

Category**Metal-Mediated Synthesis****Key words**

tin

boron

copper

alkynoates

tributyltin methoxide

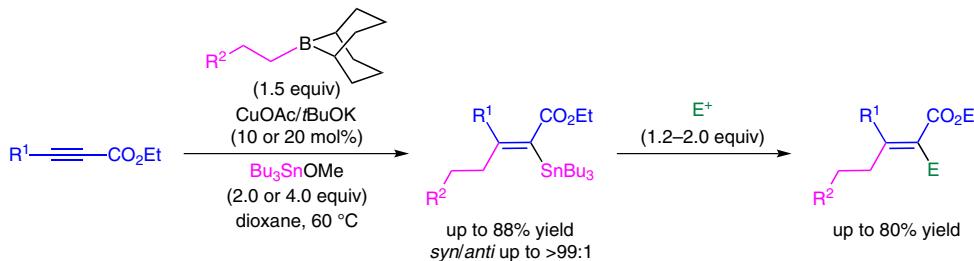
trisubstituted alkenylstannanes

T. WAKAMATSU, K. NAGAO, H. OHMIYA,* M. SAWAMURA* (HOKKAIDO UNIVERSITY, SAPPORO, JAPAN)

Synthesis of Trisubstituted Alkenylstannanes through Copper-Catalyzed Three-Component Coupling of Alkylboranes, Alkynoates and Tributyltin Methoxide

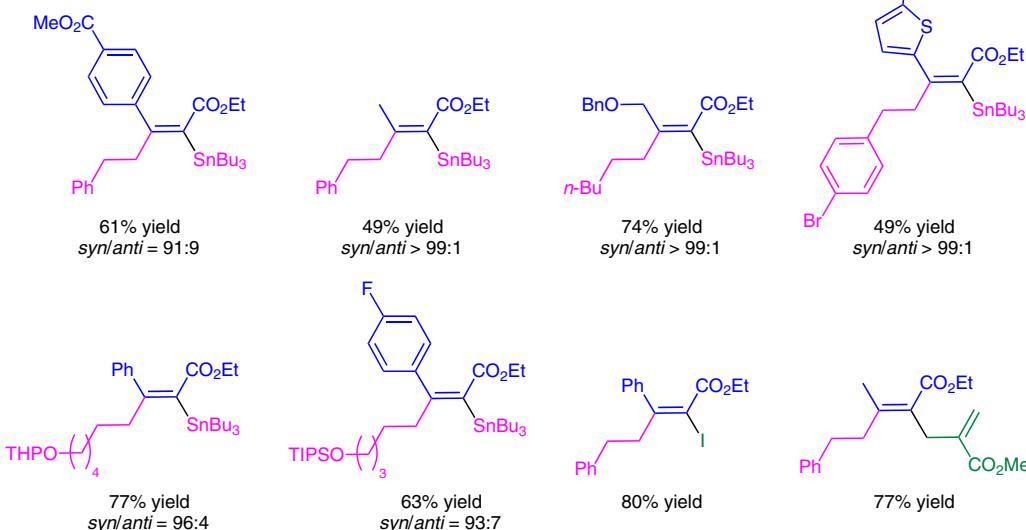
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Synthesis of Trisubstituted Alkenylstannanes Starting from Alkynoates



R¹ = Ph, *n*-Bu, *n*-Pent, (CH₂)₃phthalimide, (CH₂)₄OTHP, C(Me)₂CH₂CO₂Me, 4-BrC₆H₄, (CH₂)₃OTIPS

R² = Ph, 4-MeOC₆H₄, 4-MeO₂CC₆H₄, 2-MeC₆H₄, Me, CH₂OTHP, CH₂OBr, 4-FC₆H₄, 2-thienyl derivative

Selected examples:

Significance: The authors report a highly regioselective copper-catalyzed synthesis of trisubstituted alkenylstannanes. Through a three-component coupling of alkylboranes, alkynoates and tributyltin methoxide, these trisubstituted alkenylstannanes are obtained in good yields and with high *syn* selectivity. The appropriate alkylboranes are easily accessible by hydroboration of the corresponding alkenes with the 9-borabicyclo[3.3.1]nonane (9-BBN-H) dimer.

Comment: Standard methods for the synthesis of alkenylstannanes described by Shirakawa and Hiyama include the palladium- or nickel-catalyzed carbostannylation of internal alkynes with organostannanes which are somewhat difficult to prepare.

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