

The Mosaic

Issue 1 | December 2017



Welcome to the premiere of "The Mosaic," a newsletter of UNC IMSD! We use this forum to highlight the recent outstanding achievements of IMSD students. We would like to thank the faculty for contributing their student celebrations with us in this first issue. If you have something pending now, then we will celebrate it in a future issue. Be sure to share news about your own or your friends' accomplishments.

Happy Holidays!!!



-IMSD Leadership: Ashalla Freeman, Jessica Harrell, and Jean Cook



IMSD Holiday Party - December 2016

IMSD Spotlight

IMSD welcomes **27** new first year BBSP students for Fall 2017!



Top (left to right): Christian Agosto-Burgos, Ana Cartaya, Danielle Chappell, Taylor Dismuke, Joseph Foster, Cherise Gladowski, Sophia Gonzalez, Trevor Gonzalez, Alina Hamilton. Middle (left to right): Natalie Harris, Carissa Harvest, Carolina Herrera, Andrew Hinton, Jessica Jimenez, Ivan Jimenez-Ruiz, Michael Kelly, Nicole Lama, Ernesto Leon. Bottom (left to right): Adam Lescallete, Lacey Lopez, Natalia Maldonado-Vazquez, Shenee Martin, Nicholas Martinez, Sofia Neira, Ashelyn Sidders, Natalie Tanke, and Blaide Woodburn.

We also welcomed new faculty members Dr. Hector Franco (Genetics), Dr. Cavin Ward-Caviness (Toxicology), Dr. Edward Moreira Bahnon (Surgery), and Dr. Jimena Guidice (Cell Biology) to our IMSD family.



On May 25-26th, 16 IMSD and PREP students attended the Mid-Atlantic PREP/IMSD Research Symposium (MAPRS) at the University of Maryland, Baltimore County to present their research. This symposium provides career development and networking opportunities for early scientists.



IMSD began partnering with post-docs from the Minority Post-Doc Alliance to help expand the mentoring network for students. To kick things off, Dr. Elizabeth Wayne from the UNC Eshelman School of Pharmacy led an event on networking on November 28th.



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Upcoming Events

December 12	IMSD Holiday Dinner
Jan-Mar 2018	BBSP Recruitment*
Jan 10, Feb 8, Mar 14, & Apr 12	Student Research Talks
Feb & Mar 2018	Diversity Mentor Lunch
Mar 2018	IMSD Symposium
May 2018	MAPRS

*If you can, sign up to meet with interviewees to talk about IMSD over dinner, during a poster session, or be a point of contact for questions about the different BBSP programs.

Reflections



- Believe in yourself!*
- Rowan Beck, 3rd year
- Get a hobby. You need some light to hold on to. Also, drink water!*
- Nur Shahir, 4th year
- It's tougher than expected, but if this is your dream - keep persevering.*
- Marquet Minor, 2nd year
- If you think you're asking too much, just ask anyway.*
- Adelaide Tovar, 3rd year
- The [grant] writing process is an exercise in critical thinking. It forces you to question the direction of your research.*
- Yael Escobar, 3rd Year
- IMSD has become my support network. It's been helpful having people to talk to about our shared experiences.*
- Carolina Herrera, 1st Year

Editors:

Karel Alcedo and Alexia Perryman

Producer: Jean Cook

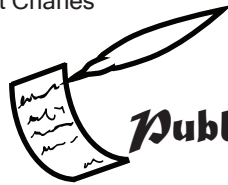


Thesis Defense

The IMSD family is celebrating **14** successful thesis defenses this year! A **HUGE CONGRATULATIONS** to Drs. Deidre Tucker, Sierra Stringfield, Vivien Maltez, Heather Vincent, Kent Gordon, Patrick McCarter, Michelle Palacios, Leah Norona, Diana Chong, Aminah Wali, Anel Jaramillo, Benfeard Williams, Chanin Tolson, and Leslie Kennedy for getting your PhD!



Vivien was admitted to the Royster Society of Fellows, the highest honor awarded to UNC graduate students! Sierra accepted a post-doc position at the Brain Institute in University of Pittsburg. Diedre is now a research scientist at Charles River Laboratory. We're so proud of you all!



Publications

Bailey ST*, **Smith AM***, Kardos J, Wobker SE, Wilson HL, Krishnan B, Saito R, Lee HJ, Zhang J, Eaton SC, Williams LA, Manocha U, Peters DJ, Pan X, Carroll TJ, Felsher DW, Walter V, Zhang Q, Parker JS, Yeh JJ, Moffitt RA, Leung JY, & Kim WY. *co-first. **MYC activation cooperates with Vhl and Ink4a/Arf loss to induce clear cell renal cell carcinoma.** Nat. Comm. PMC5472759

Developed two mouse models of kidney cancer that closely simulate human disease.

Plooster M, Menon S, Winkle CC, **Urbina FL**, Monkiewicz C, Phend KD, Weinberg RJ, & Gupton SL. **TRIM9-dependent ubiquitination of DCC constrains kinase signaling, exocytosis, and axon branching.** Mol. Biol. of the Cell PMCID: PMC5576901

Uncovered a new mechanism of exocytosis and axon branching in response to the guidance cue, netrin-1.

Stadtmiller SS, Gorensk-Benitez AH, **Guseman AJ**, & Pielak GJ. **Osmotic-Shock Induced Protein Destabilization and its Reversal By Glycine Betaine.** J. of Mol. Biol. DOI: 10.1016/j.jmb.2017.03.001

Dehydrating cells makes them more crowded and more destabilizing to proteins.

Guseman AJ & Pielak GJ. **Cosolute and Crowding Effects on a Side-By-Side Protein Dimer.** Biochemistry. DOI: 10.1021/acs.biochem.6b01251

The amount and nature of other molecules in solution greatly impacts protein interactions.

Madayag AC, **Stringfield SJ**, Reissner KJ, Boettiger CA, & Robinson DL. **Sex and adolescent ethanol exposure influence Pavlovian conditioned approach.** Alcoholism: Clin. and Exp. Res. PMC5419304

Alcohol exposure during adolescence affects later reward-seeking behaviors in rats.

Stringfield SJ, Palmatier MI, Boettiger CA, & Robinson DL. **Orbitofrontal involvement in sign and goal tracking conditioned responses: effects of nicotine.** Neuropharm. PMC5385154

Nicotine blunts firing in an impulse-control and reward-seeking region of the rat brain.

Tucker DK & Fenton SE. **Mammary Gland: Overview.** Encyclopedia of Reproductive Biology. JA Flaws, M. Skinner, Eds. (in press)

Review of critical windows of mammary gland development and chemical-related breast cancer susceptibility in human and rodents.

Tucker DK, Foley J, Bouknight S, & Fenton SE. **Sectioning mammary gland whole mounts for lesion identification.** J. Vis. Exp. 125. e55796, DOI: 10.3791/55796.

Developed and validated a method for histopathological assessment of whole rodent mammary glands.

Anjuwon-Foster BR, & Tamayo R. **A genetic switch controls the production of flagella and toxins in Clostridium difficile.** PLoS Genet. PMC5386303.

A pathogenic bacterium routinely inverts a gene control region for motility and toxin production.

Honors & Awards



NSF, AHA, and F31 Fellowship Awardees

NSF: Rachel Battaglia. Rachel gave a talk in the European Intermediate Filament meeting in Saint Malo, France. She also helped organize the Triangle Cytoskeleton Meeting in September. **F31:** Fabio Urbina and Alex Guseman. Fabio presented at the Cold Spring Harbor Laboratories meeting on cellular dynamics modeling. Alex received the Ledoux Travel award and presented a poster at the 31st Annual Meeting of the Protein Society this summer. **AHA:** Nicole Fleming was awarded an American Heart Association predoctoral fellowship.

Get dressed up and talk science!

From local to international meetings, IMSD students presented posters and gave talks in 2017. **De'Ashia Lee** presented in Charlotte, NC at the Chlamydia Basic Research Society meeting. **Kevin Currin** was awarded top 10% of abstracts for the reviewers' choice during the American Society of Human Genetics meeting in Orlando in October. **Yael Escobar** presented at the Tobacco Centers of Regulatory Science Grantee Meeting in Bethesda and at the Society of Toxicology 56th Annual Meeting in Baltimore. **Megan Agajanian** presented a poster at the WNT Gordon Conference in Stowe, VT. **Brandon Anjuwon-Foster** presented at the Molecular Genetics of Bacteria & Phages meeting in Madison, WI. He also presented at the UNC-CH 3rd Annual Academic Research Conference and was awarded the Sigma Xi Best Oral Presentation Award. **Ricardo Rivera-Soto** gave a talk in Berlin, Germany at the 20th International Workshop on Kaposi's Sarcoma Herpes Virus and Related Agents conference. **Jeff Snell** recently returned from giving a talk at the African Organization for Research and Training In Cancer (AORTIC) in Kigali, Rwanda on a paper he published last year focused on Malawi esophageal cancer.

Edhriz and Yael to lead UNC SPAG

Edhriz Siraliev-Perez will serve as the President and Yael Escobar will serve as Chair of Professional Development for the UNC-CH Science Policy Advocacy Group. Their mission is to "promote the role of science in public policy." Go check them out!



Anjuwon-Foster BR, & Tamayo R. **Phase variation of Clostridium difficile virulence factors.** Gut Microbes. PMID: 28806147

The latest and greatest review.

Cramer JB, Pohlman D, Gomez F, Mark L, Kornegay B, Hall C, **Siraliev-Perez E**, Walavalkar NM, Sperlazza MJ, Bilinovich S, Prokop JW, Hill AL, & Williams DC Jr. **Methylation-specific targeting of a chromatin remodeling complex from sponges to humans.** Sci. Rep. DOI: 10.1038/srep40674

Proteins that recognize methylated DNA evolved from the earliest multicellular organisms and have been maintained to varying degrees across animal evolution.

McNeill RS, Canoutas DA, Stuhlmiller TJ, Dhruv HD, Irvin DM, Bash RE, Angus SP, Herring LE, Simon JM, Skinner KR, **Limas JC**, Chen X, Schmid RS, Siegel MB, Van Swearingen AED, Hadler MJ, Sulman EP, Sarkaria JN, Anders CK, Graves LM, Berens ME, Johnson GL, & Miller CR. **Combination therapy with potent PI3K and MAPK inhibitors overcomes adaptive kinase resistance to single agents in preclinical models of glioblastoma.** Neuro-Oncology, PMID: 28379424

Two different kinase inhibitors may be better than one to target brain cancers.

Battaglia RA, Kabiraj P, Willcockson HH, Lian M, & Snider NT. **Isolation of intermediate filament proteins from multiple mouse tissues to study aging-associated post-translational modifications.** J. Vis. Exp. 123. DOI: 10.3791/55655.

Developed rapid isolation of intermediate filament proteins.