Category

Polymer-Supported Synthesis

Key words

gold nanoparticles

titanium dioxide

1,2-disilanes

alcohols

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Gold Nanoparticles-Catalyzed Activation of 1,2-Disilanes: Hydrolysis, Silyl Protection of Alcohols and Reduction of *tert*-Benzylic Alcohols

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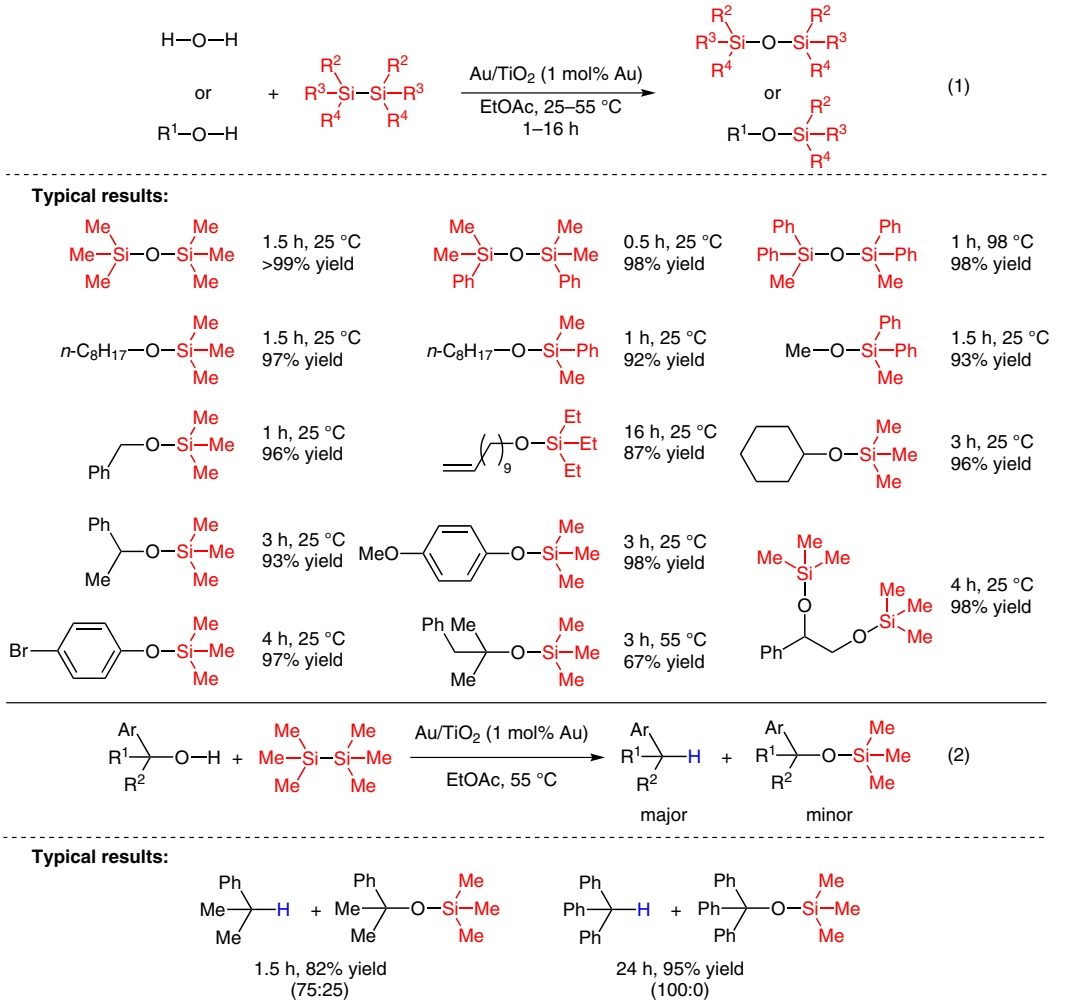
Silylation of Alcohol Derivatives with 1,2-Disilanes Catalyzed by Au/TiO_2



Significance: Gold nanoparticles supported on titanium dioxide (Au/TiO_2) catalyzed the silylation of water and primary, secondary, and tertiary aliphatic alcohols with 1,2-disilanes via Si–Si bond cleavage to give the corresponding silyl ethers in up to >99% yield (eq. 1). When tertiary benzylic alcohols were used for the reaction, the reduction proceeded to afford the corresponding alkanes as the major products (eq. 2).

Comment: The authors previously reported the oxidative cycloaddition of 1,1,3,3-tetramethyldisiloxane to alkynes catalyzed by Au/TiO_2 (*J. Am. Chem. Soc.* **2011**, *133*, 10426). The catalytic activity of Au/TiO_2 for the silylation of water was superior to that of gold nanoparticles supported on other supports such as aluminum oxide (Al_2O_3) and zinc oxide (ZnO).

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