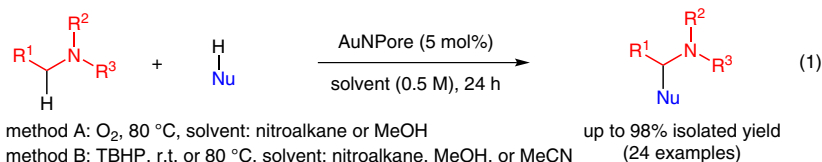
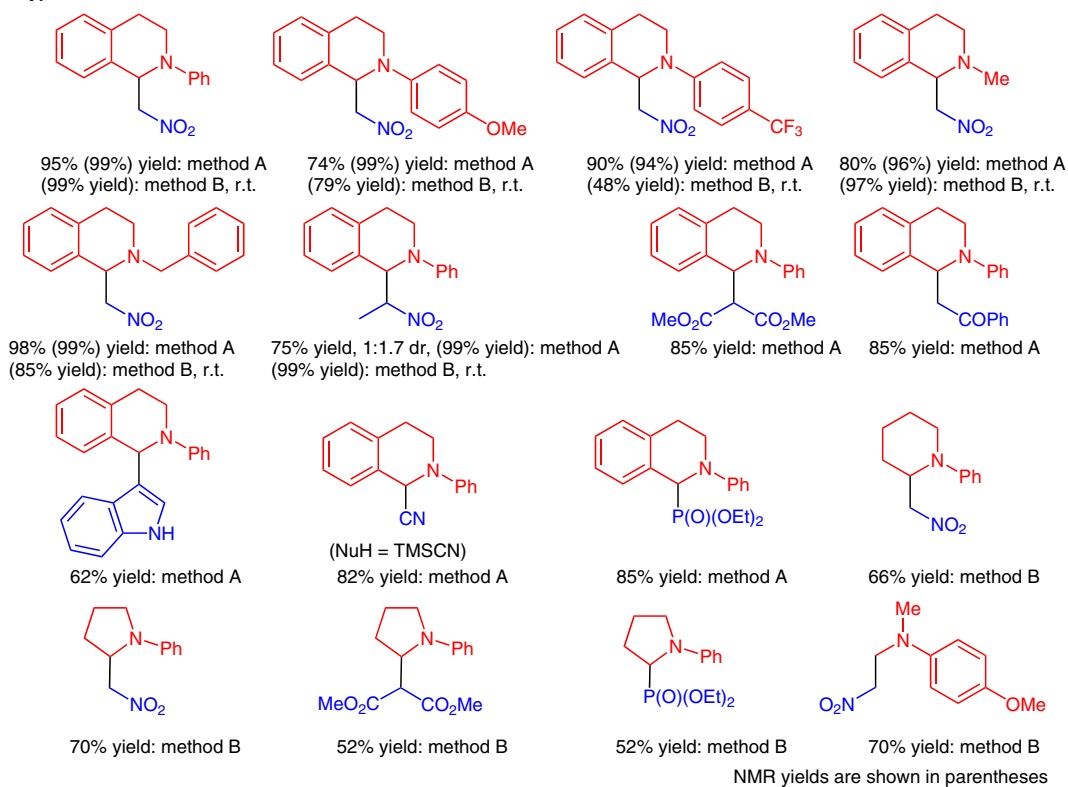


# Aerobic Cross-Dehydrogenative Coupling with Nanoporous Gold



## 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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**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.

## Category

Polymer-Supported Synthesis

## Key words

nanoporous catalysts

gold

cross-dehydrogenative coupling

tertiary amines

aerobic conditions

Synfact  
of the month