Rhodium-Catalyzed Asymmetric Addition of Trifluoroborates to Sulfonylketimines

**Category**
Metal-Mediated Synthesis

**Key words**
rhodium asymmetric synthesis trifluoroborates ketimines

**Significance:** Easily accessible potassium organotrifluoroborates undergo a rhodium-catalyzed asymmetric addition to both N-tosyl and N-nosyl ketimines. The use of a chiral bicyclooctadiene-based ligand allows high enantiomeric excess in the product formation.

**Comment:** In the case of nosyl groups, the addition products can easily be deprotected using thiophenolpotassium carbonate, retaining the enantiomeric purity. For related applications of dienic ligands, see: K. Okamoto, T. Hayashi, V. H. Rawal Org. Lett. 2008, 10, 4387.

**Selected examples:**

- **HN**
  - 98% ee
  - 84% yield
  - Cl
  - Ph
  - O

- **HN**
  - 99% ee
  - 88% yield
  - Cl
  - Ph
  - O

- **HN**
  - 95% ee
  - 71% yield
  - Cl
  - Ph
  - O

- **HN**
  - 98% ee
  - 91% yield
  - Cl
  - Ph
  - O

- **HN**
  - 95% ee
  - 80% yield
  - Cl
  - Ph
  - O

**Typical deprotection of the addition products:**

- **HN**
  - 95% ee
  - 89% yield
  - Cl
  - Ph
  - O

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