GLYCOSIDASE INHIBITORS ON POLYSACCHARIDES: COMBINING TWO WORLDS

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Glycoconjugates, like glycoproteins and glycolipids, make up an essential part of all cell surfaces and are taking part in many biological processes, for example in cell-cell communication events. Additionally, cells are covered in a glycan layer [1]. The solid liquid interface of such oligo- and polysaccharides is therefore of importance in biology and medicine, for example for cell adhesion and recognition processes [2]. Semi-synthetic polysaccharide interfaces can be used to mimic such surfaces for interaction studies for e.g. protein/enzyme binding.

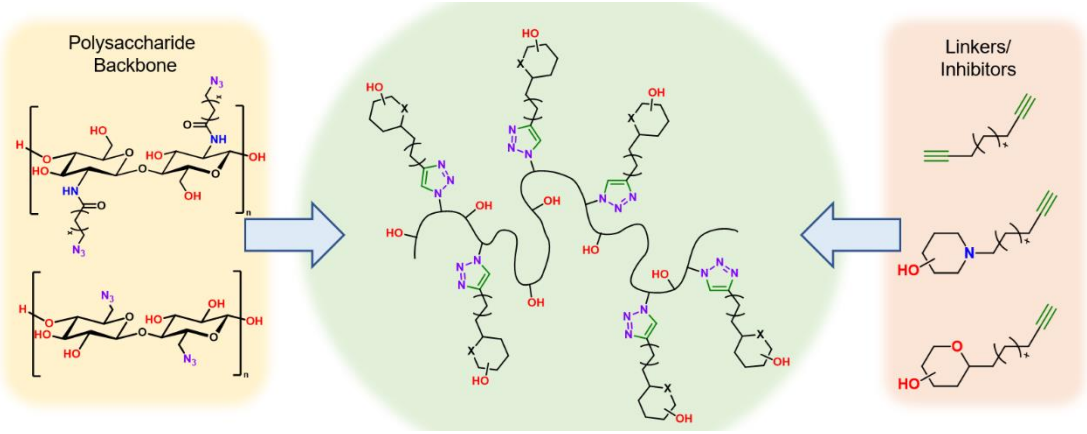

Figure 1. Linking azide-containing polysaccharides and alkyne-modified small molecules by azide-alkyne CLICK chemistry.

We are interested in the interactions between glycosidases and glycomimetic-modified polysaccharides. Therefore, small molecules, like imino- or isoiminosugars, are attached to e.g. chitosan or cellulose [3], which contain respective azido-groups, by azide-alkyne CLICK chemistry (Figure **1**). This can be done on thin-film surfaces [4], which enables analysis techniques like AFM, QCM-D or SPR, as well as in bulk-material. Potential applications are interaction with respective biological targets e.g. lectins from bacteria like uropathogenic *E. coli* [5] or protein purification by affinity chromatography. Synthetic and analytical details as well as biological evaluations will be presented.

References:

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