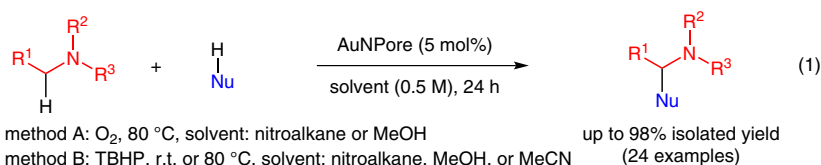
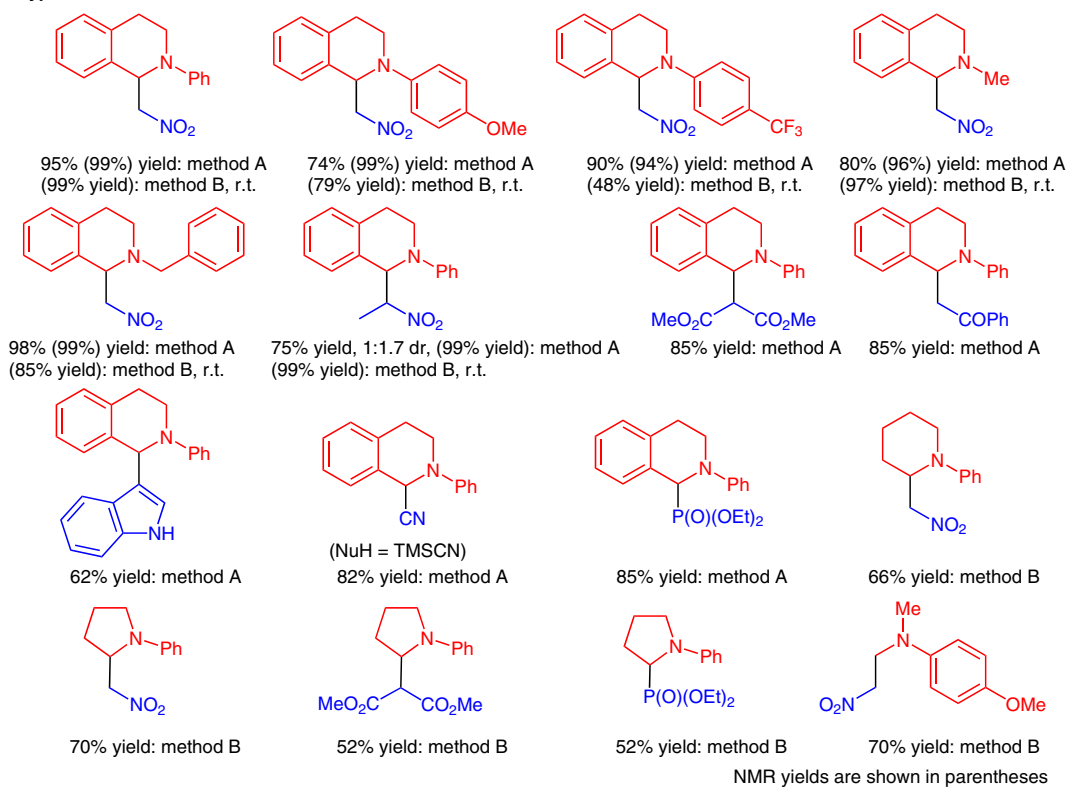


Aerobic Cross-Dehydrogenative Coupling with Nanoporous Gold



Typical results:



Significance: Zero-valent nanoporous gold (AuNPore) catalyzed the cross-dehydrogenative coupling of tertiary amines with carbon nucleophiles in the presence of oxygen or *tert*-butyl hydroperoxide to give the corresponding C–C coupling products in ≤98% isolated yield (eq. 1; 24 examples). After the reaction, the catalyst was recovered by filtration and reused nine times without loss of catalytic activity.

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Synfacts 2015, 11(11), 1215 Published online: 19.10.2015
DOI: 10.1055/s-0035-1560664; Reg-No.: Y12115SF

Comment: The authors previously reported the preparation of AuNPore (*J. Am. Chem. Soc.* **2012**, *134*, 17536). The catalytic activity of AuNPore for the cross-dehydrogenative coupling was superior to that of other nanoporous metal catalysts, such as nanoporous silver, copper, palladium, or platinum. An SEM study revealed that the morphology, pore size, and nanoporosity of AuNPore were unchanged after the catalytic reaction. ICP-MS analysis of the reaction solution showed no leaching of gold from the catalyst.