

FABIENNE COURY, MD



Research Fellow in Oral Medicine, Infection and Immunity and member of the Baron Lab received the prestigious IBMS Rodan Fellowship.

2009 GIDEON & SEVGI RODAN FELLOWSHIP

The Gideon & Sevgi Rodan Fellowship, from the International Bone and Mineral Society is given annually to support the research activities of a deserving young investigator in the bone field. Support is a one-year, non-renewable grant.

Dr. Coury received this Fellowship based on her work on c-Cbl and Cbl-b which are two widely expressed mammalian members of a family of adaptor proteins that are involved in various biological processes ranging from defense against infection to osteoclast biology.

The goal of Dr. Coury's study is to identify specific c-Cbl and Cbl-b functions in osteoclasts biology, in particular to characterize the differential roles of Cbl-b and c-Cbl in the regulation of RANK and c-Fms expression and signaling and to elucidate the role of Cbl-b and c-Cbl in the differentiation and survival of osteoclasts downstream of these two receptors.

HARVARD

SCHOOL OF DENTAL MEDICINE
OFFICE OF RESEARCH BULLETIN

January/February 2009

MOLECULAR MECHANISMS OF CHOROIDAL NEOVASCULARIZATION AND VASCULAR HOMEOSTASIS

ALEX MARNEROS, MD, PHD



Instructor in Developmental Biology and member of the Olsen Lab and Cutaneous Biology Research Center at MGH received an R01 from the National Eye Institute at NIH.

Choroidal neovascularization in age-related macular degeneration is one of the leading causes of blindness worldwide, but only little is known about the molecular mechanisms that result in this abnormal neovascularization in the eye. The goal of the proposed studies is to investigate the role of VEGF signaling for the development, vascular homeostasis and pathological neovascularization of the choroidal vasculature. These findings are likely to reveal novel molecular targets for the treatment of neovascular age-related macular degeneration.

HSDM PUBLICATIONS

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LITT UPDATE

HC-LITT is currently located at the New Research Building on the 3rd floor, Bay 358. For those that would like "card-access" to the lab at the NRB, please contact Winston Kuo. Recent LITT technologies include:

DENATOR'S STABILIZOR T1

(<http://www.denator.com/>)

This technology provides a unique technology for stabilization of tissue samples which enables you to prepare and analyze your sample without the risk of degradation. Protein and peptide degradation begins within seconds of a tissue being sampled and as a consequence, vital information about the original biological state may be destroyed or distorted. A complete and permanent inactivation of all enzymes is achieved by a combination of heat, pressure and vacuum, all done without the use of additives such as enzyme inhibitors. Using the instrument Stabilizor T1 with the sample card Maintainer Tissue from Denator AB ensures that you have a standardized procedure for sample preparation of tissue, where degradation is halted, before using any downstream analysis of your choice. The technology enables you to downstream determine the original state of your sample, discover novel proteins and peptides and determine original phosphorylation/ dephosphorylation states.

XCEED'S ZIPLIX

(<http://xceedmolecular.com/innovative.html>)

This technology is an automated microarray system that performs pre-hybridization conditioning, hybridization, post-hybridization washes, chemiluminescent detection, image capture, data analysis, data quality control, and results reporting, according to Xceed. The system uses Xceed's Flow-Thru-Chip technology, where "TipChips" made of porous silicon with channels that extend from the upper to the lower surface of the chip are mounted on polycarbonate tubes. Molecular interactions occur within the three-dimensional matrix of these channels as target solutions pass through and a chemiluminescent signal is then detected and analyzed by Xceed's software.

NANOSTRING TECHNOLOGIES

(<http://www.nanostring.com>)

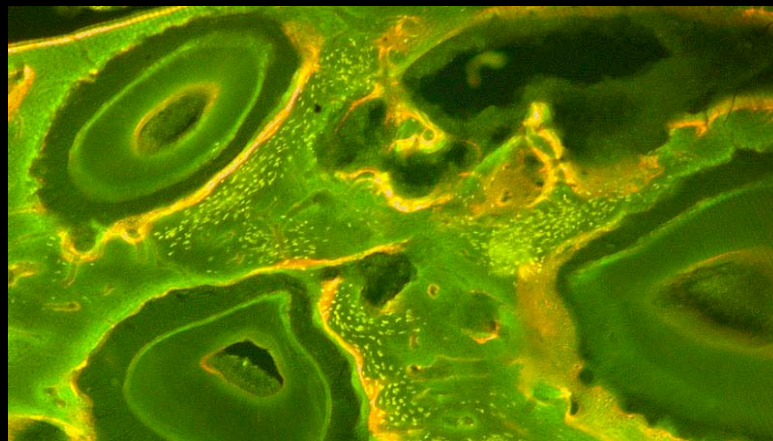
This technology enables direct measurement of 20 to 550 gene targets in a single well (plus 26 spiked-in controls) without the use of reverse transcription or amplification while achieving the same or better sensitivity as real-time PCR. One can work from 100ng of total RNA or directly from cell lysate as well as FFPE samples. Because the technology directly detects the message and does not introduce enzyme associated bias, there is excellent sensitivity and accuracy throughout

H M S / H S D M

OFFICE OF RESEARCH COMPLIANCE

J E F F M . S E O , J D

is the newly appointed Director of the ORC. The Office was established in 2001 to continue the University's commitment to adhering to the highest standards of ethics, integrity, and responsibility. Please contact Jeff if you have any questions related to Faculty Consulting Agreements, Research Involving Human Embryonic Stem Cells, Controlled Substances, or any other research compliance issue. Jeff may be reached at 617.432.3884 or jeff_seo@hms.harvard.edu
<http://medapps.med.harvard.edu/orc>



H M S / H S D M

OFFICE OF TECHNOLOGY DEVELOPMENT

K A T I E G O R D O N , P H D

is Director of Business Development at OTD. The Office of Technology Development provides a one-stop shop to advance the development of groundbreaking discoveries by fostering strategic collaborations with industry through licensing, sponsored research and new venture agreements. Katie may be reached at 617.432.0920 or katherine_gordon@harvard.edu
<http://otd.harvard.edu>

the biological range of expression, including below a single copy per cell. The technology is able to generate many more data points per sample, faster and at a lower cost than real-time PCR. In summary NanoString technology uses a novel digital technology that is based on direct multiplexed measurement of gene expression and offers high levels of sensitivity (<1 copy per cell) and precision without the use of enzymology or amplification.

Please contact Winston Kuo if you have any questions regarding these technologies or other technologies at HC-LITT. In addition, if there are technologies that you would like to evaluate, which can benefit your research please contact Winston directly (Winston_Kuo@hsdm.harvard.edu).

EVENTS @ HSDM

HSDM BASIC AND CLINICAL SCIENCE FORUM

February 27, 2009 * 12:00 PM

DR. MOOSA MOHAMMADI
Department of Pharmacology
NYU Medical Center
Professor, NYU School of Medicine
New York, NY

April 30, 2009 * 11:00 AM

DR. RICHARD MAAS
Division of Genetics
Brigham & Women's Hospital
Professor of Medicine
Harvard Medical School, Boston, MA

May 11, 2009 * 1:00 PM

DR. ERWIN WAGNER
Vice Director
Centro Nacional de Investigaciones
Oncológicas, (Spanish National Cancer
Research Center)
Madrid, Spain

June 24, 2009 * 12:00 PM

DR. DANA GADDY
Winthrop P. Rockefeller Cancer Institute
Assistant Professor of Medicine
University of Arkansas for Medical Sciences
Little Rock, AK

*All lectures will be held at:
HSDM, REB Auditorium, 190 Longwood Ave, Boston, MA
For more information please contact:
Dr. Beate Lanske at beate_lanske@hsdm.harvard.edu or (617) 432-5748*

SAVE THE DATE



HSDM / HMS / MGH

THE HSDM / HMS / MGH BONE RESEARCH WORKSHOP SERIES is held monthly from 3:30-5:00pm at alternate locations between HSDM and MGH on the following dates. Please contact jennifer_moltoni@hsdm.harvard.edu with questions.

MARCH 27	@ HSDM
APRIL 24	@ MGH
MAY 22	@ HSDM
JUNE 26	@ MGH
SEPTEMBER 25	@ HSDM
OCTOBER 23	@ MGH
NOVEMBER 20	@ HSDM
DECEMBER 18	@ MGH

HSDM STUDENT NEWS

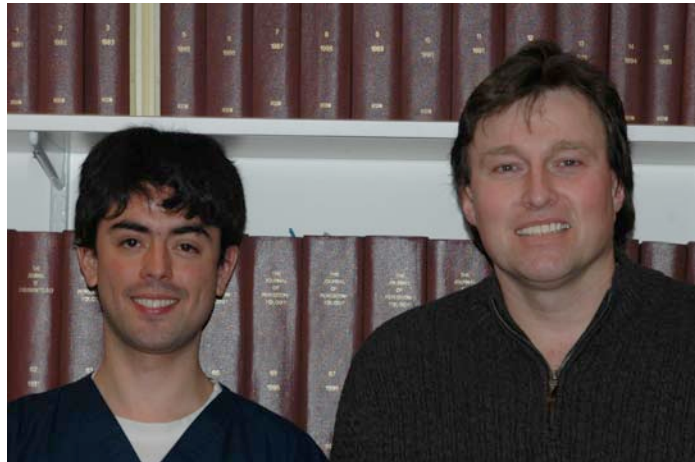


HSDM DMD and AGE students presented at the table clinics at the Greater New York Academy of Prosthodontics this past December.

Determining the Relationship Between Impression Volume and Closure of Double Arch Trays
SARA M. HAHN

Effects of Gingival Color on Ceramic Crown Color
MENG-CHIEH LEE, DDS

A Survey: Current Trends and Mentoring of Dental Students in Prosthodontics at Harvard School of Dental Medicine and University of Pennsylvania
MARISA S. ZARCHY



HSDM students Vinny Rodriguez (L) and Dr. Kevin Guze (R) received a grant from the Osteology Foundation.

Potential of a Novel PDGF-BB-VEGF PLGA Microspheres for Hard Tissue Regeneration: An In Vitro and In Vivo Study

VINNY RODRIGUEZ (DMD CANDIDATE)
KEVIN GUZE, DMD (DMSC CANDIDATE)

HSDM DMD students presented at the 2009 Yankee Dental Congress in this Boston, MA this February.

Proteomics-Based Identification of Tooth Germ Extracellular Matrix Components for Dental Tissue Engineering
HARRISON E. MACKLER

Global Oral Health Policy Reform: Improving Refugee Oral Health Through Gateway Initiative Implementation and Inter-Agency Collaboration
CATHERINE ASHLEY ORYNICH

An Oral Health Education Program & Protocol for Medical Staff and Patients
STEPHANIE RASHEWSKY

Predictors of Citations of Randomized Controlled Trials in Dentistry
ANDREA SHAH

Congratulations to the HSDM DMD students who were accepted into the Biological Sciences in Dental Medicine PhD Program.

JARED SPRAGUE (L) and DAVID GUTHRIE (R) are currently in their second year of the DMD program. They will pursue a DMD degree through Harvard School of Dental Medicine and PhD degree through the Harvard Graduate School of Arts and Sciences.



THE FORSYTH INSTITUTE NEWS

SCIENTISTS UNCOVER EVOLUTIONARY KEYS TO COMMON BIRTH DISORDERS

Study of Changes in MSX Gene Family over 600 Million Years Leads to New Understanding of Disease Patterns

The work of Forsyth scientist Peter Jezewski, DDS, PhD, has revealed that duplication and diversification of protein regions ('modules') within ancient master control genes is key to the understanding of certain birth disorders. Tracing the history of these changes within the proteins coded by the Msx gene family over the past 600 million years has also provided additional evidence for the ancient origin of the human mouth. Dr. Jezewski has published an important study examining the Msx family that has ancient roots as a master control gene for patterned embryonic growth. Previous work by Dr. Jezewski, and other groups, identified mutations within the human MSX1 gene in two different birth disorders: either cleft lip and palate or skin derivative disorders ('ectodermal dysplasias') that include tooth and nail malformations. The mutations associated with the more severe clefting disorder are found within unique portions of the MSX protein, thus providing the first molecular explanation for this disease pattern. This work may eventually enable genetically susceptible families with environmental risk factors to prevent these common birth disorders.

Cleft lip and palate is one of the most common birth defects. Both genes and environment contribute to this condition. "If we can learn more about genetic susceptibility of these families, we can start to examine how environmental factors, like maternal smoking, may contribute to their manifestation," says Dr. Jezewski. "This information could lead to recommendations for appropriate behavioral changes within families who are genetically at risk."

Peter Jezewski, DDS, PhD is a Research Associate in the Department of Cytokine Biology at The Forsyth Institute and an Instructor, Dept of Oral Medicine, Infection & Immunity at HSDM. This work was supported in part by grants from the NIDCR.



FORSYTH SCIENTISTS OBSERVE RELATIONSHIP BETWEEN OBESITY AND RISK OF GUM DISEASE

Individuals with High Body Mass Index Prone to Overgrowth of Oral Bacteria

In a recent research study, which examined the differences in the periodontal health of individuals with different Body Mass Indices (BMI), Forsyth Institute scientists have found a connection between overweight and obese individuals and a particular gum disease-causing oral bacterium, termed *Tannerella forsythia*. *T. forsythia* occurs in the bacterial 'plaque' of individuals with otherwise healthy mouths. This bacterial overgrowth may put these individuals at risk for gum disease in the future. Previous published research has suggested a connection between obesity and periodontal disease. However, this is the first study to examine the relationship of obesity to the composition of the mouth's bacterial plaque, and whether microbial shifts in obese individuals might be associated with increased risk of developing severe gum disease. More than 80 percent of the adult population in the United States has periodontal disease, which can lead to bone and tooth loss and also impact systemic health conditions.

"This increased risk for developing periodontal disease in younger, obese individuals provides an important opportunity for prevention," said Dr. Haffajee. "These individuals should be monitored and provided with aggressive preventive measures and/or treatment to prevent initiation or progression of periodontitis."

Anne Haffajee, BDS is Head of the Dept of Periodontology at The Forsyth Institute and Lecturer in the Dept of Oral Medicine, Infection & Immunity at HSDM. This work was supported in part by grants from the NIDCR.

QUESTIONS? COMMENTS? SUGGESTIONS?

Please contact Dawn M. DeCosta at 617.432.1121 (or) dawn_decosta@hdsf.harvard.edu