Metallacycle-Mediated Annulation for the Synthesis of Hydroindanes

$\text{R}^1 = \text{Me, Bn}$ $\text{R}^2 = \text{H, Me, Ph}$ $\text{R}^3 = \text{Me, PMB}$ $\text{R}^4 = \text{Me, Ph, 4-BrC}_6\text{H}_4, \text{CH}_2\text{CH}_2\text{OPMB, } i\text{-propenyl}$

Proposed pathway:

Selected examples:

Significance: Cheng and Micalizio report a stereoselective annulation reaction to afford cross-conjugated triene-containing hydroindanes that are subsequently trapped by a dienophile in a [4+2]-cycloaddition reaction to obtain highly functionalized carbo- and heterocyclic systems.

Comment: The tendency of products of type **A** to undergo Diels–Alder-based dimerization upon standing was harnessed to accomplish this reaction cascade of annulation and intermolecular cycloaddition.

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