HARVARD
School of Dental Medicine

July – August 2015
RESEARCH BULLETIN

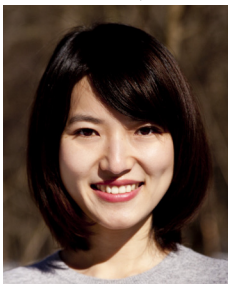
2015-16 HSDM Dean's Scholars

In 2001, HSDM established the Dean's Scholars Program to provide postdocs funding during the early stages of their academic career. Congratulations to the new Scholars (highlighted below), and second year Scholars: **Dr. Mattia Bordoli** (Whitman Lab); **Dr. Valerie Salazar** (Rosen Lab); and **Dr. Detina Zalli** (Baron Lab).

William Addison, PhD

Dr. Addison is a postdoctoral fellow in the Baron Lab in the department of oral medicine, infection, and immunity. He is working on, "Transcriptional control of lineage commitment by ZFP521 and ZPF423." Prior to joining HSDM in 2010, Addision received his PhD from McGill University, Canada under the guidance of Dr. M.D. McKee.

Xuchen (Aimee) Duan, MS, PhD



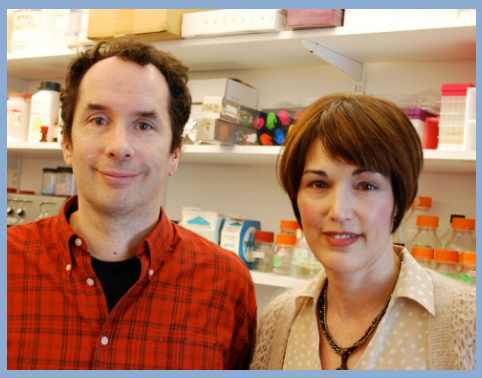
Dr. Duan is a postdoctoral fellow in the Olsen Lab in the department of developmental biology. She is working on, "Mechanisms by which MSC-produced VEGF determines osteoblast/adipocyte fates at different time points after birth." Prior to joining HSDM in 2012, Duan received her PhD in orthopedic surgery from the University of Oxford, United Kingdom under the guidance of Drs. Triffitt and Russell. Before matriculating into Oxford's PhD program, she received her MS in pharmaceutical sciences from Utrecht University, The Netherlands.

Yi Fan, DDS

Dr. Fan is a postdoctoral fellow in the Lanske Lab in the department of oral medicine, infection, and immunity. She is working on, "Role of PTH1R in the early mesenchyme using a conditional deletion mouse model." Prior to joining the Lab in 2013, Fan received her DDS from the West China School of Stomatology, Sichuan University, China.

HSDM has funded 46 Dean's Scholars from 2001 through 2015; 42 of these individuals have full-time careers in academia, and four in biotechnology.

Allied-Bristol Life Sciences To License Whitman Lab Intellectual Property and Fund Research



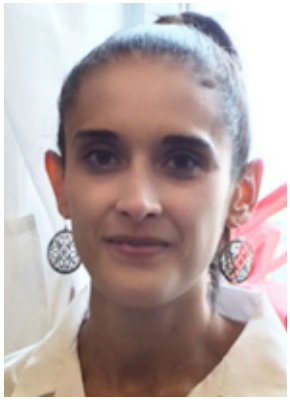
Malcolm Whitman, PhD, professor, and **Tracy Keller, PhD,** instructor in developmental biology, have identified the mechanism of action behind a known natural product, halofuginone. Halofuginone is a chemical compound based on an active ingredient in the root of the blue evergreen hydrangea, which has been used in traditional Chinese medicine for centuries. Whitman and Keller are co-investigators on this work and their intellectual property will be licensed by Allied-Bristol Life Sciences (ABLS), a joint venture between Allied Minds and Bristol-Myers Squibb Co. The licensing agreement with Harvard's Office of Technology Development is among the first in a series of discovery and development projects pursued by ABLS. ***"Our research is at the right stage for an infusion of resources and expertise to accelerate its progression," said Whitman. "We look forward to seeing the development of lead compounds from our laboratories into novel therapeutics for the treatment of fibrotic disease, and potentially other indications."***

New Postdoctoral Fellows and Visiting Student

Joshua Chou, PhD, originally from Sydney, Australia, joined the Baron Lab as a postdoctoral fellow. Chou received his PhD in nano biotechnology from the University of Technology in Sydney, Australia. In the Baron Lab, Chou is working on how cell mechanics affect the Wnt signaling pathway of bone cells with emphasis on osteoblasts. This will provide a deeper understanding as to how these cells respond to the microenvironment. The hope is to identify key receptors which can improve healthy bone remodeling.

Martha Diaz, PhD, originally from Mexico City, Mexico, joined the Intini Lab as a postdoctoral fellow. Diaz received her PhD in science from the National Autonomous University of Mexico. After completing her PhD, Diaz worked at the Institute of Biomedical Research in Mexico City. In the Intini Lab, Diaz's work is aimed at identifying the exact location of PRX1 expressing cells in the intramembranous bones.

Merlijn Kaaij, MSc, joined the Olsen Lab as a visiting scholar through a fellowship program at the University of Amsterdam in The Netherlands. Kaaij received his BS and worked in the experimental immunology lab at the Academic Medical Center in Amsterdam. In the Olsen Lab, Kaaij is studying heterotopic ossification, and will study the non-canonical NF-kB signalling in endothelial-mesenchymal transition and whether hypoxia has an effect on the heterotopic ossification.



Leila Valdivieso, PhD, originally from Bolivia joined the Whitman Lab as a postdoctoral fellow. Valdivieso received her PhD in molecular and cellular biology from Washington University in St. Louis, Missouri. At Washington University, she worked in the laboratory of Dr. Roberto Civitelli in the Division of Bone and Mineral Diseases. In the Whitman Lab, Valdivieso is investigating the role of the secreted tyrosine kinase VLK in skeletal cells differentiation.

Shu-Chi (Allison) Yeh, PhD, originally from Taiwan, joined the Intini Lab as a postdoctoral fellow. Yeh received her PhD in biomedical engineering from McMaster University in Hamilton, Canada. In the Intini Lab, Yeh is researching minimally invasive methodologies for ablation of craniofacial bone progenitor cells. The project is being conducted in collaboration with the Lin Lab at the Wellman Center for Photomedicine at Massachusetts General Hospital.

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Faculty and Student Highlights

Lisa Thompson, DMD, instructor in oral health policy and epidemiology, and co-director of the HSDM fellowship program in geriatric dentistry, received a Harvard Academy Fellowship in Medical Education. Thompson was one of five individuals awarded a fellowship for the academic year 2015-2016. This endowed, competitive program seeks to develop and enhance the fellows' analytical skills as medical education researchers and teaching skills as medical educators. Thompson is working on, "The Development and Assessment of Curriculum for an Inter-Professional Community-Based Clinical Activity in Geriatric Oral Health for Medical, Dental and Nursing Students."

Erica Shapiro received a F32 Fellowship from NIH-NIDCR to support her pursuit of a dual DMD/PhD degree. Shapiro is in the fifth year of the program (two years at HSDM; and three years in the Biological Sciences in Dental Medicine program for her PhD degree). She is currently working in the Ribbeck Lab at Massachusetts Institute of Technology; and collaborating with Margaret Duncan, PhD at the Forsyth Institute. Shapiro is studying the connection between salivary mucins and cariogenic Streptococcus biofilm formation. After graduation, Shapiro plans to attend a residency program and then pursue a faculty position where she can teach, conduct research, and practice in the clinic.

Shigemi Ishikawa-Nagai, PhD, DDS, associate professor of restorative dentistry and biomaterials sciences, and director of the predoctoral program in prosthodontics, has been named director of clinical research in the Office of Research at HSDM. Nagai combines basic science with clinical and developmental research focused on color science, soft tissue esthetics in dental implants, and early caries detection, as well as a project involving osteoinductive peptides found by a new biopanning method. Nagai looks forward to her new role in expanding clinical and translational research opportunities at HSDM.

Forsyth / Pioneering Discoveries Profound Change

Forsyth to Establish Host-Microbiome Center with Brigham and Women's Hospital

The Forsyth Institute and Brigham and Women's Hospital (BWH) were awarded $4.8 million to fund the creation of the Massachusetts Host-Microbiome Center, which will accelerate practical understanding of how personal microbial communities interact to promote health or cause disease. The project draws upon unique expertise amongst institutions that have pioneered functional systems to identify causative effects of microbial communities in vivo, namely Forsyth, BWH, Boston Children's Hospital and the Harvard Digestive Diseases Center. Faculty responsible for leading this effort include: Drs. Philip Stashenko, Bruce Paster, Jorge Frias-Lopez, Susan Rittling, and Felicitas Bidlack.

Forsyth Joins Boston Biomedical Innovation Center (B-BIC)

Forsyth, announced their collaboration with B-BIC, a healthcare consortium designed to accelerate commercialization of biomedical technologies. "Forsyth and B-BIC share the common goal of translating novel healthcare technologies into clinical practice, and we are, thus, very happy to join the B-BIC community," said Philip Stashenko, DMD, PhD, President and CEO of Forsyth. "The synergies between our two organizations will strengthen our collective ability to introduce innovations that improve health and patient care."

http://www.forsyth.org

HSDM Publications

DEVELOPMENTAL BIOLOGY

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