"Science and Policy at the Interface of Environment, Agriculture and Medicine"

CONFERENCE SCIENTIFIC PROGRAM

Sunday, April 29, 2018		
3:00 pm	**Registration Opens**	**Mezzanine Level**
Opening Session		**Meridian Ballroom**
5:00 pm-5:30 pm	**Conference Welcome and Introductions** *Srirama Rao*, Chair, iCOMOS, University of Minnesota	
5:30 pm-7:15 pm	**Laureate Panel Discussion: *Science and Policy at the Interface of Environment, Agriculture and Medicine - Global Challenges and Opportunities*** **Moderator**: *Kerri Miller, Minnesota Public Radio* **Session Panelists:** *Peter Agre*, Nobel Laureate in Chemistry, United States *Peter Doherty,* Nobel Laureate in Physiology or Medicine, Australia *Hualan Chen,* L'Oreal-UNESCO Women-in-Science Laureate, China *Robert Mwanga,* World Food Prize Laureate, Uganda	
7:15 pm-8:30 pm	**Opening Reception and Networking**	**Meridian Foyer**

Monday, April 30, 2018		
7:00 am-8:00 am	**Continental Breakfast**	**Meridian Foyer**
8:00 am-8:15 am	**University Welcome** *Eric Kaler,* President, University of Minnesota	**Meridian Ballroom**
8:15 am-9:00 am	**Nobel Keynote: Opening Doors Worldwide through Medical Science** Nobel Laureate *Peter Agre*, Johns Hopkins Malaria Research Institute, Johns Hopkins University, United States	
Session I: Social and Economic Impacts on Health		**Meridian Ballroom**
Session Summary: The structural factors and conditions in which people are born, grow, live, work, and age determine their health. Social determinants of health include factors like socioeconomic status, education, the physical environment, employment, and social support networks, as well as access to health care. This session will focus specifically on migration, age, poverty, well-being, and the challenges of antimicrobial resistance, and how these topics influence health and policy.		
9:00 am-9:05 am	**Moderators:** *Laura Bloomberg & Beth Virnig*, University of Minnesota	
9:05 am-9:35 am	**Migration and Health** *Eric Schwartz*, Refugees International, United States	
9:35 am-10:05 am	**Familial Early Onset Alzheimer's Disease in Colombia: An Opportunity for Prevention** *Francisco Lopera,* Universidad de Antioquia, Colombia	
10:05 am-10:30 am	**Networking Break**	
10:30 am-11:00 am	**Social and Behavioral Drivers of Antimicrobial Resistance** *Ramanan Laxminarayan*, The Center for Disease Dynamics, Economics & Policy; Princeton University, United States	
11:00 am-11:30 am	**Addressing Societal Norms That Affect Well-being Through Transectoral Collaboration: Examples from the Field** *Lynne Gaffikin,* Stanford University, United States	
11:30 am-12:00 pm	**Panel Discussion**	
12:00 pm-1:00 pm	**Networking Lunch**	**Meridian Ballroom**
Session II: Infectious Disease and Environmental Disturbance		**Meridian Ballroom**
Session Summary: Speakers will present current science issues pertaining to emerging, zoonotic, and other infectious diseases, as well as expert suggestions of mitigation strategies. Note: A summary monograph is anticipated as an outcome of this session.		
1:00 pm-1:05 pm	**Moderators:** *Srinand Sreevatsan*, Michigan State University and *Nick Phelps*, University of Minnesota	
1:05 pm-1:35 pm	**Keynote: Pandemic Avian Influenza: The Chinese Experience** *Hualan Chen*, L'Oreal-UNESCO Women-in-Science Laureate, Harbin Veterinary Research Institute, China	
1:35 pm-2:05 pm	**Predicting and Preventing Emerging Infectious Diseases** *Woutrina Smith*, University of California, Davis, United States	
2:05 pm-2:35 pm	**Viral Biocontrol of Invasive Vertebrates: An Australian Perspective** *Ken McColl*, CSIRO, Australia	
2:35 pm-3:00 pm	**Networking Break**	
3:00 pm-5:45 pm	**Poster Presentations**	**Summit & Meridian Foyer**
6:00 pm-6:30 pm	**Social Hour**	**McNamara Alumni Center**
6:30 pm-7:30 pm	**Dinner**	**McNamara Alumni Center**
7:30 pm-8:15 pm	**Nobel Keynote** **Introduction:** *Karen Hanson,* Executive Vice President and Provost, University of Minneosta **The Killer Defense** Nobel Laureate, Peter Doherty, University of Melbourne, Australia	

Tuesday, May 1, 2018		
7:30 am-8:00 am	**Continental Breakfast**	**Meridian Foyer**
8:00 am-8:05 am	**Day Two Welcome** *Al Levine*, Vice President for Research, University of Minnesota	**Meridian Ballroom**
Session III: Agriculture Advancing Health		**Meridian Ballroom**
Session Summary: The future of global health is inextricably linked to agriculture—the key source of human and animal nutrition and energy. This session will highlight the central role of agriculture in improving health, along with economic and policy issues that intersect with agricultural science. Speakers in this session will explore engineering and genetic selection of plants for production of medicines and delivery of vaccines in food, growing healthy food in stressed environments, and enhancing food qualities that limit waste, improve nutrition, and increase economic return.		
8:05 am-8:10 am	**Moderators:** *Greg Cuomo* and *Dan Voytas*, University of Minnesota	
8:10 am-8:40 am	**Keynote: Plant Modification to Reduce Hunger and Improve Health** *Robert Mwanga*, World Food Prize Laureate, Uganda	
8:40 am-9:10 am	**Public Sector Constraints to Plant Biotechnology for Human Health: The Golden Rice Experience** *Adrian Dubock,* Golden Rice Project, Switzerland	
9:10 am-9:40 am	**Plants Engineered to Improve Health** *Dan Voytas*, University of Minnesota	
9:40 am-10:20 am	**Networking Break**	
10:20 am-10:50 am	**The Science and Politics of Livestock Production in the Era of Gene Editing** *Alison Van Eenennaam,* University of California, Davis, United States	
10:50 am-11:20 am	**Unravelling the Food–Health Nexus** *Cecilia Rocha*, Ryerson University, Canada	
11:20 am-11:50 am	**Panel Discussion: International Aspects of Food Enhancement and Nourishment**	
11:50 am-12:10 pm	**Break and Lunch Set-up**	
12:10 pm-1:30 pm	**Lunch and Featured Speaker** **Space, Environment, and Health** *Pamela Melroy*, NASA Astronaut and Space Shuttle Commander, USA	**Meridian Ballroom**
Session IV: New Paradigms at the Environment-Health Interface		**Meridian Ballroom**
Session Summary: All health problems have some environmental component, yet identifying environmental linkages in order to focus solutions remains a challenge. Speakers in this session will highlight emerging scientific paradigms—new methods, approaches, and policies that offer new ways of exploring connections between human, animal, and environmental health—that offer potential for fostering discovery and novel solutions to complex One Health problems. Speakers will present emerging approaches directed toward long-term, multidisciplinary, and intersectoral health research and policy making.		
1:30 pm-1:35 pm	**Moderators:** *Bruce Alexander*, University of Minnesota and *Kimberly Thigpen Tart*, National Institute of Environmental Health Sciences, NIH	
1:35 pm-2:20 pm	**Keynote: Environmental Health Without and Within: From Ecosystems to Communities to the Microbiome** *Linda Birnbaum,* National Institute of Environmental Health Sciences, NIH, United States	
2:20 pm-2:35 pm	**Environmental Health through the Lens of Global Urbanization** *Maria Neira,* Department of Public Health, Environmental and Social Determinants of Health, World Health Organization, Switzerland	
2:35 pm-3:00 pm	**Climate Change and Health** *Kristie Ebi*, Center for Health and the Global Environment, University of Washington, United States	

Session IV Continued	
3:00 pm-3:25 pm	**Networking Break**
3:25 pm-3:50 pm	**Planetary Health: Protecting Global Health on a Rapidly Changing Planet** *Samuel Myers,* Planetary Health Alliance, United States
3:50 pm-4:40 pm	**Panel Discussion: *New Education and Policy Paradigms at the Interface of Environment and Health*** ***Moderators:*** *Jessica Hellmann* and *Dominic Travis,* University of Minnesota
4:40 pm-4:50 pm	**Overview of iCOMOS 2019 and iCOMOS 2020** **iCOMOS 2019:** Chiang Mai University, Chiang Mai, Thailand **iCOMOS 2020**: Universidad Andres Bello, Santiago, Chile
4:50 pm-5:00 pm	**Outlook for the Future and Overview of the Concurrent Interactive Sessions** *Michael Murtaugh*, Co-Chair, iCOMOS 2018, University of Minnesota
5:00 pm	**Day 2 Concludes** - Free Time (on your own)
Wednesday, May 2, 2018	
7:30 am-8:25 am	**Continental Breakfast** **Meridian Ballroom**
8:25 am-8:30 am	**Welcome** *Trevor Ames,* Dean, College of Veterinary Medicine
8:30 am-9:00 am	**Keynote - Getting Ahead of the Curve: Using Earth Observations to Predict Health Risks** *Juli Trtantj*, Climate and Health Lead, National Oceanic and Atmospheric Administration, USA
9:00 am-9:15 am	**Rearrangement of rooms for Concurrent Interactive Sessions**

Concurrent Interactive Sessions (CIS)
Sessions begin at 9:15 am. See individual schedules for details.

CIS 1:	One Medicine One Science Approaches to Health at Two NIH Institutes	**Meridian 1**
CIS 2:	Effective Policy When Consumer Preferences (Food and Health) Do Not Match Actions	**Think Room 4**
CIS 3:	Breaking Silos and Building Bridges Within and Across Geographies for Workforce Development Needs and Implementation Programs	**Meridian 3**
CIS 4:	Precision Medicine and Genome Editing: Science and Ethics	**Meridian 4**
CIS 5:	Science Communication and Strategic Engagement of Policy Makers	**Meridian 2**

CIS 1: One Medicine One Science Approaches to Health at Two NIH Institutes

9:15 am-6:00 pm | Meridian 1

Coordinators: *Hortencia Hornbeak* and *Peter Jackson*, National Institute of Allergy and Infectious Diseases, NIH and *Heather Henry*, National Institute of Environmental Health Sciences, NIH

Session Summary: This session will explore One Medicine One Science (OMOS) approaches applied by two NIH institutes to complex human health issues requiring coordinated, multidisciplinary research programs and teams. Senior institute staff and funded investigators of the National Institute of Allergy and Infectious Diseases (NIAID) and the National Institute of Environmental Health Sciences (NIEHS) will lead discussions of Zika as a case study of an emerging disease and pandemic threat, and studies of chronic disease resulting from the interactions of living systems with environmental threats such as chemicals and other contaminants that affect human health. Presentations will feature diverse NIH-supported, OMOS-related research studies, as well as methods and resources for integrating OMOS approaches into aspects of infectious disease and environmental health research including surveillance, epidemiology, prevention and intervention, data collection and analysis, partnership building, and training and capacity building.

Welcome, *Jakub Tolar*, Interim Vice President for Health Sciences, University of Minnesota

9:15am-9:30am	**Introduction: One Medicine, One Science at Two Institutes of the NIH** *Hortencia Hornbeak,* NIAID, NIH and *Kimberly Thigpen Tart*, NIEHS, NIH
OMOS in Infectious Disease Research: Zika Case Study **Moderator:** *Hortencia Hornbeak,* NIAID, NIH	
9:30 am-9:55 am	**Zika Epidemiology/Control/Pathology** *Esper Kallas*, University Medical School of Sao Paolo, Brazil
9:55 am-10:20 am	**Zika and Other Zoonotic Diseases: Lessons Learned in Puerto Rico** *José Cordero*, University of Georgia, United States
10:20 am-10:35 am	**Break**
10:35 am-11:00 am	**Pan-Viral Analyses of a Novel Antiviral Strategy** *Lou Mansky,* University of Minnesota, United States
11:00 am-11:25 am	**Vaccine Preparedness for Viral Pandemics** *Barney Graham*, NIAID, NIH Vaccine Research Center, United States
11:25 am-12:00 pm	**Panel Discussion and Q&A**
12:00 pm-1:00 pm	**Networking Lunch**
OMOS in Environmental Health Research **Moderator:** *Heather Henry,* NIEHS, NIH	
1:00 pm-1:25 pm	**The Use of Sentinel Species in Health Disparities Research** *Frank Von Hippel*, Northern Arizona University, United States
1:25 pm-1:50 pm	**Chronic Kidney Disease, Pollution, and Sentinel Species in Sri Lanka** *Nishad Jayasundara*, University of Maine, United States
1:50 pm-2:15 pm	**One Health Approach to the Impacts of The Deepwater Horizon Oil Spill** *Maureen Lichtveld*, Tulane University, United States
2:15 pm-2:35 pm	**Panel Discussion and Q&A**
2:35 pm-2:50 pm	**Break**
Programs, Resources, and Tools for Integrating One Medicine One Science Approaches to Health **Moderator:** *Kimberly Thigpen Tart*, NIEHS, NIH	
2:50 pm-3:15 pm	**One Science, Many Needs: Global Training and Capacity Building at NIEHS** *John Balbus*, NIEHS, NIH, United States
3:15 pm-3:40 pm	**Building Clinical and Research Capacity** *Gray Handley*, NIAID, NIH, United States
3:40 pm-4:05 pm	**Global Perspectives on Access to Bio-Samples and Data Sharing** *Yaffa Rubinstein*, U.S. National Library of Medicine, United States
4:05 pm-4:15 pm	**NIAID Mechanisms and Initiatives Supportive of OMOS Research** *Susana Mendez and Amir Zeituni*, NIAID, NIH

CIS 1 Continued	
4:15 pm-4:25 pm	**NIEHS Programs and Funding Mechanisms Used to Support Research in an OMOS Framework** *Heather Henry,* NIEHS, NIH
4:25 pm-4:45 pm	**Panel Discussion, Q&A, and Wrap-Up** Moderators: *Heather Henry*, NIEHS, NIH and *Hortencia Hornbeak*, NIAID, NIH
4:45 pm-6:00 pm	**Small Group Meetings with NIH Administrators and Other Federal Staff**

CIS 2: Effective Policy When Consumer Preferences (Food and Health) Do Not Match Actions

9:15 am-5:00 pm | Think Room 4

Coordinators: *Shaun Kennedy*, The Food System Institute and the University of Minnesota and *Wantanee Kalpravidh*, Emergency Center for Transboundary Animal Diseases, Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific

Session Summary: The public in general, or a significant subset, often drive specific food and health policies as governments and the private sector attempt to meet their expressed desires. The challenge for effective policy implementation, however, is that consumers do not always choose health behaviors or foods that are consistent with their priorities. This is especially challenging when consumers make choices based on one priority that appears to conflict with other expressed priorities. While not a new concept in philosophy or what is sometimes called moral mathematics, it is not generally applied when developing and implementing health and food policies. This is easy to understand when it is an economic priority, cost, overriding a personal priority, enhanced food safety, with simple choices such as not purchasing irradiated ground beef for food safety due to the cost of irradiation. It becomes far more complicated to implement effective policy when it is more nuanced such as consumers making health or food choices that are demonstrably less favorable to their own family's health or the environment than alternatives. This workshop will look at how to consider health or food policies in the face of competitive, unexpressed or conflicting priorities and the extent to which the policies can achieve their objectives. It will draw beyond policy experts to include experts in consumer behavior, individual to group dynamics, game theory and economics from the academic, public and private sectors to consider policy differently.

Anticipated outcomes from the session include at least two papers: (1) The similarities between outwardly very different policy areas (obesity, food safety, food security, and autism); and (2) Proposed new strategies to address these important policy areas.

Case Studies in Priorities and Choices Conflicts

9:15 am-9:30 am	**Welcome and Overview**
9:30 am-10:00 am	**The Efficacy of Avian Influenza Control Policies in Light of Conflicting Stakeholders' Preferences** *Damian Tago Pacheco*, Emergency Center for Transboundary Animal Diseases (EC-TAD) of the Food and Agriculture Organization (FAO)
10:00 am-10:30 am	**How Consumers Really Make Food Purchasing Decisions, Not How They Say They Do** *Darren Seifer*, The NPD Group
10:30 am-10:45 am	**Break**
10:45 am-11:15 am	**The Politics Surrounding Autism** *Dana Baker*, Political Science, California State University, Channel Islands
11:15 am-11:45 am	**Markets, Educational Programs and Other Non-regulatory Policy Approaches to Advancing Food Security: Examples from Brazil** *Cecilia Rocha*, School of Nutrition, Ryerson University, Canada
11:45 am -12:45 pm	**Networking Lunch**
12:45 pm-1:30 pm	**Voting Procedures to Choose Leaders and Policies That Produce Consensus (Rather Than Division)** *Steven Brams*, Department of Politics, New York University
1:30 pm-2:30 pm	**Small Group Discussion – Exploring the Gaps Between Policy and Behavior**
2:30 pm-2:45 pm	**Break**
2:45 pm-3:15 pm	**Reporting Back**

CIS 2 Continued	
3:15 pm-4:15 pm	**Small Group Discussion – New Strategies for Regulatory and Non-Regulatory Policy**
4:15 pm-4:45 pm	**Reporting Back**
4:45 pm-5:00 pm	**Closing Remarks and Next Steps**
5:00 pm	**Session Ends**

CIS 3: Breaking Silos and Building Bridges Within and Across Geographies for One Medicine, One Science: Workforce Development Needs and Implementation Programs

9:15 am-5:00 pm | Meridian 3

Coordinators: *Andres Perez and Katey Pelican,* University of Minnesota; *Aziz Arda Sancak,* Ankara University, Turkey

Session Summary: Despite an increasingly popular One Health rhetoric, authentic examples of multiple disciplinary efforts to transcend the traditional silos of public, animal, and environmental health are still rare. The ultimate goal of COMOS is to contribute to securing food and protecting health of human, animals, and the environment through a network of equal partners. Prerequisite for accomplishing that goal is the development of the required workforce to identify problems and provide solutions to recurrent and emerging grand challenges regionally and globally. In this workshop, we will provide an overview of needs assessment and implementation programs in the areas of food animal trade and one health. Capacity building programs, including issues related with needs assessment, implementation, and evaluation, for veterinary and public health will be presented. Multisectoral approaches to identify and address emerging needs and issues will be introduced. Regional perspectives on gaps and challenges will be discussed. Finally, a debate focused on particular opportunities identified during the session for workforce development at regional and global scales will be promoted.

Audience	Scientists, intergovernmental organizations, students, industry partners, and stakeholders engaged or interested in workforce development and education on ecosystems health, agribusiness, food production, economics and policy regionally and globally.
Outcomes	• A "perspective" paper outlining the vision for workforce development in the context of COMOS • Proposals for workforce development and capacity building of veterinary services and One Health, promoting regional and global alliances • Outline plans for the organization of iCOMOS in the Ibero-American region in 2020
Timeline	Completion of paper within 3 months of the workshop to be shared with funding agencies and sponsors. Continue to support regional activities for COMOS.
Scientific Value	Outline of a plan for development of educational and outreach programs in the context of COMOS

Session 1: Unfolding the OMOS Paradigm Shift Through Capacity Building Programs
Moderator: *Andres Perez,* University of Minnesota, United States

9:15 am-9:30 am	**Presentation, Introduction, and Expectations** *Andres Perez*, University of Minnesota, United States
9:30 am-9:45 am	**The *Agrovet* Project** *Brigitte von Rechenberg,* Vetsuisse Faculty ZH, University of Zurich, Switzerland
9:45 am-10:00 am	**Implementing Programs for Capacity Building of Veterinary Services at a Global Scale** *Francois Caya*, OIE, France
10:00 am-10:15 am	**The ProgRESSVet Capacity Building Program for Latin American Veterinary Services** *Emilio León,* CEBASEV, OIE Collaborating Center in Buenos Aires, Argentina, and *Mary Katherine O'Brien*, CAHFS, OIE Collaborating Center in Minnesota
10:15 am-10:30 am	**Break**
10:30 am-10:45 am	**Capacity Building Program for Sustainable Implementation of OIE Standards - A Training for the Improvement of Veterinary Services Perform** *Agnes Leblond* and *Vincent Brioudes,* ENSV, OIE Collaborating Center, Lyon, France

CIS 3 Continued	
10:45 am-11:00 am	**Emerging Needs and Opportunities for Capacity Building in Southern Asia** *Tongkorn Meeyam,* Chiang Mai University, Thailand
11:00 am-11:15 am	**Emerging Needs and Opportunities for Capacity Building in Western Africa** *Yalace Kaboret*, Ecole Inter Etats des Sciences et Medecine Veterinaires, Dakar, Senegal
11:15 am-11:30 am	**Roundtable Discussion: Emerging Needs and Opportunities for Capacity Building of Veterinary Services** *Caya, Leon, O'Brien, LeBlond, Brioudes, Meeyam* and *Kaboret*
11:30 am-11:50 am	**Roundtable Presentation and Discussion: Emerging Needs and Opportunities for Capacity Building in Aquaculture** *Fernando Mardones*, Universidad Andres Bello, Chile and *Rolando Ibarra*, Salmon Technological Institute (INTESAL), Chile
11:50 am-12:00 pm	**Conclusions and Introduction to Session 2** *Andres Perez*, University of Minnesota
12:00 pm-1:30 pm	**Networking Lunch**
Session 2: Diagnosing Regional Gaps and Emerging Challenges to Prioritize Multi-Sectoral Opportunities	
1:30 pm - 1:45 pm	**Challenges and Opportunities of Building a Global One Health Workforce** Katey Pelican, University of Minnesota
1:45 pm-2:00 pm	**Field Epidemiology Training Program (FETP) and Field Epidemiology Training Program for Veterinarians (FETPV): Expanding the Global Public Health Workforce Across Human and Animal Health** *Stephanie Salyer*, CDC, United States
2:00 pm-2:15 pm	**Emerging Issues in Latin America and Emerging Needs for Workforce Development** *Enrique Perez,* PAHO, United States
2:15 pm-2:30 pm	**Opportunities and Needs for Workforce Development in Food Safety With a Focus in Chile and Other Latin American Countries** *Juan Carlos Hormazabal*, Department of Infectious Diseases, Institute of Public Health, Government of Chile
2:30 pm-2:45 pm	**Improving Multisectoral Health Responsibility in Turkey: Opportunities and Challenges for Health** *Aziz Arda Sancak,* Ankara University, Turkey
2:45 pm-3:45 pm	**Roundtable Discussion: Outcomes and Lessons Learned From Eight Years of One Health Workforce Development in Africa** *Pham Duc Phuc*, Coordinator the Vietnam One Health University Network (VOHUN), Hanoi, Vietnam *Yalace Kaboret*, Ecole Inter Etats des Sciences et Medecine Veterinaires, Dakar, Senegal *Irene Naigaga*, Regional Program Manager, OHCEA
3:45 pm-5:00 pm	**Roundtable Synthesis and Reflections / Final Remarks**

CIS 4: Precision Medicine and Genome Editing: Science and Ethics

9:15 am-4:30 pm | Meridian 4

Coordinators: *Clifford Steer, Pamala Jacobson,* University of Minnesota, and *Kavita Berger*, Gryphon Scientific

Session Summary: According to the NIH, precision medicine is "an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person." It refers to the tailoring of medical treatment to the individual characteristics of each patient and the ability to classify individuals into subpopulations that differ in the biology, susceptibility and response to treatment for a particular disease. In January 2015, the US President launched the Precision Medicine Initiative (PMI), a bold new research effort to revolutionize how we improve health and treat disease, empowering health care providers to tailor treatment and prevention strategies to individuals' unique characteristics. Gene editing uses engineered nucleases or so-called "molecular scissors" to make changes to specific DNA sequences in the genome of a living organism. They include meganucleases, zinc finger nucleases (ZFNs), transcription activator-like effector-based nucleases (TALENs), and the clustered regularly interspaced short palindromic repeats (CRISPR)-Cas system. Genome editing is being developed to treat not only genetic diseases but also infectious diseases and those that have both a genetic and an environmental component. It is now widely used in biomedical research, including creation of disease models with desired genetic mutations, screening in a high-throughput manner for drug resistance genes, and making appropriate editions to genes in vivo for disease treatment. All of these applications have been facilitating the development of precision medicine research.

9:15 am-9:30 am	**Welcome** *Clifford Steer,* University of Minnesota

Rewriting the Genome
Speakers will discuss the state-of-the-science for precision medicine and genome editing, highlighting the key advances and limitations of each. Speakers will discuss new applications enabled by precision medicine and/or genome editing.
Moderator: *Clifford Steer*, University of Minnesota

9:30 am-10:00 am	**Gene Editing Enters the Food Supply** *Dan Voytas*, University of Minnesota, United States
10:00 am-10:25 am	**Precision Swine Models of Human Disease by Gene Editing** *Dan Carlson*, Recombinetics, Inc., United States
10:25 am-10:45 am	**Targeted Nucleases for Finding Cancer Drivers and Vulnerabilities** *David Largaespada*, University of Minnesota, United States
10:45 am-11:00 am	**Break**

Precision Public Health? The Evolving Paradigm in Health and Medicine
Speakers will discuss the implications of precision medicine on public health, describing specific examples where precision medicine limits or enhances public health. Speakers will highlight specific challenges and describe appraoches for addressing those challenges.

11:00 am-11:10 am	**Moderator:** *Pamala Jacobson*, University of Minnesota
11:10 am-11:35 am	**Personalized Medicine Versus Public Health: Contradictory or Complementary?** *Nancy Cox*, Vanderbilt University, United States
11:35 am-12:00 pm	**Integrating Pharmacogenomic Information Into Practice** *Richard Weinshilboum*, Mayo Clinic, United States
12:00 pm-12:30 pm	**Million Veterans Program: Improving Care Through Large Scale Genomics** *Ronald Przygodzki,* U.S. Department of Veterans Affairs, United States
12:30 pm-1:30 pm	**Networking Lunch**

Societal Considerations of Ethics, Safety, and Security
Speakers will discuss the ethical, safety, and security concerns associated with precision medicine and/or genome editing.

1:30 pm-1:40 pm	**Moderator:** *Kavita Berger,* Gryphon Scientific, United States

CIS 4 Continued	
1:40 pm-2:05 pm	**Can We Ethically Modify our Genomes?** *Debra Mathews*, Johns Hopkins University, United States
2:05 pm-2:30 pm	**Safeguarding the Bioeconomy** *Edward You*, U.S. Federal Bureau of Investigation, United States
2:30 pm-3:00 pm	**Ensuring the Safety of Human Genome Editing at Home and Abroad** *Gary Marchant*, Arizona State University, United States
3:00 pm-3:20 pm	**Break**
3:20 pm-4:30 pm	**Panel Discussion** **Pros and Cons: Applications of Precision Medicine and Genome Editing** The moderator will prompt discussants to consider and describe the pros and cons of precision medicine, genome editing, and the integration of both fields towards human health. **Moderator**: R. Stephanie Huang, University of Minnesota
4:30 pm	**Adjourn**

CIS 5: Science Communication and Strategic Engagement of Policy Makers	
9:15 am-4:15 pm | Meridian 2	
Session Summary: Join your colleagues for an American Association for the Advancement of Science Communicating Science workshop specifically designed to help you plan and participate in a wide variety of public engagement activities. During this workshop, you will develop your public engagement and science communication skills through discussion, self-reflection, small-group work and practice sessions. The workshop focuses on the importance of effective, two-way communication and is designed to enable you to engage in meaningful, reciprocal dialogue with diverse audiences. When the session is complete, you will be able to clearly identify a public engagement goal, define a relevant audience, and craft and rehearse messages tailored to that audience.	
9:15 am-12:15pm	**Science Communication and Public Engagement Fundamentals** *Emily Cloyd*, American Association for the Advancement of Science, United States The flagship Science Communication and Public Engagement Fundamentals module focuses on the core components of successful public engagement. Participants are introduced to the AAAS public engagement framework, a guide they can apply to all kinds of interactions. Participants learn how to identify a public engagement goal, determine the relevant audience, craft tailored messages to achieve their goal and rehearse their engagement scenario.
12:15 pm-1:15 pm	**Networking Lunch**
1:15 pm-4:15 pm	**Engaging Policymakers** *Emily Cloyd*, American Association for the Advancement of Science, United States The Engaging Policymakers module provides an overview of the science policy landscape and the role of science and scientists in the policy process. This workshop introduces basic best practices for engaging in dialogue with this target audience at a local, state or national level. Participants identify individual communication goals and develop short messages that will resonate with policy audiences.