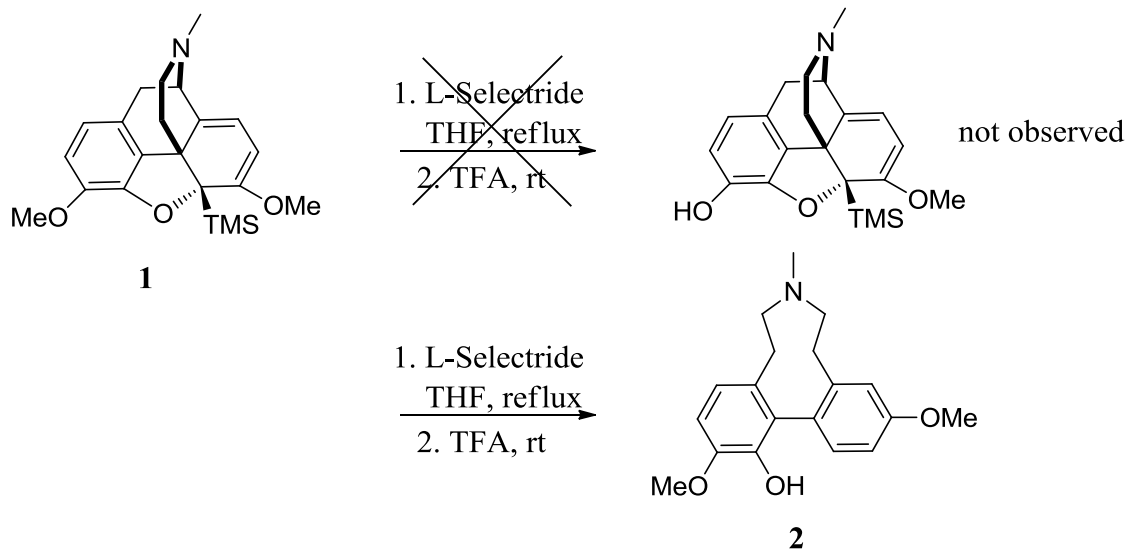


VanNieuwenhze Group Problem Set

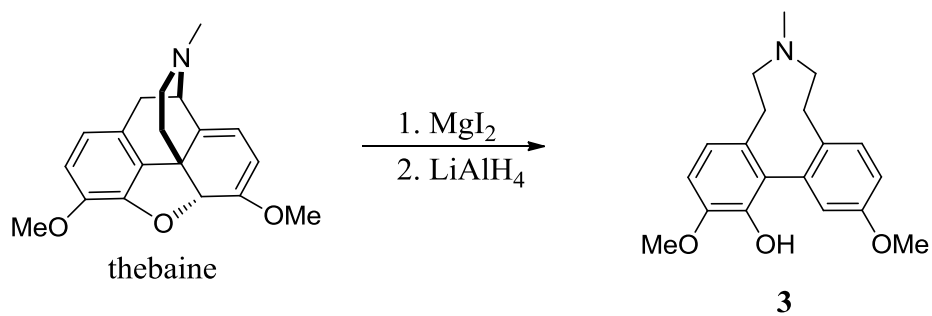
Tuesday, January 26th

by Angela Carrillo Alocen

1. In an effort to demethylate position 3 of the trimethylsilyl protected version of thebaine **1** using L-Selectride, Coop and coworkers observed instead formation of **2** as the major product after desilylation.

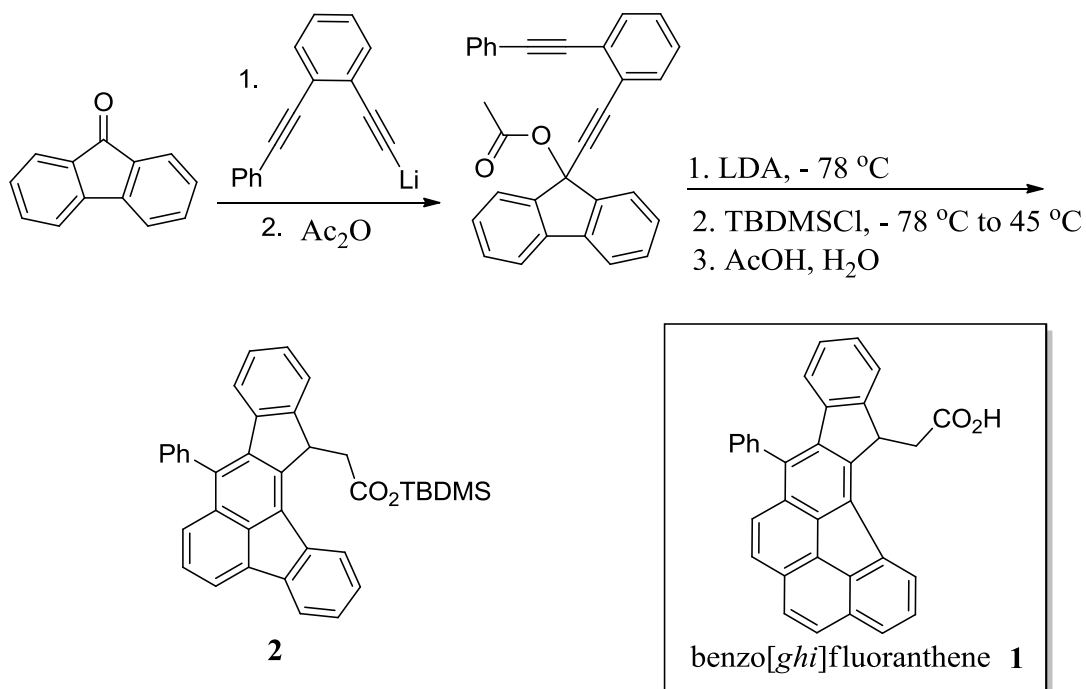


Previous studies have shown that thebaine is unstable under acidic conditions. In particular **3**, an isomeric version of **2**, is formed when thebaine is treated with MgI_2 followed by reduction.



- A. Provide a plausible mechanism for both transformations.
B. Provide an explanation for the different outcomes.

2. On the study for the preparation of aromatic derivatives of benzo[ghi]fluoranthene **1** performed by Wang and co-workers, compound **2** was prepared in excellent yields. Provide a plausible mechanism for this transformation. What name reactions are involved during this process?



3. As part of a strategy directed towards the synthesis of tetracyclin, Warrington and co-workers carried out the thermally induced rearrangement of **1** to synthesize the *trans*-decalin system **2**. Using clear three-dimensional drawings provide a plausible mechanism for this transformation that accounts for the stereochemical outcome.

