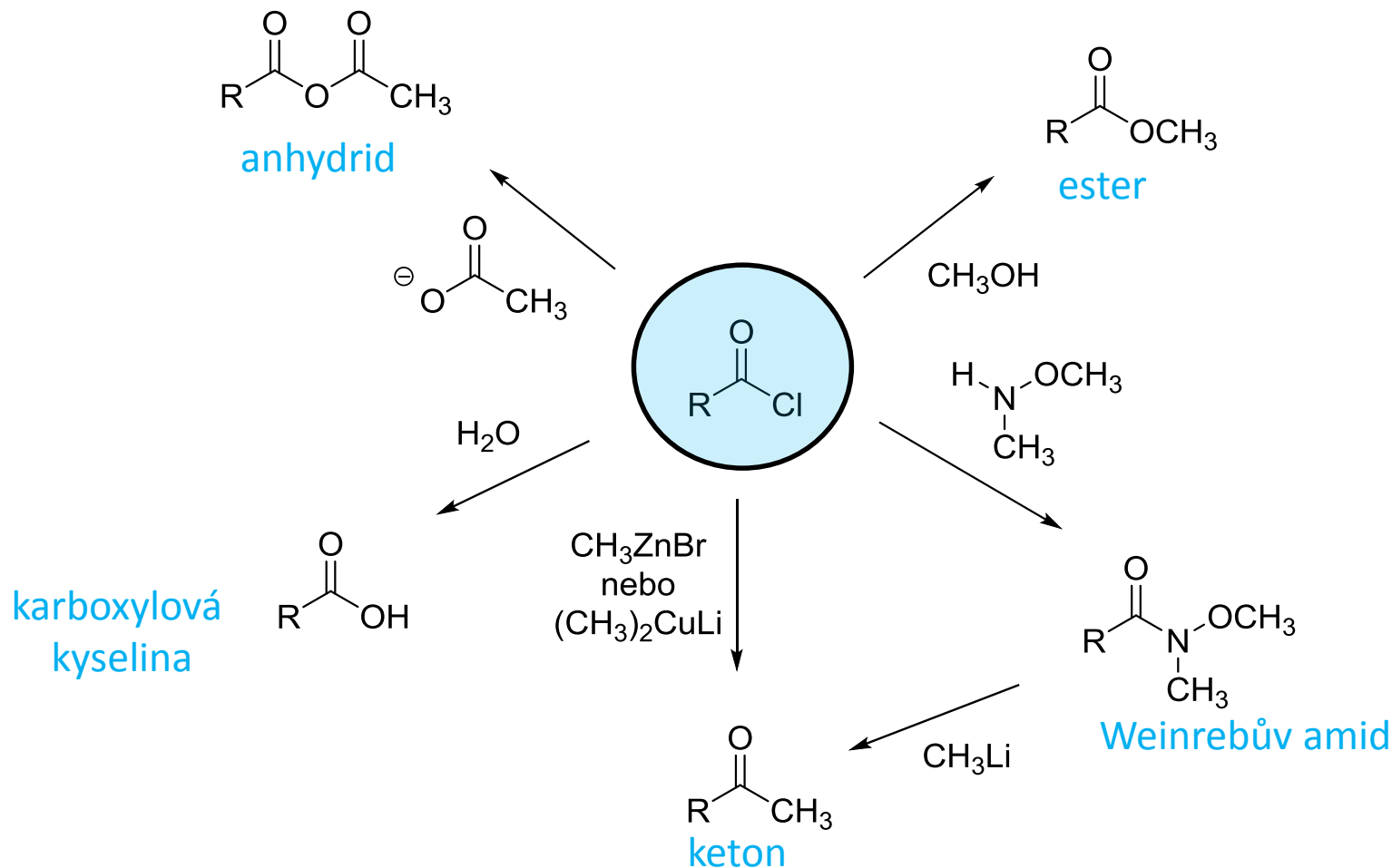
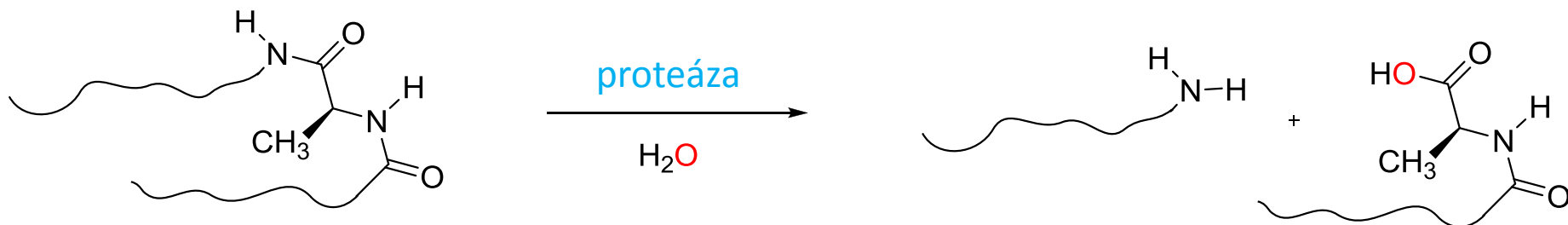




- Chloridy jsou velmi důležité intermediáty v organické syntéze





## Proteasom

- multiproteinový komplex s proteolytickými vlastnostmi
- selektivní degradace nepotřebných (poškozených) proteinů
- vzniklé peptidy jsou využity k syntéze nových proteinů

## Struktura a funkce proteasomu

**Nobelova cena za chemii 2004 & 2009**

Aaron Ciechanover

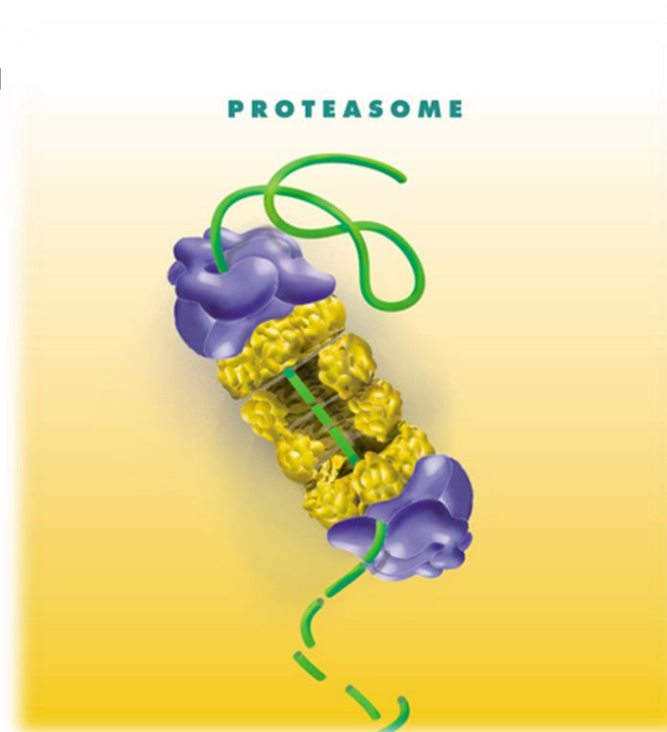
Avram Hershko

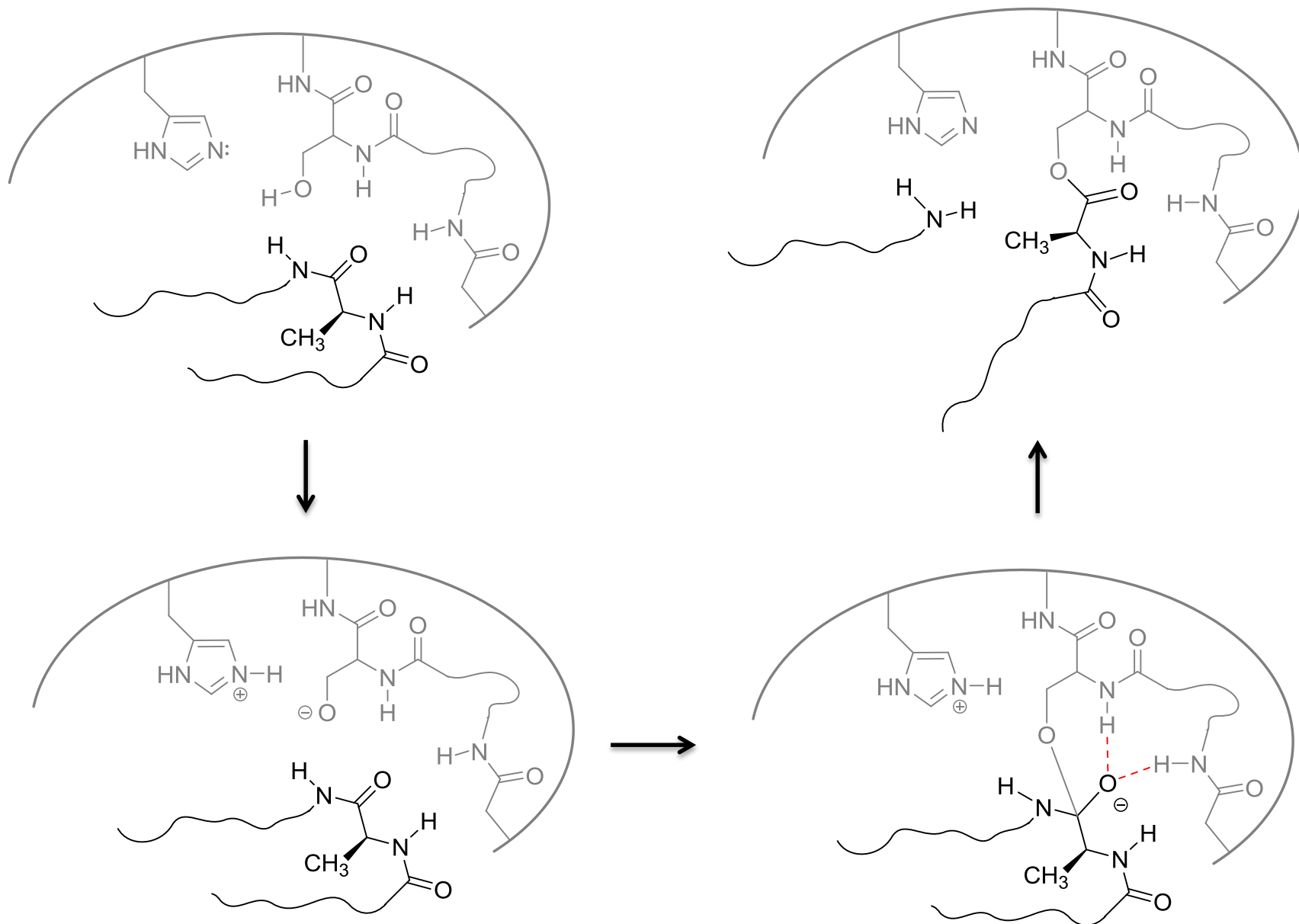
Irwin Rose

Venkatraman Ramakrishnan

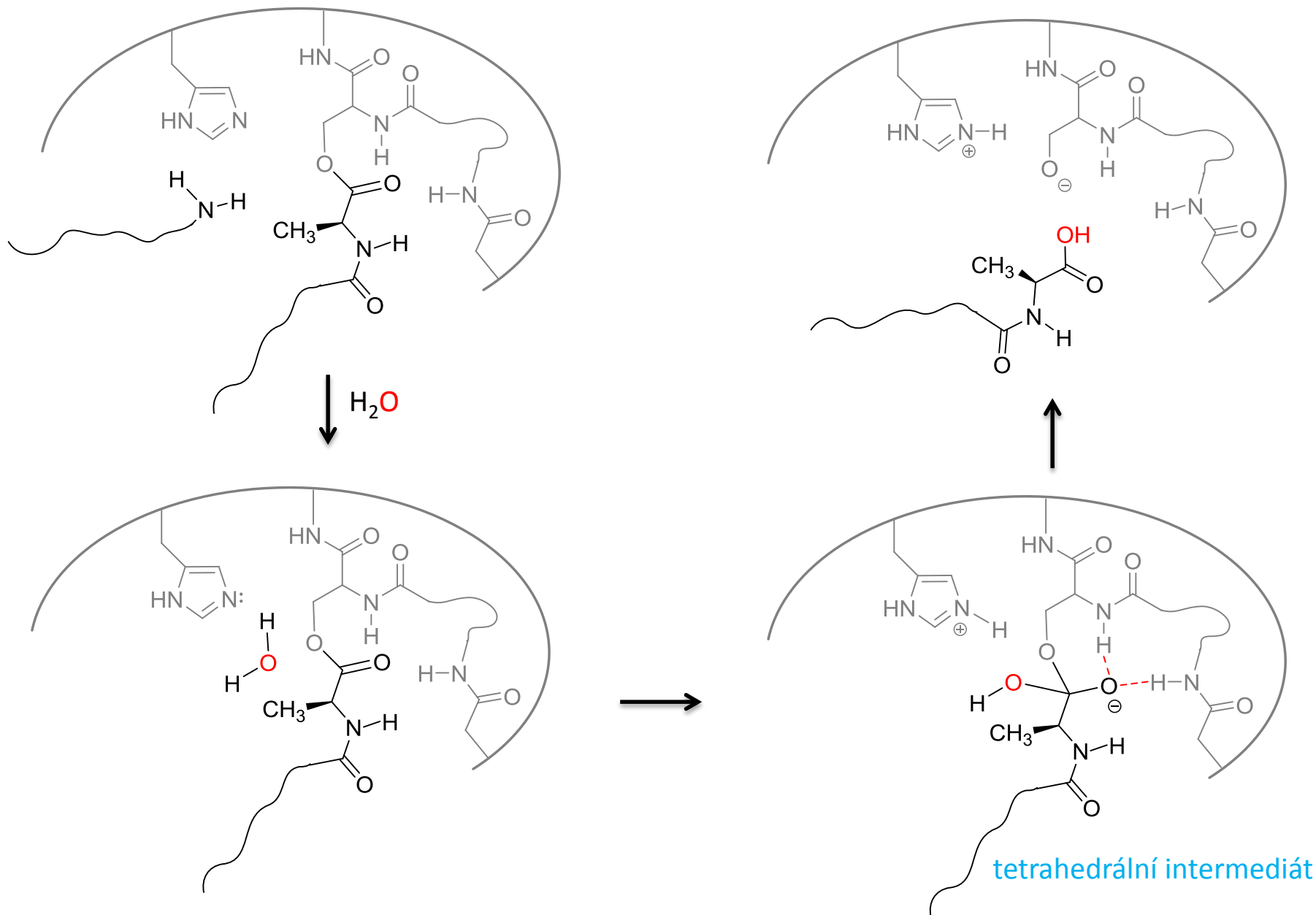
Thomas A. Steitz

Ada E. Yonath

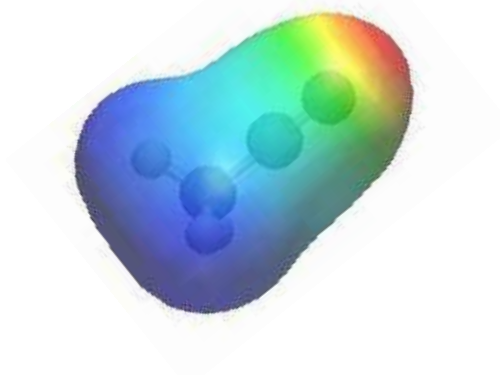
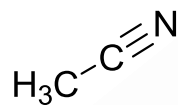
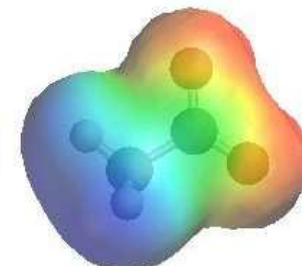
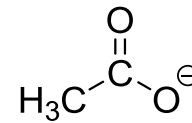
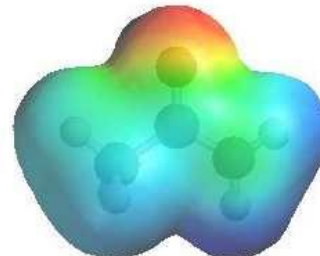
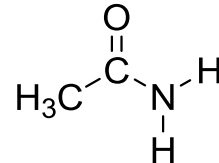
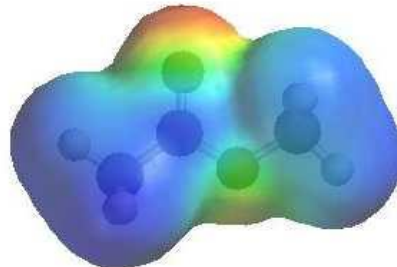
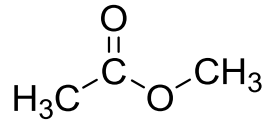
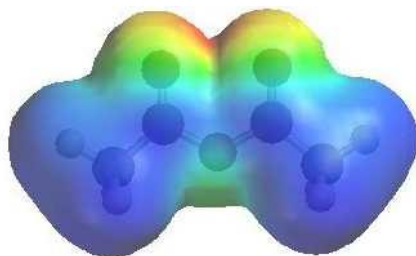
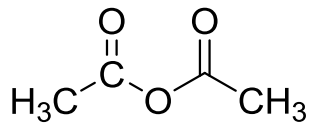
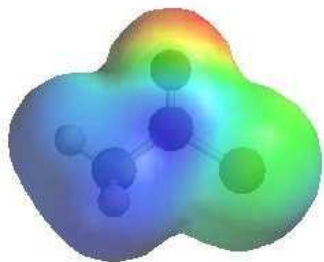
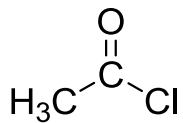


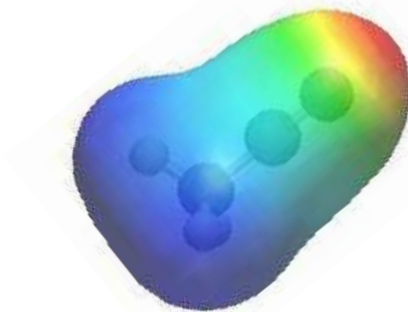
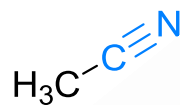
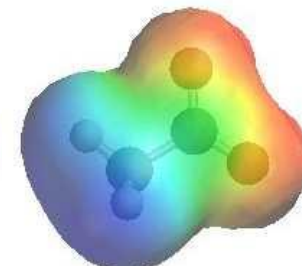
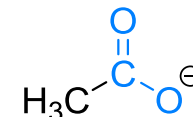
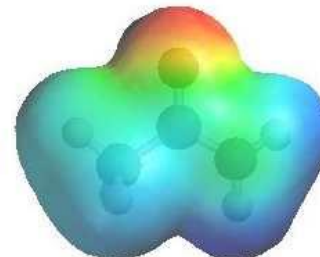
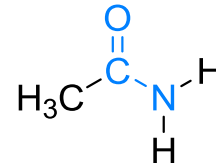
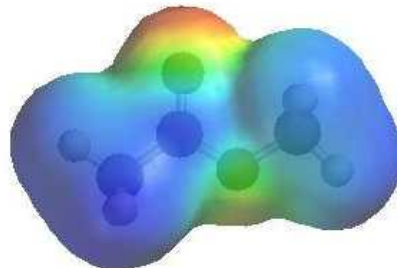
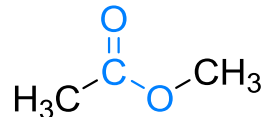
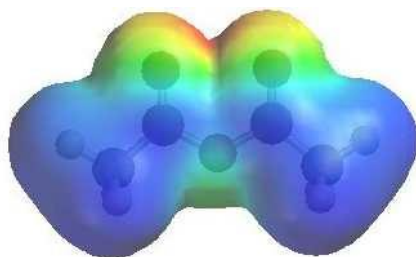
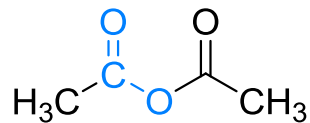
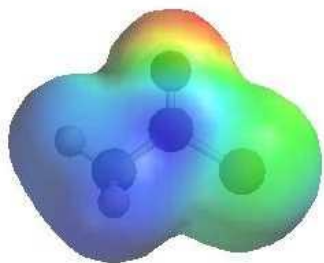
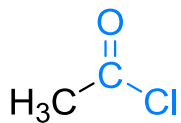


tetrahedrání intermediát



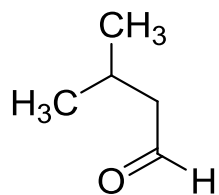
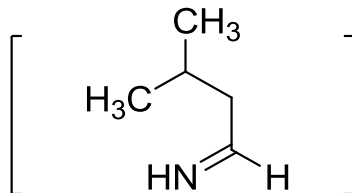
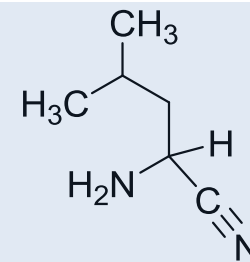
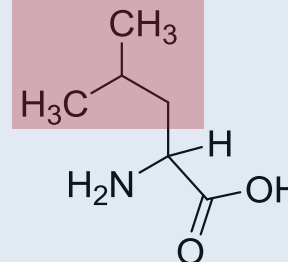






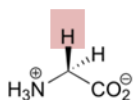
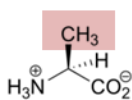
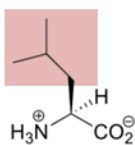
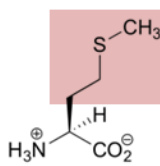
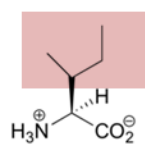
*nitril je v oxidačním stupni  
karboxylové kyseliny*



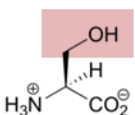
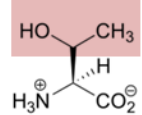
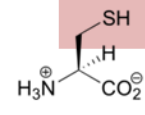
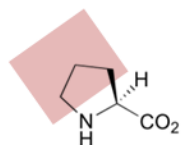
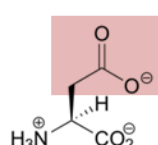
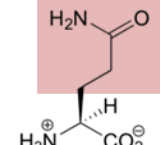

 $\xrightarrow{\text{NH}_3}$ 

 $\xrightarrow{1. \text{KCN}}$ 
 $\xrightarrow{2. \text{H}_2\text{O}}$ 

 $\xrightarrow[\Delta T]{\text{H}^+, \text{H}_2\text{O}}$ 


Leucin

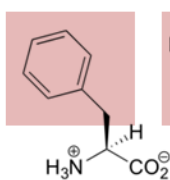
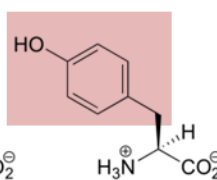
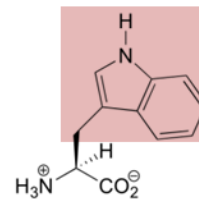
## Nonpolar, aliphatic side groups

Glycine  
Gly, GAlanine  
Ala, AValine  
Val, VLeucine  
Leu, LMethionine  
Met, MIsoleucine  
Ile, I

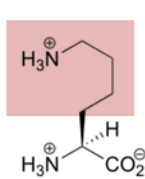
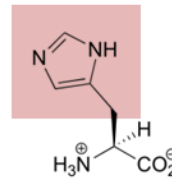
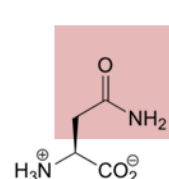
## Polar, uncharged side groups

Serine  
Ser, SThreonine  
Thr, TCysteine  
Cys, CProline  
Pro, PAspartate  
Asp, DGlutamine  
Gln, Q

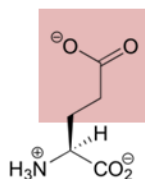
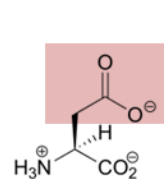
## Aromatic side groups

Phenylalanine  
Phe, FTyrosine  
Tyr, YTryptophan  
Trp, W

## Positively charged side groups

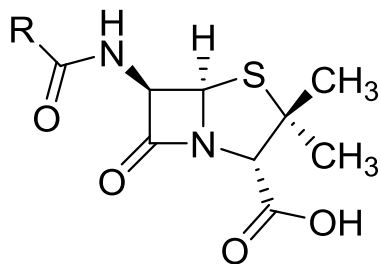
Lysine  
Lys, KHistidine  
His, HAsparagine  
Asn, N

## Negatively charged side groups

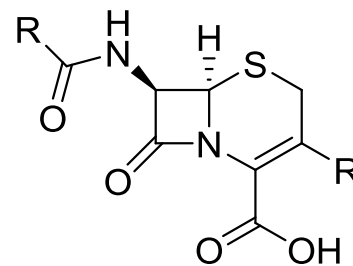
Glutamate  
Glu, EAspartate  
Asp, D

hydrolyza nitrilu na  
karboxylovou kyselinu





Penicilin



Cephalosporin

*Inhibice bakteriální transpeptidázy – klíčový enzym pro tvorbu buněčné stěny*

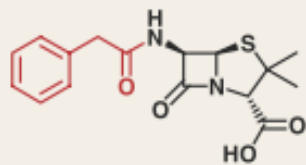
**Resistance** bakterií vůči běžně používaným antibiotikům (např. beta-laktamáza) inspiruje přípravu nových strukturálních analogů (organická syntéza).

Generation 1

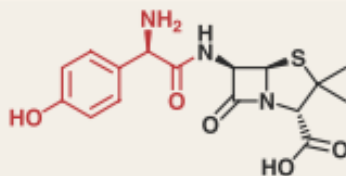
Generation 2

Generation 3

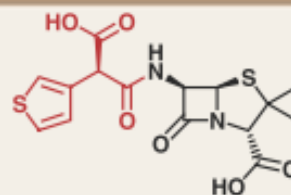
Generation 4



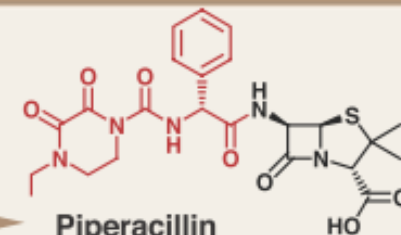
Penicillin G



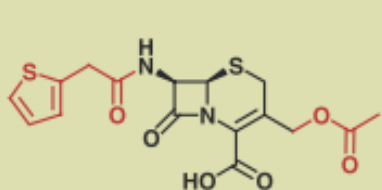
Amoxicillin



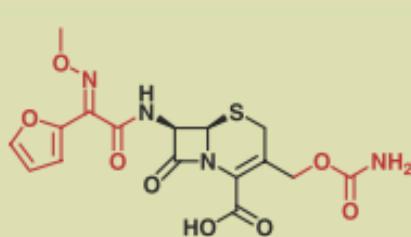
Ticarcillin



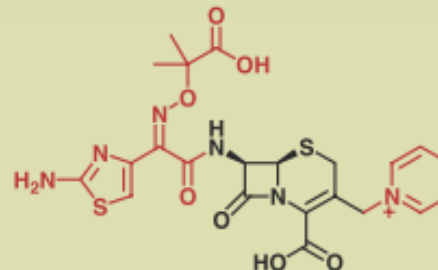
Piperacillin



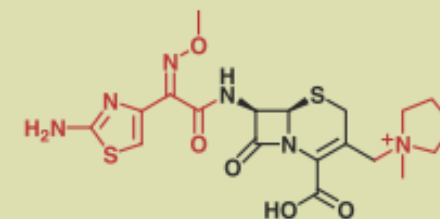
Cefalotin



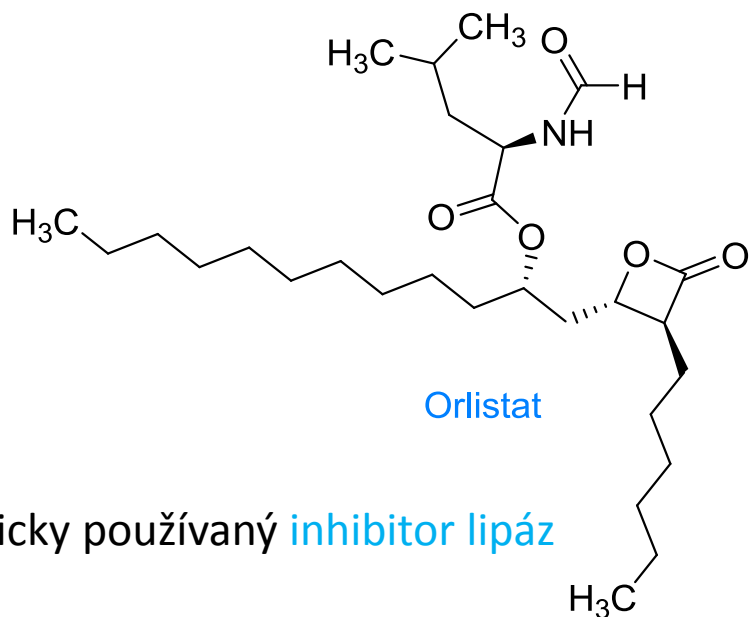
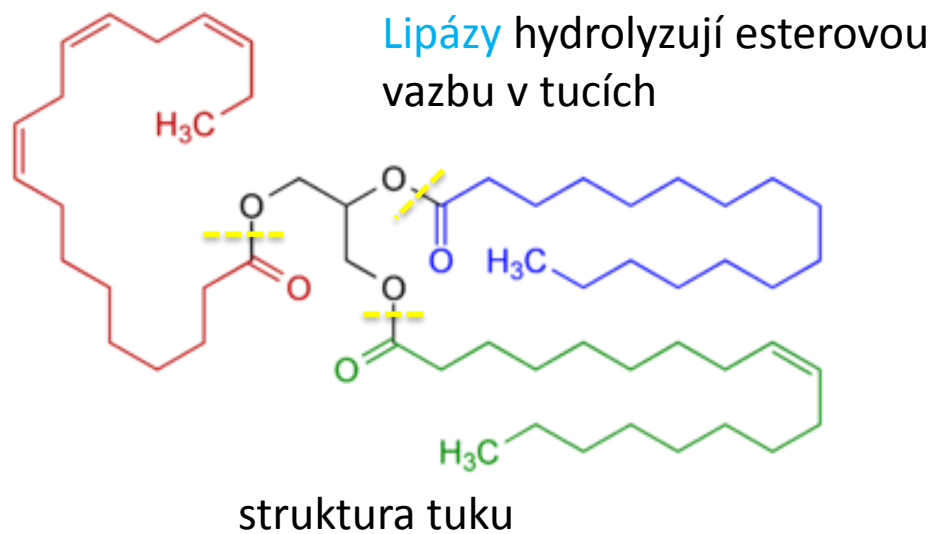
Cefuroxime



Ceftazidime

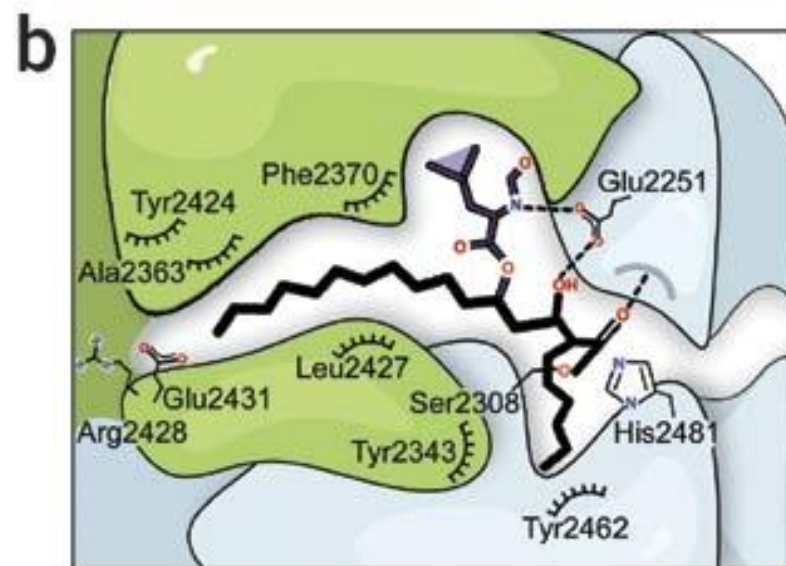
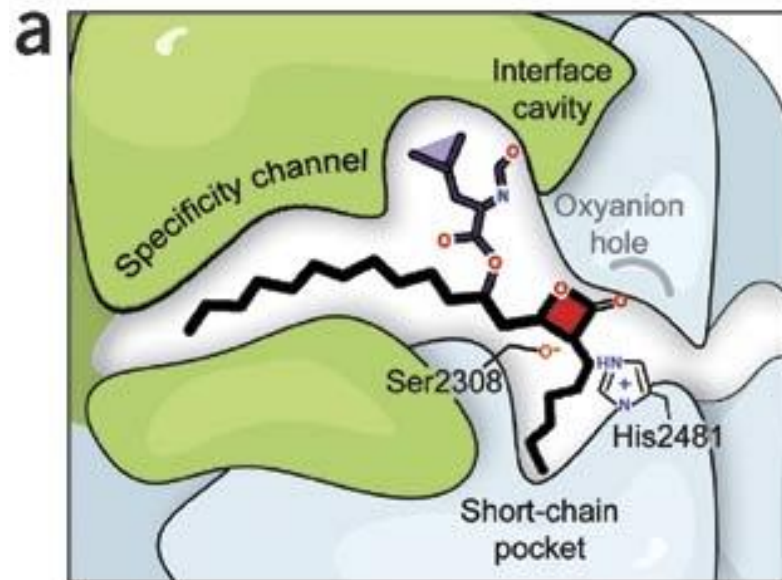


Cefepime

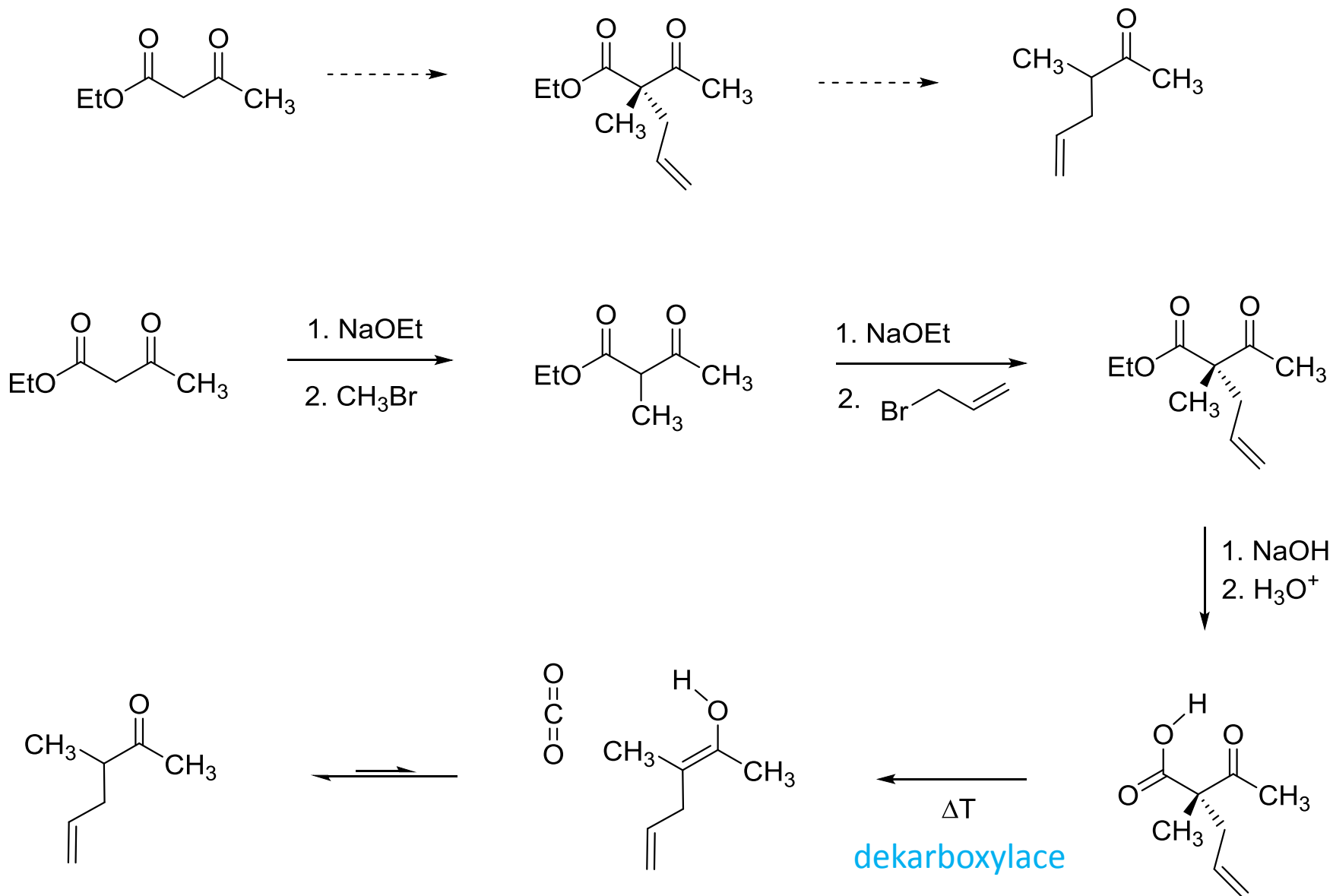


- klinicky používaný **inhibitor lipáz**

## komplex lipázy a orlistatu



opravený slide z přednášky



14	7.11.	Deriváty karboxylových kyselin	
15	9.11.	Deriváty karboxylových kyselin	
	14.11.	<b>Průběžný test 2</b>	
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.	<b>Průběžný test 3</b>	
25	12.12.	Alkany	
26	14.12.	Organokovové sloučeniny	

