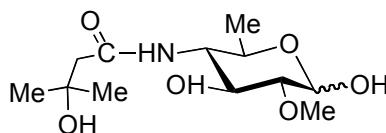


SYNTHESIS OF ANTHROSE AND RELATED SUBSTANCES

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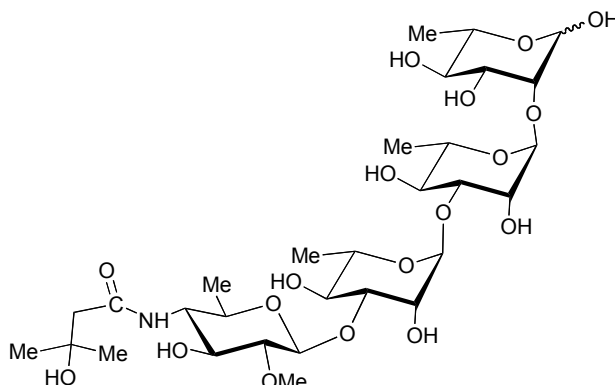
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The novel sugar anthrose [4,6-dideoxy-4-(3-hydroxy-3-methylbutanamido)-2-*O*-methyl-D-glucose] (**1**) [1]



1

is the terminal determinant of the tetrasaccharide **2**, which is attached to the major glycoprotein of the exosporium of *Bacillus anthracis*, the etiological agent of anthrax.



2

In view of the potential use of some form of *Bacillus anthracis* as a biological weapon, a need for a potent vaccine for anthrax has become a pressing target worldwide. Such vaccine could be based on attacking components of anthrax exosporium, for example the tetrasaccharide-containing glycoprotein, with specific, neutralizing antibodies. Access to synthetic derivatives of anthrose is crucial for making anthrose-containing oligosaccharides and conjugate immunogens from them. Within our work towards a carbohydrate-based, conjugate vaccine for anthrax, we have synthesized anthrose (**1**) and some derivatives thereof, including a glycosyl donor useful for syntheses of anthrose containing oligosaccharides.

Synthesis of tetrasaccharide **2** equipped with a spacer which makes it amenable for conjugation to proteins will be discussed.

- [1] Daubenspeck, J. M. Z.; Chen, H. P.; Dong, S.; Steichen, C. T.; Krishna, N. R.; Pritchard, D. G.; Turnbough, C. L. *J. Biol. Chem.* **2004**, *279*, 30945–30953.