

Variety of topics covered at council

By Ernie Hood

At its 142nd meeting May 13-14, the National Advisory Environmental Health Sciences Council covered a wide variety of topics. The group learned about various NIEHS activities, provided feedback on programs, and gave thoughtful consideration to current issues in environmental health research.

Budget uncertainty

NIEHS and NTP Director Linda Birnbaum, Ph.D., reported that the fiscal year 2015 budget outlook is essentially flat. Despite the budget deal reached in Congress in December 2013, a finalized budget is unlikely in the near future, due to ongoing contention about the Affordable Care Act.

"We expect that there will be a series of continuing resolutions," she predicted. Birnbaum expressed hope that there would be only one continuing resolution in late September, which would carry through the November mid-term election.

On a brighter note, Birnbaum announced that a candidate has been identified to fill the NIEHS Clinical Director opening, with the expectation that the hiring will be finalized by late summer or early fall. "We're very excited," she said. "I think this is going to take our clinical program to the next level."

Grantee opportunities

Gwen Collman, Ph.D., director of the NIEHS Division of Extramural Research and Training, discussed the new National Institutes of Health (NIH) process for resubmission of grant applications following two prior rejections. "It's probably the biggest thing that's happened in the extramural [grantee] community in the last couple of years," she noted.

Collman also described a new NIH Early Career Reviewer Program designed to train qualified early-career scientists to become effective Center for Scientific Review (CSR) grant reviewers. "It's a nice opportunity to make your way through NIH, to meet people at CSR, and make the contacts necessary for success in the future," she said.

Project update

Senior Medical Advisor Aubrey Miller, M.D., briefed the council on developments related to the [NIH Disaster Research Response Project](http://disaster.nlm.nih.gov/dimrc/dr2/disasterresearch.html).

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One of the major elements of the project is a central repository of data collection tools and research protocols.

The [website](http://disaster.nlm.nih.gov/dimrc/toolsnlmdimrc.html)

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currently provides 60 tools, with another 200 selected for eventual inclusion. The tools will allow timely collection of important baseline data in disaster situations.



In addition to her usual updates on NIEHS and NTP personnel changes, science advances, news and highlights, and awards and recognitions, Birnbaum briefed council members on the establishment of two newly formed groups - an exposome faculty and an inflammation faculty - who are working to guide implementation of NIEHS strategic plan goals. (Photo courtesy of Steve McCaw)



Collman described an initiative to reassign grants among program administrators, following the recent division reorganization. "We've made some moves in terms of balancing the workload, and also infusing some new ideas and perspectives into some of the areas," she said. (Photo courtesy of Steve McCaw)

Miller announced formation of a new Environmental Health Science Disaster Research Network that includes NIEHS researchers and grantees, NIEHS-sponsored research centers, the Worker Education and Training Program, and community partners. The goal is to build a national network for rapid response to future environmental threats and disasters, with immediate inclusion of environmental health research questions.

Biomedical research paper discussion

The council also engaged in a dialogue about a thought-provoking paper by Alberts et al., “Rescuing US biomedical research from its systemic flaws,” (<http://www.ncbi.nlm.nih.gov/pubmed/24733905>) recently published in the Proceedings of the National Academy of Sciences.

Of the many suggestions in the paper, council discussion centered largely on the authors' recommendations that the number of NIH trainees should be decreased and the number of staff scientists should be increased, and that individuals, rather than projects, should be funded.

Council members disagreed with a number of the points made by the authors, although the postdocs in the room strongly supported the idea of increasing postdoctoral stipends and making changes to free up additional positions for advancement.

Thumbs up

Council approved a concept for the next phase of the Breast Cancer and the Environment Research Program, consisting of a Transdisciplinary Research Initiative and a Communication Research Initiative, with \$38 million in funding costs, over five years, shared between NIEHS and the National Cancer Institute.

The panel also approved a new evaluation of the Environmental Health Sciences Core Centers Program to be conducted over the next year.

(Ernie Hood is a contract writer with the NIEHS Office of Communications and Public Liaison.)



Fessler gave the traditional council science talk (see [text box](#)). In his introduction of Fessler, NIEHS Scientific Director Darryl Zeldin, M.D., said, "He is a triple threat - an active clinician, as well as a basic scientist and a clinical teacher." (Photo courtesy of Steve McCaw)



Among the new council members attending their first meeting were Marie Lynn Miranda, Ph.D., left, from the University of Michigan, and Kevin Elliott, Ph.D., from Michigan State University. (Photo courtesy of Steve McCaw)



Vivian Cheung, M.D., right, of the University of Pennsylvania, listens during the discussion of the biomedical research paper, as Edward Postlethwait, Ph.D., from the University of Alabama at Birmingham, said that more information was needed about the job market for trainees. "What's the number of potential job opportunities out there for Ph.D.-trained scientists that are not in academia?" he asked. (Photo courtesy of Steve McCaw)



Council member Viola Waghiyi, Environmental Health and Justice Program director at the Alaska Community Action on Toxics, said attention should be paid to food security issues as part of disaster preparedness. She related how, at her home on St. Lawrence Island in the Bering Sea, climate change has already severely affected the availability of traditional foods upon which the native population relies. (Photo courtesy of Steve McCaw)



Council member Linda McCauley, Ph.D., R.N., from Emory University, was pleased with what she heard at the meeting. (Photo courtesy of Steve McCaw)



Monica Frazier, Ph.D., Intramural Research Training Award fellow in the Mechanisms of Mutation Group and chair of the NIEHS Trainees' Assembly, said that over her two years as a postdoc at NIEHS, she had seen very few of her postdoctoral colleagues go on to jobs in academia. "As we're looking at the job market, the people who have the jobs we want to have are twice our age," she noted. "How do we move into this when our mentors, who are the experts, are never retiring? There's no job to be had, so we pursue alternative paths." (Photo courtesy of Steve McCaw)

Crosstalk: the innate immune system and cholesterol trafficking

Following the tradition of asking recently tenured Division of Intramural Research scientists to brief the council on their work, Michael Fessler, M.D., addressed the panel about his group's groundbreaking [research](#) on regulation of the innate immune response to the environment by cholesterol trafficking.

Fessler, lead of the NIEHS [Clinical Investigation of Host Defense Group](#) within the Laboratory of Respiratory Biology discussed "A Bench-to-bedside Study of *APOE4* in the Human Innate Immune Response."

His group hypothesized that cholesterol trafficking and innate immunity signaling are intrinsically coupled processes, and that perturbation in one will regulate the other. He showed data indicating that the E4 allele of the *APOE* gene, which encodes the key lipid-trafficking and immunomodulatory protein called apolipoprotein E, is a fundamental determinant of the human innate immune response. The investigation included studies conducted in the NIEHS [Clinical Research Unit](#).

Subjects with two copies of the *APOE4* gene appear to be at heightened risk for a broad array of inflammatory diseases, including infectious and noninfectious environmentally-induced disorders, in which the innate immune response has been implicated. "We would submit that *APOE4* positivity should now be studied for potential impact on illness severity in a wide range of inflammatory diseases," Fessler said.

People with an *APOE3/APOE4* genotype - about 20 percent of the U.S. population - also have been shown to exhibit heightened innate immune responses, compared to individuals with the more common *APOE3/APOE3* genotype.

Fessler speculated that the findings could lead to customization or tailoring prognoses and treatments, based on genetic and environmental risk factors.

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