Palladium-Catalyzed Dicarbonylation of 1,3-Dienes for the Synthesis of Adipic Acid Esters

**Significance:** The authors describe a palladium-catalyzed dicarbonylation of 1,3-dienes using carbon monoxide. Various adipate diesters were produced in good to excellent yield with high selectivity.

**Comment:** The authors used kinetic experiments to support the proposed mechanism. Scaling up the reaction to over 200 g with a lower catalyst loading gave the product in excellent yield and selectivity.

**Selected examples:**
- n-BuO
  - 81% yield, 92:8 selectivity
- n-BuO
  - 81% yield, 98:2 selectivity
- Cl
  - 86% yield, 95:5 selectivity
- n-BuO
  - 61% yield, 91:9 selectivity
- n-BuO
  - 72% yield, 92:8 selectivity

**Scale up:**
- n-BuO
  - 95% yield, 97:3 selectivity