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Propositions

Chemical Synthesis of Fragments of Streptococcal Cell Wall Polysaccharides

1. Structure-activity relationships studies are indispensable for the development of vaccines comprising synthetic components. *Chapter 1.*
2. The production of vaccines with minimal batch-to-batch variation will benefit from synthetic oligosaccharide epitopes. *Chapter 1.*
3. The unique T cell-dependent properties of zwitterionic polysaccharides suggest that vaccines, based entirely on carbohydrates, are possible in the future. *Chapter 1.*
4. The Sp1-nonasaccharide, representing a complete helical turn of the zwitterionic polysaccharide of *Streptococcus pneumoniae* serotype 1, is a promising candidate epitope for the development of a vaccine. *Chapter 1 & Chapter 4.*
5. Although antibiotic treatment for most pneumococcal infections is effective, the future rise of drug-resistant pneumococci is a real danger. *Chapter 4.*
6. The presence of Cbz protected amines in less reactive acceptors can lead to significant amounts of *N*-glycosylated side products in glycosylation reactions. *Chapter 3.*
7. The state of the art in organic chemistry not only allows the synthesis well-defined fragments of naturally occurring polysaccharides but also derivatives, analogues and conjugates as tools for a deeper understanding of their biological activities. *Angew. Chem. Int. Ed.* 2012, 51, 4393–4396. & *J. Am. Chem. Soc.* 2018, 140, 3120–3127.
8. The structure of the optimal carbohydrate derived epitope cannot be predicted in advance. *ACS Cent Sci* 2019, 5, 1407-1416.
9. The immunity provided by vaccines is much better alternative for the society than disease acquired immunity. *Understanding How Vaccines Work from Centers for disease control and prevention.*
10. On the basis of their unique structure, bacterial capsular polysaccharides can be considered to be fingerprints of which the applicability has not yet been fully exploited. *Chem. Eur. J.* 2020, 26, 6264 – 6270.
11. Advances in synthetic chemistry benefit more from understanding the formation of unexpected by-products than solely the production of the target molecule.