doctoral fellows, graduate students, research staff or other undergraduates. The participants include undergraduates from Rutgers and from institutions spread across the US and its territories. In addition to 10 weeks of immersion in Rutgers research laboratories, students in all programs engage in workshops and developmental activities related to communication skills, career awareness, and professional and scientific development, along with social activities.

The core **“RISE (Research Intensive Summer Experience) at Rutgers”** program, supported through the Rutgers School of Graduate Studies (SGS) and other sources, accepts students from a broad range of disciplines, and serves as the coordinating unit for recruitment and many of the activities of the Partner Programs, each with its unique focus.

Each student presenter below is identified by the program in which they participate (Note: REU – “Research Experience for Undergraduates”):

**RISE:** Students participate in the core **“RISE at Rutgers”** program. Funding comes from a variety of sources, including the Rutgers School of Graduate Studies. Director: Evelyn Erenrich, Ph.D.

**RISE/PDB:** Students participating in the core RISE development seminars and activities, and supported by RISE for logistical aspects, with funding and research mentoring through the Protein Data Bank, Christine Zardecki, RISE Liaison.

**RISE/GSEF:** Students, primarily from humanities and social sciences, participating in the core RISE development seminars and activities, with partial funding from the Big Ten Academic Alliance **Graduate School Exploration Fellowship (GSEF)** through a grant from the Mellon Foundation.

**Advanced Materials: REU in Advanced Materials:** The interdisciplinary nature of this REU provides a rich environment for research in a broad array of materials topics ranging from graphene composites to the application of computational materials concepts to advanced catalysts for use in the pharmaceutical and petroleum industries. Supported by the National Science Foundation. Director: Professor Masanori Hara, Ph.D.

**CB: REU in Cellular Bioengineering:** This program provides research opportunities that articulate with a range of cutting-edge, multidisciplinary areas, including stem cell engineering, systems and computational biology, cell-active biomaterials, and micro/nanoscale biosystems. Supported by the National Science Foundation. Director: David Shreiber, Ph.D.

**SURF: The Ernest Mario School of Pharmacy -Summer Undergraduate Research Fellowship (SURF)** is intended for highly motivated undergraduates interested in a research career in the pharmaceutical and environmental sciences. Students are provided with an opportunity to conduct full-time research in areas related to Pharmacology and Toxicology, Environmental Health Sciences, Pharmaceutics, Medicinal Chemistry, Chemical Biology, and Clinical Pharmacy. Director: Lauren Aleksunes, Ph.D.

**GET UP: REU in Green Energy Technology Undergraduate Program** GET UP research projects focus on emerging energy and power issues that center around three research thrusts: nanotechnology and materials for energy storage and conversion; renewable and sustainable fuels; and devices and energy management systems for energy generation, conversion and storage. Supported by the National Science Foundation. Director: Kimberly Cook-Chenault, Ph.D.

**INSPIRE: (IRACDA New Jersey/New York for Science Partnerships in Research & Education)** is a post-doctoral training program that provides a combination of a mentored research experience, as well as training in educational methods and mentored teaching at partner Minority-Serving Institutions. Undergraduates from those institutions participate as RISE scholars under the mentorship of INSPIRE post-doctoral fellows. Supported by the NIGMS/NIH. Directors: Gary Brewer, Ph.D. and Martha Soto, Ph.D.

**IMSD: The Rutgers University Pipeline – Initiative for Maximizing Student Development** supports Rutgers undergraduates, particularly from groups under-represented in the biological/biomedical sciences, with the goal of training and encouraging students to enter careers in biomedical research, particularly at the doctoral level. Supported by the National Institute of General Medical Sciences of the National Institutes of Health (NIGMS/NIH). Directors: Patricia Irizarry-Barreto, Ph.D. and Jerome A. Langer, Ph.D.

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*We particularly wish to acknowledge the following staff:*

RISE Program Coordinators: Ms. Dawn Lopez, MBA, and Ms. Monique Thomas (SGS)

RISE Graduate Assistant: Mr. Brandon Mauclair-Augustin

Administrator, Cellular Bioengineering: Ms. Linda Johnson

Graduate Student Teaching Fellows: Ms. Alejandra Laureano-Ruiz and; Ms. Andrea Casuras

Graduate Student Resident Advisors: Mr. Amin Khalili, Ms. Isabel Perez, Ms. Elena Chung

	<b>Section A – Room PH130</b>	<b>Section B – Room PH131</b>
	<u>Moderator:</u> Patricia Irizarry-Barreto, PhD <u>Judges:</u> Urmimala Basu, Pedro Cesar Lopes, Alicia Raia-Hawrylak	<u>Moderator:</u> Lauren Aleksunes, PhD <u>Judges:</u> Jonathan Colón Ortiz, Rachel Dean, Laina Locket
9:00 AM	<b>Liv Kelley</b> - CB Olin College of Engineering Dr. Biju Parekkadan <i>An Integrated Cell Microcapsule to Expand and Genetically Engineer Human Cell Therapeutics</i>	<b>Tanya Zubov</b> – RISE Winston-Salem State University Dr. Benjamin Samuels <i>The Effects of Chronic Social Defeat Stress on EN2 KO Mice</i>
9:07 AM	<b>Hannah Simerly</b> – GET UP University of Minnesota-Twin Cities Dr. Lisa Klein <i>Capturing the Light: Au-doped Titania-coated Mesh for Increased Efficiency of Dye-sensitized Solar Cells</i>	<b>David Viramontes</b> – RISE/SURF The University of Nevada, Reno Dr. Lauren Aleksunes <i>Interaction of Organophosphate Flame Retardants with Efflux Transporters</i>
9:14 AM	<b>Rocio Rivera Rodríguez</b> – RISE University of Puerto Rico – Río Piedras Dr. Ilya Raskin <i>Determining the Combination Effect of Polyphenols from Vitis Vinifera and Isothiocyanate from Moringa oleifera Extracts on Intestinal Epithelial Cell Dysfunctions</i>	<b>Natalie Verdiguél</b> – RISE/PDB University of Central Florida Dr. Zukang Feng <i>Data Mining Literature Analysis of Cited Protein Data Bank Structures</i>
9:21 AM	<b>4. Stephen Mut</b> – CB Colorado School of Mines Dr. Jeffrey Zahn <i>An Investigation of Electroporation of Cell Suspensions and Adherent Cells</i>	<b>4. Yadiel Varela Soler</b> – GET UP University of Puerto Rico - Mayagüez Campus Dr. Patrick Sinko <i>Fabrication of Nanoparticles Loaded with Mebendazole by Flash Nanoprecipitation</i>
9:28 AM	<b>5. Jessica Meis</b> – RISE/GSEF Cornell College Drs. Tatiana Flores & Tamara Sears <i>Women and Latin American Art: Activism from Colonial Religious Imagery to Contemporary Installations</i>	<b>5. Reem Eldabagh</b> – CB/INSPIRE William Paterson University of New Jersey Dr. Adam Gormley <i>Materials for Medicine</i>

	<b>SECTION A</b>	<b>SECTION B</b>
9:35 AM	<p><b>Darling Rojas</b> – IMSD Rutgers University Dr. Suzie Chen <i>Regulation of Glutaminase in Metabotropic Glutamate Receptor 1 (GRM1)-Expressing Melanoma Cells</i></p>	<p><b>Rebecca Miller</b> – RISE/PDB Smith College Drs. Brian Hudson &amp; Lu Wang <i>Developing a Pipeline for Programatically Improving Model Ligand Geometry</i></p>
9:42 AM	<p><b>Karen Nicolas</b> – RISE Rutgers University Dr. Siobain Duffy <i>Viral Emergence: Evolution and Host Range Expansion of Bacteriophage <math>\Phi</math>6 Mutant E8G</i></p>	<p><b>Jenny Martinez</b> – Advanced Materials California State Polytechnic University, Pomona Dr. Manish Chhowalla <i>Optimization of Metals' Work Function for MoS2 Transistors</i></p>
9:49 AM	<p><b>Jeff Martinez</b> – RISE/INSPIRE New Jersey City University Drs. Sofya Borinskaya &amp; Martha Soto <i>Role of Formins in Morphogenesis and Development of the C. elegans Pharynx</i></p>	<p><b>Esteban Bermúdez</b> – CB University of Puerto Rico – Mayagüez Drs. Rene Schloss &amp; Martin Yarmush <i>Release Profile of Liposome-Encapsulated Bupivacaine</i></p>
9:56 A M	<p><b>Jordan Troutman</b> – RISE University of Maryland, Baltimore County Dr. Anand Sawarte <i>Fairness in Machine Learning</i></p>	<p><b>Tasmiya Moghul</b> – RISE/INSPIRE Medgar Evers College Drs. Pragati Sharma &amp; Miguel Zaratiegui <i>Coordination of Heterochromatin Regulation and DNA Replication</i></p>
10:03 AM	<p><b>Trystan Irmiere</b> – Advanced Materials The College of New Jersey Dr. Deirdre O'Carroll <i>Solution Processed Blue Light Emitting Quantum Dot Films</i></p>	<p><b>Carlos Huang</b> – GET UP University of Puerto Rico - Mayagüez Campus Dr. Alan Goldman <i>Ruthenium Pincer Complex Synthesis and Reactivity in Olefin Isomerization</i></p>

	<b>SECTION A</b>	<b>SECTION B</b>
10:10 AM	<p><b>Zakiyah Henry</b> – RISE/SURF Winston-Salem State University Dr. Debra Laskin <i>The Role of Macrophages in Sulfur Mustard-Induced Rat Lung Injury</i></p>	<p><b>Lauren Lisiewski</b> – CB The State University of New York – Binghamton Dr. David Shreiber <i>Physical Properties of Electrospun Nanofibrillar Polymer Scaffolds and Effect on Astrocyte Reactivity</i></p>
10:17 AM	<p><b>Francisco Franco</b> – GET UP California State Polytechnic University, Pomona Dr. Kimberly Cook-Chennault <i>Investigation of Novel Composite Materials for Engineered Tissue Scaffolds</i></p>	<p><b>Zachary Finkel</b> – Advanced Materials Rowan University Dr. Meenakshi Dutt <i>Study of Hydrophobic Mismatch in Membrane Protein Systems: Role of Peptide Orientation and Lipid Density Profile</i></p>
10:24 AM	<p><b>Kia Ansine</b> – IMSD Rutgers University Dr. Diana Roopchand <i>Energy Expenditure of Mice Fed a High-Fat Diet Supplemented with Grape Polyphenols</i></p>	<p><b>Joshua Randolph</b> – RISE/GSEF Beloit College Dr. Ethel Brooks <i>Linguistic Institutionalization of anti-Romani Racism: Etymology, History and Pop Culture</i></p>
10:31 AM	<p><b>Andrew Alvarez</b> – Advanced Materials Texas State University Dr. Alexander Neimark <i>Computer Modeling and Molecular Simulations of Tension-Induced Rupture of Lipid Bilayers</i></p>	<p><b>Desirée Pastrana Otero</b> – RISE University of Puerto Rico – Río Piedras Dr. Clinton Andrews <i>Green and Resilient NJ: Protection, Resistance and Adaptation to Disaster Scenarios</i></p>
10: 38 AM	<p><b>Nicholas Almodovar</b> – CB Macaulay Honors College at John Jay College- CUNY Dr. Nada Boustany <i>Calibration of FRET Controls in iBMK Cells to Measure FRET Efficiency in a Fluorescent Vinculin Tension-Sensing Probe</i></p>	<p><b>Shereen Bartholomew</b> – IMSD Rutgers University-Newark Dr. Tracy G. Anthony <i>Timing of Hepatic Phosphorylation of Eukaryotic Initiation Factor 2 (eIF2) Following Consumption of Diets Devoid in Leucine or Methionine</i></p>
<b>BREAK</b>		

	<b>Section C – Room PH130</b>	<b>Section D – Room PH131</b>
	<u>Moderator:</u> Jerome A. Langer, PhD <u>Judges:</u> Urmimala Basu, Pedro Cesar Lopes, Alicia Raia-Hawrylak	<u>Moderator:</u> David Shreiber, PhD <u>Judges:</u> Jonathan Colón Ortiz, Rachel Dean, Laina Locket
11:10 AM	<b>Thaybeth Malave-Mendez</b> RISE University of Puerto Rico – Río Piedras Dr. Enver Izgu <i>Functionalization of Lipids and Nucleic Acids to Engineer Membrane Compartments</i>	<b>Navar White</b> Advanced Materials Vassar College Dr. Lisa Klein <i>We're Running on Fumes: Improving the Output of Dye-Sensitized Solar Cells Through Electrolyte/Electrode Modification</i>
11:17 AM	<b>Jessica Romero</b> IMSD Rutgers University Dr. Victoria Abraira <i>The Impact of Touch Information Processing in Locomotion</i>	<b>Liya Simon</b> RISE SUNY Farmingdale Dr. Pal Maliga <i>Brassica napus transformation vectors to select nuclear gene mutations controlling chloroplast transformation</i>
11:24 AM	<b>Natasha Ramos Padilla</b> RISE University of Puerto Rico – Mayagüez Drs. Katherine Dawson & Nathan Yee <i>Changes in Sediment Carbon Cycling in the Tidal Raritan River using a Natural Salinity Gradient</i>	<b>Anthony Rodrigues</b> GET UP Rutgers University Dr. Kimberly Cook-Chennault <i>Evaluating the Mechanical Properties of PVDF through Fluid Numerical Models</i>
11:31 AM	<b>Sarah Snider Leonhauser</b> Advanced Materials Ursinus College Dr. Tewodros Asefa <i>Synthesis, Characterization, and Application of Nanosized Titanium Dioxide</i>	<b>Fabian Hernández</b> CB University of Texas at Austin Dr. Charles Roth <i>Formulation of Polyelectrolyte Nanocomplexes for Delivery of Antimicrobial Peptides</i>

	<b>Section C</b>	<b>Section D</b>
11:38 AM	<p><b>Terrence Lymon</b> CB Louisiana Tech University Dr. Joseph Freeman <i>Development of an Electroactive and Biocompatible Hybrid Hydrogel</i></p>	<p><b>Jose Mercado Ortiz</b> RISE University of Puerto Rico – Río Piedras Dr. Spencer Knapp <i>Synthesis of New Antimalarials</i></p>
11:45 AM	<p><b>Christopher Kern</b> GET UP Stockton University Dr. Charles Dismukes <i>Benchmarking Electrolyzer for Conversion of CO<sub>2</sub> to Polymer Precursors</i></p>	<p><b>Makayla Hickmon</b> RISE Edward Waters College Dr. Kasia Bieszczad <i>Early Performance Differences in Rats Learning a Sound-Reward Association Task Reveal Potential Effects of an Alzheimer's Disease Gene</i></p>
11:52 AM	<p><b>Briana Gipson</b> RISE/GSEF Coe College Dr. Laura Lawson <i>'In Land We Trust': Black Female Landowners' Impact on Generational Poverty in the Cooperative Economics Movement</i></p>	<p><b>Nora Herzog</b> IMSD Rutgers University Dr. Andrew Zloza <i>Harnessing Seasonal Influenza Vaccines to Combat Cancer in Mouse Models</i></p>
11:59 AM	<p><b>NataliaTumidajski</b> CB Mercy College Dr. David Shreiber <i>Development of Collagen Type I Scaffolds with Antibacterial Properties for Clinical Applications</i></p>	<p><b>Alyson March</b> CB University of Connecticut Dr. Joseph Freeman <i>Development of a 3D Printed Bone Scaffold</i></p>
12:06 PM	<p><b>Savannah Dziejak</b> RISE/INSPIRE William Paterson University Drs. Victoria DiBona, Keith Cooper &amp; Lori White <i>The Effects of Organophosphates on Neurodevelopment in Danio Rerio</i></p>	<p><b>Olivia Heck</b> RISE/GSEF Ripon College Dr. Kate Fiske Massey <i>Analysis of TI and IOA in Total Task Chaining Procedures</i></p>



	<b>Section C</b>	<b>Section D</b>
12:13 PM	<b>Heineken Queen Daguplo</b> IMSD Rutgers University Dr. Arkadiusz (Arek) Kulczyk <i>Structure Determination of the Mitochondrial Helicase Twinkle by Cryo-electron Microscopy (Cryo-EM)</i>	<b>Christopher Heckert</b> Advanced Materials University of Maryland, Baltimore County Dr. Nina Schapley <i>Removal of Heavy Metals from Wastewater Using Alginate Beads and Chitosan Nanoparticles</i>
12:20 PM	<b>Alexus Cruz</b> CB Simmons College Dr. Francois Berthiaume <i>The Use of Polymerized Hemoglobin for a Liver Bioreactor</i>	<b>Romina Generali</b> RISE/INSPIRE New Jersey City University Drs. Gary Aston-Jones & Jennifer C. Fragale <i>Relationship Between the Number of Orexin-Producing Neurons and Pathological Demand for Fentanyl</i>
12:27 PM	<b>Nicholas Bolden</b> RISE University of Nevada, Reno Dr. Huizhou Fan <i>Would grgA Mutants Confer Resistance to Benzylidene Acylhydrazides in Chlamydia?</i>	<b>Destiny Durante</b> RISE/SURF Pennsylvania State University Dr. Marion K. Gordon <i>Comparing Ocular Therapies to Prevent Epithelial-Stromal Separation After Mustard Exposure</i>
12:34 PM	<b>Kayla Bendinelli</b> RISE/SURF Dickinson College Drs. Mingzhu Fang & Helmut Zarbl <i>Restoration of Circadian Rhythm by FGF19 in NAFLD Prevention</i>	<b>Noura Darwish</b> IMSD Rutgers University Drs. Nilgun Tumer & John McLaughlin <i>The Impact of Lipid Transfer Proteins Against Plant Fungal Pathogens in Wheat and Barley</i>
12:41 PM	<b>Alain Abonge Yufanyi</b> IMSD Rutgers University - New Brunswick Drs. Kim McKim & Jessica Fellmeth <i>The Centromere and the Role of the CENP-C Centromere Protein in Chromosome Segregation</i>	<b>Stephanie Albarracin</b> Advanced Materials CUNY- Hunter College Drs. Masanori Hara & Richard Lehman <i>Synthesis of Inorganic Polymers from Silicate Glass</i>
12:48 PM	<b>Jennifer Guzman</b> RISE CUNY Lehman College Dr. Jonathan Singer <i>Controlling the Morphology of Melting Gels by Electro spraying Deposition</i>	<b>Carlos Abarca</b> GET UP Pennsylvania State University Dr. Qingze Zou <i>Autonomous Robotic Environmental Control System Applied to Growth of Mobile Plant</i>
<b>SPECIAL THANKS TO THE FACULTY AND OTHER MENTORS!</b>		
<b>LUNCHEON AT ROBERT WOOD JOHNSON MEDICAL SCHOOL-GREAT HALL</b>		