Elsbeth Kalenderian, DDS, MPH, PhD, Receives NIH-NIDCR R01

Elsbeth Kalenderian, associate professor and chair of oral health policy, and epidemiology at HSDM, received her fourth R01 grant from NIH-NIDCR entitled, “Implementing Dental Quality Measures in Practice.”

The objective of this one-year project, is part of a broader goal to implement core dental quality measures across data from a large number of dental care settings, which reside within BigMouth, a centralized dental data repository Kalenderian and colleague established. This project involves four core sites (three dental schools and one large, multi-office dental group practice), and will expand to include seven additional sites. Kalenderian has assembled a strong interdisciplinary team of dental quality experts, dentists, and informaticians with support from an advisory panel that has pioneered similar work in medicine. In this project, Kalenderian and colleagues seek to build upon prior work in developing the BigMouth Dental Data Repository that contains clinical data on 1.1 million patients. In addition, they will be supported by the collective strength of the 32 dental institutions that have formed the Consortium for Oral Health Research and Informatics (COHRI) and have agreed to share oral health data.

Collaborators on this project include: Dr. Rachel Ramoni of Harvard School of Dental Medicine and Harvard Medical School, Dr. Muhammad Walji of the University of Texas at Houston, Dr. Joel White of the University of California at San Francisco, and the Willamette Dental Group – Pacific Northwest large dental group.

Malcolm Whitman, PhD and Vicki Rosen, PhD Receive NIH-NIAMS R01

Malcom Whitman, PhD, professor of developmental biology and Vicki Rosen, PhD, professor and chair of developmental biology, received an R01 from NIH-NIAMS entitled, “Role of the First Secreted Tyrosine Kinase in Bone Development, Homeostasis, and Repair.”

The extracellular matrix (ECM) is a highly dynamic component of the developing skeleton. While the transcriptional control of ECM composition during skeletal development is intensively studied, the post-transcriptional control of the secreted components of the ECM and its regulators are relatively poorly understood. Whitman and Rosen have identified a novel class of regulator of secreted proteins, the first known secreted protein tyrosine kinase (VLK) that is essential for normal endochondral bone formation. They find that VLK phosphorylates a wide range of secreted proteins with established roles in skeletal development and maintenance of bone mass. VLK also phosphorylates resident ER proteins with specific roles in bone ECM secretion, and thus may modify secreted proteins not only directly, but also indirectly through control of the secretion process in endochondral cells.

In this project, Whitman and Rosen plan to establish the functional role of VLK-mediated phosphorylations both during endochondral ossification and during fracture repair. They will use a combination of in vitro and in vivo approaches to identify substrates for VLK in endochondral cells, identify spatial and temporal patterns of VLK mediated phosphorylations in vivo, establish how VLK modifies chondrocyte differentiation and endochondral ossification, and examine the function of VLK phosphorylation of specific secreted substrates.

These studies will define a new mechanism for the regulation of ECM function in bone, providing a new approach to the therapeutic modulation of skeletal development, homeostasis, and repair.
Awards & Honors

Bjorn R. Olsen, MD, PhD, professor of developmental biology and dean for research, received the 2015 Fell-Muir Award at the British Society for Matrix Biology Annual Meeting in Oxford on March 30, 2015. This Award is given to scientists of international stature who have demonstrated outstanding achievement in the field of matrix biology. The Fell-Muir Award is sponsored by the International Journal of Experimental Pathology, is named after two pioneers of matrix biology, Dame Honor Fell (1900-1986) and Dame Helen Muir (1920-2005).

Cherry Choy, David Gu and Jonathan Foster (DMD 2017 candidates), presented their research at the Society of Student Run Free Clinic Conference. Their project entitled, “Improving Volunteering Training Through Use of an Online Training Video and Social Media,” under the mentorship of Dr. David Okuji, aims to establish a formal training program through a web-based comprehensive training video for volunteer assistants at ACTION clinic, a Harvard student-run pediatric clinic (http://hsdmaction.weebly.com/).

Hossein Bassir, DDS, (DMSc 2017 candidate in Periodontology), received the Olav Alvares Award for Outstanding Article by Junior Scholars, published in the Journal of Dental Education at the American Dental Education Association (ADEA) 2015 conference. Bassir’s article is entitled, “Problem-Based Learning in Dental Education: A Systematic Review of the Literature.” Bassir is photographed receiving his award from Dr. Lily Garcia, Chair of the ADEA Board of Directors.

Jeff Wang, DDS, (DMSc 2015 candidate in Periodontology), was a Unilever Hatton Competition and Awards Finalist at IADR 2015 in Boston for his project, “Maresin1 Rescues Impaired Phagocyte Functions with Localized Aggressive Periodontitis Leukocytes.” Wang’s research mentor is Dr. Charles Serhan, professor of anesthesiology at Harvard Medical School and Brigham and Women’s Hospital.

Michelle Mian, DMD, MMSc, instructor in developmental biology and predoctoral director of orthodontics, is conducting research with mentor Dr. Yefu Li, assistant professor in the department of developmental biology, involving the development of treatment to slow the progression of Osteoarthritis (OA). Her work, entitled, “Treatment of OA by Losartan in a Mouse Model,” is an innovative proof of concept work involving inhibition of TGF-β1 signaling to delay OA progression. The American Association of Orthodontists has recognized her work and she will be presenting her findings at the American Association of Orthodontists 2015 Annual Session in San Francisco, CA.

Jane Jian Jiao, DDS, (MMSc 2017 candidate in Periodontology), received first place in the Dentium Postgraduate Research Competition for her project, “Soft Tissue Volumetric Change after Guided Bone Regeneration Using OSTEON II Collagen with Collagen Membrane in Peri-Implant Soft Tissue Around Implants in Aesthetic Zone Using Intraoral 3D Analysis,” under the mentorship of Dr. Soo-Woo Kim, instructor in oral medicine, infection, and immunity and Dr. Sang Lee, instructor in restorative dentistry, and biomaterials sciences.

Rebecca Chen, BDS (DMSc candidate 2015 in Orthodontics), received Milo Hellman Research Award from American Association of Orthodontists. The award is for an outstanding and meritorious research investigation that gives some new and significant material of value to the art and science of orthodontics. Results from Dr. Chen’s study demonstrate that a genetic inactivation of Tgf-β1 signaling can delay osteoarthritis progression in a mouse model. This work was under the supervision of Yefu Li, MD, PhD, assistant professor and Lin Xu, MD, PhD, instructor in the department of developmental biology at HSDM.
Jamie Chung, DDS, and Marcelo Freire, DMD, PhD, (MMSc & DMSc 2016 candidates in Periodontology), presented their research at the 6th Boston Periodontal Postdoctoral Resident Meeting, and were recognized as the top two poster presentations or their outstanding work. Both Chung and Freire work with Dr. Tom Van Dyke, Chair of the Department of Applied Oral Health Sciences at The Forsyth Institute. Chung's project is entitled, “Micro-CT and Histologic Evaluation of the Effect of Platelet-Rich Fibrin on Ridge Preservation Techniques.” Freire's project is entitled, “Resolution Receptors in Inflammatory Chronic Disease.” Chung is shown above accepting the the award from Drs. Bissada and Johnson of teh selection committee. Chung was picked as one of the ten finalists (10 of 348 students) for his research presentation at the recent Academy of Osseointegration annual meeting in San Francisco.

Alaa Ahmed, DMD, (DMSc 2017 candidate in Periodontology), received 2nd place at the 2015 American Association for Dental Research Student Research Group Dentsply/Caulk Competition for, “The Impact of Hyperglycemia on the Human Monocyte Transcription,” under the mentorship of Dr. Tom Van Dyke, Chair of the Department of Applied Oral Health Sciences at The Forsyth Institute. Ahmed also received third place in the Dentium Postgraduate Research Competition for, “A Retrospective Radiographic Analysis of Peri-implant Bone Remodeling around Short and Narrow Implant in the Posterior Region,” under the mentorship of Dr. David Kim, associate professor of oral medicine, infection, and immunity at HSDM.

Michelle Chou, DMD, (DMSc 2016 candidate in Orthodontics), was one of 5 finalists of 50 applicants in the Bernard G. Sarnat Award in Craniofacial Biology Competition at IADR Boston. This is a Senior Category (preferably PhD students and postdoctoral fellows). Chou’s presentation was entitled, “A Critical Role of Foxo1 in Chondrocyte Differentiation” and her mentor is Mani Alikhani, DDS, MSc, PhD, associate professor in the department of developmental biology, and Mohammed Masoud, BDS, DMSc, program director of orthodontics, department of developmental biology.

A recent study published by the Journal of the American Medical Informatics Association co-authored by Dr. Rachel Ramoni, assistant professor in oral health policy, and epidemiology at HSDM, demonstrated that Consolidated Clinical Document Architecture (C-CDA) does not generate documents standardized enough to allow seamless electronic exchange. The study collected samples of C-CDA documents that had been generated by exporting a fictional patient’s health records. Upon inspection of the data, several barriers were identified. For example, 12 distinct patterns were found just to record telephone numbers (combination of dashes, parentheses, periods, and leading characters). The study also contains recommendations in four distinct areas (validation of codes, richer coding, data optionality reduction and document quality monitoring) to promote progress in the electronic document exchange. The article was published in June 2014, and since then it has been cited seven times.

RuiRui Shi, MD, PhD, Joins the Rosen Lab as a Postdoctoral Fellow

RuiRui Shi, MD, PhD, joined the Rosen Lab as a postdoctoral fellow in the department of developmental biology in February. Shi received her MD and PhD degrees in oral pathology at Peking University School and Hospital of Stomatology in Beijing, China. Prior to joining HSDM, she was working as a research scientist in the Department of Oral Pathology at Peking University School and Hospital of Stomatology. At HSDM, Shi is working with Dr. Rosen, professor and chair of developmental biology, on a project focussing on the potential of meniscus stem and progenitor cells in meniscus repair and regeneration.

Lin Xiang Joins the Rosen Lab as a Visiting Researcher

Lin Xiang, a PhD candidate, originally from Sichuan, China, earned her MS degree at West China School of Stomatology, Sichuan University. In the Gong’s Lab, she investigated the effect and mechanism of calcitonin gene-related peptide-alpha in bone development, metabolism and repair. She joined the Rosen Lab as a visiting researcher to analyze the formation and maturation of mouse meniscus in order to figure out the whole map of meniscus formation and maturation process.