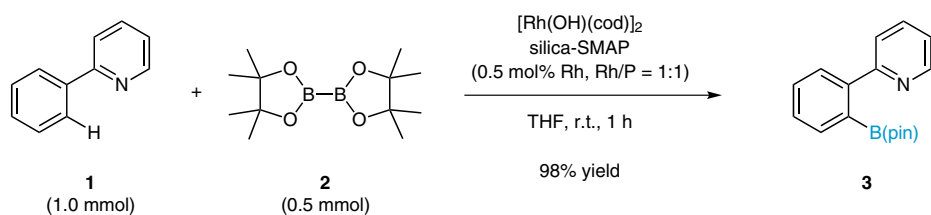
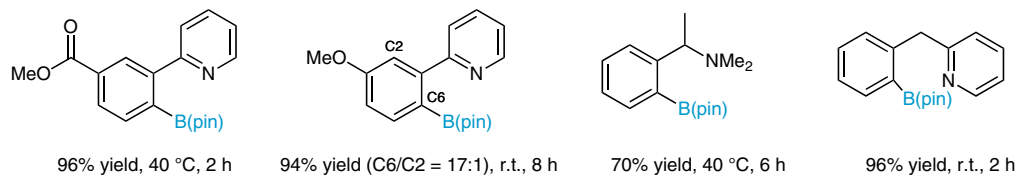
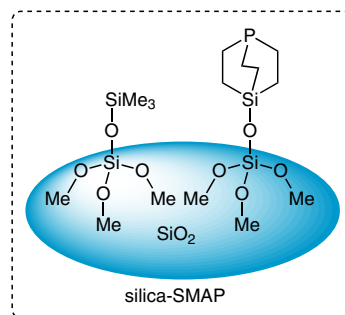
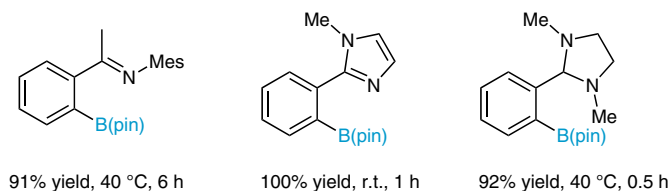


S. KAWAMORITA, T. MIYAZAKI, H. OHMIYA, T. IWAI, M. SAWAMURA* (HOKKAIDO UNIVERSITY, SAPPORO, JAPAN)
Rh-Catalyzed *ortho*-Selective C–H Borylation of *N*-Functionalized Arenes with Silica-Supported Bridgehead Monophosphine Ligands
J. Am. Chem. Soc. **2011**, *133*, 19310–19313.

ortho-C–H Borylation of Arenes Using Silica-Supported Rhodium Complexes



Selected examples:



Significance: *ortho*-C–H Borylation of *N*-functionalized arenes with solid-supported Rh catalysts was described. A Rh complex prepared in situ from $[\text{Rh}(\text{OH})(\text{cod})_2]$ and silica-SMAP (a silica-supported 1-phospha-4-silabicyclo[2.2.2]octane derivative) was found to promote the *ortho*-borylation efficiently. In the presence of 0.5 mol% Rh (Rh/P = 1:1), the reaction of 2-phenylpyridine (**1**) with bis(pinacolato)diboron (**2**) gave 2-(2-pyridyl)phenylboronic acid pinacol ester (**3**) in 98% yield based on **2**.

Comment: In the presence of Ph-SMAP (4-phenyl-1-phospha-4-silabicyclo[2.2.2]octane) instead of silica-SMAP, product **3** was obtained in only 17% GC yield. The catalyst was readily separated from the reaction mixture by filtration using Celite, although attempts to reuse the catalyst were unsuccessful.

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Category

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C–H activation

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SMAP

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of the month

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