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Development of 3,5-*O*-di-*tert*-butylsilylene-D-galactofuranoside analogues for the synthesis of arabinogalactans from *M. tuberculosis*

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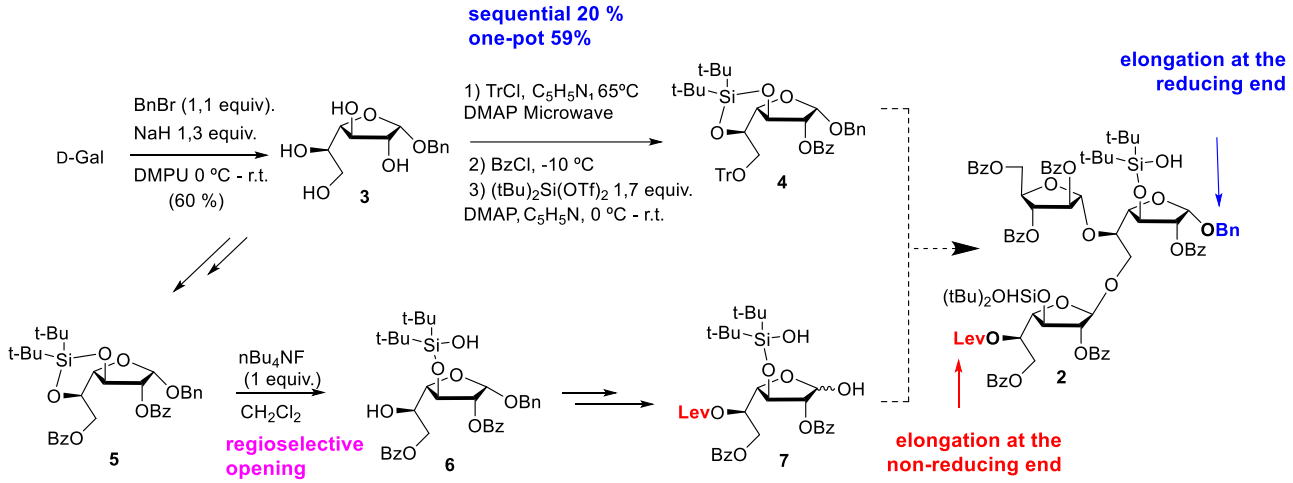
ABSTRACT

The development of synthetic methodologies for the construction of galactofuranose-containing oligosaccharides is crucial due to the presence of the xenobiotic Gal*f* unit in pathogenic bacteria. We have developed an effective method for the 5-OH regioselective opening of 3,5-*O*-di-*tert*-butylsilylene-D-galactofuranosides, further employed for the synthesis of derivatives of *Aspergillus fumigatus* galactofuran.[1] To explore the scope of this methodology, we focused on the synthesis of trisaccharide **2**, which has the skeleton of the branched trisaccharide [α-D-Ara*f*-(1-5)]-β-D-Gal*f*-(1-5)-D-Gal*f* (**1**) found in *Mycobacterium tuberculosis* arabinogalactan. The protective groups were chosen to enable the subsequent elongation of the trisaccharide **2** by coupling with other units at both reducing and non-reducing ends. Compound **4** (the precursor of the reducing end of **2**) was synthesized in three steps from **3** using a one-pot methodology. Compound **7** (the precursor of the non-reducing end of **2**) was synthesized from **3** by the regioselective opening methodology in very good yields. The synthesis of **4** and **7** proved to be effective.



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