
Computer-Planned Organic Synthesis: One-pot Synthesis of Heparin Sulfate, Heparin-Based Anticoagulant and N-glycans

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Abstract: In this talk, I will discuss the development and application of Computer-Program in the synthesis of complex oligosaccharides. Over the years the synthesis of complex oligosaccharide has been a challenging task for the synthetic chemist. The development of the computer program, namely, Optimer (1999) and Auto-CHO (2019) by Wong's group simplified the synthesis of complex oligosaccharides. The program is based on the Relative Reactivity Value (RRV) of thioglycoside donor and was successfully employed for the one-pot synthesis of various oligosaccharides including heparin sulfate, heparin-based anticoagulant and N-glycans. Besides the one-pot synthesis, I will also discuss (i) chemo-enzymatic synthesis of asymmetric N-glycans (ii) synthesis and structural studies of unnatural seven-membered sugar-“septanosides/septanose”

