One Million Genomes: From Discovery to Health

June 4–8, 2018 | Herrenhausen Palace | Hannover | Germany

Scientific Organizers:
Geoffrey S. Ginsburg, Duke University, USA
Teri Manolio, National Institutes of Health, USA
Patrick Boon Ooi Tan, Genome Institute of Singapore, Singapore

In cooperation with Volkswagen Foundation

The completion of the Human Genome Project in 2003 has catalyzed innovations in scientific research and in health care embodied in the term "precision medicine." Across the globe, many nations are investing in large-scale national sequencing cohort programs resulting in over one million human genomes sequenced and linked to dense phenotypic and clinical data. This Keystone Symposia conference will bring together scientists and leaders from healthcare and industry to discuss how to maximize the value of that investment for human health. It will assemble a unique and highly interdisciplinary international community to articulate how best to use these data-rich resources to provide novel insights into the biology of disease, tools for the management of patients and population health management strategies. The meeting will highlight challenges and potential solutions for germ-line and somatic sequencing programs and make recommendations for optimizing their impact on global health. The crucial role of free and open sharing and exchange of human variation data from these programs in allowing all of them to interpret novel variants and use them in clinical care will be emphasized. The meeting will focus on various scientific challenges for the field, including implementation science, the scalable data infrastructures and analyses required for impact on discovery and clinical care, and the value proposition for the investments that have been made in national programs. The leading edge of clinical impact of clinical sequencing with will be highlighted in sessions on pharmacogenomics, and in developing novel therapeutics.

Session Topics:
- Large-Scale National Sequencing Programs: Implementation to Impact
- Somatic Sequencing Programs: Biological Insights and Diagnosis
- Implementation Science for Genomic and Precision Medicine
- International Data Resources Enabling Genomic Medicine
- The Actionable Genome
- The Value Proposition for National Sequencing
- Pharmacogenomics: The Leading Edge of Genomics Impact in Medicine
- Use of Large-Scale Bio-Clinical Resources for Drug Discovery

Global Health Travel Award Deadline: January 9, 2018
Scholarship Application & Discounted Abstract Deadline: February 7, 2018
Abstract Deadline: March 7, 2018
Discounted Registration Deadline: April 11, 2018

Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Global Health Travel Awards are for LMIC investigators. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Upper image of GeneChip loaded with hybridized RNA courtesy of National Institute of Arthritis, Musculoskeletal and Skin Diseases, NIH and photographer Rhoda Baer

Meeting Hashtag: #KS1Mgenome
www.keystonesymposia.org/18G1

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Sponsored by Regeneron Pharmaceuticals, Inc. and Vertex Pharmaceuticals Incorporated

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MONDAY, JUNE 4

Arrival and Registration

TUESDAY, JUNE 5

Welcome and Keynote Address

Sue Hill, NHS England, UK
Delivering Genomic Medicine at a Population Level Across a Health System – The NHS Experience

Large-Scale National Sequencing Programs: Implementation to Impact

Zhengming Chen, University of Oxford, UK
China Kadoorie Biobank of 0.5 Million People: Opportunities

Andres Metspalu, Estonian Genome Center / University of Tartu, Estonia
From Biobanking to Precision Medicine

Gad Rennert, Rappaport Faculty of Medicine, Technion – Israel Institute of Technology, Israel
Clalit's National Israeli 100K Genomes Personalized Medicine RCT

J. Michael Gaziano, VA Boston Healthcare System, USA
The Million Veteran Program: A Modern Mega-Cohort Within a Large Healthcare System – Progress, Challenges and Future Directions

Mark Caulfield, William Harvey Research Institute, Queen Mary University of London, UK
Genomics England: The 100,000 Genomes Project

Kári Stefánsson, deCode Genetics, Iceland
Sequence Diversity of a Nation Providing Insights into the Nature of Disease and Health

Poster Session 1

Somatic Sequencing Programs: Biological Insights and Diagnosis

Peter Campbell, Wellcome Trust Sanger Institute, UK
Precision Oncology through International Collaboration and Data Sharing

James R. Lupski, Baylor College of Medicine, USA
Somatic Mosaisism

Patrick Boon Ooi Tan, Biomedical Research Council, Agency for Science Technology and Research, Singapore
Environment, Lifestyle and Genetics : Asian Perspectives and Implications for Precision Medicine

Short Talk Chosen from Abstracts

WEDNESDAY, JUNE 6

Implementation Science for Genomic and Precision Medicine

Robyn L. Ward, University of Queensland, Australia
Genomic Test Evaluation Frameworks: A Review

John E.L. Wong, National University Health System, Singapore
Challenges of Precision Medicine Implementation in a High Volume Clinical Environment

Kathryn North, Murdoch Childrens Research Institute, University of Melbourne, Australia
Implementing Genomics into Healthcare: A National and Global Perspective

Geoffrey S. Ginsburg, Duke University, USA
A National Network for Implementing Genomic Medicine in Practice (IGNITE)

Short Talk(s) Chosen from Abstracts

Workshop 1: Rapid Interpretation of Genomes and Variant Calling

*__Martin Reese__, Fabric Genomics, USA

Short Talks Chosen from Abstracts

International Data Resources Enabling Genomic Medicine

Daniel MacArthur, Massachusetts General Hospital, USA
Databases for Rare Disease

Peter N. Robinson, JAX Genomic Medicine, USA
The Human Phenotype Ontology Project

Kristjan Metsalu, University of Tartu, Estonia
Estonian Healthcare Information System

Short Talk Chosen from Abstracts

THURSDAY, JUNE 7

The Actionable Genome

Speaker to be Announced

Heidi Rehm, Harvard Medical School, USA
The Clinical Genome Resource

James S. Ware, Imperial College London, UK
Variation in Cardiac Disease Genes: Location Matters

Teri A. Manolio, NHGRI, National Institutes of Health, USA
NHGRI/NIH Programs Developing Clinically Actionable Genomic Information

Short Talk(s) Chosen from Abstracts

Workshop 2: Functional Biology of Variants Discovered by Clinical Sequencing

Short Talks Chosen from Abstracts

The Value Proposition for National Sequencing

Speaker to be Announced

Sarah Wordsworth, University of Oxford, UK
The Health Economic Evidence for Whole Genome Sequencing

Surakameth Mahasirimongkol, Ministry of Public Health, Thailand
Genomics Thailand: Precision Clinical Care in a National Scale

Short Talk Chosen from Abstracts

FRIDAY, JUNE 8

Pharmacogenomics: The Leading Edge of Genomics Impact in Medicine

Henk-Jan Guchelaar, Leiden University, Netherlands
The Ubiquitous Pharmacogenomics Project

Mary V. Relling, St. Jude Children's Hospital, USA
Clinical Implementation of Pharmacogenetics

Maja Mockenhaupt, Universitätsklinikum Freiburg, Germany
Using Genetics to Prevent Stevens Johnson Syndrome/Toxic Epidermal Necrolysis

Jianjun Liu, Genome Institute of Singapore, Singapore
The SaPHIRE Program. Enabling Adverse Drug Reaction Research in Real-Time

Short Talk(s) Chosen from Abstracts

Use of Large-Scale Bio-Clinical Resources for Drug Discovery

Alan R. Shuldiner, Regeneron Pharmaceuticals, Inc, USA
Discovery of Novel Drug Targets: High-throughput Genomics of 250,000 Exomes

Carolina Haefliger, AstraZeneca, Sweden
Transforming Drug Research and Development with Genomics

Jeong-Sun Seo, Seoul National University Bundang Hospital and Macrogen, South Korea
GenomeAsia 100K (GA100K) and Asian Reference Genome

Martin Reese, Fabric Genomics, USA
Accurate and Rapid Genome Interpretation – In Clinical Care

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

SATURDAY, JUNE 9

Departure