

IMSD *View*

INITIATIVE TO MAXIMIZE STUDENT DEVELOPMENT

VOLUME 7 ISSUE 2



BROWN

Message from the Director

Diversity and Inclusion:

The Merits of Partnerships

One of Brown IMSD's strengths is its practice of partnering with pre-existing programs on campus that allow it to extend the reach of its work and resources. This has helped to build reciprocal and mutually beneficial relationships that serve the program's trainees and the broader student population and faculty in our academic community. The nature of IMSD's work, for example, in building academic and social scaffolds around IMSD trainees to maximize their successes is not to the exclusion of other students. While IMSD prioritizes the needs of IMSD trainees, UR and non-UR STEM trainees alike subscribe to and participate in IMSD activities. The impact of this has been a change in institutional culture to one that values and embraces the work of IMSD and welcomes its practices in programs and departments where IMSD did not previously exist. Brown University's recently announced Diversity and Inclusion Action Plan (DIAP) forms the larger framework in which IMSD now operates. This new plan has created gateways for IMSD to reach new educational levels and disciplines that converge with the biological STEM disciplines seeking to diversify their student populations.

Andrew G. Campbell, PhD
Associate Professor of Medical Science
Brown IMSD Program Director and Co-PI



Dr. Rafael Luna (center) with grad students and postdocs following his workshop on Scientific Storytelling. L to R: Dr. Matt Anderson, Bianca Brown, Vérica Léandre, Rafael González-Cruz, Dr. Rafael Luna (Harvard), Hawa Dumbuya, Rosa Martinez-Garcia, Olivia Mansion, Dr. Chintan Modi.

An Introduction to Scientific Storytelling with Rafael E. Luna, Ph.D.

During a recent visit to Brown University, Dr. Rafael Luna, author of the book, *The Art of Scientific Storytelling: Transform Your Research Manuscript with a Step-By-Step Formula*, provided instructions on how to write a scientific manuscript using the structural aspects of storytelling. Through an interactive seminar, undergraduates, graduate and postdoctoral trainees and faculty, explored the logic of narrative craft to catalyze the process of scientific writing. In his Mini-Writing workshop, Dr. Luna engaged participants in a peer review process of their research abstracts and titles, focusing on the critical analysis on the content and clarity of their work, and by considering major aspects of the Scientific Story in their analysis.

Dr. Rafael Luna is Program Director for Senior Faculty Promotions in the Office for Faculty Affairs at Harvard Medical School, and an Instructor in the Department of Biological Chemistry & Molecular Pharmacology. This event was hosted by the Brown SACNAS chapter, and co-sponsored by IMSD, the Brown University Science Center, the Nonfiction Writing Program in the English Department, the Brown Graduate School, and by the BioMed Office of Graduate & Postdoctoral Studies.

—H. Dumbuya

Save the Dates!

Seminars:

Ana Abraido-Lanza (Columbia)
Health behaviors and acculturation among Latinas April 19

Events:

IMSD Partners Campus Visit . . . April 21-22

Training Modules:

Designing and Delivering Scientific Presentations March 28, 30 & April 1
Explaining Research: Effective and Engaging Communication of Science May 20, 23 & 25

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Excellence

Congratulations

Cyrena Gawuga, IMSD doctoral candidate in Molecular Pharmacology and Physiology, successfully presented herself for the degree of Doctor of Philosophy on January, 20th, 2016. Cyrena discussed her research on “Psychoneuroimmunology of Early Life Stress: Immune Response, Inflammation, and Illness in Healthy Adults”. Her dissertation research was conducted under the guidance of her mentor, Dr. Linda Carpenter, Professor of Psychiatry and Human Behavior.

Hilary Nicholson, IMSD doctoral candidate in Molecular Pharmacology and Physiology, successfully defended her dissertation entitled “A Matter of Life and Death: Novel Ligands Mediating Pro-Apoptotic Functions and Revealing Non-Apoptotic Functions of the σ -2 Receptor in Human Cancer” in March. Hilary conducted her research in the lab of mentor, Dr. Wayne Bowen. Hilary has accepted a postdoctoral position at Dana Farber Cancer Institute, Harvard University, starting in June.



Hilary Nicholson with Professor Wayne Bowen at her PhD defense reception in March

Fellowships, Awards & Achievements

Maya Almaraz, IMSD doctoral candidate in Ecology and Evolutionary Biology, attended the Ecological Society of America Annual Meeting in December 2015 and presented a poster on “Nitrogen Fertilizer Increases Nitrous Oxide, but not Dinitrogen, Emissions from Moist Tropical Forest Soils in Puerto Rico.” Maya was recently awarded a [National Science Foundation \(NSF\) Biology Postdoctoral Fellowship](#) for her research project “Reducing Uncertainties in Isotopic End-Members of Soil Nitrogen Oxide Emission Sources”.

Bianca Brown, pre-doctoral trainee in Ecology and Evolutionary Biology and former York College CUNY graduate (B.S. 2015), received honorable mention for her National Science Foundation Graduate Research Fellowship Application entitled “Understanding host-microbiome response to thermal stress in a heterogeneous environment using acorn barnacle *Semibalanus balanoides*”

Hawasatu Dumbuya, IMSD doctoral candidate in Molecular Pharmacology and Physiology, partnered with faculty at her alma mater, Medford High School in Medford MA, and was awarded a grant from the Medford Educational Foundation to support the Science Career Program that she started in 2015.

Rafael D. González Cruz, IMSD doctoral candidate in Biomedical Engineering, received a student award for Outstanding Research Presentation for his presentation “*Whole-Cell Mechanophenotype Correlates to Lamin Protein and Gene Expression*” at the 2016 Biomedical Engineering Society’s Cellular and Molecular Bioengineering and Advanced Biomufacturing Joint Conference held in New Orleans, LA in January.

Vérida Léandre, IMSD doctoral candidate in Biotechnology, was featured in the Brown Medicine Blog Spring 2016 in a profile piece entitled “Science is Fun”. <http://www.brownmedicinemagazine.org/blog/science-is-fun/#prettyPhoto>

Ashleigh LoVette, IMSD pre-doctoral trainee in Behavioral and Social Sciences, was awarded a Framework in Global Health Scholarship. The funding (up to \$3500) supports students completing global health research, service, and advocacy activities directly linked to Brown University faculty scholarly projects.

Trainee & Program Publications:

[Fernandez CA, Loucks EB, Arheart KL, Hickson DA, Kohn R, Buka SL, Gjelsvik A. Evaluating the Effects of Coping Style on Allostatic Load, by Sex: The Jackson Heart Study, 2000-2004. Prev Chronic Dis. 2015;12:E165. doi: 10.5888/pcd12.150166. PubMed PMID: 26425869; PMCID: PMC4591617.](#)

[Su S, Jimenez MP, Roberts CTF, Loucks EB. The Role of Adverse Childhood Experiences in Cardiovascular Disease Risk: a Review with Emphasis on Plausible Mechanisms. Curr Cardiol Rep. 2015 Oct; 17\(10\):88. doi: 10.1007/s11886-015-0645-1. PubMed PMID: 26289252.](#)

[Nicholson H, Mesangeau C, McCurdy CR, Bowen WD. Sigma-2 Receptors Play a Role in Cellular Metabolism: Stimulation of Glycolytic Hallmarks by CM764 in Human SK-N-SH Neuroblastoma. J Pharmacol Exp Ther. 2016;356\(2\):434-45. doi: 10.1124/jpet.115.228387. PubMed PMID: 26574517; PMCID: PMC4746495.](#)

[Parker S, Chan PA, Oldenburg CE, Hoffmann M, Poceta J, Harvey J, Santamaria EK, Patel R, Sabatino KI, Nunn A. Patient Experiences of Men Who Have Sex with Men Using Pre-Exposure Prophylaxis to Prevent HIV Infection. AIDS Patient Care STDS. 2015;29\(12\):639-42. doi: 10.1089/apc.2015.0186. PubMed PMID: 26669791; PMCID: PMC4684664.](#)

[Elkington KS, Cruz JE, Warne P, Santamaria EK, Dolezal C, Mellins CA. Marijuana Use and Psychiatric Disorders in Perinatally HIV-Exposed Youth: Does HIV Matter? J Psychiatr Psychol. 2015. doi: 10.1093/jpepsy/jsv117. PubMed PMID: 26698841.](#)

[Toorie AM, Cyr NE, Steger JS, Beckman R, Farah G, Nillni EA. The nutrient and energy sensor Sirt1 regulates the hypothalamic-pituitary-adrenal \(HPA\) axis by altering the production of the prohormone convertase 2 \(PC2\) essential in the maturation of corticotropin releasing hormone \(CRH\) from its prohormone in male rats. J Biol Chem. 2016. doi: 10.1074/jbc.M115.675264. PubMed PMID: 26755731.](#)

[Crisco JJ, Schwartz JB, Wilcox B*, Brideau H, Basseches B, Kerman K. Wrist range of motion and motion frequency during toy and game play with a joint-specific controller specially designed to provide neuromuscular therapy: A proof of concept study in typically developing children. J Biomech. 2015;48\(11\):2844-8. doi: 10.1016/j.jbiomech.2015.04.018. PubMed PMID: 25935686; PMCID: PMC4536107.](#)

*Bethany Wilcox former name as an IMSD appointee was Bethany Therrien.

Community

IMSD Students Lend Voices to NEST 2016 Retreat



NEST 2016 participants gathered at the Marine Biological Laboratory in Woods Hole, MA

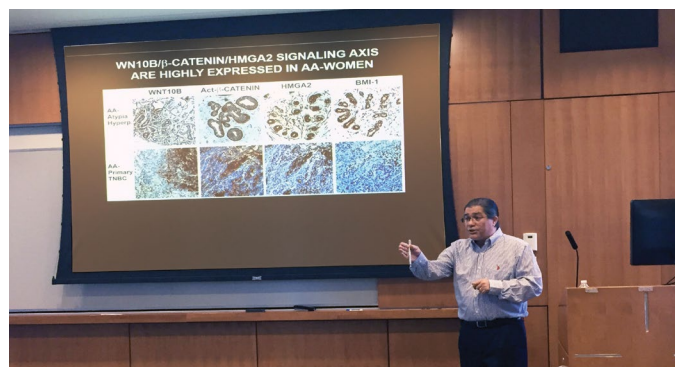
Six Brown IMSD graduate students* were among a diverse group of trainees that participated in The Northeast Scientific Training Programs (NEST) Retreat on March 4-6. This event provided a space where trainees from the undergraduate to the postdoctoral level can offer their perspectives on what is and is not working in current approaches to STEM training and propose their ideas for addressing the problems they identify. This year's meeting built on work done last year, with focus group discussions around the topics of career paths, and myths and misconceptions about training and careers in STEM. Themes identified through trainee discussions at NEST 2014 and 2015 were reaffirmed by this year's group. Trainees confirmed the need for more guidance in creating a work/life balance, a call for greater consideration of how science can contribute to social justice, and a desire for earlier exposure to possible career paths, among other issues. As NEST continues to provide a venue where the views of trainees can be heard, the paramount aim is to translate these outcomes in order to better

inform program practice. For an in-depth summary of findings from the retreat's inaugural year, please see the [NEST 2014 Meeting Report](#), published in CBE – Life Sciences Education. -JD

*Brown IMSD Participants: Abigail Brown, Garvin Dodard, Diego Jaime, Vérica Léandre, E. Karina Santamaria, and Shawn Williams

IMSD Spring Seminar Series Highlights

The IMSD program was pleased to co-host two scientific seminars in early Spring. **Dr. Gustavo Miranda-Carboni**, Assistant Professor at University of Tennessee Health Science Center, Department of Medicine, gave a talk in February on “The Role of Wnt10b/b-Catenin/HMGA2 Signaling Axis: A Model to Address Cancer Health Disparities”. In March, [Dr. Tracy Johnson](#), HHMI Professor and Maria Rowena Ross Chair of Cell Biology and Biochemistry at UCLA, discussed her research on “RNA Splicing, Chromatin Modification, and the Coordinated Control of Gene Expression”. Both speakers also met with students and individual faculty members during their visits. The seminars were co-sponsored by the Pathobiology and MCB graduate programs, respectively.



Dr. Gustavo Miranda-Carboni discusses his research on breast cancer health disparities

Graduate Students Launch Brown Junior Researchers Program

There is a buzz of excitement at the Hennessey Elementary School in East Providence, RI. It is a Thursday afternoon and graduate students from Brown University have come to lead another fun and interactive science activity with students in the Boys & Girls Club after-school program.

The Brown Junior Researchers Program is the brainchild of **John Santiago**, IMSD doctoral candidate in Molecular Biology, Cell Biology and Biochemistry. In December, Santiago and the Brown SACNAS chapter recruited a dozen graduate students of diverse backgrounds to share their love of science with 1st graders at the Hennessey School. For the first group activity, students used dissection microscopes to examine dead bugs and other cool objects. The event was a huge success, and soon evolved into an ongoing weekly program for students in grades K-5. Santiago explains, “One of our main goals is to disrupt any misconceptions about the ‘type’ of person that can become a scientist. This is why I decided it would be best to have lots of

small groups so the students can really get a chance to interact with scientists.” In recent weeks, the kids have performed DNA extractions on strawberries, used Punnett squares to examine genetic traits in fruit flies, and studied egg fertilization in sea urchins. In one session, students examined clean and dirty objects under the microscope and were surprised to find that one boy's hands contained more microbes than the trash cans and floors! In another session, the kids were challenged to design structures made out of spaghetti sticks and marshmallows to support the weight of a Cadbury egg. Teachers are pleased that even students who previously tended to be “troublemakers” are motivated to do well so they can participate in the science activities.

As part of their outreach efforts, the graduate students will be participating in an upcoming family night organized by the Boys & Girls Club. They also plan to create a Facebook page to share news and updates about the Brown Junior Researchers Program with the broader community. -KZB

Collaboration

Funding and Training Opportunities

Newsletter layout and design by Karen Ball and Brown Graphic Services © 2016 Brown University

Predoctoral Individual Fellowships

Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships (F31) The NIH F31 Individual National Service Awards (NRSA) provide support for promising doctoral candidates who will be performing dissertation research and training in scientific health-related fields relevant to the missions of the participating NIH Institutes and Centers. Individual opportunities may have different deadlines, please check the sites: http://grants.nih.gov/training/F_files_nrsa.htm

PhRMA Pharmacology / Toxicology Predoctoral Fellowship awards support career development activities of scientists embarking on research that integrates information on molecular or cellular mechanisms of action with information on the effects of an agent observed in an intact organism, in experimental animal or clinical studies or both. Awards include \$20,000 annual stipend and \$1000 per year for incidentals associated with thesis research preparation. Application Deadline: September 1, 2016

The American Society of Human Genetics/National Genome Research Institute is accepting applications for the 2016-2017 Fellowships in [Genetics & Education](#) and [Genetics & Public Policy](#). These fellowship programs are designed for genetics professionals with an advanced degree who are early in their careers. Fellowships are for 16 months at an annual stipend of \$72K plus benefits. Application deadline: **April 25, 2016**.

Conference Travel Awards:

The Pittsburgh Development Center (PDC) of Magee-Womens Research Institute explores the molecular biology of cell function—in gametes, embryos, stem cells, maternal/fetal efficacy of assisted reproduction technologies, the origins of developmental diseases, the causes and prevention of adverse pregnancy outcomes and the potential of stem cells for treating human disease. They will be offering several NIH-sponsored training workshops in May/June. For information, please visit the PDC website at: <http://www.pdc.magee.edu/index.htm>

PROGRAM STAFF:

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Elizabeth O. Harrington, Ph.D.
Co-Program Director, Associate Dean for Graduate and Postdoctoral Studies, Professor of Medicine, Division of Biology and Medicine

Karen Ball
IMSD Program Coordinator

PARTNER INSTITUTIONS

St. John's University, New York, NY

York College of the City University of New York

North Carolina A&T State University

The College of Mount Saint Vincent



Brown University's Initiative to Maximize Student Development (IMSD) is a predoctoral research training initiative that aspires to significantly increase the number of PhDs from groups underrepresented in biomedical and behavioral research. The

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Trainee & Program Publications *continued from page 2*

Borgas D**, Chambers E, Newton J, Ko J, Rivera S, Rounds S, Lu Q. Cigarette Smoke Disrupted Lung Endothelial Barrier Integrity and Increased Susceptibility to Acute Lung Injury via Histone Deacetylase 6. *Am J Respir Cell Mol Biol.* 2015. doi: 10.1165/rcmb.2015-0149OC. PubMed PMID: 26452072.

Borgas DL**, Gao JS, Tong M, de la Monte SM. Potential Role of Phosphorylation as a Regulator of Aspartyl-(asparaginyl)- β -hydroxylase: Relevance to Infiltrative Spread of Human Hepatocellular Carcinoma. *Liver Cancer.* 2015 Sep;4(3):139-53. doi: 10.1159/000367731. Epub 2015 Jun 5. PubMed PMID: 26675015; PubMed Central PMCID: PMC4608650.

**Diana Borgas former name as an IMSD appointee was Diana Lizarazo.