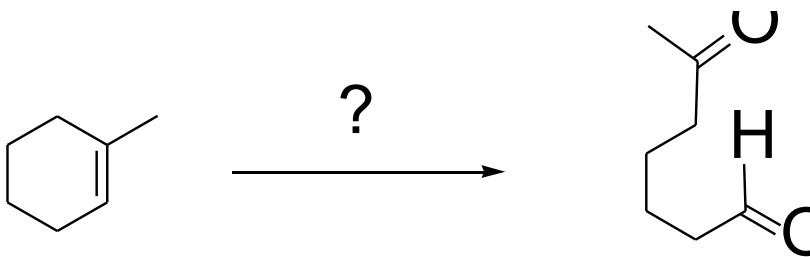


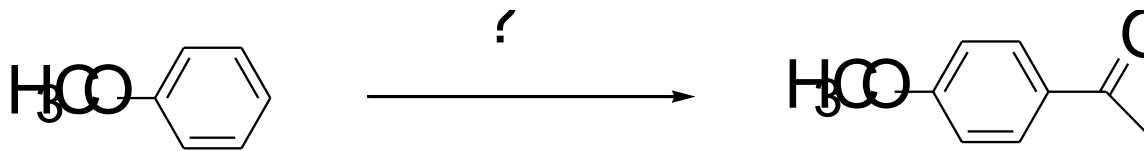
# ALDEHYDY, KETONY



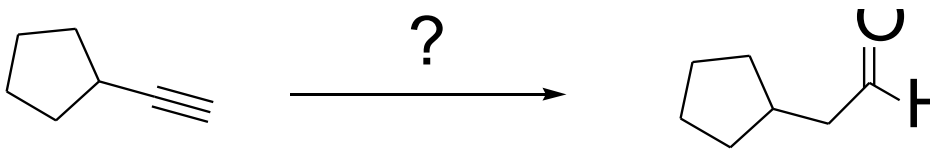
# Syntéza aldehydů a ketonů



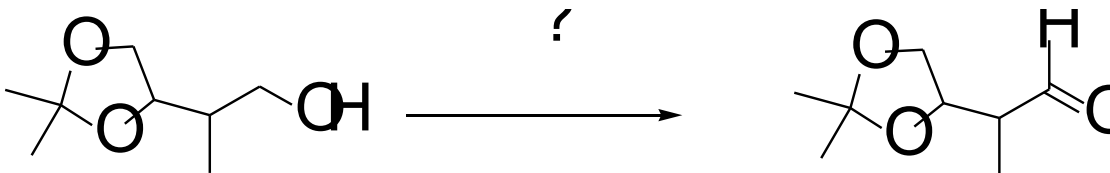
1)  $\text{O}_3$   
2)  $\text{Zn, H}^+$



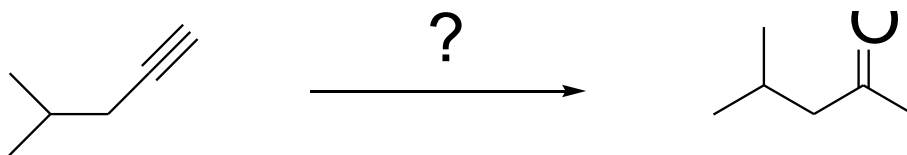
1)  $(\text{CH}_3\text{CO})_2\text{O, AlCl}_3, \text{CS}_2$   
2)  $\text{H}_2, \text{H}_2\text{O}$



1)  $\text{BH}_3$   
2)  $\text{H}_2\text{O}_2, \text{NaOH}$

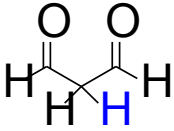
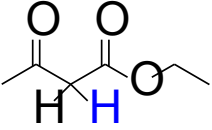
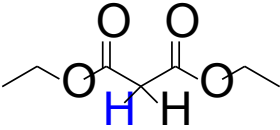
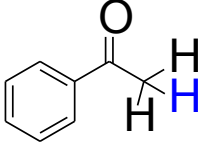
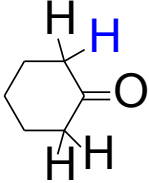
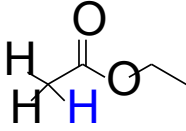


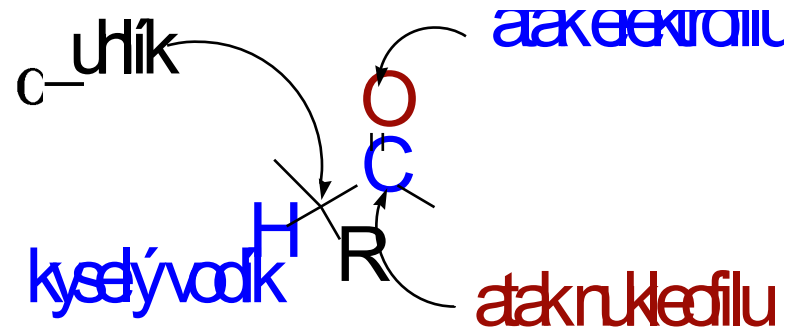
$\text{PCC, CH}_2\text{Cl}_2$



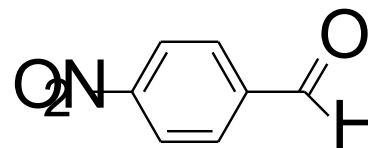
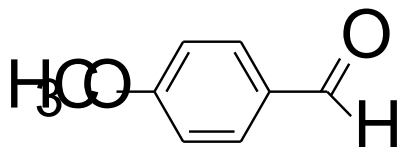
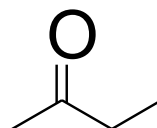
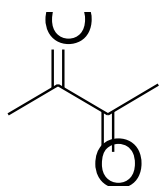
$\text{Hg}^{2+}, \text{H}^+, \text{H}_2\text{O}$



	50
	107
	129
	158
	167
	245

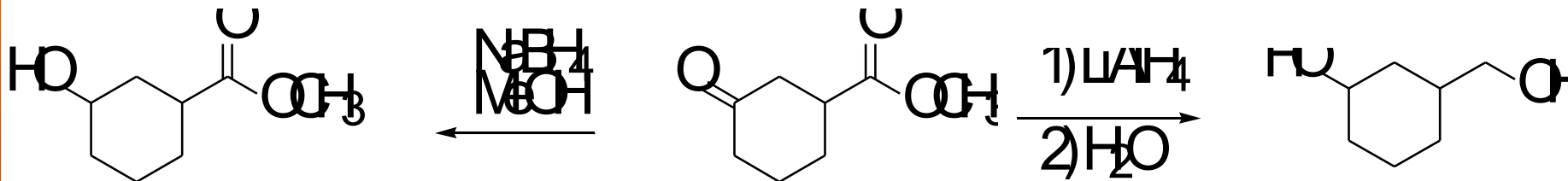
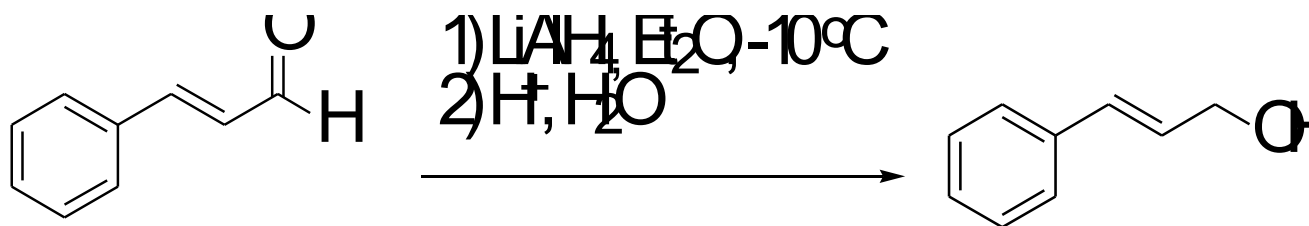
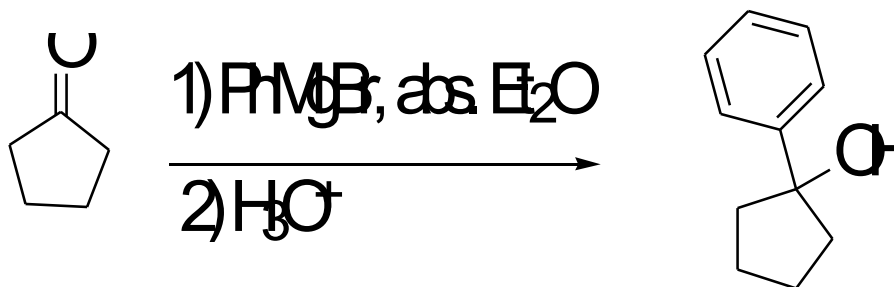


**Která ze sloučenin v uvedených dvojicích je reaktivnější při adiční reakci na karbonyl**



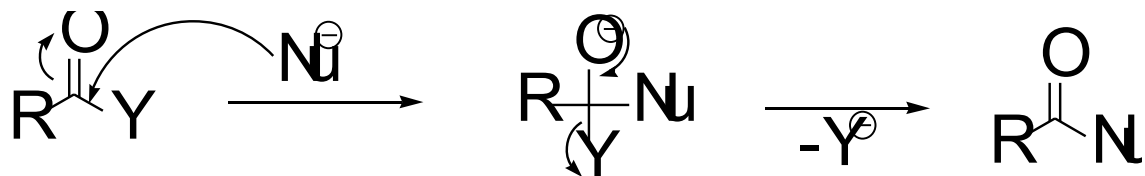
## 4 typy reakcí karbonylové skupiny:

### 1) Nukleofilní adice

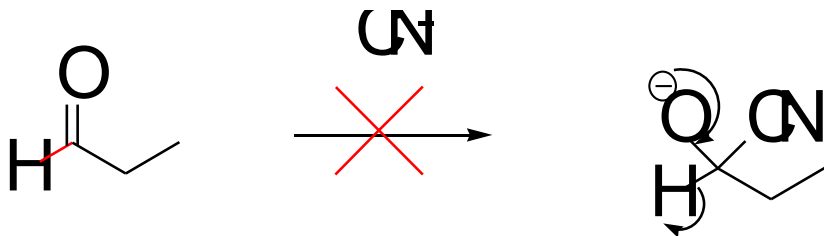


## 4 typy reakcí karbonylové skupiny:

### 2) Nukleofilní acylová substituce

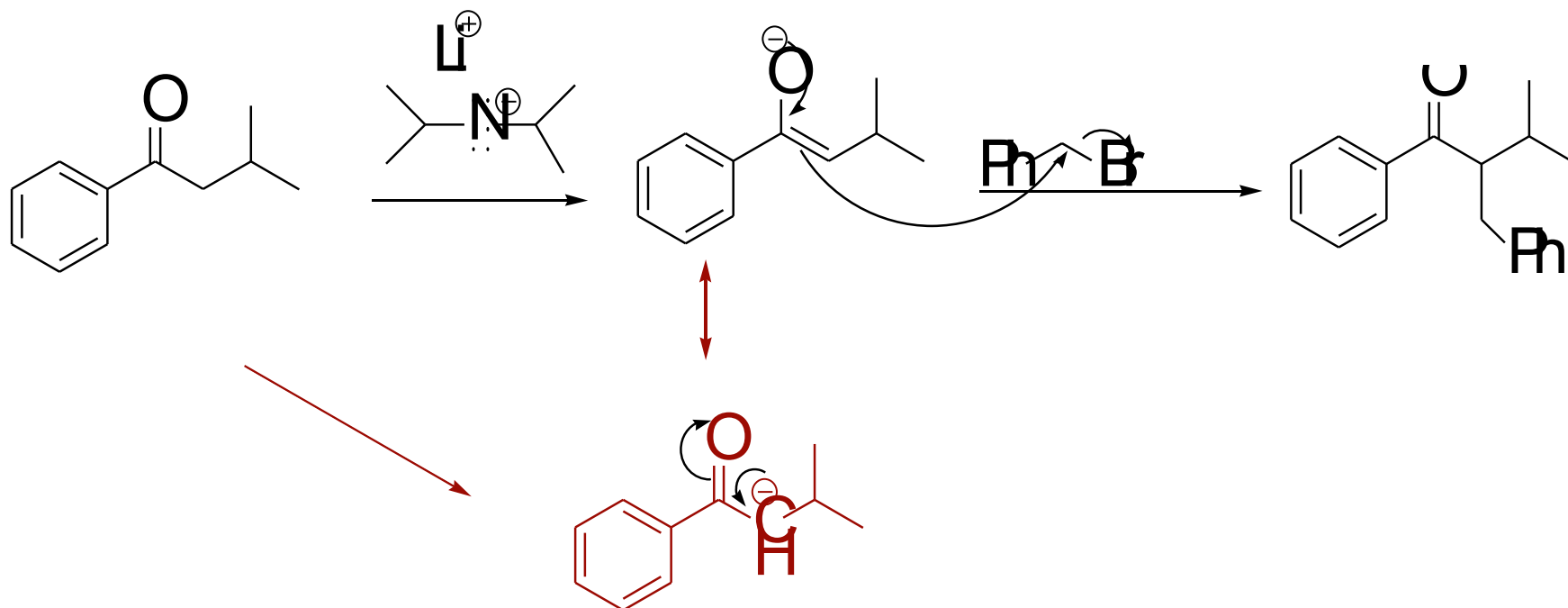


**ne u aldehydů a ketonů vysvětlete !!!**



## 4 typy reakcí karbonylové skupiny:

### 3) Substituce na alfa-uhlíku



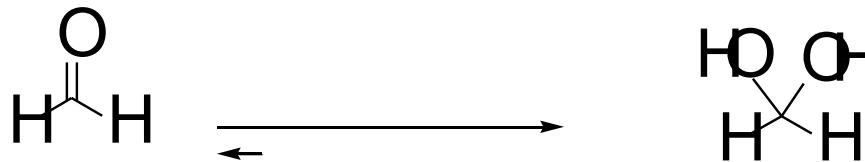
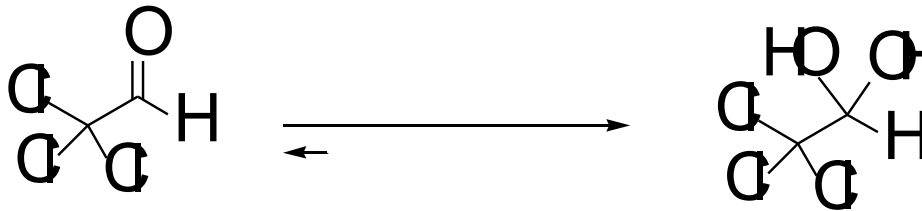
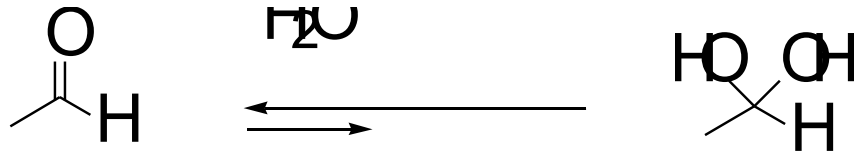
## 4 typy reakcí karbonylové skupiny:

4) Reakce typu aldolizace – reagují dvě molekuly karbonylové sloučeniny



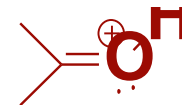


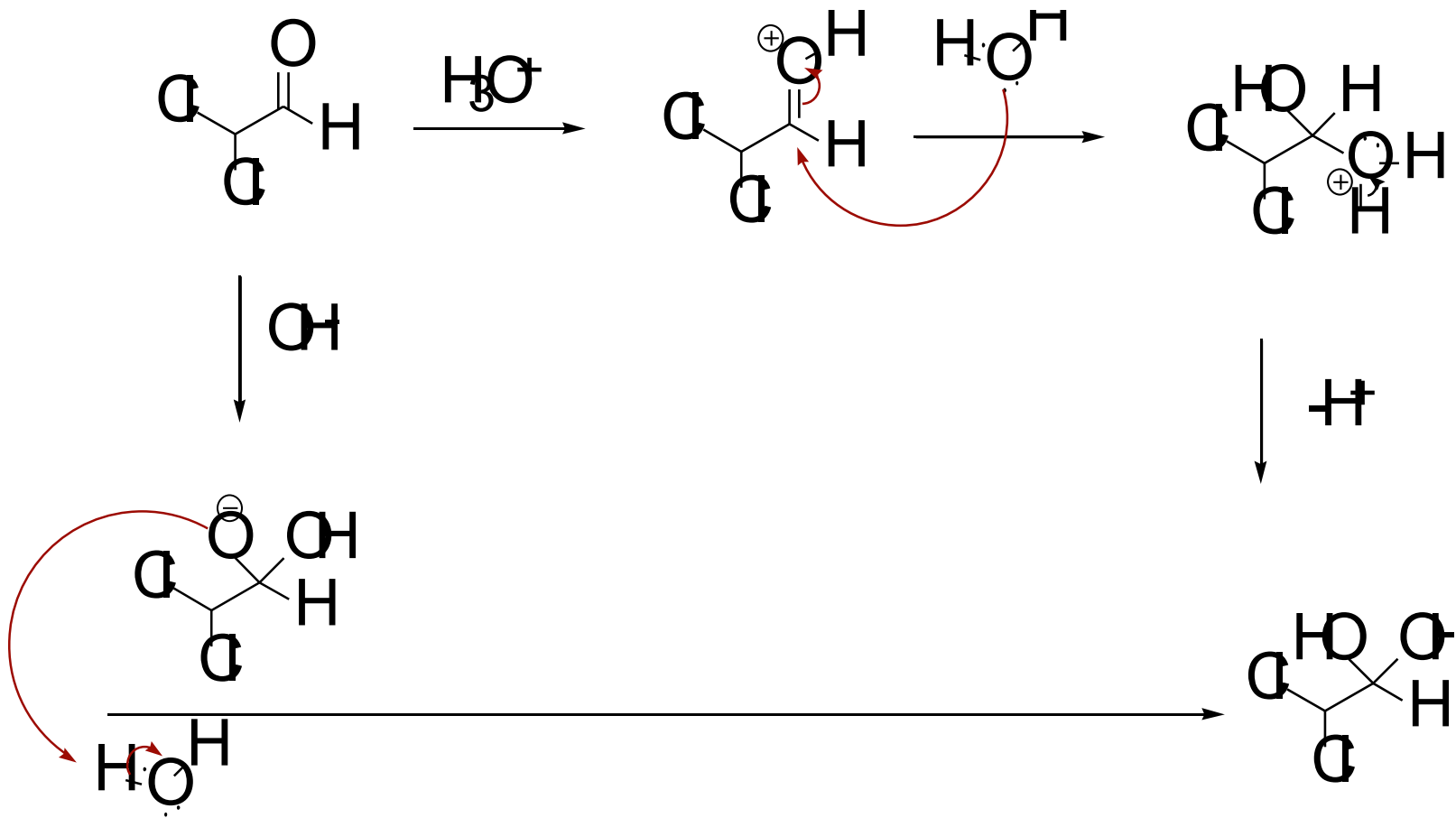
# Tvorba hydrátů



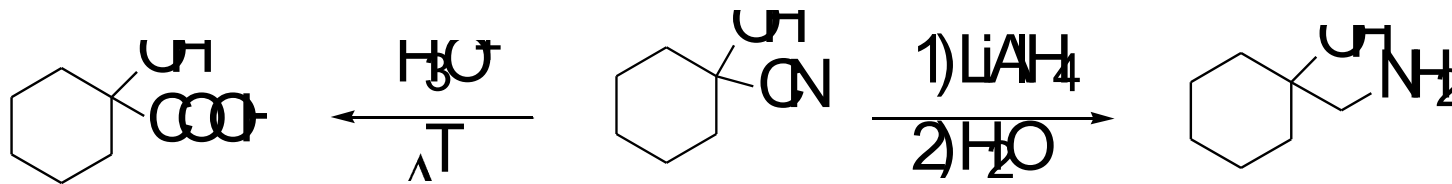
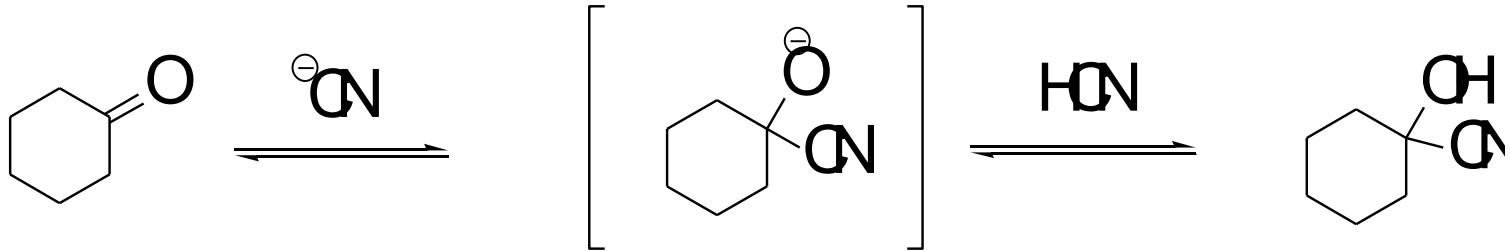
více než 99,9 %

hydratace může být kysele i bazicky katalyzovaná

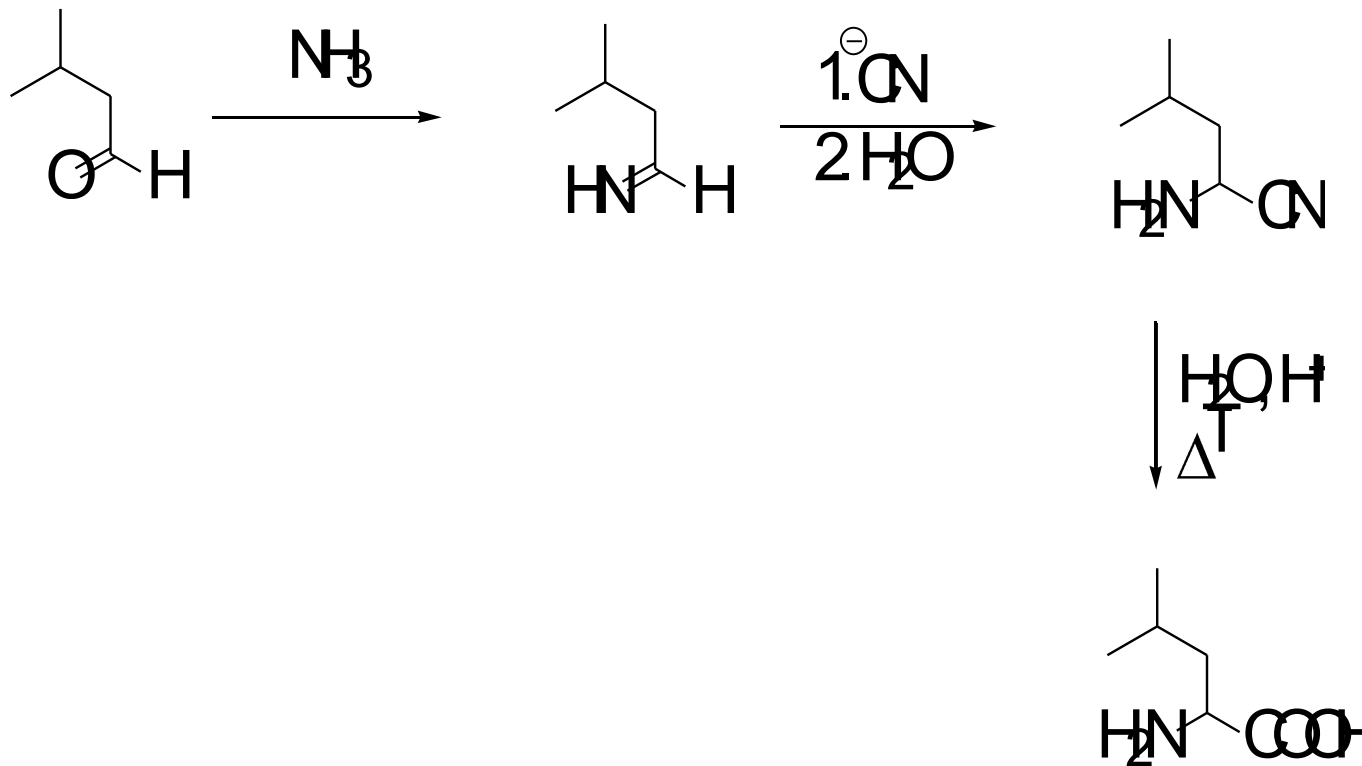




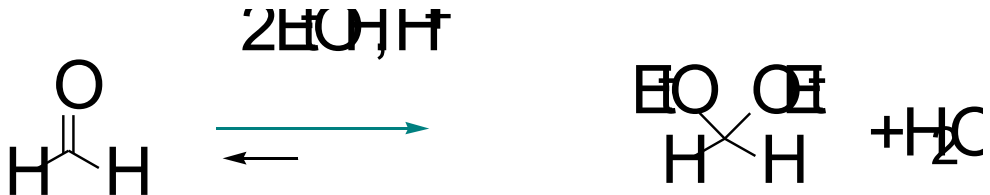
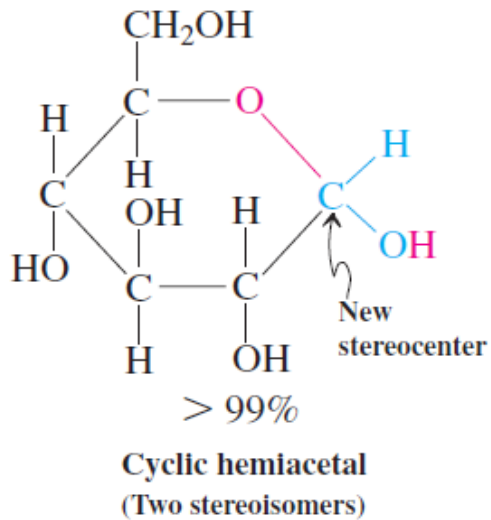
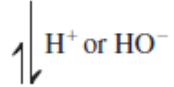
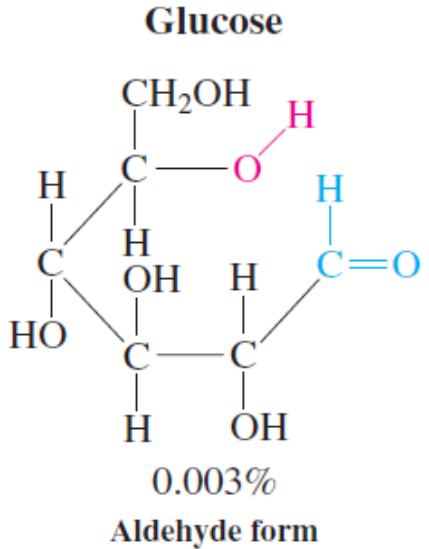
## Tvorba kyanhydrinů

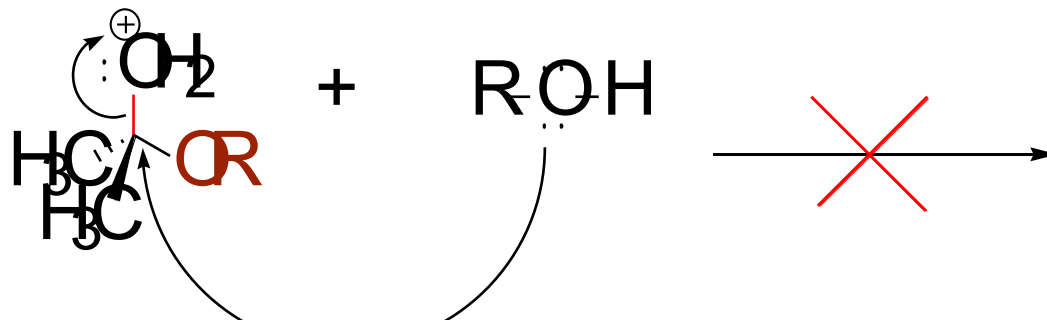


## Laboratorní syntéza aminokyselin

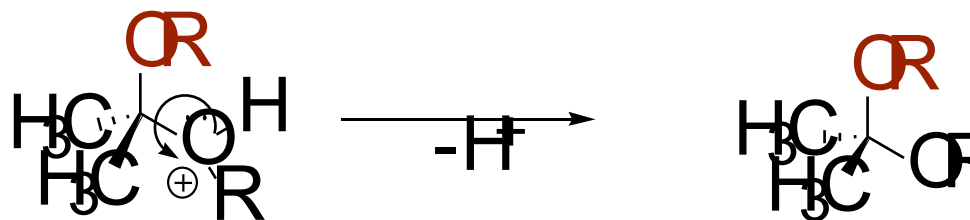
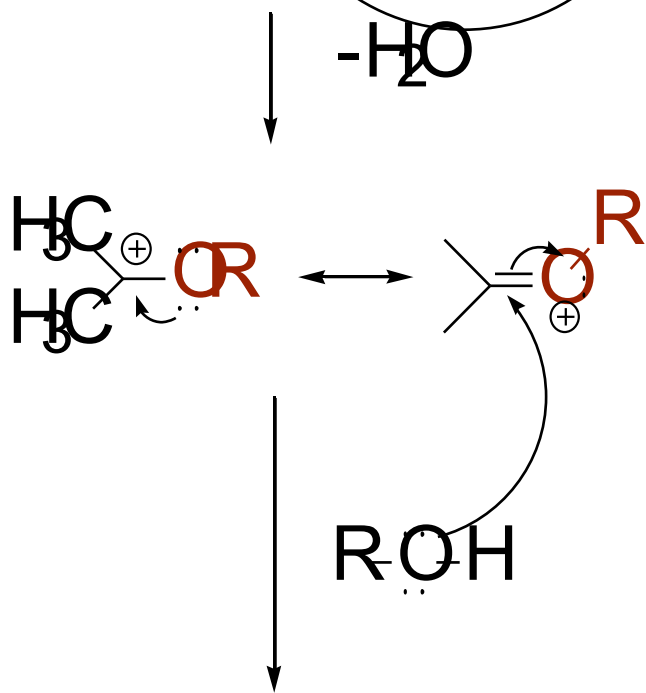


# Tvorba hemiacetalů a acetalů

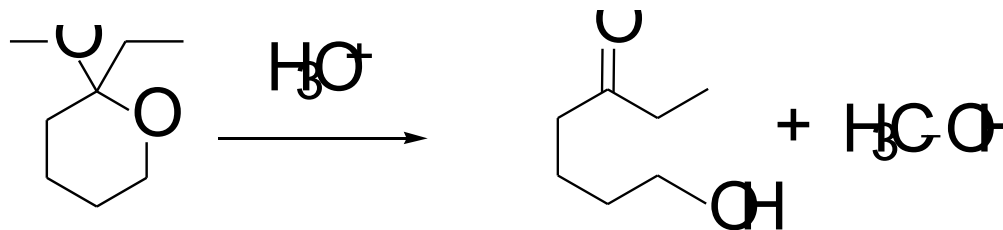
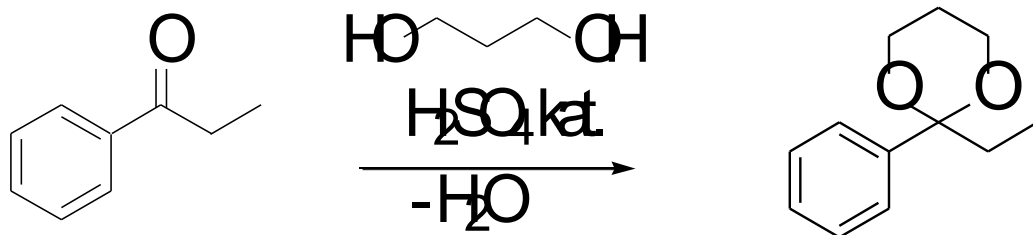
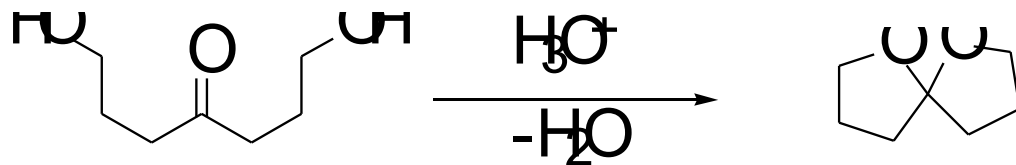




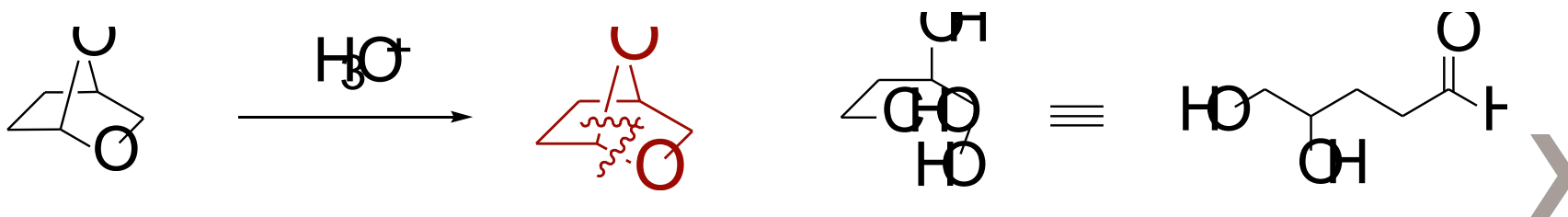
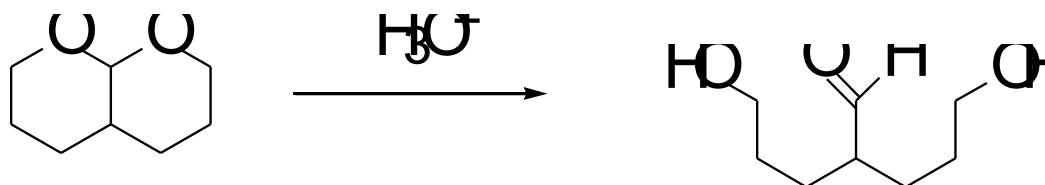
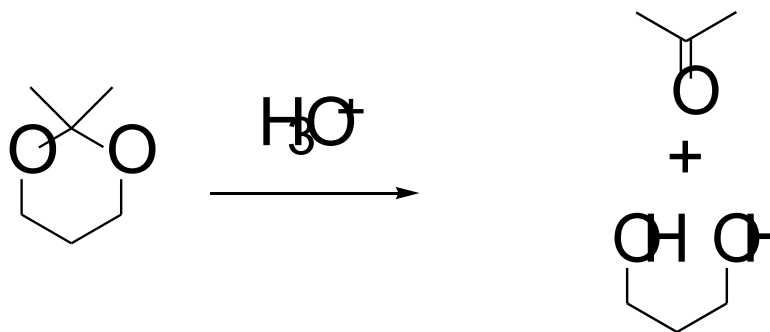
**POZOR**  
při psaní mechanismu



## Doplňte produkty reakcí

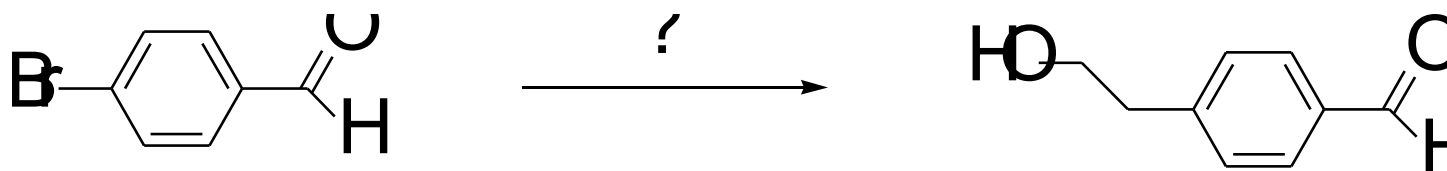


# Doplňte produkty reakcí

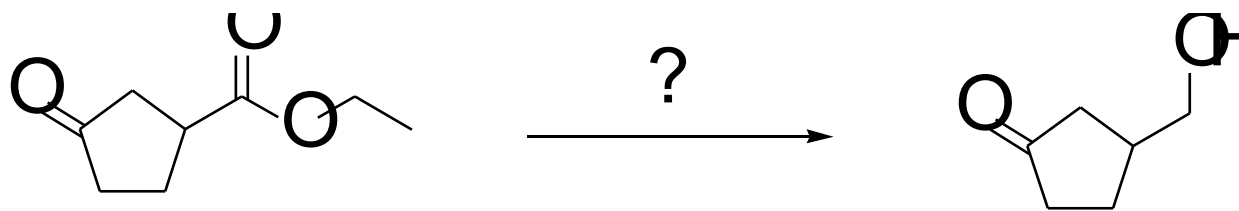




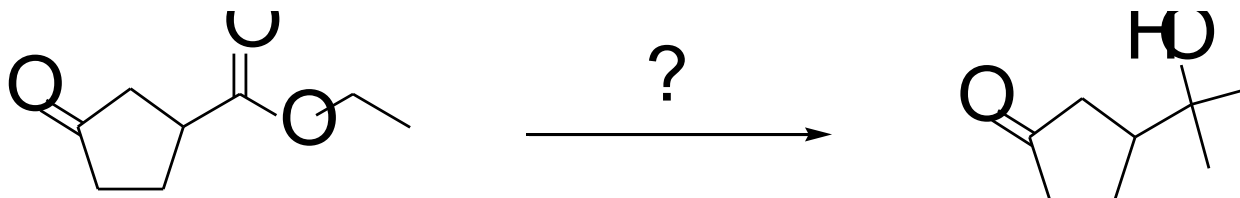
## Acetal jako chránící skupina



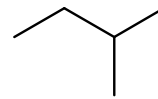
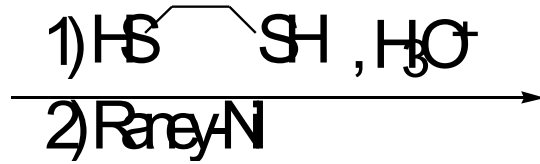
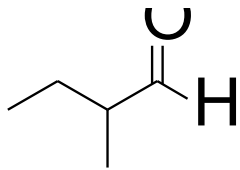
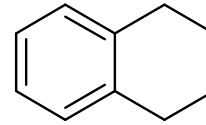
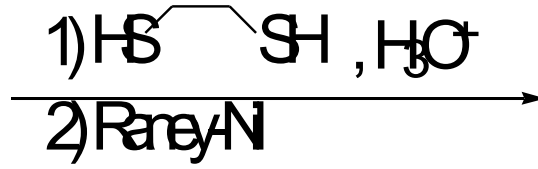
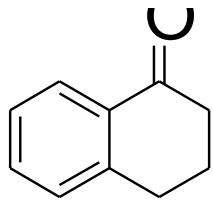
## Acetal jako chránicí skupina



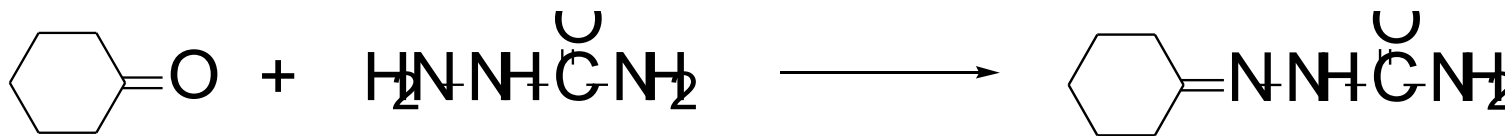
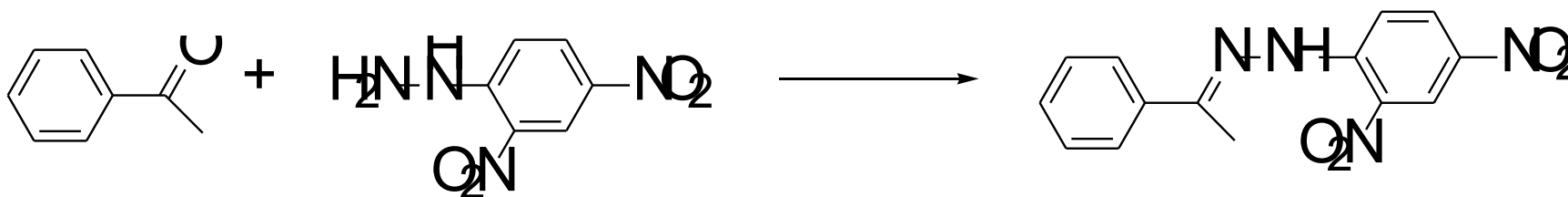
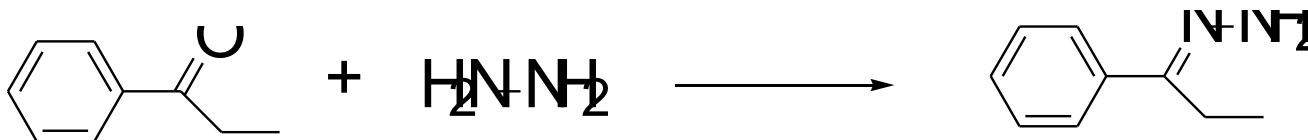
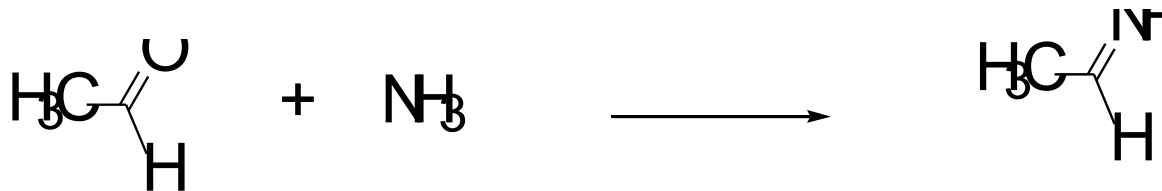
## Acetal jako chránící skupina



## Thioacetal

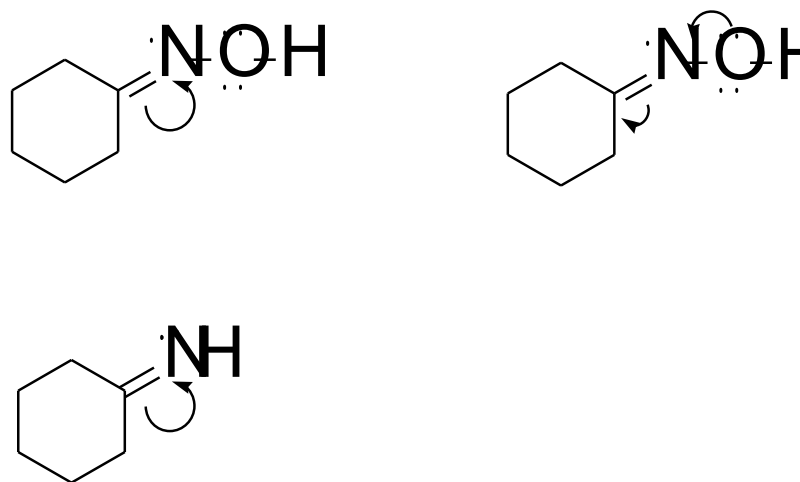


## Reakce s deriváty amoniaku



## Reakce s deriváty amoniaku

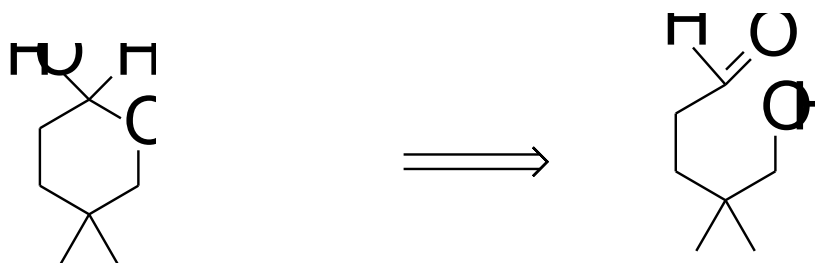
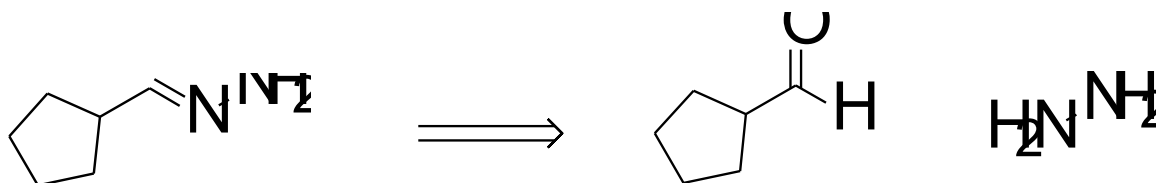
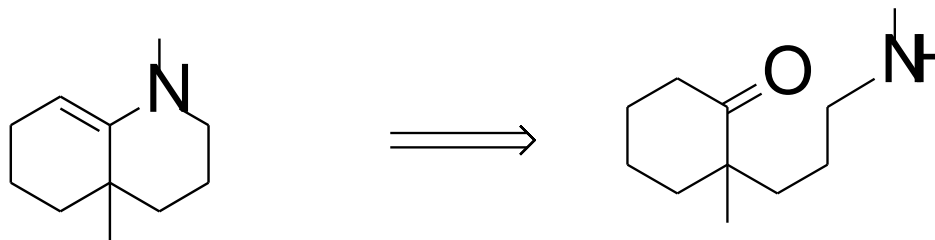
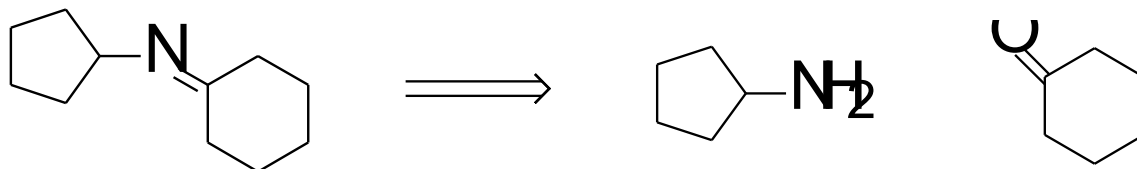
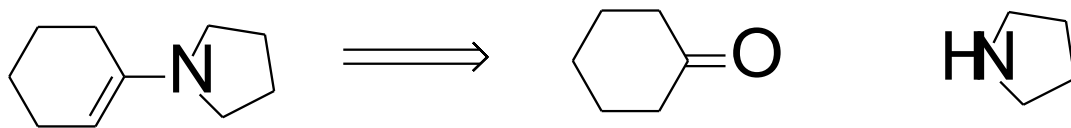
U oximů, hydrazonů neběží zpětná hydrolýza tak snadno jako u iminů, zdůvodněte



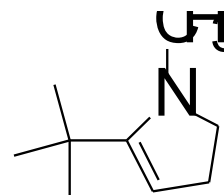
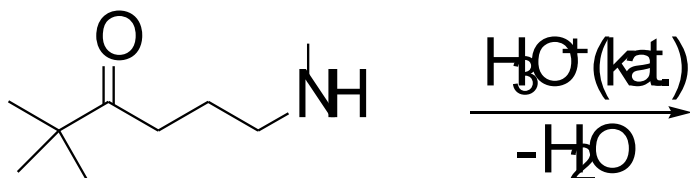
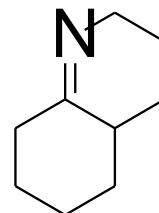
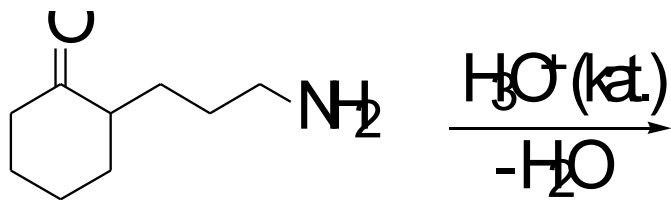
$\delta^+$  na uhlíku oximu je menší než u iminu



# Identifikujte reagenty, které poskytly následující sloučeniny

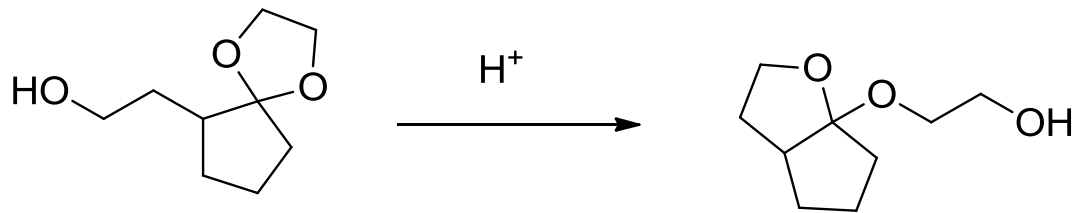


Napište podrobný mechanismus uvedených reakcí

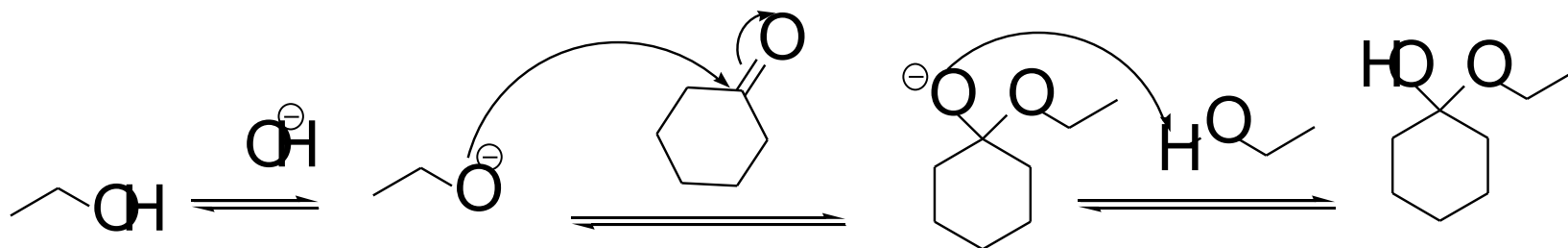




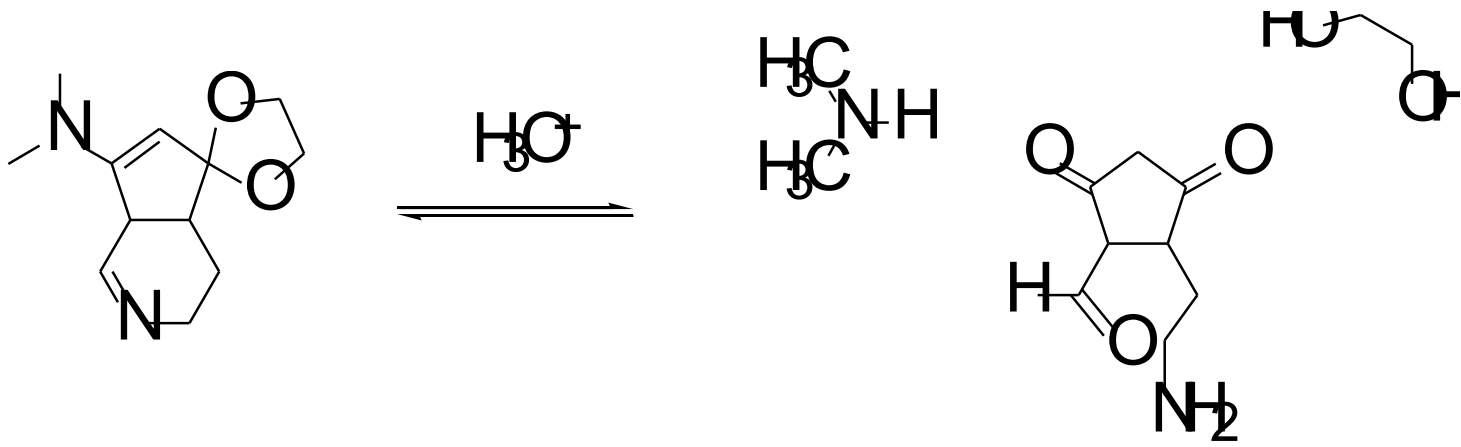
**Napište produkt a mechanismus uvedené kyselí katalyzované přeměny**



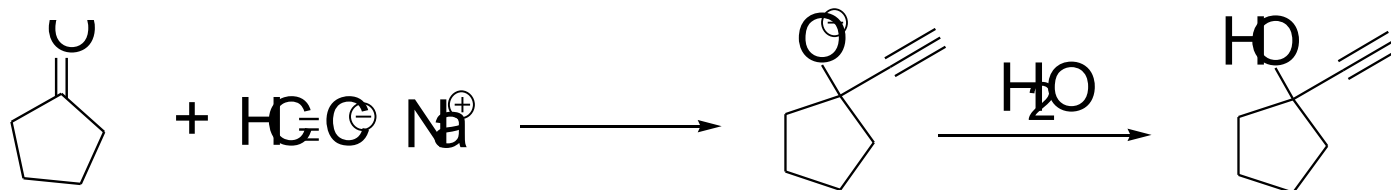
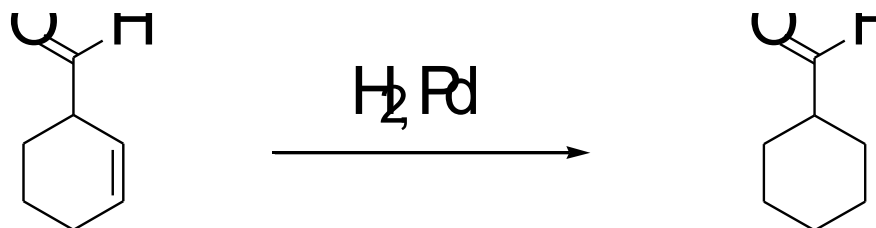
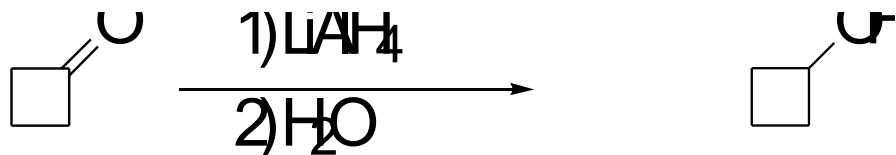
Zdůvodněte, proč vznik hemiacetalu může být katalyzovaný kyselé i bazicky, ale acetalu jenom kyselé, napište oba mechanismy pro reakci cyklohexanonu s EtOH za katalýzy  $\text{EtO}^-$  nebo  $\text{H}_3\text{O}^+$



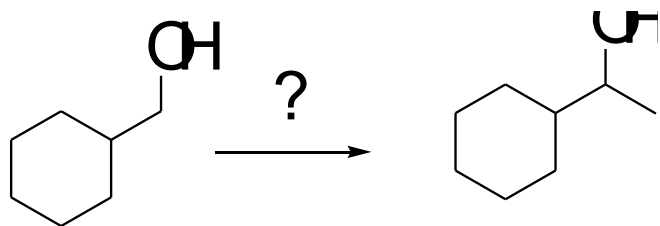
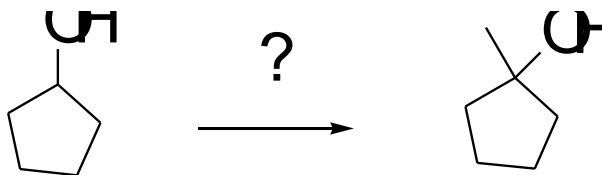
Doplňte produkt kyselé hydrolýzy uvedené sloučeniny



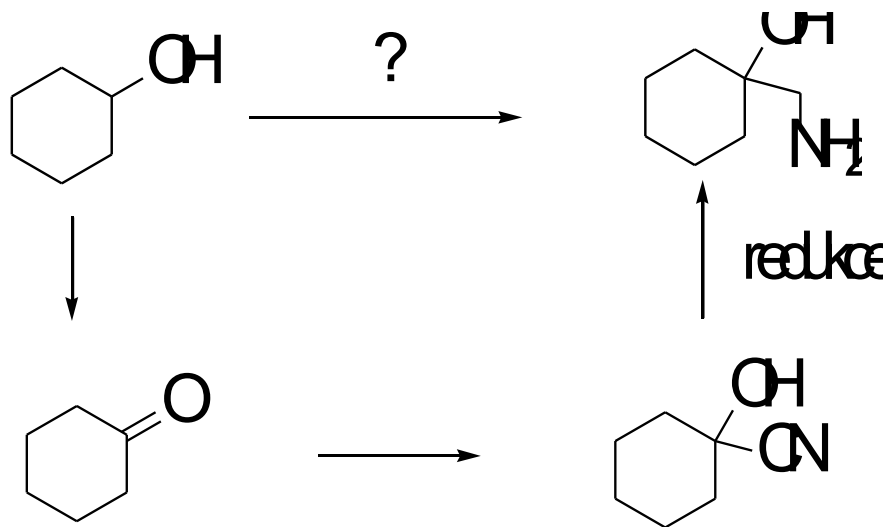
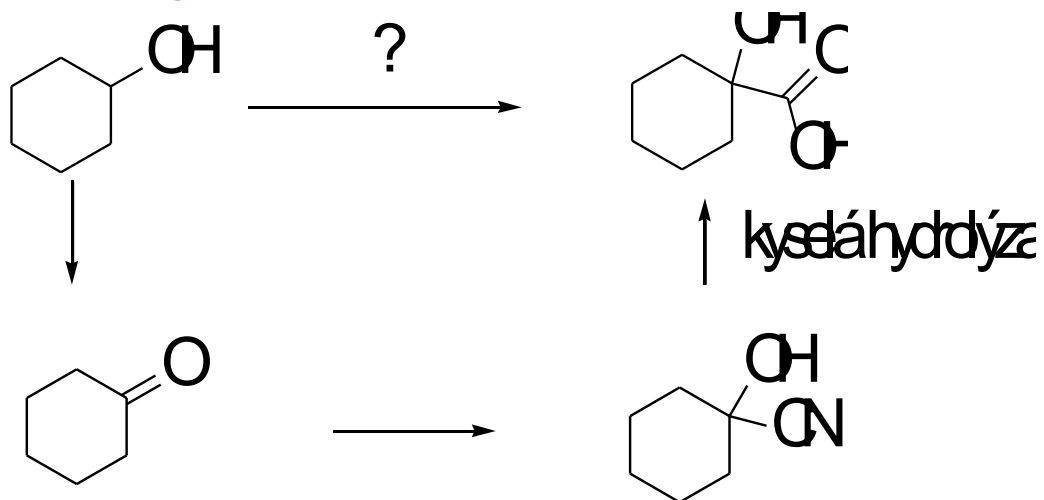
## Doplňte produkty reakcí



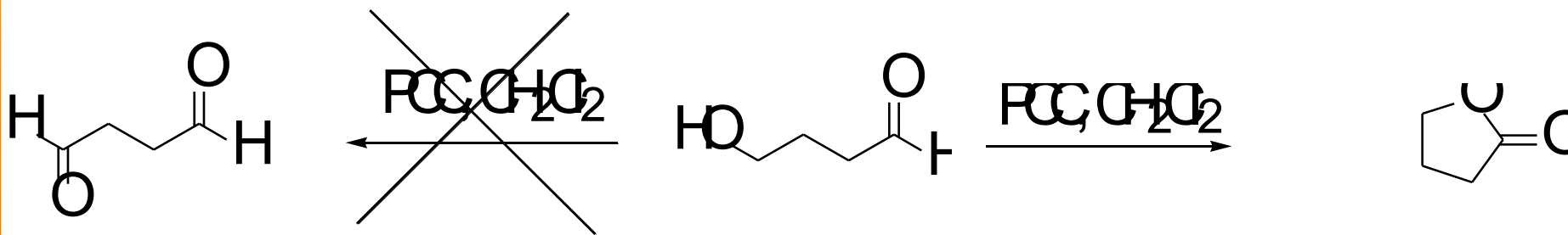
Identifikujte reagenty, kterými byste uskutečnili následující přeměny



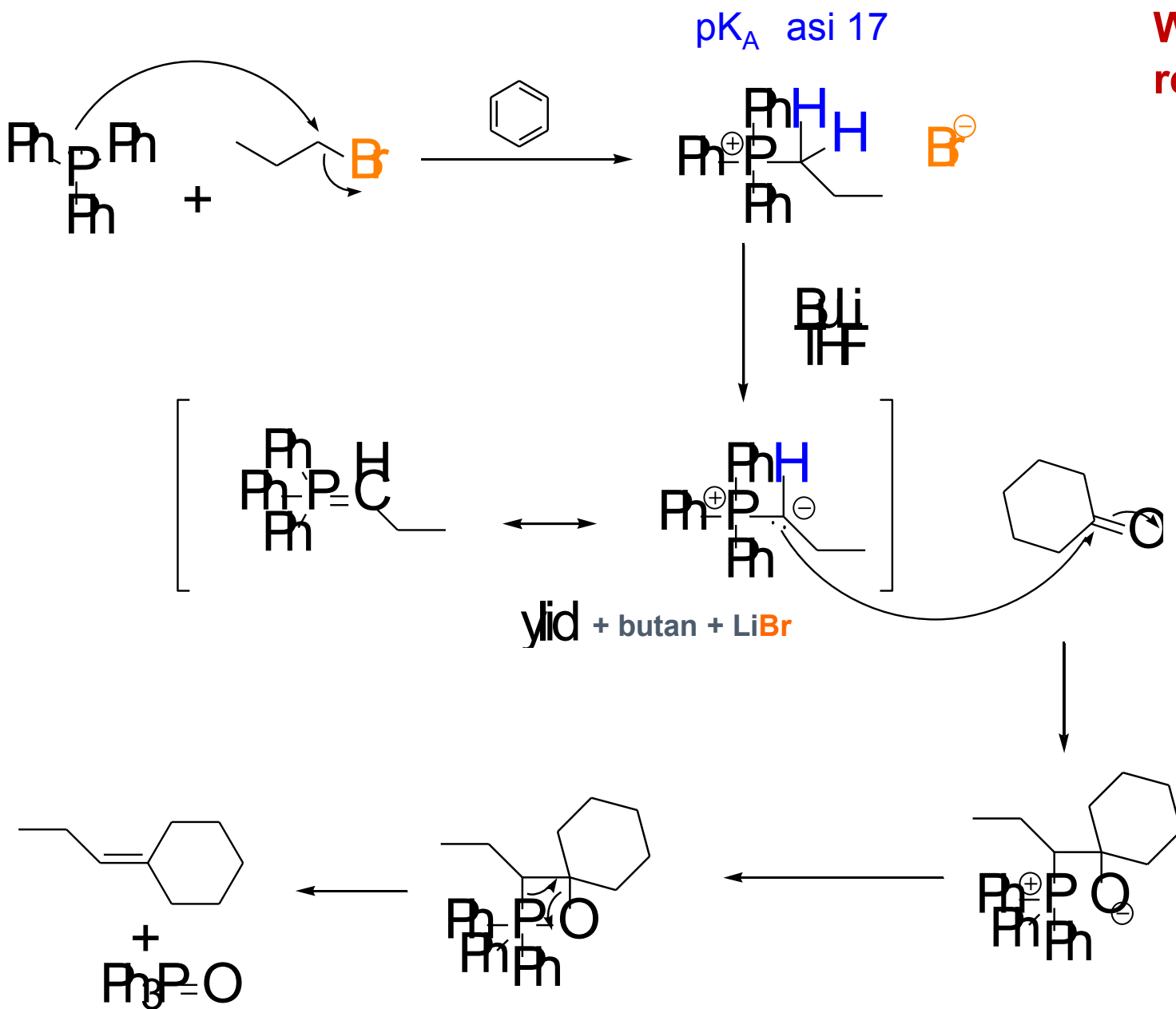
# Identifikujte reagenty, kterými byste uskutečnili následující přeměny



Vysvětlete, proč nedochází k oxidaci alkoholu na aldehyd



# Wittigova reakce



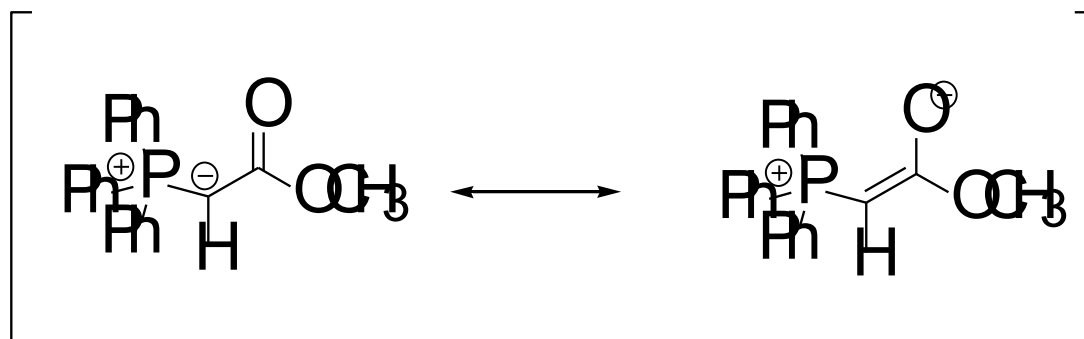


# Wittigova reakce

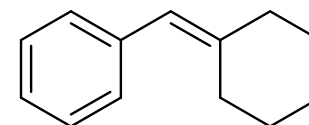
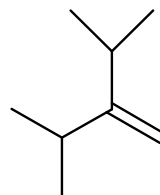
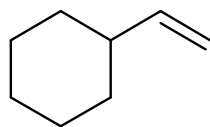
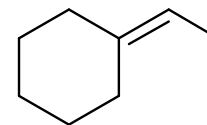
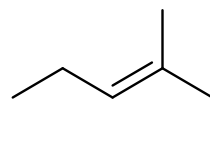
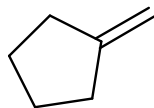
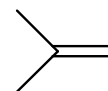
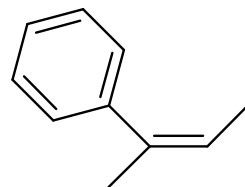
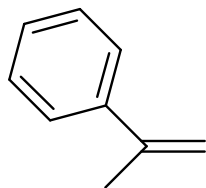
nestabilizovaný ylid      *Z* – izomer produktu

stabilizovaný ylid      *E*- izomer produktu

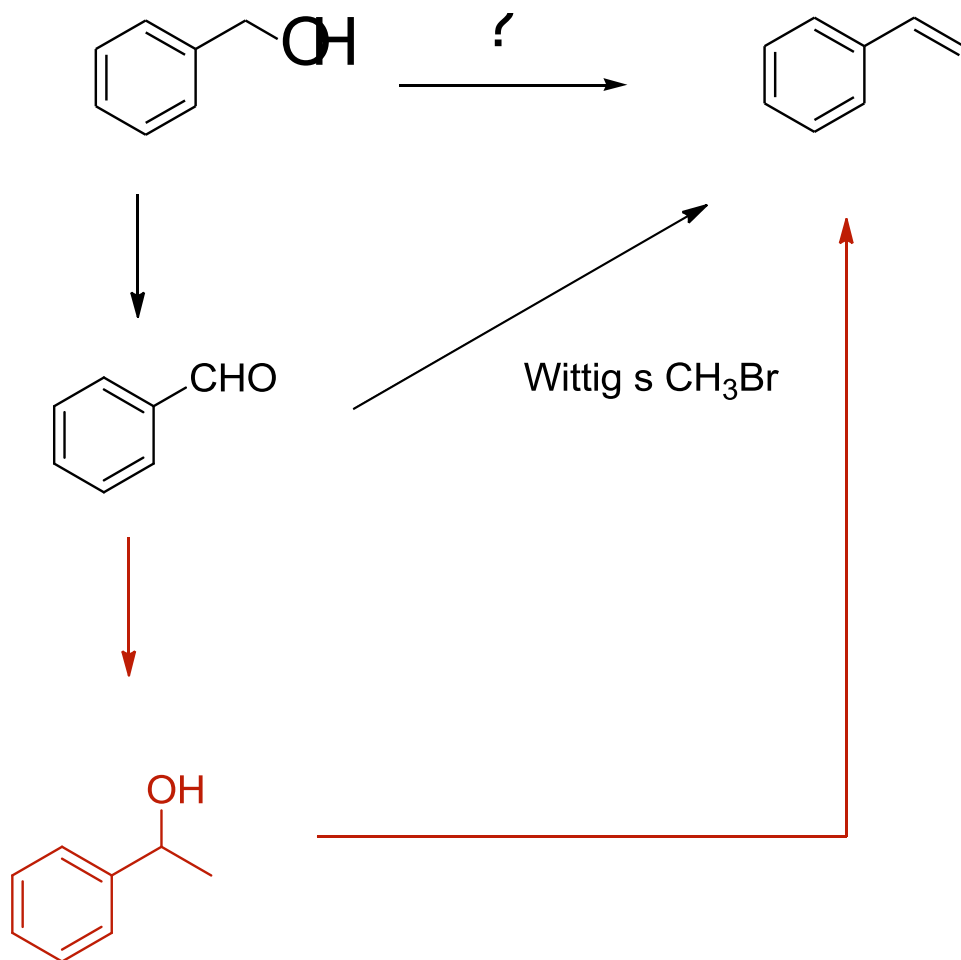
Extra - stabilizace činí vznik cyklu  
reverzibilní a reakce je řízena  
termodynamicky, dekompozice  
cyklu je stereospecifická



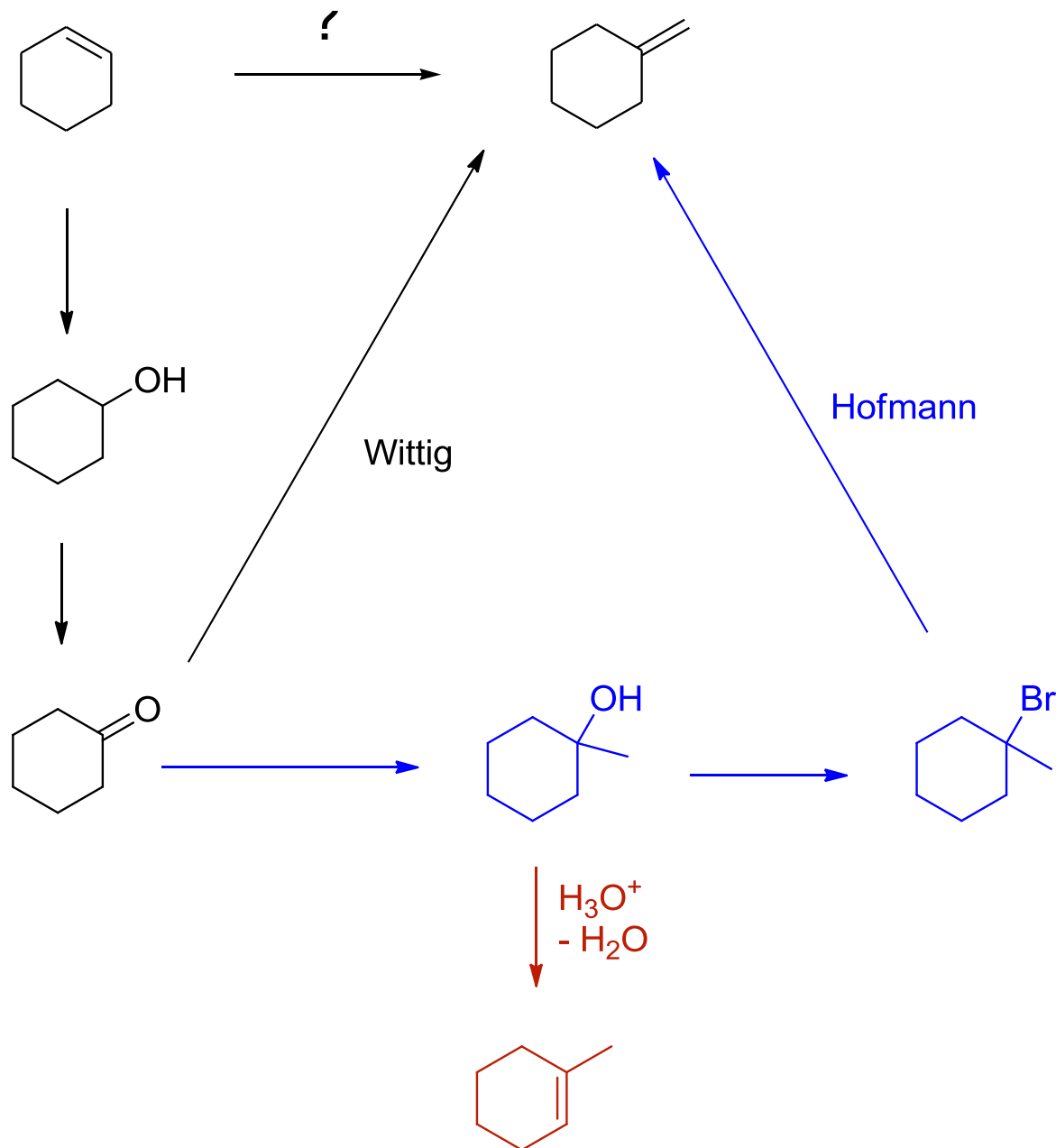
# Wittigova reakce



Identifikujte reagenty, kterými byste uskutečnili následující přeměny



# Identifikujte reagenty, kterými byste uskutečnili následující přeměny



## Navrhněte mechanismus následující přeměny



## Navrhněte mechanismus následující přeměny

