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Chemical synthesis of fragments of galactosaminogalactan and pel polysaccharides

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Propositions

Chemical Synthesis of Fragments of Galactosaminogalactan and Pel Polysaccharides

1. The low reactivity of the axial 4-OH group of galactosamine derivatives challenges its efficient use as acceptor in glycosylation reactions. *J. Am. Chem. Soc.* 2020, 142, 1175-1179; and Chapter 1.
2. Both the requirement of a non-participating amino protecting group and the lower reactivity of glucosamine donors contribute to the challenge to stereoselective introduce 1,2-*cis*-linkages of 2-amino-2-deoxy-glucosides. Chapter 1.
3. A general glycosylation method for the stereoselective formation of α -glycosamines is far beyond reach. Chapter 1.
4. Homogeneous GAG-oligosaccharide fragments can be employed to study their interaction with components of the host immune system, such as antibodies, at molecular level. Chapter 2.
5. The stereodirecting effect of the 4,6-*O*-di-*tert*-butylsilylene (DTBS) group in galactose donors overrules neighboring group participation from the C-2-position. Chapter 4.
6. The 4,6-*O*-di-*tert*-butylsilylene (DTBS) protection of GlcN₃ donors outperforms the corresponding 4,6-*O*-benzylidene protection in terms of solubility, reactivity and stereoselectivity. *J. Org. Chem.* 2017, 82, 4793-4811; and Chapter 5.
7. The role that the polysaccharides GAG and Pel play in the formation of biofilms makes them interesting targets in the development of anti-inflammatory therapies. Chapter 6.
8. Our understanding of the different glycoconjugates present in and on cells and organisms is lagging far behind advances in genomics and proteomics. *Nature* 2007, 446, 1046-1051.
9. The attitude "If plan A fails, remember that you have 25 letters left" is indispensable for the progress of experimental research.