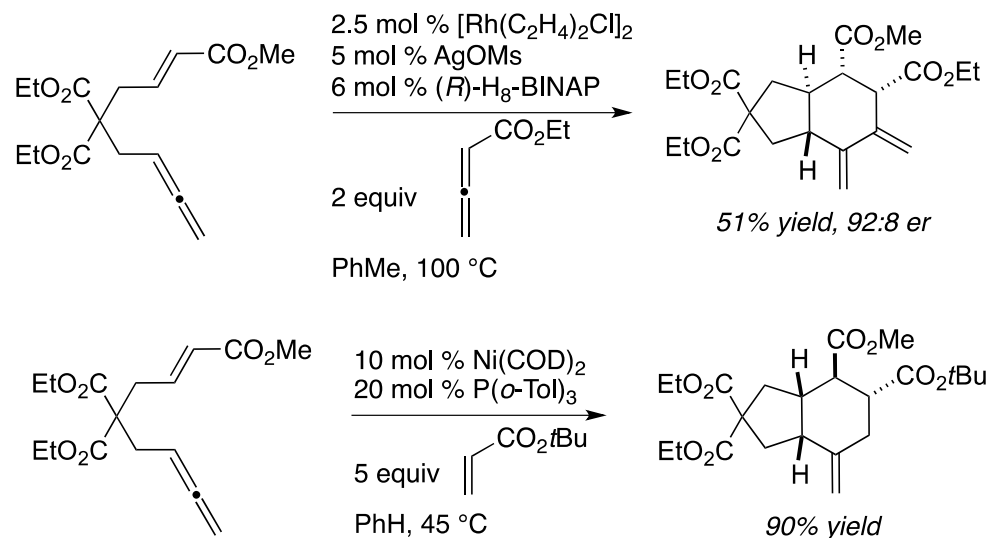


# Transition-Metal-Catalyzed [2+2+2] Cycloadditions for Carbocycle Synthesis



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An important goal of chemical synthesis is the development of new transformations enabling the rapid construction of valuable complex architectures from simple building blocks. Our group has developed a number of complexity-generating multicomponent [2+2+2] cycloadditions that furnish stereochemically complex bicyclic carbocycles (e.g., hydrindanes and decalins) in a single step. These transformations use simple unsaturated components such as alkenes and allenes as substrate, and proceed with high levels of reaction chemo-, regio-, and stereoselectivity. Current efforts involve the development of highly enantioselective variants of these [2+2+2] cycloadditions.