



**20<sup>th</sup> ANNIVERSARY**

# NIH Graduate Student Research Symposium

**FEBRUARY 15, 2024**

Natcher Conference Center  
Bethesda, Maryland





**20<sup>th</sup> ANNIVERSARY**

**NIH Graduate  
Student  
Research  
Symposium**

WELCOME MESSAGE ..... 2

FOREWORD ..... 3

ACKNOWLEDGEMENTS ..... 4

PROGRAM OF EVENTS ..... 5

NIH GRADUATE PARTNERSHIPS PROGRAM  
GRADUATION AWARD RECIPIENTS ..... 6

KEYNOTE ROUNDTABLE ..... 9

STUDENT SPEAKERS ..... 11

OUTSTANDING MENTOR AWARDS ..... 13

STUDENTS ..... 14

POSTERS ..... 18

Graduate Partnerships Program  
Office of Intramural Training & Education  
Office of Intramural Research  
National Institutes of Health  
U.S. Department of Health & Human Services

## WELCOME MESSAGE

### PHILIP WANG, FORMER DIRECTOR OF THE NIH GRADUATE PARTNERSHIPS PROGRAM

Welcome to the 20th Annual NIH Graduate Student Research Symposium!

Has it really been 20 years? As I write this message, I reflect on our symposium over this time and the students that have come through the NIH Graduate Partnerships Program (GPP). A lot has changed, but one thing remains constant – the NIH GPP students are amazing, and I'm so thrilled to be a part of this family.

The date was April 23, 2004; we hosted the First Annual NIH Graduate Student Research Symposium. Phil Ryan (top) and I (middle, with fellow GPP alumna Maria Claudia Lattig Matiz) were GPP students at the time and participating in the first symposium organizing committee. As is the case now, the GPP students were enthusiastic and looking forward to sharing their research with the NIH community.

The first symposium included remarks from Dr. Elias Zerhouni (the Director of NIH at the time), Dr. Harold Varmus (former NIH Director), and Dr. Michael Gottesman (the NIH Deputy Director for Intramural Research at the time, pictured on bottom).

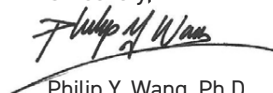
Now, on this 20th event here in the Natcher Conference Center, we have come full-circle and are thrilled and honored to have Dr. Monica Bertagnolli (the Director of NIH), Dr. Lawrence Tabak (Principal Deputy Director and former Acting Director of NIH), and Dr. Nina Schor (NIH Deputy Director for Intramural Research) participating this year.

This event also celebrates a change in leadership within the GPP. I will be moving on to a new leadership position within the NIH Office of Intramural Training and Education and have passed the torch to Dr. Phil Ryan (former Deputy Director, Graduate Programs and Student Services) to serve as the next Director of the GPP. Phil's passion for graduate education and helping trainees achieve their goals is truly inspiring, and I'm certain that he'll do an outstanding job. Furthermore, Dr. Laura Marler (our GPP Director of Student Services) will become the new Director of the Office of Postdoctoral Services in the OITE, where she will continue her strong advocacy work on behalf of the NIH trainees.

With these changes, it's an exciting time for the program. Again, the constant is the amazing students. With over 400 GPP students at any given time in the NIH Intramural Research Program, with partner universities worldwide, you all enrich the NIH community in immeasurable ways. To all of our current students, recent graduates and alumni, I am so proud of you. It's been an honor serving the GPP community over the years through my various roles. The GPP family is truly remarkable, and I look forward to keeping in touch and continuing to see all of your wonderful accomplishments in the future.

Once again, welcome to the 20th Annual NIH Graduate Student Research Symposium and thank you all for joining us on this special day!

Sincerely,



Philip Y. Wang, Ph.D.

Former student, Graduate Student Council member, Director of Student Services, Deputy Director, and Director of the NIH Graduate Partnerships Program



## FOREWORD

Every year, the **National Institutes of Health (NIH) Graduate Student Research Symposium** showcases the breadth of scientific research and the achievements of the graduate student community in the NIH Intramural Research Program. The symposium is the largest graduate student event of the year - an event in which graduate students can come together to share their research, appreciate the work of their colleagues, and celebrate the successes of the graduate student community.

This year, we are excited to celebrate the 20th NIH Graduate Student Research Symposium. This annual symposium provides an opportunity to acknowledge the scientific accomplishments of the hundreds of graduate students working on their dissertation research at the NIH. The symposium highlights the broad spectrum of scientific research conducted by graduate students at the NIH, who represent numerous universities across the world and span nearly all institutes and centers within the NIH. The NIH Graduate Research Symposium recognizes the diversity of research specialties supported by the NIH and exhibits the scientists of tomorrow, from those developing new research proposals to those preparing to defend years of dissertation research.

The symposium will be held in person on February 15th and will provide the graduate student community with the chance to hear about the scientific work of our peers in several formats. Over 100 students will present their research during the symposium through scientific posters judged by NIH postdoctoral fellows and staff scientists. Winners of the poster competition will be awarded the prestigious NIH Graduate Student Research Award, generously funded by the OITE. In addition, four current students will give oral presentations chosen based on scientific merit and diversity. Our 8th annual elevator pitch competition will give current graduate students the opportunity to explain their science to a general audience in two minutes or less.

In honor of the 20th Annual NIH Graduate Student Research Symposium, we have invited GPP alumni to attend and take part in this year's symposium. The alumni are looking forward to attending posters and hearing about current graduate research. In addition, a lunch-time networking session will allow current students to talk with these alumni and hear about their career paths after leaving the GPP.

In the afternoon, we are honored to welcome Dr. Monica Bertagnolli, Director of the NIH, Dr. Larry Tabak, NIH Principal Deputy Director, and Dr. Nina Schor, NIH Deputy Director for Intramural Research to participate in a panel on scientific leadership moderated by Dr. Sharon Milgram, Director of the Office of Intramural Training and Education. We are excited to hear from these preeminent leaders of the scientific community.

The symposium will conclude with our annual award ceremony. During a graduate ceremony to recognize those students who have defended their dissertations within the past year, Dr. Sharon Milgram and Dr. Nina Schor will present the recent graduates with a certificate in honor of their accomplishments. Our success as graduate students would not be the same without the guidance of high-quality research mentors who have supported us in innumerable ways, from providing networking opportunities to career development advice. We are grateful for the influential mentorship provided at the NIH to help us become independent scientists and forge relationships extending beyond graduate school. We will conclude the day by recognizing two outstanding mentors, nominated by their students, for their leadership, support, and dedication to graduate research at NIH.

We are thankful for the opportunity to share our research with the entire NIH community at the 20th Annual NIH Graduate Student Research Symposium. We thank all of the graduate students who have participated in this event and those mentors and loved ones who have provided us with continuous support in our scientific careers. We hope this event establishes new connections and collaborations and inspires future scientific contributions to the community at the NIH.

## ACKNOWLEDGEMENTS

We are grateful to the Training and Scientific Directors of the NIH Institutes and Centers, the Graduate Partnerships Program (GPP), and the Graduate Student Council (GSC) for their continuous support of the graduate student community and for the opportunity to recognize the achievements of the NIH graduate students at this symposium. We would like to thank Dr. Gail Seabold, Dr. Matt Moradi, and Austin Chiles for organizing the symposium poster session, and we acknowledge the effort of the postdoctoral fellow and staff scientist judges for helping to make the poster competition possible. We would like to thank the 2023-2024 GSC co-chairs, Brad Olinger and Rima Sakhawala, for all of their efforts and dedication to the GSC and graduate student community and for managing the Outstanding Mentor Awards. This symposium would not be possible without the help of the Office of Intramural Training and Education (OITE). We are especially thankful for Dr. Sharon Milgram, Dr. Philip Wang, Dr. Phil Ryan, Dr. Laura Marler, and other OITE staff who have contributed significantly to the planning of this event. Finally, we would like to thank the graduate students, mentors, alumni, and all attendees whose participation made this event successful.

### THE 20<sup>TH</sup> ANNUAL NIH GRADUATE RESEARCH SYMPOSIUM COMMITTEE

**Ifeoma Azinge**, NIMH, Brown University

**Jose Delgado**, CC, University of Maryland

**Ben Filio**, NINDS, Brown University

**Smriti Kanangat**, NCI, Emory University

**Vivian Morris**, NCI, Johns Hopkins University

**Brad Olinger**, NIA, Johns Hopkins University

**Sadia Perveen**, NHLBI, University of Turin

**Rima Sakhawala**, NIDDK, Johns Hopkins University

## TWENTIETH ANNUAL NIH GRADUATE STUDENT RESEARCH SYMPOSIUM

## FEBRUARY 15, 2024 PROGRAM OF EVENTS

9:00 am - 10:00 am	<b>ELEVATOR PITCH COMPETITION</b> Registration in Lower Lobby
10:00 am - 11:30 am	<b>WELCOME AND STUDENT ORAL PRESENTATIONS</b> Ruth L. Kirschstein Auditorium  <b>Sharon L. Milgram, Ph.D.</b> Director, NIH Office of Intramural Training and Education  <b>Devorah Cahn, University of Maryland, College Park, NCI</b> <b>Strategies for Overcoming the Extracellular Matrix Barrier to Nanoparticle Drug Delivery in the Tumor Microenvironment</b>  <b>Jenny Hsin, University of Cambridge, NIDCR</b> <b>Investigating Initiation Mechanisms of Neuroblastoma in Neural Crest Development via Transcriptional Profiling and 3D Organoid Modeling</b>  <b>Jonathan Nicklas, Georgetown University, NHGRI</b> <b>Understanding <i>Candida auris</i> growth in vitro</b>  <b>Emma Macdonald, Brown University, NIMH</b> <b>A Thalamostriatal Circuit That Shapes Dopamine-Mediated Safety Signaling During Avoidance Learning</b>
11:45 am - 12:45 pm	<b>POSTER SESSION I</b> Atrium  Odd numbered posters presenting
12:45 pm - 1:15 pm	<b>NETWORKING LUNCH</b> Room A/B
1:15 pm - 2:15 pm	<b>POSTER SESSION II</b> Atrium  Even numbered posters presenting
2:30 pm - 3:45 pm	<b>KEYNOTE ROUNDTABLE</b> Ruth L. Kirschstein Auditorium  <b>Monica Bertagnolli, M.D.</b> , Director, NIH <b>Lawrence Tabak, D.D.S., Ph.D.</b> , Principal Deputy Director, NIH <b>Nina Schor, M.D., Ph.D.</b> , Deputy Director for Intramural Research, NIH  <b>Moderator:</b> <b>Sharon L. Milgram, Ph.D.</b> , Director, Office of Intramural Training & Education, NIH
4:00 pm - 5:00 pm	<b>AWARDS CEREMONY</b> Ruth L. Kirschstein Auditorium  <b>Graduation Ceremony</b> Certificates presented by: <b>Nina Schor, M.D., Ph.D.</b> , Deputy Director for Intramural Research, NIH <b>Sharon L. Milgram, PhD</b> , Director, Office of Intramural Training and Education, NIH  <b>Outstanding Mentor Awards</b>



## GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, GRADUATE UNIVERSITY, DISSERTATION TITLE	UNIVERSITY RESEARCH ADVISORS	NIH IC, NIH RESEARCH ADVISOR (PI)
<p><b>Tracy L. Peters</b> <i>Karolinska Institutet</i> Risk Factors and Amyotrophic Lateral Sclerosis - An Epidemiologic Approach</p>	<p>Weimin Ye (Primary) Fang Fang (Secondary)</p>	<p>NIEHS Dale P. Sandler</p>
<p><b>Shaza Fuad Khan</b> <i>Howard University</i> Generating a Novel Avp Knockout Mouse Model using CRISPR/Cas9 and Cre/loxP Gene Editing Systems</p>	<p>Syed J. Khundmiri, Ph.D. (Primary)</p>	<p>NHLBI Mark A. Knepper</p>
<p><b>Katherine Elizabeth Huffer</b> <i>Johns Hopkins University</i> Structural and Functional Conservation of TRP Channels</p>		<p>NINDS Kenton Swartz</p>
<p><b>Zoe Elizabeth Piccus</b> <i>Brown University</i> Mouse Models of Motor Neuron Disease Stemming from Unrestrained Sphingolipid Synthesis</p>		<p>NICHD Claire Le Pichon</p>
<p><b>Amro Abdulrahim Fulfulan</b> <i>Catholic University of America</i> Dual Variable Domain (DVD) Antibodies Targeting IgM Fc Receptors for the Potential Treatment of Chronic Lymphocytic Leukemia</p>	<p>Ekaterina Nestorovich (Primary) Wadad Alsalmi (Secondary)</p>	<p>NHLBI Adrian Wiestner</p>
<p><b>Madeline Dahut</b> <i>George Washington University</i> Mechanisms of Immune Resistance in Advanced Prostate Cancer</p>	<p>David Leitenberg (Primary)</p>	<p>NCI Claudia Palena</p>
<p><b>Adam A. Capoferri</b> <i>Georgetown University</i> Determinants of Human Immunodeficiency Virus Plasma Viremia</p>		<p>NCI Mary F. Kearney</p>
<p><b>Haiou Li</b> <i>Georgetown University</i> Functional Data Analysis and its Application in Biomedical Research</p>	<p>Hongbin Fang (Primary) Colin Wu (Secondary)</p>	<p>NHLBI Swee Lay Thein</p>
<p><b>Temesgen Ewunetu Andargie</b> <i>Howard University</i> Cell-Free DNA Analysis as a Biomarker and Mechanistic Insight in Transplant and COVID-19 Settings</p>	<p>Clarence M. Lee (Primary)</p>	<p>NHLBI Sean Agbor-Enoh</p>
<p><b>Kathryn Anne Diederichs</b> <i>Johns Hopkins University</i> Towards Mechanistic Understanding of Mitochondrial Beta-Barrel Biogenesis: Structural and Functional Characterization of the Sorting and Assembly Machinery Complex</p>	<p>Joseph A. Mindell (Primary)</p>	<p>NIDDK Susan K. Buchanan</p>



## GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, GRADUATE UNIVERSITY, DISSERTATION TITLE	UNIVERSITY RESEARCH ADVISORS	NIH IC, NIH RESEARCH ADVISOR (PI)
<p><b>Kathryn M. Daly</b> <i>Johns Hopkins University</i> Understanding the Complexity of Intrinsically Photosensitive Retinal Ganglion Cells</p>		<p>NIMH Samer Hattar</p>
<p><b>Yixuan Wu</b> <i>Johns Hopkins University</i> Multiparametric Ultrasound Imaging of Prostate</p>	<p>Emad M. Boctor (Primary) Russell H. Taylor (Secondary)</p>	<p>CC Bradford Wood</p>
<p><b>Elliot Glotfelty</b> <i>Karolinska Institutet</i> Mitigating Neuroinflammation: New Potential Therapeutics and Targets</p>	<p>Lars Olson (Primary) Tobias Karlsson (Secondary)</p>	<p>NIA Nigel Greig</p>
<p><b>Christopher Kuhn</b> <i>Ludwig-Maximilians-Universität München</i> Applying Cryo-EM Techniques to Investigate Disease-Related Protein Interactions and Regulations</p>		<p>NHLBI Naoko Mizuno</p>
<p><b>Jinchutha Duangdara</b> <i>Mahidol University</i> Investigatin of Platelet-Derived Growth Factor (PDGF)/ Platelet-Derived Growth Factor Receptor (PDGFR) Signaling in Cholangiocarcinoma Cell Progression and Tumor Microenvironment</p>	<p>Kanokpan Wongprasert (Primary)</p>	<p>NCI Mitchell Ho</p>
<p><b>Raisa A. Glabman</b> <i>Michigan State University</i> Near-Infrared Targeting of Cancer-Associated Fibroblasts</p>	<p>Gisela Hussey (Primary)</p>	<p>NCI Peter Choyke</p>
<p><b>Kyle R. Smith</b> <i>Stony Brook University</i> Uracil-DNA Glycosylase of Murine Gammaherpesvirus 68 Binds Cognate Viral Replication Factors Independently of its Catalytic Residues</p>		<p>NCI Laurie T. Krug</p>
<p><b>Chad Hogan</b> <i>Stony Brook University</i> The Call is Coming from Inside the Cell: B Cell STAT3 Suppression of Interferon Signaling Aids in the Establishment of Latency of Murine Gammaherpesvirus 68</p>		<p>NCI Laurie T. Krug</p>
<p><b>Markus Daniel Hoffmann</b> <i>Technical University of Munich</i> Discovering Candidate Regulatory Networks in Epigenomics and Transcriptomics</p>	<p>Jan Baumbach (Primary)</p>	<p>NIDDK Lothar Hennighausen</p>
<p><b>Daniela Marta Roth</b> <i>University of Alberta</i> Revealing Physiology of Craniofacial Growth Zones Through Pathology</p>	<p>Daniel Graf (Primary)</p>	<p>NICHD Rena D'Souza</p>

## GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, GRADUATE UNIVERSITY, DISSERTATION TITLE	UNIVERSITY RESEARCH ADVISORS	NIH IC, NIH RESEARCH ADVISOR (PI)
<p><b>John P. Shannon</b> <i>University of Cambridge</i> Exploring Antiviral Effector Cells in Vaccinia Virus-Infected Tissues</p>	<p>Geoffrey L. Smith (Primary)</p>	<p>NIAID Heather D. Hickman</p>
<p><b>Piñar Çakılkaya</b> <i>University of Copenhagen</i> The Collagen Receptor uPARAP as a Therapeutic Target for Mesothelioma</p>	<p>Niels Behrendt (Primary) Eric Santoni-Rugiu (Secondary)</p>	<p>NCI Raffit Hassan</p>
<p><b>Andrea Krenek</b> <i>University of Florida</i> Culinary Medicine and Teaching Kitchens: Translational Avenues for Investigating and Implementing Metabolic and Behavioral Change</p>	<p>Anne Mathews (Primary)</p>	<p>NIDDK Stephanie Chung</p>
<p><b>Kaustubh Sandeep Wagh</b> <i>University of Maryland, College Park</i> Regulating Gene Expression: The Role of Transcription Factor Dynamics</p>	<p>Arpita Upadhyaya (Primary)</p>	<p>NCI Gordon L Hager</p>
<p><b>Vasiliki Stravokefalou</b> <i>University of Thessaly</i> The Role of Cellular Immunity in the Treatment of Cancer</p>	<p>Konstantinos Dimas (Primary) Nikolaos Sakellaridhs (Secondary)</p>	<p>NCI George N. Pavlakis</p>
<p><b>Jeremie Oliver Piña</b> <i>University of Utah</i> Multi-omic Spatiotemporal Resolution of WNT-Mediated Signaling during Normal and Abnormal Palate Formation</p>	<p>David W. Grainger (Primary)</p>	<p>NICHD Rena N. D'Souza</p>
<p><b>Olivia Wooyaa Lee</b> <i>MD Anderson Cancer Center UT Health Houston</i> Genomic Characterization of Adolescent and Young Adult Cancers: Investigation of Ewing Sarcoma Susceptibility and Chornobyl Thyroid Tumors</p>	<p>John N. Weinstein (Primary)</p>	<p>NCI Stephen J. Chanock and Mitchell J. Machiela</p>

## KEYNOTE ROUNDTABLE



**Monica M. Bertagnolli, M.D.**, is the 17th director of the National Institutes of Health (NIH). She was nominated by President Joe Biden on May 15, 2023, confirmed by the U.S. Senate on November 7, 2023, and took office on November 9, 2023. She is the first surgeon and second woman to hold the position. As the NIH Director, Dr. Bertagnolli oversees the work of the largest funder of biomedical and behavioral research in the world. She previously served as the 16th director of the National Cancer Institute (NCI), the Richard E. Wilson Professor of Surgery in surgical oncology at Harvard Medical School, a surgeon at Brigham and Women's Hospital and a member of the Gastrointestinal Cancer Treatment and Sarcoma Centers at Dana-Farber Cancer Institute.

Throughout her career, Dr. Bertagnolli has been at the forefront of the field of clinical oncology. Her laboratory focused on advancing our understanding of the genetic drivers of gastrointestinal cancer development and the role of inflammation as a promoter of cancer growth. As a physician-scientist, she led translational science initiatives from 1994 to 2011 within the NCI-funded Cooperative Groups Program (now known as NCI's National Clinical Trials Network), and from 2011–2022 served as group chair of the Alliance for Clinical Trials in Oncology, a National Clinical Trials Network member organization. In addition, from 2007–2018, she served as the chief of the division of Surgical Oncology for the Dana-Farber Brigham Cancer Center.

Dr. Bertagnolli has championed collaborative initiatives to transform the data infrastructure for clinical research and is the founding chair of the minimal Common Oncology Data Elements (mCODE) executive committee. She also is a past president and chair of the board of directors of the American Society of Clinical Oncology and has served on the board of directors of the American Cancer Society and the Prevent Cancer Foundation. In 2021, she was elected to the National Academy of Medicine, having previously served on the National Academies National Cancer Policy Forum.

The daughter of first-generation Italian and French Basque immigrants, Dr. Bertagnolli grew up on a ranch in southwestern Wyoming. She graduated from Princeton University with a Bachelor of Science in Engineering degree and attended medical school at the University of Utah. She trained in surgery at Brigham and Women's Hospital and was a research fellow in tumor immunology at the Dana-Farber Cancer Institute.

## KEYNOTE ROUNDTABLE



**Dr. Lawrence A. Tabak, D.D.S., Ph.D.** is the Principal Deputy Director of the National Institutes of Health (NIH). He served as Acting NIH Director from December 20, 2021, to November 8, 2023. Dr. Tabak was appointed as the NIH Principal Deputy Director and the Deputy Ethics Counselor in August 2010 following his tenure as Director of the National Institute of Dental and Craniofacial Research from 2000-10.

Dr. Tabak continues to lead an active research laboratory within the NIH intramural program studying glycoprotein biosynthesis and function in addition to his administrative duties.

Prior to joining NIH, Dr. Tabak was the Senior Associate Dean for Research and Professor of Dentistry and Biochemistry & Biophysics in the School of Medicine and Dentistry at the University of Rochester, New York.

Dr. Tabak is an elected member the National Academy of Medicine of the National Academies. He received his undergraduate degree from City College of New York, his D.D.S. from Columbia University, and a Ph.D. from the University of Buffalo.



**Dr. Nina Schor, M.D., Ph.D.** is currently NIH Deputy Director for Intramural Research, a post she has held since August 2022. In that position, she is responsible for oversight of research conducted by the 27 institutes and centers of the National Institutes of Health. Before coming to NIH, Dr. Schor spent 20 years on faculty at the University of Pittsburgh, ultimately becoming the Carol Ann Craumer Professor of Pediatric Research, Chief of the Division of Child Neurology in the Department of Pediatrics, and Associate Dean for Medical Student Research at the medical school. In 2006, Dr. Schor became the William H. Eilinger Chair of the Department of Pediatrics, and Pediatrician-in-Chief of the Golisano Children's Hospital at the University of Rochester, posts she held until January 2018, when she became Deputy Director of the NINDS. For 27 years in academia, her research on neural crest development and neoplasia was continuously funded by NIH. At NINDS, she led the Division of Intramural Research and the Ultra-Rare GENE-targeted Therapies (URGenT) Network and strategic planning and career development programs. She currently serves as a member of the Executive Committee of the Board of Directors of the American Board of Psychiatry and Neurology.



## STUDENT SPEAKERS



**Devorah Cahn** received her B.S. in Chemical Engineering and Biology from the University of Maryland Baltimore County where she conducted research as an undergraduate in the laboratory of Dr. Erin Lavik focusing on drug delivery for age-related macular degeneration. She is currently a PhD candidate at the University of Maryland in the Fischell Department of Bioengineering where she is advised by Dr. Gregg Duncan. In 2021, she joined the National Cancer Institute through the UMD-NCI graduate partnership where she is co-advised by Dr. Matthew Wolf. Her current research focuses on methods to overcome extracellular barriers to nanoparticle-based drug delivery. Specifically, she is studying ways in which the extracellular matrix in the tumor microenvironment affects nanoparticle transport and whether nanoparticle surface chemistry and shape can be manipulated to enhance drug delivery to tumor cells.



**Jenny Hsin** is a second-year PhD candidate in the NIH Oxford-Cambridge Scholars Program, as well as an MD candidate at the University of Alabama at Birmingham Heersink School of Medicine Medical Scientist Training Program. She is dually mentored by Dr. Laura Kerosuo in the Neural Crest Development and Disease Unit in the National Institute of Dental and Craniofacial Research (NIDCR) and Dr. Shery Huang in the Department of Engineering at the University of Cambridge. Her research focuses on understanding neural crest stem cell development and a potential initiation mechanism for neuroblastoma, a neural crest-derived pediatric cancer, using a human embryonic stem cell-derived neuroectodermal organoid model. She hopes to further adapt the organoid model to a tumoroid model of neuroblastoma using 3D bioengineering techniques. Jenny began studying the neural crest in Dr. Marianne Bronner's lab as an undergraduate student at the California Institute of Technology, where she earned her bachelor's degree in Biology. After graduating, she joined Dr. Laura Kerosuo's lab at the NIDCR as an NIH postbac IRTA fellow researching neural crest stem cell regulation for two years before starting her MD-PhD training. After completing her doctoral studies, Jenny's goal is to build a career as a physician-scientist in biomedicine by unraveling novel molecular mechanisms to be utilized in the development of regenerative or cancer therapies. Jenny is grateful for the opportunity to share her research and thanks her mentors and colleagues, the NIH OxCam Program, and the UAB MSTP for their continued support.

## STUDENT SPEAKERS



**Emma Macdonald** is a fourth year PhD candidate in the Brown University Neuroscience GPP. Emma received her BS in neuroscience from New York University, where she was introduced to research in Dr. Adam Carter's lab, studying interneurons within the nucleus accumbens. She then went on to complete an NIH postbaccalaureate fellowship where she investigated the transcriptomic changes in human dorsal root ganglia due to painful diabetic neuropathy with Dr. Ashok Kulkarni of the National Institute of Dental and Craniofacial Research. Emma currently studies the neural mechanisms of motivated behaviors under the mentorship of Dr. Mario Penzo at the National Institute of Mental Health. Her dissertation project focuses on how safety can potentially serve as a reinforcer during avoidance training, and how neuronal activity from inputs to the nucleus accumbens during the safety period modulate the acquisition of avoidance behavior. Emma is grateful for the opportunity to present her work and would like to thank her mentor and colleagues for their support.



**Jonathan P. Nicklas** is a fourth year PhD student in the Department of Microbiology and Immunology at Georgetown University in partnership with the Microbial Genomics Section of the National Human Genome Research Institute (NHGRI). Jonathan graduated from the University of Scranton with a double major in Biology and Philosophy. He then completed a Summer Undergraduate Research Fellowship with Dr. Robin Patel at the Mayo Clinic where he showed that a natural, antibacterial clay from Oregon significantly reduced planktonic and biofilm cellular community population size. Following graduation, he completed a post-baccalaureate research fellowship with Dr. Clifton Barry at the National Institute of Allergy and Infectious Diseases (NIAID), where he gained expertise in bacterial genetics working with CRISPR in *Mycobacterium tuberculosis*. Following his post-baccalaureate fellowship, Jonathan entered the National Institutes of Health - Graduate Partnerships Program (NIH-GPP) working with Dr. Julie Segre at NHGRI. His dissertation aims to leverage his expertise in bacterial genetics to gain expertise in fungal genetics and determine the mechanisms of how the emerging, multi-drug resistant fungal pathogen *Candida auris* colonizes, utilizes nutrients, and persists on human skin. The long-term goal of his research is to inform mitigation strategies for skin colonization, which is a major risk factor for a life-threatening *C. auris* infection. Jonathan is especially grateful for the support he continually receives from his mentor, committee, and lab members at the NIH and Georgetown that make his work possible. He is also honored to share his work with the graduate student community.

## MENTOR AWARD



**Dr. Heather Cameron** received her B.S. from Yale University and her Ph.D. from the Rockefeller University, where she worked with Bruce McEwen and Elizabeth Gould examining neurogenesis in the adult rat dentate gyrus. During a postdoctoral fellowship with Ron McKay at NINDS, she determined the magnitude of adult neurogenesis in the dentate gyrus and investigated the effects of stress hormones on neurogenesis in the aging rat hippocampus. Dr. Cameron joined the Mood and Anxiety Disorders Program at NIMH as an Investigator in 2001..



**Dr. Nigel Greig** was trained as a pharmacologist with a background in medicinal chemistry and physiology and earned his Ph.D. (1982) from University of London, England. He undertook a Postdoc within NIA/NIH focused on optimizing brain drug delivery and action. Leaving NIA/NIH, he was involved in initiating the California biotechnology company, Athena Neurosciences, and returned to NIA/NIH as a tenured scientist in 1992. His research has evolved into his present interest: the design and development of drugs for treating degenerative disorders prevalent in aging – particularly, Alzheimer's and Parkinson's disease and traumatic brain injury. He heads the Drug Design & Development Section within NIA/NIH, Baltimore, MD. Nigel's program combines cellular, molecular and *in vivo* pharmacology with medicinal chemistry to design, synthesize and, supported by multiple worldwide collaborations, to develop novel experimental drugs into early clinical trials. The drugs Phenserine, Posiphen (*Buntanetap*), Bisnorcymserine (ANVS 301), and Exenatide (PT320) derive from his research and are in clinical evaluations for neurodegenerative disorders – others are in preclinical development. Nigel's position within NIA/NIH has provided him the opportunity to mentor numerous junior scientists, publish >450 articles, and his NIA/NIH patents have initiated multiple startup companies to help move his NIA/NIH drugs to the general public.

## STUDENTS Listed alphabetically by name

Poster #	Last Name, First	IC	University
70	Addissie, Yonit	NCI	University of Maryland School of Medicine
116	Agostini, Lorenzo	NHLBI	Ludwig Maximillian University of Munich
102	Ahamed, Mukshud	NLM	Stony Brook University
97	Alcantara, Ivan	NIDDK	Brown University
68	Aljabri, Ashwaq	NCI	Southern illinois Univeristy
56	Aljumaah, Reham	NICHD	Johns Hopkins University
85	Alkaslasi, Mor	NICHD	Brown University
5	Almansour, Faisal	NCI	Georgetown University
39	Arroyo-Mendoza, Melissa	NIDDK	Iowa State Univeristy
44	Azinge, Ifeoma	NIMH	Brown University
73	Baffoe-Bonnie, Marilyn	NHGRI	Rutgers University
16	Bailey, Hannah	NIA	Brown University
25	Boydston, Darren	NHLBI	Johns Hopkins University
54	Branch, Briana	NCI	Johns Hopkins University
121	Brooks, Brittany	NINDS	Howard Univeristy
76	Cahn, Devorah	NCI	University of Maryland, College Park
66	Cole, Yasemin	NCI	University of Cambridge
84	Contreras, Cristina	NCI	University of Oxford
82	DeBarros, Kenya	NCI	Morehouse School of Medicine
108	Delgado, Jose F.	CC	University of Maryland, College Park
98	Dorman, Jack	NIAID	Johns Hopkins University
63	Doss, Ginna	NIEHS	University of North Carolina, Chapel Hill
10	Elnaggar, Manar	NCI	University of Maryland, Baltimore
55	Ewa, Theresa	NCI	University of Cambridge
109	Fan, Angela	NIMH	Monash University
50	Filio, Benjamin	NINDS	Brown University
107	Freedgood, Natalie	NIMH	Brown University
20	Frimpong, Rita	NIAID	Kwame Nkrumah University of Science and Technology
119	Gaitsch, Hallie	NINDS	University of Cambridge
95	Gevorgyan, Artur	NIDDK	Brown University
37	Grimme, Acadia	NIDDK	Johns Hopkins University
29	Heffner, Audrey	NICHD	Johns Hopkins University



## STUDENTS Listed alphabetically by name

Poster #	Last Name, First	IC	University
96	Hermans, Dalton	NIAID	University of Cambridge
12	Herzog, Helena	NEI	Tuebingen University
65	Hirsch, Mary	NLM	University of Maryland, College Park
23	Hollo, Alexandra	NHLBI	University of Pecs
72	Hsin, Jenny	NIDCR	University of Cambridge
28	Huang, Wei-Lun	NICHHD	Johns Hopkins University
94	Johnston, Timothy	NIAID	University of Pennsylvania
21	Khan, Sebastian	NHLBI	Johns Hopkins University
53	Khandekar, Azhar	NCI	University of California, San Diego
77	Kidder, Alexis	NIMH	Dartmouth College
26	Kim, Brian	NICHHD	Brown University
123	Krenek, Andrea	NIDDK	University of Florida
51	Krishnan, Anagha	NCI	University of Oxford
117	Kulkarni, Aditi	NINDS	University of Cambridge
75	Kumar, Samika	NIMH	University of Cambridge
115	Lantz, Christian	NINDS	University of Oxford
49	Lee, Sang Kyu	NCI	Michigan State University
91	Li, Tianming	NIDCR	Brown University
89	Licholai, Julia	NIDCR	Brown University
105	Limoges, Aaron	NIMH	Columbia University
57	Lin, Ting-Yi	NEI	National Yang Ming Chiao Tung University and Academia Sinica
48	Lomahan, Carolyn	NINDS	Karolinska Institutet
47	Lopez Perez, David	NCI	University of Granada
24	Louis, Emeric	NICHHD	National Museum of Natural History (MNHN)
92	Lujan, Andy	NIAID	Duke University
40	Lyda, Savanna	NIDDK	University of Maryland, College Park
103	Macdonald, Emma	NIMH	Brown University
64	Majocha, Megan	NCI	Georgetown University
2	Maram, Ritish Raghav	CC	The George Washington University
8	Mason, Lee	NCI	Queen's University Belfast
113	McDaniel, Kathryn	NINDS	Brown University
62	McErlain, Tamara	NCI	Queens University Belfast

## STUDENTS Listed alphabetically by name

Poster #	Last Name, First	IC	University
90	Meehan, Cristina	NIAID	University of Alabama at Birmingham MSTP
41	Min, Jiyeon	NHLBI	University of Maryland, College Park
104	Mirazee, Justin	NCI	Johns Hopkins University
33	Mody, Drashty	NIDCR	Indiana University School of Dentistry
14	Molnar, Abby	NIA	Johns Hopkins University
60	Morris, Vivian	NCI	Johns Hopkins University
6	Moses, Aurelia	NCI	University of Maryland, College Park
80	Mungale, Ameera	NCI	Georgetown University
15	Nicklas, Jonathan	NHGRI	Georgetown University
27	Oksanen, Marika	NIA	Karolinska Institutet
69	Olinger, Bradley	NIA	Johns Hopkins University
30	Padovan Hernandez, Yasmin	NIDA	Johns Hopkins University School of Medicine
114	Pane, Anthony	NHLBI	University of Maryland College Park
83	Pappalardo, Leah	NICHHD	Johns Hopkins University
118	Park, Yein Christina	NIDCD	Johns Hopkins University
61	Patel, Opal	NIEHS	University of North Carolina, Chapel Hill
71	Pearce, Emily	NCI	University of North Carolina, Chapel Hill
88	Pederson, Jacob	NIAID	Oregon State University
19	Perveen, Sadia	NHLBI	University of Turin, Italy
45	Phillips, Sarah	NCI	Eastern Virginia Medical School
112	Prajapati, Mihirkumar	NHLBI	University of Maryland, College Park
59	Pranzatelli, Thomas	NIDCR	University of Maryland, College Park
74	Quinlan, John	NCI	University of Maryland, College Park
38	Rahman, Areebah	NIDDK	Brown University
11	Reichert, Dominik	NEI	Johannes Gutenberg University Mainz
93	Rodriguez Gonzalez, Shakira	NIDDK	Johns Hopkins University
35	Sakhawala, Rima	NIDDK	Johns Hopkins University
9	Schwab, Kyle	NEI	Temple University
111	Seddighi, Sahba	NINDS	University of Oxford
101	Shirley, Sofia	NIMH	Johns Hopkins University
4	Simon, Benjamin	NCI	University of Oxford
99	Snyder, William	NIMH	University of Cambridge

## STUDENTS Listed alphabetically by name

Poster #	Last Name, First	IC	University
17	Song, Shuxuan	NHLBI	University of Maryland, College Park
13	Spatola, Gabriella	NHGRI	University of South Carolina
106	Stone, William	NIAID	Virginia Tech
31	Stoner, Zachary	NIDCD	Western Michigan University
18	Sucich, Dylan	NIAAA	Johns Hopkins University
58	Suh, Jaehyun	NCI	University of Montpellier
110	Sultan, Nauman	NHLBI	Johns Hopkins University
86	Taylor, Joshua	NIA	Johns Hopkins University School of Medicine
52	Tricola, Gianna	NCI	Johns Hopkins University
120	Tunyi, Jude	NINDS	University of Oxford
78	Vasiliunaite, Emilija	NCI	Vilnius University
81	Vlachos, Anna	NICHHD	Brown University
34	Wang, Chien-Sheng	NIDCR	National Taiwan University
7	Wegerski, Andrew	NEI	University of Maryland, Baltimore County
3	Welter, Allison	NCI	Mayo Clinic Graduate School of Biomedical Sciences
22	White, Jackson	NICHHD	University of Oxford
79	Wlaschin, Josette	NICHHD	Johns Hopkins University
100	Woode, Emmanuel	NCI	Howard University
32	Wu, Ningjin	NIDCD	University of Maryland, Baltimore
67	Xue, Minghao	NICHHD	Johns Hopkins University
1	Yaghoubi, Sanam	NCI	University of Barcelona
36	Yang, Dageyong	NIDDK	University of Maryland, College Park
42	Zelenina, Marie	NIMH	The University of Lisbon
46	Zhang, Kai	NINDS	Tianjin Medical University
43	Zhang, Pei	NCI	University of Maryland, College Park
87	Zhang, Yizhen	NIDCR	Brown University

## POSTERS

1

**Integrative Analysis of Multiplex Interphase FISH Copy Number with Whole Exome Sequencing Identifies Tumor Evolution in Stage II Colon Cancer**

Sanam Yaghoubi, Kerstin Heselmeyer-Haddad, Ivan Archilla, Carolina Parra, Darawalee Wangsa, Giancarlo Castellano, Jack Zhu, Diba Yaghoubi, Sara Lahoz, Veronica Pablo Fontecha, Daniela Hirsch, Wei-Dong Chen, Thomas Ried, Miriam Cuatrecasas, Paul S. Meltzer, Jordi Camps  
 Graduate Student: Sanam Yaghoubi

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Paul S. Meltzer

University Research Advisor: Dr. Jordi Camps

Graduate University: University of Barcelona

2

**Wavelets and Colon Cancer: An Inside Look**

Ritish Maram, Murray Loew, Elliot Levy

Graduate Student: Ritish Maram

NIH Institute-Center: CC

NIH Research Advisor: Dr. Elliot Levy

University Research Advisor: Dr. Murray Loew

Graduate University: The George Washington University

3

**Serine Protease FAM111A is Inhibited by Multiple Viral Proteins**

Allison L. Welter, Sowmiya Palani, Yuka Machida, Matthew J. Schellenberg, Scott H. Kaufmann, Yuichi J. Machida

Graduate Student: Allison Welter

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Yuichi J. Machida

University Research Advisor: Dr. Scott H. Kaufmann

Graduate University: Mayo Clinic Graduate School of Biomedical Sciences

4

**A Multimodal Recurrent Machine Learning Model for Prostate Cancer Treatment Outcome Prediction**

Benjamin D. Simon, Stephanie A. Harmon, David A. Clifton, Baris Turkbey

Graduate Student: Benjamin D. Simon

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Baris Turkbey

University Research Advisor: Dr. David A. Clifton

Graduate University: University of Oxford

5

**Do Chromatin Domains Have a Functional Role in Gene Expression?**

Faisal Almansour, Adib Keikhosravi, Gianluca Pegoraro, Tom Misteli

Graduate Student: Faisal Almansour

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Tom Misteli

University Research Advisor: Dr. Jessica Jones

Graduate University: Georgetown University

6

**A Study of AGO2 Localization Using Fluorescence Microscopy**

Aurelia Moses, Arpita Upadhyaya, Joana Vidigal

Graduate Student: Aurelia Moses

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Joana Vidigal

University Research Advisor: Dr. Arpita Upadhyaya

Graduate University: University of Maryland, College Park

7

**Developing Geckos as a Novel Model System of Foveal Development**

Andrew Edward Wegerski, Chelsey Grasham, Brian P. Brooks, Ashley Rasys, Robert B. Hufnagel

Graduate Student: Andrew Edward Wegerski

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Robert Hufnagel

University Research Advisor: Dr. Phyllis Robinson

Graduate University: University of Maryland, Baltimore County

8

**MedicaidGPT: Enhanced Natural Language Interaction for Medication Pricing Data Retrieval and Visualization using Large Language Models**

Lee Mason, Lorena Sandoval, Blànaid Hicks, Jonas Almeida

Graduate Student: Lee Mason

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Jonas Almeida

University Research Advisor: Dr. Blànaid Hicks

Graduate University: Queen's University Belfast

9

**A Simple 3D-Printed Bioreactor to Improve Oxygenation During Retinal Organoid Cultures**

Kyle Schwab, Ki Yoon Nam, Phil Hwang, Tiansen Li

Graduate Student: Kyle Schwab

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Tiansen Li

University Research Advisor: Dr. Peter Lelkes

Graduate University: Temple University



## POSTERS

10

**Head and Neck Cancer Patient-Derived Organoids as a Platform for Tumor Targeting T-cell Identification and Characterization**

Manar Elnaggar, Dipikaa Akshinthala, Weilin Li,  
Senthil K. Muthuswamy

*Graduate Student: Manar Elnaggar*

*NIH Institute-Center: NCI*

*NIH Research Advisor: Dr. Senthil K. Muthuswamy*

*Graduate University: University of Maryland, Baltimore*

11

**Patient iPSC-Derived RPE as a Model to Understanding Ciliopathy-Mediated Retinal Degenerations**

Dominik Reichert, Davide Ortolan, Colby Lewallen, Wadih  
Zein, Helen May-Simera, Ruchi Sharma, Kapil Bharti

*Graduate Student: Dominik Reichert*

*NIH Institute-Center: NEI*

*NIH Research Advisor: Dr. Kapil Bharti*

*University Research Advisor: Dr. Helen May-Simera*

*Graduate University: Johannes Gutenberg University Mainz*

12

**Unraveling Complement-Driven Pathogenesis in Age-Related Macular Degeneration by Genome-Wide CRISPR Screening**

Helena Herzog, Jair Montford, Davide Ortolan, Kapil Bharti,  
Ruchi Sharma

*Graduate Student: Helena Herzog*

*NIH Institute-Center: NEI*

*NIH Research Advisor: Dr. Ruchi Sharma, Dr. Kapil Bharti*

*University Research Advisor: Dr. Marius Ueffing,*

*Dr. Robert Lukowski*

*Graduate University: Tuebingen University*

13

**The Effects of Ionizing Radiation on Free-Roaming Dogs in Chernobyl**

Gabriella J. Spatola, Aitor Serres Armero, Reuben Buckley,  
Jessica Hale, Alex Harris, Jennifer Betz, Małgorzata Pilot,  
Wiesław Bogdanowicz, Timothy A. Mousseau,  
Elaine A. Ostrander

*Graduate Student: Gabriella J. Spatola*

*NIH Institute-Center: NHGRI*

*NIH Research Advisor: Dr. Elaine A. Ostrander*

*University Research Advisor: Dr. Timothy A. Mousseau*

*Graduate University: University of South Carolina*

14

**Exploring the Mechanistic Basis of Telomeric DNA Structure Resolution in Telomere Maintenance of Human Cells**

Abby Molnar, Yie Liu

*Graduate Student: Abby Molnar*

*NIH Institute-Center: NIA*

*NIH Research Advisor: Dr. Yie Liu*

*Graduate University: Johns Hopkins University*

15

**Understanding *Candida auris* Growth In Vitro**

Jonathan P. Nicklas, Clay Deming, Shih-Queen Lee-Lin,  
Diana Proctor, Julie Segre

*Graduate Student: Jonathan P. Nicklas*

*NIH Institute-Center: NHGRI*

*NIH Research Advisor: Dr. Julie Segre*

*University Research Advisor: Dr. Dongmei Li*

*Graduate University: Georgetown University*

16

**The Effect of Pharmacological Compounds on LRRK2-Lysosome Interactions**

Hannah M. Bailey, Mark R. Cookson

*Graduate Student: Hannah M. Bailey*

*NIH Institute-Center: NIA*

*NIH Research Advisor: Dr. Mark Cookson*

*Graduate University: Brown University*

17

**Nerve Growth Factor Sensitizes Skin Nociceptors in Obesity-Associated Small Fiber Neuropathy**

Shuxuan Song, Yuta Kouji, Yoh-suke Mukoyama

*Graduate Student: Shuxuan Song*

*NIH Institute-Center: NHLBI*

*NIH Research Advisor: Dr. Yosuke Mukoyama*

*University Research Advisor: Dr. Sougata Roy*

*Graduate University: University of Maryland, College Park*

18

**Functional Epigenetic Effects of Promoter Tandem Repeats and Steroids on Gene Expression**

Dylan Gilbert Sucich, Qiaoping Yuan, Cheryl Marietta,  
Colin Hodgkinson, David Goldman

*Graduate Student: Dylan Gilbert Sucich*

*NIH Institute-Center: NIAAA*

*NIH Research Advisor: Dr. David Goldman*

*Graduate University: Johns Hopkins University*

## POSTERS

19

**Ex Vivo Expansion of Hematopoietic Stem Cells Using a Cytokine-Free Approach and HOXB4 Overexpression**

Sadia Perveen, Daisuke Araki, Christi Salisbury-Ruf, Richard H. Smith, Claudia Giachino, Andre Larochelle

*Graduate Student: Sadia Perveen*

*NIH Institute-Center: NHLBI*

*NIH Research Advisor: Dr. Andre Larochelle*

*University Research Advisor: Dr. Claudia Giachino*

*Graduate University: University of Turin, Italy*

20

**Diversity of High-Altitude Migrating Insects across West Africa**

Rita Nartey, Lourdes Chamorro, Matthew L. Buffington, Adama Dao, Yaw A. Afrane, Abdul R. Mohammed,

Alpha S. Yaro, Christopher M. Owusu-Asenso,

Gabriel Akosah-Brempong, Djibril Samake,

James N. Zahniser, Kwesi Obiri-Danso, Tovi Lehmann

*Graduate Student: Rita Nartey*

*NIH Institute-Center: NIAID*

*NIH Research Advisor: Dr. Tovi Lehmann,*

*Dr. Carolina Barillas-Mury*

*University Research Advisor: Dr. Kwesi Obiri-Danso*

*Graduate University: Kwame Nkrumah University of Science and Technology*

21

**A Potential Driver of Speciation: The Evolution of the Meiotic Spindle**

Sebastian J. Khan, Warif El Yakoubi, Takashi Akera

*Graduate Student: Sebastian J. Khan*

*NIH Institute-Center: NHLBI*

*NIH Research Advisor: Dr. Takashi Akera*

*University Research Advisor: Dr. Steve Farber*

*Graduate University: Johns Hopkins University*

22

**Evaluating the Role of eIF6 in Vessel Development, Translation, and Mechanoregulation**

C. Jackson White, John Reader, Ellie Tzima, Brant Weinstein

*Graduate Student: C. Jackson White*

*NIH Institute-Center: NICHD*

*NIH Research Advisor: Dr. Brant Weinstein*

*University Research Advisor: Dr. Ellie Tzima*

*Graduate University: University of Oxford*

23

**Human Myosin-7a has Multiple Distinct Regulatory Mechanisms That Make it an Excellent Candidate as a Tension Adaptation Motor**

Alexandra Hollo, Neil Billington, Yasuharu Takagi,

Andras Kengyel, Rong Liu, James Sellers

*Graduate Student: Alexandra Hollo*

*NIH Institute-Center: NHLBI*

*NIH Research Advisor: Dr. James Sellers*

*University Research Advisor: Dr. Andras Kengyel*

*Graduate University: University of Pecs*

24

**METHAM Project: Molecular Effects of Thyroid Hormone and Methyltransferase Dot1L During *X. tropicalis* Metamorphosis**

Emeric Louis, Nga Luu, Liezhen Fu, Laurent Sachs,

Yun-Bo Shi

*Graduate Student: Emeric Louis*

*NIH Institute-Center: NICHD*

*NIH Research Advisor: Dr. Yun-Bo Shi*

*University Research Advisor: Dr. Laurent Sachs*

*Graduate University: National Museum of Natural History (MNHN)*

25

**Identifying New Regulators of the Nonsense-Mediated mRNA Decay Pathway**

Darren P. Boydston, Loveth Igbineweka, Nazmul Haque,

J. Robert Hogg

*Graduate Student: Darren P. Boydston*

*NIH Institute-Center: NHLBI*

*NIH Research Advisor: Dr. J. Robert Hogg*

*Graduate University: Johns Hopkins University*

26

**Multimodal Integration of Olfactory and Gustatory Stimuli in Locust Superior Lateral Protocerebrum Neurons**

Brian Kim, Mark Stopfer

*Graduate Student: Brian Kim*

*NIH Institute-Center: NICHD*

*NIH Research Advisor: Dr. Mark Stopfer*

*University Research Advisor: Dr. Alex Fleishman*

*Graduate University: Brown University*

## POSTERS

27

**The Mechanisms of HNRNPU-Mediated RNA Regulation in Neuronal Development and HNRNPU-Related Neurodevelopmental Syndrome**

Marika Oksanen, Francesca Mastropasqua, Michelle Watts, Krystyna Mazan-Mamczarz, Myriam Gorospe, Kristiina Tammimies

*Graduate Student: Marika Oksanen*

*NIH Institute-Center: NIA*

*NIH Research Advisor: Dr. Myriam Gorospe*

*University Research Advisor: Dr. Kristiina Tammimies*

*Graduate University: Karolinska Institutet*

28

**A Novel Method to Design Camera Focus for Quality Surface Coverage Maximization in Multi-View Capture**

Wei-Lun Huang, Davood Tashayyod, Amir Gandjbakhche, Michael Kazhdan, Mehran Armand

*Graduate Student: Wei-Lun Huang*

*NIH Institute-Center: NICHD*

*NIH Research Advisor: Dr. Amir Gandjbakhche*

*University Research Advisor: Dr. Mehran Armand*

*Graduate University: Johns Hopkins University*

29

**Understanding the Biology and Replication of Deadly Respiratory Syndrome Coronaviruses by Studying HCoV-OC43, an Endemic Coronavirus That Causes the Seasonal Cold**

Audrey L. Heffner, Nunziata Maio, Tracey A. Rouault

*Graduate Student: Audrey L. Heffner*

*NIH Institute-Center: NICHD*

*NIH Research Advisor: Dr. Tracey A. Rouault*

*Graduate University: Johns Hopkins University*

30

**Hypothalamic Circuits Controlling Interoceptive Hunger**

Yasmin Padovan-Hernandez, Sarah Sarsfield, Yeka Aponte

*Graduate Student: Yasmin Padovan-Hernandez*

*NIH Institute-Center: NIDA*

*NIH Research Advisor: Dr. Yeka Aponte*

*University Research Advisor: Dr. Hita Adwanikar*

*Graduate University: Johns Hopkins University School of Medicine*

31

**Spatiotemporal Organization of the Developing Vestibular Ganglion**

Zachary A. Stoner, Doris K. Wu

*Graduate Student: Zachary A. Stoner*

*NIH Institute-Center: NIDCD*

*NIH Research Advisor: Dr. Doris K. Wu*

*University Research Advisor: Dr. John Spitsbergen*

*Graduate University: Western Michigan University*

32

**Determining the Critical Window of Expression of Rfx1/3 in Hair Cell Development and Maintenance**

Ningjin Wu, Kathleen Gwilliam, Reza Amanipour, Beatrice Milon, Ronna Hertzano

*Graduate Student: Ningjin Wu*

*NIH Institute-Center: NIDCD*

*NIH Research Advisor: Dr. Ronna Hertzano*

*University Research Advisor: Dr. Zubair Ahmed*

*Graduate University: University of Maryland, Baltimore*

33

**ZG16B, a Secretory Jacalin-Related-Lectin Protein, Serves in Various Salivary Gland Pathways**

Drashty P. Mody, A.C. da Silva, R. Sharma, J. Nguyen, Y. Wu, A. Werner, M. Aure, Jacqueline Mays

*Graduate Student: Drashty P. Mody*

*NIH Institute-Center: NIDCR*

*NIH Research Advisor: Dr. Jacqueline Mays*

*University Research Advisor: Dr. Mythily Srinivasan*

*Graduate University: Indiana University School of Dentistry*

34

**Uncovering the Pain Perception Encoding in the Neural Ensemble by High Spatial-Temporal Optical Microscopy and Machine Learning Analyzing**

Chien Sheng Wang, Xiaomin Lai, Yuanyuan Liu

*Graduate Student: Chien Sheng Wang*

*NIH Institute-Center: NIDCR*

*NIH Research Advisor: Dr. Yuanyuan Liu*

*University Research Advisor: Dr. Shi-Wei Chu*

*Graduate University: National Taiwan University*

35

**A New Noncanonical Biogenesis Pathway Generates a Germline Enriched miRNA Family in *C. elegans***

Rima M. Sakhawala, Dustin Haskell, Anna Zinovyeva, Katherine McJunkin

*Graduate Student: Rima M. Sakhawala*

*NIH Institute-Center: NIDDK*

*NIH Research Advisor: Dr. Katherine McJunkin*

*Graduate University: Johns Hopkins University*

## POSTERS

36

**Characterization of Bedwarfed in Genome Organization and Transcription**

Dagyeong Irene Yang, Elissa P. Lei

*Graduate Student: Dagyeong Irene Yang**NIH Institute-Center: NIDDK**NIH Research Advisor: Dr. Elissa P. Lei**University Research Advisor: Dr. Jason D. Kahn**Graduate University: University of Maryland, College Park*

37

**E3 Ubiquitin Ligase ZSWIM8/EBAX-1 Regulates microRNAs in a Seed-Dependent Manner**

Acadia L. Grimme, Bridget F. Donnelly, Karl-Frédéric Vieux, Katherine McJunkin

*Graduate Student: Acadia L. Grimme**NIH Institute-Center: NIDDK**NIH Research Advisor: Dr. Katherine McJunkin**Graduate University: Johns Hopkins University*

38

**The Role of Glial-Derived Neuropeptides in Stress Resistance and Longevity**

Areebah Rahman, Carrie Sheeler, Ashley Frakes

*Graduate Student: Areebah Rahman**NIH Institute-Center: NIDDK**NIH Research Advisor: Dr. Ashley Frakes**University Research Advisor: Dr. Diane Hoffman-Kim**Graduate University: Brown University*

39

**A Unique Sigma 70 Variant of an Adherent Invasive Escherichia coli, LF82, a Pathobiont Associated with Crohn's Disease, Results in Specific Changes in Gene Expression and Phenotypes**

Melissa Arroyo-Mendoza, Alexandra Proctor, Abraham Correa-Medina, Virginia Rosas, Hernan Lorenzi, Gregory J. Phillips, Deborah M. Hinton

*Graduate Student: Melissa Arroyo-Mendoza**NIH Institute-Center: NIDDK**NIH Research Advisor: Dr. Deborah M. Hinton**University Research Advisor: Dr. Gregory J. Phillips**Graduate University: Iowa State University*

40

**Drosophila hnRNP M Homolog Rumpelstiltskin Promotes Home Barrier Activity and Regulates Polycomb-Dependent 3D Interactions**

Savanna F. Lyda, Catherine E. McManus, Juan Manuel Caravaca, Yang Chen, Dagyeong Yang, Elissa P. Lei

*Graduate Student: Savanna F. Lyda**NIH Institute-Center: NIDDK**NIH Research Advisor: Dr. Elissa P. Lei**University Research Advisor: Dr. Leslie Pick**Graduate University: University of Maryland, College Park*

41

**Refinement of CHARMM Force Field for Enhanced Depiction of Arginine-Phosphate Interactions**

Jiyeon Min, Madolyn Britt, Sergei I. Sukharev, Bernard R. Brooks, Jeffery B. Klauda

*Graduate Student: Jiyeon Min**NIH Institute-Center: NHLBI**NIH Research Advisor: Dr. Bernard R. Brooks**University Research Advisor: Dr. Jeffery B. Klauda**Graduate University: University of Maryland, College Park*

42

**Multi-Echo vs High-Spatial Resolution for Improving fMRI Reliability in Connectivity Guided TMS Treatment of Depression**

Marie Zelenina, Dylan Nielson, Andre Zugman, Daniel Pine

*Graduate Student: Marie Zelenina**NIH Institute-Center: NIMH**NIH Research Advisor: Dr. Daniel Pine**University Research Advisor: Dr. Diana Prata**Graduate University: The University of Lisbon*

43

**Mixed Modeling Approach for Characterizing the Cumulative Genetic Effects for a Longitudinal Phenotype**

Pei Zhang, Paul S. Albert, Hyokyung G. Hong

*Graduate Student: Pei Zhang**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Paul S. Albert, Dr. Hyokyung G. Hong**University Research Advisor: Dr. Doron Levy**Graduate University: University of Maryland, College Park*

## POSTERS

44

**Functional Characterization of Acetylcholine-Galanin Co-expression in Frontotemporal Circuitry**

Ifeoma Azinge, Yogita Chudasama

*Graduate Student: Ifeoma Azinge**NIH Institute-Center: NIMH**NIH Research Advisor: Dr. Yogita Chudasama**Graduate University: Brown University*

45

**Cervical Precancer Detection Using HPV Testing from Self-Collected Samples in Comparison to Provider-Collected HPV Testing and Cytology: a Meta-Analysis**

Sarah A. Phillips, Marc Arbyn, Megan A. Clarke, Nicolas Wentzensen

*Graduate Student: Sarah A. Phillips**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Nicolas Wentzensen**Graduate University: Eastern Virginia Medical School*

46

**Astrocyte Activity in the Medial Entorhinal Cortex During Spatial Learning**

Kai Zhang, Yan Ma, Taylor Malone, Yi Gu

*Graduate Student: Kai Zhang**NIH Institute-Center: NINDS**NIH Research Advisor: Dr. Yi Gu**University Research Advisor: Dr. Yonghao Yu, Dr. Yong Zhang**Graduate University: Tianjin Medical University*

47

**scRNAseq Analysis of Lung Squamous Cell Carcinoma-Associated Neutrophils Reveals a Heterogeneous Population and p53 Involvement in Tumor Microenvironment Regulation**

David Lopez-Perez, Pierre Martine, Kate Brown, Ettore Appella

*Graduate Student: David Lopez-Perez**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Ettore Appella**University Research Advisor: Dr. Julio J. Galvez Peralta**Graduate University: University of Granada*

48

**Detection of Hyperemia on Arterial Spin Labeled versus Dynamic Susceptibility Contrast Enhanced Perfusion Weighted Imaging for Acute Ischemic Stroke**

Carolyn A. Lomahan, Marie Luby, Fabian Arnberg-Sandor, Lawrence L. Latour

*Graduate Student: Carolyn A. Lomahan**NIH Institute-Center: NINDS**NIH Research Advisor: Dr. Lawrence L. Latour**University Research Advisor: Dr. Fabian Arnberg-Sandor**Graduate University: Karolinska Institutet*

49

**Decomposition of the Longitudinal Disparities: an Application to the Fetal Growth Study**

Sang Kyu Lee, Seonjin Kim, Mi-Ok Kim, Katherine L. Grants, Hyokyoung G. Hong

*Graduate Student: Sang Kyu Lee**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Hyokyoung G. Hong**University Research Advisor: Dr. Hyokyoung G. Hong**Graduate University: Michigan State University*

50

**Cerebellar Representations of Dopamine Signals**

Ben Filio, Mark J. Wagner

*Graduate Student: Ben Filio**NIH Institute-Center: NINDS**NIH Research Advisor: Dr. Mark J. Wagner**University Research Advisor: Dr. Diane Hoffman-Kim**Graduate University: Brown University*

51

**The Great Divide: The Immune System Drives Selection and Segregation in the Tumor Microenvironment**

Anagha Krishnan, Vivian Lau, Gracie Mead, Hannah Dada, Davide Randazzo, Grégoire Altan-Bonnet, Audrey Gérard

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## POSTERS

52

**A Novel Cellular Model to Study the ALT Pathway**

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53

**Mapping the Landscape of Extrachromosomal DNA in Non-Smoking Lung Cancers**

Azhar Khandekar, Tongwu Zhang, Ludmil Alexandrov, Maria Teresa Landi

*Graduate Student: Azhar Khandekar**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Maria Teresa Landi**University Research Advisor: Dr. Ludmil Alexandrov**Graduate University: University of California, San Diego*

54

**Design of an Improved YAP1/TAZ-TEAD Interaction Inhibitor**

Briana Branch, Yao Yuan, Ramiro Iglesias-Bartolome

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55

**Pan-Viral Serological Characterization in African Americans (AA) and European Americans (EA) with Hepatocellular Carcinoma**

Theresa Ewa, Whitney Leet, Limin Wang, Marshonna Forgues, Xin Wei Wang

*Graduate Student: Theresa Ewa**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Xin Wei Wang**University Research Advisor: Dr. Daniel Muñoz-Espin**Graduate University: University of Cambridge*

56

**The Role of Y-Complex Nucleoporins in Mitosis**

Reham Aljumaah, Vasilisa Aksenova, Sanjana Sundararajan,

Alexei Arnaoutov, Mary Dasso

*Graduate Student: Reham Aljumaah**NIH Institute-Center: NICHD**NIH Research Advisor: Dr. Mary Dasso**University Research Advisor: Dr. Michael Matunis**Graduate University: Johns Hopkins University*

57

**Genetic and Epigenetic Insights into Aging of the Human Retina**

Ting-Yi Lin, Jayshree Advani, Milton English,

Deborah A. Ferrington, Ayellet V. Segrè, Anand Swaroop

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58

**Chimeric Antigen Receptor T-cells Exhibit Differential Cytotoxicity Against Leukemic Cells as a Function of Their Cell Cycle Stage**

Jaehyun Suh, Nikos Svoronos, Nirali Shah,

Christopher Chien, Naomi Taylor

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59

**HMM Trained on ATAC-seq Data Identifiers Cis-Regulatory Activators at Megabase Range**

Thomas J. F. Pranzatelli, Philip L. F. Johnson, John A. Chiorini

*Graduate Student: Thomas J. F. Pranzatelli**NIH Institute-Center: NIDCR**NIH Research Advisor: Dr. Jay Chiorini**University Research Advisor: Dr. Philip Johnson**Graduate University: University of Maryland, College Park*

60

**Modeling Aggressive Lymphoma *In Vivo* Using Functional Genomic Screens**

Vivian Morris, James Phelan, Arnold Bolomsky, Moyi Li,

Sriranjani Darbha, Yandan Yang, Hong Zhao, Jagan Muppidi,

Louis Staudt

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## POSTERS

61

**Association of Oil Spill Related Total Hydrocarbon Exposure with Blood Pressure and Hypertension in the Gulf Long-term Follow-up Study**

Opal P. Patel, Lawrence S. Engel, Dale P. Sandler  
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 Graduate University: *University of North Carolina, Chapel Hill*

62

**Pericytes Influence Disseminated Tumor Cell Fate Decisions**

Tamara McErlain, Morgan Glass, Elizabeth McCulla, Lauren Ziemer, Cristina Branco, Meera Murgai  
 Graduate Student: *Tamara McErlain*  
 NIH Institute-Center: *NCI*  
 NIH Research Advisor: *Dr. Meera Murgai*  
 University Research Advisor: *Dr. Cristina Branco*  
 Graduate University: *Queens University Belfast*

63

**Elucidating Embryonic Growth and Pregnancy Length: A Deeper Look at the Impact of Measurement Error**

Gianna L. Doss, Julie L. Daniels, Sunni L. Mumford, Charles Poole, Anne Z. Steiner, Anne Marie Z. Jukic  
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 University Research Advisor: *Dr. Julie Daniels*  
 Graduate University: *University of North Carolina, Chapel Hill*

64

**RESF1 is a Tandem G4-Associated Tumor Suppressor in Triple Negative Breast Cancer**

Megan Majocho, Devin Jackson, Ngoc-Han Ha, Ruhul Amin, Marie Pangracova, Christina Ross, Kent Hunter  
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 NIH Institute-Center: *NCI*  
 NIH Research Advisor: *Dr. Kent Hunter*  
 University Research Advisor: *Dr. Rebecca Riggins*  
 Graduate University: *Georgetown University*

65

**Modelling of Expression Adaptation in Cancer Reveals Phenotype-Dependent Evolution of Clonal Transcriptional States**

M.G. Hirsch, Soumitra Pal, Farid Rashidi Mehrabadi, Salem Malikic, Eva Perez-Guijarro, Glenn Merlino, Cenk Sahinalp, Erin K. Molloy, Chi-Ping Day, Teresa M. Przytycka  
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 NIH Institute-Center: *NLM*  
 NIH Research Advisor: *Dr. Teresa M. Przytycka*  
 University Research Advisor: *Dr. Erin K. Molloy*  
 Graduate University: *University of Maryland, College Park*

66

**Creation of a SDHB Pheochromocytoma Paraganglioma Syndrome Mouse Model and Developmental Insights**

Yasemin Cole, Jared Rosenblum, Herui Wang, Iris Indig, Shuran Chen, LaYow Yu, Tara Doucet-O'Hare, Jeeva Munasignhe, Danielle Donahue, Adam Sowalsky, Shana Trostel, Karel Pacak, Zhengping Zhuang  
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 NIH Institute-Center: *NCI*  
 NIH Research Advisor: *Dr. Zhengping Zhuang*  
 University Research Advisor: *Dr. Eamonn Maher*  
 Graduate University: *University of Cambridge*

67

**Enhancing Lesion Visibility through Advanced Style Transfer Techniques in Medical Imaging**

Minghao Xue, Amir Gandjbakhche  
 Graduate Student: *Minghao Xue*  
 NIH Institute-Center: *NICHD*  
 NIH Research Advisor: *Dr. Amir Gandjbakhche*  
 University Research Advisor: *Dr. Mehran Armand*  
 Graduate University: *Johns Hopkins University*

68

**Targeting SMARCA1 in Rhabdomyosarcoma: Potential Therapeutic Implications**

Ashwaq K. Aljabri, Katie E. Hebron, Yuliya Kriga, Juan Manuel Caravaca, Aiysha Althobaiti, Stacey Stauffer, Angela Kim, Lauren Stoak, Morgan Porter, Jyoti Shetty, Bao Tran, Matthew Geisler, Judith K. Davie, Marielle E. Yohe  
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 NIH Institute-Center: *NCI*  
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 University Research Advisor: *Dr. Judith Davie*  
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## POSTERS

69

**Circulating Senescence Markers Predict Age-Related Clinical Outcomes in the Baltimore Longitudinal Study of Aging**

Bradley Olinger, Reema Banarjee, Dimitrios Tsitsipatis, Anjana Ram, Thedoe Nyunt, Ceereena Ubaida-Mohien, Gulzar Daya, Zhongsheng Peng, Myriam Gorospe, Keenan Walker, Luigi Ferrucci, Nathan Basisty  
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University Research Advisor: *Dr. Alecia Flynn*

Graduate University: *Johns Hopkins University*

70

**Understanding the Effects of Trop2 Overexpression to Maximize Triple Negative Breast Cancer Treatment**

Yonit A. Addissie, Shashikala Ratnayake, Qingrong Chen, Nevil Singh, Daoud Meerzaman, Stanley Lipkowitz  
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University Research Advisor: *Dr. Nevil Singh*

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71

**“Crying in the Wilderness”: A Qualitative Descriptive Analysis of the Motivations, Benefits, and Barriers to the Use of Online Resources in Telomere Biology Disorders**

Emily Pearce, Alina Majid, Toniya Brown, Camella Rising, Ashley Thompson, Rowan Forbes Shepherd, Catherine Wilsnack, Sadie Hutson, Allison Werner-Lin, Melissa B. Gilkey, Kurt M. Ribisl, Allison J. Lazard, Edwin Fisher, Paul K. J. Han, Sharon A. Savage  
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University Research Advisor: *Dr. Kurt M. Ribisl,*

*Dr. Melissa B. Gilkey*

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72

**Investigating Initiation Mechanisms of Neuroblastoma in Neural Crest Development via Transcriptional Profiling and 3D Organoid Modeling**

Jenny Hsin, Jamiya Kirkland, Tess Muttikkal, Shery Huang, Laura Kerosuo

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University Research Advisor: *Dr. Shery Huang*

Graduate University: *University of Cambridge*

73

**What is a Cure: Perspectives on the Meaning of Cure from Within the Sickle Cell Disease Community**

Marilyn S. Baffoe-Bonnie, Christine Grady, Vence Bonham, Sara Hull

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University Research Advisor: *Dr. Rina Bliss*

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74

**Comparison of 5-Aminolevulonic Acid and Verteporfin for Photodynamic Therapy and YAP-TEAD Inhibition in Glioblastoma Multiforme**

John A. Quinlan, Anandita Gaur, Payal Srivastava, Carla Arnua del Valle, Kaylin Baumiller, Robert Robey, Michael Gottesman, Huang-Chiao Huang

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75

**Decreased Alertness Changes Brain Network Dynamics During Passive Movie-Viewing**

Samika Kumar, Javier Gonzalez-Castillo, Daniel Handwerker, Sharif Kronemer, Anat Arzi, Tristan Bekinschtein, Peter Bandettini

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University Research Advisor: *Dr. Tristan Bekinschtein*

Graduate University: *University of Cambridge*

## POSTERS

76

**Strategies for Overcoming the Extracellular Matrix Barrier to Nanoparticle Drug Delivery in the Tumor Microenvironment**

Devorah R. Cahn, Michael Buckenmeyer, Gregg A. Duncan, Matthew T. Wolf

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77

**Evidence for Independent Representations of Facial Features from Prosopometamorphopsia and Mouth-Specific Distortions**

Alexis Kidder, Chris Baker, Brad Duchaine

*Graduate Student: Alexis Kidder*

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*NIH Research Advisor: Dr. Chris Baker*

*University Research Advisor: Dr. Brad Duchaine*

*Graduate University: Dartmouth College*

78

**Polyomaviruses in European Common Voles (*Microtus arvalis*): Insights into Virus-Host Co-Evolution**

Emilija Vasilūnaitė, Monika Repšytė, Rūta Kiseliūnaitė, Gerald Heckel, Rainer G. Ulrich, Diana V. Pastrana, Alma Gedvilaitė, Christopher B. Buck

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*University Research Advisor: Dr. Alma Gedvilaitė*

*Graduate University: Vilnius University*

79

**Investigating Alterations Preceding Neurodegeneration in TDP-43 Deficient Motor Neurons**

Josette J. Wlaschin, Peyton Lee, Hanna Silberberg, Sahba Seddighi, Mor Alkaslasi, Claire Le Pichon

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*University Research Advisor: Dr. Rejji Kuruvilla*

*Graduate University: Johns Hopkins University*

80

**Vascular Endothelial Growth Factor Receptors Regulate the KSHV Lytic-Latent Switch**

Ameera Mungale, Sarah Dremel, Joseph M. Ziegelbauer

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*NIH Research Advisor: Dr. Joseph Ziegelbauer*

*University Research Advisor: Dr. Stephan Menne*

*Graduate University: Georgetown University*

81

**Identification and Interrogation of Novel Long-Range Projecting Hippocampal Somatostatin-Interneurons with AAV-S9E10**

Anna Vlachos, Adam P. Caccavano, Geoffrey Vargish, Xiaoqing Yuan, Steven Hunt, Mark A. G. Eldridge, Alex C. Cummins, Brendan E. Hines, Anya Plotnikova, Arya Mohanty, Bruno B. Averbeck, Gord Fishell, Kenneth A. Pelkey, Chris J. McBain

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*NIH Research Advisor: Dr. Chris McBain*

*University Research Advisor: Dr. Diane Hoffman-Kim*

*Graduate University: Brown University*

82

**MoMo30: A Potential Therapeutic for COVID-19**

Kenya DeBarros, Morgan Coleman, Mahfuz Khan, Michael D. Powell, Barry O'Keefe

*Graduate Student: Kenya DeBarros*

*NIH Institute-Center: NCI*

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*University Research Advisor: Dr. Michael D. Powell*

*Graduate University: Morehouse School of Medicine*

83

**Gustatory Processing Within and Beyond the Suboesophageal Zone in *Drosophila***

Leah Pappalardo, Yu-Shan Hung, Mark Stopfer

*Graduate Student: Leah Pappalardo*

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*University Research Advisor: Dr. Andrew Gordus*

*Graduate University: Johns Hopkins University*

## POSTERS

84

**Identification of Drivers of Monocyte-Mediated Trogocytosis of Tumor Cells**

Cristina F. Contreras, Sabina Kaczanowska, Kathy Li, Fiona Hartley, Ava Van Ess, Francesca Buffa, Rosandra N. Kaplan

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*University Research Advisor: Dr. Francesca Buffa*

*Graduate University: University of Oxford*

85

**Cortical Neurons are Differentially Vulnerable to DLK-Mediated Neurodegeneration Following Mild Traumatic Brain Injury**

Mor R. Alkaslasi, Eliza Y. H. Lloyd, Austin S. Gable, Hanna Silberberg, Hector Yarur, Valerie Tsai, Hugo Tejada, Claire E. Le Pichon

*Graduate Student: Mor Alkaslasi*

*NIH Institute-Center: NICHD*

*NIH Research Advisor: Dr. Claire Le Pichon*

*Graduate University: Brown University*

86

**Unmasking Arterial-Resident Autoreactive B Cells Involved in Atherosclerosis and Peripheral Artery Disease Progression**

Joshua A. Taylor, Mark Hutchinson, Patricia Gearhart, Robert Maul

*Graduate Student: Joshua A. Taylor*

*NIH Institute-Center: NIA*

*NIH Research Advisor: Dr. Patricia Gearhart*

*Graduate University: Johns Hopkins University*

*School of Medicine*

87

**Characterizing Rostral Ventromedial Medulla Serotonergic Neurons in Pain Modulation**

Yizhen Z. Zhang, Mark A. Hoon

*Graduate Student: Yizhen Z. Zhang*

*NIH Institute-Center: NIDCR*

*NIH Research Advisor: Dr. Mark A. Hoon*

*University Research Advisor: Dr. Christopher Moore*

*Graduate University: Brown University*

88

**Elucidation of a Synergistic Mechanism for Dietary Lipids and Microbiome Pathobionts that Exacerbate Innate Immune Signaling to Disseminate Metabolic-Like Macrophages, Promote Tissue Inflammation, and Impair Insulin Sensitivity**

Jacob W. Pederson, Jyothi Padiadpu, Natalia Shulzhenko, Andrey Morgun, Aleksandra Nita-Lazar

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*University Research Advisor: Dr. Natalia Shulzhenko*

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89

**Sensory Circuits Controlling Secretory Function**

Julia A. Licholai, Nicholas J. P. Ryba

*Graduate Student: Julia A. Licholai*

*NIH Institute-Center: NIDCR*

*NIH Research Advisor: Dr. Nicholas J. P. Ryba*

*Graduate University: Brown University*

90

**The Next Frontier in Malaria Prevention: Pfs230D1 Transmission-Blocking Vaccine's Novel Surrogate Assay of Efficacy**

Cristina A. Meehan, Jonathan Renn, Patrick Duffy

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*NIH Research Advisor: Dr. Patrick Duffy*

*University Research Advisor: Dr. Paul Goepfert*

*Graduate University: University of Alabama at*

*Birmingham MSTP*

91

**A Role for the Pontine Micturition Center in Descending Pain Control**

Tianming Li, Wenjie Zhou, Zhen Wang, Lauren Hayashi, Wenxi Huang, Kapsa Bengyella, Rafael Hernandez,

Yuanyuan Liu

*Graduate Student: Tianming Li*

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*NIH Research Advisor: Dr. Yuanyuan Liu*

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## POSTERS

92

**Skin-Resident Antiviral T Cells Can Express and Upregulate Granzyme C in an Antigen-Independent Manner**

Ramon A. Lujan, Heather D. Hickman

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93

**Investigating the Role of the Dopaminergic Projection from the Anteroventral Periventricular Nuclei (AVPV TH+) to the Medial Preoptic Area (MPOA) in Maternal Behavior**

Shakira Rodriguez Gonzalez, Qi Zhang, Chia Li, Michael Krashes

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94

**SARS-CoV-2 Exposure History Defines Epitope Targeting and Drives Immune Escape**

Timothy S. Johnston, Shuk Hang Li, Reilly Atkinson, Mark M. Painter, Daniel C. Douek, E. John Wherry, Scott E. Hensley

*Graduate Student: Timothy S. Johnston**NIH Institute-Center: NIAID**NIH Research Advisor: Dr. Daniel C. Douek**University Research Advisor: Dr. Scott E. Hensley**Graduate University: University of Pennsylvania*

95

**Discovering Cellular Mechanisms to Mitigate Risk and Increase Resilience in Alzheimer's Disease**

Artur S. Gevorgyan, Linda Yang, Priyanka Narayan

*Graduate Student: Artur S. Gevorgyan**NIH Institute-Center: NIDDK**NIH Research Advisor: Dr. Priyanka Narayan**University Research Advisor: Dr. Diane Hoffman-Kim**Graduate University: Brown University*

96

**ACT-VAX-INNATE: An Integrated Approach for Enhancing Tumor Control with Adoptive T Cell Therapy**

Dalton Hermans, Sloane Fussell, Ramiro A. Ramirez-Valdez, Sam Shepard, Andrew S. Ishizuka, Isidro Cortés-Ciriano, Robert A. Seder

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97

**State-Dependent Prioritization of Feeding and Parenting Behaviors**

Ivan C. Alcantara, Chris M. Mazzone, Laura E. Mickelsen, Chia Li, Isabel de Araujo Salgado, Claire Gao, Eva Karolczak, Abby Goldschmidt, Guohong Cui, Marc L. Reitman, Michael J. Krashes

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98

**Mapping Mutational Pathways Through Evolutionary Time in Dengue Virus Envelope Protein**

Jack Dorman, Patrick Dolan

*Graduate Student: Jack Dorman**NIH Institute-Center: NIAID**NIH Research Advisor: Dr. Patrick Dolan**University Research Advisor: Dr. Steve Farber**Graduate University: Johns Hopkins University*

99

**A Bipolar Taxonomy of Adult Human Brain Sulcal Morphology Related to Timing of Fetal Sulcation and Trans-Sulcal Gene Expression Gradients**

William Snyder, Petra E. Vértés, Vanessa Kyriakopoulou, Konrad Wagstyl, Logan Z. J. Williams, Vyacheslav R. Karolis, Jakob Seidlitz, Denis Rivière, Emma C. Robinson, Jean-Francois Mangin, Ed Bullmore, Armin Raznahan

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## POSTERS

100

**Safety and Pharmacokinetics of SAMT-247 Released via Intravaginal Rings in Rhesus Macaques**

Emmanuel K. Woode, Mohammad Arif Rahman, Massimiliano Bissa, Sophia Brown, Luca Schifanella, Manjula Gunawardana, John A. Moss, Melvin Doster, Rashmi Venkatesh, Oluwatobi Arisa, Lisa Miller-Jenkins, Ettore Appella, Marco Robello, Daniel H. Appella, Marc M. Baum, Elizabeth Glaze, William D. Figg, Genoveffa Franchini

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101

**Endogenous Opioid Signaling Within the Paraventricular Nucleus of the Thalamus**

Sofia Shirley, Hector Yarur-Castillo, Valerie Tsai, Mario Penzo, Hugo Tejada

*Graduate Student: Sofia Shirley*

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*NIH Research Advisor: Dr. Hugo Tejada, Dr. Mario Penzo*

*Graduate University: Johns Hopkins University*

102

**Comparative Genomics and Evolutionary Analysis of Bacterial Lipid Binding Lipoproteins**

Mukshud Ahamed, Jessica Seeliger, Aravind Iyer

*Graduate Student: Mukshud Ahamed*

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103

**A Thalamostriatal Circuit That Shapes Dopamine-Mediated Safety Signaling During Avoidance Learning**

Emma E. Macdonald, Jun Ma, Michael E. Authement, Veronica A. Alvarez, Mario A. Penzo

*Graduate Student: Emma E. Macdonald*

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*Graduate University: Brown University*

104

**Optimizing Intermembrane Distances to Enhance CAR T Cell Responsiveness**

Justin M. Mirazee, Akashnathan Aranganathan, Dong Kong, Sooraj R. Achar, Dongya Jia, Xiang Chen, Bodhi Vani, Chris D. Chien, Marie Pouzolles, Kniya DeDe, Philippe Youkharibache, Jadranka Loncarek, Kylie J. Walters, Pratyush Tiwary, Grégoire Altan-Bonnet, Naomi Taylor

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*NIH Research Advisor: Dr. Naomi Taylor*

*Graduate University: Johns Hopkins University*

105

**vmPFC Dynorphin Regulates Neural and Behavioral Responses to Threats**

Aaron Limoges, Hector Bravo-Rivera, Huikun Wang, Christina LaGamma, Hugo Tejada

*Graduate Student: Aaron Limoges*

*NIH Institute-Center: NIMH*

*NIH Research Advisor: Dr. Hugo Tejada, Dr. Mario Penzo*

*University Research Advisor: Dr. Stuart Firestein*

*Graduate University: Columbia University*

106

**Investigating the Structural Determinants of Flavivirus Infectivity in Mosquitoes**

William B. Stone, Elaine W. Lamirande, Stephen S. Whitehead

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*University Research Advisor: Dr. Albert J Auguste*

*Graduate University: Virginia Tech*

107

**Retroviral Targeting of Dorsal versus Ventral Adult-Born Neurons in the Hippocampus**

Natalie Freedgood, Heather Cameron

*Graduate Student: Natalie Freedgood*

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*NIH Research Advisor: Dr. Heather Cameron*

*Graduate University: Brown University*

## POSTERS

108

**Pharmacokinetic Comparison of Percutaneously Injected Ultrasound and X-ray Imageable Thermosensitive Poloxamer-Based Hydrogel Containing Doxorubicin versus Free Drug in Swine**

Jose F. Delgado, Ayele H. Negussie, William F. Pritchard, Andrew S. Mikhail, Nicole A. Varble, Tabea Borde, Laetitia Saccenti, Ivane Bakhutashvili, Antonio Arrichiello, Robert Morhard, John W. Karanian, Bradford J. Wood

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*NIH Institute-Center: CC*

*NIH Research Advisor: Dr. Bradford J. Wood*

*University Research Advisor: Dr. Huang Chiao Huang*

*Graduate University: University of Maryland, College Park*

109

**Profiling Unique Monosynaptic Inputs onto the Parvalbumin Interneurons of the Primate Prefrontal Cortex**

Angela Y. Fan, James A. Bourne

*Graduate Student: Angela Y. Fan*

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*University Research Advisor: Dr. Leon Teo*

*Graduate University: Monash University*

110

**Molecular Dynamics Study of  $\alpha 7$  Nicotinic Acetylcholine Receptor**

Nauman Sultan, Ada Y. Chen, Claudio Grossman, Ana Damjanovic, Bernard Brooks

*Graduate Student: Nauman Sultan*

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*NIH Research Advisor: Dr. Bernard Brooks*

*University Research Advisor: Dr. Ana Damjanovic*

*Graduate University: Johns Hopkins University*

111

**Applying Insights from Computational Biology to TDP-43 Biomarker Discovery and Development**

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112

**On the Preferred DNA Juxtaposition Geometry by Type II Topoisomerase During the Strand Passage Activity**

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113

**Characterizing Proteolytic Cleavage of the Synaptic Adhesion Molecule Neuroligin-3**

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## POSTERS

114

**Update of the CHARMM36 Force Field for Anionic Lipids**

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115

**Elucidating CHCHD10 Mutant Phenotypes in Inducible Cell Models and Designing Effective Therapeutic Strategies**

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Julia Thayer, Antonio Garcia-Guerra, Michael E. Ward,  
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116

**Structural and Biochemical Characterization of SSNA-1**

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117

**Reprogramming Mitochondrial Motility and Bioenergetics in Human Axonal Regeneration**

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118

**Novel Characterization of the Lipid Scramblase Activity of TMC1**

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119

**Oligodendroglial and Microglial Cell Dynamics During Remyelination in a Rodent Model of Tox-in-Induced Demyelination**

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120

**Computational and Biochemical Characterisation of Amino Acid Transporter Protein-Protein Interactions**

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121

**Understanding the Wnt Signaling Pathways Role in Neural Stem Cell Trajectories and Adult Neurogenesis During Injury Induced Regeneration**

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123

**Recipe For Heart Health: a Randomized Crossover Trial of Extra Virgin Olive Oil within a Whole-Food Plant-Based Vegan Diet Pattern on Cardiometabolic Risk Factors**

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