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# Molecular Profile

## A newsletter of Molecular Diagnostics & Molecular Pathology

### The Sixth Annual DMP Symposium will be held October 19th, 2010

#### Translational Research for Personalized Medicine: Companion Diagnostics, Third Generation Sequencing, and Beyond

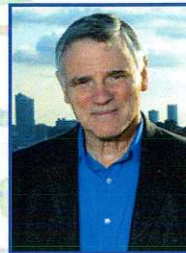
9:00 am - 5:00pm, Tuesday, October 19th, 2010  
Davidge Hall, University of Maryland, Baltimore.  
522 W. Lombard Street, Baltimore, MD

Dr. Lee Hood is the founder and director of the Institute for Systems Biology. Dr. Hood's pioneer work includes invention of automated DNA sequencer and an automated tool for synthesizing DNA. He has received numerous awards including the 2005 Lemelson-MIT Prize, and the 2006 Heinz award in Technology, Economy, and Employment. He is one of only 7 scientists who is a member of the National Academy

of Sciences, the Institute of Medicine and the National Academy of Engineering.

Other guest speakers include Dr. Zivana Tezak, Associate Director for Sci. and Tech. of FDA; Dr. Jane Smith, Dir. Of Global Sci. Affairs of Abbott Molecular; Dr. Eric Schadt, CSO of Pacific Biosciences; Dr. Stephen Little, VP for Personalized HealthCare of Qiagen; Dr. Frits van Rhee of

University of Arkansas; and one of our own faculty member Dr. Alan Shuldiner. To register for this free symposium online, log on to <http://medschool.umaryland.edu/molecularpath/conf.asp>, send email to Melinda at [mtillman@som.umaryland.edu](mailto:mtillman@som.umaryland.edu), or call 6-6300.



Keynote Speaker:  
Dr. Lee Hood

### The Fifth Annual Symposium on Molecular Pathology Concluded

The Fifth Annual Symposium on Translational Research in Molecular Pathology was concluded on October 27, 2009. The theme of the symposium was "Advances and Challenges in Personalized Health Care"

Held at Davidge Hall, the symposium presented the most recent advances in molecular biology and how these advances could be applied to personalizing health care. Dr. Sanford A. Stass, MD, chair of the Department of Pathology and E. Albert Reece, MD, PhD, MBA, John Z. and Akiko K. Bowers Distinguished Professor & Dean, University of Maryland School of Medicine delivered the opening remarks. Following, Dr. Douglas R. Lowy, MD, a member of the American Academy of Sciences and a co-inventor of the



HPV vaccine, gave the keynote lecture on "Preventative HPV Vaccines: Current Realities and Future Possibilities". Eight other internationally renowned scientists, Drs. H. Jeffrey Lawrence, Xin W. Wang, Scott E. Kern, Kevin J. Cullen, Dimitri Semizarov, Aravinda Chakravarti, Patrick J. Dillon, and Rima Kaddurah-Daouk, presented various topics at this symposium, ranging from personalizing oncology to developing a test panel for the detection of mutations. Over 250 people representing over twenty-four different universities, biotech companies and government agencies from the State of Maryland and 6 neighboring states attended this year's symposium.

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### Molecular Profile

## Division of Molecular Pathology (DMP) Faculty and Staff News



**Feng Jiang, MD, PhD**, assistant professor, received a one year \$168,750 R21 grant from the National Cancer Institute for his project, "A Sensitive and Automated Diagnostic Array for Lung Cancer"

**Amy M. Fulton, PhD**, professor, received a one year, \$277,161 R01 grant from the National Cancer Institute for her project entitled "Cyclooxygenase Modulators of Immune Function in Breast Cancer." Also she received a 1 year \$46,170 R01 grant from the same institute.



**Anne W. Hamburger, PhD**, professor, received a one year, \$467,753 R01 grant from the National Cancer Institute for her project, "A Novel Therapy for HER2 Positive Hormone Refractory Breast Cancer".

**Richard Y. Zhao, PhD**, associate professor and James Li, Ph.D. (Cellex) received a one year, \$496,152 R01 grant from the National Institute of AIDS and Infectious Diseases for a project, "Development of Rapid Point-of-Care Tests for Women's Health". **Dr. Zhao** and **Jian Zhang Ph. D.**, assistant professor (Biochemistry), received a two-year, \$397,500 R21 grant from NIBIB for their work entitled "Measurement of CCR5 and CCL3L1 on Single Cell by Fluorescent Metal Nanoparticle".



*Striving to meet the molecular diagnostic needs of physicians and to improve our patient care at the UMMC community*



## New KRAS testing assay added to the Molecular Diagnostic Laboratory

The Molecular Diagnostic Laboratory has added a new KRAS Luminex-based assay to its testing menu. Luminex technology combines PCR, sequence specific microbeads, lasers, and flow cytometry to allow for accurate detection of genetic mutations. A total of 7 common mutations that occur at codons 12 and 13 of the KRAS gene on chromosome 12 will be tested. With the flexibility of the Luminex platform, we anticipate continually expanding our menu to keep up with the future new recommendations.

KRAS gene mutations have been reported in a number of malignancies, including metastatic colorectal carcinoma, lung adenocarcinoma, and thyroid carcinoma. In early 2009, The

American Society of Clinical Oncology released a report that supported the use of KRAS gene mutation testing before treatment of metastatic colorectal carcinoma. Testing for KRAS gene mutations have also been added to the National Comprehensive Cancer Network's clinical practice guidelines for colon cancer and non-small cell lung carcinoma.

KRAS encodes a GTPase that links the EGFR (epidermal growth factor receptor) to downstream effectors. Research suggests that mutations in KRAS cause dysregulation of the EGFR pathway. EGFR inhibitors, such as cetuximab, have been found to be ineffective in patients with a mutated form of KRAS. "Personalized medi-

cine" like this uses genetic characteristics to guide treatment options. This patient specific approach can help prevent unnecessary drug side effects while keeping medical costs down.

To order the test, the sample information should be provided using a requisition form and send it to the Pathology department with the specimen. The sample will be processed in anatomic pathology and tested in the Molecular Diagnostics Laboratory as formalin-fixed paraffin embedded tissue. Testing can also be requested on prior specimens by contacting the reporting pathologist in the Department of Pathology, ext. 8-5555. The test results will be available for review in Powerchart [Charles Sailey].

### Contact information:

Dr. Sanford Stass, Chairman  
Department of Pathology,  
Director, Laboratories of  
Pathology  
Tel: 410-328-1237

Dr. Richard Y. Zhao, Director  
Molecular Diagnostics  
Laboratory, UMMC  
Tel: 410-328-0054  
22 South Greene Street  
Baltimore, MD 21201  
Fax: 410-328-3258  
Email:  
rzhao@som.umaryland.edu

## 2009 DMP Travel Award Winners



**Kristina M. Harris, Ph. D.**, Research Associate, UMSOM, Pathology Department, for her presentation entitled: **Monocytes differentiated with IL-15 share features of Langerhans cells and preferentially activate Th17 cells** at the 11<sup>th</sup> International Workshop on Langerhans Cells, September 3-6, 2009 in Funchal, Madeira.



**Joseph Nkeze**, a graduate student in the Department of Medical and Research Technology presented: **Comparison of HIV-1 Viral Load between Abbott m2000 and Roche COBAS TaqMan Methods** at the 2009 Association for

Molecular Pathology (AMP) Annual Conference, November 19-22, 2009, Kissimmee, FL

**2010 DMP Travel Award:** To encourage active research and scientific presentation on molecular diagnostics and molecular pathology, the Division of Molecular Pathology has established an annual DMP travel award (up to \$1,500) to support a technologist, graduate student or post-doctoral trainee to present his/her scientific findings at a well-known national conference. Application should include documentation of accepted presentation by the conference organizer with a copy of the abstract. The awardees must be the first and presenting author and a member of a DMP laboratory. To apply, please send the necessary documentations and email them to Dr. Dean Mann, the DMP Travel Award Committee Chair (dmann001@umaryland.edu).

A publication of the Molecular Diagnostics Laboratory at the University of Maryland Medical Center (UMMC), and the Division of Molecular Pathology, Department of Pathology, University of Maryland School of Medicine

Editor: Richard Zhao  
Asst. Editor: Andrew Wang

<http://medschool.umaryland.edu/molecularpath/default.asp>