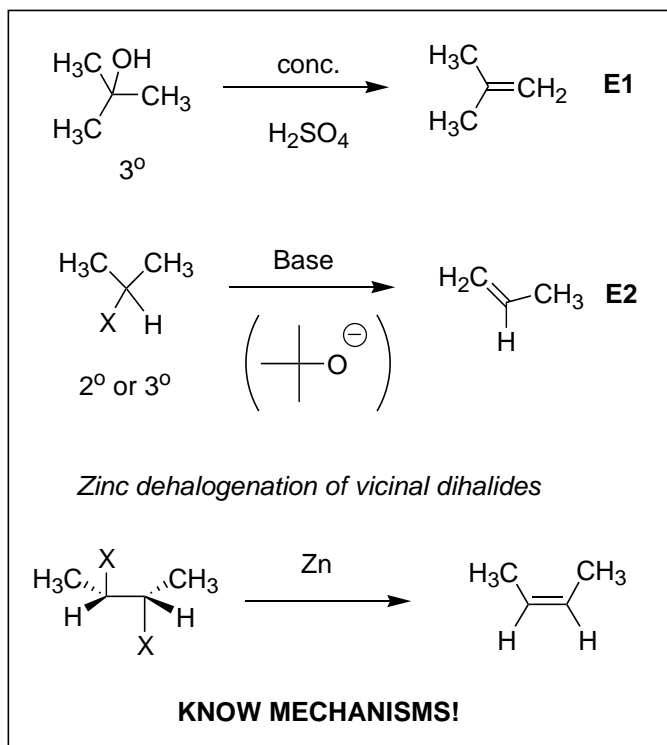
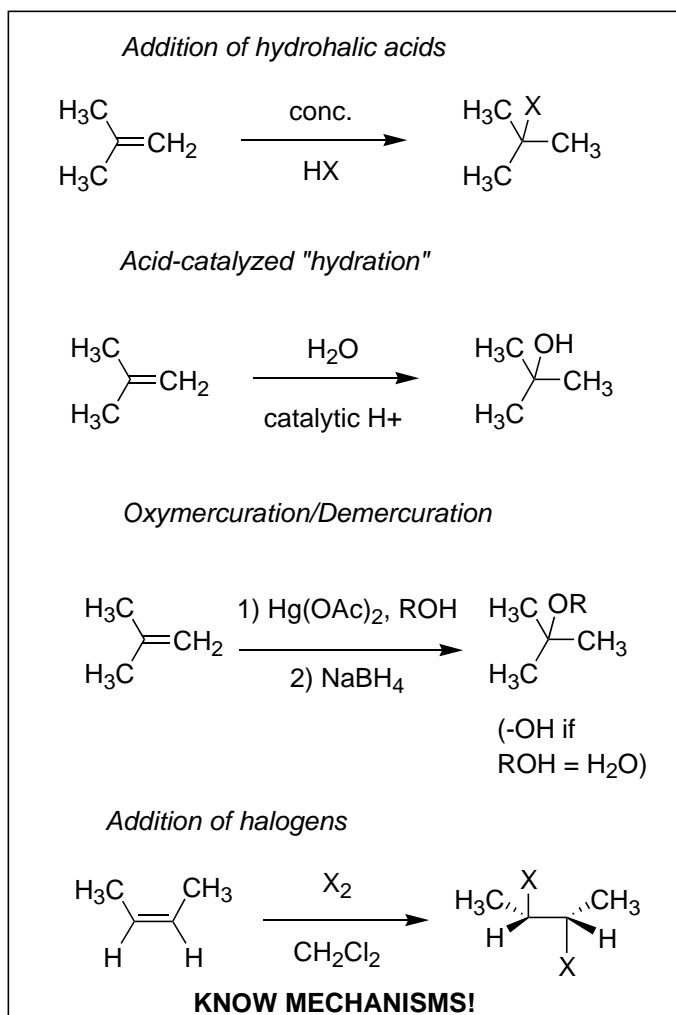


## Alkenes: Formation

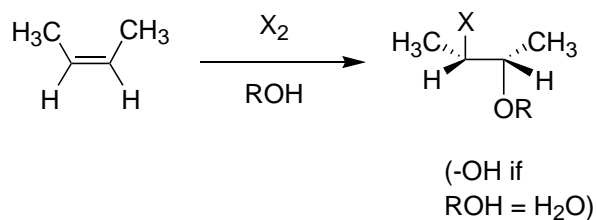
## The "Master List"



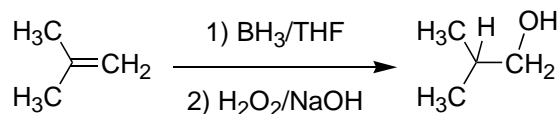
## Alkenes: Addition Reactions



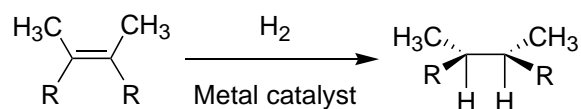
## Halohydrin Formation



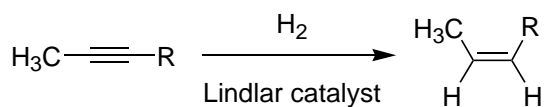
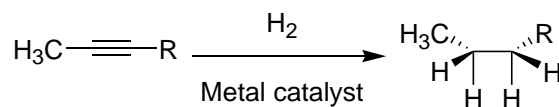
## Hydroboration/Oxidation



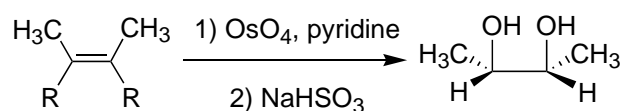
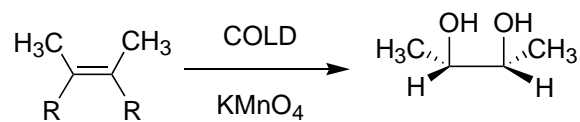
## Reduction of alkenes



## Reduction of alkynes



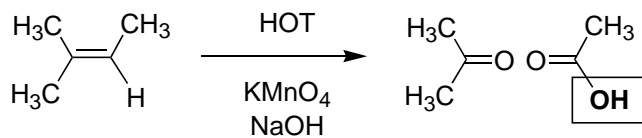
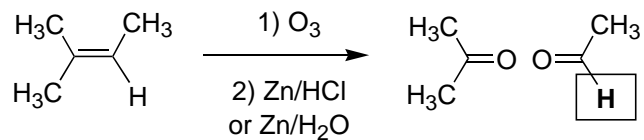
## Formation of Diols



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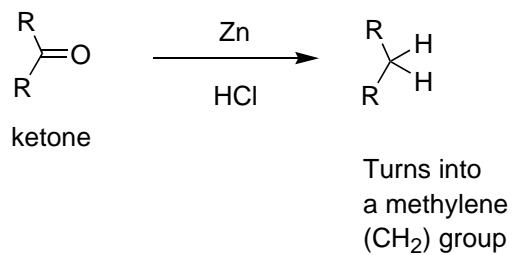
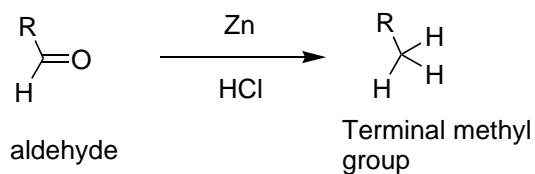
## Alkenes: Oxidative Cleavage

The "Master List"

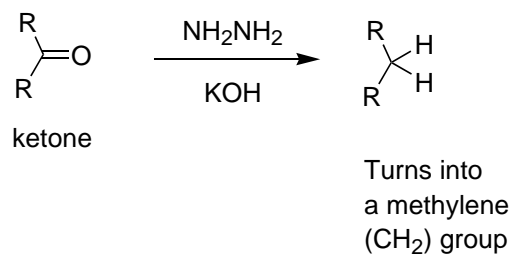
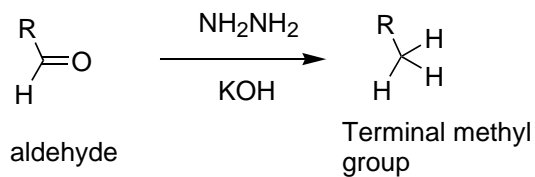


## Oxidation/Reduction Reactions

"Exhaustive" Reduction: Clemmensen

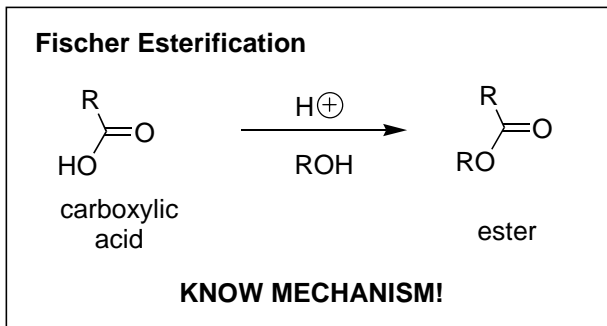


"Exhaustive" Reduction: Wolff-Kishner

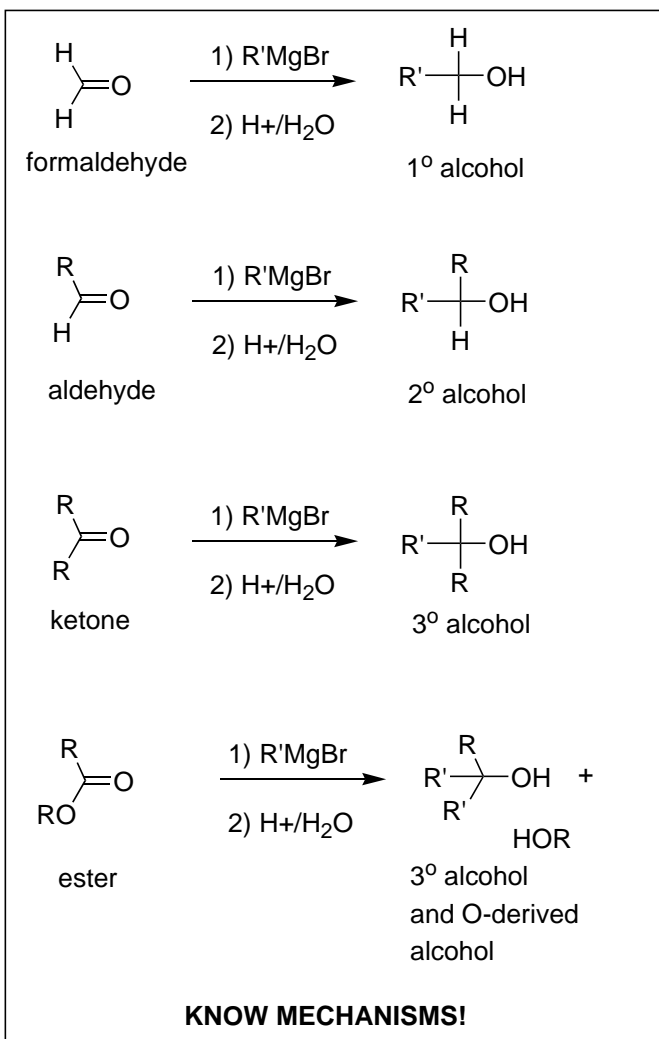
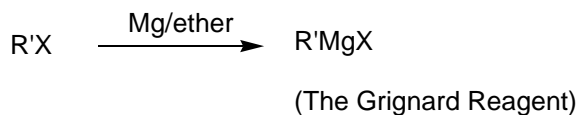




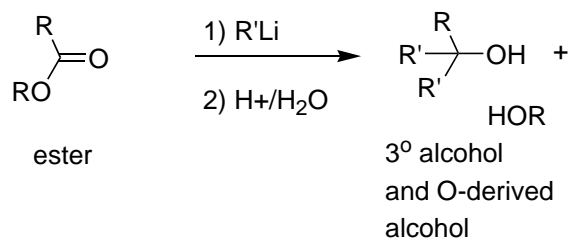
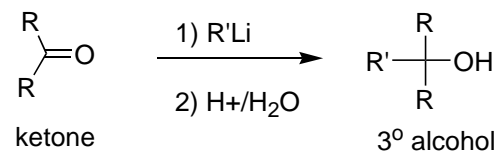
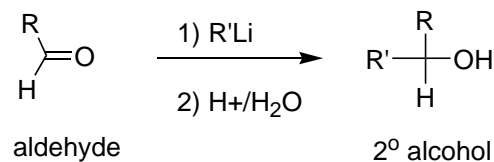
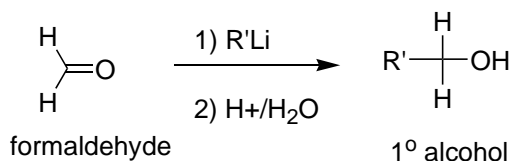
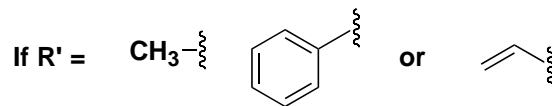
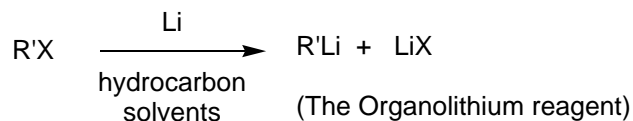
The "Master List"



**Organometallics: Grignard Reagents**

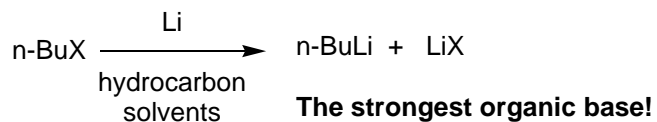


**Organometallics: Organolithium reagents**



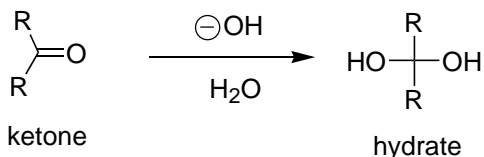
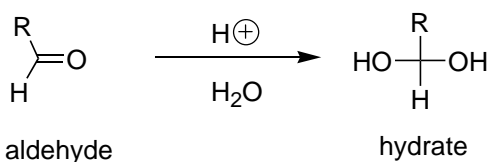
(same as Grignard reagent!)

If R' = n-Bu or any large alkyl group,



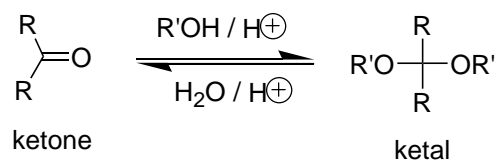
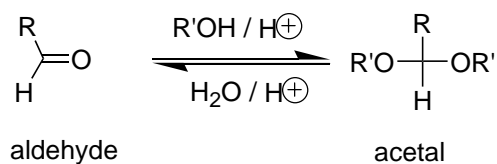
The "Master List"

**Hydrate Formation**



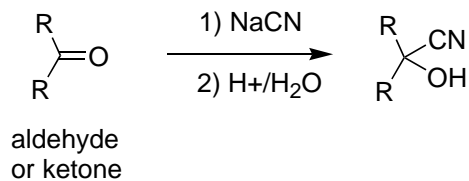
**KNOW MECHANISMS!**

**Acetal formation/hydrolysis for ketones/aldehydes**

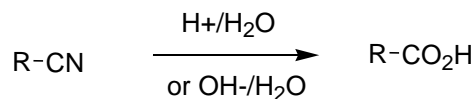


**KNOW MECHANISMS!**

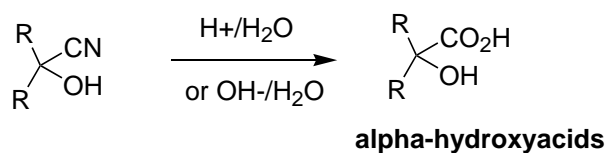
**Cyanohydrin formation**



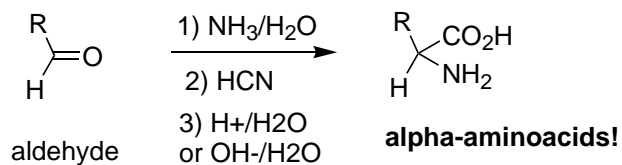
**Hydrolysis of nitriles to carboxylic acids**



**Hydrolysis of cyanohydrins**

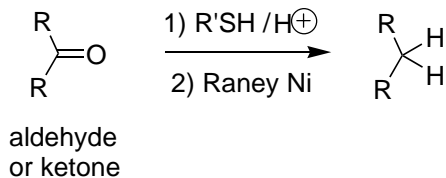


**Strecker synthesis:**

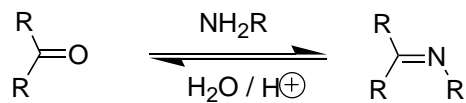


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**"Exhaustive" Reduction: Thioacetal route**

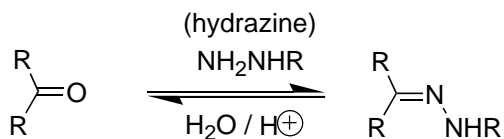


**Nitrogen nucleophiles with aldehydes/ketones**



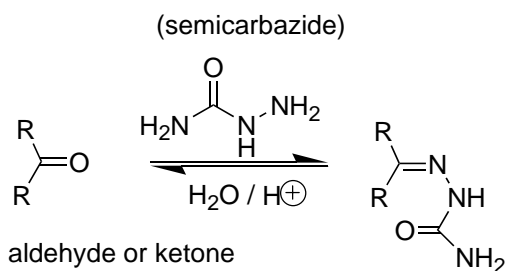
aldehyde or ketone

**imine**



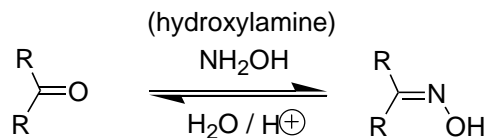
aldehyde or ketone

**hydrazone**



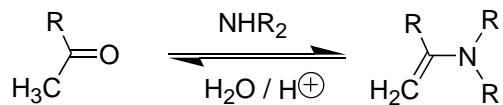
aldehyde or ketone

**semicarbazone**



aldehyde or ketone

**oxime**



aldehyde or ketone

**enamine**

**KNOW MECHANISMS!**