

1. Hydrohalogenation (Markovnikov)

4. Hydroboration-oxidation

8. *Anti* dihydroxylation

2. Hydrohalogenation (*anti*-Markovnikov)

5. Hydrogenation

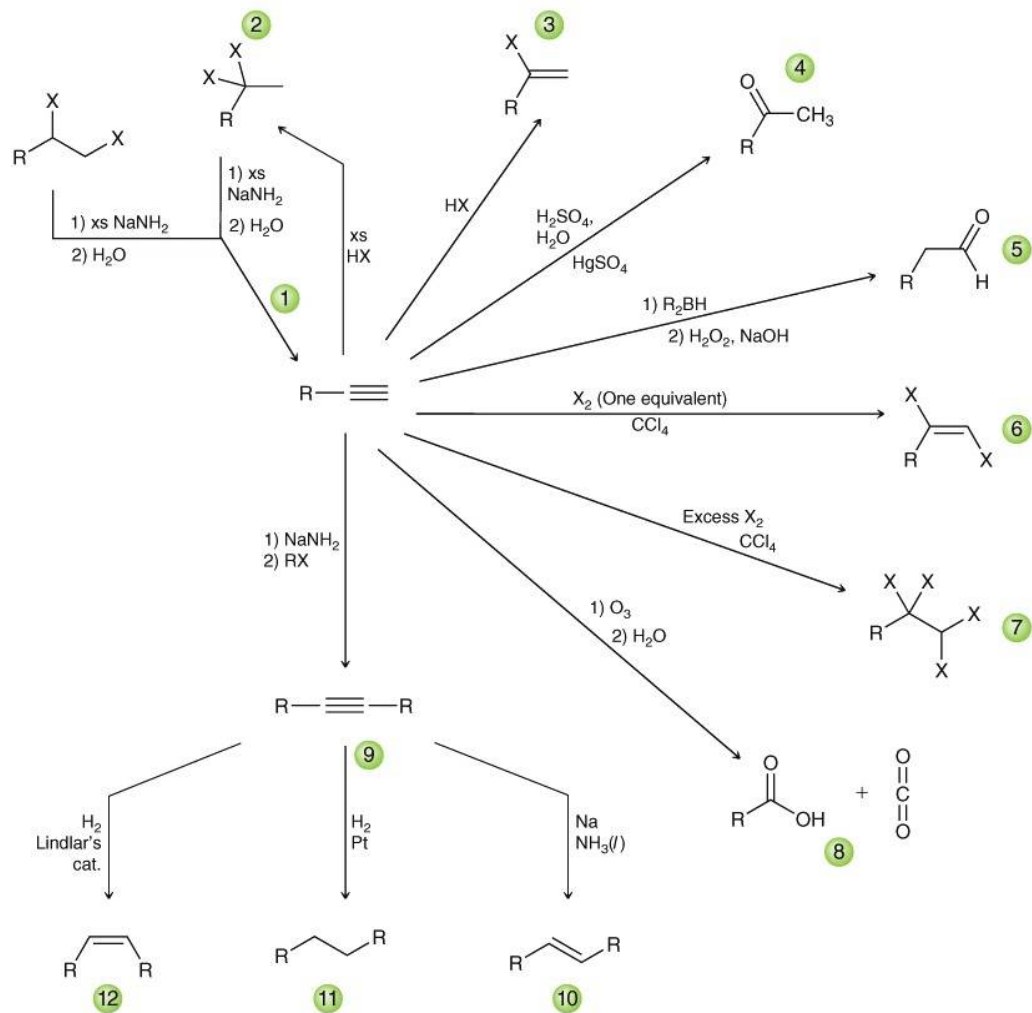
9. *Syn* dihydroxylation

3. Acid-catalyzed hydration and oxymercuration-demercuration

6. Bromination

10. Ozonolysis

7. Halohydrin formation



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|--|-----------------------------------|--|
| 1. Elimination                         | 6. Halogenation (one equivalent)  | 10. Dissolving metal reduction             |
| 2. Hydrohalogenation (two equivalents) | 7. Halogenation (two equivalents) | 11. Hydrogenation                          |
| 3. Hydrohalogenation (one equivalent)  | 8. Ozonolysis                     | 12. Hydrogenation with a poisoned catalyst |
| 4. Acid-catalyzed hydration            | 9. Alkylation                     |  |
| 5. Hydroboration-oxidation             |                                   |  |