**anti-Carbobismuthination of Alkynes**

![Chemical Reaction Diagram]

\[
\text{BiBr}_3 + \begin{array}{c}
\text{alkyne} \\
(1 \text{ equiv})
\end{array} + \begin{array}{c}
\text{BiBr}_3 \\
(1.5 \text{ equiv})
\end{array} \rightarrow \begin{array}{c}
\text{Br}_2\text{Bi} \\
\text{alkenylbismuth compound}
\end{array}
\]

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 phenylacetylene 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.

**Selected examples:**

- **99% yield**
- **77% yield**
- **92% yield**

- **60% yield**
- **66% yield**
- **84% yield**