

# Report to the National Advisory Environmental Health Sciences Council Director, NIEHS

10-11 September 2013

## Director's Message

*Strategic Planning Implementation.* The NIEHS leadership (Director, Deputy Director, Executive Officer, Scientific Director, Clinical Director, and Directors of DERT and DNTP) has been meeting several times a month for in-depth discussions of the Institute's strategic goals and implementation proposals. These discussions are ongoing and much progress has been made. Decisions on some high priority cross-divisional topics are expected soon.

*Detroit Community Forum.* The latest NIEHS Community Forum, in which Dr. Linda Birnbaum engages directly with communities on their issues of environmental health concern, was held on June 18 in Detroit, Michigan. Concerns discussed included contaminated sites of former tire plants along the Detroit waterfront; the high-volume Ambassador Bridge, which carries more than 7,000 trucks daily between the U.S. and Canada; Zug Island, a significant source of industrial pollution along the river; and a 250-acre oil refinery in southwest Detroit. Dr. Birnbaum spoke specifically on a persistent concern in the community — respiratory diseases triggered by environmental exposures to industrial chemicals, inhaled fibers and particles, and combustion-related air pollution. The event was co-sponsored by NIEHS and a University of Michigan (UM) team led by Environmental Health Science Core Center Director Rita Loch-Carusio, Ph.D., Community Outreach and Education Core (COEC) Leader Amy Schultz, Ph.D., and COEC Coordinator Myra Tetteh.

*NIEHS IRB Setting Standard with Protocol Transfers.* The NIEHS Human Research Protection Program (HRPP), which encompasses the NIEHS Office of Human Research Compliance (OHRC) and Institutional Review Board (IRB), is currently in the process of working with the National Institute on Aging (NIA), to transfer six of its clinical research protocols to NIEHS for IRB oversight (four of the six have been completed). One of the studies, the Baltimore Longitudinal Study of Aging (BLSA), is America's longest-running scientific study of human aging, having started in 1958. NIH ICs that use commercial or external IRBs have been directed to transfer them to IRBs inside NIH. This is the first instance of such transfers, and it has required the development by NIEHS of new policies and procedures that are setting the standard for future transfers at NIH. OHRC Director Joan Packerham, Ph.D., has been leading these efforts.

*NTP Solicitation of Toxicogenomic Technology Screening Genes.* On July 29, the NTP posted a notice to the Federal Register to solicit input to the identification and prioritization of a comprehensive list of environmentally responsive genes that might be targets for screening cells or tissues obtained from humans, rats, mice, Zebrafish, and *Caenorhabditis elegans* against large numbers of substances. The goal is to generate a minimum list of 1,000 genes for each species that would provide the maximal toxicogenomic information on effects that reflect general cellular responses, independent of cell type or species, and gene expression changes that are specific by organ or cell type. The NIEHS/NTP also seeks recommendations on criteria to use for prioritizing the genes in

order to identify those potentially most useful in a screening paradigm. Such a list of environmentally responsive genes may be useful also in biomarker development and basic research efforts.

*EHP's New Impact Factor.* The latest impact factor for EHP is 7.26, up from last year's figure of 7.04. (Calculated independently each year by Thomson-Reuters, impact factor is a measure of the frequency with which the average article published in a given scholarly journal has been cited in a particular year or period, and is often used to measure or describe the importance of a particular journal to its field.) According to the 2012 Journal Citation Reports, EHP ranked **third** out of 205 journals in environmental sciences, and ranked **second** out of 157 journals in public, environmental, and occupational health (the number one journal in this category is a review journal)

## Legislative and Budget Report

	FY 2012 Appropriation	FY2013 Enacted Level**	FY 2014 President's Request	FY 2014 House	FY 2014 Senate
NIEHS	\$683,724,312	\$649,788,725	\$691,348,000	\$	\$686,753,000
NIH	\$30,688,286,000	\$29,098,665,708	\$31,093,776,000	\$	\$30,954,976,000
Common Fund	\$543,021,000	\$516,488,518	\$572,948,000	\$	\$586,151,000
Superfund*	\$79,053,576	\$74,808,039	\$79,411,000	\$63,632,000	\$79,411,000
NIEHS/DOE Training	\$10,000,000	\$9,230,000			

\* FY 2014 Superfund reflects House full committee draft mark and Senate Subcommittee draft mark.

\*\* FY 2013 includes across-the-board rescission and sequestration reduction.

### ***Appropriations***

On 15 May 2013, Dr. Francis Collins testified before the Senate Appropriations Subcommittee on Labor, HHS, ED, and Related Agencies on the President's Request for FY 2014. Most of the members of the Subcommittee attended and enthusiastically expressed their support for NIH. The contrast with the House hearing was striking.

Dr. Collins mentioned environmental factors in his opening statement and in response to questions from Senators Mikulski (D-MD and full committee chair) and Boozman (R-AR).

- In describing the Human Connectome Project and the 3D picture of a wiring diagram of nerve cells in one's brain in his opening statement, Dr. Collins goes on to say, "Interestingly, this proves that you are more than just your DNA, environmental factors and life experiences work in concert with genetics to create your unique neural connections, and this is where the Brain Initiative comes in."
- In response to a question from Mikulski about research on autism, after Dr. Landis described recent progress in genetic studies, Dr. Collins added that advances in genetics are not at all the whole story, but there must be profound influences that are based upon other environmental events. Some of them probably happening during pregnancy and that there is a great deal of intense effort to try to understand that as well.
- In response to a question from Boozman inspired by a visit to NCTR regarding research on nanoparticles, Dr. Collins answered, "Nanotechnology is a very interesting example because there is the question about the safety of nanotechnology applications for human health. Given that, this isn't exactly a simple area--all different particle sizes, all different kinds of compound constituents. NIEHS, the National Institute of Environmental Health Sciences, has a research program and we are part of the National Nanotechnology Initiative."

On 11 July 2013, the Senate Appropriations Committee reported S. 1284, FY 2014 Appropriations for Labor, HHS, ED, and Related Agencies, with a mark of \$686,753,000 for NIEHS, a significant increase above the FY 2013 sequester-zapped budget of \$649,788,725. The accompanying Senate Report included the following items:

- Lead: The committee encourages NIEHS to prioritize research in this area.
- Reproductive Health: The Committee believes it is critical to examine the effects of environmental exposures on the reproductive health of men and women and urges NIEHS to place a greater priority on, and invest more funding in, sex-based reproductive health.
- NTP: The Committee urges NTP to be highly precise when describing study results of extracts of herbal species. It also encourages NTP to reinstitute its practice of making the transcript of public meetings available on its web site.
- Chemical Risk Assessments: Under the Office of the NIH Director, the Committee included a paragraph supporting NIH's leadership role in the creation of a new paradigm for chemical risk assessment based on the incorporation of molecular biological and computational methods instead of animal toxicity tests. The Committee states that funding should be made available for the evaluation of human biology-based and Tox21-related methods and prediction tools to assure readiness and utility for regulatory purposes, including pilot studies of pathway-based risk assessments. The Committee asked for an update on current activities, a plan for future activities, and funding in this area for FY 2014 to be submitted with the FY 2015 CJ.

On 1 August 2013, the Senate Interior, Environment and Related Agencies Appropriations Subcommittee released its draft bill with a mark of \$79,411,000 for the NIEHS Superfund Research and Worker Education and Training Programs. [Table attached.]

The House Appropriations Committee began marking up the Interior, Environment bill on 31 July 2013, but recessed without finishing due to the large number of amendments to be considered. The bill includes \$63,632,000 for the NIEHS Superfund Programs. In addition, the Committee, urged NIEHS to consider additional sources of funding to recoup costs associated with the Worker Education and Training Program.

The Senate Energy & Water Appropriations Report under Defense Environmental Management included language that directs DoE to fund the worker training activities. The House Report is silent on the issue.

Senators Ted Cruz (R-TX), Marco Rubio (R-FL), and Mike Lee (R-UT) and some 80 members of the House are determined to shut down the government if there is money for ObamaCare in any appropriation for FY 2014. Senator Richard Burr (R-NC) said in response, "I think it's the dumbest idea I've ever heard of [sic]." House Speaker John Boehner (R-OH) and others are now talking about a CR for a few weeks at the FY 2013 level of \$988 million. House Appropriations Chairman, Harold Rogers (R-KY) said in early August, "The House, Senate and White House must come together as soon as possible on a comprehensive compromise that repeals sequestration, takes this nation off this lurching path from fiscal crisis to fiscal crises, reduces our deficits and debt, and provides a realistic top-line discretionary spending level to fund the government in a responsible—and attainable—way."

Democrats have made it clear they want a long-term CR. Most recently Republican leaders have signaled that they want to delay talks over raising the debt limit and funding the government in FY 2014 until later this year.

### ***Toxic Substances Control Act – Chemical Safety Improvement Act***

The Chemical Safety Improvement Act introduced by Senators Lautenberg (D-NJ) and Vitter (R-LA) has 20 cosponsors from both parties and has been endorsed by the American Chemical Council (ACC). An ACC spokesman described the bill as "a balanced, comprehensive approach to updating the law, which will give consumers more confidence in the safety of chemicals, while at the same time encouraging innovation, economic growth and job creation by American manufactures."

NRDC, EDF, and other environmental groups have expressed reservations with a number of provisions in the bill. Cal EPA has written to Senator Feinstein (D-CA) expressing their concerns about restrictions on a state's right to set a higher standard. In addition, it would override the requirements of California's Proposition 65.

Lautenberg's earlier bill, the Safe Chemicals Act, failed to receive any support from Republicans because it allowed for stricter regulation of chemicals by federal and state governments.

At the end of July, the Senate Environment & Public Works Committee held a marathon hearing on TSCA reform with 19 witnesses representing a broad array of state officials, lawyers, advocacy, and public interest groups, including Daniel Rosenberg (NRDC), Ken Cook (EWG), Nancy Buermeyer (Breast Cancer Fund), Maureen Gerson (Alston & Bird), Cecil Corbin-Mark (WE-ACT), Ansje Miller (Center for Environmental Health), Linda Fisher (Dupont), and Steve Owens (Squire Sanders).

Boxer made it clear in her opening statement and during the question and answer sessions that she intends to make changes in the bill and that a strong role for states in determining their own standards must be preserved. The Lautenberg /Vitter bill was touted by all as a bipartisan breakthrough, but most noted the need for fixes, especially in simplifying processes, adding deadlines, clarifying that the standard of review is health-based, insuring that the best science is used, and preserving state preemption.

Upon the conclusion of the hearing, Senator Boxer made the following statement:

“Now that we have concluded our in-depth hearing, it is very clear that certain principles must be the center piece of any toxic chemical reform bill moving forward:

- Specific protection for our most vulnerable populations including children;
- Time frames for EPA to act on the most dangerous chemicals;
- Protection of our families by ensuring that states have the ability to act on harmful toxins;
- Protection of all victims to hold all responsible parties to account in case of harm.”

### ***Congressional Meetings***

Dr. Birnbaum met with Representative Nita Lowey (D-NY and Ranking Member of House Appropriations) and her staff who handle health, NIH appropriations, and environmental issues. The meeting was more of a conversation between two people who are devoted supporters of NIH research and who recognize its value to public health than a meeting with a formal agenda. Representative Lowey clearly expressed her support for NIH and NIEHS and her regret that it is difficult to do more for us at the present time. She was very interested in environmental health research. Topics covered included endocrine disrupting chemicals, flame retardants, and the recent report on Breast Cancer and the Environment: Prioritizing Prevention. Representative Lowey invited Dr. Birnbaum to come to her district in July to take part in a constituent event.

On 22 August 2013, John Bucher talked with Grant Cope and Tom Fox, Senate Environment & Public Works (EPW) Senior Counsels, about the process used by NTP to make decisions regarding testing and analysis of the results of scientific studies. Bucher described in detail the systematic review scheme that NTP is developing. Regarding the Vitter-Lautenberg Chemical Safety Improvement bill, all agreed that EPA needs the tools to get industry to do the right thing.

In addition to the discussion related to NTP, Dr. Birnbaum briefed EPW staff on endocrine disrupting chemicals (EDCs). NIEHS provided \$54 million for research related to EDCs in FY 2012. Under ARRA, NIEHS spent \$14 million on BPA research. Other topics included flame retardants, the multigenerational effects of EDCs, pregnancy cohorts in the NIEHS/EPA children’s centers showing exposure, and the use of time sensitive grants to provide money in ninety days to take advantage of unexpected opportunities for research. The Tox21 program is looking at EDCs. Grant Cope commented that Tox21 is great.

### ***Congressional Events***

On 13 June 2013, at the request of the Heinz Center for Science, Economics & Environment and the Congressional Families Cancer Prevention Program of the Prevent Cancer Foundation, Dr. Birnbaum participated in a congressional briefing on breast cancer and the environment. Kim Lyerly, Professor

of Cancer Research at Duke University, talked about his research on breast cancer. Representative John Dingell (D-MI) and Ileana Ros-Lehtinen (R-FL) distributed a dear colleague letter asking members and their staff to attend the briefing. In addition to congressional staff, wives of eleven members of Congress attended. This is the first time that NIEHS has had the opportunity to work with both of these sponsoring organizations.

Representative Nita Lowey (D-NY and Ranking Member of House Appropriations) invited Dr. Birnbaum to join her and health and environmental leaders in Rockland County, NY, for a discussion of environmental health issues. Over 50 people came and stayed for the discussion after the talks and to ask more questions after the event concluded. The crowd was knowledgeable and very keen to learn more.

### ***Bills Introduced***

On 6 June 2013, Representative Gary Peters (D-MI) introduced H.R. 2298, the **Petroleum Coke Transparency and Public Health Research Act**. The bill would require the Secretary of HHS, in consultation with the Administrator of Environmental Protection Agency, to transmit to Congress the results of a study regarding the public health and environmental impacts of the production, transportation, storage, and use of petroleum coke. The bill also would require the Secretary to compile and publish, on a publically available website, the results of all federally funded research related to the public health and environmental impacts of the production, transportation, storage, and use of petroleum coke. H.R. 2298 was referred to the House Committee on Energy and Commerce.

On 23 July 2013, Senator Tom Coburn (R-OK) introduced S. 1347, the **Conference Accountability Act**. A conference is defined as a meeting that is held for consultation, education, or discussion; that is not held entirely at an agency facility; and involves costs associated with travel and lodging for some attendees. In addition, each agency would have to post on a public web site at the end of each quarter a report on each conference for which the agency paid travel expenses. An agency would be limited to \$500,000 in support for any conference.

## **Science Advances**

*One NIEHS* (NIEHS authors' groups in parens):

- ***A new approach to synergize academic and guideline-compliant research: The CLARITY-BPA research program*** Schug TT (DERT), JJ Heindel (DERT), L Camacho, KB Delclos, P Howard, AF Johnson, J Aungst, D Keefe, R Newbold (NTP), NJ Walker (NTP), R Thomas Zoeller and JR Bucher (NTP) [Journal Article] *Reprod. Toxicol.* (2013) v. 40 pp. 35-40.  
<http://dx.doi.org/10.1016/j.reprotox.2013.05.010>
- ***Evaluation of the Association between Persistent Organic Pollutants (POPs) and Diabetes in Epidemiological Studies: A National Toxicology Program Workshop Review*** Taylor KW (DNTP), RF Novak, HA Anderson, LS Birnbaum (OD), C Blystone (DNTP), M Devito (DNTP), D Jacobs, Jr., J Kohrle, DH Lee, L Rylander, A Rignell-Hydbom, R Tornero-Velez, ME Turyk, A Boyles (DNTP), KA Thayer (DNTP) and L Lind [Journal article] *Environ. Health Perspect.* (2013) [Advance Publication].

<http://dx.doi.org/10.1289/ehp.1205502>

DETR:

- **Transcriptional and epigenetic dynamics during specification of human embryonic stem cells.** Gifford CA, MJ Ziller, H Gu, C Trapnell, J Donaghey, A Tsankov, AK Shalek, DR Kelley, AA Shishkin, R Issner, X Zhang, M Coyne, JL Fostel, L Holmes, J Meldrim, M Guttman, C Epstein, H Park, O Kohlbacher, J Rinn, A Gnirke, ES Lander, BE Bernstein and A Meissner. *Cell* (2013) v. 153 (5): pp. 1149-63.  
<http://dx.doi.org/10.1016/j.cell.2013.04.037>
- **Epigenomic analysis of multilineage differentiation of human embryonic stem cells.** Xie W, MD Schultz, R Lister, Z Hou, N Rajagopal, P Ray, JW Whitaker, S Tian, RD Hawkins, D Leung, H Yang, T Wang, AY Lee, SA Swanson, J Zhang, Y Zhu, A Kim, JR Nery, MA Urich, S Kuan, CA Yen, S Klugman, P Yu, K Suknuntha, NE Propson, H Chen, LE Edsall, U Wagner, Y Li, Z Ye, A Kulkarni, Z Xuan, WY Chung, NC Chi, JE Antosiewicz-Bourget, I Slukvin, R Stewart, MQ Zhang, W Wang, JA Thomson, JR Ecker and B Ren. *Cell* (2013) v. 153 (5): pp. 1134-48.  
<http://dx.doi.org/10.1016/j.cell.2013.04.022>
- **Low-dose BPA exposure alters the mesenchymal and epithelial transcriptomes of the mouse fetal mammary gland.** Wadia PR, Cabaton NJ, Borrero MD, Rubin BS, Sonnenschein C, Shioda T, Soto AM. *PLoS One*. 2013 May 21;8(5):e63902.  
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0063902>
- **Transgenerational effects of di-(2-ethylhexyl) phthalate on testicular germ cell associations and spermatogonial stem cells in mice.** Doyle TJ, Bowman JL, Windell VL, McLean DJ, Kim KH. *Biol Reprod*. 2013 May 2;88(5):112.  
<http://www.biolreprod.org/content/88/5/112.long>
- **Bacterial biosensors for evaluating potential impacts of estrogenic endocrine disrupting compounds in multiple species.** Gierach I, K Shapero, TW Eyster and DW Wood. [Journal Article] *Environmental toxicology* (2013) v. 28 (4): pp. 179-89.  
<http://dx.doi.org/10.1002/tox.20708>
- **Paternal obesity is associated with IGF2 hypomethylation in newborns: results from a Newborn Epigenetics Study (NEST) cohort.** Soubry A, JM Schildkraut, A Murtha, F Wang, Z Huang, A Bernal, J Kurtzberg, RL Jirtle, SK Murphy and C Hoyo. [Journal Article] *BMC Med* (2013) v. 11 pp. 29.  
<http://dx.doi.org/10.1186/1741-7015-11-29>
- **Genetic variation in SIRT1 affects susceptibility of lung squamous cell carcinomas in former uranium miners from the Colorado plateau.** Leng S, Picchi MA, Liu Y, Thomas CL, Willis DG, Bernauer AM, Carr TG, Mabel PT, Han Y, Amos CI, Lin Y, Stidley CA, Gilliland FD, Jacobson MR, Belinsky SA. *Carcinogenesis* 2013 May;34(5):1044-50.  
<http://carcin.oxfordjournals.org/content/34/5/1044.long>
- **Global increases in both common and rare copy number load associated with autism.** Girirajan S, Johnson RL, Tassone F, Balciuniene J, Katiyar N, Fox K, Baker C, Srikanth A, Yeoh

KH, Khoo SJ, Nauth TB, Hansen R, Ritchie M, Hertz-Picciotto I, Eichler EE, Pessah IN, Selleck SB. *Hum Mol Genet.* 2013 Jul 15;22(14):2870-80.

<http://hmg.oxfordjournals.org/content/22/14/2870.long>

- **Exposure to herbicides in house dust and risk of childhood acute lymphoblastic leukemia.** Metayer C, JS Colt, PA Buffler, HD Reed, S Selvin, V Crouse and MH Ward. [Journal Article] *Journal of Exposure Science and Environmental Epidemiology* (2013) v. 23 (4): pp. 363-370. <http://dx.doi.org/10.1038/jes.2012.115>
- **The association of ambient air pollution and traffic exposures with selected congenital anomalies in the San Joaquin Valley of California.** Padula AM, Tager IB, Carmichael SL, Hammond SK, Lurmann F, Shaw GM. *Am J Epidemiol.* 2013 May 15;177(10):1074-85. <http://aje.oxfordjournals.org/content/177/10/1074.long>
- **Combined effects of perchlorate, thiocyanate, and iodine on thyroid function in the National Health and Nutrition Examination Survey 2007-08.** Steinmaus C, Miller MD, Cushing L, Blount BC, Smith AH. *Environ Res.* 2013 May;123:17-24. <http://www.sciencedirect.com/science/article/pii/S0013935113000091>

DIR:

- **SOX8 Regulates Permeability of the Blood-Testes Barrier That Affects Adult Male Fertility in the Mouse** Singh AP, CA Cummings, Y Mishina and TK Archer [Journal Article] *Biol. Reprod.* (2013) v. 88 (5): pp. 133. <http://dx.doi.org/10.1095/biolreprod.112.107284>
- **Developmental origins of central norepinephrine neuron diversity** Robertson SD, Plummer NW, de Marchena J and Jensen P [Journal Article] *Nature Neuro.* (2013) v. 16 (8): pp. 1016-1023. <http://www.nature.com/neuro/journal/v16/n8/full/nn.3458.html>
- **Association between Urinary Prostaglandin E-2 Metabolite and Breast Cancer Risk: A Prospective, Case-Cohort Study of Postmenopausal Women** Kim S, JA Taylor, GL Milne and DP Sandler [Journal Article] *Cancer Prevention Research* (2013) v. 6 (6): pp. 511-518. <http://dx.doi.org/10.1158/1940-6207.capr-13-0040>
- **Arsenic exposure and incidence of type 2 diabetes in southwestern American Indians** Kim NH, CC Mason, RG Nelson, SE Afton, AS Essader, JE Medlin, KE Levine, JA Hoppin, C Lin, WC Knowler and DP Sandler [Journal Article] *Am. J. Epidemiol.* (2013) v. 177 (9): pp. 962-969. <http://dx.doi.org/10.1093/aje/kws329>

DNTP:

- **Improving the human hazard characterization of chemicals: A Tox21 update** Tice RR (NTP), CP Austin, RJ Kavlock and JR Bucher (NTP) [Journal Article] *Environ. Health Perspect.* (2013) v. 121 (7): pp. 756-765. <http://ehp.niehs.nih.gov/1205784/>



## **NIEHS News and Highlights**

### **Health Disparities and Vulnerable Populations**

NIEHS continues its commitment to solving problems of environmental health disparities. A number of recent events and activities highlight the Institute's efforts to improve the health of all people, particularly vulnerable populations.

*Duke Superfund Environmental Justice Meeting.* Environmental justice, exposure to toxic chemicals, and sustainability were topics of discussion at the Environmental Justice Workshop June 28-30 in Durham, N.C., hosted by the NIEHS-funded Duke University Superfund Research Program (SRP). Faculty and students from Johnson C. Smith University, an historically black institution in Charlotte, N.C.; Charlotte-Mecklenburg K-12 teachers; and Charlotte-area community leaders met with scientists, learned about environmental health topics, and explored connections between environmental justice and sustainability. The workshop also included a tour of SEEDS, an urban garden in Durham that provides a variety of programs to local youth and community members, and a visit to the Rogers-Eubanks neighborhood, an historically African-American community with a long history of battling environmental injustice.

*Environmental Health Disparities and Environmental Justice Meeting.* On July 29-31, NIEHS sponsored the Environmental Health Disparities and Environmental Justice Meeting with co-sponsors Environmental Protection Agency, National Institute of Minority Health Disparities, Office of Minority Health, Centers for Disease Control and Prevention, and Indian Health Service. The meeting was an opportunity for NIEHS Research to Action grantees and a wide array of others working on community health disparities issues to convene to discuss best practices, policy, and research, as well as participate in a number of training sessions. The NIEHS Partners in Environmental Public Health program and others from the Division of Extramural Research and Training organized the meeting.

*Superfund Promotora Pilot Training Program.* The NIEHS-funded University of Arizona Superfund Research Program (UA SRP) and Dean Carter Binational Center for Environmental Health Sciences piloted a new training module, "Health Risks from Environmental Exposures," that covers topics such as everyday risks, dose response, hazard consequences, and biological variability. The risk module was developed for use by *promotoras de salud*, or Latina community health advocates. Promotoras are peer educators who receive specialized training to promote healthy living in their communities, and are a proven method of information transfer, especially within disadvantaged populations.

*President's Climate Action Plan.* NIEHS staff are leading and contributing to the development of plans to increase community health resilience in the face of climate change as part of Department of Health and Human Services efforts outlined in the President's Climate Action Plan, announced June 29. Efforts include increasing the sustainability and resilience of the healthcare and health research infrastructure, and training public-health professionals and community leaders to prepare their communities for the health consequences of climate change, including through effective communication of health risks and resilience measures.

*Migrant Farmworker Housing and Heat Study.* After working all day in extreme heat, migrant farmworkers continue to feel the effects of dangerous heat and humidity throughout the night,

according to a new NIEHS-funded study led by Sara Quandt, Ph.D., from Wake Forest School of Medicine. The team assessed the evening heat index in 170 common rooms and 316 sleeping rooms at 170 North Carolina migrant farmworker camps during the summer and found that high heat and humidity impairs sleep and may lead to dehydration, putting workers at higher risk for on-the-job injuries. The researchers are now working with their community partners to craft policy briefs that can be used to educate policymakers at local, state, and national levels about the research findings and issues related to the dangerous evening heat indexes in farmworker housing.

*Electronic Waste and Children's Health.* The World Health Organization (WHO) convened a working meeting on e-waste and child health on June 11-12 in Geneva, sponsored by NIEHS and the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety. Attendees included experts and other key stakeholders at WHO collaborating centers, other United Nations organizations, and research institutions. NIEHS-supported researchers were deeply involved in planning and participating in the sessions. In addition, NIEHS provided funds so that researchers from lower- and middle-income countries where unregulated e-waste recycling is most prevalent, including China, India, Vietnam, and countries in West Africa, could attend.

### **Data Management and Technology**

*NIEHS Chief Information Officer.* Bernard E Brown II is the new NIEHS Chief Information Officer. He joins NIEHS from the Executive Office of the President (EOP) in Washington, D.C., where he served as the Director of Operations and Engineering, reporting to the EOP Chief Information Officer, for the last two years. Brown was responsible for ensuring all unclassified technology, including computers, networks, and mobility services, were always available in direct support of the President of the United States.

*Office of Scientific Information Management.* As part of the implementation of the knowledge management goals of the NIEHS Strategic Plan, a new Office of Scientific Information Management has been created at the NIEHS, and Senior Advisor Allen Dearry, Ph.D., has been named its Director. The new office has been charged with facilitating a more collaborative approach to science through data sharing, and identifying the technology infrastructure required to enhance data analysis and discovery at the Institute.

*Global Integration of Toxicogenomics Databases Workshop.* More than 30 scientists from around the world attended an international meeting at NIEHS June 26-27 titled Workshop on Identifying Opportunities for Global Integration of Toxicogenomics Databases. The meeting discussed the scope of toxicogenomics databases around the world, the challenges of integrating data, and action plans for three types of problems in need of attention—database communication, such as metadata consensus and definition of standards; sustainability, such as funding continuity and data preservation; and the need for education in the field to ensure an adequate and trained future workforce.

*Advancing Environmental Health Data Sharing and Analysis: Common Language.* In conjunction with the toxicogenomics databases meeting, the Office of Scientific Information Management (OSIM) at NIEHS and the Office of Science Information Management (OSIM) at the U.S. Environmental Protection Agency (EPA) held a workshop on June 25, titled Advancing Environmental Health Data Sharing and Analysis: Finding a Common Language on the challenges of developing a consistent

nomenclature, among the many now in use, to guide searches of multiple databases.

*NTP Webinar on OHAT Systematic Review.* The National Toxicology Program's (NTP) Office of Health Assessment and Translation (OHAT) at NIEHS is developing a framework for integrating systematic review methodology into its literature-based analysis activities. This framework will be used to guide the evaluation and integration of scientific information for reaching decisions about potential human hazards or for identifying the state of the science and research needs. On September 26, 2013, from 1:00 - 4:00 PM, OHAT will conduct a webinar to continue a public discussion of issues under consideration as the program develops and applies systematic review procedures in environmental health assessments. The goals of the webinar are to gain additional clarity on issues raised in public comments, and to discuss NTP's progress at working through several case studies to test the systematic review framework.

#### *Technology Challenges:*

*My Air, My Health Challenge Winner Awarded.* The winner of the My Air, My Health Challenge, was announced June 4 in Washington, D.C. The grand prize of \$100,000 was awarded to Conscious Clothing, developer of a new technology that creates a personal, portable, and wearable air pollution sensor. The system uses groove strips—stretchy, conductive strips of knitted silver material wrapped around the ribcage—to measure breath volume, and collects and transmits data in real-time to any Bluetooth-capable device.

*DREAM Toxicogenetics Challenge Launched.* An innovative crowd-sourced computational challenge, the DREAM Toxicogenetics Challenge was launched June 11. DREAM stands for Dialogue for Reverse Engineering Assessments and Methods, and is a joint effort of Sage Bionetworks, NIEHS, the University of North Carolina at Chapel Hill, and the NIH National Center for Advancing Translational Sciences. The goal of the three-month challenge (it closes September 15) is to find better ways to predict the toxicity of chemicals, and to increase understanding of how a person's individual genetics can influence cytotoxic response of exposure to widely used chemicals using a specific set of genomic and cytotoxicity data.

*NIEHS Website Optimized for Mobile Use.* On June 28, NIEHS launched a redesigned public website that is easily viewed and navigated on a broad variety of mobile devices, such as smart phones and tablets. This new responsive Web design gives the Institute a distinct advantage in its efforts to reach the billions of people worldwide who experience the Internet on a small screen.

## **Meetings and Events**

Dr. Linda Birnbaum, along with grantees Philip Landrigan, M.D. of Mount Sinai School of Medicine, Leonardo Trasande, M.D. of the New York University School of Medicine, and Aimin Chen, M.D., Ph.D. of the University of Cincinnati, were featured speakers at the **Pediatric Academic Societies** State of the Art Plenary, "Contemporary Issues in Environmental Health for Pediatricians." Other NIEHS grantees also presented at this May 4 conference, the largest international meeting focused on research in child health, attended by some 7,000 pediatricians and academics from around the world.

Scientists and regulators from around the world met to review progress in human carcinogenesis safety evaluation strategies and cancer risk assessment on May 16-17 at the

NIEHS co-sponsored meeting **Moving Forward in Human Cancer Risk Assessment in the Genomics Era 2.0** workshop held at the OECD (Organisation for Economic Co-operation and Development) Congress Centre in Paris. Scott Auerbach, Ph.D., a molecular toxicologist with the National Toxicology Program and Superfund Research Program (SRP) grantee Ivan Rusyn, M.D., Ph.D., at the Gillings School of Global Public Health at the University of North Carolina at Chapel Hill, were speakers. Richard Paules, Ph.D., the Molecular Genomics Core director at NIEHS, was one of the organizers of the workshop.

Structural biologists from NIEHS were on hand as the annual **Mid-Atlantic Macromolecular Crystallography Meeting** on May 30-June 1 at Duke University. As one of the powerful structural biology techniques, crystallography offers a unique perspective into the world of proteins, enzymes, and nucleic acids. Scientists utilizing crystallography in their work include NIEHS researchers with interests in structural biology, molecular genetics, signal transduction, reproductive and developmental toxicology, and neurobiology.

Leaders in the field of combustion research gathered in New Orleans May 15-18 for the 13th **International Congress on Combustion By-Products and Their Health Effects**. Dr. Linda Birnbaum, Ph.D., gave the keynote address and NIEHS-funded Superfund Research Program (SRP) grantees presented important findings related to the Gulf oil spill.

Dr. Linda Birnbaum, Ph.D., and Director of Extramural Research and Training Gwen Collman, Ph.D., were featured guests at a gathering of environmental health laboratory professionals from the **Association of Public Health Laboratories**, June 4 in Raleigh, NC. Birnbaum spoke on the NIEHS Strategic Plan, and Collman described Institute efforts in exposure science.

NIEHS Senior Advisor for Public Health John Balbus, M.D., participated in the **Politics of Climate Change Forum** on June 19 in Washington, D.C., co-sponsored by The New Republic magazine and the American University School of Public Affairs (AUSPA) Center for Congressional and Presidential Studies.

Dr. Linda Birnbaum was a plenary speaker and led the six-member U.S. National Toxicology Program (NTP) delegation to the XIII **International Congress of Toxicology 2013 (ICT2013)** held June 30-July 4 in Seoul, South Korea. Following their formal meeting in Seoul, Birnbaum and the USNTP delegation joined representatives of the Korean NTP on July 5 for a one-day post-Congress retreat to continue discussions on international partnerships.

Staff of the NIEHS Worker Education and Training Program participated in a **joint workshop on safety culture** with the National Institute for Occupational Safety and Health, and Center for Construction Research and Training, in Washington, DC on June 11-12.

The annual meeting of **The Teratology Society** was held June 22-26 in Tucson, Arizona. Multiple NIEHS and NTP researchers presented at the meeting, "Application of Cutting-Edge Technologies to Improve Assessment, Treatment, Prevention, and Communication Regarding Birth Defects" including NIEHS Deputy Director Rick Woychik, Ph.D., who gave a special plenary lecture on "New experimental approaches for exploring the genetic/epigenetic landscape of environmental exposures."

On August 8-9, the NIEHS Superfund Research Program sponsored a 2-day international meeting of cancer experts to focus attention on how environmental mixtures evoke carcinogenesis, titled **Assessing the Carcinogenic Potential of Low Dose Exposures to Chemical Mixtures in the Environment** in Halifax, Nova Scotia. NIEHS Deputy Director Rick Woychik and DERT staff Dr. Danielle Carlin and Dr. Cynthia Rider spoke at the workshop, which generated a capstone manuscript that will include suggestions for future directions in mixtures research.

### **Institute of Medicine Deepwater Horizon Meeting**

The National Academy of Sciences was given money by BP to research the effects of the Deepwater Horizon oil spill. In response to a request from the National Academies of Science, on August 29 Dr. Linda Birnbaum presented on the progress to date of the DWH Research Consortium, the GuLF study, the NTP work on PAHs, and the activities of WETP in the Gulf region post oil spill. NAS specifically requested that NIH identify how our current studies could be extended to address unmet needs, and Dr. Birnbaum detailed concepts for future research that are based on and will build on current NIH funded studies.

### **Upcoming Meetings and Events**

- NAS Emerging Sciences Committee meeting: Bioengineered Platforms as Model Systems of Intermediate-level Biological Organization, September 19-20, Washington, DC
- Scientific Advisory Committee on Alternative Toxicological Methods Annual Meeting, September 24
- Translational Alternative Models and Biomarkers Predictive of Drug or Chemical Cardiovascular Risk, October 10-11, NIEHS
- Deepwater Horizon Conference, October 23, Research Triangle Park, EPA
- Annual Children's Environmental Health Centers meeting, October 29-30, Washington, DC
- RTP Environmental Health Collaborative Climate and Health Summit, October 29-30, Raleigh
- American Public Health Association annual meeting, November 2-6, Boston
- American College of Toxicology annual meeting, November 4-5, San Antonio
- Breast Cancer and the Environment Research Program Meeting, November 6-8, Madison, WI
- Institute of Medicine Roundtable on Environmental Health, Science, and Medicine 15<sup>th</sup> Anniversary, November 7-8, Washington, DC

### **Awards and Recognition**

#### *NIEHS*

- Linda Birnbaum, Ph.D., will be awarded the 2013 Homer N. Calver Award in November. This award is given by the American Public Health Association to a leader in environmental health in recognition of a former APHA leader.
- In October, Linda Birnbaum, Ph.D., will be honored with the 2013 Child Health Science Advocate award from the Children's Environmental Health Network.
- Edward Mitchell (Mitch) Eddy, PhD, received the Society for the Study of Reproduction (SSR) Distinguished Service Award. Cited were Eddy's contributions over more than a decade as director, president, program chair, publications chair, and associate editor of the SSR journal [Biology of Reproduction \(BOR\)](#). Eddy leads the Gamete Biology Group in the Laboratory of Reproductive and Developmental Toxicology (LRDT)

- NTP Laboratory of Neurotoxicology Group at NIEHS, headed by Jean Harry, Ph.D., and including biologist Chris McPherson, Ph.D., and visiting fellow Ruben Orihuela, Ph.D., earned places in the highly competitive International Society for Neurochemistry (ISN) Advanced School for their work on understanding the role of microglia and brain development.
- NTP postdocs won two of the three Young Investigator Awards presented at this year's Society of Toxicologic Pathology annual meeting. Sachin Bhusari, D.V.M., Ph.D., placed first, and Michael Boyle, D.V.M., placed third. Bhusari is a member of the Cellular and Molecular Pathology Branch (CMPB) Investigative Pathology Group, headed by pathologist Mark Hoenerhoff, D.V.M., Ph.D. Boyle is part of the CMPB NTP Pathology Group, headed by pathologist David Malarkey, D.V.M., Ph.D.
- 19 NIEHS fellows received the 2014 NIH Fellows Award for Research Excellence (FARE). Winners of the FARE awards will each receive a \$1,000 stipend to attend a scientific meeting of their choice, at which they will present their research. Although NIEHS is in the midrange in terms of size and budget among the NIH institutes and centers (ICs), it ranked in the top 26 % in the number of fellows receiving FARE awards.

*NIEHS-related Awardees:*

- University of Arizona SRP graduate trainees Linnea Herbertson and Corin Hammond have won support awards. Herbertson received a 2013 NSF Graduate Research Fellowship Program award that will provide three years of funding support, including stipend, travel, and tuition. Hammond received a scholarship from the Phoenix chapter of ARCS for the 2013-2014 academic year that will provide tuition, travel funds, and a stipend.
- Bruce Lanphear, M.D., of Simon Fraser University, received the 2013 American Pediatric Association Public Policy and Advocacy Award.
- Three members of the NIH-funded Michigan State University (MSU) Breast Cancer and the Environment Research Program (BCERP) are winners of the 2013 International Communication Association (ICA) Applied Research Award. Charles Atkin, Ph.D., Sandi Smith, Ph.D., and Kami Silk, Ph.D., shared honors for their applied communication accomplishments, translating emerging environmental health science research findings into the reduction of breast cancer risk among women of all ages, at every level of society.
- NIEHS grantee Gary Miller, PhD, has been named Editor in Chief of *Toxicological Sciences*. Miller is the Asa Griggs Candler Professor of Environmental Health and associate dean for research in the Rollins School of Public Health at Emory University, and lead of the NIEHS-funded Emory Parkinson's Disease Collaborative Environmental Research Center.
- Five exceptional NIEHS-funded Superfund Research Program (SRP) trainees received the 2013 K.C. Donnelly Externship Award Supplement, to enrich their research in environmental health science:
  - Audrey Bone, Duke University
  - Leah Chibwe, Oregon State University
  - Erin Madeen, Oregon State University
  - Shohreh Farzan, Dartmouth University
  - James Rice, Ph.D., Brown University
- Former ONES awardee Gokhan Mutlu, M.D., an associate professor of medicine at the Northwestern University Feinberg School of Medicine, was inducted into the American Society for Clinical Investigation (ASCI).
- Former NIH health disparities trainee Rosemarie Ramos, Ph.D., was selected as the founding chief research officer for CommuniCare—a network of U.S. Department of Health and

Human Services-supported community health centers headquartered in San Antonio. Ramos worked at NIEHS with former Director Kenneth Olden, Ph.D. during her fellowship.

- NIEHS grantee Michael Smerdon, Ph.D., at Washington State University, has been elected to the Washington State Academy of Sciences.

## **News from Building 1**

### *Big Data to Knowledge Centers of Excellence*

The National Institutes of Health will fund up to \$24 million per year for four years to establish investigator-initiated Big Data to Knowledge Centers of Excellence. The six to eight centers will improve the ability of the research community to use increasingly large and complex datasets through the development and distribution of innovative approaches, methods, software, and tools for data sharing, integration, analysis and management. The centers will also provide training for students and researchers to use and develop data science methods. An information webinar for prospective applicants will be held on Thursday, Sept. 12, 2013, from 3 p.m. to 5 p.m. EDT. More details about this event and the overall BD2K initiative can be found at <http://bd2k.nih.gov>. Applications will be due on Nov. 20, 2013.

### *Individual Development Plans for NIH Trainees*

A notice has recently appeared in the NIH Guide for Grants and Contracts announcing that NIH encourages grantees to develop an institutional policy requiring an Individual Development Plan (IDP) for every graduate student and postdoc supported by any NIH grant, regardless of the type of NIH grant that is used for support. NIH is encouraging grantee institutions to describe the use of the IDP in the Research Performance Progress report (RPPR) for all projects reporting graduate student and/or postdoctoral researchers. Instructions for reporting IDPs in the RPPR will be available on October 18, 2013, but institutions are encouraged to begin reporting IDPs in the RPPR by October 1, 2014.