



# A Practical Guide to Assay Development and High-Throughput Screening in Drug Discovery (Critical Reviews in Combinatorial Chemistry)

By Taosheng Chen

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The development of suitable assays, the integration of appropriate technology, and the effective management of the essential infrastructure are all critical to the success of any high-throughput screening (HTS) endeavor. However, few scientists have the multidisciplinary experience needed to control all aspects of an HTS drug discovery project. **A Practical Guide to Assay Development and High-Throughput Screening in Drug Discovery** integrates the experience of diverse experts who offer fundamental and practical guidance across numerous situations.

The book first discusses assay developments for important target classes such as protein kinases and phosphatases, proteases, nuclear receptors, G protein-coupled receptors, ion channels, and heat shock proteins. It next examines assay developments for cell viability, apoptosis, and infectious diseases. The contributors explore the application of emerging technologies and systems, including image-based high content screening, RNA interference, and primary cells. Finally, they discuss the essential components of the integrated HTS process, such as screening automation, compound library management, the screening of natural products from botanical sources, and screening informatics.

Designed to motivate researchers to bring further advances to the field, this volume provides practical guidance on how to initiate, validate, optimize, and manage a bioassay intended to screen large collections of compounds. Drawing on the knowledge from experts actively involved in assay development and HTS, this is a resource that is both comprehensive and focused.

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### Editorial Review

#### About the Author

**Taosheng Chen** earned a BS in biophysics and an MS in molecular cell biology from Fudan University in Shanghai, China. He received his PhD in cell and molecular biology from the University of Vermont at Burlington. Dr. Chen joined the faculty of the Department of Chemical Biology and Therapeutics and became director of the HTS Center at the St. Jude Children's Research Hospital in Memphis in 2006. His laboratory focuses on studying the regulation of transcription factors and their implications in drug metabolism and drug resistance as well as in pediatric cancers. Dr. Chen has authored more than 20 peer-reviewed articles in the areas of cancer biology, drug metabolism, signal transduction, and drug discovery technology.

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