Category

Polymer-Supported Synthesis

Key words

borylation

cyclopropanes

cyclobutanes

silica gel supported phosphines

iridium

R. MURAKAMI, K. TSUNODA, T. IWAI, M. SAWAMURA* (HOKKAIDO UNIVERSITY, SAPPORO, JAPAN)

Stereoselective C–H Borylations of Cyclopropanes and Cyclobutanes with Silica-Supported Monophosphane–Ir Catalysts

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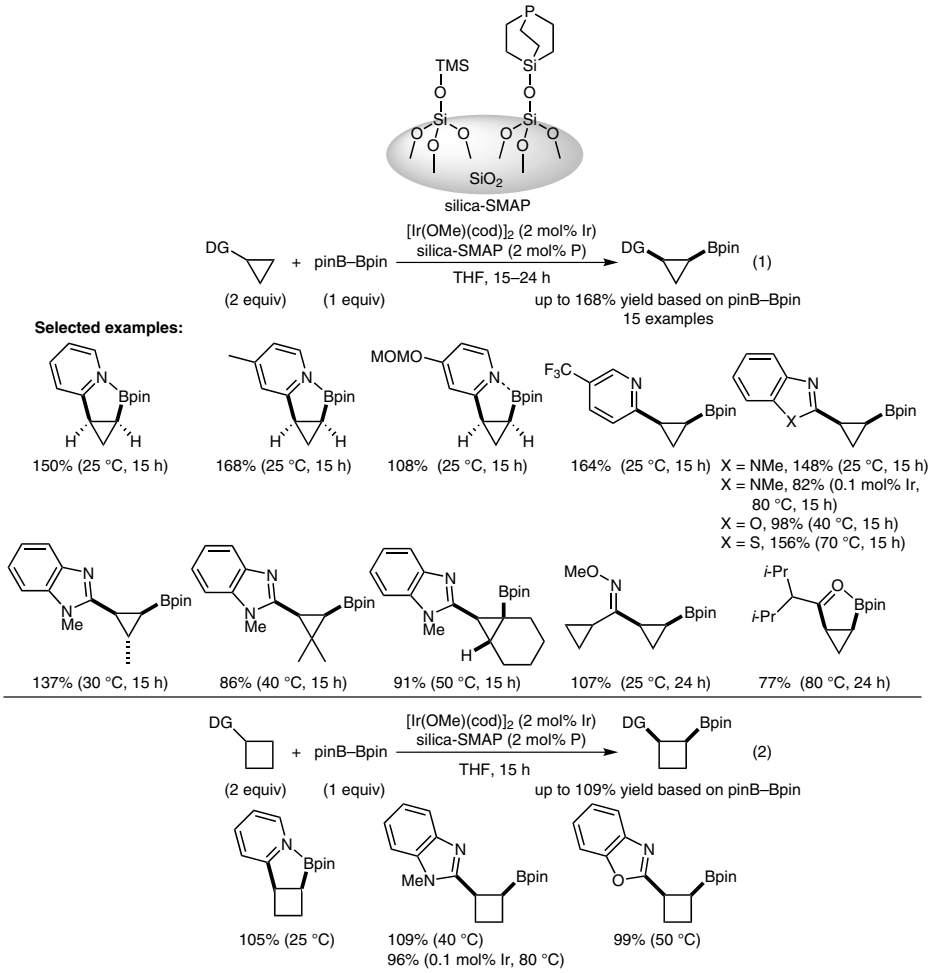
C–H Borylation of Cyclopropanes and Cyclobutanes with Silica-SMAP–Iridium



Significance: The heteroatom-directed C–H borylation of cyclopropanes and cyclobutanes with bis(pinacolato)diboron was carried out in the presence of $[Ir(OMe)(cod)]_2$ and silica-SMAP to give the corresponding borylated products in up to 168% yield based on bis(pinacolato)diboron (eqs. 1 and 2).

Comment: In the reaction of 2-cyclopropylpyridine with bis(pinacolato)diboron, the catalytic activity of the silica-SMAP–iridium system was superior to that of the other ligand–iridium systems (for example, 0% yield for Ph-SMAP–Ir, Me_3P–Ir, *t*-Bu_3P–Ir, Ph_3P–Ir, XPhos–Ir, dtbpy–Ir, and 2,9-Me_2Phen–Ir).

SYNFACTS Contributors: Yasuhiro Uozumi, Go Hamasaka
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