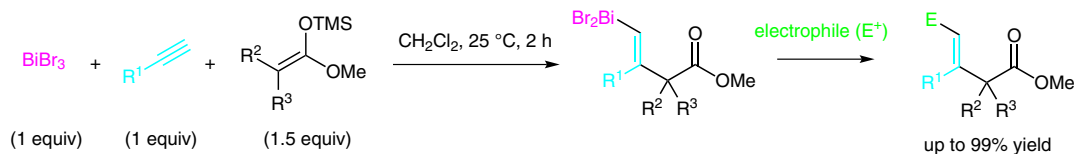


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Regio- and Stereoselective Carbobismuthination of Alkynes

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anti-Carbobismuthination of Alkynes

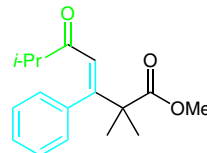
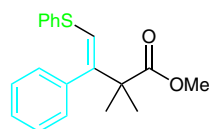
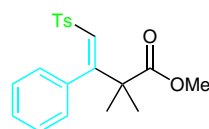
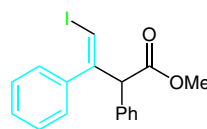
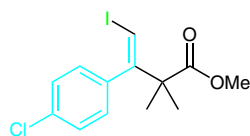
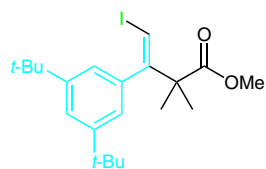


R¹ = Ph, 1,3-di-*t*-BuC₆H₃, 4-ClC₆H₄, Hex

R²/R³ = H, Me, Ph

electrophile = I₂, TsCl, PhSSPh, RCOCl

Selected examples:



Significance: The first carbobismuthination of alkynes has been accomplished by the reaction of an alkyne, BiBr₃, and a ketene silyl acetal to produce an alkenylbismuth compound with high stereo- and regioselectivity. The Br₂Bi group in the alkenylbismuth compounds can be substituted by I, Ts and SPh groups, and palladium-catalyzed cross-couplings with acid chlorides have been performed successfully.

Comment: The reaction of BiBr₃ with a phenyl-acetylene derivative and a ketene silyl acetal gives monoalkenylbismuth dibromide as a white solid. X-ray crystallographic analysis of this product reveals that the carbobismuthination takes place regio- and stereoselectively in an *anti*-addition manner.

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Synthesis

Key words

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alkynes

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ination

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