**13th Annual Meeting of the International Conference on Genomics (ICG-13): Session on NHGRI Strategic Planning**
October 27, 2018

A special plenary session entitled "NHGRI Strategic Planning: Establishing a 2020 Vision for Genomics" was convened during the 13th International Conference on Genomics, which took place in Shenzhen, China, on October 25-27, 2018. The session was moderated by Paul Liu, M.D., Ph.D, Deputy Scientific Director, National Human Genome Research Institute, and Ari Patrinos, Ph.D., Deputy Director for Research, New York University Center for Urban Science and Progress. After a short introduction regarding the NHGRI strategic planning process by Dr. Paul Liu, the panelists provided their perspectives. The panelists included Dr. Ari Patrinos, Dr. Michael Morgan, Dr. Mylynda Massart, and Dr. Fred Dubee. Then the meeting attendees (more than 200 were present at the session) were invited to express their opinions and suggestions. There was a very active discussion during the 1-hour session.

**Collaboration**

Dr. Ari Patrinos led the DOE effort in the initial Human Genome Project in the 1990s and made critical contributions to the success of the Human Genome Project. Based on his experiences, Dr. Patrinos emphasized the importance of collaborations among partners from multiple sources for the success of future genomic medicine, and he suggested collaborations beyond other Institutes and Centers within NIH and with other government agencies, such as Department of Energy, Department of Agriculture, Department of Defense (DARPA) and Department of Interior (US Geological Survey). In addition to potential extra funding, these other agencies provide diverse perspectives and expertise in related areas, e.g., DOE labs are very experienced with big data analysis and storage.

Several members of the audience also pointed out the importance of collaborating with scientists and government agencies in other countries, especially the emerging and low-income countries. Others mentioned the importance of multi-disciplinary collaborations, as well as collaborations with industry.

**NHGRI serving as a Hub and Principal Coordinator for Genomics**

Panel member Dr. Fred Dubee (BGI) suggested that NHGRI should serve as a hub and an intellectual and training center. The NHGRI should be a place people can interact, exchange innovative ideas, and seek collaborations. It should be a place that facilitates breaking down barriers. It should develop technologies that can be used by others for genomic research. It should also serve as a training center. Dr. Patrinos pointed out that, even though NHGRI will not be able to fund all genomics research in the United States, it should serve as a principal coordinator for genomics, setting up standards and standard operating procedures, and ensuring uniform, high quality of genomic data.

**Focus of NHGRI-funded research**

Dr. Michael Morgan, who led the United Kingdom's efforts in the Human Genome Project at the Sanger Center, suggested that the nature of genomic research is large scale and high-throughput. He said that he is not fond of planning, but he offered the current Sanger plans: 1. Drive the development and implementation of genome technology, 2. Innovative genomic data aggregation and analyses, 3. Doing genomics and biology at scale, 4. Addressing scientific questions and health issues for low-income countries, 5. Be at the center of collaboration.

**Implementation of genomic medicine**

Dr. Mylynda Massart, a professor at University of Pittsburgh, serves as a Co-Director of the Integrating Special Populations Core and a Co-Investigator on the All of Us Pennsylvania Research Program and the Pitt + Me Discovery Biobank. With special interest in returning genomic test results to patients and providers, Dr. Massart emphasized the importance of training and educating physicians, nurse practitioners, and other healthcare providers. Someone in the audience added that it is also important to increase the genomic literacy of the general public and find ways to enhance patient participation. Dr. Massart also pointed out that we should pay special attention to healthcare equity when implementing genomic medicine and protect patients' rights.

**Miscellaneous**

There were comments that point to the importance of functional studies and population-based studies to understand the function of the genome in health and disease. Dr. Douglas Wallace made a passionate plea to pay more attention to the genome of the mitochondria, which is an important organelle in the cells that is required for energy production and metabolism. Many diseases affect mitochondria and many genetic diseases result from mutations in mitochondria genes.