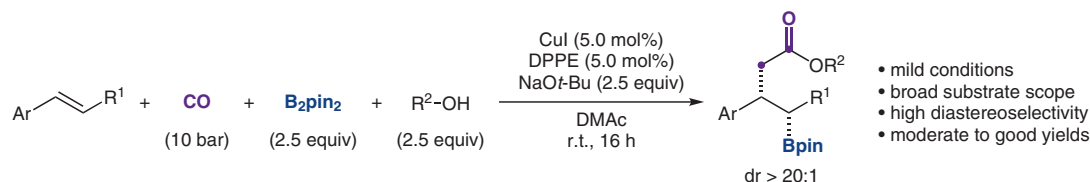


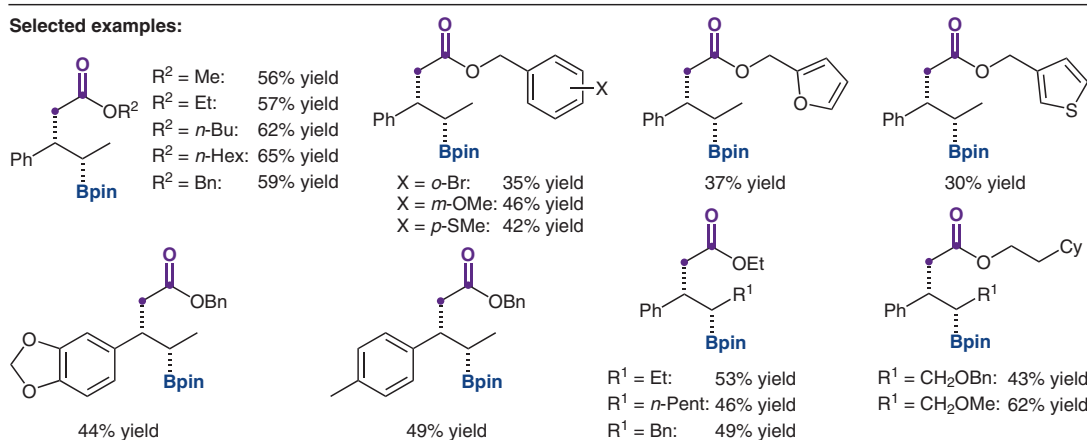
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Copper-Catalyzed Carbonylative Catenation of Olefins: Direct Synthesis of  $\gamma$ -Boryl Esters  
*Chem* 2022, DOI: 10.1016/j.chempr.2022.03.013.

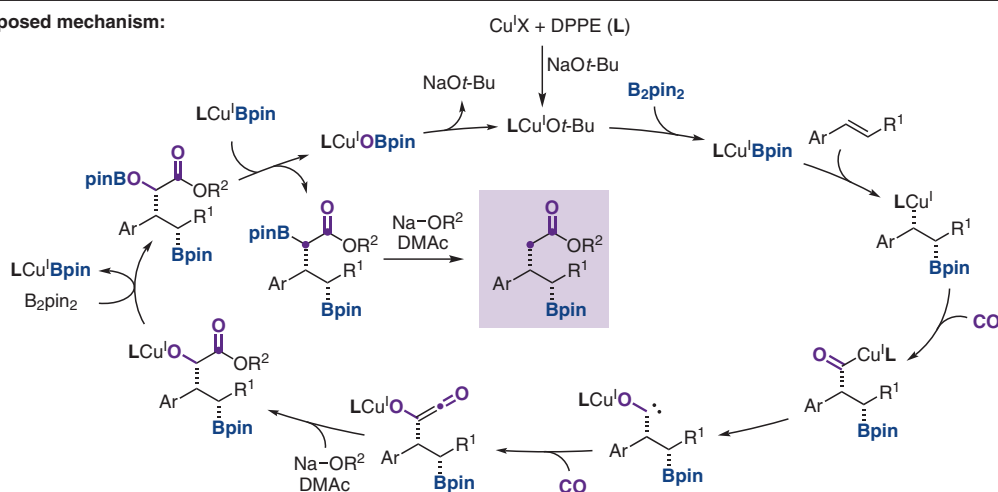
# Take Two CO: Access to $\gamma$ -Boryl Esters by Boration and Carbonylative Catenation of Styrenes in One Pot



## Selected examples:



## Proposed mechanism:



**Significance:** A copper-catalyzed carbonylative four-component coupling of olefins to access  $\gamma$ -boryl esters is disclosed. Two CO molecules act as the  $-\text{CH}_2\text{CO}-$  source. The regio- and *syn*-selective boryl cupration gives the products in high stereoselectivity.

**Comment:** Based on <sup>13</sup>C and <sup>2</sup>H NMR labeling experiments, the shown mechanism is proposed. Further synthetic transformations of the  $\gamma$ -boryl esters were performed to demonstrate the synthetic utility of this protocol.

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