



*A Third Century Where Discovery Transforms
Medicine*

The Big Ten: From Theory to Mainstream in Personalized Healthcare

**Tenth Annual Symposium
on
Translational Research in Molecular Pathology**

Date: Monday, November 17, 2014

Location: MSTF Auditorium

University of Maryland, Baltimore

9:00am-4:00pm

685 W. Baltimore Street

Baltimore, MD21201



DENTISTRY • LAW • MEDICINE • NURSING • PHARMACY • SOCIAL WORK • GRADUATE STUDIES

Davidge Hall is the historical symbol of the **University of Maryland School of Medicine** - America's oldest public medical school, founded in 1807.

About the Division of Molecular Pathology

The Division of Molecular Pathology is a research division within in the Department of Pathology, the University of Maryland School of Medicine, which was established in 2005 under the leadership of Dr. Richard Y. Zhao. Currently there a total 17 faculty members in the division who conduct research in various area of molecular pathology. Mission of the Division of Molecular Pathology is to 1) support the Department of Pathology and the University of Maryland Medical School's mission for excellence in research, teaching and clinical services, 2) foster translational research in the Department of Pathology in the area of Molecular Pathology, and 3) serve as a research unit in reaching out and psromote inter-disciplinary collaboration in Molecular Pathology.

The Annual Symposium on Translational Research in Molecular Pathology was launched in 2005. Purpose of this symposium is to promote translational and scientific collaborations between basic scientists and clinical practitioners in the area of molecular pathology, translational research and genomics as well as their applications in medicine. This is a one-day event starting 9:00am and ending with a cocktail reception in the evening. This symposium features a roster of speakers from top-notch scientists to company executives who specialize in molecular pathology, translational research and personalized healthcare. The keynote speakers in the past nine years included Drs. Samuel Broder, Robert Gallo, Craig Venter, William Haseltine, Douglas Lowy, Leroy Hood, Chad Mirkin, Peter Agre, Gregg Semenza and Craig Mello. For the 10th symposium this year, Dr. Ferid Murad, 1998 Nobel Prize Winner in Physiology and Medicine, is the keynote speaker. The symposium is open and free to the scientific community. Target audiences of this conference are scientists, physicians, biotech company executives, students and medical professionals. This symposium has now become a signature annual event for the Division of Molecular Pathology. Started from less than a hundred attendants, this symposium has now grown to more than 500 participants in the last few years. Most of the participants are local universities, bio-tech companies and governmental agencies throughout the Washington DC/Maryland area and the neighboring States.

The Division of Molecular Pathology Faculty

Burke, Allen P, M.D., Clinical Associate Professor
Castellani, Rudolph J Jr., M.D., Professor
Constantine, Niel T., Ph.D., Professor
Fulton, Amy M, Ph.D., Professor
Hamburger, Anne W., PhD, Professor (retired)
Jiang, Feng, M.D., Ph.D., Assistant Professor
Johnson, Jennifer K, Ph.D., Assistant Professor
Luo, Jianyuan "Jack", PhD, Associate Professor
Mann, Dean L, M.D., Professor
Mixson, Archibald James, M.D., Associate Professor
Shamsuddin, Abulkalam, M.B.B.S., Ph.D., Professor
Zeba Singh, M.B.B.S., Assistant Professor
Venezia, Richard A, Ph.D., Professor (retired)
Vucenik, Ivana, Ph.D., Associate Professor
Zhan, Steven, Ph.D., Professor
Zhao, Richard Y, Ph.D., Professor (Division Head)
Zou, Ying, M.D., Ph.D, Associate Professor

Symposium Sponsors

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Organization Committee

Richard Y. Zhao, PhD, Chair
Professor and Head
Division of Molecular Pathology
Director, Translational Genomics Laboratory
Director, Molecular Diagnostics Laboratory
University of Maryland School of Medicine (UMSOM)

Alan R. Shuldiner, MD, Co-Chair
John A. Whitehurst Professor of Medicine
Associate Dean and Director of the Program in Personalized and
Genomic Medicine, UMSOM

James L. Hughes, MBA
Chief Enterprise and Economic Development Officer and Vice
President University of Maryland Baltimore

Curt I. Civin, MD
Professor, Associate Dean for Research
Director, Center for Stem Cell Biology & Regenerative Medicine,
UMSOM

Kevin J. Cullen, MD
Professor and Director,
Marlene and Stewart Greenebaum Cancer Center, UMSOM

Claire Fraser, PhD
Professor and Director,
Institute of Genome Sciences, UMSOM

Robert C. Gallo, MD
Professor, Director and Founder,
Institute of Human Virology, UMSOM

Dean L. Mann, MD
Professor
Department of Pathology, UMSOM

Sanford A. Stass, MD
Professor and Chair,
Department of Pathology,
Department of Medical Research and Technology, UMSOM

Biography of Speakers



Dan Zabrowski, PhD serves as the Global Head of Roche Sequencing Solutions and Tissue Diagnostics and is a member of the Diagnostics Leadership Team. From 2007-2011, Dan was Global Head of Roche Partnering and a member of the Roche Group Executive Committee. Since joining Roche in 1993, he has held a number of leadership positions including Global Head of Pharma Development Operations and Global Head of Pharma Drug Regulatory Affairs. Prior to joining Roche, Dan worked for Fujisawa and Searle in R&D leadership roles. Dan holds a PhD in Organic Chemistry from Indiana University and a BA in Chemistry from Saint Louis University.



Stephen J. Chanock, MD is Director of the Division of Cancer Epidemiology and Genetics at the National Cancer Institute. He is a leader in the discovery and characterization of genetic susceptibility to cancer. He has led cancer genome-wide association studies and developed new analytical approaches. He has led studies investigating the underlying biology of susceptibility alleles establishing new paradigms for translational implications- either directly for new clinical studies or basic biological insights into primary carcinogenesis. He has developed new methods to detect genetic mosaicism in the general population, which increases with age.



Nina Hunter, PhD received her Bachelor of Arts degree at Bowdoin College in Biochemistry and English. Dr. Hunter spent two years at the National Institutes of Health as a Postbaccalaureate Intramural Research Training Award Fellow. She then studied at Harvard Medical School where she received her Ph.D. in Genetics from the Biological and Biochemical Sciences Program. After continuing biomedical research as a Post-Doctoral Fellow at Harvard Medical School, Dr. Hunter joined the FDA's Center for Devices and Radiological Health in 2008 as a Scientific Reviewer in the Office of In Vitro Diagnostics and Radiological Health. Currently, Dr. Hunter is a Regulatory Scientist in the Division of Molecular Genetics and Pathology where her duties focus mainly around premarket clearance/approval of molecular-based devices, including companion diagnostics, and IDE reviews.



Sunil D. Pandit, Ph.D is currently a Senior Manager in the Next-generation diagnostics business at Siemens Healthcare Diagnostics and has 10+ yrs of experience in diagnostics industry. Dr. Pandit is responsible for research and early development activities, including efforts for novel assay and technology development for companion diagnostics and their transfer to IVD development or as Laboratory Developed Tests (LDTs). Previously, he has held positions of increasing responsibility in public and private sector at National Cancer Institute (NCI), National Heart Lung and Blood Institute (NHLBI) of the National Institutes of Health (NIH), and as a CLIA lab Director at Vircolabs, Inc (JNJ). Dr. Pandit has extensive experience in the fields of genomics, molecular biology, molecular imaging and cancer biology. He received his Ph.D. in Biochemistry and Molecular Biology from State University of New York (SUNY) at Stony Brook, New York, and completed his postdoctoral research in Human genetics and genomics from the Washington University School of Medicine, St. Louis.

1:45 – 2:30pm:



FDA Regulation on Molecular Diagnostics and Personalized Medicine

Nina Hunter, PhD
Regulatory Scientist
Division of Molecular Genetics and Pathology
Food and Drug Administration (FDA)
Introduction by Jennifer K. Johnson, PhD

2:30 – 2:45pm:

Coffee Break

2:45 – 3:30pm:



Patient-specific, Live-cell Diagnosis in the Next-generation Pathology Department

Richard Schlegel, MD, PhD
Professor and Oscar B. Hunter Chair
Chair, Department of Pathology
Director, Center for Cell Reprogramming
Introduction by Kevin Cullen, MD

3:30 – 4:15pm:



The Complexity of Genetic Susceptibility to Cancer

Stephen J. Chanock, MD
Director
Division of Cancer Epidemiology and Genetics
NIH/NCI
Introduction by Curt I. Civin, MD

4:15 – 5:15pm:

Cocktail Reception at the MSTF Atrium

10:30am – Noon:

Morning Session

10:30-11:15am:



Future Look into Cancer Diagnostics

Dan Zabrowski, PhD

Global Head, Sequencing Solutions and Tissue Diagnostics
Roche Sequencing
Introduction by Ying Zou, MD, PhD



Ronald Margolis, PhD did his doctoral training at the Health Sciences Center in Syracuse, NY, followed by post-doctoral training at the University of Virginia, Charlottesville. His work has focused on the physiological implications of biochemical pathways in response to hormonal signals. Dr. Margolis' academic career continued at the Howard University Cancer Research Center. In 1989 he moved to the Division of Diabetes, Endocrinology and Metabolic Diseases within the National Institute of Diabetes Digestive and Kidney Diseases at the NIH. Dr. Margolis is currently the Senior Advisor for Molecular Endocrinology and is responsible for several programs dedicated to accruing and communicating information about the Nuclear Receptor superfamily (www.nursa.org), specifically, and more broadly through the NIDDK Information Network (www.dknet.org). More recently Dr. Margolis has taken the lead for a Common Fund project to "Illuminate the Druggable Genome" as a means for expanding the potential scope of the drug discovery pipeline. In addition, he is the NIDDK lead for the NIH Big Data to Knowledge program and is co-lead for the Data Discovery Index, a trans-NIH program to facilitate easy discovery, access, and citation of biomedical big data.

11:15 – noon:

Development of the Big Ecosystem at the NIH



Ronald Margolis, PhD

Senior Advisor for Molecular Endocrinology
Division of Diabetes, Endocrinology and Metabolic Diseases
National Institute of Diabetes and Digestive
and Kidney Diseases
Introduction by Archibald Mixson, MD

12:00 – 1:00pm:

Box Lunch – MSTF Atrium

1:00 – 4:00pm:

Afternoon Session

Welcome to Afternoon Session



Alan R. Shuldiner, MD

Co-chair, Symposium Organizing Committee
John A. Whitehurst Professor of Medicine
Associate Dean and Director of Program in
Personalized and Genomic Medicine
University of Maryland School of Medicine
Introduction by Richard Y. Zhao, PhD



Richard Schlegel, MD, PhD, is the Oscar B. Hunter Chair of Pathology and an expert in human papillomaviruses (HPV) and cervical cancer. Dr. Schlegel received his MD and PhD degrees from Northwestern University Medical School, and was a resident and post-doctoral fellow at Harvard Medical School (Brigham Hospital) in the fields of Pathology and Virology. He moved to the NIH in 1980 where he continued his viral oncology studies and became the Chief of the Cell Regulation Section in the Laboratory of Tumor Virus Biology. In 1990 he moved from NIH to Georgetown University Medical Center to join forces with immunology and pathology experts who were researching the connection between cervical cancer and HPV. He co-developed the technology for the vaccine against HPV. HPV causes nearly all cervical cancers and contributes to many other human cancers including those of anal, oral and skin origin. On June 8, 2006 the FDA approved the vaccine, called Gardasil, and recommended it for women between the ages of nine and 26. The CDC and pediatric medical associations now recommend it for boys as well as girls. He has published more than 150 papers on viral oncology, served on the editorial board of the journal *Virology*, has been a permanent member of the NIH Virology study section, and is now a member of the College of CSR Reviewers. In addition, Dr. Schlegel has received Georgetown's Presidents Award, Vicennial Award, Patrick Healy Award and has patented several technologies related to HPV. Today, Dr. Schlegel's laboratory is focused on a new cell biology technique that his laboratory developed which allows the rapid establishment of normal and tumor cell cultures from cancer patients. This technology, termed conditional reprogramming, has multiple applications for basic science and medicine. The technology has spawned a new biotechnology company, Propagenix, which will focus on diagnostic and regenerative medicine applications.

1:00-1:45pm:

Companion Diagnostics from Liquid Biopsies



Sunil D. Pandit, PhD

Senior Manager, Molecular and Companion Diagnostics R&D
Siemens Healthcare Diagnostics
Introduction by Niel T. Constantine, PhD



Keynote Lecture
Discovery of Nitric Oxide and Cyclic AMP in Cell Signaling and Their Role in Drug Treatment

Ferid Murad, MD, PhD
 University Professor
 George Washington University
 School of Medicine and Health Sciences
 Recipient of 1998 Nobel Prize in Medicine
 Member of National Academy of Sciences

Dr. Ferid Murad is currently a University Professor at the Department of Biochemistry and Molecular Medicine, George Washington University School of Medicine and Health Sciences. He is also a member of the National Academy of Sciences, the Institute of Medicine of the National Academy of Sciences, and a Fellow of the American Academy of Arts and Sciences. Dr. Murad received his undergraduate degree in chemistry from DePauw University, and MD and Ph.D. degrees from Case Western Reserve University. Dr. Murad has served as a faculty member at the University of Virginia (1970-81), Stanford University (1981-88), Northwestern University (1988) and the University of Texas Medical School at Houston (1997-2011). While at Stanford he ventured into the private sector as a vice president of Abbott Laboratories (1988-92) and then became president of the Molecular Geriatrics Corporation (1993-95).

Dr. Murad's key research demonstrated that nitroglycerin and related drugs worked by releasing nitric oxide into the body, which relaxed smooth muscle by elevating intracellular cyclic GMP. These discoveries led to the development of the anti-impotence drug sildenafil citrate (Viagra) and had the potential to unlock new approaches for understanding and treating other diseases.

In 1996, Dr. Murad received Albert Lasker Basic Medical Research Award for his discovery. He also received the Nobel Prize in Physiology or Medicine with Drs. Robert F. Furchgott and Louis J. Ignarro in 1998.

Program

Morning Session

9:00 – 9:05am:



Welcome

Richard Y. Zhao, PhD
 Chair, Symposium Organizing Committee
 Professor and Head
 Division of Molecular Pathology
 Departments of Pathology, Microbiology-Immunology
 Institute of Human Virology
 University of Maryland School of Medicine

9:05 – 9:15am:



Opening Remarks

Sanford A. Stass, MD
 Professor and Chair
 Department of Pathology
 Department of Medical and Research Technology
 University of Maryland School of Medicine
Introduction by Richard Y. Zhao, PhD

9:15 – 9:25am:



Opening Remarks

E. Albert Reece, MD, PhD
 Vice President for Medical Affairs, University of Maryland
 John Z. and Akiko K. Bowers Distinguished Professor and
 Dean, University of Maryland School of Medicine
Introduction by Sanford A. Stass, MD

9:25 – 10:15 am:



Keynote Lecture

Discovery of Nitric Oxide and Cyclic AMP in Cell Signaling and Their Role in Drug Treatment

Ferid Murad, MD, PhD
 University Professor
 George Washington University
 School of Medicine and Health Sciences
 Recipient of 1998 Nobel Prize in Medicine
 Member of National Academy of Sciences
Introduction by Richard Y. Zhao, PhD

10:15-10:30am:

Coffee Break