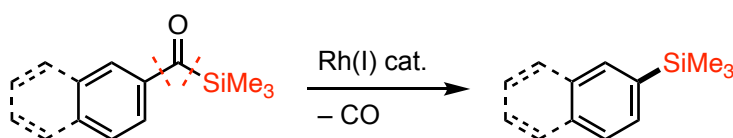


Rhodium-Catalyzed Decarbonylation of Acylsilanes

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Decarbonylation of aldehydes, which is known as Tsuji-Wilkinson decarbonylation, is broadly used in organic synthesis.¹ On the other hand, decarbonylation of ketones has met with limited success because of the inertness of carbon–carbon bonds. Decarbonylation of unstrained, simple ketones requires the stoichiometric rhodium complexes.² Recently, our group reported nickel-mediated decarbonylation of diaryl ketones, although a stoichiometric amount of nickel is still essential to promote the reaction.³ Narasaka and co-workers reported that bis(silyl)ketones, silicon analogs of ketones, can be decarbonylated by catalytic amount of palladium complexes.⁴ In this context, our group⁵ and Rueping's group⁶ independently reported nickel-catalyzed decarbonylation of acylsilanes. In this study, we found that decarbonylation of acylsilanes can also be catalyzed by rhodium complexes.



1) Tsuji, J.; Ohno, K. *Tetrahedron Lett.* **1965**, 6, 3969–3971.

2) (a) Murakami, M.; Amii, H.; Ito, Y. *Nature* **1994**, 370, 540–541; (b) Daugulis, O.; Brookhart, M. *Organometallics* **2004**, 23, 527–534.

3) (a) Morioka, T.; Nishizawa, A.; Furukawa, T.; Tobisu, M.; Chatani, N. *J. Am. Chem. Soc.* **2017**, 139, 1416–1419; (b) Catalytic decarbonylation of unstrained aryl ketones using a directing group has been reported: Zhao, T. T.; Xu, W. H.; Zheng, Z. J.; Xu, P. F.; Wei, H. *J. Am. Chem. Soc.* **2018**, 140, 586–589.

4) Sakurai, H.; Yamane, M.; Iwata, M.; Saito, N.; Narasaka, K. *Chem. Lett.* **1996**, 25, 841–842.

5) Nakatani, S.; Ito, Y.; Sakurai, S.; Kodama, T.; Tobisu, M. *J. Org. Chem.* **2020**, 85, 7588–7594.

6) Srimontree, W.; Lakornwong, W.; Rueping, M. *Org. Lett.* **2019**, 21, 9330–9333.