

**Chemistry 144**  
M. E. Jung

**Protecting Groups for Alcohols**

Greene, T. W.; Wuts, P. G. M. "Protective Groups in Organic Synthesis," 3rd. Ed., Wiley, 1999.

**1. Acetals**

**STABLE TO**

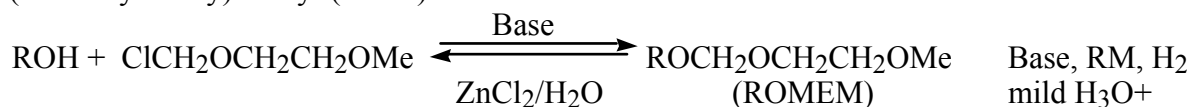
a) Tetrahydropyranyl (THP)



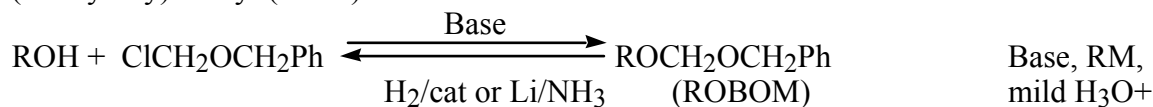
b) Methoxymethyl (MOM)



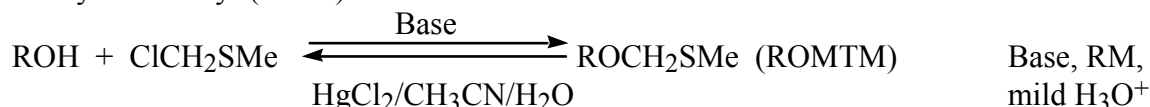
c) (Methoxyethoxy)methyl (MEM)



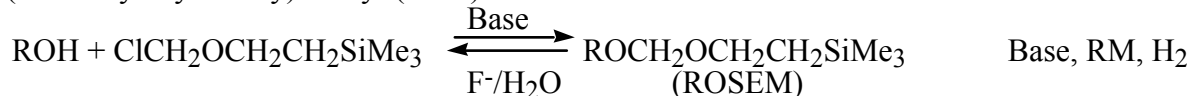
d) (Benzyloxy)methyl (BOM)



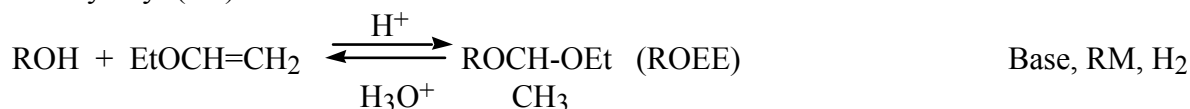
e) Methylthiomethyl (MTM)



f) (Trimethylsilylethoxy)methyl (SEM)

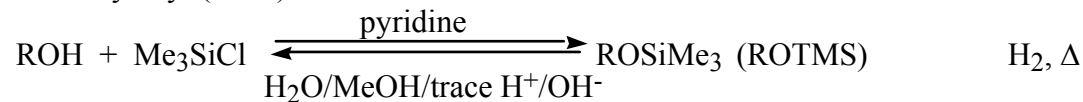


g) Ethoxyethyl (EE)



**2. Silyl Ethers**

a) Trimethylsilyl (TMS)



b) Triethylsilyl (TES)



mild  $H^+$  or  $OH^-$

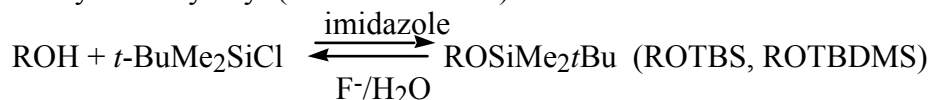
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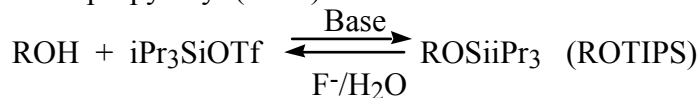
#### STABLE TO

c) *t*-Butyldimethylsilyl (TBS or TBDMS)



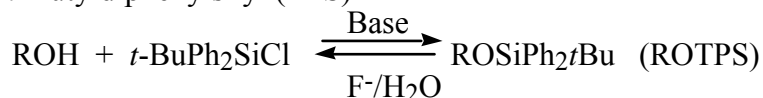
H<sub>2</sub>, mild H<sub>3</sub>O<sup>+</sup>,  
mild OH<sup>-</sup>, RMgX

d) Triisopropylsilyl (TIPS)



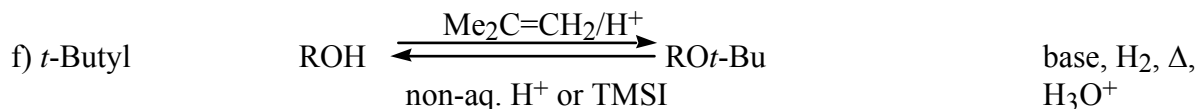
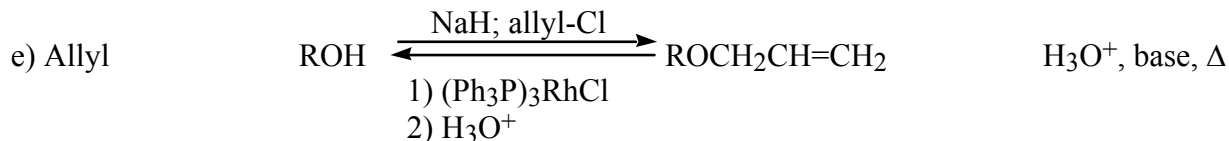
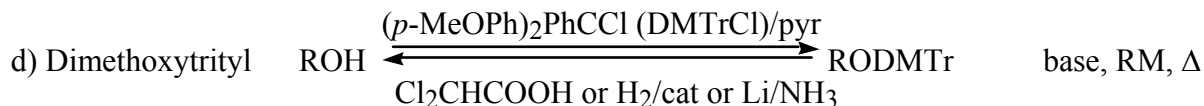
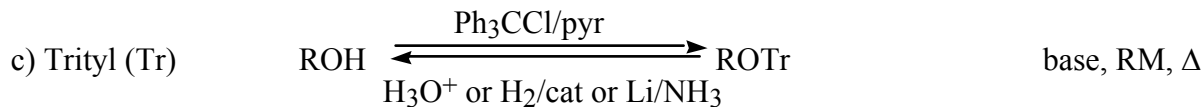
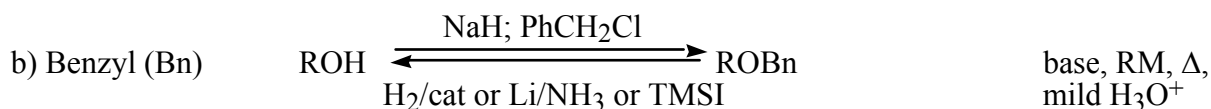
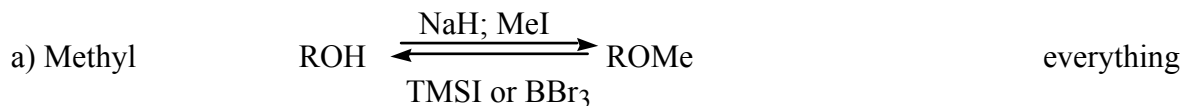
H<sub>2</sub>, mild H<sub>3</sub>O<sup>+</sup>,  
mild OH<sup>-</sup>, RMgX

e) *t*-Butyldiphenylsilyl (TPS)



H<sub>2</sub>, mild H<sub>3</sub>O<sup>+</sup>,  
mild OH<sup>-</sup>, RMgX

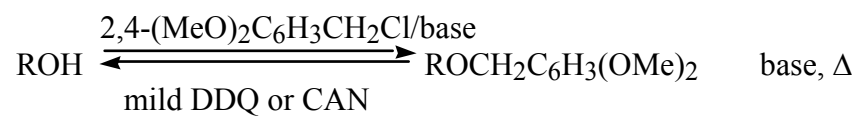
### 3. Ethers



g) (*p*-Methoxyphenyl)methyl (MPM) or *p*-Methoxybenzyl (PMB)



h) (2,4-Dimethoxyphenyl)methyl (DMPM)

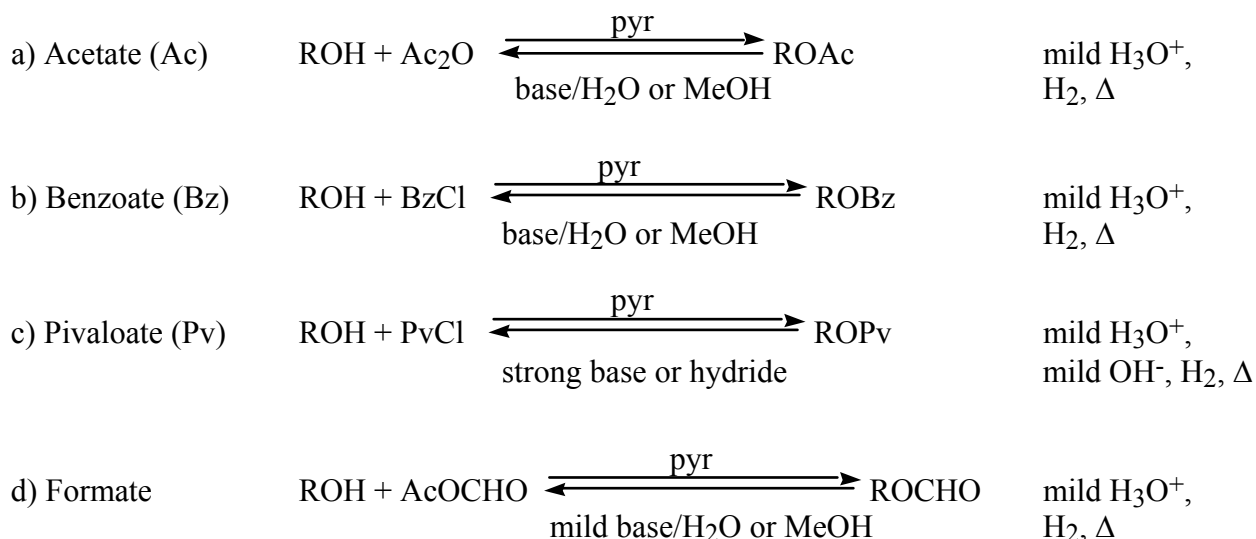


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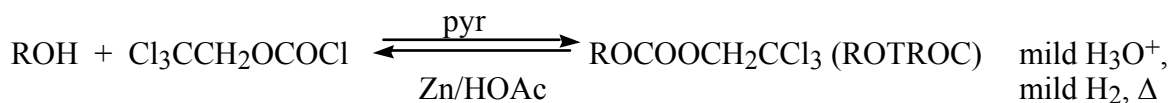
STABLE TO

4. Esters



5. Carbonates

a) 2,2,2-Trichloroethyl (Troc)



b) Allyloxycarbonyl (Alloc)



c) 9-Fluorenylmethyl carbonate (Fmoc)

