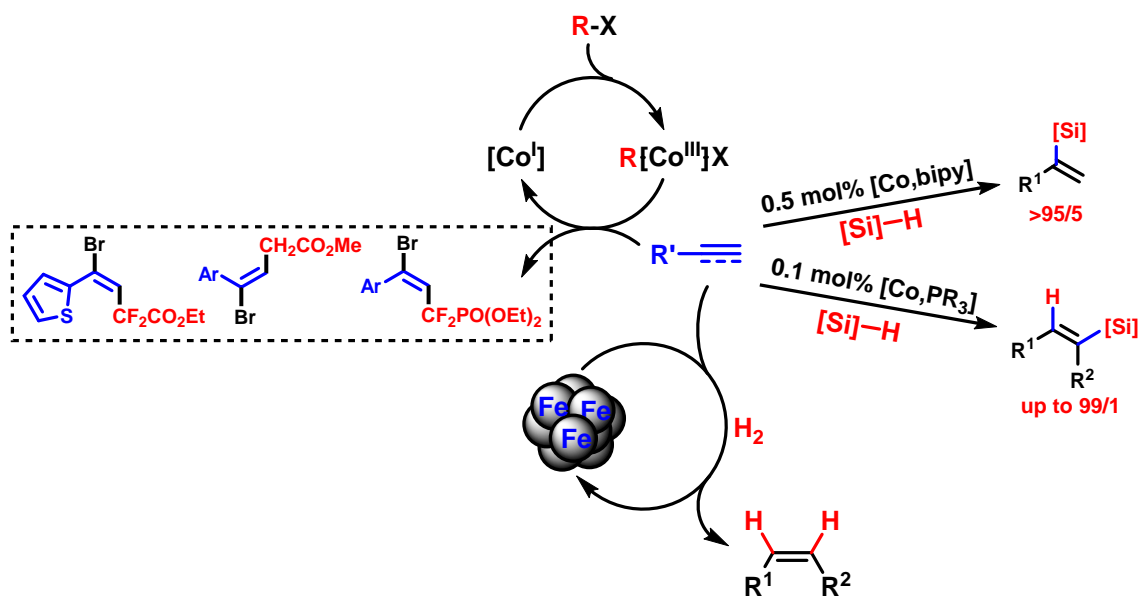


# STEREOSELECTIVE ADDITIONS TO ALKYNES BY IRON AND COBALT CATALYSTS

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Stereoselective additions to available unsaturated hydrocarbons are an attractive synthetic tool due to their high atom economy, modularity, and rapid generation of complexity. The combination of inexpensive base metal catalysts with unbiased alkenes or alkynes and easily available reagents is an especially sustainable strategy for the construction of stereodefined and functional building blocks. Our group has recently developed various metal-catalyzed functionalizations of alkenes and alkynes that operate with low amounts of inexpensive 3d transition metals, use easily available reagents (such as alkyl halides, silanes, boranes, or dihydrogen) and display excellent stereocontrol. This talk will take the audience on a tour through the most recent developments of stereoselective radical additions, hydrofunctionalizations, and hydrogenations and discuss our group's own discoveries of cobalt-catalyzed (*E*)-halo-fluoroalkylations,[1] cobalt-catalyzed (*Z*)-hydrosilylations,[2] iron-catalyzed (*Z*)-semi-hydrogenations,[3] and cobalt-catalyzed carbene insertions[4].



[1] G. Wu, A. Jacobi von Wangelin, *Chem. Sci.* **2018**, 9, 1795

[2] G. Wu, U. Chakraborty, A. Jacobi von Wangelin, *Chem. Commun.* **2018**, 12322

[3] B. Gregori, A. Jacobi von Wangelin, unpublished results.

[4] G. Wu, A. Jacobi von Wangelin, unpublished results.