

Division of Intramural Research

NAEHS Council Update

June, 2017

DIR RECRUITMENTS

Deputy Scientific Director

The National Institute of Environmental Health Sciences (NIEHS) is seeking an accomplished scientist to serve as the Deputy Scientific Director of our Division of Intramural Research (DIR). This is an exciting leadership opportunity to provide scientific oversight and help set the research agenda for the DIR. This individual will lead a team that is directly focused on intramural scientific research. Responsibilities include strategic planning and management, faculty evaluation, recruitment of scientific peer reviewers and oversight of review panels for intramural scientists, training within the DIR, coordination of research activities funded by non-NIEHS entities, development and/or recommendation of research policies, priorities, and procedures, and communication with other federal entities including other NIH Institutes and external organizations. The successful candidate will work closely with the Scientific Director to manage all scientific aspects of the DIR. Dr. Thomas Kunkel, Genome Integrity & Structural Biology Laboratory, is chair of the Search Committee. A candidate for the position has been identified and has accepted a provisional offer.

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, Lab Chief of the Neurobiology Laboratory, is chair of the Search Committee.

SCIENTIFIC UPDATE BY A DIR PRINCIPAL INVESTIGATOR

Embryonic Stem Cells and Environmental Health Science

Guang Hu, Ph.D.

Stem Cell Biology Group

Epigenetics and Stem Cell 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 CLINICAL RESEARCH BRANCH AND HUMPHREY YAO, PH.D.

The NIEHS DIR Board of Scientific Counselors reviewed the Clinical Research Branch and Humphrey Yao, Ph.D., March 5-7, 2017

Members of the Board of Scientific Counselors that Attended:

- Kenneth B. Adler, Ph.D. [BSC Chair], Professor, Department of Molecular Biomedical Sciences, North Carolina State University College of Veterinary Medicine, Raleigh, NC
- Christopher I. Amos, Ph.D., Professor, Dept. of Community and Family Medicine, Geisel School of Medicine at Dartmouth, Hanover, NH
- Juan C. Celedón, M.D., Dr.P.H., Niels K. Jerne Professor of Pediatrics, Dept. of Pediatrics, Children's Hospital of Pittsburgh of UPMC, University of Pittsburgh, Pittsburgh, PA
- Donald P. McDonnell, Ph.D., Glaxo-Wellcome Professor and Chairman of Pharmacology and Cancer Biology, Duke University School of Medicine, Durham, NC
- 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
- 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:

- Sarah Berga, M.D., Professor and Chair, Obstetrics and Gynecology, Executive Director of OBG and Women's Health Services, Wake Forest School of Medicine/Wake Forest Baptist Medical Center, Winston-Salem, NC
- John Buse, M.D., Ph.D., Verne S. Caviness Distinguished Professor, Chief, Division of Endocrinology, Director, Diabetes Center, Director, NC Translational and Clinical Sciences Institute, University of North Carolina at Chapel Hill, Chapel Hill, NC
- Kathleen M. Caron, Ph.D., Professor and Chair, Department of Cell Biology and Physiology, University of North Carolina at Chapel Hill, Chapel Hill, NC
- Karen Costenbader, M.D., M.P.H., Lupus Program Director, Division of Rheumatology, Immunology and Allergy, Brigham and Women's Hospital, Boston, MA
- Randy Cron, M.D., Ph.D., Professor of Pediatrics and Medicine, Arthritis Foundation, Alabama Chapter, Endowed Chair - Director, Division of Pediatric Rheumatology, Children's Hospital of Alabama/University of Alabama at Birmingham, Birmingham, AL
- Barry Hinton, Ph.D., Professor, Dept. of Cell Biology, School of Medicine, University of Virginia, Charlottesville, VA

- Patricia Hunt, Ph.D., Professor, Center for Reproductive Biology, Washington State University, Pullman, WA
- Ursula Kaiser, M.D., Professor of Medicine, Chief, Division of Endocrinology, Diabetes, and Hypertension, Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- Terrance J. Kavanagh, Ph.D., Professor, Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA
- Mary M. Lee, M.D., Professor of Pediatrics and Cell Biology, Chair, Department of Pediatrics, Director, Pediatric Endocrinology and Diabetes, University of Massachusetts Medical School, Worcester, MA
- John C. Marshall, M.D., Ph.D., Andrew D. Hart Professor of Internal Medicine, Director, Center for Research in Reproduction, University of Virginia, Charlottesville, VA
- Peter Nigrovic, M.D., Associate Physician, Brigham and Women's Hospital, Associate Professor of Medicine, Harvard Medical School, Division of Rheumatology, Immunology and Allergy, Boston, MA
- Mark Palmert, M.D., Ph.D., Head, Division of Endocrinology, The Hospital for Sick Children, Toronto, Ontario, Canada
- Ignacio Sanz, M.D., Mason I. Lowance Professor of Medicine and Pediatrics, Chief, Division of Rheumatology, Director, Lowance Center for Human Immunology, Georgia Research Alliance Eminent Scholar in Human Immunology, Emory University School of Medicine, Atlanta, GA
- Robert Yokel, Ph.D., Professor, Department of Pharmaceutical Sciences, University of Kentucky College of Pharmacy, Lexington, KY

Agenda:

Sunday, March 5 – Doubletree by Hilton

Closed Evening Session

- | | |
|------------------|------------------------------------------------------------------------------------------------------------|
| 7:00 – 8:00 p.m. | Welcome and Discussion of Past Board Reviews, Drs. Linda Birnbaum, Darryl Zeldin, Janet Hall, & Ken Korach |
| 8:00 – end | BSC Discussion of Review, Dr. Ken Adler and panel |

Monday, March 6 - NIEHS Rodbell Conference Rooms 101 ABC

Morning Session

- | | |
|--------------------|----------------------------------------------------------------------------|
| 8:30 – 8:45 a.m. | Welcome, Dr. Kenneth Adler |
| 8:45 – 9:05 | Overview, Clinical Research Branch, Janet Hall, M.D. |
| 9:05 – 9:55 | Reproductive Physiology & Pathophysiology, Janet Hall, M.D. |
| 9:55 - 10:10 | COFFEE BREAK |
| 10:10 – 11:00 | Environmental Autoimmunity Group, Fred Miller, M.D., Ph.D. |
| 11:00 – 11:30 | Pediatric Environmental Autoimmunity, Lisa Rider, M.D. |
| 11:30 – 12:00 p.m. | Environmental Polymorphisms Registry, Shepherd Schurman, M.D. |
| 12:00 – 12:45 | Closed 1:1 Sessions with Investigators, Drs. Hall, Miller, Rider, Schurman |
| 12:45 – 1:45 | Closed Working Lunch, 101ABC |

Afternoon Session

1:45 – 2:45	Poster Session—CRB Trainees, Staff Clinicians, CRU Lab, OHRC; RDBL Fellows, Rodbell Lobby
2:45 – 3:15	Closed Sessions with Trainees, Staff Scientists, and Staff Clinicians, 101ABC
3:15 – 3:30	BREAK
3:30 – 4:20	Pediatric Neuroendocrinology Group, Natalie Shaw, M.D.
4:20 – 5:10	Reproductive Developmental Biology Group, Humphrey Yao, Ph.D.
5:10 – 5:40	Closed 1:1 Sessions with Investigators, Drs. Shaw and Yao
5:45	Return to Doubletree Hotel

Closed Evening Session

6:00 – end	BSC Discussion and completion of individual review assignments by each member, All BSC reviewers at hotel
------------	-----------------------------------------------------------------------------------------------------------

Tuesday March 7- NIEHS Rodbell Conference Rooms 101 ABC

Morning Session

8:30 – 9:00 a.m.	Clinical Research Unit, Stavros Garantziotis, M.D.
9:00 – 9:30	Nano Health Program, Stavros Garantziotis, M.D.
9:30 – 9:45	Closed 1:1 Session with Investigator, Dr. Garantziotis
9:45 – 11:00	Closed Tour of Clinical Research Unit; Posters, Drs. Garantziotis, Schurman and Hall
11:00 – 12:30 p.m.	BSC Discussion and completion of individual review assignments by each member/Lunch optional
12:30 – 1:30	Closed Session and Debriefing to NIEHS/DIR Leadership
1:30	Adjourn

BSC REVIEW OF THE EPIDEMIOLOGY BRANCH

The NIEHS DIR Board of Scientific Counselors reviewed the Epidemiology Branch, May 7-9, 2017

Members of the Board of Scientific Counselors that Attended:

- Kenneth B. Adler, Ph.D. [BSC Chair], Professor, Department of Molecular Biomedical Sciences, North Carolina State University College of Veterinary Medicine, Raleigh, NC
- Christopher I. Amos, Ph.D., Professor, Dept. of Community and Family Medicine, Geisel School of Medicine at Dartmouth, Hanover, NH
- Juan C. Celedón, M.D., Dr.P.H., Niels K. Jerne Professor of Pediatrics, Dept. of Pediatrics, Children's Hospital of Pittsburgh of UPMC, University of Pittsburgh, Pittsburgh, PA
- Monica J. Justice, Ph.D., Head and Senior Scientist, Genetics & Genome Biology, Program Sick Kids Research Institute, The Peter Gilgan Centre for Research and Learning, Toronto, ON, Canada
- Donald P. McDonnell, Ph.D., Glaxo-Wellcome Professor and Chairman of Pharmacology and Cancer Biology, Duke University School of Medicine, Durham, NC
- 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
- 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:

- Leslie Bernstein, Ph.D., Professor, Division of Biomarkers of Early Detection and Prevention, Department of Population Sciences, Beckman Research Institute of the City of Hope, City of Hope Comprehensive Cancer Center, Duarte, CA
- Jane A. Cauley, Dr. P.H., Distinguished Professor of Epidemiology, Epidemiology Associate Dean for Research, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA
- Crystal W. Cené, M.D., M.P.H., Associate Professor, Division of General Medicine and Clinical Epidemiology, Associate, Center for Health Equity Research, University of North Carolina School of Medicine, Chapel Hill, NC
- Susan M. Gapstur, Ph.D., M.P.H., Vice President, Epidemiology, American Cancer Society, Inc., Atlanta, GA
- Tamara Harris, M.D., M.S., Chief, Interdisciplinary Studies of Aging Section, Laboratory of Epidemiology and Population Science, National Institute on Aging, Baltimore, MD

- Lifang Hou, M.D., M.S., Ph.D., Chief, Division of Cancer Epidemiology & Prevention, Department of Preventive Medicine, Director, Global Health Initiative, Robert H. Lurie Comprehensive Cancer Center, Director, Center for Population Epigenetics, Feinberg School of Medicine, Northwestern University, Chicago, IL
- Anita Kozyrskyj, Ph.D., Professor, Department of Pediatrics, Faculty of Medicine & Dentistry, University of Alberta, Edmonton, Alberta, Canada
- Andrew F. Olshan, Ph.D., Barbara S. Hulka Distinguished Professor and Chair, Department of Epidemiology, University of North Carolina, Gillings School of Global Public Health, Chapel Hill, NC
- Melissa J. Perry, ScD, M.H.S., FACE, Professor of Environmental and Occupational Health, Interim Associate Dean for Research, Milken Institute School of Public Health, The George Washington University, Washington, DC
- Regina M. Santella, Ph.D., Professor, Environmental Health Sciences, Vice Dean, Faculty Affairs, and Research, Columbia University, Mailman School of Public Health, New York, NY
- Kathryn L. Terry, ScD, Associate Professor of Obstetrics, Gynecology and Reproductive Biology, Obstetrics and Gynecology Epidemiology Center, Brigham and Women's Hospital, Harvard Medical School, Boston, MA
- Katherine L. Tucker, Ph.D., Professor of Nutritional Epidemiology, Department of Clinical Laboratory & Nutritional Sciences, Director, University of Massachusetts, Lowell Center for Population Health, University of Massachusetts Lowell, Lowell, MA
- Martha M. Werler, ScD, Professor and Chair, Department of Epidemiology, Boston University School of Public Health, Director, Boston University Reproductive Health, Perinatal & Pediatric Epidemiology Training Program, Boston, MA

Agenda:

Sunday, May 7 – Doubletree by Hilton

Closed Evening Session

- | | |
|------------------|------------------------------------------------------------------------------------------------------------------|
| 7:00 – 8:00 p.m. | Welcome and Discussion of Past Board Reviews, Drs. Linda Birnbaum, Darryl Zeldin, Dale Sandler and Kevin Gardner |
| 8:00 – end | BSC Discussion of Review, Dr. Ken Adler and panel |

Monday, May 8 - NIEHS Rodbell Conference Rooms 101 ABC

Morning Session

- | | |
|------------------|--------------------------------------------------------------------|
| 8:30 – 8:45 a.m. | Welcome, Dr. Kenneth Adler |
| 8:45 - 9:05 | Overview, Epidemiology Branch, Dale Sandler, Ph.D. |
| 9:05 - 9:55 | Chronic Disease Epidemiology Group, Dale Sandler, Ph.D. |
| 9:55 - 10:10 | COFFEE BREAK |
| 10:10 - 11:00 | Perinatal and Early Life Epidemiology Group, Kelly Ferguson, Ph.D. |
| 11:00 - 11:30 | Closed 1:1 Sessions with Investigators, Drs. Sandler and Ferguson |
| 11:30 - 1:00 | Closed Working Lunch |

Afternoon Session

1:00 - 2:00	Poster Session—Epidemiology Branch, Trainees and Staff Scientists, Rodbell Lobby
2:00 - 3:00	Closed Sessions with Trainees and Staff Scientists, 101ABC
3:00 - 3:15	BREAK
3:15 - 4:05	Molecular and Genetic Epidemiology, Jack Taylor, M.D., Ph.D.
4:05 - 4:55	Genetics, Environment, and Respiratory Disease Group, Stephanie London, M.D.
4:55 - 5:25	Closed 1:1 Sessions with Investigators, Drs. London and Taylor
5:45	Return to Doubletree Hotel

Closed Evening Session

6:00 – end	BSC Discussion and completion of individual review assignments by each member, All BSC reviewers at hotel
------------	-----------------------------------------------------------------------------------------------------------

Tuesday May 9- NIEHS Rodbell Conference Rooms 101 ABC

Morning Session

8:30 – 9:00 a.m.	Social and Environmental Determinants of Health Group, Chandra Jackson, Ph.D.
9:00 - 9:50	Women’s Health Group, Donna Baird, Ph.D.
9:50 - 10:20	Closed 1:1 Session with Investigators, Drs. Jackson and Baird
10:20 - 11:30	Closed BSC Discussion, completion of individual review assignments
11:30 - 12:30	Closed Briefing to NIEHS/NIMHD/DIR Leadership
12:30	Adjourn

TRAINING AND MENTORING

The First Annual Division of Intramural Research Innovative Research Award (DIRA).

This award mechanism was announced to the DIR last fall with a call for applications from IRTA/Visiting Fellows, Biologists and Staff Scientists/Clinicians. Winners of these awards will receive up to \$50,000 to support their research plan, with potential to renew for a second year.

The winners of this award are:

- Shannon Farris, IRTA Fellow (Mentor: Serena Dudek, Neurobiology Laboratory): Mechanisms Underlying Hippocampal CA2 Resistance to Injury
- Bart Phillips, IRTA Fellow (Mentor: Traci Hall, Epigenetics and Stem Cell Biology Laboratory): Identification of Translational Regulatory Networks in Spermatogonial Stem Cells
- Motoki Takaku, Visiting Fellow (Mentor: Paul Wade, Epigenetics and Stem Cell Biology Laboratory): Nucleosome Targeting Mechanism by Pioneer Transcription Factors
- Fei Zhao, Visiting Fellow (Mentor: Humphrey Yao, Reproductive and Developmental Biology Laboratory): Unexpected contribution of Male Tract Mesenchymal Cells to the Female Reproductive Tract

NIGMS PRAT Fellowship

The National Institute of General Medical Sciences (NIGMS) Postdoctoral Research Associate (PRAT) Program is a competitive postdoctoral fellowship program to pursue research in one of the laboratories of the National Institutes of Health (NIH) or the Food and Drug Administration (FDA). PRAT is a 3-year program providing outstanding laboratory experiences, access to NIH's extensive resources, mentorship, career development activities and networking. The program places special emphasis on training fellows in all areas supported by NIGMS, including cell biology, biophysics, genetics, developmental biology, pharmacology, physiology, biological chemistry, computational biology, immunology, neuroscience, technology development and bioinformatics.

Jonathan T. Busada, Ph.D., a fellow in the Molecular Endocrinology Group, Signal Transduction Laboratory, was awarded a 2017 Prt Fellowship from NIGMS. Dr. Busada will be mentored by Dr. John Cidlowski.

2017 NIEHS Biomedical Career Symposium

The Twentieth Annual NIEHS Biomedical Career Symposium was held Friday, April 21, 2017 at the Environmental Protection Agency Campus, Research Triangle Park, NC. The keynote address entitled "How Economics Shapes the Early Careers of Scientists" was delivered by Paula Stephan, Ph.D., Professor of Economics, Georgia State University, and a Research Associate, National Bureau of Economic Research. Areas covered in the Symposium included: Career Specific Discussion; Career Development Workshops; Networking Opportunities; and One-on-One CV/Resume 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
- Angela Davis, Human Resources (HR) Specialist, OD, NIH
- Nancy Delgais, Lead Human Resources Specialist, OD, NIH
- Michael Humble, Ph.D., Program Director, NIEHS Division of Extramural Research and Training, NIH
- Sharon Milgram, Ph.D., Director, Office of Intramural Training and Education, OITE, NIH
- Denise Saunders, Ph.D., NCC, 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
- Antony Williams, Ph.D., Cheminformatician, National Center for Computational Toxicology, Environmental Protection Agency
- Dara Wilson-Grant, M.S.Ed., NCC, LPCA, 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
- Timothy D. Hill, Ph.D., Director, Upstream Process Development, Fujifilm Diosynth Biotechnologies
- Rajesh Kasiviswanathan, Ph.D., Senior Scientist, Downstream Process Development, Fujifilm Diosynth Biotechnologies
- Lori Osborne, PHR, Human Resources Manager, MedThink Communications,
- Brooke Payne, Early Talent Recruiter, Quintiles
- Amanda Rose, PRC, Talent Acquisition Consultant, Battelle
- Lisa R. Sanders, Ph.D., RAC, Director Clinical Strategy, Cato Research
- Stacy Schnieber, M.A, PHR, Director of Human Resources, Camargo Pharmaceutical Services

Career Forum Panelists

- Janice Allen, Ph.D., Health Scientist Administrator, NIEHS, NIH
- Drew Applefield, Ph.D., Director of Business Development, Precision BioSciences
- Marianne Barrier, Ph.D., Lab Manager, Genomics and Microbiology Research Lab, North Carolina Museum of Natural Sciences
- Paul J. Burke III, PHR, Senior Human Resources Associate, KBI Biopharma, Inc.
- John Busillo, Ph.D., Principal Medical Writer, Merck & Co.
- Michael Carnes, M.B.A., PSM, Technology Commercialization Counselor, North Carolina Small Business and Technology Development Center (SBTDC)
- Ryan Coe, Ph.D., Strategy Consultant, Triangle Insights Group
- Tammy Collins, Ph.D., Director, Office of Fellows' Career Development, NIEHS, NIH

- Heather Franco, Ph.D., Senior Proposal Manager, PPD
- Stefan Franzen, Ph.D., Professor, Chemistry; Founder and Scientific Advisor, North Carolina State University; NanoVector Ltd.
- Monica Frazier, Ph.D., RAC, Integrated Product Development Associate, Rho
- Shayne Gad, Ph.D., DABT, Consultant, Gad Consulting
- Susan Gammon, Ph.D., MBA, Communications Editor, Sanford Burnham Preis Medical Discovery Institute (SBP)
- Raj Gosavi, Ph.D., Project Leader/Scientist II, Biopharmaceutical Development, KBI Biopharma
- 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
- 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
- Joel Meyer, Ph.D., Associate Professor of Environmental Toxicology, Duke University
- Kristie Nybo, Ph.D., Senior Editor, News Editor, BioTechniques
- Lori Osborne, PHR, Human Resources Manager, MedThink Communications
- Jacqueline Powell, Ph.D., Senior Medical Writer, inVentiv Health Clinical
- Julia Rager, Ph.D., Scientist III, ToxStrategies, Inc
- Patrick Robertson, Ph.D., Director, Program Design, Fujifilm Diosynth Biotechnologies
- Sabrina Robertson, Ph.D., Teaching Assistant Professor in the Biotechnology (BIT) Program, North Carolina State University
- Donita Robinson, Ph.D., Associate Professor of Psychiatry, University of North Carolina
- Amanda Rose, PRC, Talent Acquisition Consultant, Battelle
- Jen Uno, Ph.D., Associate Professor of Biology, Elon University
- Sheryl Waddell, Program Director, Innovate Carolina Global Network, University of North Carolina
- Sarah Council Windsor, Ph.D., US2020 STEM Outreach Program Manager, Research Triangle Foundation
- Stacey Wooden, Ph.D., MPH, Senior Scientific Review Officer, CSRA Inc.
- Tracey du Laney, Ph.D., Director, Science and Technology Development, North Carolina Biotechnology Center

CV/Resume Reviewers

- Janice Allen, Ph.D., Health Scientist Administrator, NIEHS, NIH
- Sibby Anderson-Thompkins, Ph.D., Director, Office of Postdoctoral Affairs, University of North Carolina
- Drew Applefield, Ph.D., Director of Business Development, Precision BioSciences
- Marianne Barrier, Ph.D., Lab Manager, Genomics and Microbiology Research Lab, North Carolina Museum of Natural Sciences
- Amy Blackburn, M.S.Ed., Senior Assistant Director for Graduate Students, 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, PHR, Senior Human Resources Associate, KBI Biopharma, Inc.
- Ryan Coe, Ph.D., Strategy Consultant, Triangle Insights Group
- Jason Cramer, Ph.D., M.Ed., Program Manager, Graduate Student and Postdoctoral Professional Development, North Carolina State University
- Laura DiMichelle, Ph.D., RAC, CCRP, 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., DABT, Consultant, Gad Consulting
- Susan Gammon, Ph.D., MBA, Communications Editor, Sanford Burnham Preis Medical Discovery Institute (SBP)
- 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
- Erin Hopper, Ph.D., Research Director, UNC-General Administration, University of North Carolina
- 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., PHR, 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, PRC, Talent Acquisition Consultant, Battelle
- Lisa R. Sanders, Ph.D., RAC, Director Clinical Strategy, Cato Research
- Denise Saunders, Ph.D., NCC, 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, MSLS, 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., MPH, 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 2016

Collaborative Research Projects

Dr. Douglas Bell (Immunity, Inflammation and Disease Laboratory) 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, at the Vall d'Hebron University Hospital, Oncology Department, Passeig de la Vall D'Hebron, Barcelona, Spain, and at the Department of Computer and Information Science and Department of Cancer Research and Molecular Medicine, Norwegian, University of Science and Technology, Trondheim, Norway and at the Department of Biology, University of Pisa, Via Derna, Pisa, Italy, to investigate the role of polymorphisms in p53 response elements in the development of cancer; and with scientists at the Ludwig Institute for Cancer Research, University of Oxford, Oxford, UK, to study the role of polymorphisms in NRF2/sMAF on Parkinson's Disease. These collaborations were supported in part by 1ZIAES100475.

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. William Copeland (Chief, Genome Integrity and Structural Biology Laboratory) collaborates with investigators at Centre de génétique humaine, Université de Franche-Comté, Besançon, France; Metabolic Unit, Centre of Human Genetics, University Hospital, Liège, Belgium; Department of Pediatrics, Division of Child Neurology & Metabolism, Ghent University Hospital, Belgium; Wellcome Trust Centre for Mitochondrial Research, Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, UK; Inserm U 1127, CNRS UMR 7225, Sorbonne Universités, UPMC Univ Paris 06 UMR S-1127, Institut du Cerveau et de la Moelle épinière, ICM, F-75013 Paris, France; Department of Neurology, Sambre and Meuse Regional Hospital, Namur, Belgium; Born-Bunge Foundation, University of Antwerp, Belgium; Laboratory of Clinical Neurophysiology, Université Catholique de Louvain (UCL), Brussels, Belgium; Department of Neurology, University of Rostock, Rostock, Germany; Université catholique de Louvain, CHU UCL Namur, Department of Neurology, B5530 Yvoir, Belgium, and Institute of Neuroscience (IoNS), (UCL), B1200 Brussels, Belgium; and Ecole Pratique des Hautes Etudes, héSam Université, Laboratoire de neurogénétique, CHU Pitié-Salpêtrière, F-75013, Paris, France, to investigate the consequence and mechanism of mitochondria disease from specific POLG2 gene mutations. These collaborations are supported in part by 1ZIAES065078.

Dr. Franco DeMayo (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 Erasmus MC Cancer Institute, University Medical Center Rotterdam, Rotterdam, the Netherlands, to study

- the role of Progesterone Receptor A 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. Janet Hall (Clinical Director and Chief, Clinical Research Branch) has a collaboration with scientists at Bicêtre Hospital, Le Kremlin-Bicêtre, France, to study isolated hypogonadotropic hypogonadism in women.
- Dr. Guang Hu (Epigenetics and Stem Cell Biology Laboratory) collaborates with investigators at the Nanjing Medical University, Nanjing, 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.
- Dr. Anton Jetten (Chief, Immunity, Inflammation and Diseases Laboratory) has collaborations with scientists at Autoimmune Genetics Laboratory, University of Leuven, Leuven, Belgium to study the Kruppel-like zinc finger transcription factor in type 1 diabetes; and with scientists at GlaxoSmithKline Ltd., Medicines Research Centre, Stevenage, United Kingdom, to study RORgamma antagonists and their role in the regulation of Th17 cells function, circadian rhythm and metabolism. 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, who are characterizing 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. Thomas Kunkel (Genome Integrity and Structural Biology Laboratory) 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. This collaboration was supported in part by 1ZIAES065070 and 1ZIAES065089.
- 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. Daniel Menendez (Genome Integrity and Structural Biology Laboratory) has collaborations with scientists at the Centre for Integrative Biology, University of Trento, Trento, Italy, to study mutations in the tumor suppressor p53 and interactions of p53 with the transcriptional repressor ETV7; with scientists at the Ludwig Institute for Cancer Research, Oxford University, Oxford, England, to study the effect of coactivators ASSP1 and ASSP2 on p53 transactivation and target selection; and with scientists at Autonomous University of Mexico, Mexico City, Mexico, to study the effect of dikemorpholines as novel inhibitors of the Multidrug Resistance phenotype and their interaction with p53. These collaborations were supported in part by 1ZIAES065079.

Dr. Fred Miller (Clinical Research Branch) collaborates with scientists at the Pediatric Rheumatology Unit, Children's Institute, School of Medicine, University of Sao Paulo, 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 Institute for Immunological Research, The University of Cartagena, Cartagena de Indias, Colombia, to characterize dust mite allergens; and with scientists at the University of Salzburg, Salzburg, Austria, to study natural products from birch pollen as adjuvants of allergic sensitization. These collaborations were supported in part by 1ZIAES102906.

Dr. Shyamal Peddada (Acting Branch Chief, Biostatistics and Computational Biology Branch) collaborates with investigators at the Norwegian Institute of Public Health, Oslo, Norway, and at University of Bergen, Norway, to study changes in infant and adult 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; 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. Michael Resnick (Genome Integrity and Structural Biology Laboratory) has collaborations with scientists at the Centre for Integrative Biology, University of Trento, Trento, Italy, to study mutations in the tumor suppressor p53 and interactions of p53 with the transcriptional repressor ETV7; with scientists at the Ludwig Institute for Cancer Research, Oxford University, Oxford, England, to study the effect of coactivators ASSP1 and ASSP2 on p53 transactivation and target selection; and with scientists at Autonomous University of Mexico, Mexico City, Mexico, to study the effect of dikemorpholines as novel inhibitors of the Multidrug Resistance phenotype and their interaction with p53. These collaborations were supported in part by 1ZIAES065079.

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 Robert-Rössle Strasse 10, 13125 Berlin, Germany, to study the biophysical properties of inositol pyrophosphate analogs; and with scientists at the Medical Research Council Laboratory for Molecular Cell Biology, University College London, London, United Kingdom, to study how the genomic variability in a tumor cell line can generate different cell lines with alternate cell-signaling properties. These collaborations were supported in part by 1ZIAES080046.
- Dr. Paul Wade (Acting Deputy Scientific Director and Epigenetics and Stem Cell Biology Laboratory) collaborates with scientists at Waseda University, Tokyo, to investigate the interaction of the transcription factor GATA3 with nucleosomal DNA. This collaboration was supported in part by 1ZIAES101965.
- Dr. Xuting Wang (Immunity, Inflammation and Disease Laboratory) 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, at the Vall d'Hebron University Hospital, Oncology Department, Passeig de la Vall D'Hebron, Barcelona, Spain, and at the Department of Computer and Information Science and Department of Cancer Research and Molecular Medicine, Norwegian, University of Science and Technology, Trondheim, Norway and at the Department of Biology, University of Pisa, Via Derna, Pisa, Italy, to investigate the role of polymorphisms in p53 response elements in the development of cancer; and with scientists at the Ludwig Institute for Cancer Research, University of Oxford, Oxford, UK, to study the role of polymorphisms in NRF2/sMAF on Parkinson's Disease. These collaborations were supported in part by 1ZIAES100475.
- 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, Aarhus University in Aarhus, Denmark, and University of Copenhagen, Denmark on a project called MOBAND (in Norwegian and Danish, "Mothers and Children in Norway and Denmark"). The initial study is of cerebral palsy, a neurologic disease

with origins during pregnancy. This collaboration was supported in part by 1ZIAES044003 and 1ZIAES049027.

Dr. Jessica Williams (Genome Integrity and Structural Biology Laboratory) collaborates with investigators at the Institute of Molecular Biology (IMB), Mainz, Germany, to study the role of the Rtt101-Mms22 E3 ubiquitin ligase complex in DNA replication and repair following incorporation of ribonucleotides into DNA in yeast. This collaboration was supported in part by 1ZIAES065070 and 1ZIAES065089.

Dr. Samuel H. Wilson (Genome Integrity and Structural Biology Laboratory) collaborates with scientists at the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia, to study human AP endonuclease 1 structure-function relationships; and 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. 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) had a collaboration 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. PLA2 deficient individuals have severely reduced plasma fatty acid levels. He collaborates with scientists at University College London, London, UK, to measure the difference in eicosanoids in inflammatory exudates from young and aged humans. Aged humans have diminished epoxyeicosanoids in response to inflammation. Dr. Zeldin also collaborates with investigators at Royal Veterinary College, London, UK, to determine the role of fatty acid epoxides in resolution of inflammation. Epoxyeicosanoids are reduced during acute inflammation but rise during the resolution phase to suppress inflammation in macrophages. He has collaborations 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 collaborates 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. These collaborations were supported in part by 1ZIAES025034.

International Meetings Organized

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, which hosts an international meeting every June on Mitochondrial Medicine and Disease.

Dr. Samuel H. Wilson (Genome Integrity and Structural Biology Laboratory) served as Planning Committee Advisor for the 6th Japan-US/US-Japan DNA Repair Meeting.

Dr. Darryl Zeldin (Scientific Director and the Immunity, Inflammation & Disease Laboratory) served on the Organizing Committee for the 17th International Winter Eicosanoid Conference.

Work with International, Multinational or Regional Foreign Organizations

Dr. John Cidlowski (Chief, Signal Transduction Laboratory) served on the International Union of Basic and Clinical Pharmacology (IUPHAR) Nomenclature Committee; and served on the Advisory Board for the University of Santiago in Chile.

Dr. Matthew Longnecker (Epidemiology Branch) served on the Science Advisory Board of HELIX: The Human Early-Life Exposome – novel tools for integrating early-life environmental exposures and child health across Europe. The project is based at CREAL: Centre de Recerca en Epidemiologia Ambiental, Barcelona, Spain.

Dr. Fred Miller (Clinical Research Branch) 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; and is a member of The International Myositis Classification Criteria Project 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.

Dr. Lisa Rider (Clinical Research Branch) 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; and is a member of The International Myositis Classification Criteria Project to develop new classification criteria for myositis and its subgroups. This work is supported in part by 1ZIAES101074 and 1ZIAES101081.

Foreign Delegations Hosted

Dr. Paul Wade (Acting Deputy Scientific Director and Epigenetics and Stem Cell Biology Laboratory) hosted scientists from Waseda University, Tokyo, in August, 2016.

International Capacity Building

Dr. Richard Kwok (Epidemiology Branch) is working to develop a memorandum of understanding with the Japan National Institute for Environmental Studies, Tsukuba, Japan, to build a framework to incorporate environmental public health expertise and research into disaster response and recovery. This is modeled after the Disaster Research and Response (DR2) developed at NIEHS.