Terminal-Selective Functionalization of Alkyl Chains by Regioconvergent Cross-Coupling


The direct functionalization of hydrocarbon chains obtained from cheap and abundant feedstocks provides economical access to organic intermediates rich in tetrahedral carbon atoms. In this paper, Baudoin and coworkers describe a step-economical approach that enables C-C bond formation at the terminal position of linear alkanes. They show that secondary alkyl bromides undergo in situ conversion into alkyl zinc bromides followed by regioconvergent Negishi cross-coupling with aryl or alkenyl triflates. Mixtures of secondary alkyl bromides are prepared by standard bromination of linear alkanes. Using a suitable phosphine ligand favoring Pd migration allows selective formation of the linear arylation product in only two steps.

Synthesis of Triazolylidene Nickel Complexes and their Catalytic Application in Selective Aldehyde Hydrosilylation


Reduction of carbonyl compounds is a fundamental process in organic synthesis. In catalytic hydrosilylation, both the reduction of carbonyl functionality and protection of the resulting alcohol in the form of silylethers can be accomplished in a single step with high atom economy. Albrecht and coworkers have synthesized a set of triazolylidene-based nickel(ii) complexes for this purpose. They demonstrated that the choice of substituents on the triazolylidene ligand is critical for the catalytic activity of the metal complexes. In particular, a pyridyl-derived complex reached turnover frequencies of >20000 h⁻¹ with good catalyst stability. In addition, this catalyst allows the selective hydrosilylation of aldehydes in the presence of ketones.

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