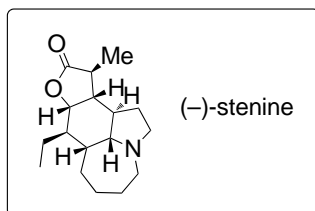
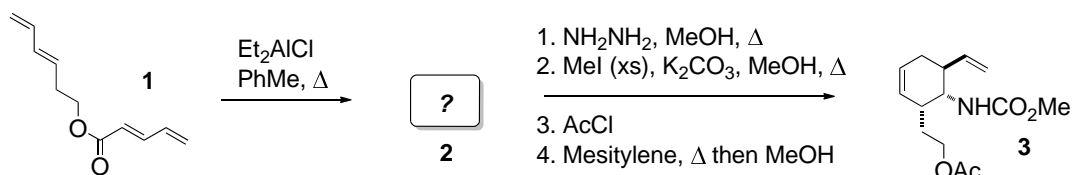


Group Meeting Questions 09/10/12 (Craig)

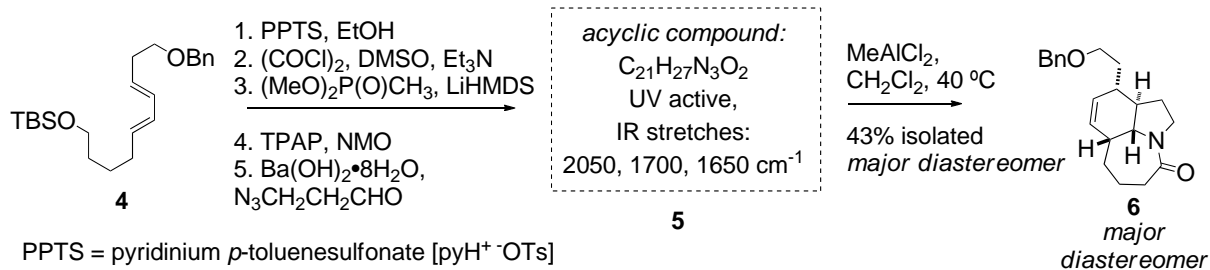
Here are selected steps from recent syntheses of the natural product stenine, a key component of certain Chinese medicines for the treatment of various respiratory ailments. Please complete the following questions.



1. Explain the following synthetic sequence, providing mechanisms and justifying the relative stereochemistry.
Hint: This features a well-known named reaction, and a variant of a named rearrangement.



2. Provide intermediates from 4 to 5, and provide a mechanism for the formation of tricycle 6.



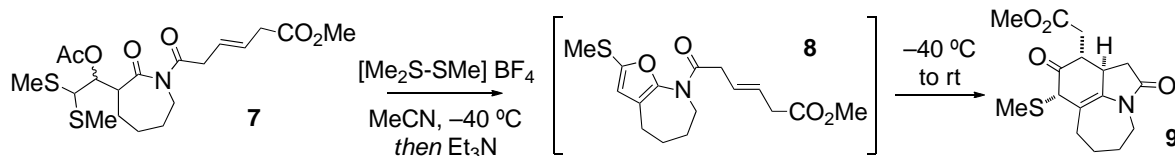
PPTS = pyridinium *p*-toluenesulfonate [pyH⁺ OTs⁻]

LiHMDS = lithium hexamethyldisilazide [Li⁺ N(SiMe₃)₂⁻]

TPAP = tetrapropylammonium perruthenate [Pr₄N⁺ RuO₄⁻]

NMO = *N*-methylmorpholine oxide [R₃N⁺-O⁻]

3. Provide mechanisms to explain the following domino process.



4. Account for formation of the tricyclic system 12, identifying intermediate 11.

