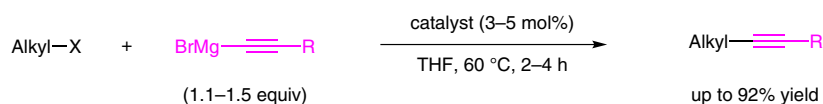


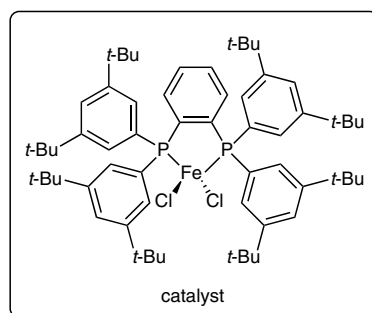
T. HATAKEYAMA, Y. OKADA, Y. YOSHIMOTO, M. NAKAMURA\* (KYOTO UNIVERSITY, JAPAN)

Tuning Chemoselectivity in Iron-Catalyzed Sonogashira-Type Reactions Using a Bisphosphine Ligand with Peripheral Steric Bulk: Selective Alkynylation of Nonactivated Alkyl Halides  
*Angew. Chem. Int. Ed.* **2011**, *50*, 10973–10976.

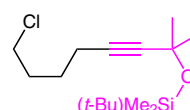
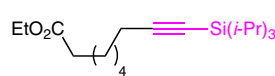
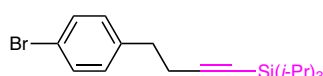
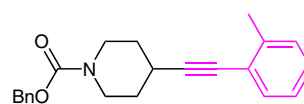
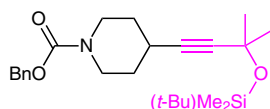
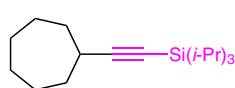
## Fe-Catalyzed Cross-Coupling of Alkyl Halides with Alkynyl Grignard Reagents



Alkyl = *n*-Hept, Cy, substituted piperidines and aliphatics  
X = Cl, Br, I  
R = Cy, *o*-methylbenzyl, C(Me)<sub>2</sub>OSiMe<sub>2</sub>(*t*-Bu), Si(*i*-Pr)<sub>3</sub>, SiMe<sub>2</sub>(*t*-Bu)



### Selected examples:



**Significance:** The authors report a novel coupling of primary and secondary alkyl halides with alkynyl-magnesium reagents with iron catalysis. The use of a bisphosphine ligand bearing peripheral steric bulk as well as slow addition of the Grignard reagent suppress undesired side reactions.

**Comment:** By using starting materials with two potential reactive sites, for example C(sp<sup>3</sup>)-Br and C(sp<sup>2</sup>)-OTf, and applying the reported iron-catalyzed cross-coupling with an alkynyl Grignard reagent, the C(sp)-C(sp<sup>3</sup>)-coupled products are obtained in excellent yields.

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Key words

iron

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*of the month*