

Evaluation of Enzyme Inhibitors in Drug Discovery: A Guide for Medicinal Chemists and Pharmacologists

By Robert A. Copeland

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Offers essential guidance for discovering and optimizing novel drug therapies

Using detailed examples, *Evaluation of Enzyme Inhibitors in Drug Discovery* equips researchers with the tools needed to apply the science of enzymology and biochemistry to the discovery, optimization, and preclinical development of drugs that work by inhibiting specific enzyme targets. Readers will applaud this book for its clear and practical presentations, including its expert advice on best practices to follow and pitfalls to avoid.

This *Second Edition* brings the book thoroughly up to date with the latest research findings and practices. Updates explore additional forms of enzyme inhibition and special treatments for enzymes that act on macromolecular substrates. Readers will also find new discussions detailing the development and application of the concept of *drug-target residence time*.

Evaluation of Enzyme Inhibitors in Drug Discovery begins by explaining why enzymes are such important drug targets and then examines enzyme reaction mechanisms. The book covers:

- Reversible modes of inhibitor interactions with enzymes
- Assay considerations for compound library screening
- Lead optimization and structure-activity relationships for reversible inhibitors
- Slow binding and tight binding inhibitors
- Drug-target residence time
- Irreversible enzyme inactivators

The book ends with a new chapter exploring the application of quantitative biochemical principles to the pharmacologic evaluation of drug candidates during lead optimization and preclinical development.

The *Second Edition* of *Evaluation of Enzyme Inhibitors in Drug Discovery*

continues to offer a treatment of enzymology applied to drug discovery that is quantitative and mathematically rigorous. At the same time, the clear and simple presentations demystify the complex science of enzymology, making the book accessible to many fields— from pharmacology to medicinal chemistry to biophysics to clinical medicine.

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Editorial Review

About the Author

ROBERT A. COPELAND, PhD, is Executive Vice President and Chief Scientific Officer at Epizyme, Inc., a biopharmaceutical company in Cambridge, Massachusetts. He is on the Editorial Board of *The Journal of Biological Chemistry* and a member of the Faculty of 1000. Dr. Copeland has contributed more than 175 publications to the scientific literature and holds eight U.S.-issued patents. He has authored several books in protein science and enzymology, including *Enzymes: A Practical Introduction to Structure, Mechanism, and Data Analysis, Second Edition* (Wiley).

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