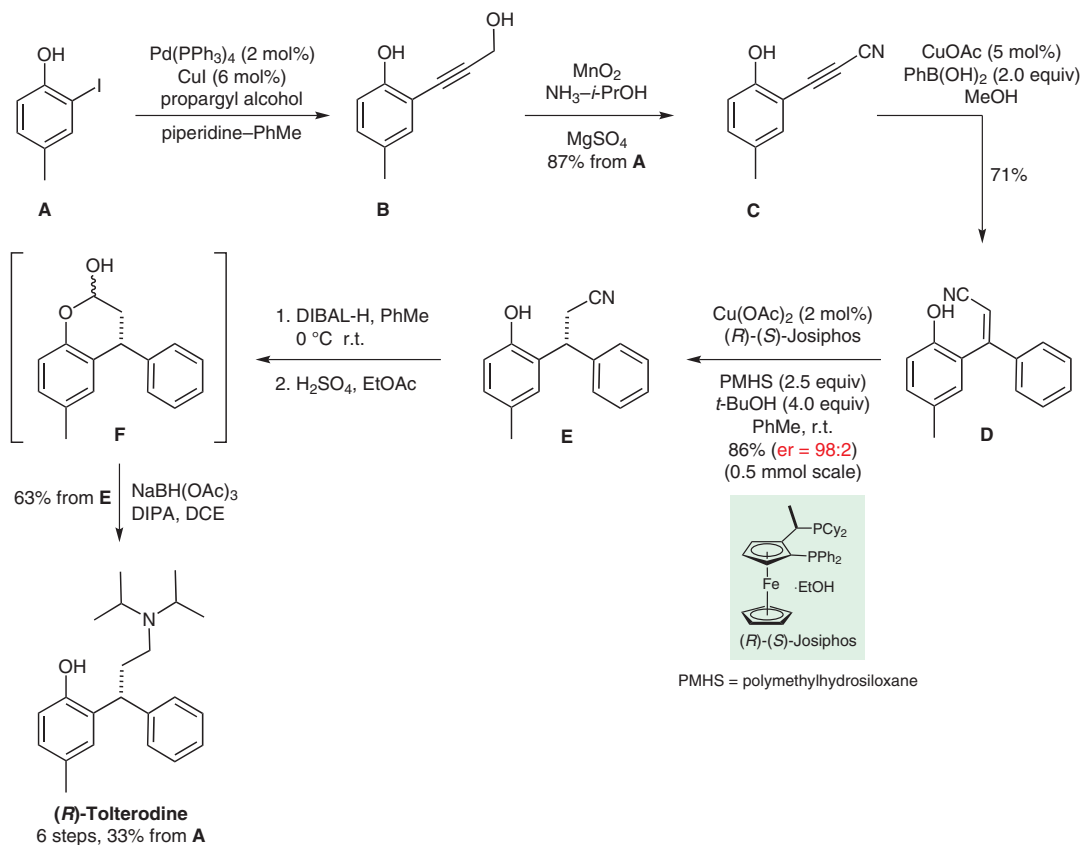


Synthesis of (*R*)-Tolterodine



Significance: (*R*)-Tolterodine is a muscarinic antagonist used for the treatment of urinary incontinence. Key steps in the short synthesis depicted are (1) a copper-catalyzed addition (hydroarylation) of phenylboronic acid to an alkynynitrile (**C** → **D**) and (2) a CuH-catalyzed asymmetric conjugate reduction of an α,β -unsaturated nitrile (**D** → **E**).

Comment: Copper-catalyzed hydroarylation of alkynoates had been reported previously by Y. Yamamoto, N. Kirai and Y. Harada (*Chem. Commun.* **2008**, 2010).

Review: *CuH-Catalyzed Reactions*, C. Deutsch, N. Krause, B. C. Lipshutz, *Chem. Rev.* **2008**, *108*, 2916-2927.

Category

Synthesis of Natural Products and Potential Drugs

Key words

tolterodine

hydroarylation

asymmetric conjugate reduction

boronic acids

copper

SYNFACT
of the month