



Harvard School of Dental Medicine

OFFICE OF RESEARCH BULLETIN

September/October 2007



MOHAMMED SHAWKAT RAZZAQUE, MD, PHD
Assistant Professor of Developmental Biology and member of the Lanske Laboratory, received an R01 from NIH for his project entitled, In vivo interactions of Fgf-23, klotho and vitamin D.

The long-term objective of this grant proposal is to determine in vivo function, and regulation of FGF-23, and klotho in physiological and pathological conditions. As a preliminary step of obtaining such objectives, we have recently generated and partially characterized both Fgf-23^{-/-}, and Fgf-23^{-/-} α -hydroxylase double mutant mice.

To study the effects of circulating FGF-23 on the induction of klotho to rescue the abnormal phenotypes of Fgf-23^{-/-}, we generated another mouse model that is completely ablated for endogenous Fgf-23, but expresses FGF-23 in osteoblasts which is then released into circulation (Fgf-23^{-/-}/Col1-FGF-23Tg mice). We will analyze the interrelationship of FGF-23, klotho and vitamin-D, and their effects on essential renal calcium and phosphate regulating molecules, including TRPV5, NaPi2a, Calbindin28k, NCX1, and PMCA1 and their effect on skeletogenesis. Successful completion of this proposed grant application would generate data that will form the basis to design strategies to manipulate abnormal mineral ion homeostasis and defective skeletal mineralization in wide range of diseases including rickets/osteomalacia, tumoral calcinosis and chronic renal failure, by developing novel therapies and fine tuning of the existing therapeutic modalities.



ATHANASIOS ZAVRAS, DMD, DMSC
Associate Professor of Oral Health Policy and Epidemiology, received an award from the Kennedy School of Government, Kuwait Program Research Fund for his project entitled, Developing policies to integrate cancer prevention in primary medical care.

The long-term objective of this grant proposal is to develop educational and on-the-job training policies in the primary care sector of Kuwait. Dr. Zavras and his team will conduct a survey in a representative random sample of medical professionals in Kuwait's

primary care to identify policies that best integrate cancer detection and prevention into the every day practice of "front line" doctors. Oral cancer detection will also be assessed. Dr. Zavras is recruiting students interested in international health to work on this project (zavras@hms.harvard.edu).



PUBLICATIONS

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STUDENT SPOTLIGHT & RESOURCES

DMD STUDENT, JACQUELINE HOM

recently completed an internship under the mentorship of Dr. P.E. Peterson at the World Health Organization (WHO), Chronic Diseases and Health Promotion in Geneva. While at WHO, Jacqueline worked on a Oral health policy survey on the oral manifestations of HIV and AIDS in Tanzania and Burkina Faso. The mission of WHO Chronic Diseases and Health Promotion is to provide leadership and direction for urgent global, regional and national efforts to promote health and to prevent and control major chronic diseases and their risk factors.



DMD CLASS OF 2011 RESEARCH SESSION

SEPTEMBER 21, 2007 - 2-3PM - REB AUDITORIUM

Dr. Malcolm Whitman, Chair, Predoc Research Advisors will meet with the DMD Class of 2011 regarding their research requirements. Predoctoral Research Advisors include: Drs. Malcolm Whitman, Peter Hauschka, Beate Lanske, Taru Kinnunen, Yefu Li, Chin-Yu Lin, Mohammed Razzaque, Nachum Samet and Dan Smith.

STATISTICAL REVIEW FOR DMSC STUDENTS . . .



RACHEL BADOVINAC, DMD, SCD, Instructor in Developmental Biology, along with the Office of Research has implemented a **statistical review process for all DMSc students** (DMSc Class of 2009, 2010, 2011). Dr. Badovinac has kindly offered to review proposals for statistical needs prior to the initial Thesis Proposal Committee Meeting. DMSc students should plan on submitting their research plan to Dr. Badovinac at least 2 weeks prior to their Thesis Proposal Committee Meeting. The Office of Research will be sending out further information including the Statistical Review Form in early September. It is our intention to expand this much needed service to MMSc and DMD students in the future.

RESEARCH AWARDS



R. BRUCE DONOFF, DMD, MD

Dean and Professor of Oral and Maxillofacial Surgery, will be collaborating with PI, Shlomo Lehavi, DMD of IDEA International, Inc. on an R44 from NIH entitled, [BrushRight personal dental trainer- Improving America's dental health, one mouth at a time.](#) BrushRight is a fully synthetic simulation-based training system to teach proper tooth brushing. Drs. Nachum Samet is the lead investigator at HSDM.



BETTY SITARA, PHD

Research Associate in Developmental Biology (Lanske Lab), presented at the 17th Scientific Meeting of the International Bone and Mineral Society this past June. Dr. Sitara received a travel award for her project entitled, [Genetic evidence of pathologic role of NaPi2a in regulating altered phosphate homeostasis and skeletogenesis in Fgf-23^{-/-} mice.](#)



ROBERT WRIGHT, DDS

Associate Professor of Restorative Dentistry and Biomaterials Sciences and Director of Advanced Graduate Prosthodontics received an NIH subcontract to BIDMC entitled, [Periodontal disease and coronary artery remodeling in CHD and metabolic syndrome.](#) Dr. Wright will be collaborating with Drs. Francine Welty (BIDMC), Max Goodson (Forsyth Institute), Jim Beck and Steven Offenbacher (UNC),



QUESTIONS?
COMMENTS?
SUGGESTIONS?

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