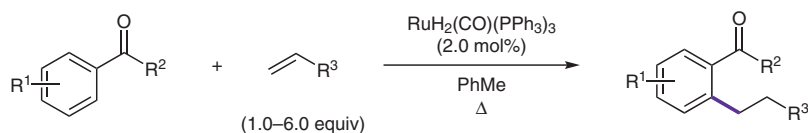


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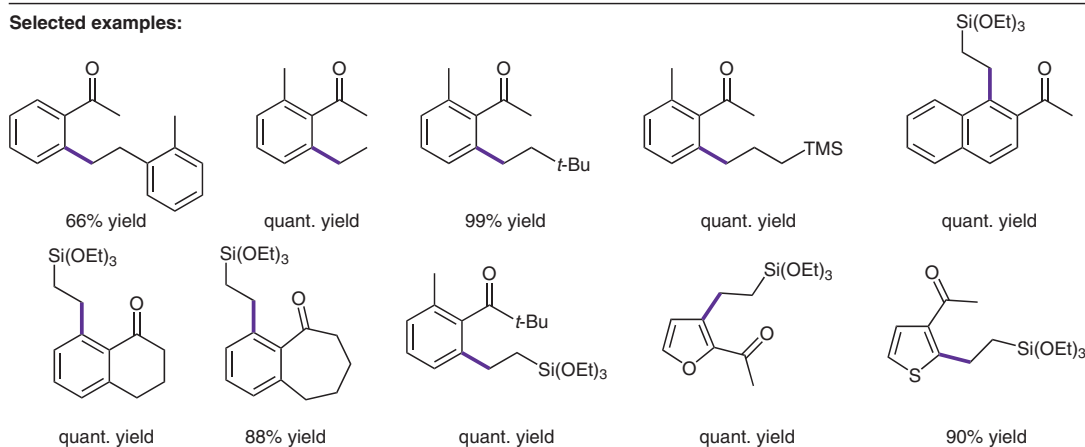
Efficient Catalytic Addition of Aromatic Carbon–Hydrogen Bonds to Olefins

Nature **1993**, 366, 529–531, DOI: 10.1038/366529a0.

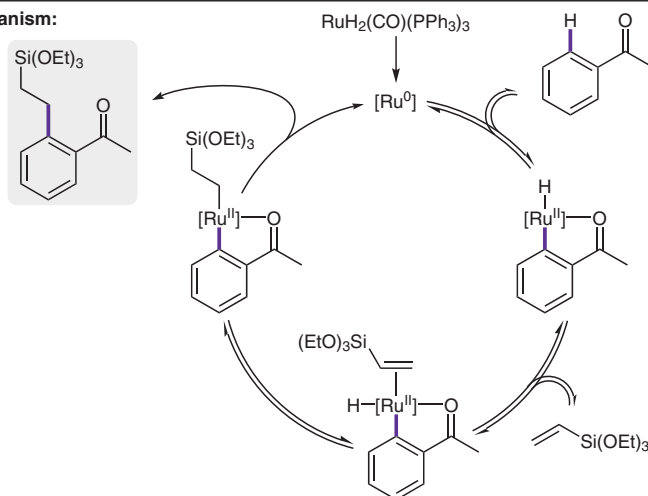
The Murai Reaction: *ortho*-Directed Ruthenium-Catalyzed C–H Alkylation of Aromatic Ketones



Selected examples:



Proposed mechanism:



Significance: In 1993, the Murai group reported a highly efficient ruthenium(0)-catalyzed *ortho*-C–H alkylation of aromatic and heteroaromatic ketones with various alkenes.

Review: G. Evano, C. Theunissen *Angew. Chem. Int. Ed.* **2019**, 58, 7202–7236.

Comment: In this transformation, the carbonyl group serves as a directing group. The chelating effect leads to a five-membered metalocycle intermediate, which is crucial for the reaction. DFT calculations by Koga and Morokuma support the shown mechanism (*J. Am. Chem. Soc.* **1998**, 120, 12692).

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