Synthesis of modified carbohydrates as glyco-donors aiming complex glycans synthesis and glycopeptides

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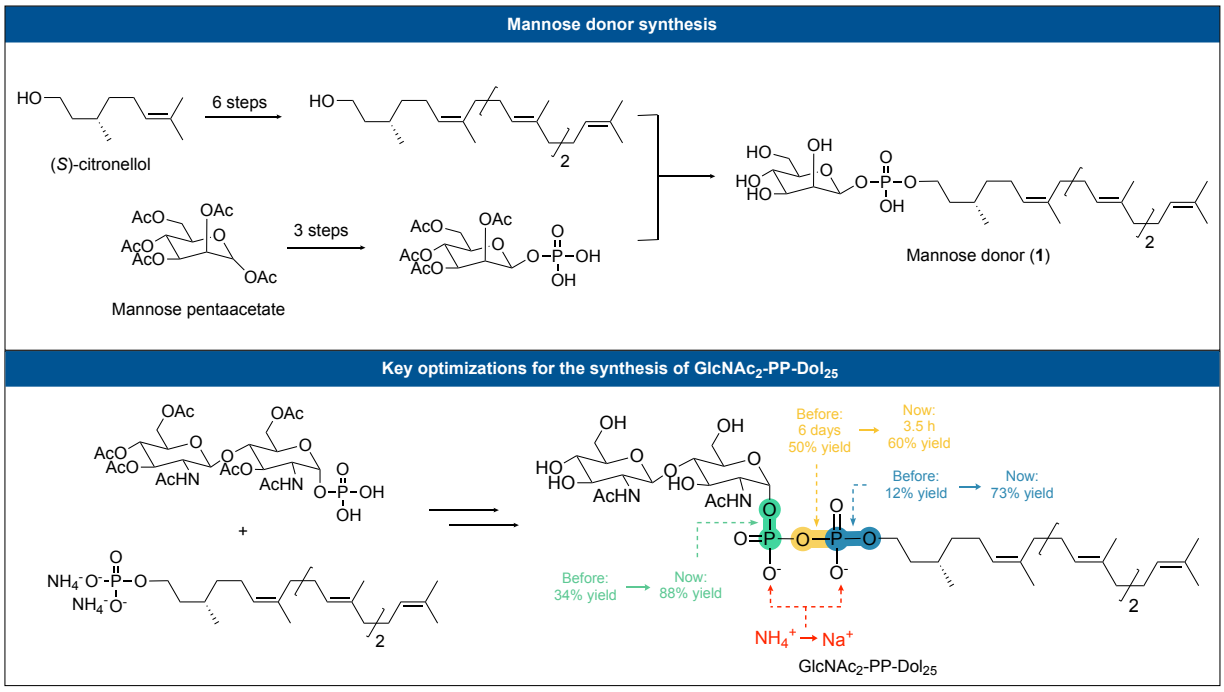
Lipid-linked oligosaccharides (LLOs) are pivotal in *N*-protein glycosylation, a crucial post-translational modification facilitating a broad spectrum of *N*-glycan structures.[1] In eukaryotes, this biological process is governed by various enzymes such as ALG (asparagine-linked glycosylation) and OST (oligosaccharyltransferase), which use LLO as substrates.[2] Our laboratory has developed simplified LLOs precursors, which are converted to synthetic LLOs through enzymatic synthesis employing glyco donors such as dolichyl phosphomannose (**1**).[3] Recently, we have also optimized the synthesis and purification of dolichyl diphosphochitobiose ($GlcNAc_2$-PP-Dol_{25}), providing a reliable method for preparing new LLO analogues.[4]

Extending on this work, we aim to synthesize modified glyco substrates capable of being recognized by Alg enzymes to produce complex oligosaccharides. Ultimately, these synthesized glycans hold the potential for producing glycopeptides, offering promising avenues for further exploration in glycoscience and biotechnology.



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