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Enantioselective 1,2-Difunctionalization of Dienes Enabled by Chiral Palladium Complex-Catalyzed Cascade Arylation/Allylic Alkylation Reaction

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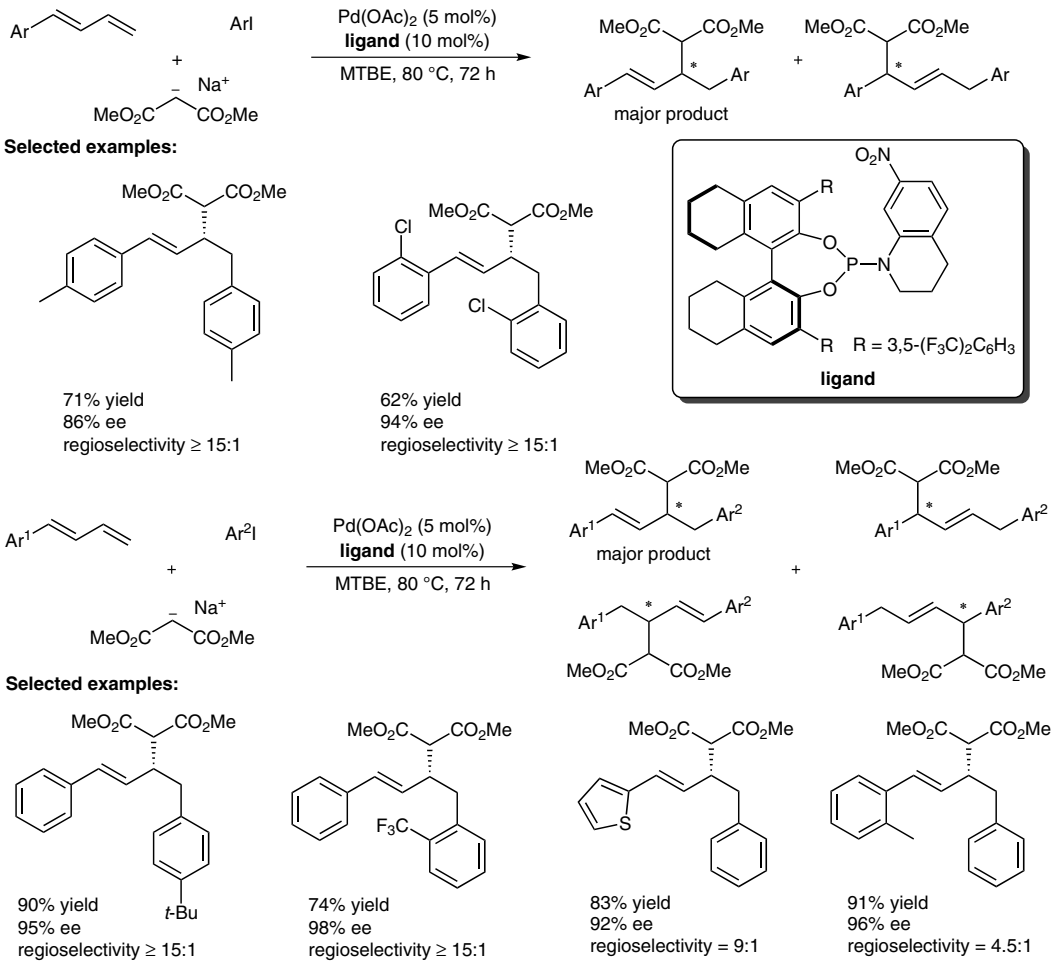
Palladium-Catalyzed Enantioselective 1,2-Difunctionalization of 1,3-Dienes



Significance: The authors report a palladium-catalyzed enantioselective three-component coupling of 1,3-dienes with aryl iodides and sodium dialkylmalonates by using a H_8-BINOL-based phosphoramidite ligand. A series of chiral 1,2-difunctionalized products were prepared in good yields (≤93%) with high regio- and enantioselectivities (15:1 or better and ≤98% ee).

Comment: This reaction proceeds by a palladium-catalyzed cascade arylation and asymmetric allylic alkylation reaction, which provides an important alternative strategy for the enantioselective difunctionalization of 1,3-dienes, leading to synthetically useful chiral chemicals.

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Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

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