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Chiral Brønsted Acid Mediated Glycosylation with Recognition of Alcohol Chirality
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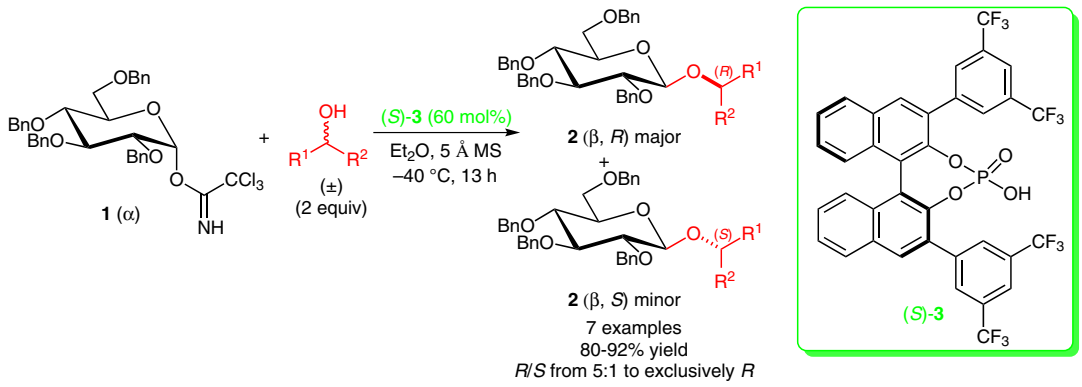
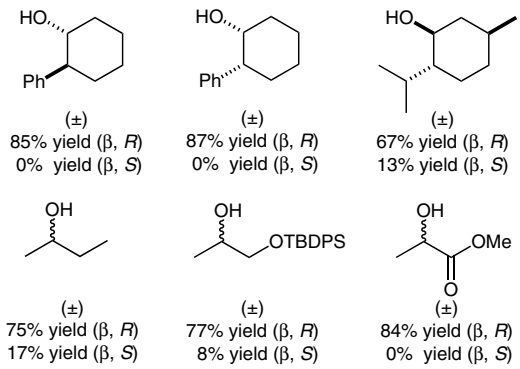
Category
Organo- and Biocatalysis

Key words
Brønsted acid
glycosylation
alcohols

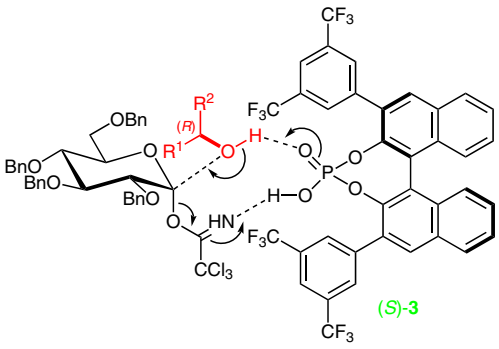
Phosphoric Acid Mediated Glycosylation and Alcohol-Chirality Recognition



Selected examples:



Reaction pathway:



Significance: Toshima and co-workers report a highly β-selective glycosylation of α-trichloroacetimidates **1α** with various secondary alcohols. The diastereoselectivity is moderate to excellent, and the reaction is mediated by the phosphoric acid (*S*)-**3**. According to mechanistic studies, the exclusive β-selectivities are obtained through a (*S*)-**3**-mediated S_N2 reaction pathway. The methodology was also applied to the total synthesis of a natural flavan glycoside using a racemic aglycone.

Comment: Glycosylation is an important synthetic method to construct sugar moiety containing compounds. Here, the authors report a novel Brønsted acid mediated glycosylation, and a kinetic resolution of secondary alcohols occurs during the process at the same time. This methodology provides a straightforward way for the synthesis of sugar-derived products with high stereoselectivity.

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