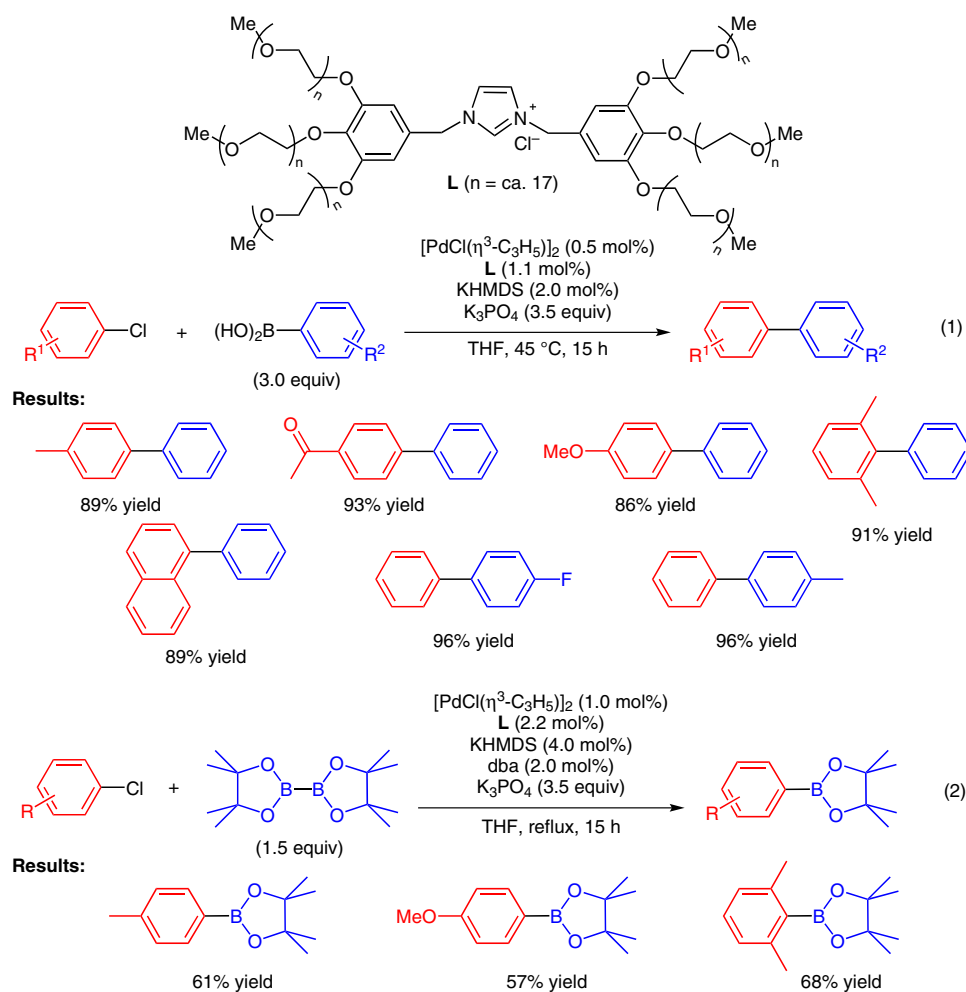


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N-Heterocyclic Carbene Ligands Bearing Poly(ethylene glycol) Chains: Effect of the Chain Length on Palladium-Catalyzed Coupling Reactions Employing Aryl Chlorides

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## Suzuki Coupling with an N-Heterocyclic Carbene–Palladium Catalyst



**Significance:** N-Heterocyclic carbenes (NHCs) **L** bearing poly(ethylene glycol) chains promoted the palladium-catalyzed Suzuki–Miyaura coupling of aryl chlorides with arylboronic acids to give the corresponding biaryls in up to 96% yield (eq. 1). The borylation of aryl chlorides with  $\text{B}_2\text{pin}_2$  also proceeded under similar catalytic conditions to afford the corresponding aryl boranes in up to 68% yield (eq. 2).

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**Comment:** In the reaction of chlorotoluene with phenylboronic acid, the catalytic performance of **L** ( $n \approx 17$ ) was superior to that of other NHC ligands, such as IMe<sub>s</sub> or IPr, and to NHC ligands **L** with shorter poly(ethylene glycol) chains ( $n = 0, 4, \sim 12$ ).

Category

Polymer-Supported Synthesis

Key words

N-heterocyclic carbenes

ligands

poly(ethylene glycol)

palladium

aryl chlorides

Suzuki coupling

Synfact  
of the month