Chiral Cationic CpRu(II) Complexes for Enantioselective Yne–Enone Cyclizations

**Significance:** The authors report asymmetric yne–enone cyclizations catalyzed by chiral cationic CpRu(II) complexes. A variety of 4H-pyrans were obtained in good yields (≤95%) and high enantioselectivities (er ≤ 99:1).

**Comment:** A new class of chiral CpRu(II) complexes was synthesized that provide opportunities for the development of synthetically valuable enantioselective transformations.

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**Synthesis of the chiral CpRu complexes:**

1. TIOEt, C6H6, 80 °C then [(C6H6)RuCl2]2, MeCN, r.t. 21–77% yield
2. AgX, 61–99% yield

**Selected examples:**

- 71% yield, er = 97:3
- 87% yield, er = 98.5:1.5
- 95% yield, er = 89:11
- 78% yield, er = 99:1
- 72% yield, er = 98:2
- 95% yield, er = 98:2
- >95% yield