

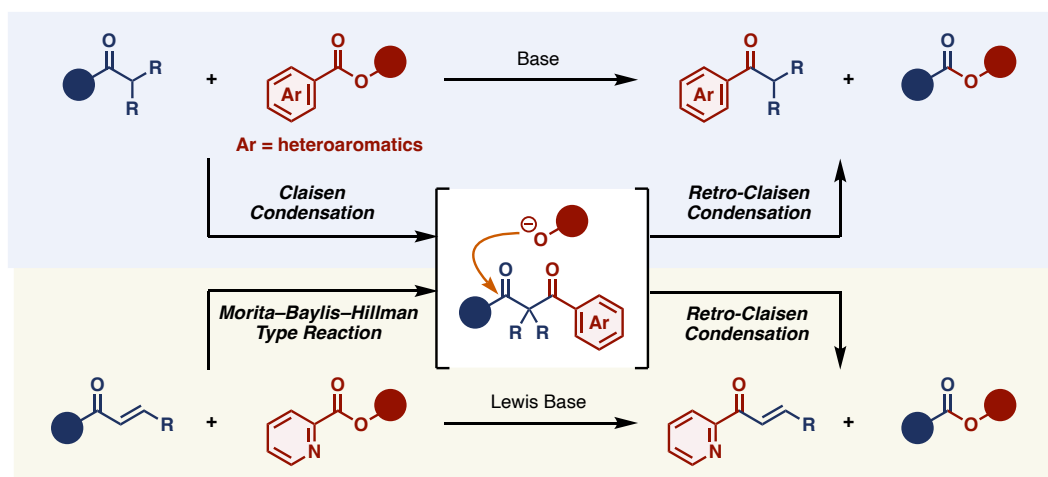
Bond Exchange Reaction between Ketones and Esters using Heteroaromatic Esters

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Bond exchange reactions between distinct functional groups offer a means to modify two organic molecules with high atom efficiency. Recently, various methods involving transition-metal catalysts have been reported for the replacement of substituents in two aromatics.¹ Additional example of bond exchange reactions without transition-metal catalysts include a Claisen and retro-Claisen condensation sequence between ketones and esters.² However, this approach is limited to the exchange between α -2° ketones and alkyl perfluorocarboxylate such as methyl trifluoroacetate. Herein, we have developed a concise method for the exchange between diverse ketones and heteroaromatic esters. This method is also applicable not only to α -2° ketones but also to methyl ketones and α -3° ketones. It can facilitate the ring-open macrocyclic ketones and strained cyclic ketones. Using Lewis bases, exchange reactions of unsaturated ketones were also achieved *via* a Morita–Baylis–Hillman type reaction and retro-Claisen reaction sequence. This methodology not only provides a novel synthetic route for heteroaromatic compounds frequently found in pharmaceuticals and natural products, but also convert ketones to esters without oxidants.



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