

## **S<sub>N</sub>2**

Need Good Leaving Group

Need Strong Nucleophile

Unhindered R-LG (1° > 2°), neighboring pi-bond accelerates

No Intermediate, No Rearrangements

Inversion of Stereochemistry

E2 sometimes competes (2° substrates)

## **S<sub>N</sub>1**

Need Good Leaving Group

Weak Nucleophile OK

Need Polar Solvent

Substituted R-LG (3° > 2°), resonance accelerates

Carbocation Intermediate, Rearrangements Common

Loss of Stereochemistry

E1 Usually Competes

## **E2**

Need Good Leaving Group

Need Strong Base

No Intermediate, No Rearrangements

Modestly Favors More Substituted (Saytzeff) Product (Most Cases)

Starting Stereochemistry Correlates with Product Olefin Geometry  
(antiperiplanar TS)

## **E1**

Need Good Leaving Group

Weak Base OK

Need Polar Solvent

Substituted R-LG (3° > 2°), resonance accelerates

Carbocation Intermediate, Rearrangements Common

Favors More Substituted (Saytzeff) Product

Loss of Stereochemistry

S<sub>N</sub>1 Usually Competes