

Director's Report to the National Advisory Dental and Craniofacial Research Council

May 2018

ACTIVITIES OF THE NIDCR DIRECTOR

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on January 31, 2018, NIDCR Director Martha J. Somerman, DDS, PhD, has maintained an active schedule of attending research symposia and workshops, delivering presentations to stakeholders, and meeting with leaders of other organizations. Some notable activities during the last four months are listed below.

Dr. Somerman met with the Ad Hoc Group for Medical Research at NIH on January 16 to discuss recent advances and future directions of NIDCR research. The Ad Hoc Group for Medical Research is a coalition of patient and voluntary health groups, medical and scientific societies, academic and research organizations, and industry representatives that champion NIH research.

Dr. Somerman delivered opening remarks for the symposium "Autotherapies: Enhancing Our Innate Healing Capacity," hosted by NIDCR at NIH on January 24.

Dr. Somerman and Karina Boehm, director of the NIDCR Office of Communications and Health Education, presented a talk entitled "NIDCR/ADA Partnership: Promoting a Culture of Scientific Inquiry Together" on February 16 to the American Dental Association (ADA) Council on Scientific Affairs in Chicago.

Dr. Somerman, with key leadership at NIDCR, met with patient advocacy representatives from the Friends of NIDCR (FNIDCR), as well as representatives from the American Dental Education Association, on February 16 at the NIH campus in Bethesda, Md. Dr. Somerman provided an overview of basic and clinical oral health research supported by NIH and NIDCR. The discussion that followed addressed areas of mutual interest between NIDCR and FNIDCR.

Dr. Somerman presented a talk entitled "NIDCR: Guiding Advances in Oral Health Research and Innovation" on February 27 at the American Association for Dental Research (AADR) Briefing Day on Capitol Hill in Washington, D.C.

Dr. Somerman, NIH Director Francis Collins, MD, PhD, and other NIH Institute and Center directors met with Jim Yong Kim, MD, PhD, president of the World Bank Group on March 12 to discuss the role of NIH research in implementation science.

Dr. Somerman visited the University of Texas Health Science Center in San Antonio on March 13-14 for its 2018 Dental Science Symposium. She delivered the keynote presentation, entitled "NIDCR: Guiding Advances in Oral Health Research and Innovation." She also participated in an open forum to address questions from faculty and provided a summary of NIDCR research training and career development opportunities.

Dr. Somerman gave the keynote address entitled "NIDCR: Catalyzing Research and Innovation" on March 15 at the Boston University Henry M. Goldman School of Dental Medicine Science Day.

Dr. Somerman and NIDCR Deputy Director Douglas Sheeley, ScD, attended the AADR Annual Meeting March 21-24 in Fort Lauderdale, Fla. During the meeting, Dr. Somerman participated in the following events:

- March 21. Dr. Somerman participated as a mentor at the NIDCR/AADR Student Mentoring Lunch. She also attended the NIDCR trainee research poster presentations and introduced and moderated the Trainee Research Oral Session.

- March 22. Dr. Somerman provided an update on NIDCR activities at the AADR Institutional Sections, Deans, and Research Deans Meeting. She also participated in the DDS/PhD Dual Degree Forum and Networking Event Panel.
- March 23. Dr. Somerman gave a presentation entitled “Motivation for Establishing the DOCTRC Program” during the symposium “Dental Oral Craniofacial Tissue Regeneration Consortia: A New Paradigm.” She also participated in the “National Dental PBRN: Advancing Research to Integrated Medical and Dental Care” symposium and presented a talk entitled “NIDCR 2030 Goals.”

Dr. Somerman and Nora Volkow, MD, director of the National Institute on Drug Abuse, met with ADA leadership at NIH on March 28 to discuss ways oral health practitioners are addressing the opioid crisis, as well as opportunities for the future.

Dr. Somerman gave the keynote address entitled “NIDCR: Catalyzing Oral Health Research and Innovation” on April 4 at the Ostrow School of Dentistry’s Annual Research Day at the University of Southern California in Los Angeles.

Dr. Somerman presented an informal talk entitled “NIDCR: Guiding Advances in Oral Health Research and Innovation,” followed by active discussion with the ADA Board of trustees, at ADA’s Washington DC headquarters on April 10.

Dr. Somerman presented a clinical grand rounds talk entitled “Genes/Proteins Associated with the Mineralization Process in Health and Disease” on April 12 at the Yale University Pathology Grand Rounds series in New Haven, Conn.

Dr. Somerman hosted Irma Thesleff, DDS, PhD, professor and research director at the University of Helsinki, Finland, on April 26 on the NIH campus in Bethesda, Md. Dr. Thesleff presented a seminar “Regulation of Tooth Numbers by Wnt Signaling.”

Dr. Somerman and staff from NIDCR, the National Human Genome Research Institute, and the Fogarty International Center presented on NIH and NIDCR research activities in undiagnosed and rare diseases in a May 14 webinar with representatives of Hacettepe University in Turkey. NIDCR organized the event with Hacettepe University to exchange ideas and explore areas for collaboration to advance the University’s vision of becoming a center of excellence in undiagnosed and rare diseases research in Turkey.

BUDGET UPDATE

FY 2018

The FY 2018 enacted budget for NIDCR is \$447,735,000. This is an increase of \$22.9 million or 5.4% over FY 2017 final level.

FY 2019

The President’s Budget Request would provide \$413,196,000 for NIDCR. The complete NIDCR Budget Justification is available for viewing at <https://www.nidcr.nih.gov/about-us/budget-congressional>.

HHS/NIH UPDATE

NIH Launches All of Us Research Program

On May 6, NIH officially launched the [All of Us research program](#), an effort to create a community of one million people who will share their unique health data. The launch was kicked off at community events at seven sites across the nation, from Alabama to Washington state. Community leaders, NIH representatives, and NIH Director Francis Collins, MD, PhD, discussed how participants’ data will help researchers devise new ways of improving the health of all Americans.

NIH Launches Initiative to Accelerate Scientific Solutions to Opioid Epidemic

On April 4, at the 2018 National Rx Drug Abuse and Heroin Summit, Dr. Francis Collins announced the launch of the [HEAL \(Helping to End Addiction Long-term\) Initiative](#), a trans-agency effort to speed scientific solutions to stem the national opioid public health crisis. NIH is nearly doubling funding for research on opioid misuse/addiction and pain from approximately \$600 million in FY 2016 to \$1.1 billion in FY 2018. NIH's efforts contribute to a government-wide push to meet the President's goal of ending the opioid crisis.

NIH Director Testifies Before Congress on 2019 Budget Request

On April 11, NIH Director Francis S. Collins, MD, PhD, appeared before the House Appropriations Subcommittee on Labor, HHS, Education, and Related Agencies. Dr. Collins discussed the FY 2019 budget, which provides \$34.8 billion for NIH to fund the highest priority scientific discoveries while also maintaining fiscal stewardship of federal resources. The budget optimizes available grant dollars to fund research, invest in NIH's buildings and facilities, and support NIH priority areas including combatting the opioid epidemic, advancing precision medicine, and investing in translational research.

Redfield Appointed CDC Director

Robert R. Redfield, MD has been named the director of the Centers for Disease Control and Prevention and administrator of the Agency for Toxic Substances and Disease Registry. He has been a public health leader actively engaged in clinical research and clinical care of chronic human viral infections and infectious diseases, especially HIV, for more than 30 years. Dr. Redfield served as the founding director of the Department of Retroviral Research within the U.S. Military's HIV Research Program, and retired after 20 years of service in the U.S. Army Medical Corps. Following his military service, he co-founded the University of Maryland's Institute of Human Virology with Dr. William Blattner and Dr. Robert C. Gallo and served as the chief of Infectious Diseases and vice chair of Medicine at the University of Maryland School of Medicine.

Azar Sworn in as HHS Secretary

On January 29, Alex M. Azar II was sworn in as the secretary of the U.S. Department of Health and Human Services, replacing Acting Secretary Eric D. Hargan. Secretary Azar has spent his career working in both the public and private sectors, as an attorney and in senior leadership roles focused on advancing healthcare reform, research, and innovation. Secretary Azar graduated summa cum laude with a bachelor's degree in economics and government from Dartmouth College, and earned his law degree from Yale University.

Aiyelawo Named Chief Operating Officer of NIH Clinical Center

On April 2, U.S. Navy Captain Pius Aiyelawo (retired) began as chief operating officer (COO) of the NIH Clinical Center. Captain Aiyelawo fills an expanded COO role that includes management of clinical and administrative areas. He reports directly to Chief Executive Officer Dr. James K. Gilman. For more than 27 years, throughout a distinguished military career, Captain Aiyelawo held senior leadership positions in hospitals and large medical research programs. His most recent appointments included assistant deputy director, Research and Development, U.S. Navy Bureau of Medicine and Surgery, Falls Church, Va., and COO/deputy commander of Naval Medical Research & Development Command, Fort Detrick, Md.

Nakamura Retires as Director of NIH's Center for Scientific Review

Richard Nakamura, PhD retired as the director of the Center for Scientific Review (CSR) in April after a 39-year career at NIH. Noni Byrnes, PhD will now serve as acting director. Dr. Byrnes has served as acting deputy director at CSR since January 2018, and director of CSR's Division of Basic and Integrative Biological Sciences since 2012.

NIH Science of Behavior Change Program Featured in Special Issue of Journal

In February, the SOBC Research Network authored a special issue of *Behaviour Research and Therapy* entitled "[An experimental medicine approach to behavior change: The NIH Science of Behavior Change \(SOBC\)](#)." The issue describes the SOBC mission and features the work of its research teams. The overarching goal of SOBC is to transform behavior change science by bringing a mechanism-focused approach to intervention development. Melissa Riddle, PhD, chief of the NIDCR

Behavioral and Social Sciences Research Branch, serves as a working group member of the SOBC Program and co-authored one of the special issue papers describing the NIH program.

NIH Completes In-Depth Genomic Analysis of 33 Cancer Types

Researchers funded by NIH have completed a detailed genomic analysis, known as the PanCancer Atlas, on a dataset of molecular and clinical information from over 10,000 tumors representing 33 types of cancer. The project is the culmination of more than a decade of work. The PanCancer Atlas comprises 27 papers published across a suite of Cell journals. It summarizes the work accomplished by The Cancer Genome Atlas – a multi-institution collaboration initiated and supported by the National Human Genome Research Institute and the National Cancer Institute.

NIH Launches Genome Editing Research Program

On January 23, NIH announced the launch of the Somatic Cell Genome Editing program, funded by the NIH Common Fund. The effort aims to remove barriers that slow the adoption of genome editing for treating patients. Research teams will be awarded about \$190 million over six years to improve delivery mechanisms for targeting gene-editing tools in patients, develop genome editors and assays for testing the safety and efficacy of editing tools, and assemble a genome-editing toolkit containing the resulting knowledge, methods, and tools to be shared with the scientific community.

2018 Rare Disease Day at NIH

On March 1, the NIH Clinical Center and the National Center for Advancing Translational Sciences sponsored the annual Rare Disease Day at NIH, which aims to raise awareness about rare diseases, affected people, and NIH research collaborations to advance new treatments. The day featured presentations, posters, exhibits, an art show, and Clinical Center tours. Rare Disease Day occurs worldwide each year to raise awareness among policymakers and the public about rare diseases and their impact on patients' lives.

New Tool Visualizes Employment Trends in Biomedical Science

Scientists looking for jobs after completing their training may soon have a new tool for evaluating various career paths. The tool uses a method developed by scientists at NIH's National Institute of Environmental Health Sciences (NIEHS). The method differs from others in that it separates employment trends in biomedical science by sector, type, and job specifics. The creators developed the approach for use by the scientific community. See the February edition of [*Nature Biotechnology*](#) for details.

New Roadmap for Replacing Animal Use in Toxicity Testing

Sixteen federal agencies partnered to develop a strategic roadmap that offers a new framework for testing the safety of drugs and chemicals. "[A Strategic Roadmap for Establishing New Approaches to Evaluate the Safety of Chemicals and Medical Products in the United States](#)" was published on January 30 by the National Toxicology Program, a federal interagency program headquartered at NIEHS. The report aims to guide the application of new technologies—such as high-throughput screening, tissue chips, and computational models—to acquire more human-relevant toxicology data for chemicals and medical products.

NIDCR UPDATE

Institute News

JAMA Viewpoint Highlights Importance of Integrating Oral Health with Overall Health

In a JAMA Viewpoint published online May 3, "[The Importance of Oral Health in Comprehensive Health Care](#)," NIDCR Clinical Director Janice S. Lee, DDS, MD, MS, and NIDCR Director Martha J. Somerman, DDS, PhD, outline the importance of oral health as a critical component of overall health. NIDCR's companion video [The Concise Oral Exam](#) demonstrates how a 5-minute oral exam might help physicians recognize poor oral health and detect clues to seemingly unrelated health issues, such as cancer, diabetes, HIV, and other conditions that can manifest in the head and neck region.

NIDCR Symposium Explores Promise of Autotherapies

NIDCR hosted a symposium, “Autotherapies: Enhancing Our Innate Healing Capacity,” to explore the potential of autotherapies—treatments based on the body’s natural ability to heal and protect itself. Advancing the development of autotherapies is one of the five goals of [NIDCR 2030](#)—NIDCR’s vision for the future of dental, oral, and craniofacial research. A panel of experts presented on topics including the use of small molecules to reprogram endogenous stem cells; mechanisms of response and resistance to cancer immunotherapy; developing biomaterials to re-engineer the immune response; and conceptualizing clinical autotherapies to repair craniofacial abnormalities. A question and answer session followed the talks. After the public session concluded, NIDCR staff held a day-and-a-half-long workshop, where experts and staff discussed the state of the science and opportunities for future research directions.

NIDCR Booth Draws Hundreds of Visitors at USA Science and Engineering Festival

NIDCR and other NIH components participated in the 2018 USA Science & Engineering Festival Expo, held April 6-8, at the Walter E. Washington Convention Center in Washington DC. More than 700 visitors to the NIDCR booth engaged in an interactive, hands-on experiment led by NIDCR intramural scientist Peter Burbelo, PhD, to use a biosensor to measure bacterial contamination on model teeth. Attendees learned about the prevalence of bacteria and how they can be removed from teeth with regular tooth brushing.

NIDCR Co-Organizes Sessions at AADR Annual Meeting and 2018 IMAG Futures Meeting

Dr. Jason Wan co-organized a session entitled “Current Status on Osteonecrosis of the Jaw Translational Research.” This session was held March 22 as part of the 47th Annual Meeting of the American Association for Dental Research (AADR) in conjunction with the 42nd Annual Meeting of the Canadian Association for Dental Research in Fort Lauderdale, Fla. Speakers included researchers and clinicians funded by NIDCR. Presentations included overviews of the clinical and histopathologic features of osteonecrosis of the jaw in humans and relevant animal models, as well as recent data on the role of the oral mucosa, effects of antiresorptive medications, and the roles of periodontal and periapical infection. Closing remarks were given by Dr. Wan.

Orlando Lopez, PhD, director of the Dental Materials and Biomaterials Program in NIDCR’s Division of Extramural Research, co-organized sessions on clinical workflow and clinical translation at the Interagency Modeling and Analysis Group, 2018 IMAG Futures Meeting, “Moving Forward with the Multi-Scale Modeling (MSM) Consortium.” The goal of the meeting was to assess advances in MSM over the past 10 years and to determine new directions for NIH support. The meeting featured oral presentations, poster, and breakout sessions by NIH-funded investigators. The event was held March 21-22 at the NIH Campus in Bethesda, Md.

NIDCR Hosts Sixth Trans-NIH Rare Diseases Working Group Meeting

On March 12, NIDCR hosted the Sixth Trans-NIH Rare Diseases Working Group Meeting in Bethesda, Md. The meeting featured presentations by NIDCR Division of Extramural Research program directors Jason Wan, PhD, and Chiayeng Wang, PhD. Dr. Wan, director of the Mineralized Tissue Physiology Program, presented overviews of the NIDCR portfolio on rare diseases of the dental, oral, and craniofacial tissues. Dr. Wang, director of the Oral and Salivary Gland Cancer Biology Program, focused her presentation on NIDCR’s support for rare cancer research such as oral, oropharyngeal, and salivary gland tumors. The meeting was attended by members of the Trans-NIH Rare Disease working group, which includes representatives from each institute and center at NIH.

Personnel Update

Lu Wang, PhD, joined NIDCR’s Division of Extramural Research as chief of the Translational Genomics Research Branch. Before coming to NIDCR, Dr. Wang spent the previous 12 years at the National Human Genome Research Institute overseeing high-profile programs such as the Center for Genome Editing and Recording and co-leading the NIH Human Microbiome Project. Dr. Wang has received NIH and NHGRI Director’s Awards for her extraordinary leadership, creativity, and dedication to trans-NIH programs. Dr. Wang earned her doctoral degree in microbiology at Cornell University, and completed postdoctoral training in microbiology and immunology at Rockefeller University.

Mr. Jimmy Do has been selected as the NIDCR Budget Officer and Chief of the Financial Management Branch. Since 2015, he served as the NIDCR Deputy Budget Officer. Mr. Do joined NIH

in 2002 and was a budget analyst in NCCAM (now NCCIH) and NIDCR. He rose to positions as Deputy Budget Officer in NHLBI and NHGRI prior to returning to NIDCR. Mr. Do received a BS in finance from the University of Baltimore.

Meetings and Conferences

Staff Presentations

Nadya Lumelsky, PhD, director of the Tissue Engineering and Regenerative Medicine Program in NIDCR's Division of Extramural Research, attended the "Craniofacial Morphogenesis and Tissue Regeneration" conference in February 11-16 in Il Ciocco, Italy. The conference brought together renowned experts in the field to discuss current and future work on the mechanisms, diagnostics, and treatment of craniofacial diseases and conditions. Dr. Lumelsky actively participated in the scientific sessions and spoke at a special presentation devoted to the NIDCR-led Dental, Oral, and Craniofacial Tissue Regeneration Consortium (DOCTRC). In addition, she presented a poster on DOCTRC at the conference.

Dr. Lumelsky also attended a meeting February 26-27 of the members of the Regenerative Medicine Forum, which is run by the National Academy of Medicine. The meeting took place at the Keck Center of the National Academies in Washington, D.C. The two-day meeting included several general sessions, as well as sessions focused on the use of stem cell therapies in sports medicine and preclinical challenges in regenerative medicine. Dr. Lumelsky participated in a breakout session focused on tissue engineering and participated in a roundtable discussion of future activities and next steps for the Forum.

Darien Weatherspoon, DDS, MPH, director of the Health Disparities Program within the Center for Clinical Research in NIDCR's Division of Extramural Research, gave a presentation on February 14 for the NIDCR Dental Public Health Residency Program entitled "Dental Workforce and Delivery Models." Dr. Weatherspoon also attended the National Oral Health Conference National Organization Roundtable Luncheon on April 17, where he gave a presentation entitled, "National Institute of Dental and Craniofacial Research: Oral Health Disparities Research Priorities."

Dena Fischer, DDS, MSD, MS; Gallya Gannot, DMD, PhD; Darien Weatherspoon, DDS, MPH; and Yasamin Moghadam, MS, represented the Center for Clinical Research in NIDCR's Division of Extramural Research at the National Dental Practice-Based Research Network symposium titled "Advancing Research to Integrate Medical and Dental Care" at the AADR meeting in Ft. Lauderdale, Fla.

Dawn Morales, PhD, of the Behavioral and Social Sciences Research Branch in NIDCR's Division of Extramural Research, attended the Society for Behavioral Medicine's annual meeting held April 11-14 in New Orleans. Dr. Morales presented a poster entitled "Communication between the scientist and the statistician drive the development of a grant application and clinical protocol" and co-presented a talk entitled "Human Subjects Protections, NIH Clinical Trials Policy, and Implications for Your Research" with other NIH staff attending the conference.

Dr. Chiayeng Wang attended the 111th Annual American Association for Cancer Research (AACR) meeting held April 14-18 in Chicago. Dr. Wang was also invited to serve as a mentor at the AACR Women in Cancer Research session to facilitate discussion on the topic "Administrative Roles in Scientific Planning and the Intramural Researcher." Additionally, Dr. Wang conducted a roundtable Q&A session on the topic of NIH review and program policies at the University of Illinois-Chicago Dental School on April 16. Dr. Wang also served as the NIDCR representative at the NCI-sponsored talk "Funding Opportunities for Cancer Research at Multiple NIH Institutes and Centers with NIH Experts" on April 17.

Staff Attendance

The Division of Extramural Research staff attended conferences, workshops, and meetings to offer their expertise to investigators and trainees involved in NIDCR-supported research, including:

- Naso-Pharyngeal Cancer Clinical Trials Planning Meeting on January 27 in Phoenix Ariz.
- NCI Global Cancer Research Symposium on February 1 in Rockville, Md.

- American Dental Association's 2018 Opioid Webinar Series: "Pain Management in Dentistry: The CDC and ADA Perspective" on February 14 (online).
- Keystone Symposium on Aging, Inflammation, and Immunity held February 25-March 1 in Austin, Texas.
- FDA TMJ Round Table Steering Committee on February 26 and March 13 in Bethesda, Md.
- Regenerative Medicine Forum at the Keck Center of the National Academies held February 26-27 in Washington, D.C.
- National Institute of Standards and Technology on a Chip (NOAC) Workshop held February 28-March 1 in Gaithersburg, Md.
- American Dental Association's National Advisory Committee on Health Literacy in Dentistry on March 1 in Chicago, Ill.
- Conference on Retroviruses and Opportunistic Infections held March 4-8 in Boston, Mass.
- NIH's Social and Behavioral Research Contributions to the Opioid Crisis Meeting held March 5-6 in Bethesda, Md.
- American Dental Association's Code Maintenance Committee, as the alternative representative (non-voting) of the American Association of Public Health Dentistry on March 15 in Chicago, Ill.
- 47th Annual Meeting of the American Association of Dental Research (AADR/CADR) held March 21-24 in Fort Lauderdale, Fla.
- NIH All of Us Research Priorities Workshop held March 21–23 in Bethesda, Md.
- Cancer, Autoimmunity, and Immunology meeting sponsored by the National Cancer Institute (NCI) March 22-23 in Bethesda, Md.
- 12th NIH Tissue Chip Consortium Meeting held March 26-27 in Bethesda, Md.
- 2018 Blockchain Forum on potential applications to healthcare and medical research on April 3 in Washington, D.C.
- IEEE International Symposium on Biomedical Imaging (ISBI'18) held April 4-7 in Washington, D.C.
- Pediatric HIV/AIDS cohort study (PHACS) network retreat held April 9-10 in Bethesda, Md.
- American Academy of Oral Medicine annual conference held April 11-14 in San Antonio, Texas.
- National Oral Health Conference held April 16-18 in Louisville, Ky.
- 14th International Sjogren's Symposium held April 18-21 in Washington D.C.
- American Head and Neck Society Annual meeting held April 18-19 in National Harbor, Md.
- Molecular Biology in Single Cells Symposium, sponsored by NCI and held April 23-24 in Bethesda, Md.
- 10th NIH Extracellular RNA Communication Consortium Investigators' Meeting held April 26-27 in Bethesda Md.
- The Global Clinical Research, Drug Development, and Therapeutic Accessibility Workshop co-sponsored by Duke University Center for Applied Therapeutics and the NCI Center for Global Health held April 30-May 1 in Bethesda, Md.
- Trans-NIH Workshop on Generative Ideas in Geroscience on May 14 in Rockville, Md.

Five dental public health residents (Office of Science Policy and Analysis) and a dental informatics fellow presented results of their residency research projects during the poster session at the April 2018 National Oral Health Conference in Louisville, Ky.:

- Monisha Billings, PhD: “Data visualization of the relationship between smoking and periodontal site-specific effects across the lifespan in the US adult population.”
- Aachal Devi, DDS: “Association of oral health outcomes and Federal Nutrition Benefits in preschoolers 2-5 years in the United States, 2011-2014.”
- CDR Kathi Buss (USN): “Patient satisfaction in military dental clinics, findings from the Department of Defense Dental Patient Satisfaction Survey.”
- MAJ David Schindler (USAF): “Differences in oral health conditions among adults with and without prior active duty service in the U.S. Armed Forces.”
- LCDR Justin Vos (USPHS): “The Association between Marijuana Use and Oral Health in the United States.”
- Chandra Janakiram, PhD: “Opioid prescribing practices for dental diagnoses and procedures in a Medicaid population in the US.”

Training and Career Development News

Intramural Training Activities and Outreach

The NIDCR Office of Education in the Division of Intramural Research participated in many activities to recruit students and researchers at all levels. These activities are highlighted below: ^[1]_{SEP}

NIH Grant Writing Course: An In-Depth Workshop

The NIDCR Office of Education continues to provide the postdoctoral community with career development support. Eight NIDCR trainees participated in a five-part grant-writing course led by Paula Gregory, PhD (Associate Professor, Department of Genetics at Louisiana State University), hosted in collaboration with NHGRI, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, and the National Institute of Arthritis and Musculoskeletal and Skin Diseases during March, April, and May 2018. It gives participants the opportunity to write a rough draft of an NIH grant using their own data and take part in an NIH grant mock study section. During the mock study session, trainees learn to score NIH grants that have been previously reviewed to learn about the key aspects of a successful application.

2018 NIDCR Fellows’ Scientific Training

The NIDCR Office of Education remains vigilant in its mission to enrich the training and career development experience of predoctoral and postdoctoral trainees. This year, the fellows’ scientific training was held April 19-20 at the John Edward Porter Neuroscience Research Center (Building 35A) on the NIH Campus in Bethesda, Md. Fifty-eight graduate students, predoctoral Intramural Research Training Awardees, postdoctoral trainees, clinical fellows, staff scientists, and biologists were in attendance for the retreat along with the NIDCR’s Division of Intramural Research scientific director and Office of Education staff. Activities at the event included: a keynote address by Briana Pobiner, PhD, research scientist and museum educator at Smithsonian’s National Museum of Natural History, oral and open-mic presentations by attendees, poster sessions, and career development workshops. NIDCR leadership—Martha Somerman, DDS, PhD, Douglas Sheeley, ScD, Janice Lee, DDS, MD, and Robert Angerer, PhD—met with attendees and answered questions from the group. Achim Werner, PhD, was featured in a new investigator spotlight presentation. The final training activity was a comedic presentation by author and researcher Adam Ruben, PhD, entitled “Surviving Your Stupid, Stupid Decision to Go to Grad School,” which provided a comedic chronology of his career path in the sciences.

Recruitment and Educational Events

To continue to spread awareness of the trainee resources available at NIDCR, Deborah Philp, PhD, director of Intramural Training, attended the AADR conference held in Fort Lauderdale, Fla in March. She gave a presentation with Dr. Janice Lee on research training opportunities at NIDCR. She was also available for appointments at the NIDCR exhibit booth.

The Office of Education continues its recruitment efforts for students interested in oral health training opportunities. This year, 12 dental students were selected to receive the 2018 NIDCR Summer Dental Student Award to complete an 8-week translational research project at NIDCR.

Research Training and Career Development Branch Outreach

Staff from NIDCR's Research Training and Career Development Branch (RTCDB) in the Division of Extramural Research reach out to the community via conferences, meetings, and workshops to encourage predoctoral students, postdoctoral fellows, and junior investigators to apply for NIDCR individual research training and career development awards, to disseminate information on research training opportunities, engage investigators as potential research mentors, and develop research training programs that are responsive to the research training and career development needs of the extramural research workforce.

NIDCR RTCDB facilitated the events below at the 2018 AADR/CADR meeting held March 21-24 in Fort Lauderdale, Fla.

- NIDCR trainee research presentations featured 61 poster presentations and 10 "open mic" presentations from NIDCR-supported diversity supplement recipients, trainees, fellows, and career development awardees.
- NIDCR and AADR/CADR co-sponsored the AADR/CADR/NIDCR mentoring and networking lunch. At this event, students and postdoctoral fellows discussed research and career development with mentors and NIDCR program directors.
- Lynn King, PhD, chief of the RTCDB, spoke on NIH/NIDCR funding opportunities at the AADR Faculty Development Workshop: Mentoring Mentors and Mentees.
- Dr. King and Leslie Frieden, PhD, of the RTCDB, presented a seminar on NIDCR extramural research training and career development opportunities.
- Drs. King and Frieden, along with NIDCR Scientific Review and Grants Management staff presented a grant basics workshop, "NIH-Mentored F and K Grants, Pre-Application to Peer Review."
- Drs. King and Frieden discussed research training and career development with dual degree DDS/DMD-PhD students at the AADR Dual Degree Forum and Networking Event.
- Dr. King presented information about NIH extramural research support at the symposium "Continuing and Supporting Your Research," sponsored by the AADR National Student Research Group.
- Drs. King and Frieden held individual consultations with current awardees and potential applicants at the NIDCR Exhibit Booth.

Highlights of Trainee Scientific Achievements

Trainees Who Have Achieved Subsequent NIH Grants

First R01/U01s

- Katherine Fantauzzo, PhD, former NIDCR F32 awardee, Assistant Professor, Department of Craniofacial Biology, University of Colorado/Denver. (NIDCR) R01, "Characterization of PDGFR dimer-specific dynamics in the craniofacial mesenchyme."
- Yu Leo Lei, DDS, PhD, current NIDCR Dentist Scientist K99/R00 awardee, Assistant Professor, Department of Periodontics and Oral Medicine, University of Michigan. (NIDCR) R01, "Develop a Therapeutic Nano-vaccine against Head and Neck Cancer."
- Luc Gordon Trang Morris, MD, MSc, FACS, current NIDCR K08 awardee, Associate Member, Surgery, Department of Surgery-Head & Neck, Sloan Kettering Institute for Cancer Research. (NIDCR) R01, "Identifying and targeting neoantigens in aggressive salivary carcinomas."

- Noriaki Ono, DDS, PhD, former NIDCR Dentist Scientist K99/R00 awardee, Assistant Professor, Department of Orthodontics and Pediatric Dentistry, University of Michigan. (NIDCR) R01, “Dynamics and Regulations of Bone Stem Cells in Vivo.”

Pathway to Independence Awards (K99/R00)

- Corneliu Sima, DMD, DSc, MSc, Assistant Professor, Department of Oral Medicine, Infection and Immunity, Harvard School of Dental Medicine. (NIDCR) R00: “Regulation of Inflammation in T2D-Associated Periodontitis.”

Transitions from Institutional Training Grant Support to Individual Awards

NIDCR strongly encourages trainees supported on institutional training grants to apply for and transition to individual fellowships or career development award support.

- Jason Clague, University of California, Los Angeles. (NIDCR) F31 predoctoral fellowship to support PhD training, “Developing Statistical Methods for Spatial Relationships and Missing Teeth in Oral-Health Research.”
- Sarah Peters, PhD, University of Alabama Birmingham. (NIDCR) K99/R00 Pathway to Independence Award, “Mechanisms regulating afferent innervation in the dental pulp.”
- Michelle Spoto, University of Connecticut School of Medicine and Dentistry. (NIDCR) F30 predoctoral fellowship to support dual degree DMD-PhD training, “Molecular Mechanisms Underlying Transition to Virulence in *Staphylococcus epidermidis*.”
- Stephanie Joy Wilson, Ohio State University. (NIA) K99/R00 Pathway to Independence Award, “Couples' Interactions and Inflammatory Responses: The Context-Dependent Role of Age.”

Recent Publications from Trainees

Individual Fellowship (F) Awardees

Donnelly CR, Shah AA, Mistretta CM, Bradley RM, Pierchala BA. [Biphasic functions for the GDNF-Ret signaling pathway in chemosensory neuron development and diversification.](#) Proc Natl Acad Sci U S A. 2018 Jan 16;115(3):E516-E525.

Dybdal-Hargreaves NF, Risinger AL, Mooberry SL. [Regulation of E-cadherin localization by microtubule targeting agents: rapid promotion of cortical E-cadherin through p130Cas/Src inhibition by eribulin.](#) Oncotarget. 2017 Dec 31;9(5):5545-5561.

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Lucas SK, Yang R, Dunitz JM, Boyer HC, Hunter RC. [16S rRNA gene sequencing reveals site-specific signatures of the upper and lower airways of cystic fibrosis patients.](#) J Cyst Fibros. 2018 Mar;17(2):204-212.

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PUBLICATIONS

Selected Extramurally Funded Science Advances

During the past four months, 346 extramurally funded studies were published in the scientific literature. Below is a list of the most important papers published from each program area.

High-Impact Findings from Seasoned Investigators

Behavioral and Social Sciences Research

Liu H, Hays R, Wang Y, et al. [Short form development for oral health patient-reported outcome evaluation in children and adolescents](#). Qual Life Res. 2018; Mar 5.

Vázquez-otero C, Vamos CA, Thompson EL, et al. [Assessing dentists' human papillomavirus-related health literacy for oropharyngeal cancer prevention](#). J Am Dent Assoc. 2018;149(1):9-17.

Center for Clinical Research

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Integrative Biology and Infectious Diseases Branch

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Translational Genomics Research Branch

Barske L, Rataud P, Behizad K, Del Rio L, Cox SG, Crump JG. [Essential Role of Nr2f Nuclear Receptors in Patterning the Vertebrate Upper Jaw.](#) Dev Cell. 2018 Feb 5; 44(3):337-347.

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Publications from New Investigator R01-funded Projects

Belus MT, Rogers MA, Elzubeir A, Josey M, Rose S, Andreeva V, Yelick PC, Bates EA. [Kir2.1 is important for efficient BMP signaling in mammalian face development.](#) Dev Biol. 2018 Mar 20. pii: S0012-1606(17)30829-1.

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Division of Extramural Research Staff Publications

Nielsen L, Riddle M, King JW, et al, et al. [The NIH Science of Behavior Change Program: Transforming the science through a focus on mechanisms of change](#). Behav Res Ther. 2018;101:3-11.

Riley, WT, Riddle, M, and Lauer, M. NIH policies on experimental studies with humans. Nature Human Behaviour 2018; 2: 103–106.

Selected Division of Intramural Research Publications: Peer-Reviewed

Berglund JA, Gafni RI, Wodajo F, Cowen EW, El-Maouche D, Chang R, Chen CC, Guthrie LC, Molinolo AA, Collins MT. [Tumor-induced osteomalacia in association with PTEN-negative Cowden syndrome](#). Osteoporos Int. 2018 Apr;29(4):993-997.

Berglund JA, Tella SH, Tuthill KF, Kim L, Guthrie LC, Paul SM, Stanton R, Collins MT, Boyce AM. [Scoliosis in Fibrous Dysplasia/McCune-Albright Syndrome: Factors Associated with Curve Progression and Effects of Bisphosphonates](#). J Bone Miner Res. 2018 Apr 18.

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Office of Science Policy and Analysis Staff Publications

Janakiram C, Chalmers NI, Fontelo P, Huser V, Lopez Mitnik G, Iafolla TJ, Brow AR, Dye BA. [Sex and race or ethnicity disparities in opioid prescriptions for dental diagnoses among patients receiving Medicaid](#). J Am Dent Assoc. 2018 Apr;149(4):246-255.

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FUNDING UPDATE

Program Announcements

[Successor-in-Interest \(Type 6 Parent Clinical Trial Optional\)](#)

Release Date: January 26, 2018

[Change of Grantee Organization \(Type 7 Parent Clinical Trial Optional\)](#)

Release Date: January 26, 2018

[Development of Novel and Emerging Technologies for Cryogenic or Long-term Preservation and Revival of Drosophila and Zebrafish Genetic Stocks \(R41/R42 Clinical Trial Not Allowed\)](#)

Release Date: January 31, 2018

[Development of Novel and Emerging Technologies for Cryogenic or Long-term Preservation and Revival of Drosophila and Zebrafish Genetic Stocks \(R43/R44 Clinical Trial Not Allowed\)](#)

Release Date: January 31, 2018

[Electronic Nicotine Delivery Systems \(ENDS\): Population, Clinical and Applied Prevention Research \(R21 Clinical Trial Optional\)](#)

Release Date: February 1, 2018

[Electronic Nicotine Delivery Systems \(ENDS\): Population, Clinical and Applied Prevention Research \(R01 Clinical Trial Optional\)](#)

Release Date: February 1, 2018

[NIH Support for Conferences and Scientific Meetings \(Parent R13 Clinical Trial Not Allowed\)](#)

Release Date: February 9, 2018

[Opportunities for Collaborative Research at the NIH Clinical Center \(U01 - Clinical Trial Optional\)](#)

Release Date: February 9, 2018

[PHS 2018-02 Omnibus Solicitation of the NIH, CDC, and FDA for Small Business Innovation Research Grant Applications \(Parent SBIR \[R43/R44\] Clinical Trial Required\)](#)

Release Date: January 16, 2018

[PHS 2018-02 Omnibus Solicitation of the NIH, CDC, and FDA for Small Business Innovation Research Grant Applications \(Parent SBIR \[R43/R44\] Clinical Trial Not Allowed\)](#)

Release Date: January 16, 2018

[PHS 2018-02 Omnibus Solicitation of the NIH, CDC, and FDA for Small Business Technology Transfer Grant Applications \(Parent STTR \[R41/R42\] Clinical Trial Not Allowed\)](#)

Release Date: January 16, 2018

[PHS 2018-02 Omnibus Solicitation of the NIH, CDC, and FDA for Small Business Technology Transfer Grant Applications \(Parent STTR \[R41/R42\] Clinical Trial Required\)](#)

Release Date: January 16, 2018

[Administrative Supplement for Research on Sex/Gender Influences \(Admin Supp - Clinical Trial Optional\)](#)

Release Date: February 13, 2018

[NIDCR Behavioral and Social Intervention Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)

Release Date: February 13, 2018

[Ruth L. Kirschstein National Research Service Award \(NRSA\) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research \(Parent F31\)](#)

Release Date: February 15, 2018

[Ruth L. Kirschstein National Research Service Award \(NRSA\) Individual Fellowship for Students at Institutions with NIH-Funded Institutional Predoctoral Dual-Degree Training Programs \(Parent F30\)](#)

Release Date: February 16, 2018

[Ruth L. Kirschstein National Research Service Award \(NRSA\) Individual Postdoctoral Fellowship \(Parent F32\)](#)

Release Date: February 16, 2018

[Ruth L. Kirschstein National Research Service Award \(NRSA\) Individual Predoctoral Fellowship \(Parent F31\)](#)

Release Date: February 16, 2018

[Ruth L. Kirschstein National Research Service Award \(NRSA\) Individual Senior Fellowship \(Parent F33\)](#)

Release Date: February 20, 2018

[Ruth L. Kirschstein National Research Service Award \(NRSA\) Individual Fellowship for Students at Institutions Without NIH-Funded Institutional Predoctoral Dual-Degree Training Programs \(Parent F30\)](#)

Release Date: February 20, 2018

[Research on the Health of Women of Understudied, Underrepresented and Underreported \(U3\) Populations - An ORWH FY18 Administrative Supplement \(Admin Supp - Clinical Trial Optional\)](#)

Release Date: February 22, 2018

[Administrative Supplements for Research on Sexual and Gender Minority \(SGM\) Populations \(Admin Supp\)](#)

Release Date: March 15, 2018

[Small Research Grants for Analyses of Data for the Gabriella Miller Kids First Data Resource \(R03 - Clinical Trial Not Allowed\)](#)

Release Date: March 30, 2018

[Small Research Grants for Establishing Basic Science-Clinical Collaborations to Understand Structural Birth Defects \(R03 - Clinical Trial Not Allowed\)](#)

Release Date: March 30, 2018

[Age-related Microbiota Changes and their Implications in Chronic Disease Prevention, Treatment and Progression \(R01 Clinical Trial Optional\)](#)

Release Date: April 3, 2018

[Age-related Microbiota Changes and their Implications in Chronic Disease Prevention, Treatment and Progression \(R21 Clinical Trial Optional\)](#)

Release Date: April 3, 2018

[Lasker Clinical Research Scholars Program \(Si2/R00 Clinical Trial Optional\)](#)

Release Date: April 3, 2018

Requests for Applications

[Expanding the Human Genome Editing Repertoire \(U01 Clinical Trial Not Allowed\)](#)

Release Date: January 24, 2018

[Somatic Cell Genome Editing Dissemination and Coordinating Center \(U24 Clinical Trial Not Allowed\)](#)

Release Date: January 24, 2018

[Development of Cell and Tissue Platforms to Detect Adverse Biological Consequences of Somatic Cell Gene Editing \(U01 Clinical Trial Not Allowed\)](#)

Release Date: January 24, 2018

[Innovative Technologies to Deliver Genome Editing Machinery to Disease-relevant Cells and Tissues \(UG3/UH3 Clinical Trial Not Allowed\)](#)

Release Date: January 24, 2018

[Rodent Testing Centers for Development of Reporter Systems and Evaluation of Somatic Cell Genome Editing Tools \(U42 Clinical Trial Not Allowed\)](#)

Release Date: January 24, 2018

[Development of Large Animal Reporter Systems for Testing Somatic Cell Genome Editing Tools \(U24 Clinical Trial Not Allowed\)](#)

Release Date: January 24, 2018

[The Human BioMolecular Atlas Program \(HuBMAP\) Integration, Visualization and Engagement \(HIVE\) Initiative \(OT2 Clinical Trials Not Allowed\)](#)

Release Date: January 25, 2018

[Training Modules to Enhance the Rigor and Reproducibility of Biomedical Research \(R25 Clinical Trial Not Allowed\)](#)

Release Date: February 1, 2018

[Time-Sensitive Research on Health Risk and Resilience after Hurricanes Irma and Maria in Puerto Rico and the US Virgin Islands \(R21 Clinical Trial Not Allowed\)](#)

Release Date: February 8, 2018

[Limited Competition: FaceBase 3: Craniofacial Development and Dysmorphology Data Management and Integration Hub \(U01 Clinical Trial Not Allowed\)](#)

Release Date: February 14, 2018

[National Research Mentoring Network \(NRMN\) Resource Center \(U24 - Clinical Trial Not Allowed\)](#)

Release Date: February 16, 2018

[National Research Mentoring Network \(NRMN\) Coordination Center \(U24 - Clinical Trial Not Allowed\)](#)

Release Date: February 16, 2018

[National Research Mentoring Network: The Science of Mentoring, Networking, and Navigating Career Transition Points \(U01 Clinical Trial Not Allowed\)](#)

Release Date: February 16, 2018

[Limited Competition: Building Infrastructure Leading to Diversity \(BUILD\) Initiative Phase II \(U54 Clinical Trial Not Allowed\)](#)

Release Date: April 3, 2018

[Cutting Edge Informatics Tools for Illuminating the Druggable Genome \(U01 Clinical Trial Not Allowed\)](#)

Release Date: April 3, 2018

Notices

[NIDCR Announces a Pre-Application Webinar and the Availability of Answers to Questions for RFA DE-18-012 "NIDCR Dental Specialty and PhD Program \(DSPP\) \(K12 Clinical Trial Not Allowed\)"](#)

Release Date: January 10, 2018

[Notice of NIDCR's Participation in PAR-18-009 "Academic-Industrial Partnerships to Translate and Validate in vivo Cancer Imaging Systems \(R01 Clinical Trial Optional\)"](#)

Release Date: January 10, 2018

[Notice of NIDCR's Participation in PAR-18-530 "Academic-Industrial Partnerships for Translation of Technologies for Diagnosis and Treatment \(R01 - Clinical Trial Optional\)"](#)

Release Date: January 10, 2018

[Notice of Correction to the Number of Applications per Institution Allowed for RFA DE-18-012, "NIDCR Dental Specialty and PhD Program \(DSPP\) \(K12 Clinical Trial Not Allowed\)"](#)

Release Date: January 11, 2018

[Notice of Corrected Expiration Date for PA-15-354 "SBIR Technology Transfer \(R43/R44\)"](#)

Release Date: January 11, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement to Support New Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(UG3/UH3 - Clinical Trial Required\)](#)

Release Date: January 12, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement to Support New Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(U01 - Clinical Trial Not Allowed\)](#)

Release Date: January 12, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement to Support New Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(UT1/UT2 - Clinical Trial Required\)](#)

Release Date: January 12, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement to Support New Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(UT1/UT2 - Clinical Trial Not Allowed\)](#)

Release Date: January 12, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement to Support New Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(U43/U44 - Clinical Trial Required\)](#)

Release Date: January 12, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement to Support New Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(U43/U44 - Clinical Trial Not Allowed\)](#)

Release Date: January 12, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement for National Dental Practice-Based Research Network: Administrative and Resource Center \(U19 Clinical Trial Required - Infrastructure\)](#)

Release Date: January 16, 2018

[Notice of Intent to Publish a Funding Opportunity Announcement for National Dental Practice-Based Research Network: Coordinating Center \(U01 Clinical Trial Required - Infrastructure \)](#)

Release Date: January 16, 2018

[Revision: Notice of Intent to Publish a Funding Opportunity Announcement for National Dental Practice-Based Research Network: Administrative and Resource Center \(U19 Clinical Trial Required\)](#)

Release Date: February 8, 2018

[Revision: Notice of Intent to Publish a Funding Opportunity Announcement for National Dental Practice-Based Research Network: Coordinating Center \(U01 Clinical Trial Required - Infrastructure \)](#)

Release Date: February 8, 2018

[Notice of Change in Key Dates for PAR-17-001 "Emerging Global Leader Award \(K43\)"](#)

Release Date: February 8, 2018

[Notice of Correction to Application Instructions in RFA-HL-19-007: Limited Competition: Data Analysis and Coordination Center for the MACS/WIHS Combined Cohort Study \(MACS/WIHS-CCS\) \(U01 Clinical Trial Not Allowed\)](#)

Release Date: February 13, 2018

[Notice of Correction to Application Instructions in RFA-HL-19-008: Limited Competition: Clinical Research Sites for the MACS/WIHS Combined Cohort Study \(MACS/WIHS-CCS\) \(U01 Clinical Trial Not Allowed\)](#)

Release Date: February 13, 2018

[Notice of Correction to PAR-18-656 "NIDCR Behavioral and Social Intervention Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)

Release Date: March 13, 2018

[Notice of NIDCR's Participation in PA-17-459 "Biology of Lung, and Head and Neck Preneoplasias \(R01- Clinical Trial Not Allowed\)"](#)

Release Date: March 13, 2018

[Notice of NIDCR's Participation in PA-17-460 "Biology of Lung, and Head and Neck Preneoplasias \(R21- Clinical Trial Not Allowed\)"](#)

Release Date: March 13, 2018

[Revision: Notice of Correction to Application Instructions in RFA-HL-19-008: Limited Competition: Clinical Research Sites for the MACS/WIHS Combined Cohort Study \(MACS/WIHS-CCS\) \(U01 Clinical Trial Not Allowed\)](#)

Release Date: March 21, 2018

[Notice of NIDCR's participation in PAR-18-714, Academic Research Enhancement Award for Undergraduate-Focused Institutions \(R15-Clinical Trial Not Allowed\)](#)

Release Date: March 26, 2018

[NIDCR Policy on Applications for Investigator-Initiated Clinical Trials](#)

Release Date: April 2, 2018

[Notice of Corrected Application Forms for PAR-18-547, NIDCR Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)

Release Date: April 2, 2018

[Notice of Correction to RFA-DE-19-002 "National Dental Practice-Based Research Network: Coordinating Center \(U01 Clinical Trial Required\)"](#)

Release Date: April 13, 2018

[Alzheimers Disease and Its Related Dementias \(AD/ADRD\)-Focused Administrative Supplements for NIH Grants That Are Not Focused on Alzheimers Disease](#)

Release Date: April 12, 2018

[Notice of Corrected Application Forms for PAR-18-547, NIDCR Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)

Release Date: April 12, 2018