

# Director's Report to the National Advisory Dental and Craniofacial Research Council January 2018

## ACTIVITIES OF THE NIDCR DIRECTOR

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on September 15, 2017, NIDCR Director Martha J. Somerman, DDS, PhD, has maintained an active schedule of attending research symposia and workshops, delivering presentations to stakeholders, and meeting with leaders of other organizations.

During the last four months, Dr. Somerman engaged in many notable activities:

- Dr. Somerman and Stephen I. Katz, MD, PhD, director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases, presented to the Board of Directors of the American Society for Bone and Mineral Research (ASBMR) on September 9, during the ASBMR 2017 Annual Meeting in Denver, Colo.
- Dr. Somerman presented a talk titled "NIDCR: Guiding Advances in Oral Health Research and Innovation" as part of the NIDCR Dentist Scientist Training Program Workshop that was held on September 13 on the NIH campus in Bethesda, Md.
- Dr. Somerman provided welcoming remarks and participated in a panel discussion at the American Dental Association Dental Students' Conference on Research on October 3 on the NIH campus in Bethesda, Md.
- Dr. Somerman presented two talks, "NIDCR: Catalyzing Oral Health Research and Innovation," and "NIDCR: Guiding the Future of Oral Health Research, Together" on October 5 at the 125th anniversary of the School of Dental Medicine at the University at Buffalo, State University of New York (SUNY), in Buffalo, N.Y.
- Dr. Somerman participated in an American Association for Dental Research (AADR) Government Affairs Committee conference call on October 23 to provide updates on NIH and NIDCR activities.
- Dr. Somerman participated in a National Academy of Medicine Forum on Regenerative Medicine on October 26 at the National Academies of Sciences, Engineering, and Medicine offices in Washington, DC.
- On October 30, 2017, Dr. Somerman presented a talk titled "NIDCR: Advancing Cleft/Craniofacial Research" at the International Society for Maxillofacial Rehabilitation and American Academy of Maxillofacial Prosthetics Annual Meeting in San Francisco, Calif.
- Dr. Somerman attended the World Workshop on Classification of Periodontal and Peri-implant Diseases and Conditions on November 9-11 at the University of Chicago, Chicago, Ill.
- With NIAMS Director Dr. Stephen I. Katz, Dr. Somerman co-moderated the Musculoskeletal Tissue and Integument session and participated in the Regenerative Medicine Innovation Workshop: Focus on Adult Stem Cells, which was held in Rockville, Md. on December 6-7.
- Dr. Somerman participated in a conference call on December 12 with AADR's Committee on Diversity and Inclusion to discuss opportunities to enhance diversity and inclusion in the dental, oral, and craniofacial research workforce.

**BUDGET UPDATE**

**FY 2017**

In FY 2017 NIDCR had an operating budget of \$424.8M. See the table below for distribution by budget mechanism.

<b>National Institute of Dental and Craniofacial Research FY 2017 Actuals</b>		
<b>Research Grants</b>	<b>No.</b>	<b>Amt. (\$000)</b>
<b><u>Research Projects</u></b>		
<b>Noncompeting</b>	<b>422</b>	<b>207,065</b>
<b>Competing</b>	<b>155</b>	<b>61,408</b>
<b>Subtotal</b>	<b>577</b>	<b>268,473</b>
<b>SBIR/STTR</b>	<b>22</b>	<b>11,924</b>
<b>Subtotal, RPGs</b>	<b>599</b>	<b>280,397</b>
<b><u>Research Centers</u></b>		
	<b>1</b>	<b>3,478</b>
<b><u>Other Research</u></b>		
<b>Research Careers</b>	<b>47</b>	<b>7,468</b>
<b>Other</b>	<b>20</b>	<b>9,395</b>
<b>Subtotal, Other Research</b>	<b>67</b>	<b>16,863</b>
<b>TOTAL Research Grants</b>		
	<b>667</b>	<b>300,738</b>
<b>FTTPs</b>		
<b>Research Training</b>	<b>234</b>	<b>10,955</b>
<b>Research &amp; Development Contracts</b>	<b>15</b>	<b>19,317</b>
<b>SUBTOTAL, EXTRAMURAL</b>		<b>331,010</b>
<b>Intramural Research</b>		<b>66,785</b>
<b>Research Management and Support</b>		<b>26,987</b>
<b>Lapse</b>		<b>15</b>
<b>TOTAL NIDCR</b>		<b>424,797</b>

**FY 2018**

For FY 2018, NIH is currently operating under a continuing resolution through January 19, 2018.

**FY 2019**

FY 2019 budget information is not yet available.

## HHS/NIH UPDATE

### **Eric D. Hargan Designated Acting Secretary of US Department of Health and Human Services**

Eric D. Hargan was sworn into office as deputy secretary on October 6 and was appointed acting secretary of HHS on October 10 by President Donald J. Trump after the resignation of former HHS Secretary Thomas E. Price, MD, on September 29. Previously, Mr. Hargan was an attorney focused on transactions, health care regulations, and government relations. He received his bachelor's degree from Harvard University and his JD from Columbia University Law School.

### **Jerome Adams, MD, MPH, Named 20th US Surgeon General**

On September 5, Vice President Michael Pence swore in the 20th US Surgeon General, Dr. Jerome M. Adams. Dr. Adams, a board-certified anesthesiologist, served as Indiana State Health Commissioner from 2014 to 2017. Dr. Adams has bachelor's degrees in both biochemistry and psychology from the University of Maryland, Baltimore County, a master's of public health from the University of California at Berkeley, and a medical degree from Indiana University School of Medicine.

### **HHS Acting Secretary Declares National Opioid Crisis a Public Health Emergency**

On October 26, as requested by President Donald Trump, Acting HHS Secretary Eric D. Hargan declared a nationwide public health emergency regarding the opioid crisis. The same day, NIH Director Francis S. Collins, MD, PhD, issued a [statement](#) emphasizing NIH's commitment to harness the full power of the biomedical research enterprise to address the crisis. On December 5, Dr. Collins, along with officials from the Substance Abuse and Mental Health Services Administration and Centers for Disease Control and Prevention, [appeared](#) before the Senate Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Agencies to [describe their agencies' efforts to address the crisis](#).

### **FDA Announces Regenerative Medicine Policy Framework**

On November 16, the FDA announced a comprehensive policy framework for the development and oversight of regenerative medicine products, including novel cellular therapies. Delivering on provisions of the 21<sup>st</sup> Century Cures Act, a suite of four guidance documents builds upon the FDA's existing risk-based approach to more clearly describe what products are regulated as drugs, devices, and/or biological products. The framework is designed to drive advances in regenerative medicine so that innovators can bring new, effective therapies to patients as quickly and safely as possible.

### **NIH Director Testifies Before Congress on 21<sup>st</sup> Century Cures Act**

Dr. Collins appeared before the House Committee on Energy and Commerce Subcommittee on Health on [November 30](#), and the Senate Committee on Health, Education, Labor, and Pensions on [December 7](#), to provide an update on NIH's implementation of the 21<sup>st</sup> Cures Act, enacted in December 2016. He described progress around the complexities of sharing large datasets, enhancing inclusion in clinical trials, strengthening the biomedical workforce, reducing administrative burden, as well as initiatives including the BRAIN Initiative, Cancer Moonshot, Regenerative Medicine Innovation Project, and others.

### **Roderic Pettigrew, PhD, MD, Steps Down as National Institute of Biomedical Imaging and Bioengineering Director**

Dr. Roderic Pettigrew departed his position as director of NIH's NIBIB in mid-November to assume two senior leadership positions at Texas A&M University. Dr. Pettigrew was the founding NIBIB director, serving in that position for 15 years. NIBIB Deputy Director Jill Heemskerk, PhD, was named acting director of the Institute while NIH conducts a national search for a new NIBIB director.

### **James Ostell, PhD, Named Director of the National Center for Biotechnology Information**

NIH announced September 11 that National Library of Medicine (NLM) Director Patricia Flatley Brennan, RN, PhD, has appointed Dr. James Ostell as the director of the NCBI, a division of the NIH's NLM. Dr. Ostell has been with NCBI since it was established by Congress in 1988, and he has helped shape it into one of the most widely used biomedical resources in the world. Dr. Ostell earned a PhD in molecular biology from Harvard University. Before joining NCBI, he developed commercial molecular biology software.

### **Norman E. Sharpless, MD, Sworn in as Director of the National Cancer Institute**

Dr. Norman E. “Ned” Sharpless took the oath of office October 17 to become the 15th director of the NCI. Dr. Sharpless comes to NCI from the University of North Carolina School of Medicine, Chapel Hill, where he served as director of the NCI-Designated Lineberger Comprehensive Cancer Center and as the Wellcome Distinguished Professor in Cancer Research. After earning his undergraduate and medical degrees from the University of North Carolina at Chapel Hill, Dr. Sharpless completed his internal medicine residency at the Massachusetts General Hospital and a hematology/oncology fellowship at Dana-Farber/Partners Cancer Care, both of Harvard Medical School in Boston, Mass.

### **NCI Leaders Outline Cancer Moonshot Initiative in *The Lancet Oncology***

In the November 2017 issue of *The Lancet Oncology*, NCI Deputy Director Douglas Lowy, MD, and NCI’s Director of the Division of Cancer Biology Dinah Singer, PhD, discussed the implementation of the Cancer Moonshot, stressing that progress towards understanding, preventing, screening for, and treating cancer will require efforts across the entire spectrum of cancer research.

### **Common Fund’s Library of Network-based Cellular Signatures Program**

A *Cell Systems* paper, published online November 29 and authored by LINCS investigators and NIH staff, describes the Common Fund LINCS program, which aims to create a network-based understanding of human biology by cataloging changes in gene and protein expression, signaling processes, cell morphology, and epigenetic states that occur when cells are exposed to a variety of perturbing agents. LINCS data are made openly available as a community resource to enable scientists to address a broad range of basic research questions that seek to understand cell signaling and gene regulatory pathways involved in human disease.

### **NIH Releases Federal Pain Research Strategy**

On October 23, NIH issued the Federal Pain Research Strategy, a long-term strategic plan to advance the federal pain research agenda. An effort of the Interagency Pain Research Coordinating Committee and the NIH Office of Pain Policy, the strategy identifies critical gaps in basic and clinical research on the symptoms and causes of pain and provides recommendations to avoid unnecessary duplication of effort across NIH and other federal agencies.

### **NIH Grantees Win 2017 Nobel Prizes in Physiology or Medicine and Chemistry**

NIH announced on October 2 that the 2017 Nobel Prize in Physiology or Medicine was awarded to NIH grantees Jeffrey C. Hall, PhD, of the University of Maine; Michael Rosbash, PhD, of Brandeis University; and Michael W. Young, PhD, of Rockefeller University for their discoveries of molecular mechanisms controlling the circadian rhythm. On October 4, the 2017 Nobel Prize in Chemistry was awarded to NIH grantee Joachim Frank, PhD, of Columbia University, along with several collaborators, for the development of cryo-electron microscopy, which both simplifies and improves the imaging of biomolecules.

### **NCI’s Douglas Lowy, MD, and John Schiller, PhD, Receive 2017 Lasker Award**

On September 15, Drs. Douglas R. Lowy and John T. Schiller of NCI received the 2017 Lasker-DeBakey Clinical Medical Research Award for their research leading to the development of human papillomavirus (HPV) vaccines. Dr. Lowy’s and Dr. Schiller’s collaborative work to understand and prevent HPV infection led to the approval of three preventive HPV vaccines by the FDA.

### **NIH Partners with Biopharmaceutical Companies to Speed Development of Cancer Immunotherapies**

On October 12, NIH and 11 biopharmaceutical companies launched the Partnership for Accelerating Cancer Therapies (PACT), a five-year public-private research collaboration totaling \$215 million as part of the Cancer Moonshot. PACT will initially focus on efforts to identify, develop, and validate robust biomarkers—standardized biological markers of disease and treatment response—to advance new immunotherapy treatments that harness the immune system to attack cancer.

### **NIH Completes Atlas of Human DNA Differences that Influence Gene Expression**

As announced October 11, NIH-funded researchers completed a detailed atlas documenting the stretches of human DNA that influence gene expression—a mechanism by which a person’s genome gives rise to an observable trait like hair color or disease risk. This atlas is a critical resource for the scientific community interested in how individual genomic variation leads to biological differences—such as healthy and diseased states—across human tissues and cell types.

## **All of Us Research Program Announces First Community Partner Awards and Expands National Network**

NIH announced the first four community partner awards that will help to build a national network of trusted leaders to motivate diverse communities to join the [All of Us Research Program](#), part of the Precision Medicine Initiative. These awardees will help to raise awareness about the program among seniors, Hispanics and Latinos, African Americans, and the LGBTQ community. Additionally, [three sets of health care provider organizations](#) will extend the program's geographic reach and add to a growing network charged with implementing the initiative.

## **NIDCR UPDATE**

### **Institute News**

#### **Douglas M. Sheeley, ScD, Selected as NIDCR Deputy Director**

Dr. Douglas M. Sheeley has been announced as the new deputy director of NIDCR. Dr. Sheeley comes to NIDCR after having served as senior scientific officer and acting chief of the Biomedical Technology Branch at the National Institute of General Medical Sciences (NIGMS), where he led programs to develop and expand access to new tools for a wide range of areas including proteomics, carbohydrate research, and modeling of infectious disease dynamics. Dr. Sheeley earned his ScD in nutritional biochemistry from Harvard University School of Public Health and his BS in chemistry from Dickinson College in Carlisle, Pa.

#### **NIDCR Hosts Autotherapies Symposium**

On January 25-26 NIDCR convened a two-day scientific symposium and workshop—“Autotherapies: Enhancing Our Innate Healing Capacity”—in the Lipsett Amphitheater of the NIH Clinical Center. Autotherapies are treatments based on the body's natural ability to heal and protect itself. The event featured presentations from experts in stem cell biology, craniofacial anomalies and regeneration, regenerative bioengineering, and cancer immunotherapy. Dr. Somerman welcomed symposium attendees in her opening remarks. NIH Principal Deputy Director Lawrence A. Tabak, DDS, PhD, delivered an overview. Afterward, small groups broke into workshops led by NIDCR staff, including Nadya Lumelsky, PhD, Preethi Chander, PhD, Chiayeng Wang, PhD, and Lillian Shum, PhD, to further discuss issues brought up in the symposium. A video of the event is available at [NIH VideoCast](#).

#### **NIDCR is Launching Redesigned Website**

NIDCR's revamped website will be launching in the coming weeks. It features a new graphic design and easy-to-navigate pages that help visitors quickly find the information they seek. The redesign is based on extensive research that examined the needs and preferences of NIDCR's diverse audiences and the usability of the site. The new site also adapts to the viewer's screen size—whether a desktop monitor, tablet, or smartphone.

#### **NIDCR's 2017 SOAR Awards Support Outstanding Mid-Career Investigators**

NIDCR announced on October 4 that it issued four awards totaling approximately \$1 million each per year to support outstanding researchers in their pursuit of high-risk, high-reward projects with the possibility to profoundly enhance our understanding of dental, oral, and craniofacial diseases and conditions. The support goes to scientists who are investigating skeletal tissue regeneration, craniofacial malformations, head and neck cancer, and links between viral infections and oral inflammation. The Sustaining Outstanding Achievement in Research (SOAR) awards provide up to eight years of grant support to allow mid-career investigators with outstanding records of productivity to have stable funding to pursue potentially transformative research programs.

#### **NIDCR Funds Salivary Gland Tissue Chip Project through NIH Program**

On September 12, NIH announced awards totaling \$15 million to support development of 3-D human tissue models as part of the [Tissue Chips for Disease Modeling and Efficacy Testing](#) initiative. This effort is led by the National Center for Advancing Translational Sciences in collaboration with other NIH institutes and centers, including NIDCR. NIDCR is funding a project at the University of Rochester to engineer miniaturized, 3-D human salivary gland tissue chips, with the aim of finding better ways to treat the loss of salivary gland function due to head and neck cancer radiation therapy. NIDCR is also contributing funds to a project supported by several NIH institutes that will establish a

multi-tissue platform containing five tissue chips—for heart, liver, skin, bone, and vasculature—to model a broad range of diseases, including those relevant to the NIDCR mission.

#### **2017 NIH Director’s High-Risk Research Awardees Include NIDCR-Supported Microbiologist**

On October 5, NIH’s High-Risk, High-Reward Research Program announced new funding to exceptionally creative scientists. The program, part of the NIH Common Fund, supports innovative approaches to tackle high-impact challenges in biomedical research. NIDCR will administer one of the awards: a grant to Christopher Johnston, PhD, of the Forsyth Institute, who is designing a rapid, robust system that will enable scientists to genetically engineer most types of bacteria that can be grown in the laboratory.

#### **NIDCR-Sponsored Researchers and Staff Participate in Bone Disease Workshop**

On October 11, NIDCR-supported researchers and staff attended an interagency workshop hosted by the Federal Working Group on Bone Diseases. Jason Wan, PhD, of NIDCR’s Division of Extramural Research, presented on NIDCR’s mineralized tissue research portfolio. José Luis Millán, PhD, an NIDCR grantee at Sanford Burnham Prebys Medical Discovery Institute, described his group’s research on the rare genetic disorder hypophosphatasia. Alison Boyce, MD, of NIDCR’s Division of Intramural Research, reported on the development of an international consortium for fibrous dysplasia and McCune-Albright syndrome. Tracy Hart, a patient advocate and member of the National Advisory Dental and Craniofacial Research Council, described recent efforts of the Rare Bone Disease Alliance. Several of the speakers highlighted examples of multi-stakeholder collaborations, laying the conceptual foundation for additional future bone disease research partnerships.

#### **NIDCR Supports 4<sup>th</sup> International Conference on Malignant Salivary Gland Tumors**

Chiayeng Wang, PhD, director of the Oral and Salivary Gland Cancer Biology Program; Lillian Shum, PhD, director of Extramural Research; and Yasamin Shirazi, PhD, chief of the Scientific Review Branch, attended the 4th International Conference on Malignant Salivary Gland Tumors on October 19-20 at the University of Florida, Gainesville, Fla. NIDCR provided support for this conference through an R13 award (DE027293-01). The goal of the conference was to discuss scientific advances in salivary gland cancer (SGC) research and to bring together clinicians and basic scientists to foster new ideas, experiments, and clinical trial opportunities for SGC patients. In addition to conducting outreach to investigators, Drs. Wang, Shum, and Shirazi presented “NIDCR, NIH Priorities and Funding” in a session held on the second day of the meeting.

#### **Personnel Update**

Kenneth Yamada, PhD, chief of the Cell Biology Section in NIDCR’s Division of Intramural Research, was elected to be a fellow and received a lifetime fellow recognition plaque and pin for “Distinguished Contributions to the Advancement of Cell Biology” at the December 2-6 meeting of the American Society for Cell Biology – European Molecular Biology Organization in Philadelphia, Pa.

Steve Scholnick, PhD, was appointed acting chief of the Translational Genomics Research Branch in the Division of Extramural Research. Dr. Scholnick is also the director of the Developmental Biology and Genetics Program, a position he has held since 2009.

Dena Fischer DDS, MSD, MS has been appointed acting director of the Center for Clinical Research in the Division of Extramural Research. Since 2011, Dr. Fischer has also been the director of the Clinical and Practice-Based Research Program.

#### **Meetings and Conferences** **Staff Presentations**

Chiayeng Wang, PhD, director of the Oral and Salivary Gland Cancer Biology Program in NIDCR’s Division of Extramural Research, presented at the Head and Neck Cancer Symposium: Cancer Immunotherapy and Precision Medicine on September 25 at Boston University, Boston Mass. In a morning session, Dr. Wang spoke to the audience about NIDCR’s interest in cancer immunotherapy as a promising therapeutic strategy in combating head and neck squamous cell carcinoma (HNSCC). In addition, she informed the audience about the “Immunology-Oncology Translational Network” Cancer Moonshot initiative, within which NIDCR intends to support HNSCC cancer immunotherapy and cancer immunoprevention research.

Dena Fischer, DDS, MSD, MS, attended the Project Accessible Oral Health workshop held October 26-27 in New York, N.Y. and gave a presentation about NIDCR's funding opportunities, research activities, and educational materials pertaining to patients with intellectual and developmental disabilities (IDD). This workshop focused on improving the well-being and oral health of people with IDD.

Gallya Gannot, DMD, PhD, attended the Centers for AIDS Research (CFAR) annual meeting held November 1-3 in Washington, D.C. and presented "National Institute of Dental and Craniofacial Research: Oral Health and HIV Research Priorities" during the CFAR Directors' closed meeting.

Orlando Lopez, PhD, director of the Dental Materials and Biomaterials Program in NIDCR's Division of Extramural Research, organized a progress review meeting to evaluate the state of the science, future directions, and organizational framework of NIDCR-funded research performed by the Biomaterials Group at the National Institute of Standards and Technology (NIST) under an interagency agreement. An external leadership committee consisting of three subject matter experts was convened to review progress on development of performance-based, clinically relevant, standards for advancing dental materials. The meeting was held on November 15 at the NIST campus in Gaithersburg, Md.

Together with Carrie Wolinetz, PhD, of the NIH Office of Science Policy, and Trey White of Deloitte, Melissa Riddle, PhD, presented at the annual meeting of Public Responsibility in Medicine and Research on November 7 in San Antonio, Texas. The presentation was entitled "NIH-FDA Clinical Trial Protocol Template: Making Protocol Writing Easier for the Investigators, While Enhancing Quality."

Mehrnoosh Abshari, MS, director of the NIDCR Division of Intramural Research (DIR) Combined Technical Research Core, organized an all-day seminar on cytometry on November 13 at the Johns Hopkins University in Baltimore, Md.

In October, Michael Collins, MD, PhD, chief of the Skeletal Disorders and Mineral Homeostasis Section of the DIR, was invited to give the annual Dr. Constantine S. Anast Memorial Lecture at Medical Grand Rounds at Boston Children's Hospital, Harvard Medical School, Boston, Mass. The lecture was titled "The McCune-Albright syndrome/fibrous dysplasia of bone; the emperor of endocrine maladies."

## **Staff Attendance**

Nadya Lumelsky, PhD, director of Tissue Engineering and Regenerative Medicine Program in the Division of Extramural Research, and several NIDCR staff attended the Regenerative Medicine Innovation Workshop: Focus on Adult Stem Cells on December 6-7 in Bethesda, Md. This workshop was co-organized by a trans-NIH Working Group and the FDA. The workshop explored the state of regenerative medicine science involving adult stem cells with a focus on approaches to the development of safe and effective products. Dr. Lumelsky took active part in planning the scientific program of the workshop, and was involved in group and individual discussions during the meeting.

Lynn King, PhD, chief of the NIDCR's Research Training and Career Development Branch, performed outreach at the following meetings:

- American Association of Bone and Mineral Research Annual meeting, September 8-11, Denver, Colo.
- Colgate Dental Student's Conference on Research, October 3, at the American Dental Association Foundation Dr. Anthony Volpe Research Center in Gaithersburg, Md.
- 2017 Annual BIRCCWH meeting "Building Interdisciplinary Research Careers in Women's Health," sponsored by the NIH Office of Research on Women's Health, October 25, NIH campus, Bethesda, Md.
- The Society for Neuroscience Annual Meeting, November 11-15, Washington, D.C.

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

- Pediatric HIV/AIDS Cohort Study, September 25-26, Rockville, Md.
- American Dental Association's National Advisory Committee on Health Literacy in Dentistry, September 25-26, Chicago, Ill.
- 2017 Washington Big Data Conference, October 2, Washington, D.C.
- NIH Pain Consortium Symposium Planning Meeting, October 5, Bethesda, Md.
- 2017 Academy for Dental Materials Annual Meeting, October 5-7, Nuremberg, Germany.
- Society of Clinical Research Associates 2017 Annual Conference, October 6-8, Orlando, Fla.
- Advancing Therapeutic Development for Pain and Opioid Use Disorders through Public-Private Partnerships: A Workshop, October 11-12, Washington, D.C.
- Tissue Chip Consortium Meeting, October 12-23, Bethesda, Md.
- American Society of Human Genetics meeting, October 17-20, Orlando, Fla.
- 16th International Conference on Malignancies in HIV/AIDS, October 22-23, Bethesda, Md.
- 17th International IEEE Conference on Bioinformatics and BioEngineering, October 23, Herndon, Va.
- Annual Interagency Pain Research Coordinating Committee meeting, October 23, Bethesda, Md.
- Division of AIDS Research at the National Institute of Mental Health meeting on NeuroHIV in the ART Era, October 23-24, Rockville, Md.
- 2017 Sex as a Biological Variable Workshop, October 26-27, Bethesda, Md.
- Public Responsibility in Medicine and Research and the 2017 Advancing Ethical Research Conference, November 6-8, San Antonio, Texas.
- 19th Annual HHS SBIR/STTR Conference, November 6-9, Milwaukee, Wis.
- 2017 Society of Immunotherapy for Cancer Annual Meeting, November 10-12, National Harbor, Md.
- Society for Neuroscience, November 11-15, Washington, D.C.
- NIH/FDA Cytokine Interest Group 25th Anniversary Meeting, November 20, Bethesda, Md.
- Pain in Animals Workshop, November 29-30, Bethesda, Md.
- The 10th Annual Conference on the Science of Dissemination and Implementation in Health, December 4-6, Arlington, Va.
- NIH Pathways to Prevention Workshop: Methods for Evaluating Natural Experiments in Obesity, December 5-6, Bethesda, Md.
- FNIH Partnership to Address the Opioid Crisis Face-to-Face Meeting, December 12-13, Bethesda, Md.

## **Training and Career Development News**

### **Intramural Training Activities and Outreach**

The NIDCR Office of Education in the Division of Intramural Research participated in many activities to recruit students and researchers at all levels. These activities are highlighted below:

#### **Speaking Engagement at George Mason University**

On September 5, Deborah Philp, PhD, director of the Office of Education, was invited to give an informational seminar to undergraduate students as a part of the Biology Department/STEM Accelerator Program at George Mason University, Fairfax, Va. Dr. Philp's presentation focused on available training opportunities at NIDCR.

#### **2017 International Summit on Human Genetics and Genomes**

On September 18, Dr. Philp participated in a joint presentation with James Melvin, DDS, PhD, for a group of international dentists participating in the National Human Genome Research Institute's International Summit on Human Genetics and Genomes in Bethesda, Md.

#### **Howard University Recruitment Session**

On September 27, Dr. Philp represented NIDCR at an undergraduate training recruitment session held at Howard University in Washington, D.C. Several NIH Institutes were in attendance for this

event, along with representatives from industry and the Uniformed Services University of the Health Sciences.

#### **American Dental Association Dental Student Conference for Research**

On October 3, Dr. Philp and representatives from the ADA Dental Student Conference for Research coordinated a student visit to NIDCR. Fifty dental students from schools across the country were selected by the ADA to participate. Intramural and extramural NIDCR staff provided research presentations, a panel discussion on training opportunities offered by NIDCR, a presentation of career options in oral health research, and a tour of the NIDCR dental clinic.

#### **Society for the Advancement of Chicanos and Native Americans in Science Annual Conference**

Dr. Philp attended the SACNAS conference on October 19-21 in Salt Lake City, Utah and met with students, postdoctoral trainees, professors, and researchers interested in research opportunities at NIDCR.

#### **Annual Biomedical Research Conference for Minority Students**

Dr. Philp attended the ABRCMS conference held November 9-12 in Tampa, Fla., where she met with students, professors, and researchers interested in research opportunities at NIDCR.

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

The NIDCR Research Training and Career Development Branch (RTCDB) 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.

#### **NIDCR Workshop for Dentist PhD Trainees**

On September 13-14, RTCDB hosted a workshop for dentist PhD trainees on the NIH campus in Bethesda, Md. The goal of this event was to enhance the transition of NIDCR-supported dual-degree DDS/DMD-PhD students to research-intensive postdoctoral and junior faculty positions. Twenty-six dual degree students representing 12 national programs participated in the event. Workshop highlights included a scientific poster session, mock NIH study section, small group discussions, and opportunities to network and interact with other participants, NIDCR investigators, NIH Division of Extramural Research staff, and National Advisory Dental and Craniofacial Research Council members.

#### **Highlights of Trainee Scientific Achievements**

Trainees Who Have Achieved Subsequent NIH Grants

##### *First R01/U01s*

- Devraj Basu, MD, PhD, former NIDCR K08 awardee, assistant professor, Department of Otorhinolaryngology, University of Pennsylvania. (NIDCR) R01, "JARID1B-mediated epigenetic regulation of oncogenic signals in oral cancer."
- Marco Bottino, DDS, MSc, PhD, NIDCR K08 awardee, associate professor, Department of Cardiology, Restorative Sciences and Endodontics, University of Michigan. (NIDCR) R01, "Novel Therapeutics to Treat Necrotic Teeth: The Combinatorial Effect of a 3D Drug Delivery System and Spatially Designed Stem Cell Niches."
- Aaron James, MD, PhD, former NIDCR T32 postdoctoral trainee, assistant professor, Department of Pathology, Johns Hopkins University. (NIAMS) R01, "Direct and indirect contributions of perivascular stem cells to bone healing."
- Samir Khariwala, MD, MS, NIDCR K23 awardee, associate professor, Department of Otolaryngology, University of Minnesota. (FIC) R01, "Analytical capacity building for the study of tobacco carcinogen exposures in India."

- Robert Lipinski, PhD, former NIDCR K99/R00 awardee, assistant professor, Department of Comparative Biosciences, University of Wisconsin, Madison. (NIEHS) R01, “Developmental toxicity of pesticide synergist/Hedgehog inhibitor PBO.”
- Tally Largent-Milnes, PhD, former NIDCR F32 awardee, research assistant professor, Department of Pharmacology, University of Arizona. (NINDS) R01, “Blood Brain Barrier and Migraine: Effect on Therapy.”
- Deborah Polk, PhD, former NIDCR K23 awardee, assistant professor, Department of Dental Public Health, University of Pittsburgh. NIDCR (U01), “An implementation strategy for the adoption of an evidence-based pit-and-fissure sealant guideline by salaried dental providers: Using a framework from organizational development.”

#### *Pathway to Independence Awards (K99/R00)*

Fatima Syed-Picard, PhD, assistant professor, Department of Oral Biology, University of Pittsburgh. R00: “Scaffold-free Tissue Engineering: Using Principles from Developmental Biology to Support Craniofacial Regeneration.”

#### *Transitions from Institutional Training Grant Support to Individual Awards*

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

- Samantha Chiang, University of California Los Angeles. NIDCR F30 predoctoral fellowship to support dual degree DDS-PhD training, “Oral-piRNAs Enhance Re-epithelialization in Oral Wound Healing.”
- Sarah Lucas, University of Minnesota. NIDCR F31 predoctoral fellowship to support PhD training, “The role of mucin degradation by anaerobic bacteria in Staphylococcus aureus pathogenesis in chronic rhinosinusitis.”

#### Recent Publications from Trainees

##### *Individual Fellowship (F) Awardees*

- **DiStasio A**, Driver A, Sund K, Donlin M, Muraleedharan RM, Pooya S, Kline-Fath B, Kaufman KM, Prows CA, Schorry E, Dasgupta B, Stottmann RW. [Cpb2 is essential for embryogenesis and hypomorphic mutations cause human microcephaly.](#) *Hum Mol Genet.* 2017 Dec 15;26(24):4836-4848.
- **Facompre ND**, Sahu V, Montone KT, **Harmeyer KM**, Nakagawa H, Rustgi AK, Weinstein GS, Gimotty PA, Basu D. [Barriers to generating PDX models of HPV-related head and neck cancer.](#) *Laryngoscope.* 2017 Dec;127(12):2777-2783.
- **Miller DP**, Hutcherson JA, Wang Y, Nowakowska ZM, Potempa J, Yoder-Himes DR, Scott DA, Whiteley M, Lamont RJ. [Genes Contributing to Porphyromonas gingivalis Fitness in Abscess and Epithelial Cell Colonization Environments.](#) *Front Cell Infect Microbiol.* 2017 Aug 28;7:378.
- **Rodriguez E**, Sakurai K, Xu J, Chen Y, Toda K, Zhao S, Han BX, Ryu D, Yin H, Liedtke W, Wang F. [A craniofacial-specific monosynaptic circuit enables heightened affective pain.](#) *Nat Neurosci.* 2017 Dec;20(12):1734-1743.
- **Scheff NN**, Ye Y, Bhattacharya A, MacRae J, Hickman DN, Sharma AK, Dolan JC, Schmidt BL. [Tumor necrosis factor alpha secreted from oral squamous cell carcinoma contributes to cancer pain and associated inflammation.](#) *Pain.* 2017 Dec;158(12):2396-2409.
- **Zambrello MA**, Maciejewski MW, Schuyler AD, Weatherby G, Hoch JC. [Robust and transferable quantification of NMR spectral quality using IROC analysis.](#) *J Magn Reson.* 2017 Dec;285:37-46.

#### *Institutional Training Grant (T15/T32/T90/R90) Trainees and K12 Scholars*

- **Alexander-Bryant AA**, Zhang H, Attaway CC, Pugh W, Eggart L, Sansevere RM, Andino LM, Dinh L, Cantini LP, Jakymiw A. [Dual peptide-mediated targeted delivery of bioactive siRNAs to oral cancer cells in vivo](#). *Oral Oncol.* 2017 Sep;72:123-131.
- **Durham E**, Howie RN, Parsons T, Bennfors G, Black L, Weinberg SM, Elsalanty M, Yu JC, Cray JJ Jr. [Thyroxine Exposure Effects on the Cranial Base](#). *Calcif Tissue Int.* 2017 Sep;101(3):300-311.
- **Jones MM**, Vanyo ST, Visser MB. [The C-terminal region of the major outer sheath protein of \*Treponema denticola\* inhibits neutrophil chemotaxis](#). *Mol Oral Microbiol.* 2017 Oct;32(5):375-389.
- **Lagunas AM**, Wu J, Crowe DL. [Telomere DNA damage signaling regulates cancer stem cell evolution, epithelial mesenchymal transition, and metastasis](#). *Oncotarget.* 2017 Sep 16;8(46):80139-80155.
- **Maruyama T**, Jiang M, Abbott A, Yu HI, Huang Q, Chrzanowska-Wodnicka M, Chen EI, Hsu W. [Rap1b Is an Effector of Axin2 Regulating Crosstalk of Signaling Pathways During Skeletal Development](#). *J Bone Miner Res.* 2017 Sep;32(9):1816-1828.
- **Masterson EE**, Fitzpatrick AL, Enquobahrie DA, Mancl LA, Conde E, Hujoel PP. [Malnutrition-related early childhood exposures and enamel defects in the permanent dentition: A longitudinal study from the Bolivian Amazon](#). *Am J Phys Anthropol.* 2017 Oct;164(2):416-423.

#### *Research Career Development (K) Awardees*

- Albuquerque MTP, Nagata J, **Bottino MC**. [Antimicrobial Efficacy of Triple Antibiotic-eluting Polymer Nanofibers against Multispecies Biofilm](#). *J Endod.* 2017 Sep;43(9S):S51-S56.
- Ansari S, **Chen C**, Hasani-Sadrabadi MM, Yu B, Zadeh HH, Wu BM, **Moshaverinia A**. Hydrogel elasticity and microarchitecture regulate dental-derived mesenchymal stem cell-host immune system cross-talk. *Acta Biomater.* 2017 Sep 15;60:181-189.
- Ansari S, Sarrion P, Hasani-Sadrabadi MM, Aghaloo T, Wu BM, **Moshaverinia A**. [Regulation of the fate of dental-derived mesenchymal stem cells using engineered alginate-GelMA hydrogels](#). *J Biomed Mater Res A.* 2017 Nov;105(11):2957-2967.
- Blackshear CP, Flacco JS, Vistnes SM, Chung NN, Irizarry D, Brett EA, Yen DJ, Momeni A, Longaker MT, **Wan DC**. [Cell-Based Soft Tissue Reconstruction in a Hydrogel Scaffold](#). *Ann Plast Surg.* 2017 Dec;79(6):618-622.
- Geraldeli S, Soares EF, Alvarez AJ, Farivar T, Shields RC, Sinhoreti MAC, **Nascimento MM**. [A new arginine-based dental adhesive system: formulation, mechanical and anti-carries properties](#). *J Dent.* 2017 Aug;63:72-80.
- **Hong C**, Song D, Lee DK, Lin L, Pan HC, Lee D, Deng P, Liu Z, Hadaya D, Lee HL, Mohammad A, Zhang X, Lee M, Wang CY, Ho D. [Reducing posttreatment relapse in cleft lip palatal expansion using an injectable estrogen-nanodiamond hydrogel](#). *Proc Natl Acad Sci U S A.* 2017 Aug 29;114(35):E7218-E7225.
- Richards VP, Alvarez AJ, Luce AR, Bedenbaugh M, Mitchell ML, Burne RA, **Nascimento MM**. [Microbiomes of Site-Specific Dental Plaques from Children with Different Caries Status](#). *Infect Immun.* 2017 Jul 19;85(8). pii: e00106-17.
- **Sima C**, Montero E, Nguyen D, Freire M, Norris P, Serhan CN, Van Dyke TE. [ERV1 Overexpression in Myeloid Cells Protects against High Fat Diet Induced Obesity and Glucose Intolerance](#). *Sci Rep.* 2017 Oct 9;7(1):12848.

## PUBLICATIONS

### **Selected Extramurally Funded Science Advances**

During the past four months, 421 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**

Joshi VS, Kreth J, Koley D. [Pt-Decorated MWCNTs-Ionic Liquid Composite-Based Hydrogen Peroxide Sensor To Study Microbial Metabolism Using Scanning Electrochemical Microscopy](#). Anal Chem. 2017 Jul 18; 89(14): 7709-7718.

Huot N, Jacquelin B, Garcia-Tellez T, Rasclé P, Ploquin MJ, Madec Y, Reeves RK, Derreudre-Bosquet N, Müller-Trutwin M. [Natural killer cells migrate into and control simian immunodeficiency virus replication in lymph node follicles in African green monkeys](#). Nat Med. 2017 Nov;23(11):1277-1286.

### **Behavioral and Social Science Research**

Shane DM, Wehby GL. [The Impact of the Affordable Care Act's Dependent Coverage Mandate on Use of Dental Treatments and Preventive Services](#). The Impact of the Affordable Care Act's Dependent Coverage Mandate on Use of Dental Treatments and Preventive Services. Med Care. 2017;55(9):841-847.

### **Center Clinical Research**

Braun PA, Widmer-Racich K, Sevick C, Starzyk EJ, Mauritsen K, Hambidge SJ. [Effectiveness on Early Childhood Caries of an oral health promotion program for medical providers](#). Am J Public Health. 2017 May;107(S1):S97-S103.

Steinmetz CN, Zheng C, Okunseri E, Szabo A, Okunseri C. [Opioid Analgesic Prescribing Practices of Dental Professionals in the United States](#). JDR Clin Trans Res. 2017 Jul;2(3):241-248.

Thornhill MH, Jones S, Prendergast B, Baddour LM, Chambers JB, Lockhart PB, Dayer MJ. [Quantifying infective endocarditis risk in patients with predisposing cardiac conditions](#). Eur Heart J. 2017 Nov 17.

Yuan P, Mai H, Li J, Ho DC, Lai Y, Liu S, Kim D, Xiong Z, Alfi DM, Teichgraber JF, Gateno J, Xia JJ. [Design, development and clinical validation of computer-aided surgical simulation system for streamlined orthognathic surgical planning](#). Int J Comput Assist Radiol Surg. 2017 Dec;12(12):2129-2143.

Coker M, El-Kamary S, Enwonwu C, Blattner W, Langenberg P, Mongodin E, Akhigbe P, Obuekwe O, Omoigberale A, Charurat M. [Perinatal HIV Infection and Exposure and their Association with Dental Caries in Nigerian Children](#). Pediatr Infect Dis J. 2017 Jul 19.

### **Integrative Biology and Infectious Diseases**

Zhang C, Lim J, Jeon H-H, Xu F, Tian C, Miao F, Hameedaldeen A, Graves DT. [FOXO1 deletion in keratinocytes improves diabetic wound healing through MMP9 regulation](#). Sci Reports, 2017 September, 7, 10565.

Gomez A, Espinoza JL, Harkins DM, Leong P, Saffery R, Bockmann M, Torralba M, Kuelbs C, Kodukula R, Inman J, Hughes T, Craig JM, Highlander SK, Jones MB, Dupont CL, Nelson KE. [Host genetic control of the oral microbiome in health and disease](#). Cell Host Microbe. 2017 Sep 13;22(3):269-278.e3.

Qie S, Majumder M, Mackiewicz K, Howley BV, Peterson YK, Howe PH, Palanisamy V, Diehl JA. [Fbxo4-mediated Degradation Of Fxr1 Suppresses Tumorigenesis In Head And Neck Squamous Cell Carcinoma](#). Nat Commun. 2017; 8: 1534.

Gutman S, Kim D, Tarafder S, Velez S, Jeong J, Lee CH. [Regionally variant collagen alignment correlates with viscoelastic properties of the disc of the human temporomandibular joint](#). Arch Oral Biol. 2017 Nov 8; 86:1-6.

Cortez VS, Ulland TK, Cervantes-Barragan L, Bando JK, Robinette ML, Wang Q, White AJ, Gilfillan S, Cella M, Colonna M. [SMAD4 Impedes the Conversion Of NK Cells Into ILC1-like Cells By Curtailing Non-canonical TGF- \$\beta\$  Signaling](#). Nat Immunol. 2017; 18(9): 995-1003.

Verma AH, Richardson JP, Zhou C, Coleman BM, Moyes DL, Ho J, Huppler AR, Ramani K, McGeachy MJ, Mufazalov IA, Waisman A, Kane LP, Biswas PS, Hube B, Naglik JR, Gaffen SL. [Oral epithelial cells orchestrate innate type 17 responses to Candida albicans through the virulence factor Candidalysin](#). Sci Immunol. 2017 Nov 3;2(17).

Martin LJ, Smith SB, Khoutorsky A, Magnussen CA, Samoshkin A, Sorge RE, Cho C, Yosefpour N, Sivaselvachandran S, Tohyama S, Cole T, Khuong TM, Mir E, Gibson DG, Wieskopf JS, Sotocinal SG, Austin JS, Meloto CB, Gitt JH, Gkogkas C, Sonenberg N, Greenspan JD, Fillingim RB, Ohrbach R, Slade GD, Knott C, Dubner R, Nackley AG, Ribeiro-da-Silva A, Neely GG, Maixner W, Zaykin DV, Mogil JS, Diatchenko L. [Epiregulin and EGFR interactions are involved in pain processing](#). J Clin Invest. 2017 Sep 1;127(9):3353-3366

### **Translational Genomics Research Branch**

Li C, Lan Y, Krumlauf R, Jiang R. [Modulating Wnt Signaling Rescues Palate Morphogenesis in Pax9 Mutant Mice](#). J Dent Res. 2017 Oct; 96(11):1273-1281.

Jia S, Zhou J, Fanelli C, Wee Y, Bonds J, Schneider P, Mues G, D'Souza RN. [Small-molecule Wnt agonists correct cleft palates in Pax9 mutant mice in utero](#). Development. 2017 Oct; **144**(20):3819-3828.

Lansdon LA, Darbro BW, Petrin AL, Hulstrand AM, Standley JM, Brouillette RB, Long A, Mansilla MA, Cornell RA, Murray JC, Houston DW, Manak JR. [Identification of Isthmin 1 as a Novel Clefting and Craniofacial Patterning Gene in Humans](#). Genetics. 2017 Nov 21.

### **Division of Extramural Research Staff Publications**

Liu CH, Abrams ND, Carrick DM, Chander P, Dwyer J, Hamlet MRJ, Macchiarini F, PrabhuDas M, Shen GL, Tandon P, Vedamony MM. [Biomarkers of chronic inflammation in disease development and prevention: challenges and opportunities](#). Nat Immunol. 2017 Oct 18;18(11):1175-1180.

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

Ambudkar I, VanHook AM. [Science Signaling Podcast for 6 June 2017: Calcium signaling and dry mouth](#). Sci Signal. 2017 Jun 6;10(482).

Boyce AM, Brewer C, DeKlotz TR, Zalewski CK, King KA, Collins MT, Kim HJ. [Association of Hearing Loss and Otologic Outcomes With Fibrous Dysplasia](#). JAMA Otolaryngol Head Neck Surg. 2017 Nov 30.

Burke AB, Collins MT, Boyce AM. [Fibrous dysplasia of bone: craniofacial and dental implications](#). Oral Dis. 2017 Sep;23(6):697-708.

Chen KG, Johnson KR, Robey PG. [Mouse Genetic Analysis of Bone Marrow Stem Cell Niches: Technological Pitfalls, Challenges, and Translational Considerations](#). Stem Cell Reports. 2017 Nov 14;9(5):1343-1358.

Coddou C, Sandoval R, Castro P, Lazcano P, Hevia MJ, Rokic M, Hall B, Terse A, Gonzalez-Billault C, Kulkarni AB, Stojilkovic SS, Utreras E. [Cyclin-dependent kinase 5 modulates the P2X2a receptor channel gating through phosphorylation of C-terminal threonine 372](#). *Pain*. 2017 Nov;158(11):2155-2168.

Florenzano P, Gafni RI, Collins MT. [Tumor-induced osteomalacia](#). *Bone Rep*. 2017 Sep 20;7:90-97. doi: 10.1016/j.bonr.2017.09.002. eCollection 2017 Dec.

Kram V, Kilts TM, Bhattacharyya N, Li L, Young MF. [Small leucine rich proteoglycans, a novel link to osteoclastogenesis](#). *Sci Rep*. 2017 Oct 3;7(1):12627.

Liu X, Gong B, de Souza LB, Ong HL, Subedi KP, Cheng KT, Swaim W, Zheng C, Mori Y, Ambudkar IS. [Radiation inhibits salivary gland function by promoting STIM1 cleavage by caspase-3 and loss of SOCE through a TRPM2-dependent pathway](#). *Sci Signal*. 2017 Jun 6;10(482).

Mao L, Zhao ZL, Yu GT, Wu L, Deng WW, Li YC, Liu JF, Bu LL, Liu B, Kulkarni AB, Zhang WF, Zhang L, Sun ZJ. [γ-Secretase inhibitor reduces immunosuppressive cells and enhances tumour immunity in head and neck squamous cell carcinoma](#). *Int J Cancer*. 2017 Oct 19.

Mayer B, Németh K, Krepuska M, Myneni VD, Maric D, Tisdale JF, Hsieh MM, Uchida N, Lee HJ, Nemeth MJ, Holmbeck K, Noguchi CT, Rogers H, Dey S, Hansen A, Hong J, Chow I, Key S, Szalayova I, Pagani J, Markó K, McClain-Caldwell I, Vitale-Cross L, Young WS, Brownstein MJ, Mezey É. [Vasopressin stimulates the proliferation and differentiation of red blood cell precursors and improves recovery from anemia](#). *Sci Transl Med*. 2017 Nov 29;9(418).

Robinson C, Boyce AM, Estrada A, Kleiner DE, Mathew R, Stanton R, Frangoul H, Collins MT. [Bone marrow failure and extramedullary hematopoiesis in McCune-Albright syndrome](#). *Osteoporos Int*. 2017 Oct 25. doi:10.1007/s00198-017-4217-7.

Szczot M, Pogorzala LA, Solinski HJ, Young L, Yee P, Le Pichon CE, Chesler AT, Hoon MA. [Cell-Type-Specific Splicing of Piezo2 Regulates Mechanotransduction](#). *Cell Rep*. 2017 Dec 5;21(10):2760-2771.

Tella SH, Amalou H, Wood BJ, Chang R, Chen CC, Robinson C, Millwood M, Guthrie LC, Xu S, Levy E, Krishnasamy V, Gafni RI, Collins MT. [Multimodality Image-Guided Cryoablation for Inoperable Tumor-Induced Osteomalacia](#). *J Bone Miner Res*. 2017 Nov;32(11):2248-2256.

Wang S, Yamada KM. [Localized Lysosome Exocytosis Helps Breach Tissue Barriers](#). *Dev Cell*. 2017 Nov 20;43(4):377-378.

Zhang L, Ribbeck K, Turner B, Ten Hagen KG. [Loss of the mucosal barrier alters the progenitor cell niche via JAK/STAT signaling](#). *J Biol Chem*. 2017 Nov 10.

Zhang, L, Ten Hagen KG. 2017. [Enzymatic insights into an inherited genetic disorder](#). *eLife*. DOI: 10.7554/eLife.31127.

## FUNDING UPDATE

### **Program Announcements**

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

Release Date: September 1, 2017

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

Release Date: September 1, 2017

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

Release Date: September 7, 2017

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

Release Date: September 7, 2017

[Research on Transgender Health \(R21\)](#)

Release Date: September 8, 2017

[Research on Transgender Health \(R01\)](#)

Release Date: September 8, 2017

[Short-term Mentored Career Enhancement Awards for Mid-Career Investigators to Integrate Basic Behavioral and Social Sciences \(K18 - Clinical Trial Required\)](#)

Release Date: September 19, 2017

[Innovation Corps \(I-Corps\) at NIH Program for NIH and CDC Translational Research \(Admin Supp\)](#)

Release Date: October 12, 2017

[Dissemination and Implementation Research in Health \(R21 Clinical Trial Optional\)](#)

Release Date: November 1, 2017

[Dissemination and Implementation Research in Health \(R01 Clinical Trial Optional\)](#)

Release Date: November 3, 2017

[The Health of Sexual and Gender Minority \(SGM\) Populations \(R01 Clinical Trial Optional\)](#)

Release Date: November 6, 2017

[The Health of Sexual and Gender Minority \(SGM\) Populations \(R21 Clinical Trial Optional\)](#)

Release Date: November 6, 2017

[The Health of Sexual and Gender Minority \(SGM\) Populations \(R03 Clinical Trial Optional\)](#)

Release Date: November 6, 2017

[The Health of Sexual and Gender Minority \(SGM\) Populations \(R15 Clinical Trial Optional\)](#)

Release Date: November 6, 2017

[Short-term Mentored Career Enhancement Awards for Mid-Career Investigators to Integrate Basic Behavioral and Social Sciences \(K18 - No Independent Clinical Trials\)](#)

Release Date: November 6, 2017

[Mechanisms, Models, Measurement, and Management in Pain Research \(R01 Clinical Trial Optional\)](#)

Release Date: November 7, 2017

[Mechanisms, Models, Measurement, and Management in Pain Research \(R21 Clinical Trial Optional\)](#)

Release Date: November 7, 2017

[Population Health Interventions: Integrating Individual and Group Level Evidence \(R01\) Clinical Trials Not Allowed](#)

Release Date: November 20, 2017

[Mentored Research Scientist Development Award \(Parent K01 - Clinical Trial Required\)](#)

Release Date: November 20, 2017

[Mentored Research Scientist Development Award \(Parent K01 -Independent Clinical Trial Not Allowed\)](#)

Release Date: November 20, 2017

[Independent Scientist Award \(Parent K02 - Independent Clinical Trial Required\)](#)

Release Date: November 21, 2017

[Independent Scientist Award \(Parent K02 - Independent Clinical Trials Not Allowed\)](#)

Release Date: November 21, 2017

[Mentored Clinical Scientist Research Career Development Award \(Parent K08 - Independent Clinical Trial Required\)](#)

Release Date: November 21, 2017

[Mentored Clinical Scientist Research Career Development Award \(Parent K08 - No Independent Clinical Trials\)](#)

Release Date: November 21, 2017

[Mentored Patient-Oriented Research Career Development Award \(Parent K23 - Clinical Trial Required\)](#)

Release Date: November 21, 2017

[Mentored Patient-Oriented Research Career Development Award \(Parent K23 - Independent Clinical Trials Not Allowed\)](#)

Release Date: November 21, 2017

[Population Health Interventions: Integrating Individual and Group Level Evidence \(R21\)- Clinical Trials Not Allowed](#)

Release Date: November 21, 2017

[Mentored Quantitative Research Development Award \(Parent K25 - Clinical Trial Required\)](#)

Release Date: November 22, 2017

[Mentored Quantitative Research Development Award \(Parent K25 - No Independent Clinical Trials\)](#)

Release Date: November 22, 2017

[NIH Pathway to Independence Award \(Parent K99/R00 - Clinical Trial Required\)](#)

Release Date: November 29, 2017

[NIH Pathway to Independence Award \(Parent K99/R00 - Independent Clinical Trial Not Allowed\)](#)

Release Date: November 29, 2017

[Multidisciplinary Studies of HIV/AIDS and Aging \(R01 Clinical Trial Optional\)](#)

Release Date: November 29, 2017

[Multidisciplinary Studies of HIV/AIDS and Aging \(R21 Clinical Trial Optional\)](#)

Release Date: November 29, 2017

[NIH Research Project Grant \(Parent R01 Clinical Trial Not Allowed\)](#)

Release Date: December 6, 2017

[NIH Exploratory/Developmental Research Grant Program \(Parent R21 Clinical Trial Not Allowed\)](#)

Release Date: December 6, 2017

[Academic Research Enhancement Award \(Parent R15 Clinical Trial Not Allowed\)](#)

Release Date: December 13, 2017

[NIDCR Dual Degree Dentist Scientist Pathway to Independence Award \(K99/R00-Clinical Trial Required\)](#)

Release Date: December 15, 2017

## **Requests for Applications**

[Metabolomic Data Analysis and Interpretation Tools \(U01\)](#)

Release Date: August 1, 2017

[National Metabolomics Data Repository \(NMDR\) \(U2C\)](#)

Release Date: August 1, 2017

[Compound Identification Development Cores \(U2C\)](#)

Release Date: August 1, 2017

[Stakeholder Engagement and Program Coordination Center \(SEPCC\) \(U2C\)](#)

Release Date: August 1, 2017

[Innovative Adaptations to Simplify Existing Technologies for Manipulation and Analysis of Glycans \(U01\)](#)

Release Date: August 1, 2017

[Novel and Innovative Tools to Facilitate Identification, Tracking, Manipulation, and Analysis of Glycans and their Functions \(U01\)](#)

Release Date: August 1, 2017

[Metabolomics Core for the Undiagnosed Diseases Network \(UDN\) Phase II \(U01\)](#)

Release Date: August 15, 2017

[Sequencing Core\(s\) for the Undiagnosed Diseases Network \(UDN\) Phase II \(U01\)](#)

Release Date: August 15, 2017

[Model Organisms Screening Center for the Undiagnosed Diseases Network \(UDN\) Phase II \(U54\)](#)

Release Date: August 15, 2017

[Coordinating Center for the Undiagnosed Diseases Network \(UDN\) Phase II \(U01\)](#)

Release Date: August 15, 2017

[Clinical Sites for the Undiagnosed Diseases Network \(UDN\) Phase II \(U01\)](#)

Release Date: August 15, 2017

[NIH Blueprint for Neuroscience Research: Dynamic Neuroimmune Interactions in the Transition from Normal CNS Function to Disorders \(R01\)](#)

Release Date: August 23, 2017

[Innovative Approaches or Technologies to Investigate Regional, Structural and Functional Heterogeneity of CNS Small Blood and Lymphatic Vessels \(R01\)](#)

Release Date: September 18, 2017

[Human Studies of Target Identification, Biomarkers and Disease Mechanisms Specific to CNS Small Blood and Lymphatic Vessels \(R01\)](#)

Release Date: September 18, 2017

[Science of Behavior Change: Revision Applications for Use-inspired Research to Optimize Adherence, Behavior Change Interventions, and Outcomes \(R01\)](#)

Release Date: September 18, 2017

[Science of Behavior Change: Revision Applications for Use-inspired Research to Optimize Adherence, Behavior Change Interventions, and Outcomes \(U01\)](#)

Release Date: September 18, 2017

[Science of Behavior Change: Use-inspired Research to Optimize Adherence, Behavior Change Interventions, and Outcomes \(R21\)](#)

Release Date: September 18, 2017

[Human Heredity and Health in Africa \(H3Africa\): Ethical, Legal, and Societal Issues \(ELSI\) Collaborative Centers \(U54\)](#)

Release Date: September 19, 2017

[Human Heredity and Health in Africa \(H3Africa\): Ethical, Legal, and Societal Issues \(ELSI\) Research Program \(U01\)](#)

Release Date: September 19, 2017

[Biology Of Aging Dental, Oral And Craniofacial Tissues \(R01 - Clinical Trial Not Allowed\)](#)

Release Date: September 19, 2017

[NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience \(D-SPAN\) Award \(F99/K00\)](#)

Release Date: September 18, 2017

[NIDCR Award for Sustaining Outstanding Achievement in Research \(SOAR\) \(R35\)- Clinical Trial Not Allowed](#)

Release Date: November 1, 2017

[Mechanisms of Disparities for HIV- Related Co-morbidities in Health Disparity Populations \(R01- Clinical Trial Not Allowed\)](#)

Release Date: November 6, 2017

[NIH Blue Print: Development and Validation of Technologies for Rapid Isolation and Characterization of Extracellular Vesicles of Central Nervous System Origin \(R21/R33 Clinical Trial Not Allowed\)](#)

Release Date: November 6, 2017

[NIDCR Award for Sustaining Outstanding Achievement in Research \(SOAR\) \(R35\)- Clinical Trial Not Allowed](#)

Release Date: November 1, 2017

[Mechanisms of Disparities for HIV- Related Co-morbidities in Health Disparity Populations \(R01- Clinical Trial Not Allowed\)](#)

Release Date: November 6, 2017

[NIH Blue Print: Development and Validation of Technologies for Rapid Isolation and Characterization of Extracellular Vesicles of Central Nervous System Origin \(R21/R33 Clinical Trial Not Allowed\)](#)

Release Date: November 6, 2017

[NIDCR Dental Specialty and PhD Program \(DSPP\)\(K12-Clinical Trials Not Allowed\)](#)

Release Date: December 11, 2017

[Limited Competition: Data Analysis and Coordination Center for the MACS/WIHS Combined Cohort Study \(MACS/WIHS-CCS\) \(U01 Clinical Trial Not Allowed\)](#)

Release Date: December 22, 2017

[Limited Competition: Clinical Research Sites for the MACS/WIHS Combined Cohort Study \(MACS/WIHS-CCS\) \(U01 Clinical Trial Not Allowed\)](#)

Release Date: December 22, 2017

[Innovation Corps \(I-Corps™\) at NIH Program for NIH and CDC Translational Research \(Admin Supp - Clinical Trial Not Allowed\)](#)

Release Date: December 18, 2017

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

Release Date: December 22, 2017

## **Notices**

[Notice of Extension of Expiration Date for PAR-14-342 "NIDCR Behavioral or Social Intervention Clinical Trial Planning Grant \(R34\)"](#)

Release Date: August 22, 2017

[Notice of Participation of the National Institute of Dental and Craniofacial Research \(NIDCR\) in PAR-17-454 Systems Developmental Biology for Understanding Embryonic Development and the Ontogeny of Structural Birth Defects \(R01\)](#)

Release Date: August 25, 2017

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

Release Date: October 6, 2017

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

Release Date: November 8, 2017

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

Release Date: November 8, 2017

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

Release Date: January 11, 2018.

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

Release Date: January 10, 2018

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

Release Date: January 10, 2018

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

Release Date: January 10, 2018

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

Release Date: January 12, 2018

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

Release Date: January 12, 2018

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

Release Date: January 12, 2018

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

Release Date: January 12, 2018

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

Release Date: January 12, 2018

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

Release Date: January 12, 2018

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

Release Date: January 11, 2018