# Green synthesis via decarboxylative coupling.

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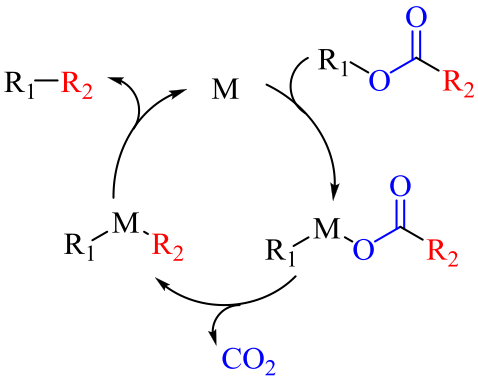
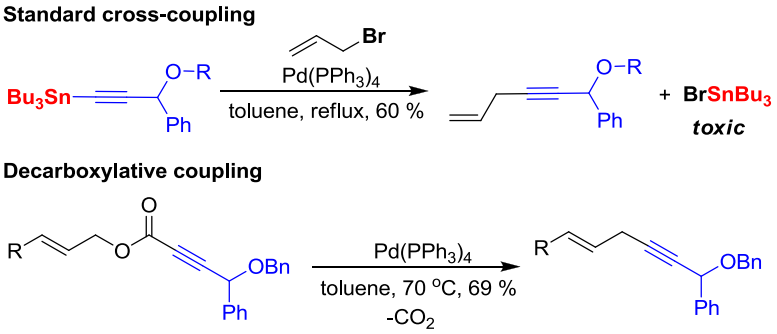
Catalytic cross-coupling reactions have made a significant impact on the synthesis of chemically-complex pharmaceutical small molecules and natural products that are essential to the development of therapeutics. Such reactions typically require the use of relatively expensive, toxic, or highly basic reagents. In addition, these reagents necessarily produce stoichiometric quantities of hazardous byproducts that are often difficult to remove from the product. With this in mind, REU students in my group will develop new catalytic reactions that utilize inexpensive substrates, proceed under mild conditions, and are environmentally benign.




The synthetic paradigm that the REU student will work within is termed decarboxylative coupling. The objective of the research in this proposal is to develop new synthetic methods that utilize the entropic energy associated with the loss of CO2 to drive chemical reactions (Scheme 1). The rationale for this project is that its successful completion will provide a powerful addition to the standard repertoire of carboxylate chemistry that can be used for the synthesis of pharmaceutically important molecules. Pursuit of these goals by REU students has several anticipated results including: (a) providing students with valuable hands-on experience in synthetic organic chemistry, (b) teaching the students about the principles of green chemistry, and (c) providing an avenue for students to build their resume's via publication in high-visibility research journals.

**Submitted and Published Research with previous REU students.**

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