

# Copper-Catalyzed Oxidative Hydrofunctionalization of Alkenes

Category

Metals in Synthesis

Key words

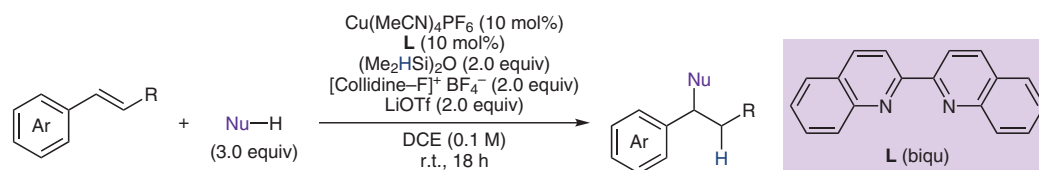
alkenes

copper catalysis

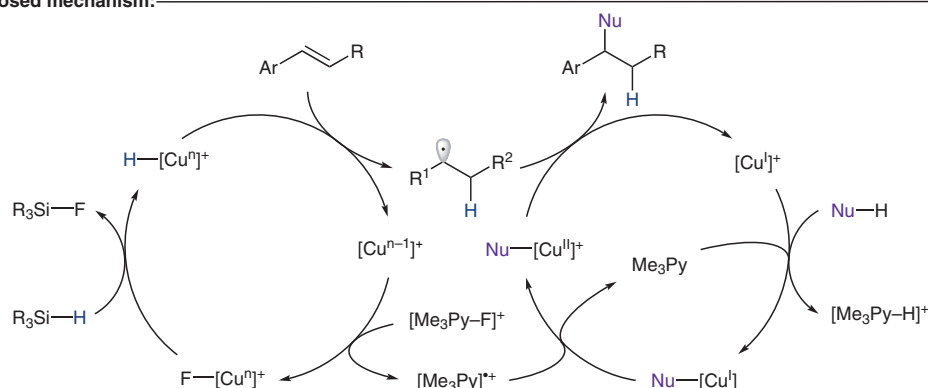
hydrofunctionalization

hydrogen atom transfer

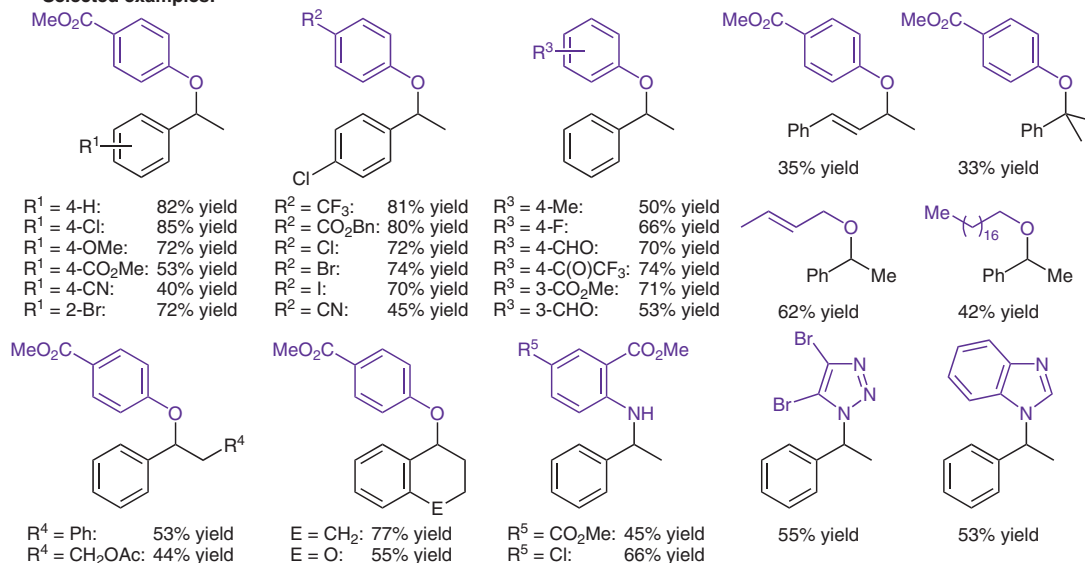
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Proposed mechanism:



Selected examples:



**Significance:** Zhu and co-workers report a copper-catalyzed protocol for the oxidative hydrofunctionalization of styrene derivatives via metal hydride hydrogen atom transfer (MHAT). This method enables a wide range of C–O and C–N bond formations in good yields with exclusive Markovnikov regioselectivity.

**Comment:** Experimental studies support the shown catalytic cycle. A non-conventional  $[\text{Cu}^{\text{I}}]\text{-H}$  species is proposed to be the key intermediate, which delivers a hydrogen atom to the olefin. This process features high tolerance toward otherwise  $[\text{Cu}^{\text{I}}]\text{-H}$  incompatible ketones and aldehydes.