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A Heterobimetallic Pd/La/Schiff Base Complex for anti-Selective Catalytic Asymmetric Nitroaldol Reactions and Applications to Short Syntheses of β -Adrenoceptor Agonists

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Pd/La Complex for *anti-Selective Catalytic*Asymmetric Nitroaldol Reactions

Synthesis of heterobimetallic catalyst

Substrate scope

Short synthesis H EtNO₂ as above BnO

$$\begin{array}{c} \text{Pd/C, } \text{H}_2 \text{ then} \\ \text{OHC} \\ \text{OH} \\ \text{OHC} \\ \text{OH} \\ \text{Ihen HCl in MeOH} \\ \text{Single pot} \\ \text{OHC} \\ \text{OH$$

Significance: A limited number of reports describe the *anti*-selective synthesis of chiral β -amino alcohols. This report describes the design of a simple and efficient catalyst with a broad substrate scope and practical applicability. The authors nicely demonstrate the short syntheses of two β -adrenoceptor agonists.

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Comment: Typically the methods for the synthesis of *anti*-selective chiral β -amino alcohols require the activation of nitroalkanes to silyInitronates. The authors avoid this activation using their heterobimetallic catalysts extensively studied in their laboratory. This report states that palladium and lanthanum efficiently and selectively produce the desired *anti*-products in moderate to excellent yields.

Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

Henry reaction
heterobimetallic
Schiff bases
palladium
lanthanum



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