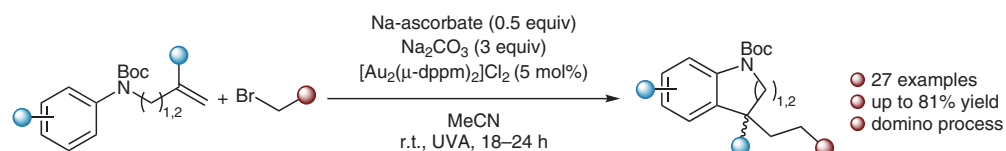
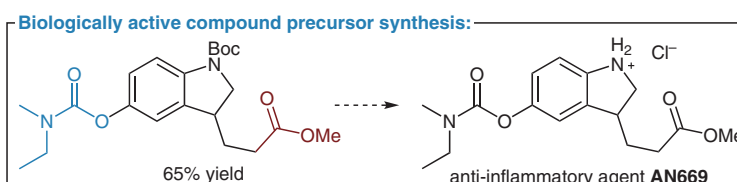
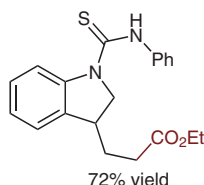
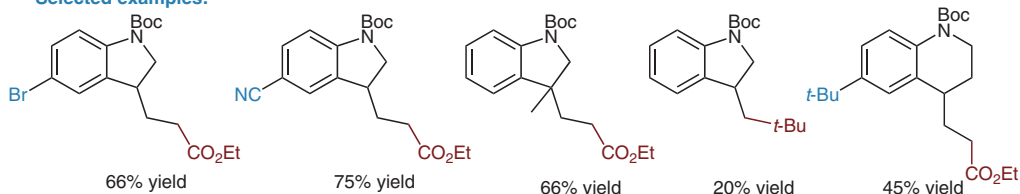


J. J. MELDER, M. L. HELDNER, R. KUGLER, L. A. ZIEGENHAGEN, F. ROMINGER, M. RUDOLPH, A. S. K. HASHMI* (HEIDELBERG UNIVERSITY, GERMANY)
 Easy Access to Functionalized Indolines and Tetrahydroquinolines via a Photochemical Cascade Cyclization Reaction
J. Am. Chem. Soc. **2024**, *146*, 14521–14527, DOI: 10.1021/jacs.4c00962.

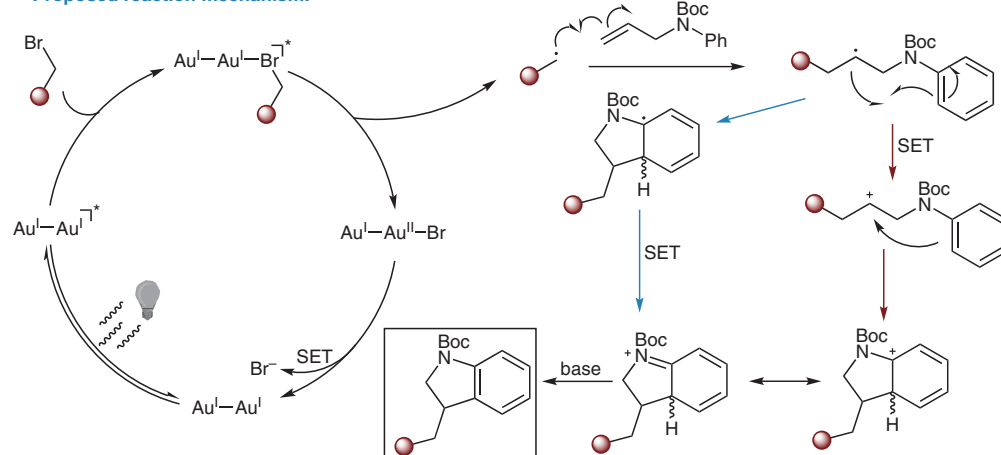
Photochemical Gold Catalyzed Domino Reaction for the Synthesis of Indolines and Tetrahydroquinolines



Selected examples:



Proposed reaction mechanism:



Significance: The authors report the synthesis of indolines and tetrahydroquinolines through the coupling of an *N*-aryl-*N*-allylamine and a bromoalkane in a gold-catalyzed photochemical domino reaction. Using this method, they were able to synthesize a biologically active compound precursor. The reaction is amenable to a variety of electron donating and withdrawing groups on the aromatic ring.

Comment: The authors show that the inclusion of Na-ascorbate increases the yield from 40% to 81%. This additive has been shown to increase the effectiveness of the gold photocatalyst used. They hypothesize that after radical addition to the allyl amine the intermediate can either cyclize in a radical process and then be oxidized or can be oxidized and then cyclize through an EAS reaction.

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Category

Metals in Synthesis

Key words

gold catalysis

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radical addition

indolines

tetrahydroquinolines

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