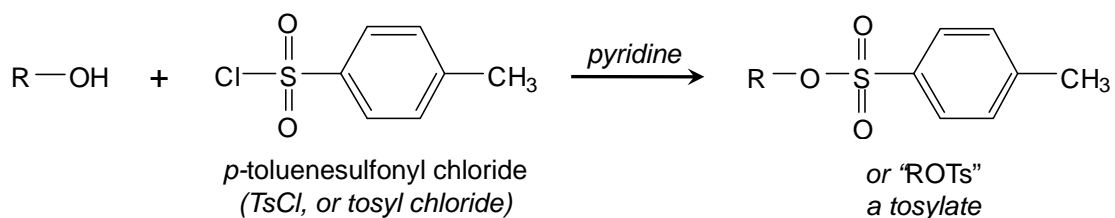
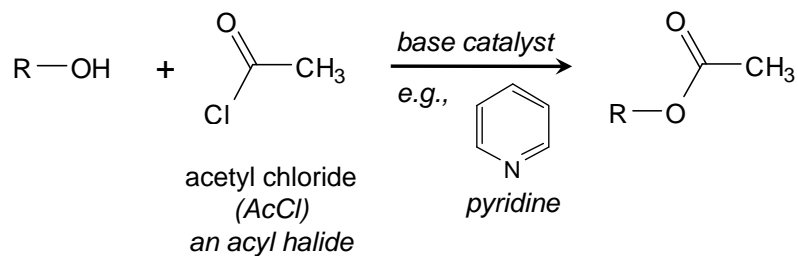
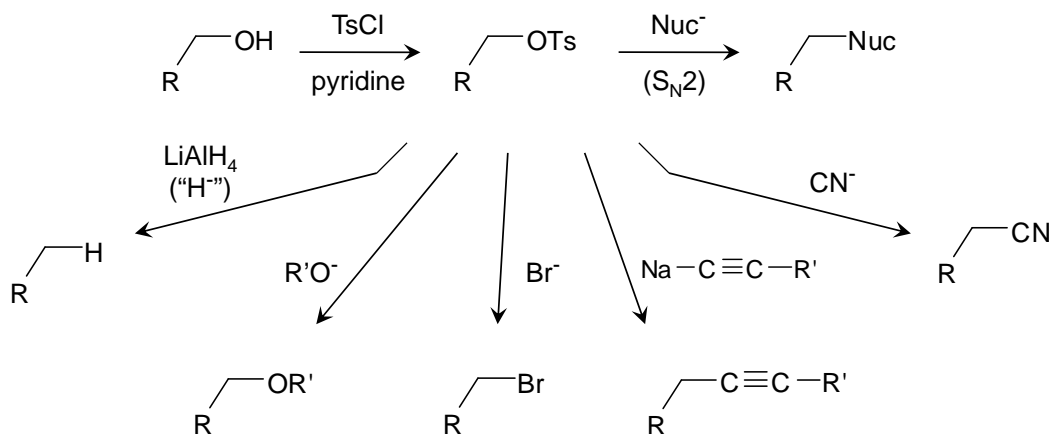


# Acylation and Tosylation of Alcohols

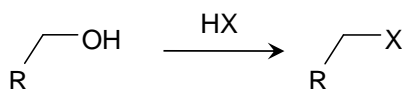


## Tosylation Turns -OH Into an Excellent Leaving Group

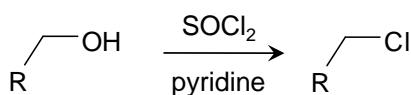
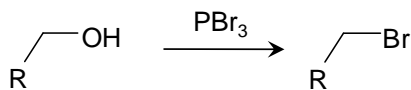


Keep in mind:  $S_N2$  inverts stereochemistry.

## Direct Conversion of Alcohols to Halides



Not so great. E1/E2 compete with substitution.



These reactions:

- convert  $-\text{OH}$  into a good leaving group
- invert stereochemistry at carbon.

*In the absence of pyridine, this reaction can retain stereochemistry.*

## Instruments for Characterizing Organic Molecules

- **Nuclear Magnetic Resonance (NMR) Spectroscopy**  
(Wade Chapter 13)
- **Infrared (IR) Spectroscopy**  
(Wade Chapter 12.1-12.12)
- **Mass Spectrometry (MS)**  
(Wade Chapter 12.13-12.15)