Please provide plausible mechanisms for the following problems, providing intermediates or an explanation of stereochemistry where appropriate.

1. Identify compound A and intermediate B and provide a mechanism (J. Org. Chem. 1980, 34, 2040-2041)

2. Provide a mechanism that supports the observed selectivity. (J. Org. Chem. 1990, 202-209)

Bonus: all 4 possible conformations of the starting material were synthesized (Z or E olefin with R or S stereochemistry at the tertiary hydroxyl carbon). Only the Z-R conformation gave the desired natural product, while E-R gave a 60% yield of the epimeric isognididione....explain!

3. Identify **C** and provide mechanisms for the included transformations. *Bonus*: which named reactions are used? (*Org. Lett.* **2002**, *4*, 859-862)

4. Provide a mechanistic explanation for the following reaction, attempt to explain the selectivity (*nb* the facial attack preference was explained with computational studies, this will be presented). (*J. Org. Chem.* **2013**, Just Accepted, DOI: 10.1021/jo401640c)

5. Determine the mechanism for the following reaction and explain the difference in product formation for n = 1 versus 2. (*J. Org. Chem.* **1999**, *64*, 2038)

Hint: isomünchnone intermediate proposed