

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

September 2019

ACTIVITIES OF THE NIDCR DIRECTOR AND DEPUTY DIRECTOR

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on May 23, 2019, NIDCR Director Martha J. Somerman, DDS, PhD, and Deputy Director Douglas M. Sheeley, ScD, have maintained active schedules attending research symposia and workshops, delivering presentations to stakeholders, and meeting with leaders of other organizations. Among their notable activities during the last four months are the following:

Dr. Somerman substituted for Walter Koroshetz, MD, director of the National Institute of Neurological Disorders and Stroke (NINDS), at the Interagency Pain Research Coordinating Committee (IPRCC) WebEx teleconference on May 28. Dr. Somerman opened the call, welcomed the group, acknowledged a new member from the Agency for Healthcare Research and Quality, and provided an update on the IPRCC nomination slate for 2019.

Dr. Somerman kicked off the NIH Common Fund Glycoscience Program's participating investigators meeting on May 29 on the NIH campus in Bethesda Md., with a welcome and introduction. Dr. Sheeley co-chairs, with NIGMS, the Glycoscience CF. He assisted with organizing the meeting and chaired a session, "Methods, Tools & Technologies: Glycoscience Data Integration and Analysis Tools."

Dr. Somerman attended a meeting of the National Academies of Medicine Board on Health Sciences Policy in Washington, DC, on May 30 to reflect on and provide suggestions to improve National Academies' activities.

Dr. Somerman provided a welcome and introduced Jeffrey M. Cole, DDS, the American Dental Association (ADA) president, at the 14th Annual NIH Pain Consortium Symposium held on May 31 on the NIH campus in Bethesda, Md.

Dr. Sheeley taught the course "Peptides and Proteins in Mass Spectrometry," during the 2019 American Society for Mass Spectrometry Annual Meeting on June 2 in Atlanta. On June 4, Dr. Sheeley organized a workshop titled "The NIH & NSF Review & Funding Process."

Drs. Somerman and Sheeley met with Helene Langevin, MD, director of the National Center for Complementary and Integrative Health, on June 13 to discuss opportunities for collaborations on temporomandibular disorders (TMD) research.

Drs. Somerman and Sheeley attended the International Association for Dental Research (IADR) / American Association for Dental Research (AADR) / Canadian Association for Dental Research (CADR) annual meeting in Vancouver, Canada, June 19-22. Drs. Somerman and Sheeley delivered several presentations and participated in activities at the meeting, including:

June 19

Dr. Somerman and Kelly Ten Hagen, PhD, NIDCR senior investigator, Developmental Glycobiology Section, gave a presentation titled "Harassment in Science: Steps to No-Tolerance" hosted by the IADR Women in Science Network.

Dr. Somerman provided welcoming remarks and moderated the NIDCR trainee research presentations session.

Drs. Somerman and Sheeley participated in the IADR / AADR / CADR / NIDCR Mentoring and Networking Lunch hosted by AADR and NIDCR.

Dr. Somerman provided a presentation and participated in a panel titled "Sage Advice for Pursuing a Career in Dental Research," hosted by the AADR National Student Research Group.

Dr. Sheeley provided an introduction, "Human Salivary Proteome Wiki," for the workshop "Navigating the Human Salivary Proteome Wiki Database."

June 20

Dr. Somerman gave a talk titled "Dentin and Bone Matrix Biology: Inspiration from William Butler."

Dr. Somerman participated in the NIDCR training director meeting hosted by NIDCR.

Dr. Somerman presented an update on NIDCR activities at the IADR Institutional Sections and Research Deans Meeting.

Dr. Somerman moderated a symposium, "Future Promise and Critical Research Needs in Special Care Communities," hosted by the Friends of NIDCR Patient Advocacy Council, and she provided a presentation highlighting NIDCR's research in this area.

Dr. Somerman gave a presentation at the Mineralized Tissue Group board meeting titled "One Researcher's Defining Moment: Phosphate."

June 21

Dr. Somerman presented a talk titled "NIDCR: Integrating Bench and Clinical Practice to Advance Research Discoveries," for the ADA Council on Scientific Affairs symposium "Building Translational Bridges for Oral Health Science, Evidence-based Policy and Clinical Practice."

Dr. Somerman participated in the NIDCR K12 directors meeting hosted by NIDCR.

Dr. Somerman presented a talk titled "NIDCR's Global Research Agenda" at the Fogarty Fellows and Scholars orientation held on July 2 on the NIH campus in Bethesda, Md.

Dr. Sheeley attended the NIH and FDA Glycoscience Research Day on July 2 on the NIH campus in Bethesda, Md.

Dr. Somerman participated in a career panel discussion session titled "Future Careers in Research and Dentistry" on July 10 on the NIH campus in Bethesda, Md. This session was held for the NIDCR intramural summer dental students and participants in the Medical Research Scholars Program.

Dr. Somerman provided welcoming remarks at the Dental Fear and Anxiety Workshop held in Rockville, Md., on July 15.

Dr. Somerman participated in the National Academies of Medicine Forum on Regenerative Medicine held in Washington, DC, on July 17, and she gave a brief presentation titled "Looking to the Future: NAM Regenerative Medicine Forum."

Dr. Sheeley attended the second annual North American Mass Spectrometry Summer School in Madison, Wis., on July 23, and he gave a lecture titled "An Introduction to NIH."

Dr. Somerman attended the first Bernard Gottlieb Conference on Periodontal Disease and Regeneration in Dallas on August 8, and she gave a presentation titled "From Mineralization Protein Homeostasis to Clinical Application."

Dr. Sheeley attended the GlyGen All Hands Meeting / Developer Meeting / GlySpace Alliance Meeting at the George Washington University in Washington, DC, August 21-23. While there, he participated in a panel to discuss progress of the program.

Dr. Somerman provided a welcome and opening remarks at the Practice Based Research Network face-to-face meeting on August 28 in Rockville, Md.

During the third quarter of 2019, Dr. Somerman was a member of the following committees:

- Search committee for director, National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
- Search committee for director, Office of Science Policy and Analysis, NIDCR
- Executive committee & working group for Helping to End Addiction Long-term (HEAL)

During the third quarter of 2019, Dr. Sheeley was a member of the following committee:

- Search committee for deputy director, Center for Scientific Review

BUDGET UPDATE

FY 2020

Budget information is not yet available.

HHS/NIH UPDATE

Advisory Committee to the Director Tackles Tough Issues

Noting that he has “rarely seen a time where the NIH has found it necessary to tackle so many tough issues facing the biomedical research enterprise simultaneously,” NIH Director Francis S. Collins, MD, PhD, recently cited the efforts of the Advisory Committee to the Director to study specific issues and provide recommendations. Dr. Collins shared the actions NIH is taking in several key areas, including artificial intelligence, the Next Generation Researchers Initiative, the High-Risk/High-Reward Programs, sexual harassment in the biomedical research community, the BRAIN Initiative 2.0, and foreign influences on research integrity.

Jeremy Farrar Delivers 2019 Barmes Global Health Lecture

Jeremy Farrar, OBE, FRCP, FRS, FMedSci, director of the Wellcome Trust, London, delivered the 2019 David E. Barmes Global Health Lecture on June 19 at NIH. His talk, “Global Health in a Changing World,” highlighted the extent of interconnectivity within the global health research ecosystem. Quoting the late David Barmes, who was a special expert for international health at NIDCR, Dr. Farrar said, “Science knows no country.” The lecture series was established by the NIDCR and NIH’s Fogarty International Center in 2001 to honor Barmes’ lifelong dedication to research aimed at improving health for those in low-income countries.

Former NIH Director Dies at 94

James B. Wyngaarden, MD, who led NIH from April 1982 through July 1989, died in June. In remembering Dr. Wyngaarden, NIH Director D. Collins said he “steered the nation’s biomedical research agency through uncharted seas with extraordinary skill.” His legacy includes tackling the HIV/AIDS epidemic and championing the Human Genome Project from its inception.

HSS Task Force Issues Best Practices for Pain Management

In May, the Pain Management Best Practices Inter-Agency Task Force, a federal advisory committee established by the Comprehensive Addiction and Recovery Act of 2016, released its [final report on acute and chronic pain management best practices](#) and called for a balanced, individualized, patient-centered approach to manage acute and chronic pain. “There is a no one-size-fits-all approach when treating and managing patients with painful conditions,” said Vanila M. Singh, MD, MACM, task force chair and chief medical officer of the HHS Office of the Assistant Secretary for Health. To ensure best practices for the treatment of pain, the Task Force final report underscores the need to address stigma, risk assessment, and access to care and education. It also highlights five broad categories for pain treatment: medications, interventional procedures, restorative therapies, behavioral health, and complementary and integrative health approaches.

NIEHS Director Retires

After 40 years of federal service—the last 10 as director of the National Institute of Environmental Health Sciences (NIEHS)—Linda S. Birnbaum, PhD, DABT, ATS, is retiring in October. In addition to her many accomplishments in toxicology and environmental health research, NIH Director Dr. Collins also noted Dr. Birnbaum’s leadership in a trans-NIH research project following the 2010 Deepwater Horizon Oil Spill, and he called her a strong proponent of community-based, participatory research. In 2010, Dr. Birnbaum was elected to the National Academy of Medicine, and in 2016 she received the North Carolina Award in Science, which is the highest civilian honor given by the state’s governor.

NEI Director Will Lead University of California Eye Center

Paul A. Sieving, MD, PhD, director of the National Eye Institute (NEI), retired from NIH in July. “At NEI, Paul established major clinical programs aimed at preventing and treating eye disease,” says NIH Director Dr. Collins. “I have every confidence that these programs will continue to yield great benefits for millions of Americans at risk for vision loss.” In his next chapter, Dr. Sieving will be launching a new Center for Ocular Regenerative Therapy at the University of California, Davis.

NIDCR UPDATE

Institute News

[NIDCR Director Expresses Commitment to Inclusive Scientific Meetings](#)

Following the [call by NIH Director Francis S. Collins, MD, PhD, for “a level playing field”](#) at scientific meetings, NIDCR Director Dr. Somerman expressed her own commitment to examining the diversity of speakers and panels at conferences. She stated that researchers who are women or who are from underrepresented groups should have a role in shaping the direction of research at scientific meetings and that building an inclusive cohort of scientific leaders is a goal shared by NIDCR and across NIH.

[NIDCR Director Featured in Profile of Women Leaders at NIH](#)

Dr. Somerman and the nine other women who head NIH institutes or centers consider what it takes to lead and to balance work and life. In the Power of Ten, created by the National Library of Medicine, the institute and center directors discuss mentoring and increasing the number of women in leadership positions.

[NIDCR’s Clinical Director Named Recipient of ADEAGies Foundation Award](#)

Janice S. Lee, DDS, MD, MS, has been named the 2019 recipient of the William J. Gies Foundation for the Advancement of Dentistry of the American Dental Education Association, Inc. Award in Oral and Maxillofacial Surgery. She is the first woman surgeon to receive this honor. The award, which recognizes distinguished achievement in the field, will be presented in September at the 101st annual meeting of the American Association of Oral and Maxillofacial Surgeons in Boston.

[Addressing Gender Inequality Among Dental and Oral Health Researchers](#)

Women are underrepresented in academia, including in dental and oral health fields. Thus, there are fewer submitted research project grant applications from women compared to men, according to a recent analysis by policy experts including NIDCR staff. The team’s findings revealed, however, that once submitted, applications from women are funded at the same rate as those from men. The results were published online in August in *JDR Clinical and Translational Research* and could inform future efforts to increase the representation of women in dental and oral health research.

[Congressional Cancer Survivors Caucus Visits NIH, NIDCR](#)

During a July visit, members of the bipartisan Congressional Cancer Survivors Caucus learned about NIH’s cancer-related research. Among their tour stops was the lab of NIDCR intramural scientist John Chiorini, PhD, who discussed his gene therapy clinical trials for patients with cancer therapy-induced dry mouth. Later, NIDCR Clinical Director Dr. Janice Lee spoke with the visitors about the link between oral and overall health.

[NIDCR’s Clinical Director Conducted First Underbite Surgery at NIH](#)

The spring 2019 issue of NIH’s *Clinical Center News* features an article about NIDCR Clinical Director Dr. Janice Lee, who conducted a five-hour operation to successfully fix the underbite of college student Trina Davis. Before surgery, Davis had difficulty eating and speaking. “I had to go to speech therapy to figure out how to form my words correctly. Now, I’m able to better pronounce my words the way I want to,” she says. To prepare, Lee worked for weeks with 3D cone-beam computed tomography, which helped her simulate facial surgery.

[NIH Workshop on Imaging Inflammation and its Resolution in Health and Disease](#)

Staff from NIDCR’s Division of Extramural Research participated and co-led the trans-NIH workshop, “Imaging Inflammation and its Resolution in Health and Disease,” which was held June 10-11 in Rockville, Md. The workshop was developed collaboratively with staff from the National Cancer Institute (NCI) (lead), NIH Office of the Director, NINDS, National Institute of Diabetes and Digestive and Kidney Diseases, National Institute of Allergy and Infectious Diseases, National Institute on Drug Abuse, NEI, and the National Institute of Nursing Research. The purpose of the workshop was to identify needs, opportunities, and strategies in imaging-based approaches to advance understanding of inflammation and its resolution. The workshop also aimed to explore methods to identify and measure signal transduction signatures and their perturbations that could lead to disease. NIDCR provided co-funding for the workshop. Chiayeng Wang, PhD, director of the Oral and Salivary Gland Cancer Biology Program in the Integrative Biology and Infectious Diseases Branch, participated in the planning committee, moderated the imaging technology session, and developed a summary of the

session that will be incorporated into a white paper to be published in FASEB Journal this year. During the workshop, Preethi Chander, PhD, director of the Salivary Biology and Immunology Program in the Integrative Biology and Infectious Diseases Branch, moderated a session on human imaging.

Addressing Dental Fear and Anxiety: Steps toward Accelerating Progress and Building a Cumulative Science

NIDCR hosted a workshop held July 15-16 in Bethesda, Md. focused on addressing dental fear and anxiety and the necessary steps to accelerate progress and build a cumulative science. The workshop, organized by staff in the Behavioral and Social Sciences Research Branch in NIDCR's Division of Extramural Research, convened a multidisciplinary group of researchers and clinicians with expertise spanning dentistry, pharmacology, and psychology to discuss opportunities to advance the state of the science and clinical practice related to dental fear. NIDCR Director Dr. Somerman delivered opening remarks to launch the meeting. During the meeting, brief presentations on current practices, insights from other fields, and contemporary intervention research on dental fear were used to orient attendees to salient topics and facilitate extensive discussion.

Personnel Update

Nadine Samara, PhD, has joined the Division of Intramural Research as a Stadtman Tenure-Track investigator and member of the NIH Distinguished Scholars Program. Dr. Samara received her PhD in molecular biophysics from the Johns Hopkins School of Medicine in 2012, where she also received the Alice Showalter Reynolds Award for her work in structural biology. She continued her work in structural enzymology as an NIGMS-PRAT Fellow and then transitioned to a staff scientist position at NIDCR in 2015 in the lab of Larry Tabak, DDS, PhD, who is currently the NIH deputy director. Dr. Samara plans to study bacterial glycosyltransferases involved in capsular polysaccharide synthesis, which are important for pathogenesis and are targets for antimicrobials.

Blake M. Warner, DDS, PhD, MPH, DABOMP, is now an assistant clinical investigator and acting chief of the Salivary Disorders Clinical Team. He earned his MPH, PhD, and DDS degrees from the Ohio State University and continued his training in oral and maxillofacial pathology at the University of Pittsburgh Medical Center. After residency, Dr. Warner did a clinical research fellowship at NIDCR with Jay Chiorini, PhD. Dr. Warner's independent research work is focused on Sjögren's Syndrome and irreversible iatrogenic damage from targeted oncologic therapies.

Mark Hoon, PhD, and Nick Ryba, PhD, in the Division of Intramural Research, received an NIH Director's Award for their project "Deciphering the mechanisms linking neural stress and injury to persistent pain."

Niki Moutsopoulos, DDS, PhD, in the Division of Intramural Research, received the Distinguished Female Mentor Award and the Ricardo Teles Clinical Research Award in Periodontology from the IADR.

Kelly Ten Hagen, PhD, in the Division of Intramural Research, received the 2019 Equity, Diversity, and Inclusion Award of the Year. Dr. Ten Hagen also received two NIH Director's Awards. One was for development and deployment of the NIH Anti-Harassment Program: the other was for serving as a member of the Women Scientists Advisors Executive Committee working toward equal status for women scientists.

Yolanda Vallejo, PhD, director of the Neuroscience of Orofacial Pain and Temporomandibular Disorders Program in the Integrative Biology and Infectious Diseases Branch of the Division of Extramural Research, received a 2019 NIH Director's Award in recognition of her efforts in supporting awareness and activities that advance myalgic encephalomyelitis / chronic fatigue syndrome research.

Jason Wan, PhD, of the Integrative Biology and Infectious Diseases Branch, and Melissa Riddle, PhD, and Elise Rice, PhD, of the Behavioral and Social Sciences Research Branch, all in the Division of Extramural Research, received a 2019 NIH Director's Award as members of the INCLUDE (INvestigation of Co-occurring conditions across the Lifespan to Understand Down syndrome) Project Leadership Team. The INCLUDE project was launched in 2018, under a Congressional directive to

prioritize research for emerging scientific opportunities to improve the health and neurodevelopment of individuals with Down syndrome.

Mary Cutting, MS, health specialist in the Center for Clinical Research in NIDCR's Division of Extramural Research, received a 2019 NIH Director's Award as a member of the NIH Nutrition Strategic Research Leadership Team.

Meetings and Conferences

Staff Presentations

Pamela G. Robey, PhD, in the Division of Intramural Research presented an American Society for Bone and Mineral Research webinar titled "Skeletal Regeneration: Stem Cell Therapy."

Yolanda Vallejo, PhD, director of the Neuroscience of Orofacial Pain and Temporomandibular Disorders Program in the Integrative Biology and Infectious Diseases Branch of the Division of Extramural Research, served as co-chair for the 14th Annual NIH Pain Consortium Symposium: Pain Across the Lifespan, held on May 30-31 at the NIH campus in Bethesda, Md.

Lillian Shum, PhD, director of the Division of Extramural Research, attended the Pulp Biology and Regeneration Group Satellite Meeting held June 23-26 in Portland, Ore., and presented a talk titled "NIDCR Support for Regenerative Medicine Research." The goal of the meeting was to review state-of-the-science in dental pulp regeneration approaches and to foster new collaborations for future research directions.

Darien Weatherspoon, DDS, PhD, director of the Health Disparities Research Program in the Center for Clinical Research of the Division of Extramural Research, chaired a symposium, "Developing and Launching Children's Caries Prevention Trials to Reduce Disparities," at the 2019 IADR / AADR annual meeting held June 21-24 in Vancouver, Canada. Dr. Weatherspoon also presented a poster titled "Self-reported Receipt of Health Information from Dental Professionals, NHANES 2011-2014."

Melissa Riddle, PhD, and Elise Rice, PhD, in the Behavioral and Social Sciences Research Branch of the Division of Extramural Research, presented the Building Bridges Awards at the 2019 meeting of the Association for Psychological Science for outstanding posters related to dental, oral, and craniofacial health. Drs. Riddle and Rice also hosted a meeting with awardees (all trainees) to discuss NIH funding and training opportunities.

Nadya Lumelsky, PhD, chief of the Integrative Biology and Infectious Diseases Branch and director of the Tissue Engineering and Regenerative Medicine Program in the Division of Extramural Research, represented NIDCR at the National Academies of Medicine Regenerative Medicine Forum members meeting that took place July 17-18 in Washington, DC. Dr. Lumelsky delivered a presentation on her vision for the forum's future and participated in roundtable discussions among the forum members. A group of invited science policy, regulatory, medical ethics, and legal experts informed forum members about latest developments in their fields with respect to regenerative medicine.

Jason Wan, PhD, director of the Mineralized Tissue Physiology Program in the Integrative Biology and Infectious Diseases Branch of the Division of Extramural Research, presented a talk titled "NIDCR Investments in Osteonecrosis of the Jaw (ONJ) Research" at the Pathways to Prevention Federal Partners Meeting on Appropriate Use of Drug Therapies for Osteoporotic Fracture Prevention held on July 22 in Bethesda, Md.

Dena Fischer, DDS, MSD, MS, director of the Center for Clinical Research in the Division of Extramural Research, presented at the Academy of General Dentistry Foundation's "Oral Cancer Summit" workshop held on August 16 in Chicago.

Staff from the Division of Extramural Research, including Drs. Nadya Lumelsky, Lillian Shum, Kevin McBryde, and Ms. Jeannine Helm, represented NIDCR at the semi-annual meeting of the University of Michigan / University of Pittsburgh / Wyss Institute Resource Center of the Dental, Oral and Craniofacial Tissue Regeneration Consortium (DOCTRC). The meeting took place on September 4-6

in Pittsburgh and was dedicated to the review of the progress of DOCTRC to date, and to the discussion of the future activities of the consortium.

Staff Attendance

NIDCR Division of Extramural Research Staff attended the following meetings:

- Human Connectome PI Meeting, held May 23-24 on the NIH campus in Bethesda, Md.
- Association for Psychological Science Annual Meeting, held May 23-26 in Washington, DC.
- NIH Glycoscience Program Annual Meeting, held May 29-30 in Bethesda, Md.
- Diabetes Mellitus Interagency Coordinating Committee Workshop on Opportunities for Research Supported by the Special Statutory Funding Program for Type 1 Diabetes Research, held May 30-31 in Bethesda, Md.
- NIH Pain Consortium Symposium, held May 30-31 in Bethesda, Md.
- Tissue-resident immune cells: A Concepts in Geroscience Postdoctoral Fellows Symposium, held June 4-6 in Bethesda, Md.
- Third International Cancer Conference and Expo, held June 5-7 in Linthicum Heights, Md.
- International Symposium on Ultrasonic Imaging and Tissue Characterization, held June 5-7 in Arlington, Va.
- International Maternal Pediatric Adolescent AIDS Clinical Trials Network Annual Meeting, held June 13 in Washington, DC.
- The National Academies of Sciences, Engineering, and Medicine's Health and Medicine Division TMD Committee Public Webinar: Patient Care, held June 19.
- FOCIS2019, held June 17-21 in Boston.
- 2019 IADR Annual Meeting, held June 19-22 in Vancouver, Canada.
- Drug Information Association Annual Meeting, held June 23-27 in San Diego.
- NIH & FDA Glycoscience Research Day, held on July 8 in Bethesda, Md.
- NCI Implementation Science Consortium in Cancer, held July 10-12 in Rockville, Md.
- The National Academies of Medicine Regenerative Medicine Forum members meeting, held July 17-18 in Washington, DC.
- 2019 National Dental Association Convention, held July 20 in Washington, DC.
- 5th Meeting of the Department of Defense Working Group on Computational Modeling of Human Lethality, Injury, and Impairment from Blast-related Threats, held July 23-24 in McLean, Va.
- Society for Developmental Biology annual meeting, held July 26-29 in Boston.
- 3rd Interoperability Forum hosted by Office of the National Coordinator for Health IT, held August 21-22 in Washington, DC.
- Cancer Moonshot Human Tumor Atlas Network junior investigator meeting, held August 26-27 in Rockville, Md.
- American Dental Association FDI International Conference, held September 4-8 in San Francisco.

Training and Career Development News

Intramural Training Activities and Outreach

NIDCR FARE Award Recipients

On June 26, two NIDCR trainees were announced as recipients of 2020 NIH Fellows Awards for Research Excellence (FARE): Juan Cortes Truncoso (Niki Moutsopoulos' group) and Dunfang Zhang (Wanjun Chen's group). They were among 234 award winners across NIH. This competition recognizes outstanding scientific research performed by intramural postdoctoral fellows. Winners of FARE awards receive a \$1,500 stipend to attend a scientific meeting at which they present their research. The NIH Fellows Committee, the NIH Scientific Directors, and the NIH Office of Intramural Training and Education sponsor this award annually.

2019-2020 MRSP Scholars Now on Campus

Three students awarded fellowships through the Medical Research Scholars Program (MRSP) will be working with NIDCR researchers for this academic year. Omar Glover from East Carolina University School of Dental Medicine, in Greenville, N.C., joined the lab of Achim Werner, PhD, in the Stem Cell

Biochemistry Unit. Alisa Lee from the University of Pennsylvania School of Dental Medicine in Philadelphia is being co-mentored by Kelly Ten Hagen, PhD, in the Developmental Glycobiology Section, and Michael Collins, MD, in the Skeletal Disorders & Mineral Homeostasis Section. Dr. Collins is also supervising Layne Raborn from Louisiana State University Health Sciences Center School of Medicine in New Orleans. The MRSP allows medical, dental, and veterinary students to pause their university studies to live and conduct basic, clinical, or translational research work on the NIH campus.

Three-MinuteTalk Science Communication Competition

The NIDCR Office of Education co-hosted its inaugural participation in the Three-Minute Talk Science Communication Competition, held on June 27. Fourteen graduate students, postdoctoral fellows, and clinical fellows from five NIH Institutes (National Human Genome Research Institute (NHGRI), *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), NEI, NIAMS, and NIDCR) competed as finalists. Participants received professional training in how to effectively communicate their scientific research to a broad scientific audience using one PowerPoint slide, and they had two one-on-one professional coaching sessions in public speaking. A panel of distinguished judges scored each presentation. The top three presenters received travel awards.

Grant Writing Seminar

The NIDCR Office of Education provided its annual grant-writing seminar from Grant Writing Mentors, LLC, to 70 attendees on August 12. It was co-hosted with NEI, NHGRI, NICHD, and NIAMS. Participants were led through interactive exercises on how to write and submit successful research grants using the latest NIH guidelines for grant submission and learned about effective draft review strategies and possible pitfalls. Breakout sessions covered “Physician Scientists -the Rewards and Challenges,” “Human Subjects / Client Trials,” “Writing Your Specific Aims, Successful”, and “Writing Techniques for Grant Applications.”

NIDCR Summer Program

This year, 15 high school, undergraduate, dental, and medical students participated in the 2019 NIH Summer Internship Program. Eight of these students were NIDCR Summer Dental Student Award (SDSA) recipients and one was an Amgen Scholar. Highlights of this year’s summer activities included trips to the Samuel D. Harris National Dental Museum and the University of Maryland Baltimore Dental School to hear student research presentations, a career panel discussion titled “Future Careers in Research and Dentistry,” summer project oral presentations to the intramural research community, and participation in the NIDCR and NIH Poster Day sessions.

NIDCR Summer Dental Student Award

The 2019 NIDCR SDSA Program hosted eight dental students from across the US. Award recipients were selected from Columbia University College of Dental Medicine, Howard University College of Dentistry, Boston University School of Dental Medicine, University of Texas Health San Antonio Dental School, and University of Connecticut School of Dental Medicine.

Howard University Recruitment Session

On September 24, Deborah Philp, PhD, director of the NIDCR Office of Education, represented NIDCR at a trainee recruitment session held at Howard University. Representatives from several other institutes at NIH attended this event along with Uniformed Health Services and industry representatives. Dr. Philp met undergraduate, graduate, and dental students to discuss opportunities at NIH.

Research Training and Career Development Branch Outreach, Division of Extramural Activities

The Research Training and Career Development Branch (RTCDB) staff members 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, 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.

RTCDB facilitated the following events at the 2019 annual IADR / AADR / CADR General Session and Exhibition in Vancouver, Canada, June 19-22:

- NIDCR trainee research presentations featured 63 poster presentations and 12 “open mic” presentations from NIDCR-supported diversity supplement recipients, trainees, fellows, and career development awardees.
- NIDCR and IADR/AAADR/CADR co-sponsored the IADR/AAADR/CADR/NIDCR Mentoring and Networking Lunch. At this event students and postdoctoral fellows discussed research and career development with mentors representing researchers and NIDCR.
- Lynn King, PhD, and Leslie Frieden, PhD, both from the NIDCR Research Training and Career Development Program, presented a seminar on NIDCR extramural research training and career development opportunities.
- Drs. King and Frieden, along with NIDCR grants management staff, presented a grant basics workshop titled “NIH mentored F and K Grants, Pre-Application to Peer Review.”
- Drs. King and Frieden held individual consultations with current awardees and potential applicants.

Dr. King attended the American Association for Cancer Research-American Head and Neck Society Head and Neck Cancer Conference: Optimizing Survival and Quality of Life through Basic, Clinical, and Translational Research, held April 29-30 in Austin, Texas.

Dr. Frieden co-organized a trans-NIH Concepts in Geroscience Symposium on tissue resident immune cells held June 4-6 on the NIH campus in Bethesda, Md. This symposium featured research presentations from 29 postdoctoral fellows and junior faculty. At the event, Dr. Frieden presented a talk titled “NIH Extramural Research Funding Opportunities.”

Dr. Frieden attended the National Dental Association Convention held on July 19 in Washington, DC, to speak to potential applicants for NIDCR research training support at the NIDCR booth.

Highlights of Trainee Scientific Achievements

Trainees Who Have Achieved Subsequent NIH Grants

First R01/U01

- Mildred Embree, DMD, PhD, former NIDCR Dentist Scientist K99/R00 awardee, Assistant Professor, Division of Orthodontics, Columbia University. (NIDCR) R01, “Improvement of Animal Models for TMJ stem cell-Based Regeneration.”
- Fenglei He, PhD, current NIDCR K99/R00 awardee, Assistant Professor, Department of Cell and Molecular Biology, Tulane University. (NIDCR) R01, “Molecular mechanisms of tissue interactions during coronal suture development.”
- Guiseppe Intini, DDS, PhD, former NIDCR Dentist Scientist K99/R00 awardee, Associate Professor, Department of Periodontics and Preventive Dentistry, University of Pittsburgh. (NIDCR) R01, “Role and regulation of PRX1 expressing cells during calvarial bone regeneration.”
- Darnell Kaigler, DDS, PhD, former NIDCR F30 predoctoral dual degree fellow, Associate Professor, Department of Periodontics and Oral Medicine, University of Michigan. (NIDCR) R01, “Redefining mesenchymal stem cells: using their cellular and molecular phenotypes to determine their regenerative and therapeutic properties.”

- Elizabeth Leslie, PhD, current NIDCR K99/R00 awardee, Assistant Professor, Department of Human Genetics, Emory University. (NIDCR) R01, “Genetic modifiers of Van der Woude syndrome.”
- Matthew Ramsey, PhD, former NIDCR F31 predoctoral fellow, Assistant Professor, Department of Cell and Molecular Biology, University of Rhode Island. (NIDCR) R01, “Mechanisms underlying spatial interaction in the oral microbiota.”
- Herve Sroussi, DMD, PhD, former NIDCR K22 awardee, Associate Surgeon, Division of Oral Medicine and Dentistry, Brigham and Women’s Hospital. (NIDCR) R01, “Long Term Oral Health Outcomes in the Chronic GVHD Consortium.”
- Nathaniel Treister, DMD, DMSc, former NIDCR T32 postdoctoral trainee, Associate Surgeon, Division of Oral Medicine and Dentistry, Brigham and Women’s Hospital. (NIDCR) R01, “Long Term Oral Health Outcomes in the Chronic GVHD Consortium.”

Pathway to Independence Awards (K99/R00)

- Marc Swidergall, PhD, Investigator, Los Angeles Biomedical Research Institute. R00: “Novel *Candida albicans* host receptors during infection and immune response.”
- Shaoping Zhao, DDS, PhD, Assistant Professor, Department of Periodontics, University of Iowa. R00: “Investigating the role of Tumor Necrosis Factor-Receptor Associated Factor 3 Interacting Protein 2.”

Transitions from Institutional Training Grant Support (T32/T90/R90) 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.

- Jaden Lee, Medical University of South Carolina. NIDCR F30 fellowship to support predoctoral dual degree DMD-PhD training. “The role of surface-bound ectonucleotidase CD73 in modulation of *Porphyromonas gingivalis* infection in gingival epithelial cells.”
- Akinsola Oyelakin, State University of New York at Buffalo. NIDCR diversity F31 fellowship to support predoctoral PhD training. “Molecular analysis of the oncogenic role of p63 in the development and progression of oral squamous cell carcinomas.”

Recent Publications from Trainees

F Fellows

Baker JL, Hendrickson EL, Tang X, Lux R, He X, Edlund A, McLean JS, Shi W.

[Klebsiella and Providencia emerge as lone survivors following long-term starvation of oral microbiota.](#) Proc Natl Acad Sci U S A. 2019 Apr 23;116(17):8499-8504.

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Kaspar JR, Godwin MJ, Velsko IM, Richards VP, Burne RA. [Spontaneously Arising Streptococcus mutans Variants with Reduced Susceptibility to Chlorhexidine Display Genetic Defects and Diminished Fitness.](#) Antimicrob Agents Chemother. 2019 Jun 24;63(7). pii: e00161-19.

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Nguyen JT, Haidar FS, Fox AL, Ray C, Mendonça DB, Kim JK, Krebsbach PH. [mEAK-7 Forms an Alternative mTOR Complex with DNA-PKcs in Human Cancer](#). *iScience*. 2019 Jul 26;17:190-207.

Institutional Training Grant (T32/T90/R90) Trainees

Argyris PP, Slama Z, Malz C, Koutlas IG, Pakzad B, Patel K, Kademani D, Khammanivong A, Herzberg MC. [Intracellular calprotectin \(S100A8/A9\) controls epithelial differentiation and caspase-mediated cleavage of EGFR in head and neck squamous cell carcinoma](#). *Oral Oncol*. 2019 Aug;95:1-10.

Huntley R, Jensen E, Gopalakrishnan R, Mansky KC. [Bone morphogenetic proteins: Their role in regulating osteoclast differentiation](#). *Bone Rep*. 2019 May 5;10:100207.

Jacobs BA, Pando MM, Jennings EM, Jamshidi RJ, Zamora JC, Chavera TS, Clarke WP, Berg KA. [Signaling characteristics and functional regulation of delta opioid-kappa opioid receptor \(DOP-KOP\) heteromers in peripheral sensory neurons](#). *Neuropharmacology*. 2019 Jun;151:208-218.

Pineault KM, Song JY, Kozloff KM, Lucas D, Wellik DM. [Hox11 expressing regional skeletal stem cells are progenitors for osteoblasts, chondrocytes and adipocytes throughout life](#). *Nat Commun*. 2019 Jul 18;10(1):3168.

Roberts RR, Bobzin L, Teng CS, Pal D, Tuzon CT, Schweitzer R, Merrill AE. [FGF signaling patterns cell fate at the interface between tendon and bone](#). *Development*. 2019 Aug 2;146(15).

Witas R, Peck AB, Ambrus JL, Nguyen CQ. [Sjögren's Syndrome and TAM Receptors: A Possible Contribution to Disease Onset](#). *J Immunol Res*. 2019 May 13;2019:4813795.

K Awardees

Meng Y, Wu T, Billings R, Kopycka-Kedzierawski DT, **Xiao J**. [Human genes influence the interaction between *Streptococcus mutans* and host caries susceptibility: a genome-wide association study in children with primary dentition](#). *Int J Oral Sci*. 2019 May 30;11(2):19.

Nascimento MM, Alvarez AJ, Huang X, Hanway S, Perry S, Luce A, Richards VP, Burne RA. [Arginine Metabolism in Supragingival Oral Biofilms as a Potential Predictor of Caries Risk](#). *JDR Clin Trans Res*. 2019 Jul;4(3):262-270.

Swidergall M, Solis NV, Wang Z, Phan QT, Marshall ME, Lionakis MS, Pearlman E, Filler SG. [EphA2 Is a Neutrophil Receptor for *Candida albicans* that Stimulates Antifungal Activity during Oropharyngeal Infection](#). *Cell Rep*. 2019 Jul 9;28(2):423-433.e5.

Wang J, Linxweiler M, Yang W, Chan TA, **Morris LGT**. [Immunomodulatory and immunotherapeutic implications of tobacco smoking in squamous cell carcinomas and normal airway epithelium](#). *Oncotarget*. 2019 Jun 11;10(39):3835-3839.

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Yi Y, Men Y, Jing D, Luo W, Zhang S, Feng JQ, Liu J, Ge WP, Wang J, **Zhao H**. [3-dimensional visualization of implant-tissue interface with the polyethylene glycol associated solvent system tissue clearing method](#). *Cell Prolif*. 2019 May;52(3):e12578.

PUBLICATIONS

Selected Extramurally Funded Science Advances

During the past four months, 435 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

Albert JM, Cho JI, Liu Y, et al. [Generalized causal mediation and path analysis: Extensions and practical considerations](#). Stat Methods Med Res, 2019; 28(6),1793-1807.

Rosenberg J, Albert M, Aspinall C, et al.. [Parent Observations of the Health Status of Infants With Clefts of the Lip: Results From Qualitative Interviews](#). Cleft Palate Craniofac J, 2019; 56(5),646-657.

Wang Y, Hays R, Marcus M, et al. [Development of a parents' short form survey of their children's oral health](#). Int J Paediatr Dent, 2019; 29(3),332-344.

Center for Clinical Research

Aylward A, Abdelaziz S, Hunt JP, Buchmann LO, Cannon RB, Lloyd S, Hitchcock Y, Hashibe M & Monroe MM. [Rates of Dysphagia-Related Diagnoses in Long-Term Survivors of Head and Neck Cancers](#). Otolaryngol Head Neck Surg. 2019 Jun 11; 019459981985015.

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Gueiros LA, France K, Posey R, Mays JW, Carey B, Sollecito TP, Setterfield J, Woo SB, Culton D, Payne AS, Lodi G, Greenberg MS, Rossi SD. [World Workshop on Oral Medicine VII : Immunobiologics for salivary gland disease in Sjögrens syndrome: A systematic review](#). Oral Dis. 2019 Jun;25(S1):102-110.

Huang H, Kong W, Jean M, Fiches G, Zhou D, Hayashi T, Que J, Santoso N, Zhu J. [A CRISPR/Cas9 screen identifies the histone demethylase MINA53 as a novel HIV-1 latency-promoting gene \(LPG\)](#). Nucleic Acids Res. 2019 Jun 5.

Marzouk T, Sathyanarayana S, Kim A, Seminario A, McKinney C. [A Systematic Review of Exposure to Bisphenol A from Dental Treatment](#). JDR Clin Trans Res. 2019 Apr; 4(2):106-115.

Oh H, Knigge R, Hardin A, Sherwood R, Duren D, Valiathan M, Leary E, McNulty K. [Predicting adult facial type from mandibular landmark data at young ages](#). Orthod Craniofac Res. 2019 May;22 Suppl 1:154-162.

Psoter WJ, Morse DE, Kerr AR, Tomar SL, Aguilar ML, Harris DR, Stone LH, Makhija SK, Kaste LM, Strumwasser B, Pihlstrom DJ, Masterson EE, Meyerowitz C; National Dental PBRN Collaborative Group. Prev Med. 2019 Jul;124:117-123.

Rota K, Spanbauer C, Szabo A, Okunseri CE. [Oral Health Practices, Beliefs and Dental Service Utilization of Albanian Immigrants in Milwaukee, Wisconsin: A Pilot Study](#). J Immigr Minor Health. 2019 Apr; 21(2):315-323.

Zhai L, Yadav R, Kunda NK, Anderson D, Bruckner E, Miller EK, Basu R, Muttill P, Tumban E. [Oral immunization with bacteriophage MS2-L2 VLPs protects against oral and genital infection with multiple HPV types associated with head & neck cancers and cervical cancer](#). Antiviral Res. 2019 Jun;166:56-65.

White JM, Mertz EA, Mullins JM, Even JB, Guy T, Blaga E, Kottek AM, Kumar SV, Bangar S, Vaderhobli R, Brandon R, Santo W, Jenson L, Gansky [Developing and Testing Electronic Health Record-Derived Caries Indices](#). SA.Caries Res 2019 Jun 5:1-9.

Integrative Biology and Infectious Diseases

Alhamdi JR, Peng T, Al-Naggar I,M, Hawley KL, Spiller KL, Kuhn LT. [Controlled M1-to-M2 transition of aged macrophages by calcium phosphate coatings](#). Biomaterials 2019;196: 90-99.

- Bertolini M, Ranjan A, Thompson A, Diaz PI, Sobue T, Maas K, et al. [Candida albicans induces mucosal bacterial dysbiosis that promotes invasive infection](#). PLoS Pathog. 2019, 15(4): e1007717.
- Bhatia S, Oweida A, Lennon S, Darragh LB, Milner D, Phan AV, Mueller AC, Van Court B, Raben D, Serkova NJ, Wang WJ, Jimeno A, Clambey ET, Pasquale EB, Karam S. [Inhibition of EphB4-Ephrin-B2 Signaling Reprograms the Tumor Immune Microenvironment in Head and Neck Cancers](#). Cancer Research. 2019 May; 79:2722-2735.
- Hall JW, Lima BP, Herbomel GG, Gopinath T, McDonald L, Shyne MT, Lee JK, Kreth J, Ross KF, Veglia G, Herzberg MC [An intramembrane sensory circuit monitors sortase A-mediated processing of streptococcal adhesins](#). Sci. Signal. 2019, May 7;12(580).
- Hao Y, Yan M, Heath BR, Lei YL, Xie Y. [Fast and robust deconvolution of tumor infiltrating lymphocyte from expression profiles using least trimmed squares](#). PLoS Computational Biology 2019 May; e1006976.
- Hsu SM, Ren F, Abdulhameed N, Kim M, Neal D, Esquivel-Upshaw J. [Comprehensive analysis of laserscanner validity used for measurement of wear](#). J Oral Rehabil. 2019 Jun; 46(6):503-510.
- Khoury S, Piltonen M H, Ton A T, Cole T, Samoshkin A, Smith S B, Belfer I, Slade G D, Fillingim R B, Greenspan J D, Ohrbach R, Maixner W, Neely G G., Serohijos A W R, Diatchenko L. [A functional substitution in the L-aromatic amino acid decarboxylase enzyme worsens somatic symptoms via a serotonergic pathway](#). Ann Neurol. 2019, **86**(2): 168-180.
- Mizunashi K, Nagata K, Matsushita Y, Ono W, Ono N. [Growth Plate Borderline Chondrocytes Behave as Transient Mesenchymal Precursor Cells](#). JMBR. 2019 Mar 19.
- Nam K, Kim K, Dean SM, Brown CT, Davis RS, Okano T, Baker OJ. [Using cell sheets to regenerate mouse submandibular glands](#). NPJ Regenerative Medicine. 2019 16, July 4.
- Saiz AM Jr, Gionet-Gonzales MA, Lee MA, Leach JK. [Conditioning of myoblast secretome using mesenchymal stem/stromal cell spheroids improves bone repair](#). Bone. 2019 Aug; 125: 151-159.
- Wang SK, Hu Y, Smith CE, Yang J, Zeng C, Kim JW, Hu JC, Simmer JP. [The Enamel Phenotype in Homozygous Fam83h Truncation Mice](#). Mol Genet Genomic Med. 2019 Jun;7(6): e724.

Translational Genomics Research

- Jing J, Feng J, Li J, Han X, He J, Ho TV, Du J, Zhou X, Urata M, Chai Y. [Antagonistic interaction between Ezh2 and Arid1a coordinates root patterning and development via Cdkn2a in mouse molars](#). Elife. 2019 Jul 1;8. pii: e46426.
- Sero D, Zaidi A, Li J, White JD, Zarzar TBG, Marazita ML, Weinberg SM, Suetens P, Vandermeulen D, Wagner JK, Shriver MD, Claes P. [Facial recognition from DNA using face-to-DNA classifiers](#). Nat Commun. 2019 Jun 11;10(1):2557.
- Shungin D, Haworth S, Divaris K, et al. [Genome-wide analysis of dental caries and periodontitis combining clinical and self-reported data](#). Nat Commun. 2019 Jun 24;10(1):2773.

Publications from New Investigator R01-funded Projects

- Bigueti CC, Cavalla F, Silveira EV, Tabanez AP, Francisconi CF, Taga R, Campanelli AP, Trombone APF, Rodrigues DC, Garlet GP. [HGMB1 and RAGE as Essential Components of Ti Osseointegration Process in Mice](#). Front Immunol. 2019 Apr 5; 10: 709.
- Serban N, Bush C, Tomar S L. [Medicaid caseload for pediatric oral health care](#). J Am Dent Assoc. 2019 Apr;150(4):294-304.

Selected Division of Intramural Research Publications

Review Articles

De Luca M, Aiuti A, Cossu G, Parmar M, Pellegrini G, Robey PG. [Advances in stem cell research and therapeutic development](#). Nat Cell Biol. 2019 Jul;21(7):801-811.

Gafni RI, Collins MT. [Hypoparathyroidism](#). N Engl J Med. 2019 May 2;380(18):1738-1747.

Hartley I, Zhadina M, Collins MT, Boyce AM. [Fibrous Dysplasia of Bone and McCune-Albright Syndrome: A Bench to Bedside Review](#). Calcif Tissue Int. 2019 May;104(5):517-529.

Vivino FB, Bunya VY, Massaro-Giordano G, Johr CR, Giattino SL, Schorpion A, Shafer B, Peck A, Sivils K, Rasmussen A, **Chiorini** JA, He J, Ambrus JL Jr. [Sjögren's syndrome: An update on disease pathogenesis, clinical manifestations and treatment](#). Clin Immunol. 2019 Jun;203:81-121.

Yamada KM, Collins JW, Cruz Walma DA, Doyle AD, Morales SG, Lu J, Matsumoto K, Nazari SS, Sekiguchi R, Shinsato Y, Wang S. [Extracellular matrix dynamics in cell migration, invasion and tissue morphogenesis](#). Int J Exp Pathol. 2019 Jun 10.

Peer-Reviewed Publications

Burbelo PD, Ferré EMN, Chaturvedi A, Chiorini JA, Alevizos I, Lionakis MS, Warner BM. [Profiling Autoantibodies against Salivary Proteins in Sicca Conditions](#). J Dent Res. 2019 Jul;98(7):772-778.

Mays JW, Carey BP, Posey R, Gueiros LA, France K, Setterfield J, Woo SB, Sollecito TP, Culton D, Payne AS, Greenberg MS, De Rossi S. [World Workshop of Oral Medicine VII: A systematic review of immunobiologic therapy for oral manifestations of pemphigoid and pemphigus](#). Oral Diseases 2019 Jun;25 Suppl 1:111-121.

Roberts MS, Gafni RI, Brillante B, Guthrie LC, Streit J, Gash D, Gelb J, Krusinska E, Brennan SC, Schepelmann M, Riccardi D, Bin Khayat ME, Ward DT, Nemeth EF, Roszkamp R, Collins MT. [Treatment of Autosomal Dominant Hypocalcemia Type 1 With the Calcilytic NPSP795 \(SHP635\)](#). J Bone Miner Res. 2019 May 7.

Silva LM, Lum AG, Tran C, Shaw MW, Gao Z, Flick MJ, Moutsopoulos NM, Bugge TH, Mullins ES. [Plasmin-mediated fibrinolysis enables macrophage migration in a murine model of inflammation](#). Blood 2019 134:291-303.

Solinski HJ, Dranchak P, Oliphant E, Gu X, Earnest TW, Braisted J, Inglese J, Hoon MA. [Inhibition of natriuretic peptide receptor 1 reduces itch in mice](#). Science Translational Medicine.2019: Vol. 11, Issue 500, eaav5464.

Office of Science Policy and Analysis Staff Publication

Garcia NM, Tiano JP, Contreras O, Hildebolt CF, Horsford DJ, Stewart D. [Trends in Academic Dentistry and Oral Health Research Funding by Gender](#). JDR Clin Trans Res. 2019 Aug 3:2380084419868183.

Dental Public Health Program:

Adunola F, Garcia I, Iafolla T, Boroumand S, Silveira ML, Adesanya M, Dye BA. [Self-perceived oral health, normative need, and dental services utilization among dentate adults in the United States: National Health and Nutrition Examination Survey \(NHANES\) 2011-2014](#). J Public Health Dent. 2019 Dec;79(1):79-90.

Janakiram C, Fontelo P, Huser V, Chalmers NI, Lopez Mitnik G, Brow AR, Iafolla TJ, Dye BA. [Opioid Prescriptions for Acute and Chronic Pain Management Among Medicaid Beneficiaries](#). Am J Prev Med. 2019 Aug 1. pii: S0749-3797(19)30216-8.

Weintraub JA, Lopez Mitnik G, Dye BA. [Oral Diseases Associated with Nonalcoholic Fatty Liver Disease in the United States](#). J Dent Res. 2019 Aug 1:22034519866442.

FUNDING UPDATE

Program Announcements

[SBIR/STTR Commercialization Readiness Pilot \(CRP\) Program Technical Assistance and Late Stage Development \(SB1, R44\) Clinical Trial Not Allowed](#)

Release Date: August 5, 2019

[SBIR/STTR Commercialization Readiness Pilot \(CRP\) Program Technical Assistance \(SB1, R44\) Clinical Trial Not Allowed](#)

Release Date: August 5, 2019

[Commercializing Understudied Proteins from the Illuminating the Druggable Genome Project \(IDG\) \(R43/R44 Clinical Trial Not Allowed\)](#)

Release Date: October 24, 2018

[Mechanistic Studies of Gene-Environment Interplay in Dental, Oral, Craniofacial, and Other Diseases and Conditions \(R01 Clinical Trial Not Allowed\)](#)

Release Date: June 5, 2019

[Development of Novel and Robust Systems for Mechanistic Studies of Gene-Environment Interplay in Dental, Oral, Craniofacial, and Other Diseases and Conditions \(R21 Clinical Trial Not Allowed\)](#)

Release Date: June 5, 2019

[Commercializing Understudied Proteins from the Illuminating the Druggable Genome Project \(IDG\) \(R41/R42 Clinical Trial Not Allowed\)](#)

Release Date: July 10, 2019

Request for Applications

["Clinical Trials" on a Chip: Tissue Chips to Inform Clinical Trial Design and Implementation in Precision Medicine \(UG3/UH3 - Clinical Trial Not Allowed\)](#)

Release Date: June 11, 2019

[BRAIN Initiative: Marmoset Colonies for Neuroscience Research \(U24 Clinical Trials Not Allowed\)](#)

Release Date: June 25, 2019

[BRAIN Initiative: Marmoset Coordination Center \(U24 Clinical Trials Not Allowed\)](#)

Release Date: June 25, 2019

[Science of Behavior Change \(SOBC\) Resource and Coordinating Center \(U24 Clinical Trial Not Allowed\)](#)

Release Date: June 27, 2019

[Pilot Projects Investigating Understudied G Protein-Coupled Receptors, Ion Channels, and Protein Kinases \(R03 Clinical Trial Not Allowed\)](#)

Release Date: July 10, 2019

Notices

[Notice of Intent to Publish a Funding Opportunity Announcement for NIH Blueprint for Neuroscience Research Education Program on Translational Devices \(R25\)](#)

Release Date: June 12, 2019

[NIH Expanding Usage of Notices of Special Interest](#)

Release Date: June 14, 2019

[Notice of Special Interest \(NOSI\): Availability of Administrative Supplements for Enhancing Utility and Usage of Common Fund Data Sets](#)

Release Date: July 1, 2019

[Request for Information \(RFI\): Guidance on Current Education Curricula for Health Care Professionals Regarding Pain and Opioid Misuse and Use Disorder](#)

Release Date: July 5, 2019

[Notice of Special Interest \(NOSI\): Accelerate Dissemination of Emerging Glycoscience Tools through Collaborations Between Developers and Early Adopters](#)

Release Date: July 15, 2019

[Request for Information \(RFI\): National Institute of Dental and Craniofacial Research \(NIDCR\) Strategic Plan Fiscal Years 2020-2025](#)

Release Date: July 18, 2019

[Notice of Special Interest: Small Business Innovation Research \(SBIR\) and Small Business Technology Transfer \(STTR\) Applications Directed at the Adoption of the Fast Healthcare Interoperability Resources \(FHIR\) Standard](#)

Release Date: July 30, 2019

[Notice of NIDCR's Participation in PAR-18-831 "The Role of Epitranscriptomics in Development and Disease \(R21 - Clinical Trial Not Allowed\)"](#)

Release Date: August 2, 2019

[Notice of NIDCR's Participation in PAR-18-830 "The Role of Epitranscriptomics in Development and Disease \(R01 - Clinical Trial Not Allowed\)"](#)

Release Date: August 2, 2019

[Notice of Correction to RFA-RM-19-008 NIH Directors Early Independence Awards \(DP5 Clinical Trial Optional\)](#)

Release Date: August 2, 2019