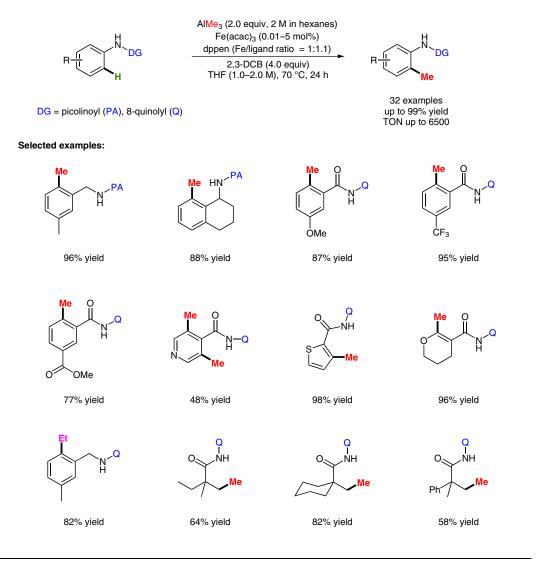
R. SHANG, L. ILIES,\* E. NAKAMURA\* (THE UNIVERSITY OF TOKYO, JAPAN) Iron-Catalyzed Directed  $C(sp^2)$ –H and  $C(sp^3)$ –H Functionalization with Trimethylaluminum *J. Am. Chem. Soc.* **2015**, *137*, 7760–7663.

## **Directed Iron-Catalyzed C-H Methylation**



**Significance:** The iron(III)-catalyzed directed functionalization of  $C(sp^2)$ –H and  $C(sp^3)$ –H bonds was achieved by Nakamura and co-workers. The methylation of anilides and carboxamides bearing a picolinoyl or 8-aminoquinolyl group with trimethylaluminum is tolerant of electron-withdrawing (CF<sub>3</sub>, F, CI, Br, CO<sub>2</sub>R) and electron-donating (OMe, NMe<sub>2</sub>) groups, as well as heterocyclic amines.

**Comment:** The authors present an alternative to the use of AIMe<sub>3</sub> by isolating the air-stable diamine intermediate formed by complexation of AIMe<sub>3</sub> with the iron(III) salt and 1,2-bis(diphenyl-phosphino)ethane (dppen). This robust catalyst could be recovered and a turnover number of more than 6500 was reached.

 SYNFACTS Contributors: Paul Knochel, Sarah Fernandez

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## Category

Metal-Mediated Synthesis

## Key words

C-H functionalization

trimethylaluminum

iron

