

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

January 2016

## ACTIVITIES OF THE NIDCR DIRECTOR

Since the last meeting of the National Advisory Dental and Craniofacial Research Council on September 18, 2015, NIDCR Director Martha J. Somerman, DDS, PhD, maintained an active schedule of attending research symposia, delivering presentations to stakeholders, and meeting with working groups and other organizations.

Dr. Somerman made a number of notable presentations during the last four months:

- She presented a poster titled "Osteogenesis imperfecta causes defects in tooth development and periodontal function in four mouse models" on September 17 at the 2015 NIH Research Festival, which is a showcase of intramural research, at NIH.
- At the 2015 Annual Meeting of the American Society for Bone and Mineral Research (ASBMR) in Seattle, WA, on October 10, Dr. Somerman and Stephen Katz, MD, PhD, the director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases, gave presentations on their perspectives on the future of bone and mineral research to the ASBMR Leadership Meeting of the ASBMR Officers, Councilors, Committee Chairs, and Esteemed Awardees.
- Dr. Somerman presented a talk titled "Big Data: Opportunities for NIDCR-ADEA Research-Education Partnerships" at the 2015 American Dental Education Association (ADEA) Deans' Conference in Washington, DC, on October 19. This presentation spurred discussions on establishing a partnership between NIDCR and ADEA to develop a big data training course.
- She delivered a plenary lecture and provided a manuscript for publication titled "Dental Research and Training in the 21st Century: A Perspective from the National Institute of Dental and Craniofacial Research, NIH" at the 6th Hiroshima Conference on Education and Science in Dentistry commemorating the 50th Anniversary of the Faculty of Dentistry at Hiroshima University in Hiroshima, Japan, on October 23-25.
- She gave a presentation titled "NIDCR Research Activities and Opportunities for Collaboration" at the American Academy of Periodontology Foundation Board Meeting in Orlando, FL, on November 13.
- Dr. Somerman presented on "Research Opportunities in Regenerative Medicine" at the Osteology Foundation Symposium during the American Academy of Periodontology Annual Meeting in Orlando, FL, on November 14.

Other notable activities included:

- From September 28 through October 1, Dr. Somerman participated in the Scientific Advisory Board to Review Research at the King's College London Dental Institute in London, England, to identify strengths and weaknesses as well as opportunities, and to help shape strategic directions.
- Dr. Somerman and Acting Deputy Director John Kusiak, PhD, welcomed dental students participating in the American Dental Association Dental Students' Conference on Research on October 27. In addition to delivering opening remarks, Drs. Somerman and Kusiak participated in a discussion panel.

- Dr. Somerman was interviewed on November 6 for a profile to be published by NIH's Office of Research on Women's Health. The profile emphasized Dr. Somerman's passion for science and the importance of mentoring.
- She attended and prepared a handout for the American Dental Association Genomics Conference: Navigating in a Sea of Genomic Data in Chicago, IL, on October 28 and 29.
- Drs. Somerman and Kusiak attended the American Association for Dental Research Fall Focused Symposium: Advances in the Biology and Management of Chronic Pain in Washington, DC, on November 3 and 4.
- She provided an update about NIDCR activities to the International Association for Dental Research (IADR) Government Affairs Committee during their meeting at IADR Headquarters in Alexandria, VA, on November 9.
- She met with James Neill—a new legislative assistant to U.S. Congressman Mike Simpson, DDS (R-ID)—at NIH on November 10 to discuss research supported by NIDCR. Mr. Neill toured NIDCR Intramural labs and visited the Dental Clinic at the Clinical Research Center.
- She provided the introduction and welcoming remarks at the NIDCR Oral Health Disparities Consortium Steering Committee Face-to-Face Meeting at NIH on November 12.

#### **ACTIVITIES OF THE ACTING DEPUTY DIRECTOR**

Acting Deputy Director John Kusiak continued to play an active role in helping the director to lead the institute. In addition to the activities described above, Dr. Kusiak attended the following meetings during the past four months:

- 3rd Annual National Dental Practice-Based Research Network Meeting in Minneapolis, MN on September 9-11
- Society for Neuroscience Annual Meeting in Chicago, IL, on October 17-21
- OPPERA-II External Advisory Committee Annual Meeting on December 9-11, 2015, at the University of North Carolina at Chapel Hill

#### **BUDGET UPDATE**

##### **FY 2015**

In FY 2015 NIDCR had an operating budget of \$397.7 million. The table below presents distribution by budget mechanism.

National Institute of Dental and Craniofacial Research FY 2015 Actuals		
Research Grants	No.	Amt. (\$000)
<u>Research Projects</u>		
Noncompeting	392	183,294
Competing	171	68,528
Subtotal	563	251,822
SBIR/STTR	28	9,895
Subtotal, RPGs	591	261,717
<u>Research Centers</u>	3	6,277
<u>Other Research</u>		
Research Careers	43	5,716
Minority Biomedical Research Support		333
Other	18	1,581
Subtotal, Other Research	61	7,630
TOTAL Research Grants	656	275,624
	FTTPs	
Research Training	257	11,712
Research & Development Contracts	25	20,318
SUBTOTAL, EXTRAMURAL		307,654
Intramural Research		64,902
Research Management and Support		25,117
Lapse		28
TOTAL NIDCR		397,700

#### **FY 2016**

On December 18, President Barack Obama signed into law H.R. 2029, the "Consolidated Appropriations Act, 2016," which provides FY 2016 full-year appropriations through September 30, 2016 for NIH. NIH's FY 2016 budget received an additional \$2 billion.

The FY 2016 enacted budget for NIDCR is \$415,582,000. This amount is reduced by a transfer out for HIV/AIDS of \$2.186 million, which reduces the operating level to \$413,396,000.

#### **FY 2017**

Currently no budget information for 2017 is available.

## **HHS/NIH UPDATE**

### **NIH Releases 2016-2020 Strategic Plan**

On December 16, NIH released the *NIH-Wide Strategic Plan, Fiscal Years 2016–2020: Turning Discovery Into Health*, which will ensure that the agency remains well positioned to capitalize on new opportunities for scientific exploration and to address new challenges for human health. The plan is designed to complement the individual strategic plans of NIH's Institutes, Centers, and Offices.

### **NIH Selects Michael Lauer, MD, as the Deputy Director for Extramural Research**

Michael S. Lauer, MD, is the new director of the NIH Office of Extramural Research Activities. He replaces Sally Rockey, PhD, who left NIH in September. Previously, Dr. Lauer was with the National Heart, Lung, and Blood Institute, where he was the director of the Division of Prevention and Population Science from 2007 to 2009 and the director of the Division of Cardiovascular Sciences from 2009 to 2015.

### **NIMH Director Thomas Insel, MD, Departs NIH for Alphabet**

In November, National Institute of Mental Health (NIMH) Director Thomas R. Insel, MD, left NIH to lead a new effort focused on mental health for the Google Life Sciences team at Alphabet. He joined NIH in 2002. While NIH searches for a new NIMH Director, Bruce Cuthbert, PhD, is serving as acting director. Previously, Dr. Cuthbert was NIMH's acting deputy director.

### **NICHD Director Alan Guttmacher, MD, Retired**

In September, Alan Guttmacher, MD, retired as director of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). He joined NICHD in 2010 and had been at NIH since 1999. Until a new director is selected, NICHD's Deputy Director Catherine Spong, MD, will serve as acting director.

### **Precision Medicine Initiative Update**

This fall, the NIH Advisory Committee to the Director presented to NIH Director Francis S. Collins, MD, PhD, a detailed design framework for building a national research participant group to expand our knowledge and practice of precision medicine. NIH plans to enroll at least 1 million Americans in the Precision Medicine cohort within three to four years. The Cohort Program released several funding opportunities, including the Biobank (U24), Coordinating Center (U2C), Healthcare Provider Organization Enrollment Centers (UG3/UH3), and Participant Technologies Center (U24).

### **NIH Launches New Open Science Prize**

In partnership with London-based Wellcome Trust, NIH has launched a global science competition for new products or services to advance open science. The goal of the Open Science Prize is to support the development and prototyping of services, tools, and platforms that will make scientific research data freely available to advance discovery and spur innovation. The first phase of the competition is accepting applications through February 29, 2016. The NIH Open Science Prize is part of the Big Data to Knowledge Initiative, launched in December 2013 as a trans-NIH program with funding from all 27 institutes and centers, as well as the NIH Common Fund.

### **Big Data to Knowledge Grantees Meet at NIH**

At the Big Data to Knowledge 2015 All Hands Grantee Meeting on November 12 and 13, researchers, educators, developers, and trainees assembled on the NIH campus in Bethesda, Maryland, to discuss research being conducted in the big data programmatic areas.

### **2015 Nobel Prize Winners Include NIH Grantees**

In October, three NIH grantees were awarded the 2015 Nobel Prize. The 2015 Nobel Prize in chemistry was awarded to NIH grantees Paul Modrich, PhD, of the Howard Hughes Medical Institute and the Duke University School of Medicine, Durham, NC, and Aziz Sancar, MD, PhD, of the University of North Carolina, Chapel Hill, NC. They share the award with Tomas Lindahl, PhD, of the Francis Crick Institute and Clare Hall Laboratory, Hertfordshire, United Kingdom, for showing how cells repair damaged DNA and safeguard genetic information.

The 2015 Nobel Prize in economics was awarded to NIH grantee Angus Deaton, PhD, of Princeton University. His research has focused on measuring poverty among the elderly in the United States; the role of work in the decline of health at older ages; and the influence of income and inequality on health and mortality in high, middle, and low income countries.

### **NIH Invests \$85 Million in BRAIN Research**

On October 1, NIH announced its second wave of grants to support the goals of the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, bringing the NIH investment to \$85 million in fiscal year 2015. Sixty-seven new awards, totaling more than \$38 million, will go to 131 investigators working at 125 institutions in the United States and eight other countries.

### **NIH Awards Grants for 78 High-Risk, High-Reward Projects**

In 2015, NIH awarded 13 Pioneer awards, 41 New Innovator awards, 8 Transformative Research awards, and 16 Early Independence awards to scientists proposing highly innovative approaches to major contemporary challenges in biomedical research, under the High-Risk, High-Reward Research program supported by the NIH Common Fund. Awards support exceptional investigators pursuing bold research projects that span the broad mission of the NIH.

### **Clinical Researchers Selected as Lasker Scholars**

On October 6, NIH announced the selection of five researchers as new Lasker Clinical Research Scholars as part of a joint initiative with the Albert and Mary Lasker Foundation to foster the next generation of great clinical scientists. A total of 10 scholars have been selected since 2012.

### **NIH Common Fund Launches Four Programs**

In fiscal year 2015, the NIH Common Fund awarded over \$54 million to launch projects in four broad scientific areas: the Glycoscience Program, the 4D Nucleome Program, the Gabriella Miller Kids First Research Program, and the Science of Behavior Change Program. The Common Fund planning process identifies major challenges that impede progress in research as well as emerging areas of science that promise to change the way we think about health and disease or the way we approach prevention or treatment.

## **NIDCR UPDATE**

### **Institute News**

#### **Commission Renews Accreditation for NIDCR's Dental Public Health Residency Program**

In November, the Commission on Dental Accreditation (CODA) reviewed the NIDCR Dental Public Health Residency program and renewed the program's accreditation with no exceptions or qualifications. To evaluate the educational quality of a dental specialty program, the CODA review—which occurs every seven years—involves a rigorous and comprehensive examination of the operations of the residency program that is followed by an on-site review and interview process to obtain in-depth information

concerning all administrative, educational, training, and personnel components of the program. In addition, the site visit permits a team of Commission-appointed peers to assess a program's compliance with the accreditation standards and with its own stated goals and objectives. The site visit verifies and supplements the information contained in the comprehensive self-study document completed by the institution. The NIDCR site visit, which took place on November 3, included an interview and exit conference. NIDCR staff who participated in these activities included Dr. Somerman, Dr. Kusiak, NIDCR Executive Officer Kathleen Stephan, Bruce Dye, DDS, MPH (director of the Dental Public Health Residency Program), Jonathan Horsford, PhD (acting director of the Office of Science Policy and Analysis, OSPA), and Timothy Iafolla, DMD, MPH (chief of OSPA's Program Analysis and Reporting Branch).

#### **NIDCR Establishes Consortium to Reduce Oral Health Disparities**

On September 18, NIDCR awarded 10 research grants to establish the Multidisciplinary and Collaborative Research Consortium to Reduce Oral Health Disparities in Children. Grantees will apply holistic, population health, and other approaches at multiple levels of influence, such as families, neighborhoods, and health care systems. On November 12 and 13, NIDCR's Center for Clinical Research hosted a meeting of the grantees. Attendees included nine teams of UH2 grantees, representatives of the Coordinating Center that supports the Consortium, NIDCR Director Martha Somerman, NIDCR staff, and a guest speaker, Dr. Nathaniel Stinson, Jr., director of the Division of Scientific Programs at the National Institute on Minority Health and Health Disparities. During the meeting, each UH2 team presented a summary of their research plans. In addition to the individual projects, the Consortium structure includes collaborative working groups that will share best practices for conducting interventions and collecting outcome measures and that will identify common data elements across different studies.

#### **NIDCR Awards Tissue Engineering and Regenerative Medicine Grants**

To catalyze the development of tissue engineering and regenerative medicine technologies for dental, oral, and craniofacial applications, and to facilitate clinical translation of the most promising technological advances, NIDCR awarded R34 planning grants (RFA-DE-15-005) totaling more than \$2 million for projects that will help investigators articulate a vision, roadmap, organizational structure, and operational procedures for establishing Resource Centers. These centers will provide technical support and research capacity for a future Dental, Oral, and Craniofacial Tissue Regeneration Consortium that will develop products ready for the initiation of clinical trials.

#### **NIDCR Partners with NIH to Fund Training Program for Junior Faculty in Africa**

NIDCR is among the funding partners for the NIH's Medical Education Partnership Initiative, which encourages junior faculty at sub-Saharan African academic institutions to pursue research careers. This fall, NIH funded the next phase of the Medical Education Partnership Initiative, which aims to increase research capacity and strengthen medical education. Over the next five years, NIH will award up to \$36.5 million through this program.

#### **NIDCR and ADA Collaborate to Determine Best Methods for Fostering Bidirectional Researcher-Practitioner Communications**

Too often, it takes decades for research results to be translated into routine clinical practice to improve quality of care and patient outcomes. To work toward narrowing this gap, NIDCR and the American Dental Association (ADA) signed a one-year collaboration agreement to evaluate the best methods for engaging practicing dentists so that they have the opportunity to learn about research findings that they can put into clinical practice. In addition, NIDCR seeks to identify channels that will enable dentists to inform research by sharing their observations from clinical practice with researchers. The one-year collaboration will answer the following questions so that communications between dental, oral, and craniofacial researchers and dental professionals may be enhanced:

- Which areas of research have the greatest potential for improving a dental practice?
- What is the best way to communicate research results to dentists?
- How willing are dentists to share their clinical observations to guide scientific inquiry?
- What are the barriers for bidirectional communication?

Qualitative research methods to be used in this collaboration include analysis of website metrics and survey results, literature reviews, and focus groups. The one-year collaboration may be extended or renewed.

#### **Gabriella Miller Kids First Pediatric Research Program**

Lillian Shum, PhD, Emily Harris, PhD, Katherine Stein, PhD, and Steven Scholnick, PhD, of the Division of Extramural Research participated in the NIH staff working group for the Kids First Program. Projects were selected for funding in response to PAR-15-259, Discovery of the Genetic Basis of Structural Birth Defects and of Childhood Cancers: Gabriella Miller Kids First Pediatric Research Program (X01), including an oral clefts project led by NIDCR-supported investigators.

#### **Database of Genotypes and Phenotypes Includes NIDCR-supported Projects**

Genomic and phenotypic data for three projects supported by NIDCR were recently made available to qualified researchers through Database of Genotypes and Phenotypes (dbGaP):

- National Institute of Dental and Craniofacial Research Sjögren's International Collaborative Clinical Alliance (SICCA): Center for Inherited Disease Research (CIDR) Genome-Wide Genotyping
- Center for Craniofacial and Dental Genetics (CCDG): Genetics of Orofacial Clefts and Related Phenotypes
- Orofacial Pain: Prospective Evaluation and Risk Assessment (OPPERA) Program

#### **NIDCR Develops Guidance for Genomic Data Sharing**

Although the NIH Genomic Data Sharing Policy's supplemental information provides general guidance to determine which projects may be subject to the GDS Policy, each Institute or Center at NIH must determine which of their projects will be subject to the policy. NIDCR's Institute-specific guidance will be made available on NIDCR's website.

#### **Site Visit for Dental, Oral, and Craniofacial Microphysiological Systems Initiative**

On December 4, Nadya Lumelsky, PhD, director of the Tissue Engineering and Regenerative Medicine Research Program, visited Wyss Institute at Harvard University in Boston in connection with the Microphysiological Systems NIH/DARPA/FDA initiative. This site visit provided important information for the preparation of the recently approved NIDCR funding opportunity focused on development of Dental, Oral, and Craniofacial Microphysiological Systems.

#### **Program Visit to University of Connecticut**

Melissa Riddle, PhD, and Dawn Morales, PhD, of the Behavioral and Social Sciences Research Branch, visited the University of Connecticut on November 5, at the invitation of researchers at the University of Connecticut Center for Health Intervention and Prevention. Center leaders arranged for a series of meetings with individual research teams to discuss potential research project ideas, a formal presentation about research supported by NIDCR relevant to their faculty and trainees, and a networking event meant to catalyze new collaborations. Center leaders reached out to faculty and trainees from many departments across the university, and at multiple campuses, including faculty at the University of Connecticut School of Dental Medicine. The Center has made available two seed grants of \$25,000 each to be awarded in the spring of 2016 to launch new lines of research related to dental, oral, or craniofacial health.

#### **NIDCR Co-coordinates Science of Behavior Change Consortium**

NIDCR continues to serve a co-coordinating role on the trans-NIH initiative called the Science of Behavior Change (SOBC). Of the nine grant awards made in September to establish the SOBC Research Network, one award has a focus on oral hygiene and early childhood caries, led by Drs. Amy Slep and Richard Heyman of NYU School of Dentistry. The network's kick-off meeting took place on December 3 and 4 in Bethesda, MD.

#### **Precision Medicine Initiative Working Group**

Emily Harris, PhD, director of the Translational Genomics Research Branch of the Division of Extramural Research, participated in the NIH staff working group for the Precision Medicine Initiative cohort study.

Six funding opportunity announcements were released in November 2015, as described in NOT-PM-16-001.

#### **Working Group for Environmental Influences on Child Health Outcomes Program**

Dr. Emily Harris participated in the NIH staff working group for the Environmental Influences on Child Health Outcomes (ECHO) Program. The announcement of the ECHO Program (NOT-OD-16-015) was released in October, and seven funding opportunity announcements were released in December.

#### **15th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies**

Isaac Rodriguez-Chavez, PhD, director of the AIDS and Immunosuppression Program of the Division of Extramural Research, co-organized the 15th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies held October 26-27 in Bethesda, MD. This event, co-sponsored by the National Cancer Institute and NIDCR, provided a forum to appraise and share information on the latest advances in viral oncology, immunology, genetics, epidemiology, pathogenesis, early diagnosis, and clinical investigation of malignant diseases associated with HIV and other acquired immunodeficiency states.

#### **Pediatric HIV/AIDS Cohort Study (PHACS) 2015 Fall Network Meeting**

Dr. Rodriguez-Chavez co-led and co-organized along with NICHD and other NIH institutes, the Pediatric HIV/AIDS Cohort Study (PHACS) 2015 Fall Network Meeting, held October 29-30 in Bethesda, MD. The presentations and discussions of progress made in the past year included those for the Complications Working Group that also consists of the oral health study sponsored by NIDCR.

#### **Personnel Update**

##### **Nadya Lumelsky, PhD, Appointed Chief of Integrative Biology and Infectious Diseases Branch**

Nadya Lumelsky, PhD, has been appointed permanent chief of the Integrative Biology and Infectious Diseases Branch in the Division of Extramural Research. Dr. Lumelsky has been serving as acting branch chief since October 2014. She joined NIDCR in 2006 as director of the Tissue Engineering and Regenerative Medicine Research Program. Since that time, Dr. Lumelsky has led and co-led several initiatives, and she works collaboratively with NIH institutes and other federal agencies. Currently, she is building the Dental, Oral, and Craniofacial Tissue Regenerative Consortium, which is a multi-stage complex program that will deliver a pipeline of tissue repair and regeneration products and technologies. Before joining NIDCR, Dr. Lumelsky was chief of the Section of Cellular Differentiation, Islets and Autoimmunity Branch at NIDDK. She earned her PhD from State University of New York, Albany. She trained as a postdoctoral fellow at Yale University under the tutelage of Nobel laureate Sidney Altman, and worked on molecular mechanisms of action of the catalytic RNA component of a bacterial enzyme RNaseP.

##### **Gallya Gannot, DMD, PhD, Becomes Program Director of the Clinical Research Program**

Gallya Gannot, DMD, PhD, joined the Division of Extramural Research's Center for Clinical Research as the director of the Clinical Research Program on December 14. Dr. Gannot comes to NIDCR after serving as president of Opticul Diagnostics, Inc., an in vitro diagnostics company in Maryland. She completed a post-DMD research fellowship at NIDCR and a postdoctoral fellowship at the National Cancer Institute. She holds DMD, PhD, and MA degrees from Tel Aviv University, where she also served as research faculty in the Department of Human Microbiology and Oral Pathology.

##### **Several NIDCR Staff Members Receive NIH Director's Awards**

In November, NIH Director Francis Collins, MD, PhD, presented awards to several NIDCR staff for their activities within working groups and committees:

- Dr. Kusiak, who is a member of the International Pain Research Coordinating Committee's National Pain Strategy Group, for the interagency organizational efforts to develop the National Pain Strategy that seeks to create a comprehensive population health-level strategy for pain prevention, treatment, management, and research



- Dr. Lumelsky, who is a member of the NIH Microphysiological Systems (Tissue Chip) Program Project Team, for outstanding contributions managing and providing oversight to the Microphysiological Systems Program, recognized world-wide as innovative technology in therapy development and disease modeling
- Sue Hamann, PhD, who is a science evaluation officer in the Office of Science Policy and Analysis and a member of the Sexual and Gender Minority Research Coordinating Committee, for catalyzing the advancement of sexual and gender minority health research, including the creation of the first NIH Sexual and Gender Minority Health Research Strategic Plan
- Dr. Harris, who is a member of the Genetic Association Information Network Data Access Committee, for outstanding leadership in developing and implementing new models for genome-wide data sharing in the Genetic Association Information Network

#### **NIDCR Appoints Carol Loose as Budget Officer**

In September, Carol Loose was appointed as the budget officer and chief of NIDCR's Financial Management Branch. Ms. Loose joined NIDCR in 2001 and has been deputy budget officer since 2007. She served as NIDCR's acting budget officer from April 2013 through January 2015.

#### **Michael Collins, MD, Receives Tenure**

On September 21, Michael T. Collins, MD, was granted tenure by the NIH Central Tenure Committee. Dr. Collins is now a senior investigator and the chief of the Skeletal Clinical Studies Section in the Craniofacial and Skeletal Diseases Branch of the Division of Intramural Research.

#### **Jacqueline Mays, DDS, PhD, Appointed as Assistant Clinical Investigator**

After a national search, Jacqueline Mays, DDS, PhD, was appointed on December 13 to the Oral and Pharyngeal Cancer Branch as an Assistant Clinical Investigator. Dr. Mays received her DDS and PhD degrees in 2009 from The Ohio State University and in 2015 she completed the NIH-Duke joint M.S. program in Clinical and Translational Research. She was a postdoctoral fellow at the National Institute for Allergy and Infectious Disease from 2009 until 2011. Dr. Mays was then appointed as clinical fellow at NIDCR. Dr. Mays studies the molecular mechanisms involved in the oral manifestations of chronic graft vs. host disease in patients who have undergone hematopoietic stem cell transplantation.

#### **Latarsha Carithers, PhD, Joins NIDCR as Scientific Review Officer**

In November, Latarsha Carithers, PhD, joined NIDCR's Scientific Review Branch as a scientific review officer. For nearly four years, Dr. Carithers was a program director within the Biorepositories and Biospecimen Research Branch of the National Cancer Institute. She managed a portfolio of contracts to support large team science projects, such as the NIH Common Fund Genotype-Tissue Expression (GTEx) initiative. Before joining NCI, Dr. Carithers was a Christine Mirzayan Science and Technology Policy Fellow at the Institute of Medicine where she evaluated ethical, regulatory, and operational issues related to collecting and storing human biospecimens. She received a PhD in pathobiology and molecular medicine from Columbia University. Her doctoral work focused on evaluating the biological functions of BRCA1 in normal and malignant processes.

#### **Jason Horton, PhD, Begins Independent Portion of K99 Grant**

On October 1, K99/R00 awardee Jason Horton, PhD, formerly a postdoctoral researcher in Dr. Pamela G. Robey's laboratory in NIDCR's Division of Intramural Research, assumed a tenure track position as an assistant professor in the Department of Orthopaedic Surgery at SUNY Upstate Medical University, Syracuse, NY.

#### **PhRMA Honors J. Silvio Gutkind, PhD**

J. Silvio Gutkind, PhD, chief of the Oral and Pharyngeal Cancer Branch, left NIDCR on August 31 to become professor of pharmacology and associate director for basic science at Moores Cancer Center at the University of California, San Diego. Dr. Gutkind was with NIDCR for 27 years and was branch chief for 17 years. On September 9, the Pharmaceutical Research and Manufacturers of America (PhRMA)

honored Dr. Gutkind with the 2015 Research & Hope Award for Excellence in Academic Research. PhRMA is recognizing his discoveries of proteins, receptors, and molecular pathways that were the foundation for developing cancer treatments. The PhRMA Research & Hope Award “is a celebration of the science, achievements to date, the possibilities to come and the vital role played by members of the biomedical research ecosystem in addressing unmet medical needs and public health imperatives.”

## **Meetings and Conferences**

### **Staff Presentations**

Division of Extramural Research staff served as panelists and delivered poster and oral presentations at multiple conferences and meetings:

- Dr. Lumelsky presented a talk titled “Tissue Engineering Bone for Cranioplasty” at the Johns Hopkins University/Harvard University conference “Selected Topics in Craniomaxillofacial Surgery: A Multidisciplinary Symposium on Cranioplasty,” held September 20 in Boston, MA.
- Dr. Harris participated as a panelist on the American Dental Association’s workshop discussion panel for “Navigating the Sea of Genomic Data,” held October 28-29, in Chicago, Illinois.
- Jason Wan, PhD, director of the Mineralized Tissue Physiology Program, presented a talk on “NIH Funding Opportunities” as part of the Research Open Forum at the 2015 American Association of Oral and Maxillofacial Surgeons meeting held September 28 to October 3 in Washington, DC. The talk provided an overview of current funding opportunities at the NIH and NIDCR and highlighted resources available to applicants.

### **Staff Attendance**

The American Dental Association held its 156th annual session in Washington, DC on November 5 to 10. Many OSPA staff members attended, including Drs. Margo Adesanya, Timothy Iafolla, and Bruce Dye, and also dental public health residents Drs. Amrita Mukherjee and Steffany Chamut. OSPA staff gained exposure to current oral and dental topics relevant to the practice of dentistry, continuing education, and had the opportunity to learn about the Mission of Mercy, a free one-day dental clinic that served patients in need of dental care.

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

- NIH Pain Consortium’s biannual meeting, held on September 3, at NIH, Bethesda
- Chronic Overlapping Pain Meeting, held September 10 in Chapel Hill, NC
- Inaugural International Immunotherapy Conference: Translating Science into Survival, held September 16-19 in New York, NY
- American Society of Human Genetics 2015 Annual Meeting, held October 6-10 in Baltimore, MD
- Society for Craniofacial Genetics and Developmental Biology, held October 6 in Baltimore, MD
- Annual Meeting of the Academy of Dental Materials, Emerging Materials and Declining Dogmas, held October 7-10 in Lahaina, HI
- Frontiers in Basic Immunology 2015, held October 8-9 in Bethesda, MD
- Society for Neuroscience annual meeting, held October 17-21 in Chicago, IL
- American Association for Dental Research Fall Focused Symposium: Advances in the Biology and Management of Chronic Pain, held November 3-4 in Washington, DC
- American Public Health Association Annual Meeting, held in November, in Chicago, IL
- American Dental Association Annual Meeting, held November 5-8 in Washington, DC
- BD2K All-Hands Meeting, held November 11-12, NIH campus
- Interagency Pain Research Coordinating Committee meeting, held on December 3 at NIH, Bethesda
- OPPERA II External Advisory Committee Meeting, held December 10-11 at the University of North Carolina in Chapel Hill, NC
- Microbiome in Health and Disease, held December 14 in Bethesda, MD

## **Training and Career Development Update**

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

Deborah Philp, PhD, director of the NIDCR Office of Education, participated in multiple activities to recruit students and researchers at all levels. During the fall, she opened the application period for the 2016 NIDCR Summer Dental Student Award, and in the early winter, she began to review applications. In addition, Dr. Philp conducted outreach activities. She led group discussions about intramural training opportunities and disseminated training and research opportunity materials at national conferences and took part in an undergraduate recruitment session:

- Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) Annual Conference, held on October 29-31 in Oxon Hill, MD
- Annual Biomedical Research Conference for Minority Students, held on November 11-14 in Seattle, WA
- Howard University Undergraduate Training Recruitment Session, held on September 23 in Washington, DC
- First Annual Howard University College of Dentistry Research Day and Symposium, held on October 21 in Washington, DC

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

The NIDCR Research Training and Career Development Branch (RTCDB) reached 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. Lynn King, PhD, RTCDB's chief, attended conferences and poster presentations, was part of planning committee for the Future Research Leaders and nominated NIDCR participants, and worked on committees:

- Tissue Engineering and Regenerative Medicine International Society 2015 World Congress, held on September 8-11 in Boston, MA
- Future Research Leaders Conference, held on September 17-18 on NIH campus.
- NIH Workshop on Training in Reproducibility (included NIDCR supported R25 Awardees), held on October 25-26 on NIH campus
- Annual Biomedical Research Conference for Minority Students, held November 11-14 in Seattle, Washington

Leslie A. Frieden, PhD, RTCDB's extramural training officer, attended events, was a discussion panelist, and took part in a videocast activity:

- First Annual Howard University College of Dentistry Research Day and Symposium, held October 21 in Washington, DC
- ADA Dental Student Research Conference visit to NIDCR, held on October 27 in Bethesda, MD
- AADR/NIDCR videocast on research career pathways to dental residents at Lutheran Medical Centers, held on October 27
- Annual SACNAS National Conference, held on October 29-31, in Oxon Hill, MD

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

Two NIDCR diversity supplement recipients, **Jessica Scoffield, PhD**, from the University of Alabama at Birmingham, and **LaTasha Crawford, VMD, PhD**, from Johns Hopkins University, were selected for participation in the inaugural Future Research Leaders Conference, which was organized by Hannah A. Valantine, MD, the NIH Chief Officer for Scientific Workforce Diversity, and held at NIH on September 17-18. The junior investigators met with NIH scientific leadership, presented their research to the scientific community, and learned about NIH research opportunities and the NIH Intramural Research Program.

## Trainees Who Have Achieved Subsequent NIH Grants

### *First R01*

- **Kristin Melton, MD**, former NIDCR K08 awardee, associate professor of pediatrics, Division of Neonatology, Perinatal and Pulmonary Biology, Cincinnati Children's Hospital. (NLM) R01 "Improving Intensive Care Medication Safety through EHR-based Algorithms"

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

The following investigators have transitioned to tenure track research faculty positions (R00 phase):

- **Wendy Vanden Berg-Foels, PhD**, assistant professor in the Department of Engineering, University of Connecticut. R00: "Mandibular Cartilage Regeneration *In Situ* by Endogenous Stem Cell Recruitment"
- **Fenglei He, PhD**, assistant professor in the Department of Cell and Molecular Biology at Tulane University. R00: "Regulation of upper lip development by PDGFR alpha and Rac1 signaling"

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

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

- **Min Oh**, University of Michigan; NIDCR F30 predoctoral fellowship to support dual degree DDS-PhD training, "Perivascular Niche and Self-Renewal of Dental Pulp Stem Cells"
- **Batbileg Bor, PhD**, University of California Los Angeles NIDCR F32 postdoctoral fellowship, "Phenotypic, transcriptomic and pathogenic study of the first cultivated TM7 strain"

## Recent Publications from Trainees

### *F Fellows*

- **Bloomquist RF**, Parnell NF, Phillips KA, Fowler TE, Yu TY, Sharpe PT, Streelman JT. Coevolutionary patterning of teeth and taste buds. *Proc Natl Acad Sci U S A*. 2015 Nov 3;112(44):E5954-62.
- **Brewer JR**, Molotkov A, Mazot P, Hoch RV, Soriano P. Fgfr1 regulates development through the combinatorial use of signaling proteins. *Genes Dev*. 2015 Sep 1;29(17):1863-74.
- **Hung BP**, Hutton DL, Kozielski KL, Bishop CJ, Naved B, Green JJ, Caplan AI, Gimble JM, Dorafshar AH, Grayson WL. Platelet-Derived Growth Factor BB Enhances Osteogenesis of Adipose-Derived But Not Bone Marrow-Derived Mesenchymal Stromal/Stem Cells. *Stem Cells*. 2015 Sep;33(9):2773-84.
- **Trombetta-eSilva J**, Rosset EA, Hepfer RG, **Wright GJ**, Baicu C, Yao H, Bradshaw AD. Decreased Mechanical Strength and Collagen Content in SPARC-Null Periodontal Ligament Is Reversed by Inhibition of Transglutaminase Activity. *J Bone Miner Res*. 2015 Oct;30(10):1914-24.
- **Wietecha MS**, Król MJ, Michalczyk ER, Chen L, Gettins PG, DiPietro LA. Pigment epithelium-derived factor as a multifunctional regulator of wound healing. *Am J Physiol Heart Circ Physiol*. 2015 Sep;309(5):H812-26.

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

- **Baker JL**, Abranches J, Faustoferri RC, Hubbard CJ, Lemos JA, Courtney MA, Quivey R Jr. Transcriptional profile of glucose-shocked and acid-adapted strains of *Streptococcus mutans*. *Mol Oral Microbiol*. 2015 Dec;30(6):496-517.

- **Doolittle-Hall JM**, Cunningham Glasspoole DL, Seaman WT, Webster-Cyriaque J. Meta-Analysis of DNA Tumor-Viral Integration Site Selection Indicates a Role for Repeats, Gene Expression and Epigenetics. *Cancers (Basel)*. 2015 Nov 10;7(4):2217-35.
- **Dyment NA**, Breidenbach AP, Schwartz AG, Russell RP, Aschbacher-Smith L, Liu H, Hagiwara Y, Jiang R, Thomopoulos S, Butler DL, Rowe DW. Gdf5 progenitors give rise to fibrocartilage cells that mineralize via hedgehog signaling to form the zonal enthesis. *Dev Biol*. 2015 Sep 1;405(1):96-107.
- **Hiyari S**, Atti E, Camargo PM, Eskin E, Lusi AJ, Tetradis S, Pirih FQ. Heritability of periodontal bone loss in mice. *J Periodontol Res*. 2015 Dec;50(6):730-6.
- **Kim J**, Wu B, Niedzielski SM, Hill MT, Coleman RM, Ono A, Shikanov A. Characterizing natural hydrogel for reconstruction of three-dimensional lymphoid stromal network to model T-cell interactions. *J Biomed Mater Res A*. 2015 Aug;103(8):2701-10.
- **McNerny EM, Gardinier JD**, Kohn DH. Exercise increases pyridinoline cross-linking and counters the mechanical effects of concurrent lathyrogenic treatment. *Bone*. 2015 Dec;81:327-37.
- **Momeni SS**, Whiddon J, Cheon K, Moser SA, Childers NK. Assessment of two multilocus sequence typing (MLST) schemes available for *Streptococcus mutans*. *Arch Oral Biol*. 2015 Dec;60(12):1769-76.
- **Nam J**, Perera P, Gordon R, Jeong YH, Blazek AD, Kim DG, Tee BC, Sun Z, Eubank TD, Zhao Y, Lablebecioglu B, Liu S, Litsky A, Weisleder NL, Lee BS, Butterfield T, Schneyer AL, Agarwal S. Follistatin-like 3 is a mediator of exercise-driven bone formation and strengthening. *Bone*. 2015 Sep;78:62-70.
- **Sawicki CM**, McKim DB, **Wohleb ES**, Jarrett BL, **Reader BF**, Norden DM, Godbout JP, Sheridan JF. Social defeat promotes a reactive endothelium in a brain region-dependent manner with increased expression of key adhesion molecules, selectins and chemokines associated with the recruitment of myeloid cells to the brain. *Neuroscience*. 2015 Aug 27;302:151-64.
- **Segall SK**, Shabalina SA, Meloto CB, Wen X, Cunningham D, Tarantino LM, Wiltshire T, Gauthier J, Tohyama S, Martin LJ, Mogil JS, Diatchenko L. Molecular genetic mechanisms of allelic specific regulation of murine *Comt* expression. *Pain*. 2015 Oct;156(10):1965-77.
- **Singer RE**, Moss K, Kim SJ, Beck JD, Offenbacher S. Oxidative Stress and IgG Antibody Modify Periodontitis-CRP Association. *J Dent Res*. 2015 Dec;94(12):1698-705.
- **Tarr AJ, Galley JD**, Fisher SE, Chichlowski M, Berg BM, Bailey MT. The prebiotics 3'Sialyllactose and 6'Sialyllactose diminish stressor-induced anxiety-like behavior and colonic microbiota alterations: Evidence for effects on the gut-brain axis. *Brain Behav Immun*. 2015 Nov;50:166-77.

#### *K Awardees*

- Caballero M, Morse JC, Halevi AE, Emodi O, Pharaon MR, Wood JS, **van Aalst JA**. Juvenile Swine Surgical Alveolar Cleft Model to Test Novel Autologous Stem Cell Therapies. *Tissue Eng Part C Methods*. 2015 Sep;21(9):898-908.
- **Chi DL**, Dinh MA, da Fonseca MA, Scott JM, Carle AC. Dietary Research to Reduce Children's Oral Health Disparities: An Exploratory Cross-Sectional Analysis of Socioeconomic Status, Food Insecurity, and Fast-Food Consumption. *J Acad Nutr Diet*. 2015 Oct;115(10):1599-604.
- **Edlund A**, Yang Y, Yooseph S, Hall AP, Nguyen DD, Dorrestein PC, Nelson KE, He X, Lux R, Shi W, McLean JS. Meta-omics uncover temporal regulation of pathways across oral microbiome genera during in vitro sugar metabolism. *ISME J*. 2015 Dec;9(12):2605-19.
- **He F**, Soriano P. Sox10<sup>ER</sup>(T2) Cre<sup>ER</sup>(T2) mice enable tracing of distinct neural crest cell populations. *Dev Dyn*. 2015 Nov;244(11):1394-403.
- Münchow EA, Albuquerque MT, Zero B, Kamocki K3, Piva E, Gregory RL, **Bottino MC**. Development and characterization of novel ZnO-loaded electrospun membranes for periodontal regeneration. *Dent Mater*. 2015 Sep;31(9):1038-51.
- **Palmer SR**, Burne RA. Post-transcriptional regulation by distal Shine-Dalgarno sequences in the *grpE-dnaK* intergenic region of *Streptococcus mutans*. *Mol Microbiol*. 2015 Oct;98(2):302-17.
- **Werner A**, Iwasaki S, McGourty CA, Medina-Ruiz S, Teerikorpi N, Fedrigo I, Ingolia NT, Rape M. Cell-fate determination by ubiquitin-dependent regulation of translation. *Nature*. 2015 Sep 24;525(7570):523-7

## PUBLICATIONS

### Selected Extramurally Funded Science Advances

#### **High Impact Findings from Seasoned Investigators**

During the last four months of 2015, 658 extramurally funded studies were published in the scientific literature. Below is a list of the two very most important papers for each program area.

#### Behavioral and Social Science Research

Metcalf SS, Birenz SS, Kunzel C, et al. The Impact of Medicaid Expansion on Oral Health Equity for Older Adults: A Systems Perspective. J Calif Dent Assoc. 2015;43(7):369-377.

Sischo L, Broder HL, Phillips C. Coping With Cleft: A Conceptual Framework of Caregiver Responses to Nasoalveolar Molding. Cleft Palate Craniofac J. 2015;52(6):640-50.

#### Center Clinical Research

Nixdorf DR, Law AS, Lindquist K, Reams GJ, Cole E, Kanter K, Nguyen RH, Harris DR, Collaborative Group NDPBRN. Frequency, Impact, and Predictors of Persistent Pain Following Root Canal Treatment: A National Dental PBRN Study. Pain. 2015 Sep1 (Epub ahead of print).

Okunseri C, Dionne RA, Gordon SM, Okunseri E, Szabo A. Prescription of opioid analgesics for nontraumatic dental conditions in emergency departments. Drug Alcohol Depend. 2015 Nov 1;156:261-6. doi: 10.1016/j.drugalcdep.2015.09.023.

#### Integrative Biology and Infectious Diseases

Grindy SC, Learsch R, Mozdhehi D, Cheng J, Barrett DG, Guan Z, Messersmith PB, Holten-Andersen N. Control of hierarchical polymer mechanics with bioinspired metal-coordination dynamics. Nature Materials 2015 Dec;14(12):1210-6.

Laumet G., Garriga, J, Chen SR, Zhang Y, Li DP, Smith TM, Dong Y, Jelinek J, Cesaroni M, Issa JP, Pan HL. G9a is essential for epigenetic silencing of K channel genes in acute-to-chronic pain transition. Nat Neurosci. 2015 Nov 9. doi: 10.1038/nn.4165.

Leslie EJ, Koboldt DC, Kang CJ, Ma L, Hecht JT, Wehby GL, Christensen K, Czeizel AE, Deleyiannis FW-B, Fulton RS, Wilson RK, Beaty TH, Schutte BC, Murray JC, Marazita ML. IRF6 mutation screening in non-syndromic orofacial clefting: Analysis of 1521 families. Clin Genet. 2015 Sep 8. doi: 10.1111/cge.12675. [Epub ahead of print]

Marecic O, Tevlin R, McArdle A, Seo EY, Wearda T, Duldulao C, Walmsley GG, Nguyen A, Weissman IL, Chan CK, Longaker MT. Identification and characterization of an injury-induced skeletal progenitor. PNAS USA. 2015 August 11; 112(32): 9920-9925.

Morrison J, Laurie CC, Marazita ML, Sanders AE, Offenbacher S, Salazar CR, Conomos MP, Thornton T, Jain D, Laurie CA, Kerr K, Papanicolaou G, Taylor K, Kaste LM, Beck JD, Shaffer JR. Genome-wide association study of dental caries in the Hispanic Communities Health Study/Study of Latinos (HCHS/SOL). Hum Mol Genet. 2015 Dec 11. pii: ddv506. [Epub ahead of print]

Rettig EM, Wentz A, Posner MR, Gross ND, Haddad RI, Gillison ML, Fakhry C, Quon H, Sikora AG, Stott WJ, Lorch JH, Gourin CG, Guo Y, Xiao W, Miles BA, Richmon JD, Andersen PE, Misiukiewicz KJ, Chung CH, Gerber JE, Rajan SD, D'Souza G. Prognostic Implication of Persistent Human Papillomavirus Type 16 DNA Detection in Oral Rinses for Human Papillomavirus-Related Oropharyngeal Carcinoma. JAMA Oncol. 2015 Oct 1;1(7):907-15.

Zhang M, Piao L, Datta J, Lang JC, Xie X, Teknos TN, Mapp AK, Pan Q. miR-124 Regulates the Epithelial-Restricted with Serine Box/Epidermal Growth Factor Receptor Signaling Axis in Head and Neck Squamous Cell Carcinoma. Mol Cancer Ther. 2015 Oct;14(10):2313-20. doi: 10.1158/1535-7163.

#### **Publications from New Investigator R01-funded Projects**

Waller N, **John MT**, Feuerstahler L, Baba K, Larsson P, Peršić S, Kende D, Reißmann DR, Renner-Sitar K. A 7-day recall period for a clinical application of the oral health impact profile questionnaire. Clin Oral Investig. 2015 [epub ahead of print]

Kum SS, Wang H, Wang P, Jin Z, De La Cruz L, **Northridge ME**, Kunzel C, Marshall SE, Metcalf SS. The ElderSmile TimeMap: Benefits of Connecting Statistics with Time and Place. Am J Public Health. 2015;105(9):1748-50.

**Northridge ME**, Yu C, Chakraborty B, Port Greenblatt A, Mark J, Golembeski C, Cheng B, Kunzel C, Metcalf SS, Marshall SE, Lamster IB. A community-based oral public health approach to promote health equity. Am J Public Health. 2015;105 Suppl 3:S459-65.

Lewis AE, Hwa J, Wang R, **Soriano P**, **Bush JO**. Neural crest defects in ephrin-B2 mutant mice are non-autonomous and originate from defects in the vasculature. Dev Biol. 2015 Oct 15;406(2):186-95. doi: 10.1016/j.ydbio.2015.08.021. Epub 2015 Sep 16.

Bayram M, Deeley K, Reis MF, Trombetta VM, Ruff TD, Sencak RC, Hummel M, Dizak PM, Washam K, Romanos HF, Lips A, Alves G, Costa MC, Granjeiro JM, Antunes LS, Küchler EC, Seymen F, **Vieira AR**. Genetic influences on dental enamel that impact caries differ between the primary and permanent dentitions. Eur J Oral Sci. 2015 Aug 18. doi: 10.1111/eos.12204. [Epub ahead of print].

#### **Selected Division of Intramural Research Publications: Peer-Reviewed**

**Doyle AD**, Carvajal N, Jin A, **Matsumoto K**, **Yamada KM**. Local 3D matrix microenvironment regulates cell migration through spatiotemporal dynamics of contractility-dependent adhesions. Nat Commun. 2015 Nov 9;6:8720. doi:10.1038/ncomms9720.

Hajishengallis G, **Moutsopoulos NM**. Role of bacteria in leukocyte adhesion deficiency-associated periodontitis. Microb Pathog. 2015 Sep 14. pii: S0882-4010(15)00149-7.

**Hall B**, Zhang L, Sun ZJ, Utreras E, **Prochazkova M**, **Cho A**, **Terse A**, **Arany P**, Dolan J, Schmidt BL, **Kulkarni AB**. Conditional TNF- $\alpha$  Overexpression in the Tooth and Alveolar Bone Results in Painful Pulpitis and Osteitis. J Dent Res. 2015 Oct 26. pii: 0022034515612022.

**Nakatsukasa H**, **Zhang D**, **Maruyama T**, **Chen H**, Cui K, **Ishikawa M**, **Deng L**, **Zanvit P**, **Tu E**, **Jin W**, **Abbatiello B**, **Goldburg N**, Chen Q, Sun L, Zhao K, **Chen W**. The DNA-binding inhibitor Id3 regulates IL-9 production in CD4+ T cells. Nat Immunol. 2015; 16(10):1077-84.

Peng Y, Gillis-Smith S, Jin H, Tränkner D, **Ryba, NJP**, Zuker CS. Sweet and bitter taste in the brain of awake behaving animals. Nature 2015; 527: 512-515.

**Xu H**, **Abuhatzira L**, **Carmona GN**, Vadrevu S, Satin LS, **Notkins AL**. The IA-2 $\beta$  Intronic miRNA, miR-153, is a Negative Regulator of Insulin and Dopamine Secretion Through its Effect on the Cacna1c Gene in Mice. Diabetologia 2015; 58(10):2298-306.

**Zanvit P**, **Konkel JE**, **Kasagi S**, **Zhang D**, **Wu R**, **Chia C**, Ajami NJ, Smith DP, Petrosino JF, Jiao X, **Abbatiello B**, **Nakatsukasa H**, Chen Q, Belkaid Y, Chen Z-J, **Chen W**. Antibiotics in neonatal life increase murine susceptibility to experimental Psoriasis. Nat Commun 2015;6:8424.

## **Review Articles**

Blau JE, Collins MT. The PTH-Vitamin D-FGF23 axis. Rev Endocr Metab Disord. 2015 Jun;16(2):165-74.

Petrie RJ, Yamada KM. Fibroblasts Lead the Way: A Unified View of 3D Cell Motility. Trends Cell Biol. 2015; 25(11):666-74. doi:10.1016/j.tcb.2015.07.013.

## **Office of Science Policy and Analysis Staff Publication**

Shetty V, Harrell L, Murphy DA, Vitero S, Gutierrez A, Belin TR, Dye BA, Spolsky VW. Dental disease patterns in methamphetamine users: Findings in a large urban sample. J Am Dent Assoc. 2015 Dec;146(12):875-85.

## **FUNDING UPDATE**

### **Program Announcements**

- SBIR/STTR Commercialization Readiness Pilot (CRP) Program: Technical Assistance (SB1)
- SBIR/STTR Commercialization Readiness Pilot (CRP) Program: Technical Assistance and Late Stage Development (SB1)
- Innovation Corps (I-Corps) at NIH Program for NIH and CDC Phase I Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Grantees (Admin Supp)
- Collaborative Activities to Promote Metabolomics Research (Admin Supp)
- SBIR Technology Transfer (R43/R44)
- Research on the Mechanisms and/or Behavioral Outcomes of Multisensory Processing (R01)
- NIDCR Small Research Grants for Oral Health Data Analysis and Statistical Methodology Development (R03)

### **Requests for Applications**

- NIH Blueprint for Neuroscience Research Short Courses in Neurotherapeutics Development (R25)
- Environmental Influences on Child Health Outcomes (ECHO) Coordinating Center (U2C)
- Environmental influences on Child Health Outcomes: Patient Reported Outcomes Research Resource Center Core (ECHO PRO Core) (U24)
- Environmental Influences on Child Health Outcomes (ECHO) Data Analysis Center (U24)
- Clinical Sites for the IDeA States Pediatric Clinical Trials Network (UG1)
- Data Coordinating and Operations Center for the IDeA States Pediatric Clinical Trials Network (U24)
- NIDCR Award for Sustaining Outstanding Achievement in Research (SOAR) (R35)
- Precision Medicine Initiative® Cohort Program Coordinating Center (U2C)
- Precision Medicine Initiative® Cohort Program Healthcare Provider Organization Enrollment Centers (UG3/UH3)
- Precision Medicine Initiative® Cohort Program Participant Technologies Center (U24)
- Precision Medicine Initiative® Cohort Program Biobank (U24)
- Pre-application: Stimulating Peripheral Activity to Relieve Conditions (SPARC): Comprehensive Functional Mapping of Neuroanatomy and Neurobiology of Organs (OT1)
- Limited Competition—Stimulating Peripheral Activity to Relieve Conditions (SPARC): Comprehensive Functional Mapping of Neuroanatomy and Neurobiology of Organs (OT2)
- Pre-application: Stimulating Peripheral Activity to Relieve Conditions (SPARC): Foundational Functional Mapping of Neuroanatomy and Neurobiology of Organs (OT1)
- Limited Competition—Stimulating Peripheral Activity to Relieve Conditions (SPARC): Foundational Functional Mapping of Neuroanatomy and Neurobiology of Organs (OT2)
- Impact of Aging on Currently Employed Animal Models of Disease and Chronic Conditions: Demonstration Projects (UH2/UH3)
- Metabolomics Data Analysis (R03)



- NIH Director's Early Independence Awards (DP5)
- Limited Competition: Knockout Mouse Production and Phenotyping Project (UM1)
- Limited Competition: Knockout Mouse Phenotyping Project Database (UM1)
- Molecular Transducers of Physical Activity Clinical Centers (U01)
- Molecular Transducers of Physical Activity Consortium Coordinating Center (CCC) (U24)
- Molecular Transducers of Physical Activity Preclinical Animal Study Sites (U01)
- Molecular Transducers of Physical Activity Bioinformatics Center (U24)
- Molecular Transducers of Physical Activity Metabolomics and Proteomics Chemical Analysis Sites (U24)
- Molecular Transducers of Physical Activity Genomics, Epigenomics and Transcriptomics Chemical Analysis Sites (U24)