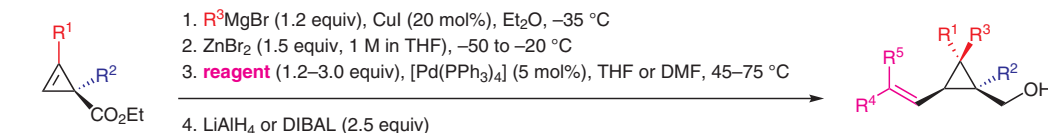
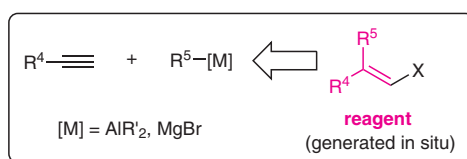


Synthesis of Stereodefined Unsaturated Acyclic Fragments

Precursor synthesis:

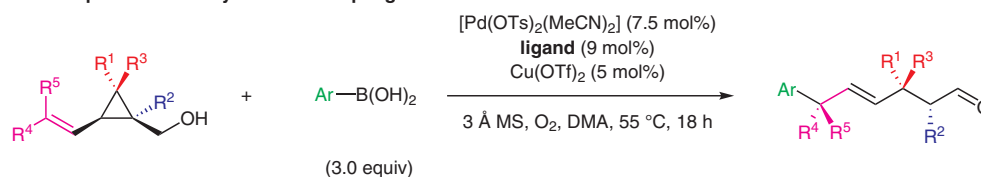


$R^1 = \text{Alk}$
 $R^2 = \text{H, D, Me, Ph}$

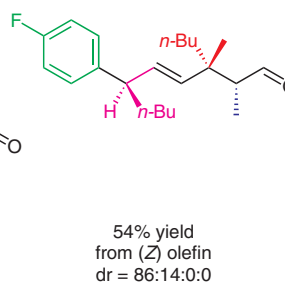
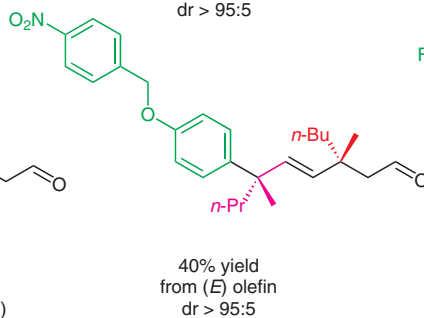
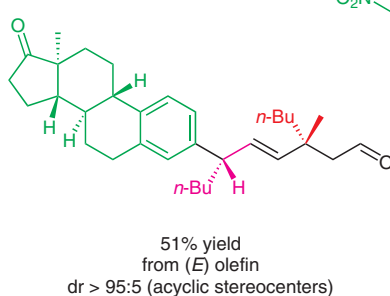
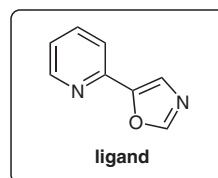
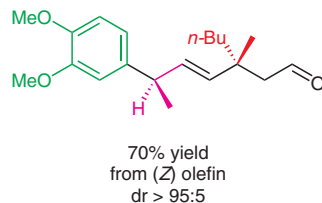
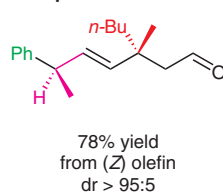


22–82% yield
 22 examples
 gram scale synthesis
 dr > 95:5:0
 either *E* or *Z* olefin

Oxidative palladium-catalyzed Heck coupling:



Selected examples:



Significance: Marek and co-workers report a highly stereodivergent route to unsaturated acyclic fragments in good to excellent yields. The key step for this transformation is the oxidative palladium-catalyzed Heck coupling of aryl boronic acids with alkenylcyclopropyl carbinols.

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Comment: Remarkably, by using this method, all four stereoisomers of similar scaffolds can be synthesized. Furthermore, in addition to various arylboronic acids, alkenyl triflates or heteroarylboronic acids can be employed in the Heck reaction.