Copper(I) fluoride catalysts for organosilane activation

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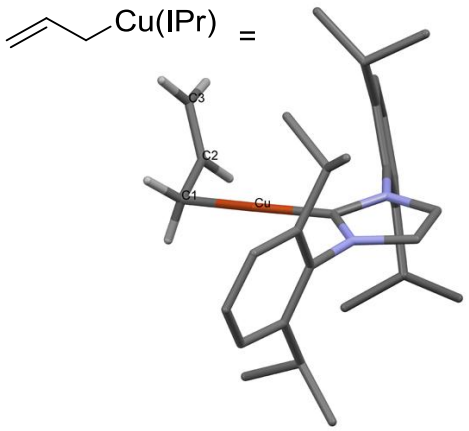
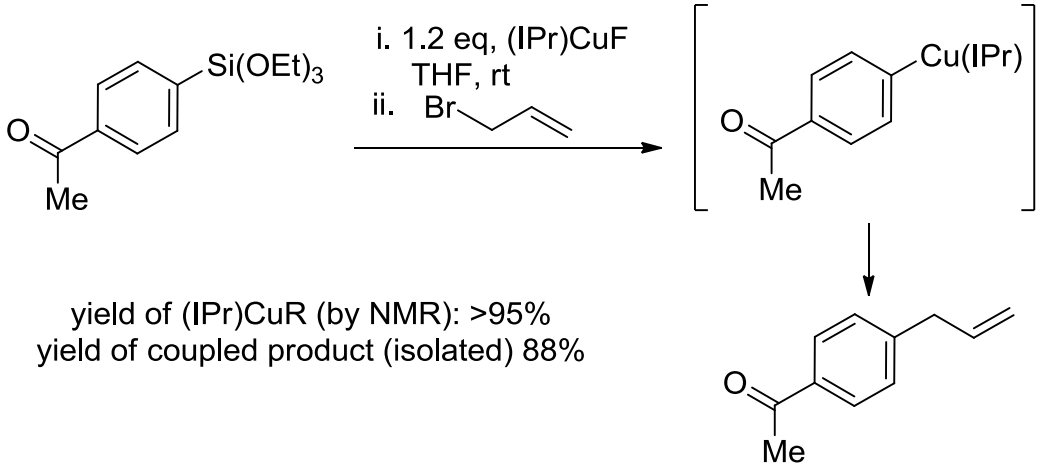
The direct synthesis of functionalized copper organometallics is made possible by the use of stable copper(I) fluoride complexes stabilized by *N*-heterocyclic carbene (NHC) ligands. In many cases, the copper organometallics can be isolated and characterized. This capability has resulted in the first structural characterization of an allylcopper complex.





yield of (IPr)CuR (by NMR): >95%
yield of coupled product (isolated) 88%

The use of copper(I) fluorides to activate C–Si bonds is the basis for the development of catalytic methods involving organocopper intermediates. A variety of organosilane pronucleophiles are tolerated, including (hetero)aryl and (hetero) benzylic silanes.