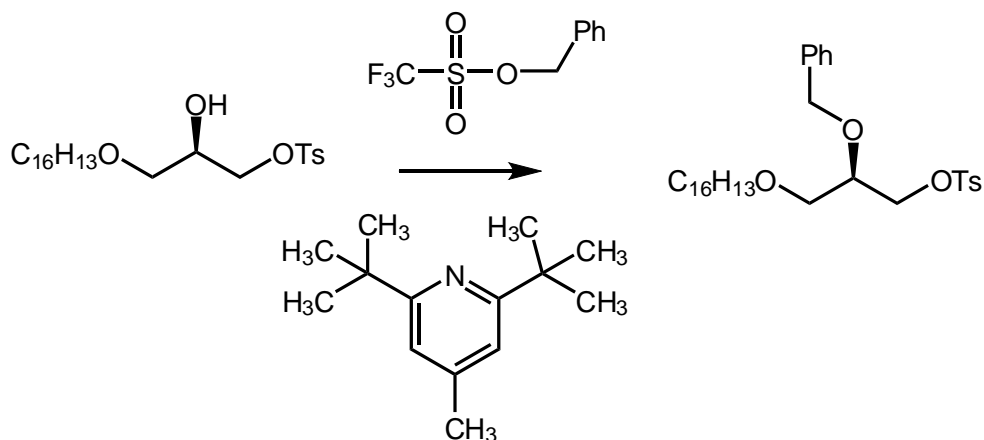


Problem 2



Ref. P. N. Guivisdalsky & R. Bittman, Tetrahedron Lett., 1988, 29, 4393-4396.

1. Draw all bonds near the reactive center in the starting materials

2. Draw all H-atoms near the reactive sites of starting materials and products

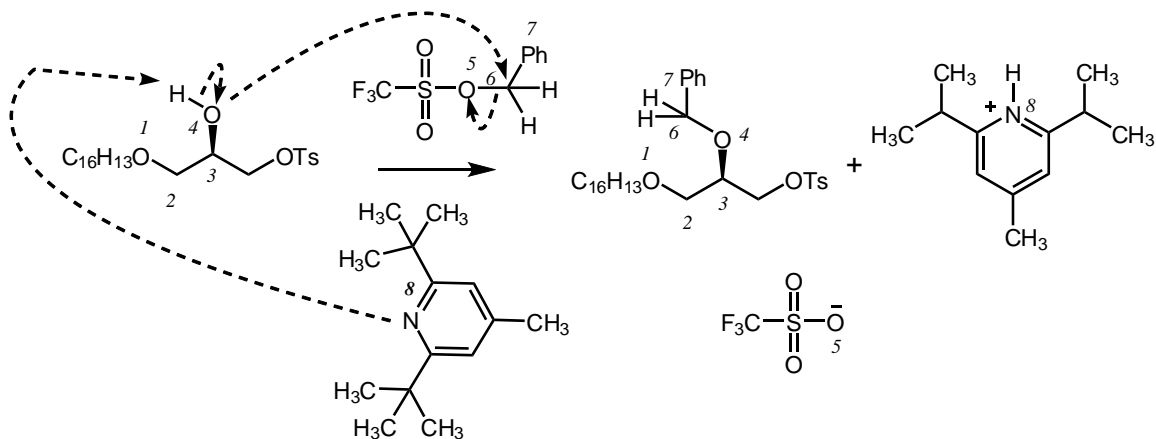
3. Balance the equation

4. Number the non-H atoms

5. Identify bonds made and broken

Bonds made: 4-6, 8-H

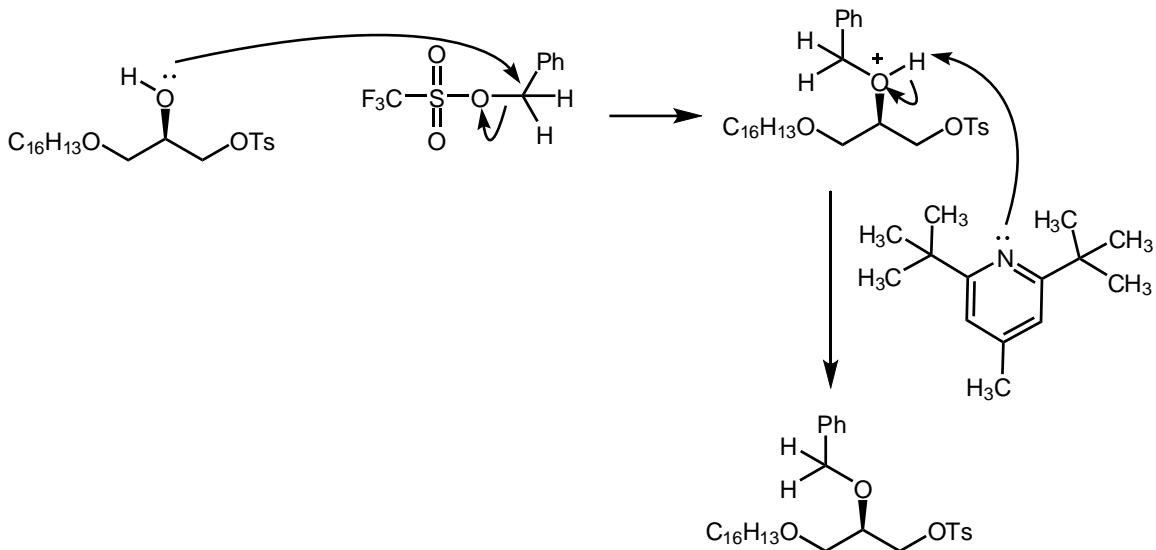
Bonds broken: H-4, 5-6.



6. Conditions

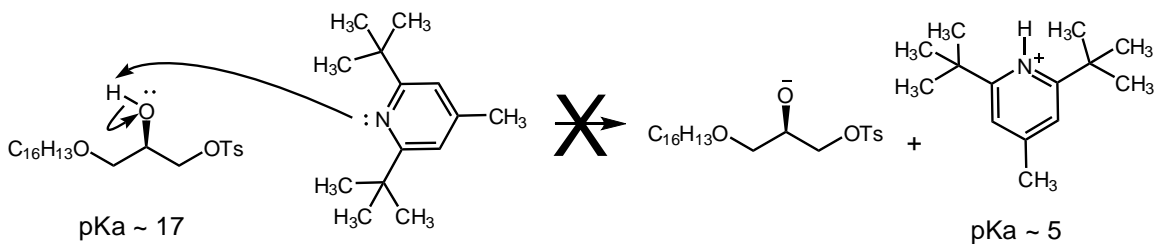
Acidic (does not generate strong bases)

Mechanism



Discussion

Although an amine is used in this reaction, the conditions are acidic. This is because pyridine bases like the one used above are not strong bases. If we draw a mechanism using it as a base it will result in the formation of a very strong acid compared to the starting alcohol (compare the pK_a 's).



Another indicator that the above mechanism must be incorrect is the formation of alkoxide (the $-ve$ O specie). The alkoxide is close to the C atoms containing a tosylate group. If formed, the alkoxide should attack this C atom and form an epoxide.