Chemical synthesis of fragments of galactosaminogalactan and pel polysaccharides

Zhang, Y.

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 $GlcN_3$ 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.