

Treating protein-protein interactions as a novel and highly promising class of drug targets, this volume introduces the underlying strategies step by step, from the biology of PPIs to biophysical and computational methods for their investigation.

The main part of the book describes examples of protein targets for which small molecule modulators have been developed, covering such diverse fields as cancer, autoimmune disorders and infectious diseases. Tailor-made for the practicing medicinal chemist, this ready reference includes a wide selection of case studies taken straight from the development pipeline of major pharmaceutical companies to illustrate the power and potential of this approach.

From the contents:

- Prediction of intra- and inter-species protein-protein interactions facilitating systems biology studies
- Modulators of protein-protein interactions: the importance of three-dimensionality
- Interactive technologies for leveraging the known chemistry of anchor residues
- SH3 domains as drug targets
- P53 MDM2 antagonists: towards non genotoxic anticancer treatments
- Inhibition of LFA-1/ICAM interaction for treatment of autoimmune diseases
- The PIF-binding pocket of AGC kinases
- Peptidic inhibitors of protein-protein interactions for cell adhesion receptors
- The REPLACE strategy for generating non-ATP competitive inhibitors of cell-cycle protein kinases

and more



Alexander Dömling studied Chemistry and Biology at the Technical University Munich, Germany. After obtaining his PhD under the supervision of Ivar Ugi, he spent a postdoctoral year at the Scripps Research Institute in La Jolla (USA) in the group of Nobel Laureate Barry Sharpless. In 2004 he performed his habilitation at the Technical University of Munich. Since 2006 he teaches and performs research at the University of Pittsburgh in the Department of Pharmacy with secondary appointments in Chemistry and Computational Biology. In 2010 he became full professor receiving his tenure in Pittsburgh. Since 2011 he is chairing the department of Drug Design at the University of Groningen/The Netherlands. Dr. Dömling is founder of several biotech companies, including Morphochem and Carmolex. His research centers around the discovery of antagonists of protein-protein interactions and other biologically active compounds in the therapeutic areas of oncology, infectious and neglected tropical diseases using "out-of-the-box" software tools and multicomponent reaction chemistries.

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