

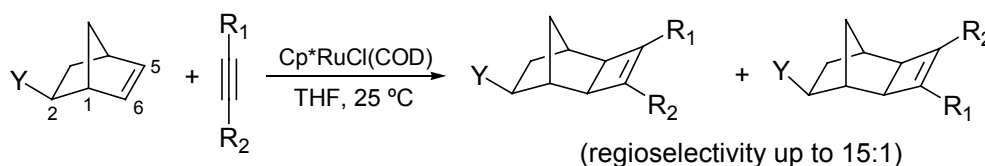
ABSTRACT FORM

Remote Substituent Effects in Ruthenium-Catalyzed [2+2] Cycloaddition Reactions

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The study of long-range stereoelectronic effect of a remote substituent in controlling regio- and stereoselectivities on nucleophilic and electrophilic additions to π -bonds has attracted considerable interest.¹ On the other hand, very few examples of the study of remote substituent effects on transition metal-catalyzed reactions can be found in the literature.²⁻⁵ We have recently reported the remote substituent effects on the regioselectivity in some metal-catalyzed and non metal-catalyzed reactions of 2-substituted 5-norbornenes.^{2,3,6-9} For example, the remote substituents showed strong long-range stereoelectronic effect on oxymercuration reactions (regioselectivity up to 94:6), whereas moderate levels of long-range stereoelectronic effect on Co-mediated Pauson-Khand reactions (regioselectivity up to 74:26) were observed. To the best of our knowledge, no study on the effect of a remote substituent on the regioselectivity in transition metal-catalyzed [2+2] cycloaddition reactions of unsymmetrical norbornene systems has been reported in the literature. We will present our results of remote substituent effects on ruthenium-catalyzed [2+2] cycloadditions between 2-substituted 5-norbornenes and unsymmetrical alkynes.



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