

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

January 2019

ACTIVITIES OF THE NIDCR DIRECTOR AND DEPUTY DIRECTOR

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on September 13, 2018, NIDCR Director Martha J. Somerman, DDS, PhD, and Deputy Director Douglas M. Sheeley, ScD, have maintained active schedules attending research symposia and workshops, delivering presentations to stakeholders, and meeting with leaders of other organizations.

Among their notable activities during the last four months are the following:

Dr. Somerman provided introductory remarks at the Targeting Co-dependent Molecular Pathways in Oral Cancer: U01 Round-Table meeting, held on the NIH campus in Bethesda, Md. on September 13.

Drs. Somerman and Sheeley attended the Oral Health Effects of Tobacco Products: Science & Regulatory Policy conference on September 14. The conference was organized by the American Association for Dental Research (AADR) and was held at the Hyatt Regency in Bethesda, Md.

Drs. Somerman and Sheeley attended an NIDCR-sponsored scientific symposium to honor the life and work of the late Sang-A Park, PhD, on September 17 and participated in a dedication of a memorial tree and plaque on the NIH campus in Bethesda, Md.

Drs. Somerman and Sheeley attended the NIDCR Division of Intramural Research Principal Investigator Faculty Retreat, held September 20–21 at the Bolger Center in Potomac, Md. Dr. Somerman presented a short talk about NIDCR's strategic visioning initiative, NIDCR 2030, and Dr. Sheeley gave a presentation on NIDCR's opportunities for intramural engagement.

Dr. Sheeley attended the Human Proteome Organization Annual World Congress, September 30–October 3 in Orlando, Fla. and chaired a session, "Proteomics of Infectious Disease."

Dr. Sheeley participated in workshops of the National Academy of Medicine Forum on Neuroscience and Nervous System Disorders on October 5 and December 4 in Washington.

Dr. Somerman presented "NIDCR Funding of Oral Health Research" as part of a panel at the Research!America Briefing: Oral Health is Systemic Health on October 10 in Washington.

Dr. Somerman participated in an AADR Government Affairs Committee meeting on October 15 to provide updates on NIH and NIDCR activities.

Dr. Somerman participated in a National Academy of Medicine Regenerative Medicine Forum workshop, Exploring Sources of Variability Related to the Clinical Translation of Regenerative Engineering Products, held October 18 in Washington.

Dr. Somerman attended the Celebrational International Symposium, October 21–25 at Sichuan University in Chengdu, China, and presented a keynote talk titled "Advancing Dental, Oral, and Craniofacial Health through Research."

Dr. Somerman presented a talk titled "NIDCR: Catalyzing Oral Health Research and Innovation" at Tufts University School of Dental Medicine on October 31 in Boston. The next day she gave an expanded presentation about NIDCR, oral health research, and innovation to the American Dental Partners, Inc. in Cambridge, Mass.

Dr. Sheeley attended the 2018 Society for Glycobiology Annual Meeting, November 4–6 in New Orleans.

Drs. Somerman and Sheeley welcomed RADM Tim Ricks, chief dental officer in the office of the US Surgeon General, for a visit and discussion with NIDCR staff on November 7. Dr. Somerman and Timothy lafolia, DMD, MPH, chief of NIDCR's Program Analysis and Reporting Branch, provided background information on NIDCR research in a presentation titled "Catalyzing Oral Health Research and Innovation."

Drs. Somerman and Sheeley attended the AADR Fall Focused Symposium held November 9–10 on the NIH campus in Bethesda, Md. Dr. Somerman gave a presentation titled "Precision Health: Bringing Oral Health into the Context of Overall Health."

Drs. Somerman and Sheeley; Lawrence Tabak, DDS, PhD, NIH principal deputy director; and other NIDCR staff attended the US Surgeon General's Listening Session on Oral Health in Arlington, Va. Dr. Tabak provided welcoming remarks and introductions, and Dr. Somerman gave a presentation titled "Looking Back and Facing the Future: Leveraging Research Discoveries to Improve Dental, Oral and Craniofacial Health." Drs. Somerman and Tabak participated in a panel session following their talks.

Drs. Somerman and Sheeley attended the National Academy of Medicine workshop on Integrating Oral and General Health Through Health Literacy Practices on December 4 in Washington.

BUDGET UPDATE

FY 2018

In FY 2018 NIDCR had an operating budget of \$426.7 million. See the table below for the final distribution by budget mechanism.

National Institute of Dental and Craniofacial Research		
FY 2018 Actuals		
Research Grants	No.	Amt. (\$000)
<u>Research Projects</u>		
Noncompeting	412	210,309
Competing	201	75,411
Subtotal	613	285,720
SBIR/STTR	25	12,704
Subtotal, RPGs	638	298,424
<u>Research Centers</u>	1	3,091
<u>Other Research</u>		
Research Careers	56	8,429
Other	24	9,213
Subtotal, Other Research	80	17,642
TOTAL Research Grants	719	319,158
	FTTPs	
Research Training	245	11,720
Research & Development Contracts	17	19,443

Research Grants	No.	Amt. (\$000)
SUBTOTAL, EXTRAMURAL		350,320
Intramural Research		68,299
Research Management and Support		28,036
Lapse		27
TOTAL NIDCR		446,683

FY 2019

In FY 2019 NIDCR has an operating budget of \$461.8 million. See the table below for the current distribution by budget mechanism.

National Institute of Dental and Craniofacial Research FY 2019 Operating Level		
Research Grants	No.	Amt. (\$000)
<u>Research Projects</u>		
Noncompeting	454	208,532
Competing	223	83,987
Subtotal	677	292,519
SBIR/STTR	26	13,123
Subtotal, RPGs	703	305,642
<u>Research Centers</u>	1	3,306
<u>Other Research</u>		
Research Careers	57	8,606
Other	27	9,668
Subtotal, Other Research	84	18,274
TOTAL Research Grants	788	327,222
	FTTPs	
Research Training	249	12,227
Research & Development Contracts	18	22,706
SUBTOTAL, EXTRAMURAL		362,155
Intramural Research		70,341
Research Management and Support		29,285
Lapse		
TOTAL NIDCR		461,781

FY 2020

At present, no FY 2020 budget information is available.

HHS/NIH UPDATE

NIH Director's Statement on Sexual Harassment in Science

A recent National Academies report funded by NIH and other government agencies found no evidence that current policies have reduced sexual harassment in academic sciences, engineering, and medicine. In response, NIH Director Dr. Collins has issued a statement outlining steps NIH will take to address the issue. These plans include new initiatives to strengthen systems within the NIH to encourage all employees to address, report, and prevent sexual harassment, as well as efforts to harmonize policies across the government. NIH also launched a new [anti-sexual harassment](#) website that outlines NIH policies, practices, and initiatives to address sexual harassment at NIH, at NIH-supported institutions, and anywhere NIH research activities occur.

NIH Selects First Scholars in Diversity-Enhancing Program

NIH announced on October 23 that 13 researchers have been selected for the inaugural class of the NIH Distinguished Scholars Program (DSP). This NIH-wide pilot program is designed to build diversity within the NIH Intramural Research Program by facilitating hiring and career progression of tenure-track investigators who have demonstrated a commitment to promoting diversity and inclusion in the biomedical research workforce. Scholars receive four years of research support of up to \$2.35 million from the DSP program, with their nominating institute or center continuing to fund their research during the remainder of their tenure-track appointment.

NIH Director Announces New Funding Opportunities for HEAL Initiative

NIH announced in April 2018 the launch of the Helping to End Addiction Long-term (HEAL) Initiative, a trans-NIH effort to speed scientific solutions to stem the national opioid crisis. Since then, NIH has announced the Acute to Chronic Pain Signatures Program to understand the origins of chronic pain; awarded new research grants to study the impact of behavioral interventions for preventing opioid use disorder; and issued funding opportunities to validate new targets for pain treatment, identify biomarkers for pain, develop a network to evaluate medications in early-phase clinical trials, and launch the HEALing Communities study to test the effect of integrating interventions for opioid use disorder. On December 10, Dr. Collins also announced more than 30 new funding opportunities that reflect the full spectrum of research from basic science to implementation research and that garner expertise from almost every NIH institute and center. NIDCR assisted development of several funding opportunities related to orofacial pain research. NIH plans to award more than \$850 million to the initiative in fiscal year 2019.

Supplemental Awards Boost Funding for Down Syndrome Research

NIH awarded \$22.2 million in supplemental funding to bolster support for Down syndrome research ranging from basic to clinical. The investment is part of the INCLUDE (INvestigation of Co-occurring conditions across the Lifespan to Understand Down SyndromE) project, which was launched in June 2018 to investigate critical health and quality-of-life needs for people with Down syndrome. NIDCR issued supplemental funding for a research project exploring the efficacy of a sensory-adapted dental environment to enhance the delivery of care to children with autism and Down syndrome. With these additional awards, NIH funding for Down syndrome research will total an estimated \$59 million in fiscal year 2018, with further support anticipated in fiscal year 2019, pending availability of funds.

All of Us Genome Centers to Accelerate Precision Medicine

The *All of Us* Research Program awarded funds totaling \$28.6 million to establish three genome centers in the US. These centers will begin to generate genomic data from biological samples contributed by the program's participants. Participants share information about their health through electronic health records; blood or urine samples; and surveys about

demographic information, overall health, and lifestyle. An oral health survey will be implemented in the near future. Ultimately, this information will become a critical component in the program's precision medicine research platform, a national resource to support studies on a variety of important health questions.

NIH to Build Detailed Map of Cells within the Human Body

The Human BioMolecular Atlas Program (HuBMAP), part of the NIH Common Fund, issued its first set of research funding awards to develop an open, global framework that will support scientists' efforts to map the adult human body at the level of individual cells and make data available to the research community for further study. The ability to detect subtle changes in the activity of individual cells and their interactions with other cells within tissues could help signal the emergence of disease before symptoms are clinically detectable. The HuBMAP awards will total \$54 million over the next four years, pending available funds.

Amazon Web Services Joins NIH's STRIDES Initiative

Amazon Web Services (AWS) has joined the NIH Science and Technology Research Infrastructure for Discovery, Experimentation, and Sustainability (STRIDES) Initiative, which aims to harness the power of commercial cloud computing for NIH biomedical researchers. NIH's initial efforts will focus on making high-value data sets more accessible to scientists and will seek ways to optimize technology-intensive research. The agreement with AWS will help NIH researchers and scientists at more than 2,500 NIH-supported academic institutions across the nation to make use of AWS's wide range of technologies.

NIH Mourns Loss of NIAMS Director Stephen Katz

On December 20, NIH Director Francis Collins, MD, PhD, announced the death of Stephen Katz, MD, PhD, the long-time director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). Dr. Katz was born in New York, grew up in Bethesda, Md., trained in internal medicine and dermatology, and came to NIH in 1974 as a senior investigator in the Dermatology Branch at the National Cancer Institute, where he initiated a highly productive research program in the immunology of skin diseases. Six years later, Dr. Katz was appointed branch chief and, in 1995, was named director of NIAMS. Over the years he led an institute that made major contributions to research across a broad portfolio of disorders that affect millions of Americans. Dr. Katz was a passionate, committed leader for NIAMS, a dear colleague to NIDCR, and a remarkable asset for all of NIH.

New NCCIH Director Joins NIDCR's Intramural Research Team

On November 26, Helene M. Langevin, MD, CM, was sworn in as director of the National Center for Complementary and Integrative Health (NCCIH). Dr. Langevin comes to NIH from the Osher Center for Integrative Medicine, jointly based at Brigham and Women's Hospital and Harvard Medical School, Boston. She has served as director of the Osher Center and professor-in-residence of medicine at Harvard Medical School since 2012. Dr. Langevin has a laboratory in NIDCR's Division of Intramural Research, where she and her team will focus on the role of factors modulating connective tissues in chronic pain, inflammation, and cancer.

Bruce Tromberg Named Director of NIBIB

At a swearing in ceremony on January 7, 2019, Bruce J. Tromberg, PhD, assumed the post of director of the National Institute of Biomedical Imaging and Bioengineering. A leader in the field of biophotonics, Dr. Tromberg was previously a professor at the University of California at Irvine (UCI) with dual appointments in the departments of biomedical engineering and surgery. He also directed UCI's Beckman Laser Institute and Medical Clinic, an interdisciplinary research, teaching, and clinical center for optics and photonics in biology and medicine.

NINR Director Patricia Grady Retires

On August 31, Patricia A. Grady, PhD, RN, FAAN, retired as director of the National Institute of Nursing Research (NINR), a position she had held for more than 23 years. Dr. Grady was a major contributor to trans-NIH initiatives, including NIDCR-supported efforts. She was an

important partner for NIDCR and for all of NIH. Ann K. Cashion, PhD, RN, FAAN, is serving as acting director of NINR while a national search is conducted for a new director.

NIDCR UPDATE

Institute News

CDC and NIDCR Solicit Stakeholder Input on Upcoming Surgeon General's Report on Oral Health

NIDCR is the lead federal organization working with Surgeon General Jerome M. Adams MD, MPH, to produce a new report on oral health. On November 26 and 27, the Division of Oral Health at the Centers for Disease Control and Prevention (CDC) hosted a listening session to identify and discuss significant oral health-related topics that will inform the upcoming report. Videos of the meeting are available: [Part 1](#), [Part 2](#), and [Part 3](#). On January 10, 2019, NIDCR offered a webinar, viewed by over 1,300 people, outlining the Institute's process for developing the new report. During a subsequent two-week public comment period, interested individuals were invited to share ideas for the report.

NIDCR Staff Co-Author Autotherapies Overview

In an opinion piece published in the November 2018 issue of *Trends in Molecular Medicine*, NIDCR staff outlined recent scientific advances that enable development of new autotherapies—treatments based on the body's innate ability to heal and protect itself. Advancing the development of autotherapies in the dental, oral, and craniofacial region is one of the five themes of the [NIDCR 2030](#) strategic initiative to envision the future of NIDCR research.

Nature Commentary Seeks to Clarify Stem Cell Confusion

A September 26, 2018 *Nature* commentary coauthored by Pamela Robey, PhD, an investigator in NIDCR's Division of Intramural Research, suggests that a coordinated scientific effort is needed to improve understanding of the cells often referred to as mesenchymal stem cells (MSCs). Dr. Robey and her co-authors cite evidence that cells identified using the umbrella term of "MSCs" may include a variety of tissue-specific cell types, a finding that has implications for current and future medical interventions using MSCs. The authors propose that the scientific community use more precise language and employ standardized, rigorous assays to define the identity and function of these varied cell types.

Personnel Update

NIDCR's Janice Lee Receives NIH Clinical Center CEO Award

NIDCR Clinical Director Janice Lee, DDS, MD, MS, was recognized at the second annual NIH Clinical Center CEO Awards Program on December 14. The event honors staff at the Clinical Center who have led efforts to significantly improve patient care or who have helped to advance the safety and quality of the Clinical Center workplace. Dr. Lee was recognized for her exemplary leadership as the inaugural chair of the Patient Safety, Clinical Practice and Quality (Ps & Qs) Committee at the Clinical Center.

AAAS Honors NIDCR's Robert Angerer as 2018 Elected Fellow

On November 27, former NIDCR scientific director and Scientist Emeritus Robert Angerer, PhD, was elected as a fellow of the American Association for the Advancement of Science (AAAS). He is among 416 scientists chosen as 2018 AAAS fellows in recognition of their extraordinary achievements in advancing science. Dr. Angerer was elected for distinguished contributions in molecular mechanisms of early animal development, and for outstanding mentoring of the next generation of dental, oral, and craniofacial researchers.

NIDCR's Matthew Hoffman Receives Matrix Biology Award

On November 24, NIDCR Scientific Director Matthew Hoffman, BDS, PhD, was awarded the Barry Preston Award by the Matrix Biology Society of Australia and New Zealand (MBSANZ).

This annual award recognizes senior researchers and leaders in the field of matrix research who have distinguished themselves with a sustained record of achievement, a commitment to mentoring new researchers, and exceptional communication skills.

NIDCR's Marian Young Receives Stephen M. Krane Award

Marian Young, PhD, chief of the Molecular Biology of Bones and Teeth Section in the Division of Intramural Research, won the Stephen M. Krane award from the American Society of Bone and Mineral Research in recognition of outstanding achievements in basic, translational, or clinical research in inflammation and/or skeletal matrix biology.

Meetings and Conferences

Staff Presentations

Pamela G. Robey, PhD, chief of the Skeletal Biology Section, Division of Intramural Research, attended and presented a Meet-the-Professor session at the annual meeting of the American Society for Bone and Mineral Research in Montreal, Canada in September.

Indu Ambudkar, PhD, chief of the Secretary Physiology Section, Division of Intramural Research, presented the Michael Berridge Keynote Lecture at the European Calcium Society Meeting in Hamburg, Germany in September.

Kelly Ten Hagen, PhD, chief of the Developmental Glycobiology Section, was elected to the Council of the American Society of Biochemistry and Molecular Biology.

Darien Weatherspoon, DDS, MPH, director of the Health Disparities Research Program in NIDCR's Division of Extramural Research, presented a talk titled "NIDCR Extramural Research and Activities" on October 10 in Bethesda, Md. The talk was given to dental public health residents visiting NIH via the Federal Internship Program, which is organized by the American Institute of Dental Public Health.

Dr. Weatherspoon also presented an informational webinar for all prospective applicants interested in funding opportunity announcement PA-18-932: "Increasing Uptake of Evidence-Based Screening in Diverse Adult Populations (R01 Clinical Trial Optional)." The webinar was organized by NIH's Office of Disease Prevention and took place in Bethesda, Md. on October 12.

Gallya Gannot, DMD, PhD, director of Clinical Research and Clinical Technologies, HIV/AIDS and Oral Health Research in NIDCR's Division of Extramural Research, presented a remote-broadcast talk titled "NIDCR Scientific Priorities in Funding HIV and Aging Research" during an HIV and Aging Workshop held October 12 in Boston, Mass. The workshop was organized by the Harvard University Center for AIDS Research and the Boston Pepper Older Americans Independence Center.

Nadya Lumelsky, PhD, director of the Tissue Engineering and Regenerative Medicine Program in NIDCR's Division of Extramural Research, co-organized and participated in the National Academy of Medicine (NAM) workshop titled "Exploring Sources of Variability Related to Clinical Translation of Regenerative Engineering Products." This workshop was organized as a part of NAM's Regenerative Medicine Forum and took place on October 18 in Washington.

Dr. Lumelsky also represented NIDCR at the NAM's Regenerative Medicine Forum members meeting that took place on October 19 to discuss the result of the preceding day's workshop and to plan future Regenerative Medicine Forum activities.

Dena Fischer, DDS, MSD, MS, acting director of the Center for Clinical Research in NIDCR's Division of Extramural Research, presented a talk titled "Clinical Research at NIDCR: Dental Practice-Based Research Networks" on October 23 during the Advanced Clinical Dentistry course at the Naval Postgraduate Dental School in Bethesda, Md.

Yolanda Vallejo, PhD, director of the Neuroscience of Orofacial Pain and Temporomandibular Disorders Program in NIDCR's Division of Extramural Research, represented NIDCR and served as a reviewer for the U.S./Japan Brain Research Cooperative Program meeting held on November 7 in San Diego.

Dr. Fischer also presented a talk on November 16 titled "NIDCR Initiatives to Promote Oral Health in Older Adults" during the Oral Health Momentum discussion at the Gerontological Society of America's annual meeting in Boston.

Dr. Lumelsky and Lillian Shum, PhD, director of NIDCR's Division of Extramural Research represented NIDCR December 3-4 at the semi-annual meeting of the California Resource Center of the Dental, Oral, and Craniofacial Tissue Regeneration Consortium (DOCTRC) to review progress of DOCTRC and to discuss the Consortium's future activities. Dr. Shum presented a short talk titled "NIDCR's Support for the Basic, Translational, and Clinical Research Continuum."

Staff Attendance

NIDCR Division of Extramural Research Staff attended the following meetings:

- International Association for the Study of Pain 17th World Congress on Pain, held September 12-16 in Boston.
- American Dental Association's National Advisory Committee for Health Literacy in Dentistry Annual Meeting, held September 14 in Chicago.
- American Association for Dental Research: Oral Health Effects of Tobacco Products - Science and Regulatory Policy Meeting, held September 14 in Bethesda, Md.
- PHACS Network Meeting, held September 17 in Bethesda, Md.
- National Cancer Institute (NCI) Deep Learning Workshop, held September 20-21 in Bethesda, Md.
- Mechanistic and Therapeutic Advances in Rare Skeletal Diseases, held September 26-27 in Montreal, Quebec, Canada.
- Society of Clinical Research Associates annual conference, held September 28-30 in New Orleans.
- American Society for Bone and Mineral Research, held September 28-October 1 in Montreal, Quebec, Canada.
- Fourth CRI-CIMT-EATI-AACR International Cancer Immunotherapy Conference: Translating Science into Survival, held September 30-October 3 in New York.
- 2018 Academy for Dental Materials Annual Meeting, held October 4-6 in Porto de Galinhas, Brazil.
- NCI Alliance for Nanotechnology in Cancer: Principal Investigators Meeting, held October 9-11 in Rockville, Md.
- First Annual Forsyth Symposium: The Uncultivable Bacteria, held October 11-12 in Boston.
- Craniofacial Genetics and Developmental Biology annual meeting, held October 16 in San Diego.
- International Workshop on Microbiome in HIV Pathogenesis, Prevention, and Treatment, held October 16-17 in Rockville, Md.
- NAM's Regenerative Medicine Forum Workshop, October 18 in Washington.
- Centers for AIDS Research Annual Meeting, held November 7-9 in Atlanta.
- Society for Immunotherapy of Cancer's 34th Annual Conference, held November 7-11 in Washington.
- NIH Global Health Interest Group Annual Symposium on Implications of Conflicts and Emergencies for Global Health, held November 8 in Bethesda, Md.
- 9th Annual American Association for Dental Research Fall Focused Symposium: Advances in Precision Oral Health Research, held November 8-9 in Bethesda, Md.
- Cancer Moonshot Human Tumor Atlas Network F2F Kick-off Meeting, held November 13-15 in Rockville, Md.
- NIH Workshop: Discovery and Validation of Biomarkers, held November 14-15 in Washington.
- Gerontological Society of America annual meeting, held November 15-17 in Boston.

- Public Responsibility in Medicine and Research: Advancing Ethical Research Conference, held November 15-17 in San Diego.
- NIH Interagency Pain Research Coordinating Committee meeting, held November 16 in Bethesda, Md.
- 5th Annual Conference on Clinical Research for Rare Diseases, held November 19 in Washington.
- Surgeon General's Working Meeting on Oral Health, held November 26-27 in Crystal City, Va.
- NIH Office of AIDS Research, World AIDS Day event, held November 30 in Bethesda, Md.
- 11th Annual Conference on the Science of Dissemination and Implementation in Health, held December 3-4 in Washington.
- State-of-the-Science Meeting: 3D Tissues and Microphysiological Systems 3D Models, held December 4-5 in Washington.
- National Academies workshop, "Integrating Oral and General Health Through Health Literacy Practices," held December 6 in Washington.

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.

Howard University Recruitment Session

Dr. Deborah Philp, director of NIDCR's Office of Education, represented NIDCR at an undergraduate training recruitment session held at Howard University on September 26 in Washington. Several NIH institutes attended along with representatives from the Uniformed Health Services and private research companies. During this four-hour session, Dr. Philp met with undergraduate students, graduate students, and dental students to discuss opportunities available at NIH.

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) Annual Conference

Dr. Philp attended the SACNAS conference October 11–13 in San Antonio. She disseminated training and research opportunity materials and met with students, postdoctoral trainees, professors, and researchers who were interested in research opportunities at NIDCR.

Annual Biomedical Research Conference for Minority Students (ABRCMS)

Dr. Philp attended the ABRCMS conference that was held November 14–17 in Indianapolis. She disseminated training and research opportunity materials and met with students, professors and researchers who were interested in research opportunities at NIDCR. Dr. Philp was invited to lead round table discussions at an ABRCMS event on the pursuit of different career paths in science, including government research careers.

Research Training and Career Development Branch Outreach

The NIDCR Research Training and Career Development Branch staff members reach out to the community via conferences, meetings, and workshops to encourage predoctoral students, postdoctoral fellows, and junior investigators to apply for NIDCR individual research training and career development awards, to disseminate information on research training opportunities, to engage investigators as potential research mentors, and to develop research training programs that are responsive to the research training and career development needs of the extramural research workforce.

Highlights of Trainee Scientific Achievements

Trainees Who Have Achieved Subsequent NIH Grants

First R01/U01s

- Yong Chen, PhD, former NIDCR K12 institutional scholar, Assistant Professor, Department of Neurology, Duke University. (NIDCR) R01, “Modeling temporomandibular joint disorders pain: role of transient receptor potential ion channels.”
- Donald Chi, DDS, PhD, former NIDCR K08 career development awardee, Associate Professor, Department of Oral Health Sciences, University of Washington. (NIDCR) R01, “Developing Topical Fluoride Hesitancy Measures for Causal Modeling and Intervention Research.”
- Heather Conti, PhD, former NIDCR F32 postdoctoral fellow, Assistant Professor, Department of Biological Sciences, University of Toledo. NIDCR (R01): “The role of platelets in protection against oral candidiasis.”
- Kristi Frank, PhD, former NIDCR T32 postdoctoral trainee, Assistant Professor, Department of Microbiology and Immunology, Uniformed Services University of the Health Sciences. NIAID (R01): “Role of the enterococcal site 2 protease in biofilm formation, adaptation, and host-pathogen interactions.”
- Brian Peters, PhD, former NIDCR T32 predoctoral trainee, Assistant Professor, Department of Clinical Pharmacy and Translational Science, University of Tennessee Health Science Center (NIAID) R01: “Candidalysin: A key mediator of Candida vaginitis immunopathology.”
- Derrick Wan, MD, NIDCR K08 awardee, Associate Professor, Department of Surgery, Stanford University. (NIDCR) R01, “Irradiated head and neck cancer soft tissue reconstruction by fat transfer.”

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

- Lindsey Barske, PhD, Assistant Professor, Division of Human Genetics, Cincinnati Children’s Hospital Medical Center. R00: “Prolonger progenitor maintenance sculpts the upper face.”
- Carmen Buxo, DrPH, MPH, MSc, Assistant Professor, School of Dental Medicine, University of Puerto Rico Medical Sciences Campus. R00: “Genetic and Environmental Risks for Oral Clefts in Puerto Rican Hispanics”
- Jessica Scoffield, PhD, Assistant Professor, Department of Microbiology, University of Alabama Birmingham. R00: “Inhibition of *Streptococcus mutans* by oral commensal streptococci and nitrite-mediated activity.”

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

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

- William Boyle, PhD, University of Minnesota. NIDCR F32 fellowship to support postdoctoral training, “Nonviral Topical Transfection with Calprotectin in Periodontitis.”
- Eric Madsen, University of Michigan. NIDCR F30 fellowship to support predoctoral dual degree DDS-PhD training, “Functionalization of biomimetic apatite with mineral binding peptides for bone tissue engineering.”
- Ashley Wallace, University of Texas Health Science Center San Antonio. NIDCR F30 fellowship to support predoctoral dual degree DDS-PhD training, “A novel approach to study pain in a mouse model of facial burn injury.”

- Laura Zweifler, University of Michigan. NIDCR F30 fellowship to support predoctoral dual degree DDS-PhD training, “Macrophages Modulate Osteoclast Activity through Plasmin Regulation”

Recent Publications from Trainees

F Fellows

Bedree JK, Bor B, Cen L, Edlund A, Lux R, McLean JS, Shi W, He X. [Quorum Sensing Modulates the Epibiotic-Parasitic Relationship Between *Actinomyces odontolyticus* and Its Saccharibacteria epibiont, a *Nanosynbacter lyticus* Strain, TM7x.](#) *Front Microbiol.* 2018 Sep 24;9:2049.

Bennett KG, Harbaugh CM, Hu HM, Vercler CJ, Buchman SR, Brummett CM, Waljee JF. [Persistent Opioid Use Among Children, Adolescents, and Young Adults After Common Cleft Operations.](#) *J Craniofac Surg.* 2018 Oct;29(7):1697-1701.

Bennett KG, Ranganathan K, Patterson AK, Baker MK, Vercler CJ, Kasten SJ, Buchman SR, Waljee JF. [Caregiver-Reported Outcomes and Barriers to Care among Patients with Cleft Lip and Palate.](#) *Plast Reconstr Surg.* 2018 Dec;142(6):884e-891e.

Durham EL, Howie RN, Hall S, Larson N, Oakes B, Houck R, Grey Z, Steed M, LaRue AC, Muise-Helmericks R, Cray J. [Optimizing bone wound healing using BMP2 with absorbable collagen sponge and Talymed nanofiber scaffold.](#) *J Transl Med.* 2018 Nov 21;16(1):321.

Hutchins EJ, Bronner ME. [Draxin acts as a molecular rheostat of canonical Wnt signaling to control cranial neural crest EMT.](#) *J Cell Biol.* 2018 Oct 1;217(10):3683-3697.

Lee K, Roberts JS, Choi CH, Atanasova KR, Yilmaz Ö. [Porphyromonas gingivalis traffics into endoplasmic reticulum-rich-autophagosomes for successful survival in human gingival epithelial cells.](#) *Virulence.* 2018 Dec 31;9(1):845-859.

Michalczyk ER, Chen L, Fine D, Zhao Y, Mascarinas E, Grippo PJ, DiPietro LA. [Pigment Epithelium-Derived Factor \(PEDF\) as a Regulator of Wound Angiogenesis.](#) *Sci Rep.* 2018 Jul 24;8(1):11142.

Sims KR, Liu Y, Hwang G, Jung HI, Koo H, Benoit DSW. [Enhanced design and formulation of nanoparticles for anti-biofilm drug delivery.](#) *Nanoscale.* 2018 Dec 20;11(1):219-236.

Teng CS, Ting MC, Farmer DT, Brockop M, Maxson RE, Crump JG. [Altered bone growth dynamics prefigure craniosynostosis in a zebrafish model of Saethre-Chotzen syndrome.](#) *Elife.* 2018 Oct 25;7.

Woolaver RA, Wang X, Dollin Y, Xie P, Wang JH, Chen Z. [TRAF2 Deficiency in B Cells Impairs CD40-Induced Isotype Switching That Can Be Rescued by Restoring NF-κB1 Activation.](#) *J Immunol.* 2018 Dec 1;201(11):3421-3430.

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

Brice DC, Toth Z, Diamond G. [LL-37 disrupts the Kaposi's sarcoma-associated herpesvirus envelope and inhibits infection in oral epithelial cells.](#) *Antiviral Res.* 2018 Oct;158:25-33.

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PUBLICATIONS

Selected Extramurally Funded Science Advances

During the past four months, 302 extramurally funded studies were published in the scientific literature. Below is a list of the most important papers published from each program area.

High-Impact Findings from Seasoned Investigators

Behavioral and Social Sciences Research

Albino J, Tiwari T, Henderson WG, Thomas JF, Braun PA, Batliner TS. [Parental psychosocial factors and childhood caries prevention: Data from an American Indian population](#). *Community Dent Oral Epidemiol*. 2018 Aug;46(4):360-368.

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Translational Genomics Research

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Division of Extramural Research Staff Publications

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Selected Division of Intramural Research Publications

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Office of Science Policy and Analysis Staff Publications

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FUNDING UPDATE

Program Announcements

- [Mentored Clinical Scientist Research Career Development Award \(Parent K08 Independent Clinical Trial Required\)](#)
Release Date: December 20, 2018
- [Mentored Clinical Scientist Research Career Development Award \(Parent K08 Independent Clinical Trial Not Allowed\)](#)
Release Date: December 20, 2018
- [Mentored Patient-Oriented Research Career Development Award \(Parent K23 Independent Clinical Trial Required\)](#)
Release Date: December 20, 2018
- [Mentored Patient-Oriented Research Career Development Award \(Parent K23 Independent Clinical Trial Not Allowed\)](#)
Release Date: December 20, 2018

- [Mentored Quantitative Research Development Award \(Parent K25 - Independent Clinical Trial Not Allowed\)](#)
Release Date: December 20, 2018
- [Mentored Quantitative Research Development Award \(Parent K25 - Independent Clinical Trial Required\)](#)
Release Date: December 20, 2018
- [Mentored Research Scientist Development Award \(Parent K01 - Independent Clinical Trial Not Allowed\)](#)
Release Date: December 20, 2018
- [Mentored Research Scientist Development Award \(Parent K01 - Independent Clinical Trial Required\)](#)
Release Date: December 20, 2018
- [NIH Pathway to Independence Award \(Parent K99/R00 - Independent Clinical Trial Required\)](#)
Release Date: December 20, 2018
- [NIH Pathway to Independence Award \(Parent K99/R00 - Independent Clinical Trial Not Allowed\)](#)
Release Date: December 20, 2018
- [Independent Scientist Award \(Parent K02 - Independent Clinical Trial Required\)](#)
Release Date: December 20, 2018
- [Independent Scientist Award \(Parent K02 - Independent Clinical Trial Not Allowed\)](#)
Release Date: December 20, 2018
- [Mentored Research Scientist Development Award \(Parent K01 - Independent Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [Independent Scientist Award \(Parent K02 - Independent Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [Mentored Clinical Scientist Research Career Development Award \(Parent K08 - Independent Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [Mentored Patient-Oriented Research Career Development Award \(Parent K23 Independent Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [Mentored Quantitative Research Development Award \(Parent K25 - Independent Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [NIH Pathway to Independence Award \(Parent K99/R00 Independent Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [NIH Research Project Grant \(Parent R01 Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [NIH Exploratory/Developmental Research Grant Program \(Parent R21 Basic Experimental Studies with Humans Required\)](#)
Release Date: November 28, 2018
- [Enabling Technologies to Accelerate Development of Oral Biodevices \(R41/R42 Clinical Trial Not Allowed\)](#)
Release Date: November 26, 2018

- [Enabling Technologies to Accelerate Development of Oral Biodevices \(R43/R44 Clinical Trial Not Allowed\)](#)
Release Date: November 26, 2018
- [NIH Exploratory/Developmental Research Grant Program \(Parent R21 Clinical Trial Not Allowed\)](#)
Release Date: November 5, 2018
- [Research Project Grant \(Parent R01 Clinical Trial Not Allowed\)](#)
Release Date: November 5, 2018
- [Commercializing Understudied Proteins from the Illuminating the Druggable Genome Project \(IDG\) \(R41/R42 Clinical Trial Not Allowed\)](#)
Release Date: October 24, 2018
- [Commercializing Understudied Proteins from the Illuminating the Druggable Genome Project \(IDG\) \(R43/R44 Clinical Trial Not Allowed\)](#)
Release Date: October 24, 2018
- [Emerging Global Leader Award \(K43 Independent Clinical Trial Required\)](#)
Release Date: October 25, 2018
- [Innovation Corps \(I-Corps\) at NIH Program for NIH and CDC Translational Research \(Admin Supp Clinical Trial Not Allowed\)](#)
Release Date: October 17, 2018
- [Advancing Imaging, Device Production, and Clinical Capabilities in Digital Dentistry \(R41/R42 Clinical Trial Not Allowed\)](#)
Release Date: October 10, 2018
- [Advancing Imaging, Device Production, and Clinical Capabilities in Digital Dentistry \(R43/R44 Clinical Trial Not Allowed\)](#)
Release Date: October 10, 2018
- [Pre-application: Opportunities for Collaborative Research at the NIH Clinical Center \(X02 Clinical Trial Optional\)](#)
Release Date: October 3, 2018
- [Opportunities for Collaborative Research at the NIH Clinical Center \(U01 Clinical Trial Optional\)](#)
Release Date: October 5, 2018

Requests for Applications

- [HEAL Initiative: Pragmatic and Implementation Studies for the Management of Pain to Reduce Opioid Prescribing \(PRISM\) \(UG3/UH3, Clinical Trials Optional\)](#)
Release Date: December 10, 2018
- [NIDCR Mentoring Network to Support a Diverse Dental, Oral and Craniofacial Research Workforce \(UE5 Clinical Trials Not Allowed\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Translational Development of Devices to Treat Pain \(U18 Clinical Trial Not Allowed\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Translational Devices to Treat Pain \(UG3/UH3 Clinical Trial Optional\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Translational Devices to Treat Pain \(U44 Clinical Trial Optional\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Clinical Devices to Treat Pain \(UH3 Clinical Trial Optional\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Optimization of Non-addictive Therapies \[Small Molecules and Biologics\] to Treat Pain - \(U44 Clinical Trial Not Allowed\)](#)
Release Date: December 10, 2018

- [HEAL Initiative: Pain Management Effectiveness Research Network: Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Early Phase Pain Investigation Clinical Network - Clinical Coordinating Center \(U24 Clinical Trial Not Allowed\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Early Phase Pain Investigation Clinical Network - Data Coordinating Center \(U24 Clinical Trials Not Allowed\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Early Phase Pain Investigation Clinical Network - Specialized Clinical Centers \(U24 Clinical Trial Not Allowed\)](#)
Release Date: December 10, 2018
- [HEAL Initiative: Tissue Chips to Model Nociception, Addiction, and Overdose \(UG3/UH3 Clinical Trial Not Allowed\)](#)
Release Date: December 10, 2018
- [Emerging Global Leader Award \(K43 Independent Clinical Trial Not Allowed\)](#)
Release Date: December 10, 2018
- [NIH Research Evaluation and Commercialization Hub \(REACH\) Awards \(U01 Clinical Trial Not Allowed\)](#)
Release Date: December 17, 2018
- [Limited Competition: NeuroImaging Tools & Resources Collaboratory \(R24 Clinical Trial Not Allowed\)](#)
Release Date: December 18, 2018
- [Research Enhancement Award Program \(REAP\) for Health Professional Schools and Graduate Schools \(R15 Clinical Trial Not Allowed\)](#)
Release Date: December 21, 2018
- [Optimization of Non-addictive Therapies \[Small Molecules and Biologics\] to Treat Pain \(UG3/UH3 Clinical Trial Not Allowed\)](#)
Release Date: November 5, 2018
- [National Dental Practice-Based Research Network: Clinical Trial or Observational Study Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Optional\)](#)
Release Date: October 5, 2018
- [NIH Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience \(D-SPAN\) Award \(F99/K00\)](#)
Release Date: October 3, 2018

Notices

- [HEAL Initiative: Notice of Interest in Small Business Innovation Research \(SBIR\) and Small Business Technology Transfer \(STTR\) Applications Directed at Enhanced Pain Management and Improved Treatments for Opioid Misuse and Addiction](#)
Release Date: December 10, 2018
- [Reinstatement of NIH SBIR Direct-to-Phase II Authority and Associated Updates to PA-18-705](#)
Release Date: December 10, 2018
- [Notice of NIDCR Interest in Supporting Administrative Supplements for Collaborative Science](#)
Release Date: December 3, 2018
- [Notice of Extension of Expiration Date for PAR-16-070 NIDCR Small Research Grants for Data Analysis and Statistical Methodology Applied to Genome-wide Data \(R03\)](#)
Release Date: November 28, 2018

- [Notice of Intent to Publish a Funding Opportunity Announcement for HEAL Pain Effectiveness Research Network: Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)
Release Date: November 27, 2018
- [Alzheimer's-focused administrative supplements for NIH grants that are not focused on Alzheimer's disease](#)
Release Date: November 26, 2018
- [Notice of Clarification of Award Budget for PAR-18-656 NIDCR Behavioral and Social Intervention Clinical Trial Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Required\)](#)
Release Date: October 23, 2018
- [Request for Information \(RFI\) on the Proposed Funding Priorities for Neuroscience Research, Input on Cross-Cutting Opportunities \(NIH Neuroscience Blueprint\)](#)
Release Date: October 17, 2018
- [Notice of Correction to RFA-DE-19-006 "National Dental Practice-Based Research Network: Clinical Trial or Observational Study Planning and Implementation Cooperative Agreement \(UG3/UH3 Clinical Trial Optional\)"](#)
Release Date: October 12, 2018