

# Molecular Pharmacology: From DNA to Drug Discovery

By John Dickenson, Fiona Freeman, Chris Lloyd Mills, Christian Thode, Shiva Sivasubramaniam



**Molecular Pharmacology: From DNA to Drug Discovery** By John Dickenson, Fiona Freeman, Chris Lloyd Mills, Christian Thode, Shiva Sivasubramaniam

This textbook provides a fresh, comprehensive and accessible introduction to the rapidly expanding field of molecular pharmacology. Adopting a drug targetbased, rather than the traditional organ/system based, approach this innovative guide reflects the current advances and research trend towards molecular based drug design, derived from a detailed understanding of chemical responses in the body. Drugs are then tailored to fit a treatment profile, rather than the traditional method of 'trial and error' drug discovery which focuses on testing chemicals on animals or cell cultures and matching their effects to treatments.

Providing an invaluable resource for advanced under-graduate and MSc/PhD students, new researchers to the field and practitioners for continuing professional development, *Molecular Pharmacology* explores; recent advances and developments in the four major human drug target families (G-protein coupled receptors, ion channels, nuclear receptors and transporters), cloning of drug targets, transgenic animal technology, gene therapy, pharmacogenomics and looks at the role of calcium in the cell.

- **Current** focuses on cutting edge techniques and approaches, including new methods to quantify biological activities in different systems and ways to interpret and understand pharmacological data.
- **Cutting Edge** highlights advances in pharmacogenomics and explores how an individual's genetic makeup influences their response to therapeutic drugs and the potential for harmful side effects.
- **Applied** includes numerous, real-world examples and a detailed case-study based chapter which looks at current and possible future treatment strategies for cystic fibrosis. This case study considers the relative merits of both drug therapy for specific classes of mutation and gene therapy to correct the underlying defect.
- Accessible contains a comprehensive glossary, suggestions for further reading at the end of each chapter and an associated website that provides a complete set of figures from within the book.

A companion website with additional resources is available at **www.wiley.com/go/dickenson/dnamolecular** 

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#### **Editorial Review**

#### Review

"An informative, comprehensive text, it is highly recommended to postgraduates and researchers in both pharmacology and molecular biology." (*Science Progress*, 1 March 2014)

"Overall, it could be the basis of an excellent course for junior pharmacologists in basic science research who need a greater focus on the mechanisms of drug action rather than an encyclopedic survey of clinical drug use." (*Doody's*, 26 July 2013)

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#### **Charlsie Sprouse:**

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