

9TH ANNUAL
PERSONALIZED MEDICINE
CONFERENCE PROGRAM



NOVEMBER 6-7, 2013
JOSEPH B. MARTIN CONFERENCE CENTER
AT HARVARD MEDICAL SCHOOL, BOSTON

Presented by



CENTER FOR PERSONALIZED
GENETIC MEDICINE



HARVARD
BUSINESS
SCHOOL

In Association With  American Association for Cancer Research and  **PMC** PERSONALIZED MEDICINE COALITION

November 6, 2013

Dear Colleague:

Welcome to the 9th annual Personalized Medicine Conference. We and the other members of the Conference Organizing Committee, whose names you will see in 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 Conference Supporters and the staff for all that they do to make this meeting meaningful and worthwhile.

The Personalized Medicine Coalition (PMC) has been actively involved in this Conference since its inception in 2005 and that relationship continues to play a key role in our annual meeting. The PMC's perspectives and depth of understanding of the issues surrounding personalized medicine have added greatly to the considerations about the conference program and content. It is especially pleasing that the PMC has chosen this venue to present its annual Award for Leadership in Personalized Medicine that this year goes to Kathy Giusti.

This year we have begun a new partnership with the American Association of Cancer Research (AACR). AACR is a pre-eminent international organization dedicated to cancer research and cancer patient care. By joining forces with AACR we emphasize both that cancer is at the vanguard of personalized medicine and that diverse organizations can come together to enhance the goals of personalized medicine. We are looking forward to a long and fruitful collaboration with AACR.

Since our first Conference nine years ago, many things have changed. The use of genetic and genomic information in diagnosing diseases, especially childhood disorders, is rapidly changing the landscape of pediatrics. The ability to conduct genetic testing of large numbers of genes at a relatively low cost is changing prenatal diagnosis and helping individuals assess risk of adult onset disorders. Direct sequencing of tumors has led to dramatic changes in cancer care including new classifications of human cancers, helping the pharmaceutical and biotechnology companies to develop more effective targeted therapies, and thus making it possible for oncologists to choose an optimal therapy for many cancer patients.

Many businesses have embraced the principles of personalized medicine, including biotechnology, pharmaceutical and diagnostics companies, as well as the investment community and the IT industry. Next generation sequencing with its large scale data storage and analysis needs has become an essential feature of personalized medicine. Thus IT will continue to play a critical role.

Obviously there are significant numbers of issues that await resolution. These include uncertainty about legislative actions, regulatory approval and payer reimbursement.

We have always believed that one way to promote personalized medicine is to provide a forum where diverse stakeholders can engage in vigorous intellectual discussion of personalized medicine issues and celebrate accomplishments, as well as focusing on implementation problems. If the Personalized Medicine Conference can accomplish this goal we will consider it to be a success.

We hope you will find this 9th annual meeting engaging and stimulating and that you will add your own wisdom and perspective to the conversations. It should also 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 Center for
Personalized Genetic Medicine
Professor of Medicine,
Harvard Medical School



Raju Kucherlapati

Raju Kucherlapati, Ph.D.

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

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A THANK YOU TO OUR SUPPORTERS

GOLD



imagination at work

healthymagination

SILVER

The Biogen Idec logo consists of the words "biogen idec" in a blue, lowercase sans-serif font, enclosed within a white rectangular box with a thin black border and a small notch on the right side.

biogen idec

BRONZE



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PROGRAM *Wednesday, November 6, 2013*

- 8:00 a.m. Welcome**
- Raju Kucherlapati, Ph.D.**
Paul C. Cabot Professor of Genetics, Professor of Medicine, Harvard Medical School
- Joseph B. Martin, M.D., Ph.D.**
Edward R. and Anne G. Lefler Distinguished Professor of Neurobiology
Harvard Medical School
- Scott Weiss, M.D., M.S.**
Scientific Director, Partners HealthCare Center for Personalized Genetic Medicine;
Associate Director, Channing Laboratory; Professor of Medicine, Harvard Medical
School
- Margaret Foti, Ph.D., M.D. (h.c.)**
Chief Executive Officer
American Association for Cancer Research
- 8:30 a.m. Keynote**
**“Personalized Medicine; For
Changing Tomorrow”**
- Yoshihiko Hatanaka**
President and CEO, Astellas Pharma, Inc.
- Introducer:
Stephen Eck, M.D., Ph.D.
Vice President, Global Head of Medical Oncology
Astellas Pharma Global Development, Inc.
- 9:00 a.m. “The Future is Now: Genomic
Sequencing at Work in the Clinic”**
- Human genome sequencing promises to be an important tool in assessing risk, diagnosing disease and stratifying patient populations for targeted therapy. This panel will discuss how this rapidly advancing technology is impacting clinical practice today, including some of the personal experiences.
- Moderator:
Bruce Johnson, M.D.
Chief Clinical Research Officer, Dana-Farber Cancer Institute; physician in the Lowe Center for Thoracic Oncology at Dana-Farber Cancer Institute and Brigham and Women’s Hospital; Professor of Medicine, Harvard Medical School
- Lukas Wartman, M.D.**
Instructor of Medicine, Division of Oncology, Washington University Medical School
- Timothy Harkins, Ph.D.**
Director of Research & Development, Advanced Applications Development, Life Technologies
- Arthur Beaudet, M.D.**
Henry and Emma Meyer Professor and Chair, Department of Molecular and Human Genetics, Baylor College of Medicine
- Heidi Rehm, Ph.D., FACMG**
Chief Laboratory Director, Laboratory for Molecular Medicine, Partners HealthCare Center for Personalized Genetic Medicine; Associate Professor of Pathology, Harvard Medical School
- 10:00 a.m. Networking Break**
- 10:30 a.m. “How Leading Professional
Societies are Adopting Personalized
Medicine”**
- Many medical societies are engaging their members in discussions about the current and future role of personalized medicine in healthcare, and the importance of understanding and advancing the field. During this panel, current and future presidents of leading professional societies discuss how their organizations are educating their members on personalized medicine and supporting its adoption into routine medical practice.
- Moderator:
Anna Barker, Ph.D.
Director, Transformative Healthcare Knowledge Networks; Co-Director, Complex Adaptive Systems Initiative; Professor, School of Life Sciences, Arizona State University
- ACMG: Gail Herman, M.D., Ph.D., FACMG**
Investigator, Center for Molecular and Human Genetics, The Research Institute at Nationwide Children’s Hospital; Professor, Department of Pediatrics, The Ohio State University College of Medicine
- ASCO: Clifford Hudis, M.D., FACP**
Chief, Breast Cancer Medical Service & Attending Physician, Memorial Sloan-Kettering Cancer Center; Professor, Department of Medicine, Weill Cornell Medical College of Cornell University
- ASHG: Cynthia Morton, Ph.D.**
William Lambert Richardson Professor of Ob/Gyn and Professor of Pathology, Brigham and Women’s Hospital
- AACR: Charles Sawyers, M.D.**
Investigator, Howard Hughes Medical Institute; Chairman, Human Oncology & Pathogenesis Program, Memorial Sloan-Kettering Cancer Center

11:30 a.m.	Presentation of Personalized Medicine Coalition's 9th Annual Award for Leadership in Personalized Medicine	Award Recipient: Kathy Giusti Founder and CEO, Multiple Myeloma Research Foundation
		Introducer: Edward Abrahams, Ph.D. President, Personalized Medicine Coalition
		Presenter: William S. Dalton, M.D., Ph.D. Director, Personalized Medicine Institute, Moffitt Cancer Center; CEO, M2Gen
12:00 - 1:00 p.m.	Luncheon	Seated
1:15 p.m.	Keynote "Accelerating Medical Solutions"	Michael Milken, M.B.A. Chairman, The Milken Institute Founder, <i>FasterCures</i>
		Introducer: Richard Hamermesh, D.B.A. MBA Class of 1961 Professor of Management Practice; Faculty Chair, HBS Healthcare Initiative, Harvard Business School
2:00 p.m.	Keynote	Elizabeth Mansfield, Ph.D. Director of the Personalized Medicine Program in the Office of In Vitro Diagnostics Devices and Radiological Health, Center for Devices, FDA
		Introducer: Gregory Downing, D.O., Ph.D. Executive Director for Innovation, U.S. Department of Health and Human Services
2:30 p.m.	Networking Break	
3:00 p.m.	Keynote "Stand up to Cancer"	Speaker: Margaret Foti, Ph.D., M.D. (h.c.) Chief Executive Officer American Association for Cancer Research
3:30 p.m.	Keynote "PhRMA's Outlook on Personalized Medicine"	William Chin, M.D. Executive Vice President of Scientific and Regulatory Affairs, PhRMA Introducer: Richard Maas, M.D., Ph.D. Professor of Medicine, Division of Genetics, Department of Medicine, Harvard Medical School, Brigham and Women's Hospital
4:00 p.m.	"The Challenges and Opportunities for Commercializing Personalized Medicine"	Moderator: Deborah Dunsire, M.D. CEO and President, EnVivo Pharmaceuticals, Inc.
	While personalized medicine offers great promise to patients, the business case for developing and commercializing targeted therapies and other tools and technologies is sometimes unclear. In an environment of constrained spending, how can these innovations evolve into successful business models? This panel will explore proven business models, as well as emerging trends and opportunities for new businesses.	Chris Garabedian President and CEO, Sarepta Barbara McAneny, M.D. CEO and Medical Director, Innovative Oncology Business Solutions, NM Cancer Center; President Elect, AMA Matthew Zubiller Vice President, Decision Management, McKesson
5:00 p.m.	Reception	Elements Café

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PROGRAM *Thursday, November 7, 2013*

- 8:30 a.m. Keynote**
“CMS Beneficiaries and the Role of Personalized Medicine in Improving American Healthcare”
Shari M. Ling, M.D.
Deputy Chief Medical Officer, Centers for Medicare and Medicaid Service
Introducer:
Edward Abrahams, Ph.D.
President, Personalized Medicine Coalition
- 9:00 a.m. Harvard Business School Discussion**
“Role of Not-for-Profit Organizations in Healthcare Innovation”
Not-for-Profit organizations are playing increasingly important roles in bringing together patients and drug development organizations to rapidly develop novel and effective drugs. This panel will discuss several success stories.
Networking Break
Leader:
Richard Hamermesh, D.B.A.
MBA Class of 1961 Professor of Management Practice; Faculty Chair, HBS Healthcare Initiative, Harvard Business School
Discussants:
Margaret Anderson, Executive Director, FasterCures/The Center for Accelerating Medical Solutions
Kathy Giusti
Founder and CEO, Multiple Myeloma Research Foundation
Joe O’Donnell
Chairman of Centerplate
- 10:45 a.m. “Building an Evidence Base to Support Molecular Diagnostic Reimbursement”**
Developing molecular diagnostics is a complex process. So is deciding how to reimburse the use of such diagnostics. This panel will explore current reimbursement models and what is required for value based reimbursement.
Moderator:
Jeanne De Sa
Sr. Vice President, Public Policy and Strategy, United Health Center for Health Reform and Modernization, UnitedHealth Group
Kathryn Phillips, Ph.D.
Professor of Health Economics and Health Services Research at the University of California, San Francisco (UCSF) and Founder/Director of the UCSF Center for Translational and Policy Research on Personalized Medicine
Joanne Armstrong, M.D., M.P.H.
Senior Director, Aetna
Edward Ellison, M.D.
Executive Medical Director/Chairman of the Board, Southern California Permanente Medical Group, Kaiser Permanente Southern California
Reed Tuckson, M.D.
Managing Director, Tuckson Health Connections LLC
- 12:00 NOON Keynotes**
“International Efforts for Implementing Personalized Medicine”
Speakers:
Pierre Meulien, Ph.D.
President and Chief Executive Officer, Genome Canada
Professor Mark Caulfield, FMedSci
Director of the William Harvey Research Institute, Barts and The London Queen Mary’s School of Medicine and Dentistry, Queen Mary University of London, United Kingdom

12:30 p.m. Bag Lunch

1:30 p.m. Keynote

“Novel Solutions – Crowd Sourcing: A New Approach for Innovation in Personalized Medicine”

2:00 p.m. **“Big Data Meets Clinical Practice”**

Although the price of DNA sequencing is decreasing, many are concerned that a similar decrease in the cost of analyzing and archiving genetic/genomic data is not forthcoming. This panel will explore the challenges of analyzing storing, and sharing massive amounts of data and explore solutions that will support the practice of personalized medicine in the clinic.

3:00 p.m. Closing Remarks

Open Seating

Karim Lakhani, Ph.D., M.S.

Lumry Family Associate Professor of Business Administration, Harvard Business School; Principal Investigator of the Harvard-NASA Tournament Lab, Institute for Quantitative Social Science

Introducer:

Norman Selby

Executive Chairman, Real Endpoints LLC

Moderator:

Sandy Aronson, ALM, MA

Executive Director of Information Technology, Partners HealthCare Center for Personalized Genetic Medicine

Colin Hill

CEO, President, Chairman, and Co-Founder
GNS Healthcare

Karim Lakhani, Ph.D., M.S.

Lumry Family Associate Professor of Business Administration, Harvard Business School; Principal Investigator of the Harvard-NASA Tournament Lab, Institute for Quantitative Social Science

Tom Miller

Founder, GreyBird Ventures

Charlie Schick, Ph.D.

Director of Big Data in Healthcare and Life Sciences, IBM

Raju Kucherlapati, Ph.D.

Paul C. Cabot Professor of Genetics, Professor of Medicine, Harvard Medical School

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Margaret Anderson

Ms. Anderson is the executive director of *FasterCures/The Center for Accelerating Medical Solutions*, a Milken Institute center that works to speed up the timeline for new medicines to go from discovery to patients. She is a founding board member and past-president of the Alliance for a Stronger FDA, co-chairs the eHealth Initiative's Council on Data and Research, and is a member of the National Center for Advancing Translational Sciences Advisory Council, the Cures Acceleration Network Review Board, the National Health Council Board of Directors, United for Medical Research Steering Committee, and the Institute of Medicine's Forum on Drug Discovery, Development and Translation. Previously, Anderson was the deputy director and a team leader in the Center on AIDS & Community Health at the Academy for Educational Development, where she led public health projects; program director at the

Society for Women's Health Research; health science analyst at the American Public Health Association, where she managed a programmatic portfolio on HIV/AIDS and other sexually transmitted diseases, infectious diseases, women's health, and public health infrastructure issues; and analyst and project director at the Congressional Office of Technology Assessment in the Biological Applications Program, where she studied societal and business implications of genetic testing. Anderson holds a bachelor's degree from the University of Maryland and a master's degree in science, technology, and public policy from George Washington University.



Joanne Armstrong, M.D., M.P.H.

Dr. Armstrong is a Senior Medical Director and Head of women's health and genomics at Aetna. Aetna is one of the nation's largest health benefits company serving over 22 million members. Dr. Armstrong has responsibility for genetic program development and implementation, quality assurance, and medical cost management in these areas. She serves on the Board of the Personalized Medicine Coalition, the Victor Center for Jewish Genetic Diseases, and other advisory groups in women's health and personalized medicine.



Samuel (Sandy) Aronson, ALM, MA

Mr. Aronson is the Executive Director of IT of the Partners HealthCare Center for Personalized Genetic Medicine (PCPGM). His team develops IT infrastructure required to support the evolution and practice of genetic based personalized medicine in both patient facing and laboratory settings. The team has developed an integrated personalized medicine architecture that includes the GIGPAD system which supports laboratories generating genetic data, GeneInsight Lab which facilitates clinical interpretation of these data, and GeneInsight Clinic which provides treating clinicians with a mechanism for managing patient genetic test results. The team also maintains the GeneInsight Network which connects laboratories together to enable deep knowledge sharing. GeneInsight Network also connects laboratories to clinicians to facilitate the delivery of patient specific variant updates alerts as new

knowledge emerges on previously identified variants. The PCPGM IT team also develops BioBanking infrastructure focused on increasing the efficiency of clinical research processes.

Prior to this position, Mr. Aronson was an IT consultant to the biotechnology industry working for Tribiosys. Mr. Aronson also held several positions with Sapien Corporation, was a Strategic Consultant for Monitor Company and founded LearningAction, a web-based training company now part of Best Software. Mr. Aronson holds a Masters in Organizational Behavior and a Bachelors in Computer Science from Stanford University. He also holds a Masters in Biology from Harvard Extension School.



Ann Barker, Ph.D.

Dr. Barker, as Co-Director of Complex Adaptive Systems at ASU, designs and implements transformative networks to enable the convergence of knowledge, innovative teams and novel funding approaches to address major problems in biomedicine. Several initiatives are underway, including: the National Biomarker Development Alliance – NBDA; a program to “re-think” diseases that are particularly difficult to diagnose and treat; and a consortium focused on “deep phenotyping” *in silico* medicine. Prior to joining ASU, Dr. Barker served for several years as Deputy Director of the National Cancer Institute (NCI) and Deputy Director for Strategic Scientific Initiatives. At the NCI she developed and led or co-led a number of transdisciplinary programs including the: The Cancer Genome Atlas (TCGA); Nanotechnology Alliance for

Cancer; Clinical Proteomics Technologies Initiative for Cancer; and the Physical Sciences- Oncology Centers (PS-OCs). She co-chaired the NCI-FDA Interagency Task Force (IOTF) and was founding co-chair of the Cancer Steering Committee of the FNIH Biomarkers Consortium (FNIH-BC). Achievements from these groups included the “exploratory IND” (IOTF); and oversight of the design and implementation of the ISPY-2 Trial (FNIH-BC).

She served as a research scientist and a senior executive at Battelle Memorial Institute for 18 years; and subsequently co-founded and served as the CEO of a public biotechnology company. Examples of her public service include: the National Coalition of Cancer Research; Partner and Member of the Board of Directors of C-Change; Chairperson, C-Change Cancer Research Team; Founding member, Department of Defense (DOD) Breast Cancer Research Program (BCRP) and Chairperson of the Integration Panel (IP); a number of roles for the American Association for Cancer Research (AACR), including the Board of Directors and chairperson, Science Policy and Legislative Affairs Committee; member of NCI’s Board of Scientific Counselors, Division of Cancer Etiology; and Chairperson, NCI Cancer Center Support Review Study Section. Dr. Barker has received a number of awards for her efforts in science and advocacy for cancer research. Her research interests include complex adaptive systems science, biomarkers, 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.



Arthur L. Beaudet, M.D.

Dr. Beaudet received his M.D. degree from Yale, did pediatric residency training at Johns Hopkins, and was a research associate at the National Institutes of Health before joining Baylor College of Medicine (BCM) in 1971 where he has remained to the present. Dr. Beaudet has made diverse contributions in the field of mammalian genetics including discovery of uniparental disomy in humans, identification of the Angelman syndrome gene, recognition of a novel inborn error of carnitine biosynthesis as a risk factor for autism, and publishing over 300 original research articles. In 2004, Beaudet and a BCM team of investigators were the first in the US to introduce array comparative genomic hybridization (array CGH) into the clinical lab, and they have gone on to play a leadership role in the transformative impact of this technology

on clinical genetics. Similarly the Department of Molecular and Human Genetics and the Human Genome Sequencing Center went on to introduce whole exome sequencing into the clinical lab in 2011. His current work is focused on investigation of a neuronal carnitine deficiency hypothesis for autism, development of cell-based methods for noninvasive prenatal diagnosis, and the role of copy number variants (CNVs) and point mutations in neurobehavioral disabilities, and especially on the importance of the *CHRNA7* gene in intellectual disability, autism, and schizophrenia.

Dr. Beaudet is well-known as one of the editors of the *Metabolic and Molecular Bases of Inherited Disease* textbook for the 6th through 8th editions and now the electronic edition, and he has served on many editorial boards and national review panels. He was President of the American Society of Human Genetics in 1998 and is an elected member of the Association of American Physicians, the Institute of Medicine, and the National Academy of Sciences. Dr. Beaudet is currently the Henry and Emma Meyer Distinguished Service Professor and Chair in the Department of Molecular and Human Genetics at Baylor College of Medicine and Texas Children’s Hospital in Houston.

SPEAKERS

Professor Mark Caulfield, FMedSci

Professor Caulfield graduated in Medicine in 1984 from the London Hospital Medical College and trained in Clinical Pharmacology at St. Bartholomew's Hospital where he developed a research programme in molecular genetics of hypertension and clinical research. In 2009 he won the Lily Prize of the British Pharmacology Society. In 2000 he successfully bid for £3.1M to create the Barts and The London Genome Centre which now underpins over 40 programmes of research. Since 2008 he directs the Barts National Institute of Health Research Cardiovascular Biomedical Research Unit. He was appointed Director of William Harvey Research Institute in 2002 and was elected to the Academy of Medical Sciences in 2008 and was President of the British Hypertension Society (2009-2011). He led on fundraising towards the £25m William Harvey Heart Centre which created a translational clinical research centre. He served on the NICE Guideline Group for hypertension and leads the joint UK Societies' Working Group and Consensus on Renal Denervation.



William W. Chin, M.D.

Dr. Chin is the Executive Vice President, Science and Regulatory Affairs, PhRMA beginning in July 2013 where he will lead PhRMA's continuing efforts in science advocacy in the drug discovery and development ecosystem. He was the Executive Dean for Research, Bertarelli Professor of Translational Medical Science and Professor of Medicine at Harvard Medical School (HMS). In this role, Dr. Chin spearheaded efforts to design and implement the vision for research at HMS, with special emphasis on interdisciplinary and translational research that crosses departmental and institutional boundaries. Chin is a Harvard-trained endocrinologist and longstanding faculty member. His impressive career is exemplified in part by his extensive bibliography of nearly 300 papers, chapters and books, most of which were generated during his 25 years on the Harvard Medical School faculty. During his tenure as a

faculty member in the Department of Medicine at Brigham and Women's Hospital, he became chief of the Genetics Division and a Howard Hughes Medical Institute investigator, advancing to professor of Medicine, and Obstetrics, Gynecology and Reproductive Biology at HMS. As a pioneering molecular endocrinologist at HMS, Dr. Chin embraced the early use of emerging DNA technology to make important discoveries regarding the structure, function and regulation of hormone genes. His investigations often demonstrated a translational research theme, connecting basic laboratory discoveries to their physiologic relevance in animal models and humans. He has been honored with numerous awards for research, mentorship and leadership. Prior to HMS, Dr. Chin was at Eli Lilly and Company, where he had worked for the last decade, most recently as senior vice president for Discovery Research and Clinical Investigation. He received his AB (Chemistry; summa cum laude) from Columbia University and his MD from Harvard Medical School.



James Cross, M.D.

Dr. Cross is Aetna's Head of National Medical Policy and Operations. In this role, Dr. Cross oversees teams that develop and maintain clinical policy as well as reimbursement and coding methodology for the company. In addition, he is responsible for all national Aetna Health ConnectionsSM programs, including Disease Management, Precertification Operations, Women's Health, Beginning Right, Infertility, National Medical Excellence, Informed Helpline, Wellness, and Healthy Lifestyle Coaching, and for the Clinical Claim Review operation, the National Clinical Appeals Unit, External Review, and the Oral and Maxillofacial Surgery Unit as well as the International Care Management Center. Dr. Cross' background includes key leadership roles over the past 24 years with several private payer organizations, including Travelers, MetraHealth, United Healthcare, and Prudential Healthcare (now Aetna).

Dr. Cross received his M.D. degree from the University of Minnesota Medical School in Minneapolis and did a residency there in pediatrics. His background also includes 15 years practicing Emergency and General Medicine. Dr. Cross is a Diplomat of the American Board of Quality Assurance and Utilization Review Physicians (ABQAURP). He is a fellow and member of the Board of Trustees of the American College of Medical Quality (ACMQ) and its current President, and a member of the Board of Directors for The Physicians' Foundation and the Care Continuum Alliance.

Jeanne De Sa

Ms. De Sa is a Senior Vice President for Policy and Strategy at UnitedHealth Group's Center for Health Reform and Modernization. She serves as an advisor on health policy issues, including Medicaid and Medicare, and conducts analytic and quantitative research on a range of topics related to modernizing the financing and delivery of health care. From 1997 to 2008, Jeanne served as a Principal Analyst at the Congressional Budget Office's in the Budget Analysis Division's health care section. She served as one of the agency's primary Medicaid analysts, developed ten-year spending forecasts for health care entitlement programs, and estimated the financial and impacts of policy interventions in Medicare, Medicaid and public health programs. She also has experience working with state governments on improving their health care systems through work at the Alpha Center (now part of AcademyHealth) and for the state of Massachusetts. Jeanne has a master in Public Policy from the John F. Kennedy School of Government at Harvard University and a degree in History from Dartmouth College.



Deborah Dunsire, M.D.

Dr. Dunsire is an industry leader who brings more than 25 years of scientific, clinical, operational and commercial experience, and proven leadership in the biological and pharmaceutical industry. Prior to joining EnVivo in 2013, she served as president and chief executive officer of Millennium Pharmaceuticals, Inc., now Millennium: The Takeda Oncology Company, from 2005 to 2013. During that period, she transformed the company into a biotechnology industry leader by focusing R&D, driving the development pipeline, fostering a culture of employee engagement and increasing the commercial mindset across the organization to enhance the commercial success of marketed products. The company was acquired by Takeda Pharmaceutical Company Limited in 2008 for \$8.8 billion – one of the largest biotech acquisitions

at that time – and became Millennium: The Takeda Oncology Company. Prior to leading Millennium, Deborah led the Novartis U.S. Oncology Business, playing a critical role in the broad development and successful launch of a number of products. Over 10 years, she increased the North American oncology revenues from \$50 million to more than \$2.2 billion. She served on the U.S. Pharmaceutical Executive Committee at Novartis. Deborah is currently a board member of Allergan, Inc., the Biotechnology Industry Organization (BIO), Museum of Science (Boston), Massachusetts General Hospital Research Advisory Council, CancerCare (New York) and the Gabrielle's Angels Foundation for Cancer Research. She has received numerous awards, including the 2001 American Cancer Society Excalibur Award, the 2009 Healthcare Businesswomen's Association's "Woman of the Year", the 2011 MassBIO Innovator Award and the 2013 Boston CEO Conference Lifetime Achievement award. Deborah received her medical degree from the University of Witwatersand, Johannesburg, South Africa.

SPEAKERS



Edward Ellison, M.D.

Dr. Ellison assumed the role of Executive Medical Director (EMD) and Chairman of the Board for the Southern California Permanente Medical Group on January 1, 2012. The Southern California Permanente Medical Group is one of the largest self-governing medical groups in the country, consisting of more than 6,000 physicians caring for nearly 3.6 million Kaiser Permanente members in 190 medical offices and 13 hospitals across Southern California. As EMD, Dr. Ellison sets the strategic direction and has the accountability for all aspects of care which impact quality, the patient experience, and financial performance. He is also a member of the Kaiser Permanente Partnership Group (KPPG), the joint governing body of Kaiser Permanente.

Kaiser Permanente Southern California is an innovative healthcare leader which has received national recognition for patient safety, community service, and excellence in patient care.

Dr. Ellison joined SCMPG in 1984. He served in multiple roles, including President of the Professional Staff, Chief of Staff, Physician Director of the Performance Improvement Committee, Physician Director Primary Care Services, and Medical Director for the Orange County service area.

After completing his undergraduate degree at Duke University, he received his medical degree from the University of Virginia. He completed his residency training in Family Medicine at Halifax Hospital Medical Center, University of South Florida, where he served as Chief Resident. Ed is board certified in Family Medicine and is a Diplomate of the American Academy of Family Physicians.

He is also a graduate of the University of North Carolina Kenan-Flagler Business School's Executive Leadership Program and Harvard Business School's Advanced Management Program.



Margaret Foti, Ph.D., M.D. (h.c.)

Dr. Foti is the chief executive officer of the American Association for Cancer Research (AACR). The AACR is the world's oldest and largest professional organization dedicated to advancing cancer research and its mission to prevent and cure cancer. Under her visionary leadership, its membership has grown to more than 34,000 laboratory, translational, and clinical researchers; population scientists; other health care professionals; and cancer advocates in more than 90 countries.

A graduate of Temple University, Dr. Foti is an influential voice in advancing the field of cancer research, both in the United States and abroad. She was elected president of three professional societies in scholarly publishing and in cancer research. She has also served as a board member, committee member, and consultant to a number of other nonprofit organizations. There is a legacy of young women and minority scientists whose careers have been advanced as a result of her mentorship and support.

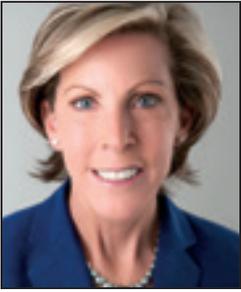
Dr. Foti's contributions have been widely recognized by numerous awards from organizations around the world. Her lengthy list of formal recognitions includes honorary degrees in medicine and surgery from three universities in Italy and Spain.

Under Dr. Foti's leadership, the AACR has served with distinction as the scientific partner of Stand Up To Cancer (SU2C). In this capacity, Dr. Foti and the AACR have brought extraordinary expertise and energy to their work with SU2C, especially in expert peer review, grant administration, and scientific oversight of team science and individual grants in cancer research that have the potential for near-term patient benefit.



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.



Kathy Giusti

Ms. Giusti is the Founder and Chief Executive Officer of the Multiple Myeloma Research Foundation (MMRF) and the Multiple Myeloma Research Consortium (MMRC). Giusti launched the MMRF in 1998, after her diagnosis with the incurable blood cancer multiple myeloma, followed by the MMRC in 2004. Giusti, who has more than two decades of experience in the pharmaceutical industry, previously held senior positions at G.D. Searle and Merck.

By applying her business savvy to the science of cancer, Giusti has developed and executed collaborative models underpinned by strong incentive structures that have transformed drug development and yielded meaningful results for multiple myeloma patients. Further, committed to maximizing the patient-impact of these models, Giusti has shared her approach with many research organizations that are pursuing treatment advances for a number of cancers and other incurable diseases.

Giusti has received many awards for her innovative leadership. Most recently, she was named an Open Science Champion of Change by the White House (2013) and one of the 100 Most Influential People in the World by TIME Magazine (2011). She has also received the American Association for Cancer Research (AACR) Centennial Medal for Distinguished Public Service, the Harvard Business School Alumni Achievement Award, and the Healthcare Businesswomen's Association's Woman of the Year Award.

Giusti has been featured on the *Today Show*, *NBC Nightly News*, *CBS Evening News*, *Fox News*, and *Bloomberg*. Her efforts have also been profiled by *The Wall Street Journal*, *The New Yorker*, *Harvard Business Review*, *The New York Times*, *Forbes*, and *Fast Company*.

Giusti currently serves on the President's Council of Advisors on Science and Technology, the Executive Management Committee of Stand Up to Cancer and the Harvard Business School Healthcare Advisory Board. She has previously served on several other boards, including the National Cancer Advisory Board, the Institute of Medicine's National Cancer Policy Board and the Board of Directors for IMS Health.

Giusti received her MBA in general management from Harvard Business School, graduated from the University of Vermont magna cum laude with a Bachelor of Science in Biological Sciences and holds an honorary Doctorate from the University of Vermont.



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.

SPEAKERS

Timothy Harkins, Ph.D.

Dr. Harkins, Director of R & D, Advanced Applications Development at Life Technologies, has nearly 50 peer reviewed publications spanning the spectrum of next generation sequencing applications using the 454 platform, SOLiD sequencing and Ion Torrent's PGM. These applications include some of the first whole human genome sequencing projects, metagenomics of cystic fibrosis patients' lungs, ancient DNA sequencing of a 6000 year old man, and several cancer evolution studies. Currently, he leads a group at Life Technologies to develop new applications for the PGM and Proton platforms based upon Ion Torrent's semiconductor technology.



Gail E. Herman, M.D., Ph.D

Dr. Herman is an investigator in the Center for Molecular and Human Genetics, The Research Institute at Nationwide Children's Hospital, and Professor in the Department of Pediatrics, The Ohio State University College of Medicine. She is the current President of the American College of Medical Genetics and Genomics. She received her medical degree and a PhD in biochemistry from Duke University and completed a residency in pediatrics and a fellowship in genetics at Baylor College of Medicine. She is board-certified in pediatrics and clinical and biochemical genetics. Dr. Herman divides her time between her clinical practice of pediatric genetics and molecular genetics research, focusing on mouse models of selected human developmental disorders. She is an author on more than 100 peer-reviewed publications and has had research funding from the National Institutes of Health, the March of Dimes, and the

Muscular Dystrophy Association. Recently, her research has extended to the genetics of autism spectrum disorders, and she is the Principal Investigator of a large, multisite project funded by the Department of Defense to develop a local registry of autism families and to identify autism susceptibility genes.

Dr. Herman has served as a regular member of the NIH Genome and Mammalian Genetics study sections and was the first Chair of the NIH Genetics of Health and Disease study section. She has served on the editorial boards of *Human Molecular Genetics* and *Mammalian Genome* and is currently a member of the *Faculty of 1000* editorial board in Medical Genetics. She has presented invited talks at national and international meetings on topics ranging from Inherited Disorders of Cholesterol Biosynthesis to the Genetics of Autism. She has been named in Best Doctors continuously since 1996, with listings in the fields of medical genetics and pediatric metabolic diseases.



Clifford A. Hudis, M.D.

Dr. Hudis is Chief of the Breast Cancer Medicine Service and Attending Physician at Memorial Sloan-Kettering Cancer Center (MSKCC) in New York City where he is also a Professor of Medicine at the Weill Medical College of Cornell University. He is co-leader of the Breast Disease Management Team at MSKCC, co-chair of the Breast Committee of the Alliance for Clinical Trials in Oncology (formerly Cancer and Leukemia Group), Chair of the Scientific Advisory Committee of the Breast Cancer Research Foundation, a former Associate Editor of the *Journal of Clinical Oncology*, and the current President of the American Society of Clinical Oncology.

Dr Hudis received his BA from Lehigh University and his MD from the Medical College of Pennsylvania in 1983 following the completion of a six-year combined BA and MD program. From 1983 through 1987 he trained in internal medicine at the Medical College of Pennsylvania and served as chief medical resident. His hematology/oncology training was completed at MSKCC in 1991 and since then he has been a member of the Breast Cancer Medicine Service at Memorial Hospital becoming Chief in 1998. His research interests include drug development with a particular focus on the integration of newer agents into the treatment plan for patients with early stage disease. His current research focuses on the exploration and clinical translation of new insights into several signal transduction pathways including those specifically related to obesity, inflammation and cancer.

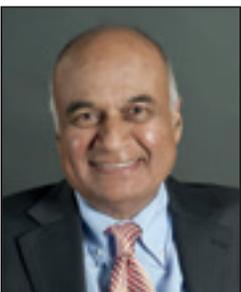


Bruce E. Johnson, M.D.

Dr. Johnson is the Chief Clinical Research Officer at Dana-Farber Cancer Institute and physician in the Lowe Center for Thoracic Oncology at Dana-Farber Cancer Institute and Brigham and Women's Hospital, and Professor of Medicine at Harvard Medical School. He is the leader of the Dana-Farber/Harvard Cancer Center (DF/HCC) Lung Cancer Program and the Principal Investigator of the DF/HCC Specialized Program of Research Excellence (SPORE) in Lung Cancer. His laboratory-based research is devoted to testing novel therapeutic agents for their efficacy against lung cancer and other thoracic malignancies.

Dr. Johnson served on the ASCO Board of Directors from 2008-2011, received the ASCO Cancer Foundation's Translational Research Professorship in 2008, and was selected as a Fellow of the American Society of Clinical Oncology in 2012. He also was awarded the IASLC (International Association for the Study of Lung Cancer) 2010 Scientific Award, given to an IASLC scientist for "life-time scientific contribution in thoracic malignancy research and who has also contributed to the organization's development". He was one of the leaders of the team awarded the AACR (American Association for Cancer Research) 2010 Team Science Award that "recognizes an outstanding interdisciplinary research team for its innovative and meritorious science that has advanced or likely will advance our fundamental knowledge of cancer or a team that has applied existing knowledge to advance the detection, diagnosis, prevention, or treatment of cancer".

Dr. Johnson received his MD from the University of Minnesota, did postgraduate training at the University of Chicago and the National Cancer Institute, and came to the Lowe Center in 1998 after serving for six years as the head of the Lung Cancer Biology section of NCI's Medicine Branch.



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



Karim R. Lakhani, Ph.D., M.S.

Professor Lakhani is the Lumry Family Associate Professor of Business Administration at the Harvard Business School and the Principal Investigator of the Harvard-NASA Tournament Lab at the Institute for Quantitative Social Science. He specializes in the management of technological innovation in firms and communities. His research is on distributed innovation systems and the movement of innovative activity to the edges of organizations and into communities. He has extensively studied the emergence of open source software communities and their unique innovation and product development strategies. He has also investigated how critical knowledge from outside of the organization can be accessed through innovation contests. Currently Professor Lakhani is investigating incentives and behavior in contests and the mechanisms behind scientific team formation through field experiments on the TopCoder

platform and the Harvard Medical School.

Professor Lakhani's research on distributed innovation has been published in Harvard Business Review, Innovations, Management Science, Nature Biotechnology, Organization Science, Research Policy and the Sloan Management Review. He is the co-editor of Perspectives on Free and Open Source Software (MIT Press), a book on community-based innovation. He has also published teaching cases on leading organizations practicing distributed innovation including: Data.gov, InnoCentive, Google, Myelin Repair Foundation, SAP, Threadless, TopCoder and Wikipedia. His research has been featured in publications like BusinessWeek, The Boston Globe, The Economist, Fast Company, Inc., The New York Times, The New York Academy of Sciences Magazine, Science, The Wall Street Journal, The Washington Post, and Wired.

Professor Lakhani was awarded his Ph.D. in management from the Massachusetts Institute of Technology. He also holds an MS degree in Technology and Policy from MIT, and a Bachelor's degree in Electrical Engineering and Management from McMaster University in Canada. He was a recipient of the Aga Khan Foundation International Scholarship and a four year doctoral fellowship from Canada's Social Science and Humanities Research Council. Prior to coming to HBS he served as a Lecturer in the Technology, Innovation and Entrepreneurship group at MIT's Sloan School of Management. Professor Lakhani has also worked in sales, marketing and new product development roles at GE Healthcare and was a consultant with The Boston Consulting Group. He was also the inaugural recipient of the TUM-Peter Pribilla Innovation Leadership Award.



Shari M. Ling, M.D.

Dr. Ling is the Deputy Chief Medical Officer for the Centers for Medicare and Medicaid Services (CMS), and Medical Officer in the Center for Clinical Standards and Quality (CCSQ). She assists the CMS Chief Medical Officer in the Agency's pursuit of higher quality health care, healthier populations, and lower cost through quality improvement. Ling's long-standing focus is on the achievement of meaningful health outcomes through delivery of high quality person-centered care across all care settings, with special interests in the care of persons with dementia, multiple chronic conditions, functional limitations, and reducing health disparities.

Dr. Ling represents CMS on several Health and Human Services (HHS) efforts. She leads the Clinical Services government workgroup for the National Alzheimer's Project Plan, and also serves on the Multiple Chronic Conditions workgroup, and the National Quality Forum Measures Application Partnership – Post-acute Care/Long-term Care workgroup. Dr. Ling had chaired the Measures and Data sources sub-workgroup for the HHS Action Plan for Healthcare Associated Infection (HAI) Prevention in Long-term Care facilities.

Dr. Ling is a Geriatrician and Rheumatologist who received her medical training at Georgetown University School of Medicine where she graduated as a member of the Alpha Omega Alpha Honor Society. Dr. Ling received her clinical training in Internal Medicine and Rheumatology at Georgetown University Medical Center, and completing Geriatric Medicine training at Johns Hopkins University. She served on the faculty of the Johns Hopkins School of Medicine for 5 years before joining the Intramural

Research Program of the National Institutes of Health at the National Institute on Aging as a Staff Clinician to study human aging and age-associated chronic diseases with attention to musculoskeletal conditions and mobility function for 8 years. Dr. Ling is also a Gerontologist who served as the Clinical Services Co-director of the Andrus Older Adult Counseling Center after receiving her training in Direct Service from the Leonard Davis School at the University of Southern California.

Dr. Ling maintains an affiliation as a part-time faculty member in the Division of Geriatric Medicine and Gerontology at Johns Hopkins University School of Medicine, and as a volunteer faculty member of the Division of Rheumatology, Allergy and Clinical Immunology at the University of Maryland. Dr. Ling continues to see patients at the Veterans Administration Medical Center in Baltimore.

Elizabeth Mansfield, Ph.D.

Dr. Mansfield is the Director of the Personalized Medicine Staff in the Office of In Vitro Diagnostic Devices and Radiological Health (OIR) in the Center for Devices, FDA, where she is developing a program to address companion and novel diagnostic devices. Dr. Mansfield formerly served as the Director of Regulatory Affairs at Affymetrix, Inc, 2004-2006. Dr. Mansfield received her PhD from Johns Hopkins University.



Joseph B. Martin, M.D., Ph.D.

Dr. Martin is the Edward R. and Anne G. Lefler Professor of Neurobiology at Harvard Medical School.

Dr. Martin was born in Alberta, Canada. He received his premedical and medical education at the University of Alberta, Edmonton. He completed training in neurology at Case Western Reserve University in Cleveland, Ohio, and received his Ph.D. in anatomy from the University of Rochester in 1971.

Following academic appointments at McGill University, Dr. Martin was appointed chief of the neurology service at the Massachusetts General Hospital, serving from 1978-1989. From 1989-1993, Dr. Martin was Dean of the School of Medicine at University of California, San Francisco. In 1993, he was appointed Chancellor of UCSF, serving four years until his return to Harvard University in 1997.

Dr. Martin served for ten years as Dean of the Faculty of Medicine at Harvard University from 1997 to 2007. At Harvard, in 1999, he helped establish the Dana-Farber/Harvard Cancer Center, an innovative collaboration which brings together seven Harvard-affiliated institutions intent on reducing the burden of cancer. He also led the formation of the Harvard NeuroDiscovery Center, a virtual center of researchers working together on understanding the prevention, causes, and treatment of neurodegenerative diseases like Alzheimer's and Parkinson's disease.

Dr. Martin is a member of the Institute of Medicine of the National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences and an honorary member and past president of the American Neurological Association.

Dr. Martin is author of over 300 scientific publications and several books. The most recent is "Alfalfa to Ivy: Memoir of a Harvard Medical School Dean" published in 2011.

SPEAKERS



Barbara L. McAneny, M.D.

Dr. McAneny, board-certified medical oncologist/hematologist from Albuquerque, N.M., was elected to the American Medical Association Board of Trustees in June 2010. Her many leadership roles have included president of the New Mexico Medical Society (NMMS), president of the Greater Albuquerque Medical Association, and president of the New Mexico Chapter of the American College of Physicians.

She became the delegate to the AMA from the American Society of Clinical Oncology (ASCO) in 2002, and was elected to the AMA Council of Medical Service in 2003, serving as its chair in 2009–2010.

She has also served on several ASCO committees and the ASCO Board of Directors. She is a member of the Community Oncology Alliance Board of Trustees. Dr. McAneny was appointed by Health and

Human Services Secretary Tommy Thompson to the Practicing Physicians Advisory Council from 2002 to 2006. She was a founding member of Oncology Circle, an organization of oncology practices using data to promote best practices. She has served on the board of directors of the Cancer Center Business Summit. She has championed numerous health-related issues including tobacco-use prevention, professional liability reform and emergency medical services (EMS).

In 2012 Dr. McAneny was awarded a \$19.8 million grant from the Centers for Medicare & Medicaid Innovation to test how oncology private practices can provide cancer patients better care at a lower cost.

Among other volunteer activities, she has served on the governor of New Mexico's Task Force on Prenatal Care, the board of Planned Parenthood of New Mexico, and as chair of the joint task force of the NMMS and the New Mexico Bar Association on domestic violence. A recipient of a New Mexico Woman on the Move Award in 2005 and Woman of Influence Award in 2009, Dr. McAneny has been voted several times by her peers as *Albuquerque The Magazine's* "Top Doc" in her specialty.

She co-founded Oncology Hematology Consultants Ltd. in 1987. A managing partner since 1999, she built New Mexico Cancer Center, which provides comprehensive outpatient medical and radiation oncology care and imaging at multiple sites, including several underserved rural areas. She also founded the New Mexico Cancer Center Foundation, which provides grants to patients to help with their nonmedical expenses and to health care professionals and patients for continuing education.

Dr. McAneny graduated magna cum laude from the University of Minnesota in 1973, and with honors from the University of Iowa College of Medicine in 1977. She completed her residency in internal medicine at the University of Iowa in 1980 and her fellowship in hematology/oncology at the University of New Mexico in 2003.

She is married to Steven P. Kanig, MD, a nephrologist who presently focuses on informatics and serves as vice chair of the board of New Mexico's health information exchange. Dr. Kanig also serves as a delegate to the AMA for New Mexico.



Pierre Meulien, Ph.D.

Dr. Pierre Meulien was appointed President and CEO of Genome Canada in October 2010. Prior to this appointment, he served as Chief Scientific Officer for Genome British Columbia from 2007 to 2010. From 2002 to 2007, Dr. Meulien served as the founding CEO of the Dublin Molecular Medicine Centre (now Molecular Medicine Ireland) which linked the three medical schools and six teaching hospitals in Dublin to build a critical mass in molecular medicine and translational research. The Centre managed the Euro 45 Million "Program for Human Genomics" financed by the Irish government and was responsible for coordinating the successful application for the first Wellcome Trust funded Clinical Research Centre to be set up in Ireland. For over 20 years, Dr. Meulien has managed expert research teams with a number of organizations, including Aventis Pasteur in Toronto (Senior Vice President of R&D), and in Lyon, France

(Director of Research). He also spent seven years with the French biotechnology company Transgene in Strasbourg, France as a research scientist and part of the management team. Dr. Meulien's academic credentials include a Ph.D. from the University of Edinburgh and a post-doctoral appointment at the Institut Pasteur in Paris.



Michael Milken, M.B.A.

Mike Milken has been at the forefront of a wide range of initiatives that have influenced public policy, accelerated medical research and expanded access to capital. *Fortune* magazine called him “The Man Who Changed Medicine” for “shaking up the medical establishment and saving lives.”

Milken formalized his previous philanthropy in 1982 by co-founding the Milken Family Foundation, a major force for education reform and medical research. In 1995, he hosted the first Cancer Summit, an event that led to a 1998 March on Washington in support of increased funding of biomedical research. When funding increases slowed in 2003, Milken founded *FasterCures*, which works to remove barriers to progress against all life-threatening diseases.

In September 2012, *FasterCures* hosted *A Celebration of Science* in Washington to honor scientific achievement and draw attention to its profound human, social and economic benefits. Senior members of Congress, from both parties, joined more than 1,000 leaders in medical and scientific research, patient advocacy, industry, philanthropy and public policy.

Among other medical initiatives, Milken founded the Prostate Cancer Foundation, the world’s largest philanthropic funder of research on that disease, and he joined with leading physicians in launching the Melanoma Research Alliance to accelerate progress against fatal skin cancers.

Milken chairs the widely respected Milken Institute, a non-partisan economic think tank whose annual Global Conference brings 3,500 thought leaders and decision makers from 50+ nations to Los Angeles.

As a financier, he revolutionized modern capital markets, making them more democratic and dynamic by expanding access to capital for more than 3,200 companies that created millions of jobs.

Mike (what everyone calls him) graduated from Berkeley with highest distinction and earned his MBA from the Wharton School. He and his wife Lori, who have three children and eight grandchildren, celebrated their 45th wedding anniversary this year. *Esquire* magazine listed him among “The 75 Most Influential People of the 21st Century.” For more information, see www.mikemilken.com.



Tom Miller, S.M.

Mr. Miller, after receiving a degree in Nuclear Engineering from the University of Massachusetts at Lowell, studied Medical Physics at the Harvard/MIT Health Sciences and Technology joint program graduating with a Masters degree in 1982. During his academic career he worked at Los Alamos, the Swiss Institute for Nuclear Research (now the Paul Scherer Institute), Brookhaven National Laboratory, and the Massachusetts General Hospital as a research associate in radiation biophysics. Tom then joined Siemens Medical Systems where, after 9 years, he became the first non-German CEO of a German factory and business unit. He left Siemens after 15 years to become CEO of the global medical operations of Carl Zeiss. Completing a successful turnaround, he joined Analogic

Corporation as CEO. After three years and a doubling of the stock price, Tom left to become CEO of LightLab Imaging, a start-up that he helped to establish. Completing a profitable sale of LightLab, Tom re-joined Siemens eventually serving as a member of the operating board of Siemens Healthcare and the CEO of Customer Solutions Division, responsible for 26,000 employees in over 130 countries. In April 2013 Tom established his own company, GreyBird Ventures, a medical technology consultancy.

SPEAKERS



Cynthia Casson Morton, Ph.D.

Dr. Morton received her Bachelor's of Science degree from the College of William and Mary in Virginia and her Ph.D. in Human Genetics from the Medical College of Virginia in Richmond. She is the William Lambert Richardson Professor of Obstetrics, Gynecology and Reproductive Biology and Professor of Pathology at Harvard Medical School, Director of Cytogenetics and Past Director of the Biomedical Research Institute at Brigham and Women's Hospital. Dr. Morton is certified by the American Board of Medical Genetics in Ph.D. Medical Genetics, Clinical Cytogenetics and Clinical Molecular Genetics. Her research interests are in molecular cytogenetics, hereditary deafness, genetics of uterine leiomyomata and human developmental disorders. She has published over 260 original articles.

As Director of Cytogenetics, Dr. Morton has implemented the use of next-generation sequencing to provide nucleotide resolution of balanced chromosomal rearrangements detected in the prenatal setting. Her laboratory has been a major site for training laboratory geneticists in clinical cytogenetics.

Dr. Morton is a past member of the Board of Directors of the American Board of Medical Genetics where she served as Secretary, Treasurer and Chair of the Accreditation Committee. She was the Chair of the Molecular Genetic Pathology Policy and Exam Committees of the American Board of Medical Genetics and the American Board of Pathology. She served as Member and Chair of the Board of Scientific Counselors of the National Institute of Deafness and Other Communication Disorders, and as Member and Chair of the Board of Regents of the National Library of Medicine. Dr. Morton was a member of the Board of Directors of the American Society of Human Genetics and most recently completed a six year tenure as Editor of *The American Journal of Human Genetics*. Dr. Morton is currently a member of the Counsel of Scientific Trustees of the Hearing Health Foundation, and Chair of the Veteran's Administration Genomic Medicine Program Advisory Committee. Dr. Morton is President-elect of the American Society of Human Genetics and will serve as President in 2014.



Joseph J. O'Donnell

Mr. O'Donnell is Chairman of Centerplate which owns and manages approximately 250 foodservice operations in the leisure and recreation markets throughout the U.S. These venues include convention centers, college and professional sports stadiums, amphitheaters, ski areas, amusement parks and theaters. For the past twenty seven years, Mr. O'Donnell has owned Allied Advertising Agency, the nation's leading print advertising agency in the motion picture industry.

Mr. O'Donnell graduated from Harvard College in 1967 and Harvard Business School in 1971. From 1971 until 1976, he was the Associate Dean of Students for the MBA program and later served as the Administrative Director for the Program for Management Development, both at Harvard Business School.

Mr. O'Donnell is currently a member of the Harvard Corporation; was a member of the Harvard Board of Overseers from 1999 to 2005; for the past 20 years has been a Director of the Associates of Harvard Business School and a member of various Visiting Committees at Harvard College. Mr. O'Donnell is also a Trustee of Malden Catholic High School and the Winsor School. Mr. O'Donnell received The Richard T. Flood Award from Harvard College in 1992 and in 1997, has served as an elected Director of the Harvard Alumni Association and in 2005 he received the Alumni Achievement Award from the Harvard Business School, its most important honor.

Mr. O'Donnell is a Trustee of the National Cystic Fibrosis Foundation and co-founder of the Joey Fund. He received The Outstanding Service Award from the Cystic Fibrosis Foundation in 1983, 1986, and 1989. Additionally, he was awarded the Breath of Life Award in 1994, the Foundation's highest honor. Currently, he is Chairman of the \$75 M Milestones II to a Cure CF Capital Campaign; successfully completed Milestones I, \$175M Campaign in 2011.

Mr. O'Donnell serves as a Trustee of the Children's Hospital Trust, an Overseer at the Boston Boys & Girls Club and the Boston Symphony Orchestra and is a member of the Genetics Advisory Board at Massachusetts General Hospital. Mr. O'Donnell also serves as a Trustee for The Perkins School for the Blind Trust Board. In 2001, Mr. O'Donnell was appointed by President Bush to the Presidents Advisory Committee on the Arts.

Mr. O'Donnell lives in Belmont, Massachusetts with his wife Kathy and two daughters Kate 26 and Casey 24.



Kathryn A. Phillips, Ph.D.

Dr. Phillips is a Professor of Health Economics and Health Services Research at the University of California, San Francisco (UCSF) and Founder / Director of the *UCSF Center for Translational and Policy Research on Personalized Medicine (TRANSPERS)*. Kathryn holds degrees from the University of California-Berkeley, Harvard University (Kennedy School of Government), and the University of Texas at Austin and previously spent eight years working for the federal government.

Kathryn's research examines how health care is organized, delivered, and financed in the US. She focuses on the translation of new technologies into improved patient outcomes, particularly *personalized/precision* medicine—targeting health care interventions to patients based on their genetics—and its impact on clinical care, health economics, and health policy. Kathryn is the Principal Investigator for the TRANSPERS Center, which is a multi-million dollar effort focusing on the translation of personalized medicine into practice and policy. Most recently, she was awarded a four-year NIH grant to examine benefit-risk tradeoffs for whole genome sequencing, including how patients and providers value the information provided, how payers view reimbursement decisions, and how we might measure its economic value. She has published over 100 peer-reviewed articles in leading journals (e.g., *JAMA*, *New England Journal of Medicine*, *Health Affairs*), serves on the editorial board for seven journals including *Health Affairs*, and has had continuous funding from the NIH as a Principal Investigator for over 20 years. Kathryn conducts cross-disciplinary research across the basic, clinical, and social sciences and cross-sector research across academia, industry, and government. She has served as an adviser to many organizations (e.g., Institute of Medicine, President's Council of Advisors on Science and Technology, GenomeCanada, FDA, Australia Pharmaceutical Benefits and Medicare Services Advisory Committees) and regularly speaks to national and international groups. A unique role is her leadership of the TRANSPERS Evidence and Reimbursement Advisory Council, which includes senior executives from the seven largest US health plans, leading regional plans, and pharmacy benefits management companies as well as thought leaders with industry, government, and Medicare perspectives. Kathryn also consults with a number of biotech start-ups, companies, and venture capital firms.



Heidi L. Rehm, Ph.D., FACMG

Dr. Rehm is the Director of the Laboratory for Molecular Medicine at the Partners Healthcare Center for Personalized Genetic Medicine and Assistant Professor of Pathology at Harvard Medical School. Her lab focuses on the translation of new genetic discoveries and technologies into clinical tests that can be used to improve patient outcomes, supporting the model of personalized medicine. Dr. Rehm also conducts research in hearing loss, Usher syndrome, genomic medicine, and healthcare IT.



Charles Sawyers, M.D.

Dr. Sawyers is President of the American Association for Cancer Research and was recently appointed by President Obama to the National Cancer Advisory Board. He is past President of the American Society of Clinical Investigation, and serves on the National Cancer Institute's Board of Scientific Councilors. He is also a Member of the Institute of Medicine of the National Academy of Sciences.

Dr. Sawyers has received numerous accolades, including the AACR-Richard & Hinda Rosenthal Foundation Award, the Dorothy P. Landon-AACR Prize for Translational Cancer Research, the Doris Duke Distinguished Clinical Scientist Award, the American Society of Clinical Oncology David A. Karnofsky Award, and most recently the Breakthrough Prize in Life Sciences and the 2013 American Cancer Society/Society of Surgical Oncology Basic Science Lecture.

SPEAKERS



Charlie Schick, Ph.D.

Dr. Schick is Director, Big Data, Healthcare and Life Sciences at IBM, driving solution development, sales consulting, and go-to-client activities. Prior to IBM he was at Nokia and Children's Hospital Boston in various roles in research, product development, and customer-focused go-to-market activities. He has a graduate degree in Molecular and Cellular Biology from the University of Massachusetts Amherst.



Reed V. Tuckson, M.D., FACP

Dr. Tuckson is a graduate of Howard University, Georgetown University School of Medicine, and the Hospital of the University of Pennsylvania's General Internal Medicine Residency and Fellowship Programs, where he was also a Robert Wood Johnson Foundation Clinical Scholar. Dr. Tuckson is currently the managing director of Tuckson Health Connections, a health and medical care consulting business that brings people and ideas together to promote optimal health outcomes.

Previously, he enjoyed a long tenure as Executive Vice President and Chief of Medical Affairs for UnitedHealth Group, a Fortune 25 health and wellbeing company, which includes the nation's largest health insurer and the industry's most comprehensive health services company. Prior to that, Dr. Tuckson's career includes leadership positions as Senior Vice President for Professional Standards of the American Medical Association (AMA); President of the Charles R. Drew University of Medicine and Science in Los Angeles; Senior Vice President for Programs of the March of Dimes Birth Defects Foundation; and the Commissioner of Public Health for the District of Columbia.

Dr. Tuckson continues to be engaged in leadership positions across the continuum of health promotion and medical care delivery including basic science and its translation into clinical practice; the establishment of biotechnology enterprises; community and individual health enhancement; health information technology and data analysis; telemedicine; clinical care delivery and evaluation; and the integration of clinical medicine and public health systems.

Dr. Tuckson is an active member of the Institute of Medicine of the National Academy of Sciences, serving on, or chairing, several boards and committees. He is also active on the Advisory Committee to the Director of the National Institutes of Health; and serves on the Boards of Cell Therapeutics, Inc.; Howard University and the American Telemedicine Association among others. He has past service on cabinet level advisory committees concerned with health reform, infant mortality, children's health, violence, and radiation testing.

The author of *The Doctor in the Mirror*, a book and media presentation focused on patient empowerment to overcome everyday health issues for Americans 55 and older, Dr. Tuckson was honored to be included on the list of the "50 Most Powerful Physician Executives" in healthcare by Modern Healthcare Magazine.



Lucas Wartman, M.D.

Dr. Wartman is a physician-scientist at Washington University in Saint Louis where he completed his medical school training, internal medicine residency and oncology fellowship. For the last five years, Dr. Wartman has been doing post-doctoral research under the mentorship of Dr. Timothy Ley, studying the genomics of acute myeloid leukemia (AML). Their cancer genomics work is done in an active collaboration with The Genome Institute at Washington University. Specifically, his research focuses on the identification and characterization of genes and molecular pathways that contribute to human leukemogenesis by studying the genomics and epigenomics of a transgenic mouse model of one subtype of AML: acute promyelocytic leukemia. His clinical interests are in the treatment of patients with acute leukemia and in stem cell transplantation and in conducting clinical trials of molecularly-

guided/genetically-defined therapeutics. Dr. Wartman is currently transitioning from his post-doctoral position to being a tenure-track assistant professor with an independent laboratory.

Dr. Wartman, also a leukemia patient, was diagnosed with acute lymphoblastic leukemia during his fourth year of medical school. He has been fighting the disease for the last decade, having had two relapses and having gone through two stem cell transplants. After his last relapse, genomic researchers and his oncologist collaborated to use sequencing data from his cancer cells to identify a drug that would specifically target his refractory leukemia. The disease remains in remission, and he remains dedicated to doing leukemia research and caring for patients with the disease.



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

Dr. Weiss is currently Scientific Director of the Partners HealthCare Center for Personalized Genetic Medicine (PCPGM) and Associate Director, Channing Laboratory, and Professor of Medicine at Harvard Medical School. In this latter capacity, he leads a 28 investigator, 120 person research group examining the environmental and genetic origins of asthma and COPD.

He has authored or coauthored over 500 publications and four books in the area of asthma and COPD risk factors, natural history, and genetics. His initial work concerned the role of airways responsiveness and environmental tobacco smoke exposure in asthma and COPD, the effect of allergen exposure and airways responsiveness on markers of inflammation and the combined effect of these factors on the development of COPD. In 1996, he developed a strong interest in the genetics of asthma and his work over the past 14 years has focused on this, and novel environmental exposures such as vitamin D and the bowel flora. His laboratory is the only laboratory in the world that has active NIH research in the areas of asthma genetics, asthma pharmacogenetics, and COPD genetics. He is the principal investigator or co-investigator on a total of six separate NHLBI-funded grant proposals in the area of the genetics of asthma and Asthma Pharmacogenetics, including a MERIT award.



Matthew B. Zubiller

Mr. Zubiller is vice president for McKesson's Decision Management business. He leads the company's evidence-based decision support and personalized medicine initiatives, areas that promise to change the paradigm for healthcare practice and delivery. Responsible for McKesson's flagship InterQual product line and its Clear Coverage SaaS based decision support platform, he drives operations, strategy, and product development for the business. He is a frequent speaker and author on topics such as next generation exception-based utilization management, decision support, and public policy for molecular and genetic testing.

Previously, he created and ran McKesson's Advanced Diagnostics Management business and was part of the corporate strategy team. His background includes diagnostics, healthcare, enterprise software, global strategy consulting and M&A.

Recognized for his innovation, Mr. Zubiller was voted to Healthspottr's "The Future of Health 100" list (ranked #49). Mr. Zubiller is a leading voice and thinker helping to usher in a new collaborative era of healthcare where stakeholders work together to develop and deploy connected decision management solutions that benefit all stakeholders by optimizing decision-making at all points of care.

Mr. Zubiller's academic credentials include a Bachelor of Science in Economics (BSE) from the Wharton School, University of Pennsylvania, an MBA from the London Business School, and a certificate in Management of Technology jointly from the University of California, Berkeley's HAAS School of Business and the College of Engineering. He enjoys spending his free time with his wife, Love and two young children, Texas and India.

ABOUT US

Partners HealthCare Center For Personalized Genetic Medicine

The Partners HealthCare Center for Personalized Genetic Medicine (PCPGM) 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. PCPGM 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. PCPGM 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 PCPGM, please visit <http://pcpgm.partners.org>.

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SAVE THE DATE

10TH ANNUAL PERSONALIZED MEDICINE CONFERENCE

NOVEMBER 12-13, 2014

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AT HARVARD MEDICAL SCHOOL, BOSTON

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