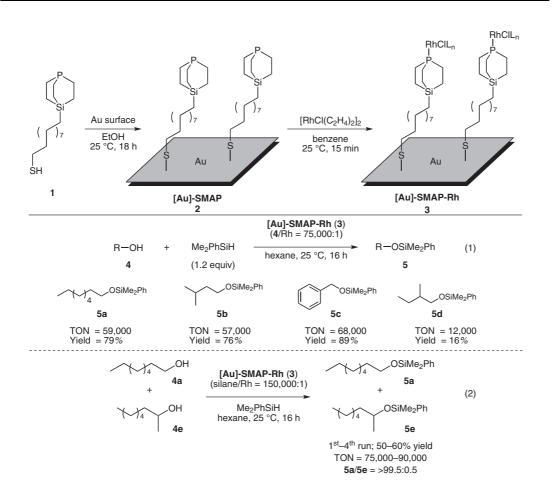
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Self-Assembled Monolayers of Compact Phosphanes with Alkanethiolate Pendant Groups: Remarkable Reusability and Substrate Selectivity in Rh Catalysis

Angew. Chem. Int. Ed. 2008, 47, 5627-5630.

Dehydrogenative Silylation of Primary Alcohols Catalyzed by [Au]-SMAP-Rh



Significance: Immersion of the gold surface in a solution of phosphine **1** in EtOH afforded [Au]-SMAP **2**. [Au]-SMAP **2** was treated with a solution of [RhCl(C_2H_4)₂]₂ in benzene to give [Au]-SMAP-Rh **3**. ICP-MS measurement of **3** revealed that rhodium was incorporated at a concentration of 0.63 nmol/cm². [Au]-SMAP-Rh **3** was found to promote the dehydrogenative silylation of primary alcohols **4** to afford the corresponding silyl ether **5a–d** with high TON up to 68,000 (eq. 1).

SYNFACTS Contributors: Yasuhiro Uozumi, Yutaka Matsuura Synfacts 2008, 10, 1111-1111 Published online: 22.09.2008 **DOI:** 10.1055/s-2008-1078196; **Reg-No.:** Y10108SF

Comment: The silylation reaction of a mixture of primary alcohol **4a** and secondary alcohol **4e** with [Au]-SMAP-Rh gave silyl ether **5a**, exclusively, without the formation of **5e** (eq. 2). Catalyst **3** was reused three times in the dehydrogenative silylation of EtOH through which a total TON of 235,000 was achieved.

Category

Polymer-Supported Synthesis

Key words

heterogeneous catalysis

monolayers

phosphine ligands

rhodium

