Cyclization of 1-(Trifluoromethyl)-4-alkyn-1-ones with Arylboronic Acids

**Significance:** Lautens and co-workers report a rhodium-catalyzed cyclization of 1-(trifluoromethyl)-4-alkyn-1-ones with variously substituted arylboronic acids to obtain (trifluoromethyl)cyclobutanols bearing an exocyclic double bond.

**Comment:** The reactivity of the newly formed exocyclic double bond was explored by subjecting a (trifluoromethyl)cyclobutanol to an epoxidation reaction using MCPBA and an ozonolysis.

**Selected examples:**

- CF₃OH
  - Et, Bn
  - R¹ = Me, Et, Bn
  - R² = H, Me, OH, OMe, CO₂Me, F, Cl, Br, Ac, CH₂OH, NHBoc, CHO
  - coh = cyclooctene
  - [Rh(coe)₂Cl]₂ (2.5 mol%), ligand L (5.0 mol%), Et₃N (1.5 equiv)
  - dioxane–MeOH (1:1)
  - r.t. to 40 °C, 6-20 h
  - 41–65% yield
  - 50–96% ee

- CF₃OH
  - Et
  - 56% yield
  - 90% ee

- CF₃OH
  - Et
  - 65% yield
  - 95% ee

- CF₃OH
  - Et
  - 53% yield
  - 92% ee

- CF₃OH
  - Et
  - 65% yield
  - 96% ee

- CF₃OH
  - Et
  - 41% yield
  - 50% ee

- CF₃OH
  - Et
  - 83% yield
  - 95% ee

- CF₃OH
  - Et
  - 52% yield
  - 93% ee

- CF₃OH
  - Et
  - 42% yield
  - 89% ee