DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
NATIONAL ADVISORY NEUROLOGICAL DISORDERS AND STROKE COUNCIL

Summary of Meeting[1]
February 3-4, 2021

The National Advisory Neurological Disorders and Stroke (NANDS) Council was convened for its 211th meeting on February 3-4, 2021 via Zoom remote meeting. Dr. Walter Koroshetz, Director of the National Institute of Neurological Disorders and Stroke (NINDS), served as Chairperson.

In accordance with Public Law 92-463, the meeting was:

Open: February 3, 2021: 1:00 p.m. to 5:20 p.m. for the review and discussion of program development, needs, and policy; and

Closed: February 4, 2021: 1:00 p.m. to 5:00 p.m. for the consideration of individual grant applications.

Council members present:

Dr. Allan Basbaum
Dr. S. Thomas Carmichael
Dr. Hollis Cline
Ms. Susan Dickinson
Dr. Nita Farahany
Dr. Aaron Gitler
Dr. David Hackney
Dr. Karen Johnston
Dr. Arnold Kriegstein
Dr. Claudia Lucchinetti
Dr. Kenneth Maynard
Ms. Eileen Murray
Dr. Gina Poe
Dr. Timothy Ryan
Dr. Sameer Sheth
Dr. N. Edwin Trevathan
Ms. Christin Veasley

Ex officio members present:
David Brody, M.D., Ph.D., Department of Defense
Christopher Bever, Jr., M.D., Department of Veterans Affairs

Council Roster (Attachment 1)

The entire meeting was held virtually over Zoom and all observers including members of the public attended virtually.

Some members of the public present for portions of the open meeting included:
Dr. Neal Dickert, Emory University
Dr. Rob Sibergliet, University of Michigan
Kathy Sedgwick, NOVA Research Company

Federal attendees are listed at the end of these minutes.

[1]For the record, it is noted that members absent themselves from the meeting when the Council is discussing applications (a) from their respective institutions or (b) in which a real or apparent conflict of interest might occur.

I. Call to Order and Opening Remarks
Dr. Koroshetz welcomed Council members, visitors, and staff to the 211th meeting of the National Advisory Neurological Disorders and Stroke Council.

II. Report of the Director, Division of Extramural Activities, NINDS
Dr. Robert Finkelstein

Approval of Council Minutes—Dr. Finkelstein requested, and the Council voted approval of the September 9-10, 2020, Council meeting minutes.

The following future Council meeting dates were confirmed:

Wed & Thurs, May 26-27, 2021
Wed & Thurs, September 8-9, 2021
Wed & Thurs, February 2-3, 2022
Wed & Thurs, May 18-19, 2022
Wed & Thurs, September 7-8, 2022

Council Operating Procedures, Dr. Finkelstein requested, and the Council voted approval of the Council Operating Procedures.

Expedited Review Process—Each Council round, a subset of Council members approves applications in advance of the meeting with scores within the payline. This expedited review process focuses on applications for which there are no unresolved issues. Dr. Finkelstein thanked Council members Nita Farahany, Ed Trevathan, and Arnold Kriegstein for handling this responsibility for this meeting and the fiscal year. For the current Council round, 150 applications were eligible to be expedited. A portion of these awards already have been issued, and the others will be issued after Council.

Extramural Announcements

All extramural introductions were posted to the NINDS Electronic Council Book (ECB).

III. Report of the Director, NINDS
Dr. Walter Koroshetz, Director, NINDS

Budget—The Fiscal Year (FY) 2021 budget included a 1.75 percent increase for NINDS and a 3.9 percent increase for NIH. In addition to the base budget, NINDS manages allocations for the Helping to End Addiction Long-term (HEAL) Initiative (approximately $270 million), Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative® (approximately $179 million), and $50 million from the 21st Century Cures Act. NINDS also manages about $245.7 million from the National Institute on Aging (NIA) to administer the Alzheimer's Disease and Related Dementias (ADRD) grants.

Funding—The number of research project grant (RPG) applications increased in FY 2020, and a similar increase in applications has been observed so far in 2021. For FY 2020, trainee applications increased 24 percent over the average of the previous three years; the balance between male and female R01 applicants was steady; however, the percentage of R01 applications from underrepresented minority principal investigators (PIs) and multiple PIs dipped slightly.

In FY 2021, NINDS has less money to fund new grants due to out-year obligations and increases in costs per grant (from $414K in FY 2017, $477K in FY 2020, and an estimated $512K in FY 2021). Together with the increase in numbers of applications, NINDS had to drop its payline to the 14th percentile. In an effort to control cost per grant, NINDS is considering increasing the cut to non-modular awards from 17.5 percent to 20 percent. Note that in 2021 NINDS eliminated the administrative cut to the modular awards.

Dr. Koroshetz noted that the majority of NINDS grants go to investigator-initiated research. The Institute's extramural funding reached about $1.634 billion in FY 2020.

Effects of COVID-19 on the research enterprise—A recent NINDS intramural study found no evidence of viral infection in the brains of patients who died from COVID-19. However, widespread evidence of inflammation and damage was observed, including multifocal breakdown of the blood-brain barrier, small infarcts, microhemorrhages, inflammatory infiltrates, and microglial nodules. Known neurological consequences of COVID-19 infection in the acute stage include seizures, encephalopathy, delirium, and muscular weakness. Recovery is slow; about half of hospitalized patients have significant symptoms two to three months after leaving the hospital.

Most of the debilitating post-COVID problems fall within the sphere of NINDS- fatigue, trouble with memory and concentration, disordered sleep, pain syndromes, autonomic dysfunction, and the National Institute of Mental Health (NIMH)—post-traumatic stress disorder, anxiety, and depression. Congress recognized that this is a major area for future research and appropriated $1.15 billion for research and clinical trials related to long-term studies of COVID–19. NINDS is working with other NIH Institutes, particularly NHLBI, to develop a research program that can rapidly improve understanding of and ability to prevent and treat post-acute sequelae of COVID. Research focused on identifying long-term effects and risk factors will be matched with large population studies that follow people who have been infected.

New resources for ME/CFS research—Dr. Koroshetz noted that many symptoms of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) share features with post-acute COVID syndrome and other diseases. Later today, Council will consider clearance for renewal of the ME/CFS Collaborative Research Centers and the Data Management Coordinating Center.

Upcoming NINDS/HEAL/BRAIN/Blueprint science workshops—Dr. Koroshetz listed upcoming workshops, include a BRAIN Initiative® series addressing the state of the art in mapping complete neural circuits, opportunities for advancing connectomics technologies, and challenges in mapping mammalian brain circuitry at scale. Other workshops focus on patient engagement, post-traumatic epilepsy, pain research, health disparities and inequities in neurological disorders, and fostering of inclusion, equity, and diversity in neuroscience training.

Improving diversity in the neuroscience workforce—A $241 million investment from the NIH Common Fund will support Faculty Institutional Recruitment for Sustainable Transformation (FIRST) awards to strengthen inclusiveness and diversity of scientists within a department following a faculty cohort model. High-resource institutions will be expected to hire ten junior faculty, whereas low-resource institutions will be expected to hire up to six. Dr. Koroshetz encouraged attendees to share information about the FIRST awards widely in the hope that neuroscientists will be hired as part of these cohorts.

New NINDS Council evaluation working groups—Plans are under way for two NANDS Working Groups to evaluate NINDS programs: (1) competitive renewals of the NeuroNEXT and StrokeNet clinical trials networks and (2) the NINDS intramural clinical research program as part of a new NIH-wide process to regularly evaluate administrative, ethical, and scientific leadership of Intramural Clinical and Scientific Directors.

Ending the COVID-19 Pandemic: Hope Through Research—Despite the severe negative impact of the pandemic on laboratories and research infrastructure, through tenacity and resilience, the research community has met the challenge and made tremendous advances in science and in neuroscience in particular.

Approximately $10 million has been set aside for COVID-related challenges such as career transition delays; for example, NINDS and other NIH Institutes will fund extensions for F32 and F99 grantees in the final year on a case-by-case basis. Availability of dedicated funds for COVID-19 recovery is uncertain.

NINDS program staff are monitoring progress, engaging with applicants and grantees to understand their needs. Possible strategies include providing supplements to grants with urgent needs (e.g., critical human subject studies delayed by COVID-19), essential research resources lost due to COVID-19, and milestone grants at a Go/No Go decision point delayed by COVID and Bridge grants (R56) to investigators with application scores within 10 %-points of payline to preserve vulnerable research labs bereft of other sources of funding

IV. Discussion of Director's Report and COVID-Related Activities
Council members discussed how NINDS can support the neuroscience research community through recovery from the COVID-19 pandemic. Council members commented on the impact of hiring freezes and described overwhelming response to open positions at their institutions and the vulnerability of early-stage investigators as well as clinician scientists who were pulled into clinical care and lost dedicated research time.

V. BRAIN 2.0: The Next Phase of the BRAIN Initiative®
Dr. John Ngai, Director, NIH BRAIN Initiative

Dr. Ngai presented the BRAIN Initiative® mission and described ongoing efforts to reach its goal of developing and applying new tools for understanding how neural circuits underlie complex behaviors in health and disease.

Recommendations from BRAIN 2.0 Neuroscience and Neuroethics reports include the following: stay on the productive path already under way and continue support for technology development and targeted study of circuit components; balance individual-investigator research with team science; devote ample BRAIN Initiative resources to large-scale transformative projects; and enhance integration of neuroscience and neuroethics by supporting high-impact work that considers broader societal implications.

Dr. Ngai described several of the Initiative's transformative projects. The Phase III Brain Cell Census will build on success of the BRAIN Initiative Cell Census Network (BICCN) mouse brain cell census and shift emphasis toward construction of a human brain cell atlas. The Organizing Resources for Brain Cell Type Access and Manipulation Across Species (cell type-specific armamentarium) project will develop tools for cell access in rodent and non-human primate brains, human cells, and tissue toward a long-term goal of identifying new therapeutic strategies for human brain disorders. Next-Generation Technologies for Brain Microconnectivity Analysis will develop wiring diagrams of the brain at multiple scales and in multiple species.

Dr. Ngai described recent scientific advances: Wireless Recording and Stimulation in Freely Moving Humans (Topalovic et al, Neuron 2020; Stangl et al, Nature 2020) and the first successful demonstration of adaptive deep brain stimulation (DBS) in Parkinson's disease using a fully implanted device and neural sensing (Swann et al., J Neural Engineering, 2018).

The NIH BRAIN Initiative's neuroethics strategy emphasizes proactive, ongoing assessment of the neuroethical implications of the development and application of BRAIN-funded tools and neurotechnologies.

The Initiative's training efforts aim to train a new and diverse generation of scientific leaders using funding mechanisms such as BRAIN Initiative Fellowships (F32); BRAIN Initiative Advanced Postdoctoral Career Transition Award to Promote Diversity (K99/R00); BRAIN Initiative Fellows; NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (DSPAN) Award (F99/K00); and BRAIN Initiative Diversity Supplements to active BRAIN awards. Efforts to foster diversity, equity, and inclusion include targeted conference outreach (i.e., Annual Biomedical Research Conference for Minority Students, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, and Society for Women Engineers); featuring women and underrepresented

minorities (URMs) in media on the BRAIN Initiative websites and inclusion of female and URM BRAIN PIs; participation in the NIH Common Fund FIRST Program (RFA-RM-20-022; RFA-RM-023); and funding via the K99/R00 mechanism and Research Supplements to Promote Diversity in Health-Related Research for active BRAIN awards.

A virtual BRAIN Initiative Investigators Meeting (June 15-17, 2021) is intended to create an inclusive scientific community. Open to anyone who is interested, the event will feature plenary talks, symposia, and virtual poster and exhibit halls, as well as an international roundtable discussion on data sharing.

VI. NINDS Strategic Planning
Dr. Nina Schor, Deputy Director, NINDS

Dr. Schor described the NINDS Strategic Plan development process and outlined key concepts and crosscutting principles included in the prior draft of the plan. She then summarized how revisions in the current draft of the strategic plan respond to input from NINDS Council, the public, and discussion panels.

Current objectives explicitly address the following topics: discovery, team, data, and implementation science; equity, diversity, and inclusion; patient and stakeholder engagement; health and healthcare disparities research; inter- and cross-disciplinary training; definition and value of quality mentoring; transparency, availability of data, and rigor; and biomarkers.

Dr. Schor asked Council members to comment on whether the revised plan clearly expresses the importance of the following key topics:

- Interdisciplinary, team-and individual-based approaches to basic neuroscience challenges and access to technologies, data, and proposed solutions
- Patient involvement in prioritization and design of research
- Understanding and addressing issues of health and healthcare inequity
- Training, mentoring, and sustaining the future neuroscience research workforce
- Diversity and inclusion in the neuroscience workforce, research study design, and research subject enrollment and participation.

Discussion
Council members commented that the current draft seems very process-oriented and recommended incorporating vignettes of successes and other content to capture the spark of discovery and raise enthusiasm. Several offered suggestions to broaden public awareness of NINDS, its mission, and its work (e.g., use of social media, exchanging links with patient advocate groups and specialty societies). Others stressed the need to explain the value of basic research to the public and, in particular, how fundamental research in cells and animal models translates to and informs studies in humans. Another suggested connecting research on underlying mechanisms of neurological disease to disease prevention.

VII. Best Practices for Emergency Clinical Trials with Exception from Informed Consent
Dr. Robert Silbergleit, Professor, Emergency Medicine, University of Michigan Medical School, and
Dr. Neal Dickert, Associate Professor, Cardiology, Emory University School of Medicine and Emory Center for Ethics

Drs. Silbergleit and Dickert presented a report on NIH stewardship of emergency medicine research conducted when an Exception From Informed Consent (EFIC) requirements is requested or in the pre-hospital setting. The report leveraged prior experiences of paramedic and emergency medical services (EMS) researchers, ethics scholars, regulators, and families of emergency patients to generate data to share clinical practice in emergency settings and strengthen public trust in this critical arena of biomedical research. The report aimed to assess and summarize EMS paramedic practices in clinical trials that enroll subjects in the pre-hospital setting; aggregate generalizable regulatory procedures from

lessons learned from community consultation and public disclosure in prior EFIC trials; and explore needs and emotional health of family members of victims of cardiac arrest and severe neurotrauma during acute care.

Key findings from focus groups, surveys, and telephone interviews include strategies for engagement, challenges to implementation, and best practices for training. Paramedics can be engaged by showing how research benefits patients and improves clinical care, taking advantage of enthusiasm among medics for things that are new and hands-on, and avoiding trial procedures perceived as interfering with patient care. Barriers to implementation can be eliminated or reduced via an emphasis on paramedic input on trial design, value of buy-in, and potential importance of involving non-medical leaders from the unions or city government politicians. Training best practices include linking research culture to a sense of being a high-performing EMS system, value of peer trainers as champions, and integration of trial change with paramedic continuing education.

A robust literature review was conducted on implementation of formal community engagement activities—community consultation (CC) and public disclosure (PD)—for research using EFIC under federal regulation requirements. Heterogeneous practices have emerged for both CC and PD, and many investigators and Institutional Review Boards (IRBs) remain unfamiliar with these activities. In light of the move toward central IRB review, it is important to clarify lessons learned, areas of consensus, and lingering gaps.

Model operational procedures for implementation and review of NIH sponsored multicenter clinical trials with EFIC for Emergency Research were developed. This useful but unofficial tool includes an investigator's EFIC implementation plan, standard operating procedures for trial applications involving EFIC, guidelines for centralized review of CC and PD, and sample site EFIC activity reports for IRB submission.

Discussion
Council discussed alternate forms of outreach to the community.

VIII. Closed Session Updates
Dr. Robert Finkelstein, Director, NINDS Division of Extramural Research

Dr. Finkelstein presented recommendations from the Closed Session Working Group that met in December.

1. The virtual format works. Two shorter days are better than one long day.
2. Omit talks (if possible) and allow more time for discussion. Provide concise background materials in advance in lieu of a talk. Clearly define the "ask" for Council discussion.
3. Focus time on clinical trials with significant issues raised by study section or staff, spend less time on interventional trials with great scores, and don't discuss mechanistic trials unless there is a specific issue.
4. Council will review "Select Pay" in advance and only discuss these if there are concerns.
5. Discuss program projects (i.e., P01s) since there are so few.
6. For Requests for Applications (RFAs) and Program Announcements, focus on individual applications with significant issues; don't present every pay plan.
7. For special council review (SCR), provide justification in the Executive Council Book if going against the default payline. If concerns are raised about PI effort, inform Council how it was resolved after the meeting.
8. For BRAIN, AD/ADRD, and HEAL, continue using Council "experts" to vet pay plans and only discuss applications with identified issues.
9. Assign more applications with issues to specific Council members prior to the meeting and identify the issues on which advice is needed.

10. Provide more feedback to Council after the meeting; describe how concerns were addressed.

Discussion
Members indicated 2-3 sentence summaries were useful for the majority of applications. However, flags that point to potential issues or problem areas could be beneficial. Dr. Koroshetz highlighted the value of Council members in providing feedback to NINDS pertaining to any potential or perceived ethical concerns for proposed clinical trials.

IX. Initiatives Requiring Concept Clearance

No new initiatives were proposed this round. Most of these are renewals of ongoing programs.

1. Reissue: Research Program Award (R35)
   Dr. Anna Taylor
2. Reissue: NINDS Program Project Grant (P01)
   Dr. Dave Owens
3. Reissue: Summer Research R25
   Dr. Lauren Ullrich
4. Reissue: NINDS Institutional Research Training Program (T32)
   Dr. Steve Korn
5. Reissue: K12-Neurosurgeon Research Career Development Program (NRCDP)
   Dr. Steve Korn
6. Reissue: Strategies to Innovate EmeRgENcyCare Clinical Trials Network (SIREN)
   Dr. Jeremy Brown
7. Reissue: NINDS Efficacy Clinical Trials (U01)
   Dr. Jeremy Brown
8. Reissue: NINDS Exploratory Clinical Trial
   Dr. Jeremy Brown
9. Reissue: Promoting Research in Basic Neuroscience
   Dr. Bob Riddle
10. Reissue: Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) Data Management Coordinating Center (DMCC) (U24)
    Dr. Vicky Whittemore
11. Reissue: Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS Collaborative Research Centers (CRCs) (U54)
    Dr. Vicky Whittemore
12. Reissue: BRAIN Initiative: Optimization of Transformative Technologies for Large Scale Recording and Modulation in the Nervous System (U01 Clinical Trial Not Allowed)
    Drs. Sahana Kukke/Ned Talley/ Nick Langhals
13. Reissue: BRAIN Initiative: New Technologies and Novel Approaches for Large-Scale Recording and Modulation in the Nervous System (R01 Clinical Trial Not Allowed)
    Drs. Sahana Kukke/Ned Talley/Nick Langhals
14. Reissue: BRAIN Initiative: Next-Generation Invasive Devices for Recording and Modulation in the Human Central Nervous System (UG3/UH3 Clinical Trial Optional)
    Dr. Nick Langhals

15. Reissue: BRAIN Initiative: Next-Generation Invasive Devices for Recording and Modulation in the Human Central Nervous System (UH3 Clinical Trial Optional)
    Dr. Nick Langhals
16. Reissue: Translational Neural Devices (U44 Clinical Trial Required)
    Dr. Nick Langhals
17. Reissue: NINDS Translational Neural Devices (UG3/UH3)
    Dr. Nick Langhals
18. NIH Countermeasures Against Chemical Threats (CounterACT) Early-stage Investigator Research Award
    Dr. Shardell Spriggs

Council voted to approve reissuance of the above proposed initiatives.

Conflict of Interest – Regulations concerning conflict of interest were reviewed. Council members were reminded that materials furnished for review purposes and discussion during the closed portions of the meeting are considered privileged information. All Council members present signed a statement certifying that they had not been involved in any conflict-of-interest situations during the review of grant applications.

Confidentiality – During the closed session, any information that is discussed and the outcome of any recommendation are considered privileged information. They may not be discussed outside of the closed session. If an applicant requests support for his or her application from a Council member, the Council member must respond that he/she is not permitted to discuss the application. Any inquiry should be referred to Dr. Robert Finkelstein, NINDS Advisory Council Executive Secretary, who then will refer the question to the appropriate staff member for response.

Research Training and Career Development Programs – The Council reviewed a total of 356 research career development and institutional training grant applications with primary assignment to NINDS, and 221 of them (62 percent) were scored in the amount of $26.2 million first-year direct costs. It is anticipated that, of the research career development and institutional training grant applications competing at this Council, NINDS will be able to pay first-year direct costs of approximately $13.5 million (98 grants).

Research Project and Center Awards – The Council reviewed a total of 1,542 research project and center applications with primary assignment to NINDS, and 858 of them (56 percent) were scored/percentiled in the amount of $324.3 million first-year direct costs. It is anticipated that, of the research grants competing at this Council, NINDS will be able to pay first-year direct costs of approximately $88.3 million (267 grants).

Senator Jacob Javits Neuroscience Investigator Awards – The Senator Jacob Javits Neuroscience Investigator Awards are made to distinguished investigators who have a record of scientific excellence and productivity, who are actively pursuing an area of research of strategic importance, and who can be expected to continue to be highly productive for a seven-year period. Candidates are nominated and selected at each Council meeting. Council approved one Javits nomination at this meeting: Hülya Bayir, M.D. (University of Pittsburgh).

Small Business Innovation Research and Small Business Technology Transfer Award Programs – The Council reviewed a total of 182 Small Business Innovation Research (SBIR) and Small Technology Transfer Award (STTR) grant applications with primary assignment to NINDS, and 97 of them (53 percent) were scored in the amount of $51.2 million first-year direct costs. It is anticipated that, of the SBIR and STTR

applications competing at this Council, NINDS will be able to pay first-year direct costs of approximately $3.6 million (6 grants).

X. Adjournment

The meeting was adjourned at 5:00 p.m. on Thursday, February 4, 2021.

NINDS employees present for portions of the meeting included:

Amy Adams
DeAnna Adkins
Kari Ashmont
Debra Babcock
Shaunna Bach
Julia Bachman
Kelly Baker
Linda Bambrick
Amy Bany Adams
Karen Barnes
Jennifer Beierlein
Patrick Bellgowan
Karrah Benson
Richard Benson
Bill Benzing
Rebecca Berman
Naomi Booker
Francesca Bosetti
Chris Boshoff
Ann-Marie Broome
Ryan Calabrese
Roger Campbell
Emily Caporello
Stacey Chambers
Chi Chang
Maria Charlier
Denise Chatman
Thomas Cheever
Daofen Chen
Bo-Shiun Chen
Liyun Chen
Severn Churn
Robin Conwit
Janice Cordell
Roderick Corriveau
Devon Crawford
Diana Cummings
Charles Cywin
William Daley
Karen David
Sara Dauber
Sara Dodson
Denise Dorsey
Argenia Doss
Kristin Dupre
Debbie Eng
Judy Fabrikant
Christina Fang
Carlos Faraco
Cassie Fields
Robert Finkelstein
Jane Fountain
Megan Frankowski
Natalie Frazin
Deb Freaner
Alissa Gallagher
Maryam Ghaleh
Marie Gill
Paul Girolami
Jim Gnadt
Kalynda Gonzales Stokes
Brooks Gross
Amelie Gubitz
Mohamed Hachicha
Mohamed Hachicha
Danielle Haney
Adam Hartman
Brandon Hartsell
Janet He
Alicia Heslip
Jane Hettinger
David Higgins
Rebecca Hommer
Nina Hsu
Eric Hudak
Xan Humphries
Smriti Iyengar
Lyn Jakeman
Scott Janis
Dave Jett
Li Jia
Michelle Jones-London
Barbara Karp
Jenny Kim
Brian Klein
Jim Koenig
Steve Korn
Walter Koroshetz

Kranthi Kotha
Sahana Kukke
Joseph Kurdziel
Pascal Laeng
Christine Lam
Nick Langhals
Mark Langer
Timothy LaVaute
Crystal Lee
Miriam Leenders
Genevieve Lind
Erica Littlejohn
Cara Long
Codrin Lungu
Quynh Ly
Timothy Lyden
Ernie Lyons
Laura Mamounas
Marguerite Matthews
Amber McCartney
Linda McGavern
Carolina Mendoza-Puccini
Mirela Milescu
Daniel Miller
DP Mohapatra
Karen Molina
Jill Morris
John Ngai
Hanh Nguyen
Glen Nuckolls
Ana Olariu
Lola Olufemi
Oreisa O'Neil-Mathurin
Michael Oshinsky
David Owens
Tatiana Pasternak
Michele Pearson
Mary Ann Pelleymounter
Marlene Peters-Lawrence
Erna Petrich
Leah Pogorzala
Linda Porter
Pragya Prakash
Rebecca Price
Shamsi Raeissi
Shanta Rajaram
Khara Ramos
Ranga Rangarajan
Yogendra Raol
K. Paul Rezaizadeh
Ryan Richardson
Robert Riddle
Sarah Robinson- Schwartz
Becky Roof
Cheryse Sankar
Joel Saydoff
Alisa Schaefer
Nina Schor
Paul Scott
Kathy Sedgwick
Shalini Sharma
Smita Sharma
Siddharth Shenoy
Kelly Sheppard
Andrew Siddons
Beth-Anne Sieber
Shai Silberberg
Adissa Silue
Mario Skiadopoulos
Shardell Spriggs
Natalia Strunnikova
Maripierre Surpris
Christine Swanson-Fischer
Edmund Talley
Amir Tamiz
Anna Taylor
Carol Taylor-Burds
Michael Tennekoon
Christine Torborg
Delany Torres
Natalie Trzcinski
Alexander Tuttle
Lauren Ullrich
George Umanah
Ursula Utz
Andrea Varea
Joanna Vivalda
Laura Wandner
Jackie Ward
Margo Warren
Keith Whitaker
Samantha White
Vicky Whittemore
Alan Willard
Sarah Woller
Ling Wong
May Wong
Clinton Wright
Ye Yan
Bob Zalutsky
Ephrem Zelelew
Ran Zhang

Other federal employees present for portions of the meeting included:
John Rohde, NIH OD
Sarah Robinson Schwartz, NIH OD
Dr. Peter Guthrie, CSR
Dr. Roger Janz, CSR
Dr. Aleksey Kanzantsev, CSR
Dr. Susan Nadi, CSR
Dr. Elyse Schauwecker, CSR
Rob Folson, CIT
Dr. Laurent Taupenot, CSR

We certify that, to the best of our knowledge, the foregoing minutes and attachments are accurate and complete.

4/28/2021
Date

Robert Finkelstein
Robert Finkelstein, Ph.D.
Executive Secretary
National Advisory Neurological Disorders
and Stroke Council

Walter J. Koroshetz -S
Date

Director, Division of Extramural Activities
National Institute of Neurological Disorders
and Stroke

Digitally signed by Walter J. Koroshetz -S
Date: 2021.04.29 11:09:51 -04'00'
Walter Koroshetz, M.D.
Chairperson
National Advisory Neurological Disorders
and Stroke Council

Director
National Institute of Neurological Disorders
and Stroke

These minutes will be formally considered by the Council at its next meeting. Corrections or notations will be incorporated in the minutes of that meeting.