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COPPER-CATALYZED ARYLATION OF PROPARGYL SILANES WITH IODANES FEATURING 1,2-SILYL SHIFT AND CASCADE CYCLIZATION

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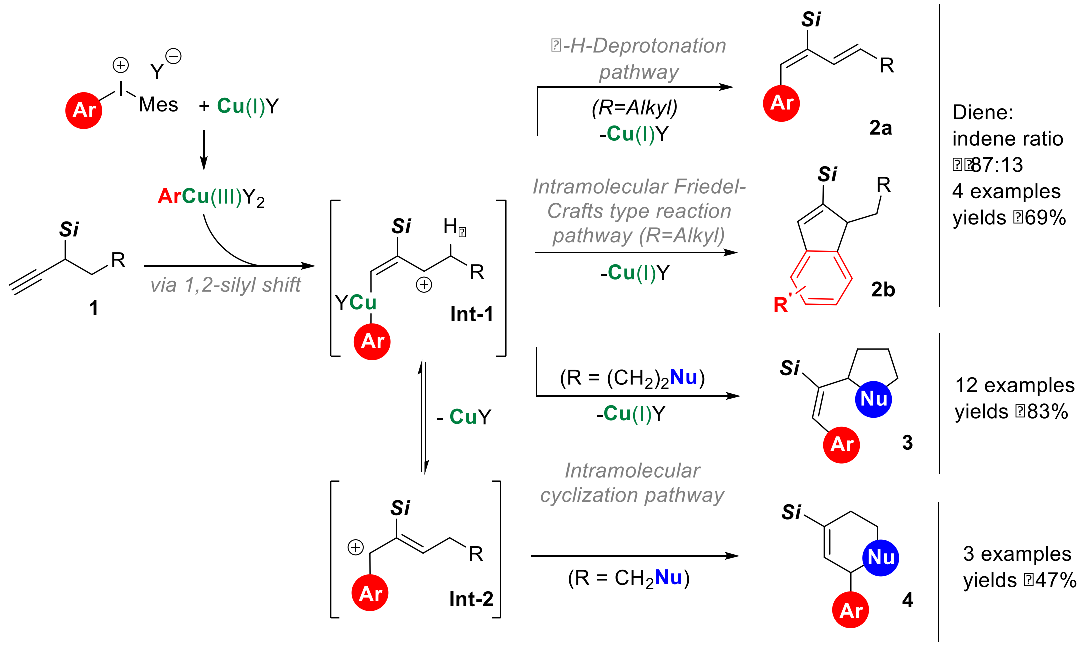
In this work we continue our studies on the broad possibilities for propargyl silane functionalization, offered by electrophile induced 1,2-silyl migration.[1] Herein we investigate the use of hypervalent iodine (III) reagents as formal carbon electrophiles to activate the propargyl silane moiety (**Scheme 1**). Copper (I) reacts with diaryliodonium salts to generate the highly electrophilic Ar-Cu^{III} species, which activates the propargyl silane to undergo the 1,2-silyl shift, forming an allyl cation intermediate. In the absence of an internal nucleophile, dienes are obtained, whereas present C- or heteroatom nucleophiles provide indenes or heterocycles, respectively. A variety of aromatic groups with electron donating and electron withdrawing substituents are applicable in this reaction, as well as some heteroaromatic groups.



Scheme 1: Arylation of propargyl silanes under copper-catalyzed conditions

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