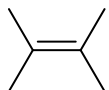


Organická Chemie II

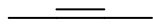
1. Aplikace konceptů **reaktivity** z Organické chemie I
2. Přehled reaktivity základních **funkčních skupin**
3. Úvod do plánování syntetické strategie – **organická syntéza**



1.

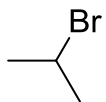


alken

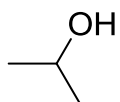


alkyn

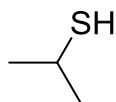
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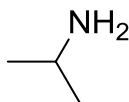
alkyl halogenid



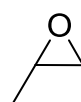
alkohol



thiol

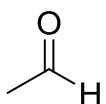


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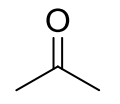


epoxid

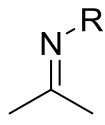
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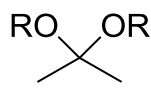
aldehyd



keton

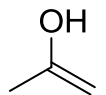


imin

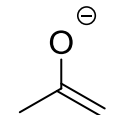


acetal

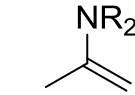
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enol



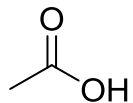
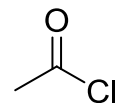
enolát



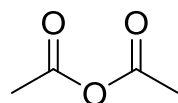
enamin

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

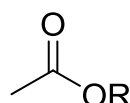
5.

karboxylová
kyselina

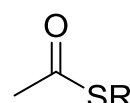
acyl chlorid



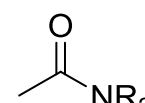
anhydrid



ester

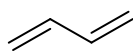


thioester

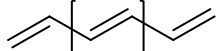


amid

6.

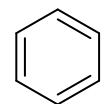


dien

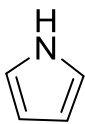


polyen

7.

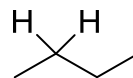


aren



heteroaren

8.



alkan



Organická chemie II - Sylabus

L	Datum	Téma	Literatura [M = McMurry]
1	19.9.	Alkeny a alkyny	M : 169-274
2	21.9.	Alkeny a alkyny	
3	26.9.	Alkeny a alkyny	
4	3.10.	Alkoholy, thioly, aminy	M : 317-392; 587-671; 892-909
5	5.10.	Alkoholy, thioly, aminy	
6	10.10.	Alkoholy, thioly, aminy	
	12.10.	Průběžný test 1	
7	12.10.	Aldehydy a Ketony	M : 672-736
8	17.10.	Aldehydy a Ketony	
9	19.10.	Aldehydy a Ketony	
10	24.10.	Enoly a Enoláty	M : 820-891
11	26.10.	Enoly a Enoláty	
12	31.10.	Enoly a Enoláty	
13	2.11.	Deriváty karboxylových kyselin	M : 737-819



14	7.11.	Deriváty karboxylových kyselin	
15	9.11.	Deriváty karboxylových kyselin	
	14.11.	Průběžný test 2	
16	14.11.	Dieny a polyeny	<i>M</i> : 464-497; 1134-1158
17	16.11.	Dieny a polyeny	
18	21.11.	Dieny a polyeny	
19	23.11.	Aromatické sloučeniny	<i>M</i> : 498-586; 915-922
20	28.11.	Aromatické sloučeniny	
21	30.11.	Aromatické sloučeniny	
22	5.12.	Aromatické sloučeniny - heterocykly	
23	7.12.	Aromatické sloučeniny - heterocykly	
	12.12.	Průběžný test 3	
25	12.12.	Alkany	
26	14.12.	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

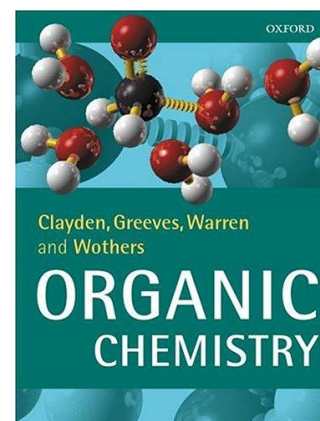
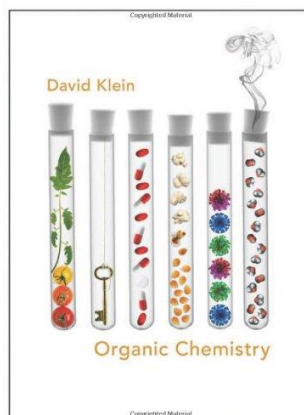
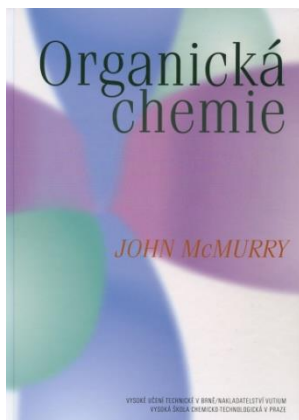
- ≥ 50 bodů ze 3 průběžných testů
- 4 písemné zkouškové testy (120 min; 100 bodů)
 - 5.1. (řádný)
 - 19.1. (řádný + opravný)
 - 26.1. (řádný + opravný)
 - 1.2. (opravný)

Konzultace

- ihned po přednášce
- individuálně s vedoucími seminářů: **Slávka Janků**
Jaromír Literák
Ondřej Hylse

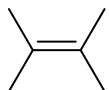


1. Poznámky z přednášek a aktivní účast na semináři.
2. Samostatné řešení úloh (semináře; McMurry; Klein; Literák ...).
3. Diskuse s ostatními studenty.
4. Průběžná příprava.
5. Doporučená literatura (McMurry; Klein; Clayden).

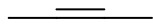




1.

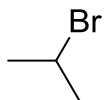


alken

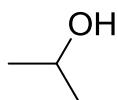


alkyn

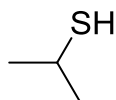
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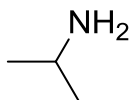
alkyl halogenid



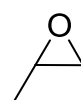
alkohol



thiol

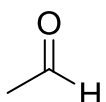


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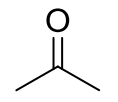


epoxid

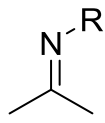
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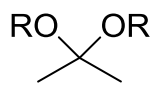
aldehyd



keton

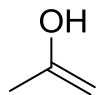


imin

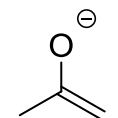


acetal

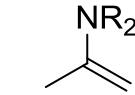
4.



enol



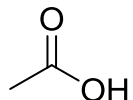
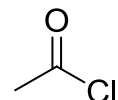
enolát



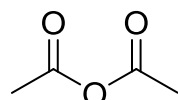
enamin

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

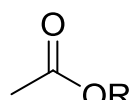
5.

karboxylová
kyselina

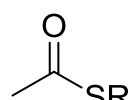
acyl chlorid



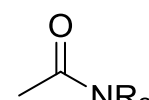
anhydrid



ester

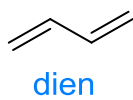


thioester

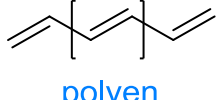


amid

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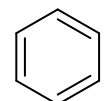


dien

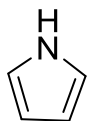


polyen

7.

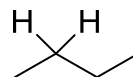


aren



heteroaren

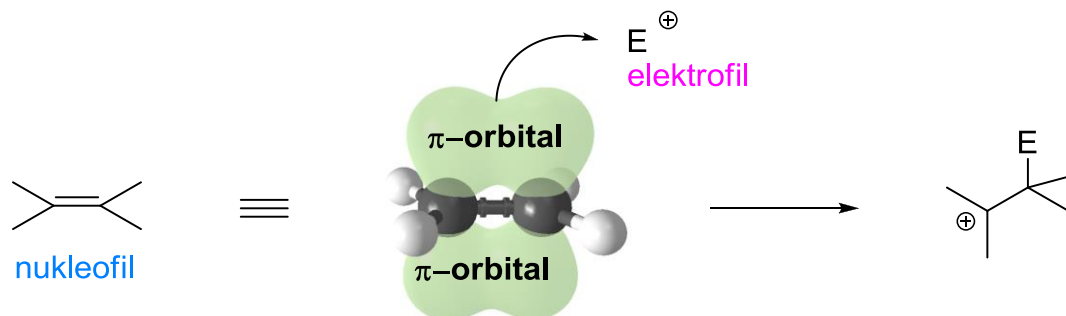
8.



alkan

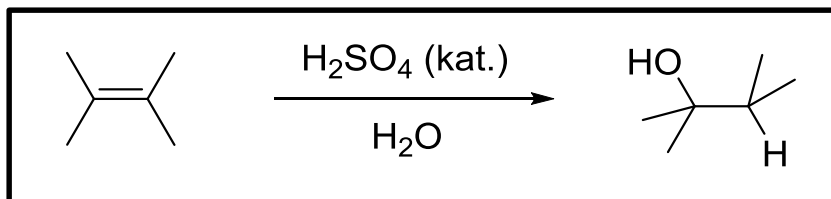


1. Alkeny a alkyny



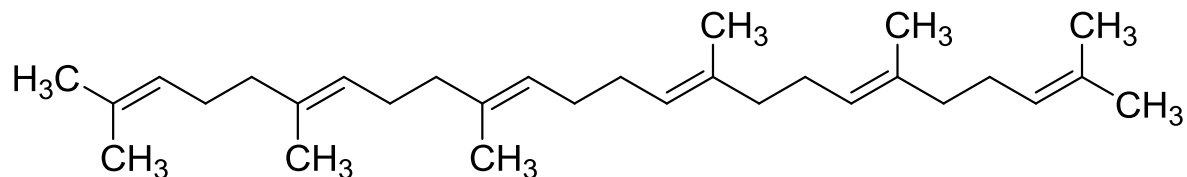


Chwang, W. K. et al.
JACS **1977**, *99*, 7233.

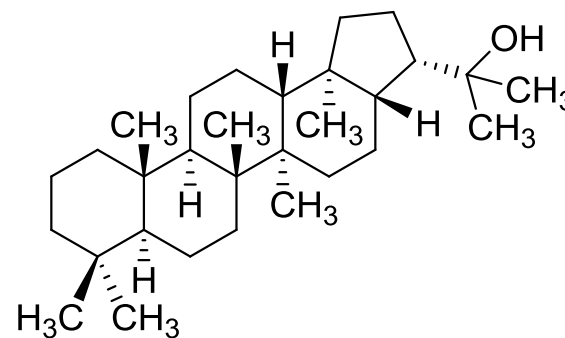
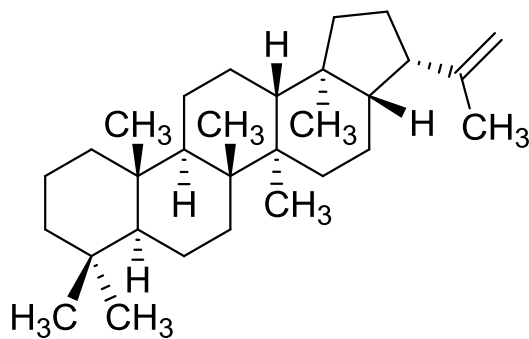


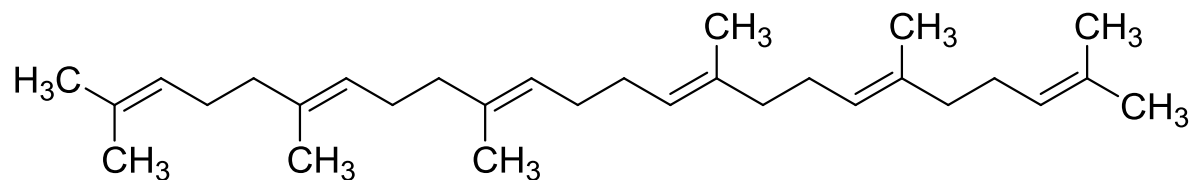
*tvorba karbokationtu
je rychlost určující krok*

	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}		

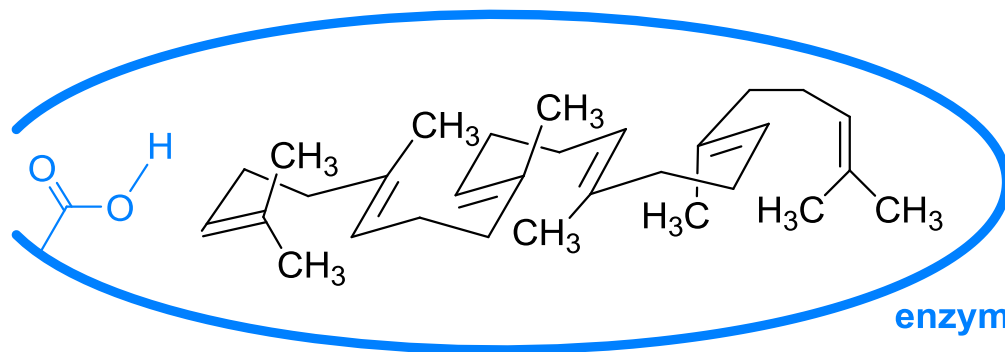


enzym, H⁺, H₂O



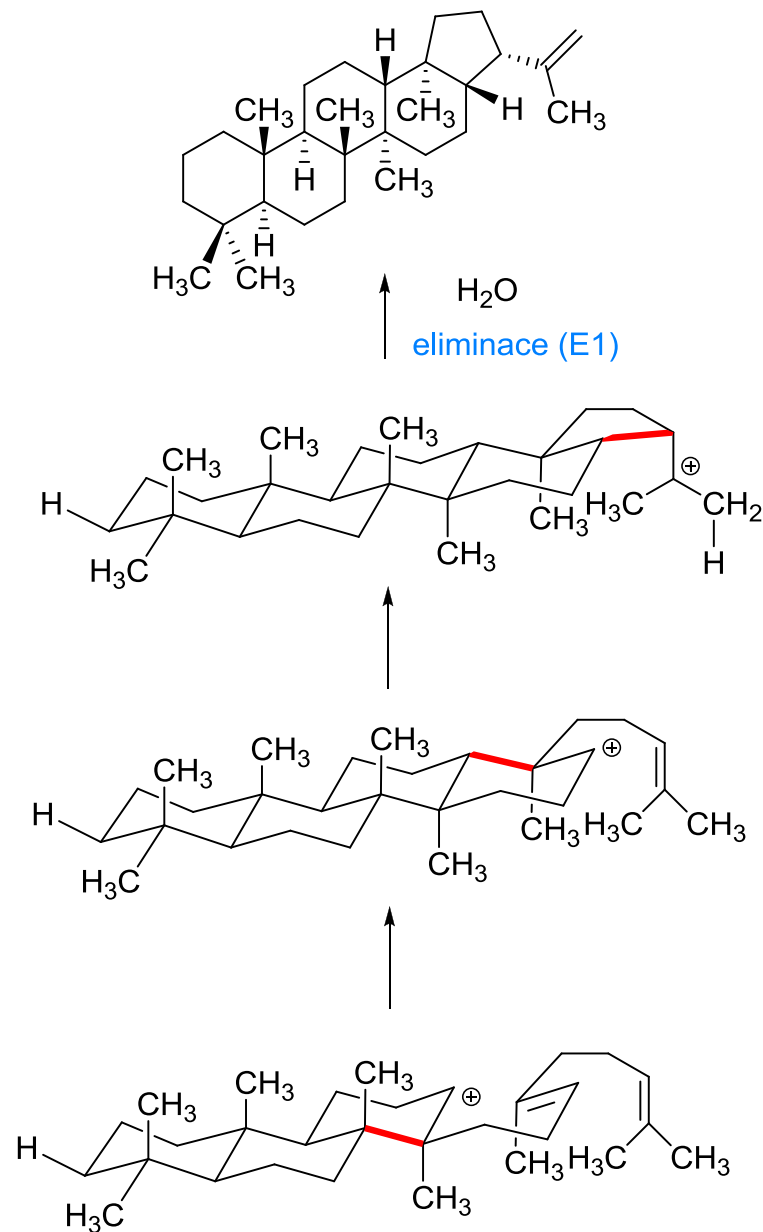
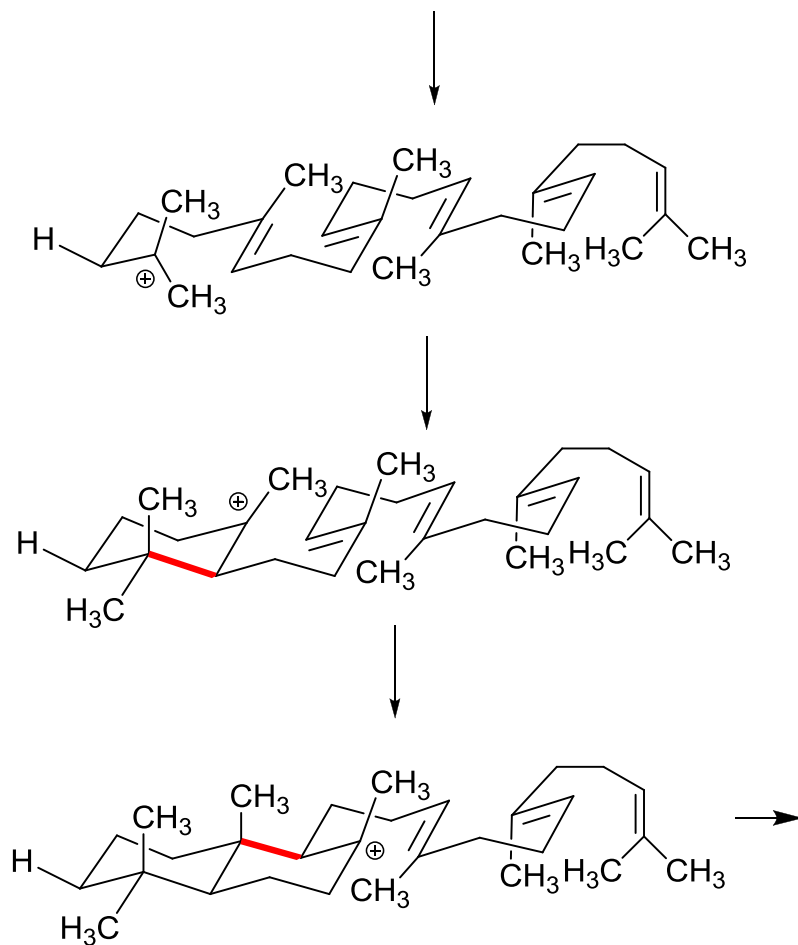
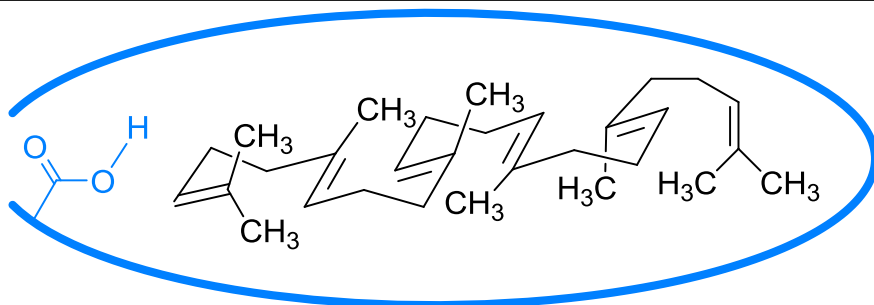


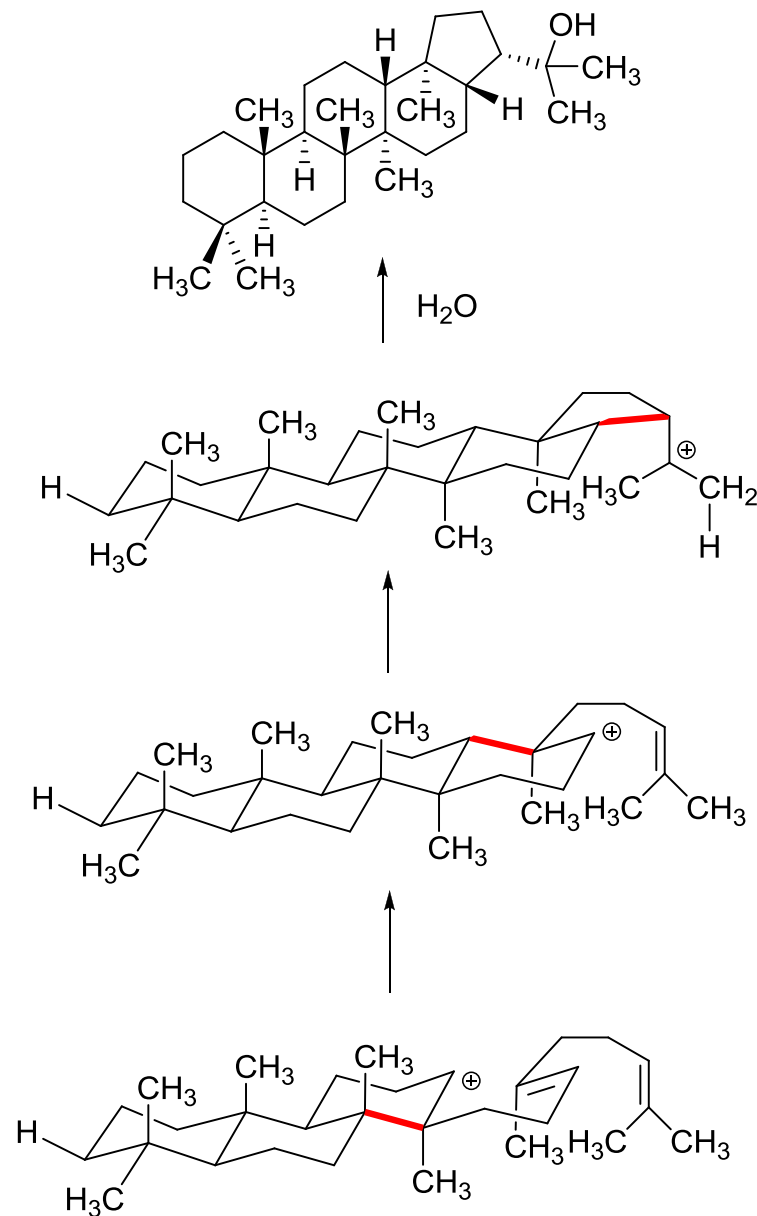
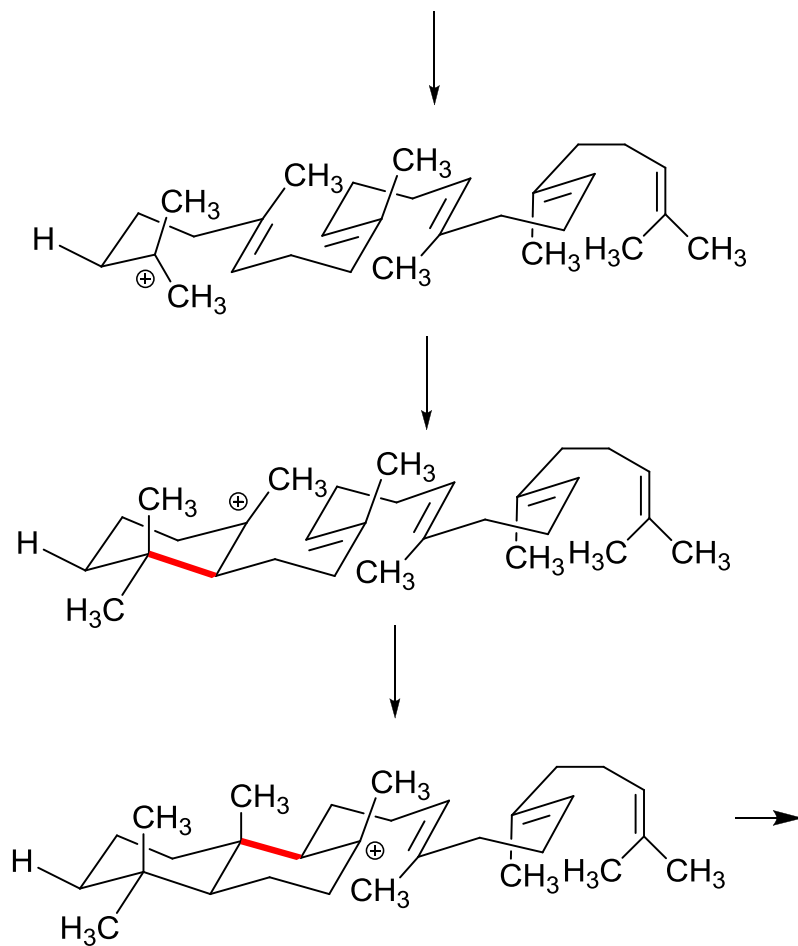
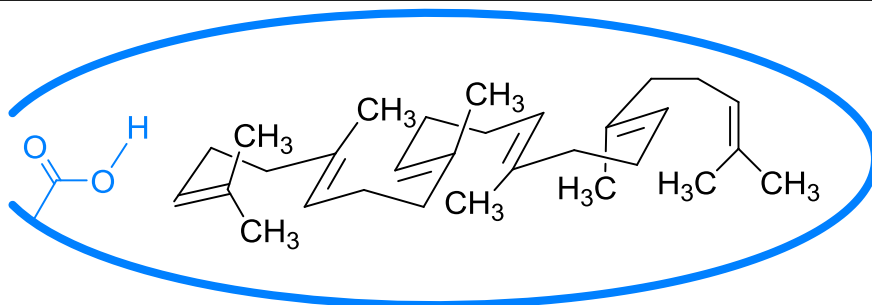
lineární prekursor

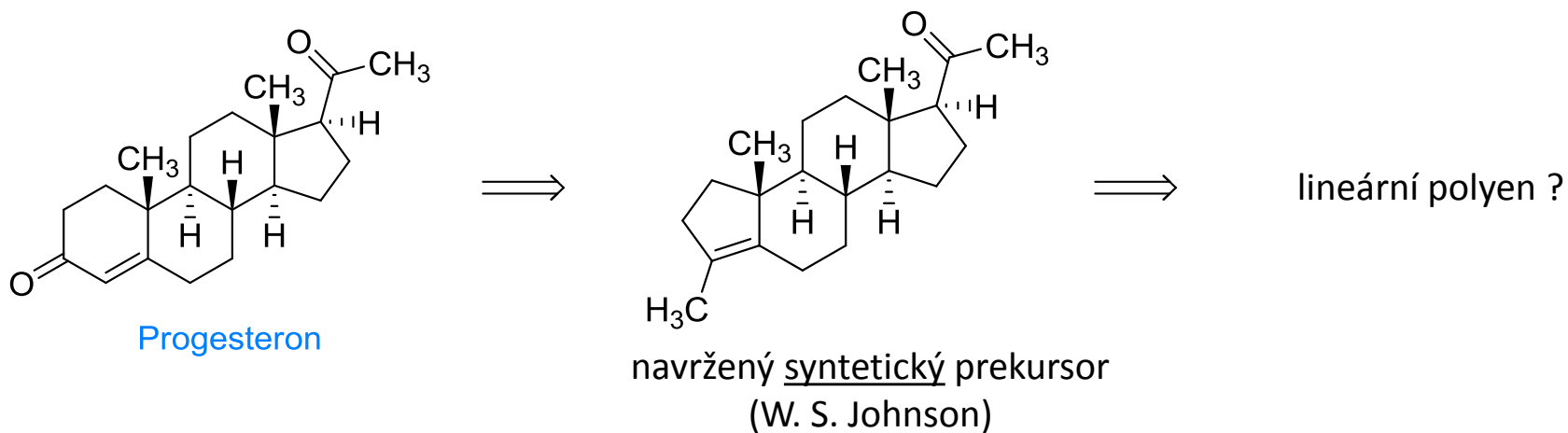


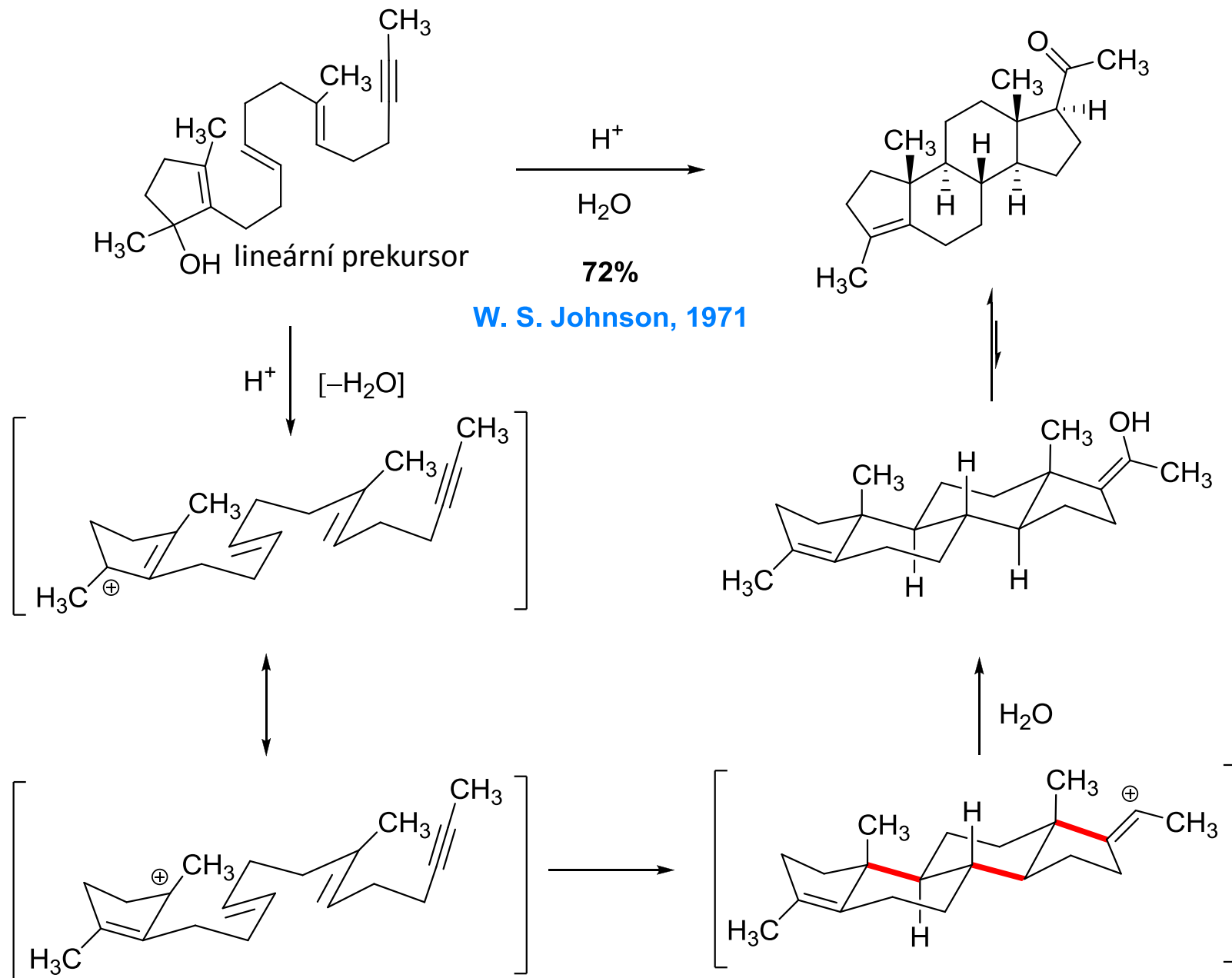
enzym

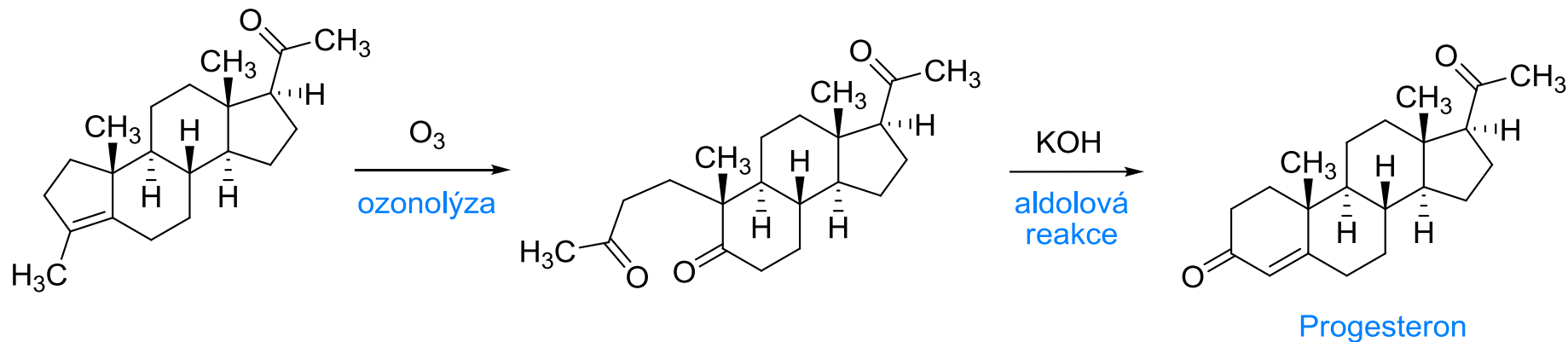
lineární prekursor pre-organizovaný
v komplexu s enzymem





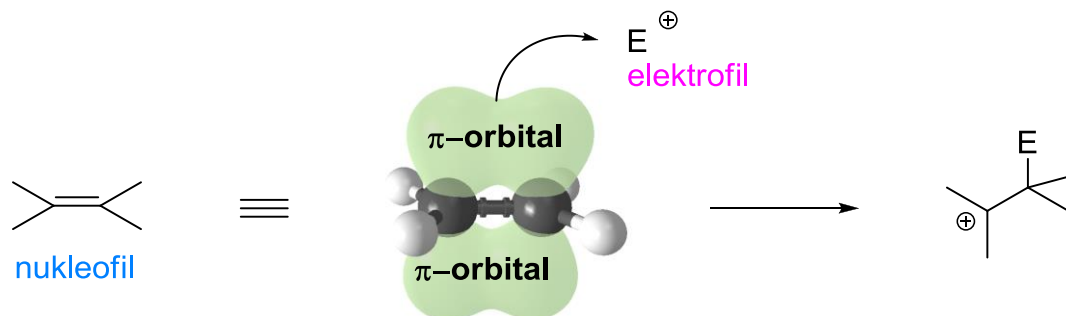






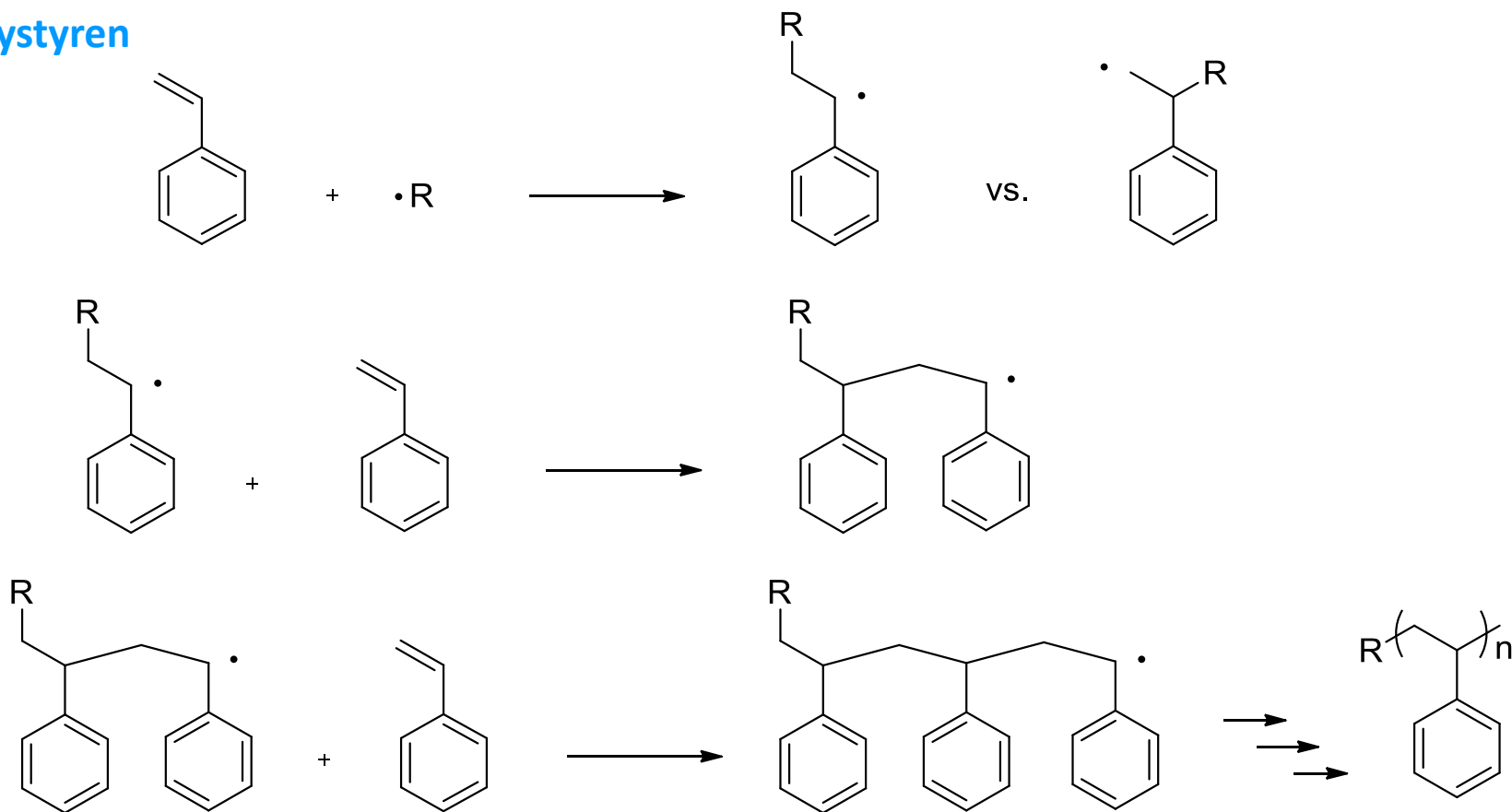


1. Alkeny a alkyny





polystyren

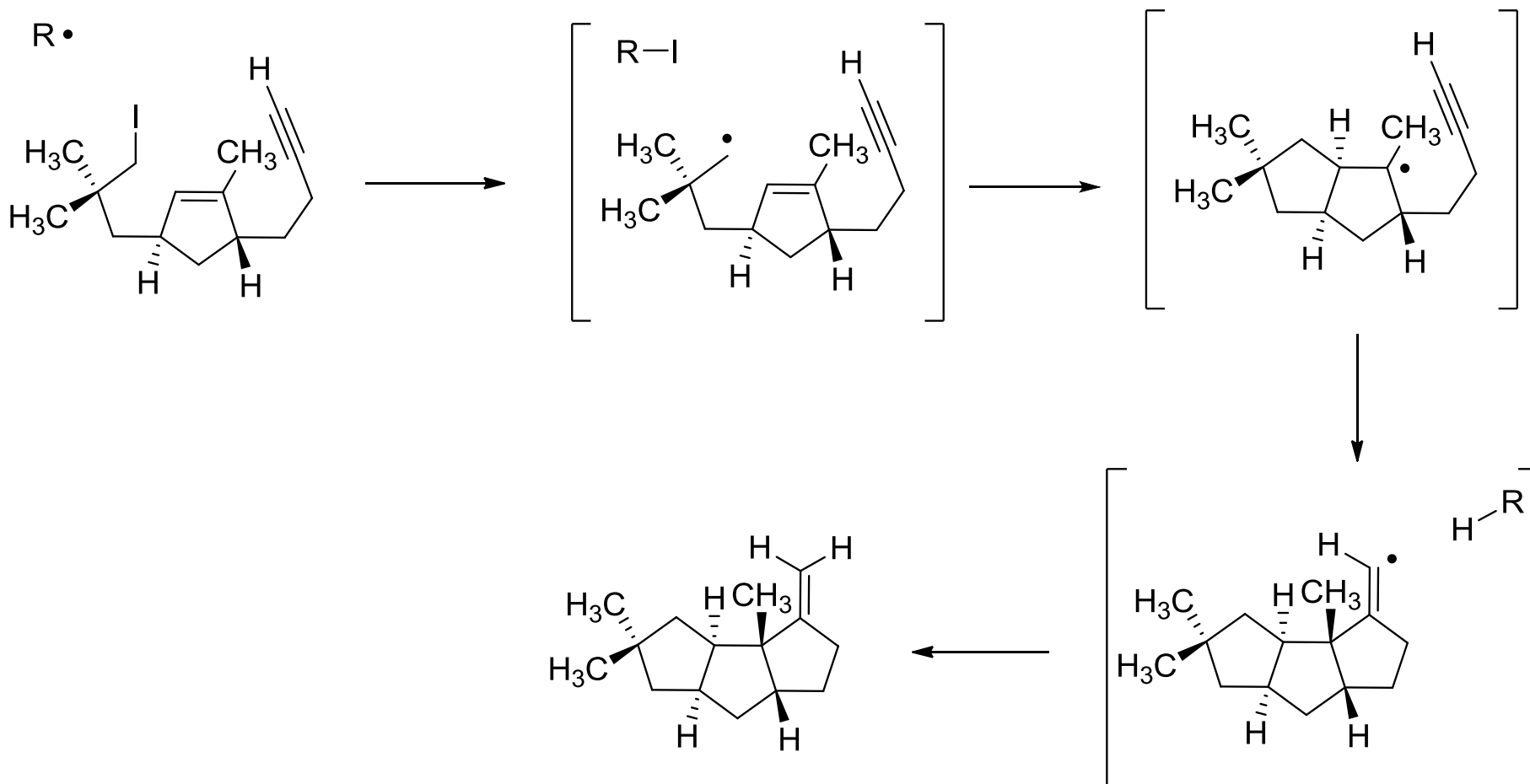


globální produkce: **několik miliard kg/rok**





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



hirsutene

(D. P. Curran, 1986)