

OUTLINE

- Syllabus & Course Organization
- Reading: McMurry & Begley, Chapter 1.1-1.4 (posted on CHEM 109 website)
 - Know your Functional Groups (FGs) – M&B Table 1.1
 - Acid-Base Chemistry
 - Mechanism Review
 1. Electrophilic Addition (e-philic add'n)
 2. Nucleophilic Substitution (nuc sub'n)

Homework (Due in next week's discussion): McMurry & Begley Chapter 1, #1-8

- solutions online, try not to use them until you're done, review in discussion

ACID-BASE CHEMISTRYGenChem StyleAcid-Base Rules to Live By (Any Kind of Chemistry)

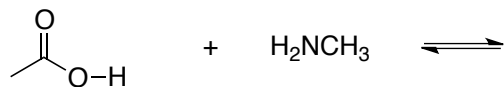
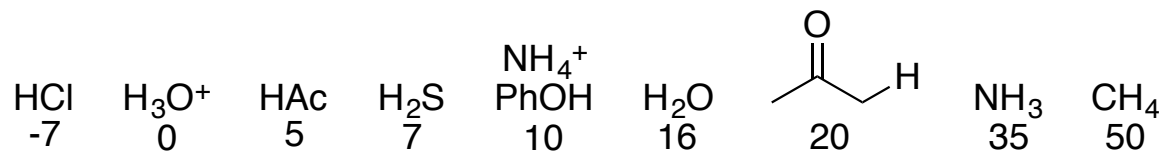
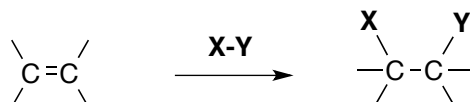
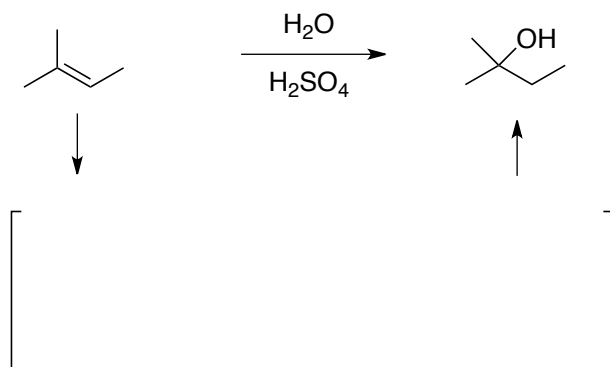
pKa = - log Ka = AFFINITY OF AN ACID FOR ITS PROTON

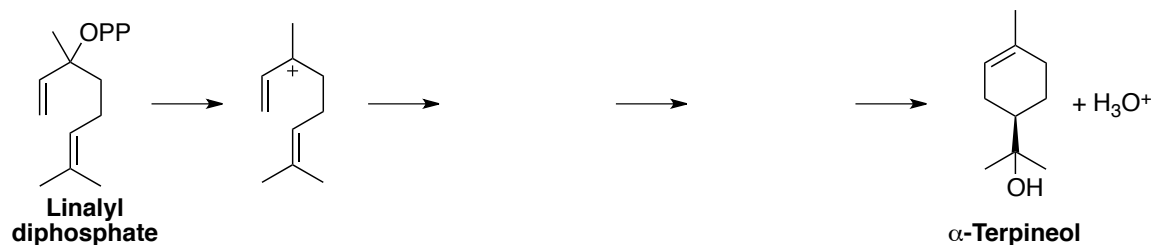
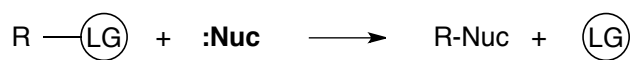
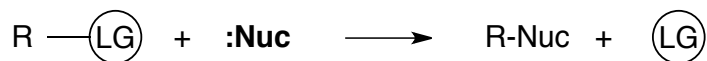
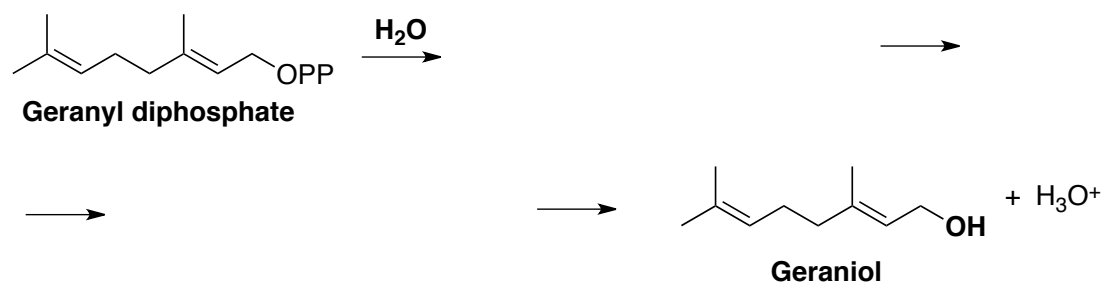
Bond formation (arrow-pushing) dictated by...

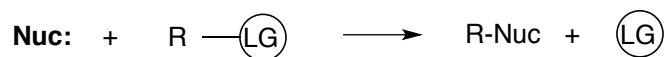
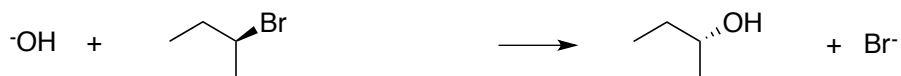
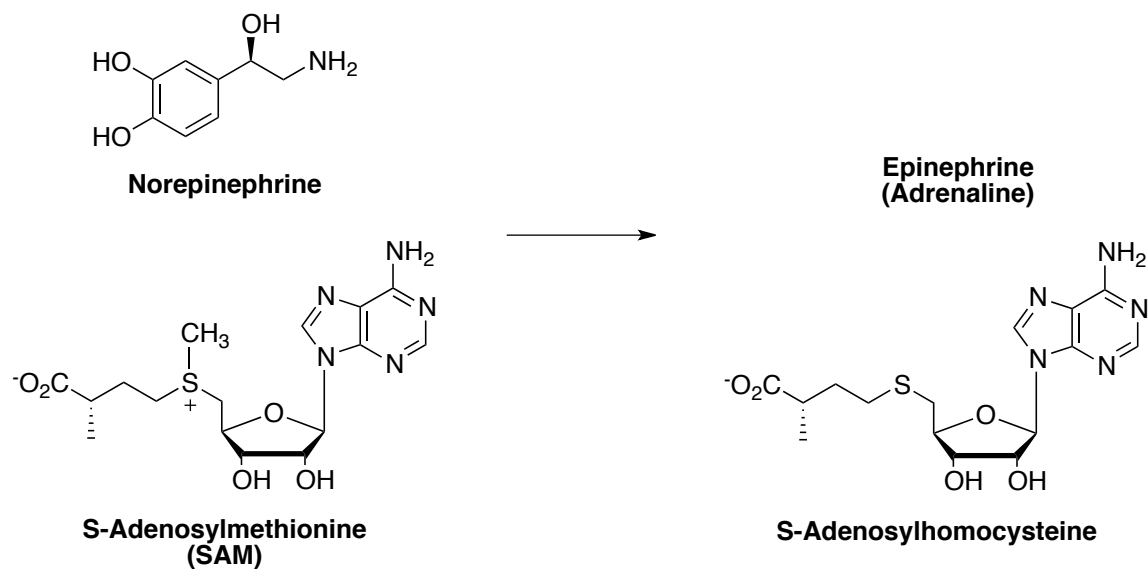
ELECTRON RICH TO ELECTRON POOR

OChem Acid-Base Reactions

Bronsted-Lowry (BL) vs. Lewis Definition

pKa's to Memorize**MECHANISM REVIEW**1. Electrophilic Addition to AlkenesE-philiic Add'n in Synthesis: Acid-Catalyzed Hydration of Alkenes

1. Electrophilic Addition to Alkenes (cont'd)*E-philiic Add'n in Biology: Figure 1.5 Biosynthesis of α -terpineol*2. Nucleophilic Substitution $\text{S}_{\text{N}}1$ or $\text{S}_{\text{N}}2$ **2A. Unimolecular Nucleophilic Substitution ($\text{S}_{\text{N}}1$) Mechanism** *$\text{S}_{\text{N}}1$ in Synthesis:* *$\text{S}_{\text{N}}1$ in Biology: Biosynthesis of geraniol, rose oil component*

2B. Bimolecular Nucleophilic Substitution (S_N2) MechanismS_N2 in Synthesis:S_N2 in Biology: **Figure 1.8** Synthesis of Adrenaline*For next lecture...*

- Reading - McMurry & Begley (M&B) Chapter 1.5-1.7 – Carbonyl Mechanisms
- Know your carbonyl functional groups! – see p. 18 of M&B