TOTAL SYNTHESIS OF CAMPYLOBACTER JEJUNI NCTC11168 CPS

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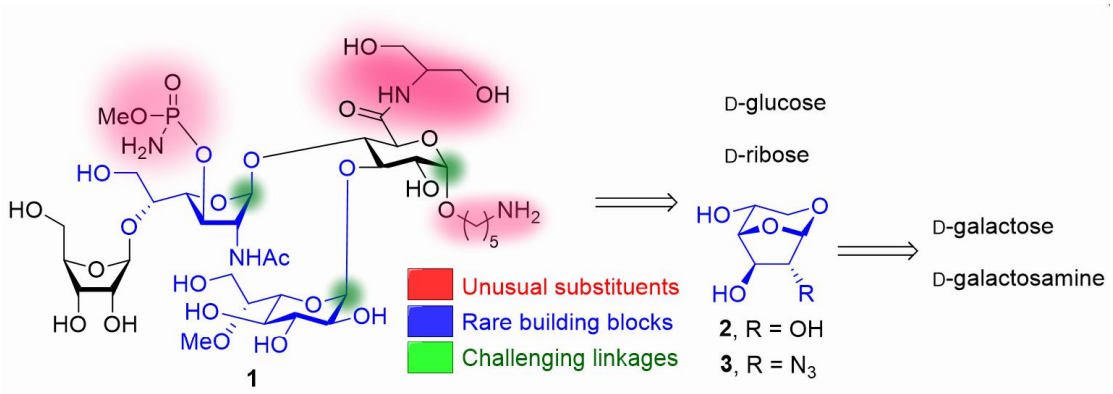
Campylobacter jejuni is a typical foodborne pathogen, and its infection results in a significant diarrhea disease, which is highly fatal to young children in unindustrialized countries. Herein, we described a total synthesis of a *C. jejuni* NCTC11168 capsular polysaccharide repeating unit containing a linker moiety via an intramolecular anomeric protection (iMAP) strategy [1]. Applying the iMAP strategy efficiency reduces the reaction steps of configuration modification to furanoside structure and the following regioselectivity protection. Therefore, we successfully concisely synthesize a rare sugar, heptose, in a six-steps manner from D-galactose, and generate the desired furanosyl galactosamine building block after 2 steps from a commercial galactosamine. Accordingly, we construct the target tetrasaccharide in merely 28 steps using [2 + 1 + 1] glycosylation strategy and accomplish the required substitutive modification and global deprotection, including the preparation of all the building blocks. Our research provides the first synthesis study on this complex tetrasaccharide structure, and the amine of linker moiety is capably conjugated with carrier protein for further vaccination study.



References:
1. Yeh, C.-H.; Chang, Y.-J.; Lin, T.-J.; Wang, C.-C. *J. Am. Chem. Soc.* **2023**, *145*, 9003-9010.