

10TH ANNIVERSARY PERSONALIZED MEDICINE CONFERENCE PROGRAM



NOVEMBER 12-13, 2014

JOSEPH B. MARTIN CONFERENCE CENTER
AT HARVARD MEDICAL SCHOOL, BOSTON

Presented by



PERSONALIZED MEDICINE



HARVARD
BUSINESS
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In Association With  American Association for Cancer Research and  PERSONALIZED MEDICINE COALITION

HIGHLIGHTS OF PAST CONFERENCES



November 12, 2014

Dear Colleague,

Welcome to the 10th anniversary of the Personalized Medicine Conference! We and the other members of the Conference Organizing Committee, whose names you will see on the last page of this program, are pleased to offer this meeting co-hosted by Partners HealthCare, Harvard Medical School and Harvard Business School in association with the American Association for Cancer Research and the Personalized Medicine Coalition. We offer our profound thanks to the speakers, panelists, our generous Commercial Supporters and the Conference staff for all that they do to make this meeting meaningful and worthwhile.

The motivation for organizing the first Personalized Medicine Conference in 2005, was the belief that personalized medicine is going to play a very important role in managing health and disease, and to promote this notion it is important to bring together the diverse stakeholders and have them engage in lively discussions. The subtitle of our first meeting was "Promises and Prospects." The sessions at that meeting were focused primarily on instances in which there already was some success and on trying to help shape an awareness of what personalized medicine could mean, particularly in certain focused clinical areas. It is deeply satisfying to see the progress that has been made across a broad clinical spectrum in the decade since that meeting, as well as in the rapid development of ever-improving testing and diagnostic technologies, analytical capabilities and information resources. "Personalized Medicine" is no longer simply a catch-phrase. It is a new paradigm for improving healthcare around the world.

Many challenges remain in personalized medicine being widely adopted. As we have noted previously, our Personalized Medicine Conference has as its core purpose to provide a forum where diverse stakeholders can engage in vigorous intellectual discussion of issues in implementing personalized medicine. This year's meeting will celebrate the accomplishments of the last ten years and will address important issues such as regulation and reimbursement that are critical to the continued development of personalized medicine.

Ten years ago, we started this meeting in association with the Personalized Medicine Coalition which is also celebrating its tenth anniversary this year. We congratulate their accomplishments and thank them for their collaboration and continued association. We hope you will find this year's meeting engaging and stimulating and that you will add your own wisdom and perspective to the conversations. It also should be an opportunity for you to renew friendships, expand acquaintances and meet new people whose knowledge will enhance your own understanding of personalized medicine. Welcome, again, to what we trust you will find a productive and enjoyable meeting.

Sincerely,



Scott T. Weiss

Scott T. Weiss, M.D., M.S.

Scientific Director
Partners HealthCare Personalized Medicine
Professor of Medicine,
Harvard Medical School
Co-chair, Conference Organizing Committee



Raju Kucherlapati

Raju Kucherlapati, Ph.D.

Paul C. Cabot Professor of Genetics and
Professor of Medicine, Harvard Medical School;
Co-chair, Conference Organizing Committee

A THANK YOU TO OUR SUPPORTERS

This conference is organized by the Partners HealthCare Center for Personalized Genetic Medicine and Harvard Business School in collaboration with the Personalized Medicine Coalition. It is made possible by the generous participation of our commercial supporters.

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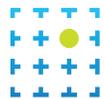


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PROGRAM *Wednesday, November 12, 2014*

8:00 a.m.	Welcome	Raju Kucherlapati, Ph.D. Paul C. Cabot Professor of Genetics, Professor of Medicine, Harvard Medical School
		AND
	Greeting	Scott Weiss, M.D., M.S. Scientific Director, Partners HealthCare Personalized Medicine; Associate Director, Channing Laboratory; Professor of Medicine, Harvard Medical School
	“10 Years in 10 Minutes”	Victor Dzau, M.D. President, Institute of Medicine of the National Academy of Sciences
8:20 a.m.	Special Guest and Keynote Speaker	Edward Abrahams, Ph.D. President, Personalized Medicine Coalition
		Margaret Hamburg, M.D. Commissioner of Food and Drugs, FDA
		Introducer:
		Jeffrey Flier, M.D. Dean of the Faculty of Medicine at Harvard University
8:50 a.m.	Keynote:	Speaker:
	The American Medical Association (AMA) has the largest number of practicing physicians of all specialties. Its members and the organization plays a very important role in healthcare policy and the education of medical professionals. AMA has been quite active in assessing the role of personalized medicine in the future of healthcare in all of its facets. Dr. Madara will talk about the status of AMA's thinking about personalized medicine and his vision of how it might be able to transform medical care.	James Madara, M.D. Executive Vice President and CEO, American Medical Association
		Introducer:
		Katie Johansen-Taber, Ph.D. Senior Scientist, Genetics and Molecular Medicine, American Medical Association
9:20 a.m.	Panel: Genomic Technologies	Opening Speaker & Moderator:
	The greatest impetus for personalized medicine is the initial sequencing of the human genome at the beginning of this Century. As we began to recognize the importance of genetic factors in human health and disease, efforts to understand genetic variation and its impact on health have accelerated. It was estimated that it cost more than two billion dollars to sequence the first human genome and reduction in the cost of sequence became an imperative to apply this technology to many facets of risk assessment, diagnosis, prognosis and therapeutic intervention. This panel will take a brief historical look back at how the technologies have evolved over the last 15 years, what the future holds and how these technologies are being applied to patient care.	George Church, Ph.D. Robert Winthrop Professor of Genetics, Harvard Medical School; Director, PersonalGenomics.org
		Panelists:
		Sam Hanash, M.D., Ph.D. Director, Red & Charline McCombs Institute for the Early Detection & Treatment of Cancer, MD Anderson Cancer Center
		Mark Stevenson Executive Vice President & President, Life Sciences Solutions Group, Thermo Fisher Scientific
10:30 a.m.	Networking Break	
11:00 a.m.	Keynote:	Speaker:
	Personalized Medicine in the United Kingdom	Mirella Marlow, M.A., M.B.A. Programme Director, Centre for Health Technology Evaluation, National Institute for Health and Clinical Excellence (NICE)
		Introducer:
		Elizabeth Karlson, M.D. Associate Professor of Medicine, Harvard Medical School
11:30 a.m.	Presentation of Personalized Medicine Coalition's 10th Annual Award for Leadership in Personalized Medicine	Award Recipient:
		Mark Levin Co-founder and Partner, Third Rock Ventures, LLC
		Presenter:
		Brian Munroe Personalized Medicine Coalition Founder and Sr. Vice President of Government Affairs, Endo Health Solutions

12:00
NOON

Luncheon

Seated

1:15 p.m.

Keynote: International Genetics Health and Disease

The principles of personalized medicine and how they affect the lives of people acknowledge no national boundaries. Although there are some differences among the diverse populations around the world in terms of their genetic variation, the general principles of personalized medicine apply uniformly across many populations. Dr. Periz will discuss how personalized medicine is viewed across European countries with particular emphasis on how Spain is implementing it into its medical care.

Speaker:

Antonio L. Andreu Periz, M.D.,
Director, Instituto de Salud Carlos III , Barcelona, Spain

Introducer:

Jennifer Cosenza
Senior Vice President,
Feinstein Kean Healthcare

1:45 p.m.

Panel: Oncology

There has been a remarkable transformation in our understanding of the molecular genetic basis of cancer and its treatment during the past decade or so. In depth genetic and genomic analysis of cancers has revealed that each cancer type can be sub-classified into many groups based on the genetic profiles and this information can be used to develop new targeted therapies and treatment options for cancer patients. This panel will explore the technologies that are facilitating our understanding of cancer and how this information is being used in novel approaches for clinical development and treatment.

A Cancer Story—Video

Opening Speaker & Moderator:

Lynda Chin, M.D.
Professor and Chair Genomic Medicine
MD Anderson Cancer Center,
The University of Texas

Panelists:

Roy Herbst, M.D., Ph.D.
Ensign Professor of Medicine and Professor of
Pharmacology; Chief of Medical Oncology, Yale
Comprehensive Cancer Center and Yale School of Medicine

Lincoln Nadauld, M.D., Ph.D.
Director, Cancer Genomics, Intermountain Healthcare

2:45 p.m.

Break

3:20 p.m.

Conversation: Complex Disorders

During the past 30-40 years, it has become well established that most human disorders affecting large groups of individuals have a genetic basis. Based upon this information there are several efforts to conduct genetic analysis on very large populations of individuals to identify genetic factors that cause susceptibility to complex disorders. In this session two examples of where such studies are bearing fruit will be discussed.

Leader:

Anna Barker, Ph.D.
Co-Director, Complex Adaptive Systems
Director, National Biomarker Development Alliance
Professor, School of Life Sciences
Arizona State University

Steven Paul, M.D.,
Professor, Weill Cornell Medical College

Robert Plenge, M.D., Ph.D.
Vice President, Merck Research Laboratories and
Worldwide Head, Genetics and Pharmacogenomics

4:00 p.m.

Panel: Novel Applications of Personalized Medicine

Genetic and genomic knowledge is helping the development of new drugs, therapies and prognostic tests. As a result, there are new approaches, new partnerships and new business models that are emerging. In some cases, diseases that were considered incurable not too long ago are now being tackled with highly targeted therapies. In other cases the uncertainties associated with assessing potential aggressiveness of disease are being eliminated. This panel will provide examples of new business paradigms that are emerging from the application of personalized medicine.

Opening Speaker & Moderator:

Meghan FitzGerald, Ph.D.
President, Cardinal Health Specialty Solutions

Panelists:

Chris Garabedian
President and CEO, Sarepta Therapeutics

Shawn Marcell
President & CEO, Metamark Genetics

Scott Schell, M.D., Ph.D., M.B.A.
President and CEO, KEW Group

Gabriel Bien-Willner, M.D., Ph.D.
Medical Director, MolecularHealth Inc.

5:15 p.m.

Reception

Elements Café

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PROGRAM *Thursday, November 13, 2014*

8:00 a.m. Opening Remarks and Introduction

Partners HealthCare is the largest healthcare organization in Massachusetts. Its founding members are Brigham and Women's Hospital and Massachusetts General Hospital. Dr. Gottlieb has long been a supporter of personalized medicine and he will provide his vision on the role of genetics and genomics in healthcare across the many hospitals that are part of Partners HealthCare.

Scott Weiss, M.D., M.S.

Scientific Director, Partners HealthCare Personalized Medicine; Associate Director, Channing Laboratory; Professor of Medicine, Harvard Medical School

Gary Gottlieb, M.D.

President and CEO, Partners HealthCare System, Inc.

8:30 a.m. HBS Case Presentation: 23andMe: Genetic Testing For Consumers

It is now a tradition and a unique feature of the Harvard Personalized Medicine Conference that Richard Hamermesh, a professor at Harvard Business School, teaches a case as he does for the students at HBS. This year Professor Hamermesh has selected a couple of cases that were written about the company 23andMe. As usual, this case study will be highly interactive and educational. If you have not participated in one of these case studies at our Conference, you do not want to miss it!

Leader:

Richard Hamermesh, D.B.A.

MBA Class of 1961 Professor of Management Practice; Faculty Chair, HBS Healthcare Initiative, Harvard Business School

9:45 a.m. Networking Break

10:15 a.m. Panel: IT/Big Data

The human genome is composed of 6 billion nucleotides (using the genetic alphabet of T, C, G and A). As the cost of sequencing the human genome is decreasing at a rapid rate, it might not be too far into the future that every human being will be sequenced at least once in their lifetime. The sequence data together with the clinical data are going to be used more and more frequently to make clinical decisions. If that is true, we need to have secure methods of storing, retrieving and analyzing all of these data. Some people argue that this is a tsunami of data that we are not ready to handle. The panel will discuss the types and volumes of data that are being generated and how to deal with it.

Opening Speaker & Moderator:

Amy Abernethy, M.D., Ph.D.

Professor, Duke University School of Medicine
Chief Medical Officer and Senior Vice President of Oncology, Flatiron Health, Inc.

Panelists:

Stephen Eck, M.D., Ph.D.

Vice President, Global Head of Oncology Medical Sciences, Astellas, Inc.

J. Michael Gaziano, M.D., M.P.H., F.R.C.P.

Scientific Director, Massachusetts Veterans Epidemiology Research and Information Center (MAVERIC), VA Boston Healthcare System; Chief Division of Aging, Brigham and Women's Hospital; Professor of Medicine, Harvard Medical School

Krishna Yeshwant, M.D.

General Partner, Google Ventures; Physician, Brigham and Women's Hospital

11:30 a.m. Keynote: Role of Genetics and Genomics in Pharmaceutical Development

Personalized medicine, also known as "tailored therapeutics," promises to deliver greater precision, higher value and improved outcomes for individual patients. This lies at the heart of our vision for biopharmaceutical innovation and patient tailoring is now integrally built into our drug development programs, using a variety of approaches to identify differences across patient populations. These include both established biomarkers as well as novel markers emerging from pharmacogenomics, bioimaging and bioinformatics. Our strategies to tailor medicines being developed in oncology will be discussed. In addition specific examples from tailoring in neurodegenerative disease, using PET imaging methods for amyloid and tau will be presented.

Speaker:

Daniel Skovronsky, M.D., Ph.D.

Vice President of Tailored Therapeutics, Lilly



12:00 p.m. **Bag Lunch**

1:00 p.m. **Panel: Genomics in Prenatal and Childhood Disorders**

All women who become pregnant at 35 years of age or older are recommended to have fetal DNA testing to assess chromosomal abnormalities. The advent of non-invasive ways of obtaining fetal DNA from maternal circulation (cfDNA) is changing the landscape of this testing. The significant reduction in the cost of whole exome sequencing is enabling the identification of genes that may be involved in many childhood disorders. The technologies behind these developments and the utility of these tests in clinical practice are the subject of discussion in the panel.

2:15 p.m. **Panel: Reimbursement/Regulation**

It has long been acknowledged that the lack of clear policies about regulation by the Government and reimbursement from public and private payers are hurdles for the rapid development of personalized medicine tools and their implementation in routine clinical practice. The landscape of regulatory and reimbursement policies and the prospects for resolution of these issues are the subject for discussion by this panel.

3:30 p.m. **Closing Remarks**

Open Seating

Opening Speaker & Moderator:

David Sweetser, M.D., Ph.D.
Chief of Medical Genetics & Metabolism,
MassGeneral Hospital

Panelists:

Diana Bianchi, M.D.
Executive Director, Mother Infant Research Institute,
Tufts Medical Center; Vice Chair for Research,
Floating Hospital for Children; Natalie V. Zucker
Professor of Pediatrics, Obstetrics and Gynecology,
Tufts University School of Medicine

D. Holmes Morton, M.D.
Medical Director, Clinic for Special Children

Benjamin Solomon, Ph.D., M.D.
Chief, Division of Medical Genomics, Inova
Translational Medicine Institute

Opening Speaker & Moderator:

Sheila Walcoff, J.D.
CEO & Founder, Goldbug Strategies LLC

Panelists:

Catalina López Correa, M.D., Ph.D.
Vice President/CSO, Scientific Affairs, Génome
Québec

Michael Kolodziej, M.D.
National Medical Director for Oncology Strategies,
Aetna

Bruce Quinn, M.D., Ph.D.
Senior Health Policy Specialist, Foley Hoag LLC

Raju Kucherlapati, Ph.D.
Paul C. Cabot Professor of Genetics, Professor of
Medicine, Harvard Medical School

SPEAKERS



Amy Abernethy, M.D., Ph.D.

Dr. Abernethy was Professor of Medicine at Duke University School of Medicine, before joining Flatiron, where she ran the Center for Learning Health Care in the Duke Clinical Research Institute and Duke Cancer Care Research Program in the Duke Cancer Institute. For more than a decade, she has pioneered the development of technology platforms to spur novel advancements in cancer care, including the development of systems by which big data can support personalized medicine and scientific discovery. Joining Flatiron was the obvious next step.

Amy went to the University of Pennsylvania as an undergraduate, and then medical school at Duke, where she also did her Internal Medicine residency, a year as Chief Resident, and her hematology/oncology fellowship. She has her PhD from Flinders University in Australia, focused on evidence-based medicine. As an oncologist and palliative care physician, she sincerely believes in putting the patient in the center of the healthcare story and ensuring that the solutions we build have patient best interests at heart. She is also a mother of two and an avid traveler.

With over 375 publications, Amy is an internationally recognized expert in health services research, comparative effectiveness research, patient reported outcomes, clinical informatics and patient-centered care. She maintains her role at Duke 20%, and is an appointee to the Institute of Medicine's National Cancer Policy Forum, Immediate Past President of the American Academy of Hospice & Palliative Medicine, Secretary of the Board of Directors for the Personalized Medicine Coalition, and leader within several federally-funded research networks. She serves on the Advisory Committee of the Turning the Tide Against Cancer policy initiative. She also serves on the Board of Directors for athenahealth.



Anna D. Barker, Ph.D.

Dr. Barker, Co-Director of Complex Adaptive Systems (CAS) at ASU, designs and implements transformative knowledge networks specifically directed toward addressing major problems in healthcare. These multi-sector networks serve as a foundation for the development of new research models that leverage convergent knowledge, innovative teams and novel funding approaches to better prevent and treat acute and chronic disease and address major healthcare problems. CAS at ASU serves as an organizing construct to approach understanding and solving multi-dimensional problems in the biomedical and health sciences. Several initiatives are underway including a newly launched national non-profit trans-sector effort in biomarker discovery and development (The National Biomarker Development Alliance); an international multidisciplinary alliance that is re-thinking glioblastoma multiforme" (GBM) and creating new research opportunities; and a U.S.-Chinese Alliance that will pursue collaborative research in evolutionary medicine and cancer (based on the Physical Sciences-Oncology Centers model she developed at the National Cancer Institute).

Prior to joining ASU, Dr. Barker served several years as the Deputy Director and Deputy Director for Strategic Scientific Initiatives for the National Cancer Institute (NCI), National Institutes of Health (NIH). At the NCI, she developed and led or co-led a number of trans-disciplinary programs including the Nanotechnology Alliance for Cancer; The Cancer Genome Atlas (TCGA); Clinical Proteomics Technologies Initiative for Cancer; and the Physical Sciences- Oncology Centers – PS-OCs. Under her leadership, the NCI also developed major initiatives in bio specimen science and bioinformatics. Dr. Barker was founding co-chair of the NCI-FDA Interagency Task Force (IOTF) and was founding co-chair of the Cancer Steering Committee of the FNIH Biomarkers Consortium (FNIH-BC). Among achievements in the policy and regulatory areas were the IOTF's development of the "exploratory IND" and oversight of the design and implementation of the ISPY-2 Trial through the FNIH-BC. . She served for over 18 years as a senior scientist and subsequently as a senior executive in biomedicine at Battelle Memorial Institute; and co-founded and served as the CEO of a public (biotechnology) drug development company. As a volunteer, she has served in a number of capacities and led key programs for several government and professional organizations including the NCI, American Association for Cancer Research (AACR), C-Change, DOD Breast Cancer Program and many others. Dr. Barker has received a number of awards for her achievements in science and her advocacy for cancer research. Her research interests include complex adaptive systems (CAS), biomarker discovery and development, experimental therapeutics and free-radical biochemistry in cancer etiology and treatment. Dr. Barker completed her M.A. and Ph.D. at the Ohio State University, where she trained in immunology and microbiology.



Diana W. Bianchi, M.D.

Dr. Bianchi is the Executive Director of the Mother Infant Research Institute at Tufts Medical Center and the Natalie V. Zucker Professor of Pediatrics, Obstetrics and Gynecology at Tufts University School of Medicine. She is also Vice Chair for Pediatric Research at the Floating Hospital for Children, Boston. Dr. Bianchi received her M.D. from Stanford University School of Medicine and her residency training in Pediatrics at the Children's Hospital, Boston and her postdoctoral fellowship training in both Medical Genetics and Neonatal-Perinatal Medicine at Harvard. She is board-certified in all three specialties and is a practicing medical geneticist with special expertise in reproductive genetics. Dr. Bianchi's translational research focuses on prenatal genomics with the goal of advancing noninvasive prenatal DNA diagnosis and using information from fetal gene expression to develop new fetal therapies. Dr. Bianchi has published over 250 peer-reviewed articles, and is one of four authors of the book *Fetology: Diagnosis and Management of the Fetal Patient*. This book won the Association of American Publishers award for best textbook in clinical medicine in 2000. The second edition was published in April 2010 and is already in its third printing. It has been translated into Japanese, Mandarin, and Spanish. Dr. Bianchi is recognized locally, nationally and internationally for her leadership roles. She is Editor-in-Chief of the international journal *Prenatal Diagnosis*. She is a member of the National Advisory Council of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and is a Past President of the International Society for Prenatal Diagnosis and the Perinatal Research Society. Dr. Bianchi has received multiple awards, including the Duane Alexander Award for leadership and mentorship in perinatal medicine from the NICHD, and the Christopher Columbus Spirit of Discovery Award and the Distinguished Faculty Award, both from Tufts University. In 2013 she was elected to the Institute of Medicine.



Gabriel Bien-Willner, M.D., Ph.D.

Dr. Bien-Willner comes to MolecularHealth with dual-board certifications in anatomic pathology and molecular genetic pathology. He has expertise in genetics and genomics, next-generation sequencing technology and pipeline design. Prior to joining MolecularHealth, he served as a faculty member in the Department of Pathology and Immunology at Washington University in St. Louis, where he conducted research in cancer biomarker discovery and the development of novel genomic technologies. His research has earned him several prestigious awards, including the Stowell-Orbison Award, the Association for Molecular Pathology Young Investigator Award, and has been designated a College of American Pathologist Scholar.



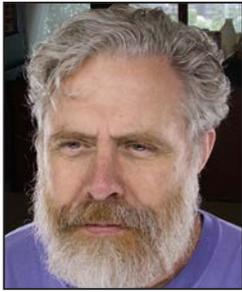
Lynda Chin, M.D.

Dr. Chin, for the 13 years prior to joining the University of Texas MD Anderson Cancer Center in 2011, was a professor of dermatology at Dana-Farber Cancer Institute and Harvard Medical School and a senior associate member of the Broad Institute of MIT and Harvard and the Scientific Director of the Belfer Institute for Applied Cancer Science. Dr. Chin is founding chair of the Department of Genomic Medicine at MD Anderson. She also serves as the scientific director of the Institute for Applied Cancer Science, which merges the best attributes of academia and industry to enable science-driven drug discovery.

Dr. Chin was elected a member of the Institute of Medicine of the National Academies in 2012.

Dr. Chin has championed a new model of integration, collaboration and cooperation between the research and clinical care enterprises, and between academia and industry, to bring to bear the power of technology and patient data on the cancer problem. She has been the visionary and driver behind MD Anderson's APOLLO-Big Data platform and development of a prototype consumer-centric Amazon-like care delivery ecosystem in partnership with major industry giants, including IBM-Watson to build MD Anderson Oncology Expert Advisor™ cognitive decision support system.

SPEAKERS



George Church, Ph.D.

Dr. Church is Professor of Genetics at Harvard Medical School and Director of PersonalGenomes.org, providing the world's only open-access information on human Genomic, Environmental & Trait data (GET). His 1984 Harvard PhD included the first methods for direct genome sequencing, molecular multiplexing & barcoding. These led to the first commercial genome sequence (pathogen, *Helicobacter pylori*) in 1994. His innovations in essentially all of the "next generation" genome sequencing (CGI, Life, Illumina, nanopore) methods and companies & oligo synthesis plus cell/tissue engineering resulted in founding additional application-based companies spanning fields of medical diagnostics (Knome, Alacris, AbViro, Pathogenica) & synthetic biology / therapeutics (Joule, Gen9, Editas, Egenesis, enEvolv, WarpDrive) as well as new privacy, biosafety & biosecurity policies. He is director of NIH Center for Excellence in Genomic Science. His honors include election to NAS & NAE & Franklin Bower Laureate for Achievement in Science. He has coauthored 330 papers, 60 patents & one book (Regenesis).



Catalina López Correa, M.D., Ph.D.

Dr. López Correa is a graduate in General Medicine from Universidad Pontificia Bolivariana in Colombia. She also holds a Master's in Human Genetics from the Pasteur Institute at Université Paris VII in France and a Ph.D. in Medical Biosciences from the Université catholique de Louvain in Belgium. During her career, she was the Principal Scientist for several companies, including Eli Lilly in the United States, deCode Genetics in Iceland, and Genomica in Great Britain. Ms. López Correa joined the Génome Québec team in July 2008 and, since March 2009, has served as its Vice President, Scientific Affairs. Two of her principal mandates involve promoting partnerships between academia and industry and facilitating networking between Québec researchers and those abroad.



Stephen Eck, M.D., Ph.D.

Dr. Eck previously served as Vice President, Translational Medicine & Pharmacogenomics at Eli Lilly where he was responsible for the clinical pharmacology components of drug development including both early phase clinical studies and late stage drug development studies. Dr. Eck previously served in a variety of drug development leadership roles at Pfizer. Dr. Eck is a Hematologist/Oncologist with broad drug development experience in Oncology and Neuroscience and is a Fellow of the American Association for the Advancement of Science. He serves on the Scientific Advisory Board of the ACGT Foundation, on the Advisory Board of the Keck Graduate School (Claremont, CA), and is a Board member of the Personalized Medicine Coalition.



Meghan FitzGerald, Ph.D.

Dr. FitzGerald serves as president of Cardinal Health Specialty Solutions, a specialty healthcare business that offers services for healthcare professionals, payors and the pharmaceutical and biotech industries. Specialty Solutions is one of the fastest growing businesses of Cardinal Health.

Prior to joining Cardinal Health, Dr. FitzGerald was senior vice president of the New Markets International Division and Business Development at Medco Health Solutions, Inc., where she was responsible for leading business development efforts in the United States and internationally. She previously held positions of increasing responsibility at Pfizer Global Pharmaceuticals, where she supported business strategies and operations, including the implementation of ten-year lifecycle plans for various pharmaceutical products including

Celebrex. Dr. FitzGerald has also held senior marketing positions at Merck and Sanofi-Synthelabo.

She is a member of the Harvard Kennedy School, Women and Public Policy and Yale University Biotech Advisory boards. In 2009 and 2010 she was voted one of Irish Americans most influential women in business.

Dr. FitzGerald obtained a doctor of public health (DrPH) degree at New York Medical College, focusing on health policy. She earned a master's degree in public health from Columbia University and a bachelor's degree in nursing from Fairfield University. She also serves as a member of the adjunct faculty at Columbia University in New York, teaching "The Business of Healthcare."

Recognized as a forward-thinking leader with a clear vision for the business, Dr. FitzGerald is an expert speaker on topics such as the specialty healthcare market; European healthcare policy, healthcare reform; the ever-changing healthcare landscape; and women and executive leadership



Chris Garabedian

Mr. Garabedian joined Sarepta Therapeutics as President and Chief Executive Officer on January 1, 2011. He has served as a director of the Company since June 2010. Previously he was Vice President of Corporate Strategy for Celgene Corporation from July 2007. From November 2005 to June 2007, Chris served as an independent consultant to early-stage biopharmaceutical companies. From 1997 to 1998 and from 1999 to November 2005, he worked at Gilead Sciences, Inc., where he served in a number of global leadership roles, including as Vice President of Corporate Development, Vice President of Marketing, and Vice President of Medical Affairs. Chris also held various commercial roles at COR Therapeutics, Inc. from 1998 to 1999 and at Abbott Laboratories from 1994 to 1997. He started his biopharmaceutical career as a consultant with Migliara/Kaplan Associates from 1991 to 1994. Chris received his Bachelor of Science in marketing from the University of Maryland



J. Michael Gaziano, M.D., M.P.H., F.R.C.P.

Dr. Gaziano is a cardiologist and chronic disease epidemiologist. He is a Professor of Medicine at Harvard Medical School and the Chief of the Division of Aging at Brigham and Women's Hospital. He serves as Scientific Director of the Massachusetts Veterans Epidemiology Research and Information Center (MAVERIC) at the VA Boston Healthcare System. He is an internationally recognized epidemiologist whose research interests include the epidemiology of chronic diseases in aging populations, with a particular interest in coronary artery disease and stroke and the adverse impact of vascular disease on other organ systems.

A centerpiece of his research is the data that resides within MAVERIC, one of four national centers of epidemiology funded by the Department of Veterans Affairs. He serves as one of the PIs of the Million Veteran Program (MVP), a project that will enroll one million veterans into a longitudinal cohort with stored biospecimens. He is also principal investigator for the Physicians' Health Study, a large scale-trial of multivitamins for the prevention of chronic disease. He has served as PI or co-investigator on a number of large-scale trials and cohort studies including the Women's Health Study. Dr. Gaziano oversees several fellowship programs and teaches advanced epidemiology at the Harvard School of Public Health. He has published over 500 journal articles, reviews, book chapters and books. He also serves as a contributing editor for the Journal of the American Medical Association.



Gary L. Gottlieb, M.D.

Dr. Gottlieb is the President and CEO of Partners HealthCare. Dr. Gottlieb is a Professor of Psychiatry at Harvard Medical School and a member of the Institute of Medicine of the National Academies. He served as president of Brigham and Women's/ Faulkner Hospitals, as president of North Shore Medical Center and as chairman of Partners Psychiatry.

Prior to coming to Boston, Dr. Gottlieb spent 15 years in positions of increasing leadership in health care in Philadelphia. As a Robert Wood Johnson Foundation Clinical Scholar at the University of Pennsylvania, he earned an M.B.A with distinction in Health Care Administration from the Wharton Graduate School of Business Administration.

Dr. Gottlieb established the University of Pennsylvania Medical Center's first program in geriatric psychiatry and developed it into a nationally recognized research, training and clinical program. He served as Executive Vice-Chair of Psychiatry and Associate Dean for Managed Care at the University of Pennsylvania Medical Center, and as Director and CEO of Friends Hospital in Philadelphia.

Dr. Gottlieb received his M.D. from the Albany Medical College of Union University in a six-year accelerated biomedical program. He completed his internship and residency and served as Chief Resident at New York University/Bellevue Medical Center.

As a leader in the Boston area community, Dr. Gottlieb serves as Chairman of the Private Industry Council, the city's workforce development board. He is also a member of the Boards of Directors of the Federal Reserve Bank of Boston and Partners in Health.

SPEAKERS



Margaret A. Hamburg, M.D.

Dr. Hamburg is Commissioner of the Food and Drug Administration (FDA), where she has served since May 2009. As FDA Commissioner, she is advancing regulatory science, medical product innovation and globalization of the agency, while overseeing the implementation of groundbreaking laws to curb the use of tobacco and enhance food safety. She has undertaken major efforts to streamline and modernize FDA's regulatory pathways. Before joining FDA, Dr. Hamburg was vice president and senior scientist at the Nuclear Threat Initiative. In the 1990s, as New York City's Health Commissioner, she launched several major initiatives, including the nation's first public health bioterrorism preparedness program and an internationally recognized program to curtail the resurgence and spread of TB. President Clinton later named her Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services. Dr. Hamburg earned her M.D. from Harvard Medical School.



Richard Hamermesh, D.B.A.

Dr. Hamermesh is the MBA Class of 1961 Professor of Management Practice at the Harvard Business School where he teaches in the MBA Program and is the Faculty Chair of the HBS Healthcare Initiative. Richard created and teaches the second-year MBA elective, Entrepreneurship and Venture Capital in Healthcare. Previously, he was the Course Head for the required first year course entitled The Entrepreneurial Manager. In addition Richard participates in several HBS Executive Education programs.

From 1987 to 2001, Richard was a co-founder and a Managing Partner of The Center for Executive Development, an executive education and development consulting firm. Prior to this, from 1976 to 1987, he was a member of the faculty of the Harvard Business School.

Richard is also an active investor and entrepreneur, having participated as a principal, director, and investor in the founding and early stages of over 20 organizations. These have included start-ups, leveraged buy-outs, industry roll-ups, and non-profit foundations. He was the founding president of the Newton (MA) Schools Foundation and served on the editorial board of the Harvard Business Review. He is currently on the Boards of one public and two private corporations, as well as two non-profit Boards. From 1991 to 1996, he was the founding Chairman of Synthes Spine, Inc.

Richard is the author or co-author of five books, including *New Business Ventures* and *the Entrepreneur*. His best-known book, *Fad-Free Management*, was published in 1996. He has published numerous articles and more than 100 case studies. His most recent article, "Realizing the Potential of Personalized Medicine," appeared in the Harvard Business Review (October 2007). Richard received his AB from the University of California, and his MBA and DBA from HBS. He is married, has two children, and his hobbies include tennis, skiing, and yoga.



Sam Hanash, M.D., Ph.D.

Dr. Hanash was recruited to MD Anderson Cancer Center in 2011 to lead the Red and Charline McCombs Institute for Cancer Early Detection and Treatment. He was previously program head for Molecular Diagnosis at the Fred Hutchinson Cancer Research Center. Dr. Hanash's interest and expertise are in the field of cancer diagnostics and the development of blood based cancer biomarkers for risk assessment and cancer early detection. He is the inaugural president of the International Human Proteome Organization dedicated to the study of the human proteome, and a founder of the US Human Proteome Organization.

Dr. Hanash's approaches to meet the challenge of developing markers that signal the presence of cancer at an early stage to allow detection and effective treatment have included a rigorous painstaking in-depth quantitative profiling of the various types of molecules in the blood to find those that are released early either from the cancer cells or from the host response to the developing cancer. The work emphasizes the need for rigor in experimental design, in data collection and statistical analysis and in developing a mechanistic understanding of the relationship between the identified cancer markers and the developing cancer. This work has sparked innovation in experimental design and statistical analysis of biomarker data aimed at minimizing biases in discovery studies through prospective sample collections that relate most directly to the intended clinical application(s) and at reducing the false discovery rate through integration of data from multiple sources to increase confidence in the significance of the markers.



Roy S. Herbst, M.D., Ph.D.

Dr. Herbst is Ensign Professor of Medicine, Professor of Pharmacology, Chief of Medical Oncology, Director of the Thoracic Oncology Research Program, and Associate Director for Translational Research at Yale Comprehensive Cancer Center and Yale School of Medicine in New Haven, CT. Dr. Herbst has led the Phase I development of several of the new generation of targeted agents for NSCLC, including gefitinib, erlotinib, cetuximab, and bevacizumab. He is co-lead for the BATTLE-1 effort, co-leads the subsequent BATTLE-2 clinical trial program, and serves as a Co-Program Leader of the Developmental Therapeutics Program for the YCC Cancer Center Support Grant (CCSG). He is a member of the National Cancer Policy Forum for which

he has organized an IOM meeting focused on policy issues in personalized medicine. His laboratory work is focused on angiogenesis and dual EGFR/VEGFR inhibition in NSCLC.

Dr. Herbst is author or co-author of more than 250 publications, including peer-reviewed journal articles, abstracts, and book chapters. He has contributed his work to many prominent journals, such as *Journal of Clinical Oncology*, *Clinical Cancer Research*, *Lancet*, and the *New England Journal of Medicine*.

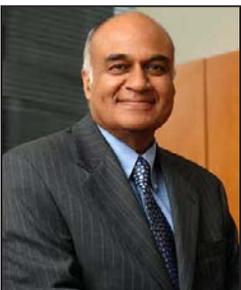
Dr. Herbst is an active member of ASCO, AACR, IASLC (International Association for the Study of Lung Cancer), RTOG (Radiation Therapy Oncology Group), and SWOG (Southwest Oncology Group Lung Committee).



Michael Kolodziej, M.D.

Dr. Kolodziej is the National Medical Director, Oncology Solutions, Office of the Chief Medical Officer, Aetna. Dr. Kolodziej attended college and medical school at Washington University in St. Louis where he was Phi Beta Kappa and Alpha Omega Alpha. He completed internal medicine and hematology-oncology training at the University of Pennsylvania in Philadelphia. After completing training, Dr. Kolodziej joined the faculty at the University of Oklahoma School of Medicine where he was an associate professor. He joined New York Oncology in the winter of 1998, and was a partner in the practice until December 2012. He was an active member of the US Oncology Pharmacy and Therapeutics committee, on the executive committee from 2002-2011, and chairman from 2004-2011. He served as Medical Director for Oncology Services for US Oncology from 2007-2011. In

this role, he helped direct the implementation of the USON clinical pathways initiative, the integration of the USON EMR into this program, and the development of the USON disease management and advanced care planning programs, now known as Innovent Oncology. He has published several manuscripts and given several presentations on oncology care delivery and reimbursement reform, use of evidence based treatment to enhance value, and personalized medicine. Since joining Aetna in January, 2013, he has been active in Aetna's oncology delivery reform pilots, pharmacy policy, condition analysis, and genetics subcommittee. He is a Fellow of the American College of Physicians and is a member of the board of the Personalized Medicine Coalition. Dr. Kolodziej is married to Dr. Regina Resta, also a medical oncologist with New York Oncology Hematology, and they have two children, Peter (21) and Katherine (18).



Raju Kucherlapati, Ph.D.

Dr. Kucherlapati is the Paul C. Cabot Professor in the Harvard Medical School Department of Genetics. He is also a professor in the Department of Medicine at Brigham and Women's Hospital. Dr. Kucherlapati was the first Scientific Director of the Harvard Medical School-Partners Healthcare Center for Genetics and Genomics. His research focuses on gene mapping, gene modification, and cloning disease genes. During 1989-2001, Dr. Kucherlapati was the Lola and Saul Kramer Professor of Molecular Genetics and Chairman of the Department of Molecular Genetics at the Albert Einstein College of Medicine in New York. He was previously a professor in the Department of Genetics at the University of Illinois, College of Medicine. He began his research as an assistant professor in the

Department of Biochemical Sciences at Princeton University.

He has chaired numerous NIH committees and served on the National Advisory Council for Human Genome Research and the NCI Mouse Models for Human Cancer Consortium. He is also a member of the Cancer Genome Atlas project of the National Institutes of Health. He is a member of the Institute of Medicine of the National Academy of Sciences and a fellow of the American Association for the Advancement of Science. He is a member of Presidential Commission for the Study of Bioethical Issues.

Dr. Kucherlapati received his B.S. and M.S. in Biology from universities in India, and he received his Ph.D. from the University of Illinois at Urbana, as well as conducting post-doctoral work at Yale University.

SPEAKERS



Mark Levin

Mr. Levin is a co-founder of Third Rock Ventures and an industry leader with 40 years of experience, including more than 30 years launching and building biotechnology companies. Mark focuses on the formation, development and business strategy of our portfolio companies, as well as actively identifying and evaluating new investments. He runs our discovery process to conceive and launch companies around disruptive technologies and innovative science that promise to dramatically improve patients' lives. He has played significant roles in launching and building a number of our portfolio companies:

- Board member of DC Devices
- Board member of NinePoint Medical and former interim CEO
- Interim CEO and board member of Voyager Therapeutics
- Board member of Warp Drive Bio
- Board member and former interim CEO of Eleven Biotherapeutics
- Former board member of Foundation Medicine

Prior to Third Rock, Mark was co-founder of Mayfield Fund's life sciences effort, where he was also the founding chief executive officer of Tularik, Cell Genesys/ Abgenix, Focal, Stem Cells and Millennium Pharmaceuticals. Mark served as chief executive officer of Millennium Pharmaceuticals for 12 years. Earlier in his career, he was an engineer and project leader at Lilly and Genentech. Mark holds an M.S. in chemical and biochemical engineering from Washington University.



James L. Madara, M.D.

Dr. Madara is CEO of the American Medical Association. Prior to joining the AMA, he served as the Thompson Distinguished Service Professor and Dean of the University of Chicago Pritzker School of Medicine and as CEO of the University of Chicago Hospitals and Medical Center. Earlier he served as Timmie Professor and Chair of Pathology and Laboratory Medicine at Emory University, and as Professor of Pathology and Director of the Digestive Diseases Center at Harvard. An academic pathologist and an authority on epithelial cell biology and gastrointestinal disease, he has received several international awards and served in a variety of other capacities including editor-in-chief of the American Journal of Pathology.



Shawn Marcell

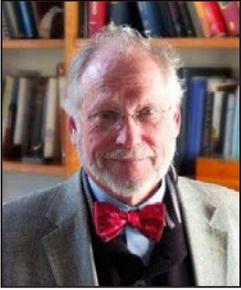
Mr. Marcell is the President and CEO of Metamark Genetics. Mr. Marcell joined Metamark in early 2013. An experienced executive with a record of building life science and technology businesses, raising capital, creating value, and setting the stage for growth and investor exit, Mr. Marcell previously served as general manager at Hologic Gen-Probe; vice president of molecular diagnostics at Sequenom; president and CEO of SensiGen, and Redpoint Bio; and senior vice president of the University City Science Center. Mr. Marcell has been a fellow and advisory board member of Weiss Tech House, University of Pennsylvania, and an adjunct faculty member at The Wharton School. He holds a BA in Economics from The George Washington University.



Mirella Marlow, M.A., M.B.A.

Mrs. Marlow is Programme Director, Centre for Health Technology Evaluation, National Institute for Health and Clinical Excellence (NICE) – biographical notes. She manages NICE's programmes for evaluating and developing evidence on medical devices and diagnostics, and works with the medtech industry, health services, government policymakers, lifesciences organizations and researchers to maximize the effectiveness of NICE's work in these areas. She joined NICE in 2004, having previously worked for 15 years in senior roles for various payers in the English National Health Service.

Mirella has an MBA and a Masters in Medical Ethics and Law from Keele University, where her interests included the ethics of measuring the cost-effectiveness of interventions to improve the safety of healthcare, and legal cases relating to healthcare rationing. She is a contributor to work with the European Network for Health Technology Assessment (EUnetHTA) on integrating ethical considerations when determining the value of health technologies.

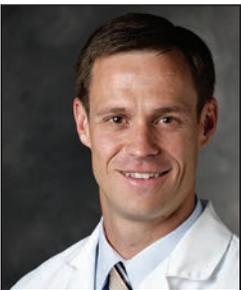


D. Holmes Morton, M.D.

Dr. Morton is a pediatrician and was the co-founder with his wife Caroline of the Clinic for Special Children, a non-profit medical center that provides care for children with complex medical problems arising from inherited predispositions to disease. The Clinic is located on an Amish farm in Lancaster County, Pennsylvania, near Strasburg. Although it is a local pediatric medical center, the Clinic has become recognized internationally for innovative studies in the discovery and treatment of inherited disorders. The Clinic's publications about the treatment of maple syrup urine disease can be found in *Pediatrics*, *Current Treatment Options in Neurology, Molecular Genetics and Metabolism, Brain, Journal of Pediatrics, Pediatric Transplant, Nature*, and *Gene Reviews*.

Dr. Morton graduated from Trinity College in 1979 with Honors in Biology and Psychology and was elected to Pi Beta Kappa. He studied medicine at Harvard Medical School and completed a 3-year Residency in Pediatrics at Children's Hospital. In 1986 Dr. Morton moved to Children's Hospital of Philadelphia to study biochemical genetics under Richard Kelley. In 1988, with the support of Hugo Moser, he moved Dr. Kelley's new laboratory at Kennedy Krieger Institute at Johns Hopkins to develop methods for diagnosis and treatment of the Amish variant of Glutaric Aciduria Type 1. This work led to the establishment of the Clinic for Special Children in Lancaster County Pennsylvania in 1989.

Dr. Morton is a member of the American Academy of Pediatrics and the Society for Inherited Metabolic Disorders. In 1993, he was given the Albert Schweitzer Prize for Humanitarianism, a prize awarded jointly by the Alexander von Humboldt Foundation of Germany and Johns Hopkins University. In 2006 Dr. Morton was awarded a John D. and Catherine T. MacArthur Fellowship.



Lincoln Nadauld, M.D., Ph.D.

Dr. Nadauld is the Director of Cancer Genomics at Intermountain Healthcare, an integrated healthcare system located in the Intermountain West. Dr. Nadauld completed his undergraduate education at Brigham Young University. He went on to complete combined MD/PhD and clinical training at the University of Utah. His doctoral dissertation focused on the molecular genetics of colon cancer. He completed additional clinical training in Medical Oncology at Stanford University where he also completed a postdoctoral fellowship in solid tumor genomics in the laboratory of Dr. Calvin Kuo. Dr. Nadauld then remained on faculty at the Stanford School of Medicine focusing on cancer genomics and personalized cancer medicine.

In addition to an extensive publication record, Dr. Nadauld was previously awarded the prestigious Young Investigator Award by the American Society of Clinical Oncology and a Career Development Award from the National Cancer Institute. In his current position, leading Intermountain Healthcare's Cancer Genomics Program, Dr. Nadauld oversees the clinical implementation of genomic cancer medicine across Intermountain's 22 hospitals and 180 physician clinics.



Steven M. Paul, M.D.

Dr. Paul is the Director of the Helen and Robert Appel Alzheimer's Disease Research Institute and Professor of Neuroscience, Psychiatry and Pharmacology at Weill Cornell Medical College. He was formerly the Executive Vice President of Science and Technology and President of the Lilly Research Laboratories (LRL) of Eli Lilly and Company. Prior to assuming his positions at Lilly and Weill Cornell Medical College, Dr. Paul served as Scientific Director of the National Institute of Mental Health (NIMH/NIH) in Bethesda, Maryland.

Dr. Paul is a member of various professional and honorary societies, which include Phi Eta Sigma; Alpha Epsilon Delta; Sigma Xi; Phi Beta Kappa; and the Alpha Omega Alpha Honorary Medical Society. He is the recipient of many honors and scientific recognitions, including: The Distinguished Service Medal of the USPHS and the Chief Scientific Officer of the Year Award. In 1997, Dr. Paul was elected to membership in the Institute of Medicine (IOM) of the National Academy of Sciences and currently serves on the IOM's Board on Health Sciences Policy. In 2009 Dr. Paul was elected a Fellow of the American Association for the Advancement of Science (AAAS).

Dr. Paul has authored or co-authored over 500 papers and invited book chapters and was listed as one of the most highly cited scientists in the world (top 50 in Neuroscience) (1980-2000) by the Institute for Scientific Information (I.S.I.), Philadelphia, Pennsylvania. He holds 9 patents on inventions made both at NIH and Lilly. His current work has focused on the role of apoE in the pathogenesis of Alzheimer's disease. He is also an inventor of solanezumab, a humanized anti-A β monoclonal antibody currently in late-stage clinical testing by Lilly as a potential disease-modifying treatment for Alzheimer's disease.

SPEAKERS



Antonio L. Andreu Pérez, M.D.

Dr. Andreu Pérez was born in Barcelona, 26th of November 1960. Graduate in Medicine and Surgery by the “Universidad Autónoma de Barcelona” in 1984. Doctor of medicine from the same University in 2000. Fellow in residency training program in the specialty of Clinical Biochemistry at the Vall d’Hebron Hospital during the period 1986-1988. Specialist physician assigned to Department of Biochemistry from 1989. During the period 1998-2001 he moved to Columbia University in New York in order to work in the area of mitochondrial diseases. Since 2001 he has been responsible of Laboratory of Genetics of Neuromuscular Diseases at the Hospital Vall d’Hebron in Barcelona, also in the period 2006-2010 has been research coordinator in Neuroscience of the Research Institute Vall d’Hebrón. In 2011, he was appointed Director of the Molecular Medicine Program at the same Hospital and in

October of the same year he obtained a position as Clinical Chief in the Department of Biochemistry. Principal Investigator and collaborator researcher in 20 research programs in the context of the activities of the Research, Development and Innovation National Plan (Plan Nacional I+D+i). Group coordinator of the Thematic Network of Cooperative Research Mitochondrial Diseases of the National Institute of Health Carlos III (ISCIII), and group coordinator of the Centre for Biomedical Network Research on Rare Diseases (CIBERER). Director of 6 PhD thesis and author of 147 international scientific publications in the area of neuromuscular diseases. Author of 82 communications to scientific congress and 11 book chapters. He has been awarded with 7 research awards in the genetic field and also has been rapporteur of Live Science Area in the Monitoring Committee of the VI “Plan Nacional I+D+i”. Between 2002-2004 has collaborated with ISCIII through the coordination of the Technical Evaluation Committee of Neurological and Mental Diseases. During the period 2005-2007 was Coordinator of the ISCIII Call for Projects and from 2005 to 2012 has led the Technical Evaluation Committee of Human Resources of the ISCIII. Member of several advisory and evaluation committees both at national and international level in research and innovation activities and Professor of Master’s Degree in the genetic field and scientific management in several Spanish Universities.

From April 2012 to March 2013, Deputy Director of Evaluation and Research Promotion of the ISCIII and since 2th of March 2013 to the present, Director General of National Institute of Health Carlos III (ISCIII).



Robert Plenge, M.D., Ph.D.

Dr. Plenge is Vice President at MRL in Boston, MA. He is founder and worldwide Head of the newly created Department of Genetics & Pharmacogenomics (GpGx). His Department, which is part of Early Development and Discovery Sciences (EDDS) under the direction of Dr. Rupert Vessey, is responsible for genetics and pharmacogenomics strategy throughout Merck’s entire pipeline – from early discovery to late-stage clinical development. Further, Robert is co-Chair of the Early Discovery Council (which oversees pre-lead optimization research programs); serves a key leadership role at the Boston MRL site, including external research opportunities; and is on the Steering Committee for the Merck-Singapore research collaboration.

Prior to joining Merck in July 2013, Robert served as Director of Genetics & Genomics in the Division of Rheumatology, Immunology and Allergy at Brigham and Women’s Hospital; Assistant Professor of Medicine at Harvard Medical School; and Associate Member of the Broad Institute of MIT and Harvard. His academic research focused on genetic and genomic underpinnings of complex human disease, with attention to immune-mediated diseases such rheumatoid arthritis (RA). He led multi-disciplinary teams that: identified new genetic risk factors for RA and other complex traits; performed functional studies of risk alleles to understand fundamental disease mechanisms; analyzed clinical data from electronic medical records (EMR) for discovery research in collaboration with i2b2; and investigated pharmacogenomic predictors of efficacy and toxicity as part of the NIH-funded Pharmacogenomic Research Network (PGRN). His original research has been published in Nature, New England Journal of Medicine, Science, Nature Genetics, and other top-tiered medical journals.

Robert graduated cum laude with a Bachelor of Science from the University of California, San Diego in 1992; received his MD and PhD degrees from Case Western Reserve University in 2000 (thesis advisor Hunt Willard); completed his Internal Medicine residency as a Molecular Medicine Fellow at University of California, San Francisco in 2002; and served as rheumatology fellow at Brigham and Women’s Hospital from 2002-2006 and post-doctoral research fellow at the Broad Institute of MIT and Harvard from 2003-2007 (advisor David Altshuler). Between 2007-2013 he was on the faculty of Harvard Medical School and an Associate Member of the Broad Institute while practicing clinical rheumatology and running a research laboratory at Brigham & Women’s Hospital.

In recognition of his accomplishments, Robert has received numerous awards, including: Pre-doctoral Clinical Award from The American Society of Human Genetics (1995); The Young Investigator Award from the Department of Medicine at Brigham and Women’s Hospital (2008); Career Award for Medical Scientists from the Burroughs Wellcome Fund (2008); and election to The American Society for Clinical Investigation (2012).



Bruce Quinn, M.D., Ph.D.

Dr. Quinn is a national expert on Medicare policy, the impact of health reform on innovation, and the crafting of successful business strategies within the US healthcare reimbursement system. Dr. Quinn has worked successfully with both large and small companies in overcoming hurdles to commercialization through negotiation, understanding insightful ways to use the existing system to advantage, and the mechanisms of policy change. Since 2008, Dr. Quinn has been a full time business strategist working with attorney and policy teams for healthcare and life sciences clients in the firm's Government Strategies practice. Dr. Quinn travels nationwide to speak on health reform issues and publishes actively, recently writing several peer reviewed policy articles and an authoritative textbook chapter on advanced diagnostics, including a framework for defining clinical utility (Frueh & Quinn, *Exp Rev Molec Diagn*, 2014). Dr. Quinn has also authored a series of white papers tracking federal molecular reimbursement reform 2011-2014. Before joining Foley Hoag LLP, he was the regional Medicare medical director for the California Part B program. Earlier in his career, Dr. Quinn held full time academic positions at New York University and Northwestern University as a physician-scientist, and was a physician executive in the Health & Life Sciences division of Accenture, working with the pharma, biotech, and genomics industries. He is author or co-author on over 30 scientific publications, board certified in anatomic pathology, and has an MBA from the Kellogg School of Northwestern University.



Scott Schell, Ph.D., M.D., M.B.A.

Dr. Schell is currently President and CEO of the KEW Group (www.kewgroup.com) having joined in 2014. Scott obtained his undergraduate, M.D. and Ph.D. degrees from the University of Chicago, and clinical training as Intern, Resident, and Surgical Oncology Fellow at the Johns Hopkins University School of Medicine. He received an M.B.A. degree from the University of Michigan. Scott pursued an academic career, with faculty appointments in various departments at Johns Hopkins, University of Florida, and UMDNJ / Robert Wood Johnson School of Medicine. His academic career focused on clinical practice in surgical oncology, basic-science and clinical research, and outcomes. In 2006, Scott joined the executive leadership at William Beaumont Hospitals in Michigan, and was responsible for creating the integrated, multidisciplinary breast oncology program for that hospital system. Subsequently, Scott joined Alere Health serving as Chief Medical Officer, and overseeing clinical affairs, analytics, and operations for the health-management portfolio. In 2013, he joined the Cleveland Clinic as Associate Chief of Staff, and Chair of Clinical Performance Management and Population health.

In addition to his academic and clinical activities, Scott has been involved in a number of companies focused on developing novel devices and programs to improve patient care. Scott has also been involved in clinical trial development and NDA registration with global pharmaceutical companies, and brings a deep understanding of the practice of oncology in hospitals and community practices. Scott is also a serial entrepreneur with several successful startups in the healthcare IT and management space.



Daniel M. Skovronsky, M.D., Ph.D.

Dr. Skovronsky is Senior Vice President, Clinical and Product Development at Eli Lilly and Company. He is a leader of Lilly's Medicines Development Unit (MDU), which is tasked with developing the Lilly pipeline of molecules and speeding innovative medicines to patients. Prior he served as Vice President, Tailored Therapeutics. Tailored therapeutics is a key component of Lilly's strategy of delivering timely valued medicines to patients. Dr. Skovronsky also serves as Chairman of Avid Radiopharmaceuticals (a wholly owned subsidiary of Eli Lilly and Company).

Dr. Skovronsky joined Eli Lilly and Company in 2010 when the company acquired Avid Radiopharmaceuticals. Previously, Dr. Skovronsky served as CEO of Avid Radiopharmaceuticals, which he founded in late 2004. At Avid, Skovronsky led the discovery, development, and FDA approval of Amyvid®, the first diagnostic agent for brain imaging of beta-amyloid plaques in patients with cognitive impairment being evaluated for Alzheimer's disease and other causes of cognitive decline.

Dr. Skovronsky trained as a resident in pathology and completed a fellowship in neuropathology at the Hospital of the University of Pennsylvania. He received his M.D. and Ph.D. from the University of Pennsylvania and did his undergraduate training in molecular biophysics and biochemistry at Yale University. He is the recipient of numerous scientific and business awards.

SPEAKERS



Benjamin Solomon, M.D.

Dr. Solomon graduated from Dartmouth Medical School and completed a combined residency/fellowship in Pediatrics/Medical genetics at the National Human Genome Research Institute/National Institutes of Health. After continuing his research on the applications of genomic analyses coupled with comprehensive phenotyping as intramural NHGRI/NIH faculty, Dr. Solomon joined the Inova Translational Medicine Institute as the Chief of Division of Medical Genomics, where he heads a large and diverse group of clinicians, bioinformaticists, and traditional bench researchers. The goal of his division is to use a broad 'omics approach to determine novel factors related to human health and disease (including both rare and common medical conditions) and to apply this knowledge to active patient care.



Mark P. Stevenson

Mr. Stevenson joined Thermo Fisher Scientific as Executive Vice President and President of the Life Sciences Solutions Group in 2014 through the acquisition of Life Technologies. At Life Technologies he served as President and Chief Operating Officer and was previously President and Chief Operating Officer of Applied Biosystems prior to its merger with Invitrogen Corporation in 2008. At Applied Biosystems, Mark held roles of increasing responsibility in Europe and Japan. He moved to the U.S. in 2004 to establish the Applied Markets Division and, in 2006, was named President of the Molecular and Cellular Biology Division. He has more than 20 years of experience in sales, marketing and international executive management.

Mark received his MBA from Henley Management School in the U.K. and his bachelor's degree in chemistry from the University of Reading, also in the U.K. He is an executive committee board member of the life science association, BIOCOM.



David Sweetser, M.D., Ph.D.

Dr. Sweetser is the Chief of Medical Genetics and Metabolism at MassGeneral Hospital. He has an active clinical practice with particular interests in complex medical conditions with a potential genetic or metabolic basis, inborn errors of metabolism, neurodevelopmental disorders and congenital predispositions to cancer. He has experience in the application of clinical exomic sequencing that has ended a number of diagnostic odysseys, and in several cases, discovered new disease causing genes. He also regularly deals with the ambiguities of such testing, especially the significant challenges of such results in the prenatal setting. His group works closely with the MGH Obstetrical Department and Fertility Center in providing testing and counseling services. Partnering with leaders from Boston Children's Hospital and Brigham and Women's

Hospital, Dr. Sweetser is the MGH Site Director for the newly expanded NIH sponsored Undiagnosed Diseases Network, which aims to provide comprehensive diagnostic clinical and laboratory evaluations, including genomic analyses, of the most challenging patients referred from around the country.

In addition to these roles, Dr. Sweetser also attends on the Pediatric Hematology/Oncology service at MassGeneral Hospital for Children and runs a research laboratory in the MGH Cancer Center investigating the genetics of leukemia and childhood cancer, including the application of genomics to uncover congenital cancers predispositions and somatic mutations of potential utility in targeted therapies.



Sheila D. Walcoff, J.D.

Ms. Walcoff is a veteran health and science attorney and the chief executive officer and founder of Goldbug Strategies LLC, a boutique consulting practice offering business and government strategy, policy analysis, and regulatory support related to personalized medicine and FDA regulated medical products. Her clients include global biotechnology companies, clinical diagnostic laboratories, life science products manufacturers, clinical laboratories, investors, software developers, and coalitions.

Previously, Ms. Walcoff was a health and FDA law partner in the international law firm of McDermott Will & Emery LLP. Her senior executive government service includes counselor for science and public health policy to US Department of Health and Human Services (HHS) Secretary Michael O. Leavitt and associate commissioner for external affairs at the Food and Drug Administration (FDA). Ms. Walcoff earned her law degree from Georgetown University Law Center.

Her practice at Goldbug Strategies LLC focuses on providing strategic advise and counsel on the breadth of issues related to the business of genomics and personalized medicine, including FDA and CLIA regulatory oversight and compliance related to in vitro diagnostics, digital health, clinical decision support (CDS) software tools, mobile medical apps and other software.

A recognized health policy expert, Ms. Walcoff is a frequent speaker on FDA regulation legislation and policy issues related to genomics and personalized medicine, as well as biological/biosimilars and other medical products.



Dr. Scott Weiss, M.D., M.S.

Dr. Weiss is currently Director of the Partners HealthCare Personalized Medicine. He is responsible for 12 faculty and approximately 100 staff that work in the Center's Core Laboratories, the CLIA-approved Laboratory for Molecular Medicine, and the IT and Educational programs across the Partners HealthCare System. He is also the co-leader of the Systems Genetics and Genomics Unit in the Channing Division of Network Medicine in the Department of Medicine at Brigham and Women's Hospital, and Professor of Medicine at Harvard Medical School. In this capacity, he co-leads a 30-investigator, 110-person research group involved in examining the environmental exposures and genetic risk factors for the development of asthma and chronic obstructive

pulmonary disease (COPD). He has mentored 39 trainees over the past 27 years, all but two still remain in academia. He has authored or co-authored over 700 papers and co-written and co-edited four books, including a comprehensive textbook on Respiratory Genetics. His long-standing research interests have been in the area of environmental and genetic risk factors for the development of asthma and COPD. His initial work concerned the role of environmental tobacco smoke exposure in the development of asthma. He then studied the effect of airway responsiveness in populations on the development and natural history of asthma and COPD development. Through this work, he became interested in the overlap of asthma and COPD as complex diseases. In 1996, he developed a strong interest in the genetics/genomics of asthma. By 2000, he was fully funded to perform research in this area and now devotes most of his research time to asthma genetics/genomics. He has been continuously funded by NHLBI for 30 years and was identified as being in the top .01% of biomedical researchers in terms of scientific impact (Boyack, et al. Eur J Clin Invest. 2013; PMID: 24134636).



Krishna Yeshwant, M.D.

Dr. Krishna Yeshwant is a physician, programmer, and entrepreneur who has been working with Google Ventures since its inception. He first joined Google as part of the New Business Development team.

Prior to Google he helped start an electronic data interchange company that was acquired by Hewlett-Packard and a network security company that was acquired by Symantec. He also co-authored the business plan for Diagnostics For All, which won both the Harvard Business School and MIT \$100k business plan competitions.

Previously, Krishna published several book chapters and journal articles in the field of computer-guided surgery, completed research in tissue engineering, and developed and licensed multiple surgical devices. He has worked with the technology transfer offices of MIT, Harvard, and Massachusetts General Hospital.

ABOUT US

Partners Healthcare Personalized Medicine

The Partners HealthCare Personalized Medicine (PPM) was launched in 2001 as the Harvard Medical School-Partners HealthCare Center for Genetics and Genomics. Its purposes from its founding have been to promote genetics and genomics in research and clinical medicine and to help realize the promise of personalized medicine by accelerating the integration of genetic knowledge into clinical care throughout the Partners HealthCare System (PHS) and in healthcare nationally and globally. PPM is accomplishing its mission by supporting and facilitating:

- pursuing important discoveries that will enable advancing the knowledge of how genetics affects human health and disease
- offering genetic-based diagnostic testing and developing new tests through a CLIA- and state-approved Laboratory for Molecular Medicine
- developing an IT infrastructure to integrate genetic and genomic data into clinical decision support systems
- educating practicing clinicians, investigators, health care professionals
- developing a program in Personalized Predictive Medicine

Personalized medicine is the ability to determine an individual's unique molecular characteristics and to use those genetic distinctions to diagnose more finely an individual's disease, select treatments that increase the chances of a successful outcome and reduce possible adverse reactions. Personalized medicine also is the ability to predict an individual's susceptibility to diseases and thus to try to shape steps that may help avoid or reduce the extent to which an individual will experience a disease.

For personalized medicine to be a fully functioning reality at the clinical level, certain elements are essential: an electronic medical record, personalized genomic data available for clinical use, physician access to electronic decision support tools, a personalized health plan, personalized treatments, and personal clinical information available for research use. Partners HealthCare has made a firm commitment to the principles of personalized medicine and to the importance of genetics and genomics in delivering the best care of patients. PHS also has committed to ensuring that the features above are or will be available.

The essential feature of the revolution in genetics and genomics has been an explosion in the amount of data available for use in translational research. This massive data profusion has enhanced our ability to predict clinical phenotypes and to predict clinical outcomes on the basis of genome scale data. However, to be able to do this sort of prediction investigators need several tools. First, they need a robust bioinformatics infrastructure with secure pipelines and robust algorithms for data cleaning and manipulation. Second, they need very strong bioinformatics platforms for data analysis and data management. Third, they need access to large numbers of very well phenotyped patients. Fourth, they need access to the genomic platforms to create genomic scale data on these patients for prediction of clinical outcomes. Finally, they need novel statistical and bioinformatics methods to analyze these data for predictive medicine. PPM makes all of these resources available to Partners investigators through a highly developed infrastructure consisting of bioinformatics and genetic statistics; biosample repository; core sequencing, genotyping and GeneChip® and microarray laboratories; and information technology services.

For more information about PPM, please visit <http://personalizedmedicine.partners.org>.

Harvard Business School

Harvard Business School's mission is to train business leaders in all industries. Healthcare, a \$2 trillion industry, has become one of the school's key priorities. The Healthcare Initiative at HBS was launched in 2005 to bring together the extensive research, thought leadership, and interest in the business and management of healthcare that exists at HBS.

Healthcare research at HBS focuses on entrepreneurship, innovation and disruption. Faculty and students seek to understand and identify new products, services and delivery methods that will help to reshape the industry. HBS believes this focus on "creative destruction" will result in business models that offer the hope of improved outcomes, reduced costs, streamlined systems, and enhanced services.

Personalized medicine presents tremendous opportunities in healthcare and has garnered much attention at HBS. With its expertise in technology, commercialization, and business model development, HBS can play a critical role in the widespread adoption of personalized medicine applications.

For more information about the HBS Healthcare Initiative, please visit www.hbs.edu/healthcare.

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NOVEMBER 18-19, 2015

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AT HARVARD MEDICAL SCHOOL, BOSTON

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