1. Record Nr. UNINA9910298588103321

Autore	Noguchi Taro
Titolo	Development of Chemistry-Based Screening Platform for Access to Mirror-Image Library of Natural Products / / by Taro Noguchi
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018
ISBN	981-10-6623-X
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XIV, 80 p. 46 illus., 18 illus. in color.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	572.36
Soggetti	Pharmaceutical chemistry Chemistry, Organic Pharmaceutical technology Medicinal Chemistry Organic Chemistry Pharmaceutical Sciences/Technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Introduction -- Development of a Mirror-image Screening Process by Using Synthetic Proteins -- Synthesis of Grb2 SH2 Domain Proteins for Mirror-image Screening Systems -- Conclusions.
Sommario/riassunto	This thesis mainly describes the development of a screening process for a mirror-image library of chiral natural products. It demonstrates how, by using mirror-image proteins for the screening of available natural products, unavailable mirror-image isomers of natural products can be screened in a mirror process. Moreover, as mirror-image isomers including target proteins and natural products are mainly prepared by means of chemical synthesis, the screening strategy presented here suggests the importance of organic chemistry. Natural products are commonly used as valuable resources for drug discovery. However, as they are mostly produced as single enantiomeric forms, researchers have tested only natural products bearing one stereochemistry available in nature. As natural products and their enantiomers have identical physicochemical properties and different biological activities, mirror-image isomers of natural products are

promising candidates for novel medicinal resources. In an effort to identify anticancer agents from the mirror-image library, chemical protein syntheses of some target oncoproteins, MDM2, MDMX and Grb2, and their applications to the chemical array screening process were achieved. In the course of this process the NP843 enantiomer, which is the enantiomer of an -tocopherol derivative, was successfully identified as a novel MDM2-p53 interaction inhibitor. These results clearly show that a mirror-image library of chiral natural products represents an invaluable medicinal resource. Accordingly, the chemistry-based screening strategy described in this thesis will be of great interest to a broad range of chemists involved in natural product, medicinal, and synthetic chemistry.