

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

May 2017

ACTIVITIES OF THE NIDCR DIRECTOR

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on January 24, 2017, NIDCR Director Martha J. Somerman, DDS, PhD, and Acting Deputy Director John Kusiak, PhD, have maintained an active schedule of attending research symposia, delivering presentations to stakeholders, and meeting with working groups and other organizations.

During the last four months, Drs. Somerman and Kusiak engaged in a number of notable activities:

Dr. Somerman recorded a short welcome video on January 23 for the National Dental Practice-Based Research Network (NDPBRN) Regional Meetings, as well as a second video for the NDPBRN website.

Dr. Somerman updated the American Dental Association (ADA) Council on Scientific Affairs, via a conference call on February 9, with a report titled "NIDCR FY2016 Budget and Updates."

Dr. Somerman, joined by Jonathan Horsford, PhD, acting director of the Office of Science Policy and Analysis, NIDCR, gave a presentation titled "NIDCR: Enhancing Oral Health through Research and Innovation" on February 28 at the American Association of Dental Research (AADR) Briefing on Capitol Hill.

Dr. Somerman met on March 9 with the new director for the NIH Office of AIDS Research, Maureen Goodenow, PhD, and updated her on recent NIDCR activities and HIV/AIDS research interests of the Institute.

Dr. Somerman, Dr. Kusiak, and other NIDCR staff met on March 17 with Yvonne Maddox, PhD, Bruce Doll, DDS, and Richard Thomas, MD, DDS, who is the new president of the Uniformed Services University of the Health Sciences (USUHS). Dr. Somerman gave a presentation about NIDCR research activities, titled "NIDCR: Guiding Advances in Oral Health Research and Innovation," and she discussed opportunities for collaboration between NIDCR and USUHS.

Dr. Somerman and other NIDCR staff attended the IADR/AADR/CADR General Session from March 21-25 in San Francisco, CA. During that meeting, Dr. Somerman participated in the following events:

Wednesday, March 22:

- Dr. Somerman served as a mentor at the NIDCR/AADR Student Mentoring Breakfast.
- Dr. Somerman attended the NIDCR Trainee Poster Sessions and interacted with the student presenters.
- Dr. Somerman provided an introduction and moderated the NIDCR Trainee Research Oral Sessions.
- Dr. Somerman welcomed the training directors to the NIDCR Training Directors Meeting and spoke with them about recent NIDCR research activities.
- Dr. Somerman announced the launch of a live website for the NIDCR 2030 visioning initiative. Jack Ferracane, PhD, president of AADR, also announced the launch of NIDCR 2030 at the Opening Ceremony.

Thursday, March 23:

- Dr. Somerman provided an update on NIDCR activities at the AADR Institutional Sections, Deans, and Research Deans Meeting.

Friday, March 24:

- Dr. Somerman gave a presentation titled “Precision Health: A Perspective from NIDCR” at the NDPBRN Workshop.

Dr. Somerman and Nadya Lumelsky, PhD, chief of Integrative Biology and Infectious Diseases Branch, attended the Forum on Regenerative Medicine meeting at the National Academies of Sciences, Engineering, and Medicine on March 28 and 29 in Washington, DC.

Dr. Somerman visited the University of Kentucky on March 30 and 31 for Research Day 2017, where she gave the keynote presentation at the dental school and a second presentation to students, both titled “NIDCR: Leading Advances in Oral Health Research and Innovation.”

Dr. Somerman met with the new NIH Clinical Center CEO, James Gilman, MD, on April 11 to provide a brief overview of NIDCR and NIDCR clinical activities.

Dr. Somerman attended the Howard University Annual Research Day on April 13 in Washington, DC. She attended research poster presentations and gave a presentation to the dental students titled “NIDCR: Leading Advances in Oral Health Research and Innovation.”

Dr. Somerman attended the Dental, Oral, and Craniofacial Tissue Regeneration Consortium (DOCTRC) kick-off meeting, led by Dr. Lumelsky, director of NIDCR’s

Tissue Engineering and Regenerative Medicine Research Program in the Division of Extramural Research, on April 17 and 18 to provide opening remarks along with Lillian Shum, PhD, director of NIDCR's Division of Extramural Research.

Dr. Somerman visited the Ohio State University on April 19 and 20 to give a presentation at the college of dentistry, titled "NIDCR: Guiding Oral Health Research and Innovation." She also presented a talk titled "NIDCR: Guiding Advances in Oral and Pharyngeal Cancer Research" at the Ohio State University Comprehensive Cancer Center.

Dr. Somerman updated the American Association of Public Health Dentistry via a conference call on April 23 with a report, titled "NIDCR: Guiding Advances in Oral Health Research and Innovation."

Dr. Somerman gave the keynote address titled "NIDCR: Guiding the Future of Oral Health Research and Innovation" on April 25, at the 6th Annual Research Day at Touro College of Osteopathic Medicine in New York City.

Dr. Somerman hosted an NIDCR 2030 webinar on April 26 with the Friends of NIDCR.

Dr. Somerman became a member of the following committees during the first quarter of 2017:

- NIH Directors Award Review Committee, for a second year
- Temporomandibular Joint Patient Roundtable Steering Committee

Dr. Somerman attended the 2017 Facebase Scientific Meeting May 1 and 2, in Boston, along with Steve Scholnick, PhD, program director of the Developmental Biology and Genetics Program in NIDCR's Division of Extramural Research, and Emily Harris, PhD, MPH, director of NIDCR's Translational Genomics Research Program in the Division of Extramural Research. Dr. Scholnick provided an update on NIDCR initiatives relevant to the craniofacial research community. After Facebase, Dr. Somerman and Dr. Harris met with faculty and staff at Harvard School of Dental Medicine and at Forsyth Institute to provide updates on NIDCR initiatives and engage in conversation with faculty and staff.

Dr. Somerman gave a presentation titled "NIDCR: Enhancing Oral Health through Research and Innovation" at the 2017 Mid-Atlantic Dental Meeting on May 5 at the Walter E. Washington Convention Center in Washington, DC. That afternoon, Dr. Somerman, along with Dr. Shum, Dr. Horsford, and Wendy Knosp, PhD, health science policy analyst in NIDCR's Office of Science Policy and Analysis, met with the Federation of American Societies for Experimental Biology (FASEB) public affairs committee to discuss how NIDCR and FASEB could work together to advance biomedical research.

On May 8, Dr. Somerman and NIDCR executive staff attended the NIDCR mid-year executive staff retreat, where several topics were discussed, including: change management, an update and discussion of next steps for NIDCR 2030, an update on the Dental Public Health Residency program, and NIDCR's new email system.

Dr. Somerman was invited to deliver the 2017 Joseph L. Rabinowitz Memorial Lecture at Research Day at the University of Pennsylvania School of Dental Medicine on May 11. Her talk was titled “NIDCR: Leading Advances in Oral Health Research and Innovation.” The previous day, Dr. Somerman joined the faculty and students for roundtable discussions.

Dr. Somerman, Dr. Kusiak, and other NIDCR staff will meet on May 22 with Thomas Schneid, JD, LLM, executive dean of the USUHS Postgraduate Dental College, Dr. Doll, Capt. Sean Meehan, DMD, and Lt. Cmdr. Ling Ye, DC, USN, to discuss opportunities for collaboration between NIDCR and USUHS.

BUDGET UPDATE

FY 2017

H.R. 244 “Consolidated Appropriations Act, 2017” provides a budget of \$425,751,000 for NIDCR. This is an increase of \$12.9 million over FY 2016 final level. Various rescissions/transfers out will impact our final FY 2017 operating level, which is awaiting approval from the Department.

FY 2018

The President’s Budget Request is scheduled for release on May 22, 2017. At that time, the NIDCR Congressional Justification will be available for viewing on our website.

HHS/NIH UPDATE

Thomas E. Price, MD, Confirmed as HHS Secretary

Dr. Price was sworn in as the 23rd secretary of the U.S. Department of Health and Human Services on February 10. Dr. Price received his bachelor’s and doctor of medicine degrees from the University of Michigan and completed a residency in orthopedic surgery at Emory University. For 20 years, Dr. Price ran a solo orthopedic medical practice in Atlanta. From 2005 to 2017, Dr. Price served as the U.S. Representative for Georgia’s 6th Congressional District. On February 21, Dr. Price made his first visit to NIH, meeting with NIH Director Francis Collins, MD, PhD, and several institute, center, and office directors. Dr. Price also toured the NIH Clinical Center in Bethesda, MD, where he met a breast cancer survivor who had been successfully treated and cured of her disease.

Scott Gottlieb, MD, Sworn in as FDA Commissioner

Dr. Gottlieb was sworn in as the 23rd U.S. Food and Drug Administration (FDA) commissioner on May 11. Dr. Gottlieb is a physician, medical policy expert, and public health advocate who previously served as the FDA’s deputy commissioner for medical and scientific affairs and before that, as a senior advisor to the FDA commissioner. He

also worked on implementation of the Medicare drug benefit as a senior advisor to the administrator of the Centers for Medicare and Medicaid Services, where he supported policy work on quality improvement and the agency's coverage process, particularly as it related to new medical technologies. In 2013 Dr. Gottlieb was appointed by the Senate to serve on the Federal Health Information Technology Policy Committee, which advises the HHS on healthcare information technology.

John I. Gallin, MD, Appointed to New Leadership Position at NIH Clinical Center

Dr. Gallin has led the NIH Clinical Center for the past two decades. In January, Dr. Gallin transitioned from director of the Clinical Center to a newly created role as NIH associate director for clinical research and chief scientific officer for the Clinical Center. His new duties are designed to strengthen strategic planning, prioritization, and scientific review. NIH Director Dr. Collins decided to alter the Clinical Center's longstanding leadership structure in response to recommendations in the Red Team Report, which was developed by external members of an NIH working group in hopes of reducing risk and promoting patient safety in the hospital.

David R. Wilson, PhD, Appointed as Director of NIH Tribal Health Research Office

On January 22, Dr. Wilson was appointed director of NIH's Tribal Health Research Office. The office coordinates NIH research related to the health of American Indians and Alaska Natives across the NIH institutes, centers, and offices. Dr. Wilson comes to the NIH Office of the Director from the HHS Office of Minority Health, where he served as public health advisor and the American Indian/Alaska Native policy lead.

Karen L. Parker, PhD, Appointed as Director of the Sexual & Gender Minority Research Office

Dr. Parker has been appointed as director of the Sexual & Gender Minority Research Office, NIH. Dr. Parker was instrumental in the formation of the office in the fall of 2015. The office coordinates NIH research related to the health of sexual and gender minorities across the NIH institutes, centers, and offices. In her new role, she also serves as co-chair of the trans-NIH Sexual and Gender Minority Research Coordinating Committee. The office is part of the Division of Program Coordination, Planning, and Strategic Initiatives within the NIH Office of the Director. Previously, Dr. Parker was at the National Cancer Institute, where she served as an acting branch chief in the NCI Office of Science Planning and Assessment and women's health officer for the Institute. Prior to this, she was the special assistant to the President's Cancer Panel. She began her career at NIH in 2001 as a presidential management fellow.

George Sigounas, MS, PhD, Announced as New Administrator of HRSA

On May 1, Dr. Sigounas assumed the position of administrator of the Health Resources and Services Administration (HRSA), an agency of the HHS. HRSA is the primary Federal agency for improving health care to people who are geographically isolated or economically or medically vulnerable. Before arriving at HRSA, Dr. Sigounas spent 23 years as a professor of medicine at the East Carolina University's Brody School of

Medicine in Greenville, NC, where he helped establish the Bone Marrow Transplantation Program. During this period, he also served as an inspector for the Foundation for the Accreditation of Cellular Therapy (FACT). FACT is the non-profit corporation that inspects and accredits facilities and programs in the field of cellular therapies worldwide. From 1987 to 1994, Dr. Sigounas was a scientist and researcher at NIDCR and the Naval Medical Center. Through the years, his research efforts have resulted in several US and international patents as well as peer-reviewed publications. Dr. Sigounas earned his bachelor of science degree in biology and chemistry from the University of Patras in Greece, a master of science in physiology and biology from Northeastern University, and a PhD in cell biology and physiology from Boston University.

Federal Rule to Enhance Protections for Research Participants

On January 18, HHS and 15 other federal agencies issued a final rule to update Common Rule regulations that safeguard individuals who participate in research. The new rule strengthens protections for people who volunteer to participate in research, while ensuring that the oversight system does not add inappropriate administrative burdens, particularly to low-risk research. It also allows more flexibility in keeping with today's dynamic research environment. [View the revisions to the Common Rule here.](#)

All of Us Research Program Announces Funding Opportunity for Community Partners

On January 31, NIH announced a new opportunity for organizations interested in helping engage volunteers in the *All of Us* Research Program, which is part of the Precision Medicine Initiative. This funding opportunity, open to national and regional organizations, as well as local community groups, will support activities to promote enrollment and retention in the *All of Us* Research Program across diverse communities. Pending available funds, NIH is designating up to \$5 million per year over the next three years to support these community-led outreach efforts, which will complement the program's existing research and engagement infrastructure. [View the funding opportunity here.](#)

NIH Pain Consortium Releases Educational Modules for Health Professionals

The NIH Pain Consortium has posted several education modules on its website. The interactive, multimedia courses were developed for the Consortium-supported Centers of Excellence in Pain Education, a network of 11 health professional schools designated as hubs for the development, evaluation, and distribution of pain management curriculum resources for medical, dental, nursing, pharmacy, and other professional schools. The courses are designed to enhance and improve how health care professionals are taught about pain and its treatment. Using a series of patient videos, self-quizzes, and other resources, the modules guide students and practitioners through the evaluation, examination, diagnosis, and treatment of a variety of pain-related conditions. NIDCR staff participated in the development of a module on burning mouth syndrome, [which can be seen here.](#)

HHS Secretary Announces Strategy for Fighting Opioid Crisis

On April 19, at the National Rx Drug Abuse and Heroin Summit held in Atlanta, Secretary Price described the goals of the Executive Commission on the Opioid Crisis announced by President Trump in March. Stating that the Trump administration is committed to bringing everything the federal government has to bear on this health emergency, Secretary Price identified five specific strategies that HHS will focus upon, which include:

- Improving access to treatment and recovery services
- Promoting use of overdose-reversing drugs
- Strengthening our understanding of the epidemic through better public health surveillance
- Providing support for cutting-edge research on pain and addiction
- Advancing better practices for pain management

New NIH Approach to Grant Funding Aimed at Optimizing Stewardship of Taxpayer Dollars

On May 2, NIH Director Dr. Collins announced a new NIH-wide approach to ensuring optimum stewardship of the funds the agency receives from taxpayers. In the coming months, Dr. Collins will be discussing this approach with NIH advisory councils. This initiative aims to take advantage of new and powerful ways to assess the effectiveness of NIH research investments to be sure that funding is producing the best results from our scientific workforce. [View the public statement.](#)

NIH Director Announces New Template Tool for FDA Clinical Trial Protocols

NIH and the FDA have created a template to help facilitate the FDA review process for NIH-funded clinical trial protocols. The template, which is initially aimed at Phase 2 and 3 Investigational New Drug/Investigational Device Exemption protocols, meets International Council for Harmonisation E6 (R2) Good Clinical Practice Guidance and helps investigators prepare protocols that contain all the information necessary to enable efficient and timely review by institutional review boards as well as to comply with FDA regulations.

The NIH-FDA template was developed with input from a wide range of stakeholders, and it aligns with a template for industry-sponsored trials produced by the non-profit biopharmaceutical organization, TransCelerate BioPharma. Having a common template format with tailored instructions that fit each sectors' needs will further facilitate FDA review and help increase the efficiency of the clinical trial enterprise. Along with the narrative version of the final template, NIH will also make available an electronic protocol writing tool. It will guide protocol writers through the required protocol sections with instructions and sample text. The electronic writing tool will also facilitate a collaborative approach to writing and reviewing protocols. [See the Clinical e-Protocol Writing Tool.](#)

NIH Pain Consortium Convenes 12th Annual NIH Pain Consortium Symposium

On May 31 and June 1, the NIH Pain Consortium (of which NIDCR is a participant) will convene the 12th Annual NIH Pain Consortium Symposium: Multidisciplinary Strategies for Pain. The symposium will highlight advances in research on prevention of chronic pain and multidisciplinary pain care. This annual symposium features NIH-supported pain research from the more than 20 NIH institutes, centers, and offices that participate in the NIH Pain Consortium. [View more about the Symposium.](#)

NIDCR UPDATE

NIDCR Hosts Multiple Events at IADR/AADR/CADR General Session in San Francisco

From March 22 to 25, NIDCR leadership, program staff, investigators, and trainees hosted a number of activities at the 2017 IADR/AADR/CADR General Session and Exhibition in San Francisco. Activities included workshops, poster presentations, oral presentations, training sessions, a mentoring and networking lunch, and a presentation on NIH peer review. Symposia focused on: workforce training, oral health among minority women and mothers, patient perspectives in dental research, TMD and headache, and behavioral dentistry. [Read about the IADR/AADR/CADR Annual meeting.](#)

NIDCR Director Launches NIDCR 2030 at IADR/AADR/CADR General Session

Dr. Martha Somerman announced the launch of NIDCR 2030, a strategic visioning initiative, on March 22 at the IADR/AADR/CADR General Session in San Francisco. The initiative began with the launch of an interactive website to solicit ideas about future directions for NIDCR-supported research in five key areas:

- Integrating oral health with overall health
- Developing precision prevention, treatment, and public health interventions
- Using the mouth as a diagnostic and treatment portal
- Taking advantage of the body's ability to heal itself through autotherapies
- Encouraging workforce diversity at NIDCR and the workforce engaged in NIDCR-supported research

A panel of experts will review the submitted ideas according to a key set of criteria and will convey the results online to encourage ongoing discussion for setting future goals and priorities. [Visit the NIDCR 2030 website.](#)

NDPBRN Strategic Planning Meeting

On February 28, program staff of the NIDCR Division of Extramural Research's Center for Clinical Research hosted a face-to-face meeting with the national network director, deputy director, and regional directors of the National Dental Practice-Based Research Network (NDPBRN). The directors provided updates on the network's ongoing and planned studies and held discussions of network operations and practitioner engagement activities.

NIDCR Funds New Cooperative Agreements for DOCTRC

NIDCR announced two new cooperative agreements aimed at developing resources and strategies for regenerating dental, oral, and craniofacial tissues that have been damaged by disease or injury. Totalling \$24 million over three years, these awards support the development of two Resource Centers as part of the second phase of the Dental, Oral, and Craniofacial Tissue Regeneration Consortium (DOCTRC), an initiative designed to shepherd new therapies through pre-clinical studies and into human clinical trials. The ultimate goal is to develop strategies and devices that could help repair or regenerate damaged dental, oral, and craniofacial tissues, including craniofacial bone, muscle and blood vessels, nerves, teeth, and salivary glands. By establishing this research consortium, NIDCR seeks to lead national efforts to accelerate the translation into the clinic of promising dental, oral, and craniofacial regenerative medicine therapies. [Read about the Cooperative Agreements.](#)

DOCTRC Stage Two Kick-Off

Dr. Lumelsky, director of NIDCR's Tissue Engineering and Regenerative Medicine Research Program in the Division of Extramural Research, organized and co-led a kick-off meeting to launch the second stage of the DOCTRC. The meeting took place on April 17 and 18 in Bethesda, MD. The participants included DOCTRC awardees, members of the NIDCR External Expert Panel, and NIDCR leadership and staff. At this meeting, Dr. Lumelsky delivered a presentation addressing NIDCR expectations for DOCTRC and answered questions posed by the awardees. [Read about DOCTRC.](#)

NIDCR-Supported Research Featured in NIH Catalyst

The "NIH Catalyst," a publication about NIH intramural research, recently featured the work of clinical investigator Niki Moutsopoulos, DDS, PhD, chief of the Oral Immunity and Infection Unit at NIDCR. The "Catalyst" article summarized research published in the journal *Immunity*. The study found that activity of Th17 cells—key mediators of immunity at barrier sites including the oral cavity—is governed by cues unique to specific tissues. In the case of the oral cavity, mechanical damage caused by chewing appears to trigger Th17-related immunity. These findings may help scientists better understand the factors that regulate oral cavity Th17 cells, which are important for preserving health but may also contribute to periodontal disease. [Read more in the "NIH Catalyst".](#)

Personnel Update

S. Chiayeng Wang, PhD, joined the Integrative Biology and Infectious Diseases Branch in the Division of Extramural Research as a director of the Oral and Salivary Gland Cancer Biology Program in February. Between 2014 and 2017, Dr. Wang served as a scientific review officer for the Surgical Sciences, Biomedical Imaging, and Bioengineering Integrated Review Group at the Center for Scientific Review (CSR) at NIH. Before joining CSR, from 1993 to 2014 Dr. Wang held positions of assistant, associate, and full-tenured professor at the University of Illinois in Chicago. Dr. Wang received her postdoctoral training with a focus on cell and molecular biology at the Dana-Farber Cancer Institute/Harvard Medical School. She holds a PhD in medical biochemistry from the University of Calgary, Canada. Her main areas of expertise include protein biochemistry, cell and molecular biology, developmental biology, and cancer biology.

Meetings and Conferences

Staff Presentations

Bruce Dye, DDS, PhD, program director of NIDCR's Dental Public Health Residency, and Tim Iafolla, DMD, MPH, chief of NIDCR's Program Analysis and Reports Branch, attended the Dental Public Health Informatics: Opportunities in a Changing Environment conference January 18 through 20 in San Antonio, TX. Dr. Dye presented the opening welcome speech at the conference.

Yolanda Vallejo, PhD, director of NIDCR's Neuroscience of Orofacial Pain and Temporomandibular Disorders Program in the Division of Extramural Research, served as an NIH representative and moderator at the Interagency Pain Research Coordinating Committee's Federal Pain Research Strategy meeting held on February 10 in Dallas.

Preethi Chander, PhD, director of NIDCR's Salivary Biology and Immunology Program in the Division of Extramural Research, delivered a talk and presented a poster at the Gordon Research Seminar & Conference on Salivary Glands and Exocrine Biology held February 19 through 24 in Galveston, TX.

Drs. Dye and Iafolla also attended the Digital Research in Dentistry colloquium on March 19 in San Francisco. Dr. Iafolla gave a presentation titled "Digital Dentistry: Uses Across Dental Research." Dr. Dye gave a presentation titled "Calibrating and Examining Remotely."

Jane Atkinson, DDS, and Melissa Riddle, PhD, of NIDCR's Division of Extramural Research, along with Anna Nicholson, MSHS, of NIDCR's Office of Clinical Trials and Operations Management, presented at the Hands-On Workshop for Clinical Trials and Research on March 22 at the IADR/AADR/CADR General Session in San Francisco.

Ashok Kulkarni, PhD, chief of the Functional Genomics section in NIDCR's Division of Intramural Research, was elected as president of the IADR Neuroscience Group for the 2017 to 2018 term at the IADR/AADR/CADR General Session in March. Dr. Kulkarni co-chaired a scientific session titled "TMD and Headache Comorbidity: A Bedside to Bench Perspective" at the meeting and also organized the IADR Neuroscience Group Young Investigator Award Poster Competition.

Jason Wan, PhD, director of NIDCR's Mineralized Tissue Biology Program in the Division of Extramural Research, served as a moderator for a session titled "Measuring FGF-23 in Patients and Populations" at a meeting held on March 27 and 28 on the NIH campus. The meeting, FGF-23: An Interdisciplinary Dialogue for Chronic Kidney Diseases," was led by the National Institute of Diabetes and Digestive and Kidney Diseases with support from the National Institute of Arthritis and Musculoskeletal and Skin Diseases. The purpose of this meeting was to bring together experts in the extramural research community to facilitate interdisciplinary discussions that could accelerate understanding of the physiologic and molecular regulators of phosphate and iron homeostasis among patients with chronic kidney disease.

Jane Atkinson, DDS, chief of the Center for Clinical Research in NIDCR's Division of Extramural Research, led a roundtable discussion session titled "Clinical Trial Designs" on April 7 at the annual conference of the American Academy of Oral Medicine, held in Orlando, FL.

Rachel Gafni, MD, Sri Tella, and Jason Berglund, fellows in the NIDCR Division of Intramural Research, gave oral presentations at the annual meeting of the Endocrine Society (ENDO 2017) in Orlando, FL.

Aalex Kailembo, DDS, MPH, an NIDCR dental public health resident, presented his residency research project entitled "Poverty and Wealth as Predictors of Socioeconomic Disparity in Dental Visits Among Adults in the US, 2011-2014" at the National Oral Health Conference in Albuquerque, NM, which took place April 24 through 26.

Staff Attendance

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

- Meeting of the Center for Open Science: How Promoting Open and Reproducible Research Helps Funding Organizations Meet their Mission, December 5 and 6, 2016, Charlottesville, VA
- Health Affairs Briefing, December 7, 2016, Washington, DC.
- 2016 Annual Conference on the Science of Dissemination and Implementation in Health, co-hosted by NIH and Academy Health, December 14 and 15, 2016, Bethesda, MD

- Annual Steering Committee Meeting and External Scientific Panel for the NIH Common Fund Science of Behavior Change Research Network, January 12 and 13, Bethesda, MD
- National Dental PBRN Annual Regional Meetings of Practitioner Members: South Atlantic Region's Annual Meeting, January 27 and 28, Atlanta.
- Neural Crest and Cranial Placodes Gordon Research Conference, February 5 through 10, Ventura, CA
- Retroviruses and Opportunistic Infections (CROI), February 13 through 15, Seattle
- Developing an Interprofessional Roadmap to Improving Oral Health in Older Adults, Gerontological Society of America, March 1 and 2, Alexandria, VA
- Code Maintenance Committee Meeting of the American Dental Association, March 9, Chicago
- Annual Meeting of the International 2017 Office of Portfolio Analysis Symposium, March 15, Bethesda, MD
- IADR/AADR/CADR General Session, March 21 through March 26, San Francisco
- National Dental PBRN Annual Regional Meetings of Practitioner Members: Southwest and Western Regions' Joint Annual Meeting, March 25, San Francisco
- National Dental PBRN Annual Regional Meetings of Practitioner Members: Midwest and Northeast Regions' Joint Annual Meeting, March 30 and 31, Chicago
- Annual Meeting of the American Association for Cancer Research, April 1 through 5, Washington, DC
- American Association of Immunologists Annual Meeting, April 12 through 16, Washington, DC

Several Division of Intramural Research staff members attended the Gordon Research Conference on Salivary Glands and Exocrine Biology February 19 through 24 in Galveston, TX. Belinda R. Hauser, PhD, a fellow in the Division of Intramural Research, was the overall poster award winner for the abstract "Single-cell RNA-seq analysis of adult salivary gland progenitors." Augustin A. Martinez-Chibly, PhD, was a poster award winner for the abstract "Functional restoration of irradiated salivary glands through modulation of aPKC and nuclear Yap in salivary progenitors." Vaishali N. Patel, PhD, was a poster award winner for the abstract "Generation and characterization of heparan sulfate 3-O-sulfotransferase knockout mice to study salivary gland development."

Several staff members from NIDCR's Office of Science Policy and Analysis and Office of Communications and Health Education attended the IADR/AADR/CADR General Session on March 22 through 25 in San Francisco.

Jessica Walrath, PhD, and Joseph Tiano, PhD, health science policy analysts in the Office of Science Policy and Analysis, attended the American Association for the

Advancement of Science Forum on Science & Technology Policy on March 27 and 28 in Washington, DC.

Lynn King, PhD, and Leslie Frieden, PhD, of the NIDCR Training and Career Development Branch in the Division of Extramural Activities attended the annual American Association for Cancer Research Meeting on April 1 through 5 in Washington, DC.

Several staff members from NIDCR's Office of Science Policy and Analysis and Office of Communications and Health Education attended the National Oral Health Conference in Albuquerque, NM on April 24 through 26.

Training and Career Development News

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:

- Deborah Philp, PhD, intramural training director at NIDCR gave a presentation at the IADR/AADR/CADR General Session held in March in San Francisco, along with Janice Lee, DDS, MD, and Bruce Dye, DDS, MPH, on research training opportunities offered by NIDCR.
- The Office of Education continues its recruitment efforts for students interested in oral health training opportunities. This year, 12 dental students from across the country were selected to receive the 2017 NIDCR Summer Dental Student Award.

The NIDCR Research Training and Career Development Branch (RTCDB) in the Division of Extramural Activities reaches out to the community through conferences, meetings, and workshops to develop research training programs and to encourage predoctoral students, postdoctoral fellows, and junior investigators to apply for NIDCR research training and career development awards. These activities are listed below:

- NIDCR RTCDB facilitated the following events at the annual IADR/AADR/CADR General Session in San Francisco March 22 through 25:
 - NIDCR trainee research presentations featured 70 poster presentations and 10 oral presentations from NIDCR-supported diversity supplement recipients, trainees, fellows, and career development awardees.
 - NIDCR and IADR/AADR/CADR co-sponsored the IADR/AADR/CADR/NIDCR Mentoring and Networking Lunch. At this event, students and postdoctoral fellows discussed research and career development with 24 NIDCR-supported researchers and NIDCR program directors.

- Lynn King, PhD, and Leslie Frieden, PhD, presented sessions on NIDCR research training and career development opportunities.
- Dr. King presented “NIDCR Programs for Research in Women’s Oral Health” in the Oral Health of Women and Minorities symposium.
- Drs. King and Frieden held individual consultations with current awardees and potential applicants in the NIDCR exhibit booth.

Highlights of Trainees’ Scientific Achievements

Trainees Who Have Achieved Subsequent NIH Grants

First R01/U01

- Yong-Hee Patricia Chun, DDS, PhD, former NIDCR K08 awardee, assistant professor, Department of Periodontics, University of Texas Health Science Center at San Antonio. R01, “Enamel with overexpressed ameloblastin.”
- Christine Hong, DMD, MS, NIDCR K08 awardee, assistant professor, Section of Orthodontics, University of California, Los Angeles. R01, “Molecular regulation of MSC fate decision and bone formation by PGC-1a.”
- Juhee Jeong, PhD, former NIDCR K99/R00 awardee, assistant professor, Department of Basic Science and Craniofacial Biology, New York University. R01, “Genetic regulation of embryonic head mesenchyme patterning.”
- Yoshihiro Komatsu, PhD, former NIDCR K99/R00 awardee, assistant professor, Department of Pediatrics, University of Texas Health Science Center at Houston. R01, “The role of BMP signaling in craniofacial cartilage development.”

Pathways to Independence Awards (K99/R00)

- Elizabeth Leslie, PhD, assistant professor, Department of Oral Biology, University of Pittsburgh. R00, “Genetics of craniofacial disorders and related phenotypes.”
- James Nichols, PhD, assistant professor, Department of Craniofacial Biology, University of Colorado. R00, “Cell fate choices in the skeleton.”
- Tamanna Tiwari, BDS, MS, MPH, assistant professor, Department of Applied Dentistry, University of Colorado. R00, “Learning about early childhood caries prevention in a Latino population.”
- Jennifer Totonchy, PhD, assistant professor, Department of Biomedical and Pharmaceutical Sciences, Chapman University. R00, “Factors influencing KSHV infection and spread within the oral cavity.”

Transitions from Institutional Training Grant Support to Individual Awards

NIDCR strongly encourages trainees supported on institutional training grants to apply for and achieve individual fellowships or career development awards.

- Kenneth Chan, University of California San Francisco, NIDCR F31 predoctoral fellowship to support PhD training, “Spectral and image-guided laser ablation for dental applications.”
- Emily Durham, Medical University of South Carolina, NIDCR F31 predoctoral fellowship to support PhD training, “The effects of pharmacological exposures on cranial suture stem cells.”
- Daniel Harper, PhD, University of Michigan, NIDCR Pathway to Independence Award (K99/R00), “Mechanistic characterization of pain in temporomandibular disorders: does pain centralization influence responsiveness to peripherally targeted treatments?”
- JoAnn Roberts, Medical University of South Carolina, NIDCR Diversity F31 predoctoral fellowship to support PhD training, “Evasion of epithelial cell killing machinery by *Porphyromonas gingivalis*.”

Recent Publications from Trainees

F Fellows

Bloomquist RF, Fowler TE, Sylvester JB, Miro RJ, Streelman JT. [A compendium of developmental gene expression in Lake Malawi cichlid fishes](#). *BMC Dev Biol*. 2017 Feb 3;17(1):3.

Cole MB, Quach H, Quach D, Baker A, Taylor KE, Barcellos LF, Criswell LA. [Epigenetic Signatures of Salivary Gland Inflammation in Sjögren's Syndrome](#). *Arthritis Rheumatol*. 2016 Dec;68(12):2936-2944.

Facompre ND, Harmeyer KH, Basu D. [Regulation of oncogenic PI3-kinase signaling by JARID1B](#). *Oncotarget*. 2017 Jan 31;8(5):7218-7219.

Niethamer TK, Larson AR, O'Neill AK, Bershteyn M, Hsiao EC, Klein OD, Pomerantz JH, Bush JO. [EPHRIN-B1 Mosaicism Drives Cell Segregation in Craniofrontonasal Syndrome hiPSC-Derived Neuroepithelial Cells](#). *Stem Cell Reports*. 2017 Mar 14;8(3):529-537.

Robinson JL, Cass K, Aronson R, Choi T, Xu M, Bottenbaum R, Drissi H, Lu HH, Chen J, Wadhwa S. [Sex differences in the estrogen-dependent regulation of temporomandibular joint remodeling in altered loading](#). *Osteoarthritis Cartilage*. 2017 Apr;25(4):533-543.

Schock EN, Struve JN, Chang CF, Williams TJ, Snedeker J, Attia AC, Stottmann RW, Brugmann SA. [A tissue-specific role for intraflagellar transport genes during craniofacial development](#). *PLoS One*. 2017 Mar 27;12(3):e0174206

Simon JC, Kang H, Staninec M, Jang AT, **Chan KH**, Darling CL, Lee RC, Fried D. [Near-IR and CP-OCT imaging of suspected occlusal caries lesions](#). *Lasers Surg Med*. 2017 Mar;49(3):215-224.

K Awardees

Alkhateeb AA, Mancl LA, Presland RB, Rothen ML, **Chi DL**. [Unstimulated Saliva-Related Caries Risk Factors in Individuals with Cystic Fibrosis: A Cross-Sectional Analysis of Unstimulated Salivary Flow, pH, and Buffering Capacity](#). *Caries Res*. 2017;51(1):1-6.

Chen C, Wang D, **Moshaverinia A**, Liu D, Kou X, Yu W, Yang R, Sun L, Shi S. [Mesenchymal stem cell transplantation in tight-skin mice identifies miR-151-5p as a therapeutic target for systemic sclerosis](#). *Cell Res*. 2017 Apr;27(4):559-577.

Chen X, Zimmerman S, Potter GG, Sloane PD, Cohen LW, Reed D. [Assessment of Dentally Related Function in Individuals with Cognitive Impairment: The Dental Activities Test](#). *J Am Geriatr Soc*. 2017 Mar;65(3):580-585.

Conrad AL, Goodwin JW, Choi J, Block RI, Nopoulos P. [The Relationship of Exposure to Anesthesia on Outcomes in Children With Isolated Oral Clefts](#). *J Child Neurol*. 2017 Mar;32(3):308-315.

Dalin MG, Watson PA, Ho AL, **Morris LG**. [Androgen Receptor Signaling in Salivary Gland Cancer](#). *Cancers (Basel)*. 2017 Feb 8;9(2). pii: E17.

Leslie EJ, Carlson JC, Shaffer JR, Butali A, **Buxó CJ**, Castilla EE, Christensen K, Deleyiannis FW, Leigh Field L, Hecht JT, Moreno L, Orioli IM, Padilla C, Vieira AR, Wehby GL, Feingold E, Weinberg SM, Murray JC, Beaty TH, Marazita ML. [Genome-wide meta-analyses of nonsyndromic orofacial clefts identify novel associations between FOXE1 and all orofacial clefts, and TP63 and cleft lip with or without cleft palate](#). *Hum Genet*. 2017 Mar;136(3):275-286.

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Institutional Training Grant T32/T90/R90 and K12 Trainees

Akinkugbe AA, Sanders AE, Preisser JS, Cai J, Salazar CR, Beck JD. [Environmental tobacco smoke exposure and periodontitis prevalence among nonsmokers in the hispanic community Health Study/Study of Latinos](#). *Community Dent Oral Epidemiol*. 2017 Apr;45(2):168-177.

Avilés-Reyes A, Miller JH, Lemos JA, Abranches J. [Collagen-binding proteins of Streptococcus mutans and related streptococci](#). *Mol Oral Microbiol*. 2017 Apr;32(2):89-106.

Baker JL, Faustoferri RC, Quivey RG Jr. [Acid-adaptive mechanisms of Streptococcus mutans-the more we know, the more we don't](#). *Mol Oral Microbiol*. 2017 Apr;32(2):107-117.

Garcia D, Tarima S, Glasman L, Cassidy LD, Meurer J, Okunseri C. [Latino Acculturation and Periodontitis Status Among Mexican-Origin Adults in the United States: NHANES 2009-2012](#). *Fam Community Health*. 2017 Apr/Jun;40(2):112-120.

Horst JA, Wu W, DeRisi JL. [MinorityReport, software for generalized analysis of causal genetic variants](#). *Malar J*. 2017 Feb 23;16(1):90.

Kim N, Thatcher TH, Sime PJ, Phipps RP. [Corticosteroids inhibit anti-IgE activities of specialized proresolving mediators on B cells from asthma patients](#). *JCI Insight*. 2017 Feb 9;2(3):e88588.

McCoy CR, Jackson NL, Day J, Clinton SM. [Genetic predisposition to high anxiety- and depression-like behavior coincides with diminished DNA methylation in the adult rat amygdala](#). *Behav Brain Res*. 2017 Mar 1;320:165-178.

Peters SB, Wang Y, Serra R. [Tgfb2 is required in osterix expressing cells for postnatal skeletal development](#). *Bone*. 2017 Apr;97:54-64.

Ramamurthy P, White JB, Yull Park J, Hume RI, Ebisu F, Mendez F, Takayama S, Barald KF. [Concomitant differentiation of a population of mouse embryonic stem cells into neuron-like cells and schwann cell-like cells in a slow-flow microfluidic device](#). *Dev Dyn*. 2017 Jan;246(1):7-27.

Rosset EM, Trombetta-eSilva J, Hepfer G, Yao H, Bradshaw AD. [SPARC and the N-propeptide of collagen I influence fibroblast proliferation and collagen assembly in the periodontal ligament](#). *PLoS One*. 2017 Feb 28;12(2):e0173209.

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Vidovic I, Banerjee A, Fatahi R, Matthews BG, Dymont NA, Kalajzic I, Mina M. [αSMA-Expressing Perivascular Cells Represent Dental Pulp Progenitors In Vivo](#). *J Dent Res*. 2017 Mar;96(3):323-330.

PUBLICATIONS

Selected Extramurally Funded Science Advances

During the last four months, 349 extramurally funded studies were published in the scientific literature. Below is a list of the most important papers published from each program area

New Investigator R01-funded Projects

Tucker JR, Xu L, Sturgis EM, Mohamed AS, Hofstede TM, Chambers MS, Lai SY, Fuller CD, Beadle B, Gunn GB, Hutcheson KA. [Osteoradionecrosis in patients with salivary gland malignancies](#). *Oral Oncol*. 2016 Jun;57:1-5.

Behavioral and Social Science Research

Zhang J, Yuan Y, Chu H. [The Impact of Excluding Trials from Network Meta-Analyses - An Empirical Study](#). *PLoS ONE*. 2016;11(12):e0165889.

Collett BR, Kapp-Simon KA, Wallace E, Cradock MM, Buono L, Speltz ML. [Attention and executive function in children with and without single-suture craniosynostosis](#). *Child Neuropsychol*. 2017;23(1):83-98.

Conrad AL, Goodwin JW, Choi J, Block RI, Nopoulos P. J [The Relationship of Exposure to Anesthesia on Outcomes in Children with Isolated Oral Clefts](#). *Child Neurol*. 2017;32(3):308-315.

Center Clinical Research

Sanders AE, Jain D, Sofer T, Kerr KF, Laurie CC, Shaffer JR, Marazita ML, Kaste LM, Slade GD, Fillingim RB, Ohrbach R, Maixner W, Kocher T, Bernhardt O, Teumer A, Schwahn C, Sipilä K, Lähdesmäki R, Männikkö M, Pesonen P, Järvelin M, Rizzatti-Barbosa CM, Meloto CB, Ribeiro-Dasilva M, Diatchenko L, Serrano P, Smith SB. [GWAS identifies new loci for painful temporomandibular disorder](#). *J Dent Res*. 2017 Mar;96(3):277-284.

Garcia RI, Gregorich SE, Ramos-Gomez F, Braun PA, Wilson A, Albino J, Tiwari T, Harper M, Batliner TS, Rasmussen M, Cheng NF, Santo W, Geltman PL, Henshaw M, Gansky SA. [Absence of Fluoride Varnish-Related Adverse Events in Caries Prevention Trials in Young Children, United States](#). *Prev Chronic Dis*. 2017 Feb 16;14:E17.

Schiffman EL, Ahmad M, Hollender L, Kartha K, Ohrbach R, Truelove EL, Zhang L, Hodges JS, Sommers E, Anderson GC, Gonzalez YM, Guo X, Look JO. [Longitudinal Stability of Common TMJ Structural Disorders](#). J Dent Res. 2017 Mar;96(3):270-276.

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Chen Y, Glaser A, Liu JT. [Bessel-beam illumination in dual-axis confocal microscopy mitigates resolution degradation caused by refractive heterogeneities](#). J Biophotonics. 2017 Jan;10(1):68-74.

Mukherjee PK, Chen H, Patton LL, Evans S, Lee A, Kumwenda J, Hakim J, Masheto G, Sawe F, Pho MT, Freedberg KA, Shiboski CH, Ghannoum MA, Salata RA; Oral HIV/AIDS Research Alliance (OHARA)/AIDS Clinical Trials Group (ACTG) 5265 Team. [Topical gentian violet compared with nystatin oral suspension for the treatment of oropharyngeal candidiasis in HIV-1-infected participants](#). AIDS. 2017 Jan 2;31(1):81-88

Besnard E, Hakre S, Kampmann M, Lim HW, Hosmane NN, Martin A, Bassik MC, Verschueren E, Battivelli E, Chan J, Svensson JP, Gramatica A, Conrad RJ, Ott M, Greene WC, Krogan NJ, Siliciano RF, Weissman JS, Verdin E. [The mTOR complex controls HIV latency](#). Cell Host Microbe. 2016 Dec 14;20(6):785-797.

Integrative Biology and Infectious Diseases

Tevlin R, Seo EY, Marecic O, McArdle A, Tong X, Zimdahl B, Malkovskiy A, Sinha R, Gulati G, Li X, Wearda T, Morganti R, Lopez M, Ransom RC, Duldulao CR, Rodrigues M, Nguyen A, Januszyk M, Maan Z, Paik K, Yapa KS, Rajadas J, Wan DC, Gurtner GC, Snyder M, Beachy PA, Yang F, Goodman SB, Weissman IL, Chan CK, Longaker MT. [Pharmacological rescue of diabetic skeletal stem cell niches](#). Science Transl. Med. 2017 Jan 11; 9(372), eaag2809

San Emeterio CL, Olingy CE, Chu Y, Botchwey EA. [Selective recruitment of non-classical monocytes promotes skeletal muscle repair](#). Biomaterials, 2017; 117, 32-43

Yao S, Li C, Beckley M, Liu D. [Expression of odontogenic ameloblast-associated protein in the dental follicle and its role in osteogenic differentiation of dental follicle stem cells](#). Arch. Oral Biol. 2017 Feb 5; 78:6-12.

Wu H, Gordon JA, Whitfield TW, Tai PW, Van Wijnen AJ, Stein JL, Stein GS, Lian JB. [Chromatin dynamics regulate mesenchymal stem cell lineage specification and differentiation to osteogenesis](#). Biochim. Biophys. Acta. 2017 Jan 8;1860(4):438-449.

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Back CR, Sztukowska MN, Till M, Lamont RJ, Jenkinson HF, Nobbs AH, and Race PR. [The *Streptococcus gordonii* adhesin CshA protein binds host fibronectin via a catch-clamp mechanism.](#) J. Biol. Chem. 2017 Feb 3;292(5):1538-1549.

Yamano S, Viet CT, Dang D, Dai J, Hanatani S, Takayama T, Kasai H, Imamura K, Campbell R, Ye Y, Dolan JC, Kwon WM, Schneider SD, Schmidt BL. [Ex vivo nonviral gene delivery of \$\mu\$ -opioid receptor to attenuate cancer-induced pain.](#) Pain, 2017; 158(2): 240-251.

Sun S, Xu Q, Guo C, Guan Y, Liu Q, Dong X. [Leaky gate model: Intensity-dependent coding of pain and itch in the spinal cord.](#) Neuron 2017 93(4): 840-853 e845.

Taylor KE, Wong Q, Levine DM, McHugh C, Laurie C, Doheny K, Lam MY, Baer AN, Challacombe S, Lanfranchi H, Schiødt M, Srinivasan M, Umehara H, Vivino FB, Zhao Y, Shiboski S, Daniels TE, Greenspan JS, Shiboski CH, Criswell LA. [Genome-Wide Association Analysis Reveals Genetic Heterogeneity of Sjögren's Syndrome According to Ancestry.](#) Arthritis Rheumatol. 2017 Jan 11. doi: 10.1002/art.40040

Wada H, Vargas CR, Angelo J, Faulkner-Jones B, Paul MA, Ho OA, Lee BT, Frangioni JV. [Accurate Prediction of Tissue Viability at Postoperative Day 7 Using Only Two Intraoperative Subsecond Near-Infrared Fluorescence Images.](#) Plast Reconstr. Surg. 2017 Feb; 139(2):354-363.

Takahashi H, Nadres ET, and Kuroda K. [Cationic Amphiphilic Polymers with Antimicrobial Activity for Oral Care Applications: Eradication of *S. mutans* Biofilm.](#) Biomacromolecules. 2017 Jan 9;18(1):257-265.

Chen D, Wu M, Li U, Chang I, Yuan Q, Ekimyan-Salvo M, Deng P, Yu B, Yu Y, Dong J, Szymanski JM, Ramadoss S, Li J, Wang CY. [Targeting BMI1⁺ Cancer Stem Cells Overcomes Chemoresistance and Inhibits Metastases in Squamous Cell Carcinoma.](#) Cell Stem Cell, 2017; 20:1-14.

Saladi SV, Ross K, Karaayvaz M, Tata PR, Mou H, Rajagopal J, Ramaswamy S, Ellisen LW. [ACTL6A Is Co-Amplified with p63 in Squamous Cell Carcinoma to Drive YAP Activation, Regenerative Proliferation, and Poor Prognosis.](#) Cancer Cell. 2017 Jan 9;31(1):35-49.

Translational Genomics Research Branch

Hooper JE, Feng W, Li H, Leach S, Phang T, Siska C, Jones KL, Spritz RA, Hunter LE, Williams T. [Systems biology of facial development: contributions of ectoderm and mesenchyme](#). *Developmental Biology*. In Press, Accepted Manuscript (2017)

Liu H, Leslie EJ, Carlson JC, Beaty TH, Marazita ML, Lidral AC, Cornell RA. [Identification of common non-coding variants at 1p22 that are functional for non-syndromic orofacial clefting](#). *Nat Commun*. 2017 Mar 13;8:14759.

Taylor KE, Wong Q, Levine DM, McHugh C, Laurie C, Doheny K, Lam MY, Baer AN, Challacombe S, Lanfranchi H, Schiødt M, Srinivasan M, Umehara H, Vivino FB, Zhao Y, Shiboski S, Daniels TE, Greenspan JS, Shiboski CH, Criswell LA. [Genome-Wide Association Analysis Reveals Genetic Heterogeneity of Sjögren's Syndrome According to Ancestry](#). *Arthritis Rheumatol*. 2017 Jan 11. [Epub ahead of print]

Selected Division of Intramural Research Publications

Srinivasan PP, Patel VN, Liu S, Harrington DA, Hoffman MP, Jia X, Witt RL, Farach-Carson MC, Pradhan-Bhatt S. [Primary Salivary Human Stem/Progenitor Cells Undergo Microenvironment-Driven Acinar-Like Differentiation in Hyaluronate Hydrogel Culture](#). *Stem Cells Transl Med*. 2017 Jan;6(1):110-120.

Hayashi T, Lombaert IM, Hauser BR, Patel VN, Hoffman MP. [Exosomal MicroRNA Transport from Salivary Mesenchyme Regulates Epithelial Progenitor Expansion during Organogenesis](#). *Dev Cell*. 2017 Jan 9;40(1):95-103.

Moutsopoulos NM, Zerbe CS, Wild T, Dutzan N, Brenchley L, DiPasquale G, Uzel G, Axelrod KC, Lisco A, Notarangelo LD, Hajishengallis G, Notarangelo LD, Holland SM. [Interleukin-12 and Interleukin-23 Blockade in Leukocyte Adhesion Deficiency Type 1](#). *N Engl J Med*. 2017 Mar 23;376(12):1141-1146.

Dutzan N, Abusleme L, Bridgeman H, Greenwell-Wild T, Zangerle-Murray T, Fife ME, Bouladoux N, Linley H, Brenchley L, Wemyss K, Calderon G, Hong BY, Break TJ, Bowdish DM, Lionakis MS, Jones SA, Trinchieri G, Diaz PI, Belkaid Y, Konkel JE, Moutsopoulos NM. [On-going Mechanical Damage from Mastication Drives Homeostatic Th17 Cell Responses at the Oral Barrier](#). *Immunity*. 2017 Jan 17;46(1):133-147.

Shah NN, Freeman AF, Su H, Cole K, Parta M, Moutsopoulos NM, Baris S, Karakoc-Aydiner E, Hughes TE, Kong HH, Holland SM, Hickstein DD. [Haploidentical Related Donor Hematopoietic Stem Cell Transplantation for Dedicator-of-Cytokines 8 Deficiency Using Post-Transplantation Cyclophosphamide](#). *Biol Blood Marrow Transplant*. 2017 Mar 10. pii: S1083-8791(17)30335-X.

Nonboe AW, Krigslund O, Soendergaard C, Skovbjerg S, Friis S, Andersen MN, Ellis V, Kawaguchi M, Kataoka H, Bugge TH, Vogel LK. [HAI-2 stabilizes, inhibits, and regulates SEA-cleavage-dependent secretory transport of matriptase](#). *Traffic*. 2017 Mar 28.

Konkel JE, Zhang D, Zanvit P, Chia C, Zangarale-Murray T, Jin W, Wang S, Chen W. [Transforming Growth Factor- \$\beta\$ Signaling in Regulatory T Cells Controls T Helper-17 Cells and Tissue-Specific Immune Responses](#). *Immunity*. 2017 Apr 18;46(4):660-674.

Petrie RJ, Harlin HM, Korsak LI, Yamada KM. [Activating the nuclear piston mechanism of 3D migration in tumor cells](#). *J Cell Biol*. 2017 Jan 2;216(1):93-100.

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*. 2016 Aug 9.

Pievani A, Sacchetti B, Corsi A, Rambaldi B, Donsante S, Scagliotti V, Vergani P, Remoli C, Biondi A, Robey PG, Riminucci M, Serafini M. [Human umbilical cord blood-borne fibroblasts contain marrow niche precursors that form a bone/marrow organoid *in vivo*](#). *Development*. 2017 Mar 15;144(6):1035-1044.

Ho N, Trivedi A, Collins MT, Heller T. [Submucosal Colonic Masses in a Patient With Familial Tumoral Calcinosis](#). *Am J Gastroenterol*. 2017 Apr;112(4):532.

Wood LD, Noë M, Hackeng W, Brosens LA, Bhaijee F, Debeljak M, Yu J, Suenaga M, Singhi AD, Zaheer A, Boyce A, Robinson C, Eshleman JR, Goggins MG, Hruban RH, Collins MT, Lennon AM, Montgomery EA. [Patients with McCune-Albright syndrome have a broad spectrum of abnormalities in the gastrointestinal tract and pancreas](#). *Virchows Arch*. 2017 Apr;470(4):391-400.

Jin L, Liu Y, Sun F, Collins MT, Blackwell K, Woo AS, Reichenberger EJ, Hu Y. [Three novel ANO5 missense mutations in Caucasian and Chinese families and sporadic cases with gnathodiaphyseal dysplasia](#). *Sci Rep*. 2017 Feb 8;7:40935.

Boyce AM, Collins MT, Tosi LL, Gafni RI. [A Subtrochanteric Femoral Stress Fracture following Bisphosphonate Treatment in an Adolescent Girl](#). *Horm Res Paediatr*. 2017;87(1):69-72.

Review Articles

Patel VN, Pineda DL, Hoffman MP. [The function of heparan sulfate during branching morphogenesis](#). *Matrix Biol*. 2017 Jan;57-58:311-323. doi: 10.1016/j.matbio.2016.09.004. Epub 2016 Sep 6. Review.

Tran DT, Ten Hagen KG. [Real-time insights into regulated exocytosis](#). *J Cell Sci*. 2017 Apr 15;130(8):1355-1363. doi: 10.1242/jcs.193425. Epub 2017 Mar 16. Review.

Boyce AM, Turner A, Watts L, Forestier-Zhang L, Underhill A, Pinedo-Villanueva R, Monsell F, Tessaris D, Burren C, Masi L, Hamdy N, Brandi ML, Chapurlat R, Collins MT, Javaid MK. [Improving patient outcomes in fibrous dysplasia/McCune-Albright syndrome: an international multidisciplinary workshop to inform an international partnership](#). *Arch Osteoporos*. 2017 Dec;12(1):21.

Robey PG. "[Mesenchymal stem cells](#)": fact or fiction, and implications in their therapeutic use. F1000 Research April 2017, 6(F1000 Faculty Rev):524.

Wang S, Sekiguchi R, Daley WP, Yamada KM. [Patterned cell and matrix dynamics in branching morphogenesis](#). J Cell Biol. 2017 Mar 6;216(3):559-570. Review.

Commentaries and Reports

Flick MJ, Bugge TH. [Plasminogen-receptor \$\kappa\$: plasminogen activation and beyond](#). J Thromb Haemost. 2017 Jan;15(1):150-154.

Drake MT, Collins MT, Hsiao EC. [The Rare Bone Disease Working Group: report from the 2016 American Society for Bone and Mineral Research Annual Meeting](#). Bone. 2017 Jan 20. pii: S8756-3282(17)30020-0.

Office of Science Policy and Analysis Staff Publications

Dye BA, Vargas CM, Fryar CD, Ramos-Gomez F, Isman R. [Oral health status of children in Los Angeles County and in the United States, 1999-2004](#). Community Dent Oral Epidemiol. 2017 Apr;45(2):135-144.

Mukherjee A, Livinski AA, Millum J, Chamut S, Boroumand S, Iafolla T, Adesanya MR, Dye BA. [Informed consent in dental care and research for the older adult population: A systematic review](#). J Am Dent Assoc. 2017 Apr;148(4):211-220.

Dye BA. [The Global Burden of Oral Disease: Research and Public Health Significance](#). J Dent Res. 2017 Apr;96(4):361-363.

Billings M, Dye BA, Iafolla T, Grisius M, Alevizos I. [Elucidating the role of hyposalivation and autoimmunity in oral candidiasis](#). Oral Dis. 2017 Apr;23(3):387-394

Vogtman E, Graubard B, Loftfield E, Chaturvedi A, Dye BA, Abnet CC, Freedman ND. [Contemporary impact of tobacco use on periodontal disease in the USA](#). Tob Control. 2017 Mar;26(2):237-238.

FUNDING UPDATE

DER Funding Opportunity Announcements

Neuroskeletal Biology of the Dental and Craniofacial Skeletal System (R01)

The purpose of this Funding Opportunity Announcement (FOA) is to encourage research on the role of the nervous system in metabolism, homeostasis, remodeling and/or regeneration of the postnatal dental and craniofacial skeletal system (DCS) in health and disease. The objectives are to enhance basic science knowledge about interactions between the peripheral and central nervous systems and the DCS, and facilitate development of strategies to optimize normal function, reduce the impact of disease, and develop capacity to repair and regenerate injured teeth and craniofacial bones. [Link to FOA \(R01\)](#)

Neuroskeletal Biology of the Dental and Craniofacial Skeletal System (R21)

The purpose of this FOA is to encourage exploratory or developmental research on the role of the nervous system in metabolism, homeostasis, and remodeling and/or regeneration of the postnatal dental and craniofacial skeletal system (DCS) in health and disease. This exploratory/developmental FOA will provide support for early and conceptual stages of project development including development of appropriate strategies and models to study the interactions between the peripheral and central nervous systems and the DCS. It is expected that these exploratory and developmental projects will facilitate development of strategies to optimize normal function, reduce the impact of disease, and develop capacity to repair and regenerate injured teeth and craniofacial bones. [Link to FOA \(R21\)](#)

Neoantigen-Based Therapeutic Targeting of Head and Neck Cancers (R01)

The purpose of this FOA is to support basic and preclinical research aimed at developing novel immunotherapeutic targets for head and neck cancers (HNC), including salivary gland cancers. Research supported by this FOA will identify human HNC-specific neoantigens, and will test the utility of these neoantigens as targets for eliciting anti-tumor immune responses in affected patient populations. [Link to FOA \(R01\)](#)

Program Announcements

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

Release Date: December 23, 2016

[Research on the Health of Women of Underrepresented, Understudied and Underreported \(U3\) Populations, An ORWH FY17 Administrative Supplement \(Admin Supp\)](#)

Release Date: January 5, 2017

[Zika Virus \(ZIKV\) Complications \(R21\)](#)

Release Date: January 17, 2017

[Development of Highly Innovative Tools and Technology for Analysis of Single Cells \(SBIR\) \(R43/R44\)](#)

Release Date: February 1, 2017

[Development of Highly Innovative Tools and Technology for Analysis of Single Cells \(STTR\) \(R41/R42\)](#)

Release Date: February 1, 2017

[NIDCR Prospective Observational or Biomarker Clinical Validation Study Cooperative Agreement \(U01\)](#)

Release Date: February 3, 2017

[Blueprint Neurotherapeutics Network \(BPN\): Small Molecule Drug Discovery and Development for Disorders of the Nervous System \(UG3/UH3\)](#)

Release Date: March 9, 2017

[Secondary Analysis and Integration of Existing Data to Elucidate the Genetic Architecture of Cancer Risk and Related Outcomes \(R01\)](#)

Release Date: March 30, 2017

[Secondary Analysis and Integration of Existing Data to Elucidate the Genetic Architecture of Cancer Risk and Related Outcomes \(R21\)](#)

Release Date: March 30, 2017

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

Release Date: April 11, 2017

Requests for Applications

[NIDCR Award for Sustaining Outstanding Achievement in Research \(SOAR\) \(R35\)](#)

Release Date: December 14, 2016

[National Centers for Cryoelectron Microscopy \(U24\)](#)

Release Date: January 5, 2017

[Stimulating Peripheral Activity to Relieve Conditions \(SPARC\): Foundational Peripheral Neuroanatomy and Functional Neurobiology in Under-Studied Organs \(U01\)](#)

Release Date: January 26, 2017

[Research Education Program Grants for CryoEM Curriculum Development \(R25\)](#)

Release Date: February 13, 2017

[Oral HIVacc: Synergistic Strategies to Systemic Vaccination \(R01\)](#)

Release Date: February 13, 2017

[HIV Pathogenesis and the Oral Microbiota \(R01\)](#)

Release Date: February 21, 2017

[Neoantigen-Based Therapeutic Targeting of Head and Neck Cancers \(R01\)](#)

Release Date: February 27, 2017

[Neuroskeletal Biology of the Dental and Craniofacial Skeletal System \(R01\)](#)

Release Date: February 27, 2017

[Neuroskeletal Biology of the Dental and Craniofacial Skeletal System \(R21\)](#)

Release Date: February 27, 2017

[NIDCR Dental Specialty and PhD Program \(DSPP\)\(K12\)](#)

Release Date: March 21, 2017

[Limited Competition - Stimulating Peripheral Activity to Relieve Conditions \(SPARC\): Technologies to Understand the Control of Organ Function by the Peripheral Nervous System \(OT2\)](#)

Release Date: April 11, 2017

[NIH Director's Transformative Research Awards \(R01\)](#)

Release Date: April 20, 2017

[NIH Director's New Innovator Award Program \(DP2\)](#)

Release Date: April 20, 2017

[NIH Director's Pioneer Award Program \(DP1\)](#)

Release Date: April 20, 2017

[NIH Director's Early Independence Awards \(DP5\)](#)

Release Date: April 18, 2017

Notices

[Notice of Reissuance of PAR-16-106 and Change in Due Dates for R21 Applications on the Assessment of Zika Virus \(ZIKV\) Complications](#)

Release Date: December 14, 2016

[Revision: Participation of the National Institute of Dental and Craniofacial Research \(NIDCR\) in PAR-15-280 "Multidisciplinary Studies of HIV/AIDS and Aging \(R01\)"](#)

Release Date: December 21, 2016

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(U01\)](#)

Release Date: March 31, 2017

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(R43/R44\)](#)

Release Date: March 31, 2017

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(U24\)](#)

Release Date: March 31, 2017

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(R41/R42\)](#)

Release Date: March 31, 2017

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(UC4\)](#)

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[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(UM2\)](#)

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[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(U54\)](#)

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[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(UM1\)](#)

Release Date: March 31, 2017

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(R01\)](#)

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[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(P50\)](#)

Release Date: March 31, 2017

[Notice of Intent to Publish a Funding Opportunity Announcement to Support Competitive Revision Applications in Regenerative Medicine Innovation Projects \(RMIP\) \(R24\)](#)

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