Au-catalysed stereoselective synthesis of deoxyglycoside analogues as diagnostic probes

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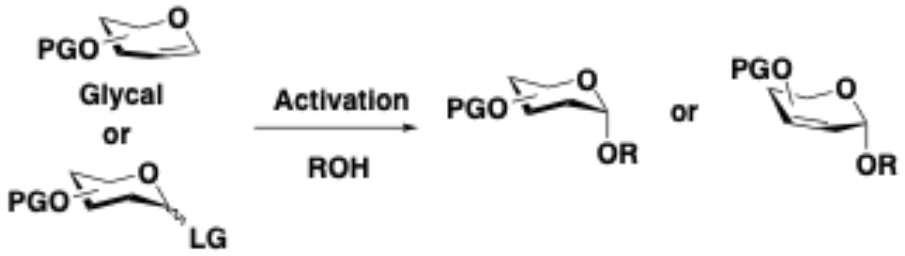
The stereoselective synthesis of glycosides remains one of the biggest challenges in carbohydrate chemistry.1 The chemical synthesis of complex carbohydrates generally involves the coupling of a fully protected glycosyl donor bearing a leaving group at its anomeric centre, with a suitably protected glycosyl acceptor (R-OH). In many instances, these reactions lead to a mixture of two stereoisomers.

In recent years, our group has endeavoured to develop catalytic and stereoselective methods to address this important synthetic challenge.2 Recent years have seen a steady increase in the application of transition metal catalysis applied to oligosaccharide synthesis,3 since the reaction conditions are mild and the careful choice of catalyst can offer significant improvements over traditional methods in terms of atom economy, high yields and control of anomeric selectivity.

Herein, we will report the latest applications of Au-catalysis for the a,a-stereoselective synthesis of trehalose derivates and their application as probes of microbial detection.4



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