LIGAND-DIRECTED PROFILING OF GLYCOSIDASES WITH GLYCOMIMETIC-BASED PROBES BASED

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Activity based protein profiling (ABPP) is a versatile tool for evaluating enzyme activity rather than their abundance in living systems and complex environments [1]. With respect to carbohydrate processing enzymes (CPE), several versatile and efficient ABPP strategies have been introduced [2]. One cachet of the majority of these strategies is that the respective enzyme undergoes labelling by covalent binding of the probe to the active site. We are interested in a complementary method by applying the ligand-directed chemistry (LDC) for protein labelling of CPEs. This strategy, introduced by Hamachi and coworkers, allows for labelling of the respective enzyme in a certain proximity to the active site [3].
We have designed and synthesised glycomimetic-based probes featuring the respective components for LDC labelling [4]. Biological evaluations of these probes have been conducted with a selected panels of glycoside hydrolases.
Details about the synthesis of glycomimetic-based probes and biological evaluation for LCD labelling of CPEs will be presented.

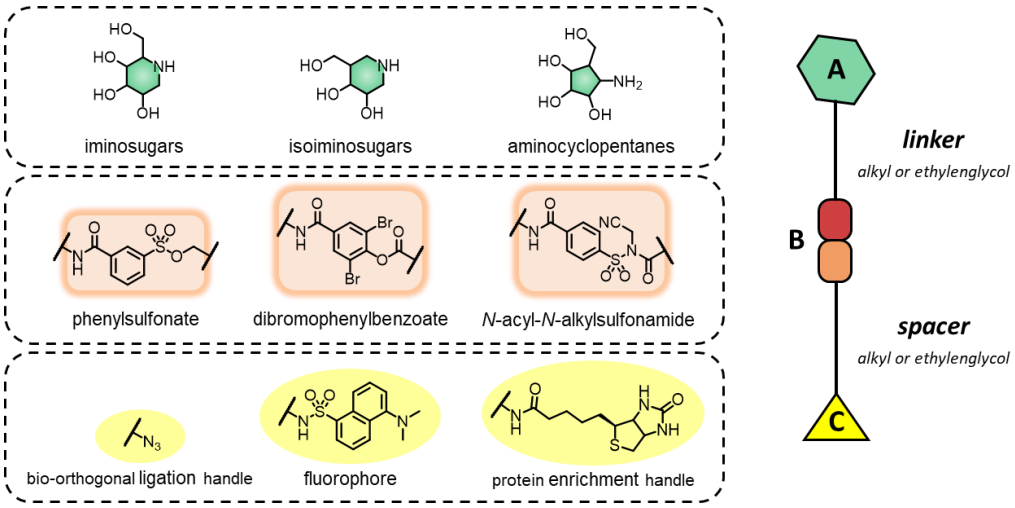

Figure 1. Building block concept for ligand directed chemistry (LDC) probes targeting glycoside hydrolases. (A) reversible inhibitor as ligand; (B) linker with electrophilic reactive group; (C) reporter tag.

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