

**Director's Report to the
National Advisory Dental and Craniofacial Research Council
January 2023**

HHS/NIH UPDATE

[NIH-Supported Researchers Win 2022 Nobel Prize in Chemistry](#)

In a blog post, NIH Acting Director Lawrence Tabak, D.D.S., Ph.D., described how click chemistry, developed by Nobel Prize winners and longtime NIH grantees K. Barry Sharpless, Ph.D., and Carolyn R. Bertozzi, Ph.D., has expanded our ability to explore biomolecular processes and develop drugs, diagnostics, and other materials. Dr. Tabak cited his own research with NIDCR Senior Investigator Kelly Ten Hagen, Ph.D., on mucins—which make up the mucous linings of the mouth and other regions—as having benefited from these insights.

[ARPA-H Is Recruiting Program Managers](#)

The Advanced Research Projects Agency for Health is currently soliciting applications for program managers who have a bold, ambitious idea for using research to solve a problem in health, including dental, oral, and craniofacial health. Program managers will serve a term-limited appointment of three years.

[Oral Microbiome Linked to Lung Cancer Risk](#)

Researchers at the National Cancer Institute (NCI) recently found that a greater diversity of oral bacteria was associated with a lower risk of lung cancer. However, the abundance and presence of certain bacterial genera, including those linked to gum disease and tooth decay, were associated with lung cancer risk, especially in former smokers. The findings suggest the oral microbiome may offer new opportunities for lung cancer prevention.

[Compounds Block Pain Without Sedation in Mice](#)

An international team of researchers, funded partly by NIH, identified several compounds that activate a pain-blunting receptor on cells called $\alpha 2AAR$. In animal studies, the compounds blocked pain without causing sedation, a side effect of drugs that target the $\alpha 2AAR$ receptor. While more experiments are needed before testing in humans, the findings may inform development of non-opioid alternatives for treating pain.

[NIH Program To Expand Use of Artificial Intelligence in Research](#)

NIH is investing \$130 million, pending available funds, to accelerate the use of artificial intelligence in the biomedical and behavioral research community. The Bridge to Artificial Intelligence program, managed by the NIH Common Fund, will generate AI-ready tools, resources, and data for use in biomedical research.

NIDCR UPDATE

Institute News

Rena D’Souza Receives Alumni Honors from UTHealth School of Dentistry

NIDCR Director Rena D’Souza, D.D.S., Ph.D., received the inaugural [Alumni Lifetime Achievement Award](#) from the University of Texas Health Science Center at Houston (UTHealth) School of Dentistry in November. The award recognizes her service in advancing the knowledge and professional development of dentists as a leader in dental, oral, and craniofacial research for more than 35 years. Dr. D’Souza, who earned her D.D.S. and Ph.D. at UTHealth, was also named the [2021-2022 Distinguished Alumna](#) by the MD Anderson Cancer Center UTHealth Houston Graduate School of Biomedical Sciences.

Jennifer Webster-Cyriaque Elected VP of AADOCR and Member of the National Academy of Medicine

In December, NIDCR Deputy Director Jennifer Webster-Cyriaque D.D.S., Ph.D., was elected as vice president of the American Association of Dental, Oral, and Craniofacial Research (AADOCR). She will serve as vice president for two years starting in March 2023 and will ascend to the AADOCR presidency to serve for another two years beginning in March 2025. In October, Dr. Webster-Cyriaque was [elected](#) to the National Academy of Medicine in recognition of her research on viral immunology in oral disease.

Renée Joskow Receives Distinguished Service Medal

Senior Advisor to the NIDCR Director, Renée Joskow, D.D.S., M.P.H., FAGD, received the Public Health Service Distinguished Service Medal, the highest award granted to officers of the Commissioned Corps of the United States Public Health Service. She is also the current director of the NIDCR Dental Public Health and Research Fellowship Program and acting director of the NIDCR Office of Science Policy and Analysis. Dr. Joskow was recognized for her “transformative leadership and accomplishments in integrating oral health programs and initiatives that drive systems change” during her time as chief dental officer at the Health Resources and Services Administration between 2012-2021.

Improving Women’s Oral Health

Dr. D’Souza, Dr. Webster-Cyriaque, and other NIDCR leaders highlighted the institute’s efforts to improve women’s health in a recent cover story for [In Focus](#), a publication from the NIH Office of Research on Women’s Health. These efforts include research on sex and gender differences in dental, oral, and craniofacial (DOC) disease, determinants of oral health during pregnancy, DOC health of sexual and gender minority populations, as well as initiatives to foster a diverse research workforce. The issue also featured a guest editorial by Dr. Webster-Cyriaque on improving oral health equity.

NIDCR Deputy Director Interviewed for Fogarty International Center Newsletter

In a Q&A with NIH’s Fogarty International Center (Fogarty), Dr. Webster-Cyriaque discussed her path to becoming a dentist-scientist, challenges she’s faced as a woman of color in science, and her goals as NIDCR’s deputy director, including the importance of addressing oral health disparities nationally and globally.

NIDCR Investigator Makes TV Debut

NIDCR Senior Investigator Indu Ambudkar Ph.D., and her husband, NCI scientist Suresh Ambudkar Ph.D., recently appeared on a home makeover television series with their son, actor Utkarsh Ambudkar. In May, Utkarsh Ambudkar and his mother [spoke to an NIH audience](#) about his experiences growing up in a STEM-focused family and diversity in Hollywood.

NIDCR Supports New Innovator Award Recipient

NIH announced 72 new recipients of the [2022 NIH Director’s New Innovator Awards](#), which support exceptionally creative early stage scientists with highly innovative research ideas. NIDCR will support

Columbia University's Joanna Smeeton, Ph.D., whose project will focus on craniofacial joint regeneration.

[**New Funding Opportunity for Cancer Research—Applications Due Soon**](#)

In collaboration with the NCI, NIDCR is seeking applications on the early detection of head and neck cancers through the [**Advancing Head and Neck Cancer Early Detection Research \(AHEAD\)**](#) program. Apply by January 27, 2023.

[**New DEIA Mentorship Supplements Available—Deadline Approaching**](#)

NIDCR is inviting applications for [**administrative supplements**](#) to existing NIDCR awards to support scientists who are outstanding mentors and have demonstrated compelling commitments and contributions to enhancing diversity, equity, inclusion, and accessibility in the biomedical sciences. Apply by February 17, 2023, at 5:00 p.m. in the local time of the applicant organization.

NIDCR-Supported Science Advances

[**Friendly Virus Could Deliver Gene Therapy Under Immune System's Radar**](#)

Intramural researchers from NIDCR and the National Human Genome Research Institute found that a strain of adeno-associated virus (AAV) called AAV44.9 is a good candidate to deliver gene therapy for a potentially deadly genetic metabolic disorder called methylmalonic acidemia (MMA). The team designed a therapeutic AAV44.9 for a gene therapy that successfully treated mice with the disorder. Additionally, by analyzing blood samples from healthy volunteers and patients with MMA, the researchers found that the human immune system is unlikely to interfere with AAV44.9's delivery abilities.

[**Creepy Crawlies on the Teeth**](#)

Caught on camera: bacterial-fungal clusters “walking” on tooth-like surfaces to rapidly form dental plaque and promote decay. These clusters, found in the saliva of toddlers with severe tooth decay, are more resistant to antimicrobial agents and tougher to remove from tooth-like surfaces than either species alone. The NIDCR-supported study could provide insights into interventions for tooth decay.

[**Shaping the Nation's Smiles with Dental Public Health**](#)

Dentists in NIDCR's newly expanded Dental Public Health Research Fellowship program are looking beyond the mouth to tackle community-wide barriers to oral health. The three-year program aims to equip fellows with the knowledge, research skills, and training necessary to become a dental public health practitioner and independent researcher.

[**Researchers Call in a Swarm of Tiny, Tooth-Scrubbing Robots**](#)

The concept of a toothbrush—essentially bristles-on-a-stick—hasn't changed much as a technology since the Babylonians and ancient Egyptians walked the earth over 5,000 years ago. Now, scientists aim to transform tooth cleaning with magnetically controlled nanoparticle “robots” that can brush, floss, and sweep away dental plaque. The NIDCR-funded technology could one day help those who lack the manual dexterity to use a toothbrush.

[**Boosting Bone Repair Through Stem Cell Science**](#)

In an NIH SciBites video, Byron Mui, a graduate student in the lab of NIDCR's [**Pamela Robey, Ph.D.**](#), shares his research on how stem cells fix broken bones. He is trying to understand how stem cells learn that bones are broken and what molecular cues prompt stem cells to repair and regenerate bones. Mui's research could help scientists learn how to “supercharge” the body's ability to repair bone fractures.

Personnel Update

Sharon H. Jackson, M.D., M.H.Sc., joins NIDCR as the deputy clinical director in the Office of the Clinical Director. She received her B.A. from Williams College, her M.D. from the State University of New York at Buffalo School of Medicine, and her M.H.Sc. from Duke University School of Medicine. She served in the Commissioned Corps of the U.S. Public Health Service as a commissioned officer from 1993 to 2022. Dr. Jackson comes to NIDCR from the National Institute on Minority Health and Health Disparities, where she served as the acting clinical director and was head of the Inflammatory Factors and Diabetes Risk in Health Disparities Populations Lab. Prior to that, she was an investigator at the National Institute of Allergy and Infectious Diseases. Her clinical research interests include key factors of immunity and inflammation in chronic diseases and their intersection with health disparities.

Alisa Machalek, M.S., recently transitioned from the role of acting director to the director of the Office of Communications and Health Education. She has a master's in biochemistry from the University of Wisconsin-Madison and a graduate certificate in science writing from the University of California, Santa Cruz. Machalek came to NIDCR from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), where she was a team lead for science writing and project officer. Prior to joining NIAMS, Machalek was a senior science writer at the National Institute of General Medical Sciences.

Niki Moutsopoulos, D.D.S., Ph.D., was elected to the Henry Kunkel Society on December 28. The society aims to foster the development of clinical investigators dedicated to hypothesis-driven and patient-oriented research in the field of human immunology. Dr. Moutsopoulos was recognized for her research that focuses on understanding the molecular and cellular basis of oral immunity, both in healthy individuals and in those with periodontitis, a common inflammatory disease of the gums.

Joy Postell, joins NIDCR as the acting chief diversity officer. She received her bachelor's degree in the humanities from the University of Maryland University College and a certification in diversity and inclusion from Cornell University. Postell comes to NIDCR on detail from the NIH Office of Equity, Diversity, and Inclusion (EDI). As EDI's principal strategist on the portfolio for women, Postell identifies and addresses barriers to equal employment opportunities for women. Prior to that, she led the implementation of the NIH Language Access Program. She originally joined NIH in 1994 as an immigration specialist at the Fogarty and has worked in the Office of Research Services, NIH Travel Services Program, and Sign Language Interpreting Services Program.

Shoba Thirumangalathu, Ph.D., recently transitioned from the role of health specialist to program officer in the Research Training and Career Development Branch in the Division of Extramural Activities. She received her doctorate in developmental neuroscience from the National University of Singapore. As a graduate student, she received a predoctoral fellowship from the National Medical Research Council of Singapore. Dr. Thirumangalathu completed her postdoctoral training in development and stem cell biology at the Joslin Diabetes Center in Boston. She continued her training as a research fellow and instructor at the University of Colorado Anschutz, where she received the Association of Chemoreception Sciences' Polak Young Investigator Award and an R03 grant from the National Institute on Deafness and Other Communication Disorders.