

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

## **September 2018**

### **ACTIVITIES OF THE NIDCR DIRECTOR AND DEPUTY DIRECTOR**

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on May 25, 2018, NIDCR Director Martha J. Somerman, DDS, PhD, and NIDCR Deputy Director Douglas M. Sheeley, ScD, have maintained active schedules attending research symposia, delivering presentations to stakeholders, and meeting with working groups and other organizations. Among their notable activities during the last four months are the following:

- Dr. Somerman hosted a webinar on May 14 with Hacettepe University (located in Turkey). Other NIDCR staff and NIH leadership participated and provided short presentations, including Dr. Roger Glass, director of Fogarty International Center, and Dr. Bill Gahl, director of the NIH Undiagnosed Diseases Program. Dr. Somerman also gave two talks: "Overview of NIH & NIDCR," and "Genes/proteins associated with the mineralization process in health and disease."
- Dr. Somerman, Dr. Sheeley, NIH Principal Deputy Director Dr. Lawrence Tabak, and several other NIDCR staff met in Washington DC on May 25 with the US Surgeon General, Dr. Jerome Adams, regarding the preparation of an updated Surgeon General's Report on oral health in 2020.
- Dr. Somerman provided the closing remarks at the NIH Pain Consortium Symposium held on the NIH Bethesda campus on June 1.
- Dr. Somerman met on June 5 with Dr. Diane Bianchi, director of the Eunice Kennedy Shriver National Institute of Child Health and Human Development, to discuss shared research interests and opportunities, including research on craniofacial birth defects and Down syndrome.
- Dr. Somerman attended the 2018 American Dental Education Association's Commission on Change and Innovation in Dental Education Meeting on June 6 in Baltimore and presented a talk titled "The Art of Dental, Oral, and Craniofacial Research."
- Dr. Somerman presented a talk, "Genes/proteins associated with the mineralization process in health and disease" on June 15 for the NIDCR Craniofacial and Skeletal Diseases Branch seminar series, held on the NIH Bethesda campus.
- She provided opening remarks and introduced Dr. Tabak at the Annual NIH Common Fund Glycoscience All Hands Meeting held July 2 on the NIH Bethesda campus. Dr. Sheeley was involved in organizing this event, along with representatives from the National Institute of General Medical Sciences.
- Dr. Somerman participated in a panel discussion session titled "Future Careers in Research and Dentistry" on July 10 on the NIH Bethesda campus. This session was held for the NIDCR intramural summer dental students and the Medical Research Scholars Program (MRSP) students.
- She attended the International Association for Dental Research (IADR)/Pan European Regional Congress General Session & Exhibition in London, held July 25-28. At the meeting, she received the 2018 IADR Distinguished Scientist Award for Basic Research in Biological Mineralization. Dr. Somerman also participated in the following events:

- July 25. Dr. Somerman gave a presentation, “Do phosphate modulators and SIBLINGS share common pathways during formation/regeneration of the dentoalveolar complex?”
  - July 26. She participated in the IADR Meet-a-Mentor Luncheon Session
  - July 26. Dr. Somerman gave a presentation, “NIDCR: Advancing Dental, Oral, and Craniofacial Health through Research.”
- Dr. Somerman, Dr. Tabak, Dr. Francis Collins, director of the NIH, and several other Institute directors, met with US Senator Tom Udall of New Mexico on July 30 to discuss NIH-supported research on the microbiome. Dr. Somerman provided a 5-minute overview of NIDCR and participated in a 10-minute panel and group discussion with other NIH leaders.
  - Dr. Somerman, Dr. Jonathan Horsford, acting director of the NIDCR Office of Science Policy and Analysis, and Ms. Karina Boehm, director of the NIDCR Office of Communications and Health Education, traveled to Chicago August 7-8 to observe focus groups co-organized with the American Dental Association (ADA). Conducted with practicing dentists, the focus groups were designed to assess dentists’ interest in science and how to bridge the communication gap between clinicians and researchers.
  - Dr. Somerman hosted a Legislative Summit meeting on August 15 and met with the following attendees:
    - Lindsey Horan, MA, assistant director of government affairs for the American Association for Dental Research
    - Timothy Leeth, CPA, chief advocacy officer; Christina McWilson Thomas, JD, director of government affairs; Phillip Mauller, MPS, senior manager for advocacy and government Relations; and Ryne Chua, MPA, program manager for advocacy and governmental Relations; all representing ADEA.

**BUDGET UPDATE**

**FY 2018**

The FY 2018 enacted budget for NIDCR is \$447,735,000. This amount will be reduced by \$1,052,000 for the Secretary’s transfer to support the Administration for Children and Families program, yielding an operating level of \$446,683,000.

**FY 2019**

We have not received updates regarding the FY19 budget at this time.

<b>National Institute of Dental and Craniofacial Research FY 2018 Operating Plan</b>		
<b>Research Grants:</b>	<b>No.</b>	<b>Amount</b>
<b>Research Projects</b>		
Noncompeting	414	208,091,640
Administrative Supplement	(19)	2,500,000
Competing	192	75,799,447
<b>Subtotal</b>	<b>606</b>	<b>286,391,087</b>
SBIR/STTR	24	12,735,271
<b>Research Project Grants</b>	<b>630</b>	<b>299,126,358</b>
<b>Research Centers</b>	<b>1</b>	<b>3,129,206</b>
<b>Other Research</b>		
Research Careers	53	8,643,548
Other	22	9,213,025
<b>Subtotal Other Research</b>	<b>75</b>	<b>17,856,573</b>
<b>Total Research Grants</b>	<b>706</b>	<b>320,112,137</b>
<b>Research Training</b>	<u>FTTPs</u> 247	11,911,110
<b>Research &amp; Development Contracts</b>	16	19,348,753
<b>Total Extramural Research</b>		<b>351,372,000</b>
<b>Intramural Research</b>	145	68,303,000
<b>Research Management and Support</b>	90	28,060,000
<b>Total, NIDCR</b>		<b>447,735,000</b>

## HHS/NIH UPDATE

### [NIH Director and IC Directors Testify to Senate Regarding Agency Stewardship](#)

On August 23, NIH Director Francis Collins, MD, PhD, testified before the Senate Health, Education, Labor, and Pensions Committee regarding NIH's diverse investments in biomedical research and the many scientific opportunities on the horizon. Dr. Collins was accompanied by Diana W. Bianchi, MD, director of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD); Anthony S. Fauci, MD, director of the National Institute of Allergy and Infectious Diseases (NIAID); Richard Hodes, MD, director of the National Institute on Aging (NIA); and Norman E. "Ned" Sharpless, MD, director of the National Cancer Institute (NCI). That day, Dr. Collins issued a [Statement on Protecting the Integrity of U.S. Biomedical Research](#), which emphasizes the importance of researchers disclosing substantial contributions of resources from non-federal organizations, including foreign governments.

### [Testimony on 21st Century Cures Implementation](#)

On July 25, NIH Director Dr. Collins, along with NCI Director Dr. Sharpless, and Stephanie Devaney, PhD, deputy director of the *All of Us* Research Program, appeared before the House Committee on Energy and Commerce Subcommittee on Health to provide updates on implementation of the 21<sup>st</sup> Century Cures Act. They highlighted progress in the areas of big data,

inclusion, strengthening the biomedical workforce, system innovation, the Precision Medicine Initiative, the BRAIN Initiative, the Cancer Moonshot, and the Regenerative Medicine Innovation Project (RMIP). On August 1, [a new round of RMIP funding opportunity announcements](#) were published to solicit new investigator-initiated projects, which may either involve a clinical trial or entail late-stage Investigational New Drug- or Investigational Device Exemption-enabling clinical research.

#### **[FY 2018 Research Plan for HEAL Initiative](#)**

In a Viewpoint published July 10 in the *Journal of the American Medical Association*, NIH leadership details components of a newly released research plan for the [Helping to End Addiction Long-term \(HEAL\)](#) Initiative. With a focus on two primary areas—improving treatments for opioid misuse and addiction and enhancing strategies for pain management—the plan describes a multifaceted program encompassing pre-clinical, clinical, drug repurposing, and community-based approaches.

#### **[HHS Hosts Pain Management Inter-Agency Task Force](#)**

On June 1, HHS Secretary Alex M. Azar II, JD, announced that HHS hosted the first meeting of the Pain Management Best Practices Inter-Agency Task Force, a critical component of the 2016 Comprehensive Addiction and Recovery Act. This body is charged with reviewing current best practices, identifying gaps in practice, and developing recommendations to improve pain management.

#### **[Notification of Patient Overdose Deaths Reduces Opioid Prescriptions](#)**

Clinicians who have been notified that a patient has died from an overdose from a controlled substance were more likely to reduce the number and dosage of opioid drugs they prescribed than those not notified, according to a recent study appearing in the August 10 issue of *Science*. The study was funded in part by NIA. "This finding could be very useful in the effort to reduce inappropriate prescribing of opioids without severely restricting availability of legally prescribed opioids for patients who should be getting them," said NIA Director Dr. Hodes.

#### **[Udall Visits NIH to Discuss Human Microbiome Efforts](#)**

On July 30, US Senator Tom Udall of New Mexico met with NIDCR Director Dr. Somerman, NIAID Director Dr. Fauci, National Institute of Diabetes and Digestive and Kidney Diseases Director Griffin P. Rodgers, MD, and Human Microbiome Project Director Lita M. Proctor, PhD, of the National Human Genome Research Institute to discuss trans-NIH research efforts related to the microbiome. Senator Udall also met with NIH Director Dr. Collins and toured the NIH Clinical Center.

#### **[Standard Treatment for HPV-positive Oropharyngeal Cancer Shows Benefits vs. Cetuximab with Radiation](#)**

An interim analysis of data from a randomized clinical trial of patients with human papillomavirus (HPV)-positive oropharyngeal cancer found that treatment with radiation therapy and cetuximab is associated with worse overall and progression-free survival compared to the current standard treatment with radiation and cisplatin. Full study details will be presented in the plenary session at the American Society for Radiation Oncology Annual Meeting in San Antonio on October 22. Findings from the trial will later be published in a peer-reviewed journal. The trial was funded by NCI and led by NRG Oncology, part of NCI's National Clinical Trials Network.

#### **[Modernizing Human Gene Therapy Oversight](#)**

NIH Director Dr. Collins and Food and Drug Administration Commissioner Scott Gottlieb, MD, reflected on the history and future of the agencies' respective roles in ensuring the safety of gene therapy in a Perspective published in the *New England Journal of Medicine* on August 15. The co-authors described the rationale of a new proposal, published in the Federal Register, to streamline oversight by eliminating unnecessary duplicative reporting requirements. Public comments on the proposed changes may be submitted until October 16.

#### **[NIH Releases Strategic Plan for Data Science](#)**

On June 4, NIH released its first Strategic Plan for Data Science, which provides a roadmap for modernizing the NIH-funded biomedical data science ecosystem. As a step to implement the goals of the plan, the NIH announced on July 24 [a new initiative](#) called STRIDES (Science and

Technology Research Infrastructure for Discovery, Experimentation, and Sustainability) to harness the power of commercial cloud computing and provide NIH biomedical researchers access to the most advanced, cost-effective computational infrastructure, tools, and services available. The STRIDES initiative launches with Google Cloud as its first industry partner. This initiative is a part of the [New Models of Data Stewardship \(NMDS\) Program](#).

### [NIH Launches INCLUDE Project](#)

In June, NIH launched the INCLUDE (INvestigation of Co-occurring conditions across the Lifespan to Understand Down syndromE) project in support of a Congressional directive in the FY 2018 Omnibus Appropriations. The directive calls for a new trans-NIH research initiative on critical health and quality-of-life needs for individuals with Down syndrome. Noting the involvement of multiple organ systems in Down syndrome and its co-occurring conditions, this effort will take advantage of the full range of existing resources across NIH, integrating the expertise of at least 18 NIH institutes and centers, including NIDCR.

### [Communicating the Value of Race and Ethnicity in Research](#)

In a perspective piece for the Science, Health, and Public Trust section of the NIH website, Eliseo J. Pérez-Stable, MD, director of the National Institute on Minority Health and Health Disparities (NIMHD), explained that in order to advance health for everyone and reduce health disparities, more racial and ethnic minorities should be included in clinical studies. Growing evidence suggests that race and ethnicity play an important role in the risks for many diseases and responses to environmental exposures. Dr. Pérez-Stable emphasized that we can't work to reduce health disparities if we don't understand the underlying mechanisms.

### [Advancing Pediatric Research on a Global Level](#)

Because nearly all of NIH's 27 NIH institutes and centers fund some aspects of child health research, NIH has formed the Trans-NIH Pediatric Research Consortium to coordinate efforts. The new consortium aims to explore gaps and opportunities in the overall pediatric research portfolio and set priorities.

### [NIH Announces 2018-2019 MRSP Class](#)

NIH has selected 37 talented students for the Medical Research Scholars Program. The research training program allows medical, dental, and veterinary students to pause their university studies to live on the intramural campus of NIH and conduct basic, clinical, or translational research. The accepted scholars, including two dental students and a medical student working in NIDCR labs, began their fellowships in July and August. David Cruz Walma of the University of Alabama School of Dentistry is conducting research in the lab of Kenneth Yamada, MD, PhD, chief of the NIDCR cell biology section. Quynh Nguyen, of the University of Mississippi Medical Center School of Dentistry, is working in the lab of Janice Lee, DDS, MD, NIDCR clinical director and senior clinical investigator in the craniofacial anomalies and regeneration section. Tiahna Spencer, of the University of Connecticut School of Medicine, is working in the lab of Michael Collins, MD, senior clinical investigator in NIDCR's Skeletal Disorders and Mineral Homeostasis Section.

### [NIH-funded Scientists Put Socioeconomic Data on the Map](#)

On June 29, NIMHD announced the release of the Neighborhood Atlas, a new tool to help researchers visualize socioeconomic data at the community level. Researchers, policymakers, and front-line health and social service personnel can use the Neighborhood Atlas to study fundamental social-biological mechanisms of health and disease, develop or study the impact of health policy, or better align resources.

### [NIH Clinical Center Releases Dataset of 32,000 CT Images](#)

The NIH Clinical Center has made a large-scale dataset of CT images publicly available to help the scientific community improve detection accuracy of lesions. This dataset, named DeepLesion, has more than 32,000 annotated lesions identified on CT images and includes critical radiology findings from across the body, such as lung nodules, liver tumors, and enlarged lymph nodes.

## **NIDCR UPDATE**

### **Institute News**

#### **Surgeon General's Report on Oral Health in the Works**

The US Department of Health and Human Services, the Office of the Surgeon General, the US Public Health Service's Oral Health Coordinating Committee, and NIH have announced the commission of a Surgeon General's Report on oral health. NIDCR will serve as the main federal organization working with Surgeon General Jerome M. Adams MD, MPH, to produce the report. The new report will document progress in oral health since 2000, when the landmark Surgeon General's report "Oral Health in America" was published. The Centers for Disease Control and Prevention Division of Oral Health will host a stakeholder meeting September 16 to 17 to identify and discuss significant oral health-related topics which will inform the upcoming report; a video recording of the event will be made available at a later date.

#### **Dentists Play Vital Role in Addressing Opioid Crisis**

A July 25 commentary by NIDCR Director Dr. Somerman, and National Institute on Drug Abuse Director Nora Volkow, MD, notes the important role dentists can play in helping to address the nation's opioid crisis. Published in the *Journal of the American Dental Association*, "[The Role of the Oral Health Community in Addressing the Opioid Overdose Epidemic](#)," outlines NIH-funded efforts that aim to inform clinical decision making related to opioid prescribing. The coauthors also highlight the importance of partnerships between clinicians and researchers.

#### **Hoffman Appointed NIDCR Scientific Director**

In July, Matthew P. Hoffman, BDS, PhD, was named scientific director of NIDCR's intramural research division after a national search. In his new position, Hoffman will provide leadership and managerial oversight for creating and maintaining a productive research environment within the Institute's Division of Intramural Research (DIR). Hoffman has been with NIDCR for nearly 25 years, serving most recently as deputy scientific director of DIR since August 2016. He will continue to serve as senior investigator in DIR's Matrix and Morphogenesis Section, where he studies salivary gland development toward a long-term goal of advancing potential therapies to repair and regenerate glands and other tissue types.

In August, [Marian Young, PhD](#), was named deputy scientific director of DIR, filling the position vacated by Hoffman. Young came to NIDCR in 1981 as a postdoctoral fellow and has since advanced to serve as a senior investigator and chief of the molecular biology of bones and teeth section.

#### **Somerman & Tabak Honored at IADR General Session**

The International Association for Dental Research named Dr. Somerman as the 2018 recipient of the IADR Distinguished Scientist Award in Basic Research in Biological Mineralization. Dr. Somerman was recognized at the opening ceremonies of the 96<sup>th</sup> General Session of the IADR in London, held July 25-28. The award is one of 17 IADR Distinguished Scientist Awards. NIH Deputy Director Lawrence A. Tabak, DDS, PhD, received the inaugural IADR Gold Medal, the highest recognition bestowed by the IADR. This award for excellence is presented to a previous recipient of an IADR Distinguished Scientist Award who has since built on their scientific accomplishments to have a broader impact on science.

#### **New NCCIH Director To Join NIDCR's Intramural Research Team**

On Wednesday, August 30, NIH Director Francis Collins announced the selection of Helene M. Langevin, MD, CM, as director of the National Center for Complementary and Integrative Health (NCCIH). Langevin is expected to join NIH in November 2018, and she will have laboratory in NIDCR's Division of Intramural Research on the NIH campus in Bethesda, MD.

#### **Somerman Highlighted in *Incisal Edge***

In July, Dr. Somerman was featured as one of "dentistry's 32 most influential people" in the quarterly publication *Incisal Edge*, a lifestyle magazine for dental professionals. The article highlights her achievements at the helm of the government's primary dental-research organization and notes that she continues to run her own lab, which has published 28 papers over the past seven years.

### [NIDCR Co-organizes NIH Annual Pain Consortium Symposium 2018](#)

Yolanda Vallejo, PhD, director of the Orofacial Pain & Temporomandibular Disorders Program in NIDCR's Division of Extramural Research, co-organized and participated in the 2018 NIH Pain Consortium Symposium titled "From Science to Society: At the Intersection of Chronic Pain Management and the Opioid Crisis," held May 31 to June 1 on the NIH campus in Bethesda. Keynote presentations were given by Francis Collins, MD, director of NIH, and VADM Jerome Adams, MD, MPH, the US Surgeon General. Junior investigators were also highlighted

### Personnel Update

In August, Kathryn Stein, PhD, of the Translational Genomics Research Branch in NIDCR's Division of Extramural Research was appointed director of the Developmental Biology and Genetics Program upon the retirement of Steven Scholnick, PhD. As director, Dr. Stein will be managing a portfolio of grants and cooperative agreements in basic science studies utilizing a variety of model organisms and cultures of cranial neural crest cells, as well as functional studies of genetic variants identified in humans as being associated with craniofacial dysmorphologies, including gene-environment interactions. Dr. Stein came to NIDCR in 2015 as a health specialist. Prior to joining NIDCR, Dr. Stein was a scientific health analyst at NCI. She earned a PhD in cell and developmental biology from the University of California, Davis. She was a postdoctoral fellow at NIDDK in the laboratory of Andy Golden, PhD, studying factors required for fertilization and activation of the cell cycle in the one-cell embryo of *C. elegans*.

Robert C. Angerer, PhD, scientific director for NIDCR, retired on May 31 after 14 years at NIDCR. Dr. Angerer was appointed scientific director in 2004 and oversaw major changes in NIDCR's Division of Intramural Research, including the adoption of a 'flat' reporting structure in 2016. He also managed his own laboratory, which used sea urchins as a model for studying neural development.

Larry W. Fisher, PhD, a scientist in the Division of Intramural Research's Matrix Biochemistry Branch, retired in July 2018 after 37 years at NIDCR. He came to NIDCR in 1981 as a fellow and was appointed as chief of the Matrix Biochemistry Section in 1990. His research focused on the shared and unique functions of the integrin-binding SIBLING family of proteins; in particular, his work explored their role in oral diseases such as dentinogenesis imperfecta and dentin dysplasia.

Laura K. Kerosuo, PhD, joined the Division of Intramural Research as a Stadtman tenure-track investigator in July. Dr. Kerosuo comes to NIDCR from the California Institute of Technology, where she investigated stem cell characteristics of the neural crest. Her laboratory will focus on understanding the molecular mechanisms behind neural crest "stemness," how cell fate choices are made, and the extent of heterogeneity in neural crest potential in order to provide a comprehensive picture of early neural crest development and better understand the etiology of neural crest-derived diseases.

Nadya Lumelsky, PhD, director of NIDCR's Tissue Engineering and Regenerative Medicine Program, and Lillian Shum, PhD, director of the NIDCR Division of Extramural Research, received NIH Director's Awards as part of the Regenerative Medicine Innovation Project Team. Dr. Lumelsky received this honor for conceptualizing and implementing the Regenerative Medicine Innovation Project to accelerate progress and stimulate innovation and partnerships in regenerative medicine using adult stem cells. Dr. Shum served on the Senior Oversight Committee.

### Meetings and Conferences

#### **Staff Presentations**

Nadya Lumelsky, PhD, director of the Tissue Engineering and Regenerative Medicine Program in NIDCR's Division of Extramural Research, presented a poster at the Gordon Research Conference held August 19-24 in Watherville, NH. The poster was titled "Tissue niches and resident stem cells in adult epithelia." At the meeting, Dr. Lumelsky interacted with current and

prospective NIDCR grantees in a small group setting and discussed current and future research directions of the Institute.

Chiayeng Wang, PhD, director of the Oral and Salivary Gland Cancer Biology Program in NIDCR's Division of Extramural Research, presented at the ASTRO Research Workshop on "Targeting the Tumor Microenvironment in Radiation Oncology" held July 26-27 in Washington, DC. The workshop focused on effects of the tumor microenvironment on the efficacy and side-effects of radiotherapy, and its impact on patient health and survival. Dr. Wang also provided outreach to the investigators during the meeting activities.

Darien Weatherspoon, DDS, MPH, director of the Health Disparities Research Program in NIDCR's Division of Extramural Research, presented on "Head and Neck Cancer Inequities in African Americans" at the Minority Faculty Research Forum at the National Dental Association Convention held on July 12 in Orlando, Florida.

On July 12, Dena Fischer, DDS, MSD, MS, director of Clinical Trials Research in NIDCR's Division of Extramural Research, participated on a career panel titled "Future Careers in Research and Dentistry," organized by NIDCR's Office of Education and held on the NIH main campus in Bethesda, MD.

Chiayeng Wang, PhD, spoke in the "NIH Program Funding" session of the 43rd International Symposium on Ultrasonic Imaging and Tissue Characterization, held May 30-June 1 in West Arlington Gateway, Arlington, Va. Dr. Wang provided an introduction of new NIDCR-issued funding opportunity announcements on precision imaging of oral lesions. She also provided outreach to investigators during the meeting.

Leslie Frieden, PhD, extramural training officer in the Research Training & Career Development Branch, participated in the NIH Office of Intramural Research Training Graduate and Professional School Fair on July 17 at the NIH campus in Bethesda. Dr. Frieden met with undergraduate students regarding oral, dental, and craniofacial research careers.

Jonathan Horsford, PhD, acting director of the Office of Science Policy and Analysis (OSPA), and Wendy Knosp, PhD, legislative liaison and science policy analyst in OSPA, hosted staff from the American Dental Association on a visit to the NIH campus on June 20. Drs. Horsford and Knosp presented an overview of NIDCR and led staff on a tour of two intramural salivary gland laboratories and the dental clinic.

### **Staff Attendance**

Bruce Dye, DDS, MPH, director of the NIDCR Dental Public Health & Informatics Fellowship Program, attended the USPHS Annual Scientific and Training Symposium, held June 4-7 in Dallas.

NIDCR Division of Extramural Research staff attended the following meetings:

- Artificial Intelligence in Medical Imaging Workshop, held August 23-24 in Bethesda, Md
- Forum for Regenerative Medicine, held July 23-24 in Washington, DC
- Next Generation Dx Summit, held August 20-24 in Washington, DC
- Research on Older Adults with Diabetes Receiving Long-Term Care Services Meeting, held May 29 in Bethesda, Md
- NIH Common Fund High-Risk High-Reward Symposium, held June 6-8 in Bethesda, Md
- Society for Epidemiologic Research annual meeting, held June 20-22 in Baltimore, Md
- 2018 Structural Biology Conference Related to HIV/AIDS, held June 28 in Bethesda, Md
- Treatment of Diabetes and Urinary Tract Infection: Evidence and Research Methods from Studies in Nursing Homes and Skilled Nursing Facilities Workshop, held July 13 in Bethesda, Md

## **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.

### **NIDCR FARE Award Recipients**

On June 27, four NIDCR trainees were announced as recipients of 2019 NIH Fellows Awards for Research Excellence (FARE): Marit Aure (Jacqueline May's group), Jiaoyang Lu (Kenneth Yamada's group), Reut Shainer (Marian Young's group), and Blake Warner (Jay Chiorini's Group). They were among 237 award winners across NIH. This competition provides recognition for the outstanding scientific research performed by intramural postdoctoral fellows. Winners of FARE awards each receive a \$1,000 stipend to attend a scientific meeting at which they will present their research findings.

### **Three-Minute-Talk Science Communication Competition**

The NIDCR Office of Education co-hosted participation in the Three-Minute-Talk Science Communication Competition, held July 16. Fourteen graduate students, postdoctoral fellows, and clinical fellows from NHGRI, NICHD, NEI, NIAMS, and NIDCR competed as finalists in this event. They attended two training sessions led by the Alan Alda Center for Communicating Science and had two one-on-one professional coaching sessions in public speaking. A panel of distinguished judges scored each presentation. The top three presenters from NHGRI, NIAMS, and NICHD received travel awards.

### **Grant-Writing Seminar**

The NIDCR Office of Education conducted its annual grant-writing seminar, held on August 21, and co-hosted with NEI, NHGRI, NICHD, and NIAMS. Seventy attendees participated in two half-day activities. The morning session was a seminar on key changes in the preparation of NIH applications. The afternoon session was a small workshop with six participants, focused on developing the specific aims portion of a grant. Participants in this workshop submitted drafts of their project's specific aims prior to the session for discussion and critique by the group.

### **NIDCR Summer Dental Student Award**

The 2018 NIDCR Summer Dental Student Award (SDSA) Program hosted 12 dental students from across the United States. The recipients were selected from eight dental schools: Columbia University College of Dental Medicine, Howard University College of Dentistry, Boston University School of Dental Medicine, University of Texas/San Antonio School of Dentistry, University of Maryland School of Dentistry, and University of California/San Francisco School of Dentistry.

### **NIDCR Summer Program**

Twenty-five high school, undergraduate, dental, and medical students participated in the 2018 NIH Summer Internship Program. Twelve of the students were NIDCR SDSA recipients and another was an NIDCR Office of Education-sponsored student from an underrepresented group in biomedical research. Highlights of this year's summer activities included the summer student research introduction and welcome reception, field trips to the Samuel D. Harris National Dental Museum and the University of Maryland Baltimore Dental School to hear research presentations from students participating in their program, a career panel discussion on "Future Careers in Research and Dentistry," summer project oral presentations by three NIDCR summer dental students for the NIDCR research community, and participation in the NIDCR and NIH Poster Day sessions.

### **Research Training and Career Development Branch Outreach**

The NIDCR Research Training and Career Development Branch 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, to disseminate information on research training opportunities and engage investigators as potential research mentors, and to develop research training programs that are responsive to the research training and career development needs of the extramural research workforce.

## Highlights of Trainee Scientific Achievements

### Trainees Who Have Achieved Subsequent NIH Grants

#### *First R01/U01s*

- Lisa Chung, DDS, MPH, former NIDCR T32 postdoctoral trainee, Associate Clinical Professor, Department of Preventive and Restorative Dental Sciences, University of California, San Francisco. (NIDCR) U01: “Centering Pregnancy Oral Health Promotion (CPOP) Clinical Trial”
- Yenisel Cruz-Almeida, MSPH, PhD, former NIDCR T90 postdoctoral trainee, Assistant Professor, Department of Aging & Geriatric Research, University of Florida College of Medicine. (NIA) R01: “Mechanisms of Oxytocin Analgesia in Older Adults”
- Jonathan Song, PhD, former NIDCR T32 predoctoral trainee, Assistant Professor, Department of Mechanical and Aerospace Engineering, The Ohio State University. (NHLBI) R01: “Biophysical-based approach for controlling blood vessel structure and function.”
- Joseph Wallace, PhD, former NIDCR F32 postdoctoral fellow, Associate Professor, Department of Biomedical Engineering, Indiana University. (NIAMS) R01: “Targeting collagen as an interventional approach to improve bone material properties”  
Lin Zeng, PhD, former NIDCR postdoctoral T32 trainee, Research Assistant Professor, Department of Oral Biology, University of Florida. (NIDCR) R01: “Gene Regulation and Physiology of *Streptococcus mutans*”

#### *Pathway to Independence Awards (K99/R00); transitions to tenure track research faculty position (R00 phase)*

- Ishmail Abdus-Saboor, PhD, Assistant Professor, Department of Biology, University of Pennsylvania. R00: “Determining the functions of molecularly defined populations of nociceptors in spinal and dental pain.”
- Brenda Heaton, PhD, Assistant Professor, Department of Health Policy & Health Services Research, Boston University. R00: “Complex Systems Science Approaches to Addressing Oral Health Disparities”
- Gili Naveh, DMD, PhD, Assistant Professor, Department of Oral Medicine, Infection and Immunity, Harvard School of Dental Medicine. R00: “Tooth Movement derived by PDL Cellular Manipulations”

#### *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.

- Matthew Coombs, PhD, Clemson University, NIDCR F32 fellowship to support postdoctoral training, “Structure-function relationships between human temporomandibular lateral capsule-ligament complex tensile stiffness, collagen ultrastructure and ECM composition: Investigation of sexual dimorphisms”
- Benjamin Cross, PhD, State University of New York at Buffalo, NIDCR F32 fellowship to support postdoctoral training, “Glycan binding of oral streptococci and its impact on phagocyte activation”
- Tanner Godfrey, University of Alabama at Birmingham, NIDCR F30 fellowship to support predoctoral dual degree DMD-PhD training, “The Role of Baf45a in Bone Formation”

- Danny Hadaya, University of California, Los Angeles, NIDCR F30 fellowship to support predoctoral dual degree DDS-PhD training, “Defining the transcriptome in Osteonecrosis of the Jaws”
- Kyu Lim Lee, University of Florida, NIDCR F30 fellowship to support predoctoral dual degree DDS-PhD training, “Investigation of the probiotic mechanisms of action of Streptococcus A12”
- Annette Merkel, University of Illinois at Chicago, NIDCR F30 fellowship to support predoctoral dual degree DMD-PhD training, “Endoplasmic Chaperone GRP78 Interacts with DMP1 to Function in Biomineralization”
- Alexandra Rogers, Medical University of South Carolina, NIDCR F30 fellowship to support predoctoral dual degree DMD-PhD training, “The Requirement of ADAMTS5-mediated Cleavage of Aggrecan in Temporomandibular Joint Development”

#### Recent Publications from Trainees

##### *F Fellows*

**Chan KH, Fried D.** [Multispectral cross-polarization reflectance measurements suggest high contrast of demineralization on tooth surfaces at wavelengths beyond 1300 nm due to reduced light scattering in sound enamel.](#) *J Biomed Opt.* 2018 Jun;23(6):1-4.

**Godfrey TC, Wildman BJ, Javed A, Lengner CJ, Hassan MQ.** [Epigenetic remodeling and modification to preserve skeletogenesis in vivo.](#) *Connect Tissue Res.* 2018 Dec;59(sup1):52-54.

**Kartha VK, Alamoud KA, Sadykov K, Nguyen BC, Laroche F, Feng H, Lee J, Pai SI, Varelas X, Egloff AM, Snyder-Cappione JE, Belkina AC, Bais MV, Monti S, Kukuruzinska MA.** [Functional and genomic analyses reveal therapeutic potential of targeting  \$\beta\$ -catenin/CBP activity in head and neck cancer.](#) *Genome Med.* 2018 Jul 20;10(1):54.

**Krueger E, Hayes S, Chang EH, Yutuc S, Brown AC.** [Receptor-Based Peptides for Inhibition of Leukotoxin Activity.](#) *ACS Infect Dis.* 2018 Jul 13;4(7):1073-1081.

Lee J, **Roberts JS, Atanasova KR, Chowdhury N, Yilmaz Ö.** [A novel kinase function of a nucleoside-diphosphate-kinase homologue in \*Porphyromonas gingivalis\* is critical in subversion of host cell apoptosis by targeting heat-shock protein 27.](#) *Cell Microbiol.* 2018 May;20(5):e12825.

**Leonard B, Brand TM, O'Keefe RA, Lee ED, Zeng Y, Kemmer JD, Li H, Grandis JR, Bhola NE.** [BET Inhibition Overcomes Receptor Tyrosine Kinase-Mediated Cetuximab Resistance in HNSCC.](#) *Cancer Res.* 2018 Aug 1;78(15):4331-4343.

**Newton JM, Hanoteau A, Sikora AG.** [Enrichment and Characterization of the Tumor Immune and Non-immune Microenvironments in Established Subcutaneous Murine Tumors.](#) *J Vis Exp.* 2018 Jun 7;(136).

**Nguyen JT, Ray C, Fox AL, Mendonça DB, Kim JK, Krebsbach PH.** [Mammalian EAK-7 activates alternative mTOR signaling to regulate cell proliferation and migration.](#) *Sci Adv.* 2018 May 9;4(5):eaa05838.

**Welsh IC, Hart J, Brown JM, Hansen K, Rocha Marques M, Aho RJ, Grishina I, Hurtado R, Herzlinger D, Ferretti E, Garcia-Garcia MJ, Selleri L.** [Pbx loss in cranial neural crest, unlike in epithelium, results in cleft palate only and a broader midface.](#) *J Anat.* 2018 Aug;233(2):222-242

**Zambrello MA, Schuyler AD, Maciejewski MW, Delaglio F, Bezsonova I, Hoch JC.** [Nonuniform sampling in multidimensional NMR for improving spectral sensitivity.](#) *Methods.* 2018 Apr 1;138-139:62-68.

*Institutional Training Grant (/T32/T90/R90) Trainees and KL2 Scholars*

**Greene SL**, Kau CH, Sittitavornwong S, Powell K, Childers NK, MacDougall M, **Lamani E**. [Surgical Management and Evaluation of the Craniofacial Growth and Morphology in Cleidocranial Dysplasia](#). *J Craniofac Surg*. 2018 Jun;29(4):959-965.

**Masterson EE**, Fitzpatrick AL, Enquobahrie DA, Mancl LA, Eisenberg DTA, Conde E, Hujoel PP. [Dental enamel defects predict adolescent health indicators: A cohort study among the Tsimane' of Bolivia](#). *Am J Hum Biol*. 2018 May;30(3):e23107.

**Mieher JL**, Larson MR, Schormann N, Purushotham S, Wu R, Rajashankar KR, Wu H, Deivanayagam C. [Glucan Binding Protein C of Streptococcus mutans Mediates both Sucrose-Independent and Sucrose-Dependent Adherence](#). *Infect Immun*. 2018 Jun 21;86(7). pii: e00146-18.

**Russell RP**, Fu Y, Liu Y, Maye P. [Inverse agonism of retinoic acid receptors directs epiblast cells into the paraxial mesoderm lineage](#). *Stem Cell Res*. 2018 Jul;30:85-95.

**Settem RP**, Honma K, Shankar M, Li M, LaMonte M, Xu D, Genco RJ, Browne RW, Sharma A. [Tannerella forsythia-produced methylglyoxal causes accumulation of advanced glycation endproducts to trigger cytokine secretion in human monocytes](#). *Mol Oral Microbiol*. 2018 Aug;33(4):292-299.

**Yu B**, Huo L, Liu Y, Deng P, Szymanski J, Li J, Luo X, Hong C, Lin J, Wang CY. [PGC-1 \$\alpha\$  Controls Skeletal Stem Cell Fate and Bone-Fat Balance in Osteoporosis and Skeletal Aging by Inducing TAZ](#). *Cell Stem Cell*. 2018 Aug 2;23(2):193-209.

*K Awardees*

**Andriankaja OM**, Muñoz-Torres FJ, Vivaldi-Oliver J, Leroux BG, Campos M, Joshipura K, Pérez CM. [Insulin resistance predicts the risk of gingival/periodontal inflammation](#). *J Periodontol*. 2018 May;89(5):549-557.

Dutra EH, Ahmida A, Lima A, Schneider S, Nanda R, **Yadav S**. [The effects of alveolar decortications on orthodontic tooth movement and bone remodelling in rats](#). *Eur J Orthod*. 2018 Jul 27;40(4):423-429.

**Harper DE**, Ichesco E, Schrepf A, Hampson JP, Clauw DJ, Schmidt-Wilcke T, Harris RE, Harte SE. [Resting Functional Connectivity of the Periaqueductal Gray Is Associated With Normal Inhibition and Pathological Facilitation in Conditioned Pain Modulation](#). *J Pain*. 2018 Jun;19(6):635.e1-635.e15.

Jing D, Zhang S, Luo W, Gao X, Men Y, Ma C, Liu X, Yi Y, Bugde A, Zhou BO, Zhao Z, Yuan Q, Feng JQ, Gao L, Ge WP, **Zhao H**. [Tissue clearing of both hard and soft tissue organs with the PEGASOS method](#). *Cell Res*. 2018 Aug;28(8):803-818.

Kornbluth M, Campbell RE, Daskalogiannakis J, Ross EJ, Glick PH, Russell KA, Doucet JC, Hathaway RR, Long RE Jr, **Sitzman TJ**. [Active Presurgical Infant Orthopedics for Unilateral Cleft Lip and Palate: Intercenter Outcome Comparison of Latham, Modified McNeil, and Nasoalveolar Molding](#). *Cleft Palate Craniofac J*. 2018 May;55(5):639-648.

**Yu YH**, Doucette-Stamm L, Rogus J, Moss K, Zee RYL, Steffensen B, Ridker PM, Buring JE, Offenbacher S, Kornman K, Chasman DI. [Family History of MI, Smoking, and Risk of Periodontal Disease](#). *J Dent Res*. 2018 Sep;97(10):1106-1113.

## PUBLICATIONS

### Selected Extramurally Funded Science Advances

During the past four months, 297 extramurally funded studies were published in the scientific literature. Below is a list of the most important papers published from each program area.

#### Behavioral and Social Science Research

Hammal Z, Chu WS, **Cohn JF**, Heike C, Speltz ML. [Automatic Action Unit Detection in Infants Using Convolutional Neural Network](#). *Int Conf Affect Comput Intell Interact Workshops*. 2017; 216-221.

Ramírez J, Rodríguez D, Qiao F, Warchall J, Rye J, Aklile E, Chiang AS-C, Marin BC, Mercier PP, Cheng CK, Hutcheson KA, **Shinn EH**, Lipomi DJ. [Metallic Nanoislands on Graphene for Monitoring Swallowing Activity in Head and Neck Cancer Patients](#). *ACS Nano*. 2018; (12)5913-5922.

#### Clinical Research

Akinkugbe AA, Barritt AS, Cai J, Offenbacher S, Thyagarajan B, Khambaty T, Singer R, Kallwitz E, Heiss G, **Slade GD**. [Periodontitis and prevalence of elevated aminotransferases in the Hispanic Community Health Study/Study of Latinos](#). *J Periodontol*. 2018 May 1. doi: 10.1002/JPER.17-0579.

Batliner TS, Tiwari T, Henderson WG, Wilson AR, Gregorich SE, Fehring KA, Brega AG, Swyers E, Zacher T, Harper MM, Plunkett K, Santo W, Cheng NF, Shain S, Rasmussen M, Manson SM, **Albino J**. Randomized Trial of Motivational Interviewing to Prevent Early Childhood Caries in American Indian Children. *JDR Clinical and Translational Research*. doi:10.1177/2380084418787785. Epub 2018 Jul 12.

Jiang W, Ting K, Lee S, Zara JN, Song R, Li C, Chen E, Zhang X, Zhao Z, **Soo C, Zheng Z**. [Fibromodulin reduces scar size and increases scar tensile strength in normal and excessive-mechanical-loading porcine cutaneous wounds](#). *J Cell Mol Med*. 2018 Apr;22(4):2510-2513. doi: 10.1111/jcmm.13516. Epub 2018 Feb 1.

Kranz AM, Duffy E, Dick AW, Sorbero M, Rozier RG, **Stein BD**. [Impact of Medicaid Policy on the Oral Health of Publicly Insured Children](#). *Matern Child Health J*. 2018 Jul 21. doi: 10.1007/s10995-018-2599-6. [Epub ahead of print].

**McCaughey JL**, Leite RS, Gordan VV, Fillingim RB, **Gilbert GH**, Meyerowitz C, Cochran D, Rindal DB, Brady KT. [Opioid prescribing and risk mitigation implementation in the management of acute pain: Results from The National Dental Practice-Based Research Network](#). *J Am Dent Assoc*. 2018 May;149(5):353-362. doi: 10.1016/j.adaj.2017.11.031. Epub 2018 Mar 15.

Miller K, Treloar T, Guelmann M, Rody WJ Jr, **Shaddox LM**. [Clinical Characteristics of Localized Aggressive Periodontitis in Primary Dentition](#). *J Clin Pediatr Dent*. 2018;42(2):95-102. doi: 10.17796/1053-4628-42.2.3. Epub 2017 Oct 31.

**Ortiz AP**, González D, Vivaldi-Oliver J, Castañeda M, Rivera V, Díaz E, Centeno H, Muñoz C, Palefsky J, Joshipura K, **Pérez CM**. [Periodontitis and oral human papillomavirus infection among Hispanic adults](#). *Papillomavirus Res*. 2018 Jun;5:128-133. doi: 10.1016/j.pvr.2018.03.003. Epub 2018 Mar 16.

Simpson S, Fiches G, Jean MJ, Dieringer M, McGuinness J, John SP, Shamay M, Desai P, **Zhu J**, Santoso NG. [Inhibition of Tip60 Reduces Lytic and Latent Gene Expression of Kaposi's Sarcoma-Associated Herpes Virus \(KSHV\) and Proliferation of KSHV-Infected Tumor Cells](#). *Front Microbiol*. 2018 Apr 24;9:788. doi: 10.3389/fmicb.2018.00788. eCollection 2018.

**Trotman CA**, Faraway J, Hadlock T, Banks C, Jowett N, Regan D. [Quantifying Soft Tissue Shape and Symmetry: Patients with Cleft Lip/Palate and Facial Paralysis](#). *Plast Reconstr Surg Glob Open*. 2018 Mar 20;6(3):e1715. doi: 10.1097/GOX.0000000000001715. eCollection 2018 Mar.

#### Integrative Biology and Infectious Diseases

Cai YQ, Wang W, Paulucci-Holthausen A, **Pan ZZ**. [Brain circuits mediating opposing effects on emotion and pain](#). *J Neurosci*. 2018; 38(28): 6340-6349.

Kim D, Liu Y, Benhamou RI, Sanchez H, Simón-Soro A, Li Y, **Hwang G**, Fridman M, Andes DR, **Koo H**. [Bacterial-derived exopolysaccharides enhance antifungal drug tolerance in a cross-kingdom oral biofilm](#). *The ISME Journal* 2018;12:1427–1442. doi: 10.1038/s41396-018-0113-1.

Leach DG, Dharmaraj N, Piotrowski SL, Lopez-Silva TL, Lei YL, Sikora AG, Young S, Hartgerink JD. [STINGel: Controlled release of a cyclic dinucleotide for enhanced cancer immunotherapy](#). *Biomaterials*. 2018 May;163:67-75. doi: 10.1016/j.biomaterials.2018.01.035. Epub 2018 Feb 6.

Lee K, Roberts JS, Choi CH, Atanasov KR, Yilmaz O. [Porphyromonas gingivalis traffics into endoplasmic reticulum-rich autophagosomes for successful survival in human gingival epithelial cells](#). *Virulence* 2018; 9:1, 845-859.

Ogle ME, Krieger JR, Tellier LE, McFaline-Figueroa J, Temenoff JS, **Botchwey EA**. [Dual affinity heparin-based hydrogels achieve pro-regenerative immunomodulation and microvascular remodeling](#). *ACS Biomater Sci Eng*. 2018; 4(4): 20141.

Tampfen M, Fowler T, Markey J, Knott PD, Suva LJ; **Alliston, T**. [Treatment With Anti-Sclerostin Antibody To Stimulate Mandibular Bone Formation](#). *Head Neck*. 2018; 40(7): 1453-1460.

Wang S, Wang H, Ren B, Li X, Wang L, Zhou H, Weir MD, Zhou X, Masri RM, Oates TW, Cheng L, **Xu HHK**. [Drug resistance of oral bacteria to new antibacterial dental monomer dimethylaminohexadecyl methacrylate](#). *Sci Rep*. 2018; Apr 3;8(1):5509.

Woods LT, Camden JM, Khalafalla MG, Petris MJ, Erb L, Ambrus Jr. JL, **Weisman GA**. [P2Y2 R Deletion Ameliorates Sialadenitis In IL-14 \$\alpha\$ -transgenic Mice](#). *Oral Dis*. 2018; 24(5): 761-771.

Woronowicz KC, Gline SE, Herfat ST, Fields AJ, **Schneider, RA**. [FGF And TGF \$\beta\$  Signaling Link Form And Function During Jaw Development And Evolution](#). *Dev Biol*. 2018 May 16. pii: S0012-1606(18)30116-7.

Yang R, Yu T, Kou X, Gao X, **Chen C**, Liu, Zhou Y, **Shi S**. [Tet1 and Tet2 maintain mesenchymal stem cell homeostasis via demethylation of the P2rx7 promoter](#). *Nature Communications* 2018; Mar 9:2143.

Zhang X, Kim D, Shen S, Yuan P, Liu S, Tang Z, Zhang G, Zhou X, Gateno J, Liebschner MAK, **Xia JJ**. [An eFTD-VP framework for efficiently generating patient-specific anatomically detailed facial soft tissue FE mesh for craniomaxillofacial surgery simulation](#). *Biomech Model Mechanobiol*. 2018; April; 17(2): 387–402. doi:10.1007/s10237-017-0967-6.

Zheng J, Chen S, Albiero ML, Vieira GHA, Wang J, Feng JQ, **Graves DT**. [Diabetes Activates Periodontal Ligament Fibroblasts Via NF- \$\kappa\$ B In Vivo](#). *J Dent Res*. 2018; 97(5): 580-588.

#### Translational Genomics Research

Cleves PA, Hart JC, Agogliia RM, Jimenez MT, Erickson PA, Gai L, **Miller CT**. [An intronic enhancer of Bmp6 underlies evolved tooth gain in sticklebacks](#). *PLoS Genet*. 2018 Jun 14;14(6):e1007449. doi: 10.1371/journal.pgen.1007449.

Chiquet BT, Yuan Q, Swindell EC, Maili L, Plant R, Dyke J, Boyer R, Teichgraber JF, Greives MR, Mulliken JB, Letra A, **Blanton SH, Hecht JT**. [Knockdown of Crispld2 in zebrafish identifies](#)

[a novel network for nonsyndromic cleft lip with or without cleft palate candidate genes](#). *Eur J Hum Genet*. 2018 Jun 13 doi: 10.1038/s41431-018-0192-5.

### **Selected Division of Intramural Research Publications**

Chen KG, Mallon BS, Park K, Robey PG, McKay RDG, Gottesman MM, Zheng W. [Pluripotent Stem Cell Platforms for Drug Discovery](#). *Trends Mol Med*. 2018 Jul 10. pii: S1471-4914(18)30136-9. [Epub ahead of print]

Endo Y, Ishiwata-Endo H, Yamada KM. [Cell Adhesion to Anosmin via  \$\alpha 5\beta 1\$ ,  \$\alpha 4\beta 1\$ , and  \$\alpha 9\beta 1\$  Integrins](#). *Cell Adh Migr*. 2018 Mar 4;12(2):93-100.

Hickman HD, Mays JW, Gibbs J, Kosik I, Magádan JG, Takeda K, Das S, Reynoso GV, Ngudiankama BF, Wei J, Shannon JP, McManus D, Yewdell JW. [Influenza A Virus Negative Strand RNA Is Translated for CD8+ T Cell Immunosurveillance](#). *J Immunol*. 2018 Jul 16.

Iglesias-Bartolome R, Molinolo A.A, Abusleme L., Brooks S.R., Callejas-Valera J.L., Edwards D., Doci C., [Moutsopoulos N.M](#), Gutkind J.S., Morasso M.I. 2018. [Transcriptional signature primes human oral mucosa for rapid wound healing](#). *Sci. Transl. Med*. 10, eaap8798.

Lin LC, Elkashty O, Ramamoorthi M, Trinh N, Liu Y, Sunavala-Dossabhoy G, Pranzatelli T, Michael DG, Chivasso C, Perret J, Chiorini JA, Delporte C, Tran SD. [Cross-contamination of the human salivary gland HSG cell line with HeLa cells: A STR analysis study](#). *Oral Dis*. 2018 Jun 20. doi: 10.1111/odi.12920.

Pranzatelli T, Michael DG, Chiorini JA. [ATAC2GRN: optimized ATAC-seq and DNase1-seq pipelines for rapid and accurate genome regulatory network inference](#). *BMC Genomics*. 2018 Jul 31;19(1):563. doi: 10.1186/s12864-018-4943-z.

Sekiguchi R, Yamada KM. [Basement Membranes in Development and Disease](#). *Curr Top Dev Biol*. 2018;130:143-191.

### **Office of Science Policy and Analysis Staff Publications**

Billings M, Holtfreter B, Papapanou PN, Mitnik GL, Kocher T, Dye BA. [Age-dependent distribution of periodontitis in two countries: Findings from NHANES 2009 to 2014 and SHIP-TREND 2008 to 2012](#). *J Periodontol*. 2018 Jun;89 Suppl 1:S140-S158.

Dye BA, Goodwin M, Ellwood RP, Pretty IA. [Digital epidemiology - Calibrating readers to score dental images remotely](#). *J Dent*. 2018 Jul;74 Suppl 1:S27-S33

Eke PI, Thornton-Evans GO, Wei L, Borgnakke WS, Dye BA, Genco RJ. [Periodontitis in US Adults: National Health and Nutrition Examination Survey 2009-2014](#). *J Am Dent Assoc*. 2018 Jul;149(7):576-588.

Hogan R, Goodwin M, Boothman N, Iafolla T, Pretty IA. [Further opportunities for digital imaging in dental epidemiology](#). *J Dent*. 2018 Jul;74 Suppl 1:S2-S9. doi: 10.1016/j.jdent.2018.04.018.

Joshiyura KJ, Muñoz-Torres FJ, Dye BA, Leroux BG, Ramírez-Vick M, Pérez CM. [Longitudinal association between periodontitis and development of diabetes](#). *Diabetes Res Clin Pract*. 2018 Jul;141:284-293.

Mukherjee A, Dye BA, Clague J, Belin TR, Shetty V. [Methamphetamine use and oral health-related quality of life](#). *Qual Life Res*. 2018 Aug 3. [Epub ahead of print]

## **FUNDING UPDATE**

### **Program Announcements**

[Precision Imaging of Oral Lesions \(R01- Clinical Trial Not Allowed\)](#)

Release Date: May 16, 2018

[Precision Imaging of Oral Lesions \(R21-Clinical Trial Not Allowed\)](#)

Release Date: May 16, 2018

[Administrative Supplements for Research on Dietary Supplements \(Admin. Supp.- Clinical Trial Not Allowed\)](#)

Release Date: June 5, 2018

[Global Brain and Nervous System Disorders Research Across the Lifespan \(R21 Clinical Trial Optional\)](#)

Release Date: June 19, 2018

[Administrative Supplements to Promote Diversity in Small Businesses-SBIR/STTR \(Admin Supp Clinical Trial Not Allowed\)](#)

Release Date: June 20, 2018

[Advancing Mechanistic Probiotic/Prebiotic and Human Microbiome Research \(R01 Clinical Trial Not Allowed\)](#)

Release Date: July 25, 2018

[Biologic Factors Underlying Dental, Oral, and Craniofacial Health Disparities \(R21 - Clinical Trial Not Allowed\)](#)

Release Date: June 25, 2018

[Biologic Factors Underlying Dental, Oral, and Craniofacial Health Disparities \(R01 - Clinical Trial Not Allowed\)](#)

Release Date: July 25, 2018

[Electronic Nicotine Delivery Systems \(ENDS\): Basic Mechanisms of Health Effects \(R01 - Clinical Trial Not Allowed\)](#)

Release Date: June 29, 2018

[Electronic Nicotine Delivery Systems \(ENDS\): Basic Mechanisms of Health Effects \(R21 - Clinical Trial Not Allowed\)](#)

Release Date: June 29, 2018

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

Release Date: June 29, 2018

### **Requests for Applications**

[NIH Director's New Innovator Award Program \(DP2 - Clinical Trial Optional\)](#)

Release Date: May 23, 2018

[NIH Director's Transformative Research Award \(R01 - Clinical Trial Optional\)](#)

Release Date: May 23, 2018

[Encouraging Development of Novel Amelogenesis Models \(UG3/UH3 Clinical Trial Not Allowed\)](#)

Release Date: July 11, 2018

[Rare Diseases Clinical Research Consortia \(RDCRC\) for Rare Diseases Clinical Research Network \(U54 Clinical Trials Optional\)](#)

Release Date: June 8, 2018

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

Release Date: July 25, 2018

[Genome Sequencing Center for the Gabriella Miller Kids First Pediatric Research Program \(U24 Clinical Trial Not Allowed\)](#)

Release Date: July 25, 2018

[Regenerative Medicine Innovation Projects \(RMIP\) Investigator-Initiated Studies \(Collaborative U01 Clinical Trial Not Allowed\)](#)

Release Date: August 1, 2018

[Regenerative Medicine Innovation Projects \(RMIP\) Investigator-Initiated Clinical Trials \(UG3/UH3 Clinical Trial Required\)](#)

Release Date: August 1, 2018

[Regenerative Medicine Innovation Projects \(RMIP\) \(UT2 - Clinical Trial Not Allowed\)](#)

Release Date: August 1, 2018

[Regenerative Medicine Innovation Projects \(RMIP\) \(U44 - Clinical Trial Not Allowed\)](#)

Release Date: August 1, 2018

[Discovery of Biomarkers, Biomarker Signatures, and Endpoints for Pain \(R61/R33 Clinical Trial Optional\)](#)

Release Date: August 2, 2018

[Limited competition: Data Management and Resource Repository \(DMRR\) on Extracellular RNA \(U54 Clinical Trial Not Allowed\)](#)

Receipt Date: October 23, 2018

[Advancing Extracellular RNA \(exRNA\) Communication Research: Improved Isolation and Analysis of exRNA-Carrier Subclasses \(UG3/UH3 Clinical Trial Not Allowed\)](#)

Receipt Date: October 23, 2018

[Advancing Extracellular RNA \(exRNA\) Communication Research: Towards Single Extracellular Vesicle \(EV\) Sorting, Isolation, and Analysis of Cargo \(UG3/UH3 Clinical Trial Not Allowed\)](#)

Receipt Date: October 23, 2018

[Novel and Innovative Tools to Facilitate Identification, Tracking, Manipulation, and Analysis of Glycans and their Functions \(U01 Clinical Trial Not Allowed\)](#)

Receipt Date: October 29, 2018

[Innovative Adaptations to Simplify Existing Technologies for Manipulation and Analysis of Glycans \(U01 Clinical Trial Not Allowed\)](#)

Receipt Date: October 29, 2018

## **Notices**

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

Release Date: June 5, 2018

[Notice of Availability of Administrative Supplements for NIH Grants that are NOT Focused on Down Syndrome to Address Specific Down Syndrome Research Objectives](#)

Release Date: June 20, 2018

[Notice of Availability of Administrative Supplements for NIH Grants Focused on Down Syndrome to Address Specific Down Syndrome Research Objectives](#)

Release Date: June 20, 2018

[Notice to Extend the Expiration Date for PAR-15-349 "Health Disparities and Alzheimer's Disease \(R01\)"](#)

Release Date: June 26, 2018

[Notice of Change to Instructions for NOT-OD-18-195 "Notice of Availability of Administrative Supplements for NIH Grants Focused on Down Syndrome to Address Specific Down Syndrome Research Objectives"](#)

Release Date: July 11, 2018

[Notice of Change to Instructions for NOT-OD-18-194 "Notice of Availability of Administrative Supplements for NIH Grants that are NOT Focused on Down Syndrome to Address Specific Down Syndrome Research Objectives"](#)

Release Date: July 11, 2018

[Notice of Availability of Administrative Supplements for Tissue Chip Consortium Awardees: Development of Tissue Chips to Model Nociception, Opioid Addiction and Overdose](#)

Release Date: July 27, 2018