COMBINED ASYMMETRIC AND PHOTOREDOX CATALYSIS FOR THE SYNTHESIS OF CHIRAL AMINES

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Nitrogen-activated carbon-carbon double bonds offer significant potential for constructing a diverse array of nitrogen-containing products. To expand the utility of these substrates, our research focused on exploring the reactivity of promising enamide derivatives.
We developed innovative methods for the α,β-difunctionalization of enamides using a synergistic two-step strategy combining asymmetric organocatalysis with photoredox catalysis. A key aspect of our approach involved employing thiol as a transient reaction partner, which played a crucial role in ensuring the success of these processes and enabling the synthesis of a diverse range of enantioenriched α,β-substituted amines.[1]
Moreover, we successfully implemented stereoselective and enantioselective photocatalytic processes for synthesizing both α- and β-chiral amines. In these methods, amino acids proved to be ideal linchpins, facilitating selective transformations and achieving high enantioselectivity. [2,3]

This lecture will highlight our contributions, emphasizing their applications in synthesizing biologically active natural and synthetic compounds.

References :

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