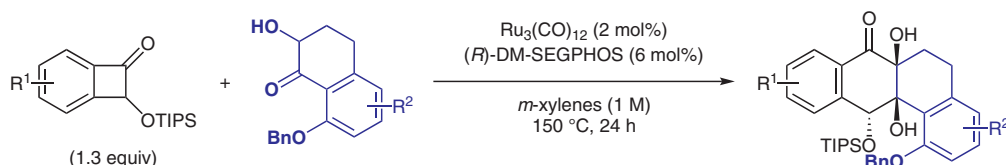
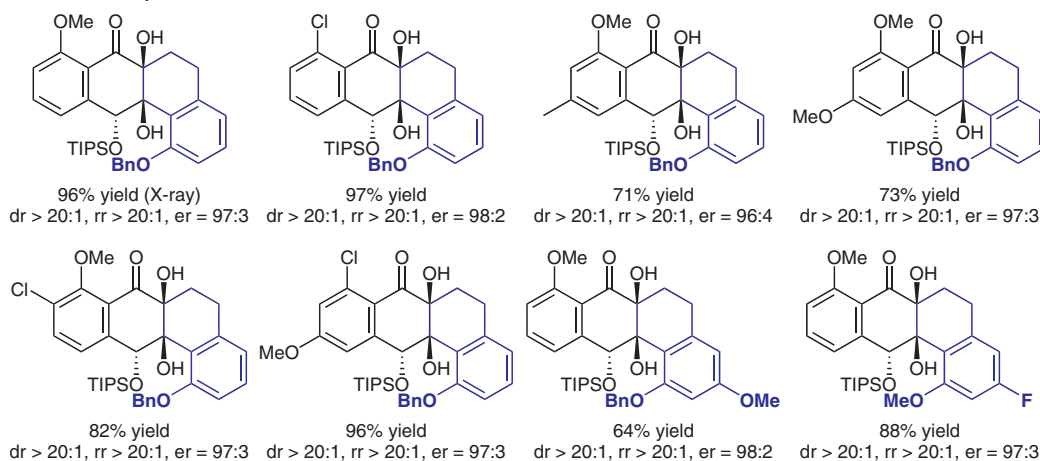


B. E. AMBLER, B. W. H. TURNBULL, S. R. SURAVARAPU, M. M. UTEULIYEV, N. O. HUYNH, M. J. KRISCHE* (UNIVERSITY OF TEXAS AT AUSTIN, USA)
 Enantioselective Ruthenium-Catalyzed Benzocyclobutenone–Ketol Cycloaddition: Merging C–C Bond Activation and Transfer Hydrogenative Coupling for Type II Polyketide Construction
J. Am. Chem. Soc. **2018**, *140*, 9091–9094.

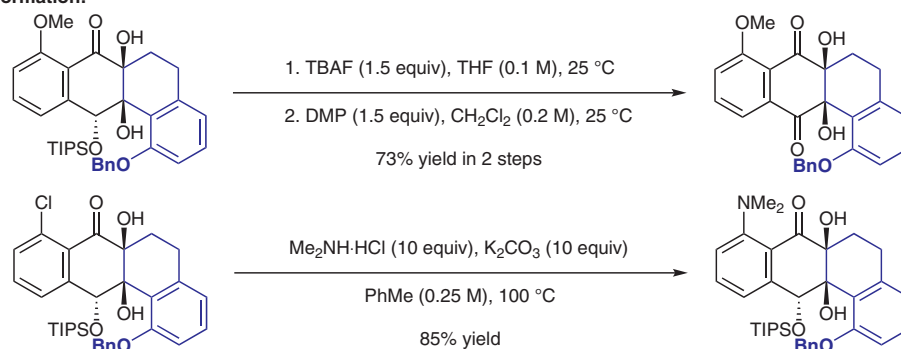
Enantioselective Intermolecular Ruthenium-Catalyzed Cycloaddition



Selected examples:



Transformation:



Significance: Metal-catalyzed cycloaddition is one of the most active areas of research. The authors have developed an enantioselective intermolecular cycloaddition of benzocyclobutenones with tetralone-derived ketols through a C–C bond oxidative addition catalyzed by a chiral ruthenium–DM-SEGPHOS complex.

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Comment: This ruthenium-catalyzed intermolecular cycloaddition merging C–C bond activation and transfer hydrogenative coupling proceeds smoothly in moderate to high yield with excellent enantio-, diastereo-, and regioselectivities. The obtained products can be transformed into the corresponding compounds containing dione and amine motifs.

Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

ruthenium catalysis
 cycloaddition
 C–C activation
 transfer hydrogenation
 polyketides

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of the month