



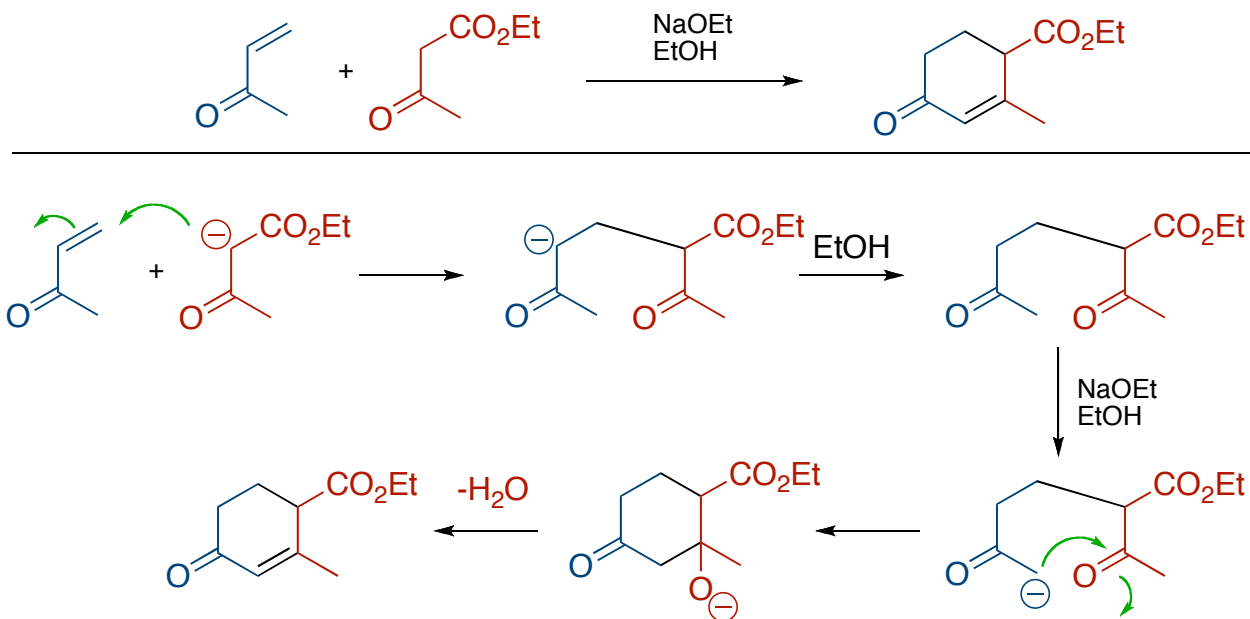
Chem 342 • Organic Chemistry II

Lecture Summary 31 - 4 May 2009

Chapter 23 - Carbonyl Condensation Reactions

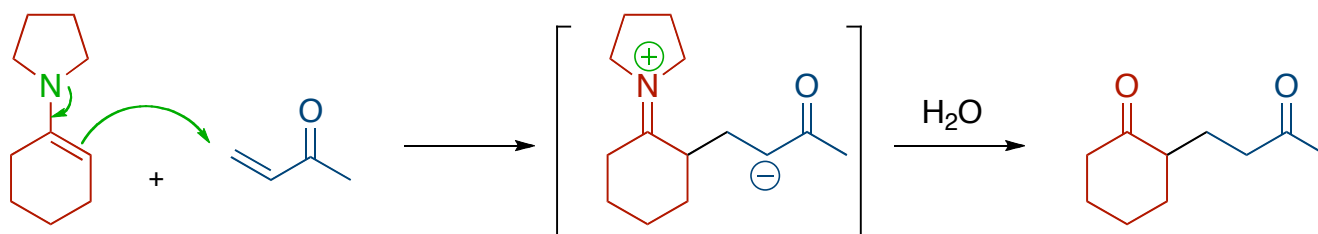
Robinson Annulation

Rings can be made from two different molecules (an annulation reaction) by combining the Michael Reaction and the Aldol Condensation. There are many systems which have been designed to proceed with multiple steps all in one reaction pot.



Stork Enamine Reactions

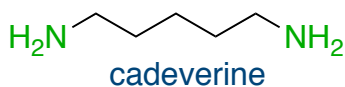
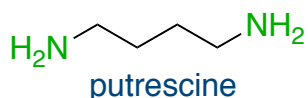
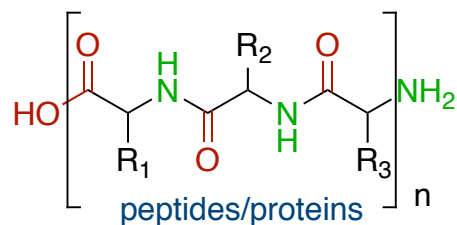
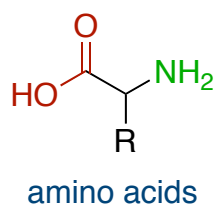
Enamines also participate in Michael reactions quite readily. This offers some advantages over using enolates as there are no strong bases used. Note that the intermediates are not isolated, but the imine is hydrolyzed at the end to afford the ketone.



Chapter 24 - Amines

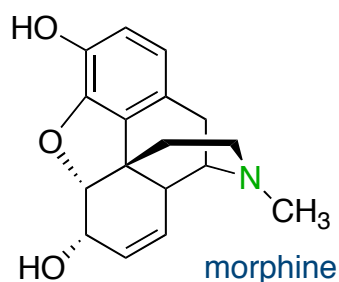
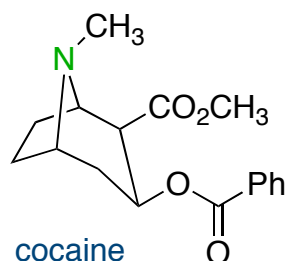
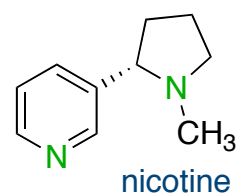
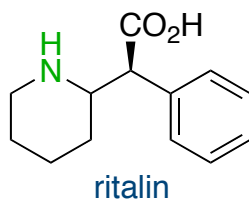
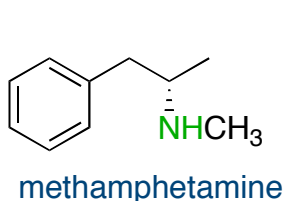
Amines are Biologically Important

Amino acids form the basis of all peptides and proteins. These are the tissue building blocks and nature's catalysts (enzymes) in biological systems. Amine functional groups have marked biological activity, from being very foul smelling compounds from degrading flesh to impacting upon neural chemistry.



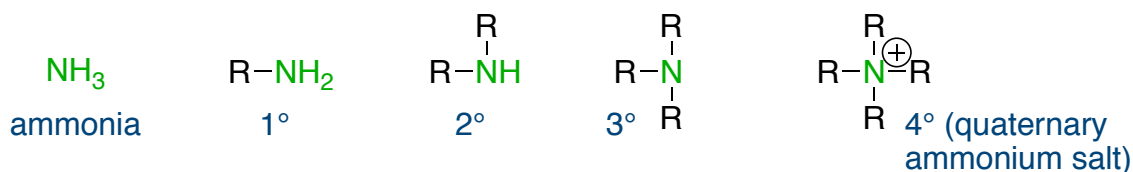
foul smelling constituents of rotting flesh

Some biologically active amine compounds



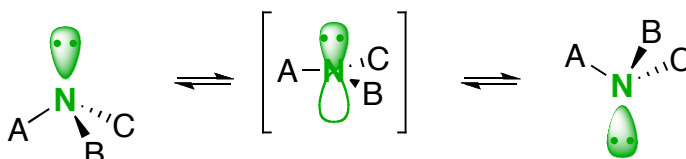
Amine Substitution

Primary, secondary and tertiary amines refer to the amount of alkyl substitution on the Nitrogen atom (not the carbon as is the case with other functional groups).



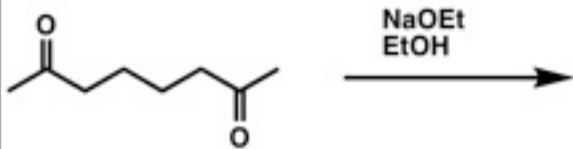
Amine Structure

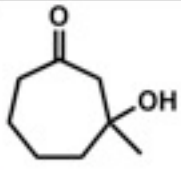
Amines are sp^3 -hybridized and tetrahedral with the lone pair taking up one of the four positions. Amines are inherently chiral, however, they undergo rapid inversion at room temperature. Thus, they are always racemic.

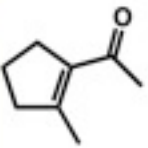


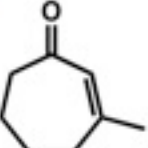
Daily Quiz

Q: What is the major product of the following reaction?



1: 

2: 

3: 

4: 