

# Challenges and Opportunities in Next Generation Sequencing

Melina Cimler

June 7, 2012

# Recent Activities

- \* November 17, 2010 – IOM Workshop on *Generating Evidence for Genomic Dx Test Development*
- \* July 19, 2011 – IOM Workshop on *Integrating Large-scale Genomic Information into Clinical Practice*
- \* May 3, 2012 – NCI Workshop on *Next-Generation DNA Sequencing as a Tool for Clinical Decision-Making in Cancer Patient Management*
- \* July 17, 2012 – IOM Workshop on *Assessing the Economics of Genomic Medicine*
- \* August 13, 2012 – CHI Conference - *Next-Gen Sequencing Data Analysis*

# National Bioeconomy Blueprint

- \* Released by White House On April 26.
- \* Commitment to strengthening bioscience research as a major driver of American innovation and economic growth.
- \* Outlines five requirements:
  - \* Support R&D investments that will provide the foundation for the future bioeconomy.
  - \* **Facilitate the transition of bioinventions from research lab to market, including an increased focus on translational and regulatory sciences.**
  - \* **Develop and reform regulations to reduce barriers, increase the speed and predictability of regulatory processes,** and reduce costs while protecting human and environmental health.
  - \* Update training programs and align academic institution incentives with student training for national workforce needs.
  - \* Identify and support opportunities for the development of public-private partnerships and collaborations.

# National Bioeconomy Blueprint

In addition to **developing tools to advance whole genome sequencing through the research lab to the clinic and the emergence of personalized medicine**, the Bioeconomy Blueprint makes the following references to diagnostics tests:

- \* Identify barriers to discovery and development of diagnostics for a wide-range of human diseases and conditions.
- \* Train and hire the next generation of innovators by exposing candidates to topics such as diagnostics.
- \* Engage engineering students to accelerate the design and application of biomedical technologies in diagnostics.
- \* A NIH-Industry **Validation Consortium will use DNA and genome sequence data from diverse populations to better understand health and disease** and provide high value drug targets that companies can use for discovery and development of new diagnostics and therapeutics.