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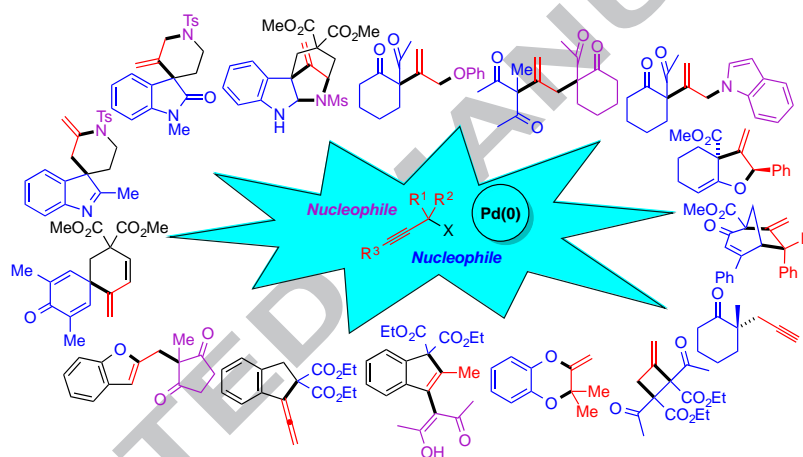
Palladium-Catalyzed Construction of Quaternary Carbon Centers with Propargylic Electrophiles

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Abstract

This short review describes the broad reactivity of propargylic electrophiles with nucleophiles under palladium catalysis for the construction of quaternary carbon centers, leading to allenylation, propargylation and alkenylation / allylic alkylation. Although the allenylation and propargylation of a nucleophile can readily create congested carbon centers, these processes often compete and require careful tuning of substrate structure and reactivity of the nucleophile. The alkenylation / allylic alkylation sequence is a much more studied reactivity mode, which results in the coupling of two nucleophiles. This approach is very popular for the rapid generation of molecular complexity, but also poses several chemo- and regioselectivity issues. These selectivity problems have been traditionally overcome by tethering strategies and cyclization reactions. However, over the past few years, highly selective intermolecular coupling reactions of nucleophiles have also been developed. It is, therefore, unsurprising that, as our prowess to control selectivity has grown, the first methods for the palladium-catalyzed enantioselective installation of quaternary carbon centers with propargylic electrophiles have also appeared.

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