



ANNUAL REVIEW OF BIOPHYSICS AND BIOMOLECULAR STRUCTURE

VOLUME 27, 1998

ROBERT M. STROUD, *Editor*
University of California, San Francisco

WAYNE L. HUBBELL, *Associate Editor*
University of California, Los Angeles

WILMA K. OLSON, *Associate Editor*
Rutgers, The State University of New Jersey

MICHAEL P. SHEETZ, *Associate Editor*
Duke University, Durham



CONTENTS

PREFATORY

- The Stereochemical Mechanism of the Cooperative Effects in Hemoglobin Revisited, *M. F. Perutz, A. J. Wilkinson, M. Paoli, G. G. Dodson* 1

STRUCTURAL PRINCIPLES

- Signaling Complexes: Biophysical Constraints on Intracellular Communication, *Dennis Bray* 59
- Structure, Dynamics, and Function of Chromatin In Vitro, *J. Widom* 285
- Crystallographic Structures of the Hammerhead Ribozyme: Relationship to Ribozyme Folding and Catalysis, *Joseph E. Wedekind, David R. McKay* 475

STRUCTURE AND FUNCTION

- The Three-Dimensional Structure of the Ribosome and Its Components, *Peter B. Moore* 35
- Minor Groove-Binding Architectural Proteins: Structure, Function, and DNA Recognition, *Carole A. Bewley, Angela M. Gronenborn, G. Marius Clore* 105
- The Structure and Mechanism of Protein Phosphatases: Insights into Catalysis and Regulation, *David Barford, Amit K. Das, Marie-Pierre Egloff* 133
- Cytochrome C Oxidase: Structure and Spectroscopy, *H. Michel, J. Behr, A. Harrenga, A. Kannt* 329
- RNA Recognition by RNP Proteins During RNA Processing, *Gabriele Varani, Kiyoshi Nagai* 407
- Pleckstrin Homology Domains: A Common Fold with Diverse Functions, *M. J. Rebecchi, S. Scarlata* 503

DYNAMICS

- Simulation of Prokaryotic Genetic Circuits, *Harley H. McAdams, Adam Arkin* 199

EMERGING TECHNIQUES

- Spatio-Temporal Resolution of Exocytosis from Individual Cells,
Eric R. Travis, R. Mark Wightman 77
- DNA Nanotechnology: Novel DNA Constructions, *Nadrian C. Seeman* 225
- The Use of 2H , 13C , 15N Multidimensional NMR To Study the Structure and Dynamics of Proteins, *Kevin Gardner, Lewis E. Kay* 357
- On the Characteristics of Functional Magnetic Resonance Imaging of the Brain, *S. Ogawa, R. S. Menon, S-G. Kim, K. Ugurbil* 447

BIOTECHNOLOGY

- Biosensors in Chemical Separations, *Harvey A. Fishman, Daniel R. Greenwald, Richard N. Zare* 165
- Inhibitors of HIV-1 Protease: A Major Success of Structure-Assisted Drug Design, *Alexander Wlodawer, Jiri Vondrasek* 249

INDEXES

- Subject Index 529
- Cumulative Index of Contributing Authors 549
- Cumulative Index of Chapter Titles 551