

SYNTHESIS OF *CAMPYLOBACTER JEJUNI* HS:23/36 FRAME-SHIFTED TRISACCHARIDES

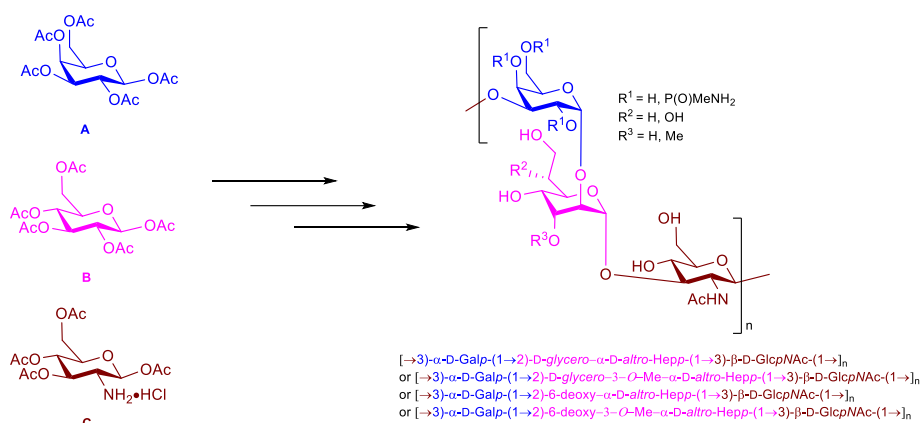
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With 400 000 deaths annually, diarrhoeal diseases are the third cause of death in children under the age of 5 worldwide [1]. *Campylobacter* falls within the four most common causes of diarrhoeal diseases [2]. Infections, especially frequent in young children in developing countries, are often attributed to *C. jejuni* [3]. Considering the threat of anti-microbial resistance (AMR), alternatives are to be developed, among which prevention through vaccination. Conjugate vaccines based on capsular polysaccharides (CPS) make an attractive strategy to mitigate the burden of campylobacteriosis [4]. This approach has been successfully applied to the development of a semi-synthetic glycoconjugate vaccine candidate against *Shigella flexneri* 2a by our group [5].



Here, focus is on one of the common *C. jejuni* serotypes, HS:23/36, the CPS repeating unit of which is a trisaccharide composed of a D-galactose (A) bearing a non-stoichiometric methyl phosphoramidate (MeOPN) moiety, a rare D-altrio-heptose that can be D-glycero or 6-deoxy, and/or 3-O-Me (B) and an N-acetyl D-glucosamine residue (C). Synthetic studies of orthogonally protected monosaccharides prepared on a large scale (up to 50 g) and their assembly into trisaccharides ready for elongation at both ends will be presented.

References:

1. *Diarrhoeal Disease*. World Health Organization, March 7, 2024.
2. R. Walker, *et al*, *Microorganisms* **2021**, 9, 7, 1382
3. *Campylobacter*. World Health Organization, May 1, 2020.
4. M. Cloutier, C. Gauthier, *ACS Infect. Dis.* 2021, 7, 5, 969–986
5. D. Cohen, *et al*, *Lancet Infect. Dis.* **2021**, 21, 546-558