HARVARD
School of Dental Medicine

April – May 2016
RESEARCH BULLETIN

Congratulations to the HSDM Class of 2016

Michael Forman, DMD, received the ***Harvard Odontological Award.*** At HSDM, Michael worked on, "The Diagnostic Accuracy of Oral Lesions: (1) Accuracy of Clinical Diagnosis and Patient Specific Risk Factors; (2) Accuracy of Incisional Biopsy and Reasons for Discordance" with Dr. Meredith August in the Department of Oral and Maxillofacial Surgery at MGH.

George Koch, DMD, received the ***Quintessence Award in Research.*** At HSDM, George worked on, "Accuracy In The Digital Workflow" with Dr. Sang Lee in the Department of Restorative Dentistry and Biomaterials Sciences.

Cameron Lee, DMD, received the ***American Association of Oral Biologists' Award.*** Cameron worked on, "Orthognathic Surgery in Patients Over 40: Incidence, Indication, and Outcomes" with with Drs. Zachary Peacock and Leonard Kaban in the Department of Oral and Maxillofacial Surgery at MGH.

Pouya Vakilian, DMD, received the ***Grace Milliken Award.*** At HSDM, Pouya worked on, "Quantifying Temporomandibular Joint Synovitis in Children with Juvenile Idiopathic Arthritis" with Drs. Zachary Peacock, Edward Resnick Leonard Kaban in the Department of Oral and Maxillofacial Surgery at MGH.

Hend Alqaderi, DDS (DMSc Dental Public Health), received the ***Lois K. Cohen Award.*** At HSDM, Hend worked on, "Short Sleep as a Risk Factor for Obesity and Gingivitis in Children" with Dr. Max Goodson at The Forsyth Institute and the Dasman Diabetes Institute in Kuwait. Hend has served as an ambassador for Kuwait and the oral health program in which she worked.

Omair Bukhari, DDS (DMSc Dental Public Health), received the ***HSDM Community Service Award.*** At HSDM, Omair worked on, "Longitudinal Clinical and Cost-Effectiveness of School-Based Comprehensive Caries Prevention Program-ForsythKids" with Dr. Jaqueline Starr at The Forsyth Institute.

Marcelo Freire, DDS, PhD, (DMSc Periodontology), received the ***James H. Shaw Award.*** At HSDM, Marcelo worked on, "Resolution of Inflammation in Type 2 Diabetes" with Dr. Thomas Van Dyke at The Forsyth Institute. Marcelo received an NIH-K Award to support his research project.

Enihomo Mary Obadaon-Udoh, DDS (DMSc Dental Public Health), received the ***James M. Dunning Award.*** At HSDM, Eni worked on, "A Two-Pronged Approach to Understanding Quality and Safety Events at the Dental Office" with Dr. Elsbeth Kalenderian. As she looks forward to her academic career, Eni has a pending NIH-K award.

Paul Sohn, DDS (MMSc Prosthodontics), received the ***AAID Post-Doctoral Student Award.*** At HSDM, Paul worked on, "Fracture Strength of CAD/CAM Lithium Disilicate Inlays and Onlays with Different Cuspal Coverage Design" with Dr. Sang Lee in the Department of Restorative Dentistry and Biomaterials Sciences.

Wichaya Wisitrasameewong, DDS (DMSc Periodontology), received the ***Joseph L. Henry Award.*** At HSDM, Wichaya worked on, "Development of Novel Anti-DC-STAMP Monoclonal Antibody Targeting Osteolytic Periodontal Lesion" with Dr. Toshi Kawai at The Forsyth Institute. Wichaya will return to Thailand as an Assistant Professor at Chulalongkorn University.

HSDM Postdocs:
At the Center of Innovation

By Dr. Joshua Chou, Postdoctoral Fellow in the Baron Lab

As you walk through the revolving doors of the Research Education Building at HSDM, it doesn't take long for one to see the diversity of people that encompass the School. Educators, clinicians, researchers, students and staff from all corners of the world come together in this unique place with the mindset of becoming pioneers and leaders. Postdoctoral researchers are critical in driving innovation at HSDM. But what is it like to work as a postdoc at HSDM? Do the pressures to publish and secure their own funding keep them awake at night? Do they relish the challenge of striving to succeed in a highly competitive environment?

I spoke to six postdocs who work on a diverse scope of projects about the reality of life at HSDM. They replied, "Great mentors, an encouraging environment, and exciting science…" "A learning platform for you to grow as a scientist…" "Proximity and collaboration with other prestigious institutes such as HMS, MIT, and Wyss…" "It's a small research environment that makes sharing of equipment and interactions between groups easier." HSDM maintains a strong research infrastructure to support the diversity of research including Micro-CT, histological processing facilities, specialized microscope labs, animal housing facilities, generous lab benches, and modern computing support. When asked about some of the disadvantages, the respondent's replies were: "Not being able to have the same opportunities to find jobs in the U.S. due to visa issues." "The lack of sunlight on the 3rd floor lab, when combined with long hours can make you feel out of touch with the world."

I also wanted to capture the essence of what the daily life of a postdoc is like. If one were to walk into any of the labs in the REB, you will see individual researchers working quietly, executing their research with focus, precision and dedication. Just like the elite warriors, Navy SEALs, these researchers are silent professionals whose work may or may not get noticed or credited, but yet they still push forward facing daily challenges. I believe this is a reflection of the attitude and character of the postdoc here at HSDM. When asked if there is anything they would do differently, there is a unified response that they would have started planning their career paths earlier and networked to get to know researchers from other labs or institutions.

To the outside world, research at HSDM is mostly focused on dental-related research. While that is true to some extent, the scope of research that is conducted at HSDM, extends throughout the human body. The following topics are just a few examples of the breadth of research at HSDM.

Infertility is a global problem which affects 10-15% of all couples. Half of these cases are related to male infertility issues, for which recent years have seen a clear increase. Stem and secreted bone factors holds great potential to improving our understanding of infertility and the potential for therapeutic intervention.

Extracellular matrix remodeling is a fundamental step in a variety of physiological as well as disease conditions. Researchers identified the first secreted tyrosine kinase, VLK, active in the extracellular environment, providing de facto the essential tool to study this phenomenon. The team is now investigating how VLK-dependent phosphorylation affects localization and activity of various matrix components. These findings could potentially lead to novel therapeutic options for diseases characterized by matrix remodeling or deposition (e.g. cancer, fibrosis).

Research in the development of new dental adhesive which can be used under water and between hard and soft tissue. This material will make it possible to provide strong adhesion between tooth and gingiva which was previously thought to be impossible.

Using nanofabrication and nanolithography to create mechanical assays to recreate cellular microenvironments to investigate and understand the effect of mechanobiology in bone remodeling.

Investigating the endocrine regulation of mineral ion homeostasis and skeletogenesis. To conduct this work, a novel transgenic mouse model was generated and characterized in which the expression of the parathyroid receptor 1 (PTH1R) was ablated specifically in long bones at the early stages of development. This model is now used to study the role of PTH1R in regulating mesenchymal cell fate and bone resorption.

Investigating the role of osteoprogenitor cell derived VEGF on long bone development and craniofacial development. It was found that VEGF regulates perichondrial vascularity and osteoblast differentiation in bone development and VEGF stimulates intramembranous bone formation during craniofacial skeletal development.

It is clear that the research focus is broad and approaches are quite different, but the unifying theme of pursuing an understanding of bone biology through innovation and cutting-edge technology remains unchanged. A reflection on research at HSDM cannot be complete without mentioning the exceptional Faculty whom are global leaders in their respective fields. Their dedication to teaching and research excellence is one of the key reasons why HSDM continues to attract young talents from across the globe. In conclusion, Dr. Gerald Shklar once stated, "The immortality of a teacher depends on his or her students. You can write hundreds of papers, but you build your future on your students. They give you immortality."

Photographed left to right: Drs. Joshua Chou, Mengxia Chen, Maeno Masahiko, Hongying Pan, Li Juel Mortensen, Xuchen Duan, Yi Fan, Ida Marie Boisen, and Shiho Sugawara.

New OMII Division of Bone and Mineral Research

To better represent the academic activity of faculty members in the Department of Oral Medicine, Infection and Immunity (OMII) that are primarily engaged in basic and translational research, it has been decided, with the approval of Dean Donoff and the Deans and Department Heads Committee, to create a new Division within OMII. This new "Division of Bone and Mineral Research" includes, at inception, the following: Professors Roland Baron and Beate Lanske in leadership roles (photographed), Assistant Professors Francesca Gori and Giuseppe Intini, and Instructor Satya Kota. In addition, the Division will include students and postdocs in the laboratories of these principal investigators.

Donald Giddon, DMD, PhD, Endowed Lecture

Marko Vujicic, PhD, Chief Economist and Managing Vice President of the Health Policy Institute at the American Dental Association, was this year's guest speaker for the Professor Donald B. Giddon, DMD, PhD Annual Lecture in Behavioral Medicine and Dentistry. Vujici, presented, "What Dentistry Can Learn from Wayne Gretzky." Gretzy was known for saying, "I always go to where the puck will be, not where it was." Vujicic discussed five recent trends in the market of dental care services, five future forces that will shape the dental environment, and three great opportunities for the dental profession.

Hamad Burashed, DMD, Received NSRF Award

Hamad Burashed, DMD, MMSc prosthodontics student, received an Award for Research Excellence from the National Student Research Forum (NSRF) which was held at the University of Texas Medical Branch. Burashed's project, **"Use of Pre-Surgical Orthopedic Appliance Does Not Increase Telecanthus in Patients with Bilateral Cleft Lip and Palate,"** was conducted with John Mulliken and Bonnie Padwa in the Department of Plastic and Oral Surgery at Boston Children's Hospital.

Burashed reviewed the medical records of 125 patients with non-syndromic bilateral cleft lip and palate (PCCLP) treated at Boston Children's Hospital to determine if the use of the pre-surgical orthopedic elastic chain pre-maxillary retraction (ECPR) appliance is associated with telecanthus in non-syndromic BCCLP patients. This study showed that patients with BCCLP have increased inter-canthal distance and the use of the pre-surgical ECPR appliance does not result in an increase in telecanthus.

The NSRF is held annually and involves medical and dental students in the biomedical sciences and public health field. This year, there were over 115 participants showcasing their original research projects.

Patrick Vaughn Receives ADA/Dentsply Award

Patrick Vaughn, DMD class of 2017, received the 2016 ADA/Dentsply Student Clinician Award. Vaughn is currently working with Dr. Edward Caterson at the Brigham and Women's Hospital Center for Surgery and Public Health in the Cost Effectiveness and Value in Surgery Research Group. They are studying a neonatal bioelectrical impendance device, as well as the incidence of cleft lip and palate in Guwahati, India. Vaughn is also working with Dr. Lisa Simon, instructor in Oral Health Policy and Epidemiology on the HSDM Crimson Care Collaborative Oral Health Care Consulation Team.

Satya Kota, PhD, Received NIH-NIAMS K01 Award

Satya Kota, PhD, newly-appointed instructor in Oral Medicine, Infection and Immunity, and member of the Baron Lab, received a K01-Award from NIH-NIAMS entitled, **"Epigenetic Regulation of Skeletal Patterning and Morphogenesis During Development."**

Defective skeletal patterning is a major contributor of congenital limb malformations, which are among the frequent birth defects in humans. Loss of epigenetic regulation has been associated with several debilitating human disorders including immune and neurodevelopmental disorders among others. Aberrant gene regulation due to impaired establishment, maintenance or reading of epigenetic code is intricately associated with developmental disorders.

Building on Satya's previous training and experience in the fields of epigenetic regulation of imprinted loci and stem cell biology, during the K01 award period, the research will focus on elucidating the role of the epigenetic gene regulation during skeletal patterning and aims to evaluate the transcriptome, epigenetic modifications in skeletal progenitors in mice models. Better understanding of epigenetic regulation and its key targets during embryonic skeletal development will give insights into human congenital limb abnormalities that eventually will lead to better therapeutic avenues.

Satya obtained his PhD from Jawaharlal Nehru University, India. He received further research training at The Institute of Molecular Genetics in Montpellier, France and now in the Baron Lab at HSDM.

The 2016 IADR/AADR William J. Gies Award in Biological Research was awarded at the AADR annual meeting to a research team led by Dr. Thomas Van Dyke from the Department of Applied Oral Sciences, Forsyth Institute, and associate professor, HSDM Department of Oral Medicine, Infection and Immunity. Collaborators include: Drs. Hasturk, Kantarci, Freire and Nguyen. Additional collaborators include, Drs. Dalli and Serhan from the BWH Center for Experimental Therapeutics and Reperfusion Injury. The award is given for the best paper published in the journal during the preceding year. The selected paper is: Van Dyke T, Hasturk H, Kantarci A, Freire M, Nguyen D, Dalli J, Serhan C. Proresolving nanomedicines activate bone regeneration in periodontitis. *Journal of Dental Research* 2015;94(1):148-156.

DMD Honors In Research

Top Row: Drs. Forman, Hum, Jacox, Koch, Kufta
Bottom Row: Drs. Cameron Lee, Cliff Lee, Vakilian, Vlahos

Michael Forman, DMD
The Diagnostic Accuracy of Oral Lesions (Mentor, Meredith August)

Lauren Hum, DMD
Progesterone Effects on Airway Management in Outpatient Deep Sedation (Mentor, Edward Lahey)

Laura Jacox, PhD, DMD
Role of the Extreme Anterior Domain Organizer in Craniofacial Development (Mentor, Hazel Sive)

George Koch, DMD
Accuracy in the Digital Workflow (Mentor, Sang Lee)

Kenneth Kufta, DMD
Components of Patient Satisfaction After Orthognathic Surgery (Mentor, Michael Levin)

Cameron Lee, DMD
Orthognathic Surgery in Patients Over 40: Incidence, Indication, and Outcomes (Mentors, Zachary Peacock, Leonard Kaban)

Cliff Lee, DMD
Dentists' and Dental Students' Attitudes, Knowledge, Preparedness, and Willingness Related to Treatment of People Living with HIV/AIDS in China (Mentor, Leon Dogan)

Poyua Vakilian, DMD
Quantifying Temporomandibular Joint Synovitis in Children with Juvenile Idiopathic Arthritis (Mentors, Zachary Peacock, Edward Resnick, Leonard Kaban)

Maryann Vlahos, DMD
An Integrated miRNA Functional Screening and Target Validation Method for Organ Morphogenesis (Mentors, Ivan Rebustini, Richard Maas)

Student Research Day 2015

Congratulations to the following students who presented at HSDM Research Day. Their posters were evaluated by two faculty members and received "Best Poster Awards."

Ziyad Allahem, BDS, MS, DMSc (Oral Biology)
Evaluation of αlphav Integrin Role in Mouse Model Induced Periapical Periodontitis (Mentor, Susan Rittling)

Ana Andrada, DDS, DMSc (Endodontics)
Effect of Azithromycin in the Healing of Mouse Periapical Lesions (Mentor, Hajime Sasaki)

Yanjun Cui, DDS, MMSc (Orthodontics)
Creating and Characterizing A Mouse Model for Evaluating Importance of TMJ Lubrication (Mentor, Matt Warman)

Marcelo Freire, DDS, PhD, DMSc (Periodontology)
Resolution of Inflammation in Type 2 Diabetes (Mentor, Thomas Van Dyke)

Lauren Hum, DMD
Progesterone Effects on Airway Management in Outpatient Deep Sedation (Mentor, Edward Lahey)

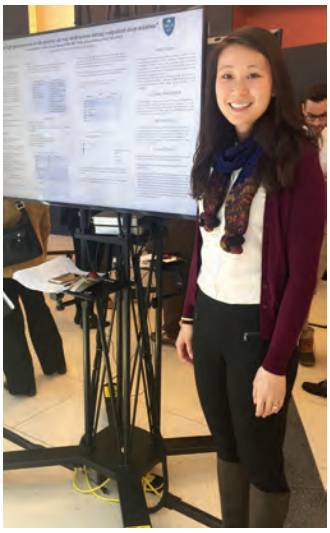
Jonathan Hurng, DDS (General Practice Residency)
School-Based Health Programs as Venues of Integrated Care for Children with Intellectual and Developmental Disabilities (Mentor, Brian Swann)

Justin Raanan, DDS, MMSc (Periodontology)
An Innovation that has Simplified the Lateral Sinus Technique: A Randomized Controlled Clinical Trial (Mentor, Kevin Guze)

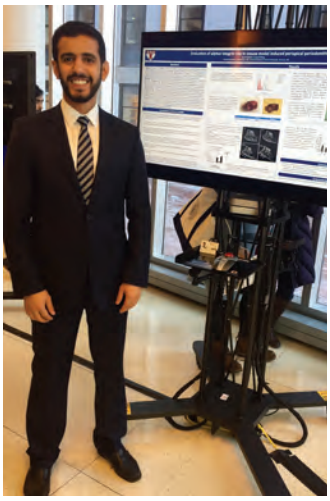
Miquel Roque, DMD
Occlusal Force Redistribution With Single Implant Restorations (Mentor, Sang Lee)

A special thank you to our faculty poster reviewers: Nina Anderson, Agnes Berendsen, Tatiana Besschetnova, German Gallucci, Giuseppe Intini, Elsbeth Kalenderian, David Kim, Sang Lee, Bjorn Olsen, Christine Riedy, Brittany Seymour, Katherine Vig, and Yingzi Yang. Lastly, this day would not be possible without our amazing students (thank you for your thoughtful poster presentations), the HSDM Office of Research, Lia Sgourakes and her staff, ePosterboards, LLC, Fleming Printing, and Sebastian's Catering.

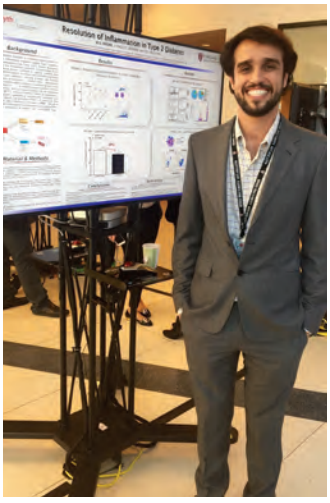
Justin Raanan, DDS, MMSc



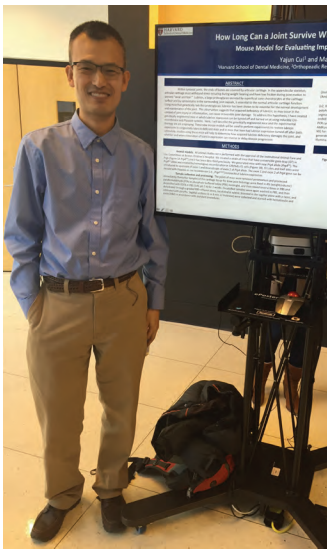
Lauren Hum, DMD



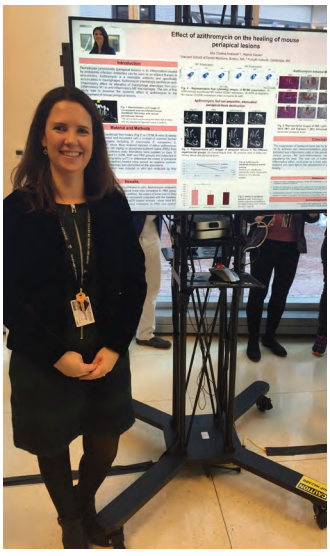
Ziyad Allahem, BDS, MS, DMSc



Marcelo Freire, DDS, PhD, DMSc



Yanjun Cui, DDS, MMSc



Ana Andrada, DDS, DMSc

Bernard Friedland, DDS, JD, Received NIH Fogarty International Center Award

Bernard Friedland, DDS, JD, assistant professor in Oral Medicine, Infection and Immunity, received a R25-Award entitled, **"Development Initiative For Ethical Review and Oversight of Health Research Involving Human Subjects in Rwanda."**

Friedland will serve as the Principal Investigator of this project and work closely with Nir Eyal, PhD, associate professor of Global Health and Social Medicine at HMS; Global Health and Population at the Harvard T.H. Chan School of Public Health; and Program in Ethics and Health at Harvard University. The other key investigator on this project is Aline Umubyeyi, MD, PhD, faculty researcher at the University of Rwanda College of Medicine and Health Sciences School of Public Health. ***Photographed top to bottom: Drs. Friedland, Eyal and Umubyeyi.***

Rwanda, a Central African country that experienced social upheaval a generation ago, is now among the region's leaders aspiring to achieve an equitable system of health care. It has developed research partnerships with many scientists at Harvard and other overseas institutions to develop its capacity for medical research through the Human Resources for Health (HRH) consortium. It has established a National Ethics Committee (NEC) to oversee human research, and most Rwandan universities have Institutional Review Boards (IRBs).The Rwandan Ministry of Health has identified a need to improve coordination between the different review bodies and to keep NEC and IRB member training current, as well as to expand ethics training for younger Rwandan researchers.

This project represents a unique collaboration of interdisciplinary Harvard faculty and staff, who will collaborate with Rwandan colleagues to achieve the goal of implementing a self- sustaining national system of ethical review within five years. The proposed program will achieve this outcome by leveraging the relationships Harvard has established through the HRH program, its rich curricular offerings and the expertise of its diverse faculty in medicine, public health and dentistry. Resources such as the case book in research ethics developed for the World Health Organization by Harvard T.H. Chan School of Public Health (SPH) faculty will be used to train a cadre of approximately 140 Rwandan researchers to: 1) conduct ethically responsible research, 2) become research ethics trainers of the next generation, 3) develop, implement and monitor ethics review policies and procedures, and 4) become the leaders who shape research ethics education, policies and priorities for the nation and region.

Rwanda has taken bold steps in recent years to address its serious health needs. It is one of the first low-income nations to establish a system of universal health coverage, a development now under study throughout the developing world. Increasing the volume and scope of health research is a key step toward lifting its heavy burden of disease, and the HRH program will likely increase the number of studies in the country. With these increased activities, Friedland and colleagues will assist Rwanda in implementing a comprehensive system of ethical review. It is the hope that Rwanda will serve as a model and training site for other countries in the region.

Sung Woo Kang,DDS, Received A Krakow Harvard/Forsyth Endowed Endodontic Research Fund Award

The Department of Restorative Dentistry and Biomaterials Sciences at HSDM is pleased to announce the recipient of the 2016 Krakow Award. The purpose of this award is to stimulate endodontic research and strengthen the scientific foundation of this specialty. Dr. Sung Woo Kang received a Krakow Award for his research, "Histological Characterization of Putative Purinergic Nociception Molecules, P2X3 and Connexin, in Animal Dental Pulp Tissue" under the mentorship for Toshihisa Kawai, PhD, DDS at The Forsyth Institute and Harvard School of Dental Medicine.

HSDM Publications

ORAL AND MAXILLOFACIAL SURGERY

Bresler S, Padwa B, Granter S. Nevoid basal cell carcinoma syndrome (Gorlin Syndrome). *Head Neck Pathology* 2016; Mar.

Inverso G, Resnick C, Gonzalez M, Chuang S. Anesthesia complications of diazepam use for adolescents receiving extraction of third molars. *Oral Maxillofacial Surgery* 2016; Feb 17.

Login G. A 5-year perspective on a removable overdenture appliance for a patient with osteonecrosis of the jaw, a mandibular resection, and rampant caries. *Prosthetic Dentistry* 2016; Mar 18.

Partridge J, Cipriani N, Faquin W, Chuang S, Keith D, Lahey E. Periarticular cysts of the temporomandibular joint are more frequently synovial than ganglion. *Oral Maxillofacial Surgery* 2016; Jan 28.

Peacock Z, Vakilian P, Caruso P, Resnick C, Vangel M, Kaban L. Quantifying synovial enhancement of the pediatric temporomandibular joint. *Oral and Maxillofacial Surgery* 2016; Mar 21.

Renapurkar S, Pasternack M, Nielsen G, Kaban L. Juvenile mandibular chronic osteomyelitis: Role of surgical debridement and antibiotics. *Oral and Maxillofacial Surgery* 2016; Jan 29.

Resnick C, Vakilian P, Breen M, Zurakowski D, Caruso P, Henderson L, Nigrovic P, Kaban L, Peacock Z. Quantifying temporomandibular joint synovitis in children with juvenile idiopathic arthritis. *Arthritis Care Research* 2016; Apr 25.

Selvi F, Faquin W, Michaelson M, August M. Three synchronous atypical metastases of clear cell renal carcinoma to the maxillary gingiva, scalp and the distal phalanx of the fifth digit: A case report. *Oral and Maxillofacial Surgery* 2016; Feb 13.

Wrzosek M, Peacock Z, Laviv A, Goldwaser B, Ortiz R, Resnick C, Troulis M, Kaban L. Comparison of time required for traditional versus virtual orthognathic surgery treatment planning. *International Journal of Oral and Maxillofacial Surgery* 2016; Apr 18.

RESTORATIVE DENTISTRY AND BIOMATERIALS SCIENCES

Benic G, Ge Y, Gallucci G, Jung R, Schneider D, Hämmerle C. Guided bone regeneration and abutment connection augment the buccal soft tissue contour: 3-year results of a prospective comparative clinical study. *Clinical Oral Implants Research* 2016; Feb 8.

de Souza A, Okawa R, Silva C, Araújo M. Short-term changes on C-reactive protein levels after non-surgical periodontal treatment in systemically healthy individuals. *Clinical Oral Investigation* 2016; Apr 12.

Furze D, Byrne A, Alam S, Wittneben J. Esthetic outcome of implant supported crowns with and without peri-implant conditioning using provisional fixed prosthesis: A randomized controlled clinical trial. *Clinical Implant Dentistry and Related Research* 2016; Mar 16.

Hum L, Park S. Impact on junior faculty of teaching opportunities during predoctoral education: A survey-based study. *Journal of Dental Education* 2016;80(4):416-421.

Park S, Anderson N, Karimbux N. OSCE and case presentations as active assessments of dental student performance. *Journal of Dental Education* 2016;80(3):334-338.

Wang C, Huang C, Grossman S, Pourati J. Vertical ridge augmentation with mandibular lingual torus block graft. *Journal of Oral Implantology* 2016; Feb 9.

ORAL HEALTH POLICY AND EPIDEMIOLOGY

Bukhari O, Sohrabi K, Tavares M. Factors affecting patients' adherence to orthodontic appointments. *Orthodontics and Dentofacial Orthopedics* 2016;149(3):319-324.

Burke S, Maramaldi P, Cadet T, Kukull W. Neuropsychiatric symptoms and Apolipoprotein E: Associations with eventual alzheimer's disease development. *Archives of Gerontology and Geriatrics* 2016; 65:231-238.

LeCloux M, Maramaldi P, Thomas K, Wharff E. Health care resources and mental health service use among suicidal adolescents. *Journal of Behavioral Health Services Research* 2016; May 4.

Manndel J, Kreda D, Mandl K, Kohane I, Ramoni R. SMART on FHIR: A standards-based, interoperable apps platform for electronic health records. *American Medical Informatics Association* 2016; Feb 17.

Rios-Diaz A, Lam J, Ramos M, Moscoso A, Vaughn P, Zogg C, Caterson E. Global patterns of QALY and DALY use in surgical cost-utility analyses: A systematic review. *PLoS One* 2016;11(2):e0148304.

Wright A, Hickman T, McEvoy D, Aaron S, Ai A, Andersen J, Hussain S, Ramoni R, Fiskio J, Sittig D, Bates D. Analysis of clinical decision support system malfunctions: a case series and survey. *American Medical Informatics Association* 2016; Mar 28.

A publication of the Office of Research

HARVARD School of Dental Medicine

188 Longwood Avenue — Boston, MA 02115
www.hsdm.harvard.edu

Bjorn R. Olsen, MD, PhD, *Dean for Research*
Dawn M. DeCosta, *Editor and Layout*
Joshua Chou, PhD, *Contributing Writer*
Heather M. Denny, *Editing*
Leanne "Jake" Jacobellis, *Editing*
Lia Sgourakes, *Editing*

For information regarding the Research Bulletin, please contact Dawn DeCosta at dawn_decosta@hsdm.harvard.edu, or 617.432.1121.

DEVELOPMENTAL BIOLOGY

Duan X, Bradbury S, Olsen BR, Berendsen A. VEGF stimulates intramembranous bone formation during craniofacial skeletal development. *Matrix Biology* 2016; Feb 17.

Guan X, Xu M, Millar S, Bartlett J. Beta-catenin is essential for ameloblast movement during enamel development. *European Journal of Oral Sciences* 201;6 Mar 9.

Huang W, Li Q, Amiry-Moghaddam M, Hokama M, Sardi S, Nagao M, Warman M, Olsen BR. Critical endothelial regulation by LRP5 during retinal vascular development. *PLoS One* 2016;11(3):e0Sa2833.

Matzelle M, Shaw A, Baum R, Maeda Y, Li J, Karmakar S, Manning C, Walsh N, Rosen V, Gravallese E. Inflammation in arthritis induces expression of BMP3, an inhibitor of bone formation. *Scandinavian Journal of Rheumatology* 2016; Mar 16;1-5.

Salazar V, Gamer L, Rosen V. BMP signalling in skeletal development, disease and repair. *Nature Reviews in Endocrinology* 2016; Feb 19.

Wu W, Lin C, Wu K, Jiang L, Wang X, Li W, Zhuang H, Zhang X, Chen H, Li S, Yang Y, Lu Y, Wang J, Zhu R, Zhang L, Sui S, Tan N, Zhao B, Zhang J, Li L, Feng D. FUNDC1 regulates mitochondrial dynamics at the ER-mitochondrial contact site under hypoxicâ conditions. *EMBO Journal* 2016; May 4.

Yi Y, Lee J, Yi H, Asher S, Feldman L, Rivas-Morello C, Haque M, Ross E. Variables affecting general anesthesia time for pediatric dental cases. *Pediatric Dentistry* 2015;37(7):508-512.

ORAL MEDICINE, INFECTION AND IMMUNITY

Belstrøm D, Holmstrup P, Bardow A, Kokaras A, Fiehn N, Paster B. Comparative analysis of bacterial profiles in unstimulated and stimulated saliva + bb1111samples. *Journal of Oral Microbiology* 2016;8:30112.

Drew D, Lochhead P, Abu-Ali G, Chan A, Huttenhower C, Izard J. "Fecal microbiome in epidemiologic studies" - Letter. *Cancer Epidemiology, Biomarkers & Prevention* 2016; Mar 9.

Ferreira Gomes C, Zechin K, Xu S, Stelini R, Nishimoto I, Zhan Q, Xu T, Qin G, Treister N, Murphy G, Lian C. TET2 negatively regulates nestin expression in human melanoma. *Journal of Pathology* 2016; Apr 18.

Freire M, Devaraj A, Young A, Navarro J, Downey J, Chen C, Bakaletz L, Zadeh H, Goodman S. A bacterial biofilm induced oral osteolytic infection can be successfully treated by im no-targeting an extracellular nucleoid associated protein. *Molecular Oral Microbiology* 2016; Mar 2.

Gomes C, Treister N, Miller B, Armand P, Friedland B. Pulp obliteration in a patient with sclerodermatous chronic graft-versus-host disease. *Journal of Endodontics* 2016; Feb 20.

Gill J, Haydon T, Rawdon T, McFadden A, Ha H, Shen Z, Feng Y, Pang J, Swennes A, Paster B, Dewhirst F, Fox J, Spence R. Helicobacter bilis and Helicobacter trogontum: Infectious causes of abortion in sheep. *Journal of Veterinary Diagnostic Investigation* 2016; Mar 26.

Greenblatt M, Shin D, Oh H, Lee K, Zhai B, Gygi S, Lotinun S, Baron R, Liu D, Su B, Glimcher L, Shim J. MEKK2 mediates an alterntive Î²-catenin pathway that promotes bone formation. *Proceedings National Academy of Sciences USA* 2016; Feb 16.

Movila A, Ishii T, Albassam A, Wisitrasameewong W, Howait M, Yamaguchi T, Ruiz-Torruella M, Bahammam L, Nishimura K, Van Dyke T, Kawai T. Macrophage migration inhibitory factor supports homing of osteoclast precursors to peripheral osteolytic lesions. *Journal of Bone and Mineral Research* 2016; Apr 15.

Ominsky M, Libanati C, Niu Q, Boyce R, Kostenuik P, Wagman R, Baron R, Dempster D. Sustained modeling-based bone formation during adulthood in cynomolgus monkeys may contribute to continuous BMD gains with denosumab. *Journal of Bone and Mineral Research* 2015;30(7):1280-1290.

Papathanasiou E, Kantarci A, Konstantinidis A, Gao H, Van Dyke T. Salem D, Natto Z, Elangovan S, Karimbux N. SOCS-3 regulates alveolar bone loss in experimental periodontitis. 2016; Apr 28.

Salem D, Natto Z. Usage of bone replacement grafts in periodontics and oral implantology and their current levels of clinical evidence - A systematic assessment. *Journal of Periodontology* 2016 Apr;1-27.

Shimada H, Otero M, Tsuchimochi K, Yamasaki S, Sakakima H, Matsuda F, Sakasegawa M, Setoguchi T, Xu L, Goldring M, Tanimoto A, Komiya S, Ijiri K. CCAAT/enhancer binding protein Î² (C/EBPÎ²) regulates the transcription of growth arrest and DNA damage-inducible protein 45 Î² (GADD45Î²) in articular chondrocytes. *Pathology, Research and Practice* 2016; Jan 27.

Sima C, Aboodi G, Lakschevitz F, Sun C, Goldberg M, Glogauer M. Nuclear factor erythroid 2-related factor 2 down-regulation in oral neutrophils is associated with periodontal oxidative damage and severe chronic periodontitis. *Journal of Pathology* 2016; Apr 9.

Teles R, Benecha H, Preisser J, Moss K, Starr J, Corby P, Genco R, Garcia N, Giannobile W, Jared H, Torresyap G, Salazar E, Moya J, Howard C, Schifferle R, Falkner K, Gillespie J, Dixon D, Cugini M. Modeling changes in clinical attachment loss to classify periodontal disease progression. *Journal of Clinical Periodontology* 2016; Mar 3.

Treister N, London W, Guo D, Malsch M, Verrill K, Brewer J, Margossian S, Duncan C. A feasibility study evaluating extra-oral photobiomodulation therapy for prevention of mucositis in pediatric hematopoietic cell transplantation. *Photomedicine and Laser Surgery* 2016; Mar 16.

Vasconcelos R, Sanfilippo N, Paster B, Kerr A, Li Y, Ramalho L, Queiroz E, Smith B, Sonis S, Corby P. Host-microbiome cross-talk in oral mucositis. *Journal of Dental Research* 2016; Apr 6.

Zalli D, Neff L, Nagano K, Shin N, Witke W, Gori F, Baron R. The actin-binding protein cofilin and its interaction with cortactin are required for podosome patterning in osteoclasts and bone resorption in vivo and in vitro. *Journal of Bone and Mineral Research* 2016; Apr 11.

Zhang W, Okimura T, Xu L, Zhang L, Oda T, Kwak M, Yu Q, Jin J. Ascophyllan functions as an adjuvant to promote anti-cancer effect by dendritic cell activation. *Oncotarget* 2016; Mar 19.

Zhang W, Xu L, Cho SY, Min KJ, Oda T, Zhang L, Yu Q, Jin J. Ginseng berry extract attenuates dextran sodium sulfate-induced acute and chronic colitis. *Nutrients* 2016;8(4).