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Introduction:
Strategies for Stereocontrolled Synthesis

★ Thermodynamic Control

Relative energy of diastereomers determines outcome of reaction

I. What determines the relative energy of stereoisomers?

- ☆ **De-stabilizing Non-bonded Repulsion**
- ☆ **Stabilizing Non-covalent Interactions**
- ☆ **Stereoelectronic Effects**

II. Tactics for establishing thermodynamic control

★ Kinetic Control

Relative energy of diastereomeric transition states determines outcome

- ☆ **Substrate Control**
  - ✳ Steric Approach Control
  - ✳ Stereoelectronic Control
  - ✳ Internal Stereodirection
- ☆ **Reagent Control**
  - ✳ Achiral Substrate: enantiotopic face selectivity
  - ✳ Achiral Substrate: enantiotopic group selectivity
  - ✳ Chiral Substrate: double asymmetric synthesis
- ☆ **Dynamic Kinetic Resolution**