Division of Intramural Research

NAEHS Council Update

May 2014

DIR RECRUITMENTS

Director, Clinical Research Program
The NIEHS is searching for a senior investigator to direct its Clinical Research Program. The Director, Clinical Research Program, is responsible for the development, administration, coordination and oversight of investigator-initiated clinical research; provides general advice to the Director and Scientific Director, NIEHS, on matters relating to human and clinical studies; supervises the Office of Research Compliance; and develops policies and programs for the execution of clinical research at NIEHS. The Clinical Director is responsible for creating and maintaining a research environment in which clinical findings influence the direction of laboratory studies and laboratory findings are applied back to the clinical and clinical research communities. The incumbent will facilitate intramural clinical research by identifying opportunities for translating basic science into clinical studies. The Clinical Director will ensure that Institute research reflects the highest standards of scientific excellence and ethical conduct for the protection of human subjects. The incumbent will review matters pertaining to the provision of patient care in research protocols and oversee research allocation, scientific review, and recruitment of staff. The Clinical Director will provide advice and training on the conduct of clinical studies, facilitate clinical research collaborations between intramural and extramural investigators, and develop long-range clinical research goals and objectives relevant to the mission of NIEHS. It is expected that the successful candidate will oversee a personal clinical research program that will involve some combination of outpatient oriented studies within the Clinical Research Unit, epidemiological studies, basic laboratory studies, or inpatient studies at the Clinical Research Center in Bethesda. Emphasis will be placed upon investigators with a primary research interest in clinical research; however, the selected candidate may have a modest independent basic laboratory research program, particularly if the basic research intersects with the candidate's clinical studies. Dr. Carter Van Waes, Clinical Director, National Institute on Deafness and Other Communication Disorders is chair of the search committee. A Candidate has been identified.

Investigators in the areas of Molecular and Cellular Signaling, Neuroscience, and Developmental or Reproductive Biology
The National Institute of Environmental Health Sciences is recruiting for multiple full-time appointments at either the tenure-track or tenure-eligible level in the areas of Molecular and Cellular Signaling, Neuroscience, and Developmental or Reproductive Biology. The successful candidates are expected to lead innovative, independent research programs on any fundamental aspect of research in the above three areas of interest which form a basis for understanding the effects of the environment on human health. Applicants should have a Ph.D., M.D. or equivalent doctoral degree with at least 3 years of postdoctoral research experience in their field and an outstanding publication record. The emphasis will be on identifying exceptional scientists with innovative and productive research programs. Evaluation of applications has begun. Dr. Trevor Archer, Chief, Laboratory of Molecular Carcinogenesis, is chair of the search committee. Candidates are being scheduled for interviews.

Investigators in the areas of Biostatistics, Bioinformatics, and Computational Biology
The National Institute of Environmental Health Sciences is recruiting for multiple full-time appointments at either the tenure-track or tenure-eligible level in the areas of biostatistics,

bioinformatics, and computational biology. The successful candidate will develop and direct a high-quality, independent research program on analytic methods applicable to understanding the effects of the environment on human health. Applicants should have a Ph.D. or equivalent doctoral degree and a proven record in the development of analytic methods with biomedical application. Experience working with epidemiologic or high dimensional genetic, epigenetic, and genomic datasets is highly desirable, but not required. Evaluation of applications has begun. Dr. Jack A. Taylor, Epidemiology Branch and Laboratory of Molecular Carcinogenesis, is chair of the search committee. A tenure-track candidate has been identified and tenure-eligible candidates are being scheduled for interviews.

NEW HIRES AND CHANGES IN DIR LEADERSHIP

Clinical Director
Dr. Janet Hall has tentatively accepted our offer to be Clinical Director at NIEHS. Dr. Hall is currently a Professor of Medicine at Harvard University and serves as Associate Chief of the Reproductive Endocrine Unit at Massachusetts General Hospital. Dr. Hall received her M.D. in 1981 from McMaster University, completed her residency in Internal Medicine at McMaster University and an Endocrinology fellowship at Massachusetts General Hospital. She is an international recognized physician-scientist who studies human reproductive physiology and pathophysiology with a view to translating this information to benefit women with reproductive disorders. She is the Past-President of the Endocrine Society which has over 17,000 members worldwide. She also has served on numerous NIH Special Emphasis Panels and numerous Editorial Boards. Dr. Hall is expected to begin work at NIEHS later this year.

Earl Stadtman Tenure-Track Investigators
As part of the NIH-wide Stadtman tenure-track investigator searches, DIR has offered two candidates positions.

The first candidate is Dr. Robin Stanley from the Laboratory of Molecular Biology at National Institute of Diabetes and Digestive and Kidney Diseases, NIH, Bethesda, MD. Dr. Stanley studies the regulation of autophagy and ribosome biogenesis by the target of rapamycin (TOR) signal transduction pathway. Dr. Stanley has accepted our offer and will have a primary appointment in the Signal Transduction Laboratory and a secondary appointment in the Genomic Integrity and Structural Biology Laboratory. Dr. Stanley is expected to begin work at NIEHS in late summer early fall 2014.

The second candidate is Dr. Ami Bhatt from the Department of Medicine, Dana-Farber/Partners Cancer Care, Harvard Medical School, Boston, MA. Dr. Bhatt studies the intersection between the microbiome and cancer and related diseases, using genomics-based tools. Upon acceptance of the position, she will have a primary appointment in the Epigenetics and Stem Cell Biology Laboratory and a secondary appointment in the Immunity, Inflammation and Disease Laboratory.

Biostatistics, Bioinformatics, and Computational Biology
Dr. Shanshan Zhao from the Fred Hutchinson Cancer Research Center, Seattle, WA, has been offered a tenure-track position in DIR at NIEHS. Dr. Zhao has statistical interests in mediation analysis, error, and high dimensional data. Dr Zhao has accepted our provisional tenure-track offer. She will have a primary appointment in the Biostatics and Computational Biology Branch and a secondary appointment in the Epidemiology Branch. Her tentative start date is January 1, 2015 .

NEWLY TENURED DIR PRINCIPAL INVESTIGATOR

At the April 7, 2014 meeting of the NIH Central Tenure Committee held in Bethesda **Dr. Dmitri V. Zaykin** of the Biostatistics Branch was awarded tenure.

Research Summary
Dmitri V. Zaykin, Ph.D.
Biostatistics Branch
DIR, NIEHS

The main research area of our group is within the context of discovering relationships between genetic variation and phenotypic traits using statistical methodology. A broad class of such problems is related to association mapping of genetic polymorphisms that are involved in disease susceptibility, response to medicine, and differential reactions to environmental exposures. Development of novel statistical methods to accompany technological advances is essential in order to further efforts to improve health-related quality of life and treat and prevent disease. Identification of genetic pathways whose dysfunction leads to disease can help to accelerate understanding of environmentally induced disruptions of those same pathways. Human genetic data is currently being produced at an increasing rate. The sheer volume of data and its complexity create new challenges for methodological research. How not to drown in the data while extracting useful signals? Our research focuses on developing efficient methods for detecting and characterizing genetic associations with discrete and quantitative traits, while taking into account the large and expanding scale of genomic data. We also continue to devise methodology that is useful not only for genetic applications but also generally applicable for analysis of other kinds of multidimensional data where many statistical hypotheses are being evaluated, e.g. it is applicable in studies of epigenetic effects of exposures, in metabolomics studies, and in studies of differential gene expression. Some of our methods are designed to be very general because they work off P-values, which can result from various tests, including those accounting for environmental exposures and gene‑environment interactions. We have been extending collaborative aspects of our research, striving to bring modern statistical methodology to studies concerned with complex diseases and environmental exposures.

DIR RESEARCH UPDATE

Regulation of the Innate Immune Response to Environment by Cholesterol Trafficking

Michael B. Fessler, M.D.

Laboratory of Respiratory Biology, DIR, NIEHS

The Clinical Investigation of Host Defense Group investigates molecular and cellular mechanisms of the innate immune response to environmental 'pathogen-associated molecular patterns' (e.g., lipopolysaccharide [LPS]). Using the macrophage and the lung as *in vitro* and *in vivo* model systems, and clinical and epidemiologic studies as testing grounds, we aim ultimately to translate our findings to human disease. Within this forum, our specific focus is in defining novel areas of crosstalk between the innate immune response and cholesterol trafficking. Our central hypothesis is that cholesterol trafficking and innate immunity signaling are intrinsically coupled processes, and that perturbations in each regulate the other. We therefore posit that the manipulation/perturbation of cell cholesterol will yield novel: 1) mechanisms underlying the induction and regulation of the innate immune response; 2) determinants of inflammatory phenotype in human subjects; and 3) sites for intervening in innate immunity and the diseases in which it plays a role. In this presentation, 'bench to bedside' data will be shown indicating that the ε4 allele of APOE (i.e., *APOε4*), a gene encoding the key lipid-trafficking and immunomodulatory protein, apolipoprotein E, is a fundamental determinant of the human innate immune response. As will be discussed, we speculate that these findings may have important mechanistic and therapeutic implications for the wide range of environmentally induced human disorders, infectious and non-infectious, in which the innate immune response has been implicated.

BSC REVIEW OF THE LABORATORY OF LABORATORY OF MOLECULAR GENETICS AND DR. GUANG HU

The DIR Board of Scientific Counselors reviewed the Laboratory of Laboratory of Molecular Genetics and Dr. Guang Hu, February 23-25, 2014.

Members of the Board of Scientific Counselors that Attended:

- Kenneth B. Adler, Ph.D., [BSC Chair], Professor, Dept. of Molecular Biomedical Sciences, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- Monica Justice, Ph.D. [via videoconference], Program Head and Senior Scientist, Genetics & Genome Biology Program, SickKids Research Institute, The Peter Gilgan Centre for Research and Learning, Toronto, Ontario, Canada
- José E. Manautou, Ph.D., Associate Professor, Department of Pharmaceutical Sciences, University of Connecticut School of Pharmacy, Storrs, CT
- Donald P. McDonnell, Ph.D., Glaxo-Wellcome Professor and Chairman of Pharmacology and Cancer Biology, Duke University School of Medicine, Durham, NC
- Karen M. Vasquez, Ph.D., Professor, Division of Pharmacology and Toxicology, Dell Pediatric Research Institute, The University of Texas at Austin, Austin, TX
- Roland A. Owens, Ph.D., Ex-Officio BSC Member, Assistant Director, Office of Intramural Research, NIH, Bethesda, MD

Ad Hoc Reviewers that Attended:

- Vilhelm A. Bohr, M.D., Ph.D., Senior Investigator, Chief, Section on DNA Repair, Laboratory of Molecular Gerontology, National Institute on Aging Biomedical Research Center, NIH, Baltimore, MD
- Shuk-mei Ho, Ph.D., Jacob G. Schmidlapp Professor and Chair, Department of Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH
- Laurie Kaguni, Ph.D., Distinguished Professor, Department of Biochemistry, Michigan State University, East Lansing, MI
- Susan P. LeDoux, Ph.D., Assistant Dean and Professor, Department of Cell Biology and Neuroscience, University of South Alabama College of Medicine, North Mobile, AL
- Simon N. Powell, M.D., Ph.D., Professor and Chair, Department of Radiation Oncology, Memorial Sloan-Kettering Cancer Center, New York, NY
- Ivan Rusyn, M.D., Ph.D., Professor, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC
- Mark Sutton, Ph.D., Associate Professor, Department of Biochemistry, University of Buffalo School of Medicine, Buffalo, NY
- M. Zafri Humayun, Ph.D., Professor, Department of Microbiology & Molecular Genetics, Rutgers New Jersey Medical School, International Center for Public Health, Newark, NJ
- Susan J. Henning, Ph.D., Professor, Departments of Medicine and Cellular & Molecular Physiology, UNC School of Medicine, Chapel Hill, NC

- Mahendra Rao, M.D., Ph.D., Senior Investigator and Chief, Laboratory of Stem Cell Biology, National Institute of Arthritis and Musculoskeletal and Skin Disease, NIH, Director, NIH Center for Regenerative Medicine, Bethesda, MD

Agenda:

Sunday, February 23 - Doubletree Hotel
Closed Evening Session

7:00 – 8:00 p.m.	Welcome and Discussion of Past Board Reviews, Drs. Linda Birnbaum, Darryl Zeldin, Bill Copeland, and Trevor Archer
8:00 – 10:00	BSC Discussion Review, Dr. Ken Adler and panel

Monday, February 24 - NIEHS Rodbell Conference Rooms 101 ABC
Morning Session

8:30 – 8:45 a.m.	Welcome, Drs. Birnbaum and Zeldin
8:45 – 9:00	The NIH "Reproducibility" Initiative, Dr. Birnbaum
9:00 – 9:20	Laboratory Overview, William Copeland, Ph.D.
9:20 – 10:10	Mitochondrial DNA Replication Group, William Copeland, Ph.D.
10:10 – 10:25	COFFEE BREAK
10:25 – 11:15	Environmental Genomics Group, Douglas Bell, Ph.D.
11:15 – 11:45	Closed Sessions with Investigators, Drs. Copeland and Bell
11:45 – 1:00	Closed Working Lunch

Afternoon Session

1:00 – 2:30 p.m.	Poster Session, Fellows and Staff Scientists
2:30 – 3:00	Closed Sessions with Fellows and Staff Scientists
3:00 – 3:15	COFFEE BREAK
3:15 – 4:05	Mechanisms of Mutation Group, Roel Schaaper, Ph.D.
4:05 – 4:55	Chromosome Stability Group, Michael Resnick, Ph.D.
5:00 – 5:30	Closed Sessions with Investigators, Drs. Schaaper and Resnick
5:30 – 5:45	Return to Doubletree Hotel
5:45 – 7:00	Dinner and unassigned time

Closed Evening Session

7:00 – end	BSC Discussion and completion of individual review assignments by each member, All BSC reviewers at hotel

Tuesday, February 25 - NIEHS Rodbell Conference Rooms 101 ABC
Morning Session

8:30 – 9:20 a.m.	Stem Cell Biology, Guang Hu, Ph.D.
9:20 – 9:35	Closed Session with Investigator, Dr. Guang Hu
9:35 – 10:30	Closed BSC Executive Session
10:30 – 11:30	Closed Debriefing to NIEHS/DIR Leadership
11:30	Adjournment

BSC REVIEW OF THE LABORATORY OF SIGNAL TRANSDUCTION AND DR. PATRICIA JENSEN

The DIR Board of Scientific Counselors reviewed the Laboratory of Signal Transduction and Dr. Patricia Jensen, March 16-18, 2014.

Members of the Board of Scientific Counselors that Attended:

- Kenneth B. Adler, Ph.D., [BSC Chair], Professor, Dept. of Molecular Biomedical Sciences, College of Veterinary Medicine, North Carolina State University, Raleigh, NC
- Juan C. Celedón M.D., Dr.P.H., Niels K. Jerne Professor of Pediatrics, Department of Pediatrics, Children's Hospital of Pittsburgh of UPMC, University of Pittsburgh, Pittsburgh, PA
- Monica Justice, Ph.D., Program Head and Senior Scientist, Genetics & Genome Biology Program, SickKids Research Institute, The Peter Gilgan Centre for Research and Learning, Toronto, Ontario, Canada
- Serrine S. Lau, Ph.D., Professor and Director, Southwest Environmental Health Sciences Center, Department of Pharmacology & Toxicology, University of Arizona College of Pharmacy, Tucson, AZ
- José E. Manautou, Ph.D., Associate Professor, Department of Pharmaceutical Sciences, University of Connecticut School of Pharmacy, Storrs, CT
- Donald P. McDonnell, Ph.D., Glaxo-Wellcome Professor and Chairman of Pharmacology and Cancer Biology, Duke University School of Medicine, Durham, NC
- Ann M. Reed, M.D., Chair, Pediatric and Adolescent Medicine, Mayo Clinic, Rochester, MN
- Roland A. Owens, Ph.D., Ex-Officio BSC Member, Assistant Director, Office of Intramural Research, NIH, Bethesda, MD

Ad Hoc Reviewers that Attended:

- Indu S. Ambudkar, Ph.D., Chief, Secretory Physiology Section, Chief, Molecular Physiology and Therapeutics Branch, National Institute of Dental and Cranofacial Research, NIH, Bethesda, MD
- Gary Brewer. Ph.D., Professor, Dept. of Biochemistry & Molecular Biology, Robert Wood Johnson Medical School, Piscataway, NJ
- Donald B. DeFranco, Ph.D., Professor & Vice Chair, Dept. of Pharmacology & Chemical Biology, University of Pittsburgh, Pittsburgh, PA
- Donald L. Gill, Ph.D., Professor and Chair, Department of Cellular & Molecular Physiology, Penn State College of Medicine, Hershey, PA
- Myriam Gorospe, Ph.D., Senior Investigator, Chief, RNA Regulation Section, Laboratory of Genetics, National Institute of Aging, NIH, Bethesda, MD
- Holly A. Ingraham, Ph.D., Professor and Vice Chair, Department of Cellular & Molecular Pharmacology, University of California, San Francisco, San Francisco, California

- Carol A. Lange, Ph.D., Professor, Departments of Medicine and Pharmacology, University of Minnesota, Minneapolis MN
- Michael A. Mancini, Ph.D., Professor, Department of Molecular and Cellular Biology, Baylor College of Medicine, Houston, TX
- Thomas F. J. Martin, Ph.D., Professor, Department of Biochemistry, University of Wisconsin, Madison, WI
- Ulrich Mueller, Ph.D., Professor and Director, Dorris Neuroscience Center, The Scripps Research Institute, La Jolla, CA
- Barry Waterhouse, Ph.D., Professor, Neurobiology and Anatomy, Drexel University College of Medicine, Philadelphia, PA

Agenda:

Sunday, March 16 - Doubletree Hotel
Closed Evening Session

7:00 – 8:00 p.m.	Welcome and Discussion of Past Board Reviews, Drs. Linda Birnbaum, Darryl Zeldin, John Cidlowski, and Jerry Yakel
8:00 – 10:00	BSC Discussion Review, Dr. Ken Adler and panel

Monday, March 17 - NIEHS Rodbell Conference Rooms 101 ABC
Morning Session

8:30 – 8:45 a.m.	Welcome, Drs. Birnbaum and Zeldin
8:45 – 9:05	Laboratory Overview, John Cidlowski, Ph.D.
9:05 – 9:55	Molecular Endocrinology Group, John Cidlowski, Ph.D.
9:55 – 10:10	COFFEE BREAK
10:10 – 11:00	Inositol Signaling Group, Stephen Shears, Ph.D.
11:00 – 11:50	Post-Transcriptional Gene Expression Group, Perry Blackshear, M.D., D.Phil.
11:50 – 12:35	Closed Sessions with Investigators, Drs. Cidlowski, Shears and Blackshear
12:35 – 1:30	Closed Working Lunch

Afternoon Session

1:30 – 3:00 p.m.	Poster Session, Fellows and Staff Scientists
3:00 – 3:30	Closed Sessions with Fellows and Staff Scientists
3:30 – 3:45	COFFEE BREAK
3:45 – 4:35	Metabolism, Genes, and Environment Group, Xiaoling Li, Ph.D.
4:35 – 5:25	Calcium Regulation Group, Jim Putney, Ph.D.
5:25 – 5:55	Closed Sessions with Investigators, Drs. Li and Putney
6:00	Return to Doubletree Hotel
6:00 – 7:00	Dinner and unassigned time

Closed Evening Session

7:15 – end	BSC Discussion and completion of individual review assignments by each member, All BSC reviewers at hotel

Tuesday, March 18 - NIEHS Rodbell Conference Rooms 101 ABC
Morning Session

8:30 – 9:20 a.m.	Developmental Neurobiology Group, Patricia Jensen, Ph.D.
9:20 – 9:35	Closed Session with Investigator, Dr. Patricia Jensen
9:35 – 10:30	Closed BSC Executive Session
10:30 – 11:30	Closed Debriefing to NIEHS/DIR Leadership
11:30	Adjournment

TRAINING AND MENTORING

2014 NIEHS/NTA Biomedical Career Fair

The Seventeenth Annual NIEHS Biomedical Career Fair was held Friday, April 25, 2014 at the Environmental Protection Agency Campus, Research Triangle Park, NC. The keynote address entitled "Accessing Hidden Opportunities Through Networking and Reputation Management" was delivered by Alaina Levine, President, Quantum Success Solutions. The keynote address was followed by panel discussions. Areas covered included: Tech Transfer/Patent Law; Big Data/Bioinformatics; Managing Conflict; How to Get That First Job; Academia: The Postdoc to PI transition; Contract Research Organizations; Starting Your Own Lab; Careers in Agriculture; Compare/Contrast of Academia/Industry/Non-Profit/Government; Networking; Writing and Communication; Regulatory Affairs; Careers at the Bench (non-industry, non-tenure track); The Interview; Leadership and Management; Starting a Company? Follow the Money; Clinical and Translational Research; Teaching; Go Market Yourself; and Steps to Find a Job in the Current Economy.

There were more than 300 registered attendees from universities and research institutions in the Triangle Area and the rest of North Carolina. This event was cosponsored by the NIEHS, Office of Scientific Director; NIEHS Trainees Assembly and the Environmental Protection Agency.

Panelists included:

- Patrick Brandt , M.S., Ph.D., Director of Science, Training, and Diversity, University of North Carolina, Chapel Hill
- Amy Blackburn, M.S.Ed., Senior Assistant Director for Graduate Students, University of North Carolina, Chapel Hill
- Melissa Bostrom, Ph.D., Assistant Dean for Graduate Student Professional Development, Duke University, Durham
- Nisha Cavanaugh, Ph.D., Director, Office of Postdoctoral Affairs, NC State University, Raleigh
- Tammy Collins, Ph.D., Director, Office of Fellows' Career Development, NIEHS
- Lori Conlan, Ph.D., Director, Office of Postdoctoral Services, OITE, NIH, Bethesda
- Erin Hopper, Ph.D., Director, Training Initiatives in Biomedical and Biological Sciences, University of North Carolina, Chapel Hill
- Crystal Icenhour, Ph.D., CEO, NextGen Diagnostics, Ashburn, Virginia
- Diane Klotz, Ph.D., Director, Office of Training and Academic Services, Sanford-Burnham Medical Research Institute, La Jolla
- Alaina G. Levine, President, Quantum Success Solutions
- Carolyn Couch, M.A., Associate Director, Career Education and Counseling, Wake Forest University, Winston-Salem
- Pat Phelps, Ph.D., Educational Specialist, Smithsonian National Museum of Natural History, Washington, DC
- Angela Stewart, District Manager, Kelly Scientific Resources
- Denise Saunders, Ph.D., Career Counselor, OITE, NIH
- Marti Van Scott, Director of the Office of Technology Transfer, East Carolina University, Greenville, NC

- Melanie Sinche, M.A., M.Ed., NCC, Director, FAS Office of Postdoctoral Affairs, Harvard University, Cambridge, MA
- Sibby Anderson-Thompkins, Ph.D., Director of the Office of Postdoctoral Affairs, University of North Carolina, Chapel Hill
- Molly Starback, M.S.L.S., Director, Office of Postdoctoral Services, Duke University, Durham
- Paul Klenk, Ph.D., M.B.A., Director, New Services and Community Engagement, American Journal Experts
- Toby Freedman, Ph.D., Executive Recruiter and Author, Synapsis Search Recruiting
- Ali Ghiassi, Account Manager, Aerotek Scientific
- Dana Minnick, Ph.D., DABT, RAC, Drug Development Project Manager, Global Health Technologies, RTI International
- Roger Ilagan, Ph.D., Regenerative Medicine Scientist, United Therapeutics, RTP, NC
- Wendy Hillwalker, Ph.D., Senior Scientist, Exponent®, Inc.
- Ann Beaulieu, Ph.D., Ann Beaulieu, Ph.D., AgroFresh
- Maria Schroeder, Ph.D., Associate Clinical Project Management Director, Global Functional Resourcing, Quintiles
- Jeffrey A. Sunman, Ph.D., Patent Agent, Alston & Bird LLP, Biotechnology and Pharmaceutical Patents Group
- Leon R. Legleiter, Ph.D., J.D., Patent Attorney, Jenkins, Wilson, Taylor and Hunt
- Anders Johansson, Ph.D., Data Asset Analyst, GlaxoSmithKline
- Raluca Gordân, Ph.D., Assistant Professor, Duke University
- Alison Motsinger-Reif, Ph.D., Associate Professor, North Carolina State University
- Joel Parker, Ph.D., Research Assistant Professor, University of North Carolina, Chapel Hill
- Sharon Milgram, Ph.D., Director, OITE, NIH
- Rajesh Kasiviswanathan, Ph.D., Scientist II, Downstream Purification Development, FUJIFILM Diosynth Biotechnologies U.S.A., Inc.
- Jennifer M. Zemo, Ph.D., Principal Scientist, BioAgilytix Labs, Inc.
- Michael J. Emanuele , Ph.D., Assistant Professor, Dept. of Pharmacology, Lineberger Cancer Center, University of North Carolina, Chapel Hill
- Mike McConnell, Ph.D., Assistant Professor, Department of Biochemistry and Molecular Genetics, University of Virginia
- James S. Duncan, Ph.D., Assistant Professor, Fox Chase Cancer Center
- Matthew Koci, Ph.D., Associate Professor, North Carolina State University
- Jessica Monserrate, Ph.D., Group Leader, Bayer CropScience
- Christal Bowman, Ph.D., Senior Scientist, Bayer CropScience
- Wendelyn Jones, Ph.D., Director, Global Policy and Scientific Affairs, DuPont Pioneer
- Dara Wilson-Grant, M.S.Ed, Associate Director and Career Counselor, Office of Postdoctoral Affairs, UNC Research, University of North Carolina at Chapel Hill
- Robin Whitsell, President, Whitsell Innovations, Chapel Hill, NC
- Jeffrey Stumpf, Ph.D., Senior Medical Writer, MedThink SciCom, Raleigh, NC
- Melanie Jardim, Ph.D. , Medical Science Liaison in Medical Affairs, United Therapeutics, RTP, NC

- Amanda B. Parrish, Ph.D., RAC, Associate Director, Regulatory Affairs, Duke Translational Medicine Institute (DTMI), Duke University
- Darshini Trivedi, Ph.D., Impact Pharmaceutical Services, RTP, NC
- Ann Beaulieu, Ph.D., Global Regulatory Director and R&D Chemistry Leader, AgroFresh
- Ann M. Decker, Ph.D., Research Pharmacologist, RTI International, RTP, NC
- Sarah R. Horn, Ph.D., DABMG, Assistant Professor, Department of Pathology, Assistant Director of the Clinical Cytogenetics Laboratory, Duke University Health System
- Julie Urban, Ph.D., Assistant Director, Genomics & Microbiology Laboratory, Nature Research Center, NC Museum of Natural Sciences, Raleigh, NC
- Timothy A. McKinsey, Ph.D., Associate Professor, University of Colorado School of Medicine, Denver
- Emily Vaughan, Ph.D., R&D Scientist, Argos Therapeutics, Durham, NC
- Cathrine Hoyo, Ph.D., MPH, Associate Professor and Chief, Division of Clinical Epidemiology, Department of Obstetrics and Gynecology, Duke University School of Medicine
- Brian Dewar, Ph.D., Assistant Professor, Biology, Taylor University, Upton, IN
- Angela E. Washington, Ph.D., RT, Professor, Wake Tech Community College, Raleigh, NC
- Stephanie Luster-Teasley, Ph.D., Associate Professor, North Carolina A&T State University, Greensboro, NC

The NIH Pathway to Independence Award (K99/R00)

The Pathway to Independence (PI) Award Program is designed to facilitate receiving an R01 award earlier in an investigator's research career. The primary, long-term goal of the PI Award Program is to increase and maintain a strong cohort of new and talented, NIH-supported independent investigators. The PI Award will provide up to five years of support consisting of two phases. The initial phase will provide 1-2 years of mentored support for highly promising, postdoctoral research scientists. This phase will be followed by up to 3 years of independent support contingent on securing an independent research position. Award recipients will be expected to compete successfully for independent R01 support from the NIH during the career transition award period. The PI Award is limited to postdoctoral trainees who propose research relevant to the mission of one or more of the participating NIH Institutes and Centers.

Natalie Gassman, Ph.D., received a K99/R00 grant for her proposal entitled, "Bisphenol A modulation of DNA repair triggered by environmental genotoxic stress." Dr. Gassman will train in the Laboratory of Structural Biology under the mentorship of Dr. Samuel H. Wilson.

Shannon Whirledge, Ph.D., received a K99/R00 grant for her proposal entitled, "Environmental Exposure to Genistein Regulates Signal Transduction in the Uterus." Dr. Whirledge will train in the Laboratory of Signal Transduction under the mentorship of Dr. John A. Cidlowski.

INTERNATIONAL ACTIVITIES IN DIR FOR FY 2013

Collaborative Research Projects

Dr. Steven Akiyama (Laboratory of Molecular Carcinogenesis) collaborates with investigators at the Department of Cellular Neurosciences, Glasgow Biomedical Research Centre, Glasgow, UK, to study the role of cell adhesion and integrin receptors in the activation of astrocytes. This collaboration was supported in part by 1ZIAES023025.

Dr. Douglas Bell (Laboratory of Molecular Genetics) collaborates with scientists at the Ludwig Institute for Cancer Research, Nuffield Department of Clinical Medicine, University of Oxford, Old Road Campus Research Building, Oxford, UK and scientists at the Skin Carcinogenesis Laboratory, Queensland Institute of Medical Research, Herston, Australia to investigate the role of polymorphisms in p53 response elements in the development of cancer. These collaborations were supported in part by 1ZIAES100475.

Dr. Honglei Chen (Epidemiology Branch) collaborates with scientists at the Karolinska Institute, Stockholm, Sweden to study the roles infections (e.g. flu), early life exposures (e.g. birth weight, birth season), and NSAIDs use in relation to Parkinson's disease and potential interactions with genetic risk factors. This collaboration was supported in part by 1ZIAES101986.

Dr. Michael Fessler (Laboratory of Respiratory Biology) collaborates with scientists at the MRC Centre for Molecular Bacteriology and Infection, Imperial College London, London, UK to investigate the role of cell-surface cholesterol invasion of mammalian cells by Salmonella during mitosis. This collaboration was supported in part by 1ZIAES102005.

Dr. Joyce Goldstein (Laboratory of Toxicology and Pharmacology) collaborates with investigators at the Research Centre for Natural Sciences, Hungarian Academy of Science, Budapest, Hungary and with investigators at the Department of Preventive Medicine, School of Environmental Science and Public Health, Wenzhou Medical University, Wenzhou, Zhejiang, PR China to study the regulation and function of CYP2Cs. These collaborations were supported in part by 1ZIAES021024.

Dr. Guang Hu (Laboratory of Molecular Carcinogenesis) collaborates with investigators at the Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China, to investigate the impact of environmental factors on human cardiac development. This collaboration was supported in part by 1ZIAES102745.

Dr. Anton Jetten (Chief, Laboratory of Respiratory Biology) has collaborations with scientists at GlaxoSmithKline D&R Ltd, Medicines Research Center, Hertfordshire, UK, to study the function of RORγ-selective agonist and antagonists with scientists in the Department of Microbiology, College of Medicine, Soon Chun Hyang University, Cheonan, Korea, to study Glis3 in pancreatic development; with scientists at Klinisches Institut für Pathologie, Vienna, Austria, on a study of GLIS in cystic kidney disease; with scientists at the School of Chemistry and Biochemistry, The University of Western, Australia, Crawley, WA, Australia to study the role of

noncalcemic 20-hydroxy- and 20,23-dihydroxy-vitamin D analogs on the transcriptional activity of the RORα and RORγ nuclear receptors; and with scientists at the Department of MedicoSurgical Sciences and Biotechnologies, University of Rome 'La Sapienza', Latina, Italy, to study the role of JAZF1 in erythropoiesis. These collaborations were supported in part by 1ZIAES101586 and 1ZIAES100485.

Dr. Freya Kamel (Epidemiology Branch) investigators at the Department of Medical Epidemiology and Biostatistics, the Karolinska Institute, Stockholm, Sweden to investigate ALS and Parkinson's disease. This collaboration was supported in part by 1ZIAES049005.

Dr. Steven Kleeberger (Laboratory of Respiratory Biology) collaborates with scientists at the INFANT Foundation, Buenos Aires, Argentina, to study the role of innate immunity and antioxidant enzyme genes in respiratory syncytial virus infection and disease progression, and the role of oxidant susceptibility genes in severity of neonatal diseases associated with hyperoxic injury; and with scientists at the University of Tsukuba, TARA Center, Tsukuba, Japan to study the role of Nrf2 in susceptibility to oxidant-induced lung injury. These collaborations were supported in part by 1ZIAES100513 and 1ZIAES100557.

Dr. Thomas Kunkel (Laboratory of Structural Biology, Laboratory of Molecular Genetics) has collaborations with scientists at the Umeå University, Umeå, Sweden to investigate the functions and fidelity of DNA polymerase epsilon and the effects of dNTP pool imbalances on mutagenesis in yeast; and with scientists at the University of Sussex, Brighton, UK to study DNA replication in fission yeast. These collaborations were supported in part by 1ZIAES065070 and 1ZIAES065089.

Dr. Richard Kwok (Epidemiology Branch) collaborates with investigators at the Institute for Occupational Medicine, Edinburgh, Scotland to evaluate dermal exposure estimates as part of the GuLF STUDY. This collaboration was supported in part by 1ZIAES102945.

Dr. Matthew Longnecker (Epidemiology Branch) has collaborations with scientists at the Erasmus University, Rotterdam, The Netherlands to study the effects of exposure to phthalates, bisphenol A, and organophosphate pesticides; with scientists at The Norwegian Institute of Public Health, Oslo, Norway to study the relation of early-life exposure to subsequent health; and with scientists at the University of Pretoria, Pretoria, Republic of South Africa, to study the effects of DDT on reproductive function. These collaborations were supported in part by 1ZIAES101575, 1ZIAES044008 and 1ZIAES102845.

Dr. David Miller (Chief, Laboratory of Toxicology and Pharmacology) collaborates with scientists at University of Heidelberg, Germany, to study the mechanisms of regulation of ABC transporters in kidney and blood-brain barrier. This collaboration was supported in part by 1ZIAES080048 and 1ZIAES080056.

Dr. Shyamal Peddada (Biostatistics Branch) collaborates with investigators at the Norwegian Institute of Public Health, Oslo, Norway, to study changes in infant gut microflora over time and its association with various health outcomes; with scientists at the University of Haifa, Israel, to develop general methods for analyzing complex

multivariate data that are commonly encountered in health sciences; and with scientists at the University of Valladolid, Valladolid, Spain, to develop methods for analyzing angular data such as those obtained from cell-cycle experiments, circadian clock experiments etc. These collaborations were supported in part by 1ZIAES101744 and 1ZIAES103066.

Dr. James Putney (Laboratory of Signal Transduction) collaborates with scientists at the University of Saar, Homburg, Germany to investigate interactions of Orai1 and Orai3 proteins. This collaboration was supported in part by 1ZIAES090087.

Dr. Michael Resnick (Laboratory of Molecular Genetics) has collaborations with scientists in the Mutagenesis Laboratory, National Institute for Cancer Research, Genoa, Italy; and scientists at the Centre for Integrative Biology, University of Trento, Trento, Italy, to study mutations in the tumor suppressor p53; and with scientists in the Department of Biology, Technion, Haifa, Israel; and with scientists at the Department of Biochemistry, Weizmann Institute of Science, Rehovot, Israel to study how sequences targeted by p53 can support transactivation of transcription. These collaborations were supported in part by 1ZIAES065079.

Dr. Walther Rogan (Epidemiology Branch) collaborates with investigators at the Taiwanese National Heath Research Institute in Kaohsiung, Taiwan, to study the effects of perfluoroalkyl compounds and thyroid function in pregnant women and their children. This collaboration was supported in part by 1ZIAES044006.

Dr. Roel M. Schaaper (Laboratory of Molecular Genetics) collaborates with investigators at the Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, Poland, to study the mechanisms responsible for the differential error rate of leading and lagging strand replication of DNA; with investigators at the Department of Industrial Chemistry, University of Bologna, Bologna, Italy, to study DNA Polymerase III subunit interactions; and with investigators at Wollongong University, Wollongong, Australia, to investigate DNA polymerase proofreading mechanisms. These collaborations were supported in part by 1ZIAES065086.

Dr. Stephen Shears (Laboratory of Signal Transduction) has collaborations with scientists at the Department of Pharmacy and Pharmacology, University of Bath, UK, to investigate synthetic inositol phosphate analogues as drug targets for PPIP5K2; with scientists at the Program on Emerging Infectious Diseases, DUKE-NUS Graduate Medical School, Singapore, to study the role of inositol pyrophosphates in type-I interferon response; and with scientists at the Norwich Medical School, University of East Anglia, Norwich, UK, to bacterial inositol phosphate signaling to the mammalian gut. These collaborations were supported in part by 1ZIAES080046.

Dr. Clarice Weinberg (Chief, Biostatistics Branch) collaborates with scientists at the University of Bergen, Norway, the Medical Birth Registry of Norway and the Department of Epidemiology, Biostatistics and Occupational Health at McGill University in Montreal, CA to investigate possible seasonal effects on pregnancy outcomes, such as preterm birth, fetal growth and preeclampsia. These collaborations were supported in part by 1ZIAES040007 and 1ZIAES040006.

Dr. Allen Wilcox (Epidemiology Branch) collaborates with investigators at the University of Bergen in Bergen, Norway, the Norwegian Public Health institute, Copenhagen University, and Aarhus University on the MOBAND Project ("Mothers and Babies in Norway and Denmark") to investigate the causes of cerebral palsy. This collaboration was supported in part by 1ZIAES044003.

Dr. R. Scott Williams (Laboratory of Structural Biology) collaborates with scientists at the Drug Discovery Unit Cancer Research UK Manchester Institute to develop inhibitors of Aprataxin; and with scientists at CABIMER (Centro Andaluz de Biología Molecular y Medicina Regenerativa) Sevilla, Spain to investigate the molecular mechanism of reversal of Topoisomerase II-DNA conjugates by mammalian tyrosyl-DNA phosphodiesterase 2. These collaborations were supported in part by 1Z01ES102765.

Dr. Samuel H. Wilson (Laboratory of Structural Biology) collaborates with scientists at the Institute of Chemical Biology and Fundamental Medicine, Novosibirsk, Russian Federation, Russia, to study the role of PARP-1 in the base excision repair pathway; and with scientists at the Department of Radiation Genetics, Faculty of Medicine, Kyoto University, Kyoto, Japan, to study the effects of gene deletions in the base excision repair pathway. These collaborations were supported in part by 1ZIAES050158 and 1ZIAES050159.

Dr. Darryl Zeldin (Scientific Director, Laboratory of Respiratory Biology) had a collaboration with scientists in the Gene Therapy Center, Tongji Medical Center, Wuhan, Peoples Republic of China to study the roles of Cytochrome P450 CYP2J2 in the heart, ischemia-reperfusion, diabetes, cancer and inflammation; with scientists at the Max Delbrucck Centre for Molecular Medicine, Berlin, Germany to study the role of P450-derived eicosanoids and other fatty acid products in cardiac hypertrophy; with scientists at the William Harvey Research Institute, Barts & the London, Queen Mary University of London, Charterhouse Square, London, UK, to study the roles of P450-derived eicosanoids and other fatty acid products on endothelial function; and with scientists at the Pharmacokinetics and Bioanalysis Center, Shin Nippon Biomedical Laboratories, Ltd., Wakayama, Japan, to study the role of P450-derived eicosanoids in cynomolgus monkeys. These collaborations were supported in part by 1ZIAES025034.

International Meetings Organized

Dr. Karen Adelman (Laboratory of Molecular Carcinogenesis) organized a FASEB meeting on "Epigenetics, Chromatin and Transcription" held in Nassau, Bahamas, June 16-21, 2013.

Dr. Stavros Garantziotis (Acting Clinical Director) served on the organizing committee of the 9th International Hyaluronan Symposium.

Dr. Masahiko Negishi (Laboratory of Reproductive and Developmental Toxicology) served on the Organizing Committee of the 12th International Symposium on Cytochrome

P450 Biodiversity and Biotechnology, to be held from the 24th to the 28th of September 2014 in Kyoto, Japan.

Dr. Michael Resnick (Laboratory of Molecular Genetics) served on the organizing committee of the International Mutant p53 Workshop held in Toronto, Canada from June 15 to June 18, 2013.

Dr. Samuel H. Wilson (Laboratory of Structural Biology) was Co-Chair of the 5th Biannual Japan-US/US-Japan DNA Repair Meeting, Nara, Japan.

Dr. Darryl Zeldin (Scientific Director, Laboratory of Respiratory Biology) served as Scientific Advisor of the 13th International Conference of Bioactive Lipids in Cancer, Inflammation and Related Diseases, San Juan, Puerto Rico; and served as the Organizer of the 15th International Winter Eicosanoid Meeting.

Work with International, Multinational or Regional Foreign Organizations

The NIEHS DIR has Memoranda of Understanding between the American Institute in Taiwan and the Taipei Economic and Cultural Representative Office in the United States as well as between Nanjing Medical University in Nanjing, China and NIEHS to foster training and collaborative research in the areas of environmental health sciences.

Dr. Steven Akiyama (Laboratory of Molecular Carcinogenesis) served as a Member of the Review Panel for the University Funding Program of the Italian Ministry of University and Scientific Research.

Dr. Freya Kamel (Epidemiology Branch) served on the Advisory Board of STRENGTH, a European Union consortium of ALS studies.

Dr. Matthew Longnecker (Epidemiology Branch) served as member of the Science Advisory Board on Obesogenic Endocrine Disrupting Chemicals for RIVM (National Institute for Public Health and the Environment), Amsterdam, The Netherlands; is a member of Science Advisory Board, HELIX: The Human Early-Life Exposome – novel tools for integrating early-life environmental exposures and child health across Europe; and served as a member of the Assessment Committee, Dissertation (DrMedSci), Gunnar Toft, “Persistent organochlorine pollutants and human reproductive health,” Faculty of Health Sciences, Aarhus University, Denmark.

Dr. Fred Miller (Clinical Research Program) is a member of The International Myositis Genetics Consortium (MYOGEN) to define genetic risk and protective factors for myositis; is a member of The International Myositis Assessment and Clinical Study Group to standardize the conduct and reporting of myositis clinical studies; is a member of The International Myositis Classification Criteria Project to develop new classification criteria for myositis and its subgroups; and is a member of The Pan-American League of Associations for Rheumatology (PANLAR) Myositis Consortium to study the ethnogeographic variations in risk factors and pathogenesis of myositis in the Americas. This work is supported in part by 1ZIAES101074 and 1ZIAES101081.

Dr. Geoffrey Mueller (Laboratory of Structural Biology) served on the thesis review committee at the University of Salzburg, Austria.

Dr. Samuel H. Wilson (Laboratory of Structural Biology) serves on the Scientific Advisory Board, Flight Attendant Medical Research Institute (FAMRI) Center, Weizmann Institute of Science, Rehovot, Israel.