

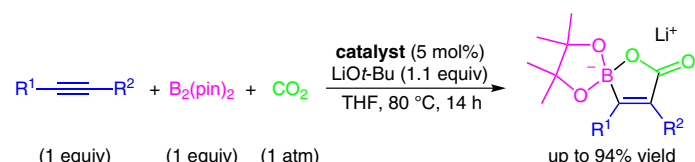
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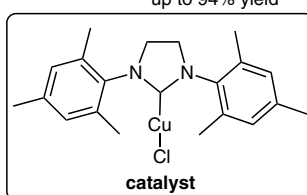
Catalytic Boracarboxylation of Alkynes with Diborane and Carbon Dioxide by an N-Heterocyclic Carbene Copper Catalyst

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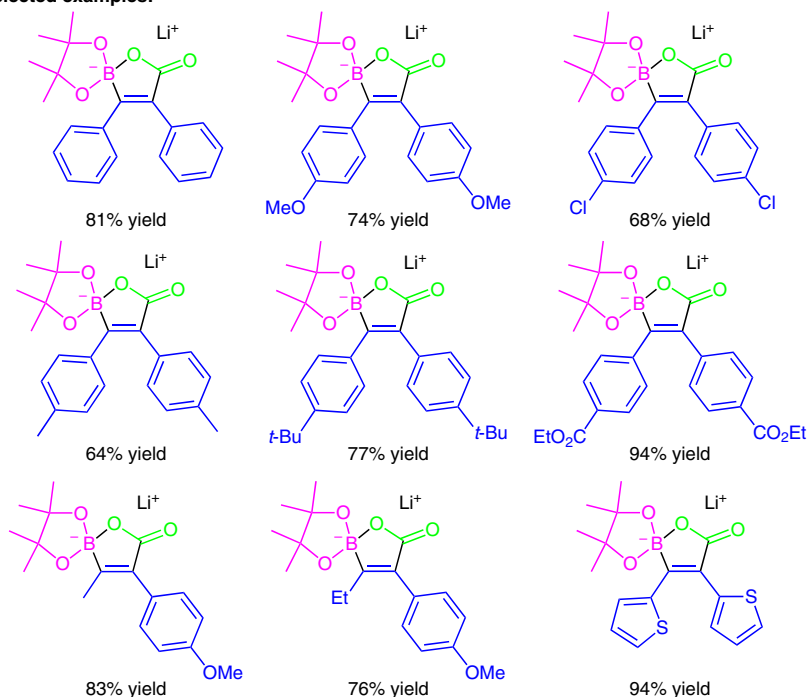
## Catalytic Boracarboxylation of Alkynes using $B_2(\text{pin})_2$ and $\text{CO}_2$



$R^1 = \text{H, Me, Et, Ar, 2-thienyl}$   
 $R^2 = \text{Ar, 2-thienyl}$



### Selected examples:



**Significance:** The first catalytic boracarboxylation of alkynes with  $B_2(\text{pin})_2$  and  $\text{CO}_2$  using an N-heterocyclic carbene (NHC) copper catalyst has been disclosed. The reaction proceeds under mild conditions and furnishes a novel family of  $\alpha,\beta$ -unsaturated  $\beta$ -boralactone derivatives in good to excellent yield.

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**Comment:** Both, the boryl moiety and the carboxylate group are added regio- and stereoselectively to the C–C triple bond via a borylcupration–carboxylation sequence to afford  $\alpha,\beta$ -unsaturated  $\beta$ -boralactone derivatives. Moreover, the authors show that the boracarboxylation products can be employed as nucleophiles in Suzuki–Miyaura cross-couplings.