Shankar Subramaniam

Chair and Professor of Bioengineering, Professor Chemistry and Biochemistry and Nanotechnology at UC San Diego

La Jolla, CA, US

Research in the Subramaniam laboratory spans several areas of bioinformatics, systems biology and medicine.

Biography

Subramaniam?s research is focused on systems biology (i.e. computational and mathematical modeling of biological systems) and systems medicine (an interdisciplinary approach at looking systems of the body as part of an integrated whole). His laboratory focuses on understanding mechanisms, reconstructing networks, building quantitative models and predicting phenotypes in mammalian systems. Areas of recent focus include quantitative transcriptomics (the sum of an organism?s RNA transcripts), neuropathology (i.e. Duchenne Muscular Dystrophy and Alzheimer?s disease), skeletal muscle myopathies, liver regeneration and pathologies, stress and endothelial physiology, and systems vaccinology. His laboratory is interested in mapping the circuitry of cells to mechanisms and phenotypes in physiology and pathology and in developing quantitative models of cellular pathways. Subramaniam is the principal investigator on a $12 million, four-year grant from the National Institutes of Health to expand the Metabolomics Workbench, a searchable, interactive repository of data for all research in the field of metabolomics?the study of the small molecules called metabolites that are found within cells and biological systems. ?Blood is our first window into human physiology,? said Subramaniam, who is the Joan and Irwin Jacobs Professor of Bioengineering and Systems Biology at UC San Diego. ?The next generation of the Workbench will allow us to get a clearer and more complete view of biological systems, rooted in clinical data.? Subramaniam is supported by 10 federally funded grants and has a large research portfolio. He is also engaged in developing state-of-the-art infrastructure for bioinformatics and systems biology. The Molecule Pages Database developed by him has been recognized as the most innovative informatics resource for signaling proteins and received the ALSIP award. The integration of highly innovative and complex computer science strategies with expert-driven curation has led to the Molecule Pages Database that provides comprehensive information on all known functional states of signaling molecules. The LipidMaps database serves as the first and only integrated resource for mammalian lipids along with their complementary gene and protein data. The Metabolomics Workbench is the internationally recognized resource which is a one-stop infrastructure for all researchers in metabolism and systems biology.

Areas of Expertise

Neurology, Systems Medicine, Bioengineering, Gene Expression and Regulation, Genetics and Genomics, Systems Biology, Metabolomics

Affiliations

Fellow - American Institute for Medical and Biological Engineering (AIMBE), External Advisory Board - Johns Hopkins U., External Advisory Board - Case Western Reserve U., External Advisory Board - U. Penn, External Advisory Board - Georgia Tech, External Advisory Board - Rice U. , External Advisory Board - UT Austin

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Education

Indian Institute of Technology
Ph.D. Chemistry

Accomplishments

Appointed as a Distinguished Professor
2014

Appointed as a Distinguished Scientist
2011 - San Diego Supercomputer Center

Faculty Excellence in Research Award
2008 - UC San Diego

Genome Technology All Star Award
2002
