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Nota di contenuto	Structure-Based Ligand Design; Preface; List of Contributors; Contents; 1 Rational Design of Bioactive Molecules; 1.1 Introduction; 1.1.1 From Ligand Design to Drug Discovery; 1.2 Source of Structural Information; 1.3 Classes of Therapeutic Agents; 1.4 Protein-Ligand Interaction; 1.4.1 Covalent versus Noncovalent Inhibitors; 1.4.2 Nonbonded Interactions in Protein-Ligand Complexes; 1.4.3 HydrogenBonds; 1.4.4 The Role of Solvent in Polar Protein-Ligand Interactions; 1.4.5 Lipophilic Interactions; 1.4.6 Criteria for Strong Protein-Ligand Interactions 1.5 Approaches to Structure-Based Ligand Design1.5.1 Ligands Derived from Substrate or Natural Ligand; 1.5.2 Structures Derived from 3D Database Searches; 1.5.3 De-Novo Design of Ligands; 1.6 Methods and Toois used in Structure-Based Ligand Design; 1.7 Outlook and Future Developments; References; 2 Examples of Active Areas of Structure-Based-Design; 2.1 Thrombin Inhibitors; 2.2 Design of Orally Active Inhibitors of Elastase; 2.3 Dorzolamide:A Success Story of Structure-

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3.3.3 Docking/Modeling HIV-1 Protease Nonpeptide Inhibitors3.4 Summary: Comparison of HIV-1 Protease versus Renin Structure-Based Design; 3.5 Current Limitations/Future Perspective; 3.6 Conclusion; References; 4 Zinc Endoproteases: A Structural Superfamily; 4.1 Introduction; 4.2 Structural Classification of Zinc Endopeptidase Families; 4.2.1 Short Spacer or Metzincins Family; 4.2.2 Long Spacer or Gluzincins Family; 4.3 Overview of Inhibitor Design; 4.4 Current Limitations; 4.5 Future Prospects; References; 5 Structure-Based Design of Potent Beta-Lactamase Inhibitors; 5.1 Introduction
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6.5 Binding of Substrate and Transition State Mimics

Sommario/riassunto

Most drugs bind to a clearly defined macromolecular target that is complementary in terms of structure and chemistry. This observation is the basic paradigm of structure-based ligand design. Although this method first emerged in the 1980s, it has already become a powerful tool for pharmaceutical research. Much has been learned, however, since the first attempts to discover drugs on the basis of available biochemical and structural data. Nowadays, structure-based ligand design is an established method for creating drugs with new structural features, for modifying binding activities and pharmaco