**1,2-Reduction of Conjugated Ketones: The Luche Reduction**

**Significance:** In 1978, Luche reported the selective 1,2-reduction of α,β-unsaturated ketones by using sodium borohydride in the presence of various lanthanide chlorides, leading to allylic alcohols in excellent yields.

**Comment:** Remarkably, the use of lanthanide salts allowed the selective 1,2-reduction of several unsaturated ketones. Additionally, the undesired 1,4-reduction product was not formed which, until then, was a common byproduct in metal hydride mediated reduction methods.


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**Examples:**

- **Ln = Ce:** 100% yield
- **Ln = Eu:** 93% yield
- **Ln = Sm:** 94% yield
- **Ln = Ce:** 97% yield
- **Ln = Sm:** 96% yield
- **Ln = Ce:** 99% yield

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**Scheme:**

\[
\text{R} - \text{R} \quad \text{LnCl}_3 \cdot m\text{H}_2\text{O} \quad (1.0 \text{ equiv}) \quad \text{NaBH}_4 \quad (1.0 \text{ equiv}) \quad \text{MeOH, r.t., 3–5 min} \quad \text{R} \quad \text{R} - \text{OH} \quad \text{or} \quad \text{R} \quad \text{R} - \text{OH}
\]

- **R** = Alk
- **n** = 1, 2
- **Ln** = Ce, Sm, Eu
- **m** = 6, 7