

CONTENTS

- I. Overview of IMPDH
 - A. Protein Structures
- II. Medicinal Applications of IMPDH Inhibitors
 - A. IMP Analogs
 - B. NAD Analogs
 - C. Natural Product Inhibitors
 - D. Novel Synthetic Inhibitors
- III. Kinetic Mechanism and Substrate Interactions
 - A. Case Studies
 - 1. *Tritrichomonas foetus* IMPDH
 - 2. *Escherichia coli* IMPDH
 - 3. Human IMPDH
 - B. Ligand Binding
 - 1. IMP Binding Site
 - 2. NAD Binding Site
- IV. Chemical Mechanism
- V. Protein Conformational Flexibility and Mechanism of Water Activation
- VI. Species-Specific Drug Selectivity
- VII. Monovalent Cation Activation
- VIII. Subdomain
- IX. Conclusions
- Acknowledgments
- References