REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION,
SCIENCE AND SPORT

University of Ljubljana
Faculty of Chemistry and Chemical Technology

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OPERATION PART FINANCED BY THE EUROPEAN UNION
European Social Fund

VABILO NA PREDAVANJE
V OKVIRU DOKTORSKEGA ŠTUDIJA
KEMIJSKE ZNANOSTI

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z naslovom:

Glycomimetic antagonists of carbohydrate: protein interactions

v sredo, 21. januarja 2015 ob 15:00 uri

v predavalnici 1 (K1.119) v 1. nadstropju Fakultete za kemijo in kemijsko tehnologijo, Večna pot 113

Vljudno vabljeni!

Abstract

In the past decades, the increased appreciation for the ubiquity of glycans and their ability to encode biochemical information has generated the field of chemical glycobiology. Its main objective consists in understanding how chemical information is encoded in sugar structures, how this information is read out by sugar binding proteins (lectins), and how we can control/alter this flow of information by interfering with the sugar code.

Interference with oligosaccharide-mediated recognition events can be achieved using functional mimics of carbohydrates (glycomimetics), that could thus be used to modulate / alter signal transmission, or to prevent the onset of diseases. In recent years our laboratory has designed and prepared glycomimetic ligands of well-known target lectins[1] (cholera toxin,[1a,2] DC-SIGN,[1,3] MBL,[4] PA-IIL[5]).

All the mimics we are preparing share some common features relative to the natural oligosaccharide counterpart : reduction of the structural and/or synthetic complexity, structural similarity to the pharmacophoric fragment/epitope, chemical and enzymatic stabilization. They were designed taking advantage of the 3D structure of known oligosaccharide ligands and of available structural information on the lectin/ligand complexes. Additionally, most of the mimics include appropriate tethers, designed to allow synthesis of (pseudo)glycoconjugates.[1, 3c-d, 6] Multivalent presentation on polymeric scaffolds of the mimics has afforded high-affinity antagonists, and the selectivity of these materials against different lectins is under investigation.[3d]

The presentation will discuss our approach to the design and synthesis of glycomimetics, as well as some of the applications we are exploring.

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