

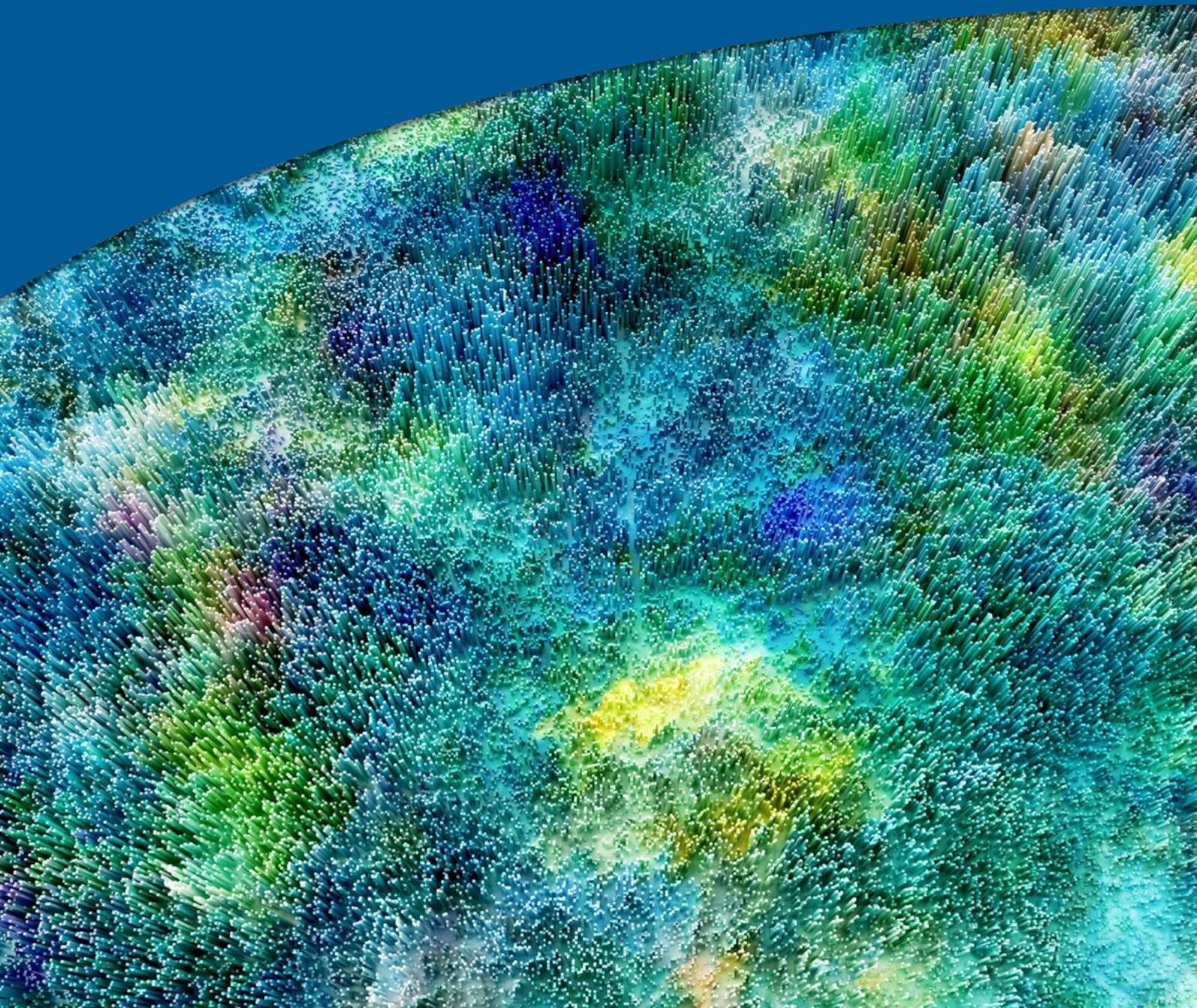
15th ANNUAL



NIH GRADUATE STUDENT RESEARCH SYMPOSIUM: **FACES OF TOMORROW'S SCIENCE**

FEBRUARY 21, 2019

NIH NATCHER CONFERENCE CENTER, BETHESDA, MARYLAND



15th ANNUAL

NIH GRADUATE STUDENT RESEARCH SYMPOSIUM

FACES OF TOMORROW'S SCIENCE

2019

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

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 at the NIH. 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.

In its fifteenth year, 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. This symposium highlights the 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.

This symposium will provide the graduate student community with the chance to hear about the scientific work of our peers in several formats. In the morning, we will be holding our 3rd annual elevator pitch competition in which current graduate students will be judged on their ability to explain their science to a general audience in two minutes or less.

The symposium will commence with opening remarks by the Director of the Office of Intramural Training and Education (OITE) Dr. Sharon Milgram. Students will then present their research 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. The poster sessions will be preceded by four oral presentations by current students who will present scientific talks chosen based on scientific merit and diversity.

In the afternoon, we will be honored to welcome our keynote speaker Dr. David Dinges. Dr. Dinges has led a life dedicated to the advancement of medicine, determined to unravel the intricacies of sleep and chronobiology. After earning his PhD in Physiological Psychology from Saint Louis University, he began his multifaceted and prolific career at the University of Pennsylvania in the Unit for Experimental Psychology, where he would advance to his current position as Director in 1995. Along the way, Dr. Dinges has studied how various aspects of human health ranging from cognitive ability to immune function to mood are influenced by sleep and circadian rhythms. He developed the psychomotor vigilance test (PVT), which assesses behavioral alertness and is often used to measure the effects of sleep deprivation. Tests like this are becoming increasingly important as society's demand for more and more night shift work and late-night travel results in lapses in attention that can negatively impact productivity and even lead to catastrophic accidents. Dr. Dinges has collaborated with the NIH, NASA, FAA, FDA, U.S. military, and many other organizations to advance our understanding of sleep disorders and disturbances to improve public safety. NIH graduate students will find both his illustrious career path and his dedication to scientific progress inspiring.

After the keynote address, we will present the awards for outstanding research mentors. 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. Four outstanding mentors nominated by their students will be honored for their leadership, support, and dedication to their graduate students. Afterwards, we will conclude the day with a graduate ceremony to recognize those students who have defended their dissertations within the past year. Dr. Michael Gottesman and Dr. Sharon Milgram will present the recent graduates with a certificate in honor of their accomplishments.

We are thankful for the opportunity to share our research with the entire NIH community at the 15th Annual NIH Graduate Student Research Symposium. We thank all of the graduate students who have participated in this event and those 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) Directors, 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, and Dr. Virginia Meyer 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 2018 GSC co-chairs Larissa Erben and Laura Gorrell for managing the Outstanding Mentor Awards and for all of their efforts and dedication to the GSC and graduate student community. 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, and other OITE staff who have contributed significantly to the planning of this event. We would like to extend a big thank you to Dr. David Dinges for his enthusiasm and willingness to deliver our keynote address. Finally, we would like to thank the graduate students, mentors, alumni, and all attendees whose participation made this event successful.

THE 15TH ANNUAL NIH GRADUATE RESEARCH SYMPOSIUM COMMITTEE

Dorian Cheff, NCATS, Karolinska Institutet

Matan Cohen, NCI, Indiana University, Bloomington

Crystal Lipsey, NCI, Morehouse School of Medicine

Daria Lukasz, NIDCD, Johns Hopkins University

James Stamos, NCI, Georgetown University

PROGRAM OF EVENTS

15TH ANNUAL NIH GRADUATE STUDENT RESEARCH SYMPOSIUM • FEBRUARY 21, 2019

<p>9:00 am-10:00 am Registration in Natcher Conference Center Lower Lobby</p>	<p>ELEVATOR PITCH COMPETITION</p>
<p>10:00 am-11:45 am Ruth L. Kirschstein Auditorium</p>	<p>WELCOME AND STUDENT ORAL PRESENTATIONS</p> <p>Sharon L. Milgram, PhD Director, NIH Office of Intramural Training and Education</p> <p>Ashley Pitt, Johns Hopkins University, NIDDK Structural Investigation of a Novel Tom40 Interaction</p> <p>Davide Ortolan, University of L'Aquila, NEI <i>In vitro</i> Generation of iPSC-derived Macular and Peripheral Retinal Pigment Epithelial Cells Using Machine Learning Based High Content Screen</p> <p>Alec Nickolls, Brown University, NINDS Transcriptional Programming of Human Sensory Neurons</p> <p>Carly Starke, Georgetown University, NIAID Signatures of Protective SIV-Specific CD8+ T-Cells</p>
<p>12:00 pm-1:00 pm Atrium</p>	<p>POSTER SESSION I Odd numbered posters presenting</p>
<p>1:00 pm-2:00 pm Atrium</p>	<p>POSTER SESSION II Even numbered posters presenting</p>
<p>2:15 pm-3:45 pm Ruth L. Kirschstein Auditorium</p>	<p>KEYNOTE ADDRESS</p> <p>David Dinges, PhD Professor and Director, Unit for Experimental Psychiatry University of Pennsylvania</p>
<p>3:45 pm-4:45 pm Ruth L. Kirschstein Auditorium</p>	<p>AWARDS CEREMONY</p> <p>Graduation Ceremony Certificates presented by: Michael M. Gottesman, MD, NIH Deputy Director for Intramural Research Sharon L. Milgram, PhD, Director, NIH Office of Intramural Training & Education</p> <p>Outstanding Mentor Awards Dale P. Sandler, PhD, NIEHS Chris Baker, PhD, NIMH</p> <p>NIH Graduate Student Research Awards (NGSRAs) Awarded to the winners of the poster competition</p>

GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Chinyere Agbaegbu Iweka Elucidating the Role of PRG-3 Protein in the Central Nervous System	NHLBI Dr. Herbert Geller	Georgetown University Dr. Mark Burns
Amal A. Alsufyani Gene Editing, Repair and Sequencing Approaches to Treat and Understand Retinal Degeneration Diseases	NEI Dr. Tiansen Li	George Mason University Dr. Paul Cooper
Elizabeth Marion Anderson Dynamics of HIV-1 Decay and Persistence after Initiating Antiretroviral Therapy	NCI Dr. Frank Maldarelli Dr. Mary Kearney	The Catholic University of America Dr. Venigalla Rao
Emma Elizabeth Condy Examining the Neurovisceral Integration Model through fNIRS	NICHHD Dr. Amir Gandjbakhche	Virginia Tech Dr. Bruce Friedman
François De Mets Post-transcriptional Regulation of Acetate Metabolism: Coordination with the TCA Cycle via a 3' UTR-Derived Noncoding Regulatory RNA	NCI Dr. Susan Gottesman	Université Libre de Bruxelles Dr. Laurence Van Melderen
Lora Deutch Weidner The Role of ABC Transporters and Inflammation in Drug-Resistant Epilepsy	NIMH Dr. Robert B. Innis Dr. Matthew D. Hall	Karolinska Institutet Dr. Jan Mulder
David Diaz-Jimenez Glucocorticoids Differentially Regulate DPP4 Expression in Macrophages in Comparison to Monocytes and Promote Migration and Chemotaxis	NIEHS Dr. John A. Cidlowski	Universidad de Chile Dr. Marcela Hermoso
Katie Annette Edwards Peripheral Biomarkers of Inflammation Following Blast Exposure in a Clinical Population	NINR Dr. Jessica Gill	Clemson University Dr. Kathleen Valentine Dr. Julia Eggert
Kaitlyn B. Gam Lung Function Among Gulf Study Participants Following the 2010 Deepwater Horizon Disaster	NIEHS Dr. Dale Sandler	Tulane University Dr. Maureen Lichtveld
Shan Huang The Regulation of Energy Expenditure in Response to Environmental Temperature Changes in Human Adults and Challenges and Advances in Human Brown Adipose Tissue Quantification	NIDDK Dr. Kong Y. Chen	Fudan University Dr. Yiming Li
Ayesha Imtiaz Identification of Genes Involved in Severe Degree Hearing Loss	NIDCD Dr. Thomas B. Friedman	University of the Punjab, Lahore, Pakistan Dr. Sadaf Naz
Sarah Louise Inwood Using Intrinsic and Extrinsic Methods to Engineer Improved Expression of Recombinant Proteins and Retroviral Vectors in Mammalian Cells	NIDDK Dr. Joseph Shiloach	Johns Hopkins University Dr. Michael Betenbaugh

GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Rafique M. Islam Structure-Function Studies of Apolipoprotein Mimetic Peptides for Increasing ABCA1 Transporter Mediated Cholesterol Efflux	NHLBI Dr. Alan Remaley	George Mason University
Nader Jameel Development of Cancer-Specific DNA Methylation Biomarkers	NHGRI Dr. Laura Elnitski	The George Washington University
Mengmeng Jia A National-Wide Multi-Center Ultrasound-Based Breast Cancer Screening Cohort Program in China	NCI-DCEG Dr. Gretchen L. Gierach	Chinese Academy of Medical Sciences and Peking Union Medical College
Erik Parker Karmele The Regulation of Interleukin-13 by IL-13R α 2 Determines the Severity of Murine Inflammatory Bowel Disease	NIAID Dr. Thomas A. Wynn	The George Washington University Dr. David Leitenberg
Neslihan Kayraklioglu Effect of Calcium Carbonate Encapsulation on the Oral Activity of Oligodeoxynucleotides and Assessment of the Response of Human Monocytes to TLR Ligands	NCI Dr. Dennis Klinman	Hacettepe University
Andrew J. Kesner The Supramammillary Nucleus in Motivated Behaviors	NIDA Dr. Satoshi Ikemoto	Johns Hopkins University
Mohd Mohsin Raza Khan Mass Spectrometry Based Structural Analysis and Systems Immunoproteomics Strategies Deduce Specifics of Host-Pathogen Interactions	NIAID Dr. Aleksandra Nita-Lazar	University of Maryland, Baltimore Prof. David R. Goodlett
Brenna A. LaBarre Human Genomic Methylation: Signatures Across Populations and Ages	NHGRI Dr. Laura Elnitski	Boston University
Nathanael J. Lee Spatiotemporal Evolution of Inflammatory Demyelinating Lesion in the Cerebral White Matter	NINDS Dr. Daniel S. Reich	Georgetown University Dr. Jeffrey K. Huang
Jeffrey Lienert The Social and Biological Effects of Patient-Patient Co-Presence on Health in Hospitals Using Electronic Medical Records	NHGRI Dr. Laura Koehly Dr. Chris Marcum	University of Oxford Dr. Felix Reed-Tsochas
Assaf Magen Molecular Characterization of Functional Gene Interactions and Lymphocyte Diversity in Cancer	NCI Dr. Remy Bosselut Dr. Eytan Ruppin	University of Maryland Dr. Sridhar Hannenhalli
Csaba Matyas Pathophysiology and Pharmacology of Nitric Oxide – Cyclic Guanosine Monophosphate Signaling in Diabetic Cardiomyopathy	NIAAA Dr. Pal Pacher	Semmelweis University Dr. Tamas Radovits
Qinglei Meng Non-Invasive Brain Monitoring and Stimulation	NIDA Dr. Yihong Yang	University of Maryland, Baltimore County

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Helen Thompson Michael Initiation and Progression of BRAF/NRAS Wildtype Melanoma in UV-Induced Mouse Models of Cutaneous Melanoma	NCI Dr. Glenn Merlino	University of Maryland, College Park Dr. Siba Samal
Rogers Alberto Nahui Palomino Therapeutic Potential of Vaginal Lactobacilli for Women's Health: Interaction with Pathogens and Epithelium Cells	NICHHD Dr. Leonid Margolis	University of Bologna Dr. Beatrice Vitali
Pipat Piewngam Comparative Study of Intestinal Carriage of Multidrug-resistant Bacteria Between Healthy Population and Patients	NIAID Dr. Michael Otto	Mahidol University Dr. Pattarachai Kiratisin
Matthew V. Russo Divergent Regulation of Macrophage-Mediated Vascular Repair Following Mild Traumatic Brain Injury	NINDS Dr. Dorian McGavern	Johns Hopkins University
Natalia Schneider Nunes Abdominal Therapeutic Ultrasound Attenuates DSS-Induced Acute Colitis Through the Cholinergic Anti-Inflammatory Pathway	CC Dr. Joseph Alan Frank	Universidade Federal do Rio Grande do Sul Dr. Ana Helena Paz
Yuanyuan Wang Overcoming Challenges on HCV Glycoproteins and Receptors Production: a Useful Mammalian Cell Expression System	NIAID Dr. Joseph Marcotrigiano	Rutgers, the State University of New Jersey
Alexander R. Weiss Novel Approaches to Studying the Role of the Anterior Cingulate Cortex in Cognition and Parkinson's Disease	NINDS Dr. Judith Walters	University of Oxford Prof. Tipu Aziz
Hugh Clarke Welles Dissecting the Function and Utility of the Humoral Immune Response to SIV in the Non-Human Primate Model of HIV	NIAID Dr. Mario Roederer	The George Washington University Dr. Douglas Nixon
Thad Whitaker Molecular Determinants of Photoreceptor Presynaptic Morphology	NEI Dr. Anand Swaroop	Texas A&M University
Wendy Xin Functional Heterogeneity in the Macroglial Network	NIDA Dr. Antonello Bonci	Johns Hopkins University Dr. Antonello Bonci
Yufeng Xu Cellular Mechanisms of Axonal Injury Induced Retinal Ganglion Cell Death and Potential Treatments	NEI Dr. Wei Li	Zhejiang University Dr. Juan Ye
Tori N. Yamamoto Engineering CD8+ T Cells to Overcome Death Signaling Within the Tumor Microenvironment	NCI Dr. Nicholas P. Restifo	University of Pennsylvania
Jason Yolitz Variations in Protein Processing Lead to Variations in Structure and Function of the HIV-1 Envelope Protein	NIAID Dr. James Arthos Dr. Anthony Fauci	Johns Hopkins University

KEYNOTE SPEAKER



David Dinges, MS, MA, PhD, is the Director of the Unit of Experimental Psychiatry, Chief of the Division of Sleep and Chronobiology, and Professor at the University of Pennsylvania. His work at Saint Louis University and the University of Pennsylvania has advanced the field of sleep and chronobiology and informed policies set forth by agencies such as the NIH, Department of Transportation, FAA, Department of Justice, and NASA. Dr. Dinges has been awarded funding by numerous Federal and private organizations. He has conducted paradigm-shifting research into chronic sleep deprivation, circadian dysregulation, and sleep disorders both locally at his laboratory at the University of Pennsylvania and more globally on the International Space Station. His work holds critical importance to myriad sleep-deprived professions including medical specialists, astronauts, long-haul truckers, and even graduate students.

STUDENT SPEAKERS



Ashley Pitt is a fourth year PhD candidate in the Johns Hopkins-NIH GPP. Ashley received her BS in Biochemistry from Florida State University in 2014 and it was there that she started her interest in research. Her work was primarily focused on organic chemistry and during her senior year she began developing an interest in biological research. She joined the NIH as a member of the Undergraduate Scholarship Program where she had the opportunity to work with Dr. Anirban Banerjee in NICHD and Dr. Federico Bernal in NCI. During her time in Banerjee lab she developed an interest in structural biology of membrane proteins while working on the characterization of a mitochondrial membrane protein, mitoferrin. Her work in the Bernal lab allowed her to merge her interests in biology and chemical synthesis while researching the use of stapled mimetic peptides as a cancer therapeutic. Ashley is currently conducting her thesis research at the National Institute of Diabetes and Digestive and Kidney Diseases under the mentorship of Dr. Susan Buchanan. During her thesis work Ashley is studying interactions and structural characterization of the Tom40, the beta barrel component of the translocase of the outer mitochondrial membrane.

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Davide Ortolan is a third-year PhD student enrolled in a partnership program between the University of L'Aquila (L'Aquila, Italy) and the NIH. After receiving his Bachelor's degree in Biological Sciences at the University of Milan in 2013, Davide continued his studies and obtained a Master's degree in Molecular Biology of the Cell in 2016. While pursuing his Master's, Davide held a 2-year internship under the mentorship of Dr. Roberto Chiesa at the Mario Negri Institute in Milan. During his internship, Davide studied intracellular trafficking in cellular models of genetic prion diseases and contributed to the discovery that intracellular accumulation of prion protein disrupts the trafficking of specific subunits of AMPA and NMDA

receptors. In 2016, Davide enrolled in the Experimental Medicine PhD program at the University of L'Aquila. To carry out his PhD studies, Davide joined the NIH where he works under the mentorship of Dr. Kapil Bharti in the National Eye Institute. Here, Davide has been studying how to develop the macula of a primate *in vitro* using iPSC technology and a machine learning-based high content screen. Davide is very grateful for the opportunity to conduct his studies at NIH and is excited to share his current findings with the NIH community here today.

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Alec Nickolls is a seventh year PhD candidate in the NIH-Brown University GPP. He received a BS in Molecular and Cellular Biology at the University of Illinois in 2011. As an undergraduate in Dr. Rodney Johnson's lab, Alec studied domesticated piglets (*sus scrofa*) as a model of human neonatal brain development. Alec then joined the NIH-Brown GPP after completing an MS in Neuroscience from Brandeis University in 2012. He is conducting his PhD research under Dr. Carsten Bönnemann at the National Institute of Neurological Disorders and Stroke. His thesis focuses on recapitulating human development and physiology *in vitro* through genome and tissue engineering of pluripotent stem cells – with an ultimate goal of gaining mechanistic insight into the pathogenesis of neuromuscular disorders. Alec would like to thank the OITE and the GPP for their support and is grateful for this chance to share his work with the graduate student community.

• • •



Carly Starke is a fifth year PhD candidate in the Georgetown-NIH GPP. Carly received her Bachelor of Science in Biotechnology from James Madison University in 2014. During her undergraduate summers, she worked at VaxInnate Corporation, contributing to the development of seasonal and pandemic influenza vaccines using toll-like receptor technology, and at the Food and Drug Administration in the laboratory of Dr. Dennis Kopecko, evaluating methods for improving acid resistance in the *Salmonella Typhi* vaccine. For her senior honors thesis, she developed a heterologous *Bordetella avium* vaccine against bordetellosis and other poultry pathogens under Dr. Louise Temple. Currently, as part of the Georgetown-NIH GPP, she is conducting her dissertation research at the National Institute of Allergy and Infectious Diseases under the mentorship of Dr. Jason Brechley, whose lab aims to understanding the mechanisms that underlie HIV disease progression. Her dissertation research focuses on investigating functional correlates of simian immunodeficiency virus (SIV)-specific CD8+ T cell control of viral replication in SIV-infected nonhuman primates. Carly is grateful for all of the support and opportunities from the NIH GPP community!

OUTSTANDING MENTOR AWARD RECIPIENTS



Chris Baker, PhD is Chief of the Unit on Learning and Plasticity in the Laboratory of Brain and Cognition. He received his BA in Neuroscience in 1995 from the University of Cambridge in England, and his PhD in Psychology in 1999 from the University of St. Andrews in Scotland, where he worked with Dr. David Perrett on neurophysiological studies of visual perception. During a postdoctoral fellowship at the Center for the Neural Basis of Cognition in Pittsburgh, he worked with both Carl Olson and Marlene Behrmann on combined monkey neurophysiological and human behavioral studies of visual object representation and learning. In 2003, he moved to MIT to work with Nancy Kanwisher, using functional brain imaging techniques to investigate learning, plasticity and high-level vision in human cortex. Dr. Baker arrived at the NIMH in the fall of 2006. The aim of Dr. Baker's group is to better understand how the structure, function and selectivity of the cortex change with experience or impairment, even in adulthood.



Dale P. Sandler, PhD is Chief of the Epidemiology Branch at the National Institute of Environmental Health Sciences, NIH, and Adjunct Professor of Epidemiology at the University of North Carolina at Chapel Hill. She received an MPH from Yale and a PhD in Epidemiology from The Johns Hopkins University. Noted awards include NIEHS Scientist of the Year (2010), NIEHS Mentor of the Year (2013), the Nathan Davis Award for Outstanding Government Service from the American Medical Association (2015), and a Distinguished Scholar Award from the Division of Cancer Epidemiology and Genetics, NCI (2018). Sandler is Principal Investigator of three large prospective cohort studies including the *Agricultural Health Study*, a cohort of licensed pesticide applicators and their spouses followed collaboratively with investigators from the NCI since 1993 for cancer and non-cancer health effects associated with agricultural exposures, the *Sister Study*, a prospective study of more than 50,000 sisters of women who have had breast cancer designed to identify environmental and genetic contributors to breast cancer risk, and the *GuLF STUDY*, a prospective study of the health of Deepwater Horizon oil spill clean-up and response workers. She has published more than 430 papers in the peer reviewed scientific literature.

STUDENTS *Listed alphabetically by name*

Poster #	Last Name, First	IC	University
26	Abaandou, Laura I.	NIDDK	George Mason University
41	Ader, Nicholas R.	NINDS	University of Cambridge
50	Ait Ahmed, Yeni	NIAAA	University of Paris Est-Creteil
61	Alsadhan, Anfal	NHLBI	Catholic University of America
93	AlZamzami, Waseem A.	NCI	Catholic University of America
35	Bashant, Kathleen	NIAMS	University of Cambridge
49	Bellotti, Adriano	NICHHD	University of Cambridge
65	Blake, Bevin E.	NIEHS	University of North Carolina, Chapel Hill
78	Boehm, Matthew A.	NIDA	Brown University
27	Bronder, Daniel	NCI	University of Manchester
80	Burke, Dennis A.	NIAAA	Brown University
92	Cheff, Dorian M.	NCATS	Karolinska Institutet
12	Chopp, Laura B.	NCI	University of Pennsylvania
94	Coonahan, Erin	NIAID	University of Oxford
74	Demmerle, Justin	NICHHD	University of Oxford
15	Dennis, Allison F.	NICHHD	Johns Hopkins University
8	Diaz-Jimenez, David	NIEHS	Universidad de Chile
73	Djalilova, Dilorom M.	NINR	University of Nebraska Medical Center
29	Dmitriev, Pauline M.	NCI	Duke University
99	Emam, Zeyad A.	NIBIB	University of Maryland, College Park
64	Erben, Larissa	NICHHD	University of Bonn, Germany
63	Fallatah, Arwa I.	NIAMS	Catholic University of America
71	Gao, Claire	NIMH	Brown University
104	Gardner, Cameron L.	NIAID	University of Oxford
70	Gordovez, Francis James A.	NIMH	University of the Philippines
18	Gorrell, Laura M.	NICHHD	Rensselaer Polytechnic Institute
46	Goswami, Meghali	NHLBI	The George Washington University
69	Grant, Christopher E.	NCI	Georgetown University
32	Horuluoglu, Begum	NCI	Bilkent University
79	Huffer, Katherine E.	NINDS	Johns Hopkins University
60	Huntzicker, Kathleen B.	NIMH	Brown University
56	Jadhav, Kshitij S.	NIDA	University of Lausanne
53	Kabrah, Ahmed M.	NIDCR	Howard University
36	Karmelee, Erik P.	NIAID	The George Washington University
7	Katz, Samuel	NIAID	Cambridge University

STUDENTS *Listed alphabetically by name*

Poster #	Last Name, First	IC	University
81	Keary III, Kevin M.	NIMH	Brown University
54	Khandhadia, Amit P.	NIMH	University College London
75	Kolyvas, Emily	NCI	Cambridge University
24	Konzman, Daniel	NIDDK	Johns Hopkins University
11	Kuo, Pei-Lun	NIA	Johns Hopkins University
21	Lam, Ruby M.	NCCIH	Brown University
59	Lauziere, Andrew N.	NIBIB	University of Maryland, College Park
95	Li, Xiaoyi	NINDS	Johns Hopkins University
44	Liang, Jonathan	NIAID	University of Cambridge
47	Liao, Tsung-Jen	NCI	University of Maryland, College Park
20	Lotspeich-Cole, Leda	NICHHD	Johns Hopkins University
72	Lukasz, Daria	NIDCD	Johns Hopkins University
86	Ma, Jing	NIAAA	Southern Medical University
3	Magen, Assaf	NCI	University of Maryland, College Park
19	Martón, Christian David	NIMH	Imperial College London
76	Mason, Hannah D.	NINDS	University of Cambridge
87	Medina, Rogelio	NCI	David Geffen School of Medicine at UCLA
102	Miller, Brendan F.	NHGRI	Johns Hopkins University
57	Mkrtchian, Anahit	NIMH	University College London
14	Mukhamedova, Maryam	NIAID	Johns Hopkins University
5	Mule, Matthew	NIAID	University of Cambridge
9	Murray, Meghan T.	NINR	Columbia University
6	Nathan, William J.	NIA	University of Oxford
62	Nickolls, Alec R.	NINDS	Brown University
13	Ondov, Brian	NHGRI	University of Maryland, College Park
2	Ortolan, Davide	NEI	Universita' degli Studi dell'Aquila
37	Paiano, Jacob J.	NCI	University of Pennsylvania
25	Pan, Kristen S.	NIDCR	University of Cincinnati
43	Patange, Simona	NCI	University of Maryland, College Park
84	Phung, Emily	NIAID	The George Washington University
101	Piccus, Zoe	NICHHD	Brown University
45	Pitt, Ashley	NIDDK	Johns Hopkins University
52	Potter, E. Lake	NIAID	Johns Hopkins University
68	Pourshafie, Naemeh	NINDS	The George Washington University

Poster #	Last Name, First	IC	University
90	Prescott, Stephanie	NINR	University of Virginia
23	Rachmaninoff, Nicholas	NIAID	University of Maryland, College Park
16	Ren, Ruixue	NIAAA	Anhui Medical University
48	Ren, Tianyi	NIAAA	Jilin University
83	Rivera García, Luis	NCCIH	Universidad Central del Caribe
38	Samsel, Jakob	NIAID	The George Washington University
88	Sangare, Kotou	NCI	Howard University
96	Schmidt, Keith T.	NCI	Utrecht University
39	Sciascia, Nicholas	NCI	The George Washington University
1	Seifuddin, Fayaz	NHLBI	George Mason University
30	Sek, Albert C.	NIAID	University of California, Los Angeles
17	Sekiguchi, Rei	NIDCR	University of Missouri, Kansas City
51	Shaikh, Ahmad	NHLBI	Catholic University of America
42	Shannon, John P.	NIAID	University of Cambridge
22	Smith, Andrew J.	NEI	University College Dublin
58	Smith, Rachel	NIMH	University College London
82	Snyder, Ryan J.	NIEHS	University of North Carolina, Chapel Hill
98	Song, Qi	NCI	Fudan University
89	Spencer, Tiahna	NIDCR	University of Connecticut
77	Stamos, James D.	NCI	Georgetown University
34	Starke, Carly Elizabeth	NIAID	Georgetown University
91	Stravokefalou, Vasiliki	NCI	University of Thessaly
31	Sun, Willy W.	NIDCD	University of Maryland, College Park
66	Thomsen, Michael B.	NIMH	Johns Hopkins University
4	Tilson, Samantha G.	NIDDK	University of Cambridge
10	Tumas, Keyla C.	NIAID	Georgetown University
85	Vega Sendino, Maria	NCI	Universidad Autonoma de Madrid
55	Waldman, Alex D.	NIAID	University of Oxford
40	Walls, Jessica F.	NCI	Trinity College Dublin
33	Wang, Yuyi	NCI	West China Medical School of Sichuan University
67	Whitted, Calandra G.	NHGRI	Florida A&M University
28	Yau, Ka Chun	NICHHD	The Chinese University of Hong Kong
100	Yenkoidiok Douti, Lampouguin	NIAID	University of Maryland, College Park
97	Yuan, Yao	NCI	Sichuan University, China

POSTERS

1

Comprehensive Identification and Functional Annotation of Tissue-Specific Long Non-Coding RNA in Humans

Fayaz Seifuddin, Haiming Cao, Saleet Jafri, Vijender Chaitankar, Yun-Ching Chen, Ilker Tunc, Komudi Singh, Abhilash Suresh, Mehdi Pirooznia

Graduate Student Name: Fayaz Seifuddin

NIH Institute-Center: NHLBI

NIH Research Advisor: Dr. Mehdi Pirooznia

University Research Advisor: Dr. Saleet Jafri

Graduate University: George Mason University

2

In Vitro Generation of iPSC-Derived Macular and Peripheral Retinal Pigment Epithelial Cells Using Machine Learning Based High Content Screen

Davide Ortolan, Nathan Hotaling, Ruchi Sharma, Gianluca Pegoraro, Stefano Di Marco, Silvia Bisti, Kapil Bharti

Graduate Student Name: Davide Ortolan

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Kapil Bharti

University Research Advisor: Dr. Stefano Di Marco

Graduate University: Universita' degli Studi dell'Aquila

3

Single-Cell Resolution Profiling of Tumor-Reactive CD4+ T-Cells Reveals Immune Landscape Alterations

Assaf Magen, Jia Nie, Thomas Ciucci, Yongmei Zhao, Monika Mehta, Bao Tran, Sridhar Hannenhalli, Rémy Bosselut

Graduate Student Name: Assaf Magen

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Rémy Bosselut

University Research Advisor: Dr. Sridhar Hannenhalli

Graduate University: University of Maryland, College Park

4

Induced Pluripotent Stem Cell Derived Liver Model for the Study of PNPLA3-Induced Non-Alcoholic Fatty Liver Disease

Samantha G. Tilson, Carola M. Morell, An-Sofie Lenaerts, T. Jake Liang, Ludovic Vallier

Graduate Student Name: Samantha G. Tilson

NIH Institute-Center: NIDDK

NIH Research Advisor: Dr. T. Jake Liang

University Research Advisor: Prof. Ludovic Vallier

Graduate University: University of Cambridge

5

Single Cell Landscape of Responses to Seasonal and Adjuvanted Pandemic Influenza Vaccination with CITEseq

Matthew P. Mulè, Andrew J. Martins, Neha Bansal, Jinguo Chen, Yuri Kotliarov, Julian Candia, Angelique Biancotto, Pamela L. Schwartzberg, John S. Tsang

Graduate Student Name: Matthew P. Mulè

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. John Tsang

University Research Advisor: Dr. Ken Smith and Dr. Paul Lyons

Graduate University: University of Cambridge

6

Cross-Linking Transcription and DNA Repair

William J. Nathan, Peter J. McHugh, David Wilson III

Graduate Student Name: William J. Nathan

NIH Institute-Center: NIA

NIH Research Advisor: Dr. David Wilson III

University Research Advisor: Prof. Peter J. McHugh

Graduate University: University of Oxford

7

Genome-Wide Screening Combined with an Iterative Bioinformatic Analysis Model Identifies Critical Roles for Protein Degradation and Alternative Splicing in TLR-Induced Macrophage Activation.

S. Katz, J. Sun, J. Song, S. John, J. Gillen, N. Lounsbury, N. Li, A. Nita-Lazar, C. Bryant, I. Fraser

Graduate Student Name: Samuel Katz

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Iain Fraser

University Research Advisor: Prof. Clare Bryant

Graduate University: Cambridge University

8

DPP-4 a Novel Gene that Mediates the Inflammatory Effects of Glucocorticoids in Macrophages

David Diaz-Jimenez, Marcela A. Hermoso, John A. Cidlowski

Graduate Student Name: David Diaz-Jimenez

NIH Institute-Center: NIEHS

NIH Research Advisor: Dr. John A. Cidlowski

University Research Advisor: Dr. Marcela A. Hermoso

Graduate University: Universidad de Chile

9

Association Between Living with Animals and Diarrheal Illness Among Children Less Than Five in Sub-Saharan Africa and South Asia

Meghan T. Murray, Elaine L. Larson, Wendy A. Henderson

Graduate Student Name: Meghan T. Murray

NIH Institute-Center: NINR

NIH Research Advisor: Dr. Wendy A. Henderson

University Research Advisor: Dr. Elaine Larson

Graduate University: Columbia University

10

Dissecting the Mechanisms of Malaria Induced Anemia in Rodent Malaria Models

Keyla C. Tumas, Jian Wu, Lu Xia, Yu-Chih Peng, Timothy G. Myers, Xin-zhuan Su

Graduate Student Name: Keyla C. Tumas

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Xin-zhuan Su

Graduate University: Georgetown University

11

On the Road to Building Metrics of Phenotypic Aging – Longitudinal Change of Aging Phenotypes

Pei-Lun Kuo, Jennifer Schrack, Morgan E. Levine, Michelle Shardell, Luigi Ferrucci

Graduate Student Name: Pei-Lun Kuo

NIH Institute-Center: NIA

NIH Research Advisor: Dr. Luigi Ferrucci

University Research Advisor: Dr. Jennifer Schrack

Graduate University: Johns Hopkins University

12

CD4 T Cell Specification in the Thymus is Independent of the Transcription Factor Thpok

Laura B. Chopp, Rémy Bosselut

Graduate Student Name: Laura B. Chopp

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Rémy Bosselut

University Research Advisor: Dr. David Allman

Graduate University: University of Pennsylvania

13

Algorithms for Mining the SRA

Brian Ondov, Aleksandra Kostic, Anna Sappington, Sergey Koren, Adam Phillippy

Graduate Student Name: Brian Ondov

NIH Institute-Center: NHGRI

NIH Research Advisor: Dr. Adam Phillippy

University Research Advisor: Dr. Niklas Elmqvist

Graduate University: University of Maryland, College Park

14

Characterization of RSV Antibody Repertoire to B Cells Elicited by Prefusion RSV F Subunit Protein (DS-Cav1)-Vaccinated Adult Volunteers

Maryam Mukhamedova, Richard Nguyen, Sarah Lucas, Guillaume Stewart-Jones, Bharat Madan, Emily Phung, Azad Kumar, Tracy Ruckwardt, Pamela Costner, LaSonji Holman, Somia Hickman, Nina Berkowitz, Ingelise Gordon, Grace Chen, Julie Ledgerwood, Brandon DeKosky, John R. Mascola

Graduate Student Name: Maryam Mukhamedova

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. John R. Mascola

Graduate University: Johns Hopkins University

15

Revealing Missing Nucleosomes Across Gene Arrays and Regulatory Regions Through a Long-read Protection Assay

Allison F. Dennis, David Clark

Graduate Student Name: Allison F. Dennis

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. David Clark

Graduate University: Johns Hopkins University

16

Resveratrol Protects Against Alcoholic Liver Disease by Inhibiting Hepatic Oxidative Stress and Inflammation Through the Intestinal Sirt1

Ruixue Ren, Bin Gao

Graduate Student Name: Ruixue Ren

NIH Institute-Center: NIAAA

NIH Research Advisor: Dr. Bin Gao

University Research Advisor: Dr. Hua Wan

Graduate University: Anhui Medical University

17

Tissue-Specific Gene Expression Patterns in Organ Formation

Rei Sekiguchi, Kenneth M. Yamada

Graduate Student Name: Rei Sekiguchi

NIH Institute-Center: NIDCR

NIH Research Advisor: Dr. Kenneth M. Yamada

Graduate University: University of Missouri, Kansas City

18

Creation of an Osteoblast Cell Line Expressing Endogenously Labeled Col1a2

Laura M. Gorrell, Shakib Omari, Elena Makareeva, Sergey Leikin

Graduate Student Name: Laura M Gorrell

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. Sergey Leikin

University Research Advisor: Dr. Mariah Hahn

Graduate University: Rensselaer Polytechnic Institute

19

Learning in Prefrontal Cortex and Striatum Through Shaping of Recurrent Dynamics

Christian D. Márton, Simon R. Schultz, Bruno B. Averbeck

Graduate Student Name: Christian David Márton

NIH Institute-Center: NIMH

NIH Research Advisor: Dr. Bruno B. Averbeck

University Research Advisor: Dr. Simon R. Schultz

Graduate University: Imperial College London

20

Ascorbate-Sensing uORF Controls GDP-L-Galactose Phosphorylase (GGP) mRNA Translation

Leda E. Lotspeich-Cole, Ivaylo P. Ivanov, Thomas E. Dever

Graduate Student Name: Leda Lotspeich-Cole

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. Thomas E. Dever

Graduate University: Johns Hopkins University

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21

Investigation of Molecular Mechanisms Underlying Mechanical Pain

Ruby M. Lam, Nima Ghitani, Marcin Szczot, Nicholas Ryba, Alexander T. Chesler

Graduate Student Name: Ruby Lam

NIH Institute-Center: NCCIH

NIH Research Advisor: Dr. Alexander T. Chesler

University Research Advisor: Dr. Alexander Fleishman

Graduate University: Brown University

22

Divergent Enzymatic Functions of the Mitochondrial Protein GATD3A

Andrew J. Smith, Breandan N. Kennedy, Anand Swaroop

Graduate Student Name: Andrew J. Smith

NIH Institute-Center: NEI

NIH Research Advisor: Dr. Anand Swaroop

University Research Advisor: Dr. Breandan Kennedy

Graduate University: University College Dublin

23

Blood Transcriptomics of Response to Pertussis Vaccination in Pregnant Women

Nicholas Rachmaninoff, Andrew Martins, Neha Bansal, Nicolas Dauby, Arnaud Marchant, John Tsang

Graduate Student Name: Nicholas Rachmaninoff

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. John Tsang

University Research Advisor: Dr. Hector Corrada-Bravo

Graduate University: University of Maryland, College Park

24

The Role of O-GlcNAc in Fertility of *C. Elegans* Males

Daniel Konzman, Michelle Bond, Tetsunari Fukushima, Michael Krause, John Hanover

Graduate Student Name: Daniel Konzman

NIH Institute-Center: NIDDK

NIH Research Advisor: Dr. John Hanover

Graduate University: Johns Hopkins University

25

Utility of Optical Coherence Tomography in the Diagnosis of Optic Neuropathy in Fibrous

Kristen S. Pan, Edmond J. FitzGibbon, Janice S. Lee, Michael T. Collins, Alison M. Boyce

Graduate Student Name: Kristen S. Pan

NIH Institute-Center: NIDCR

NIH Research Advisor: Dr. Michael T. Collins

University Research Advisor: Dr. Aurora Bennett

Graduate University: University of Cincinnati

26

CASP8AP2 Knockout Enhances Recombinant Protein Expression in HEK293 Cells by Arresting the Cell Cycle

Laura Abaandou, Ashish Sharma, Joseph Shiloach

Graduate Student Name: Laura Abaandou

NIH Institute-Center: NIDDK

NIH Research Advisor: Dr. Joseph Shiloach

University Research Advisor: Dr. Barney Bishop

Graduate University: George Mason University

27

Modeling Chromosome Instability in Ovarian Cancer.

Daniel Bronder, Kerstin Heselmeyer-Haddad, Louisa Nelson, Anthony Tighe, Thomas Ried, Stephen Taylor

Graduate Student Name: Daniel Bronder

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Thomas Ried

University Research Advisor: Prof. Stephen Taylor

Graduate University: University of Manchester

28

Role of Ran-GTP Binding Protein in Ran Gradient Pathway and Mitotic Events

Ka Chun Yau, De. Alexei Arnaoutov, Mary Dasso

Graduate Student Name: Ka Chun Yau

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. Mary Dasso

University Research Advisor: Prof. Fund Kwok Pui

Graduate University: The Chinese University of Hong Kong

29

A Transgenic Mouse Model of Polycythemia, Paraganglioma, and Somatostatinoma with Epas1 Gain-of-function Mutation

Pauline Dmitriev, Herui Wang, Zhengping Zhuang

Graduate Student Name: Pauline M. Dmitriev

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Zhengping Zhuang

University Research Advisor: Dr. Shiaowen David Hsu

Graduate University: Duke University

30

Eosinophil Infiltration Does Not Promote Muscle Pathology in the mdx Model of Duchenne Muscular Dystrophy

Albert C. Sek, Ian N. Moore, Katherine Pak, Michelle Ma, Caroline M. Percopo, James G. Tidball, Helene F. Rosenberg

Graduate Student Name: Albert C. Sek

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Helene F. Rosenberg

University Research Advisor: Dr. Tomas Ganz

Graduate University: University of California, Los Angeles

31

Elucidating the Structure of the Glycocalyx-Microvilli Complex on the Surface of a Model Epithelial Cell Using Freeze-Etch and Electron Tomography

Willy W. Sun, Evan S. Krystofiak, Runjia Cui, Bechara Kachar

Graduate Student Name: Willy W. Sun

NIH Institute-Center: NIDCD

NIH Research Advisor: Dr. Bechara Kachar

University Research Advisor: Dr. Catherine Carr

Graduate University: University of Maryland, College Park

32

Regulation of Macrophage Differentiation by a TLR2/1 Ligand PAM3CSK4 as a Therapeutic Approach for SLE

Begum Horuluoglu, Emilie Goguet, Defne Bayik, Debra Tross, Luz P. Blanco, Mariana J. Kaplan, Dennis Klinman

Graduate Student Name: Begum Horuluoglu

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Dennis Klinman

University Research Advisor: Dr. Dennis Klinman

Graduate University: Bilkent University

33

SHP2 Inhibition Selectively Reduces Endothelial Cell Survival and Post-Angiogenic Tumor Vessel Integrity Through Activation of STAT3-JNK3 Signaling

Yuyi Wang, Ombretta Salvucci, Hidetaka Ohnuki, Giovanna Tosato

Graduate Student Name: Yuyi Wang

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Giovanna Tosato

University Research Advisor: Dr. Feng Luo

Graduate University: West China Medical School of Sichuan University

34

Signatures of Protective SIV-Specific CD8+ T-Cells

Carly E. Starke, Carol L. Vinton, Kristin Ladell, James E. McLaren, Alexandra M. Ortiz, Jacob K. Flynn, Joseph C. Mudd, Stephen H. Lai, Fan Wu, Vanessa M. Hirsch, David A. Price, Jason M. Brechley

Graduate Student Name: Carly E. Starke

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Jason M. Brechley

Graduate University: Georgetown University

35

Applying Real-Time Deformability Cytometry to Interrogate Neutrophil Biophysical Properties in Health and Disease

Kathleen R. Bashant, Arlette Vassallo, Christoph Herold, Reinhard Berner, Leonhard Menschner, Julien Subburayalu, Mariana J. Kaplan, Nehal N. Mehta, Charlotte Summers, Jochen Guck, Edwin R. Chilvers, Nicole Toepfner

Graduate Student Name: Kathleen Bashant Day

NIH Institute-Center: NIAMS

NIH Research Advisor: Dr. Mariana J. Kaplan

University Research Advisor: Prof. Edwin R. Chilvers

Graduate University: University of Cambridge

36

Anti-IL-13R α 2 Therapy Promotes Recovery From Murine Inflammatory Bowel Disease

Erik P. Karmeke, Trisha S. Pasricha, Thirumalai R. Ramalingam, Robert W. Thompson, Richard L. Gieseck III, Kayla J. Knilans, Martin Hegen, Mark Farmer, Fang Jin, Aaron Kleinman, David A. Hinds, The 23andMe Research Team, Thiago Almeida Pereira, Rafael de, Thomas A. Wynn

Graduate Student Name: Erik P. Karmeke

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Thomas A. Wynn

University Research Advisor: Dr. David Leitenberg

Graduate University: The George Washington University

37

Common Fragile Site Mapping by Mitotic DNA Synthesis Sequencing

Jacob J. Paiano, Andre Nussenzweig

Graduate Student Name: Jacob J. Paiano

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Andre Nussenzweig

University Research Advisor: Dr. Craig Bassing

Graduate University: University of Pennsylvania

38

Bcl-6/Bcl-xL B Cell Immortalization in Rhesus Macaques for Antibody Discovery

Jakob Samsel, Kristin L. Boswell, Timothy Watkins, David Ambrozak, Takuya Yamamoto, Yongping Yang, Tongqing Zhou, Peter Kwong, Richard A. Koup

Graduate Student Name: Jakob Samsel

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Richard A. Koup

University Research Advisor: Dr. Rebecca M. Lynch

Graduate University: The George Washington University

39

An Examination of the Contributions of the Phosphodiesterase TDP2, the Proteasome, and the Mre11 Nuclease in the Repair of DNA Breaks and the Maintenance of Genome Integrity After Etoposide Treatment

Nicholas Sciascia, Dali Zong, Andre Nussenzweig

Graduate Student Name: Nicholas Sciascia

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Andre Nussenzweig

University Research Advisor: Dr. Norman Lee

Graduate University: The George Washington University

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PKM2 Integrates Natural Killer Cell Metabolism and Signaling

Jessica F. Walls, Clair M. Gardiner, David K. Finlay,
Daniel W. McVicar

Graduate Student Name: Jessica F. Walls

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Daniel W. McVicar

*University Research Advisor: Dr. Clair M. Gardiner,
Dr. David K. Finlay*

Graduate University: Trinity College Dublin

41

Molecular and Topological Reorganizations in Mitochondrial Architecture Interplay During Bax-Mediated Steps of Apoptosis

Nicholas R. Ader, Patrick C. Hoffmann, Iva Ganeva,
Alicia C. Borgeaud, Chunxin Wang, Richard J. Youle
Wanda Kukulski

Graduate Student Name: Nicholas R. Ader

NIH Institute-Center: NINDS

NIH Research Advisor: Dr. Richard J. Youle

University Research Advisor: Dr. Wanda Kukulski

Graduate University: University of Cambridge

42

Patrolling ILC1s Distribute IFN- γ to Invoke an Antiviral State in the Mucosal Epithelium

John P. Shannon, Olena Kamenyeva, Glennys V. Reynoso,
Daniel T. McManus, Ian Moore, Mahnaz Minai,
Heather D. Hickman

Graduate Student Name: John P. Shannon

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Heather D. Hickman

University Research Advisor: Prof. Geoffrey L. Smith

Graduate University: University of Cambridge

43

A Living, Single Cell View of MYC's Effects on Transcription

Simona Patange, Michelle Girvan, David Levens,
Daniel R. Larson

Graduate Student Name: Simona Patange

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Daniel R. Larson

University Research Advisor: Dr. Michelle Girvan

Graduate University: University of Maryland, College Park

44

Saturated Fatty Acids Trigger the NLRP3 Inflammasome with Distinct Kinetics and Intracellular Pathways Relative to Classic NLRP3 Triggers

Jonathan Liang, Clinton J. Bradfield, Clare Bryant,
Iain Fraser

Graduate Student Name: Jonathan Liang

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Iain Fraser

University Research Advisor: Prof. Clare Bryant

Graduate University: University of Cambridge

45

Structural Investigation of a Novel Tom40 Interaction

Ashley Pitt, Susan Buchanan

Graduate Student Name: Ashley Pitt

NIH Institute-Center: NIDDK

NIH Research Advisor: Dr. Susan Buchanan

Graduate University: Johns Hopkins University

46

Discerning Mechanisms Driving Immune-Related Adverse Effects in Cancer Patients After Immune Checkpoint Therapy

Meghali Goswami, Katherine Lindblad, Laura Dillon,
Catherine Lai, Christopher S. Hourigan

Graduate Student Name: Meghali Goswami

NIH Institute-Center: NHLBI

NIH Research Advisor: Dr. Christopher S. Hourigan

University Research Advisor: Dr. Norman H. Lee

Graduate University: The George Washington University

47

Structure Based Search for Multiple Binding Sites of SOS1 PR Domain Recognizes an Uncovered Motif Favoring Grb2-SOS1 Association

Andre Nussenzweig, Tsung-Jen Liao, Hyunbum Jang, Ruth
Nussinov, David Fushman

Graduate Student Name: Andre Nussenzweig

NIH Institute-Center: NCI

NIH Research Advisor: Dr. Ruth Nussinov

University Research Advisor: Dr. David Fushman

Graduate University: University of Maryland, College Park

48

Hepatic Interleukin-22 and CXCL1 Control Local Bacterial Infection Via Promoting Neutrophil Recruitment: a Unique Immunological Role of Liver

Tianyi Ren, Xiaogang Xiang, Seonghwan Hwang, Yong He,
Bin Gao

Graduate Student Name: Tianyi Ren

NIH Institute-Center: NIAAA

NIH Research Advisor: Dr. Bin Gao

University Research Advisor: Dr. Junqi Niu

Graduate University: Jilin University

49

Feedback Regulation of Neuron Excitability Based on Kv4.2 Trafficking in Dendrites of CA1 Hippocampus

Adriano Bellotti, Andre Nussenzweig, Timothy O'Leary,
Dax Hoffman

Graduate Student Name: Adriano Bellotti

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. Dax Hoffman

University Research Advisor: Dr. Timothy O'Leary

Graduate University: University of Cambridge

50

Macrophage Repopulation is Driven by Local Kupffer Cell Proliferation Stimulated by Hepatocyte Derived IL-6 After Partial Hepatectomy in Mice

Yeni Ait Ahmed, Dechun Feng, Adrien Guillot, Fouad Lafdil, Bin Gao

Graduate Student Name: Yeni Ait Ahmed

NIH Institute-Center: NIAAA

NIH Research Advisor: Dr. Bin Gao

University Research Advisor: Dr. Fouad Lafdil

Graduate University: University of Paris Est-Creteil

51

Thrombospondin-1, Platelet Factor 4, and Galectin-1 are Associated with Engraftment in Patients with Sickle Cell Disease who Underwent Haploidentical HSCT

Ahmad Shaik, Purevdorj Olkhanud, Marjan Gucek, Sajni Patel, Courtney Fitzhugh

Graduate Student Name: Ahmad A. Shaik

NIH Institute-Center: NHLBI

NIH Research Advisor: Dr. Courtney Fitzhugh

University Research Advisor: Dr. Byuny Chung

Graduate University: Catholic University of America

52

Quantifying In Vivo Lymphocyte Trafficking and Dynamics Using Serial Intravascular Staining

E. Lake Potter, Mario Roederer

Graduate Student Name: E. Lake Potter

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Mario Roederer

Graduate University: Johns Hopkins University

53

Innate Immunity and the Oral and Gut Microbiota in the Autoimmune Sjögren's Syndrome and in Pancreatitis

Ahmed M. Kabrah, Malini Ahuja, Shmuel Muallem

Graduate Student Name: Ahmed M. Kabrah

NIH Institute-Center: NIDCR

NIH Research Advisor: Dr. Shmuel Muallem

University Research Advisor: Dr. Yasmine M. Kanaan

Graduate University: Howard University

54

Audiovisual Integration in Anterior Fundus Face Patch

Amit P. Khandhadia, Aidan P. Murphy, Elizabeth M.

Romanksi, Jennifer K. Bizley, David A. Leopold

Graduate Student Name: Amit P. Khandhadia

NIH Institute-Center: NIMH

NIH Research Advisor: Dr. David A. Leopold

University Research Advisor: Dr. Jennifer K. Bizley

Graduate University: University College London

55

Extreme Outcomes in Multiple Sclerosis: Rare Genetic Variation to the Rescue

Alex D. Waldman, Kyle Binder, Gabriele C. DeLuca, Michael J. Lenardo

Graduate Student Name: Alex D. Waldman

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Michael J. Lenardo

University Research Advisor: Dr. Gabriele C. DeLuca

Graduate University: University of Oxford

56

Adolescent Stress and Hypofrontality: Towards a Rodent Model of ADHD

Kshitij S. Jadhav, Alexandru C. Ciobanu, Alexander F. Hoffman, Benjamin Boutrel, Carl R. Lupica

Graduate Student Name: Kshitij S. Jadhav

NIH Institute-Center: NIDA

NIH Research Advisor: Dr. Carl R. Lupica

University Research Advisor: Dr. Benjamin Boutrel

Graduate University: University of Lausanne

57

The Relationship between Ketamine's Anti-Anhedonic Effects and the Reward-Related Neural Circuitry

Anahit Mkrtchian, Jennifer W. Evans, Allison C. Nugent, Jonathan P. Roiser, Carlos A. Zarate Jr.

Graduate Student Name: Anahit Mkrtchian

NIH Institute-Center: NIMH

NIH Research Advisor: Dr. Carlos A. Zarate Jr.

University Research Advisor: Dr. Jonathan P. Roiser

Graduate University: University College London

58

Sex-Dependent Cerebellar Connectivity in Autism Spectrum Disorder

Rachel E. W. Smith, Jason A. Avery, Gregory L. Wallace, Lauren Kenworthy, Stephen J. Gotts,* Alex Martin* (*Co-Senior Authors)

Graduate Student Name: Rachel E. W. Smith

NIH Institute-Center: NIMH

NIH Research Advisor: Dr. Alex Martin

University Research Advisor: Prof. Essi Viding

Graduate University: University College London

59

Untwisting *C. Elegans*

Andrew N. Lauziere, Hari Shroff

Graduate Student Name: Andrew N. Lauziere

NIH Institute-Center: NIBIB

NIH Research Advisor: Dr. Hari Shroff

University Research Advisor: Dr. Radu Balan

Graduate University: University of Maryland, College Park

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60

Do New Neurons Affect Motivation in a Barrier T-Maze Task?

Kathleen B. Huntzicker, Rose-Marie Karlsson,
Heather A. Cameron
Graduate Student Name: Kathleen B. Huntzicker
NIH Institute-Center: NIMH
NIH Research Advisor: Dr. Heather A. Cameron
Graduate University: Brown University

61

Variable Bruton Tyrosine Kinase (BTK) Resynthesis Across Patients with Chronic Lymphocytic Leukemia (CLL) on Acalabrutinib Therapy Affect Target Occupancy and Reactivation of B-Cell Receptor (BCR) Signaling

Anfal Alsadhan, Jean Cheung, Michael Gulrajani, Erika Cook, Stefania Pittaluga, Theresa Davies-Hill, Raquel Izumi, Clare C. Sun, Todd Covey, Adrian Wiestner, Sarah E.M. Herman
Graduate Student Name: Anfal Alsadhan
NIH Institute-Center: NHLBI
NIH Research Advisor: Dr. Adrian Wiestner,
Dr. Sarah E.M. Herman
University Research Advisor: Dr. Pamela L. Tuma
Graduate University: Catholic University of America

62

Transcriptional Programming of Human Sensory Neurons

Alec R. Nickolls, Michelle M. Lee, Ruby M. Lam, Marcin Szczot, David F. Espinoza, Michael E. Ward, Alexander T. Chesler, Carsten G. Bönnemann
Graduate Student Name: Alec R. Nickolls
NIH Institute-Center: NINDS
NIH Research Advisor: Dr. Carsten G. Bönnemann
University Research Advisor: Dr. Justin Fallon
Graduate University: Brown University

63

Determining a Mechanism of Keratin 19 Induced Cell Proliferation

Arwa I. Fallatah, Dimitrios Anastasakis, Markus Hafner, Byung Min Chung
Graduate Student Name: Arwa Fallatah
NIH Institute-Center: NIAMS
NIH Research Advisor: Dr. Markus Hafner
University Research Advisor: Dr. Byung Min Chung
Graduate University: The Catholic University of America

64

ErbB4 Cyt-1 Isoform Regulates Extracellular Dopamine Levels and Spatial Memory

Larissa Erben, Marie Cronin, Ricardo Murphy, Miguel Skirzewski, Irina Karavanova, Detlef Vullhorst, Steven Carroll and Andres Buonanno
Graduate Student Name: Larissa Erben

NIH Institute-Center: NICHD
NIH Research Advisor: Dr. Andres Buonanno
University Research Advisor: Dr. Andreas Zimmer
Graduate University: University of Bonn, Germany

65

Gestational Exposure to Perfluorooctanoic Acid or its Replacement Genx Induces Adverse Maternal, Placental, and Fetal Outcomes in CD-1 Mice

Bevin E. Blake, Harlie A. Cope, Suzanne E. Fenton
Graduate Student Name: Bevin E. Blake
NIH Institute-Center: NIEHS
NIH Research Advisor: Dr. Suzanne E. Fenton
University Research Advisor: Dr. Rebecca Fry
Graduate University: University of North Carolina, Chapel Hill

66

A Molecular Census of the Mouse Suprachiasmatic Nucleus

Michael B. Thomsen, Samer Hattar
Graduate Student Name: Michael B. Thomsen
NIH Institute-Center: NIMH
NIH Research Advisor: Dr. Samer Hattar
University Research Advisor: Dr. Haiqing Zhao
Graduate University: Johns Hopkins University

67

Exploring the Influence of Family Health History in Rural African American Communities

Calandra G. Whitted, Torhonda Lee, Laura Koehly
Graduate Student Name: Calandra G. Whitted
NIH Institute-Center: NHGRI
NIH Research Advisor: Dr. Laura Koehly
University Research Advisor: Dr. Torhonda Lee
Graduate University: Florida A&M University

68

RNA-seq of Human iPSC Derived Motor Neurons Implicates Mitochondrial Dysfunction in Spinal and Bulbar Muscular Atrophy

Naemeh Pourshafie, Christopher Grunseich, Zhengwei Zhu, George Harmison, Kenneth Fischbeck
Graduate Student Name: Naemeh Pourshafie
NIH Institute-Center: NINDS
NIH Research Advisor: Dr. Kenneth Fischbeck
University Research Advisor: Dr. Norman Lee
Graduate University: The George Washington University

69

The Regulation of Programmed Death-Ligand 1 by the Dopamine Signaling Axis in Lung Cancer

Christopher E. Grant, Leila Toulabi, Shiva Deljookorani, Adriana Zingone, Bríd Ryan
Graduate Student Name: Christopher E. Grant
NIH Institute-Center: NCI
NIH Research Advisor: Dr. Bríd Ryan
University Research Advisor: Dr. Anton Wellstein
Graduate University: Georgetown University

70

Effects of Psychotropic Drugs on DNA Methylation and Gene Expression in iPSC-Derived Neural Progenitor Cells (NPC) From Smith-Magenis Syndrome (SMS) Patients

Francis James A. Gordovez, Sevilla D. Detera-Wadleigh, Jose B. Nevado, Jr., Francis J. McMahon
 Graduate Student Name: Francis James Gordovez
 NIH Institute-Center: NIMH
 NIH Research Advisor: Dr. Francis J. McMahon
 University Research Advisor: Dr. Jose B. Nevado Jr.
 Graduate University: University of the Philippines

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Arousal-Mediated Changes in Activity of D2R Negative Neurons of the Paraventricular Nucleus of the Thalamus

Claire Gao, Victoria Rooke, Yan Leng, Mario A. Penzo
 Graduate Student Name: Claire Gao
 NIH Institute-Center: NIMH
 NIH Research Advisor: Dr. Mario A. Penzo
 University Research Advisor: Dr. Gilad Barnea
 Graduate University: Brown University

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Using Zebrafish to Correlate Hair Cell Activity with Neomycin Resistance

Daria Lukasz, Katie S. Kindt
 Graduate Student Name: Daria Lukasz
 NIH Institute-Center: NIDCD
 NIH Research Advisor: Dr. Katie S. Kindt
 Graduate University: Johns Hopkins University

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Role of Exosomes in Cancer-Related Fatigue

Dilorom Djalilova, Rebekah Feng, Paula Schulz, Leorey Saligan
 Graduate Student Name: Dilorom M. Djalilova
 NIH Institute-Center: NINR
 NIH Research Advisor: Dr. Leorey Saligan
 University Research Advisor: Dr. Paula Schulz
 Graduate University: University of Nebraska Medical Center

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Adapting Chromatin to a Motor Neuron Identity: LDB1 as a Transcriptional Activator and Genome Organizer

Justin Demmerle, Carson J. Miller, Sherry Ralls, Gernot Wolf, Ming-an Sun, David Pinto, Ezequiel J. Miron Sardiello, Lothar Schermelleh, Todd S. Macfarlan
 Graduate Student Name: Justin Demmerle
 NIH Institute-Center: NICHD
 NIH Research Advisor: Dr. Todd S. Macfarlan
 University Research Advisor: Dr. Lothar Schermelleh
 Graduate University: University of Oxford

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Understanding the roles of PTEN and DNA Damage Response in the Treatment Response of Metastatic Prostate and Breast Cancers

Emily Kolyvas, Carlos Caldas, Kathy Kelly
 Graduate Student Name: Emily Kolyvas
 NIH Institute-Center: NCI
 NIH Research Advisor: Dr. Kathy Kelly
 University Research Advisor: Dr. Carlos Caldas
 Graduate University: Cambridge University

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Role of the Glial Limitans in Partitioning Myeloid Cell Responses Following Mild Traumatic Brain Injury

Hannah D. Mason, Matthew V. Russo, Dorian B. McGavern
 Graduate Student Name: Hannah D. Mason
 NIH Institute-Center: NINDS
 NIH Research Advisor: Dr. Dorian B. McGavern
 University Research Advisor: Prof. Ole Paulsen
 Graduate University: University of Cambridge

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Vaccination with SIV Envelope Deleted in Variable Region 1 (V1) Elicit High V2 Antibody Responses that Correlate with Decreased SIVmac251 Acquisition

James D. Stamos, Giacomo Gorini, Isabela Silva de Castro, Rosemarie D. Mason, Mario Roederer, Genoveffa Franchini
 Graduate Student Name: James D. Stamos
 NIH Institute-Center: NCI
 NIH Research Advisor: Dr. Genoveffa Franchini
 University Research Advisor: Dr. Marta Catalfamo
 Graduate University: Georgetown University

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A Closer Look at Transcranial Magnetic Stimulation through *In Vivo* Neuroimaging

Matthew A. Boehm, Juan Gomez, Jordi Bonaventura, Charles Bradberry, Elliot Stein, Mike Michaelides
 Graduate Student Name: Matthew A. Boehm
 NIH Institute-Center: NIDA
 NIH Research Advisor: Dr. Mike Michaelides
 University Research Advisor: Dr. Theresa Desrochers
 Graduate University: Brown University

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Exploring Conservation of TRP Channel Activation Mechanisms

Katherine E. Huffer, Andres Jara-Oseguera, Kenton J. Swartz
 Graduate Student Name: Katherine E. Huffer
 NIH Institute-Center: NINDS
 NIH Research Advisor: Dr. Kenton J. Swartz
 Graduate University: Johns Hopkins University

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Dopamine Modulation of Lateral Inhibition in the Nucleus Accumbens

Dennis A. Burke, Veronica A. Alvarez
 Graduate Student Name: *Dennis A. Burke*
 NIH Institute-Center: *NIAAA*
 NIH Research Advisor: *Dr. Veronica A. Alvarez*
 Graduate University: *Brown University*

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Subcellular Segregation of Long-Term Synaptic Depression in Hippocampus CA1

Kevin M. Keary III, Zheng Li
 Graduate Student Name: *Kevin M. Keary III*
 NIH Institute-Center: *NIMH*
 NIH Research Advisor: *Dr. Zheng Li*
 University Research Advisor: *Dr. Gilad Barnea*
 Graduate University: *Brown University*

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Nanoparticle Interactions with the Mitochondrial Genome in Exposed Primary Human Bronchial Epithelial Cells

Ryan J. Snyder, Kirsten C. Verhein, Heather L. Vellers, Adam B. Burkholder, David C. Fargo, Scott H. Randell, Stavros Garantziotis, Steven R. Kleeberger
 Graduate Student Name: *Ryan J. Snyder*
 NIH Institute-Center: *NIEHS*
 NIH Research Advisor: *Dr. Steven R. Kleeberger*
 Graduate University: *University of North Carolina, Chapel Hill*

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Characterization of 4R-Cembranoid as a Novel Positive Allosteric Modulator of the $\alpha 7$ Neuronal Nicotinic Acetylcholine Receptor

Luis Rivera Garcia, Yarimar Carrasquillo, William Castro, Vesna Eterovic, Yarimar Carrasquillo
 Graduate Student Name: *Luis Rivera Garcia*
 NIH Institute-Center: *NCCIH*
 NIH Research Advisor: *Dr. Yarimar Carrasquillo*
 University Research Advisor: *Dr. Vesna Eterovic*
 Graduate University: *Universidad Central del Caribe*

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Defining the Humoral Response After Vaccination with a Stabilized Prefusion RSV F Subunit Vaccine (DS-Cav1)

Emily Phung, Maryam Mukhamedova, Tracy J. Ruckwardt, Sarah Andrews, Masaru Kanekiyo, Kaitlyn M. Morabito, Azad Kumar, Pamela J. Costner, LaSonji A. Holman, Somia P. Hickman, Grace Chen, Julie E. Ledgerwood, Michelle C. Crank, John R. Mascola, Barney S. Graham
 Graduate Student Name: *Emily Phung*
 NIH Institute-Center: *NIAID*
 NIH Research Advisor: *Dr. Barney S. Graham*
 University Research Advisor: *Dr. Rebecca Lynch*
 Graduate University: *The George Washington University*

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Essential Role for Erf in the Exit From Naïve Pluripotency

Maria Vega-Sendino, Teresa Olbrich, Cristina Mayor-Ruiz, Matthias Drosten, Emilio Lecona, Sagrario Ortega, Orlando Dominguez, Mariano Barbacid, Oscar Fernandez-Capetillo Sergio Ruiz
 Graduate Student Name: *Maria Vega-Sendino*
 NIH Institute-Center: *NCI*
 NIH Research Advisor: *Dr. Sergio Ruiz*
 University Research Advisor: *Dr. Marta Perez Pereira*
 Graduate University: *Universidad Autonoma de Madrid*

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Exosomes Derived From Hepatocytes Promote Acute-On-Chronic Liver Injury in Human and Mice Through Elevation of Oxidative Stress: Identification of ASK1 as a Potential Therapeutic Target

Jing M., Seonghwan H., Dechun F., Yong H., Tianyi R., Bin Gao
 Graduate Student Name: *Jing Ma*
 NIH Institute-Center: *NIAAA*
 NIH Research Advisor: *Dr. Bin Gao*
 University Research Advisor: *Dr. Jian Sun*
 Graduate University: *Southern Medical University*

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Development of Anti-Glioma Immune Response via Peripheral Activation of Innate and Adaptive Immune Systems

Rogelio Medina, Herui Wang, Veronika Caisova, Zhengping Zhuang
 Graduate Student Name: *Rogelio Medina*
 NIH Institute-Center: *NCI*
 NIH Research Advisor: *Dr. Zhengping Zhuang*
 University Research Advisor: *Dr. Luke Macyszyn*
 Graduate University: *David Geffen School of Medicine at UCLA*

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Adenovirus Early Genes Modulate HIV-1-Specific Vaccine-Induced Immune Responses

Sangare Kotou, Marjorie Robert-Guroff, Michael A. Thomas
 Graduate Student Name: *Sangare Kotou*
 NIH Institute-Center: *NCI*
 NIH Research Advisor: *Dr. Marjorie Robert-Guroff*
 University Research Advisor: *Dr. Michael A. Thomas*
 Graduate University: *Howard University*

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Characterization of Pain in Fibrous Dysplasia

Tiahna A.L. Spencer, M. Kassim Javaid, Alison Boyce

*Graduate Student Name: Tiahna A.L. Spencer**NIH Institute-Center: NIDCR**NIH Research Advisor: Dr. Alison Boyce**University Research Advisor: Dr. Cato Laurencin**Graduate University: University of Connecticut*

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Antepartum Antibiotic Exposure Alters Glucose Sensitivity Leading to Obesity in Female Offspring

Stephanie M. Prescott, Jonathan Badger, Rodrigo Das Neves, Ernesto Perez-Chanona, April Huang, Sharon Bargo, Carly Smith, Wendy Henderson, Giorgio Trinchieri

*Graduate Student Name: Stephanie M. Prescott**NIH Institute-Center: NINR**NIH Research Advisor: Dr. Wendy Henderson,**Dr. Giorgio Trinchieri**University Research Advisor: Dr. Jessica Keim-Malpass**Graduate University: University of Virginia*

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Dose Sparing Effect and Prolonged Survival Effect of Heterodimeric Interleukin-15 (hetIL-15) in Combination with Gemcitabine in KPC GEM Model of Pancreatic Cancer

Vasiliki Stravokefalou, Dimitris Stellas, Sevasti Karaliota, Serguei Kozlov, Joseph D. Kalen, Konstantinos Dimas, Barbara K. Felber, George N. Pavlakis

*Graduate Student Name: Vasiliki Stravokefalou**NIH Institute-Center: NCI**NIH Research Advisor: Dr. George N. Pavlakis**University Research Advisor: Dr. Konstantinos Dimas**Graduate University: University of Thessaly*

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Screening for Novel Inhibitors of Glutathione Peroxidases

Dorian M. Cheff, Qing Cheng, Elias S.J. Arnér, Matthew D. Hall

*Graduate Student Name: Dorian M. Cheff**NIH Institute-Center: NCATS**NIH Research Advisor: Dr. Matthew D. Hall**University Research Advisor: Dr. Elias S.J. Arnér**Graduate University: Karolinska Institutet*

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The Role of P53 in Mouse Hematopoietic Stem Cells (HSCs)

Waseem A. AlZamzami, Justin Chung, Jing Huang

*Graduate Student Name: Waseem A. AlZamzami**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Jing Huang**University Research Advisor: Dr. Justin Chung**Graduate University: The Catholic University of America*

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An Aptamer-Based Assay for the Detection of Piperazine

Erin Coonahan, Kyung-Ae Yang, Stevan Pecic, Maarten De Vos, Joel Tarning, Thomas E. Wellems, Carole A. Long

*Graduate Student Name: Erin Coonahan**NIH Institute-Center: NIAID**NIH Research Advisor: Dr. Carole A. Long**University Research Advisor: Prof. Maarten De Vos,**Prof. Joel Tarning**Graduate University: University of Oxford*

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Pharmacological Analysis of Neuronal Oscillations in the Degenerating Mouse Retina

Xiaoyi Li, William N Grimes, Jeffrey S. Diamond

*Graduate Student Name: Xiaoyi Li**NIH Institute-Center: NINDS**NIH Research Advisor: Dr. Jeffrey S. Diamond**University Research Advisor: Dr. Jeffrey S. Diamond**Graduate University: Johns Hopkins University*

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Pharmacokinetic Analyses of CRLX101, a Novel Investigational Nanoparticle-Drug Conjugate (NDC), in Patients with Advanced Solid Tumors

Keith T. Schmidt, Cody J. Peer, Anish Thomas, Alwin Huitema, William D. Figg

*Graduate Student Name: Keith T. Schmidt**NIH Institute-Center: NCI**NIH Research Advisor: Dr. William D. Figg**University Research Advisor: Dr. Alwin Huitema**Graduate University: Utrecht University*

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Identification of Transcriptional Circuitries Regulated by YAP1/TAZ in Keratinocytes

Yao Yuan, Jeannie Park, Pilar Pedro, Qianming Chen, Ramiro Iglesias-Bartolome

*Graduate Student Name: Yao Yuan**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Ramiro Iglesias-Bartolome**University Research Advisor: Dr. Qianming Chen**Graduate University: Sichuan University, China*

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Development and Characterization of a Novel HIF Alpha Inhibitor for Cancer Therapy

Qi Song, Herui Wang, Jing Cui, Yingyong Hou, Zhengping Zhuang

*Graduate Student Name: Qi Song**NIH Institute-Center: NCI**NIH Research Advisor: Dr. Zhengping Zhuang**University Research Advisor: Dr. Yingyong Hou**Graduate University: Fudan University*

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Comparing Deep Neural Network Architectures for Semantic Image Segmentation of 3D SBF-SEM Data

Zeyad A. Emam, Matthew D. Guay, Adam Anderson, Richard D. Leapman

Graduate Student Name: Zeyad A. Emam

NIH Institute-Center: NIBIB

NIH Research Advisor: Dr. Richard D. Leapman

University Research Advisor: Dr. Wojtek Czaja

Graduate University: University of Maryland, College Park

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Assessing the Effect of Vaccine Carrier on the Efficacy of Pfs47 Malaria Transmission Blocking Vaccine

Lampouguin Yenkoidiok Douli, Gaspar E. Canepa, Scaria Puthuparrampil, Beth Chen, Carolina Barillas-Mury

Graduate Student Name: Lampouguin Yenkoidiok Douli

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Carolina Barillas-Mury

University Research Advisor: Dr. Christopher Jewell

Graduate University: University of Maryland, College Park

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High Throughput Screens in Human iPSC-Derived Neurons to Probe the Function of the Injury Responsive Dual Leucine-Zipper Kinase

Zoe Piccus, Jorge Gomez-Deza, John Stubbs, Michael Ward, Claire Le Pichon

Graduate Student Name: Zoe Piccus

NIH Institute-Center: NICHD

NIH Research Advisor: Dr. Claire Le Pichon

University Research Advisor: Dr. Gilad Barnea

Graduate University: Brown University

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Single Molecule Assessment of DNA Methylation Density Improves the Performance of cfDNA Diagnostics for Ovarian Carcinoma

Brendan F. Miller, Thomas R. Pisanic II, Hanna M. Petrykowska, Pornpat Athamanolap, Gennady Margolin, Akosua Osei-Tutu, Tza-Huei Wang, Christina M. Annunziata, Laura Elnitski

Graduate Student Name: Brendan F. Miller

NIH Institute-Center: NHGRI

NIH Research Advisor: Dr. Laura Elnitski

University Research Advisor: Dr. James Taylor

Graduate University: Johns Hopkins University

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Correction and Phenotypic Analysis of RAG2 Deficient Patient iPSC Lines Using Gene Editing Technologies and an In Vitro Differentiation System

Cameron L. Gardner, Mara Pavel-Dinu, Marita Bosticardo, Ezekiel Bello, Suk See DeRavin, Amelie Montel-Hagen, Gay Crooks, Harry Malech, Matthew Porteus, Oreste Acuto, Luigi Notarangelo

Graduate Student Name: Cameron L. Gardner

NIH Institute-Center: NIAID

NIH Research Advisor: Dr. Luigi Notarangelo

University Research Advisor: Prof. Oreste Acuto

Graduate University: University of Oxford



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