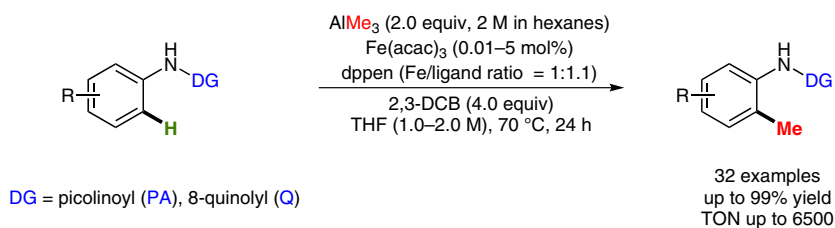
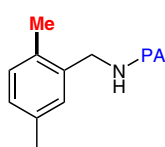


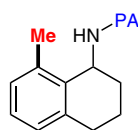
Directed Iron-Catalyzed C–H Methylation



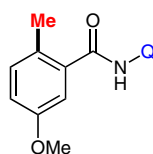
Selected examples:



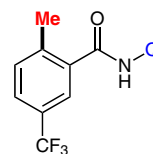
96% yield



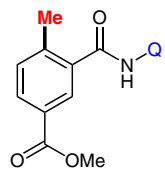
88% yield



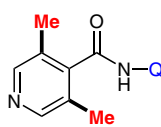
87% yield



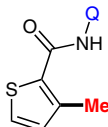
95% yield



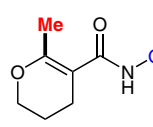
77% yield



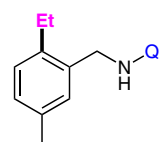
48% yield



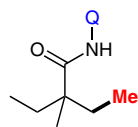
98% yield



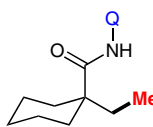
96% yield



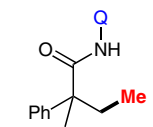
82% yield



64% yield



82% yield



58% yield

Significance: The iron(III)-catalyzed directed functionalization of C(sp²)-H and C(sp³)-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 (CF₃, F, Cl, Br, CO₂R) and electron-donating (OMe, NMe₂) groups, as well as heterocyclic amines.

Comment: The authors present an alternative to the use of AlMe₃ by isolating the air-stable diamine intermediate formed by complexation of AlMe₃ with the iron(III) salt and 1,2-bis(diphenylphosphino)ethane (dppe). This robust catalyst could be recovered and a turnover number of more than 6500 was reached.