

Carbometallation chemistry

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Editorial

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Guest Editor: I. Marek

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Following the pioneering Ziegler addition of nucleophiles to nonactivated unsaturated carbon–carbon bonds, the controlled carbometallation reaction has emerged. Since then, reactions that result in the addition of a carbon–metal bond of an organometallic across a carbon–carbon unsaturated system, leading to a new organometallic in which the newly formed carbon–metal bond can be used for further synthetic transformations, are called carbometallation reactions. In the past few decades, the intra- as well as intermolecular additions of various organometallic species to a large variety of alkynes, alkenes and allenes have been successfully reported. Although the carbometallation reaction on alkynes is generally a well-controlled and predictable transformation, leading to large variety of substituted stereocontrolled alkenyl metals, the addition of organometallic species to acyclic nonactivated alkenes still represents a formidable and yet unresolved synthetic challenge. Particularly stimulating would be the regio-, stereo- and enantioselective addition of organometallic species on α,β -disubstituted double bonds, leading to a configurationally stable sp^3 organometallic that would subsequently react with electrophiles. This landmark transformation would formally result

in the 1,2-bisalkylation of nonactivated alkenes! In this Thematic Series, you will find excellent contributions tackling various problems of carbometallation reactions, indicating a lively and rapidly moving field, and I have no doubt that more elegant transformations of C–C unsaturated bonds will continue to appear, including the enantioselective carbometallation reaction of substituted nonactivated alkenes. I would like to warmly thank all the contributors of this Thematic Series that have beautifully highlighted the state of the art of the field.

I have tremendously enjoyed reading this Thematic Series and I am convinced that you will all share in this pleasure!

Ilan Marek

Haifa, January 2013

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