

10th ANNUAL



NIH GRADUATE STUDENT RESEARCH SYMPOSIUM

JANUARY 14, 2014

NIH NATCHER CONFERENCE CENTER, BETHESDA, MARYLAND

The background of the lower half of the page is a light blue gradient with a pattern of small, semi-transparent circles. Overlaid on this are several larger, overlapping circles in shades of blue and green. The text "FACES OF TOMORROW'S SCIENCE" is centered in this area.

FACES OF TOMORROW'S
SCIENCE

NIH GRADUATE PARTNERSHIPS PROGRAM



FACES OF TOMORROW'S
SCIENCE



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2014

FOREWORD AND ACKNOWLEDGEMENTS	2
PROGRAM OF EVENTS	3
NIH GRADUATE PARTNERSHIPS PROGRAM GRADUATION AWARD RECIPIENTS	4
KEYNOTE SPEAKER	7
STUDENT SPEAKERS	8
OUTSTANDING MENTOR AWARD RECIPIENTS	9
STUDENTS	10
POSTERS	13

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

FOREWORD

EVERY YEAR, THE NIH GRADUATE STUDENT RESEARCH SYMPOSIUM highlights the excellence of scientific research conducted by the graduate students at the National Institutes of Health. This year, we are celebrating a decade of tradition, distinction, and dedication to *The Faces of Tomorrow's Science*. This is the largest and most exciting event of the year for us, the graduate students, where we come together to communicate our science, appreciate the breadth of work being done by our peers, and celebrate the success of our graduate community.

Over the past 10 years, our annual symposium has provided the perfect platform for featuring the scientific accomplishments of the hundreds of graduate students who have performed their dissertation research at the NIH. This year, we continue this tradition of excellence by hosting over one hundred of our peers representing multiple university partnerships and nearly all of the various Institutes & Centers across the NIH. From those who will be introducing the scientific plans for their developing thesis projects to those who are discussing the final stages of their research, the participants of this decennial symposium represent the wide spectrum of research specialties uniquely supported at the NIH. In the morning, there will be a networking event with local alumni of the NIH Graduate Partnerships Program (GPP) followed by four current students giving scientific talks that reflect both the diversity and depth of scientific work being conducted by graduate students at the NIH. In the afternoon, the speakers will join 101 of our peers in presenting scientific posters to be judged by experienced NIH postdoctoral fellows and staff scientists. Winners of the poster competition will be awarded prestigious NIH Graduate Student Research Awards generously contributed by the Office of Intramural Training & Education (OITE).

On this milestone year, we are honored to have Dr. Christopher P. Austin, Director of the National Center for Advancing Translational Sciences (NCATS), as our keynote speaker. Dr. Austin received his medical degree from Harvard Medical School. After completing clinical training in internal medicine and neurology at Massachusetts General Hospital and a genetics research fellowship at Harvard, Dr. Austin has held positions of increasing responsibility in both private industry and government sectors. His dedication to translational discoveries and technologies embodies the spirit of NCATS and the broader NIH community to which we all contribute. Dr. Austin's discussion of translational science, as well as the story of his career, will surely be educational and inspirational to us all.

While the symposium theme, *The Faces of Tomorrow's Science*, is a celebration of current students and recent graduates, we also take time to honor the most influential people in our scientific careers, our mentors. Mentors are so pivotal in our training and maturity as independent scientists, with relationships often extending many years beyond graduate school. Three outstanding mentors nominated by their students will be presented awards in recognition of the guidance and unconditional support they have provided. Afterward, we will conclude our day with a ceremony to recognize those students who have graduated from their respective partnership universities in the past year. Dr. Sharon Milgram, Director of the OITE, and Dr. Michael Gottesman, Deputy Director for Intramural Research, will present the recent graduates with a certificate in honor of their accomplishments.

We are delighted to have this opportunity to share our scientific contributions with the entire NIH community. We thank all of the students who have so eagerly participated in this event and those who are always there to provide us with support and guidance throughout our scientific careers. We hope that the presentations here at the 10th Annual Symposium both embody the past decade of graduate student research at the NIH and inspire an even greater decade of scientific excellence.

The 10th Annual NIH Graduate Student Research Symposium Committee:

Lucy Kotlyanskaya, NINDS/University of North Carolina at Chapel Hill; Aaron Neal, NIAID/University of Oxford; Catherine Nezhich, NINDS/University of Cambridge; Geoffrey Vargish, NICHD/Brown University; Luke Wylie, NCI/University of Cambridge

Acknowledgements

We are grateful to the Training Directors and Scientific Directors of the NIH Institutes & Centers, the GPP Partnership Directors, the Graduate Student Council (GSC), and the NIH Fellows Committee for their decade of support of the symposium and the graduate student community. We are very thankful to the Office of Intramural Training & Education (OITE) for its continual support and its provision of the NIH Graduate Student Research Training Awards. We would like to thank Dr. Natasha Lugo-Escobar and Dr. Elena Hernandez-Ramon for organizing the symposium poster session. We also appreciate the effort and dedication of the postdoctoral fellow and staff scientist judges who made the poster competition possible. We thank the current Co-Chairs of the GSC, Geoffrey Vargish and Bennett Waxse, for their tireless efforts in overseeing the Outstanding Mentor Awards. We are very grateful to Dr. Philip Wang, Dr. Phil Ryan, Dr. Sharon Milgram, and all of the OITE staff for helping with every aspect of organizing this event. We would also like to thank Dr. Chris Austin for his enthusiasm and interest in the mentorship of graduate students, and for giving an exciting keynote address. Last, but not least, we would like to thank the graduate students, mentors, GPP alumni, and guests whose participation made this event possible.

PROGRAM OF EVENTS

<p>8:30 am-9:15 am Lower Lobby</p>	<p>CURRENT STUDENT & ALUMNI NETWORKING Network with Graduate Partnerships Program (GPP) alumni. All are invited to attend.</p>
<p>9:15 am-9:30 am Room E1/E2</p>	<p>WELCOME Sharon L. Milgram, PhD Director, NIH Office of Intramural Training & Education (OITE)</p>
<p>9:30 am-11:00 am Room E1/E2</p>	<p>STUDENT ORAL PRESENTATIONS</p> <p>Muktha Natrajan, University of Cambridge, NINDS <i>Nuclear Receptors in Ageing Macrophages, Myelin Debris Clearance, and CNS Remyelination</i></p> <p>Christopher Obara, Georgetown University, NIAID <i>Towards Understanding Host Factors that Influence Antibody-Dependent Enhancement and Neutralization of Flaviviruses</i></p> <p>Anna Kane, Brown University, NICHD <i>A Role for Developmental Pathway Repressors Gli3 and Numb in Establishment and Maintenance of the Adult Neurogenic Niche Structure</i></p> <p>Evan Maxwell, Boston University, NHGRI <i>Informing Model Organism Selection for Human Disease Research Through Evolutionary Profiling</i></p>
<p>11:00 am-12:15 pm Atrium</p>	<p>POSTER SESSION I Odd numbered posters presenting</p>
<p>12:30 pm-1:45 pm Atrium</p>	<p>POSTER SESSION II Even numbered posters presenting</p>
<p>2:00 pm-3:00 pm Ruth L. Kirschstein Auditorium</p>	<p>KEYNOTE ADDRESS Christopher P. Austin, MD Director, National Center for Advancing Translational Sciences, NIH</p>
<p>3:00 pm-4:30 pm Ruth L. Kirschstein Auditorium</p>	<p>AWARDS CEREMONY</p> <p>Outstanding Mentor Awards David A. Davis, PhD Kent W. Hunter, PhD Michael Lichten, PhD</p> <p>Graduation Ceremony Certificates presented by: Sharon L. Milgram, PhD, Director, NIH OITE Michael M. Gottesman, MD, NIH Deputy Director for Intramural Research</p> <p>NIH Graduate Student Research Awards (NGSRAs)</p>

GPP GRADUATION AWARD RECIPIENTS

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Hannah Elizabeth Arem Dietary and Genetic Risk Factors for Pancreatic Cancer	NCI-DCEG Dr. Rachael Stolzenberg-Solomon	Yale University Dr. Susan Mayne
Nazanin Ashourian Establishing the Fidelity of Start Codon Recognition: Role of Eukaryotic Initiation Factor 2	NICHD Dr. Alan G. Hinnebusch	Johns Hopkins University
Prateek Bhatia Identification and Characterization of Transporters in Human Gliomas	NIA Dr. Irving Wainer	University of Sunderland, UK Dr. John Lough
Alexis Boyd Innate Immunity to Filarial Parasites Initiates and Maintains the Adaptive Immune Response	NIAID Dr. Thomas B. Nutman	The George Washington University Dr. Paul Brindley
Katherine Bricceno Effects of SMN Deficiency on Muscle Development and Maintenance in Spinal Muscular Atrophy	NINDS Dr. Kenneth Fischbeck	The George Washington University Dr. Eric Hoffman
Vania Y. Cao Experience-dependent Activation of Arc Expression in Individual Frontal Cortical Neurons During Motor Training	NIMH Dr. Kuan H. Wang NIAAA Dr. Rui M. Costa	Brown University
Rayna Michelle Carter Adult Hippocampal Neurogenesis and the Novel Antidepressant, Ketamine	NIMH Dr. Heather Cameron	Brown University
Carlos Eduardo F. Domingues Genome-Wide Linkage and Association Analyses in Persistent Developmental Stuttering Families of Sao Paulo State (Brazil)	NIDCD Dr. Dennis Drayna	Universidade Estadual Paulista "Júlio de Mesquita Filho" – UNESP Dr. Danilo Moretti-Ferreira
Cedar J. Fowler Identification of a Ciliary Defect Associated with Pulmonary Nontuberculous Mycobacterial Disease	NIAID Dr. Steve Holland	University of Cambridge Dr. Clare E. Bryant
Sonya Merritt Hanson Structural, Biochemical and Computational Studies of TRP Channel Transmembrane Domain Modularity	NINDS Dr. Kenton J. Swartz	University of Oxford Dr. Simon Newstead Prof. Mark S.P. Sansom

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Thomas John Hayman The Translational Machinery as a Target for Radiosensitization	NCI Dr. Philip Tofilon	University of South Florida Dr. Robert Deschenes
Bing He The Role of Novel Basic Helix Loop Helix Transcription Factor CartD in Mouse Tooth Development	NIDCR Dr. Yoshihiko Yamada	Sichuan University Dr. Xuedong Zhou
Andrea Introini Determinants of Human Immunodeficiency Virus-1 Transmission to the Female Genital Mucosa: Role of Co-infecting Pathogens and Cytokines in Semen	NICHD Dr. Leonid Margolis	Universita' degli Studi di Milano Dr. Luisa Ottobrini
Tamara D. James Characterization of a Mutant RNA Polymerase in Bacteriophage T4 Prereplicative Transcription	NIDDK Dr. Deborah Hinton	New York University Dr. Timothy Cardozo
Dayong Lee Building a Scientific Basis for Oral Fluid Cannabinoid Testing; Cannabinoid Disposition in Oral Fluid Following Smoked Cannabis, Oral Delta-9- tetrahydrocannabinol (THC), and Sativex® and During Extended Cannabis Abstinence	NIDA Dr. Marilyn A. Huestis	University of Maryland, Baltimore
Hongyan Li Chemokine Signaling Regulates Metastasis of Breast Cancer Cells	NIAID Dr. Tian Jin	Tianjin Medical University Dr. Ning Zhang
Ronit (Jolles) Mazor Reduced Immunogenicity of Recombinant Immunotoxins Containing Pseudomonas Exotoxin PE38 by Identification and Removal T Cell Epitopes	NCI Dr. Ira Pastan	Tel Aviv University Prof. Itai Benhar
Pravin J. Mishra Identifying Novel Mechanisms of Melanoma Metastasis by Embryonic Melanoblast Transcriptome Analysis	NCI Dr. Glenn Merlino	The George Washington University
Bryan T. Mott Studies in Organic and Medicinal Chemistry: Treatment of Malaria and Cytomegalovirus	NCATS Dr. Craig Thomas	Johns Hopkins University Dr. Gary H. Posner

GPP GRADUATION AWARD RECIPIENT, DISSERTATION TITLE	NIH IC, MENTOR	UNIVERSITY, UNIVERSITY MENTOR
Sonya Parpart Integrated Methylome Studies in Hepatocellular Carcinoma	NCI Dr. Xin Wei Wang	Georgetown University Dr. Christopher Loffredo
Modibo Sangare Survival Motor Neuron (SMN) Copy Number Distribution in the Malian Population, West Africa	NINDS Dr. Kenneth H. Fischbeck	The George Washington University Dr. Eric Hoffman Dr. Linda L. Werling
Angila Saras Sewal Epigenetic Contributions to Cognitive Aging	NIA Dr. Peter R. Rapp	Icahn School of Medicine at Mount Sinai
Kely L. Sheldon Cytosolic Protein Interaction with the Voltage-Dependent Anion Channel (VDAC) of the Mitochondrial Outer Membrane Controls Cellular Respiration	NICHD Dr. Sergey M. Bezrukov	Johns Hopkins University Dr. J. Marie Hardwick
Allison C. Sylvestsky Non-nutritive Sweeteners: Consumption Trends, Consumer Perceptions, and Metabolic Effects	NIDDK Dr. Kristina Rother	Emory University Dr. Miriam Vos
Zhewei Tang Development of Therapeutic Antibody Drugs Against Tumor	NCI Dr. Mitchell Ho	East China Normal University Dr. Min Qian
Maureen K. Thomason Multiple, Unexpected Roles of the Antisense RNA McaS: Implications For the Prediction of sRNA Function	NICHD Dr. Gisela Storz	Georgetown University Medical School Dr. Elliott Crooke

KEYNOTE SPEAKER

**CHRISTOPHER P. AUSTIN, MD**

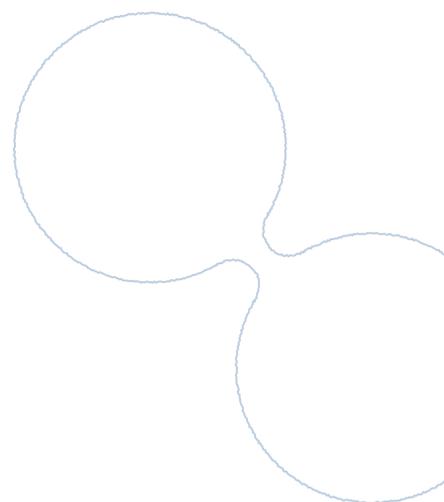
Director, National Center for Advancing Translational Sciences

In September 2012, Christopher P. Austin, MD, was appointed the first permanent director of the National Center for Advancing Translational Sciences (NCATS) by NIH Director Francis S. Collins, MD, PhD.

Dr. Austin, who served as director of the NCATS Division of Pre-Clinical Innovation since the creation of the Center in December 2011, is leading NCATS in its mission to catalyze the generation of innovative methods and technologies that will enhance the development, testing and implementation of diagnostics and therapeutics across a wide range of human diseases and conditions. Currently, many costly, time-consuming bottlenecks exist in the translational process. Dr. Austin is applying his experience across the spectrum of the research pipeline to develop, demonstrate, and disseminate innovative technologies and paradigms that increase the efficiency of translation, and thus speed the discovery and delivery of interventions that improve human health.

Dr. Austin came to NIH in 2002 from Merck, where his work focused on genome-based discovery of novel targets and drugs. He began his NIH career as the senior advisor to the director for translational research at the National Human Genome Research Institute, where he initiated the Knockout Mouse Project and the Molecular Libraries Roadmap Initiative. Other NIH roles have included serving as director of the Therapeutics for Rare and Neglected Diseases program as well as the NIH Chemical Genomics Center and as scientific director of the NIH Center for Translational Therapeutics.

Dr. Austin earned an AB summa cum laude in biology from Princeton University and an MD from Harvard Medical School. He completed clinical training in internal medicine and neurology at Massachusetts General Hospital, and a research fellowship in genetics at Harvard.



STUDENT SPEAKERS



EVAN

EVAN MAXWELL

Evan earned his BS and MS degrees from Virginia Tech in computer science, where he studied data mining and bioinformatics under Dr. Naren Ramakrishnan. Following the completion of his MS in 2010, he entered the NIH Graduate Partnerships Program with Boston University in bioinformatics to pursue his PhD. Under the mentorship of Dr. Andreas Baxevasis at NHGRI, Evan develops and performs computational analyses for the interpretation of large-scale genomic data. His thesis work utilizes comparative genomic methods to study various aspects of human disease genetics, including the evolutionary origins of human disease processes as well as the interpretation of genetic variants associated with human disease phenotypes. Evan's research interests lie in the application and development of analytical techniques to derive clinically relevant knowledge from genome-scale sequencing data.



MUKTHA

MUKTHA NATRAJAN

Muktha is a 3rd year PhD candidate in the NIH-Oxford-Cambridge Scholars Program. Her research interests currently lie in the field of neuroimmunology, particularly looking at the potential of harnessing the beneficial aspects of the immune system to ameliorate neuroinflammatory diseases. During her undergraduate career, she conducted research on neural stem cell cultures at the University of Georgia and developed a passion for neuroscience. She researched the effects of manganese on neural cell growth and differentiation and also worked with transgenic mouse models through the NYU Summer Undergraduate Research Program to study potential treatments for Alzheimer's disease. Muktha is currently pursuing a PhD at the University of Cambridge under Prof. Robin Franklin in the Department of Clinical Neurosciences and has been studying the role of monocytes in remyelination using animal models of multiple sclerosis. She has recently transitioned to Dr. Bibiana Bielekova's lab in NINDS and intends to continue studying the functions of these cells using samples from patients with MS. Her thesis work aims to discover the role of nuclear receptors and phagocytosis mechanisms during the demyelination and remyelination process. She is grateful for the collaborative project she has been able to form between Cambridge and the NIH and would like to thank her supervisors and members of both labs for their expansive knowledge and generous support.



CHRIS

CHRIS OBARA

Chris is a graduate of the University of Florida with bachelor's degrees in Physics and Entomology & Nematology. After performing his thesis research on electron behavior in surfaces undergoing one-dimensional quantum confinement, Chris realized his interests lay at the interface of mathematical and biological science. This led him to the GPP and the Laboratory of Viral Diseases (NIAID) where he worked with Ted Pierson to understand quantitatively the nature of flavivirus-immune complex interactions with cells. This work was performed using West Nile virus and dengue virus as models, and has led to exciting implications for the role of cellular factors in modulating the neutralizing and enhancing potency of antibodies against flaviviruses. He is currently finishing his tenure as a graduate student in the Department of Microbiology & Immunology at Georgetown University, and is looking forward to continuing a career in research as a postdoctoral fellow. He is particularly thankful for his advisor, his lab mates, the faculty at Georgetown, and the administration of the GPP for supporting him throughout this process—without them, his dream of pursuing a career in research would not have been possible.



ANNA

ANNA KANE

Anna is a 5th year PhD candidate in the Graduate Partnerships Program with Brown University. She received her BA in Neuroscience from Vassar College. During her undergraduate studies, she worked in Chris Wash's lab identifying novel genetic variants in patients with schizophrenia and autism. This work established her interest in the role cell-cell interactions play in brain development. She then spent 2 years at Columbia in Tae-Wan Kim's lab studying the effect of amyloid beta on neural circuit formation before joining Sohyun Ahn's lab at NICHD in 2009 to begin her graduate work. Anna is currently studying the developmental process by which the adult neurogenic niche is established, focusing on the role of the Sonic Hedgehog repressor Gli3R in niche formation.

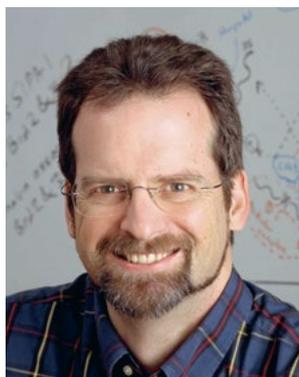
OUTSTANDING MENTOR AWARD RECIPIENTS



DR. DAVIS

DR. DAVID A. DAVIS

Dr. Davis received his BS and MS in Biochemistry from the University of Vermont and his PhD from Purdue University. From 1992-1996 he was a postdoctoral fellow in the National Heart Lung and Blood Institute where he worked on inhibitors of HIV-1 protease. Dr. Davis has been a Staff Scientist in the National Cancer Institute, NIH in the HIV and AIDS Malignancy Branch (HAMB) since 1996. He currently oversees the laboratory projects carried out by graduate students, postbacs and the postdocs in the lab, in addition to carrying out his own research. The lab has been extensively studying the role of hypoxia and hypoxia response elements in human herpesvirus 8 (also known as KSHV) as it relates to malignancies associated with AIDS. The lab also studies the role of the HIV-1 protease in the HIV-1 viral life cycle and works on protease inhibitor/drug development. Dr. Davis specializes in protein biochemistry, enzymology, oxidative stress and RP-HPLC mass spectrometry. Current projects involve the development of dimerization inhibitors of the HIV-1 protease and the role of oxidative stress in HHV-8 life cycle, and new drugs for the treatment of KSHV related cancers. Dr. Davis also mentions that "like many scientists I am also an amateur musician, singer, songwriter".



DR. HUNTER

DR. KENT W. HUNTER

Dr. Hunter received a BS in biochemistry with Highest Honors from the Pennsylvania State University in 1985 and a PhD in Biology from the Massachusetts Institute of Technology in 1991. He was an associate member at the Fox Chase Cancer Center from 1996 to 1999. In 1999, he joined the Laboratory of Population Genetics as an Investigator and became a Senior Investigator in 2007. He currently is a member of the Laboratory of Cancer Biology and Genetics. Dr. Hunter's main research focus is the genetics of breast cancer metastasis. Metastasis is the primary cause of mortality for most solid tumors and understanding the etiology of this disease is of significant clinical importance. The Hunter laboratory, using a genetics strategy, demonstrated that there is an inherited genetic predisposition for developing metastatic tumors. By integrating newly available genomics tools with the genetics strategy and resources the Hunter laboratory has identified a number of genes previously not implicated with cancer that contribute to the genetic susceptibility. The Hunter laboratory is continuing these investigations to provide further understanding of the etiology of the terminal stage of breast cancer and patient mortality.



DR. LICHTEN

DR. MICHAEL LICHTEN

Dr. Michael Lichten is a Senior Investigator in the Laboratory of Biochemistry and Molecular Biology at the Center for Cancer Research, NCI, where his group studies meiosis, meiotic recombination, and DNA damage repair, using budding yeast as a model system. He did his doctoral work at MIT (with Maurice S. Fox) and postdoctoral work at Brandeis University (with Dr. James E. Haber). He joined the NCI in 1987, received tenure in 1995, and became a member of the Senior Biomedical Research Service in 2000. He serves on editorial boards of *PLOS Biology*, *PLOS Genetics*, *PLOS ONE*, the *Annual Review of Genetics*, and *Faculty of 1000*, and is an AAAS Fellow and a fellow of the American Academy of Microbiology. He especially values serving as co-Director of the NIH-Johns Hopkins Graduate Partnership Program in Cellular, Molecular, Developmental Biology, and is proud to have been the graduate mentor to Yaron Dayani (Individual Partnership with the Hebrew University of Jerusalem) and Darpan Medhi (Individual Partnership with the University of Sheffield).

STUDENTS *Listed alphabetically by name*

Poster #	Last Name, First	IC	University
36	Arizpe, Joseph	NIMH	University College London
33	Askenase, Michael	NIAID	University of Pennsylvania
97	Backonja, Uba	NINR	University of Wisconsin-Madison
49	Barrantes Gomez, Dianna	NIA	Johns Hopkins University School of Medicine
86	Bennett, Jonathon	NIA	Johns Hopkins University School of Medicine
60	Burman, Bharat	NCI	Tufts University
2	Byrd, Allyson	NHGRI	Boston University
55	Campla, Christie	NEI	University of Oxford
46	Case, Lindsay	NHLBI	University of North Carolina at Chapel Hill
37	Chen, Ying-Han	NHLBI	Rutgers University
98	Chun, Lani	NINDS	Johns Hopkins University
99	Clarke, Akanni	NINDS	The George Washington University
23	Clever, David	NCI	University of Cambridge
71	Davis, Kaitlin	NIAID	Johns Hopkins University
96	de la Cruz Landrau, Angel	NINDS	Universidad Central del Caribe
74	Dine, Jennifer	NINR	University of Missouri-Columbia
89	Fallon, Rebecca	NIDA	Johns Hopkins University
69	Federoff, Monica	NIA	University College London
25	Ferdinand, John	NIAMS	University of Southampton
57	Ferro Leal, Leticia	NICHHD	School of Medicine of Ribeirao Preto – University of Sao Paulo
18	Filler, Kristin	NINR	Virginia Commonwealth University
92	Gieseck, Richard	NIAID	University of Cambridge
58	Gindin, Yevgeniy	NCI	Boston University
73	Godbout, Rachel	NIAID	University of Maryland, College Park
79	Gough, Portia	NIAID	University of Chicago
85	Grodin, Erica	NIAAA	Brown University
62	Gutierrez, Erik	NICHHD	Johns Hopkins University
87	Guy, Joseph	NINDS	University of Cambridge
38	Hanish, Alyson	NICHHD	University of Iowa
83	Hargrove, Passley	NEI	The George Washington University
30	Hegarty, Catherine	NIMH	Brown University
42	Hein, Anna	NICHHD	University of Warwick
39	Himmelfarb, Sarah	NIAID	The George Washington University
14	Hoinka, Jan	NLM	Freiburg University
45	Iantorno, Stefano	NIAID	University of Cambridge
19	Ishizuka, Andrew	NIAID	University of Oxford
67	Johnson, Linda	NCI	University of Cambridge
66	Kaltcheva, Maria	NCI	Johns Hopkins University
28	Kane, Anna	NICHHD	Brown University

Poster #	Last Name, First	IC	University
10	Kennard, Andrea	NIAID	Johns Hopkins University
72	Kotlyanskaya, Lyudmila	NINDS	University of North Carolina at Chapel Hill
12	Kumar, Amit	NIDDK	Johns Hopkins University
61	LaBarre, Brenna	NHGRI	Boston University
40	Lally, Níall	NIMH	University College London
78	Lazar, Csilla	NEI	Babes-Bolyai University
68	Lee, Nathan	NCI	Johns Hopkins University
102	Litwin, Tamara	NHLBI	University of Cambridge
76	Liu, Sisi	NICHHD	The Chinese University of Hong Kong
17	Long, Adrienne	NCI	Northwestern University
104	Lopata, Anna	NHLBI	University of Leeds
75	Lotspeich-Cole, Leda	NIAID	Johns Hopkins University
88	Lynn, Geoffrey	NIAID	University of Oxford
3	Majri, Sonia	NIAID	Université Paris-Diderot
101	Marler, Laura	NICHHD	Johns Hopkins University
16	Maxwell, Evan	NHGRI	Boston University
81	Miller, Stephanie	NIMH	University of Maryland, College Park
54	Mirigian, Lynn	NICHHD	University of Texas Medical Branch
27	Morabito, Kaitlyn	NIAID	Georgetown University
106	Munoz, Antonio	NICHHD	Johns Hopkins University School of Medicine
26	Natrajan, Muktha	NINDS	University of Cambridge
7	Neal, Aaron	NIAID	University of Oxford
52	Nezich, Catherine	NINDS	University of Cambridge
21	Obara, Christopher	NIAID	Georgetown University
44	Peters, Diane	NIDCR	Tufts University Sackler School of Graduate Biomedical Sciences
90	Plevock, Karen	NHLBI	University of North Carolina at Chapel Hill
84	Pluchino, Kristen	NCI	Oxford University
8	Reinders, Ilse	NIA	VU University Amsterdam
51	Reynolds, Sara	NIAID	University of Maryland, College Park
15	Richard, Arianne	NIAMS	University of Cambridge
70	Ritter, Alex	NICHHD	University of Cambridge
64	Ross, Jermaine	NINDS	Brown University
32	Rubinstein, Dani	NIMH	Brown University
22	Sajgo, Szilard	NEI	Babes-Bolyai UBB
80	Sangare, Modibo	NINDS	The George Washington University
4	Seitz, Amy	NIAID	The George Washington University
82	Sherrill, Hanna	NIDCD	Brown University
20	Shrestha, Saurav	NIMH	Karolinska Institutet
13	Sierra-Davidson, Kailan	NIAID	University of Oxford

STUDENTS *Listed alphabetically by name*

Poster #	Last Name, First	IC	University
41	Skarzynski, Martin	NHLBI	Georgetown University
59	Solis, Jamie	NHLBI	University of Cambridge
35	Spottiswoode, Natasha	NIAID	University of Oxford
24	Spurrier, Joshua	NINDS	Johns Hopkins University
11	Stepp, Wesley	NIAID	Georgetown University
1	Stuart, Carey	NIAID	University of Maryland, College Park
9	Tan, Irene	NCI	Johns Hopkins University
47	Tang, Zhewei	NCI	East China Normal University
91	Thompson, Whitney	NHLBI	University of Oxford
29	Tosh, Kevin	NIAID	Georgetown University
31	VanBlargan, Laura	NIAID	University of Maryland, College Park
34	Vargish, Geoffrey	NICHHD	Brown University
63	Vigneault, Davis	CC	University of Oxford
77	Viollet-Djelassi, Coralie	NCI	University of Oxford
48	Waxse, Bennett	NICHHD	University of Cambridge
95	Welles, Hugh	NIAID	The George Washington University
56	Weston, Mary	NINDS	Johns Hopkins University
93	Whitaker, Dustin	NEI	Texas A&M University
94	Xiao, Su	NIDDK	Johns Hopkins University
5	Yamamoto, Tori	NCI	University of Pennsylvania
43	Yan, Hannah	NCI	Johns Hopkins University
53	Yang, Ruifeng	NICHHD	Tongji Medical College, Huazhong University of Science and Technology
50	Younts, Caitlin	NICHHD	Johns Hopkins University
65	Zhao, Haiqing	NCI	University of Maryland, College Park
6	Zhou, Cindy Ke	NCI-DCEG	The George Washington University

POSTERS

1

Analysis of the Concatemer Resolution Process in Vaccinia Virus

Carey A. Stuart and Bernard Moss
 Graduate Student Name: Carey A. Stuart
 NIH Institute-Center: NIAID
 NIH Research Advisor: Dr. Bernard Moss
 Graduate University: University of Maryland, College Park

2

Clinical PathoScope: Rapid Alignment and Filtration for Accurate Pathogen Identification in Clinical Samples Using Unassembled Sequencing Data

Allyson L. Byrd, Joseph F. Perez-Rogers, Julia Oh, Evan W. Johnson, and Julie A. Segre
 Graduate Student Name: Allyson L. Byrd
 NIH Institute-Center: NHGRI
 NIH Research Advisor: Dr. Julie A. Segre
 University Research Advisor: Dr. W. Evan Johnson
 Graduate University: Boston University

3

Induction of Peripheral Immune Tolerance Using Restimulation-Induced Cell Death Mechanism

Sonia S. Majri and Michael J. Lenardo
 Graduate Student Name: Sonia S. Majri
 NIH Institute-Center: NIAID
 NIH Research Advisor: Dr. Michael J. Lenardo
 Graduate University: Université Paris-Diderot

4

Epidemiology of Blastomycosis in the United States

Amy E. Seitz, Naji Younes, Sean D. Cleary, Daniel Hoffman, and D. Rebecca Prevots
 Graduate Student Name: Amy E. Seitz
 NIH Institute-Center: NIAID
 NIH Research Advisor: Dr. D. Rebecca Prevots
 University Research Advisor: Dr. Daniel Hoffman
 Graduate University: The George Washington University

5

Exploring a Costimulatory Role of Fas in Memory CD8+ T Cells

Tori N. Yamamoto, Anthony J. Leonardi, Hui Liu, Ena Wang, Luca Gattinoni, Christopher A. Klebanoff, and Nicholas P. Restifo
 Graduate Student Name: Tori N. Yamamoto
 NIH Institute-Center: NCI
 NIH Research Advisor: Dr. Nicholas P. Restifo
 University Research Advisor: Dr. Avinash Bhandoola
 Graduate University: University of Pennsylvania

6

Male Pattern Baldness Increases the Risk of Aggressive Prostate Cancer: A Prospective Analysis of the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial

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 NIH Research Advisor: Dr. Michael B. Cook
 Graduate University: The George Washington University

7

Using a QTL Approach to Identify Novel Trafficking Components of the *Plasmodium falciparum* Virulence Factor PfEMP1

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 NIH Institute-Center: NIAID
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 University Research Advisor: Dr. Chris Newbold
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8

Muscle Properties and Strength in Relation to Functional Disability and Poor Performance: The Age, Gene/Environment Susceptibility-Reykjavik Study

Ilse Reinders, Rachel A. Murphy, Melissa E. Garcia, Lenore Launer, Gudny Eiriksdottir, Palmi V. Jonsson, Vilmundur Gudnason, and Tamara B. Harris
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9

Small Proteins Orchestrate the Assembly of Large Structures During Sporulation

Irene S. Tan and Kumaran S. Ramamurthi
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 NIH Research Advisor and University Advisor: Dr. Kumaran Ramamurthi
 Graduate University: Johns Hopkins University

10

Genetic Basis for Host Range Expansion of the Cosmopolitan Parasite *Toxoplasma gondii*

Andrea Kennard, Asis Khan, Mariam Quinones, Natarajan Sundar, and Michael E. Grigg
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 NIH Research Advisor: Dr. Michael E. Grigg
 Graduate University: Johns Hopkins University

POSTERS

11

How to Halt a Hitchhiker: A Nuclear Defense Protein, Sp100, Arrests HPV Infection

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University Research Advisor: Dr. John Casey
Graduate University: Georgetown University

12

Studying Pathophysiology of Type II Diabetes using a Multi-Tissue Computational Metabolic Model

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University Research Advisor: Dr. Michael J. Betenbaugh
Graduate University: Johns Hopkins University

13

Single-Cell Transcriptome Analysis of CD4 and $\gamma\delta$ T Cells Induced by Immunization with Irradiated *Plasmodium falciparum* Sporozoites

Kailan Sierra-Davidson, Patricia Darrah, Adam Wheatley, Kavita Tewari, Madhu Prabhakaran, Steven Ma, Adrian Hill, Adrian McDermott, and Robert Seder
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14

AptaCluster – A Method to Cluster HT-SELEX Aptamer Pools and Lessons from its Application

Jan Hoinka, Alexey Berezhnoy, Zuben E. Sauna, Eli Gilboa, and Teresa M. Przytycka
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University Research Advisor: Prof. Dr. Rolf Backofen
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15

Monocyte Expression of TL1A Correlates with Inflammatory Bowel Disease Susceptibility Genotype

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Graduate University: University of Cambridge

16

Informing Model Organism Selection for Human Disease Research through Evolutionary Profiling

Evan K. Maxwell, Christine E. Schnitzler, Paul Havlak, Nicholas H. Putnam, Anh-Dao Nguyen, R. Travis Moreland, and Andreas D. Baxevanis
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NIH Research Advisor: Dr. Andreas D. Baxevanis
Graduate University: Boston University

17

GD2 Specific Chimeric Antigen Receptors (CARs) Constitutively Signal, Leading to Rapidly Induced T Cell Exhaustion and Poor Anti-tumor Efficacy *In Vivo*

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NIH Research Advisor: Dr. Crystal L. Mackall
Graduate University: Northwestern University

18

Ghrelin Levels and Fatigue Intensification in Men Receiving Localized Radiation Therapy

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University Research Advisor: Dr. Debra Lyon
Graduate University: Virginia Commonwealth University

19

Optimization of *Plasmodium falciparum* Sporozoite T Cell Immunity Following Immunization in Rhesus Macaques

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NIH Research Advisor: Dr. Robert A. Seder
University Research Advisor: Prof. Adrian Hill
Graduate University: University of Oxford

20

Fluoxetine Administered to Juvenile Monkeys: Effects on the Serotonin Transporter and Behavior

Saurav S. Shrestha, Eric E. Nelson, Jehi-San Liow, Robert Gladding, Chul Hyoung Lyoo, Pam L. Noble, Cheryl Morse, Ioline D Henter, Jeremy Kruger, Bo Zhang, Stephen J. Suomi, Per Svenningsson, Victor W. Pike, James T. Winslow, Ellen Leibenluft, Daniel S. Pine, and Robert B. Innis
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University Research Advisor: Dr. Per Svenningsson
Graduate University: Karolinska Institutet

21

Towards Understanding Host Factors that Influence Antibody-Dependent Enhancement and Neutralization of Flaviviruses

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 University Research Advisor: Dr. R. Padmanabhan
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22

Sparse Analysis of Brn3b Expression in Developing RGs and Brainstem

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 NIH Research Advisor: Dr. Tudor C. Badea
 University Research Advisor: Dr. Octavian Popescu
 Graduate University: Babes-Bolyai UBB

23

BACH2 Represses the INK4/ARF Locus to License T Cell Memory Generation

Rahul Roychoudhuri*, David Clever*, Peng Li*, Kylie M. Quinn, Christopher A. Klebanoff, Rosanne Spolski, Yun Ji, Zhiya Yu, Luca Gattinoni, Kiyoshi Hirahara, Yuka Kanno, Akihiko Muto, Kazuhiko Igarashi, John J. O'Shea, Warren J. Leonard, and Nicholas P. Restifo
 Graduate Student Name: David Clever
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 NIH Research Advisor: Dr. Nicholas P. Restifo
 University Research Advisor: Dr. Pentao Liu
 Graduate University: University of Cambridge

24

Investigating the Mechanisms of Cdk5/p35 Kinase-associated Neurodegeneration

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 University Research Advisor: Dr. Haiqing Zhao
 Graduate University: Johns Hopkins University

25

The Biological Function of Membrane Versus Soluble TL1A

John Ferdinand, Françoise Meylan, Richard Siegel, and Aymen Al-Shamkhani
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 NIH Research Advisor: Dr. Richard Siegel
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 Graduate University: University of Southampton

26

Nuclear Receptors in Ageing Macrophages, Myelin Debris Clearance, and CNS Remyelination

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 University Research Advisor: Prof. Robin Franklin
 Graduate University: University of Cambridge

27

RSV Antigen-expressing MCMV Vectors Elicit Anti-viral CD8+ T Cell Responses

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 Graduate University: Georgetown University

28

A Role for Developmental Pathway Repressors Gli3 and Numb in Establishment and Maintenance of the Adult Neurogenic Niche Structure

Anna Kane, Hui Wang, Garrett Cheung, and Sohyun Ahn
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 NIH Institute-Center: NICHD
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 Graduate University: Brown University

29

Characterization of the Innate Immune Response of Primary Human Monocyte to *Toxoplasma gondii* Infection

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 Graduate University: Georgetown University

30

Variation in the ZNF804A Gene is Associated with Striatal Presynaptic Dopamine Function

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POSTERS

31

Epitopes Recognized by Type-specific Antibodies Elicited by a Dengue Vaccine Candidate

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Graduate University: University of Maryland, College Park

32

Reduced Prefrontal Gamma Band Power in Patients with Schizophrenia Studied with MEG during Working Memory

Dani Y. Rubinstein, Daniel P. Eisenberg, Frederick W. Carver, Daniel R. Weinberger, Richard Coppola, and Karen F. Berman

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33

Systemic Conditioning of Monocytes Imparts Critical Regulatory Functions Prior to Tissue Recruitment During Acute Mucosal Infection

Michael H. Askenase, John R. Grainger, Nicolas Bouladoux, and Yasmine Belkaid

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34

Functional Inhibitory Circuit Deficits Emerge Following Chronic Prenatal Exposure to Cannabinoids

Geoffrey A. Vargish, Xiaqing Yuan, Kenneth A. Pelkey, and Chris J. McBain

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Graduate University: Brown University

35

Hepcidin Regulation in Malaria Infection

Natasha Spottiswoode, Andrew Williams, Andrew Armitage, Lucy Eddowes, Chris Newbold, Bob Pinches, Simon Draper, Alain Townsend, Hal Drakesmith, and Patrick Duffy

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36

More Data, More Category-selective Voxels: Massively Widespread Face- and Scene-selectivity with Increasing Amounts of Data Revealed at 7T

Joseph Arizpe, Dwight J. Kravitz, and Chris I. Baker

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37

Spatio-temporal Dynamics of Enteroviral RNA translation, Synthesis and Encapsidation Revealed by Super-resolution Imaging

Ying-Han Chen, Eckard Wimmer, Aniko V. Paul, Alexandre David, Jonathan W. Yewdell and Nihal Altan-Bonnet

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Graduate University: Rutgers University

38

PAX6 Haploinsufficiency: Pineal Hypoplasia, Reduced Melatonin, and Sleep Disturbance

Alyson E. Hanish, John A. Butman, Jack Yao, Francine Thomas, Amanda E. Huey, Lindsay A. Hunter, Melanie D. Hicks, Mark D. Lee, Emily Yin, Tanvee Singh, Yael Caplan, and Joan C. Han

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Graduate University: University of Iowa

39

Site-Specific Commensal Control of Human and Non-Human Primate Skin-Resident T Effector Function

Sarah Himmelfarb, Shruti Naik, Christophe Wilhelm, Lily Koo, Juraj Kabat, Kenta Matsuda, Heidi Kong, Jason Brenchley, and Yasmine Belkaid

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Graduate University: The George Washington University

40

Imaging Excitation *In Vivo* in the Healthy and Depressed Brain: A High Field 1H-MRS Study

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University Research Advisor: Dr. Jonathan P. Roiser

Graduate University: University College London

41

Targeting the Fc μ -receptor in Chronic Lymphocytic Leukemia with a Novel IgM-derived Antibody-drug Conjugate

Martin Skarzynski, Bérengère Vire, Joshua D. Thomas, Christopher G. Nelson, Alexandre David, Georg Aue, Terrence R. Burke, Jr., Christoph Rader, and Adrian Wiestner

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University Research Advisor: Dr. Louis Weiner

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42

Novel Role of the Enzyme 11beta-hydroxysteroid dehydrogenase type 2 (11 β -HSD2) on Placental Biology

Anna Hein, Dimitris Grammatopoulos, Tomoshige Kino, and Alan DeCherney

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NIH Research Advisor: Dr. Alan DeCherney

University Research Advisor:

Prof. Dimitris Grammatopoulos

Graduate University: University of Warwick

43

CCL9 Mediates TGF- β Signaling in Myeloid Cells and is Critical in Tumor Cell Survival and Lung Metastasis

H. Hannah Yan, Yanli Pang, B.R. Achyut, Michael Lizardo, Chand Khanna, Christine Hollander, and Li Yang

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Graduate University: Johns Hopkins University

44

Prostasin (CAP1/PRSS8) Supports Epidermal Development and Postnatal Survival Independent of its Catalytic Activity

Diane E. Peters, Roman Szabo, Stine Friis, Natalia A. Shylo, Katiuchia Uzzun Sales, Kenn Holmbeck, and Thomas H. Bugge

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45

Genetic Exchange in *Leishmania tropica*

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46

Two Distinct Populations of Vinculin Molecules Interact with Paxillin and Talin at Focal Adhesions

Lindsay Case, Gleb Shtengel, Michelle Baird, Mike Davidson, Sharon Campbell, Harold Hess, and Clare Waterman

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47

Combinatorial Treatment of Hepatocellular Carcinoma with Immunotoxin Targeting glypican-3 and Irinotecan Induces Tumor Regression in Mice

Zhewei Tang, Mingqian Feng, Wei Gao, Min Qian, and Mitchell Ho

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48

Motor Proteins in Gap Junction Internalization and Degradation

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49

Toll-Like Receptor 7 Involvement in Germinal Center Responses

Diana P. Barrantes and Patricia J. Gearhart

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POSTERS

50

The Role of Heparan Sulfate Proteoglycans in Lateral Line Pattern Formation

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51

Characterization of Cowpox Virus 219: Story of the Largest Poxviral Protein Cleaved into Smaller Fragments

Sara E. Reynolds and Bernard Moss

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52

The Transcription Factor TFEB is Activated during Parkin-mediated Mitophagy

Catherine L. Nezich, Adam I. Fogel, Chunxin Wang, and Richard J. Youle

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53

Elucidation of RNA Binding Regions of Gonadotropin Regulated Testicular RNA Helicase (GRTH/DDX25) Protein to Transcripts of a Chromatin Remodeling Protein Essential for Spermatogenesis

Ruifeng Yang, Chon-Hwa Tsai-Morris, and Maria L Dufau

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54

Cellular Stress Response to Procollagen Misfolding in the Amish Mouse Model of OI

Lynn Mirigian, Elena Makareeva, Ed Mertz, and Sergey Leikin

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55

Molecular and Functional Characterization of Genes Associated with Rod Photoreceptor Maturation

Christie K. Campla, Stephanie Halford, Sumathi Sekaran, and Anand Swaroop

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56

Role of Possible Counterions in Clathrin Coated Vesicle Acidification

Mary Weston and Joe Mindell

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57

Effect of Pde8b Ablation: Implication in Testicular Physiology and Pathological Disorders of Spermatogenesis

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58

A Chromatin Structure Based Model Accurately Predicts DNA Replication Timing in Human Cells

Yevgeniy Gindin, Manuel S. Valenzuela, Mirit I. Aladjem, Paul S. Meltzer, and Sven Bilke

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59

Characterization of Mammalian and Drosophila Myosin VIIa Localization, Function, Structure, and Regulation

Jamie M. Solis, Attila Nagy, Folma Buss, and James R. Sellers

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60

Epigenetics of Chromosomal Breakage Sites and Translocations

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61

Whole Blood DNA Methylation Analysis: Loci to Look Out for in Biomarker Studies

Brenna A. LaBarre and Laura Elnitski
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62

eIF5A Promotes Translation of Polyproline Motifs

Erik Gutierrez, Byung-Sik Shin, Christopher J. Woolstenhulme, Joo-Ran Kim, Allen R. Buskirk, and Thomas E. Dever
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63

Cardiac Strain from Cine cMRI via Feature Tracking

Davis Vigneault, Alison Noble, and David Bluemke
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64

Dissecting the Cis-regulatory DNA that Control the POU-domain Transcription Factor Genes, pdm-1 & pdm-2

Jermaine Ross, Thomas Brody, Alexander Kuzin, and Ward F. Odenwald
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NIH Research Advisor: Dr. Ward F. Odenwald
University Research Advisor: Dr. Anne Hart
Graduate University: Brown University

65

Computational Modeling and Experimental Perturbations of the Centromeric Chromatin Fiber

Haiqing Zhao, Yamini Dalal, and Garegin Papoian
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66

Interdigit BMP Signaling is Essential for Programmed Cell Death

Maria Kaltcheva, Brian Harfe, and Mark Lewandoski
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67

Pilot Study of Eovist (gadoxetate) Enhanced MRI to Detect Prostate Cancer

Linda Johnson, Ismail Turkbey, Kinzya Grant, Peter Choyke, David Neal, and William D. Figg
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University Research Advisor: Dr. David Neal
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68

Mtr4 Family Protein Coordinates Nuclear RNA Processing for Heterochromatin Assembly and for Telomere Maintenance

Nathan N. Lee, Venkata R. Chalamcharla, Francisca Reyes-Turcu, Sameet Mehta, Martin Zofall, Vanivilasini Balachandran, Jothy Dhakshnamoorthy, Nitika Taneja, Soichiro Yamanaka, Ming Zhou, and Shiv I. S. Grewal
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NIH Institute-Center: NCI
NIH Research Advisor: Dr. Shiv Grewal
Graduate University: Johns Hopkins University

69

The Search for a Genetic Etiology behind Multiple System Atrophy (MSA)

Monica C. Federoff, Lucia Schottlaender, Henry Houlden, and Andrew B. Singleton
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University Research Advisor: Dr. Henry Houlden
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POSTERS

70

A Novel Mechanism Regulating Cortical Actin Density Controls Secretion in Cytotoxic T Lymphocytes

Alex T. Ritter, Gillian M. Griffiths, and Jennifer Lippincott-Schwartz
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University Research Advisor: Prof. Gillian M. Griffiths
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71

Development of Rapid and Quantitative Methods to Identify Small Molecule Inhibitors of Flavivirus Budding

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72

How Does the Adaptor Protein Dab Regulate a Signaling Cascade that Converts Extracellular Signals to F-actin Cytoskeleton Rearrangement during Cell Morphogenesis?

Lucy Kotlyanskaya and Edward Giniger
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NIH Research Advisor: Dr. Edward Giniger
University Research Advisor: Dr. Mark Peifer
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73

Development of Live Attenuated Herpes Simplex Type 2 Vaccines Deleted for Immune Evasion Genes

Rachel A. Godbout, Kening Wang, Kyle N. Goodman, and Jeffrey I. Cohen
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University Research Advisor: Dr. Kevin S. Mclver
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74

Identification and Characterization of Novel Regulators of TRAIL-induced Apoptosis in Breast Cancer Cells

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75

Initial Elucidation of the B10-cell Gene Expression Program

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76

Bone Stromal Cells Depends on cAMP-dependent Protein Kinase Activity in Adult Mouse Skeleton

Sisi Liu, Costas Petrovas, Stephen Spath, Kit-man Tsang, Emmanouil Saloustro, Maria Nesterova, Maria De La Luz Sierra, and Constantine A. Stratakis
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77

Changes of MicroRNA Expression Profiles in Kaposi's Sarcoma-associated Virus-infected Cells under Hypoxia

Coralie Viollet-Djelassi, David A. Davis, Joseph M. Ziegelbauer, Martin Reczko, Francesco Pezzella, Ioannis Ragoussis, and Robert Yarchoan
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78

Identification of Genetic Defects in Cone and Cone-rod Dystrophy by Whole Exome Sequencing

Csilla H. Lazar, Mousumi Mutsuddi, Lina Zelinger, Liliana Mizrahi-Meissonnier, Alexis Boleda, Rinki Ratna-Priya, Eyal Banin, Dror Sharon, and Anand Swaroop
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79

The Role of IL-20 Receptor Signaling in the Host Response to Infection with *Staphylococcus aureus*

Portia Gough and Sandip Datta
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80

High Survival Motor Neuron 1 (SMN1) Copy Number in Mali, West Africa

Modibo Sangare, Brant Hendrickson, Kelian Chen, Hammadoun Ali Sango, Jonathan Nofziger, Abdelbasset Amara, Amalia Dutra, Alice B. Schindler, Aldiouma Guindo, Mahamadou Traore, George Harmison, Evgenia Pak, Fatoumata N'go Yaro, Katherine Bricceno, Christopher Grunseich, Guibin Chen, MS, Manfred Boehm, Kristen Zukosky, Nouhoum Bocoum, Katherine G. Meilleur, Fatoumata Daou, Koumba Bagayogo, Yaya Ibrahim Coulibaly, Mahamadou Diakite, Michael P. Fay, Hee-Suk Lee, Ali Saad, Moez Gribaa, Andrew B. Singleton, Youssoufa Maiga, Sungyoung Auh, Guida Landoure, Rick M. Fairhurst, Barrington G. Burnett, Thomas Scholl, and Kenneth H. Fischbeck

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81

Neuronal Avalanches Illustrate a Critical Cortex

Stephanie R. Miller and Dietmar Plenz
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82

Defining Lineage Relationships in the Cochlear Spiral Ganglion using Brainbow

Hanna E. Sherrill and Matthew W. Kelley
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83

Identification of Genes Controlling Rod Photoreceptor Pre-synaptic Morphology

Passley Hargrove, Matthew Brooks, Tiziana Cogliati, and Anand Swaroop
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University Research Advisor: Dr. Anand Swaroop
Graduate University: The George Washington University

84

Chimeric Isoforms of P-glycoprotein for Functional and Structural Investigations

Kristen M. Pluchino, Matthew D. Hall, Ian Pringle, Deborah Gill, Steven Hyde, and Michael M. Gottesman
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85

Neural Substrates of Approach-Avoidance Conflict

Erica N. Grodin, Markus Heilig, and Reza Momenan
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86

Chromatin Structural Changes Induced by the Tissue-Specific Ep Enhancer

Jonathon Bennett, Supriyo De, Amalendu Ghosh, and Ranjan Sen
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87

Dynamic Nuclear Hyperpolarization Quantification of *In Vivo* Marmoset EAE Lesion Metabolism

Joseph Guy, Pascal Sati, Kevin M. Brindle, and Daniel S. Reich
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88

Controlling the Magnitude and Duration of Innate Immune Responses with Polymer Carriers of Toll-like Receptor 7/8 Agonists

Geoffrey Lynn, Patricia Darrah, Alexandra Balaci, Ayako Yamamoto, Richard Laga, Kathrin Kastenmueller, and Olga Vasalatiy
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University Research Advisor: Prof. Leonard Seymour
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POSTERS

89

Bumpy Road to the Addiction Engram: Morphological Analysis of Dendritic Spines Induced by Learned Associations of Cocaine

Rebecca Fallon, Dani Dumitriu, Fabio Cruz, and Bruce Hope
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90

Drosophila Pericentrin-Like-Protein Recruitment and Regulation at the Centrosome

Karen M. Plevock, Brian J. Galletta, Kevin C. Slep, and Nasser M. Rusan
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University Research Advisor: Dr. Kevin C. Slep
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91

Acute Effects of Ketones on Mammalian Muscle, Heart, and Liver Energetics and Function

Whitney Thompson, Brian Glancy, Stephanie French, Keiran Clarke and Robert Balaban
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92

Maturation of Induced Pluripotent Stem Cell Derived Hepatocytes by 3D-Culture

Richard L. Gieseck III, Nicholas R.F. Hannan, Roque Bort, Neil A. Hanley, Rosemary A.L. Drake, Grant W.W. Cameron, Thomas A. Wynn, and Ludovic Vallier
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NIH Research Advisor: Dr. Thomas A. Wynn
University Research Advisor: Dr. Ludovic Vallier
Graduate University: University of Cambridge

93

Development of the Rod Photoreceptor Synapse

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94

High Throughput RNAi Screening for Improved Functional Expression of Neurotensin Receptor

Su Xiao, Yu-chi Chen, Scott Martin, Michael J. Betenbaugh, and Joseph Shiloach
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University Research Advisor: Dr. Michael J. Betenbaugh
Graduate University: Johns Hopkins University

95

Identification and Characterization of Potent Anti-SIV-Envelope Antibodies

Hugh C. Welles, Rosemarie D. Mason, John R. Mascola, and Mario Roederer
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96

Locking the Open State of a Voltage-dependent Concatemer Potassium Channel with Metal Bridges

Angel A. de la Cruz Landrau and Miguel Holmgren
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97

Are Adiposity and Physical Activity Associated with Odds of an Endometriosis Diagnosis?

Uba Backonja, Diane R. Lauer, Zhen Chen, Mary L. Hediger, Kimberlee A. Gretebeck, Kristine Kwekkeboom, Christopher L. Coe, Erin F. Wolff, and Germaine M. Buck Louis
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98

Discovery and Characterization of a G Protein-biased Agonist of the D2 Dopamine Receptor

Lani S. Chun, R. Benjamin Free, Amy E. Moritz, Jennie L. Conroy, Julie A. Meade, Jingbo Xiao, Andrés E. Dulcey, Marc Ferrer, Jonathan A. Javitch, Thijs Beuming, Lei Shi, Noel Southall, Juan J. Marugan, Jeff Aubé, Kevin J. Frankowski, and David R. Sibley
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Graduate University: Johns Hopkins University

99

**A Characterization Of Growth Cone Morphology
in a Live-Pathfinding Axon**

Akanni Clarke, Edward Giniger, and Ramakrishnan Kanan

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101

Initiation of Translation at CUG Codons

Laura Marler and Alan G. Hinnebusch

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102

**In the Clutches of Maxwell's Demon: Below-equilibrium
DNA Topology Simplification by Type II Topoisomerases**

Tamara R. Litwin, Susanta K. Sarkar, Ashley H. Hardin,
Ian J. Holt, and Keir C. Neuman

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104

Exploring Myosin-5 Elasticity Under Strain

Anna Lopata, Attila Nagy, Neil Billington, Michelle
Peckham, Peter J. Knight, and James R. Sellers

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106

**The Role of Initiator tRNA Structure in Transmitting
the Start Codon Recognition Signal**

Antonio M. Munoz, Jinsheng Dong,
Alan G. Hinnebusch, and Jon R. Lorsch

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NIH and University Research Advisor: Dr. Jon R. Lorsch

Graduate University: Johns Hopkins University

School of Medicine

No poster presentations #100, 103, or 105



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