

Report to the National Advisory Environmental Health Sciences Council

Director, NIEHS
June 4-5, 2019

Budget and Legislative Report

FISCAL YEAR 2019 APPROPRIATIONS SUMMARY

The annual NIEHS budget is formed from three different appropriations from Congress—(1) a core appropriation from the Departments of Labor, Health and Human Services, and Education, and Related Agencies appropriations bill for the NIEHS mission authorized by the *Public Health Service Act*, as amended; (2) an appropriation from the Department of the Interior, Environment, and Related Agencies appropriations bill for NIEHS Superfund-related activities authorized by the *Superfund Amendments and Reauthorization Act of 1986*; and (3) a transfer of funds from the Department of Energy for the NIEHS/DOE Nuclear Worker Training Program authorized by the *National Defense Authorization Act for Fiscal Years 1992 and 1993* that are appropriated through the Energy and Water Development and Related Agencies appropriations bill.

The table below outlines the details of these three appropriations for NIEHS for Fiscal Year 2019. The appropriation for the NIEHS/DOE Nuclear Worker Training Program—which remained unchanged from the prior year—was enacted into law on September 21, 2018, which was 11 days before the start of Fiscal Year 2019. The core appropriation for NIEHS—which was \$23.564 million or 3.14% more than the prior year—was enacted into law on September 28, 2018, which was four days before the start of Fiscal Year 2019. Last, the appropriation for the NIEHS Superfund Research Program and the NIEHS Worker Training Program—which was \$1.651 million or 2.13% more than was appropriated for the prior year—was enacted into law on February 15, 2019, which was the 142nd day of Fiscal Year 2019. In the accompanying conference report, Congress divided the \$1.651 million increase as follows—\$1.5 million for the NIEHS Superfund Research Program and \$151,000 for the NIEHS Worker Training Program (H.Rept. 116-9, Feb. 13, 2019, pg. 752).

THE THREE APPROPRIATIONS LAWS FOR FISCAL YEAR 2019 FORMING THE NIEHS BUDGET

Public Law #	Date of Enactment	Bill No.	Short Title / Components
P.L. 115-244	Sept. 21, 2018	H.R. 5895	(1) <u>Energy and Water</u> ; (2) Legislative Branch, and (3) Military Construction and Veterans Affairs Appropriations Act, 2019 [NOTE: Component (1) includes the annual Department of Energy (DOE) Defense Environmental Cleanup account appropriation with committee report language supporting the transfer of \$10,000,000 from that DOE account to NIEHS for the NIEHS/DOE Nuclear Worker Training Program (S.Rept. 115-258, May 24, 2018, pg. 108)].
P.L. 115-245	Sept. 28, 2018	H.R. 6157	(4) Department of Defense; and (5) <u>Labor, Health and Human Services, and Education</u> Appropriations Act, 2019 [NOTE: Component (5) includes the annual appropriation for the core part of the NIEHS budget, which for Fiscal Year 2019 is \$774,707,000 (H.R. 6157, as enrolled, pg. 95)].

P.L. 116-6	Feb. 15, 2019	H.J.Res. 31	<p>Consolidated Appropriations Act, 2019: (6) Department of Homeland Security; (7) Agriculture, Rural Development, Food and Drug Administration, and Related Agencies; (8) Commerce, Justice, Science, and Related Agencies; (9) Financial Services and General Government; (10) Interior, Environment, and Related Agencies; (11) State, Foreign Operations, and Related Programs; and (12) Transportation, Housing and Urban Development, and Related Agencies.</p> <p>[NOTE: Component (10) includes the annual appropriation for the NIEHS Superfund Research Program (SRP) and the NIEHS Worker Training Program (WTP), which for Fiscal Year 2019 is \$79,000,000 (H.J.Res. 31, as enrolled, pg. 239)].</p>
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The additional table below outlines the final status of Fiscal Year 2019 appropriations for NIEHS:

DISTRIBUTION OF CONGRESSIONAL APPROPRIATIONS FOR NIEHS – FY2019 BUDGET¹

Budget Line	FY2018 Enacted Amount ²	House		Senate		FY2019 FINAL Enacted Amount	Δ v FY2018
		Proposed Amount	Δ v FY2018	Proposed Amount	Δ v FY2018		
NIEHS base budget ³	\$751.143	\$760.113	\$8.970 (1.19%)	<u>\$775.115</u>	\$23.972 (3.19%)	\$774.707	\$23.564 (3.14%)
NIEHS Superfund-related activities ⁴	\$77.349	<u>\$80.000</u>	\$2.651 (3.43%)	\$78.349	\$1.000 (1.29%)	\$79.000	\$1.651 (2.13%)
DOE Transfer to NIEHS for Nuclear WTP ⁵	\$10.000	\$0	(\$10.000)	<u>\$10.000</u>	\$0	\$10.000	\$0
NIEHS Total	\$838.492	\$840.113	\$1.631 (0.19%)	\$863.464	\$24.972 (2.89%)	\$863.707	\$25.215 (3.01%)

¹ Dollars in thousands.

² May not reflect the amount actually received at NIEHS due to the application of transfer authority that reduces the amount for all or most ICs.

³ Funded under the Labor, Health and Human Services, Education, and Related Agencies Appropriations bill.

⁴ Funded under the Interior, Environment, and Related Agencies Appropriations bill.

⁵ Funded pursuant to Committee Report Language accompanying the Energy and Water Development and Related Agencies Appropriations Act that supports the DOE/NIEHS Nuclear Worker Training Program.

Supplemental Disaster Appropriations for the NIEHS Worker Training Program Proposed

Multiple bills introduced in both the House and Senate since the 116th Congress convened on January 3, 2019, to make supplemental appropriations to several Federal departments and agencies for expenses related to the consequences of recent wildfires, hurricanes, typhoons, volcanoes, earthquakes, and other natural disasters remain pending. Among various provisions many of these bills propose \$1 million be appropriated to the NIEHS Worker Training Program, to remain available until expended, for the Program to help address debris management and mold remediation that resulted from hurricane and flooding events in 2018 and to provide personal protective equipment and informational materials to affected residents and communities.

These bills include:

- H.R. 268, the *Supplemental Appropriations Act, 2019*, which Representative Nita Lowey (D-NY), the Chairwoman of the House Appropriations Committee, introduced on January 8, 2019. The House of Representatives passed H.R. 268 by a vote of 237-187 on January 16, 2019 (Roll Call No. 39). This bill is pending in the Senate. [H.R. 268, As Placed on the Senate Legislative Calendar, Pg. 37, Lines 1-19].
- S. 572, the *Additional Supplemental Appropriations for Disaster Relief, 2019*, which Senators David Perdue (R-GA), Doug Jones (D-AL), Johnny Isakson (R-GA), Marco Rubio (R-FL), Rick Scott (R-FL), Thom Tillis (R-NC), Dan Sullivan (R-AK), Tim Scott (R-SC), and Lindsey Graham (R-SC) introduced on February 26, 2019. This bill remains pending in the Senate Appropriations Committee. [S. 572, As Introduced in the Senate, Pg. 35, Lines 6-25].
- S. 811, the *Additional Supplemental Appropriations for Border Security and Disaster Relief, 2019*, which Senator Marco Rubio (R-FL) introduced on March 14, 2019. This bill remains pending in the Senate Appropriations Committee. [S. 811, As Introduced in the Senate, Pg. 42, Lines 16-25, and Pg. 43, Lines 1-10].
- Senate Amendment #256 to H.R. 268 introduced by Senator Patrick Leahy (D-VT), the Vice Chairman of the Senate Appropriations Committee, and Senator Charles E. Schumer, the Senate Minority Leader, on April 2, 2019. This amendment is pending in the Senate. [S.Amdt. 256, As Introduced in the Senate and printed in the *Congressional Record*, April 2, 2019, Page S2199].
- H.R. 2157, the *Supplemental Appropriations Act, 2019*, which Representative Nita Lowey (D-NY), the Chairwoman of the House Appropriations Committee, introduced on April 9, 2019. This bill is pending in the House Appropriations Committee and the House Budget Committee. [H.R. 2157, As Introduced in the House of Representatives, Pg. 45, Lines 15-25, and Pg. 46, Lines 1-8].

As of this writing, negotiations continue between House and Senate leaders on the possible advancement of supplemental appropriations legislation to address identified needs of communities affected by recent natural disasters. The proposed \$1 million for the NIEHS Worker Training Program contained in the pending bills would be considered emergency spending and as such would be exempt from certain budget caps governing the appropriations process.

FY2020 APPROPRIATIONS UPDATE

To date the annual hearings of the House and Senate Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittees to consider the President's budget request for the Department of Health and Human Services (HHS) and the National Institutes of Health (NIH) specifically, have occurred for the FY2020 appropriations cycle. These hearings are listed in chronological order and as follows—

- March 13, 2019: FY2020 HHS Budget Request, House Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee, with The Honorable Alex Azar, HHS Secretary.
- April 2, 2019: FY2020 NIH Budget Request, House Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee, with Dr. Francis S. Collins, M.D., Ph.D., NIH Director, accompanied by:
 - Dr. Anthony S. Fauci, M.D., NIAID Director;
 - Dr. Douglas R. Lowy, M.D., Acting NCI Director;
 - Dr. Nora D. Volkow, M.D., NIDA Director;
 - Dr. Gary H. Gibbons, M.D., NHLBI Director; and
 - Dr. Diana W. Bianchi, M.D., NICHD Director.
- April 4, 2019: FY2020 HHS Budget Request, House Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee, with The Honorable Alex Azar, HHS Secretary.
- April 11, 2019: FY2020 NIH Budget Request, Senate Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee, with Dr. Francis S. Collins, M.D., Ph.D., NIH Director, accompanied by:
 - Dr. Anthony S. Fauci, M.D., NIAID Director;
 - Dr. Douglas R. Lowy, M.D., Acting NCI Director;
 - Dr. Nora D. Volkow, M.D., NIDA Director;
 - Dr. Richard J. Hodes, M.D., NIA Director;
 - Dr. Jon R. Lorsch, Ph.D., NIGMS Director; and
 - Dr. Griffin P. Rodgers, M.D., NIDDK Director.

Major topics raised by Members of Congress for discussion during these budget hearings included: The NIH All of Us Program enrollments, implementation progress and future budget needs; the work of the NIH Tribal Advisory Committee; and research related to (in alphabetical order) Alzheimer’s disease, Autism spectrum disorder (ASD), cannabis, Chronic Obstructive Pulmonary Disease (COPD), Down syndrome, e-cigarettes, HIV/AIDS, kidney cancer, measles vaccinations, mental health, opioids, postpartum depression, sickle cell disease, and universal flu vaccine. Questions were also asked about the rigor and reproducibility of NIH research; prescription drug pricing; pediatric enrollment in NIH clinical studies; animals used in research and non-animal alternatives; and NIMHD’s budget and health disparities.

House Labor, Health and Human Services, Education, and Related Agencies Appropriations Bill

On April 25, 2019, the House Labor, Health and Human Services, Education, and Related Agencies Appropriations Subcommittee marked up and advanced the FY2020 Labor, Health and Human Services, Education, and Related Agencies Appropriations bill. In turn, the full House Appropriations Committee marked up and favorably reported to the full House this bill on May 8, 2019.

The House bill proposes—

- a total of \$99 billion for HHS, which is an increase of \$8.5 billion above the Fiscal Year 2019 enacted level and \$20.9 billion above the President’s budget request.
- a total of \$41.1 billion for NIH, which is an increase of \$2 billion above the Fiscal Year 2019 enacted level and \$6.9 billion above the President’s budget request.
- \$812.570 million for NIEHS, which is an increase of \$37.863 million above the Fiscal Year 2019 enacted level and \$145.716 million above the President’s budget request.

The proposed increase in the House bill for NIEHS as expressed in percentage and as compared to the prior year is 4.89 percent—which is the same increase applied in the bill to 15 other NIH Institutes. Larger increases when measured by percentage are proposed for six other NIH Institutes; they are FIC, NCI, NIA, NIAID, NIGMS, and NIMHD.

The House bill proposes to continue support for several critical NIH research initiatives by targeting funding as follows:

- \$2.4 billion for Alzheimer’s disease research;
- \$3.2 billion for HIV/AIDS research;
- \$500 million for the All of Us precision medicine research initiative;
- \$411 million for the Brain Research through Application of Innovative Neurotechnologies (BRAIN) initiative;
- \$195 million for the Cancer Moonshot research initiative;
- \$50 million for the Childhood Cancer Data Initiative;
- \$25 million for firearm injury and mortality prevention research; and
- \$75 million for Research Centers in Minority Institutions.

Additionally, the House bill includes a provision prohibiting a change in indirect cost calculations for NIH grants.

Action in the Senate Appropriations Committee on its version of the FY2020 House Labor, Health and Human Services, Education, and Related Agencies Appropriations is anticipated this summer.

CONGRESSIONAL HEARINGS AND BRIEFINGS

Senate EPW Cmte. Hearing About Per- and Polyfluoroalkyl Substances (PFAS): March 28, 2019

On March 28, 2019, Dr. Birnbaum testified at a hearing held by the Senate Committee on Environment and Public Works (EPW). The hearing was entitled, “*Examining the Federal response to the risks associated with per- and polyfluoroalkyl substances.*” Dr. Birnbaum joined David Ross, Assistant Administrator, Office of Water, U.S. Environmental Protection Agency (EPA); Maureen Sullivan, Deputy Assistant Secretary of Defense for Environment, Department of Defense (DOD); and Patrick Breyse, Ph.D., Director of the National Center for Environmental Health (NCEH), Centers for Disease Control and Prevention (CDC), and the Agency for Toxic Substances and Disease Registry (ATSDR) in testifying as a Federal panel before the Committee. Thirteen of the 21 members of the Committee (62%) attended the hearing—seven Republicans and six Democrats. They were (in alphabetical order):

- Senator John Barrasso (R-Wyoming), Chairman;
- Senator John Boozman (R-Arkansas);
- Senator Mike Braun (R-Indiana);
- Senator Shelley Moore Capito (R-West Virginia);
- Senator Benjamin L. Cardin (D-Maryland);
- Senator Thomas R. Carper (D-Delaware), Ranking Member;
- Senator Tammy Duckworth (D-Illinois);
- Senator Joni Ernst (R-Iowa);
- Senator Kirsten E. Gillibrand (D-New York);
- Senator Edward J. Markey (D-Massachusetts);
- Senator Mike Rounds (R-South Dakota);
- Senator Chris Van Hollen (D-Maryland); and
- Senator Roger F. Wicker (R-Mississippi).

During the hearing Dr. Birnbaum fielded five questions from three Senators—Chairman Barrasso, Ranking Member Carper, and Senator Gillibrand—and following the hearing she received 14 Questions for the Record (QFRs) from Chairman Barrasso, Ranking Member Carper, and Senator Markey. Dr. Birnbaum’s written testimony from this hearing—which numbered 15 pages and summarized NIEHS research and findings to date relating to PFAS—is available on the Committee’s website at this [link](#). Accompanying her written testimony was a list of citations to over 80 relevant publications from NIEHS-supported scientists spanning the last two years.

House and Senate Interior, Environment, and Related Agencies Appropriations Subcommittee Briefings on FY2020 NIEHS Superfund-related Activities Congressional Justification

On February 19, 2019, and on April 25, 2019, Dr. Birnbaum briefed both majority and minority staff for the House and Senate Interior, Environment, and Related Agencies Appropriations Subcommittees about the missions and latest activities of the NIEHS Superfund Research Program (SRP) and the NIEHS Worker Training Program (WTP). Both programs fall under the jurisdiction of this Subcommittee—which is one of 12 Subcommittees of the Committee on Appropriations in both the House and Senate. Apart from these two NIEHS programs, the Indian Health Service (IHS) and the Agency for Toxic Substances and Disease Registry (ATSDR) are the two other components of the U.S. Department of Health and Human Services (HHS) that receive an annual appropriation under the Department of the Interior, Environment, and Related Agencies Appropriations bill. At these two briefings, Dr. Birnbaum fielded several questions about the SRP and the WTP, including with respect to WTP mold remediation training, design of and criteria for the Requests for Applications (RFAs) for both programs, and how the WTP Environmental Career

Three other hearings related to environmental health were held in recent months. These hearings were:

- March 6, 2019: “Examining PFAS Chemicals and their Risks” by the House Oversight and Reform Committee’s Subcommittee on Environment. [\[LINK\]](#)
- March 12, 2019: “Examining the Public Health Risks of Carcinogens in Consumer Products” by the House Oversight and Reform Committee’s Subcommittee on Economic and Consumer Policy. [\[LINK\]](#)
- April 2, 2019: “Pipeline Safety: Reviewing the Status of Mandates and Examining Additional Safety Needs” by the House Transportation and Infrastructure Committee’s Subcommittee on Railroads, Pipelines, and Hazardous Materials. [\[LINK\]](#)
- April 9, 2019: “Health and Environmental Impacts of Mountaintop Removal Mining” and H.R. 2050, “*Appalachian Communities Health Emergency Act of 2019*” by the House Natural Resources Committee’s Subcommittee on Energy and Mineral Resources. [\[LINK\]](#)
- April 9, 2019: “Assessing the Homeland Security Impacts of a Changing Climate” by the House Homeland Security Committee’s Subcommittee on Emergency Preparedness, Response and Recovery. [\[LINK\]](#)
- April 30, 2019: “Climate Change Part II: The Public Health Effects” by the House Oversight and Reform Committee’s Subcommittee on Environment. [\[LINK\]](#)
- May 1, 2019: “The State of Pipeline Safety and Security in America” by the House Energy and Commerce Committee’s Subcommittee on Energy. [\[LINK\]](#)
- May 1, 2019: “DOE’s Mounting Cleanup Costs: Billions in Environmental Liability and Growing” by the House Energy and Commerce Committee’s Subcommittee on Oversight and Investigations. [\[LINK\]](#)

ENVIRONMENTAL HEALTH-RELATED LEGISLATION

The 116th Congress convened on January 3, 2019 and will conclude at the end of calendar year 2020. Since then several environmental health-related bills have been introduced in both the House of Representatives and the Senate. Two of these bills are summarized below.

H.R. 249, Federal Accountability in Chemical Testing Act (FACT Act)

H.R. 249, the “*Federal Accountability in Chemical Testing Act*” or the “*FACT Act*” was reintroduced by Rep. Ken Calvert (R-California), Rep. Dina Titus (D- Nevada), and Rep. Vern Buchanan (R-Florida) on January 4, 2019. The bill would require the biennial reports issued by the Congressionally-mandated Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM)—a permanent committee of NIEHS managed by the Division of the National Toxicology Program—to include a description of the progress on the development, validation, acceptance, and utilization of alternative test methods (including animal use data by species, number, and test type) for toxicological testing conducted, supported, or required by each of the 16 ICCVAM-participating Federal agencies during the reporting period. This bill was H.R. 816 in the 115th Congress and had 70 bipartisan cosponsors—50 Democrats and 20 Republicans. The current version has six bipartisan cosponsors—three Democrats and three Republicans. It has been referred to the House Committee on Energy and Commerce, and within the Committee to the Subcommittee on Health where its precursor died in the legislative process at the end of the 115th Congress on January 3, 2019.

H.R. 2020, Appalachian Communities Health Emergency Act of 2019

H.R. 2020, the “*Appalachian Communities Health Emergency Act of 2019*” or “*ACHE Act*” was reintroduced by Rep. John Yarmuth (D-KY) on April 3, 2019. The bill proposes a moratorium be placed on new mountaintop removing mining permits until NIEHS conducts fee-based, mining operation-funded health studies on the issue and the HHS Secretary makes a decision about the health impacts of such operations based on those study results. The bill was first introduced in 2012—during the 112th Congress—and has been reintroduced in every consecutive Congress since. The bill was H.R. 5959 in the 112th Congress (2011-2012); H.R. 526 in the 113th Congress (2013-2014); H.R. 912 in the 114th Congress (2015-2016); and H.R. 786 in the 115th Congress (2017-2018). The current version has 15 cosponsors—all Democrats. The bill remains pending in the House Natural Resources Committee’s Subcommittee on Energy and Mineral Resources which held a hearing on April 9, 2019 to receive views on the bill. The Subcommittee heard from four non-federal witnesses, including the President of the Kentucky Coal Association who referenced in his written testimony the 2017 National Toxicology Program systematic review on the subject, two community residents, and Dr. Michael McCawley, Ph.D., an occupational and environmental health professor from West Virginia University.

Science Advances

One NIEHS (NIEHS authors’ groups in parens)

- ***The power of resolution: contextualized understanding of biological responses to liver injury chemicals using high-throughput transcriptomics and benchmark concentration modeling.***
Ramaiahgari SC [NTP], SS Auerbach [NTP], TO Saddler [NTP], JR Rice [NTP], PE Dunlap [NTP], NS Sipes [NTP], MJ DeVito [NTP], RR Shah, PR Bushel [DIR], BA Merrick [NTP], RS Paules [NTP] and SS Ferguson [NTP]. Toxicological Sciences (2019) [In Press]
<https://doi.org/10.1093/toxsci/kfz065>
(Th.1 Goal 6)

- **DNA methylation in mice is influenced by genetics as well as sex and life experience.** Grimm SA [DIR], T Shimbo [DIR], M Takaku [DIR], JW Thomas, S Auerbach [NTP], BD Bennett [DIR], JR Bucher [NTP], AB Burkholder [DIR], F Day [DIR], Y Du [DIR], CG Duncan [DIR], JE French [NTP], JF Foley [NTP], J Li [DIR], BA Merrick [NTP], RR Tice [NTP], T Wang [DIR], X Xu [DIR], PR Bushel [DIR], DC Fargo [DIR], JC Mullikin and PA Wade [DIR]. *Nat Commun* (2019) v. 10 (1) [ePub] <http://dx.doi.org/10.1038/s41467-018-08067-z>
(Th.1 Goal 1, 2; Th. 3 Goal 1,3,4)

- **Bisphenol A induces human uterine leiomyoma cell proliferation through membrane-associated ER α 36 via nongenomic signaling pathways.** Yu L [NTP], Das P [NTP], Vall AJ [NTP], Yan Y [NTP], Gao X [NTP], Sifre MI [DIR], Bortner CD [DIR], Castro L [NTP], Kissling GE [DIR], Moore AB [NTP] and Dixon D [NTP]. *Mol Cell Endocrinol.* 2019 Mar 15;484:59-68. <https://www.ncbi.nlm.nih.gov/pubmed/30615907>
(Th.1 Goal 1)

DNTP

- **Using Tox21 high-throughput screening assays for the evaluation of botanical and dietary supplements.** Hubbard TD [NTP], JH Hsieh, CV Rider [NTP], NS Sipes [NTP], A Sedykh, BJ Collins [NTP], SS Auerbach [NTP], M Xia, R Huang, NJ Walker [NTP] and MJ Devito [NTP]. *Applied In Vitro Toxicology* (2019) v. 5 (1) pp. 10-25. <https://doi.org/10.1089/aivt.2018.0020>
(Th.1 Goal 6)
- **Adverse maternal, fetal, and postnatal effects of hexafluoropropylene oxide dimer acid (GenX) from oral gestational exposure in Sprague-Dawley rats.** Conley JM, CS Lambright, N Evans, MJ Strynar, J McCord, BS McIntyre [NTP], GS Travlos [NTP], MC Cardon, E Medlock-Kakaley, PC Hartig, VS Wilson and LE Gray, Jr. *Environmental Health Perspectives* (2019) v. 127 (3) <https://doi.org/10.1289/ehp4372>
(Th.1 Goal 1, 2)
- **The power of resolution: contextualized understanding of biological responses to liver injury chemicals using high-throughput transcriptomics and benchmark concentration modeling.** Ramaiahgari SC [NTP], SS Auerbach [NTP], TO Saddler [NTP], JR Rice [NTP], PE Dunlap [NTP], NS Sipes [NTP], MJ DeVito [NTP], RR Shah, PR Bushel [NTP], BA Merrick [NTP], RS Paules [NTP] and SS Ferguson [NTP]. <https://doi.org/10.1093/toxsci/kfz065>
(Th.1 Goal 1, 6)
- **Screening for neurotoxic potential of 15 flame retardants using freshwater planarians.** Zhang S, Ireland D, Sipes NS [NTP], Behl M [NTP], and Collins ES. *Neurotoxicol Teratol* (2019) v. 73 pp. 54-66. <https://doi.org/10.1016/j.ntt.2019.03.003>
(Th.1 Goal 1, 6)

- **Endogenous glucocorticoids prevent gastric metaplasia by suppressing spontaneous inflammation.** Busada JT [DIR], S Ramamoorthy [DIR], DW Cain, X Xu [DIR], DN Cook [DIR] and JA Cidlowski [DIR]. *The Journal of Clinical Investigation* (2019) [ePub]
<https://doi.org/10.1172/jci123233>
(Th.1 Goal 1, 2; Th. 3 Goal 1)
- **Cryo-EM structure of the essential ribosome assembly AAA-ATPase Rix7.** Lo YH [DIR], M Sobhany [DIR], AL Hsu [DIR], BL Ford [DIR], JM Krahn [DIR], MJ Borgnia [DIR] and RE Stanley [DIR]. *Nat Commun* (2019) v. 10 (1).
<http://dx.doi.org/10.1038/s41467-019-08373-0>
(Th.1 Goal 1; Th. 3 Goal 1,4,5)
- **A guardian residue hinders insertion of a Fapy•dGTP analog by modulating the open-closed DNA polymerase transition.** Smith MR, DD Shock [DIR], WA Beard [DIR], MM Greenberg, BD Freudenthal [DIR] and SH Wilson [DIR]. *Nucleic Acids Res* (2019).
<http://dx.doi.org/10.1093/nar/gkz002>
(Th.1 Goal 1)
- **The absence of the catalytic domains of *Saccharomyces cerevisiae* DNA polymerase strongly reduces DNA replication fidelity.** Garbacz MA [DIR], PB Cox [DIR], S Sharma, SA Lujan [DIR], A Chabes and TA Kunkel [DIR]. *Nucleic Acids Res* (2019).
<http://dx.doi.org/10.1093/nar/gkz048>
(Th.1 Goal 1; Th. 3 Goal 1,4)
- **Methylation-based biological age and breast cancer risk.** Kresovich JK [DIR], Z Xu [DIR], KM O'Brien [DIR], CR Weinberg [DIR], DP Sandler [DIR] and JA Taylor [DIR]. *Journal of the National Cancer Institute* (2019).
<https://doi.org/10.1093/jnci/djz020>
(Th.1 Goal 1,2,7; Th.2 Goal 1; Th. 3 Goal 1)
- **The role of dietary phytoestrogens and the nuclear receptor PPAR γ in adipogenesis: an in vitro study.** Hall JM, HA Powell, L Rajic and KS Korach [DIR]. *Environmental Health Perspectives* (2019) v. 127 (3).
<https://doi.org/10.1289/ehp3444>
(Th.1 Goal 1,2)
- **The relationship between progesterone, sleep, and LH and FSH secretory dynamics in early post- menarchal girls.** Sun BZ [DIR], T Kangarloo, JM Adams, P Sluss, DW Chandler, DT Zava, JA McGrath, DM Umbach [DIR] and ND Shaw [DIR]. *J Clin Endocrinol Metab* (2019).
<http://dx.doi.org/10.1210/jc.2018-02400>
(Th.1 Goal 1; Th. 3 Goal 1)

- **Shift work, DNA methylation and epigenetic age.** White AJ [DIR], JK Kresovich [DIR], Z Xu [DIR], DP Sandler [DIR] and JA Taylor [DIR]. *Int J Epidemiol* (2019) [ePub]
<https://doi.org/10.1093/ije/dyz027>
(Th.1 Goal 1,2,7; Th.2 Goal 1; Th. 3 Goal 1,4)
- **Phthalates and phthalate alternatives have diverse associations with oxidative stress and inflammation in pregnant women.** van t'Erve TJ, EM Rosen [DIR], ES Barrett, RHN Nguyen, S Sathyanarayana, GL Milne, AM Calafat, SH Swan and KK Ferguson [DIR]. *Environmental Science & Technology* (2019).
<https://doi.org/10.1021/acs.est.8b05729>
(Th.1 Goal 1,2; Th.2 Goal 1; Th. 3 Goal 1,4)

DERT

- **Elevated serum chemokines are independently associated with both endometriosis and uranium exposure.** Greene AD, Kendziorski JA, Buckholz JM, Niu L, Xie C, Pinney SM, and Burns KA. *Reprod Toxicol.* 2019 Mar;84:26-31.
<https://www.ncbi.nlm.nih.gov/pubmed/30579999>
(Th.1 Goal 1)
- **Perfluorinated substances, risk factors for multiple sclerosis and cellular immune activation.** Ammitzbøll C, Börnsen L, Petersen ER, Oturai AB, Søndergaard HB, Grandjean P, and Seljelberg F. *J Neuroimmunol.* 2019 May 15;330:90-95.
<https://www.ncbi.nlm.nih.gov/pubmed/30852181>
(Th.1 Goal 1, 2)
- **A repeated measures study of phenol, paraben and Triclocarban urinary biomarkers and circulating maternal hormones during gestation in the Puerto Rico PROTECT cohort.** Aker AM, Ferguson KK, Rosario ZY, Mukherjee B, Alshawabkeh AN, Calafat AM, Cordero JF, and Meeker JD. *Environ Health.* 2019 Apr 2;18(1):28.
<https://www.ncbi.nlm.nih.gov/pubmed/30940137>
(Th.1 Goal 1, 2)
- **The human gut bacterial genotoxin colibactin alkylates DNA.** Wilson MR, Jiang Y, Villalta PW, Stornetta A, Boudreau PD, Carrá A, Brennan CA, Chun E, Ngo L, Samson LD, Engelward BP, Garrett WS, Balbo S, and Balskus EP. *Science.* 2019 Feb 15;363(6428).
<https://www.ncbi.nlm.nih.gov/pubmed/30765538>
(Th.1 Goal 1, 3)
- **Somatic Mutations Increase Hepatic Clonal Fitness and Regeneration in Chronic Liver Disease.** Zhu M, Lu T, Jia Y, Luo X, Gopal P, Li L, Odewole M, Renteria V, Singal AG, Jang Y, Ge K, Wang SC, Sorouri M, Parekh JR, MacConmara MP, Yopp AC, Wang T, and Zhu H. *Cell.* 2019 Apr 2.
<https://www.ncbi.nlm.nih.gov/pubmed/30955891>
(Th.1 Goal 1)

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(Th.1 Goal 1, 2; Th.2 Goal 4)

NIEHS News and Highlights

Spotlight on NIEHS: *Environmental Health Perspectives* Editor-in-Chief Search

NIEHS is launching its search for the new Editor-in-Chief (EIC) of *Environmental Health Perspectives (EHP)*, the go-to journal for environmental health sciences. The journal features continuous open-access, online publication at no cost to authors. *EHP* currently boasts an 8.44 journal impact factor, and ranks second out of 94 toxicology journals, fourth out of 241 environmental science journals, and fourth out of public, environmental, and occupational health journals.

Dr. Sally Darney, the current *EHP* editor-in-chief will be retiring soon. NIEHS is moving to a new model for *EHP*. For the new Editor-in-Chief position, we are envisioning someone who can work part-time, possibly even from another research institution. If that person has an ongoing research program which he or she wants to continue, the ability to do that would be part of this new model for the EIC. NIEHS would be asking for a commitment of four years from the new EIC.

As the face of *EHP*, the Editor-in-Chief will set strategic directions, maintain high standards with editorial independence, interface with the broad environmental health community, and appoint and guide a distinguished board of Associate Editors. The position will be supported by professional operational and scientific editing teams who will implement the EIC's vision and manage day-to-day workflows and operations. Interested parties can email EICsearch@nih.gov for more information and how to apply.

Spotlight on NIEHS: Children's Environmental Health

- **Federal Lead Action Plan Goal 4, Research Needs:** Implementation of the President's Task Force on Environmental Health Risks and Safety Risks to Children's Federal Lead Action Plan will include a summer webinar series for the federal agencies to share updates on their internal efforts to combat lead problems in high-risk communities: HUD, EPA and ATSDR. NIH will host a federal interagency meeting at the Natcher Center in Bethesda on December 4–5, 2019. This goal of this meeting is to discuss a path forward on interagency efforts to address critical research needs identified in Goal 4 of the Federal Lead Action Plan. Suril Mehta, NTP, is the lead for NIEHS. Andy Rooney, Kimberly Gray, and Kimberly Thigpen Tart also participate.
- **Environmental Children's Health Outcome (ECHO)** program has created an **ECHO Cohort Strategic Planning Task Force** co-chaired by Dr. Rebecca Fry (UNC) and Dr. James Gern (U. Wisc.) with 12 other ECHO working group members including four other NIEHS grantees (in addition to Dr. Fry): Dr. Susan Schantz (U. of IL Urbana-Champaign), Dr. Leo Trasande (NYU), Dr. Susan Teitelbaum (Mt. Sinai), and Dr. Sheela Sathyanarayana (UWA). This task force will identify key scientific questions, the answers of which will inform discoveries about how a broad range of exposures from conception to age-5 influence child health outcomes and that will have the highest probability for major influence on programs, practices, and policies. Dr. Kimberly Gray is NIEHS team lead for the ECHO program.
- NIEHS has joined the **HEALthy Brain and Child Development Study (HEALthy BCD)**, a Common Fund program led by NIDA. This FOA solicits applications for planning and initial development of a large-scale, multi-site research study to prospectively examine human brain, cognitive, behavioral, social, and emotional development beginning prenatally through childhood (i.e., age 9–10), specifically the long-term impacts of pre/postnatal drug exposures (expected oversampling for opioid prenatal exposures) and adverse environmental exposures on brain and behavioral health and risk for substance use and mental disorders. In addition to planning and testing the feasibility of study designs, awardees will be expected to participate in 2-3 grantee meetings to share lessons learned and to begin to form collaborations needed to establish the network of sites that will conduct this study. Key dates include: application review (July 2019); grant awards (September 2019), kick-off meeting in Chicago (October 17, 2019). NIEHS contributed 500K to this effort to look at the environmental role in brain development and function, as well as the identification of protective factors that mitigate environmental harm. Dr. Kimberly Gray serves as the NIEHS liaison to HEALthy BCD.
- **Federal Disaster Research Response and Children:** At the 6th Annual Federal Interagency Disaster Research meeting on April 5, NIEHS convened federal staff from EPA/Office of Children's Health Protection, HHS/Office of the Assistant Secretary for Preparedness and Response, Health Resources & Services Administration/Children's HHS Interagency Leadership on Disasters (CHILD) workgroup, Administration for Children and Families, CDC/National Center for Environmental Health, and HHS Office of Minority Health for a lunch discussion of coordination and development of federal disaster needs and activities of children. The discussion was continued in the main meeting. Plans are to continue to reconvene and expand this group, possibly with the President's Task Force on Environmental Health Risks and Safety Risks to Children acting as coordinator.

Meetings and Events

Past Events

Advancing Environmental Health Research and Translation in India Through Community-Based Participatory Research [CBPR] Methodology. NIEHS grantees at the University of Iowa partnered with the president of Participatory Research in Asia for this workshop, held in New Delhi, India on February 26-28. Gwen Collman, Ph.D., Director of NIEHS's DERT welcomed attendees and discussed environmental health topics and research methods. The workshop brought together US and Indian researchers and practitioners with expertise and interest in participatory research approaches. **Th. 2 Goal 2, 5, 6; Th. 3 Goal 4**

DR2 Arizona Exercise. NIEHS, the University of Arizona (UA) College of Medicine-Tucson, the UA Mel and Enid Zuckerman College of Public Health, the UA College of Pharmacy, and the Bio5 Institute jointly sponsored the NIH Disaster Research Response (DR2) program's tabletop exercise in Tucson AZ on February 28-March 1. The workshop explored needed health research and coordination among partners after a mock chemical release following a train derailment. Participants included local, tribal, and international experts to examine health effects and medical treatment research in the disaster's aftermath. **Th. 2 Goal 5, 6; Th. 3 Goal 3**

The Promise of Single Cell and Single Molecule Analysis Tools to Advance Environmental Health Research. NIEHS sponsored the National Academies of Sciences, Engineering, and Medicine (NAEM) Committee on Emerging Science for Environmental Health Decisions workshop held in Washington, D.C. on March 7-8. The workshop brought together experts to discuss new tools for analyzing single cells and single molecules. Former NAEHSC member Norbert Kaminski, Ph.D., from Michigan State University, served as the organizing committee chair. Dr. Linda Birnbaum provided the welcome. **Th. 1 Goal 1, 6; Th. 2 Goal 1**

58th Annual SOT Meeting and ToxExpo. The annual Society of Toxicology (SOT) meeting saw involvement from and awards for NIEHS and National Toxicology Program (NTP) scientists, leadership, and student researchers. Throughout the event at the Baltimore Convention Center March 10-14, NIEHS showcased its hard work through scientific and poster presentations, a National Institutes of Health (NIH) grant funding workshop, hands-on demonstrations, and awards. **Th. 1 Goal 1; Th. 2 Goal 2; Th. 3 Goal 3**

CitSci 2019. NIEHS and Partnerships for Environmental Public Health (PEPH) grantees were actively involved at CitSci 2019, the biennial conference held by the Citizen Science Association. This year the event was held March 13-17 in Raleigh, North Carolina. Several sessions highlighted the many ways that citizen science contributes to environmental health research. The more than 800 conference attendees from across the country and around the world were treated to several presentations that provided specific examples of NIEHS-supported citizen science approaches. **Th. 2 Goal 2, 6; Th. 3 Goal 3**

3rd International Workshop on Chronic Kidney Disease of unknown origin (CKDu) in Mesoamerica and other regions. NIEHS sponsored the workshop that was held in San Jose Costa Rica on March 20-22. Dr. Bonnie Joubert, a Health Scientist Administrator in DERT, led the organizing committee at NIEHS. Ty Lawson and Brittany Trottier also served on the organizing committee. Dr. Birnbaum presented opening remarks in the inauguration along with other key dignitaries from local health ministries, local host, and key organizers/funders including WHO. The workshop brought together experts from a range of discipline and geographic areas to participate in roundtable discussions as well as focused working groups with scientific experts. Topics covered four broad Themes: Clinical aspects, burden of disease, mechanisms/etiology, and societal response. **Th. 3 Goal 3, 4**

Inflammation Resolution Biology Workshop. DERT hosted a trans-NIH workshop on inflammation resolution biology at NIEHS March 25-26. As inflammation is implicated in an array of disease conditions studied and supported by multiple NIH institutes, the focus of this workshop was to gain an understanding on the state of the science in inflammation resolution biology and to develop coordinating strategies to promote this research area of shared interest across the NIH. The workshop deliberations explored the current state of science and identify knowledge gaps. The meeting began with an introductory session featuring talks from leaders in the field and was followed by additional scientific presentations and in-depth discussion on specific disease areas implicated with the failure of inflammation resolution. The organizing committee for this event was Sri Nadadur, Mike Humble, Jenny Collins (NIEHS), Drs. Houmam Araj (NEI), Christina Liu (NCI), Giovanna Zappala (NIA), Srinivas Pothur (NHLBI), Mercy Prabhudas (NIAID) and David Jett (NINDS). **Th. 1 Goal 1; Th. 3 Goal 3**

Preparedness Summit 2019, Aubrey Miller, Senior Medical Advisor in Bethesda, along with Stacey Arnesen (NLM), Perren Cobb (USC), and Karen Lutrick (Univ. AZ) led a session on DR2, with a focus on the Tucson training workshop at the Preparedness Summit in St. Louis, MO March 26-29. The session was attended by about 70 attendees interested in hearing about DR2 Tucson efforts and value towards future disaster preparedness. This year, the Summit was hosted by the National Association of County and City Health Officials (NACCHO) as a unique learning and networking opportunity for emergency preparedness officials and their partners to share perspectives and engage in dialogue on key public health preparedness issues. **Th. 2 Goal 1, 2, 5**

International Visitors Leadership Program RTP Visit. In collaboration with the State Department, NIEHS participated in the visit of over 40 health ministry professionals from around the world, touring to learn more about early warning systems for vector-borne and water-borne diseases in the U.S. and about One Health approaches. John Balbus was involved in planning the tour and provided opening comments in Washington, DC on March 25. Heather Henry, assisted by Kimberly Thigpen Tart and Trisha Castranio, coordinated and hosted a visit to the NIEHS campus in RTP in conjunction with a visit to EPA, which took place on April 3. Visitors attended presentations and engaged with the NIEHS Director, Deputy Director, and multiple OD, DERT, and DIR SMEs. **Th. 2 Goal 2, 5; Th. 3 Goal 3, 4**

6th Annual Federal Interagency Disaster Research Meeting. The meeting was held at Natcher Auditorium on the NIH main campus in Bethesda, MD on April 5. About 60 participants in attendance or joining remotely representing NOAA, CDC NIOSH & NCEH, USGS, HHS/ASPR, HHS/ASH, NIH (FIC, NIAID, NLM, NCI, OD, NICHD), NASA, NIST, Nat. Geospatial Intelligence Agency, FEMA, National Center for Disaster Medicine & Public Health, DHS, FDA, EPA, NASEM, Health Canada, HUD, HRSA, ACF, SAMHSA, USAID/OFDA, and OSHA. The goal of the meeting was to collectively explore ongoing and planned federal efforts regarding data collection and research in response to disasters, as well as opportunities to enhance our collective ability to promote the health and well-being of the nation's communities. Discussion topics focused on resources & tools, IRB, training, the National Academies Action Collaborative, funding opportunities, legal considerations, citizen science, international engagement, and consideration of a joint Training Workshop. **Th. 2 Goal 1, 2, 5**

5th Annual Women's Health Awareness Day. NIEHS held its 5th Annual Women's Health Awareness Day at North Carolina Central University on April 6. This community event was free to the women of Durham and surrounding counties. It provided health awareness, education, information, resources, and on-site health screenings. The theme of this year's conference was "Transforming Communities by Enhancing Women's Health." There were over 1100 people in attendance, a large growth over last year's 600 attendees. **Th. 2 Goal 3; Th. 3**

PFAS and other Emerging Contaminants Conference. The inaugural conference was held in Raleigh, NC on April 23-24. The American Council of Engineering Companies of North Carolina and Groundwater Professionals of North Carolina planned the conference as a “practitioners guide to emerging contaminants,” with an audience that included geologists, environmental scientists, and engineers in the industry of environmental assessment and remediation. The first day focused on per- and polyfluoroalkyl substances (PFAS). Day 2 focused on 1,4-Dioxane and other emerging contaminants. **Th. 2 Goal 2, 3, 5**

22nd Annual NIEHS Biomedical Career Symposium. The annual NIEHS Biomedical Career Symposium is one of the largest assemblies of biomedical organizations and young scientists in Research Triangle Park, NC. The event, now in its 22nd year, was held at EPA on April 26. Targeting postdoctoral fellows and graduate students, the Career Symposium provides 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. There were a variety of workshops and career panel discussions. The keynote address was given by Stephanie Eberle, the Assistant Dean of the BioSci Careers Office at Stanford University. **Th. 3 Goal 1, 2, 4**

NTP Workshop: Converging on Cancer. The National Toxicology Program convened the Converging on Cancer Workshop in Washington, D.C. April 29-30. The aim of the workshop was to provide a clear path forward for evaluating the interactions between environmental exposures and cancer biology using the latest tools in toxicology and identifying knowledge gaps that require research attention. In addition to the workshop, NTP held two information webinars to provide background information to workshop participants and to facilitate productive discussion during the workshop. The webinars were presented on April 17 and April 22, and included presentations by Cynthia Rider, Glenn Rice (EPA), Warren Casey, and Mark Fielden (Amgen). **Th. 1 Goal 6; Th. 2 Goal 2**

ICCVAM Public Forum. ICCVAM held its annual public forum at the Natcher Conference Center on the NIH main campus in Bethesda, MD on May 23. One goal of the meeting was to share information and facilitate direct communication of ideas and suggestions from stakeholders, including academia, industry, advocacy groups, and other key stakeholders. This year’s forum focused on current activities related to the development and validation of alternative test methods and approaches, including activities relevant to implementation of the strategic roadmap for establishing new approaches to evaluate the safety of chemicals and medical products in the United States. **Th. 1 Goal 6, 7; Th. 2 Goal 1, 2**

Upcoming Events

- **NASEM Emerging Advances in Artificial Intelligence for Environmental Health Research and Decisions**, Washington DC, June 6-7
- **2019 Per- and Polyfluoroalkyl Substances: Second National Conference**, Boston, MA, June 10-12
- **NIEHS Core Centers Annual Meeting and Water Quality Community Forum and Tour**, Iowa City, IA, June 19
- **American Association for Cancer Research Conference: Environmental Carcinogenesis: Potential Pathway to Cancer Prevention**, Charlotte, NC, June 22-25
- **STP 38th Annual Symposium: Environmental Toxicologic Pathology and One Health**, Raleigh NC, June 22-27
- **IUTOX 15th International Congress of Toxicology**, Honolulu, HI, July 15-18

- **Society of Environmental Toxicology and Chemistry (SETAC) Meeting**, Durham, NC, August 12-15
- **31st Annual Conference of the International Society for Environmental Epidemiology (ISEE 2019)**, Utrecht, The Netherlands, August 25-28
- **The Fidelity of DNA Replication: From Basic Mechanism to Disease**, RTP, August 29-30
- **EuroTox 2019**, Helsinki Finland, September 8-11
- **U.S. DOHaD Society Annual Meeting**, Chapel Hill, NC, September 9-10
- **NASEM Environmental Health Matters Initiative Workshop on PFAS**, Washington, DC, September 26-27
- **Federal Lead Action Plan Goal 4: Research Needs Interagency Workshop**, NIH, Bethesda, MD, December 4-5

Awards and Recognition

NIEHS

- NIEHS Senior Medical Advisor **Aubrey Miller, M.D.**, is among the latest group of fellows selected by the international academy Collegium Ramazzini. The academy examines critical issues in occupational and environmental medicine with a view toward action to prevent disease and promote health.
- **Sally Perreault Darney, Ph.D.**, Editor-in-Chief, *Environmental Health Perspectives*, was awarded the Society for the Study of Reproduction's Jansen Distinguished Service Award recognizing an individual who has demonstrated unselfish service and leadership in advancing the discipline of reproductive biology.
- **Humphrey Yao, Ph.D.**, Principal Investigator, Reproductive Developmental Biology Lab, was awarded the Society for the Study of Reproduction's SSR Research Award recognizing an active, regular member of the SSR for outstanding research published over the previous six years.
- The NIH Office of Research in Women's Health (ORWH) has awarded funding to **Drs. Donna Baird, Alexandra White** and **Anne Marie Jukic** in the Epidemiology Branch. Dr. Donna Baird received \$32,666 to study chronic inflammation and risk of uterine fibroid development. Dr. Alexandra White, a new tenure-track investigator, received \$200,000 to conduct a prospective study of toenail metals and breast cancer risk. Dr. Anne Marie Jukic, another new tenure-track investigator, received \$12,000 to study associations between chronic inflammation, fertility and ovarian aging.
- **Tori Placentra**, a Postbaccalaureate Fellow in GISBL won the Big Picture Small Talk Three Minute Communication Challenge.
- **Rong Li, Ph.D.**, an IRTA Postdoctoral Fellow in the Pregnancy and Female Reproduction Group in RDBL, won the best oral presentation award at the meeting of the Triangle Consortium for Reproductive Biology on February 9, 2019.
- **Danielle Carlin**, SRP, was elected to the Society of Toxicology's Membership Committee, a 4-year appointment.
- **Kembra Howdeshell, Ph.D.**, from the National Toxicology Program (NTP), is this year's recipient of the F. Clarke Fraser New Investigator Award from the Teratology Society. The award is conveyed in recognition of the research and stewardship she has contributed to the field of birth defects research and the Teratology Society.

- **NIEHS Merit Awards - Individual**
 - **John Balbus**, from the Office of the Director (OD), for visionary leadership in developing the Human Health Chapter of the Fourth National Climate Assessment and raising worldwide awareness on the relationship between climate and health.
 - **Martha Barnes**, from the Division of Extramural Research and Training (DERT), for exemplary oversight, management, and support to DERT for all components of human subjects' monitoring, tracking, and reporting.
 - **John Bucher**, from DNTP, for outstanding leadership, guidance, and mentorship as former scientific director and now senior scientist.
 - **Matt Burr**, from the Office of Management (OM), for leading NIEHS through a hiring freeze and a series of hiring controls, successfully enabling us to continue advancing our scientific mission.
 - **Regina Stabile**, from OD, for exemplary preparation, management, and defense of the NIEHS Freedom of Information Act program in federal court hearings.
 - **Mary Wolfe**, from DNTP, for broad support of NTP, managing high-impact stakeholder engagement, establishing a novel cross-agency communication strategy, managing several peer reviews and advisory group meetings, and supporting the integration of the DNTP administrative support community.
 - **Hong Xu**, from the Division of Intramural Research (DIR), for exceptional creativity and initiative in developing the first postdoctoral career outcomes interactive dashboard.
- **NIEHS Merit Awards – Group**
 - **Drain Disposal Working Group** (Cross-NIEHS), for outstanding dedication toward the development of a new policy for the safe drain disposal of laboratory waste — Jennifer Bradbury, Amy Papaneri, and Stella Sieber, from DIR; Jeff Church, Bill Fitzgerald, Paul Johnson, and Bill Steinmetz, from OM; and Debra King, from DIR.
 - **Symma Finn** and **Liam O’Fallon**, from DERT, for exemplary efforts in defining, promoting, and raising the visibility of environmental health literacy.
 - **IMACS Team** (Cross-NIEHS), for excellence in research, redesign, and implementation of the International Myositis Assessment and Clinical Studies application and launching an online mentorship program — Lisa Rider and Adam Schiffenbauer, from DIR; and Dan Arsenault, Brandon Gragasin, Beth Lauderdale, Sagar Thakore, Tamu Whitfield, and Tyler Wright, from OD.
 - **Join an NIEHS Study Website Team** (Cross-NIEHS), for exemplary teamwork and creativity in planning and designing the Join an NIEHS Study Website — Nicole Edwards, Stavros Garantziotis, Shepherd Schurman, and Janet Hall, from DIR; Robin Arnette, David Christie, Tony Hall, Claus Jensen, Daniel Nedelcu, Joseph Poccia, and Qasim Rasheed, from OD.
 - **Music and Your Health Team** (Cross-NIEHS), for exemplary leadership, dedication, and professionalism in planning, organizing, promoting, and hosting the Music and Your Health event for Earth Day 2018 — Brandy Beverly and Nigel Walker, from DNTP; Laura Thomas, from DERT; and Christine Flowers, Donna Corcoran, John Maruca, Kerri Moran, Suzanne Osborne, John Schelp, Anne Thompson, and Ericka Reid, from OD.
 - **NIEHS Strategic Plan Team**, from OD, for outstanding effort and creativity in the conception, development, design, and finalization of the NIEHS 2018-2023 Strategic Plan — Stephanie Bishop, Tiffany Bowen, Kelly Chandler, Donna Corcoran, Christine Flowers, Bill Jirles, Sheila Newton, Kimberly Thigpen Tart, Anne Thompson, and Cheryl Thompson.

- **NIEHS Unsung Hero Awards**
 - **William Boyd**, from OM, for exemplary integrity, efficiency, and professionalism in managing the NIEHS fleet and express shipping operations.
 - **Gordon Caviness**, from DIR, for notable service to the institute through development of a highly functioning cross-departmental team.
 - **Sharon Evans**, from OD, for demonstrating leadership as the Executive Secretary in the Office of the Director.
 - **Shawn Jeter**, from DNTP, for exemplary service and creativity in support of NTP web-based projects and processes.
 - **Edward Mosley**, from DIR, for exemplary integrity, efficiency, and professionalism in support of the Epidemiology Branch.
 - **Page Myers**, from DIR, for exemplary effort in training, collaboration, and support in furthering the scientific mission of the intramural research program.
 - **Terrance O’Hanlon**, from DIR, for exemplary integrity, efficiency, and professionalism in administration of the Environmental Autoimmunity Group laboratory.
 - **Brooke Rogerson**, from DIR, for commitment to the advancement of cutting-edge science and animal welfare.
 - **Devlin Sawyer**, from OD, for exemplary dedication and efficiency in publishing the weekly NIEHS Scientific Calendar.
 - **Vicki Sutherland**, from DNTP, for many unrecognized contributions to NTP studies and mentorship of postdoctoral trainees.
 - **Amanda Thompson**, from OM, for excellence in completing space and facility projects in a way that is minimally disruptive to staff.
- **NIEHS PEER Award**
 - “No other institute has an award quite like this,” said Taylor when introducing these honorees. Peer awards are only available to nonsupervisory employees.
 - **Janice Allen**, from DERT; **Helen Cunny**, from DNTP; **Amy Papaneri**, from DIR; and **Rita Volochayev**, from DIR.
- **NIH Fellows Awards for Research Excellence**
 - **Jonathan Busada**: *“Endogenous glucocorticoids are required to suppress spontaneous gastric inflammation and spasmodic polypeptide expressing metaplasia in the mouse”*
Mentor: Dr. John Cidlowski
 - **Helen Chin**: *“A longitudinal analysis of ovarian growth in girls from birth to 9 months and its association with infant feeding type”*
Mentor: Dr. Donna Baird
 - **Joanne Damborsky**: *“Cholinergic-GABAergic interactions in the hippocamposeptal pathway”*
Mentor: Dr. Jerry Yakel
 - **Yi Fang**: *“SIRT1 regulates cardiomyocyte alignment and contraction during maturation in part through deacetylation of ACTN2”*
Mentor: Dr. Xiaoling Li
 - **Chunfang Gu**: *“PPIP5K regulates serine, glycine and one carbon metabolism: a new cancer therapy target?”*
Mentor: Dr. Stephen Shears
 - **Hao Hu**: *“GNuclear Receptor communications: PXR coordinates RORa and HNF4a to regulate the SULT1E1 gene”*
Mentor: Dr. Masahiko Negishi

- **Kai Kang:** *"CDSeq: a novel deconvolution method to dissect heterogeneity using bulk RNA-seq data"*
Mentor: Dr. Leping Li
- **Lee Langer:** *"BAF47: A new mechanism for tumor suppression?"*
Study Section: Chromatin and Chromosomes
Mentor: Dr. Trevor Archer
- **Yu-Hua Lo:** *"ATPase activity of the AAA-protein NVL2 regulates its communication with cofactors during ribosome biogenesis"*
Mentor: Dr. Robin Stanley
- **Yong-Moon Park:** *"Nocturnal light exposure while sleeping and risk of obesity in U.S. women"*
Mentor: Dr. Dale Sandler
- **Maria Petrillo:** *"Beta-arrestin 1: a novel player in the glucocorticoid receptor activity"*
Mentor: Dr. John Cidlowski
- **Yufeng Qin:** *"An obesity-associated gut microbiome reprograms the intestinal epigenome and leads to altered colonic gene expression"*
Mentor: Dr. Paul Wade
- **Prashant Rai:** *"Immunity-related GTPase Irgm1 guards against interferonopathy through mitochondrial maintenance"*
Mentor: Dr. Michael Fessler
- **Sreenivasa Ramaiahgari:** *"Functional characterization of human and rat 3D hepatocyte models and application of high-throughput transcriptomics (S1500+) in toxicology screening"*
Mentor: Dr. Stephen Ferguson
- **Cynthia Sakofsky:** *"Hypermutation associated with bursts of double-strand breaks"*
Mentor: Dr. Dmitry Gordenin
- **Natale Sciolino:** *"A locus coeruleus to lateral hypothalamus circuit for suppression of feeding"*
Mentor: Dr. Patricia Jensen
- **Elise Smith:** *"Complexity of multidisciplinary norms in collaborative teams; epistemic diversity in authorship distribution ethics"*
Mentor: Dr. David Resnik
- **Sheng Song:** *"Dysfunction of noradrenergic system induce α -synucleinopathy and neuronal loss from gut to brain"*
Mentor: Dr. Jau-Shyong Hong
- **Heather Vellers:** *"Association between mitochondrial DNA sequence and DNA damage in response to endurance training in mice"*
Mentor: Dr. Steven Kleeberger
- **Sing-Wai Wong:** *"Unravelling the role of autophagy machinery in osteoclastogenesis"*
Mentor: Dr. Jennifer Martinez
- **Miaofei Xu:** *"Mitochondrial genomic alterations in spontaneous and chemical-induced hepatocellular carcinomas in B6C3F1/N mice"*
Mentor: Dr. Arun Pandiri

Grantees/Others

- **Dr. Jane Hoppin** Department of Biological Sciences at North Carolina State University was awarded the **NC State's 2018–19 Class of University Faculty Scholars**. Twenty early- and mid-career faculty receive this designation due to their significant academic achievements and

contributions to NC State through their teaching research and community engagement. Jane is the principal investigator of the GenX Exposure Study received through the R21 Time-Sensitive program at NIEHS. She is responding to community questions about GenX in drinking water and the impact of GenX and related per- and polyfluoroalkylated substances (PFAS) on human health. She has collected data in Wilmington NC in November 2017 and May 2018 and just enrolled people in Fayetteville in February 2019. She has also received a NIEHS R24 cohort resource award to continue to work with Dr. Berna van Wendel de Joode of the Universidad Nacional in Heredia Costa Rica on a study of women and children living in the banana growing region of Costa Rica where pesticide exposure is common. They are looking at respiratory and allergic impacts of pesticides as well as neurobehavioral and development outcomes in children. Jane is also the deputy director of the Center for Human Health and the Environment (NIEHS Core (Center P30).

- **Germaine Louis, Ph.D.**, Dean of College of Health and Human Services at George Mason University and Professor in Department of Global and Community Health presented the **2019 Spirit Lecture** on March 5. Dr. Louis is an internationally recognized expert on the impact of environmental influences on fertility.
- **Outstanding New Environmental Scientist Award (ONES)**
 - **Jessie Buckley, Ph.D.**, Assistant Professor, Johns Hopkins University
 - “Early Life Phthalate and Perfluoroalkyl Substance Exposures and Childhood Bone Health”
 - **Abby Fleisch, M.D.**, Pediatric Endocrinologist, MaineHealth
 - “Environmental Chemicals, Adiposity, and Bone Accrual Across Adolescence”
 - **Jonathan Gaffin, M.D.**, Assistant Professor of Pediatrics, Boston Children’s Hospital
 - “Indoor Air Quality and Respiratory Morbidity in School-aged Children with Bronchopulmonary Dysplasia”
 - **Aishwarya Prakash, Ph.D.**, Assistant Professor of Oncologic Sciences, University of South Alabama
 - “Repair of Environmentally Induced Mitochondrial DNA Damage”
 - **Yogesh Saini, D.V.M., M.S., Ph.D.**, Assistant Professor, Louisiana State University School of Veterinary Medicine
 - “Understanding the Role of Myeloid Cells in Ozone-induced Airway Disease”
 - **Kristina Whitworth, Ph.D.**, Assistant Professor, UTHealth School of Public Health
 - “Fine Particulate Matter, Fetal Growth, and Neurodevelopment: Examining Critical Windows of Susceptibility”
- NAEHS Council member **Shuk-Mei Ho, Ph.D.**, has been named the **Vice Chancellor for Research** of the University of Arkansas for Medical Sciences (UAMS). Dr. Ho was the Jacob G. Schmidlapp Professor and chairwoman of the Department of Environmental Health, University of Cincinnati College of Medicine where she successfully ran the Center for Environmental Genetics, funded by an Environmental Health Sciences Center grant and built a Council on Education for Public Health-accredited Public Health Program. In 2011, she was appointed director of Cincinnati Cancer Center and later named the Hayden Family Endowed Chair for Cancer Research. Dr. Ho’s research interests include the role of hormones and endocrine disruptors, and the interplay between genetics and epigenetics, in disease development as well as how early-life experiences can be a root cause in later development of cancers, asthma, neural disorders and other complex chronic diseases.