

CONFERENCE PROGRAM

Preparing for the New Possible

November 14–15, 2018

JOSEPH B. MARTIN CONFERENCE CENTER • HARVARD MEDICAL SCHOOL
77 AVENUE LOUIS PASTEUR, BOSTON, MA 02115

14TH ANNUAL

○ ○ ○ PERSONALIZED
○ ○ ○ MEDICINE
● ● ● CONFERENCE

President's Message

Dear Colleague:

Personalized medicine is redefining possible. The U.S. Food and Drug Administration (FDA) is approving targeted therapies at a record pace, and the first FDA-approved gene transplants may allow us to eliminate disease in some patients by introducing re-arranged genes into human cells. At the same time, newly conceived testing paradigms and transformative artificial intelligence platforms anticipate an era in which we can predict, prevent, and treat disease in previously unimaginable ways.

But these developments challenge policymakers and health systems, most of which were designed to deliver one-size-fits-all medicine.

By exploring these challenges and proposing solutions for them, the *14th Annual Personalized Medicine Conference: Preparing for the New Possible* will outline a path forward. Focusing on the present while considering the future, the conference convenes the world's leading researchers, investors, industry executives, policy experts, payers, clinicians, and patient advocates to define the landscape and outlook for personalized medicine in science, business, and policy. We will examine the infrastructure and business strategies necessary to overcome scientific obstacles, optimize public policies, and change embedded medical norms as we seek to accelerate investment in and adoption of personalized medicine.

Thank you for being with us.

Sincerely yours,



Edward Abrahams, Ph.D.

President

Personalized Medicine Coalition

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PART I

THE INFRASTRUCTURE FOR INNOVATION

November 14, 2018



“We need to make the transition to a predict, prevent and protect health system.”

— Joshua Ofman, M.D., M.S.H.S., Senior Vice President,
Global Value, Access and Policy, Amgen

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Agenda · Part I

7:00 am Registration and Breakfast

8:00 am Opening Remarks

SPEAKER | **Edward Abrahams**, Ph.D., President, Personalized Medicine Coalition

8:10 am **Setting the Stage: Exploring the Promise of Personalized Medicine**

KEYNOTE | **Elizabeth Nabel**, M.D., President, Brigham Health

8:55 am **Shifting Systems: Identifying the Common Challenges and Notable Achievements of Government Efforts to Advance Personalized Medicine**

Government executives have an enormous influence over the direction of health systems and can therefore play a role in developing personalized medicine – but they need to know what works and what doesn't if their respective efforts to promote personalized medicine are going to succeed. With that in mind, government representatives from around the globe will discuss the competitive advantages various countries have in personalized medicine and explore the common challenges and notable achievements of government initiatives to advance the field during this panel discussion.

MODERATOR | **Antonio L. Andreu**, M.D., Ph.D., Scientific Director, EATRIS European Infrastructure for Translational Medicine

Ora Dar, Ph.D., Senior Expert, National Research & Development Projects, Technological Infrastructure Division, Israel Innovation Authority

Tom Fowler, Ph.D., Deputy Chief Scientist, Director of Public Health, Genomics England

Marc LePage, President, CEO, Genome Canada

Liisa-Maria Voipio-Pulkki, M.D., Ph.D., Director General, Chief Medical Officer, Ministry of Social Affairs and Health, Finland

10:10 am Networking Break

10:40 am **Evaluating Patients' Priorities: Understanding Perspectives on Personalized Medicine – A Fireside Chat**

MODERATOR | **Susan McClure**, Founder, Publisher, *Genome* magazine; Board member, Personalized Medicine Coalition

Emily Kramer-Golinkoff, Co-Founder, Emily's Entourage; cystic fibrosis patient

Bryce Olson, Global Marketing Director, Health and Life Sciences Group, Intel Corporation; prostate cancer patient

11:10 am **Automating Actionable: How Artificial Intelligence May Chart a Course for Personalized Medicine**

Artificial intelligence may help inform personalized medicine in the future by perceiving which genes, proteins and other biological characteristics contribute to human disease. During this session, a diverse panel will discuss how artificial intelligence may accelerate drug development, improve clinical decision support and drive patient outcomes – and what that might mean for the future of health care.

MODERATOR | **William S. Dalton**, Ph.D., M.D., Founder, Executive Chairman, M2Gen; Board member, Personalized Medicine Coalition

Colin Hill, Chairman, CEO, Co-Founder, GNS Healthcare

Tom Miller, Managing Partner, GreyBird Ventures LLC

Gregg Talbert, Ph.D., Global Head of Digital and Personalized Health Care Partnering, Roche

Darrell M. West, Ph.D., Vice President of Governance Studies, Director of the Center for Technology Innovation, Douglas Dillon Chair in Governance Studies, The Brookings Institution

12:25 pm Seated Luncheon

1:40 pm **The Lay of the Lab: Exploring the State of the Clinical Laboratory Industry**

KEYNOTE | **David P. King**, J.D., Chairman, CEO, LabCorp

2:25 pm **The Diagnostics Discussion: Evaluating the Extent to Which the Regulatory and Reimbursement Environment for Diagnostic Tests May Help or Hinder Personalized Medicine**

The U.S. Food and Drug Administration and the U.S. Centers for Medicare and Medicaid Services have been working for over a decade to develop regulatory and reimbursement pathways that promote the development of innovative diagnostic tests. Many observers, however, believe the current regulatory and reimbursement landscape still limits the field. This panel of business leaders will discuss the extent to which the existing frameworks and proposed policies may help or hinder personalized medicine.

MODERATOR | **Joseph V. Ferrara**, CEO, Boston Healthcare Associates

Michael Doherty, Senior Vice President, Head of Product Development, Head of Research & Development, Foundation Medicine

Julie Khani, President, American Clinical Laboratory Association

Kimberly Popovits, Chairman of the Board, CEO, President, Genomic Health; Board member, Personalized Medicine Coalition

Mark P. Stevenson, Executive Vice President, Chief Operating Officer, Thermo Fisher Scientific

3:25 pm **Networking Break**

3:55 pm **Examining Policies: Exploring How Emerging US Regulatory Approaches May Help Facilitate Personalized Care Regimens**

The U.S. Food and Drug Administration (FDA) remains firmly committed to regulatory strategies designed to advance personalized medicine. During this wide-ranging fireside chat, two senior leaders from government and industry will discuss the agency's latest actions impacting the oversight of personalized medicine products and services. The discussion will cover topics including but not limited to next-generation sequencing, diagnostic test regulation, digital health and real-world evidence.

MODERATOR | **Cynthia A. Bens**, Senior Vice President, Public Policy, Personalized Medicine Coalition

Jesse Berlin, Sc.D., Vice President and Global Head of Epidemiology, Johnson and Johnson

Lauren Silvis, J.D., Chief of Staff, Immediate Office of the Commissioner, FDA

4:55 pm Engaging Everyone: Leveraging Diversity and Facilitating Equitable Access to Personalized Care

Advancing a medical paradigm that focuses on the unique characteristics of each patient will require, by definition, that patients from diverse backgrounds participate in the medical studies that advance our understanding of disease. Also critical is the need to ensure that those patients have access to personalized care informed by those studies. During this session, panelists will discuss the effort to ensure that all patient populations benefit equally from personalized medicine.

MODERATOR | Donna R. Cryer, J.D., President, CEO, Global Liver Institute

Vence L. Bonham, Jr., J.D., Senior Advisor to the Director of the U.S. National Human Genome Research Institute on Genomics and Health Disparities

Alex J. Carlisle, Ph.D., Chairman, CEO, National Alliance Against Disparities in Patient Health

Adolph P. Falcón, Executive Vice President, National Alliance for Hispanic Health

Edward Tepporn, Executive Vice President, Asian and Pacific Islander American Health Forum

5:55 pm Closing Remarks

SPEAKER | Amy Abernethy, M.D., Ph.D., Chief Medical Officer, Chief Scientific Officer, Senior Vice President, Oncology, Flatiron Health; Board member, Personalized Medicine Coalition

6:10 pm Departure for the Museum of Fine Arts, Boston



WELCOME RECEPTION

AT THE BOSTON MUSEUM OF FINE ARTS

November 14, 2018 • 6:30 p.m. ET



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PART II

THE BUSINESS OF PERSONALIZATION

November 15, 2018



“The successful implementation of [personalized medicine] will depend on the embrace of [its] principles in the business community.”

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

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Agenda · Part II

7:00 am Registration and Breakfast

8:00 am Opening Remarks

SPEAKER | **Stephen L. Eck**, M.D., Ph.D.,
Chief Medical Officer, Immatics US; Board
Chair, Personalized Medicine Coalition

8:10 am **Pioneering Precision: Inside the
Pharmaceutical Industry's Push Toward
Personalized Medicine — A Fireside Chat**

MODERATOR | **Meg Tirrell**, Reporter, CNBC
Daniel O'Day, CEO, Roche Pharmaceuticals

8:55 am **Considering Costs: Evaluating Emerging
Pharmaceutical and Insurance Industry
Business Models in Personalized Medicine**

The pharmaceutical industry is deeply invested in commercializing personalized therapies that must recoup fixed development costs from smaller patient populations covered by health insurance companies that are increasingly concerned about rising health care costs. In that context, this diverse panel will explore the viability of the business model for developing and paying for personalized medicines, tackling issues related to costs, prices, and access.

MODERATOR | **Meg Tirrell**, Reporter, CNBC

Nick Leschly, CEO, bluebird bio

Peter Juhn, M.D., Vice President, Global Head
of Value-Based Partnerships, Amgen

Michael Sherman, M.D., Chief Medical
Officer, Senior Vice President, Harvard Pilgrim
Health Care; Board member, Personalized
Medicine Coalition

Sean Tunis, M.D., Founder, CEO, Center
for Medical Technology Policy; Board member,
Personalized Medicine Coalition

9:55 am Networking Break

10:25 am **Reinventing Research: Are Adaptive Platform
Trials the Model of the Future? (A Harvard
Business School Case Study)**

Recognizing that traditional randomized controlled clinical trials can only study the safety and efficacy of a single therapy in one large population of patients, researchers in personalized medicine increasingly hope that “adaptive platform trials,” which employ advanced statistical techniques to simultaneously test the effectiveness of several personalized treatments in multiple sub-populations of patients, may be the key to new drug approvals in the future. Adaptive platform trials may make drug development more efficient by revealing which of several drug candidates are most promising for which patients, but maximizing the potential of these trials requires unprecedented collaboration among the institutions conducting and sponsoring research on various personalized treatments — and no obvious business models have emerged.

During this interactive case study discussion, professors from Harvard Business School will help us examine how researchers at the Dana-Farber Cancer Institute considered and addressed myriad challenges in their effort to design and operationalize an adaptive platform trial for glioblastoma patients, a deadly disease state for which there are few existing treatment options.

PRESENTED BY

Richard Hamermesh, D.B.A., Co-Faculty Chair,
Harvard Business School Kraft Precision
Medicine Accelerator; and

Ariel D. Stern, Ph.D., Assistant Professor,
Technology and Operations Management Unit,
Harvard Business School

11:40 am **The 14th Annual Leadership in Personalized Medicine Award**

INTRODUCTION | **Steven D. Averbuch**, M.D., Vice President, Head of Precision Medicine, Bristol-Myers Squibb; Board member, Personalized Medicine Coalition

AWARDEE | **Ellen V. Sigal**, Ph.D., Chairperson, Founder, Friends of Cancer Research

12:10 pm **Bag Lunch**

1:10 pm **Predicting and Preventing: Evaluating Progress Toward Personalized Medicine**

The original architects of the personalized medicine paradigm envisioned an era in which clinicians could predict, prevent and treat disease based on an improved understanding of how human biology interacts with external environments. During this session, a panel of experts will examine our progress on each of these fronts during a wide-ranging conversation about personalized medicine's past, present and future.

MODERATOR | **Cynthia Casson Morton**, Ph.D., William Lambert Richardson Professor of Obstetrics, Gynecology and Reproductive Biology, Professor of Pathology, Harvard Medical School; **Kenneth J. Ryan**, M.D., Distinguished Chair in Obstetrics and Gynecology, Brigham and Women's Hospital

Birgit Funke, Ph.D., F.A.C.M.G., Vice President, Clinical Affairs, Veritas Genetics

Luba Greenwood, J.D., Strategic Business Development and Corporate Ventures, Verily (an Alphabet company)

Keith Stewart, M.B., CH.B., Carlson and Nelson Endowed Director, Center for Individualized Medicine, Mayo Clinic

2:10 pm **Assessing the Assays: Determining the Clinical and Economic Utility of Genomic Sequencing**

Advocates for personalized medicine have contended that genomic sequencing can deliver clinical and economic value to patients and the health system by allowing providers to more efficiently diagnose disease and develop treatment plans. Following increased use of genomic sequencing in clinical settings, many stakeholders, including payers, have begun to examine that value proposition more closely. During this session, a pharmaceutical industry representative, a payer, and a health economist will discuss the status and future of the emerging evidence regarding the clinical and economic utility of genomic sequencing, including studies recently commissioned by the Personalized Medicine Coalition.

MODERATOR | **Daryl Pritchard**, Ph.D., Senior Vice President, Science Policy, Personalized Medicine Coalition

Aris Baras, M.D., Vice President, Head, Regeneron Genetics Center, Regeneron Pharmaceuticals

Kristine Bordenave, M.D., F.A.C.P., Corporate Medical Director, Humana

Scott Ramsey, M.D., Ph.D., Full Member, Fred Hutchinson Cancer Research Center; Director, Hutchinson Institute for Cancer Outcomes Research

3:10 pm **PhRMA Foundation Challenge Awards: Developing Value Assessment Strategies That Align With Personalized Medicine**

INTRODUCTION | **Daryl Pritchard**, Ph.D., Senior Vice President, Science Policy, Personalized Medicine Coalition

PRESENTER | **Shreeram Aradhya**, M.D., Head of Global Medical Affairs, Chief Medical Officer, Pharmaceuticals, Novartis; Board member, PhRMA Foundation

3:20 pm **Networking Break**

3:50 pm **Impasse or Inflection Point? — An Investment Analysis**

Sustaining the pace of innovation in personalized medicine will require continued investment in new initiatives, but the financial outlook for the field remains unclear. In that context, this panel of investors will examine whether personalized medicine is at an impasse, an inflection point, or somewhere in between.

MODERATOR | **William A. Sahlman**, Ph.D., Baker Foundation Professor, Harvard Business School

Gregory Dorn, M.D., President, Hearst Health

Cary Pfeffer, M.D., Partner, Third Rock Ventures

Michael Pellini, M.D., Managing Partner, Section 32; Board member, Personalized Medicine Coalition

Salveen Richter, C.F.A., Vice President, Research Division, Goldman Sachs

4:50 pm **Closing Remarks**

SPEAKER | **Edward Abrahams**, Ph.D.,
President, Personalized Medicine Coalition

Speakers



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

Chief Medical Officer, Chief Scientific Officer, Senior Vice President, Oncology, Flatiron Health; Board member, Personalized Medicine Coalition

Amy P. Abernethy, M.D., Ph.D., is the Chief Medical Officer and Chief Scientific Officer at Flatiron Health, a health care technology and services company focused on accelerating cancer research and improving patient care. She is a hematologist/oncologist and palliative medicine physician, as well as an internationally recognized cancer clinical researcher with more than 400 publications.

Dr. Abernethy is an appointee to the National Academy of Medicine's National Cancer Policy Forum, is on the Executive Board for the Personalized Medicine Coalition, and is Past President of the American Academy of Hospice & Palliative Medicine. Before joining Flatiron, Dr. Abernethy was Professor of Medicine at Duke University School of Medicine, where she directed the Center for Learning Health Care in the Duke Clinical Research Institute and the Duke Cancer Care Research Program in the Duke Cancer Institute. She is also on the Board of Directors of athenahealth, Inc., and was featured on TEDMED in 2013.



Edward Abrahams, Ph.D.

President, Personalized Medicine Coalition

Edward Abrahams, Ph.D., is the President of PMC. Representing innovators, scientists, patients, providers and payers, PMC promotes the understanding and adoption of personalized medicine concepts, services and products for the benefit of patients and the health system. It has grown from its original 18 founding members in 2004 to more than 225 today.

Previously, Dr. Abrahams was the Executive Director of the Pennsylvania Biotechnology Association, where he spearheaded the successful effort that led to the Commonwealth of Pennsylvania's investment of \$200 million to commercialize biotechnology in the state. Earlier he had been Assistant Vice President for Federal Relations at the University of Pennsylvania and held a senior administrative position at Brown University.

The author of numerous essays, Dr. Abrahams has taught history and public policy at Brown University and the University of Pennsylvania.



Antonio L. Andreu, M.D., Ph.D.

Scientific Director, EATRIS European Infrastructure for Translational Medicine

Toni is an M.D., Ph.D. who specialized in genetics and genomics of rare diseases. He has been working in the field of neuromuscular disorders from the translational perspective of the pipeline, from basic science to the development of cell and animal models and clinical research.

After working at Columbia University in New York on mitochondrial disorders from 1998 to 2001, he moved to Barcelona to create the Neuromuscular Lab at the Vall d'Hebron Research Institute, where he became Director of the Neurosciences Research Program.

He has also been extremely active in the field of policymaking and has held positions as the Director of the Spanish National Institute of Health Carlos III, creating the national program for personalized medicine. He has also been the CEO of the Bellvitge Hospital, one of the most important University hospitals in Spain, as well as the Director General for Research and Innovation at the Catalan Ministry of Health.

Toni is now the Scientific Director at EATRIS European Advanced Infrastructure for Translational Research.



Shreeram Aradhya, M.D.

Head of Global Medical Affairs, Chief Medical Officer, Pharmaceuticals, Novartis; Board member, PhRMA Foundation

Shreeram Aradhya has been Novartis' Global Head, Medical Affairs, and Chief Medical Officer, Pharmaceuticals, since February of 2017. He is a member of the Pharma Executive Committee and a member of the Development Committee.

Prior to his current appointments, Shreeram served as Global Head, Development, Neuroscience, for more than three years, after serving as Executive Global Program Head for the multiple sclerosis portfolio from 2012 to 2013 and Head of Global Development in India from 2011 to 2012. Prior to that, Aradhya held multiple leadership roles, including Head, U.S. Medical Affairs; Head, Global Medical Affairs for Transplantation and Immunology; Senior Global Program Medical Director for Gilenya; and Clinical Franchise Head for the Immunology and Infectious Diseases Franchise.

Before joining Novartis, Aradhya was an Assistant Professor of Medicine and transplant nephrologist at the University of Pennsylvania, Philadelphia.



Steven D. Averbuch, M.D.

Vice President, Head of Precision Medicine, Bristol-Myers Squibb; Board member, Personalized Medicine Coalition

Dr. Averbuch is Vice President and Head, Precision Medicine, within the Translational Medicine Division of R&D at Bristol-Myers Squibb. In this role, he leads integrated biomarker and pharmacodiagnostic activities across the BMS R&D portfolio.

Dr. Averbuch joined Bristol-Myers Squibb in 2006 and has led the Pharmacodiagnosics Center of Excellence since 2008. Other previous roles include: leading the strategy, business development agreements and execution of external clinical collaborations for the company's immuno-oncology pipeline; executive sponsor and oversight for translational research activities for all late development and marketed oncology compounds; leader of corporate-wide strategic initiatives for Translational and Targeted Medicine; co-leader of the oncology early strategy team, which included responsibility for the execution of Phase 2 oncology programs. Dr. Averbuch has made significant contributions to business development and has participated in multiple successful licensing and acquisition deals.

He previously held positions at Merck Research Laboratories, AstraZeneca and Mount Sinai School of Medicine. He received his M.D. and internal medicine training from the University of Illinois, Chicago, and his medical oncology training at the National Cancer Institute in Bethesda, Maryland.



Aris Baras, M.D., M.B.A.

Vice President, Head, Regeneron Genetics Center, Regeneron Pharmaceuticals

Dr. Baras serves as Vice President, Regeneron Pharmaceuticals and Head of the Regeneron Genetics Center (RGC), one of the largest human genetics programs in the world, spanning large-scale sequencing, informatics, and translational sciences using human genetics to advance and guide the development of Regeneron's pipeline of important new medicines. He has established and leads several foundational genomics collaborations, such as with the Geisinger Health System to sequence at least 250,000 participants and with the U.K. Biobank to sequence 500,000 participants.

The RGC has produced many high-impact discoveries identifying new drug targets (such as HSD17B13 in chronic liver diseases), validating existing development programs (Regeneron's evinacumab program targeting ANGPTL3, REGN3500 targeting IL33, and many more), and contributing important new gene discoveries and precision medicine strategies. The RGC has sequenced more than 300,000 individuals to date, collaborating with more than 60 institutions around the world, and plans to sequence the genomes of millions of participants across its studies.

Previously, Dr. Baras held roles and responsibilities at Regeneron across R & D and business development. Prior to Regeneron, Dr. Baras contributed to other biotechnology ventures and conducted research spanning antibody-based therapeutics, cancer research, and nanotechnology applications in drug development. Dr. Baras received his bachelor's of science, M.D. and M.B.A. all from Duke University.



Cynthia A. Bens

Senior Vice President, Public Policy, Personalized Medicine Coalition

Cynthia A. Bens, Senior Vice President, Public Policy, PMC, leads the Coalition's policy development and government relations efforts and serves as its primary liaison with the U.S. Congress and federal regulators. In collaboration with PMC's Senior Vice President, Science Policy, Bens is responsible for implementing research, regulatory, and reimbursement policy strategies that promote the understanding and adoption of personalized medicine concepts, services, and products to benefit patients and the health system.

Before joining PMC, Bens was the Vice President of Public Policy at the Alliance for Aging Research. Bens guided the Alliance's federal policy work, represented the organization in multiple national coalitions, and directed all aspects of coalitions led by the Alliance. She spent more than a decade at the Alliance advancing policies to expedite the development of interventions for neurological diseases and physical frailty; to remove access barriers for cardiovascular disease treatments; and to enhance the quality of care for older adults living with multiple chronic conditions.



Jesse Berlin, Sc.D.

Vice President and Global Head of Epidemiology, Johnson and Johnson

Dr. Berlin received his doctorate in biostatistics from the Harvard School of Public Health in 1988. After spending 15 years as a faculty member at the University of Pennsylvania, in the Center for Clinical Epidemiology and Biostatistics, Jesse left Penn to join Janssen Research & Development in Biostatistics. He now serves as Vice President and Global Head of Epidemiology across Johnson & Johnson, responsible for pharmaceuticals, devices and consumer products. He has co-authored over 270 peer-reviewed publications in a variety of clinical and methodological areas, including papers on the study of meta-analytic methods for both randomized trials and epidemiology. He served on an Institute of Medicine Committee that developed recommendations for the use of systematic reviews in clinical effectiveness research, and served as Chair of the Scientific Advisory Committee to IMEDS (Innovation in Medical Evidence Development and Surveillance), part of the Reagan-Udall Foundation.

Dr. Berlin co-chairs the Scientific Oversight Committee (with Greg Pappas from FDA) for MDEpiNet, a public-private partnership that is working toward developing methods and data sources for the evaluation of medical devices. Dr. Berlin served as an editorial team member of working group X for CIOMS (The Council for International Organizations of Medical Sciences), which has published guidelines for meta-analysis of drug safety data in the regulatory context. He was elected as a fellow of the American Statistical Association in 2004. In 2013, Dr. Berlin received the Lagakos Distinguished Alumni Award from the Department of Biostatistics at the Harvard School of Public Health.



Vence L. Bonham, Jr., J.D.

Senior Advisor to the Director of the U.S. National Human Genome Research Institute on Genomics and Health Disparities

Vence Bonham received his bachelor of arts from James Madison College at Michigan State University and his juris doctor degree from the Moritz College of Law at the Ohio State University. Mr. Bonham was a tenured faculty member at Michigan State University in the College of Human Medicine and adjunct professor in the Michigan State University College of Law.

Since 2003, Mr. Bonham has served as an investigator in the National Human Genome Research Institute (NHGRI) within the Division of Intramural Research's Social and Behavioral Research Branch. He leads the Health Disparities Genomics Unit, which conducts research

that evaluates approaches to integrating new genomic knowledge and precision medicine into clinical settings without exacerbating inequities in health care delivery. His research focuses primarily on the social influences of new genomic knowledge, particularly in communities of color. He studies how genomics influences the use of the constructs of race and ethnicity in biomedical research and clinical care and the role of genomics in health inequities.

Mr. Bonham also serves as the Senior Advisor to the Director of the NHGRI on Genomics and Health Disparities.



Kristine Bordenave, M.D., F.A.C.P.

Corporate Medical Director, Humana

Kristine Bordenave, M.D., F.A.C.P., is a Corporate Medical Director overseeing Humana's National Medicare/Medicaid Clinical Review Expertise Team. Board-certified in internal medicine, she is driven to ensure efficient, high-quality resources to support the health of present and future generations. She has a particular interest

in integration/collaboration opportunities supporting sustainable maximization of scope and/or scale while improving clinical and financial outcomes. She is a member of several organizations and has multiple publications/presentations related to chronic disease, systems redesign and population genetics.



Alex J. Carlisle, Ph.D.

Chairman, CEO, National Alliance Against Disparities in Patient Health

Dr. Alex Carlisle holds a doctorate in biochemistry and molecular biology from Howard University and has spent the past 17 years developing and applying translational and clinical research approaches in the areas of molecular oncology and neuroscience. Dr. Carlisle received his post-doctoral training at the U.S. National Institutes of Health, where he served at the National Cancer Institute as a leading member of the Cancer Genome Anatomy Project, and at the National Institute for Neurological Disorders and Stroke.

Dr. Carlisle went on to Fox Chase Cancer Center and later joined the Children's Hospital of Philadelphia. Dr. Carlisle then moved to Inova Fairfax Hospital, serving as the Department of Neuroscience's first Principal Investigator for the Inova-George Mason University Neuroscience Translational Research Laboratory. At Inova, he served as Director of the Laboratory of Neuro-Oncology, where he directed research programs in neuroblastoma and traumatic brain injury. He continues to serve as an Affiliate Professor of Molecular Neuroscience at George Mason University's Krasnow Institute.



Donna R. Cryer, J.D.

President, CEO, Global Liver Institute

Donna R. Cryer, J.D., has channeled her personal experience as an IBD and liver transplant patient into professional advocacy as President and CEO of the Global Liver Institute, the innovation and collaboration platform for the liver community. Ms. Cryer most recently served as Chair, President and CEO of the American Liver Foundation, the largest and oldest national nonprofit organization serving liver disease patients and their families. She was the first patient to lead the organization in its 36-year history.

For eight years, Ms. Cryer has led CryerHealth, a health care consulting firm providing strategic counsel to top biopharmaceutical companies, patient advocacy organizations and emerging technology firms on patient engagement in health information technology, drug discovery, and clinical decision-making.



William S. Dalton, Ph.D., M.D.

Founder, Executive Chairman, M2Gen; Board member, Personalized Medicine Coalition

Dr. William (Bill) S. Dalton is Founder and Executive Chairman of M2Gen, a national biotechnology subsidiary of Moffitt Cancer Center. He is the past President, CEO & Center Director of Moffitt Cancer Center, an NCI-Designated Comprehensive Cancer Center (2002–2012). Prior to joining Moffitt, Dr. Dalton was the Dean of the University of Arizona College of Medicine. His research interests include development of information systems to allow aggregation, organization, and sharing of patient data in real time to enhance the discovery and delivery of evidence-based precision medicine.

While at Moffitt, he participated in the development of the “Total Cancer Care Protocol” designed to follow patients throughout their lifetime, with patients donating their clinical data, tissue, and molecular data to support precision medicine. In 2014, the Moffitt Cancer Center partnered with the James Cancer Center at the Ohio State University to form ORIEN, an alliance of 18 cancer centers dedicated to data sharing and collaborative research. For his leadership in the area of personalized medicine, Dr. Dalton was recognized as the 2010 recipient of the Personalized Medicine Coalition’s National Leadership in Personalized Medicine Award. Dr. Dalton’s basic and translational research interests focus on molecular mechanisms of drug resistance and drug discovery. He has over 200 publications, serves on several editorial boards, and has numerous patents in the fields of drug discovery and computer/information networking.



Ora Dar, Ph.D.

Senior Expert, National Research and Development Projects, Technological Infrastructure Division, Israel Innovation Authority

Dr. Ora Dar has 16 years of technological and operational experience, including 13 years (2005–2018) of senior management positions as the head of the Life Sciences sector at Israel Innovation Authority (formerly the Office of the Chief Scientist, the Israeli Ministry of Economy). She currently serves as leader of National Infrastructure Platforms for Biotech R&D.

Dr. Dar initiated and implemented tools and new incentive platforms required for advancing R&D in life sciences companies and for enhancing the technology transfer between academia and industry.

Currently, Dr. Dar is among the leaders of the National Genomic and Personalized Medicine Initiative, which involves the establishment of a national research-oriented genomic-clinical database of 100,000 volunteers.

Prior to joining the Office of the Chief Scientist, Dr. Dar spent 16 years in academic research and served 10 years as a consultant to local and global venture capital and investment firms.

Michael Doherty

Senior Vice President, Head of Product Development, Head of Research and Development, Foundation Medicine

Michael Doherty joined Foundation Medicine in January of 2017 as Head of Product Development, and has served as Head of R&D since January of 2018. Prior to joining the company, Mr. Doherty was Head of Regulatory Affairs at Roche Pharmaceuticals and Genentech for a period of 14 years from 2002 to 2016, overseeing the approvals of products in the fields of oncology, immunology, hematology and bone disease. Prior to Roche Pharmaceuticals and Genentech, he worked in regulatory affairs at

pharmaceutical companies based in the U.K., France, Switzerland and the U.S. Doherty serves as Regulatory Strategy Adviser to VisionGate, a clinical-stage cancer diagnostics and therapeutics company, and as a member of the Board of Monarch BioNetworks.

Mr. Doherty has a B.Sc. in biochemistry from the University of Reading and a diploma in management studies from the University of Portsmouth, in the U.K.



Gregory Dorn, M.D.

President, Hearst Health

Greg Dorn is a Senior Vice President of Hearst and the President and Group Head of Hearst Health, overseeing Hearst's health care businesses in the U.S. and globally, including FDB (First Databank), Zynx Health, MCG, Homecare Homebase, MedHOK, Hearst Health Ventures, and the Hearst Health Innovation Lab. He also serves as a Director of M2Gen.

For more than two decades, Dorn has been focused on raising the standard of excellence for patient care across the health care spectrum through clinically rigorous guidance delivered by efficient, scalable technology. He is the co-inventor of two patented health care software technologies that continue to be used in health systems across the U.S.

Dorn has held a variety of leadership positions across Hearst, including Chief

Operating Officer of Zynx Health and President of FDB. In 2013, he was appointed a Vice President of Hearst to lead its growing portfolio of health care companies. He became President of Hearst Health in 2014. Each year in the U.S., care guidance from Hearst Health reaches 85 percent of discharged patients and 205 million insured individuals. It also accounts for 70 million home health visits and 3.2 billion dispensed prescriptions.

Dorn received his medical doctorate from the Columbia University College of Physicians and Surgeons and his bachelor's degree from the Columbia University School of Engineering. He performed his clinical training at UCLA, where he also obtained his master's degree in health services management.





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

Chief Medical Officer, Immatics US; Board Chair, Personalized Medicine Coalition

Dr. Eck has over 15 years of leadership experience in the development of oncology drugs and related biomarkers. He has served as Vice President of Oncology Medical Sciences at Astellas Pharma Global Development, Inc. Previous to that, he served as Vice President, Translational Medicine & Pharmacogenomics at Eli Lilly and Company, where his group developed the biomarkers and companion diagnostics needed for study-specific decision making and for tailoring biotherapeutics to unique patient populations. Prior to joining Lilly, he served in a variety of oncology and neuroscience drug development leadership roles at Pfizer, Inc.

Dr. Eck is a Board-certified hematologist who holds a Ph.D. in chemistry from Harvard University and received his M.D. from the University of Mississippi School of Medicine. He serves on the Board of Directors of Luminex Corporation and is a Fellow of the American Association for the Advancement of Science. He is also a member of the University of Texas MD Anderson Cancer Center President's Advisory Board for the Moonshot Program.



Adolph P. Falcón, M.P.P.

Executive Vice President, National Alliance for Hispanic Health

As the Executive Vice President of the National Alliance for Hispanic Health, Adolph Falcón provides leadership and management for the Alliance's program portfolio and development efforts. He also oversees the science and policy portfolio of the Alliance, including serving as Director of the Alliance's Healthy Americas Institute at the University of Southern California Keck School of Medicine.

A nationally recognized expert on Hispanic health policy, he played a leading role in the landmark Disadvantaged Minority Health Improvement Act of 1990 and most recently has been active in the Children's Health Insurance Program Reauthorization Act, Sugar-Sweetened Beverages Tax Act, Personal Care Products Safety Act, and regulatory efforts to improve the quality of health care.



Joseph V. Ferrara

CEO, Boston Healthcare Associates

Mr. Ferrara has over 20 years of experience in life sciences consulting, working with biopharmaceutical, medical device, diagnostics, and health care IT clients in market and business development strategy. He leads the global consulting team with practice areas in reimbursement and pricing, health economics, market analysis, and business development strategy. Mr. Ferrara has extensive experience in the development of novel business approaches designed to capture evidence-based value for innovative health care technologies. Mr. Ferrara writes and speaks extensively on the subject of the value of medical technology innovation, with a particular focus on pharmacogenomics, specialty pharmaceuticals, and novel therapeutic devices.

Prior to his consulting role, Mr. Ferrara led a joint venture between Boston Healthcare and a nonprofit research organization focused on a global electronic medical record network for the purposes of clinical trials and health outcomes research.

Mr. Ferrara completed undergraduate studies at the University of Cincinnati and received a master's degree from Harvard University.



Tom Fowler, Ph.D.

Deputy Chief Scientist, Director of Public Health, Genomics England

Dr. Tom Fowler is Genomics England's Director of Public Health and Deputy Chief Scientist. In this capacity, Tom works to support the team around rare diseases, infectious diseases and cancer. In particular, he has led the rare disease pilot phase of the 100,000 Genomes Project. He also coordinates the Project's infectious disease strand, which is led primarily by Public Health England.

After obtaining a Ph.D. in behavioural genetics in 2003, his career began as a Specialist Registrar in Public Health, working in the NHS. He has worked in both commissioning and specialised commissioning and held roles such as regional epidemiologist and health protection consultant.

As a locum Public Health consultant at the Chief Medical Officer's Private Office from 2011–2013, Tom was Editor-in-Chief of the *Annual State of the Public's Health* (Vol. I), a comprehensive review of health data for England. During this time, Tom worked with the Chief Medical Officer of England on thought leadership around public health, including wellness and antimicrobial resistance. Tom was a member of the Public Health Genomics European Network (PHGEN) meeting that led to the Declaration of Rome 2012 summary of the European Best Practice Guidelines for Quality Assurance, Provision and Use of Genome-based Information and Technologies.



Birgit Funke, Ph.D., F.A.C.M.G.

Vice President, Clinical Affairs,
Veritas Genetics

A board-certified clinical molecular geneticist, Funke is also an Associate Professor of Pathology at Harvard Medical School.

In her role at Veritas, Dr. Funke works with a team of over 100 people made up of curators, bioinformaticians and developers to streamline the company’s interpretation process, implement automation, and deliver actionable clinical insights to consumers (and their physicians) around the world.



Luba Greenwood, J.D.

Strategic Business Development and Corporate
Ventures, Verily (an Alphabet Company)

Luba brings to Verily pharmaceutical, biotechnology, and digital health industry experience and expertise in building and advising innovative technology companies and providing strategic counsel to global corporations. Previously, Luba has served as Vice President of Global Business Development and Mergers & Acquisitions at Roche, where she also established and led the East Coast Innovation Hub for the Diagnostics Division. Luba is on the Board of MassBio and IRX Therapeutics, and serves as Advisor to Dana-Farber Cancer Institute, as part of its Business Development Council. She is also a lecturer at Boston University Law School and School of Management, where she has taught courses in life sciences, business law, innovation, and entrepreneurship since 2014.

Luba’s career has spanned leadership roles in venture investing, business development, mergers & acquisitions, law, and operations. Luba began her career practicing law at a leading national law firm, Wilmer Cutler Pickering Hale and Dorr, where she represented clients in securities, intellectual property, regulatory, corporate and litigation matters.

Luba is a recipient of several awards and honors for her work in the community, including the Science Club for Girls Catalyst Award for her commitment to advocating for women in science and technology. Luba served as nonprofit Board member of Longwood Symphony Orchestra, Executive Coach for MassNextGen, Co-Chair of MassBio’s Entrepreneur’s University, and Mentor and Judge for MassCONNECT, MIT 100K Entrepreneurship Competition, and MassChallenge.



Richard Hamermesh, D.B.A.

Co-Faculty Chair, Harvard Business School
Kraft Precision Medicine Accelerator

Richard Hamermesh is a Senior Fellow at the Harvard Business School, where he was formerly the MBA Class of 1961 Professor of Management Practice. Currently, Richard is the Faculty Co-Chair of the Kraft Precision Medicine Accelerator. Richard created and teaches the second-year MBA elective, Building Life Science Businesses. Previously, he was the course head for the required first-year course, The Entrepreneurial Manager.

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 more than 20 organizations. He was the founding president of the Newton Schools Foundation and served on the editorial board of the *Harvard Business Review*.

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 more than 100 case studies and numerous articles, including his recent publications “What Precision Medicine Can Learn from the NFL” and “One Obstacle to Curing Cancer: Patient Data Isn’t Shared.”



Colin Hill

Chairman, CEO, Co-Founder,
GNS Healthcare

Colin Hill is a leading voice in machine learning in health care and precision medicine. He co-founded GNS Healthcare in 2000 and has since served as Chairman and CEO. Colin sits on the Board of Biotelemetry, Inc. (NASDAQ: BEAT), a leading mobile health information company, and PPD, a leading global contract research organization. Colin was a founding member of the Board of Directors of AesRx (acquired by Baxter in 2014). In 2004, Colin was named to *MIT Technology Review's* list of the top 100 innovators in the world under the age of 35.



Peter Juhn, M.D., M.P.H.

Vice President, Global Head of Value-Based Partnerships, Amgen

Dr. Peter Juhn is Vice President and Global Head of Value-Based Partnerships at Amgen. He is responsible for implementing partnerships with payers, care delivery organizations and other key health care stakeholders that can lead to more clinical improvement opportunities for patients with serious and debilitating illnesses and result in greater overall value for the health care system.

Most recently, he was Vice President for Integrated Care Services in the Global Diabetes Division at Sanofi, where he was responsible for creating new patient service platforms and their attendant new business models. He led the business planning efforts for the Sanofi joint venture in diabetes with Verily (aka Google Life Sciences).

Prior to Sanofi, he was at Medco Health Solutions (at the time, the largest pharmacy benefit manager with 65 million enrollees) as President of the Therapeutic Resource Centers division, leading a team of over 1,000 pharmacists providing medication management support to Medco's members, and then as Chief Medical Officer of Medco International, where he led the delivery of medication support programs for clients in the U.K., Germany, Sweden and the Netherlands.



Julie Khani, M.P.A.

President, American Clinical Laboratory Association

Julie Khani became President of the American Clinical Laboratory Association (ACLA) in 2017. She joined ACLA in July of 2013 as Senior Vice President and was named Executive Vice President in 2016.

Khani leads ACLA's efforts to advance public policies that promote innovation and protect and enhance patient access to life-improving and life-saving diagnostics. ACLA members represent the diversity of the clinical laboratory industry and include national, regional, specialty, hospital, ESRD, anatomic pathology, skilled nursing facility and academic medical center laboratories.

Ms. Khani is recognized as an effective leader, consensus builder and advocate. Prior to joining ACLA, she served in senior roles at the National Association of Chain Drug Stores (NACDS). She was instrumental in the inclusion of pharmacy access standards in Medicare Part D, establishing incentives for TRICARE beneficiaries to obtain immunizations at retail pharmacies, and the implementation of the Affordable Care Act provisions on Medicaid reimbursement for generic drugs.

Previously, Khani served as Legislative Manager at Ford Motor Company, where she was responsible for health and labor issues and the company's political action committee. Ms. Khani was also Associate Director, Government Relations, at Planned Parenthood Pennsylvania Advocates, where she managed several successful statewide campaigns on health and welfare issues. She holds a bachelor of arts from New York University and a master of public administration from George Washington University.



David P. King, J.D.

Chairman, CEO, LabCorp

David King, J.D., is the Chairman and CEO of Laboratory Corporation of America Holdings (LabCorp), one of the world's largest networks of clinical laboratories. Prior to joining LabCorp in 2001, Mr. King worked for many years as the company's outside counsel as a partner with Hogan & Hartson LLP (now Hogan Lovells) in Baltimore, Maryland.

Mr. King sits on the Board of Cardinal Health, Inc., a *Fortune 100* health care company. He also chairs the Board of the American Clinical Laboratory Association and serves on the Board of the Seattle Science Foundation.



Emily Kramer-Golinkoff, M.B.E.

Co-Founder, Emily's Entourage; cystic fibrosis patient

Emily Kramer-Golinkoff is Co-Founder of Emily's Entourage, a 501(c)3 that accelerates research for new treatments and a cure for cystic fibrosis. She is also an internationally recognized patient advocate and speaker.

Named a "Champion of Change" for President Obama's Precision Medicine Initiative, Emily's Entourage has awarded over \$3.4 million in research grants since 2011, leading worldwide efforts to fast-track research and drug development on nonsense mutations in cystic fibrosis. The organization has been featured on CNN, Time.com, People.com and more.

Emily has a master's degree in bioethics and certification in clinical ethics mediation from the University of Pennsylvania, where she also completed her undergraduate degree.



Marc LePage

President, CEO, Genome Canada

Marc LePage is President and CEO of Genome Canada. Before assuming this role in January of 2016, he served as President and CEO of G enome Qu ebec since December 2011, where he led a major increase in research activity and enhanced focus on the development of genomic applications within priority sectors in the province.

He brings a wealth of experience in the innovation sector and venture capital, in addition to a broad network of international contacts. He is an expert in international partnerships and previously served as Special Advisor, Climate Change and Energy, for the Embassy of Canada in Washington, D.C., and worked as Consul General at the Canadian Consulate in San Francisco/Silicon Valley.

Marc LePage was also one of the pioneers behind the founding of Genome Canada in 2000. During his tenure as Executive Vice President of Corporate Development, he made a significant contribution to the development of genomics in Canada.

From 1994 to 2000, he worked as Director of Business Development for the Medical Research Council, where he was in charge of building international partnerships with the pharmaceutical industry, venture capital and foundations.



Nick Leschly, M.B.A.

CEO, bluebird bio

Nick Leschly has served as CEO of bluebird since September of 2010. Formerly, Nick was a Partner and Founding Member of Third Rock Ventures in 2007. Nick played an integral role in the overall formation, development and business strategy of several of Third Rock's portfolio companies, including Agios Pharmaceuticals, Inc., and Edimer Pharmaceuticals, Inc.

Prior to joining Third Rock, he worked at Millennium Pharmaceuticals, leading several early-stage drug development programs, and served as the product leader for VELCADE. Nick also founded and served as the CEO of MedXtend Corporation. He received his B.S. in molecular biology from Princeton University and his M.B.A. from Wharton Business School. He currently serves as a Board member of the Biotechnology Innovation Organization (BIO), Synlogic and Proclara Biosciences.

Susan McClure

Founder, Publisher, *Genome* magazine; Board member, Personalized Medicine Coalition

Susan brought 30 years of journalistic experience to her role as Publisher for *Genome* magazine — the first consumer magazine exclusively devoted to personalized medicine and genomics.

Prior to the launch of *Genome*, she spent 10 years as the publisher of *CURE* — a magazine for cancer patients, survivors and caregivers. During her tenure at *CURE*, she also served as Vice President of Patient Engagement for McKesson Specialty Health.

In 2016, Susan was honored by *Folio* as one of the “Top Women in Media” for her entrepreneurial efforts in magazine publishing and media. She has over 20 years of experience delivering first-class sales and management strategies to leading and start-up media and health care organizations, and is especially skilled at creating collaborative partnerships that result in highly respected educational offerings for patients and health care providers.



Tom Miller

Managing Partner, GreyBird Ventures LLC

After earning a graduate degree from the Harvard/MIT Health Sciences and Technology program, Tom joined Siemens, where he ran the global MRI business. He has also served as the CEO of the global medical operations of Carl Zeiss, the CEO of Analogic Corporation, and Chairman and CEO of LightLab Imaging, a start-up he helped to establish and sell. Tom re-joined Siemens in 2002, serving as a member of

the Global Operating Board and Division CEO of Siemens Healthcare, with 26,000 employees in over 130 countries. In 2013, Tom started GreyBird Ventures, an investment firm focused on technologies for precision medicine diagnosis. Tom is a speaker on health care technology at conferences around the world and serves as director or chairman on the boards of five medical technology companies.





Cynthia Casson Morton, Ph.D.

William Lambert Richardson Professor of Obstetrics, Gynecology and Reproductive Biology, Professor of Pathology, Harvard Medical School; Kenneth J. Ryan, M.D., Distinguished Chair in Obstetrics and Gynecology, Brigham and Women’s Hospital

Cynthia Casson 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. 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 300 original articles.

As Director of Cytogenetics at BWH, 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 served as President of the American Society of Human Genetics in 2014. She was a member of the Board of Directors of the Society and completed a six-year tenure as editor of its journal, *The American Journal of Human Genetics*. She is currently Co-Editor of *Human Genetics*. Dr. Morton also 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 previously the Chair of the Molecular Genetic Pathology Policy and Exam Committees of the American Board of Medical Genetics and the American Board of Pathology.



Elizabeth Nabel, M.D.

President, Brigham Health

Betsy Nabel has served as President of Harvard-affiliated Brigham Health — an academic health care system which includes Brigham and Women’s Hospital, Brigham and Women’s Faulkner Hospital, and the Brigham and Women’s Physician Organization — since 2010. A cardiologist and distinguished biomedical researcher, Nabel is Professor of Medicine at Harvard Medical School.

Nabel brings a unique perspective to health care based on her experience as a physician, research scientist, academic medicine leader and wellness advocate. At Brigham Health, Nabel is leading development of a new model of academic medicine devoted to maintaining and restoring health through leadership in scientific discovery, education and compassionate care. Initiatives include a new translational research and clinical facility, leading-edge care redesign and a \$1.5 billion campaign to advance life-giving breakthroughs.

Nabel has a long record of advocacy for health and broadening access to care. As Director of the National Heart, Lung, and Blood Institute from 2005–2009, Nabel leveraged the \$3 billion research portfolio to establish pioneering scientific programs in genomics, stem cells, and translational research. One of her signature advocacy efforts was the Red Dress Heart Truth campaign, which raises heart awareness in women through unprecedented industry partnerships.



Daniel O'Day, M.B.A.

CEO, Roche Pharmaceuticals

Daniel O'Day is the CEO of Roche Pharmaceuticals and a member of the Roche Corporate Executive Committee.

Daniel has been in his current role since 2012, and previously served as CEO of Roche Diagnostics. His global career spans three decades of diverse leadership roles across North America, Asia Pacific and Europe.

After joining Roche Pharmaceuticals in 1987, Daniel held various roles in the U.S. before moving to Roche headquarters in Switzerland in 1998. During his time there, he held leadership roles in Global Marketing and Lifecycle Management. In 2001, Daniel's career took him to Tokyo, where he was Head of Corporate Planning for Roche Pharma in Japan, and later to Denmark, as General Manager.

Daniel became President of Roche Molecular Diagnostics in California in 2006, and subsequently returned to Roche headquarters to lead the Diagnostics Division.

Daniel holds a bachelor's of science in biology from Georgetown University in Washington, D.C., and an M.B.A. from Columbia University in New York.



Bryce Olson

Global Marketing Director, Health and Life Sciences Group, Intel Corporation; prostate cancer patient

Bryce Olson is the Global Marketing Director for Intel's Health and Life Sciences group. One of the areas he focuses on is bringing technology and science together in the exciting area of genomics and precision medicine with a powerful message on how this saves lives. Genomic sequencing and precision medicine gave him a life he didn't think he'd get to live.

Bryce is inspired by connecting the advances in life sciences to clinical settings and helping patients understand these new opportunities. He is a sought after keynote speaker both locally and nationally, and his story has been covered by both local and national media. Bryce also started FACTS (Fighting Advanced Cancer Through Songs), a movement that uses the power of music to build awareness for a new way to fight cancer and bring molecular testing and precision medicine to other advanced cancer patients. In 2017, Bryce wrote and co-produced a rock-n-roll album, with proceeds going towards the FACTS movement, that brought together a variety of Portland, Oregon based musicians and singers including Jenny Conlee from the Decemberists, Martha Davis from the Motels, Pete Krebs and Michelle DeCourcy — all four of whom are also cancer survivors.



Michael Pellini, M.D., M.B.A

Managing Partner, Section 32; Board member,
Personalized Medicine Coalition

Dr. Pellini is Managing Partner of Section 32, a venture fund that invests in companies and inventors that are changing the way humans use technology and the way technology betters humanity. Previously, he served as CEO of Foundation Medicine (NASDAQ:FMI) from May of 2011 until he transitioned to Chairman in February of 2017.

He currently serves as a member of the Board of Directors for Tango Therapeutics, Singular Genomics, Adaptive Biotechnologies, Octave Health, Vineti, the Personalized Medicine Coalition, and the Mission Hospital Foundation, in addition to holding his Board Chair position with Foundation Medicine. As a physician with more than 20 years of executive experience with companies at the forefront of clinical diagnostics and genomics, Dr. Pellini brings a breadth of understanding in personalized medicine, with a particular interest and focus on defeating cancer. Dr. Pellini is a member of the President's Leadership Council at Thomas Jefferson University and Jefferson Health, as well as the Advisory Board for Mission Hospital's Cancer Institute (Provident/St. Joseph Health).

Dr. Pellini received a B.A. from Boston College, an M.B.A. from Drexel University, and an M.D. from Jefferson Medical College.



Cary Pfeffer, M.D.

Partner, Third Rock Ventures

Cary Pfeffer joined Third Rock Ventures at its inception in 2007 and has more than 20 years of business development and transaction experience, along with a broad array of biotech product development experience. Cary leads Third Rock's partner development efforts, including building and maintaining strong relationships to work with large biotech and pharmaceutical companies. He has played an instrumental role in a number of innovative alliances and collaborative company building efforts across our portfolio, including an industry-leading global strategic collaboration between Agios and Celgene in the field of cancer metabolism. Cary supports and advises on business development efforts across our portfolio and has also assumed active leadership roles in our portfolio companies, functioning as CEO and chief business officer through the first 12-18 months after launch.

Before joining Third Rock, Cary founded The Pfeffer Group, a boutique consulting firm that provided business development and strategy advisory services, completing multiple transactions for leading biotechnology and life sciences companies. Prior to that, Cary spent more than a decade at Biogen, where he held a variety of senior and executive level U.S. and global management roles focused on business and market development, product development, and commercial operations.

Kimberly Popovits

Chairman of the Board, CEO, President, Genomic Health; Board member, Personalized Medicine Coalition

Committed to changing the paradigm of cancer care, Kim Popovits has led Genomic Health in revolutionizing the treatment of cancer through genomic-based diagnostic tests for breast, colon and prostate cancers that address the overtreatment and optimal treatment of early-stage cancer, one of the greatest issues in health care today. Kim has served as Genomic Health's Chairman of the Board since 2012, and CEO and President since 2009.

Prior to joining Genomic Health, Kim served as Senior Vice President, Marketing and Sales, at the biotechnology company, Genentech, Inc. During her 15 years

at Genentech, Kim led the successful commercialization of 14 new therapies, including Herceptin®, the revolutionary targeted treatment that changed the way doctors treat a particularly aggressive form of breast cancer.

Kim currently serves on the boards of the California Life Sciences Association (CLSA), the Personalized Medicine Coalition (PMC), the American Clinical Laboratory Association (ACLA), and MyoKardia, Inc. Kim is also the President of The Coalition for 21st Century Medicine, and serves as an Advisor to the Healthcare Businesswomen's Association (HBA).



Daryl Pritchard, Ph.D.

Senior Vice President, Science Policy, Personalized Medicine Coalition

Daryl Pritchard, Ph.D., is the Senior Vice President of Science Policy at PMC, where he leads PMC's efforts to increase awareness and understanding of personalized medicine; identify and address barriers to the adoption of personalized medicine into the health care system; and develop and promote appropriate clinical, health care infrastructure, regulatory and payment policies.

Before coming to PMC, Dr. Pritchard served as the Director of Policy Research at the National Pharmaceutical Council. Prior

to joining NPC, he served as the Director of Research Programs Advocacy and Personalized Medicine at the Biotechnology Innovation Organization (BIO).

Dr. Pritchard received his Ph.D. and master's degree in genetics from the George Washington University, and completed a post-doctoral research fellowship at the Children's National Medical Center. Earlier, he was awarded the first American Society of Human Genetics/NHGRI Fellowship in Genetics and Public Policy.





Scott Ramsey, M.D., Ph.D.

Full Member, Fred Hutchinson Cancer Research Center; Director, Hutchinson Institute for Cancer Outcomes Research

Dr. Ramsey is a general internist and health economist. He is a Full Member in the Cancer Prevention Program, Public Health Sciences Division at the Fred Hutchinson Cancer Research Center, where he directs Hutchinson Institute for Cancer Outcomes Research, a multidisciplinary team devoted to clinical and economic evaluations of new and existing cancer prevention, screening and treatment technologies. In addition, Dr. Ramsey is a Professor in the Schools of Medicine and Pharmacy at the University of Washington.

Trained in medicine and economics, Dr. Ramsey's research focuses on economic evaluations in cancer. He has published widely on patterns of care, costs, and cost-effectiveness of treatments for lung, colorectal, and prostate cancer. His research portfolio and interests include: large scale SEER-Medicare/Cancer Registry data linkages, patient-reported outcomes, economic modeling of health care interventions, cost-effectiveness analysis, quality of life assessment, patterns of care, health care utilization, economic burden of disease for patients and society, pragmatic trial design, early technology assessment, and stakeholder engagement.

Dr. Ramsey is Co-Chair of the Outcomes and Comparative Effectiveness Committee of the Southwest Oncology Group, past president of the International Society of Pharmacoeconomics and Outcomes Research (ISPOR), and has served on the Institute of Medicine's Cancer Policy Forum.



Salveen Richter, C.F.A.

Vice President, Research Division, Goldman Sachs

Salveen Richter, C.F.A., covers the biotechnology sector in the Global Investment Research Division at Goldman Sachs. Prior to joining Goldman Sachs in October of 2015, Salveen was a Managing Director at SunTrust Robinson Humphrey, covering biotechnology. She started her career at Jefferies, where she also covered biotechnology. Salveen received a B.S. in biomedical engineering and a minor in entrepreneurship and management from Johns Hopkins University.



William A. Sahlman, Ph.D.

Baker Foundation Professor, Harvard Business School

William Sahlman is a Baker Foundation Professor of Business Administration at Harvard Business School. Mr. Sahlman received an A.B. degree in economics from Princeton University (1972), an M.B.A. from Harvard University (1975), and a Ph.D. in business economics (1982), also from Harvard. He joined the Harvard Business School faculty in 1980.

His research focuses on the investment and financing decisions made in entrepreneurial ventures at all stages in their development. Mr. Sahlman has written numerous articles and two textbooks on topics including entrepreneurial management, venture capital, private equity, deal structuring, incentives, commercializing science, impact investing, and the role of entrepreneurship in the global economy.

In 1985, Mr. Sahlman introduced a new second-year elective course called Entrepreneurial Finance. Over 8,000 students have taken that course since it was first offered. In 2000, Mr. Sahlman helped design and introduce The Entrepreneurial Manager, a required course in the first year M.B.A. curriculum. Mr. Sahlman has published over 200 cases and notes for classroom use.



Michael Sherman, M.D., M.B.A., M.S.

Chief Medical Officer, Senior Vice President, Harvard Pilgrim Health Care; Board member, Personalized Medicine Coalition

Michael Sherman serves as Chief Medical Officer and Senior Vice President for health services for Harvard Pilgrim Health Care. A pioneer in developing outcomes-based payment agreements with pharmaceutical companies, he recently signed the first value-based agreement for a gene therapy used to treat a form of blindness.

Dr. Sherman serves as Chair of the Board of Managers of the Harvard Pilgrim Health Care Institute, and on the Advisory Board of the Institute for Clinical and Economic Review (ICER). He also is the Chair for AHIP's CMO Leadership Council, and serves on the Board of Directors for the Personalized Medicine Coalition, and on the Board of Advisors for the Harvard Business School Healthcare Initiative.

Prior to joining Harvard Pilgrim, Dr. Sherman served as Corporate Medical Director, Physician Strategies, for Humana, and he previously held leadership positions at UnitedHealth Group, Thomson Medstat (now IBM Truven), HealthAllies, which was purchased by UnitedHealth Group in 2003, Immusol, and Da Vita.

Dr. Sherman holds a B.A. in anthropology and natural sciences and an M.S. in biomedical anthropology from the University of Pennsylvania. He received his M.D. from Yale and M.B.A. from the Harvard Business School. Dr. Sherman is a diplomate of the American Board of Anesthesiology and American Board of Medical Management. In 2009, he was named a fellow of the American College of Physician Executives, and he currently serves on the faculty of the Department of Population Medicine at Harvard Medical School.



Ellen V. Sigal, Ph.D.

Chairperson, Founder, Friends of Cancer Research

Ellen V. Sigal, Ph.D., is Chairperson and Founder of Friends of Cancer Research (*Friends*). *Friends* is an advocacy organization based in Washington, D.C., that drives collaboration among partners from every health care sector to power advances in science, policy and regulation that speed life-saving treatments to patients. During the past 20 years, *Friends* has been instrumental in the creation and implementation of policies ensuring patients receive the best treatments in the fastest and safest way possible.

Dr. Sigal is Chair of the Board of Directors of the Reagan-Udall Foundation, a partnership designed to modernize medical product development, accelerate innovation and enhance product safety in collaboration with the U.S. Food and Drug Administration. She also serves on the Board of the Foundation for the U.S. National Institutes of Health, where she chairs its Public Private Partnerships Committee.



Lauren Silvis, J.D.

Chief of Staff, Immediate Office of the Commissioner, FDA

Lauren Silvis serves as the Chief of Staff to U.S. Food and Drug Administration (FDA) Commissioner Scott Gottlieb, M.D. In this capacity, she provides advice and counsel to the Commissioner and acts as the Commissioner's direct liaison to other agencies and organizations on key initiatives. She also works closely with the agency's individual product centers to support their implementation of agency policy and commitments. She provides strategic direction to senior leadership to advance agency priorities.

Ms. Silvis has deep expertise in all aspects of the Federal Food, Drug and Cosmetic Act and the oversight of FDA-regulated products. She has significant experience in regulatory and compliance issues, including clinical trials, premarket review and approval, product safety and promotion, import and export, and current good manufacturing practice.

Before being appointed Chief of Staff, Ms. Silvis served as Deputy Center Director for Policy in FDA's Center for Devices and Radiological Health. In this role, she led the development and implementation of all medical device policies, regulations, and guidance, and oversaw the Center's communication and education functions. She regularly advised on regulatory, programmatic and legislative issues affecting medical devices and represented the Center on cross-cutting agency policy issues.



Ariel D. Stern, Ph.D.

Assistant Professor, Technology and Operations Management Unit, Harvard Business School

Ariel Dora Stern is an Assistant Professor of Business Administration and Hellman Faculty Fellow in the Technology and Operations Management Unit at Harvard Business School. She teaches the Technology and Operations Management course in the M.B.A. required curriculum.

Ariel's research focuses on the management of innovation in health care, with a focus on the medical device and pharmaceutical industries. Her projects seek to understand the drivers of innovation among firms and the determinants of how medical technologies are adopted and used in practice. Ariel is particularly interested in the intersection of the regulation, firm strategy and economics of health care. She also researches the digital transformation of medical technology and health care delivery, investigating the policy and managerial questions raised by the growth of "digital health." Her research has been cited by *Bloomberg*, *The New York Times*, and *National Public Radio*.



Mark P. Stevenson, M.B.A.

Executive Vice President, Chief Operating Officer, Thermo Fisher Scientific

Mark Stevenson has been Executive Vice President and Chief Operating Officer of Thermo Fisher Scientific since August 2017, with responsibility for all of Thermo Fisher's life sciences-related businesses as well as the company's innovation and digital strategy. He joined the company as Executive Vice President and President, Life Sciences Solutions, through the acquisition of Life Technologies in 2014.

Mark previously served as President and Chief Operating Officer of Life Technologies, and President and Chief Operating Officer of Applied Biosystems prior to its merger with Invitrogen Corporation in 2008.

Mark received his M.B.A. 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.



Keith Stewart, M.B., CH.B., M.B.A.

Carlson and Nelson Endowed Director, Center for Individualized Medicine, Mayo Clinic

Keith Stewart, M.B., CH.B., M.B.A., is a consultant in the Division of Hematology and Oncology, Department of Internal Medicine, at Mayo Clinic. He currently serves as the Carlson and Nelson Endowed Director of the Mayo Clinic Center for Individualized Medicine and is recognized as the Vasek and Anna Maria Polak Professor of Cancer Research. Dr. Stewart's current responsibilities at Mayo Clinic relate to the application of genomics to human health across the spectrum of discovery, translation and clinical practice.

Dr. Stewart has served in several leadership roles across both research and clinical practice at Mayo Clinic, including as Dean for Research in Arizona, and as a member of the Arizona Executive

Operations Team and Clinical Practice Committees. He has served on multiple boards for both nonprofit and commercial organizations, including currently as a Non-Executive Board member with Genomics England, Oncospire, Inc., and OneOme, Inc.

His own research interest is in the genomics and biology of myeloma, and he has led numerous clinical trials of new drugs for this blood cancer. Dr. Stewart has over 25 years of sustained national funding for a laboratory research program and has authored over 300 journal articles and other written publications. He has served as an Associate Editor of *Blood* and *ASH Clinical News*.



Gregg Talbert, Ph.D.

Global Head of Digital and Personalized Health Care Partnering, Roche

Gregg Talbert, Ph.D., is the Global Head of Digital and Personalized Health Care Partnering at Roche. In this role, he is responsible for developing and implementing a business development strategy that supports the execution of Roche's personalized health care strategy.

Prior to serving in this capacity, Dr. Talbert served as Roche's Global Head of Strategic Partnering. He has also served in a variety of strategy and business development positions at Eli Lilly and Company.



Edward Tepporn

Executive Vice President, Asian and Pacific
Islander American Health Forum

Ed is the Executive Vice President at the Asian and Pacific Islander American Health Forum (APIAHF). In this role, he shepherds the organization's strategic thinking, long-term strategy planning, evaluation, innovation and leadership development efforts. With nearly two decades of service as a nonprofit manager leader and as a certified professional coach, Ed seeks to help individuals and organizations lean into their internal purpose, values and vision.

Before joining APIAHF in 2002, Ed was involved in HIV prevention and capacity building. As a former food blogger, he continues to seek out new ways to continue to pursue his passions for cooking meals that feed one's stomach and soul as well as capturing images that spark wanderlust through digital photography.



Meg Tirrell, M.S.J.

Reporter, *CNBC*

Meg Tirrell joined *CNBC* in April 2014 as a General Assignment Reporter focusing on biotechnology and pharmaceuticals. She appears on *CNBC's* Business Day programming, contributes to *CNBC.com* and is based at the network's global headquarters in Englewood Cliffs, N.J.

Tirrell has covered development of new drugs for Alzheimer's, cancer and rare diseases, and tracked public health emergencies from Ebola to Zika. Her work has explored why fewer drugs are developed for children, chronicled the sequencing of her own genome and followed the manufacturing of a flu shot from egg to pharmacy. In 2014, she revealed the agonizing decision-making behind "compassionate use" of unapproved drugs, and in 2016, she reported extensively on drug pricing controversies and the impact of politics on the development of new medicines.

Prior to joining *CNBC*, Tirrell covered the biotechnology industry for *Bloomberg News*, where she also contributed to *Bloomberg Television* and *Bloomberg Businessweek*. She holds a master's degree in journalism from Northwestern University and a bachelor's degree in English and music from Wellesley College.



Sean Tunis, M.D., M.Sc.

Founder, CEO, Center for Medical Technology Policy; Board member, Personalized Medicine Coalition

As the President and CEO of the Center for Medical Technology Policy (CMTP), Sean Tunis, M.D., M.Sc., engages multiple experts, stakeholders, and decision-makers in working toward consensus on methods for comparative effectiveness research (CER), with the goal of providing guidance for product developers and researchers as they design CER and pragmatic clinical studies. He has nearly 20 years of professional experience with health technology assessment, comparative effectiveness, health services research and clinical research.

Prior to founding CMTP, Tunis served as the Director of the Office of Clinical Standards and Quality and the Chief Medical Officer at the U.S. Centers for Medicare and Medicaid Services, where he led the development and implementation of the concept of coverage with evidence development, which was applied to support the design and implementation of several large pragmatic clinical trials and registries. For each study, he established multi-stakeholder working groups to set study objectives and decide on elements of study protocol, data collection strategy, and other aspects of these studies.



Liisa-Maria Voipio-Pulkki, M.D., Ph.D.

Director General, Chief Medical Officer, Ministry of Social Affairs and Health, Finland

Dr. Liisa-Maria Voipio-Pulkki is currently serving as the Director General of Strategic Affairs and Chief Medical Officer of the Finnish Ministry of Social Affairs and Health. She joined the Ministry in 2010 as the Director of the Health Care Group. Previously, she was employed as the Senior Medical Adviser of the Finnish Association of Local and Regional Authorities in 2004–2009, Chief of Emergency and Acute Care of the Helsinki University Hospital District in 2000–2004 and as a specialist and adjunct professor of medicine at the University of Turku, Finland.

She earned her M.D. degree in 1973 (University of Helsinki) and her Ph.D. in 1986 (University of Turku). She is a specialist in internal medicine and cardiology and has published over 100 original papers in cardiovascular medicine. Her current interests include medical and health technology innovation policies, implementation of precision medicine, sustainability of health systems, and medical ethics.

In 2017, she was elected to chair the Steering Committee of the European Observatory on Health Systems and Policies, a WHO hosted partnership, based in Brussels. She resides in Helsinki and is actively involved in the preparations for the Finnish E.U. Presidency in 2019.

Darrell M. West, Ph.D.

Vice President of Governance Studies, Director of the Center for Technology Innovation, Douglas Dillon Chair in Governance Studies, The Brookings Institution

Darrell M. West is the Vice President of Governance Studies and Director of the Center for Technology Innovation at The Brookings Institution. He holds the Douglas Dillon Chair in Governance Studies.

Previously, he was the John Hazen White Professor of Political Science and Public Policy and Director of the Taubman Center for Public Policy at Brown University. His current research focuses on technology policy, artificial intelligence and data analytics.

West is the author of 23 books, including *The Future of Work: Robots, AI, and Automation* (Brookings, 2018). His books have been translated into Chinese, Japanese,

and Korean, and he has delivered nearly 150 lectures in a dozen different countries, including China, Japan, Russia, Taiwan, Mexico, Brazil, Germany, Netherlands, Portugal, Turkey, Bahrain, and the United States. He has been quoted in leading newspapers, on radio stations, and on national television networks around the world.

He is the winner of the American Political Science Association's Don K. Price award for best book on technology (for *Digital Government*) and the American Political Science Association's Doris Graber award for best book on political communications (for *Cross Talk*).



Congratulations to the Recipients of the 2018 PMC/BIO Patient Advocacy Scholarships

Recognizing that the success of personalized medicine depends on collaboration between patients and health care providers, the Personalized Medicine Coalition (PMC) partnered with the Biotechnology Innovation Organization (BIO) to offer six scholarships for patients, representatives from patient advocacy organizations, and caregivers to attend the *14th Annual Personalized Medicine Conference at Harvard Medical School*.

Each scholarship includes a complimentary conference registration and a \$1,000 stipend to cover transportation and lodging.

2018 Recipients

Frances Beard, lung cancer patient

Reese Garcia, Research Advocacy Manager, Fight Colorectal Cancer

Candace Henley, CEO, The Blue Hat Foundation; colorectal cancer survivor

Laura Holmes Haddad, breast cancer survivor

Eric Sokol, Senior Vice President, Public Policy, Alzheimer's Foundation of America

Renee Westlake, Chairperson, Political Advocacy Committee, ALK Positive Worldwide; caregiver to lung cancer patient

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Founder, Chair, Bonnie J. Addario Lung Cancer Foundation; lung cancer survivor

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Alex Vadas, Ph.D.

Managing Director, Partner, LEK Consulting

Jay G. Wohlgenuth, M.D.

Chief Medical Officer, Senior Vice President, Quest Diagnostics

About Us

The Personalized Medicine Coalition (PMC), representing innovators, scientists, patients, providers and payers, promotes the understanding and adoption of personalized medicine concepts, services and products to benefit patients and the health system.



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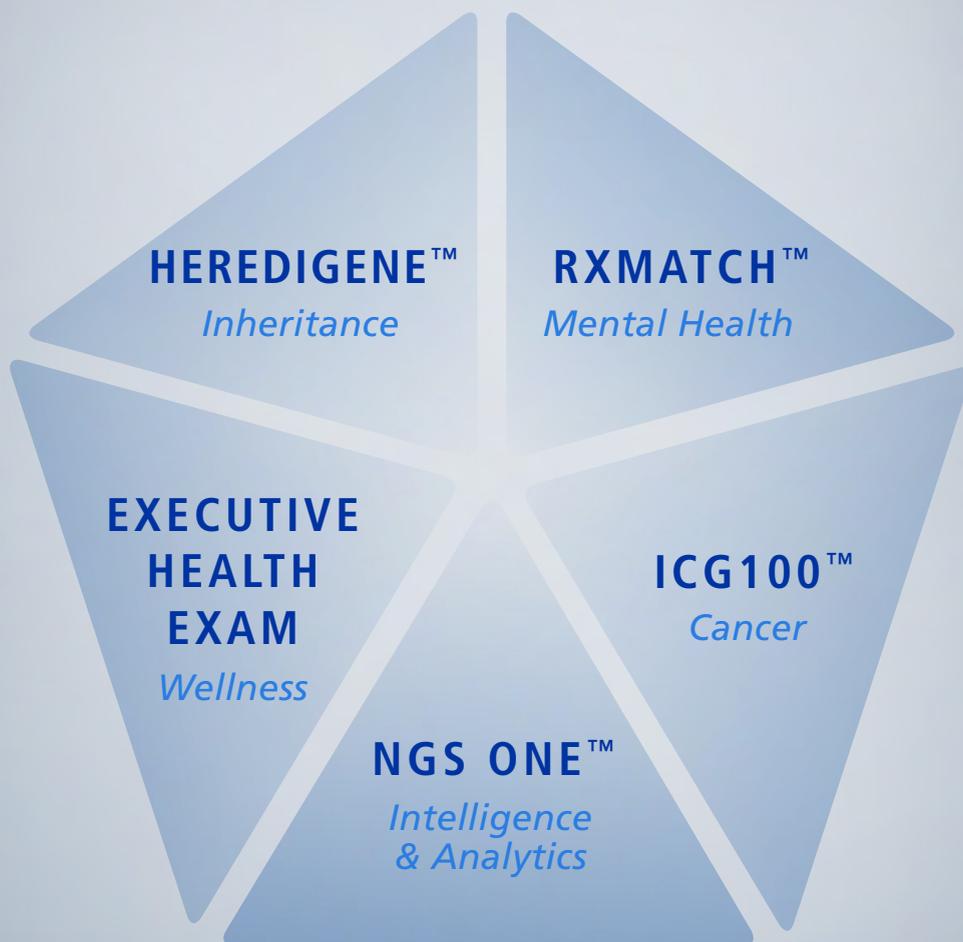


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PERSONALIZED MEDICINE IS THE FUTURE.

So why try to reinvent the wheel? Intermountain Precision Genomics can propel your personalized medicine initiatives into the future.

Intermountain Precision Genomics is located in St. George, Utah, amid the beautiful red rocks of the southwest. Comprehensive facilities are capable of sequencing thousands of genomes per year. Facilities include a genomics core lab, DNA sequencing lab, translational science lab, and a high through-put genomics lab that allows physicians, collaborators, and partners access to the latest genomic technologies and the highest possible quality of data to drive personalized medicine into the future.

Intermountain Precision Genomics offers an expansive circle of products that can mobilize any personalized medicine program. Services such as ICG100™, RxMatch™, HerediGene™, and NGS One™ utilize a team approach to advance personalized medicine and help people live the healthiest lives possible one patient at a time.

ICG100™ offers hope to late stage cancer patients. Our unique process analyzes the genetic makeup of a patient's cancer and employs a skilled team of molecular tumor specialists to review each test and determine how to most effectively treat each individual cancer case. Our team gives oncologists, located anywhere in the world, the information and support they need to prepare a customized, targeted treatment plan for each patient.

RxMatch™ speeds recovery and reduces medical costs. RxMatch™ is a comprehensive DNA panel test that matches medications to the individual

patient. Pharmacogenomics (PGx), or the study of how genes affect a patient's response to medication, enables physicians to quickly find the right medication and dose for patients. Trial and error prescribing could take months, or even years, to find the right drug and dose.

HerediGene™ allows for the prevention, detection, and early treatment of inherited cancers. This molecular DNA test works hand-in-hand with physicians and genetic counselors to assess risk factors for hereditary cancers such as breast cancer. Intermountain Precision Genomics laboratories are continually working to expand the HerediGene panel to include analysis for other cancers including ovarian and colorectal cancers.

NGS One™ Genomics Service makes genomics lab capabilities available to external initiatives. NGS One™ kits provide services such as the extraction of DNA from patient samples, sequencing of human genomes and exomes, RNA, sequencing, and mass cytometry and imaging services. A highly skilled team of physicians and scientists offer a variety of interpretational data including, but not limited to, experimental design of projects, variant analysis, statistical modeling, and gene transcriptomics.

Intermountain Precision Genomics translates personalized medicine into clinical practice by providing unparalleled access to genomic technology and expertise along with superior service at an affordable cost. No need to reinvent the wheel, partner with the Intermountain Precision Genomics that are on target to advance personalized medicine now and in the future.

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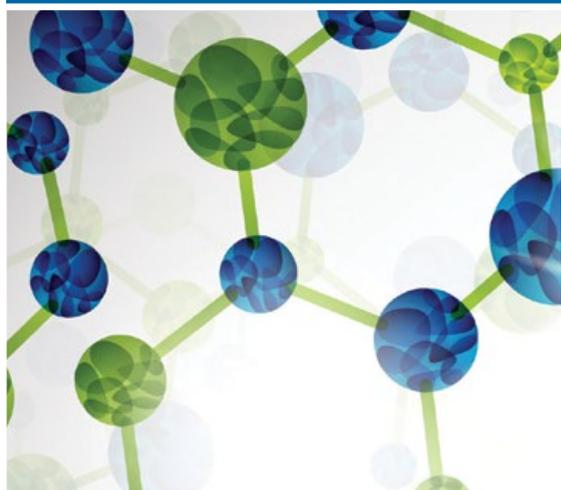
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