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 Organo-Photocatalytic Anti-Markovnikov Hydroamidation of Alkenes with Sulfonyl Azides: A Combined Experimental and Computational Study
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Photocatalysis Enables the Hydroamidation of Alkenes Using Sulfonyl Azides and Hantzsch Esters

Category

Organo- and Biocatalysis

Key words

photocatalysis

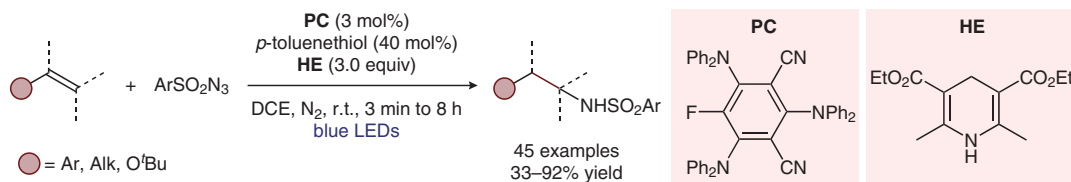
hydroamidation

sulfonyl azides

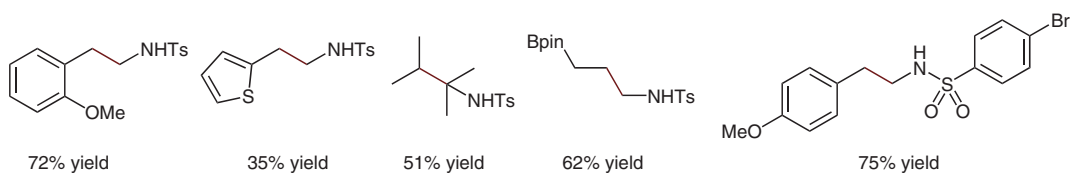
alkenes

anti-Markovnikov

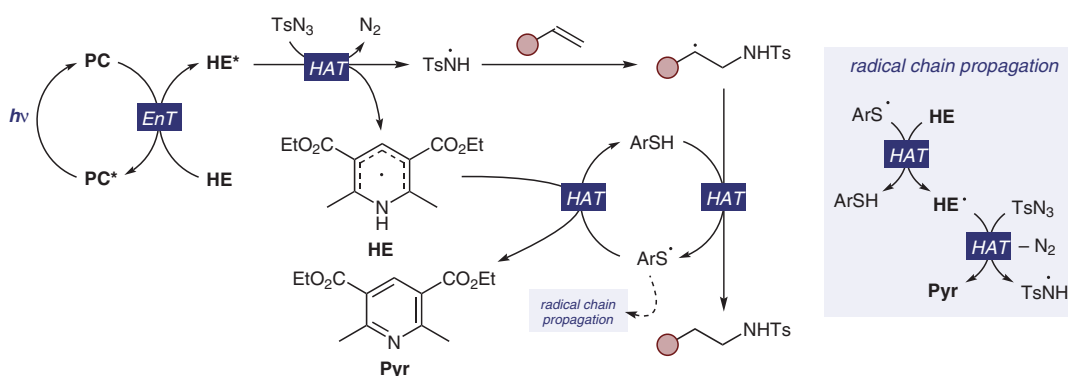
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Selected examples



Proposed mechanism



Significance: Wu, Bao, and co-workers report a photocatalyzed hydroamidation of various alkenes using aryl sulfonyl azides and a Hantzsch ester. The corresponding anti-Markovnikov sulfonamide products are obtained in moderate to very good yields. Extensive experimental and computational studies suggest that triplet-triplet energy transfer (EnT) and subsequent hydrogen atom transfer (HAT) events take place, providing the key amidyl radical.

Comment: Various photochemical strategies have been used to generate reactive species from organic azides for various amination reactions. These include the formation of free nitrene intermediates via energy transfer from a photoexcited catalyst or the generation of N-centered radicals via single electron transfer. The authors present another approach in which the key step involves a hydrogen atom transfer to generate a reactive amidyl radical.

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