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Oxidative Cycloaddition of 1,1,3,3-Tetramethyldisiloxane to Alkynes Catalyzed by Supported Gold Nanoparticles
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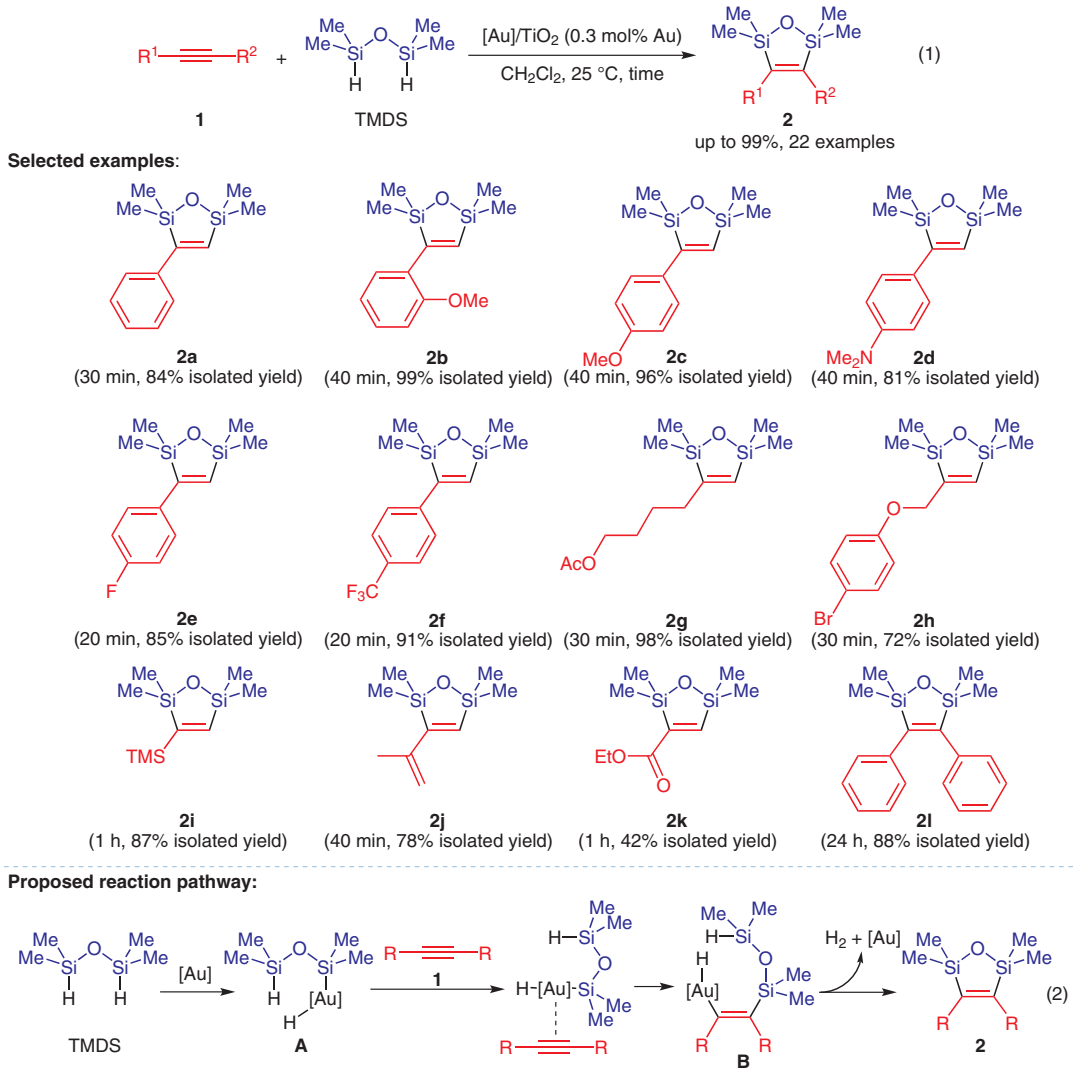
Cycloaddition of Tetramethyldisiloxane to Alkynes with [Au]/TiO_2



Significance: TiO_2-supported gold nanoparticles ([Au]/TiO_2) catalyzed the oxidative cycloaddition of 1,1,3,3-tetramethyldisiloxane (TMDS) to alkynes **1** to give the corresponding cycloadducts **2** in up to 99% isolated yield (22 examples, eq. 1).

Comment: The authors proposed a reaction pathway for the present oxidative cycloaddition as follows (eq. 2): (1) oxidative addition of TMDS to [Au] giving H-[Au]-$Me_2SiOSiHMe_2$ (**A**); (2) insertion of alkynes **1** into the Si–Au bond forming gold adducts **B**; (3) intramolecular elimination of H_2 and [Au] to give cycloadducts **2**.

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Category

Polymer-Supported Synthesis

Key words

cycloaddition

1,1,3,3-tetramethyl-disiloxane

alkynes

gold nanoparticles

titanium(IV) oxide

heterogeneous catalysis