

MPB GSA NEWSLETTER

Molecular Physiology & Biophysics

Graduate Student Association

Fall 2019

The purpose of this newsletter is to serve as a resource for MPB students to get to know the department better.

UPCOMING EVENTS

November 8th – 10:00 am Coffee Hour with Linda Sealy (Light Hall 443)

November 15th— 2019 Diabetes Day - <https://redcap.vanderbilt.edu/surveys/?s=FMLPJ47LT3>

November 18th – 2019 Vanderbilt Center for Addiction Research (VCAR) Science Day

December 14th – MPB Holiday Party

May 11th-12th, 2020 – The annual Midwest Islet Club Meeting is being held at the Vanderbilt Student Life Center this year!

Congratulations, MPB!

The MPBGSA would like to say congratulations to our MPB students and postdocs for all of their achievements! We have a very talented bunch, so we are taking a moment to highlight some of the accomplishments over the past year. We apologize to any students that we may have missed. **Please let us know of recent grants, awards and publications so we can feature it in the newsletter.** <>>

- May 2019: Ian Williams (Wasserman lab) was awarded the Founder's Medal for the University Graduate School.
 - May 2019: Matt Dickerson (Jacobson lab) was awarded for "Best Poster" at Diabetes Day held at the University of Kentucky.
 - May 2019: Sarah Graff (Jacobson lab) was asked to speak at one international and two national conferences in 2019, and was awarded for "Best Oral Presentation" at the 12th annual Midwest Islet Club Meeting.
 - July 2019: Benjamin Kesler, Guoliang Li, Alexander Thiemicke, Rohit Venkat & Gregor Neuert (Neuert lab) published a paper titled "Automated cell boundary and 3D nuclear segmentation of cells in suspension" in *Scientific Reports*.
 - August 2019: Matt Cottam (Hasty lab) was awarded the Dean's Award for Exceptional Achievement in Graduate Studies.
 - September 2019: Tyler Perfitt (Colbran lab) was selected to speak at the Vanderbilt Kennedy Center Science Day's Data Blitz.
 - October 2019: Nathan Winn (Hasty lab) was awarded as one of the five inaugural recipients of an APS Postdoctoral Fellowship.
 - October 2019: Nathan Winn (Hasty lab) was awarded the 2019 The Obesity Society Early Career Research Grant, and will be honored during Obesity Week in Las Vegas.
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MPB Annual Relay Race

By Nathan Winn

The 9th Annual MPB Relay Race was a success with four competing laboratories. Each ‘glycogen-loaded’ participant exchanged their computers and laboratory apparatuses for gym clothes and home-made batons in preparation for the 300 meter dash. As per tradition, laboratory PIs were the first leg of the relay each of whom battled the turf to secure a lead for their respective teams. Spectators cheered for their teammates as they exhaustingly rounded the track. In the end after a couple of lead changes, the Chen/Gannon merged lab team emerged victorious. The race was followed by a happy hour on the 7th floor atrium of MRBIV, where any glycogen that was expended during the race was quickly replenished with a cold beer or sweet snack. Despite the competitive drive from each laboratory the event ended with many laughs and comradery. <<>



Congratulations to the 2019 winners of the coveted teapot!



MPB Annual Halloween Party

By Payam Fathi

The MPB GSA hosted yet another successful Halloween Party last week. Highlights from the event included pumpkin carving, a costume contest, and copious amounts of food and drink. Notably absent this year was the Colbran lab's elaborate and carefully crafted group costume. However, instead the Carrasco lab took the helm with a delightfully refreshing apiary-themed group costume (beekeeper included). This year, the Hasty lab won the group prize for well-executed Parks and Recreation (multi-award-winning sitcom available to stream on Netflix) themed character costumes. Other costumes spotted at the event included multiple Spiderman renditions (Mchaourab Lab), 90's cartoon characters (Wasserman Lab), genetically modified pumpkin farmer (Ayala Lab), Price Is Right (Colbran Lab, missing Bob Barker, rest in peace*) and lastly a homage to a movie produced in the mid aughts, "DodgeBall: a TRUE underdog story" (2004, surprisingly not available to stream on Netflix,) complete with custom designed t-shirts, chants, and dodgeball-esque props (Winder Lab). Single costumes included Winnie the Pooh and Rosie the Riveter (prize winner, Sarah Graff from the Jacobson Lab). Thanks to everyone for attending and participating in this GSA-hosted event, looking forward to next year! <>>

*Bob Barker is still alive.



Individual costume contest contestants – congratulations, Sarah, on your win!



Group contest winners, the Hasty lab, as the Parks Department (and supporting characters) from Parks and Recreation.



Ayala Lab, photo-credit: Wasserman Lab, taken using the iPhone 11 Pro, available at Apple stores near you for an absurdly high amount of money (Payam Fathi).

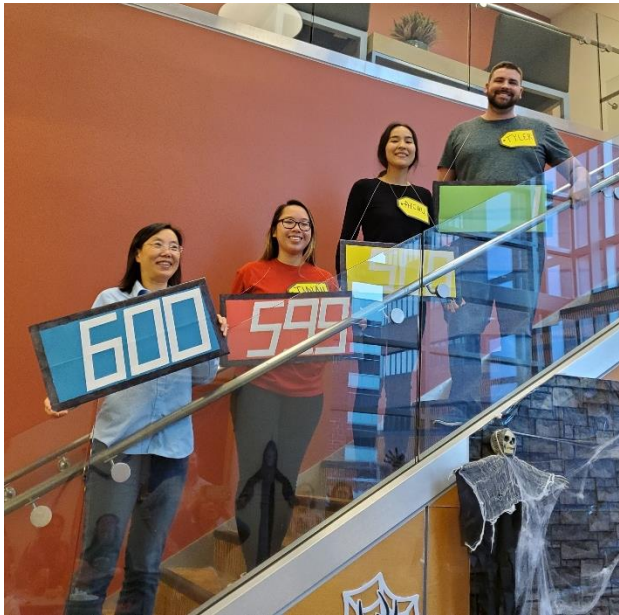


Carrasco Lab as various "bees."



Winder Lab, as the rivalling teams: Globo Gym and Average Joe's.

Colbran Lab, from "The Price is Right."



Faculty Spotlight:

Dr. Nancy Carrasco, M.D., M.S.

By Katie Volk

The Department of Molecular Physiology and Biophysics is thrilled to welcome Dr. Nancy Carrasco as the new chair of the department! A leading figure in the study of iodide transport and its critical role in the thyroid and mammary glands, Dr. Carrasco arrives at Vanderbilt after her time as C.N.H. Long Professor of Cellular and Molecular Physiology at Yale University.



On what first sparked her interest in pursuing a career in science:

Carrasco's father was a chemical engineer, and she remembers that she always loved accompanying him on Saturday trips to his lab. From an early age then, her interest in biology and human physiology began to grow, and Carrasco eventually decided to pursue medicine (at the National Autonomous University of Mexico, UNAM, in her native Mexico City). During medical school, Carrasco adds, "I loved my basic science classes in those first few years and quickly joined a research lab." It was there, she says, where she discovered her passion for scientific inquiry and her desire to ask questions of mechanism, which weren't always answered in the clinic. During her years as a medical student, she often found herself "escaping" the wards to spend time in the lab. For Carrasco, her time as a medical student ultimately left her yearning for deeper inquiry.

On how she ended up in an academic career at a research institution:

After obtaining her medical degree and a master's degree in biochemistry from

UNAM, Carrasco knew assuredly that she wanted to pursue a career in basic research. "During my time in medical school, I was always more inquisitive, fascinated by the specific molecular mechanisms" underlying a drug administered in the hospital or prescribed to a patient. Her clarity on pursuing post-doctoral research coincided with the desire her husband (whom she met on the first day of medical school) had expressed to pursue his deep passion for music. After graduation, Carrasco and her husband left for the States for her post-doctoral work at The Roche Institute of Molecular Biology and the start of his doctoral work in music composition at The Juilliard School in New York City. After her time at Roche working under Dr. Ronald Kaback, a pioneer in the study of membrane transport, Carrasco sought more independence in her own research and was asked to join the faculty at Albert Einstein College of Medicine in 1987.

On characterizing the sodium-iodide symporter:

Carrasco was the first scientist to clone and extensively characterize at the molecular level the sodium-iodide symporter (NIS), the critical membrane protein that mediates active iodide transport in the thyroid and other tissues. When Carrasco began her time at Albert Einstein, she knew she wanted to identify NIS at the molecular level. Although there had been a general understanding of iodide transport as a target for the treatment of thyroid disease since 1946, Carrasco became interested in the identification and functional expression of the relevant protein itself – its physiological and clinical importance seemed to warrant a complete characterization.

On the surprising places NIS has taken her:

"Be open and receptive," Carrasco says, "the beauty of science is never knowing where the science will take you. When you discover something interesting, follow that path even if it is something you never thought [about]." Carrasco's advice comes after several unexpected paths of discovery with NIS. Several years ago, Carrasco and her lab found that NIS expression appears in

the lactating breast and in patients with metastatic breast cancer, an unanticipated piece of the NIS puzzle. Now, she and her lab are working to investigate the potential of NIS-mediated radioiodide therapy in the treatment of metastatic breast cancer in patients who are unresponsive to traditional treatments. “We are going from the patient to the molecule and back,” adds Carrasco. One last unexpected avenue related to NIS was the discovery that the transporter could also actively transport perchlorate, an environmental pollutant found in sites related to industry or military use. “Perchlorate contamination of drinking water is a huge problem,” Carrasco says, and these findings have unexpectedly brought her work into the realm of public health.

On any current work her lab is conducting:

“The more we understand the basic science component, the better the position we will be in to do translational work,” says Carrasco. To this effect, Carrasco and her lab are currently working on several exciting projects aimed at understanding the structure and function of NIS, how the molecule discriminates between the import of some ions and not others (i.e. chloride, which NIS does not transport), and the stoichiometry of ion transport via NIS. Her lab is also actively investigating the role of NIS in several tissues using tissue-specific knockouts – and exciting new data suggest a role for NIS in metabolism at large, and iodide reabsorption in the kidney, in addition to its role in the lactating breast.

On a clinical direction she hopes to take her research in while at Vanderbilt:

Based on her lab’s data showing NIS expression in the metastatic breast, Carrasco hopes to carry out a clinical study to investigate the potential for radioiodide treatment in patients with metastatic breast cancer who are unresponsive to traditional therapies.

On what she likes best about Nashville so far:

“I love the fact that you can go hiking so easily here.” Carrasco continues, “I especially love the natural parks, like Radnor Lake” and how accessible they are.

On any new hobbies she’s acquired in Nashville:

“I bought a pass for the Nashville B-cycle city bike share system, and enjoy riding around places like Shelby Park.”

On the concluding advice she would give to aspiring academicians:

Carrasco says, “One of the most important things is to persevere. If there is an important question that needs to be identified, keep persevering.” She adds that when she first began her own lab to work on NIS, there were “moments when people told her not to pursue a transporter that was not yet characterized.” Despite the commentary by others, Carrasco knew she wanted to study NIS and encourages young researchers to persevere in the pursuit of the questions they want to address. She also emphasizes the importance of perspective. “One of the most valuable things to have in a setting is diversity of perspectives,” she says. Having come originally to the United States with the intention of going back to her own country, Carrasco urges young researchers to jump at any opportunity to experience life in an unfamiliar culture and prompts each individual to deeply value the perspectives provided by others. <>>

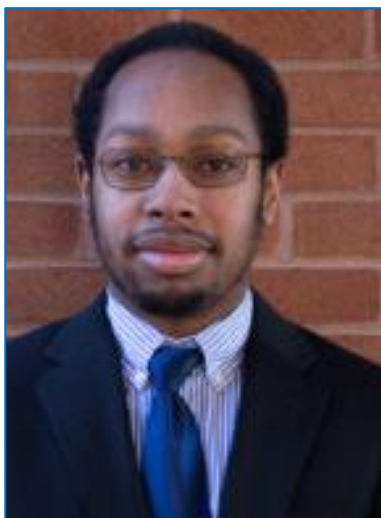


Carrasco with her husband Samuel Zyman, son Erik Zyman, and Dean of Basic Sciences Larry Marnett at her Endowed Chair event in September.



Welcome New MPB Students!

By Katie Volk



Name: Jason Hughes

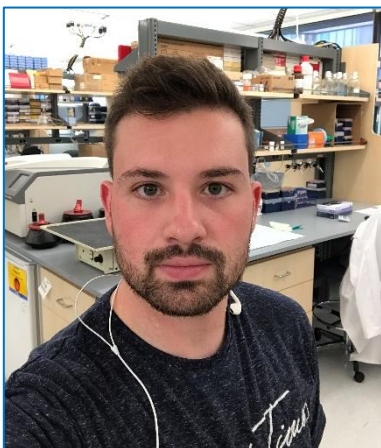
Hometown: Teaneck, New Jersey

Undergraduate school: University of Maryland, Baltimore County

Current lab: Dr. Gregor Neuert

Fun fact: I have really flexible ears/can flip my ear cartilage inside out.

Hobbies: Board games, Dancing (b-boying)



Name: Alejandro (Alex) Llorente

Hometown: Santander, Cantabria, Spain

Undergraduate school: Francisco De Vitoria University, Madrid

Current lab: Dr. Nancy Carrasco

Fun fact: I like to cook Spanish food, and do not trust a researcher who cannot prepare a good meal (because cooking is like following a protocol).

Hobbies: Hiking, discovering new things, reading biographical books about people that had big discoveries in science



Name: Arya Nakhe

Hometown: Kolhapur, India

Undergraduate school: Shivaji University, India

Current lab: Dr. David Jacobson

Fun fact: I like going for occasional long-distance motorcycle rides.

Hobbies: I like to paint, swim, and explore new places.



Name: Cayla Ontko

Hometown: Orlando, Florida/Anaheim, California

Undergraduate school: Vanderbilt University

Current lab: Dr. John S. Penn

Fun fact: I played at Carnegie Hall.

Hobbies: Art, baking, Frisbee



Name: Julia Pinette

Hometown: Derry, New Hampshire

Undergraduate school: Keene State College

Current lab: Dr. Alyssa Hasty

Fun fact: I have a blind cat shaped like a potato.

Favorite food: Pizza



Name: Serena Sweet

Hometown: Mims, FL

Undergraduate school: University of Miami

Current lab: Dr. Rich Simerly

Fun fact: Spanish was my first language.

Spirit animal: My dog, Azucar!



Name: Katrina (Katie) Volk
Hometown: Lancaster, CA
Undergraduate school: Washington and Lee University
Current lab: Dr. Alyssa Hasty
Fun fact: I have been to all 50 states!
Favorite food: Some form of granola

NEW MPB GSA Officers

President: Slavi Goleva
Vice President: Sarah Graff
Secretary: Matt Cottam
Treasurer: Shannon Townsend
Seminar Chair: Tiffany Richardson
Newsletter Chair: Katie Volk
Social Media Chair: Julia Pinette

We want to hear from you!

MPB students know how to get things done! **Let us know of recent grants, awards and publications so we can feature it in future newsletters.** Also, if you would like to contribute to the newsletter, please let us know! You can submit articles to katrina.m.volk@vanderbilt.edu. It's a great way to improve your writing skills and would look great on your CV! Comments and suggestions are encouraged as well.



MPBGSA@vanderbilt.edu



@Vanderbilt MPB Graduate Student Association: Join our Facebook group for updates!