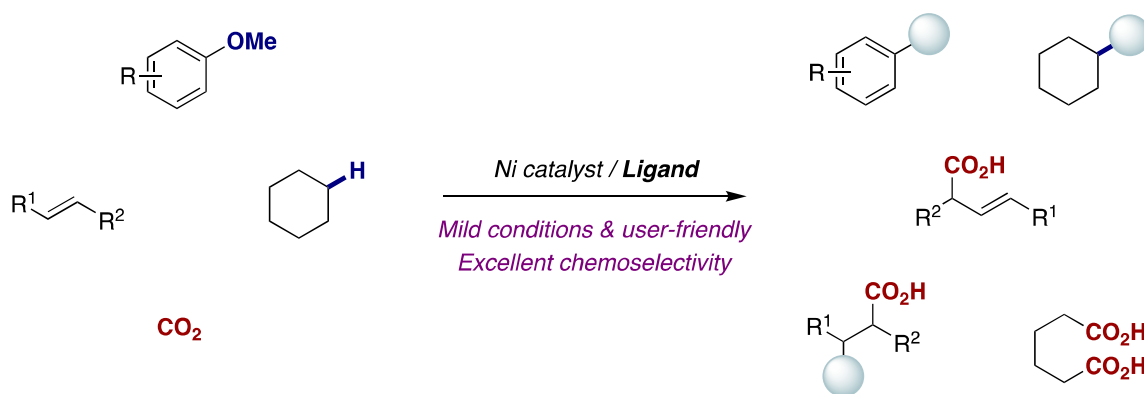


BUILDING UP MOLECULAR COMPLEXITY VIA NI-CATALYZED REDUCTIVE COUPLING REACTIONS

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The recent years have witnessed a meteoric development in nickel-catalyzed transformations, allowing to establish new paradigms for C–C and C–heteroatom bond-forming reactions.¹ The ability of nickel to access multiple oxidation states while triggering rapid single-electron transfer has probably been a key contributory factor for its popularity. Our group has become interested in nickel catalysis for the functionalization of feedstock materials, as it might hold promise to revolutionize approaches in organic synthesis. Among various conceivable scenarios, we have developed Ni-catalyzed reductive protocols for the activation of C–O and C–H bonds, as well as for incorporating CO₂ into organic matter en route to carboxylic acids, privileged synthons of utmost relevance in our chemical industry.^{2,3} These methods are characterized by their simplicity, wide scope, including challenging substrate combinations with particularly sensitive functional groups and a diverse set of substitution patterns.



1. Tasker, S. Z.; Standley, E. A.; Jamison, T. F. *Nature* **2014**, *509*, 299.
2. Maag, H. *Prodrugs of carboxylic acids*; Springer: New York, **2007**
3. Selected recent references: (a) Juliá-Hernández, F.; Moragas, T.; Cornell, J.; Martin, R. *Nature* **2017**, *545*, 84. (b) Gaydou, M.; Moragas, T.; Juliá-Hernández, F.; Martin, R. *J. Am. Chem. Soc.* **2017**, *139*, 12161. (c) Yatham, V. R.; Shen, Y.; Martin, R. *Angew. Chem. Int. Ed.* **2017**, *56*, 10915. (d) Zarate, C.; Nakajima, M.; Martin, R. *J. Am. Chem. Soc.* **2017**, *139*, 1191. (e) Tortajada, A.; Ninokata, R.; Martin, R. *Submitted*. (f) Shen, Y.; Gu, Y.; Martin, R. *Submitted*.