**DESCRIPTION**

The gold standard for industrial research now completely revised in line with current trends in the field, with all contributions extensively updated or rewritten.

In 21 chapters readers can benefit from the key working knowledge of today's leading pharmaceutical companies, including Pfizer, AstraZeneca, and Roche. Drug developers from industry and academia present all the factors governing drug bioavailability, complete with practical examples and real-life data.

Part I focuses on in vitro and in vivo measurements of physicochemical properties, such as membrane permeability and ionization. Part II discusses solubility and gastrointestinal absorption, while the third part is devoted to metabolism and excretory mechanisms. The much revised and expanded part IV surveys current in silico approaches to predict drug properties needed to estimate the bioavailability of any new drug candidate. The final part shows how poor bioavailability may be improved by various approaches during the development process.

No other publication offers the same level of treatment on this crucial topic in modern drug development.
Han van de Waterbeemd studied physical organic chemistry at the Technical University of Eindhoven, and gained his PhD in medicinal chemistry from the University of Leiden. After an academic career at the University of Lausanne with Bernard Testa, he worked for 20 years in the pharmaceutical industry for Roche, Pfizer and Astra Zeneca. His research interests are in optimizing compound quality using measured and predicted physicochemical and DMPK properties. He has contributed to 145 research papers and book chapters, and (co-)edited 13 books, and was involved in organizing conferences and courses to promote medicinal chemistry, with a focus on physicochemistry and predictive approaches in drug design. Dr. van de Waterbeemd is on the editorial board of several journals and of Methods and Principles in Medicinal Chemistry.

Bernard Testa is Emeritus Professor of the University of Lausanne, having served there for 25 years as a full professor and head of medicinal chemistry. He has written 5 books and edited 33 others, and (co-)authored well over 450 research and review articles in the fields of drug design and drug metabolism. Between 1994 and 1998, he was the European Editor of Pharmaceutical Research, and is now a senior editor of Chemistry and Biodiversity, as well as serving on the editorial boards of several leading journals. Professor Testa holds honorary doctorates from the universities of Milan, Montpellier and Parma, and is a recipient of the Nauta Award on Pharmacology given by the European Federation for Medicinal Chemistry.