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Enantioselective Rhodium-Catalyzed Allylic Substitution with a Nitrile Anion: Construction of Acyclic Quaternary Carbon Stereogenic Centers

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Construction of Quaternary Carbon Stereogenic Centers

Significance: The enantioselective construction of quaternary carbon stereogenic centers in acyclic systems remains one of the great challenges. A highly enantioselective rhodium-catalyzed allylic alkylation of allyl benzoate by α -substituted benzyl nitrile anions provides access to acyclic quaternary carbon stereogenic centers in good yields with excellent enantioselectivities.

91% ee

Et₂O, r.t.

89% yield

Comment: Interestingly, 15-crown-5 was used as additive to provide a significant improvement in the enantioselectivity. The protocol provides a new approach for the construction of acyclic quaternary carbon stereogenic centers. Furthermore, the nitrile products can be easily transformed into a number of important derivatives.

90% ee

86% yield

 $\textbf{SYNFACTS Contributors:} \ Hisashi\ Yamamoto,\ Fengtao\ Zhou$ Synfacts 2015, 11(8), 0831 Published online: 20.07.2015 DOI: 10.1055/s-0034-1381148; Reg-No.: H08515SF

Metal-Catalyzed **Asymmetric** Synthesis and Stereoselective Reactions

Key words

rhodium catalysis allylic substitution nitrile anion quaternary carbon stereogenic centers



831