



Dynamics and Kinetics in Structural Biology: Unravelling Function Through Time-Resolved Structural Analysis

Understand the latest experimental tools in structural biology with this pioneering work

Structural biology seeks to understand the chemical mechanisms and functions of biological molecules, such as proteins, based on their atomic structures. Until recently, these structures have been studied only statically, using procedures which deliberately freeze atomic motion. However, freezing eliminates the rapid structural motions so essential to biological activity and function; the molecules are inactive. But with the recent development of X-ray free electron laser (XFEL) sources, efforts to conduct dynamic experiments have expanded using the principles of dynamics and kinetics to capture active biological molecules as they function.

Dynamics and Kinetics in Structural Biology promotes the development of these experiments and their successful application. It grounds readers in the foundational principles of dynamics and kinetics; proceeds through extended discussions of experimental procedures and data analysis techniques; and explores experimental frontiers in structural dynamics. The book will aid researchers to gather and interpret cutting-edge data on the dynamic structure of biological molecules, under conditions where they retain their biological functions.

Dynamics and Kinetics in Structural Biology offers readers:

- Authorship by founding figures in the field
- In-depth presentation of time-resolved X-ray crystallography, solution scattering, and more
- A pioneering contribution to a rapidly developing field of study

Dynamics and Kinetics in Structural Biology is essential reading for graduate students, scientists, researchers and industry professionals engaged in structural studies of biological systems. Industry professionals considering dynamic studies in the development of new product lines will also benefit.

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Eaton E. Lattman**

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Table of Contents

List of Figures	xii
Acknowledgments	xiv
Acronyms/Abbreviations	xvi
Units	xix
1 Introduction: Principles of Kinetics and Dynamics	1
1.1 Structure, Function, and Mechanism	1
1.2 Activity in the Crystal	3
1.3 Other Structure-informing Techniques	7
1.4 Dynamics, Kinetics, Movies, Pathways, and Functional Trajectories	8
1.5 The Time-resolved Experiment: An Overview	12
2 Physical Chemistry of Reactions	19
2.1 Introduction	19
2.2 Thermodynamics: States and Equilibria	19
2.3 Kinetics, Rates, and Rate Coefficients	25
2.4 Enzyme Kinetics	28
2.5 Transition State Theory and Energy Landscapes	34
2.6 Trapping of Intermediates	38
3 The Experiment	43
3.1 Introduction	43
3.2 Signal and Noise	43
3.3 Reaction Initiation	48
4 The Sample	70
4.1 Crystal and Solution Samples	70
4.2 Introduction of the Sample to the X-ray Beam: Injection and Fixed Targets	72
4.3 Radiation Damage	76
4.4 Optogenetics and Photopharmacology	82
5 Time-resolved Crystallography, Solution Scattering, and Molecular Dynamics	92
5.1 Time-resolved Crystallography	92
5.2 Time-resolved X-ray Solution Scattering	104
5.3 Molecular Dynamics Simulations	116
6 X-ray Sources, Detectors, and Beamlines	126
6.1 Introduction	126
6.2 Sources of Synchrotron Radiation	127
6.3 X-ray Free Electron Lasers	136
6.4 Detectors	141
6.5 Beamlines and Experimental Stations	143
7 Data Analysis and Interpretation	150
7.1 Introduction	150
7.2 General Constraints on Analysis and Interpretation	152
7.3 Difference Electron Density Maps	154
7.4 Singular Value Decomposition (SVD)	160
7.5 Features Commonly Found in DED Maps	167
7.6 Refinement of Intermediate Structures	168
7.7 Example: The Photosynthetic Reaction Center	169
7.8 Making a Molecular Movie	172
7.9 Does the Mechanism in the Crystal Represent the Mechanism in Solution?	173
8 Other Structural Biology Techniques	178
8.1 Introduction	178
8.2 Single-Particle Cryo-Electron Microscopy	178
8.3 Energy Landscape Analysis	181
8.4 X-ray Spectroscopy	193
8.5 Nuclear Magnetic Resonance: Joseph Sachleben (University of Chicago)	202
8.6 Hydrogen-Deuterium Exchange	213
9 Looking Forward	222
9.1 Overview: Unraveling Function and Mechanism	222
9.2 Single Particle Imaging, Energy Landscape Analysis, and Functional Trajectories	223
9.3 Artificial Intelligence and Machine Learning	223
9.4 Experimental Approaches	227
9.5 Evolutionary Relevance of Trajectories	232
References	233
Appendix A Review of Crystallography	235
Index	246