

SEBM Symposium Experimental Biology 2010

Sunday, April 25th

3:15-5:30 PM

Anaheim Conference Center, Ballroom B

Evolving from reductionism to holism: The future is systems medicine

Chairs: Susan Mulroney, PhD, Georgetown University

Howard Federoff, MD, PhD, Georgetown University

This symposium will highlight the emerging field of personalized, 'systems' medicine. With the sequencing of the human genome and availability of high power computational methods and various high throughput technologies, biomedical sciences and medicine will be undergoing revolutionary change. The new technologies and approaches have already spawned the field of systems biology; the new field of *systems medicine* is the integration and application of biologic and informational sciences, allowing a complex approach to biomedical problems. In medicine, complex computational tools will become essential for deriving personalized assessments of disease risk and management including individualized diagnosis, prognosis, and treatment options. This change, involving the use and analysis of enormous quantities and variety of data, will require new types of physicians and researchers - ones with a grasp of modern computational sciences, '-omic' technologies (genomics, proteomics, metabolomics, *etc.*), and a systems approach to medicine. The objective of this symposium is to put forth not only the vision of personalized medicine, as eloquently described by Leroy Hood, a leader in this emerging field, but to give examples of the scientific application of these principles in current research, as well as the legal, ethical, and educational implications of using a systems medicine approach.

- 3:15 PM Systems medicine and the emergence of proactive medicine - predictive, personalized, preventive and participatory
Leroy Hood, MD, Institute for Systems Biology
- 3:45 PM A systems medicine approach for neurological diseases
Howard Federoff, MD, PhD, Georgetown University Medical Center
- 4:15 PM A systems medicine approach to treating cancer
Marc Vidal, PhD, Dana Farber Cancer Institute, Harvard University
- 4:45 PM Why should we train clinicians in systems biology?
Robert Clarke, PhD, Georgetown University
- 5:10 PM Legal, ethical and policy implications of systems medicine
Elenora E. Connors, JD, MPH, O'Neill Institute for National and Global Health Law, Georgetown University Law School

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