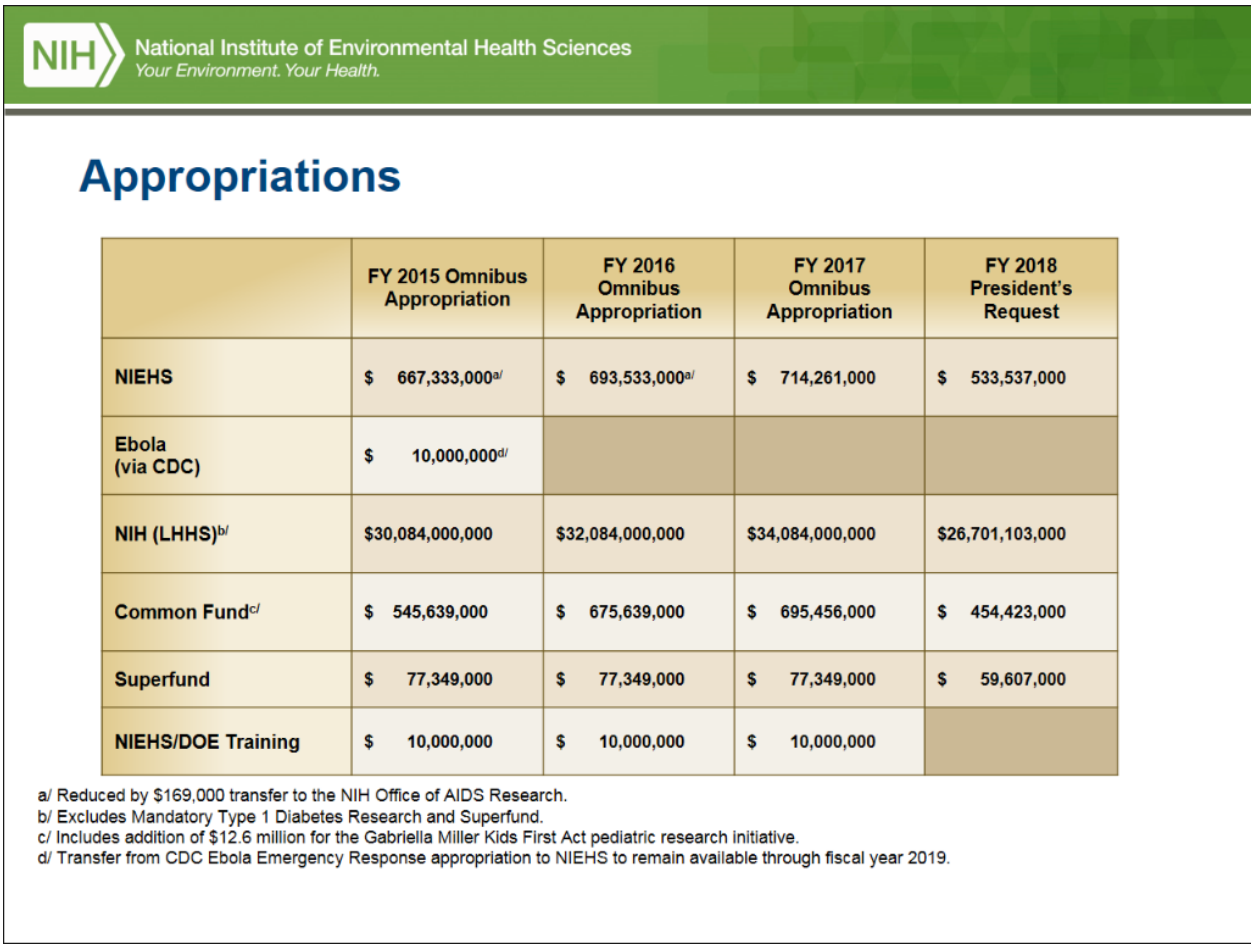
Report to the National Advisory Environmental Health Sciences Council

Director, NIEHS and NTP

6-7 June 2017

Budget and Legislative Report



	FY 2015 Omnibus Appropriation	FY 2016 Omnibus Appropriation	FY 2017 Omnibus Appropriation	FY 2018 President's Request
NIEHS	$ 667,333,000[a/]	$ 693,533,000[a/]	$ 714,261,000	$ 533,537,000
Ebola (via CDC)	$ 10,000,000[d/]			
NIH (LHHS)[b/]	$30,084,000,000	$32,084,000,000	$34,084,000,000	$26,701,103,000
Common Fund[c/]	$ 545,639,000	$ 675,639,000	$ 695,456,000	$ 454,423,000
Superfund	$ 77,349,000	$ 77,349,000	$ 77,349,000	$ 59,607,000
NIEHS/DOE Training	$ 10,000,000	$ 10,000,000	$ 10,000,000	

a/ Reduced by $169,000 transfer to the NIH Office of AIDS Research.
b/ Excludes Mandatory Type 1 Diabetes Research and Superfund.
c/ Includes addition of $12.6 million for the Gabriella Miller Kids First Act pediatric research initiative.
d/ Transfer from CDC Ebola Emergency Response appropriation to NIEHS to remain available through fiscal year 2019.

Fiscal Year 2017 Appropriations Update

On May 5, 2017, the President signed into law the *Consolidated Appropriations Act, 2017*, Public Law 115-31, which appropriates a total of $34.084 billion for the NIH, which represents a $2 billion or 6.2 percent increase over the Fiscal Year 2016 enacted level and a $3 billion increase over the President's request for Fiscal Year 2017. Included within the overall increase for the NIH is a $20.559 million or 2.67 percent increase for the NIEHS, which brings the Fiscal Year 2017 total amount for the NIEHS to $791.610 million. This amount represents $693.702 million appropriated through the *Department of Health and Human Services Appropriations Act,*

2017, plus $77.349 million appropriated in Title III of the *Department of the Interior, Environment, and Related Agencies Appropriations Act, 2017,* for the Superfund Training Program (SRP) and the Worker Training Program (WTP). Dollar wise, the NIEHS received the 10th highest increase among the various NIH Institutes and Centers (this excludes the NIH Office of the Director and Buildings and Facilities accounts). Percentage wise, the NIEHS received the 18th highest increase (the 15th highest increase without factoring in the Superfund appropriation from the *Department of the Interior, Environment, and Related Agencies Appropriations Act, 2017*, which remained unchanged from 2016).

The final bill includes specific increases at the NIH for research related to Alzheimer's disease, the brain, antibiotic resistance, and the Precision Medicine Initiative (PMI). The Appropriations Committees noted that the general increases provided under the final bill to all NIH Institutes and Centers are "to continue progress in developing new treatments and cures, including increases for Clinical and Translational Science Awards and Institutional Development Awards." The final bill also continues support for the Gabriella Miller Kids First pediatric research initiative that Congress authorized in 2014 and that is funded from within the NIH Common Fund. The Common Fund has been increased by $19.817 million or 2.98 percent—on par with the increase Congress has provided the NIEHS under the Labor-HHS-Education Appropriations bill—over the Fiscal Year 2016 level. The total amount appropriated to the NIH Common Fund for Fiscal Year 2017 is $682.856 million.

This final Fiscal Year 2017 appropriations law was enacted 217 calendar days after Fiscal Year 2016 expired on September 30, 2016. It followed three consecutive "Continuing Resolutions" that kept the NIH and other federal departments and agencies operating at close to Fiscal Year 2016 enacted levels after September 30, 2016.
The explanatory statement that accompanied the final bill text and that was printed in the May 3, 2017 edition of the *CONGRESSIONAL RECORD*, included these excerpts relevant to the NIH:

> *"Gabriella Miller Kids First Research Act*—The agreement continues bill language for specific funds authorized by the *Gabriella Miller Kids First Research Act* within the Common Fund to support the third year of the 10-year Pediatric Research Initiative. The agreement requests an update in the fiscal year 2018 budget justification on this effort as described in the House and Senate reports."
>
> "*Clinical Center Reorganization*—The ongoing restructuring of the NIH Clinical Center (CC) to ensure patient safety and care after last year's highly critical Food and Drug Administration (FDA) inspection of the CC Pharmacy remains a high priority. NIH has started the reorganization laid out in the Red Team's recommendations, including hiring a new CC director and establishing a comprehensive oversight and compliance office. These steps should greatly reduce risks, increase assurance of participant safety, and improve research quality. The agreement directs NIH to continue providing timely updates on the reorganization to the Committees on Appropriations of the House of Representatives and the Senate, including an update in the fiscal year 2018 budget justification."

"Natural Products"—The agreement commends the FDA for issuing draft guidance related to botanical drug products. There are reports that many alternative and potentially life-saving products are already helping those for whom traditional treatment is not enough or is ineffective. The agreement encourages the NIH, including NCCIH and NCI, and other Federal entities that fund cancer research, to speed development and testing of natural products and their derivatives, with the goal of accelerating the designation of Investigational New Drug applications to promising products. These drugs and their trials represent a promising complement to cancer treatment and the agreement urges NIH to conduct clinical trials in regions with disproportionally high cancer burden and late stage presentation.

Additionally, report language concerning NIH Institutes and Centers and included in the House and Senate Committee reports last year accompanying the committee-reported versions of the Labor-HHS-Education Appropriations bills was adopted by reference through the final explanatory statement.

The Senate report included the two excerpted paragraphs below relevant to the NIEHS, which are slight variations of similar report language seen in previous years:

"Autism—The Committee urges the NIEHS, as the lead agency on environmental health research and a member agency of the Interagency Autism Coordinating Committee [IACC], to ask the IACC to consider research on environmental factors related to autism, including onset patterns, in the upcoming revision to the IACC Strategic Plan for Autism Research. In addition, as the lead NIH Institute on Autism Spectrum Disorders research, the Committee suggests that NIMH work in coordination with NIEHS to assure that research on environmental factors continues to be supported."

"Healthy Housing—The Committee encourages NIEHS to further study the impact healthy housing has on reducing environmental exposures that lead to health risks such as asthma and lead poisoning."

The House report included one paragraph relevant to the NIEHS, which reads as follows:

"*Bisphenol A Toxicity*—The Committee is aware of the ongoing debate on toxicity exposure from Bisphenol A (BPA) amongst the National Toxicology Program (NTP), NIEHS, and Food and Drug Administration (FDA). The program includes the 2008 Draft Assessment of Bisphenol A for Use in Food Contact Applications, which reviewed the available data on the toxicity of BPA, performed by FDA staff at the Agency's National Center for Toxicological Research. The Committee requests NIEHS coordinate with FDA to publish the results of relevant studies as soon as the data analysis is completed. The Committee requests NIH publish a jointly agreed upon FDA/NIEHS/NTP timeline for publishing the most recent study results from the interagency consortium in the fiscal year 2018 budget request."

The NIEHS responses to this report language—known as "Significant Items"—was included in the NIH Volume II "Justification of Estimates for the Appropriations Committees" for Fiscal Year 2018 that was released on May 25, 2017, and that is available on the NIH Office of Budget website.

Fiscal Year 2018 Appropriations Update

On March 16, 2017, the President released a blueprint of his budget proposal for Fiscal Year 2018. The 62-page document requests that Congress appropriate $69 billion for HHS in Fiscal Year 2018, which is $4.5 billion or 6.12 percent less than the amount appropriated for HHS in the *Consolidated Appropriations Act, 2017* (Public Law 115-31). This proposed funding level excludes certain mandatory spending changes but includes additional funds for program integrity and implementing the *21st Century CURES Act* (Public Law 114-255). Specifically, NIH spending relative to the 2017 enacted level would be reduced by approximately $8.2 billion (or 24 percent) to $25.9 billion. The proposed budget "includes a major reorganization of NIH's Institutes and Centers to help focus resources on the highest priority research and training activities, including: eliminating the Fogarty International Center; consolidating the Agency for Healthcare Research and Quality (AHRQ) within NIH; and other consolidations and structural changes across NIH organizations and activities. The budget also reduces administrative costs and rebalance Federal contributions to research funding."

The President's detailed budget proposal, which complements the blueprint put forward in March, was released on May 23, 2017.

The detailed budget requests that Congress appropriate $593.144 million for NIEHS in Fiscal Year 2018: $533.537 million through the Labor, HHS, Education and Related Agencies appropriations bill and $59.607 million for the Superfund Research Program (SRP) and the Worker Training Program (WTP) through the Interior, Environment and Related Agencies appropriations bill. This combined, proposed amount is $198.466 million or 25.07 percent less than the total amount appropriated for NIEHS in Fiscal Year 2017. A reduction over prior year funding levels is proposed for all 24 NIH Institutes and Centers that receive a direct appropriation from Congress. The average proposed reduction across all such Institutes and Centers is 26.66 percent, which is 1.59 percentage points higher than the reduction proposed for the NIEHS. Among the Institutes and Centers, the NIEHS ranks ninth in proposed reductions when expressed as a percentage and when ordered from highest to lowest.

The Congressional Justifications detailing the proposed budget levels for each NIH Institute and Center are available on the NIH Office of Budget and NIEHS websites.

CONGRESSIONAL HEARINGS

Fiscal Year 2018 HHS Budget Hearing in the House of Representatives

The House Labor-HHS-Education and Related Agencies Appropriations Subcommittee held a Fiscal Year 2018 budget hearing with the HHS Secretary on March 29, 2017. This hearing was

held after the President's blueprint had been released but before enactment of the *Consolidated Appropriations Act, 2017*, on May 5, 2017, and before the President's detailed budget was released on May 23, 2017. The President's blueprint proposed a reduction of $5.8 billion for NIH in 2018 over the Fiscal Year 2017 annualized level under the "Continuing Resolution" that was in place at the time of the hearing. The Secretary informed the Subcommittee that he was struck by the fact that about 30 percent of NIH grant dollars is used for "indirect expenses." He noted that last year the NIH reportedly paid $6.4 billion in overhead costs on top of the $16.9 billion in extramural funds to support the direct costs of research projects and other awards. The Secretary noted that the $6.4 billion spent on indirect costs is more than the $5.8 billion proposed for reduction at the time in the overall budget for the NIH, thereby indicating that the proposal is not for a reduction in actual research but could be realized through a reduction in inefficiencies and in indirect costs.

Upon being questioned about the proposal to merge AHRQ into the NIH, the Secretary remarked "we envision the opportunity for the NIH to assume the important duties of AHRQ, and then to decrease or reduce or eliminate the duplication and redundancies." He further stated: "Clearly, some of the kinds of things that are being done at NIH are also being done at AHRQ, and so we look forward to the opportunity to fold AHRQ into NIH and gain those efficiencies but also make sure we're continuing to fulfill [AHRQ's] mission."

Rep. Lucille Roybal-Allard (CA-40) asked about budget implications for the Prevention and Public Health Fund at HHS and CDC's lead poisoning prevention program. She referencing the lead exposure situation in Flint, Michigan and the Exide contamination site in her district. The Secretary responded that "whatever way we're able to accomplish the goal and the mission to keep the American people safe" from lead poisoning, including from lead-contaminated drinking water like was experienced in Flint, Michigan, "we will do."

Fiscal Year 2018 NIH Budget Hearing in the House of Representatives

The House Labor-HHS-Education and Related Agencies Appropriations Subcommittee held an oversight hearing entitled "Advances in Biomedical Research" on May 17, 2017. The Directors of NIAID, NCI, NIDA, NHLBI, and NIMH joined Dr. Francis Collins, the NIH Director, in appearing at this hearing. A number of questions were asked about various research activities underway at the NIH. Rep. Lucille Roybal-Allard (CA-40) asked Dr. Collins for an update about the Environmental influences on Child Health Outcomes (ECHO) initiative and stated that she continues to believe "it is vitally important to investigate the impact the environment has on the health and development of children." Dr. Collins thanked the Representative for her interest in the ECHO initiative, and provided her updated information about the leadership for the initiative, the collaboration that is occurring to advance it in its early stages, and on the number of cohorts that have been brought together to date to generate the data.

Fiscal Year 2018 NIH Budget Hearing in the Senate

It is anticipated that the Senate Labor-HHS-Education and Related Agencies Appropriations Subcommittee will hold a hearing on the NIH budget request for Fiscal Year 2018 sometime this summer. Last year, the NCI, NIDA, NINDS, NIA, and NCATS Directors joined Dr. Collins in

appearing before the Senate Subcommittee. It is anticipated that several Institute and Center Directors will again be invited to accompany Dr. Collins in appearing before the Subcommittee this year.

ENVIRONMENTAL HEALTH-RELATED LEGISLATION INTRODUCED IN CONGRESS TO DATE

The following bills related to environmental health have been introduced to date since the 115th Congress convened on January 3, 2017. These bills are listed in chronological order based on the date of introduction.

H.R. 598, Airplane Impacts Mitigation Act of 2017 ("AIM Act of 2017")
On January 20, 2017, Rep. Stephen Lynch (MA-08) reintroduced H.R. 598, the *Airplane Impacts Mitigation Act of 2017*, to require the Administrator of the Federal Aviation Administration (FAA) to commission a study of the health impacts of airplane flights on affected residents of certain metropolitan areas exposed to a range of noise and air pollution levels from such flights. The FAA Administrator would be required to enter into an agreement to conduct this two-year study with an institution of higher education that receives funding from NIEHS and meets other criteria. H.R. 598 has 20 cosponsors, principally members of the "Quiet Skies Caucus," and has been referred to the House Committee on Transportation and Infrastructure's Subcommittee on Aviation. This bill was H.R. 5075 in the 114th Congress.

H.R. 816, "*Federal Accountability in Chemical Testing Act*" (FACT Act)
On February 2, 2017, Rep. Ken Calvert (CA-42) introduced H.R. 816, the *Federal Accountability in Chemical Testing Act*, to amend the *ICCVAM Authorization Act of 2000* (Public Law 106-545) to require that the "Interagency Coordinating Committee on the Validation of Alternative Methods" (ICCVAM), a permanent committee of NIEHS, include in its biennial report "a description of the progress on the development, validation, acceptance, and utilization of alternative test methods" and "animal use data by species, number and test type for toxicological testing conducted, supported or required by" ICCVAM-participating federal agencies. These agencies include: Department of Agriculture (USDA); Department of Defense (DOD); Department of Energy (DOE); Department of the Interior (DOI); Occupational Safety and Health Administration (OSHA) at the Department of Labor; Department of Transportation (DOT); Consumer Product Safety Commission (CPSC); Environmental Protection Agency (EPA); Agency for Toxic Substances and Disease Registry (ATSDR) and National Institute for Occupational Safety and Health (NIOSH) at Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), and NIEHS, NCI, and NLM at NIH under Department of Health and Human Services (HHS). H.R. 816 has been referred to the House Committee on Energy and Commerce, and within the Committee to the Subcommittee on Health. The bill has 58 cosponsors—17 Republicans and 41 Democrats.

H.R. 1348, "Investing in Testing Act of 2017"
On March 2, 2017, Rep. Sean Patrick Maloney (NY-18) introduced H.R. 1348, to require the CDC to complete, within two years, a study on the human health implications of per- and polyfluoroalkyl substances (PFAS) contamination in drinking water. The bill authorizes the

appropriation of $15 million to the CDC to carry out this requirement. The bill has been referred to the House Committee on Energy and Commerce, and has no cosponsors.

H.R. 1909, A bill to prioritize educating and training for existing and new environmental health professionals.

On April 5, 2017, Rep. Brenda Lawrence (MI-14) reintroduced H.R. 1909, a bill to require HHS to develop model standards and guidelines for credentialing environmental health professionals. Additionally, HHS must develop a comprehensive and coordinated plan for the environmental health workforce that: (1) includes performance measures, (2) identifies any gaps between existing programs and future environmental health workforce needs, and (3) identifies actions needed to address any identified gaps. The GAO would also be required to identify the best practices related to training and credentialing environmental health professionals in six states. Finally, the bill also amends the Higher Education Act of 1965 to make environmental health professionals eligible for loan forgiveness programs from the Department of Education. The bill has been referred to the House Committee on Education and the Workforce.

H.R. 2049, "*Radiation Exposure Compensation Act Amendments of 2017*"

On April 6, 2017, Rep. Ben Ray Lujan (NM-03) reintroduced H.R. 2049, a bill to amend the *Radiation Exposure Compensation Act* to improve compensation for workers involved in uranium mining, and for other purposes. The bill has 25 original cosponsors: 24 Democrats and one Republican. The bill is a companion to S. 197, which Sen. Mike Crapo (ID) reintroduced on January 24, 2017. Among other provisions, H.R. 2049 and S. 197 would direct the HHS Secretary, through the NIEHS, to establish a program of grants to institutions of higher education to study the epidemiological impacts of uranium mining and milling among non-occupationally exposed individuals, including family members of uranium miners and millers. H.R. 2049 and S. 197 have been referred to the House and Senate Committees on the Judiciary, respectively, which have jurisdiction over the *Radiation Exposure Compensation Act* and the compassionate payment program administered by the Department of Justice for classes of individuals who were either "downwind of" or "onsite participants in" the atmospheric nuclear weapons tests conducted in Nevada in the 1950s and 1960s. H.R. 2049 and S. 197 would add the Trinity Test Site in New Mexico to the program, among other provisions. Sens. Tom Udall (NM); James Risch (ID); Martin Heinrich (NM); and Michael Bennet (CO) are cosponsors of S. 197.

S. 894, A bill to amend title 40, United States Code, to provide requirements for the disposal of surplus Federal property relating to review of bidders and post-sale responsibilities.

On April 7, 2017, during National Asbestos Awareness Week, Sen. Steve Daines (MT) introduced S. 894 to "safeguard local governments from having to take ownership of old federal buildings filled with asbestos after bankruptcy." S. 894 would require the federal government to take into account certain factors when deciding whether a bidder for federal property is capable of fulfilling its financial obligations, preventing local governments from having to take possession of asbestos-filled buildings post-bankruptcy through tax liens.

H.R. 2379, "*Feminine Hygiene Product Safety Act of 2017"*

On May 4, 2017, Rep. Carolyn Maloney (NY-12) reintroduced her bill to amends the *Public Health Service Act* to require the NIH, through the Office of the Director, to provide for the conduct or support of research on the extent to which components (including contaminants and substances used as fragrances, colorants, dyes, and preservatives) in feminine hygiene products pose any risks to the health of women or the health of the children of women who use those products during or before the pregnancies involved. This bill was H.R. 1708 in the 114th Congress and has been referred to the House Committee on Energy and Commerce.

Science Advances

One NIEHS (NIEHS authors' groups in parens)

- ***Associations among personal care product use patterns and exogenous hormone use in the NIEHS Sister Study.*** *Taylor KW (NTP), DD Baird (DIR), AH Herring, LS Engel, HB Nichols, DP Sandler (DIR) and MA Troester. J. Expo. Sci. Environ. Epidemiol. (2017).* http://dx.doi.org/10.1038/jes.2016.82
  SP Goal 2

- ***Haploinsufficiency of SIRT1 Enhances Glutamine Metabolism and Promotes Cancer Development.*** *Ren NS (DIR), M Ji (DIR), EJ Tokar (NTP), EL Busch, X Xu (DIR), D Lewis (DIR), X Li, A Jin, Y Zhang, WK Wu, W Huang (DIR), L Li (DIR), DC Fargo (DIR), TO Keku, RS Sandler and X Li (DIR). Curr Biol (2017) v.27 (4): pp. 483-494.*
  http://dx.doi.org/10.1016/j.cub.2016.12.047
  SP Goal 1

DNTP

- ***In Silico Prediction of Physicochemical Properties of Environmental Chemicals Using Molecular Fingerprints and Machine Learning.*** *Zang Q, K Mansouri, AJ Williams, RS Judson, DG Allen, WM Casey (DNTP) and NC Kleinstreuer (DNTP). J. Chem. Inf. Model. (2017) v. 57 (1): pp. 36-49.*
  http://dx.doi.org/10.1021/acs.jcim.6b00625
  SP Goal 1

- ***DNA Product Formation in Female Sprague-Dawley Rats Following Polyhalogenated Aromatic Hydrocarbon (PHAH) Exposure.*** *Gao L, Mutlu E (DNTP), Collins LB, Walker NJ (DNTP), Hartwell HJ, Olson JR, Sun W, Gold A, Ball LM, Swenberg JA. Chem Res Toxicol. 2017 Mar 20;30(3):794-803.*
  https://www.ncbi.nlm.nih.gov/pubmed/28207250
  SP Goal 1, 4

DIR

- ***SMCHD1 mutations associated with a rare muscular dystrophy can also cause isolated arhinia and Bosma arhinia microphthalmia syndrome.*** *Shaw ND (DIR), H Brand, ZA Kupchinsky, H Bengani, L Plummer, TI Jones, S Erdin, KA Williamson, J Rainger, A*

Stortchevoi, K Samocha, BB Currall, DS Dunican, RL Collins, JR Willer, A Lek, M Lek, M Nassan, S Pereira, T Kammin, D Lucente, A Silva, CM Seabra, C Chiang, Y An, M Ansari, JK Rainger, S Joss, JC Smith, MF Lippincott, SS Singh, N Patel, JW Jing, JR Law, N Ferraro, A Verloes, A Rauch, K Steindl, M Zweier, I Scheer, D Sato, N Okamoto, C Jacobsen, J Tryggestad, S Chernausek, LA Schimmenti, B Brasseur, C Cesaretti, JE Garcia-Ortiz, TP Buitrago, OP Silva, JD Hoffman, W Muhlbauer, KW Ruprecht, BL Loeys, M Shino, AM Kaindl, CH Cho, CC Morton, RR Meehan, V van Heyningen, EC Liao, R Balasubramanian, JE Hall (DIR), SB Seminara, D Macarthur, SA Moore, KI Yoshiura, JF Gusella, JA Marsh, JM Graham, Jr., AE Lin, N Katsanis, PL Jones, WF Crowley, Jr., EE Davis, DR FitzPatrick and ME Talkowski. Nat. Genet. (2017) v. 49 (2): pp. 238-248.
http://dx.doi.org/10.1038/ng.3743
SP Goal 1

- ***Oxidized nucleotide insertion by pol beta confounds ligation during base excision repair.*** *Caglayan M (DIR), JK Horton (DIR), DP Dai (DIR), DF Stefanick (DIR) and SH Wilson (DIR). Nature communications (2017) v. 8:14045.*
  http://dx.doi.org/10.1038/ncomms14045
  SP Goal 1, 9

- ***APE2 Zf-GRF facilitates 3'-5' resection of DNA damage following oxidative stress.*** *Wallace BD (DIR), Z Berman, GA Mueller (DIR), Y Lin, T Chang (DIR), SN Andres (DIR), JL Wojtaszek (DIR), EF DeRose (DIR), CD Appel (DIR), RE London (DIR), S Yan and RS Williams (DIR). Proc Natl Acad Sci (2017) v. 114 (2) pp. 304-309.*
  http://dx.doi.org/10.1073/pnas.1610011114
  SP Goal 1

- ***Epithelial membrane protein 2 (EMP2) deficiency alters placental angiogenesis, mimicking features of human placental insufficiency.*** *Williams CJ (DIR), A Chu, WN Jefferson (DIR), D Casero, D Sudhakar, N Khurana, CP Hogue, C Aryasomayajula, P Patel, P Sullivan, E Padilla-Banks (DIR), S Mohandessi, C Janzen and M Wadehra. J Pathol (2017).*
  http://dx.doi.org/10.1002/path.4893
  SP Goal 1, 2

DERT

- ***Structural hierarchy controlling dimerization and target DNA recognition in the AHR transcriptional complex.*** *Seok SH, W Lee, L Jiang, K Molugu, A Zheng, Y Li, S Park, CA Bradfield and Y Xing. Proc Natl Acad Sci (2017) Apr 10.*
  http://dx.doi.org/10.1073/pnas.1617035114
  SP Goal 1

- ***Ozone and childhood respiratory disease in three US cities: evaluation of effect measure modification by neighborhood socioeconomic status using a Bayesian***

hierarchical approach. *O' Lenick CR, Chang HH, Kramer MR, Winquist A, Mulholland JA, Friberg MD, Sarnat SE. Environ Health. 2017 Apr 5;16(1):36.*
https://www.ncbi.nlm.nih.gov/pubmed/28342349
SP Goal 3, 4, 6

- ***B-vitamin Supplementation Mitigates Effects of Fine Particles on Cardiac Autonomic Dysfunction and Inflammation: A Pilot Human Intervention Trial.*** *Zhong J, Trevisi L, Urch B, Lin X, Speck M, Coull BA, Liss G, Thompson A, Wu S, Wilson A, Koutrakis P, Silverman F, Gold DR, Baccarelli AA. Sci Rep. 2017 Apr 3;7:45322.*
https://www.ncbi.nlm.nih.gov/pubmed/28367952
SP Goal 4, 9

- ***Evaluation of tumorigenic potential of CeO2 and Fe2O3 engineered nanoparticles by a human cell in vitro screening model.*** *Stueckle TA, DC Davidson, R Derk, TG Kornberg, D Schwegler-Berry, SV Pirela, G Deloid, P Demokritou, S Luanpitpong, Y Rojanasakul and L Wang. NanoImpact (2017) v. 6 pp. 39-54.*
http://doi.org/10.1016/j.impact.2016.11.001
SP Goal 5

- ***Parental Exposure to Dim Light at Night Prior to Mating Alters Offspring Adaptive Immunity.*** *Cissé YM, Russart KL, Nelson RJ. Sci Rep. 2017 Mar 31;7:45497.*
https://www.ncbi.nlm.nih.gov/pubmed/28361901
SP Goal 1, 2, 9

- ***A microfluidic culture model of the human reproductive tract and 28-day menstrual cycle.*** *Xiao S, JR Coppeta, HB Rogers, BC Isenberg, J Zhu, SA Olalekan, KE McKinnon, D Dokic, AS Rashedi, DJ Haisenleder, SS Malpani, CA Arnold-Murray, KW Chen, MY Jiang, L Bai, CT Nguyen, JY Zhang, MM Laronda, TJ Hope, KP Maniar, ME Pavone, MJ Avram, EC Sefton, S Getsios, JE Burdette, JJ Kim, JT Borenstein and TK Woodruff. Nature communications (2017) v. 8.*
http://dx.doi.org/10.1038/ncomms14584
SP Goal 1, 3

- ***Risk Belief and Attitude Formation from Translated Scientific Messages About PFOA, an Environmental Risk Associated with Breast Cancer.*** *Smith SW, R Hitt, J Russell, S Nazione, K Silk, CK Atkin and D Keating. Health Commun. (2017) v. 32 (3): pp. 279-287.*
http://dx.doi.org/10.1080/10410236.2016.1138350
SP Goal 11

- ***A bioprosthetic ovary created using 3D printed microporous scaffolds restores ovarian function in sterilized mice.*** *Laronda MM, Rutz AL, Xiao S, Whelan KA, Duncan FE, Roth EW, Woodruff TK, Shah RN. Nat Commun. 2017 May 16;8:15261.*
https://www.ncbi.nlm.nih.gov/pubmed/28509899
SP Goal 1

NIEHS News and Highlights

Selected Outreach and Engagement

- **Arsenic in Rice.** NIEHS grantee Margaret Karagas, Ph.D., from the Dartmouth University Superfund Research Center, was featured in a February 10 BBC Heath Forum report on minimizing arsenic in rice through soaking and cooking techniques. The article, *Use This Cooking Hack to Reduce Arsenic Levels in Your Rice*, included discussion on safe levels of arsenic and how to reduce exposure.
- **Science Literacy.** Kathy Vandiver, Ph.D., director of the MIT Community Outreach and Education Core of the Center for Environmental Health Sciences, participated in the North Carolina Association for Biomedical Research's "Rx for Science Literacy: Human Genetic Variation Workshop" on February 10, in collaboration with the NIEHS Office of Science Education & Diversity. Vandiver led a guided, hands-on tutorial for 31 middle and high school science teachers called *Teaching DNA, Proteins, and Protein Synthesis Concepts with Prototype LEGO ® Sets*. Mike Humble, Ph.D., a DERT program officer moderated a training session on the NIH/NHGRI-developed curriculum on *Human Genetic Variation*.
- **Tribal Consultation.** On February 23, DERT Program Officer Symma Finn, Ph.D., participated in a formal tribal consultation organized by the NIH Tribal Research Office/OD and TCAC Co-Chairs. The consultation involved presentations on IRBs and other ways that NIH protects human subjects in research, and included discussion of ways to integrate tradition and culture in the design and conduct of research involving tribal populations
- **Risk Communication.** Heather Henry, Ph.D., from the Superfund Research Program (SRP) spoke to N.C. teachers visiting NIEHS on February 22. Her presentation, titled *Environmental Contamination: A Bioavailability Perspective*, drew from a risk communication exercise developed by SRP grantees at UNC and the University of Arizona to make it easier for communities to understand the concept of bioavailability. Dana Haine from the Community Engagement Core at the UNC-Chapel Hill SRC led a hands-on demonstration to enhance understanding of how bioavailability is used for site cleanup decisions.
- **New Newsletter.** In February, NIEHS launched the *Superfund Research Program Science Digest*, a quarterly newsletter designed to highlight research areas, SRP research dissemination activities, and recent and high-impact grantee research and technology. The current issue and be viewed at: https://www.niehs.nih.gov/research/supported/centers/srp/science_digest/2017/2/ .
- **Health Disparities Curriculum:** Sharon D. Beard from the NIEHS Worker Training Program demonstrated an occupational health disparities curriculum for public health students at the Department of Energy Environmental Justice and Training Conference in Washington, DC, in March. The curriculum, which consists of 3 modules, as well as case

studies, videos, family history assignments, and an instructor's guide, can be found at *http://losh.ucla.edu/resources-2/work-health-equity-module*.

- **One Health in the Gulf.** NIEHS Deputy Director Rick Woychik, Ph.D., presented a plenary talk at the 2017 State of the Gulf of Mexico Summit. The core principle of the Summit was "finding common ground and building partnerships for an economically and ecologically sustainable Gulf of Mexico. "Woychik's plenary discussed how a One Health approach, combining the interests of humans, animals, and the environment, is a viable and effective framework for the Summit's efforts.
- **Air Pollution in NC.** DERT Program Officer Sri Nadadur, Ph.D., delivered a plenary entitled *Perspectives on 21st Century Air Pollution and Health Research Priorities* at the Clean Air Carolina Annual Meeting on March 28. He also participated in a breakout group at the meeting that made recommendations for research needs on health impacts of air pollution in rural North Carolina.
- **ICCVAM Public Forum.** The Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM) *held* a public forum on May 23, 2017. The forum was held as part of ICCVAM's stated efforts to promote national and international partnerships between government and non-government stakeholders through sharing information and facilitating direct communication of ideas. Participants at the meeting were encouraged to make public statements, as well as to submit written statements. This year's annual forum explored new approaches for evaluating the safety of chemicals and medical products used in the United States.

Additional Activity Highlights

NIEHS-CDC Coordination of PFOA/PFAS. On March 2nd CDC/NCEH hosted a multi-federal agency update and teleconference discussion on per- and polyfluroalkyl substances (PFAS) research activities. The objective of the meeting was to bring federal government entities together to share PFAS and public health-related activities to gain mutual awareness and understanding, and to identify immediate areas of synergy and opportunities for coordination. Dr. Pat Breysse, director NCEH, led the discussion. Presentations /updates of agency activities were provided by NCEH (Knutson), NIEHS (Bucher, Thompson, Blystone, Fenton), FDA (Rice, Begley), EPA, CPSC (Thaler), and DOD (Long, Morefield). USGS was not able to attend. NIEHS activities were coordinated by Chris Weis, NIEHS Toxicology Liaison, including robust presentations by NIEHS speakers regarding the spectrum of Institute research activities in this area.

A second teleconference among agency representatives was held on March 28. The organization of the group will be co-led by Lynn Wilder of ATSDR and Lynn Flowers of EPA. NIEHS points of contact for participation will be Weis and Suzanne Fenton (NTP). Next steps include a possible workshop in late 2017 or early 2018, as well as attendance by representatives of ATSDR at the meeting of NIEHS grantees on Highly Fluorinated Compounds to be held in Boston, MA., on June 12-14. NIEHS Director Linda Birnbaum will deliver at keynote at that meeting. ATSDR would like to have a follow up virtual meeting with NIEHS to coordinate on PFOA and other issues in the coming months.

WHO International Program on Chemical Safety (IPCS) Systematic Review. NIEHS is working with the IPCS on its efforts to develop a framework for systematic review and a GRADE approach to evaluating the quality of evidence. GRADE is the Cochrane's recommended approach for grading the quality of evidence and the strength of recommendations. It was proposed and developed by the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) Working Group. WHO is in the final stages of developing a monograph that will endorse and recommend major steps to be taken for the development of systematic review of public health data to be used in decision making. Chris Weis, NIEHS Toxicology Liaison, is leading the Institute's coordination efforts in this area. He recently met with IPCS staff, and is working with WHO, the Karolinska Institute, the European Food Safety Administration, and Lancaster University, UK to organize a half-day training session on systematic review to be held at the upcoming meeting of the WHO Chemical Risk Assessment Network in Parma, Italy. Trainers will include representatives of WHO, EFSA, NIEHS, and Public Health England.

Technology Advance. NIEHS is participating in the Molecular Microscopy Consortium (MMC), a joint venture with Duke University and the University of North Carolina at Chapel Hill. The plan is to set up three facilities dedicated to specimen preparation and data collection. The first one to come online is the Cryo-EM core at NIEHS. The FEI Talos Arctica Cryo-Electron Microscope (Cryo-EM) arrived at NIEHS on March 21 and the facility is scheduled to be fully functional by the end of May 2017. Cryo-EM uses single particle cryo-electron microscopy and other molecular microscopy tools to determine complex macromolecular structures of proteins, DNA, and RNA at the atomic level—a level of resolution that cannot always be determined using more standard procedures such as X-ray crystallography. Mario Borgnia, Ph.D., is the director of the MMC. A second facility at Duke is in the design phase and construction is expected to begin soon. Development of the third facility, to be housed at UNC, is expected to start later this year. The other major component of the MMC is training, with the goal of extending the capabilities of existing local structural biology groups so that they can solve structures using Cryo-EM. Projects will be submitted to the Consortium facilities, each with a lead trained in the methodology who will drive the research on that particular scientific question.

Meetings and Events

Past

- **Toxic Metals: From Exposures and Model Systems to Human Populations** was the theme of the first annual symposium of the NIEHS-funded Center for Human Health and the Environment (CHHE) at North Carolina State University (NCSU). The event brought center members and colleagues to the NCSU James B. Hunt Library Feb. 16 to highlight CHHE research. More than 100 investigators, postdocs, graduate students, and community members participated in scientific talks, presented at poster sessions, and socialized with colleagues. NIEHS Director Linda Birnbaum gave a keynote at the event. CHHE brings together nearly 90 researchers from multiple disciplines across NCSU, and

from East Carolina University, Brody School of Medicine, North Carolina Central University, and the North Carolina Department of Health and Human Services. Through interdisciplinary research and outreach, CHHE serves as an incubator of scientific discovery and communication on the fundamental mechanisms through which environmental stressors interact with biological pathways, the genome, and epigenome that affect human health. **SP Goals 1, 3, 4**

- The **Triangle Consortium for Reproductive Biology Annual Meeting** occurred on February 25 at NIEHS. NIEHS researcher Carmen Williams, M.D., Ph.D., was a lead organizer of the meeting which drew attendees from a wide area to share research and network across institutions. The meeting provides trainees with the opportunity to network with other researchers in the region as well as gain experience with poster and oral presentations. Speakers presented on the pathway that germ cells follow during their development, and the roles of microenvironment and organelle sorting. In addition, there were presentations about female and male fertility and how oxidative stress and inflammation may influence fetal growth restriction. During the meeting, two NIEHS fellows were awarded the Campion Award. **SP Goals 1, 2, 9**
- The NAS Committee on Emerging Science for Environmental Health Decisions met March 6-7 in Washington DC for a workshop on **Enabling Inference-based Decision-making: Predicting v. Observing.** This workshop discussed the current thinking surrounding causal models, how novel approaches and tools are relevant for environmental health, and how they can be incorporated into the decision-making process. Environmental health experts, toxicologists, statisticians, sociologists, epidemiologists, regulators, were joined by experts from other fields that utilize different data streams for establishing causality in complex systems. **SP Goals 1, 4, 7**
- The **2017 National Environmental Justice Conference and Training** was held March 8-10, 2017 in Washington, D. C., with approximately 650 registrants. During the conference, attendees had the opportunity to interact with a diverse group of representatives from federal and state agencies, local governments, tribes, community groups, and business and industry leaders. Kim Lambert of the U.S. Fish and Wildlife Service, the Honorable Congressman James E. Clyburn, Assistant Democratic Leader (D-SC), and Milton Bluehouse, Jr. of Navarro Research and Engineering served as Keynote Speakers. The conference agenda provided an Emerging Leaders' Summit which featured our young and future EJ leaders, panel discussions and Q & A segments, as well as networking lunches and receptions. There were twenty workshops and technical training sessions, and two EJ related documentary films were viewed and discussed. All-in- all, the conference provided an array of networking opportunities among students, faculty, community, business and government leaders. **SP Goals 6, 8, 11**
- Despite a late winter snowstorm, NIEHS and National Toxicology Program (NTP) staff discussed toxicological research with nearly 7,000 attendees at the March 12-16 **56th Annual Society of Toxicology (SOT) Meeting and ToxExpo** in Baltimore. Scientists from NIEHS and NTP led scientific lectures and poster presentations, workshops about research funding, and networking events. Several received awards. Speakers discussed new ways to study complex mixtures of chemicals in the environment and new pollutants of concern, such as environmentally persistent free radicals. SP **Goals 5, 7, 9**

- As emerging evidence links toxicant exposures with central nervous system and behavior changes consistent with disorders ranging from schizophrenia to depression, it is important to incorporate environmental factors in the study of these diseases to allow for better preventative and therapeutic strategies. **Environmental Risks for Psychiatric Disorders: Exploring Biological Mechanisms** was a collaborative meeting planned by Jonathan Hollander, Ph.D., from the NIEHS Division of Extramural Research and Training (DERT), and co-chairs Deborah Cory-Slechta, Ph.D., from University of Rochester Medical School; Tomas Guilarte, Ph.D., from Florida International University; and Mady Hornig, M.D., from Columbia University. The meeting brought together experts in the fields of psychiatry, fundamental neuroscience, human genetics, immunology and environmental health sciences to identify common pathways and mechanisms implicated in psychiatric disorders that are potential targets of environmental exposures. This workshop will generate a publishable report on the state of the science, and help determine the most appropriate and productive directions for research in the area of environmental factors in risk for mental disorders. **SP Goals 3, 4**
- NIEHS sponsored a week of educational, collaboration, and outreach activities in San Juan, Puerto Rico in late March, led by NIEHS and National Toxicology Program Director Linda Birnbaum, Ph.D. The **Superfund Worker Training Grantee Meeting & Community Forum** took place March 27-31. Events included a tour of neighborhoods affected by increased flooding, a large town hall meeting on environmental health challenges on the island, and a workshop to explore technologies for training workers who handle hazardous materials, known as hazmat training. **SP Goals 6, 9, 11**
- The **2017 NC Breathe Conference** brings air quality experts together annually to identify research gaps and discuss ways to improve North Carolina's air. Scientists reviewed evidence of the far-reaching health effects of air pollution at the annual conference in Raleigh on March 28. During an NC Breathe keynote address, Sri Nadadur, Ph.D., a program director in the NIEHS Exposure, Response, and Technology Branch, reviewed harms from air pollution reported in epidemiological studies. These include heart attacks, worsening of asthma, preterm birth, low birth weight, and increased deaths. **SP Goals 2, 3, 4**
- The **Children's Environmental Health Network's (CEHN) Biennial Research Conference** took place April 5–7 in Arlington, Virginia. The event convened a diverse an international group of nearly 200 professionals including research scientists at the forefront in the fields of genome and molecular sciences, environmental epidemiology and toxicology, as well as health care professionals and public health professionals. Kimberly Thigpen Tart, J.D., M.P.H., from the NIEHS Office of Policy, Planning, and Evaluation, organized and spoke in a panel session on climate-related health impacts on children and pregnant women. The session also included NIEHS research grantee Perry Sheffield, M.D., from Mt. Sinai School of Medicine, and Samantha Ahdoot, M.D., a representative from the American Academy of Pediatrics, John Balbus, M.D., NIEHS Senior Advisor for Public Health, moderated the session. **SP Goals 1, 2, 9**
- As part of an ongoing commitment to improve the health of its community, NIEHS co-sponsored **3rd Women's Health Awareness Day 2017**. The event took place April 8 at North Carolina Central University (NCCU) in Durham, North Carolina, with the theme of

"Transforming Communities by Enhancing Women's Health." According to the driving force behind Women's Health Awareness Day, Joan Packenham, Ph.D., the health conference is one way that the NIEHS Clinical Research Branch engages the community and builds awareness of the importance of environmental health, helping women take greater responsibility for their health. **SP Goals 6, 8, 11**

- From advancing the understanding of the brain to providing professional development activities, the **Triangle Chapter of the Society for Neuroscience** hit the mark April 13 at its annual spring conference. NIEHS was a sponsor of the event in Cary, North Carolina. The conference offered a variety of networking opportunities including 2 poster sessions, over a dozen exhibitors, "Ask a grad student" networking session, luncheon opportunity with the keynote speaker, and a closing reception. **SP Goals 1, 8, 9**
- The **20th Annual NIEHS Biomedical Career Symposium** is one of the largest assemblies of biomedical organizations and young scientists in Research Triangle Park, NC., with nearly 400 people attending. Targeting postdoctoral fellows and graduate students, the Career Symposium provided young scientists with an opportunity to explore a myriad of career options and create a contact network as they plan for their future careers in the biomedical sciences. This year there were 10 workshops in addition to the 9 career panels, as well as an afternoon networking session. **SP Goals 8, 9**
- Genome analysis tools took center stage at the annual **NIEHS Genomics Day** May 11. Scientists from across the Institute attended presentations on research tools available through the NIEHS Molecular Genomics Core, Epigenomics Core, and Integrative Bioinformatics Support Group. Scientists, ranging from trainees to lead researchers, who have used the various resources to advance their studies gave talks on their findings. An afternoon session featured posters by scientists from NIEHS, the NTP, and the EPA, as well as vendors. **SP Goals: 1, 7**
- The **Epigenetics, Stem Cells, and Environmental Health Symposium and Workshop** was held at NIEHS on June 1-2. The workshop was designed to stimulate interactive sharing of late-breaking research on epigenetics and stem cell biology related to environmental health and to convene an expert panel to produce a set of recommendations for future research. **SP Goals 1, 2, 9**
- The **Next Steps in Studying the Human Microbiome and Health in Prospective Studies Workshop** took place in Bethesda, MD on May 16-17. The two-day workshop, sponsored by NCI's Metabolic Epidemiology Branch and the Epidemiology and Genomics Research Program, focused on bringing together scientists to discuss and seek consensus on optimum methods for collecting tissue samples for multi-omics analyses; examining the variation caused by DNA extraction, amplification, sequencing, and bioinformatics methods and the best methods to handle variation in future studies; evaluating the statistical methods for pooling microbiome data from multiple studies; addressing the best types of quality control samples to monitor variation in sample handling between sample batches, studies, and laboratories and which can assess stability during long-term storage; and reporting and data sharing standards for epidemiological studies of the human microbiome. The workshop format included opportunities for researchers to hear from public health leadership, interact and explore these topics in breakout sessions, and to network. **SP Goals 1, 4, 7**

- The Citizen Science Association met May 17–20, 2017 in St. Paul, MN for **Citizen Science 2017**. The conference brought together researchers, practitioners, community organizations, and participants to navigate the field of citizen science. Events included over 400 talks and symposia, 12 workshops, 3 field trips, a hackathon, a public festival, and networking. Sessions focused on making citizen science more accessible and relevant to more communities. Discussions included successes and challenges in designing, implementing, sustaining, and evaluating projects. Liam O'Fallon, Program Specialist in DERT, represented NIEHS at the meeting. **SP Goals 8, 9, 11**

Upcoming

- **Annual CounterACT Conference**, Boston, June 12-14
- **Highly Fluorinated Compounds: Social and Scientific Discovery**, Boston, June 14-15
- **12th Annual Center of Excellence in Environmental Toxicology (CEET) Symposium**, Philadelphia, PA, June 19
- **WHO Risk Assessment Network** meeting, Parma, Italy, June 20-22
- **15th International Congress on Combustion By-Products and their Health Effects**, Seoul, South Korea, June 27-30
- **NEHA 2017 Annual Educational Conference and Exhibition**, Grand Rapids, MI, July 10-13
- **13 International Conference on Mercury as a Global Pollutant**, Providence, RI, July 16-21
- **69th American Association for Clinical Chemistry Annual Scientific Meeting and Clinical Lab Expo**, San Diego, July 30-August 3
- **254th American Chemical Society National Meeting and Exposition**, Washington DC, August 20-24
- **Dioxin 2017**, Vancouver Canada, August 20-25
- Risk Assessment of Chemical Mixtures: From Scientific Evidence to Environmental Regulation, Denver CO, September 6-8
- Environmental Mutagenesis and Genomics Society Annual Meeting, Raleigh NC, September 9-13

Awards and Recognition

NIEHS

- NIEHS Division of Intramural Research Innovative Research Awards
  - **Bart T. Phillips, Ph.D**., an Intramural Research Training Award (IRTA) fellow in the Epigenetics and Stem Cell Biology Laboratory (ESCBL); (Mentor: Traci Hall, ESCBL): *Identification of Translational Regulatory Networks in Spermatogonial Stem Cells*
  - **Shannon Farris, Ph.D**., IRTA fellow in the Neurobiology Laboratory, (Mentor: Serena Dudek, NL): *Mechanisms Underlying Hippocampal CA2 Resistance to Injury*

    - **Motoki Takaku, Ph.D.,** ESCBL visiting fellow; (Mentor: Paul Wade, ESCBL): *Nucleosome Targeting Mechanism by Pioneer Transcription Factors*;
    - **Fei Zhao, Ph.D**., visiting fellow in the Reproductive and Developmental Biology Laboratory**;** (Mentor: Humphrey Yao, RDBL): *Unexpected Contribution of Male Tract Mesenchymal Cells to the Female Reproductive Tract*
- Big Picture, Small Talk: a 3-minute talk challenge tasked scientists with describing their work in language that a general audience would understand. Three winners were chosen, and each will receive a travel award to attend the conference of his or her choice.
    - **Lee Langer, Ph.D**., Chromatin and Gene Expression Group, Epigenetics and Stem Cell Biology Laboratory (ESCBL)
    - **Priya Jayaraman, Ph.D.,** Immunogenetics Group, Immunity, Inflammation, and Disease Laboratory (IIDL)
    - **David Scoville, Ph.D.,** Cell Biology Group, IIDL
- Endocrine Society:
    - **Janet Hall, M.D.,** NIEHS Clinical Director, was honored with the Sidney H. Ingbar Distinguished Service Award at the Society's 2017 meeting. Hall has served the society in numerous ways, including a term as president.
    - **Matthew Quinn, Ph.D.,** Molecular Endocrinology Group, Signal Transduction Laboratory, was chosen for an Early Investigator Award for his work on women's health issues, particularly menopause.
    - **Natalie Shaw, M.D.,** a clinical researcher, was chosen for a 2017 Endocrine Society Early Investigator Award
- Society of Toxicology:
    - **Linda S. Birnbaum, Ph.D., D.A.B.T.,** was honored with the Distinguished Toxicology Scholar award, which recognizes an accomplished SOT member who has made substantial contributions to the field of toxicology and is still actively involved in toxicological research.
    - **Danielle Carlin, Ph.D.,** SRP/DERT was elected to be the Society of Toxicology (SOT) Mixtures Specialty Section Vice-President Elect.
    - **Dori Germolec, Ph.D.,** leader of the NTP Systems Toxicology Group, received the Lifetime Career Achievement Award from the SOT Immunotoxicology Specialty Section.
    - **Scott Auerbach, Ph.D.**, NTP Toxicoinformatics Group, won a Top Ten Abstracts in Risk Assessment award
    - **Salik Hussain, D.V.M., Ph.D.,** NIEHS Matrix Biology Group won Best Publication Award in the Nanotoxicology Specialty Section.
- HHS Green Champion Awards:
    - **NIH NIEHS Climate Resilience Planning Team,** Mitch Williams, Jeffery Church, Bill Steinmetz, Paul Johnson. For exemplary performance and leadership in identifying vulnerabilities, determining impacts and stakeholders, and developing resilience measures for changes in overall climate
    - **NIH NIEHS Preparing the Next Generation of Environmentalists,** Ed Kang, Cheryl Thompson, Elizabeth Lake, William Steinmetz, Bill Willis, John McLamb, Parker Sims,

Claire Long, Paul Johnson. In recognition of outstanding efforts to build awareness of environmental stewardship and enhance outreach in this area to affect an age-diverse audience in meaningful ways.

- **Lisa Rider, M.D.,** deputy chief of the Environmental Autoimmunity Group, received a lifetime achievement in research award from the Cure JM Foundation in recognition of her years of research on juvenile myositis (JM) and her significant advances in the field.
- **Chandra Jackson, Ph.D.,** head of the Social and Environmental Determinants of Health Equity Group, received the Ernest E. Just Prize. The annual award encourages innovative research developments in treating or eradicating chronic diseases that disproportionately affect African Americans.
- **Christopher Weis, Ph.D.,** NIEHS Toxicology Liaison**,** was elected the president of the American Board of Toxicology.
- **Natalie Shaw, M.D.,** an NIEHS clinical investigator and pediatric endocrinologist, will receive the American Society for Clinical Investigation (ASCI) 2017 Young Physician-Scientist Award.
- Campion Awards: The Campion Award is given to promising young investigators in the field of reproductive biology. The award is sponsored by the Phyllis and Mark Leppert Foundation for Fertility Research.
    - **Xiaoqiu Wang, Ph.D.,** postdoctoral fellow from the NIEHS Pregnancy and Female Reproduction Group
    - **Kathryn McClelland, Ph.D.,** visiting fellow in the Reproductive Developmental Biology Group
- NIH Director's Awards:
    - **Ebola Biosafety Training Initiative - Scientific/Medical Category -** For the innovative development of a safety training program for infectious disease responders during the 2014-15 national Ebola crisis. Kathy Ahlmark, Janice Allen, Sharon Beard, Pamela Clark, Lisa Edwards, Joseph Hughes, Nina Jaitly, Laurie Johnson, Alfonso Latoni, James Remington, Jonathan Rosen, Angela Sanders, Demia Wright, Kevin Yeskey
    - **NIEHS 50th Anniversary Committee - Administrative Category -** For extraordinary commitment, effort, and success in planning and implementing a full year of special events to commemorate the 2016 NIEHS 50th Anniversary. Joel Abramowitz, Lois Annab, Gary Bird, Jennifer Collins, Tammy Collins, Christine Flowers, Stephanie Holmgren, Cathy Jamison, Claire Long, Robin Mackar, Mark Miller, Elizabeth Ney, Julie Nixon, Joseph Poccia, Nicole Popovich, Lorin Sawyer, Anne Thompson, Cheryl Thompson, Molly Vallant
    - **NIEHS Workforce Relations Team - Administrative Category -** For extraordinary leadership in improving workforce relations at NIEHS. Aric Burks, Matthew Burr, David Coward, Amanda Green
    - **I-CORPS Program Expansion Team - Administrative Category -** For superior team resourcefulness and leadership in administration and expansion of the

Innovation Corps program with substantial benefit to enhancing the NIH and CDC missions. Daniel Shaughnessy (as part of a trans-NIH team)

- **Trans-NIH ePMAP Administrative Board Members - Administrative Category -** For leading the implementation of the electronic Performance Management and Appraisal Program system across NIH. Edward Kang, Claire Long, Ellen Moul (as part of a trans-NIH team)

- NIEHS Merit Awards – Individual
  - **Srikanth Nadadur**, (DERT): For outstanding leadership in establishing cooperative activities between the United States and India to address the burden of exposure to air pollution in India.
  - **Laurie Johnson**, (OM): For exceptional leadership in resource management and advancing the NIEHS mission.
  - **William Fitzgerald**, OM: For leadership, commitment to excellence, and dedication to the continuous improvement of occupational health, safety, and radioactive material security at NIEHS.
- NIEHS Merit Awards — Group
  - **50th Anniversary Planning Committee**: For extraordinary commitment, effort, and success in planning and implementing a full year of special events commemorating the NIEHS 50th Anniversary: Joel Abramowitz, Lois Annab, Eddy Ball, Gary Bird, Paul Cacioppo, Jennifer Collins, Tammy Collins, Donna Jeanne Corcoran, Christine Flowers, Jerry Heindel, Stephanie Holmgren, Cathy Jamison, Annette Kirshner, Kathryn Lawrence, James Little, Claire Long, Robin Mackar, John Maruca, Mark Miller, Nathan Mitchiner, Eli Ney, Julie Nixon, Joseph Poccia, Nicole Popovich, Wei Qu, Anne Sassaman, Devlin Sawyer, John Schelp, Amanda Thompson, Anne Thompson, Cheryl Thompson, Molly Vallant.
  - **Animal Health Surveillance Program**: For diligence and teamwork in the NIEHS Animal Health Surveillance Program: Floyd Adsit, Spencer Bridges, A.G. Carrington, Alex Castro, Francisco Contreras, Michell Contreras, Scotty Dowdy, C.J. Ganus, Johnny Green, Erika Hayes, Ransom Holliday, Jenetta Jackson, Michael Johnston, Jacqueline Locklear, Rodriquez Sutton, Jenine Taborn, Israel Uzoma, Toni Ward, Dee Wenzel, Tanya Whiteside
  - **Budget Resource Tracking Team**: For extraordinary commitment and dedication in developing the NIEHS Budget Resource Tracking Operating Plan Module: Cyndi Arizona, B.J. Bhatt, Charletta Fowler, Kristin Greiner, Beth Lauderdale, Scott Redman, Sarah Rogers, Angela Sanders, Kent Stone, Chad Thacker
  - **Cell Phone Radiation Studies**: For exceptional efforts to rapidly review data and issue a report of partial findings from the NTP Radiofrequency Radiation Studies: John Bucher, Chad Blystone, Mark Cesta, Susan Elmore, Paul Foster, Michelle Hooth, Grace Kissling, David Malarkey, Robert Sills, Stephanie

Smith-Roe, Matthew Stout, Nigel Walker, Kristine Witt, Mary Wolfe, Michael Wyde

- **Climate Change and Human Health Literature Portal**: For outstanding effort and dedication in creating the NIEHS Climate Change and Human Health Literature Portal: John Balbus, Tiffany Bowen, Trisha Castranio, Stephanie Holmgren, Claus Jensen, James Little, Joseph Poccia, Britton Powers, Qasim Rasheed, Kimberly Thigpen Tart
- **EHS Fest**: For exceptional vision, planning, and execution of the NIEHS Environmental Health Sciences Festival: Sharon Beard, Paul Cacioppo, Trisha Castranio, Jennifer Collins, Yuxia Cui, Symma Finn, Suzanne France, Kimberly Gray, Virginia Guidry, Astrid Haugen, Michelle Heacock, Heather Henry, Michael Humble, John Maruca, Kerri Voelker, Liam O'Fallon, Kristi Pettibone, Nicole Popovich, Britton Powers, Molly Puente, John Schelp, Anne Thompson, Leroy Worth
- **Goal 10 Economic Impact of Environmental Health**: For development and execution of implementation plans for Goal 10 of the NIEHS Strategic Plan, Environmental Health Economic Analysis: Sharon Beard, Caroline Dilworth, Christie Drew, Barbara Gittleman, Virginia Guidry, Michelle Heacock, Alfonso Latoni, Pat Mastin, Sheila Newton, Kristi Pettibone, Molly Puente, Daniel Shaughnessy, Kristina Thayer, Kimberly Thigpen Tart, Mary Wolfe, Demia Wright
- **Inflammation Implementation**: For advancing collaborations and institute-level awareness of opportunities in inflammation biology: Janice Allen, Barbara Dietz, Michael Fessler, Jean Harry, Michael Humble, Nina Jaitly, Frederick Miller, Shepherd Schurman
- **Information Technology Management Committee**: For providing outstanding support for IT enterprise at NIEHS: Bernard Brown, Charles Conrad, Allen Dearry, Christie Drew, David Fargo, Christine Flowers, Michelle Hooth, Mary Jacobson, Laurie Johnson, Raja Jothi, Chris Long, Pat Mastin, Alex Merrick, Sheila Newton, Scott Redman, Jack Taylor, Paul Wade, Mitch Williams
- **Newsletters Update**: For innovation, creativity, and extraordinary design in updating the internal and external NIEHS newsletters, The Connection and Environmental Factor: David Christie, Claus Jensen, Ed Kang, Kelly Lenox, Claire Long, Ellen Moul, Joseph Poccia, Qasim Rasheed, Ian Thomas, Cheryl Thompson, Kenneth Webb, Mitch Williams.
- **Science in the Cinema**: For exemplary creativity in developing and hosting hands-on activities for children and adults as part of the Science in the Cinema community outreach and education program: Abee Boyles, Suzanne Fenton, Adam Filgo, Michael Humble, Huei-Chen Lao, Robin Mackar, Steve McCaw, Ericka Reid, John Roberts, Deirdre Tucker, Nigel Walker
- **Scientific Information Team**: For substantial strategic support in advancing the missions of the Office of Scientific Information Management and the

Office of the Scientific Information Officer: Beth Bowden, John Grovenstein, Stephanie Holmgren, Beth Lauderdale
    - **Zika Program**: For exceptional coordination and collaboration in implementing the National Institutes of Health (NIH) response to the Zika outbreak: Jed Bullock, Kimberly Gray, Heather Henry, Scott Masten, Barry McIntyre, Aubrey Miller
- NIEHS Unsung Hero Awards
    - **Benny Encarnacion,** OM: For exemplary integrity, efficiency, and professionalism in supporting NIEHS extramural programs.
    - **Christopher Fisher,** OM: For exemplary efficiency, dedication, service, and professionalism to the Office of Acquisitions and the mission of NIEHS.
    - **Elizabeth McNair,** DERT: For exemplary work in implementing administrative tasks, including NIEHS Council-related activities and Funding Opportunity Announcements processes.
    - **Nicole Popovich,** DERT: For exemplary integrity, efficiency, and professionalism in administering the activities of DERT.
    - **Rita Ross,** (DIR): For being extremely resourceful, efficient, hardworking, knowledgeable, and professional in serving the Biostatistics and Computational Biology Branch.
    - **Valeria Shropshire,** OM: For diligence, exceptional customer service, and outstanding dedication to the occupational health, safety, and wellness mission at NIEHS.
    - **Yun Xie,** (DNTP): For dedicated service enhancing productivity and efficiency in the DNTP.
- NIEHS Peer Awards - These winners were nominated by their peers for notable and extraordinary assistance to coworkers.
    - **Nancy Mitchell**, DIR
    - **Chris Stone**, DIR
    - **Michelle Victalino**, DERT
    - **Myra Westmoreland**, DIR

Grantees/Others

- **mark! Lopez**, Exec Director of East Yard Communities for EJ (EYCEJ), was awarded the Goldman Environment Prize for his for his role in shutting down and trying to clean up the Exide battery plant in Los Angeles
- **Jodi A Flaws, Ph.D.,** Professor of Comparative Biosciences at the College of Veterinary Medicine at the University of Illinois received the Trainee Mentoring Award presented by the Society for the Study of Reproduction.
- NIEHS Outstanding New Environmental Scientist (ONES) Awards
    - **Mohit Jain, Ph.D., M.D.,** from the University of California, San Diego, will use high-throughput mass spectrometry to measure exposure-related small

molecules in human blood. He hopes to map the non-genetic underpinnings of human cardiovascular disease.

- **James Roede, Ph.D.,** from the University of Colorado, Denver, will use cellular and animal models to investigate the impact of the fungicide Maneb on the cellular mechanisms involved in brain cell development.
- **Madeleine Scammell, D.Sc.,** from Boston University School of Public Health, will research the roles of heat stress, and heavy metal and herbicide exposures on the risk of developing kidney disease among agricultural workers in El Salvador, where death rates from the disease are very high.
- **Zheng Sun, Ph.D.,** from Baylor College of Medicine, will address how metabolic change differs in males and females in response to inorganic arsenic. He will examine the role of sex hormones and their receptors using animal models.
- **David Volz, Ph.D.**, from the University of California, Riverside, hopes to uncover the mechanisms of developmental toxicity for two organophosphate flame retardants that are commonly detected indoors.

- Society of Toxicology Awards
  - **Jason Richardson, Ph.D**., from Northeast Ohio Medical University, received the SOT Achievement Award
  - **Dana Dolinoy, Ph.D.**, from the University of Michigan, received the Outstanding Young Investigator award from the SOT Women in Toxicology (WIT) special interest group.
  - Best Postdoctoral Publication Awards:
    - **Sascha Nicklisch, Ph.D**., University of California at San Diego, whose paper *Global marine pollutants inhibit P-glycoprotein: Environmental levels, inhibitory effects, and cocrystal structure*, was funded through the Oceans and Human Health program.
    - **Fabian Grimm, Ph.D.,** Texas A&M University, a mentee of University of North Carolina Superfund Research Program Center grantee Ivan Rusyn, M.D., Ph.D., for his paper, *Green chemistry : an international journal and green chemistry resource*

  - Honorary Membership:

    - **George Leikhauf, Ph.D.,** University of Pittsburgh
    - **Jonathan Samet, M.D.,** Johns Hopkins University

  - Graduate Student Poster Competition:
    - **Jenny Panlilio**, Woods Hole Oceanographic Institute, first place in the Reproductive and Developmental Toxicology Specialty Section and second place in the Neurotoxicology Specialty Section.