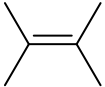
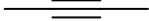

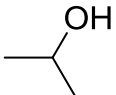
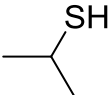
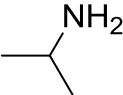



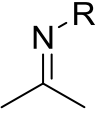
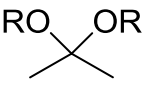

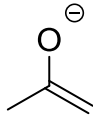

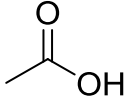
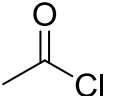
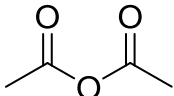
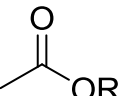
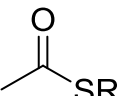
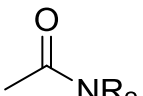
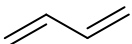
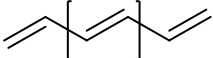
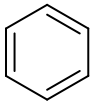
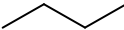


Organická Chemie II

1. Aplikace konceptů **reaktivity** z Organické chemie I
2. Přehled reaktivity základních **funkčních skupin**
3. Úvod do plánování syntetické strategie – **organická syntéza**



1.  CC(=C)C
alken
1.  C#C
alkyn
2.  CC(Br)C
alkyl halogenid
2.  CC(O)C
alkohol
2.  CC(S)C
thiol
2.  CC(N)C
amin
2.  C1CO1
epoxid
3.  CC=O
aldehyd
3.  CC(=O)C
keton
3.  CC(=N)R
imin
3.  CC(OR)2
acetal
4.  CC(O)=C
enol
4.  CC([O-])=C
enolát
4.  CC(NR2)=C
enamin
5.  CC(=O)O
karboxylová kyselina
5.  CC(=O)Cl
acyl chlorid
5.  CC(=O)OC(=O)C
anhydrid
5.  CC(=O)OR
ester
5.  CC(=O)SR
thioester
5.  CC(=O)NR2
amid
6.  C=CC=C
dien
6.  C=CC=CC=C
polyen
7.  c1ccccc1
aren
8.  CCCC
alkan

Reaktivitu organických molekul lze často odhadnout na základě přítomných funkčních skupin.



Organická chemie II - Sylabus

L	Datum	Téma	Literatura [M = McMurry]
1	21.9.	Alkeny a alkyny	M: 169-274
2	23.9.	Alkeny a alkyny	
3	30.9.	Alkeny a alkyny	
4	5.10.	Alkoholy, thioly, aminy	M: 317-392; 587-671; 892-909
5	7.10.	Alkoholy, thioly, aminy	
6	12.10.	Alkoholy, thioly, aminy	
	14.10.	Průběžný test 1	
7	14.10.	Aldehydy a Ketony	M: 672-736
8	19.10.	Aldehydy a Ketony	
9	21.10.	Aldehydy a Ketony	
10	26.10.	Enoly a Enoláty	M: 820-891
11	2.11.	Enoly a Enoláty	
12	4.11.	Enoly a Enoláty	
13	9.11.	Deriváty karboxylových kyselin	M: 737-819



14	11.11.	Deriváty karboxylových kyselin	
15	16.11.	Deriváty karboxylových kyselin	
	18.11.	Průběžný test 2	
16	18.11.	Dieny a polyeny	<i>M</i> : 464-497; 1134-1158
17	23.11.	Dieny a polyeny	
18	25.11.	Dieny a polyeny	
19	30.11.	Aromatické sloučeniny	<i>M</i> : 498-586; 915-922
20	2.12.	Aromatické sloučeniny	
21	7.12	Aromatické sloučeniny	
22	9.12.	Aromatické sloučeniny / Alkany	
23	14.12.	Organokovové sloučeniny	
	16.12.	Průběžný test 3	
25	16.12	Organokovové sloučeniny	



Zápočet

- docházka na seminář
- ≥ 50 bodů ze 3 průběžných testů (45 min.; celkem 100 bodů)
- 2 opravné zápočtové testy (4.1. a 11.1.)

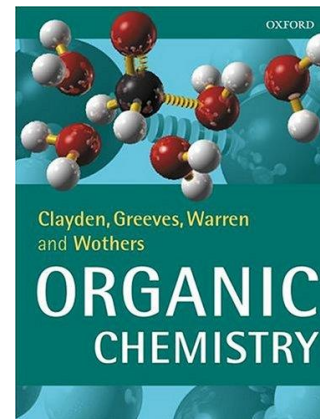
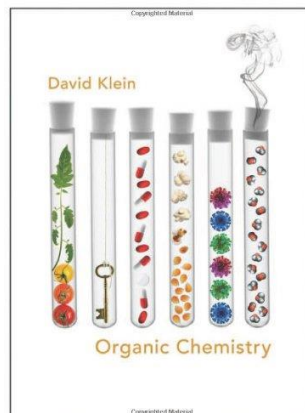
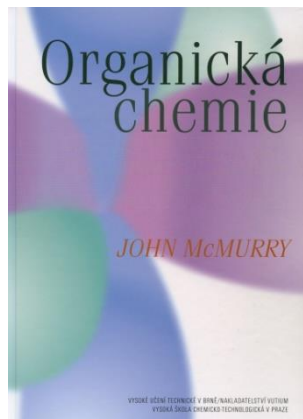
Zkouška

- ≥ 50 bodů ze 3 průběžných testů
- 4 písemné zkouškové testy (120 min; 100 bodů)
 - 5.1. (řádný)
 - 19.1. (řádný + opravný)
 - 26.1. (řádný + opravný)
 - 1.2. (opravný)

Konzultace

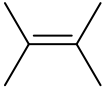
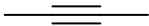

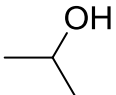

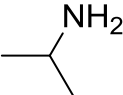



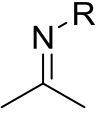
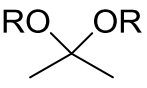

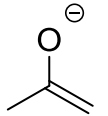

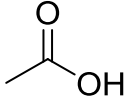
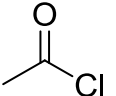
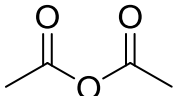
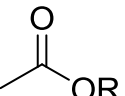
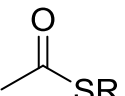
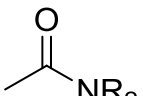
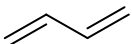
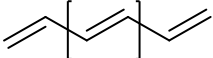
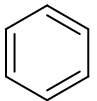
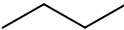
- ihned po přednášce (cca 20 min)
- individuálně s vedoucími seminářů:

Slávka Janků
Jaromír Literák
Ondřej Hylse
Václav Němec



1. Poznámky z přednášek a seminářů jsou základ.
2. Doporučená literatura (McMurry; Klein; Clayden).
3. Řešení problémů (McMurry; Klein; Literák).
4. Diskuse s ostatními studenty.
5. Průběžná příprava.

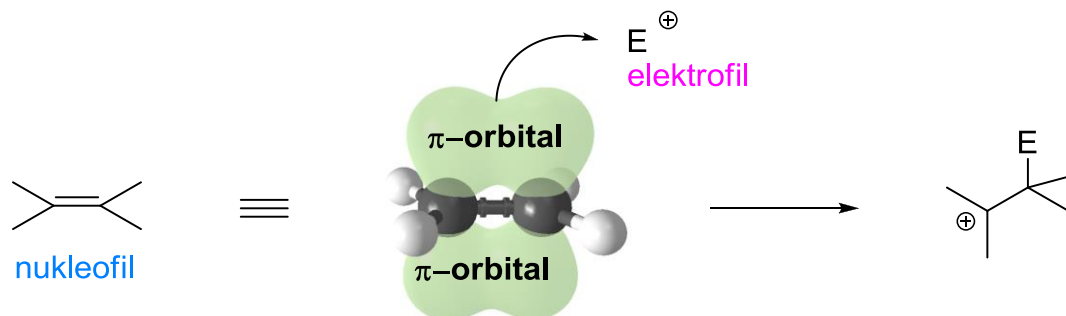


1.  
alken alkyn
2.     
alkyl halogenid alkohol thiol amin epoxid
3.    
aldehyd keton imin acetal
4.   
enol enolát enamín
5.      
karboxylová kyselina acyl chlorid anhydrid ester thioester amid
6.  
dien polyen
7. 
aryl
8. 
alkan

Reaktivitu organických molekul lze často odhadnout na základě přítomných funkčních skupin.

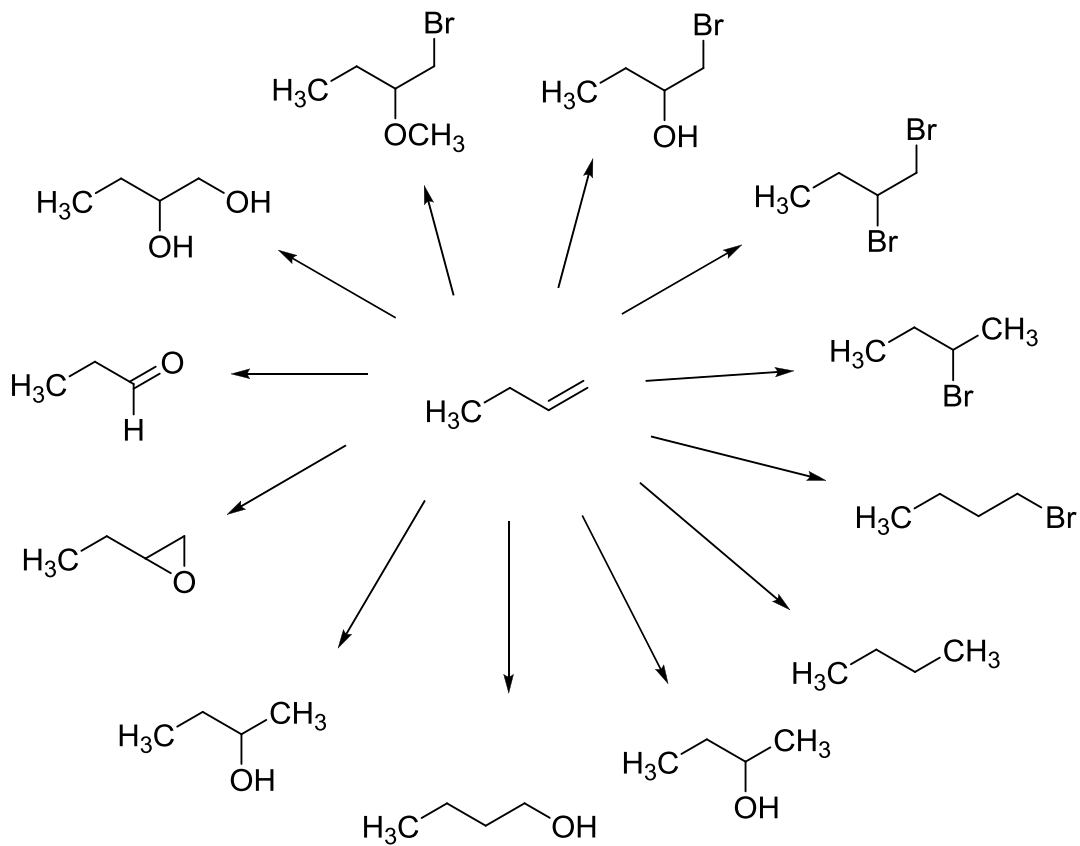
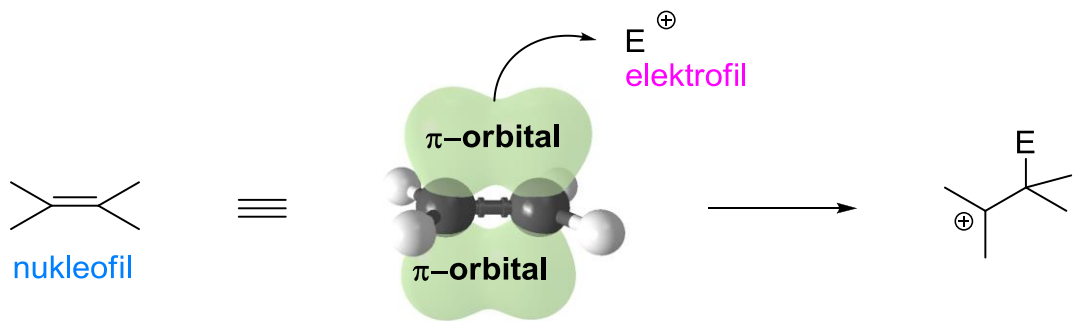


1. Alkeny a alkyny



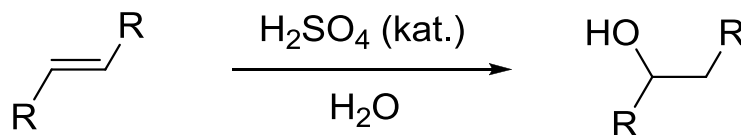


1. Alkeny a alkyny

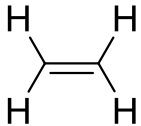
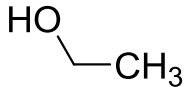
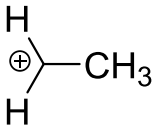
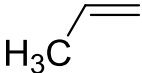
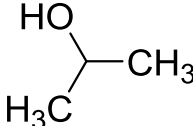
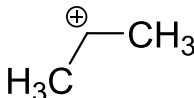
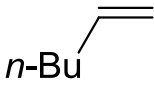
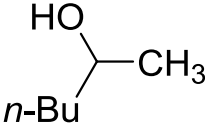
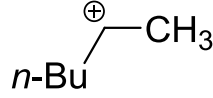
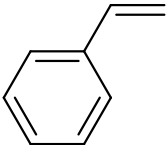
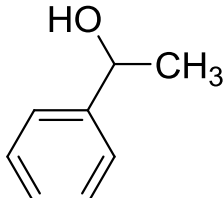
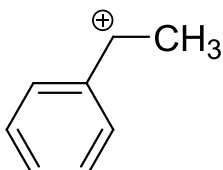
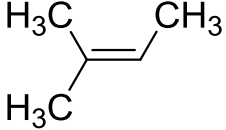
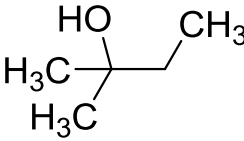
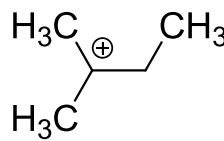
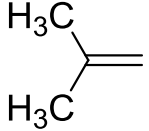
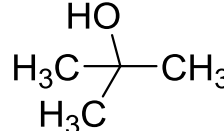
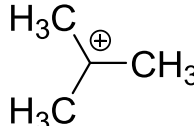


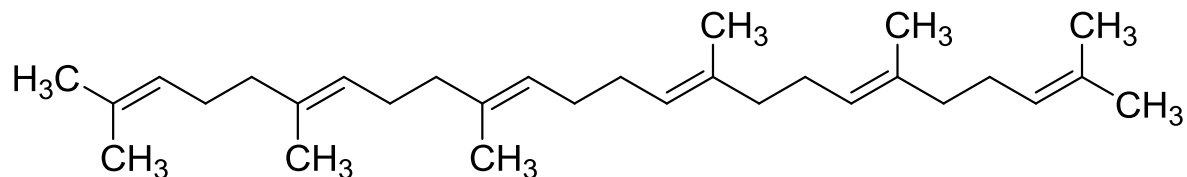


Chwang, W. K. et al.
JACS **1977**, *99*, 7233.

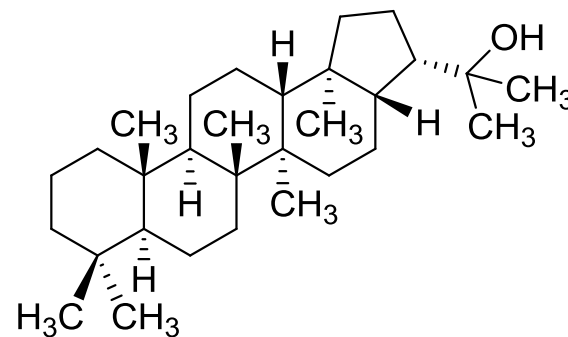
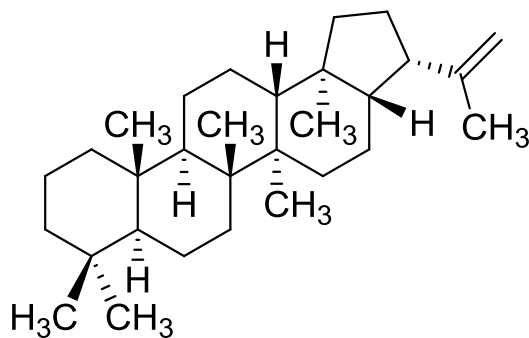


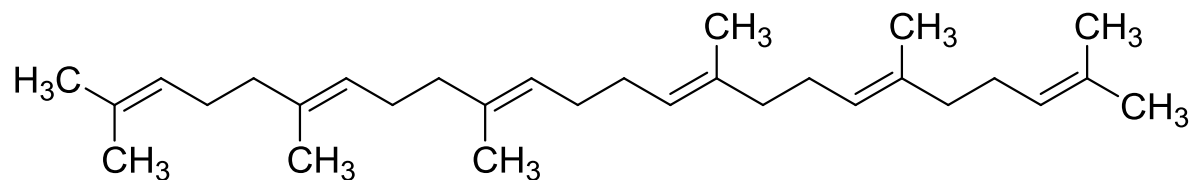
*tvorba karbokationtu
je rychlost určující krok*

	k_{rel} (rychlost)	Produkt	Kation
	1 (reference)		
	1.6×10^7		
	3.0×10^7		
	1.6×10^9		
	1.5×10^{12}		
	2.5×10^{12}		

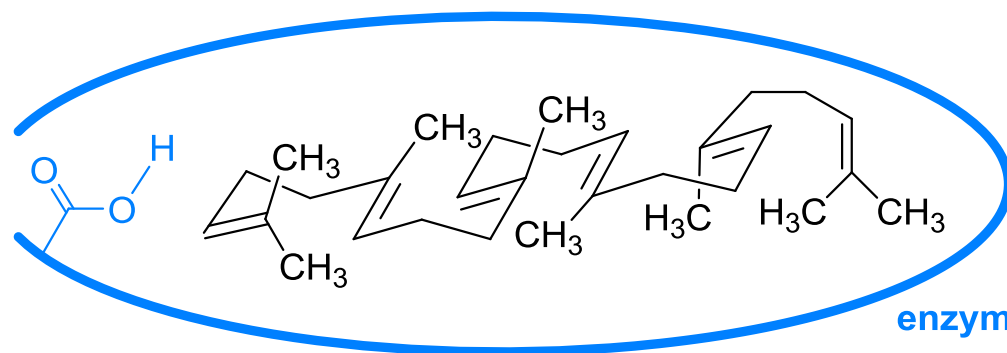


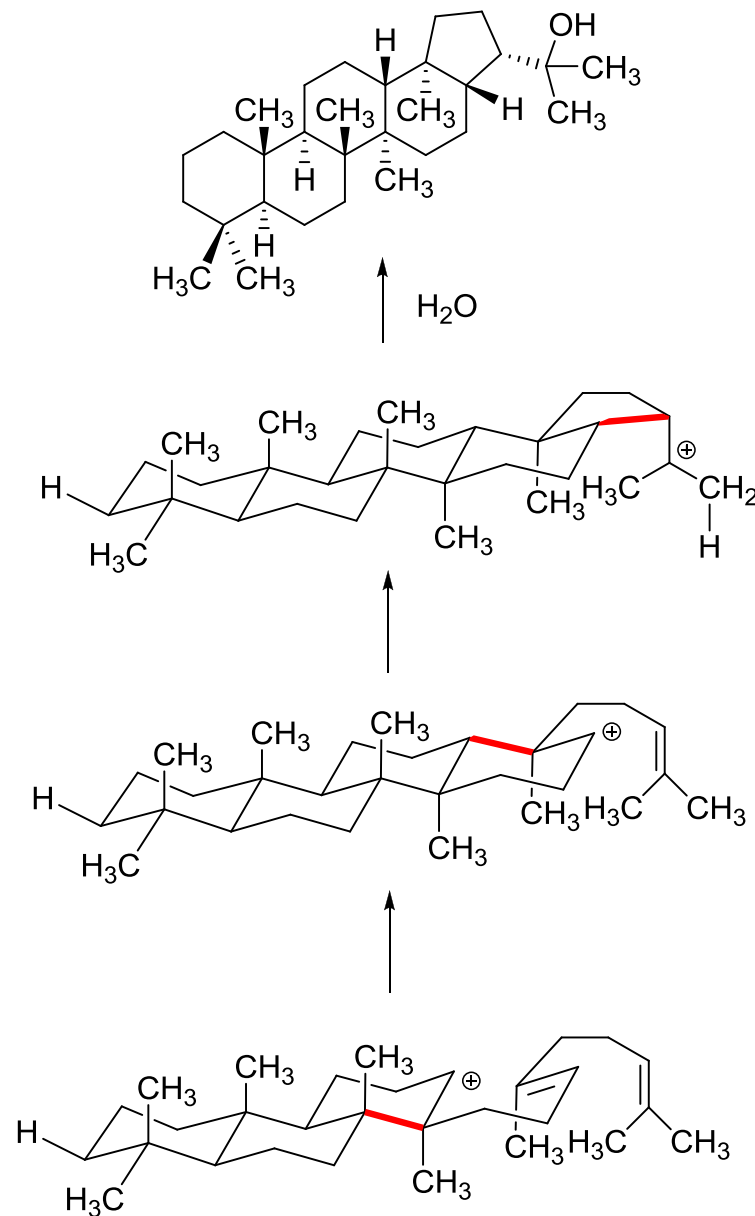
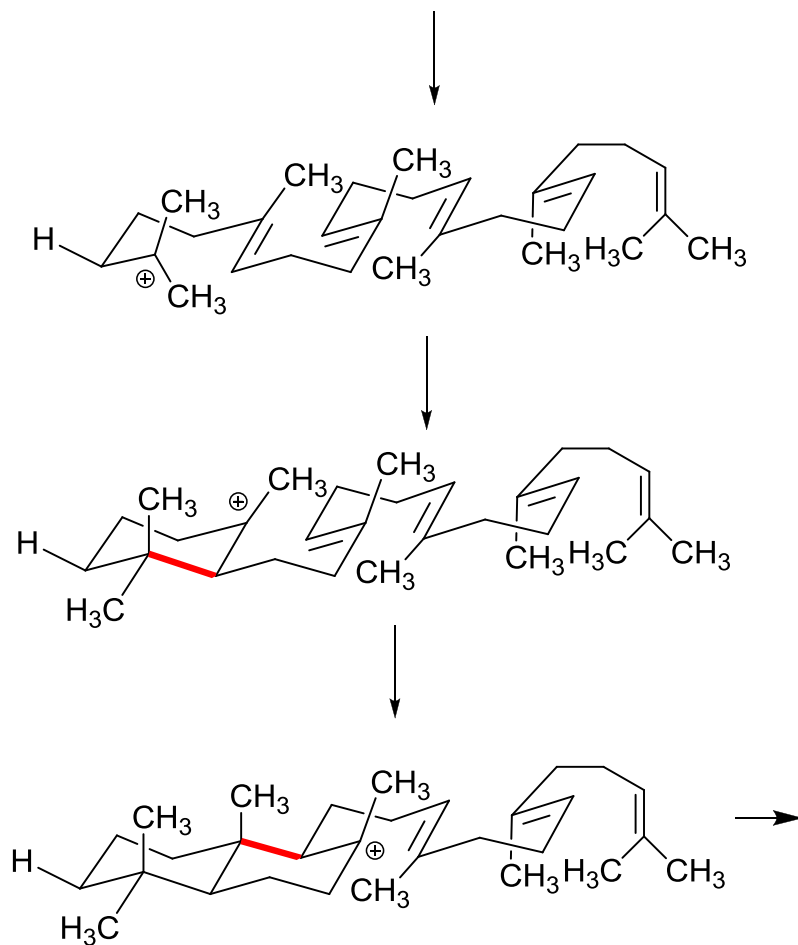
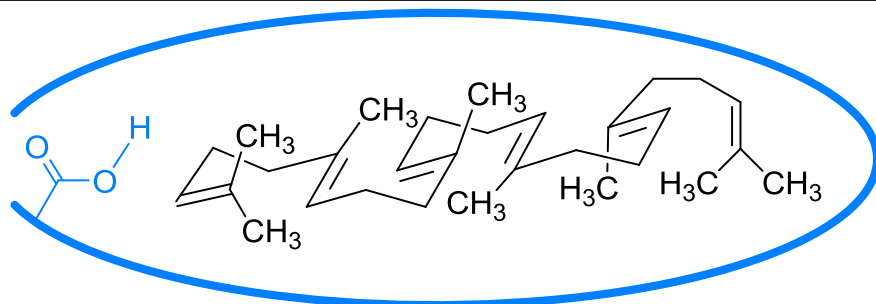
enzym, H⁺, H₂O

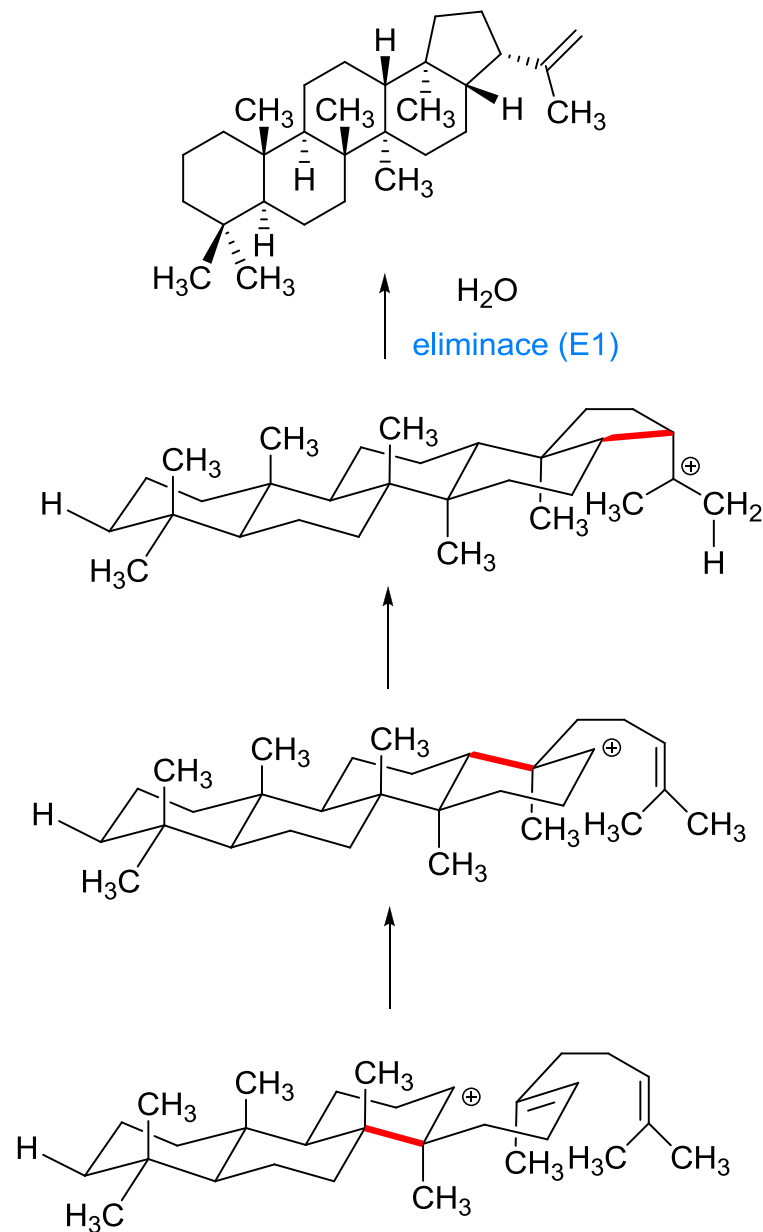
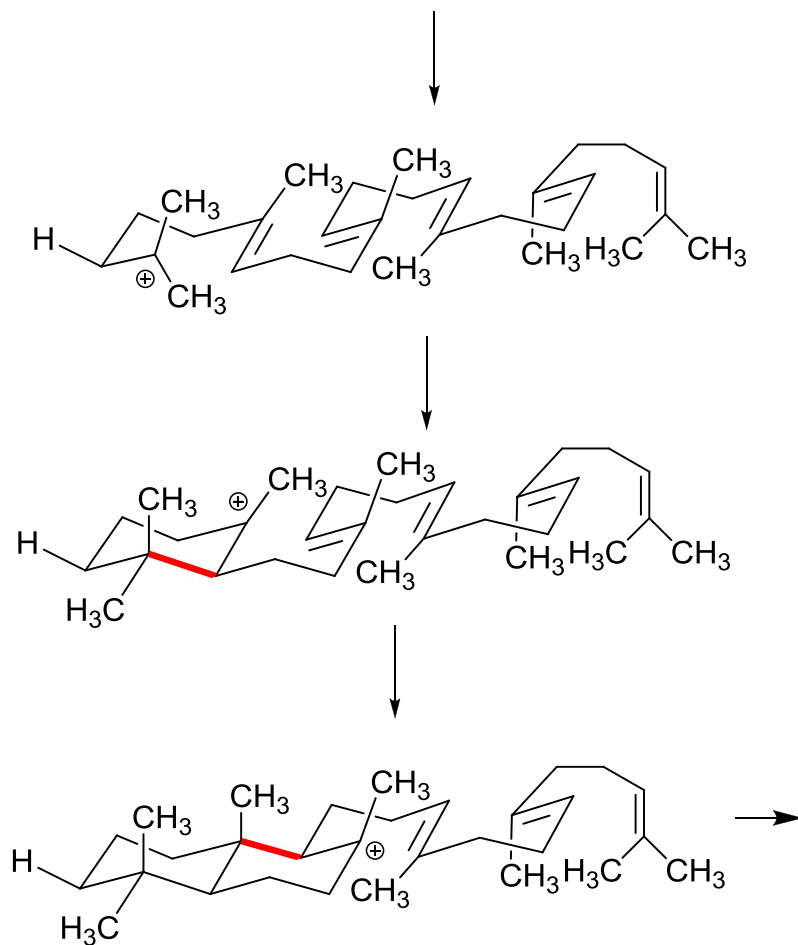
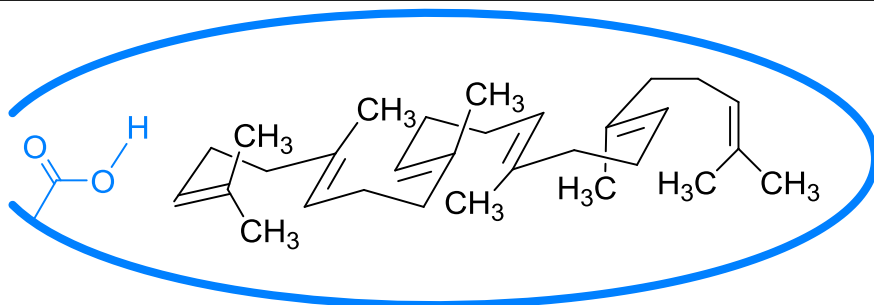


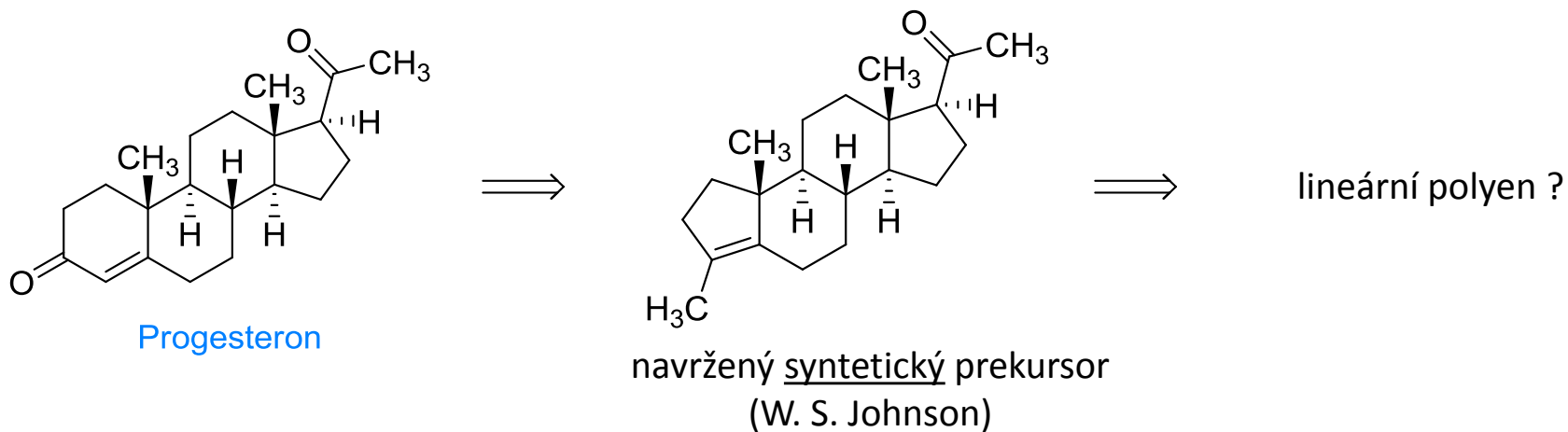


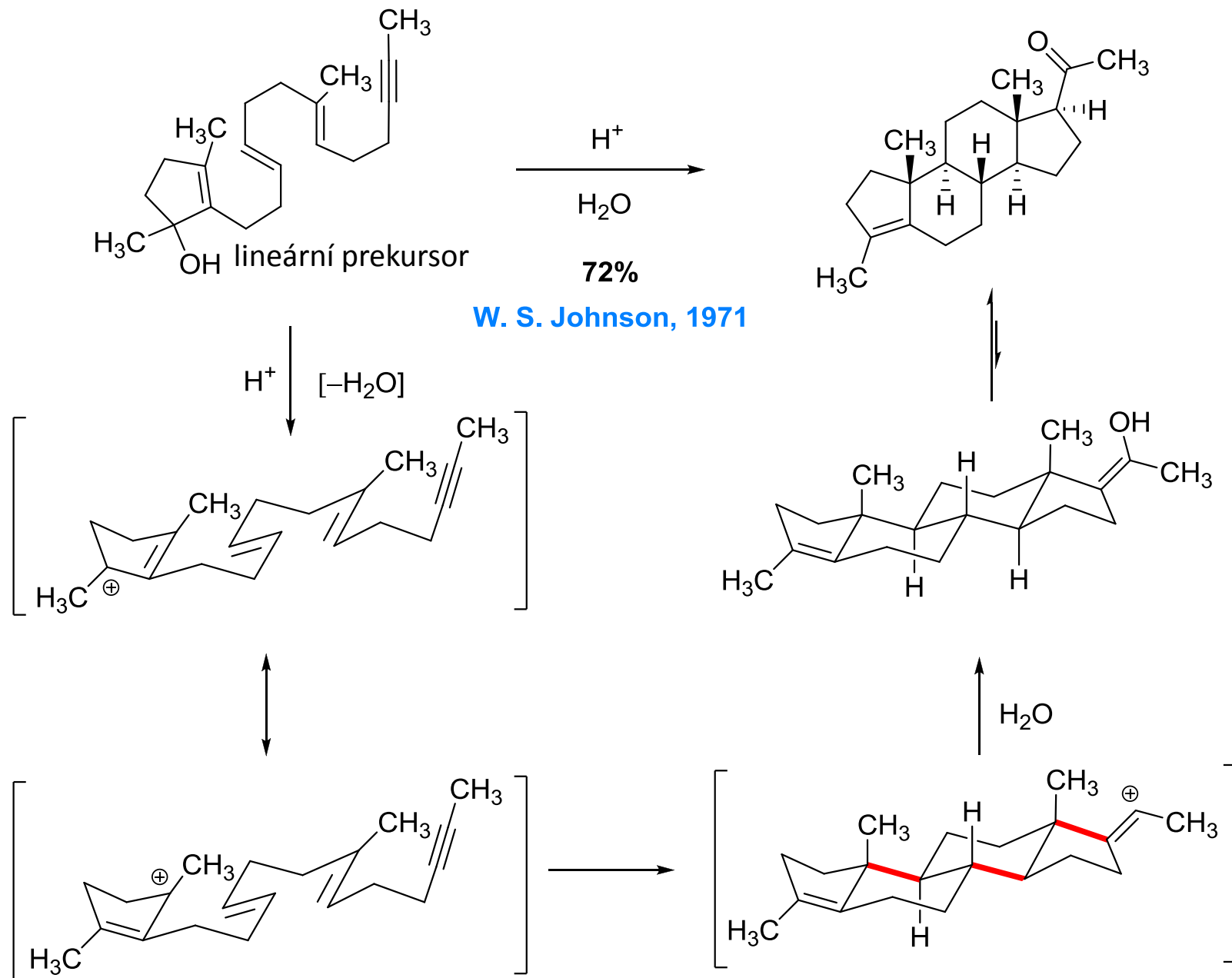
lineární prekursor

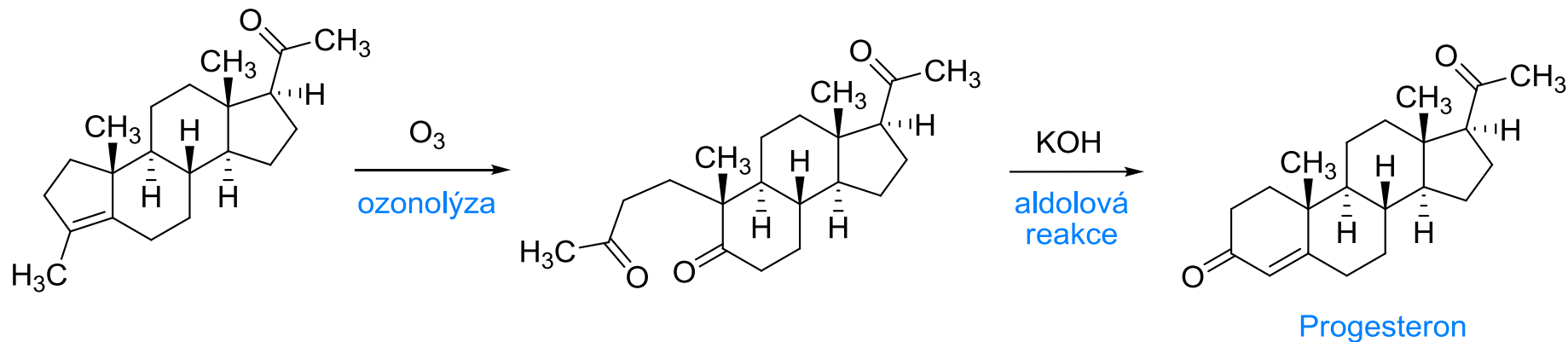
lineární prekursor pre-organizovaný
v komplexu s enzymem





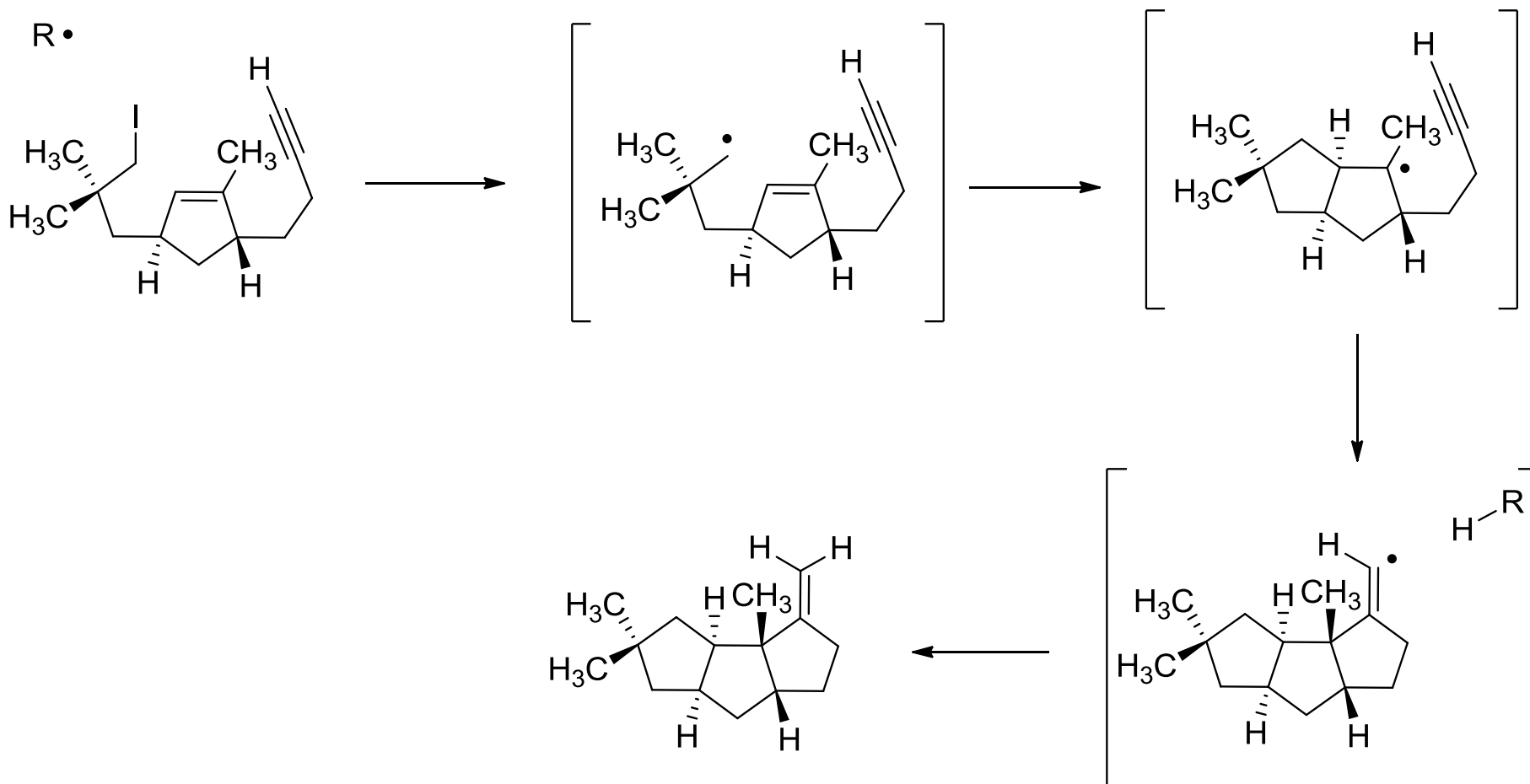








- Aplikace radikálové adice (cyklizace) – příprava strukturně složitých molekul

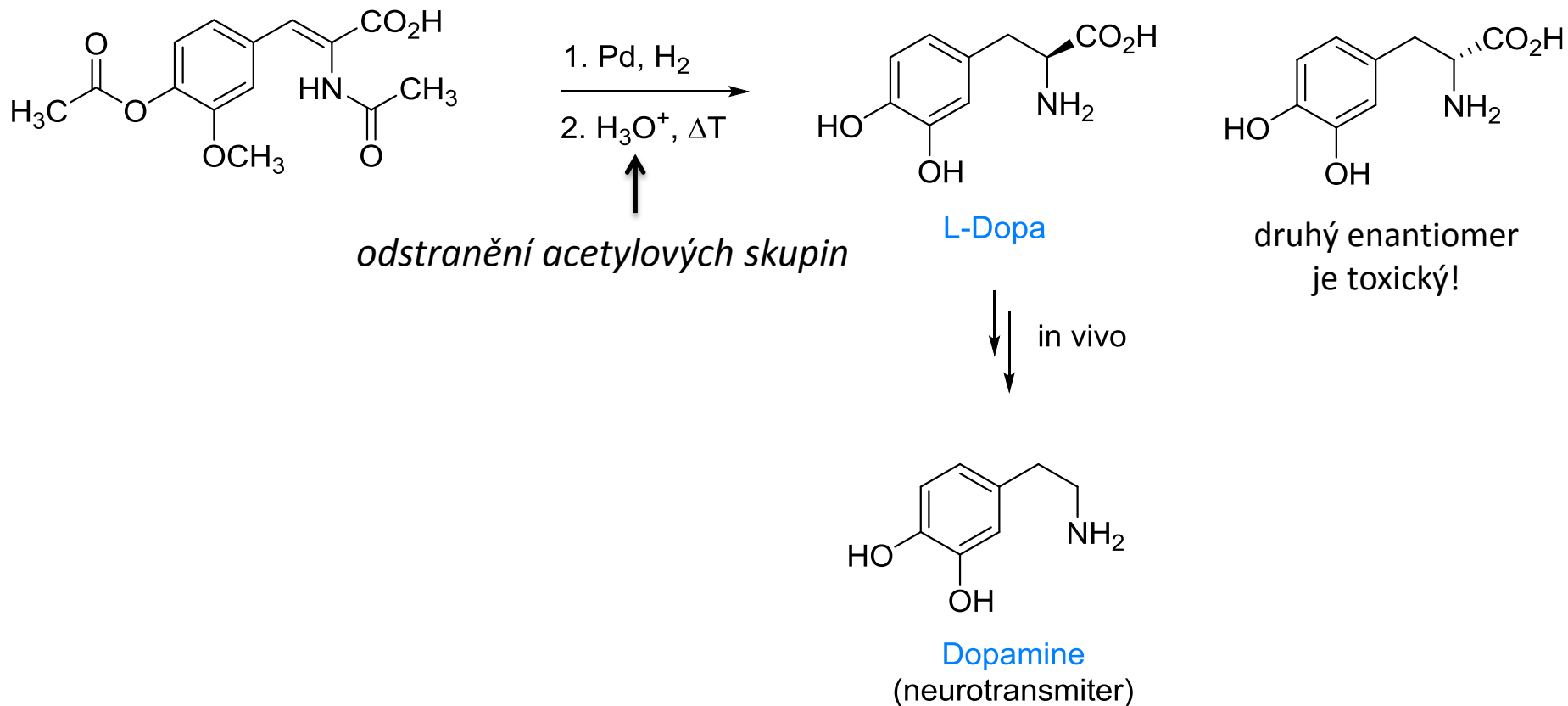


hirsutene

(D. P. Curran, 1986)



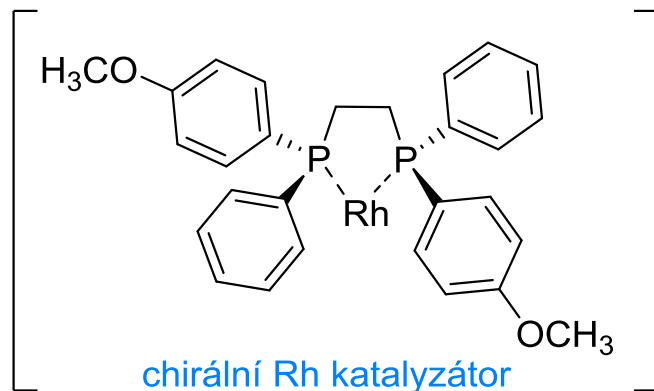
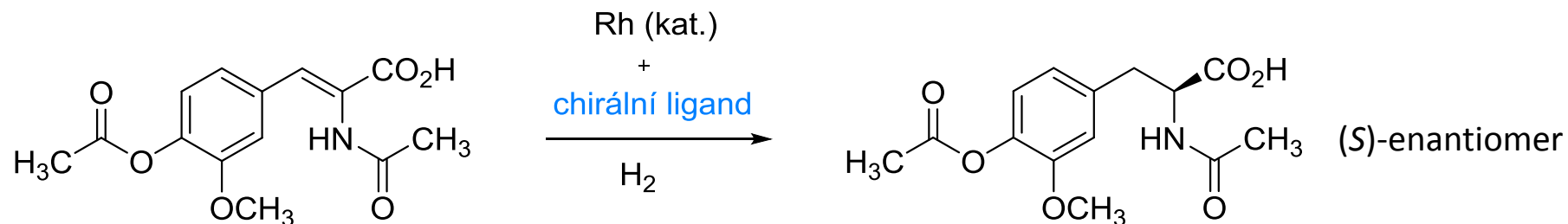
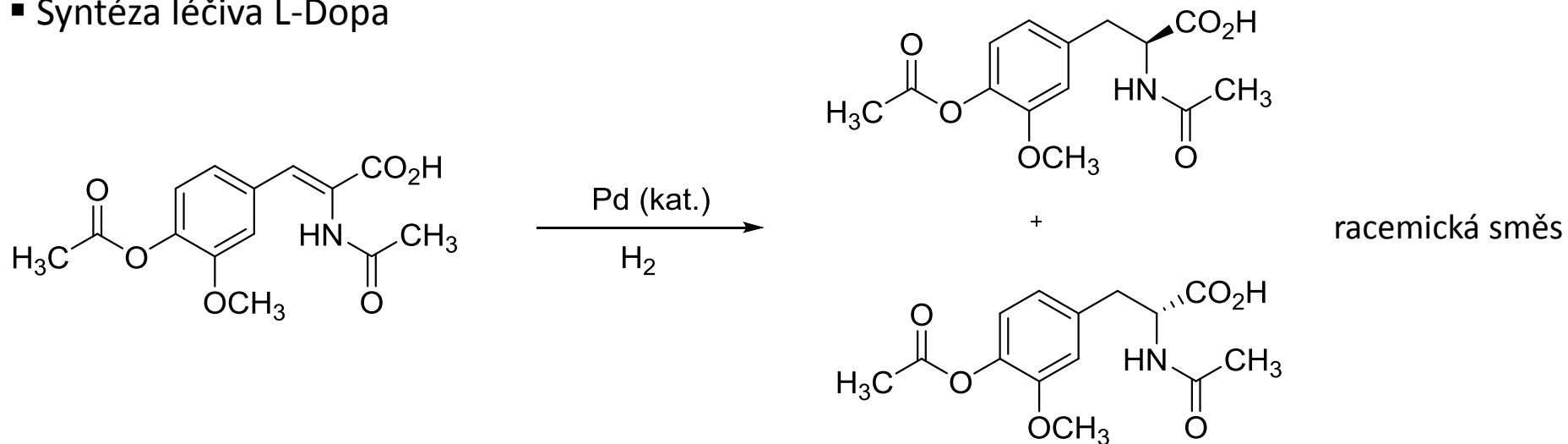
▪ Syntéza léčiva L-Dopa



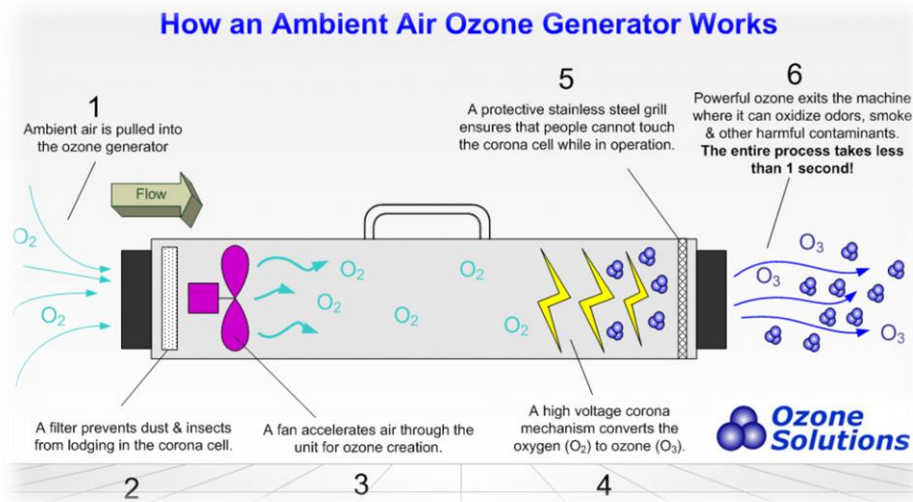
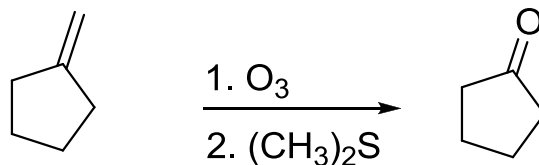
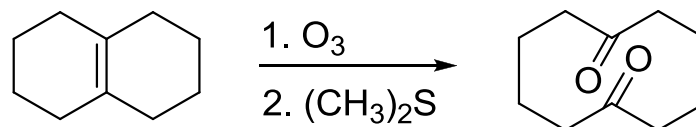
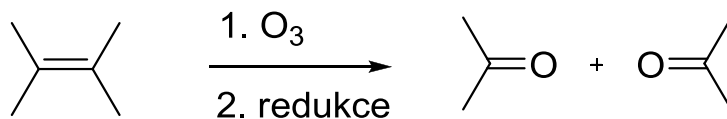
Některá neurodegenerativní onemocnění se vyznačují nedostatkem tohoto neurotransmiteru



▪ Syntéza léčiva L-Dopa

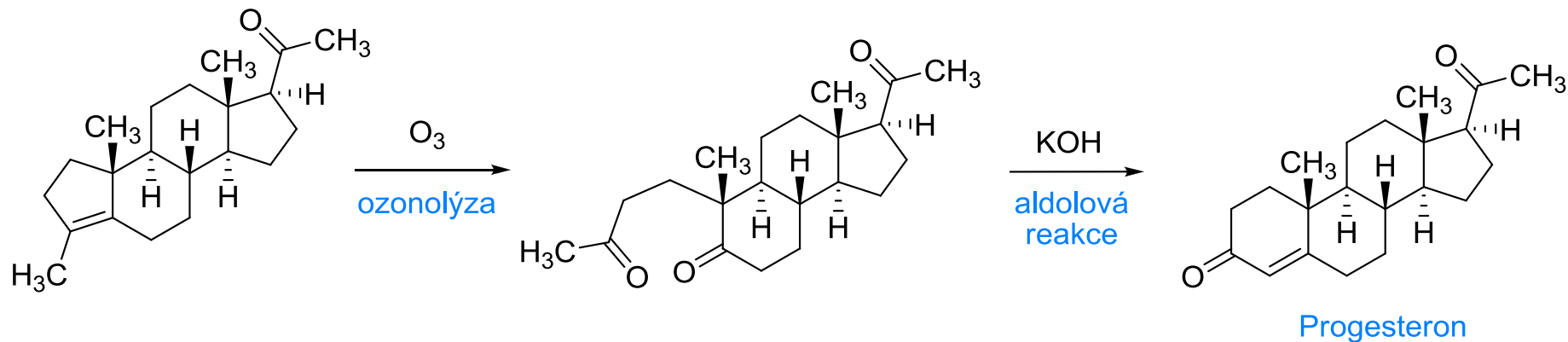


“enantioselektivní hydrogenace”



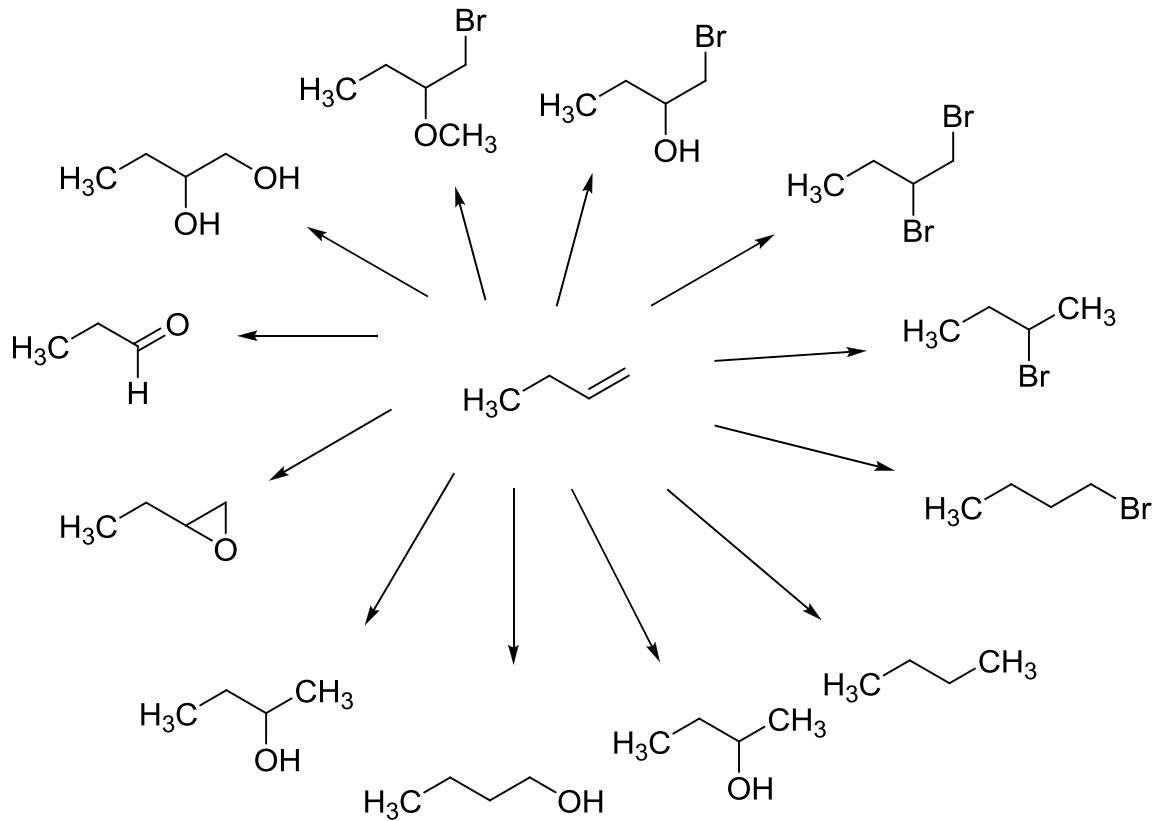
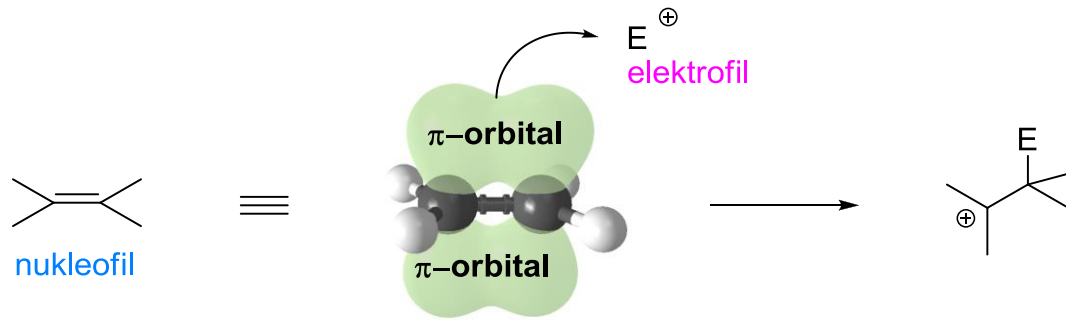
ozon v dichlormethanu (-78°C)

http://commons.wikimedia.org/wiki/File:Dichloromethane_Ozonolysis.jpg





1. Alkeny a alkyny





1. Alkeny a alkyňy

