

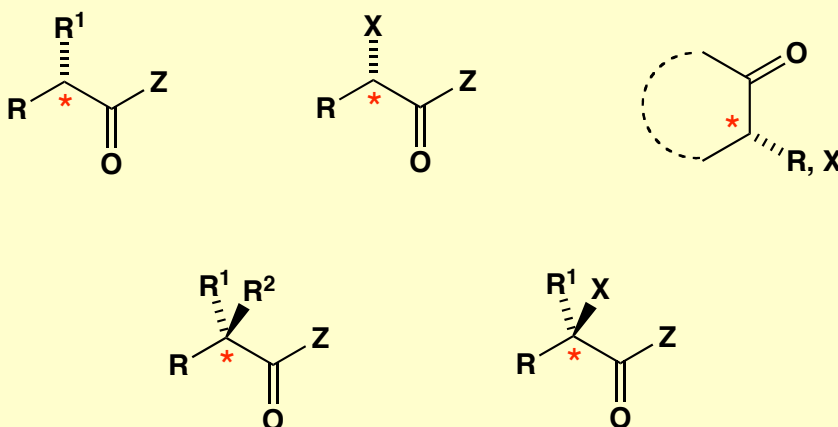
Massachusetts Institute of Technology
Organic Chemistry 5.511

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Prof. Rick L. Danheiser

Lecture 8

Unit 3
Stereocontrolled Alkylation
and Related Electrophilic Substitution Strategies

Key Retrons



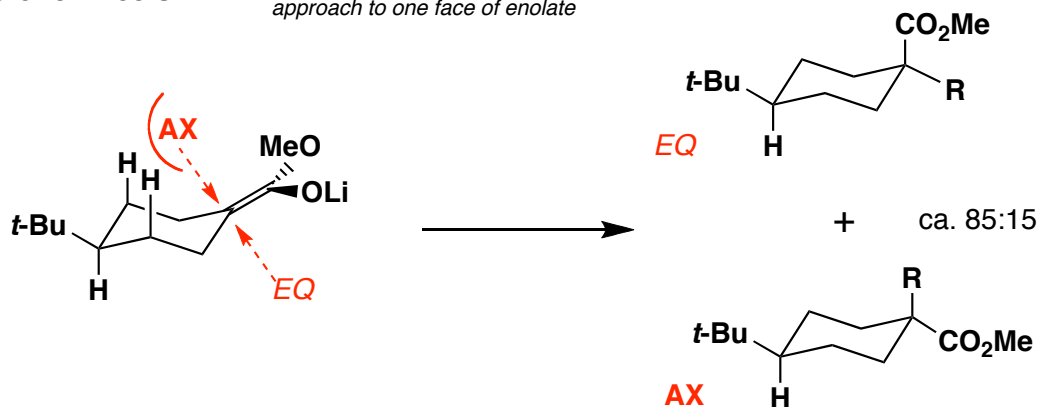
Outline of Unit

- I. Intrinsic Stereochemistry*
- II. Substrate Control: Asymmetric Induction by Molecular Framework*
- III. Substrate Control: Asymmetric Induction by Chiral Auxiliaries*
- IV. Reagent Control Strategies: Chiral Electrophiles*
- V. Catalytic Methods*

Substrate Control: Asymmetric Induction by Molecular Framework in Cyclic Systems

Steric Effects

Non-bonded repulsion hinders approach to one face of enolate



Stereoelectronic Effects

Electrophile approaches perpendicular to enolate to maintain maximal orbital overlap

