Function and Regulation of Cellular Systems

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Book Condition: New. Publisher/Verlag: Springer, Basel | Current biological research demands the extensive use of sophisticated mathematical methods and computer-aided analysis of experiments and data. This highly interdisciplinary volume focuses on structural, dynamical and functional aspects of cellular systems and presents corresponding experiments and mathematical models. The book may serve as an introduction for biologists, mathematicians and physicists to key questions in cellular systems which can be studied with mathematical models. Recent model approaches are presented with applications in cellular metabolism, intra- and intercellular signaling, cellular mechanics, network dynamics and pattern formation. In addition, applied issues such as tumor cell growth, dynamics of the immune system and biotechnology are included. | Preface

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Part I Metabolic Networks and Engineering

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Introduction to Part I Reinhart Heinrich, Thomas Höfer A Functional Dynamics Approach to Modelling of Glycolysis Hynne Finn, Sune Dano, Preben G. Sørensen Temperature-Compensation in Biological Clocks: Models and Experiments Peter Ruoff Metabolic Control Analysis of the ATPase Network in Contracting Muscle: Regulation of Contractile Function and ATP Free Energy Potential Jeroen A.L. Jeneson, Hans V. Westerhoff, Martin J. Kushmerick En Route for Systems Biology: In Silico Pathway Analysis and Metabolite Profiling Jochen Förster, Mats ? kesson, Jens Nielsen

Reviews

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