

**Streamlining the Synthesis of Organic Molecules:
Transition Metal-Catalyzed Approaches to
Traditional Bond Disconnections**

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Research in the Hull group focuses on the development and mechanistic evaluation of transition metal-catalyzed methodologies for the synthesis of useful organic products. A goal for all of our research will be to strategically design our chemistry to use the inherent reactivity of the starting materials to generate the desired products without the requirement of stoichiometric quantities of any external reagent – to develop redox-neutral and atom economical reactions. Additionally, as understanding the mechanism of a reaction aids in both its optimization as well as the rational development and expansion to new methodologies, we also seek to determine the mechanism of the reactions. Two of the projects we are particularly interested in developing are the iridium or rhodium-catalyzed anti-Markovnikov hydroamination for the functionalization of unactivated alkenes and Ti or Zr-catalyzed aldehyde-alkyne coupling reaction for the generation of α,β -unsaturated carbonyls.

