Toward Greater Understanding and Expanded Utility of the Palladium-Catalyzed Activation of Carbon-Carbon Single Bonds

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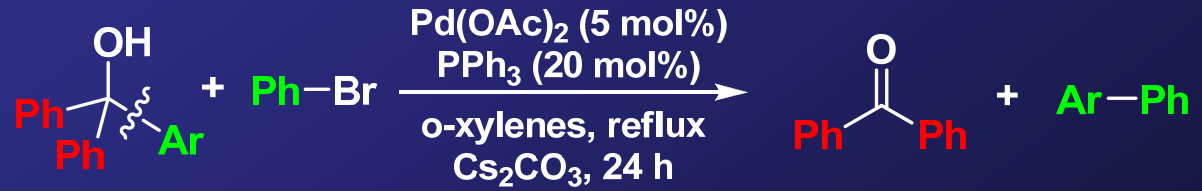
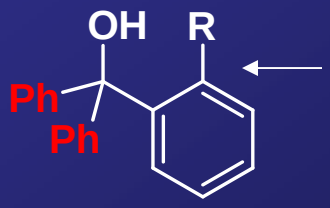
General methods for the activation and functionalization of carbon-carbon single bonds remain unrealized within organic chemistry. Methodology that could accomplish these transformation has the potential to revolutionize chemical synthesis. Our approach to new methodology lies in the understanding of the few reactions that currently exist. Mechanistic investigation of the palladium-catalyzed β-aryl elimination from triarylmethanol is providing us with growing insight into a carbon-carbon bond activation process.

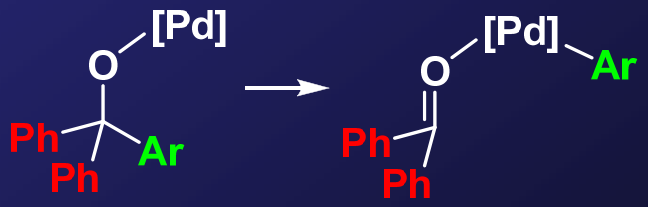
Parent Reaction



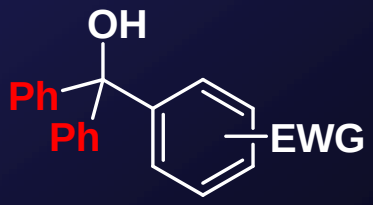
Initial results:



Ortho-substitution greatly enhances β-aryl elimination



current data suggests turnover limiting β-aryl elimination



Electron deficient aryls undergo more facile β-aryl elimination