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Synthesis of Pentafluorinated β-Hydroxy Ketones
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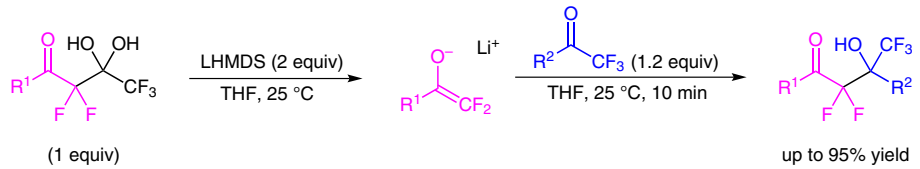
Category
Metal-Mediated Synthesis

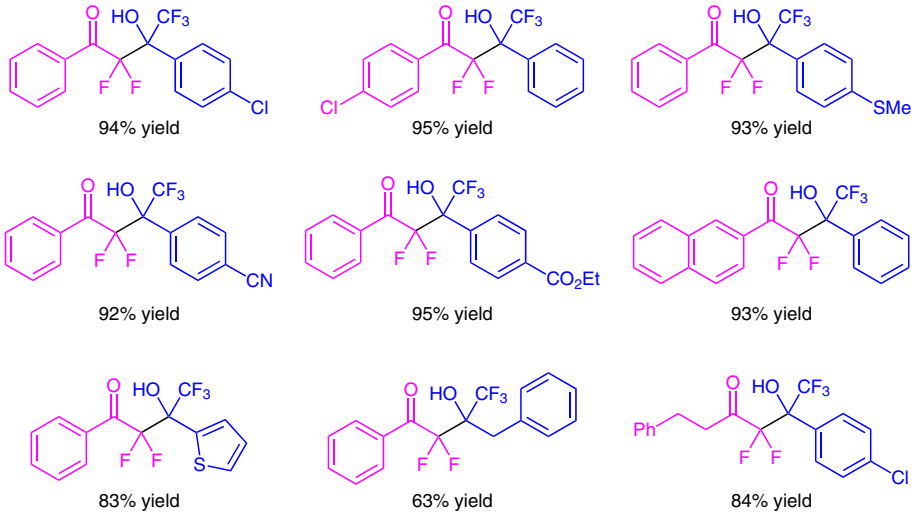
Key words
pentafluorinated β-hydroxy ketones
aldol reaction
lithium

Pentafluorinated β-Hydroxy Ketone Synthesis via Lithium-Mediated Aldol Reaction



R^1 = Ph, 4-ClC_6H_4, Naph, $(CH_2)_2Ph$
R^2 = Ar, 2-thienyl, Bn

Selected examples:



Significance: A fast and mild synthesis of pentafluorinated β-hydroxy ketones has been disclosed. The reaction proceeds via a lithium-promoted aldol reaction of readily available difluoroenolate precursors with trifluoromethyl ketones furnishing the corresponding pentafluorinated β-hydroxy ketones in good to excellent yield.

Comment: The described reaction is very versatile since it proceeds under ambient temperature and tolerates a broad range of functional groups. Furthermore, the authors show that the reduction of the pentafluorinated β-hydroxy ketones furnishes quantitatively the corresponding 1,3-diols favoring the *syn*-isomer.

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