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5.5 Efficient combinatorial method for the discovery of glycosidase inhibitors; 5.6 Antitumour activity of new α -mannosidase inhibitors; 5.7 Conclusion; References; 6 Isofagomine, noeuromycin and other 1-azasugars, iminosugar-related glycosidase inhibitors; 6.1 Introduction; 6.2 1-Azasugars that are piperidines (isofagomine, noeuromycin, etc.); 6.3 1-Azasugars that are hydrazines; 6.4 1-Azasugars that are oxazines; 6.5 1-Azasugars that are piperidones; 6.6 Sulphur-containing analogues of 1-azasugars; 6.7 Slow inhibition and thermodynamics of binding; 6.8 Are 1-azasugars (and iminosugars) transition state analogues? References; 7 Iminosugar-based glycosyltransferase inhibitors; 7.1 Biological role and structural features of glycosyltransferases; 7.2 Development of inhibitors of glycosyltransferases; 7.3 Conclusion; References; 8 Transition state analogue inhibitors of N-ribosyltransferases; 8.1 Introduction; 8.2 Nucleoside hydrolases; 8.3 Purine nucleoside phosphorylases (PNPs); 8.4 5'-Methylthioadenosine (MTA) nucleosidases and phosphorylases; 8.5 Ricin A-chain; References; 9 Iminosugars as antiviral agents; 9.1 Introduction; 9.2 The relationship between glucosidase inhibition and antiviral action; 9.3 Fate of viral glycoproteins in glucosidase-inhibited cells; 9.4 Specificity of glucosidase inhibition; 9.5 N-Alkyl DNJs inhibit virus growth by non-glucosidase inhibitory mechanisms - other potential activities of these compounds; 9.6 New directions for improving glucosidase inhibitors as antiviral agents; References; 10 Iminosugars as active-site-specific chaperones for the treatment of lysosomal storage disorders; 10.1 Introduction; 10.2 Degradation of glycosphingolipids; 10.3 Lysosomal enzyme biosynthesis and ER-associated degradation (ERAD)

Sommario/riassunto

Iminosugars form undoubtedly the most attractive of carbohydrate mimics reported so far. In these structures, the substitution of the endocyclic oxygen of sugars by a basic nitrogen atom leads to remarkable biological properties and raises many challenges in organic synthesis. Since the discovery of their biological activity as glycosidase inhibitors in the 1970's, these polyvalent molecules have progressively made their way from the laboratory to the clinic. The impressive series of discoveries in the field over the past ten years indicates clearly that it is "a boom time" for iminosugar
