

Systematic synthesis and interaction analysis of heparan sulfate partial structure containing glucuronic acid moiety

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Abstract

Heparan Sulfate (HS) belongs to glycosaminoglycan (GAG) superfamily is a liner sulfated polysaccharide and is widely distributed in various tissues as components of cell membrane or extracellular matrix. HS is often sulfated heterogeneously owing to the multiple and random enzymatic modifications in the biosynthesis. The specific microdomain structure in HS chain is considered to be responsible for their specific binding interaction. However, the elucidation of the structure-activity relations of HS with HS-binding protein is very difficult due to their naturally occurring structural diversity. For that reason, structurally defined partial structures are required to analyze the functions at the molecular level. In this study, we systematically synthesized HS disaccharide structures containing glucuronic acid from a common intermediate and analyzed structure-activity relations of HS with HS-binding proteins using surface plasmon resonance (SPR) imaging.

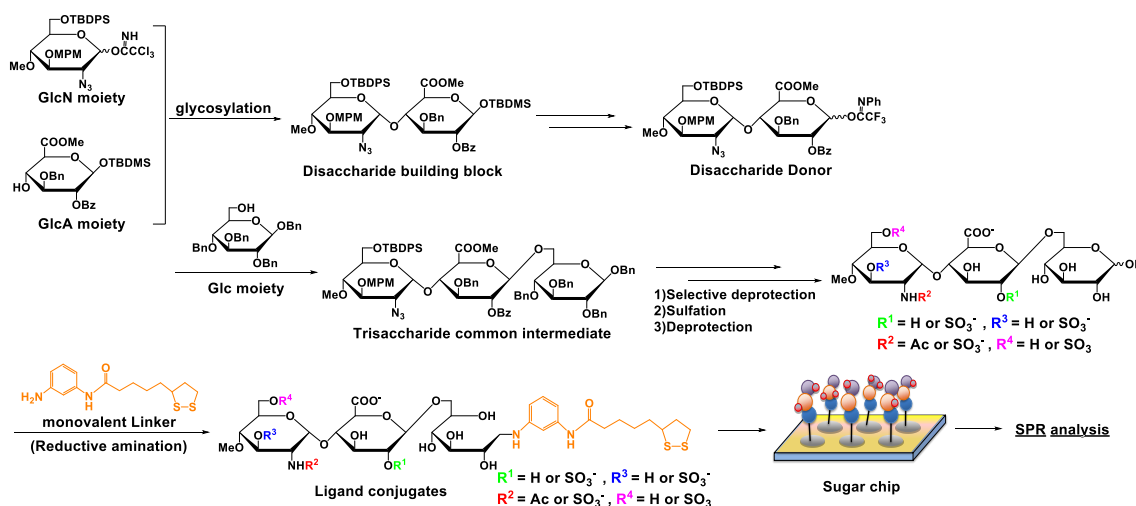


Figure 1. Synthesis of ligand conjugate containing HS partial disaccharide and flow of the interaction analysis using SPR imaging

References

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