Enantioselective Coupling of Diazoalkanes with Terminal Alkynes

**Significance:** An enantioselective coupling reaction of aryldiazoalkanes with terminal alkynes is described. A copper complex promotes this transformation to afford trisubstituted allenes with high enantioselectivities. A rational stereocontrol model is proposed.

**Comment:** This reaction involves copper(I) carbene formation, alkynyl migratory insertion, and protonation. The authors suggest that migratory insertion of the copper(I) carbene species is the enantiodetermining step.

**Selected examples:**

- \[
  \text{R}_2\text{N}_2 + \text{H}-\text{R}_1 \rightarrow \text{R}_1=\text{R}_2
  \]
  - **93% yield, 90% ee** (conditions A)
  - **85% yield, 96% ee** (conditions B)
  - **50% yield, 94% ee** (conditions C)
  - **92% yield, 98% ee** (conditions B)

**Possible stereocontrol model:**

- **major**
  - \((R)\)
- **minor**
  - \((S)\)