

Problem Set No. 10 (2.7.2013)

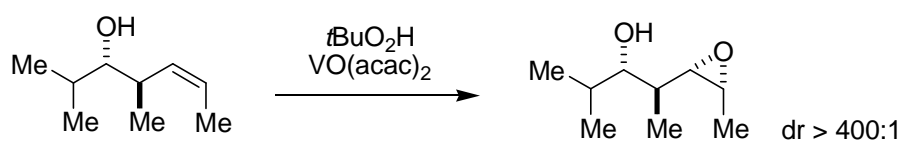
1. a) Draw the structure of the Vedjes reagent and the Davis reagent.

b) Generate the enolate from ethyl propanoate with LDA. Which configuration do you expect for this enolate? Why? React this enolate with the Davis reagent.

2. Suggest two different pathways for the synthesis of 2-hydroxycyclopentanone starting from cyclopentanone.

3. Oxidize (*S*)-3-buten-2-ol with mCPBA! Which stereoisomer do you expect as major product? Give a brief explanation.

4. Explain the observed very high selectivity in the following epoxidation reaction by providing the 3D structure of the transition state including all relevant interactions.



5. Employing L-DET as ligand the Sharpless epoxidation of 3-hydroxy-1,4-pentadiene provides an enantio-enriched product in high yield. The product undergoes a regioselective ring opening by treatment with sodium azide. Suggest a method to convert the resulting azide into an amine without reducing the remaining vinyl group.