Inventing the Future

Dr. Lee Hood, President and Co-Founder of ISB

We have pioneered the emergence of systems biology as a field, opening new frontiers to biology and disease. ISB has made remarkable progress in its first 13 years. We have applied systems thinking to develop powerful new strategies and applying them to medicine, big data analysis and patient-centric companies. The convergence of three major threats in healthcare—systems biology, medicine and technology—is changing the practice of medicine. The solution will undoubtedly require the use of large-scale analytical tools necessary to generate and model diagnostic assays that will reveal new insights into wellness; it has developed a variety of predictive models. ISB has strong computation and mathematics skills for acquiring, storing, analyzing and making predictions from each of the 100,000 virtual data clouds, and has strong competencies in systems biology perfectly and is poised to help create a sustainable financial future. We also have done the hard work of further streamlining our research operating expenses to help create a sustainable financial future.

We have developed powerful new technologies in proteomics and genomics, and are exemplified by two recent points that include (1) "P4 medicine entails. This is a most transformational future. This effort would require the use of large-scale analytical tools necessary to generate and model diagnostic assays that will reveal new insights into wellness; it has developed a variety of predictive models. ISB has strong computation and mathematics skills for acquiring, storing, analyzing and making predictions from each of the 100,000 virtual data clouds, and has strong competencies in systems biology perfectly and is poised to help create a sustainable financial future. We also have done the hard work of further streamlining our research operating expenses to help create a sustainable financial future."

Financial Statement

Year Ending December 31, 2012

5-Year Growth Comparison
Research Operating Expenses vs. Total Revenue

While the full impact of sequestration has yet to be seen, there’s no doubt that all nonprofit organizations are experiencing some challenges of maintaining funding. ISB was able to continue to grow revenue in 2012 which is a positive news in an uncertain environment. ISB has strong competencies in systems biology perfectly and is poised to help create a sustainable financial future. We also have done the hard work of further streamlining our research operating expenses to help create a sustainable financial future.
As part of a strategic partnership with the Grand Duchy of Luxembourg, ISB continued its collaboration with the Luxembourg Centre for Systems Biomedicine (LCSB) on research related to cancer, Parkinson’s disease and the human microbiome.

ISB’s National Center for Systems Biology grant was renewed for $53.7 million (over five years). Only two National Centers were funded in a highly competitive field. Led by Dr. John Aitchison, the project involves ISB’s 30 faculty groups and aims to answer “How do healthy systems become diseased systems?”

ISB’s Shmulevich Lab serves as one of seven data analysis centers participating in the Cancer Genome Atlas (TCGA) and co-authored the paper “Comprehensive molecular characterization of human colon and rectal cancer” that was published in Nature. ISB’s unique contribution was the creation of the Cancer Regulome Explorer web tool that allows researchers to explore the molecular signatures of cancers, including aggressive colorectal cancer. (Pictured left to right: Dr. Eric Deutsch, Dr. Ulrike Kusebauch and Dr. Robert Moritz.)

There are 10 times the number of microbes than human cells in and on your body. How do the good and bad bacteria interact and coexist? ISB’s 11th Annual Symposium: Systems Biology and the Microbiome explored this question and showcased presentations from leading researchers— including keynote speaker Dr. Craig Ventler—from across the country.

ISB and Sapphire Energy announced a strategic partnership to research commercial algae production for fuel. Dr. Nitin Baliga, ISB’s Director, leads the project, which aims to apply systems biology to find the mechanisms in algae that can increase yield in order to scale fuel production. (Photo © Sapphire Energy)

ISB’s Shmulevich Lab was featured in the keynote presentation at Google I/O developers conference. The segment showcased ISB’s technology on a world stage.

ISB Celebrates Its History as Champions of Quality K-12 Science Education

One of ISB’s core beliefs is the importance of being fully engaged in how science is taught and learned at all levels—especially grades K-12. On Nov. 29, 2012, ISB held its first annual Valerie Logan Luncheon to honor Valerie Logan, Dr. Lee Hood’s wife, and to raise funds for our education work. Valerie was instrumental in helping to establish ISB as a leader in advocating and implementing systems education.

The luncheon raised about $64,000 to support ISB’s groundbreaking K-12 programs for educators and students. (Photo: Valerie Logan celebrates with her family.)

ISB has been on the forefront of proteomics since its founding in 2000. While DNA as the blueprint of life is important to understand, it’s the proteins that comprise the tiny molecular machines doing the actual work of growing cells and controlling functions of organisms. In December 2012, Nature Methods chose targeted proteomics as the “Method of the Year” and featured ISB’s Moritz Group among the leading researchers who are pioneering the technique. (Pictured from left to right: Dr. Eric Deutsch, Dr. Ulrike Kusebauch and Dr. Robert Moritz.)

On Dec. 21, 2012, the White House announced that Dr. Lee Hood, ISB’s President and Co-Founder, had been named a recipient of the 2011 National Medal of Science. This is the highest honor the U.S. President can bestow upon scientists. “This is exciting because it’s for lifetime achievement,” Lee commented, “which befits all my colleagues.” (Lee would travel to the White House in February 2013 for the medal ceremony.)

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