REGIOSELECTIVE DISILYLATION OF ALLENES BY DIHYDROSILANE CATALYZED BY GOLD NANOPARTICLES

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We have previously reported the regioselective addition of the $\sigma$ Si-H bond of monohydrosilanes on the more substituted double bond of allenes catalyzed by Au nanoparticles, forming hydrosilylation products.[1] In this study we present the Au nanoparticle-catalyzed regio- and site selective dehydrogenative disilylation on the less substituted double bond of allenes by a dihydrosilane (Et$_2$SiH$_2$).[2] This mode of reactivity is unprecedented, as all known examples of metal-catalyzed reactions between dihydrosilanes and allenes afford the typical hydrosilylation products.[3] Treatment of the disilylation products with H$_2$O, in an one pot operation also catalyzed by Au/TiO$_2$, leads to 3-alkylidene-1,2,5-oxadisilolanes, which proved to be excellent scaffolds for the stereoselective synthesis of stereodefined aryl alkenes under Hiyama-type cross coupling conditions.