Director's Report to the

National Advisory Dental and Craniofacial Research Council

May 2024

NIDCR Update

June 5: NIH Barmes Lecture Returns with Global Health Expert Dr. John Nkengasong The Fogarty International Center and NIDCR present the David E. Barmes Global Health Lecture 2024: "Global HIV/AIDS Response: Then, Now, Future," by Ambassador John Nkengasong, Ph.D., Senior Bureau Official for Global Health Security and Diplomacy and U.S. Global AIDS Coordinator at the U.S Department of State. The lecture will take place on Wednesday, June 5 at 1:00-2:00 p.m. ET in the Natcher Auditorium on the NIH campus and virtually.

Resolution Honoring NIDCR's 75th Anniversary Passed in U.S. Senate With unanimous support, the U.S. Senate has introduced and passed a resolution recognizing NIDCR's 75th anniversary. The resolution recognizes the institute's role in improving the dental, oral, and craniofacial health of the nation through research, training, and the dissemination of health information since 1948.

2024 IADR/AADOCR/CADR Meeting & Exhibition NIDCR leaders, program staff, investigators, and trainees were among the presenters and attendees at the 2024 IADR/AADOCR/CADR meeting in New Orleans, Louisiana. The events included a collection of seven symposia, poster presentations, and grants and funding information. Visit our meeting webpage for a list of NIDCR's activities at the meeting.

Rena D'Souza Speaks at Women's Leadership Conference NIDCR Director Rena D'Souza D.D.S., Ph.D., M.S., joined Janine Clayton, M.D., Director of the NIH Office of Research and Women's Health, at the American Dental Education Association's International Women's Leadership conference to discuss global oral health research and improving women's health through research and leadership.

Samara Finds Her Calling at NIH In recognition of Women's History Month, *NIH Record* featured the career path of NIDCR Investigator Nadine Samara, Ph.D., who studies polysaccharide biosynthesis — the sugars that bacteria make and use to evade the host immune system. She stresses the importance of making people feel safe, supported, and mentored in the lab.

NIDCR Branch Chief Shares View from the White House Diana "Dede" Rutberg, NIDCR's acting executive officer, spent a year in a White House leadership program. She was one of the temporary staff charged with implementing the recently launched "Made in America" office to strengthen American manufacturing, create jobs, and boost the economy.

NIDCR-Supported Science Advances

Gum Cells May Trigger Inflammation, Gum Disease Aside from their role as a physical protective barrier, epithelial cells that line the mouth and gums (gingiva) may directly activate the immune system. The study, led by NIDCR investigator Niki Moutsopoulos, D.D.S., Ph.D., found that gingival epithelial cells, rather than immune cells, may be the harbingers of chronic inflammation that lead to gum disease.

Gum Disease-Related Bacteria Tied to Colorectal Cancer Scientists identified a specific subtype of *Fusobacterium nucleatum* — bacteria implicated in gum disease — that may promote the growth of colorectal tumors. The study, which is partly funded by NIDCR, suggest that therapies targeting these bacteria in tumors may help reduce the severity of some colorectal cancer.

Topical Solution Halts Tooth Decay in Children A topical liquid, silver diamine fluoride (SDF), can stop tooth decay in young children, according to a clinical trial funded by NIDCR. SDF can be easily and painlessly swabbed onto cavities and could be a potential tool for improving children's oral health.

Wrecking Cellular Recycling to Learn About Lung Cancer In a *SciBites* video from the NIH Intramural Research Program, Maya English, a postbaccalaureate research fellow in the lab of NIDCR's Achim Warner, Ph.D., shared her research on how protein recycling process goes awry in certain lung cancer. What she learns may inform treatments for diseases that arise from faulty recycling processes.

The Perplexing Pancreas *NIH Catalyst* highlighted investigators, including NIDCR's Shmuel Muallem, Ph.D., that are using multifaceted approaches to better understand pancreatic disease. Dr. Muallem's lab is exploring how drugs approved for cystic fibrosis might be repurposed to correct dysfunctional fluid secretion in mouse models of pancreatitis and Sjögren's disease.

Big Hopes for Little Teeth A new story on NIDCR's website traces the institute's legacy of work to improve children's oral health. Those efforts started with research in the 1940s demonstrating the efficacy of community water fluoridation and continue today with studies to test new treatments to halt caries and develop technologies to enhance dental care and reduce oral health disparities.

The Many Long Arms of Cancer Cell Invasion NIDCR scientists discovered that cancer cells may spread by sprouting long appendages to force their way into healthy tissue. The research offers a new lead in determining whether a cancer is starting to spread in a patient thought to be in remission.

Facing Cancer Head-On. We need better ways to treat and prevent head and neck cancers, which often goes undetected until they're quite advanced and are difficult to treat. From cancer vaccines and tumor-killing therapies to computer algorithms that map suspicious oral lesions, ongoing NIDCR-supported research aims to bring better care to patients with head and neck cancer.

NIH/HHS Update

NIH Scientists Find Weak Points on Epstein-Barr Virus By studying the interactions between lab-generated monoclonal antibodies and an Epstein-Barr virus (EBV) protein, researchers at the National Institute of Allergy and Infectious Diseases have uncovered new details that could aid treatment and vaccine development. EBV can reside in cell linings of the throat, sometimes leading to nose and throat cancer.

NIH Launches Research Network to Evaluate Cancer Screening Technologies The newly launched Cancer Screening Research Network will evaluate the benefits and harms of promising new technologies for cancer screening and determine how to incorporate them into the standard of care. This clinical trials network will support the Biden-Harris administration's Cancer Moonshot program.

Researchers Optimize Genetic Tests to Tackle Health Disparities A recent NIH-funded study has devised new ways to improve a genetic testing method called a polygenic risk score to more accurately assess disease risk regardless of genetic ancestry. Genomic datasets used to calculate scores often overrepresent people of European ancestry, which can contribute to health disparities.

275 Million New Genetic Variants Identified Researchers have discovered more than 275 million previously unreported genetic variants, identified from data shared by nearly 250,000 participants of NIH's *All of Us* Research Program. These results can help scientists better understand the genetic influences on health and disease, especially in communities that have been left out of research in the past.

NIH Researchers Create Genetic Atlas of Early Zebrafish Development NIH researchers have published an atlas of zebrafish development, detailing the gene expression programs that are activated within nearly every cell type during the first five days of development, a period in which embryos mature from a single cell into distinct cell types.

Scientists Unveil Complete Cell Map of a Whole Mammalian Brain An international team of researchers has created a complete cell atlas of a whole mammalian brain. This atlas serves as a map for the mouse brain, describing the type, location, and molecular information of more than 32 million cells and providing information on connectivity between these cells.

New Commentary Champions All of Us Research Program Dataset NIDCR joined other NIH institutes and centers in a joint commentary published recently by *Nature Medicine*. The commentary highlights the diversity of the All of Us Research Program participant cohort and urge researchers to use the program's dataset in their studies.

NIH To Increase Pay Levels for Pre- and Postdoctoral Scholars at Grantee Institutions. NIH will increase annual pay levels for research trainees who are recipients of the Ruth L. Kirschstein National Research Service Awards at NIH-funded external institutions. The increase applies to more than 17,000 predoctoral and postdoctoral scholars and includes additional funds for childcare and training-related expenses.

Personnel Update

Alicia Chou, M.S., who was a health specialist, has been named the director of the Translational Genetics and Genomics Program in the Division of Extramural Research. She serves as NIDCR's Genomic Program administrator and co-chair of the NIDCR Data Access Committee. Prior to joining NIDCR, Chou supported the Critical Path to Tuberculosis Drug Regimens initiative at two nonprofit organizations. She received her graduate degree from Georgetown University.

William (Bill) Elwood, Ph.D., recently transitioned from acting chief to the chief of the Behavioral and Social Science Research Branch within the Division of Extramural Research. He comes to NIDCR on a detail from the NIH Office of Behavioral and Social Sciences Research. At NIH, Dr. Elwood previously served as a scientific review officer at the Center for Scientific Review's Community-Level Health Promotion study section.

Jill Mattia, Ph.D., joins NIDCR as the director of the Behavioral and Social Science Research Program in the Division of Extramural Research. Before joining NIDCR, she was an evaluation officer and a review policy subject matter expert in the Office of Extramural Programs in the NIH Office of the Director. Dr. Mattia is a clinical psychologist with about 20 years of experience in clinical research. She received her graduate degree from the State University of New York at Albany.

Lu Wang, Ph.D., is serving as the Senior Advisor for Data Science in the NIDCR Office of the Director. Dr. Wang joined NIDCR in 2018 and served a variety of roles within the institute, including chief of the Translational Genomics Research Branch, director of the Translational Genetics and Genomics Program, program officer for FaceBase, and co-chair of the Institute's Data Access Committee. Dr. Wang holds B.S. and M.S. degrees in genetics, and a Ph.D. in microbiology from Cornell University. Her postdoctoral training at The Rockefeller University focused on transcriptional regulation of B-lymphocyte development.