**Palladium-Catalyzed Butafulvene Synthesis**

**Significance:** A palladium-catalyzed coupling of propargylic carbonates or bromides has been developed to synthesize butafulvene derivatives. Two sets of mild reaction conditions are reported to access either symmetrical butafulvenes or unsymmetrical products when coupling with allenylboronate or in-situ-prepared allenyl-indium reagents.

**Comment:** Primary propargyl carbonates were unreactive; however, in-situ prepared allenyl-indium reagents could be used as an alternative to access symmetrical terminal butafulvenes. Intermediate tracking and control experiments shed light on a potential reaction pathway, indicating that bisallenene C undergoes palladium-catalyzed cycloisomerization to generate the product.

**Selected examples:**

- **A:** 61% yield
- **B:** 56% yield
- **C:** 49% yield, 3.7:1 Z/E
- **D:** 76% yield
- **E:** 55% yield

Proposed mechanism for symmetrical butafulvene synthesis using conditions A, L = L2, n = 1 or 2:

1. **Step 1:** Formation of palladium-carbene complex
2. **Step 2:** Intramolecular cycloisomerization to form the butafulvene product