DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

MINUTES OF THE ONE HUNDRED FIFTY-SECOND MEETING OF THE NATIONAL ADVISORY ENVIRONMENTAL HEALTH SCIENCES COUNCIL

October 3, 2017

The National Advisory Environmental Health Sciences Council convened the open session of its one hundred fifty-second regular meeting on October 3, 2017 in the Rall Building, Rodbell Auditorium, National Institute of Environmental Health Sciences, Research Triangle Park, NC. The closed session of the meeting was held September 13, 2017.

The meeting was open to the public on October 3, 2017 from 8:30 a.m. to 3:00 p.m. In accordance with the provisions set forth in Section 552b(c)(4) and 552b(c)(6), Title 5, U.S. Code and Section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. Appendix 2), the meeting was closed to the public on September 13, 2017 from 11:00 a.m. to 12:00 p.m. for consideration of grant applications. Notice of the meeting was published in the *Federal Register*.

Dr. Linda Birnbaum presided as Chair.

Participating Council Members
(all participating members attended via WebEx)

Habibul Ahsan, MD
Philip Brown, PhD
William Cibulas, Jr., PhD (*ex officio*)
Irasema Coronado, PhD
Kevin Elliott, PhD
Kenneth Fasman, PhD
Andrew Feinberg, MD
Shuk-Mei Ho, PhD
James Johnson, Jr., PhD (*ex officio*)
Maureen Lichtveld, MD
José Manautou, PhD
Donna Mendrick, PhD (*ex officio*)
Andy Shih, PhD
Patrick Sung
Deborah Winn, PhD (*ex officio*)

NIEHS Staff

Kathy Ahlmark
David Balshaw, PhD
Martha Barnes
Linda Birnbaum, PhD
Tiffany Bowen
John Bucher, PhD
Danielle Carlin, PhD
Trisha Castranio
Pam Clark
Gwen Collman, PhD
Yuxia Cui, PhD
Christie Drew, PhD
Lisa Edwards
Benny Encarnacion
Symma Finn, PhD
Amanda Garton
Barbara Gittleman
Kimberly Gray, PhD
Virginia Guidry, PhD
Michelle Heacock, PhD
Jon Hollander, PhD
Michael Humble, PhD
Laurie Johnson
Bonnie Joubert, PhD
Cindy Lawler, PhD
Kelly Lenox
Chris Long
Sarah Luginbuhl
Robbie Majors
J. Patrick Mastin, PhD
Kim McAllister, PhD
Steven McCaw
Rose Anne McGee
Liz McNair
Carolina Medina
Sri Nadadur, PhD
Sheila Newton, PhD
Liam O'Fallon
Kristi Pettibone, PhD
Nicole Popovich
Lingamanaidu Ravichandran
Scott Redman
Elizabeth Ruben
Thad Schug, PhD

Dan Shaughnessy, PhD
Carol Shreffler, PhD
Ashley Singh
William A. Suk, PhD, MPH
Kimberly Thigpen Tart, JD
Claudia Thompson, PhD
Brittany Trottier
George Tucker
Steven Tuyishime, PhD
Michelle Victalino
Leroy Worth, PhD
Rick Woychik, PhD
Darryl Zeldin, MD

Members of the Public Present

Lynn Albert, MDB, Inc.
Ernie Hood, Bridport Services, LLC

I. Call To Order and Opening Remarks

NIEHS/NTP Director and Council Chair Linda Birnbaum, Ph.D., welcomed attendees and called the meeting to order. She said that Drs. Conry, Cordero, Eskenazi, Miranda, and Schantz were unable to attend. She asked the Council Members attending via WebEx to introduce themselves, followed by the attendees in the room. Following the introductions, NIEHS Division of Extramural Research and Training (DERT) Director and Council Executive Secretary Dr. Gwen Collman reviewed meeting logistics, including votes to be taken through the Electronic Council Book.

II. Review of Confidentiality and Conflict of Interest

Designated Federal Official Dr. Collman reviewed the Conflict of Interest and Confidentiality procedures, which had been provided earlier to Council members in written form, and reviewed various other administrative matters.

III. Consideration of May 2017 Meeting Minutes

Approval of the May 2017 meeting minutes was moved and seconded, and Council voted to approve the minutes, with all in favor. Dr. Collman noted the dates of the upcoming Council meetings for members to put on their calendars.

IV. Report of the Director, NIEHS

Dr. Birnbaum briefed Council on Institute developments since the May 2017 Council meeting.

She began with a report updating appropriations. For Fiscal Year 2018, the President's Request for the NIEHS budget represents a substantial budget cut of approximately 25%. The House has passed its appropriation bill, which would give NIH an increase of $1.1 billion, which would give NIEHS approximately $11 million more than in 2017. The Senate Appropriations Committee approved a $2 billion increase for NIH, reflecting a $25 million increase for NIEHS. She noted that more than half of the House bill was earmarked for various initiatives, whereas in the Senate measure, only roughly one-third was earmarked.

Dr. Birnbaum depicted a timeline of action for the FY2018 appropriations cycle. The government is currently operating under a Continuing Resolution, which is in effect through December 8. The House has passed all 12 appropriations bills, while action is still forthcoming on the measures in the Senate, after which the House and Senate versions will need to be reconciled. Ultimately, the appropriations bills will go to the president for his signature or veto. Congressional action is also needed to amend the budget caps enacted in the Budget Control Act of 2011; otherwise sequestration would be triggered. She described the FY2017 Disaster Relief Supplemental Appropriations ($15.25 billion), which were enacted on September 8 together with the Continuing Resolution.

She discussed proposed legislation that potentially affects NIEHS, including the Airplanes Health Impact Study, the Federal Accountability in Chemical Testing Act, and PFAS provisions in the National Defense Authorization Act. She previewed a Congressional briefing on environmental factors and autoimmune diseases to be held October 12, featuring several NIEHS speakers.

Turning to science advances, Dr. Birnbaum briefly summarized several recent publications by NIEHS/NTP personnel or grantees. First, as examples of "One NIEHS" research, she described a publication focusing on bisphenols A, AF, and S binding on the androgen receptor, and a publication outlining new rodent population models. She also briefly summarized several recently published studies from DIR, DNTP, and DERT researchers.

In NIEHS news and highlights, she said that NIEHS is in the process of forming a new Office of Cyberinfrastructure, to be located within the Office of the Director, which will coordinate all of the different iterations of information technology across the Institute.

She described the new Acting HHS Secretary Don Wright, who was named following the resignation of HHS Director Tom Price. She said it was unclear whether there would be a resulting impact on the "Reimagine HHS" initiatives. She noted that

although the NIH hiring freeze is still in effect, the (then-)Secretary approved the selection of Dr. Brian Berridge to be the new Associate Director of the NTP and Scientific Director of DNTP. He is expected to assume his position in December.

Dr. Birnbaum reviewed the status of several NIEHS collaborations, including an agreement with Japan's National Institute of Environmental Studies and a renewal of NIEHS involvement with the WHO-NIEHS Collaborating Centre. Collaborations also continue with the 2nd Global Conference on Myositis, H3Africa, Breast Cancer Prevention Partners, the USGS Water Quality and Research Collaboration, Sound Health: Music and the Mind, and the NASEM Environmental Health Matters Initiative.

She described recent NTP expert review panels and Technical Reports, as well as upcoming reports. She discussed recent programs in disaster and emergency response training, and the NIEHS response efforts for Hurricanes Harvey and Irma.

Work on updating the NIEHS Strategic Plan is progressing, and NIEHS is involved with the NIH Office of Disease Prevention and the NIMHD in updating their strategic plans. NIEHS is also taking a leadership role in the federal lead strategy initiative, and is participating in the Research Triangle Environmental Health Collaborative Summit, the organization's annual meeting.

Dr. Birnbaum reported on several recent meetings and events, including a workshop on extreme events, environmental health and the elderly, the OpenTox USA 2017 Conference, the 4th International Symposium on Systematic Review and Meta-Analysis of Laboratory Animal Studies, and a workshop exploring Telomeres as Sentinels for Environmental Exposures, Psychosocial Stress, and Disease Susceptibility. She also previewed several upcoming events in October, November, and December.

Seventeen NIEHS fellows were among 199 NIH researchers to win the 2018 FARE Award. Dr. Birnbaum also recognized several other awards won by NIEHS and NTP personnel and grantees. She announced that Dr. Kenneth Martin has been named Chair of the NTP Board of Scientific Counselors. She recalled the recent death of Dr. Herbert Needleman, who was a pioneer in research on the biomedical impact of lead exposures.

Kimberly Thigpen Tart briefed the council on Hurricane Maria Puerto Rico relief efforts being conducted by Dr. Luz Claudio. Dr. Claudio, a longtime NIEHS grantee from the Mt. Sinai School of Medicine, is a Puerto Rico native with many family members residing on the island. She is raising funds for efforts with a specific environmental health benefit, such as purchase of solar power generators.

Dr. Manautou asked Dr. Birnbaum about the potential impact of the hiring freeze on the hiring of postdocs and trainees by NIEHS. Dr. Birnbaum said that IRTA fellows can still

be brought on, but research fellows cannot currently be hired. She noted that because of the hiring freeze, NIEHS down 10% in staff, with no idea when the freeze might be lifted.

V. Renewing the NIEHS Strategic Plan: Trends & Insights Survey

Dr. Sheila Newton, Director of the NIEHS Office of Policy, Planning and Evaluation, briefed the Council on progress in updating the NIEHS Strategic Plan. The current plan expires at the end of 2017. It will be used as a starting point for developing a new 5-year strategy.

The first step in the process was the public online survey, "Trends & Insights: Next Steps for NIEHS."[1] The 60-day comment period closed in August, with a total of 219 respondents, including several Council members and *ex officios*. Content analysis of the comments consisted of manual review and binning, and data visualization. Insights from the binning of the comments included:

- Importance of studying biological processes and mechanisms (especially genomics and epigenetics
- Environmental exposures of interest, aspects of exposure research (climate change was the top mention, followed by air pollution; there was also strong acknowledgment of the need to understand co-exposures and the exposome)
- Microbiome and endocrine mechanisms were called out.
- Disease-specific comments were less prevalent (some on neurodegenerative and respiratory disease).
- Many commenters agreed on the importance of both DoHAD and lifespan approaches.
- Strong support for understanding environmental health contributions to children's health, healthy aging, and health disparities.
- Need for research results to be actionable in the real world; also reflected in support for "research translation"
- Strong support for dissemination and public engagement; also NIEHS role in promoting environmental health literacy
- Recognition that NIEHS hasn't yet tapped the full potential of Big Data and data sharing for environmental health science
- Strong support for training of the research workforce

Dr. Newton related a breakdown of the themes reflected in the comments, which included scope and mission, funding and resources, partnership and collaboration, evaluation and review, and novel ideas. She presented pie charts and word cloud visualizations for each of the 11 goals in the current Strategic Plan.

She opened a discussion session with the Council members, based on questions she had communicated during the previous Council meeting. Prior to comments from the designated discussants, she asked if there were any questions for clarification.

Regarding Goal #9 (Next Generation of EHS Leaders), Dr. Manautou asked if Dr. Newton had received any specific comments as to problems with existing training. Dr. Newton said she did not have that information at hand, but would follow up.

Dr. Ahsan was the first discussant. He agreed with the strategy of not seeking to completely redo the Strategic Plan. He felt that there should be more emphasis on the clinical environmental health aspect, in general clinical settings as opposed to strictly occupational. He expressed support for efforts to augment access to and usage of electronic medical records, which have much to offer in terms of data of interest to environmental health research. He felt that there is a dearth of good studies on interventions to prevent environmentally induced diseases or reduce exposures. He supported keeping the economic component expressed in Goal #10 and enhancing it to the extent possible. He cited a need for increased research on chemicals that could be used for terrorism, including potential antidotes to exposures. He noted the existence of earmarked NIH investments for initiatives in areas such as the brain and personalized medicine, and suggested that there is very little involvement of environment in those projects currently. He suggested that NIEHS consider how it might leverage some of those large investments, focusing on certain components. He endorsed the idea of combining some of the plan's goals. He felt that Goals 1, 2, 3, and 4 represent much of NIEHS external investment. He mentioned Goals 7 and 11 as candidates for consolidation, with 7 being a sub-goal of 11. Also, Goals 8 and 9 could be combined. He said that NIEHS is doing an outstanding job of following its strategic plan on a continuous basis, but suggested there might be room for more quantifiable ways of evaluating it.

Dr. Elliott was the second discussant. He said that overall the plan was well-thought-out. He noted that there were at least two reasons to consider further changes to the plan: first, due to changes or advances in the state of the science, and second, because of changes in social policy or public health context. He felt most qualified to weigh in on the second area, and had three recommendations, in community engagement, economic analysis of EH research and initiatives, and efforts to pursue translation science. He said he would like to see NIEHS continue to blaze new trails in the area of community engagement. The Institute has been a pioneer in the area, and the importance of community engagement has become more apparent to the scientific community as a whole over the past five years, with increasing emphasis on the importance of community engagement being bidirectional. There has also been increasing recognition of the importance of tribal or traditional ecological knowledge and citizen science. There are questions about how to navigate power imbalances between

professional scientists and community members when they work together and sometimes have different interests and priorities. There are also questions about how best to report back the results of community-based studies. He hoped to see NIEHS continue to be a leader in the area. He said that in the current context, it is increasingly important to explore the economic impact of public health and environmental health initiatives, as well as environmental health research in general. So he wished to reiterate the importance of Goal #10. His third point was that it is important to emphasize the translation and implementation of environmental health research. He noted that much of that emphasis involves integrating multiple disciplinary approaches such as social science. He called for continued exploration of how to make those interdisciplinary approaches work effectively.

Dr. Feinberg was the third discussant. He said he wished to make four major points. First, he felt that although the current strategic plan has been a great success, there is much potential overlap among the first four goals. "NIEHS can be at the crux of really transformative research that is cross-disciplinary," he noted. He recommended looking at the other NIH Institutes for potential collaborations, particularly the National Human Genome Research Institute. He said there is much opportunity presented by exploring the interface between genotype and exposure. He also felt that NIEHS can enhance its transformative role in the areas of data integration and sharing. His second point addressed epigenomics and epigenetics. He had done an NIH RePORT analysis of NIEHS papers over the past four years assessing epigenomics and environment publications, and found more than 1100, many of them in top journals. His third point was that he was opposed to the new definition of human subjects research because it may limit both epidemiologic and mechanistic studies. He also recommended that NIEHS become involved in the Precision Medicine Initiative, particularly as it relates to preventive medicine. His final point addressed the importance of robust interactions with the public.

Dr. Litchtveld said she agreed with many of the comments from the discussants, particularly their comments on community engagement. She felt that the new strategic plan presents an opportunity to consolidate goals, particularly in the areas of literacy, creating the next generation of environmental health researchers, and communication. She said that evaluation and measurement of accomplishments is critical. She mentioned that starting in 2018, all schools of public health must comply with foundational competency, which will eliminate the five core required courses. Environmental health is hardly present in the core competencies, so the field is moving more to management and general areas of knowledge. This could lead to MPH graduates who know virtually nothing about environmental health if they are not in that specific department. Thus, emphasis on developing the next generation of environmental health leaders will become even more critical. Research translation will

also continue to be very important, as will the connection between the social sciences and environmental health sciences.

Dr. Coronado described a citizen science report prepared at EPA as part of the National Advisory Committee on Policy and Technology.

Dr. Manautou said he agreed with the prior comments regarding consolidating goals in the strategic plan.

Dr. Winn mentioned the importance of mentioning implementation science in the strategic plan.

Dr. Collman noted that although the survey was closed, Council members were still welcome to send any additional comments and ideas to her or Dr. Newton. Dr. Birnbaum agreed that "the door is not closed," and that when a written draft is developed, there would be another opportunity for comments.

VI. Reimagining ViCTER: Program Update and New FOA Proposal

Dr. Jonathan Hollander from the NIEHS Genes, Environment and Health Branch briefed the Council on a proposed new approach to the Virtual Consortium for Translational-Transdisciplinary Environmental Research (ViCTER) program, which would include a new FOA.

He described the goals and outcomes of the program, which began in 2010. It is an R01 supplemental mechanism for transdisciplinary and/or translational research. A grant must consist of three participants, the PI and two new collaborators. The PI must be a current NIEHS-supported R01 awardee, with a minimum of two years remaining on the parent grant. The budget is limited to $250,000 in direct costs, allowing 4-5 awards per year, for a total of $2 million per fiscal year. The goals of the program are:

- To stimulate interdisciplinary/translational collaborations and conduct exemplary research across all major EHS disciplines
- To foster post-ViCTER projects
- To attract new investigators to NIEHS

ViCTER has made 34 awards since its inception across a variety of scientific areas.

Although the program has largely been successful, challenges remain to maximizing its potential. Applications have declined over the course of the years. Challenges include:

- Limited time to collaborate and be productive with two or more collaborators, because the award is tied to the parent grant (avg. 2.5 years)

- Limited "sweet spot" for applications – second year of R01
- Lost time/momentum when tied to parent Type 5 award date (addressed in 2016)

After a survey of current grantees was conducted, several concerns among the PIs emerged:

- Small amount of funding
- Short time frame
- Coordinating projects across institutions
- Issues with study section and review
- Concerns about continuation of funding after ViCTER ends
- Need for more opportunities to network with other PIs

As a result, the ViCTER 2.0 Funding Announcement is proposed. The goals of the program remain the same, but the FOA will provide up to three years of support to expand on previously funded or new areas of research. The PI is no longer required to have an active NIEHS R01 to be eligible, but the team is still composed of a PI and at least two new collaborators. Awards will be capped at $400,000 direct costs per year to fund 3-4 grants, totaling $2.5 million per year.

Dr. Litchtveld was the first Council reviewer. She noted, "This is a major, major improvement that is likely to be very impactful." She suggested that in the new FOA, it would be important to make a distinction between it and a regular R01, including the fact that preliminary data will not be required, allowing the opportunity to pursue the high-risk, high-yield ideas. In the effort to stimulate transdisciplinary research, the opportunity to examine the cumulative impact of exposures to chemical and non-chemical stressors would be an important distinction as well. She suggested adding specific examples in the FOA of translation in population science. She felt that capping the duration at three years still poses some challenges, particularly with respect to brand-new collaborations. She approved of the increase in annual direct costs. She recommended releasing the FOA as soon as possible.

Dr. Manautou was the second Council reviewer. He described a conference call among Council members to discuss the ideas to improve the ViCTER program, including no longer requiring a parent R01 and an increase in the budget. He said it would be interesting to see the reaction to the changes, particularly whether it would appeal to investigators for new concepts or junior faculty looking to conduct the basic science, clinical study, and epi study all at once. He agreed that three years is probably still too tight a time frame. He felt that the major unknown is what types of investigators would apply.

Dr. Hollander said that preliminary data regarding the feasibility of accomplishing the aims of the collaboration would still be important, as distinguished from a typical R01 application. Regarding money and time, the funding would be there to stimulate new collaborative relationships and generate preliminary data. Following the ViCTER experience, the investigator could then use the preliminary data to apply for an R01 as a follow-up project.

Dr. Collman called for a motion to accept the concept for continued development. Dr. Manautou so moved and the motion was seconded by Dr. Litchtveld. Council unanimously approved the concept.

VII. Report of the Director, Division of Extramural Research and Training

Dr. Gwen Collman briefed the Council on recent developments in the Division of Extramural Research and Training (DERT).

She described NIH initiatives to strengthen clinical trials – a multi-faceted effort to enhance the quality and efficiency of NIH-supported clinical trials by focusing on key points along the clinical trial lifespan. The initiatives are aimed at enhancing the application and award processes, increasing NIH's ability to assess the merits and feasibility of clinical trial applications, improving oversight and transparency, and increasing the sharing of clinical trial results. She provided several examples of NIEHS-funded clinical trials, including cook stove interventions, exposure chamber studies, home interventions, diet interventions, and behavioral interventions.

Dr. Collman discussed the NIH Next Generation Researchers Initiative, an effort to enhance funding to early-stage investigators (ESIs) and early-established investigators (EEIs) to stabilize and strengthen the biomedical workforce. The goal for FY 2017 was to fund approximately 200 more ESIs and 200 more EEIs across NIH than funded in FY 2016. An ESI is defined as being within 10 years of completing his or her terminal research degree or medical residency, and has not previously received a substantial independent NIH research award. An EEI is defined as being within 10 years of receiving his or her award and no more than 20 years from out from receiving their terminal degree. Under the initiative, funding will be prioritized for an "At Risk EEI" (who lost or is at risk of losing all NIH research support if not funded by competing awards this year) or a "Rising Star EEI" (who is supported by only one active award). Dr. Collman noted that for NIEHS in FY 2017, there were 22 individual EEIs identified as "At Risk," and 9 identified as "Rising Star." Eighteen individuals were identified as ESIs. She described the many pathways to independence available to postdocs and other early career investigators, including the Outstanding New Environmental Health

Scientist (ONES) program, which identifies talented ESIs in a formative stage. ONES is one of the core ways NIEHS seeds and irrigates the field of ESIs.

Dr. Collman reviewed the strategies and practices used each council round to make funding decisions, illustrating the philosophies and challenges underlying the decision-making process. She described the role of R56 grants, which provide short-term support (generally one year) to investigators who need funds to address specific weaknesses noted in the review or who need some funds to hold them over until they can reapply.

Dr. Manautou noted that the data Dr. Collman had presented about the ONES program was impressive and a real success story. Dr. Collman said the program is really meeting a need that the community has, and that having such a cohort of investigators at the same career stage has paid dividends above just the research funding. Dr. Birnbaum added that the ONES program has been copied by other institutes. Dr. Collman confirmed that when they have completed the program, ONES participants can be considered to be EEIs, depending on the timeframe. She clarified that ONES awards themselves are not renewable, but that investigators can apply for a Type 2 grant to continue their research program.

Dr. Shih asked how the institute is communicating the success of the ONES program to the lay community and stakeholders. Dr. Collman replied that the focus has been on the research stakeholders, including symposia at scientific meetings. Dr. Birnbaum said that perhaps a commentary about the success of ONES should be prepared for publication in Environmental Health Perspectives.

Dr. Litchtveld asked how the ONES program aligns with the goals in the Strategic Plan. Dr. Collman replied that it has been considered to mirror the full distribution of the strategic plan goals, but particularly Goal #9, which addresses the development of the biomedical workforce. Dr. Birnbaum noted that all grants are coded according to the strategic goals they support.

Dr. Manautou observed that the ONES program also creates "phenomenal networking opportunities" as the young scientists get to know each other and form a community. He felt that could be part of the message of communication regarding the program. Dr. Collman added that there is also an effort to link participants with intramural researchers and other senior scientists when they visit.

Dr. Coronado said she was happy to see the attention to working with high school and undergraduate students, and wondered whether they had been surveyed to determine the positive impact of their research experiences. Dr. Collman described the UP program, which is about college students having experiences, and noted that a survey as suggested by Dr. Coronado would be good to add to an evaluation of the program.

VIII. NIEHS FY2017 SBIR/STTR Grants

Dr. Dan Shaughnessy updated the Council on the current status of NIEHS FY2017 grants under the Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) programs. He provided background information, including the current solicitations:

- Phase IIIB for Approaches to Reduce Animal Use in Toxicity Testing (U44)
- Re-release of Novel Methods for Obtaining Molecular Information from Archived Tissue Samples (SBIR R43/R44)
- Re-release of Novel Assays for Screening the Effects of Chemical Toxicants on Cell Differentiation (SBIR R44 – Phase II only)
- Organotypic Culture Models developed from Experimental Animals for Chemical Toxicity Screening (R43/R44)

He described the phases of SBIR/STTR grants, culminating in Phase III, the Commercialization Stage, as well as technical assistance beyond funding alone. He listed the seven types of SBIR/STTR programs, which emphasize development of novel approaches using state-of-the-art technologies for environmental health sciences, and delineated the unsolicited FY17 grants under the program types.

Dr. Shaughnessy provided examples of individual grants in the exposure assessment and education/outreach categories. He also went over the background of the Superfund Research Program SBIRs, along with a success story from the program.

Kathy Ahlmark from the Worker Training Program (WTP) updated the Council on WTP matters, including development of advanced training technology products for the health and safety training of hazardous materials workers. She listed the individual grants awarded under the program, and provided examples. She described the WTP 2017 Spring Workshop on Emerging E-Learning Technologies and Resources, and previewed the Fall 2017 awardee meeting.

Dr. Shaughnessy described the current RFAs in more detail, and listed current awardees. He discussed the SBIR/STTR Commercial Readiness Pilot Program, a PAR for technical assistance, with one-year awards to address some of the hurdles to commercialization of technologies developed in the Phase II grant but not allowed in the Phase II mechanism, including manufacturing assistance, intellectual property searches, and in-depth market analysis.

He listed recent SBIR/STTR outreach efforts to increase media presence and personal outreach to support the programs. He described commercialization support programs, including Niche Assessment, the I-Corp Program, and the Commercial Accelerator

Program (CAP). He noted that there will be five NIEHS awardees present among the 60 NIH spots at the 2017 BIO International Convention in San Diego.

IX. Adjournment

Dr. Collman thanked everyone involved in the meeting, and asked for Council members' feedback regarding the technology used. Dr. Mastin recognized the efforts by Liz McNair, Tina Powell and several other staff members to organize the meeting in light of the postponement and rescheduling of the open session. Dr. Birnbaum thanked everyone as well.

The meeting was adjourned at 3:00 p.m., October 3, 2017.

CERTIFICATION

/s/

Linda S. Birnbaum, PhD, DABT, ATS
Chairperson
National Advisory Environmental
Health Sciences Council

/s/

Gwen W. Collman, PhD
Executive Secretary
National Advisory Environmental
Health Sciences Council

Attachment:
Council Roster