

Preface

This volume comprises the proceedings for the Second International Conference on Systems Biology (ICSB2001), held on the campus of the California Institute of Technology (Pasadena, CA, USA) on November 4–7, 2001. Included in these proceedings are the titles and abstracts of 28 invited talks, the abstracts of 127 posters, and the complete manuscripts of 26 papers. Taken together, the contents of this volume provide a representative cross-section of research in Systems Biology in the year 2001.

Systems Biology, the quantitative study of biological processes as whole systems instead of isolated parts, represents an important future direction of Biology in the 21st Century. The goal of Systems Biology is building a high-resolution understanding of complex biological systems that can explain and predict the behavior of these systems. Why is this important? The Human Genome Project has compiled a parts list of the genes and proteins that define a human, but progress has been slow converting this data into knowledge of how these parts interact with one another to form systems that perform sophisticated biological functions. Accurate, multiscale, multiresolution models are necessary to make sense of the complex dynamics that underlie the physiology in both the normal and diseased states.

Systems Biology is interdisciplinary to the highest degree, integrating theory, computation, and experiment. There is no single correct approach to Systems Biology; the field will benefit from a variety of perspectives. One of the principal aims of the conference was to bring together scientists from diverse backgrounds to discuss fundamental issues in modeling and understanding biological processes. These proceedings reflect the eclectic spirit and international flavor of this enterprise.

Tau-Mu Yi

Michael Hucka

Mineo Morohashi

Hiroaki Kitano