



UNIVERSITY OF MIAMI  
MILLER SCHOOL  
of MEDICINE



# M SOM GRADUATE PROGRAMS

2023-2024

## PhD Programs

Biochemistry & Molecular Biology  
Executive PhD in Biochemistry  
Cancer Biology  
Cellular Physiology & Molecular Biophysics  
Human Genetics & Genomics  
Medical Scientist Training Program  
Microbiology & Immunology  
Molecular & Cellular Pharmacology  
Molecular Cellular & Developmental Biology  
Neuroscience  
Programs in Biomedical Sciences  
Physical Therapy – DPT/PhD

## Undergraduate Program

Summer Undergraduate Research Fellowship

## Masters Programs

Biochemistry & Molecular Biology  
Biomedical Sciences  
Clinical & Translational Investigation  
Genomic Medicine  
Medical Radiation Dosimetry  
Skin Biology & Dermatological Science  
Vision Science & Investigative Ophthalmology

## Public Health Sciences Programs

Biostatistics – MS/PhD  
Climate and Health – MS  
Epidemiology – PhD  
Master of Public Health – MPH  
Prevention Science & Community Health – MS/PhD  
Public Health – MS

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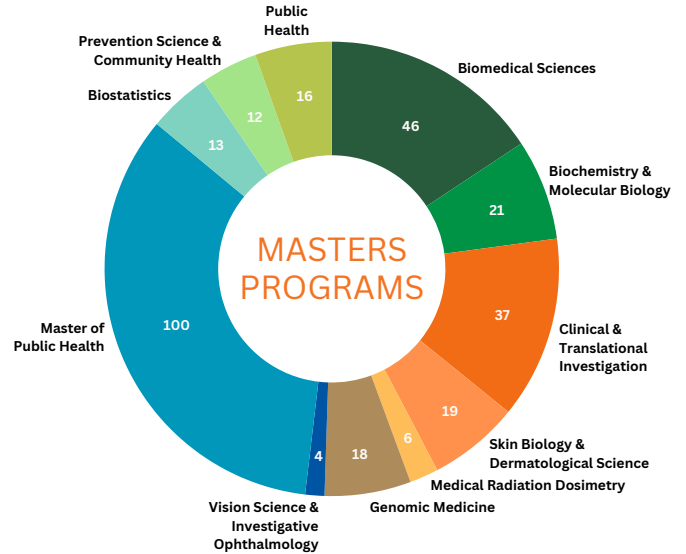
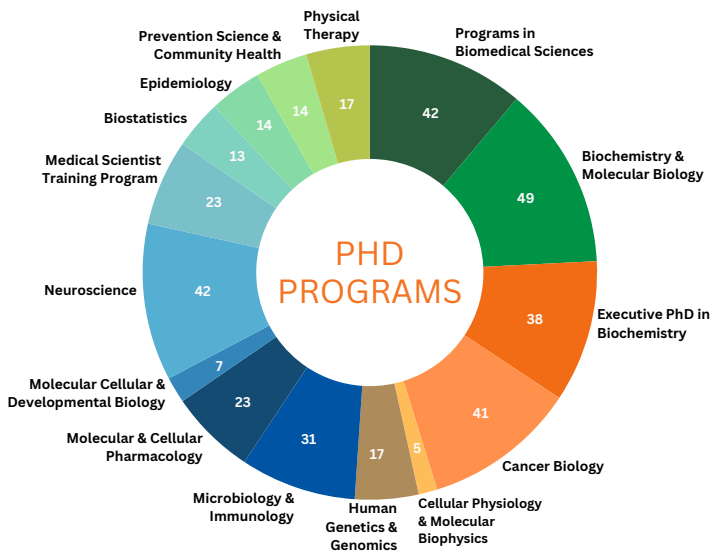
08 ALUMNI HIGHLIGHTS



Designed by Camille Custodio

# 2023-2024 ENROLLMENT

**844 TOTAL**  
 376 PhD Students  
 192 MS Students  
 100 MPH Students  
 176 DPT Students



## 5 Year Growth



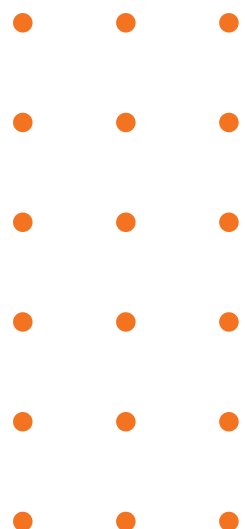
**185%** MS in Clinical & Translational Investigation  
 13 → 37 students



**171%** Executive PhD in Biochemistry & Molecular Biology  
 14 → 38 students



**89%** PhD in Human Genetics & Genomics  
 9 → 17 students



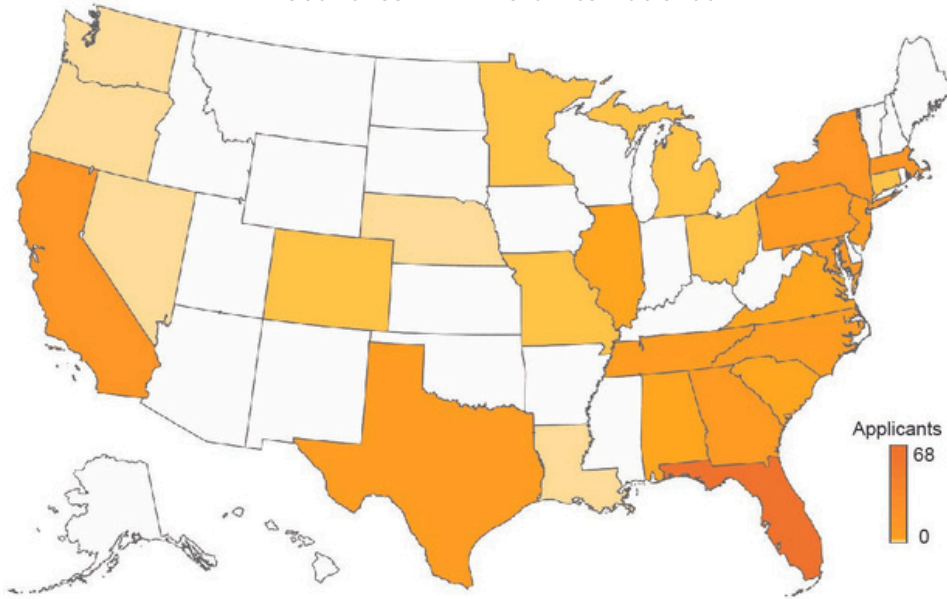


# INCOMING PIBS CLASS 2024-2025

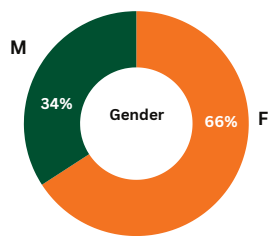
Programs in Biomedical Sciences (PIBS) will be welcoming **41 students**.

## APPLICATION POOL: 241 APPLICANTS

27 States + DC      75% Domestic  
24 Countries      25% International



## CLASS DEMOGRAPHICS



**3.62**  
Average GPA



**18 months**  
Average research experience



**18%**  
Increase in class compared to last year



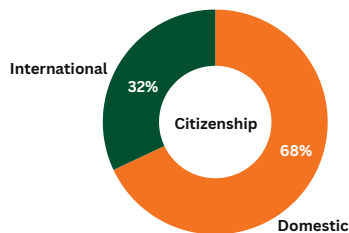
**33%**  
Acceptance Rate

“I am thrilled to have the opportunity to study at one of top universities in biomedical research- meeting with faculty members and current graduate students strengthened my desire to be a part of the UM scientific community.”

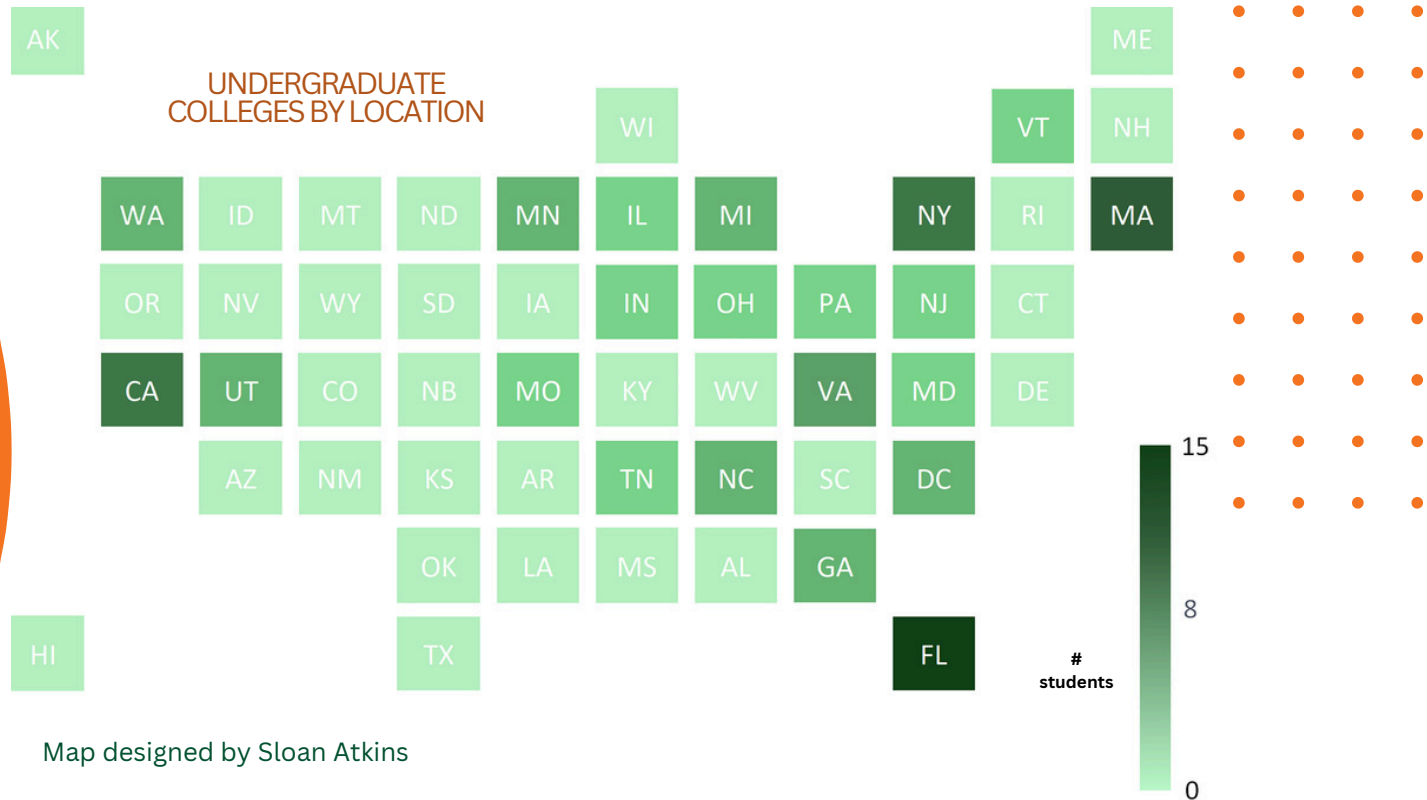
- David Suissa

“It's clear that the U is a place where students are encouraged to explore their interests, challenge themselves, and grow both personally and professionally.”

- Maykeling Sarai Araz Gutierrez



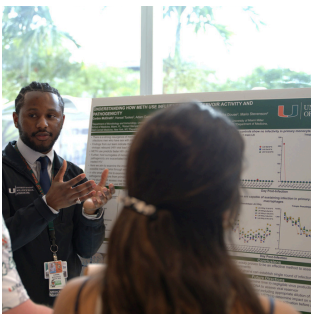
## MD/PHD DEMOGRAPHICS



Map designed by Sloan Atkins

## MD/PHD STUDENT OUTCOMES

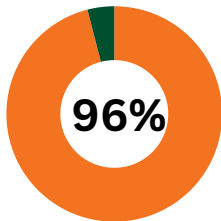
- Average time to degree: **7.9 years**
- Attrition in last 10 years: **≤ 4 %**
- Average publications per graduate between 2014-2024: **8.7 total | 2.8 first author**
- Extramural fellowships: **61% of MSTP students**



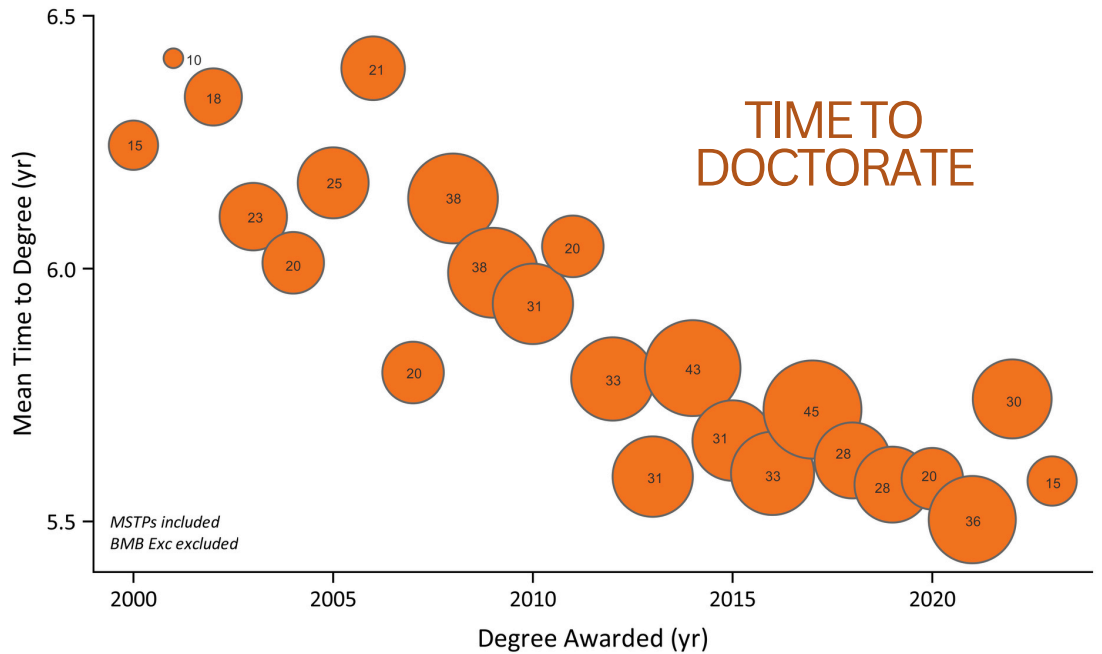
# PHD OUTCOMES



Average time to degree:  
**5.57 years**  
2019-2024, (n=124)



**Completion Rate**  
Admitted ≥2010, n=244



## Christian McDonald

**3 Minute Thesis 1st Place**

**Fifth Year - PhD Student in Microbiology & Immunology**  
**Mentor:** Dr. Noula Shembade & Dr. Enrique Mesri (Former Mentor)

**Dissertation:** How cancer virus Kaposi's Sarcoma Herpesvirus uses an eIF2-independent mechanism of translation initiation during viral replication and oncogenesis



## Kaylie Cullison, Ph.D.

**3 Minute Thesis People's Choice**

**Fourth year - MD/PhD Student in Biomedical Engineering**  
**Mentor:** Dr. Eric Mellon

**Dissertation:** The use of AI and machine learning of MRI images during glioblastoma treatment for prognosis

# FELLOWSHIPS

## \$1.22M in Grant Funding by MSOM PhD Students

Mohammed Alnukhali (A Ahmad, *BMB*) – Saudi Cultural Ministry  
 Abdulraof Alqrache (M Rivas, *BMB*) – Saudi Cultural Ministry  
 Olivia Bosquet (S Daunert, *BMB*) – Maytag and McKnight  
 Conor Moran (A Barrientos, *BMB, MSTP*) – NIH  
 Michael Moraskie (S Daunert, *BMB*) – McKnight  
 Olivia Osborne (M Toborek, *BMB*) – NIH

Charles Alver (A Agarwal, *BME, MSTP*) – NIH  
 Kaylie Cullison (E Mellon, *BME, MSTP*) – NIH

Daniela Barbieri (M Figueroa, *CAB*) – Amer Soc Hematology  
 Caroline Coughlin (J Schatz, *CAB, MSTP*) – NIH  
 Olivia Skye Montoya (J Taylor, *CAB*) – NIH  
 Adnan Mookhtiar (S Nimer, *CAB*) – NIH  
 Michelle Zhang (D Pelaez, *CAB, MSTP*) – NIH  
 Nicolae Zubenco (V Sanghvi, *CAB*) – la Caixa Foundation

Sandra Garcia (W Hlaing, *EPI*) – McKnight  
 Karlon Johnson (W Hlaing & T Rundek, *EPI*) – PhRMA  
 Robert Mesa (Tali Elfassy, *EPI*) – AHA

Jamie Burgess (M Tomic-Canic, *MCP, MSTP*) – NIH

Farhan Qureshi (A Caicedo, *MDB, MSTP*) – NIH

Yaa Abu (S Roy, *MIC, MSTP*) – NIH  
 Acacia Crouch (T Malek, *MIC, MSTP*) – NIH  
 Chris Li (A Tomei, *MIC, MSTP*) – NIH  
 Christian McDonald (N Shembade, *MIC*) – McKnight

Danielle Antoine (S Roy, *NEU*) – NIH  
 Lauren Bystrom (L Tuesta, *NEU, MSTP*) – NIH  
 Julian Dallmeier (W Scott, *NEU*) – NIH  
 Jessica Dennison (C Wahlestedt, *NEU*) – NIH  
 Bianca Graziano (L Bianchi, *NEU*) – AHA  
 Elizabeth Jacobs (M Saporta, *NEU, MSTP*) – NIH  
 Markus Spurlock (V Shestopalov, *NEU*) – NIH

Iqra Shams (R Barro Soria, *PHS*) – US-Pakistan Knowledge Corridor

Leah Dodds (T Elfassy, *PREV, MSTP*) – NIH  
 Jahn Jaramillo (A Harkness, *PREV*) – NIH  
 Marina Plesons (A Harkness, *PREV, MSTP*) – Wolfson Foundation



74

Students Completed PIB 790 Grant Writing Basics Course



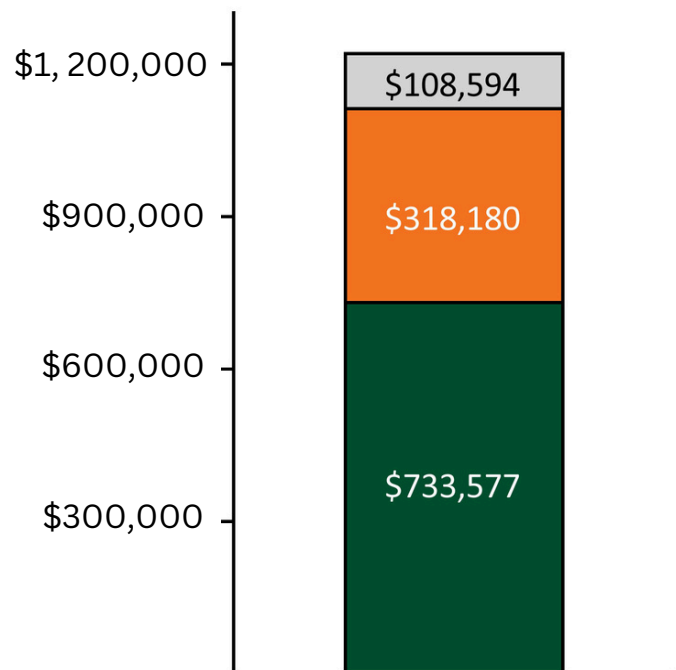
26

Grant Submissions



21

NIH Grants



Stipend
  Tuition
  Institutional Allowance



# PUBLICATIONS



Average number of publications per PhD graduate:  
**6.23**



Average number of first author publications per PhD graduate:  
**1.93**

PhD Program	5 year avg. of publications/PhD graduate (n)	5 year avg. of first author publications/PhD Graduate
Biochemistry & Molecular Biology	4.46 (13)	1.38
Biostatistics	5.06 (16)	1.00
Cancer Biology	4.92 (27)	1.30
Cellular Physiology & Molecular Biophysics	3.5 (6)	1.67
Epidemiology	6.50 (18)	2.00
Human Genetics & Genomics	9.38 (8)	2.62
Microbiology & Immunology	3.95 (19)	2.37
Molecular & Cellular Pharmacology	7.05 (20)	1.87
Molecular Cell & Developmental Biology	7.75 (8)	2.00
Neuroscience	5.85 (27)	2.00
Prevention Science & Community Health	11.06 (18)	4.38
<b>All Programs</b>	<b>6.23 (180)</b>	<b>1.93</b>

## Student Publication Spotlight

### Skye Montoya, Cancer Biology

Mentor: Justin Taylor  
Science. 2024 Feb 2;383(6682):eadi5798

### Bianca Graziano, Neuroscience

Mentor: Laura Bianchi  
Neuron. 2024 Jun 5;112(11):1832

RESEARCH

### RESEARCH ARTICLE SUMMARY

DRUG DEVELOPMENT

## Kinase-impaired BTK mutations are susceptible to clinical-stage BTK and IKZF1/3 degrader NX-2127

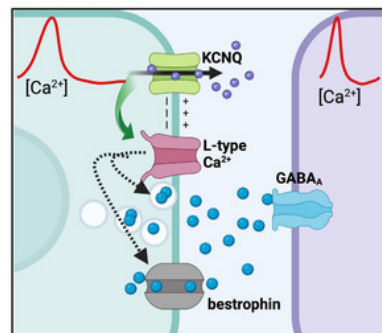
Skye Montoya<sup>†</sup>, Jessie Bourcier<sup>†</sup>, Mark Noviski<sup>†</sup>, Hao Lu<sup>†</sup>, Meghan C. Thompson, Alexandra Chirino, Jacob Jahn, Anya K. Sondhi, Stefan Gajewski, Ying Siow (May) Tan, Stephanie Yung, Aleksandra Urban, Eric Wang, Cuijuan Han, Xiaoli Mi, Won Jun Kim, Quinlan Sievers, Paul Auger, Hugo Bousquet, Nivetha Brathaban, Brandon Bravo, Melissa Gessner, Cristiana Guiducci, James N. Iuliano, Tim Kane, Ratul Mukerji, Panga Jaipal Reddy, Janine Powers, Mateo Sanchez Garcia de los Rios, Jordan Ye, Carla Barrientos Riso, Daniel Tsai, Gabriel Pardo, Ryan Q. Notti, Alejandro Pardo, Maurizio Affer, Vindhya Nawaratne, Tulasigeri M. Totiger, Camila Pena-Velasquez, Joanna M. Rhodes, Andrew D. Zelenetz, Alvaro Alencar, Lindsey E. Roeker, Sanjoy Mehta, Ralph Garippa, Adam Linley, Rajesh Kumar Soni, Sigrid S. Skånland, Robert J. Brown, Anthony R. Mato, Gwenn M. Hansen\*, Omar Abdel-Wahab\*, Justin Taylor\*

Article

## Neuron

### Glial KCNQ K<sup>+</sup> channels control neuronal output by regulating GABA release from glia in *C. elegans*

Graphical abstract



Authors

Bianca Graziano, Lei Wang, Olivia R. White, Daryn H. Kaplan, Jesus Fernandez-Abascal, Laura Bianchi

Correspondence

lbianchi@med.miami.edu

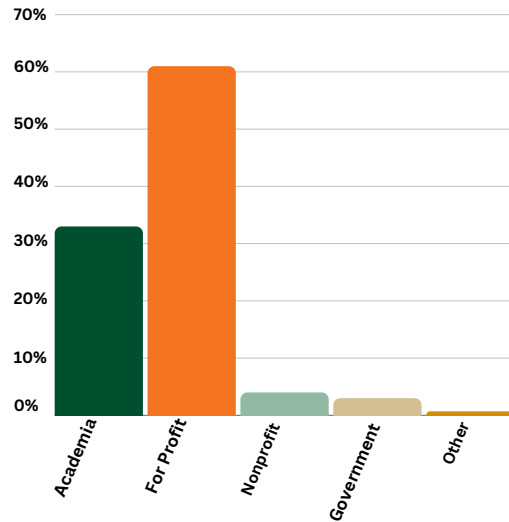
In brief

Graziano et al. report that in *C. elegans* KCNQ K<sup>+</sup> channels control the glial membrane potential, thereby regulating voltage-gated Ca<sup>2+</sup> channels responsible for Ca<sup>2+</sup> influx, which mediates GABA release from glia. Human KCNQ pathogenic mutations associated with epilepsy and autism spectrum disorder alter GABA release from glia.



## Long-Term Placement for PhD Graduates

2015-2019 Graduates, n=149



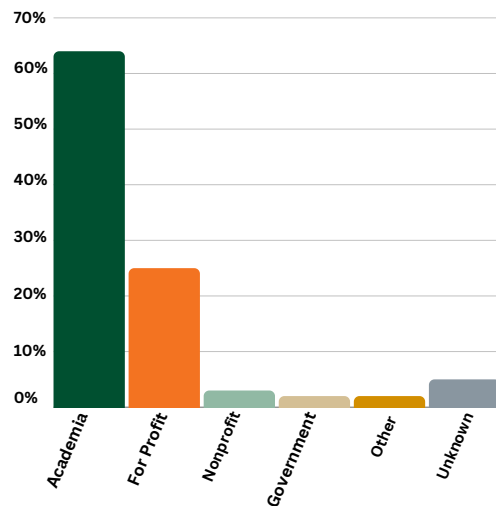
**Alumni Spotlight:** Hui Zhong, Ph.D. | Class of 2023  
*Postdoctoral Associate: Broad Institute of MIT and Harvard*

*Program: Biochemistry & Molecular Biology*  
*Mentor: Antonio Barrientos, Ph.D.*

# CAREER OUTCOMES

## Immediate Placement for PhD Graduates

2020-2024 Graduates, n=121



**Alumni Spotlight:** Samara Singh, Ph.D. | Class of 2024  
*Postdoctoral IRTA Fellow at the NEI/NIH*

*Program: Cancer Biology*  
*Mentor: Nipun Merchant, Ph.D.*

## Exciting News!

**We are now an implementation site for the Professional Development (pd | hub) Collections: Foundations of Career Exploration for Ph.D. Scientists.**

Led by Dr. Ana Fiallos, Heather Rose, and Katelyn McGuigan to facilitate an evidence-based career exploration curriculum for Ph.D. students and postdoctoral fellows.

# MEDICAL FACULTY ASSOCIATION AWARDEES



**First-place:** Skye Montoya  
**Mentor:** Justin Taylor, M.D.  
**Program:** Cancer Biology  
**Dissertation:** Investigating resistance mechanisms to non-covalent Bruton's tyrosine kinase inhibitors and using degraders to overcome resistance for patients with B cell malignancies



**Second-place:** Olivia Osborne  
**Mentor:** Michal Toborek, M.D., Ph.D.  
**Program:** Biochemistry & Molecular Biology  
**Dissertation:** Ischemic stroke in cerebral amyloid angiopathy: microvascular injury and recovery



**Third-place:** Oandy Naranjo  
**Mentor:** Michal Toborek, M.D., Ph.D.  
**Program:** Biochemistry & Molecular Biology  
**Dissertation:** Blood-brain barrier pericytes as key latent HIV-1 reservoirs: a comprehensive transcriptional analysis



**Fourth-place:** Jiaqi Liu  
**Mentor:** R. Grace Zhai, Ph.D.  
**Program:** Molecular & Cellular Pharmacology  
**Dissertation:** Compartment-specific NAD+ metabolism in glioma

## ALUMNI HIGHLIGHTS



### Dr. Jason Miska

#### Microbiology and Immunology

As an Assistant Professor at Northwestern, Dr. Jason Miska's research is at the nexus of immunology, metabolism, and glioblastoma. He received his Ph.D. in Microbiology and Immunology from the University of Miami under the guidance of Dr. Zhibin Chen, focusing on the role of CTLA-4 in autoimmunity, antitumor immunity, and its paradoxical role in inducing gastric tumorigenesis. To extend his knowledge of basic immunology and cancer biology into a more clinically focused environment, he completed his post-doctoral training in the laboratory of Maciej Lesniak, studying the role of immune suppression in glioblastoma. Dr. Miska's laboratory focus is on the role of the metabolic choices of immune cells within brain tumors. Specifically, his laboratory studies how tumor-infiltrating myeloid cells contribute to immune suppression, tumor growth, and therapy resistance.



### Dr. Lu Han

#### Cellular Physiology & Molecular Biophysics

Dr. Lu Han is currently a Senior Data Scientist at Meta, specializing in optimizing recommendation systems for reels. She earned her Ph.D. in Cellular Physiology & Molecular Biophysics from the University of Miami under the mentorship of Dr. Laura Bianchi. Her work on discovering novel mechanosensory ion channels involved in touch in the Bianchi laboratory led to a first-author publication in the Journal of Neuroscience. After completing her Ph.D., she conducted research in diabetes and liver disease at Stanford University School of Medicine which resulted in six publications. Her commitment to data-driven decision-making was soon developed during her three years at San Jose State University, where she led advanced data analytics and reporting while facilitating informed decisions across departments. She then worked as a Data Scientist at Lyft, where she contributed to growth strategies within the Rider Growth Team transitioning her from academia to industry.