Diastereoselective α-Alkylation of α-Epoxy N-Sulfonyl Hydrazones

**Significance:** Coltart and co-workers report the diastereoselective addition of Grignard reagents to α-epoxy N-sulfonyl hydrazones to give various β-hydroxy N-sulfonyl hydrazones with quaternary α-stereocenters in very high yields.

**Comment:** The alkoxide, which is generated in situ through base-induced ring-opening of the epoxide, selectively directs the addition syn in a 1,4-manner.

**Selected examples:**

- 63% yield (X = Br) syn/anti > 25:1
- 62% yield (X = Br) syn/anti > 25:1
- 88% yield (X = Br) syn/anti > 25:1
- 70% yield (X = Br) syn/anti > 25:1
- 52% yield (X = Cl) syn/anti > 25:1
- 95% yield (X = Br) syn/anti > 25:1
- 89% yield (X = Br) syn/anti > 25:1
- 38% yield (X = Br) syn/anti > 25:1

**Proposed mechanism:**

1. THF, –78 °C or 0 °C
2. ρ3MgX (2.1 equiv)

**Category:** Metal-Mediated Synthesis

**Key words:** Grignard reaction, epoxides, addition