Gallium(III) Triflate Catalyzed Diastereoselective Mukaiyama Aldol Reaction by Using Low Catalyst Loadings Eur. J. Org. Chem. 2013, 6525-6529.

## Mukaiyama Aldol Reaction Catalyzed by Gallium(III) Triflate



Selected examples:


80\% yield
syn/anti $=85: 15$
90\% yield
syn/anti = 70:30
$\mathrm{Ga}(\mathrm{OTf})_{3}(0.01 \mathrm{~mol} \%)$

$76 \%$ yield syn/anti $=80: 20$


76\% yield
syn/anti $=18: 82$


56\% yield syn/anti $=87: 13$


66\% yield syn/anti $=82: 18$


46\% yield
syn/anti $=96: 4$


75\% yield syn/anti $=66: 34$


70\% yield syn/anti $=$ 69:31

Significance: The authors report a mild method for the diastereoselective Mukaiyama aldol reaction. The process is catalyzed by gallium(III) triflate yielding to the corresponding $\beta$-hydroxy ketones in up to $92 \%$ yield.

Comment: The developed method is an efficient aldol reaction under mild conditions with a very low catalyst loading of gallium(III) triflate (0.01-1.0 $\mathrm{mol} \%)$. This is the first example of a metal triflate acting as a safe and stable slow-releasing source of triflic acid in the Mukaiyama aldol reaction. Gallium(III) triflate is a stable, easy-to-handle white solid.

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