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Silver-Catalyzed Intermolecular Amination of C–H Groups
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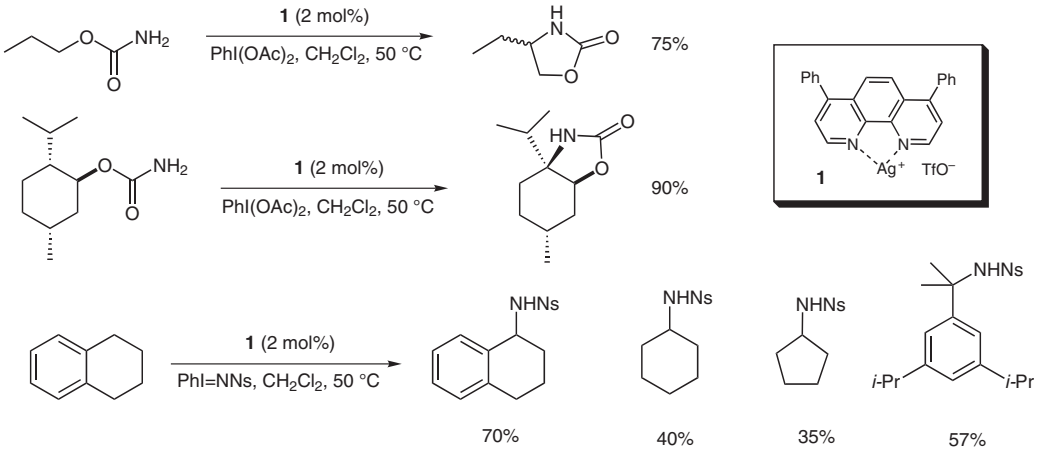
Silver-Catalyzed Amination of C–H Groups



Significance: New methods for the introduction of C–N functionality by a direct C–H activation are quite valuable, considering the importance of nitrogen-containing functionalities in various synthetic targets. The simple complex of commercially available bathophenanthroline and AgOTf was found to catalyze efficiently the inter- and intramolecular amination of saturated C–H bonds, including non-activated cycloalkanes. This method is now the easiest for the introduction of an amine group into a non-activated alkane or a benzylic position of an arene.

Comment: The intramolecular reaction of carbamates with $PhI(OAc)_2$ proceeds highly selectively, leading to five-membered heterocycles (oxazolones). For the intermolecular process, PhI=NNs (Ns = *p*-nitrophenylsulfonyl) as a nitrene source is used. The resulting nosylamides can be readily hydrolyzed to amines. The consideration of the catalyst structure indicates the necessity of a dinuclear core for the Ag-catalyzed nitrene transfer, which is realized in the case of bathophenanthroline–Ag(I) complex by a ligand π-stacking.

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