Division of Intramural Research

NAEHS Council Update

June 2018

DIR RECRUITMENTS

Chief of the Administrative Research and Services Branch
The National Institute of Environmental Health Sciences (NIEHS) is seeking an accomplished individual to serve as the Chief of the Administrative Research and Services Branch (ARSB). This individual will serve as principal advisor to senior management on all phases of the administrative management of the Division of Intramural Research (DIR), the Division of the National Toxicology Program (DNTP), and Clinical Research Branch for NIEHS; and oversee the implementation of a variety of management services essential to the direction and operation of the Institute. The successful candidate will: Provide guidance and oversight for procurement, contracts, property management and operational management functions; Oversee and monitor the operating budget process to ensure the timely, appropriate, and efficient expenditure of funds against annual allotment; anticipate changes in funding levels; prepare proposals and justify current and increased expenditures; Serve as a principal advisor on all human resource management activities and ensures compliance with all applicable regulatory requirements; Oversee all administrative management matters associated with programs and operations; with responsibility for the analysis of organizational priorities and the development and implementation of administrative policies and procedures; Participate in and oversee the planning sessions related to the following space, telecommunications, travel, and/or timekeeping and leave; and supervise the activities for administrative, technical and support staff. Dr. Jerry Yakel, Chief of the Neurobiology Laboratory, is chair of the Search Committee.

Staff Scientist Biostatisticians
The National Institute of Environmental Health Sciences (NIEHS) is seeking two experienced biostatisticians at the rank of Staff Scientist in the Biostatistics and Computational Biology Branch (BCBB) of the Division of Intramural Research (DIR). The incumbents will collaborate extensively with researchers in the DIR and the Division of the National Toxicology Program (DNTP). The successful candidates will also play a major role in analyses for the National Toxicology Program (NTP), they will provide statistical leadership and ensure the statistical integrity of its research program. In addition, the positions involve management and oversight of statistical support service contracts. Development of new statistical methods is encouraged, but will not be a major component of the jobs. Drs. Kathy Laber, Comparative Medicine Branch and Rick Paules, DNTP, are co-chairs of the search committee.

Chief of the Immunity, Inflammation and Disease Laboratory
The National Institute of Environmental Health Sciences (NIEHS) is recruiting outstanding candidates to serve as Chief of the Immunity, Inflammation and Disease Laboratory (IIDL) within the Division of Intramural Research. The ideal candidate will be tenure-eligible based on an outstanding academic record of achievement, leadership capabilities, and broad interests in immunology, inflammation, and disease biology. In addition to directing his/her own independent research program, the Chief will have responsibility for leading IIDL in new directions as research in environmental health science continually evolves. Applicants should have a Ph.D., M.D., or equivalent doctoral degree in a related field, and a strong interest in immunology, inflammation, and disease biology. Dr. Franceso DeMayo, Chief of the Reproductive and Developmental Biology Laboratory serves as Chair of the Search Committee.

Tenure-Track Investigator in Neurobiology
The National Institute of Environmental Health Sciences (NIEHS) is seeking an exceptional individual as a Tenure-Track Investigator in the Neurobiology Laboratory within the Division of Intramural Research. The successful candidate is expected to lead an innovative, independent research program and will have a strong record of accomplishments in the field of neuroscience. Preference will be given to candidates who utilize innovative methodological approaches to investigate basic mechanisms underlying neuroinflammation and neurodegeneration. Applicants should have a Ph.D., M.D. and/or equivalent doctoral degree with at least 3 years of postdoctoral research experience in their field and an outstanding publication record. Emphasis will be on identifying an exceptional scientist with an innovative and productive research program. Dr. Michael Fessler, Acting Chief of the Immunity, Inflammation and Disease Laboratory serves as Chair of the Search Committee.

NEW HIRES IN DIR

Chief of the Biostatistics and Computational Biology Branch
Dr. Alison Motsinger-Reif has accepted an offer to become the Chief of the Biostatistics and Computational Biology Branch (BCBB) in DIR. She is coming from North Carolina State University where she is Associate Professor in the Department of Statistics and Director of the Bioinformatics Consulting and Service Core and the Statistical Consulting Core within the Bioinformatics Research Center. At NIEHS Dr. Motsinger-Reif will focus on development of statistical and bioinformatics methods and applying these to interesting environmental health problems with specific focus on developing methods for gene-gene interactions, dose response modeling, pharmacogenomics and toxicogenomics applications, and methods development for quantifying response to chemical mixtures. Dr. Motsinger-Reif is expected to start in the Fall of 2018.

New Tenure-Track Investigators
Dr. Alexandra White has accepted a position as an Earl Stadtman Tenure Track Investigator in the Epidemiology Branch. Dr. White is currently a postdoctoral intramural research training award (IRTA) fellow in the Epidemiology Branch. Dr. White's overall research objective aims to identify environment and lifestyle risk factors for cancer and to elucidate underlying biologic mechanisms. She is interested in achieving a better understanding of the health impact associated with complex exposure mixtures. Dr. White's current research is focused on toxic metals and air pollution exposure in relation to breast density and breast cancer risk. She is expected to start in Fall 2019

Dr. Marcos Morgan from the MRC Centre for Regenerative Medicine, University of Edinburgh, UK, and the European Bioinformatics Institute, has accepted a position to join the Reproductive and Developmental Biology Laboratory as an Earl Stadtman Tenure Track Investigator and member of the NIH Distinguished Scholars Program. Dr. Morgan will initiate a research program at NIEHS focused on the role of RNA modifications such as uridylation and cytidylation in regulating male fertility. He is expected to start in Summer 2019.

Dr. Joseph Rodriguez, Ph.D., has accepted a position as a Tenure Track Investigator in the Epigenetic and Stem Cell Biology Laboratory and member of the NIH Distinguished Scholars Program. He is currently a Postdoctoral Fellow in the Laboratory of Receptor Biology and Gene Expression at NCI. Dr. Rodriguez with initiate an independent research program at NIEHS focused on developing biophysical methods to study dynamic action of Estrogen Receptors and other transcription factors in living cells. Dr. Rodriguez is scheduled to start in the Fall 2018.

SCIENTIFIC UPDATE BY A DIR PRINCIPAL INVESTIGATOR

SEXUAL DIFFERENTIATION AND ENVIRONMENTAL HEALTH SCIENCE

HUMPHREY HUNG-CHANG YAO, PH.D.
REPRODUCTIVE DEVELOPMENTAL BIOLOGY GROUP
REPRODUCTIVE AND DEVELOPMENTAL BIOLOGY LABORATORY
DIR, NIEHS

Embryonic stem cells (ESCs) are derived from the epiblast cells in blastocyst stage embryos. They have two defining features: self-renewal and pluripotency. Self-renewal describes their capability to go through cycles of cell division and maintain the undifferentiated state, while pluripotency describes their capability to differentiate into all cell types from the three germ layers. Because of these unique properties, ESCs hold great promises for both basic and translational research. In addition, ESCs can also provide new tools and insights for environmental health sciences.

The long-term goal of our research is to better understand the molecular mechanisms that regulate ESC self-renewal and differentiation. We have previously carried out a genome-wide RNAi screen in mouse ESCs and identified a list of novel regulators of ESC self-renewal. We have since investigated the function of several of the identified factors in ESCs, somatic cell reprogramming, and mouse embryonic development, and uncovered novel mechanisms such as mRNA deadenylation, mRNA export, mRNA alternative polyadenylation, and chromatin remodeling in the regulation of the ESC state. In the future, we will continue to investigate ESC self-renewal and differentiation using genetic and genomic approaches. In addition to the basic research approaches, we are also collaborating with other labs to use ESCs to address environmental health science questions. Specifically, we will initially use human ESC differentiation as a culture model to investigate the developmental toxicity of selected environmental compounds. In the long run, we will establish reporter cell lines and screening conditions to systematically dissect the roles of environmental factors in development and diseases. We hope our research will provide new insights to mammalian development and facilitate the use of pluripotent stem cells for translational and environmental health research.

BSC REVIEW OF THE SIGNAL TRANSDUCTION LABORATORY

The NIEHS DIR Board of Scientific Counselors reviewed the Signal Transduction Laboratory April 15-17, 2018

Members of the Board of Scientific Counselors that Attended:

- Kathleen M. Caron, Ph.D., BSC Chair, Professor and Chair, Department of Cell Biology and Physiology, University of North Carolina at Chapel Hill
- Sylvie Doublie, Ph.D., Professor, Department of Microbiology and Molecular Genetics, University of Vermont, Burlington, VT
- Jeffrey J. Hayes, Ph.D., Professor and Chair, Department of Biochemistry and Biophysics, Shohei Koide Professor in Biochemistry and Biophysics, University of Rochester School of Medicine, Rochester, NY
- Deanna Kroetz, Ph.D., Professor, Department of Bioengineering and Therapeutic Sciences, University of California, San Francisco School of Pharmacy, San Francisco, CA
- Fernando J. Martinez, M.D., M.S., Chief of Pulmonary and Critical Care Medicine Division, Bruce Webster Professor of Medicine, Weill Cornell Medical Center, New York, NY
- Ivan Rusyn, M.D., Ph.D., Professor, Department of Veterinary Integrative Biosciences, Texas A&M University College of Veterinary Medicine & Biomedical Sciences, College Station, TX
- Daniel O. Stram, Ph.D., Professor, Division of Biostatistics and Genetic Epidemiology, Department of Preventive Medicine, University of Southern California Keck School of Medicine, Los Angeles, CA
- Roland A. Owens, Ph.D., Ex-Officio BSC Member, Assistant Director, Office of Intramural Research, NIH, Bethesda, MD

Ad Hoc Reviewers that Attended:

- Jamie H.D. Cate, Ph.D., Professor of Biochemistry, Biophysics, and Structural Biology and IMMCB - Molecular and Cell Biology, University of California, Berkeley, CA
- Rosalind Coleman, M.D., Professor, Department of Nutrition, Schools of Medicine and Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC
- Christine M. Dunham, Ph.D., Associate Professor, Department of Biochemistry, Emory University School of Medicine, Atlanta, GA
- Frederick Dyda, Ph.D., Senior Investigator, Chief, Structural Biochemistry Section, Laboratory of Molecular Biology, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Bethesda, MD
- Michael A. Frohman, M.D., Ph.D., Distinguished Professor and Chair, Department of Pharmacological Sciences, Stony Brook University School of Medicine, Stony Brook, NY
- Glenda Gillaspy, Ph.D., Professor and Head, Department of Biochemistry, Virginia Tech, Blacksburg, VA

- Myriam Gorospe, Ph.D., Senior Investigator, Laboratory of Genetics, National Institute of Aging, National Institutes of Health, Baltimore, MD
- Adam I. Marcus, Ph.D., Associate Professor, Hematology and Medical Oncology and Associate Director for Basic Research and Shared Resource, Winship Cancer Institute Emory University School of Medicine, Atlanta, GA
- Elizabeth A. Reap, Ph.D., Director of the Duke Brain Tumor Immune Monitoring Program, Department of Neurosurgery and the Duke Brain Tumor Immunotherapy Program and The Preston Robert Tisch Brain Tumor Center, Duke University Medical Center, Durham NC
- Sean P. Ryder, Ph.D., Professor, Biochemistry and Molecular Pharmacology, University of Massachusetts Medical School, Worcester, MA
- Edwin R. Sanchez, Ph.D., Professor, Department Physiology and Pharmacology, The University of Toledo, Toledo, OH
- Michael R. Stallcup, Ph.D., Professor of Biochemistry and Molecular Medicine, Keck School of Medicine, University of Southern California, Los Angeles, CA
- Michael E. Zwick, Ph.D., Associate Professor, Department of Human Genetics and Pediatrics, Emory University School of Medicine, Atlanta, GA

Agenda:

Sunday, April 15 – Hilton Garden Inn
Closed Evening Session

7:00 – 8:00 p.m.	Welcome and Discussion of Past Board Reviews, Drs. Darryl Zeldin & John Cidlowski
8:00 – end	BSC Discussion of Review, Dr. Kathleen Caron and panel

Monday, April 16 - NIEHS Rodbell Conference Rooms 101 ABC
Morning Session

8:30 – 8:45 a.m.	Welcome, Dr. Linda Birnbaum
8:45 – 9:05	Overview, Signal Transduction Laboratory, 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	Nucleolar Integrity Group, Robin Stanley, Ph.D.
11:00 – 11:50	Metabolism, Genes and Environment Group, Xiaoling Li, Ph.D.
11:50 – 12:45	Closed 1:1 Sessions with Investigators, Drs. Cidlowski, Stanley, Li
12:45 – 1:35	Closed Working Lunch, 101ABC

Afternoon Session

1:35 – 2:25	Inositol Signaling Group, Stephen Shears, Ph.D.
2:25 – 3:15	Post-Transcriptional Gene Expression Group, Perry Blackshear, M.D., D. Phil.
3:15 – 3:25	COFFEE BREAK
3:25 – 3:50	Closed 1:1 Sessions with Investigators, Drs. Shears and Blackshear
5:00	Return-Hilton Garden Inn
7:00	Closed BSC Discussion of Review, Hotel Conference Room

Tuesday April 17- NIEHS Rodbell Conference Rooms 101 ABC

Morning Session

8:30 – 9:30 a.m.	Poster Session – Fellows and Staff Scientists, Rodbell Lobby
9:30 – 10:30	Closed Session with Fellows and Staff Scientists. Site visits to Cores (if necessary), 101ABC
10:30 – 10:45	COFFEE BREAK
10:45 – 12:00	Closed Review of Flow Cytometry Center, Molecular Genomics Core Laboratory, and Fluorescence Microscopy and Imaging Center

Afternoon Session

12:00 – 1:00 p.m.	Closed Session, Lunch, 101 ABC
1:00 – 1:45	Closed, BSC Discussion of reviews
1:45 – 3:00	Closed Session and Debriefing to NIEHS/DIR Leadership
3:15	Adjourn – Transport to RDU Airport

TRAINING AND MENTORING

2018 NIEHS Biomedical Career Symposium
The Twenty First Annual NIEHS Biomedical Career Symposium was held Friday, May 4, 2018 at the Environmental Protection Agency Campus, Research Triangle Park, NC. The keynote address entitled "Taking Control of Your Career: Ways to Get to and Prosper in Your Professional Life" was delivered by J. Timothy Lightfoot, Ph.D., FACSM, ACSM-RCEP, ACSM-CES, the Omar Smith Endowed Professor of Kinesiology and the Director of the Sydney and JL Huffines Institute for Sports Medicine at Texas A&M University. Areas covered in the Symposium included: Career Specific Discussion; Career Development Workshops; Networking Opportunities; and One-on-One CV/Resume/LinkedIn Consultations with professionals from academia, industry and government.

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.

Keynote & Workshop Speakers

- Tammy Collins, Ph.D., Director, Office of Fellows' Career Development, NIEHS, NIH
- Lori Conlan, Ph.D., Director, Office of Postdoctoral Services, OITE, NIH
- Peter Harries, Ph.D., Interim Dean of the Graduate School, North Carolina State University
- Kay Holt, Deputy Director, National Health and Environmental Effects Research Laboratory, Office of Research & Development, U.S. Environmental Protection Agency
- Faith Lightfoot, BSE, Owner and Image & Style Consultant, The Well-Dressed Academic
- J. Timothy Lightfoot, Ph.D., FACSM, ACSM-RCEP, ACSM-CES., Omar Smith Endowed Professor of Kinesiology and the Director of the Sydney and JL Huffines Institute for Sports Medicine and Human Performance, Texas A&M University
- Christopher Long, M.P.A., Associate Director for Management/Executive Officer, National Institute of Environmental Health Sciences
- Denise Saunders, Ph.D., N.C.C., Career Counselor and Consultant, National Institutes of Health, Office of Intramural Training and Education
- Stacy Schnieber, M.H.R., VP of People and Culture, Camargo Pharmaceutical Services LLC
- Dara Wilson-Grant , M.S.Ed., L.P.C.A., Associate Director of Postdoctoral Affairs at UNC-Chapel Hill and owner of Careers in Bloom, UNC-Chapel Hill and Careers in Bloom
- Sharon Milgram, Ph.D., Director, Office of Intramural Training and Education, OITE, NIH
- Denise Saunders, Ph.D., N.C.C., Career Counselor and Consultant, NIH Office of Intramural Training and Education
- Paula Stephan, Ph.D., Professor of Economics, Research Associate, Georgia State University, National Bureau of Economic Research

- Dara Wilson-Grant, M.S.Ed., N.C.C., L.P.C.A., Associate Director/Career Counselor, Office of Postdoctoral Affairs; Owner, Consultant, Careers in Bloom, University of North Carolina

Human Resource Representatives

- Paul J. Burke III, PHR, Senior Human Resources Associate, KBI Biopharma, Inc.
- Laura DiMichelle, Ph.D., RAC, CCRP, Senior Clinical Strategy Scientist, Cato Research
- Molly Lukes, PHR, SHRM-CP, Director, Human Resources, Precision BioSciences, Inc.
- Rachel Middleton, Human Resources Coordinator, Camargo Pharmaceutical Services
- Lisa Sanders, Ph.D., RAC, Director of Clinical Strategy, Principal Clinical Strategy Scientist Cato Research
- Zachary Swan, Ph.D., Scientist, Cato Research
- Josh Taylor, Ph.D., RAC (US), Regulatory Scientist, Cato Research
- Michelle Villasmil, Ph.D., RAC, Regulatory Scientist, Cato Research

Career Forum Panelists

- Danny Benjamin, M.D., Ph.D., M.P.H., Kiser-Arena Distinguished Professor of Pediatrics, Duke University
- Robert Brown, Ph.D., Scientist, Precision Biosciences
- Jessica Brunquell, Ph.D., Medical Science Writer/Editor, ETSI
- Jacob Carter, Ph.D., Research Scientist, Union of Concerned Scientists
- Caren Cooper, Ph.D., Associate professor, North Carolina Museum of Natural Sciences
- Elena Craft, M.S., Ph.D., Senior Health Scientist, Environmental Defense Fund
- Hunter Freeman, L.E.E.D., A.P., P.E., Project Manager, WithersRavenel
- Lakshmi Goyal, Ph.D., Editor and Publishing Director, Cell Press
- Virginia Guidry, Ph.D., M.P.H., Communications Specialist in the NIEHS Office of Communications and Public Liaison, National Institute of Environmental Health Sciences
- Jennifer Hoponick Redmon, M.S.E.S., M.P.A., C.H.M.M., Senior Environmental Health Scientist & Chemical Risk Assessment Specialist, RTI International
- Bryan Hubbell, Ph.D., Senior Advisor on Social Science, US Environmental Protection Agency, Office of Research and Development
- Shannon Jones, Ph.D., Director of Biological Instruction, University of Richmond
- Ginger Krieg Dosier, M.Arch., Co-Founder and Chief Executive Officer, bioMASON
- Carol Kwiatkowski, Ph.D., Executive Director, The Endocrine Disruption Exchange
- Mallikarjuna Metukuri, Ph.D., R.A.C., Manager, Syneos Health
- Kirk Pappan, Ph.D., Associate Director of Scientific Discovery and Application, Metabolon
- Ibrahim Raphiou, Ph.D., Medical Affairs Scientific Director, GlaxoSmithKline
- Manira Rayamajhi, Ph.D., Research Scientist, Camargo Pharmaceutical Services
- Erin Romes, Ph.D., Process Development Scientist, Grifols Therapeutics LLC
- Shehzad Sheikh, M.D., Ph.D., Assistant Professor of Medicine, UNC School of Medicine
- Janie Shelton, M.P.H., Ph.D., Scientist II, 23andMe
- Jessica Sorrentino, Ph.D., Senior Scientist, G1 Therapeutics

- Misty Thomas, Ph.D., Assistant Professor of Biology, North Carolina A&T State University
- Staton Wade, Ph.D., Study Manager, Companion Diagnostics, Covance
- Pamitha Weerasinghe, J.D., Professional Staff, Environment Subcommittee of the Democratic Staff for the House of Representatives Committee on Science, Space, and Technology
- Chi Zhang, Ph.D., Senior Scientist/Team Leader, KBI Biopharma

CV/Resume/LinkedIn Reviewers

- Janice Allen, Ph.D., Health Scientist Administrator, NIEHS, NIH
- Sibby Anderson-Thompkins, Ph.D., Director, Office of Postdoctoral Affairs, University of North Carolina
- Melissa Bostrom, Ph.D., Assistant Dean for Graduate Student Professional Development, Duke University
- Patrick Brandt, M.S., Ph.D., Director of Career Development and Training, University of North Carolina
- Paul J. Burke III, P.H.R., Senior Human Resources Associate, KBI Biopharma, Inc.
- Ryan Coe, Ph.D., Strategy Consultant, Triangle Insights Group
- Jacob Carter, Ph.D., Research Scientist, Union of Concerned Scientists
- Laura DiMichelle, Ph.D., R.A.C., C.C.R.P., Senior Clinical Strategy Scientist, Cato Research
- Kenneth Elstein, M.B.A., Organizational Development Specialist, Environmental Protection Agency
- Heather Franco, Ph.D., Senior Proposal Manager, PPD
- Shayne Gad, Ph.D., D.A.B.T., Consultant, Gad Consulting
- Joshua Hall, Ph.D., Director of UNC PREP and Science Outreach; Science, Training and Diversity Team Leader, Office of Graduate Education, University of North Carolina
- Jonathan Hollander, Ph.D., Program Director; Genes, Environment, and Health Branch, NIEHS, NIH
- Andrew Hotchkiss, Ph.D., Toxicologist, Environmental Protection Agency
- Karen Kirchof, M.A.Ed., Assistant Dean Career and Professional Development Center, Duke Nicholas School of the Environment
- Susan Lankford, Ph.D., Director, Science and Technology Development, North Carolina Biotechnology Center
- Amanda Marvelle, Ph.D., RTP Community Lab Coordinator, Public Affairs, Biogen
- Holly Menninger, Ph.D., Director of Public Science, College of Sciences, North Carolina State University
- Julia Rager, Ph.D., Scientist III, ToxStrategies, Inc.
- Amy Rawls, Ph.D., P.H.R., Human Resources Director, Research Square
- Jennifer Richmond-Bryant, Ph.D., Senior Physical Scientist, National Center for Environmental Assessment, Environmental Protection Agency
- Donita Robinson, Ph.D., Associate Professor of Psychiatry, University of North Carolina
- Amanda Rose, P.R.C., Talent Acquisition Consultant, Battelle
- Lisa R. Sanders, Ph.D., R.A.C., Director Clinical Strategy, Cato Research

- Denise Saunders, Ph.D., N.C.C., Career Counselor and Consultant, NIH Office of Intramural Training and Education
- Paul Schlosser, Ph.D., Environmental Health Scientist, US EPA
- Stacy Schnieber, M.A, PHR, Director of Human Resources, Camargo Pharmaceutical Services
- Molly Starback, M.S.L.S., Director, Office of Postdoctoral Services, Duke University
- Antony Williams, Ph.D., Cheminformatician, National Center for Computational Toxicology, Environmental Protection Agency
- Sarah Council Windsor, Ph.D., US2020 STEM Outreach Program Manager, Research Triangle Foundation
- Stacey Wooden, Ph.D., M.P.H., Senior Scientific Review Officer, CSRA Inc.
- Tracey du Laney, Ph.D., Director, Science and Technology Development, North Carolina Biotechnology Center

INTERNATIONAL ACTIVITIES IN DIR FOR FY 2017

Collaborative Research Projects

Drs. Donald Cook and Hideki Nakano (Immunity, Inflammation and Disease Laboratory) collaborate with scientists at the Institut Curie in Paris, France and at the Agency for Science, Technology and Research (A*STAR) in Singapore to investigate the molecular and cellular mechanisms governing chemokine receptor (CCR7) expression in dendric cells. These collaborations were supported in part by 1ZIAES102025.

Dr. John Cidlowski (Chief, Signal Transduction Laboratory) collaborates with scientists at the University of Chile, Santiago, Chile and with scientists at the Instituto de Biología y Medicina Experimental (IBYME), Conecit, Buenos Aires, Argentina to study the physiology and pathophysiology of glucocorticoids. These collaborations were supported in part by 1ZIAES090057.

Dr. Franco DeMayo (Chief, Reproductive and Developmental Biology Laboratory) collaborates with investigators at The Babraham Institute, Babraham, Cambridge UK, to study the effects of aging on uterine function; and with investigators at the State Key Laboratory in Beijing China on the role of ERα phosphorylation in embryo implantation. These collaborations were supported in part by 1ZIAES103311.

Dr. Stavros Garantizotis (Immunity, Inflammation and Disease Laboratory) collaborates with investigators at the University of Rome Campus Bio-medico, Rome, Italy, to study the clinical utility of inhaled hyaluronan in acute exacerbations of COPD. This collaboration was supported in part by 1ZIAES102605.

Dr. Guang Hu (Epigenetics and Stem Cell Biology Laboratory) collaborates with investigators at the Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China and the Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, Shanghai, China to study the role of environmental factors on embryonic stem cell cardiac differentiation. This collaboration was supported in part by 1ZIAES102745.

Dr. Dmitry Gordenin (Genome Integrity and Structural Biology Laboratory) collaborates with scientists at Leeds Institute of Cancer and Pathology, St James's University Hospital, Leeds, UK, to identify genomic subtypes of non-invasive bladder cancer. This collaboration is supported in part by 1ZIAES103266

Dr. Anton Jetten (Immunity, Inflammation and Disease Laboratory) collaborates with scientists at University Hospital of Cologne and the University Medical Center Ulm on the role of Krüppel-like zinc finger transcription factors in polycystic kidney disease and cancer. He also collaborates with scientists in the Laboratory of Radiobiology & Experimental Radiooncology at University Medical Center Hamburg-Eppendorf, the Division of Molecular and Systems Toxicology at the University of Basel and the Institute of Genetics and of Molecular and Cellular Biology (IGBMC) in Illkirch, France on the role of the ROR nuclear receptors in the

progression and treatment of cancers. These collaborations were supported in part by 1ZIAES101586 and 1ZIAES100485.

Dr. Raja Jothi (Epigenetics and Stem Cell Biology Laboratory) collaborates with investigators at Max Planck Institute of Biochemistry, Munich, Germany, and at University of Sydney, Sydney, Australia, to characterize the temporal dynamics of the phosphoproteome, proteome, epigenome, and transcriptome during transition from naïve to primed pluripotency. The overall goal of this study is to reconstruct signaling networks, elucidate cell surface markers characteristic of the naïve and primed pluripotent states, characterize cross-talk between various signaling pathways, and predict previously unknown substrates for key kinases. These collaborations were supported in part by 1ZIAES102625.

Dr. Steven Kleeberger (Epidemiology Branch) collaborates with scientists at the TARA Center at the University of Tsukuba in Japan on the role of Nrf2 in susceptibility to oxidant-induced lung injury. This collaboration is supported in part by 1ZIAES100513.

Dr. Stephanie London (Epidemiology Branch) collaborated with investigators at National Institute of Public Health in Oslo, Norway as part of the Norwegian Mother and Child Cohort. These studies were supported in part by 1ZIAES49019.

Dr. Jennifer Martinez (Immunity, Inflammation and Disease Laboratory) collaborates with scientists at the Institute for Cell and Molecular Biosciences at Newcastle University, the Division of Cancer Sciences at the University of Manchester, the Beatson Institute and the Department of Medical Genetics at Trinity College Dublin on defining the roles of autophagy machinery in innate immunity, inflammation and autoimmunity. These projects are funded in part by 1ZIAES103286.

Dr. Frederick Miller (Clinical Research Branch) collaborates with scientists at the Pediatric Rheumatology Unit, Children's Institute, School of Medicine, University of Sao Paolo, Brazil, to study environmental factors in myositis. This collaboration is supported in part by 1ZIAES101074.

Dr. Geoffrey Mueller (Genome Integrity and Structural Biology Laboratory) collaborates with scientists at the University of Salzburg, Salzburg, Austria and the University of Amsterdam on Peanut and Tree Nut Cross-Reactive Allergens and with scientist at University of Salzburg on natural products from birch pollen as adjuvants of allergic sensitization. These collaborations were supported in part by 1ZIAES102906.

Dr. Lisa Rider (Clinical Research Branch) collaborates with scientists at Pediatric Rheumatology Unit, Children's Institute, School of Medicine, University of Sao Paolo, Brazil, to study environmental factors in myositis. This collaboration is supported in part by 1ZIAES101074.

Dr. Roel M. Schaaper (Genome Integrity and Structural Biology Laboratory) 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; and with investigators at the Department of Industrial Chemistry, University of Bologna, Bologna, Italy, to

study the function of *E. coli* dGTP triphosphohydrolase. These collaborations were supported in part by 1ZIAES065086 and 1ZIAES101905.

Dr. Stephen Shears (Signal Transduction Laboratory) has collaborations with scientists at the Leibniz-Institut für Molekulare Pharmakologie in Berlin, Germany and at the University of Freiburg, Freiburg, Germany on the synthesis and application of synthetic inositol pyrophosphate cellular signals, and analogues, to research metabolism and functions of inositol pyrophosphates in intact cells; and with scientists at The Rolf Luft Research Center for Diabetes and Endocrinology, Karolinska Institutet, Stockholm, Sweden on understanding the roles of inositol pyrophosphates on insulin secretion by pancreatic beta-cells. These collaborations were supported in part by 1ZIAES080046.

Dr. Clarice Weinberg (Biostatistics and Computational Biology Branch) collaborates with scientists at the University of Bergen, Norway, the Medical Birth Registry of Norway 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 J. Wilcox (Epidemiology Branch) collaborates with investigators at the University of Bergen, Bergen, Norway, the National Public Health Institute in Oslo, Norway, on neurological and developmental outcomes among children prenatally exposed to Chernobyl fallout in Norway, the association of birth weight with mother's risk of cardiovascular disease, the effect of death to an embryonic twin on the surviving fetus and the link between education level of parents and incidence of having a child with cerebral palsy. These collaborations were supported in part by 1ZIAES044003 and 1ZIAES049027.

Dr. Samuel H. Wilson (Genome Integrity and Structural Biology Laboratory) collaborates with scientists at Kyoto University, Kumatori, Japan, to study DNA polymerase beta complementation of Aprataxin deficiency in chicken DT40 cells and to study alternate excision repair pathways induced by Topoisomerase I strand incision. He also collaborated with scientists at Chiba University on translesion synthesis and repair of 7,8-Dihydro-8-oxoguanine. These collaborations were supported in part by 1ZIAES050158 and 1ZIAES050159.

Dr. Rick Woychik (Deputy Director and the Genome Integrity and Structural Biology Laboratory) collaborates with scientists at the School of Bioinformatics Engineering, Talca University, Talca, Chile, to develop a new bioinformatics pipeline to broadly and accurately identify repeat fusion transcripts. This collaboration was supported in part by 1ZIAES103187.

Dr. Darryl Zeldin (Scientific Director and the Immunity, Inflammation and Disease Laboratory) and Dr. Matt Edin (Immunity, Inflammation and Disease Laboratory) collaborated with scientists at the William Harvey Research Institute, Queen Mary University of London, London, UK, to measure eicosanoids in plasma from people with Phospholipase A2 deficiency; also with scientists at University College London, London, UK, to measure the difference in eicosanoids in inflammatory exudates from young and aged humans. Dr. Zeldin also collaborates with investigators at Royal Veterinary College, London, UK, to determine the role of fatty acid epoxides in

resolution of inflammation. He also collaborated with researchers at Tongji Medical College, Wuhan, China, to investigate the role of CYP2J2 in cardiovascular physiology. Overexpression of CYP2J2 in mice attenuates cardiac inflammation and angiotensin II-induced remodeling. CYP2J2 expression also attenuates non-alcoholic fatty liver disease in mice fed a high fat diet. Dr. Zeldin also collaborated with scientists at Shin Nippon Biomedical Laboratories, Kainan, Japan, to characterize expression of CYP450 enzymes in liver and intestines; and with scientists at University of Alberta, Edmonton, Canada, to measure eicosanoids in plasma to examine the role of sEH in cardiac responses to inflammation. Another collaboration with scientists at the University of Zurich, Zurich Switzerland studied the role of microsomal epoxide hydrolase in fatty acid epoxide metabolism and in collaboration with scientists at Imperial College London, London, England measured eicosanoids in plasma to examine the role of lipid mediators in type 2 diabetes and non-alcoholic fatty liver disease. Dr. Zeldin also collaborated with scientists at the University of Copenhagen, Copenhagen, Denmark to measure eicosanoids in plasma from a cohort of mothers treated with omega-3 supplements during pregnancy. The goal is to understand how lipid mediators may regulate asthma or inflammatory disease progression in the newborn children. These collaborations were supported in part by 1ZIAES025034.

International Meetings Organized

Drs. Lisa Rider and Frederick Miller co-organized and chaired the 2017 Global Conference on Myositis (GCOM 2017) with approximately 350 participants, which took place May 5 – 8, 2017 at the Bolger Center in Potomac, MD.

Dr. William Copeland (Chief, Genome Integrity and Structural Biology Laboratory) is the chair of the organizing committee for the United Mitochondrial Disease Foundation's annual meeting in Washington, D.C., June 28-July 1, 2017. This meeting attracts clinical and basic science researchers from all over the world sharing their latest findings in the field of mitochondrial disease. The symposium encourages the exchange of information and cultivates networking among physicians, researchers, patients and families.

Dr. Guang Hu (Epigenetics & Stem Cell Biology Laboratory) co-organized and hosted the Epigenetics, Stem Cells, and Environmental Health Symposium and Workshop at NIEHS, June 1-2, 2017. This meeting had participating scientists from the United States and United Kingdom.

Dr. Raja Jothi (Epigenetics & Stem Cell Biology Laboratory) co-organized and hosted the Epigenetics, Stem Cells, and Environmental Health Symposium and Workshop at NIEHS, June 1-2, 2017. This meeting had participating scientists from the United States and United Kingdom.

Dr. Darryl Zeldin (Scientific Director and the Immunity, Inflammation & Disease Laboratory) served on the Organizing Committee for the 17th International Winter Eicosanoid Conference and as a Scientific Program Advisor for the 15th International Conference on Bioactive Lipids in Cancer, Inflammation and Related Disease in Puerto Vallarta, Mexico.

Work with International, Multinational or Regional Foreign Organizations

Dr. Steven Kleeberger (Epidemiology Branch) is a member of the Fundación Infant (INFANT) a nonprofit organization founded by Argentine physicians in 2003, whose mission is to investigate the causes of respiratory diseases that severely affect children, such as asthma, bronchiolitis, pneumonia and influenza.

Dr. Stephanie London (Epidemiology Branch) continued to lead the Pregnancy and Childhood Epigenetic Consortium, an international consortium of birth and childhood cohorts that collect and utilize genome-wide methylation data. This work was supported in part by 1ZIAES049019.

Dr. Frederick Miller (Clinical Research Branch) is a member of the International Myositis Genetics Consortium (MYOGEN) that defines genetic risk and protective factors for myositis; is a member of The International Myositis Assessment and Clinical Study (IMACS) Group to standardize the conduct and reporting of myositis clinical studies; and is a member of The International Myositis Classification Criteria Project (IMCCP) to develop new classification criteria for myositis and its subgroups. This work is supported in part by 1ZIAES101074 and 1ZIAES101081.

Dr. Geoffrey Mueller (Genome Integrity and Structural Biology Laboratory) served as a member of the World Health Organization / International Union of Immunological Societies (WHO/IUIS) Allergen Nomenclature Sub-Committee. This activity was supported in part by 1ZIAES102906.

Dr. Lisa Rider (Clinical Research Branch) is a member of the International Myositis Genetics Consortium (MYOGEN) that defines genetic risk and protective factors for myositis; is a member of The International Myositis Assessment and Clinical Study (IMACS) Group to standardize the conduct and reporting of myositis clinical studies; and is a member of The International Myositis Classification Criteria Project (IMCCP) to develop new classification criteria for myositis and its subgroups. This work is supported in part by 1ZIAES101074 and 1ZIAES101081.

Dr. Dale Sandler (Chief, Epidemiology Branch) is the co-organizer of the Premenopausal Breast Cancer Collaborative Group. This is an international organization encompassing twenty prospective cohort studies with data on incident breast cancers diagnosed among women under age 50. This work is supported in part by 1ZIAES044005

Foreign Delegations Hosted

No Activities to Report

International Capacity Building

Dr. Stephanie London (Deputy Chief, Epidemiology Branch) hosted a Nigerian physician-researcher for the purpose of training in the use of a personal particulate monitoring device called MicroPEM. This technology will facilitate research in Nigeria funded

by the American Thoracic Society small grants program. This visit was co-funded by the Global Environmental Health Initiative and 1ZIAES043012.