



Direct Functionalization of Benzylic C-H Bonds via Iron Catalyzed with Vinyl Acetate

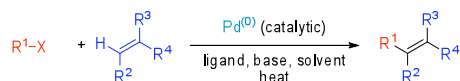
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Introduction

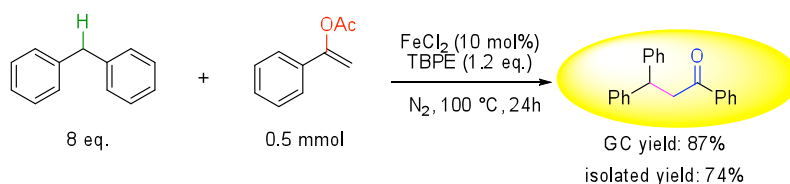
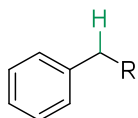
Carbon-carbon bond construction is fundamental to all of Organic Chemistry. The Heck reaction is one such powerful transformation that has in recent times been improved for the direct olefination of aromatic C-H bonds via Pd(II) catalyzed.



The extension to sp^3 C-H bonds, however, has been a clear challenge due to its dissimilar chemical circumstances.

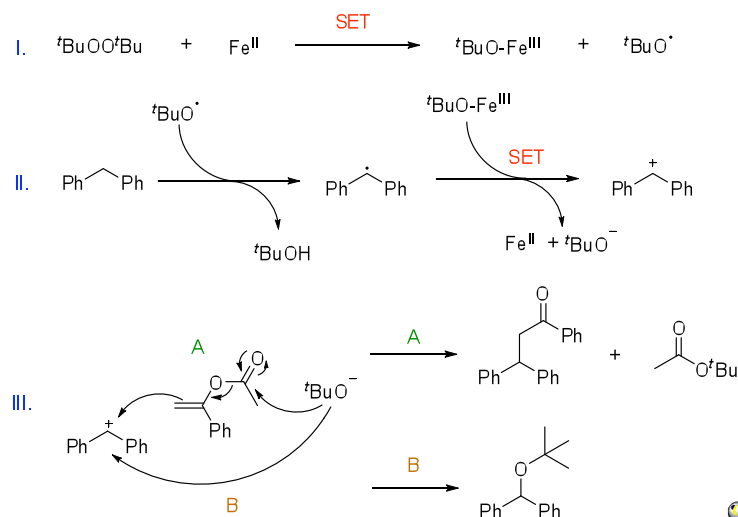


In our research, we explored the activation of sp^3 C-H at the benzylic position.

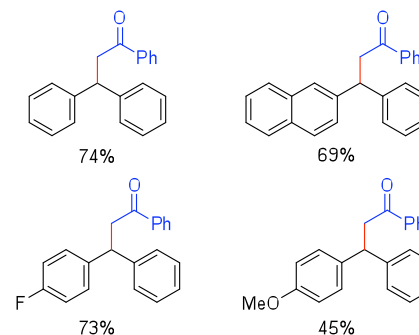


Diphenyl methane was initially selected since its aryl groups dramatically decrease the sp^3 C-H BDE. Although other catalysts were eligible, $FeCl_2$ proved to be most desirable due to its availability, inexpensiveness, and minimal environmental impact.

Mechanism



Selected Results



Investigation into the substrate scope revealed that electron-donating groups on diphenyl methane derivatives impeded reaction; however, steric effects did not seem to be evident. Future inquiry will be to expand the reaction's applications

Acknowledgments

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