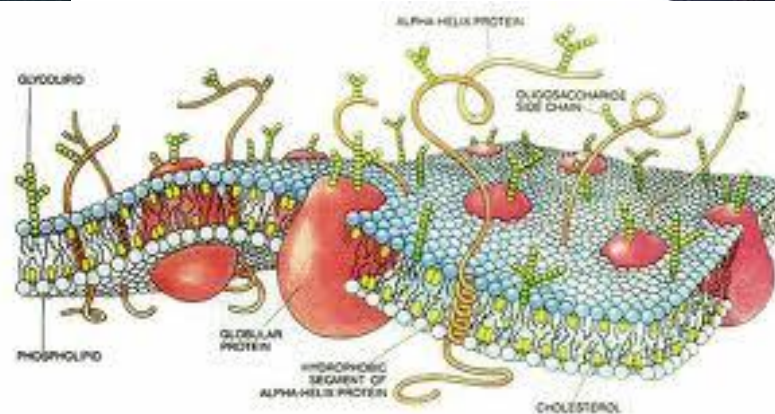
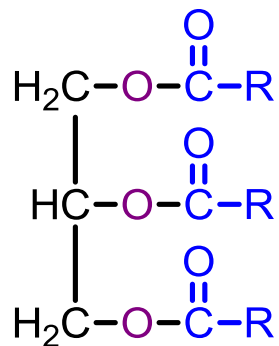


Lipidy a terpenoidy

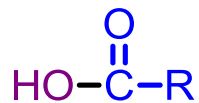


Lipidy

hydrolyzovatelné

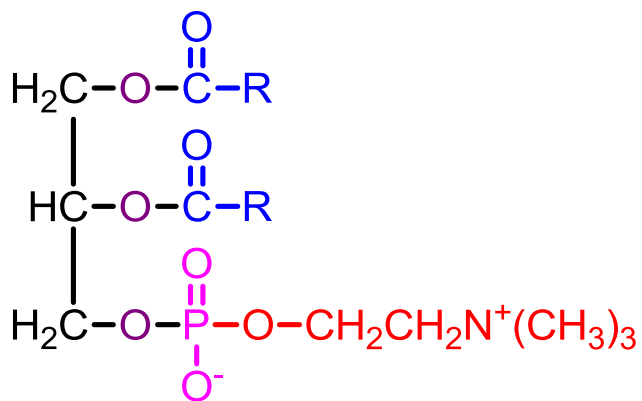


R = C₁₁-C₁₉ alkyl



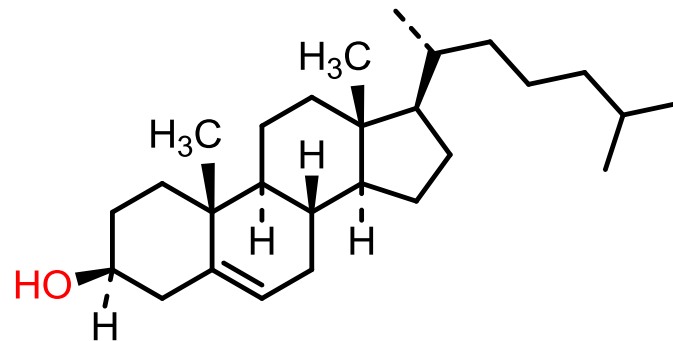
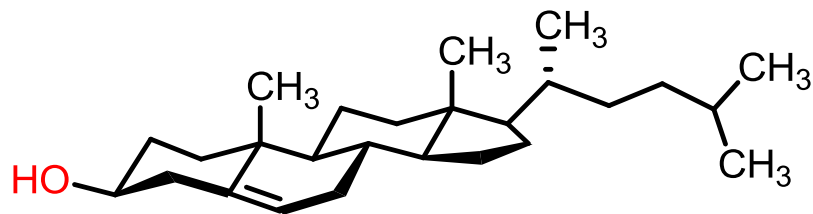
mastná kyselina

živocisný tuk
(triglycerid)



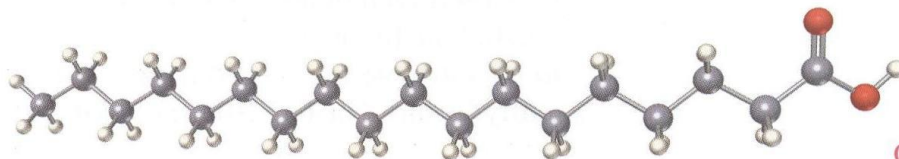
fosfatidylcholin (fosfolipid)

nehydrolyzovatelné

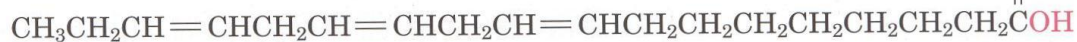
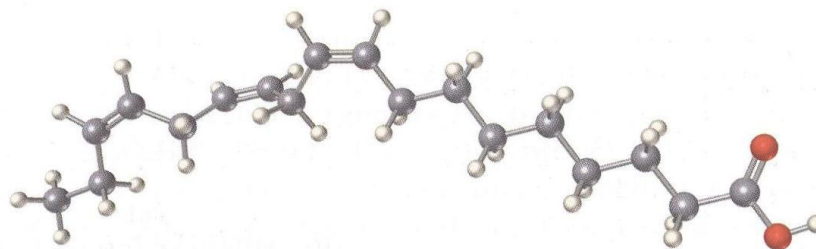


Cholesterol

Mastné kyseliny



stearová kyselina

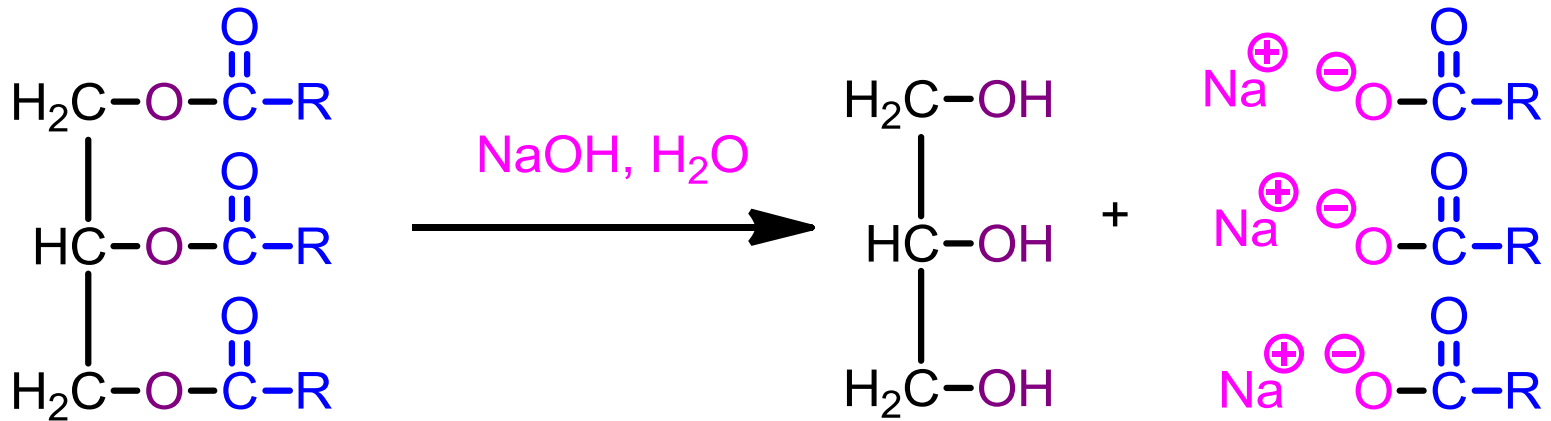


linolenová kyselina, vícenásobně nenasycená mastná kyselina

TABULKA 27.1 Struktura některých běžných mastných kyselin

Název	Počet atomů uhlíku	Struktura kyseliny	Teplota tání (°C)
Nasyčené			
laurová	12	$\text{CH}_3(\text{CH}_2)_{10}\text{COOH}$	44
myristová	14	$\text{CH}_3(\text{CH}_2)_{12}\text{COOH}$	58
palmitová	16	$\text{CH}_3(\text{CH}_2)_{14}\text{COOH}$	63
stearová	18	$\text{CH}_3(\text{CH}_2)_{16}\text{COOH}$	70
arachidová	20	$\text{CH}_3(\text{CH}_2)_{18}\text{COOH}$	75
Nenasycené			
palmitolejová	16	$\text{CH}_3(\text{CH}_2)_5\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ (<i>cis</i>)	32
olejová	18	$\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ (<i>cis</i>)	16
ricinolejová	18	$\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{OH})\text{CH}_2\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ (<i>cis</i>)	5
linolová	18	$\text{CH}_3(\text{CH}_2)_4\text{CH}=\text{CHCH}_2\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ (<i>cis, cis</i>)	-5
arachidonová	20	$\text{CH}_3(\text{CH}_2)_4(\text{CH}=\text{CHCH}_2)_4\text{CH}_2\text{CH}_2\text{COOH}$ (všechny <i>cis</i>)	-50

Hydrolýza tuků – výroba mýdla

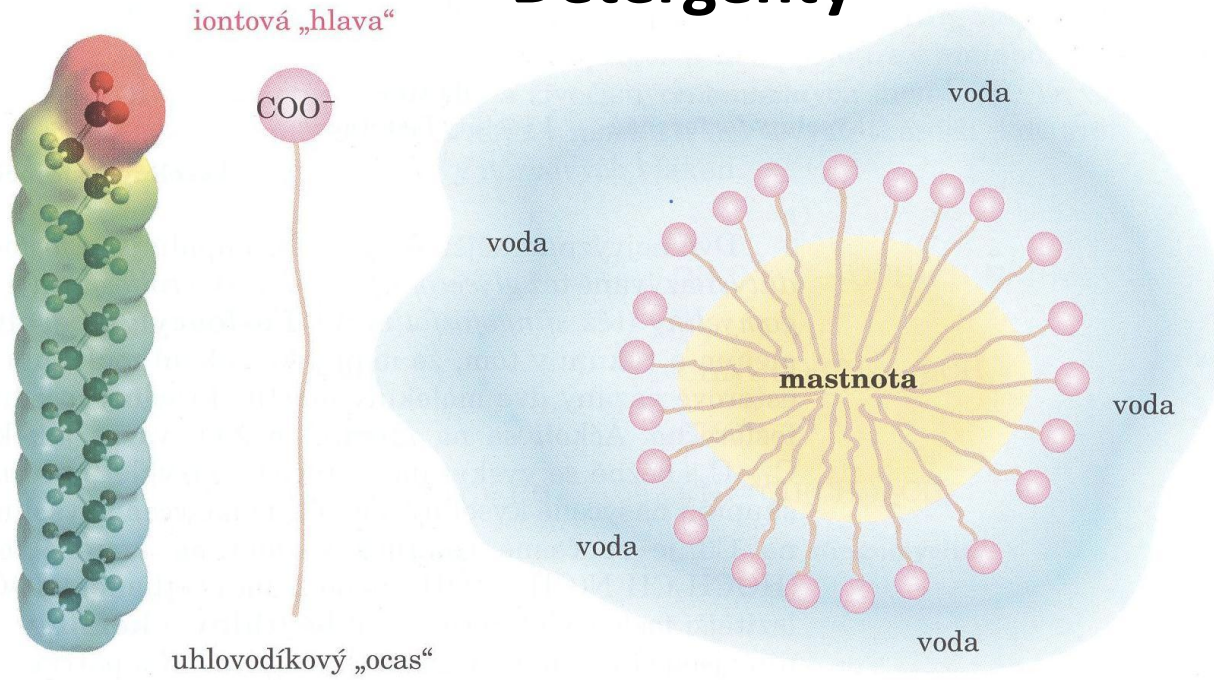


**živocisný tuk
(triglycerid)**

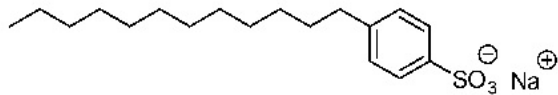
glycerol

mýdlo

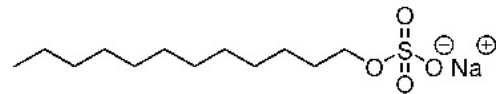
Detergenty



aniontové

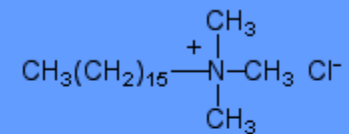


sodium dodecyl benzene sulfonate (SDBS)

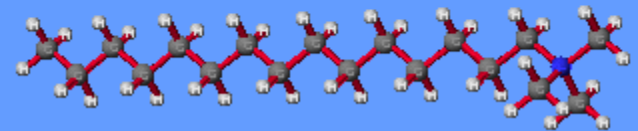


sodium dodecyl sulfate (SDS)

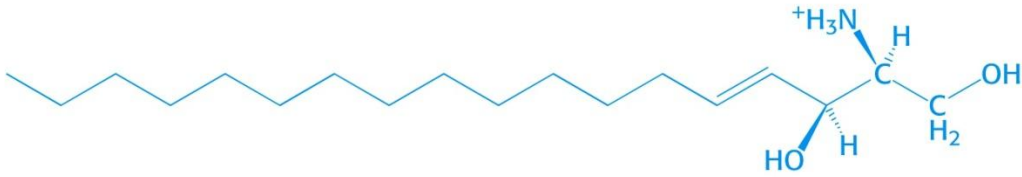
kationtové



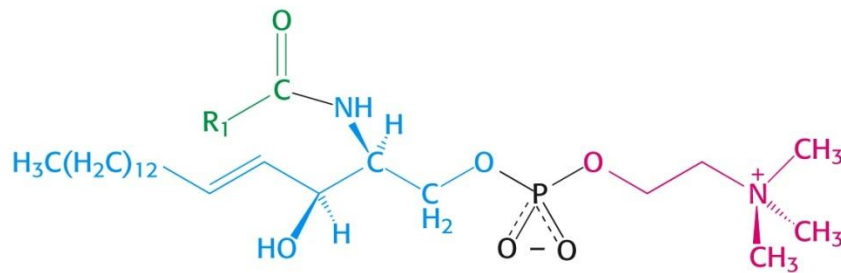
trimethylhexadecylammonium chloride



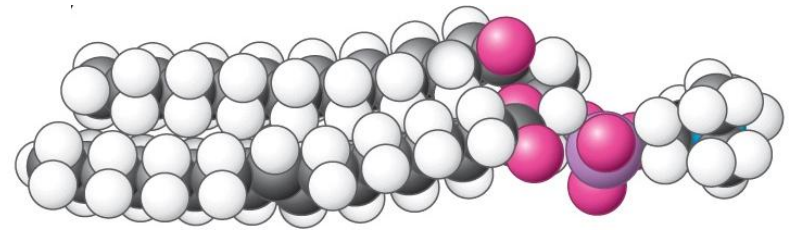
Fosfolipidy odvozené od sfingosinu



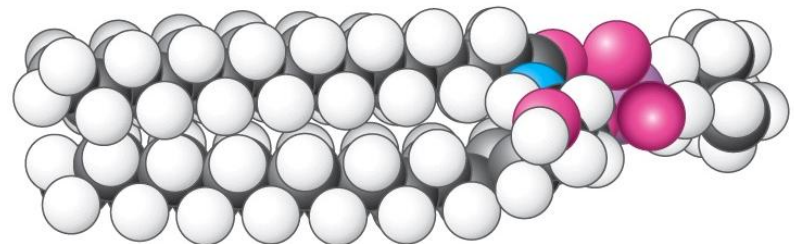
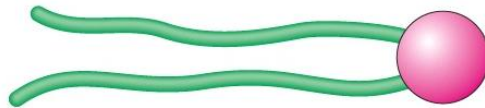
Sphingosine



Sphingomyelin

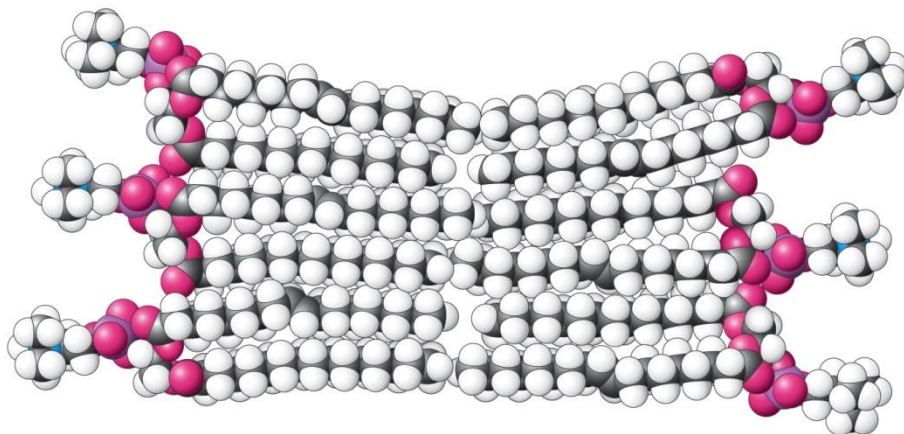
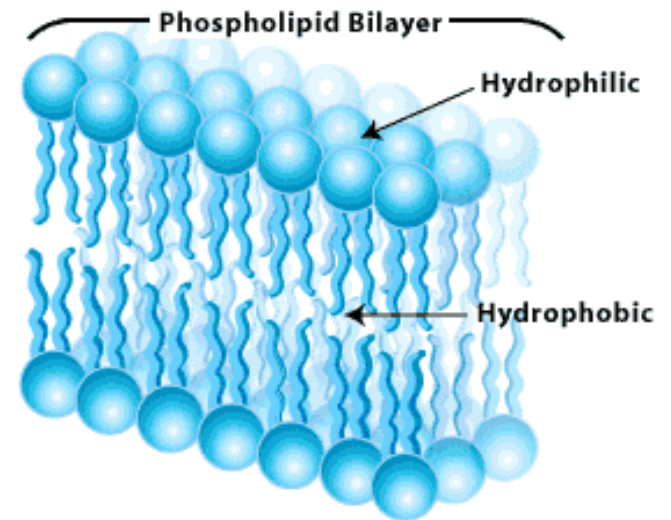
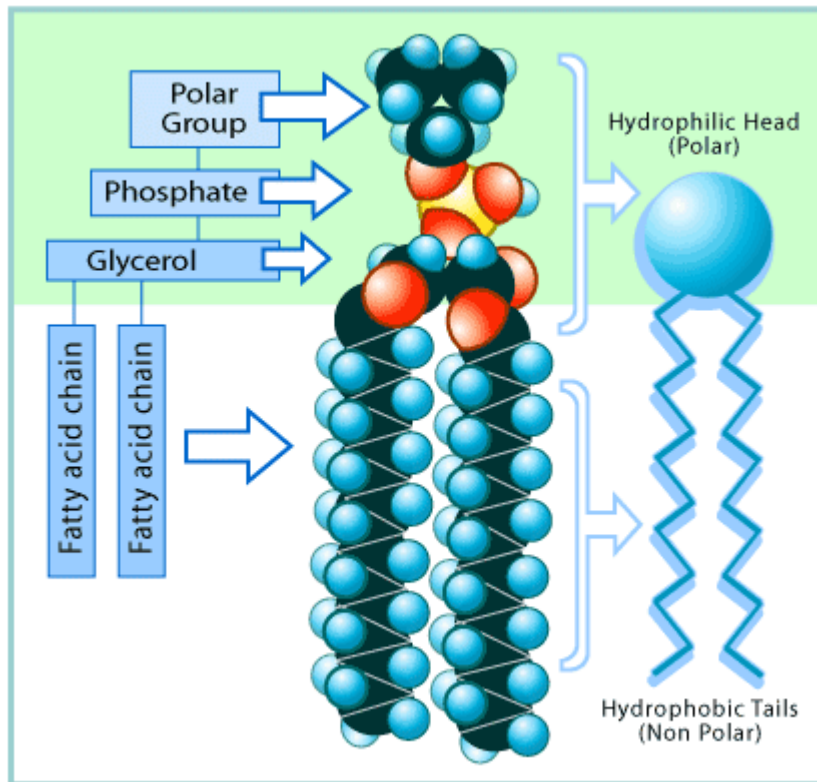


Phosphoglyceride

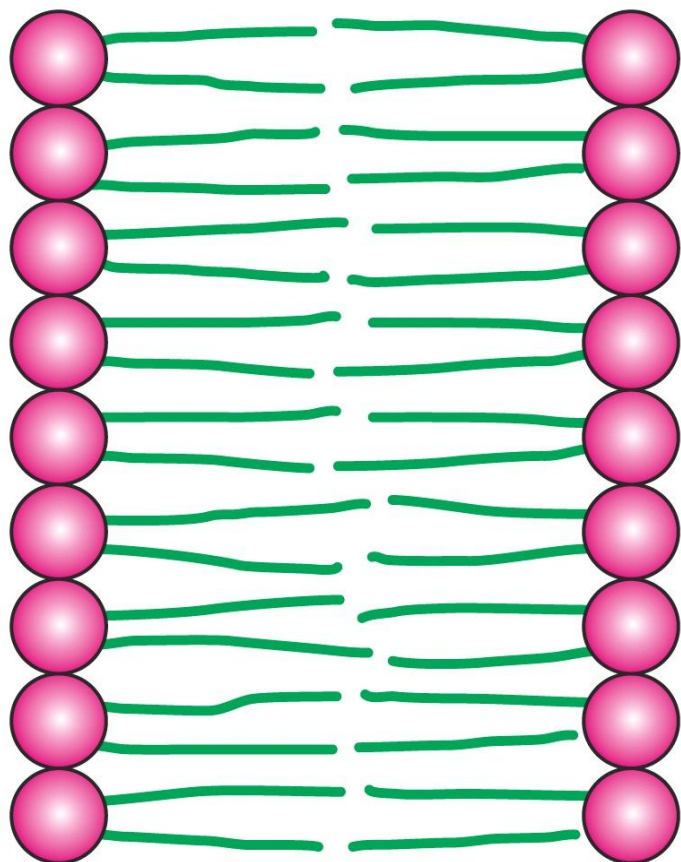


Sphingomyelin

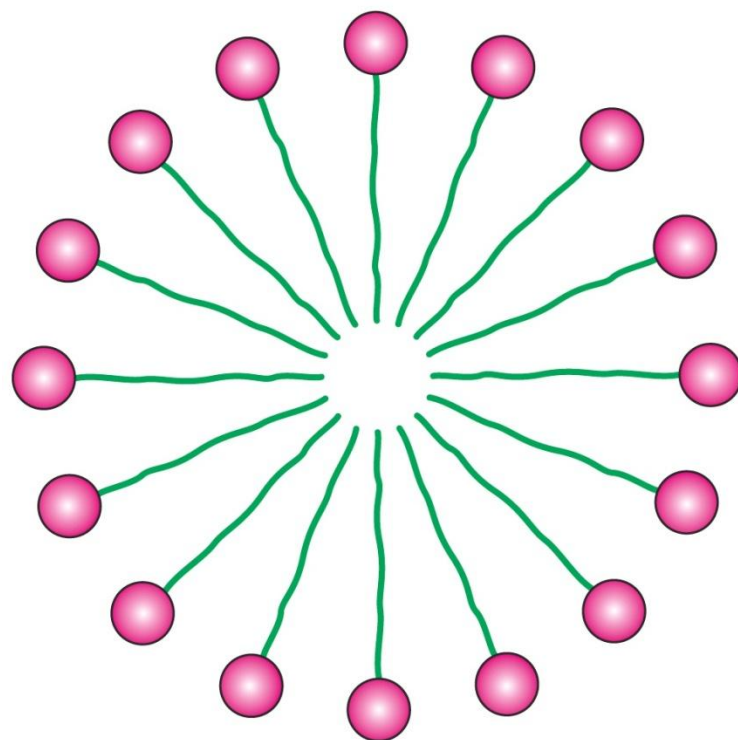
Hydrofobicita alkylových řetězců - membrány



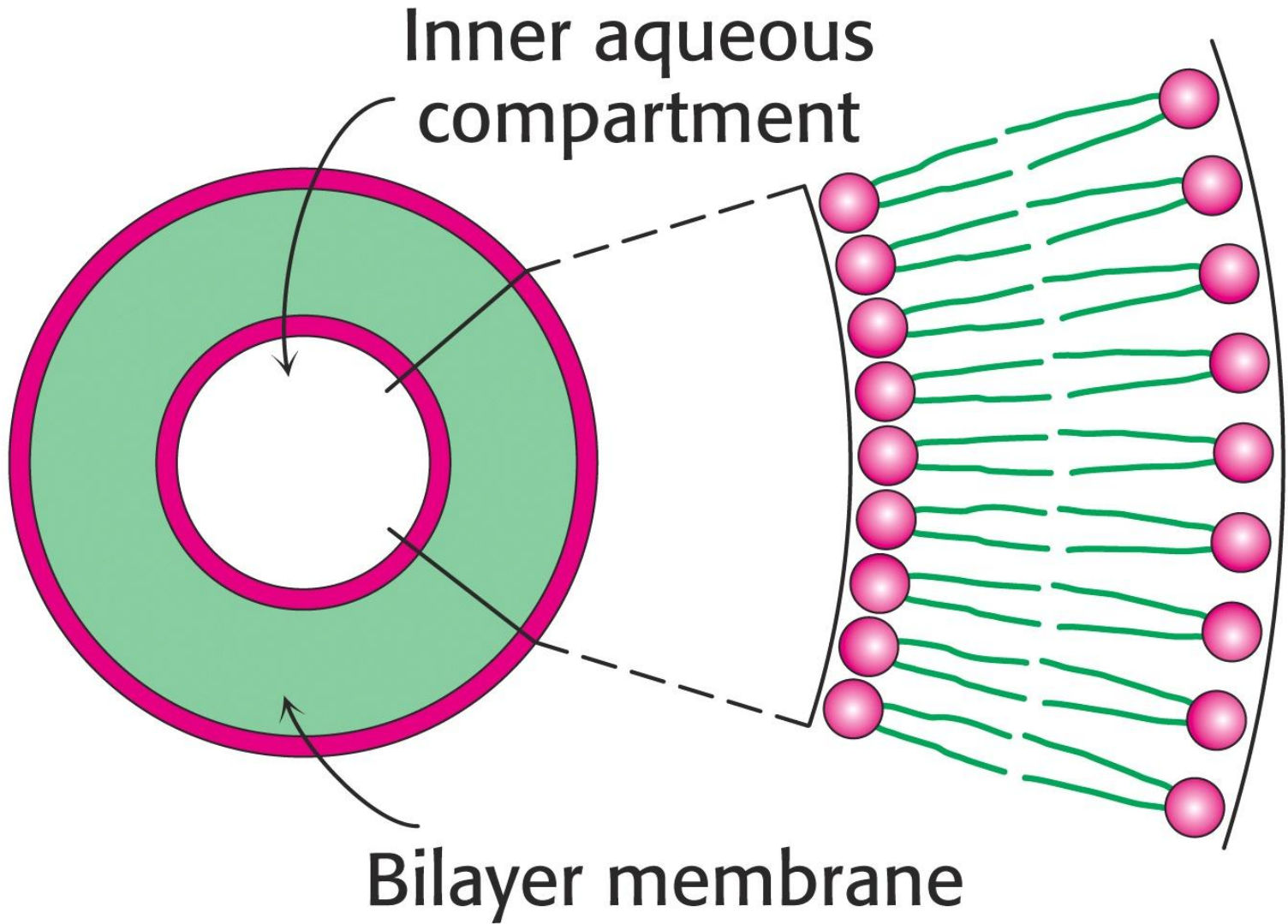
Dvouvrstvá membrána



Micela



Liposom



Elasticita membrány je závislá na složení mastných kyselin (dlouhé nasycené = méně elastická) a cholesterolu (= méně elastická)

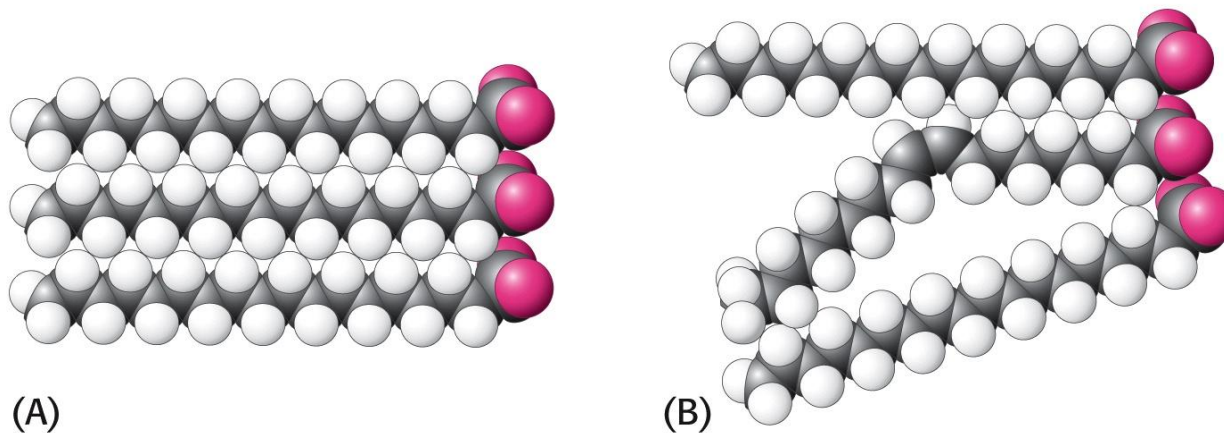
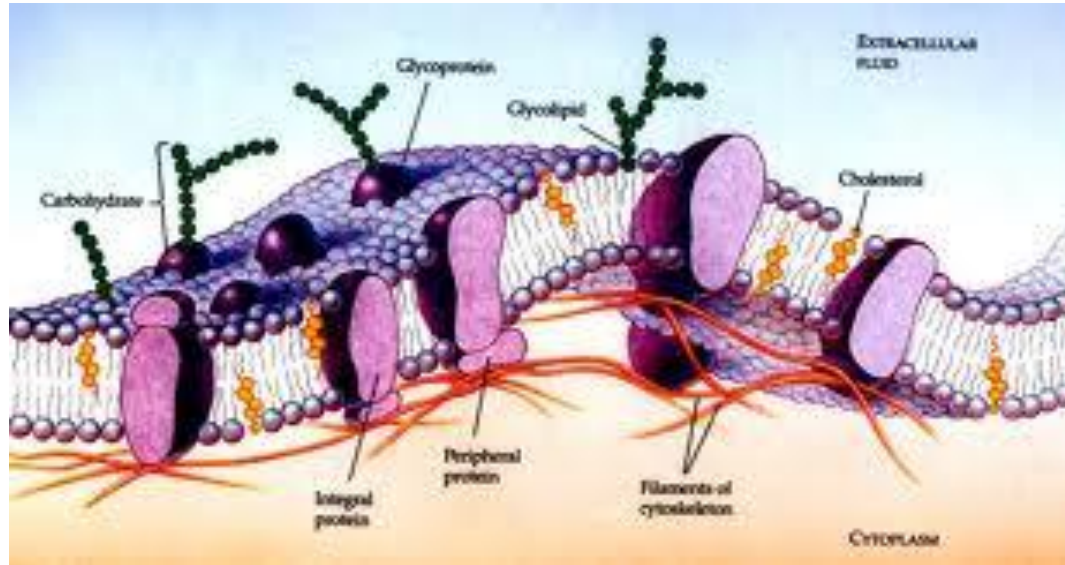


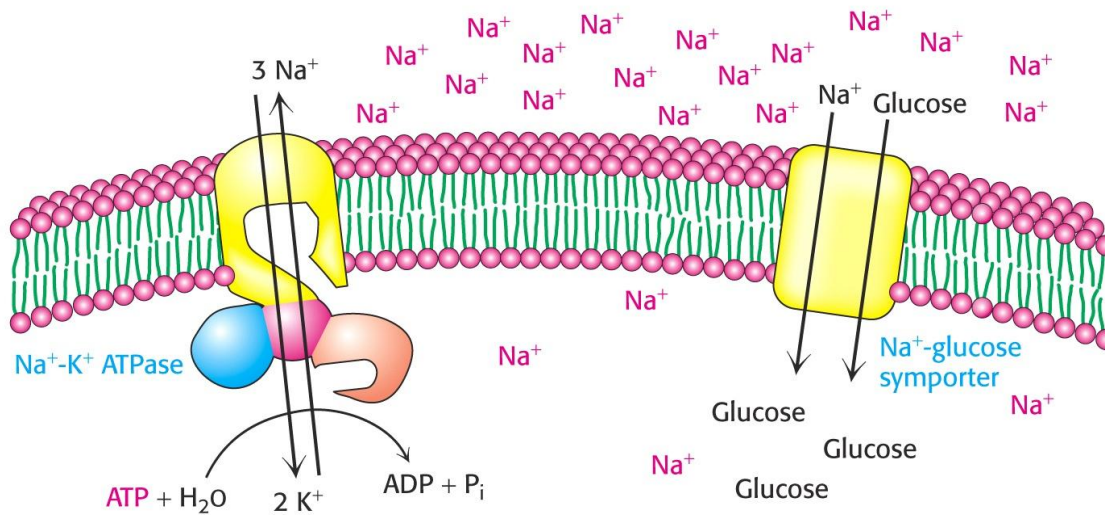
TABLE 12.3 The melting temperature of phosphatidyl choline containing different pairs of identical fatty acid chains

Number of carbons	Number of double bonds	Fatty acid		T_m (°C)
		Common name	Systematic name	
22	0	Behenate	<i>n</i> -Docosanoate	75
18	0	Stearate	<i>n</i> -Octadecanoate	58
16	0	Palmitate	<i>n</i> -Hexadecanoate	41
14	0	Myristate	<i>n</i> -Tetradecanoate	24
18	1	Oleate	<i>cis</i> - Δ^9 -Octadecenoate	-22

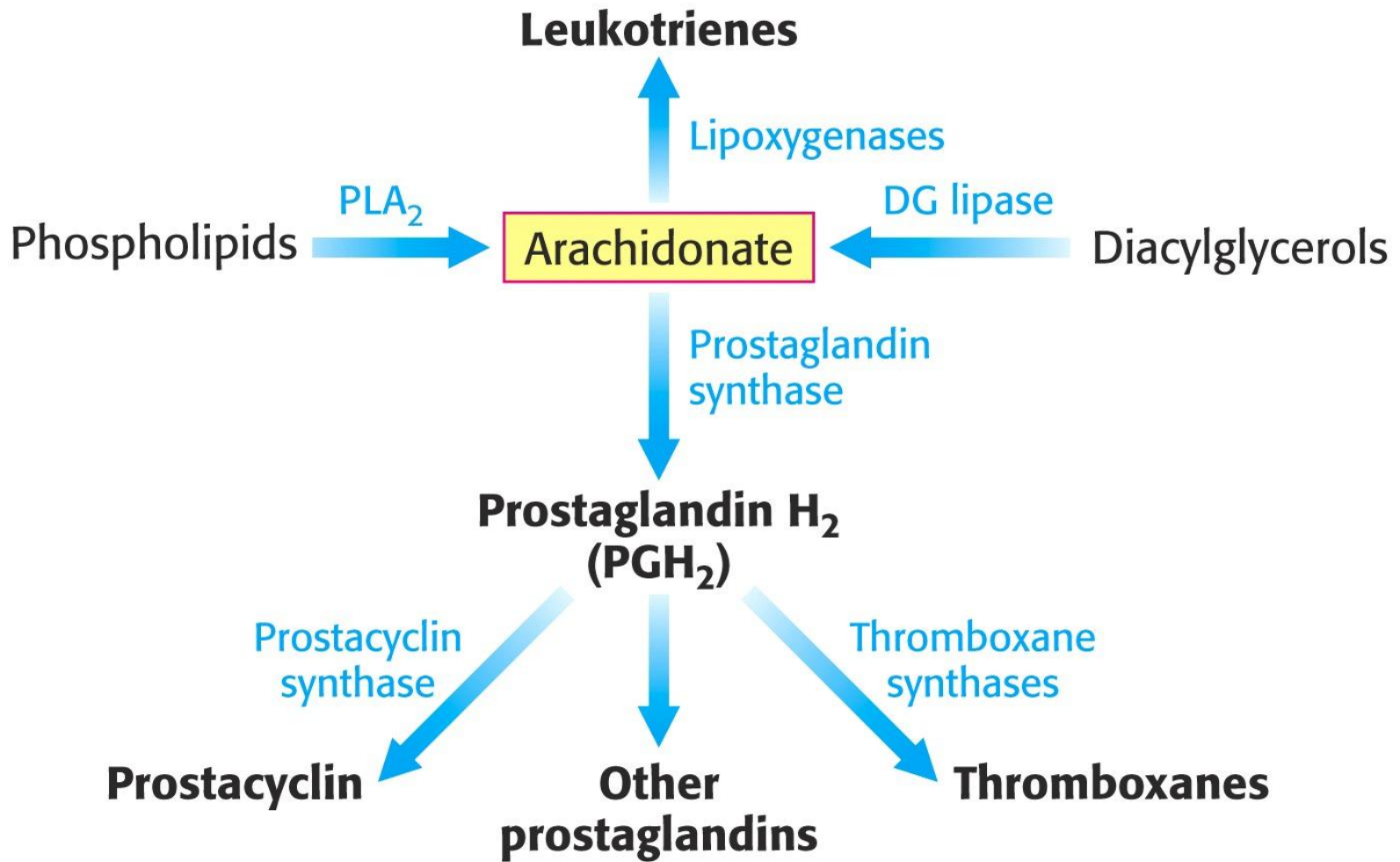
Buněčná (plasmatická) membrána



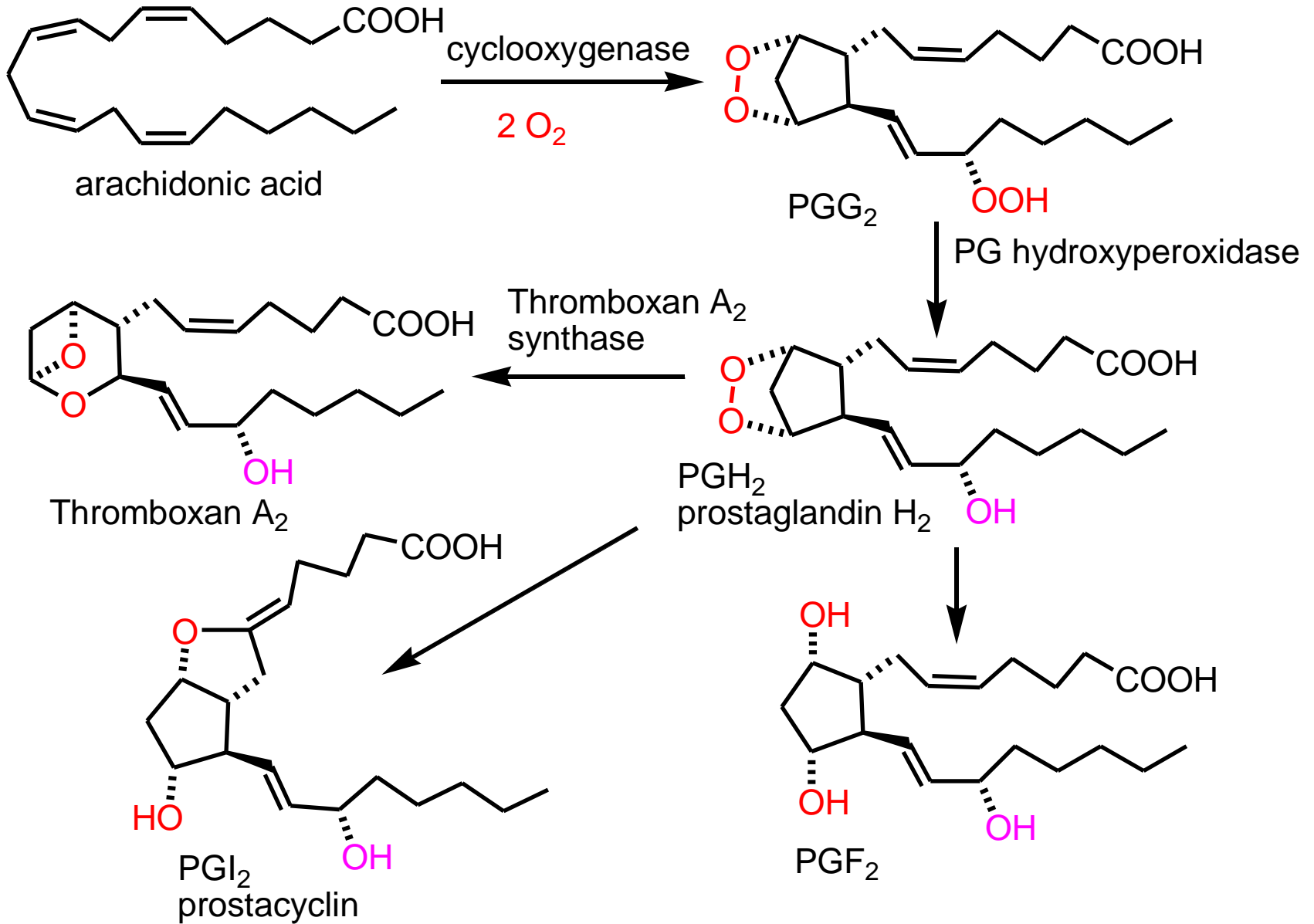
Přenos látek/iontů přes membránu



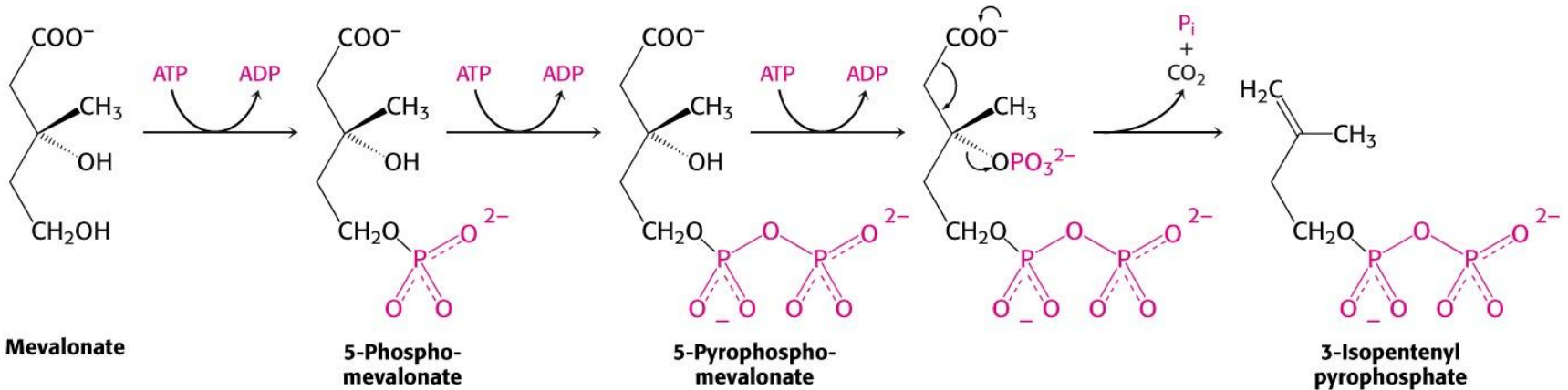
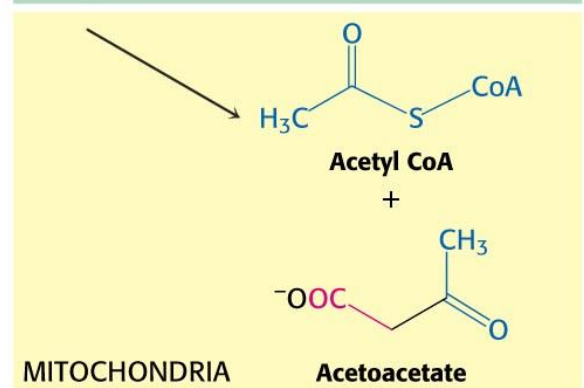
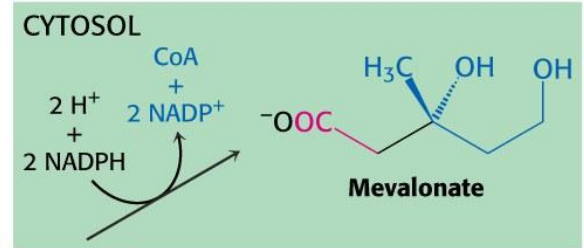
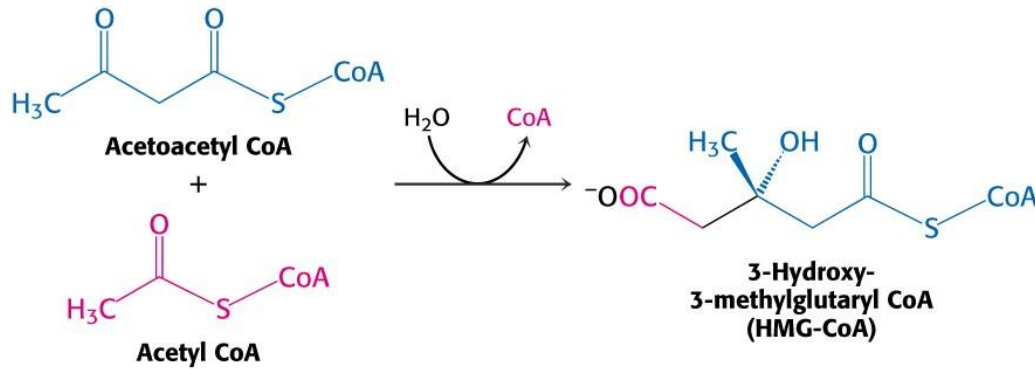
Eikosanoidní hormony – prostaglandiny, prostacykliny, thromboxany a leukotrieny – lokální hormony – stimulují vznik zánětu, regulují průtok krve tkání a přenos iontů přes membrány...



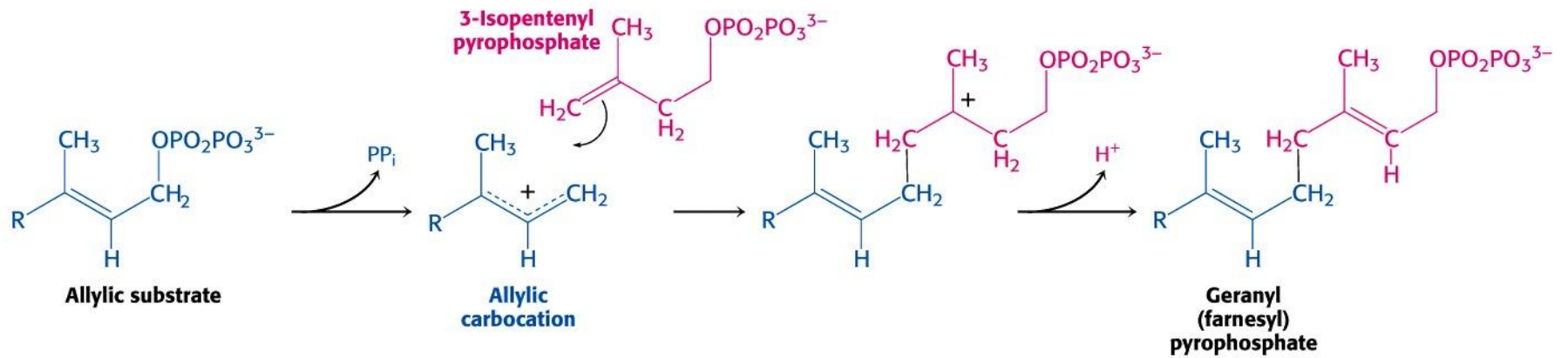
Eikosanoidy



Biosyntéza isopren-fosfátu



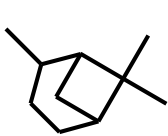
Oligomerizace isopren-fosfátu



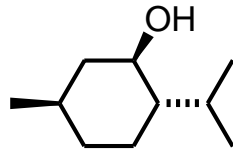
Terpeny (Terpenoidy, Isoprenoidy)

Monoterpenes

C₁₀



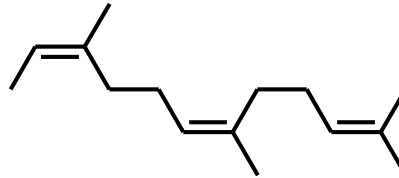
pinane



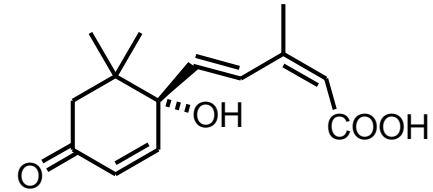
menthol

Sesquiterpenes

C₁₅



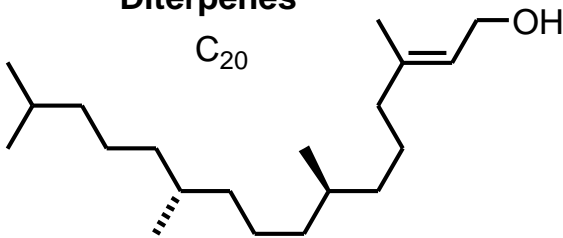
farnesan



abscisic acid

Diterpenes

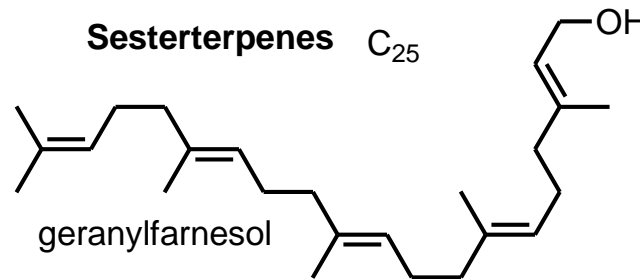
C₂₀



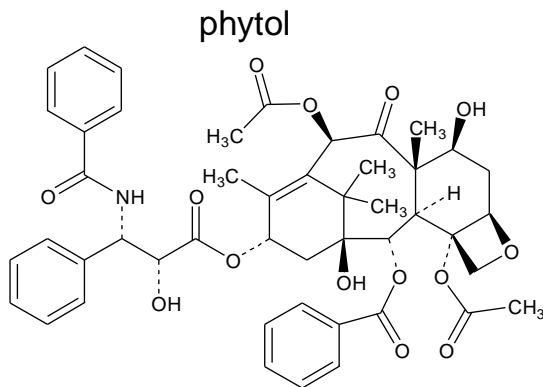
phytol

Sesterterpenes

C₂₅



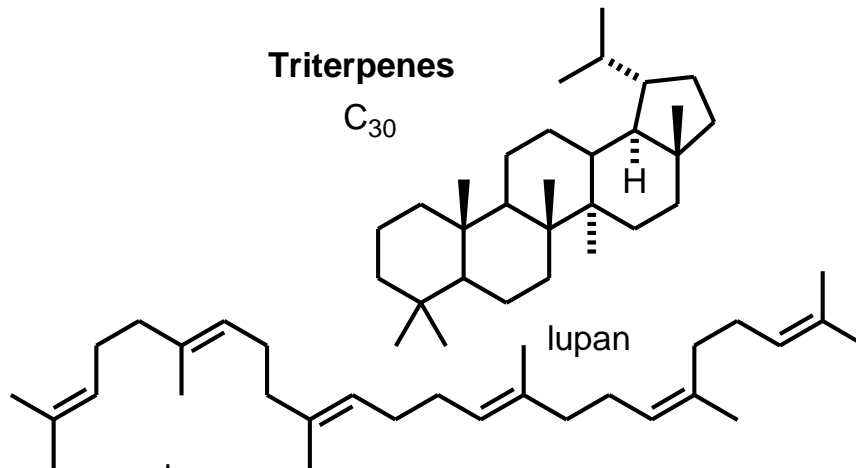
geranyl farnesol



Taxol

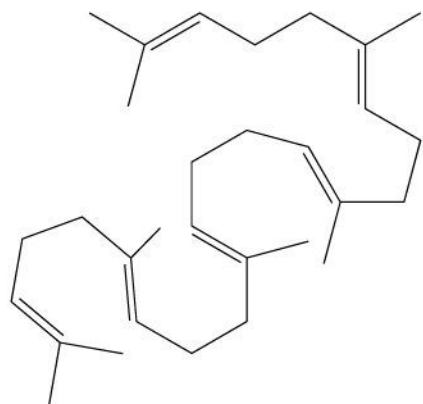
Triterpenes

C₃₀

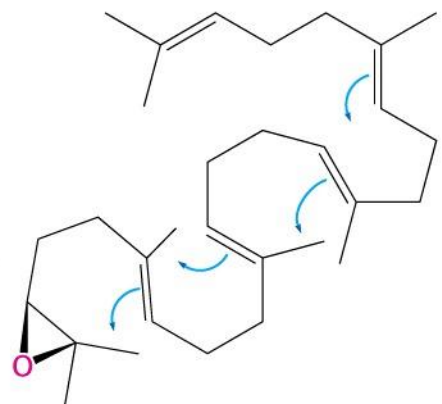
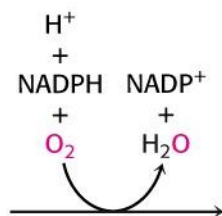


squalene

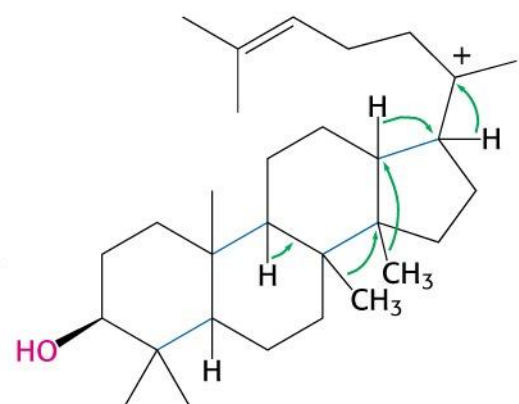
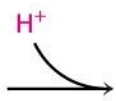
lupan



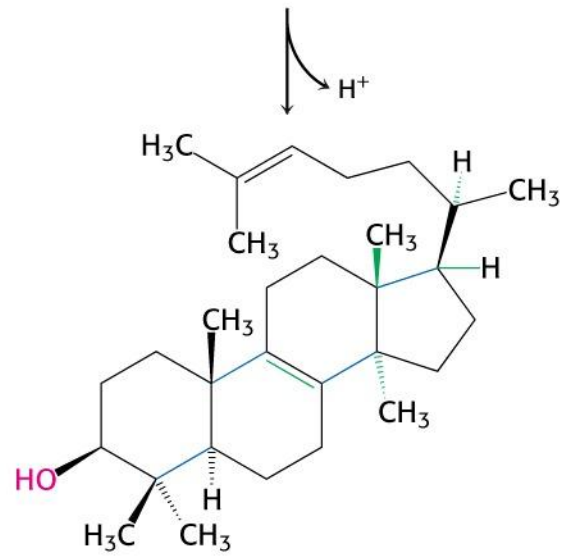
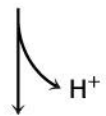
Squalene



Squalene epoxide

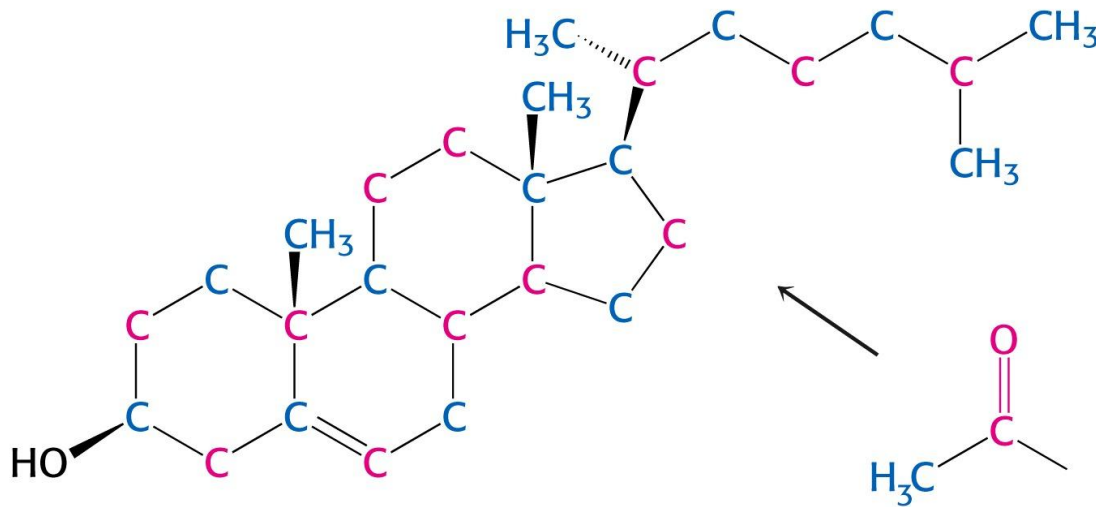
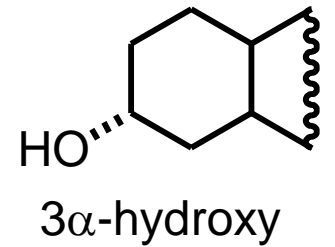
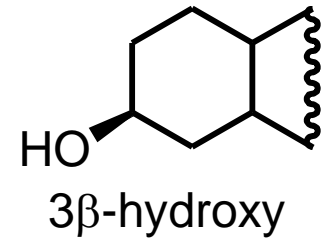
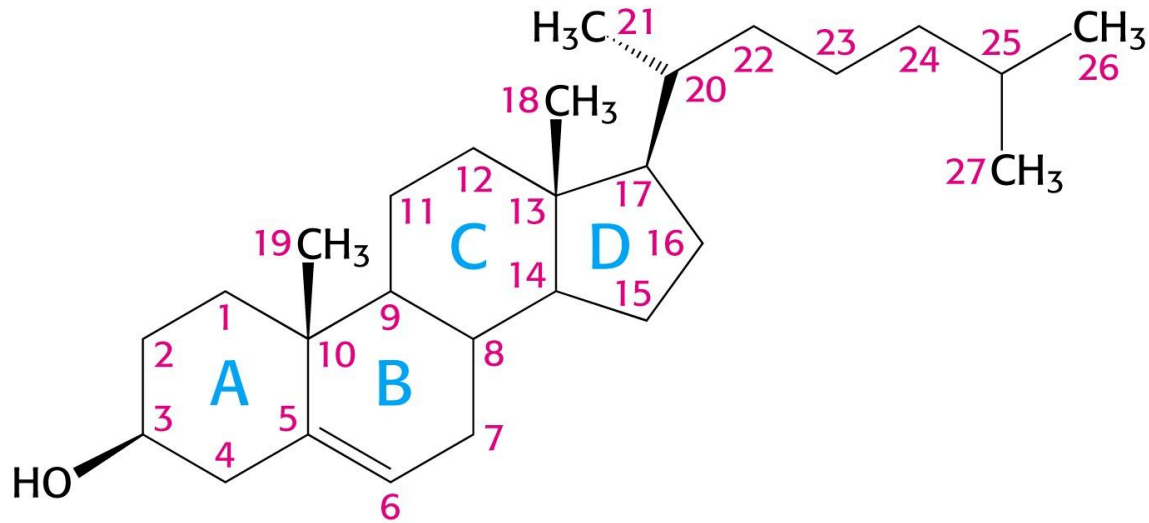


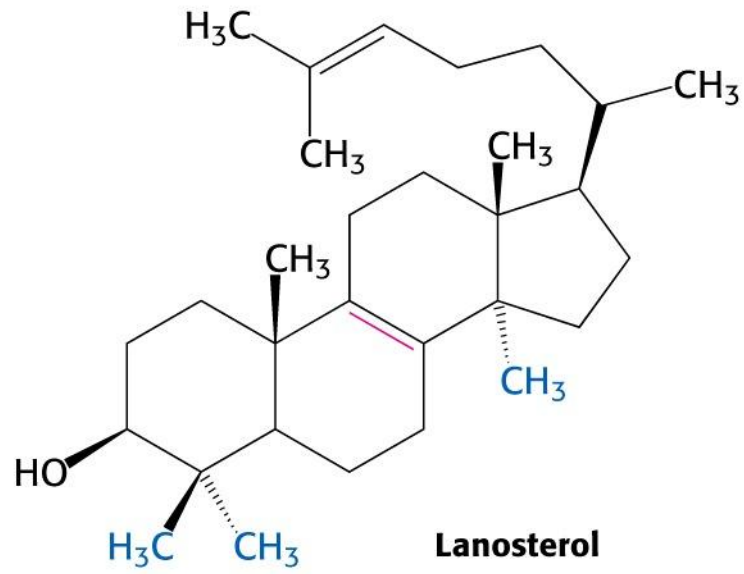
Protosterol cation



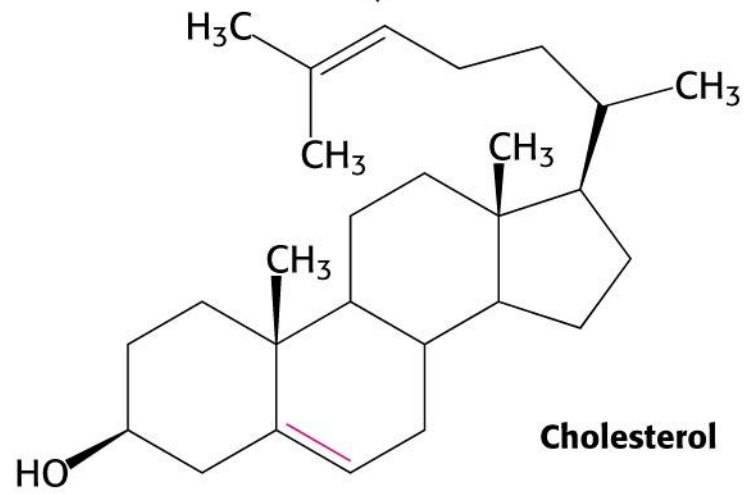
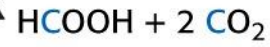
Lanosterol

Steroidy

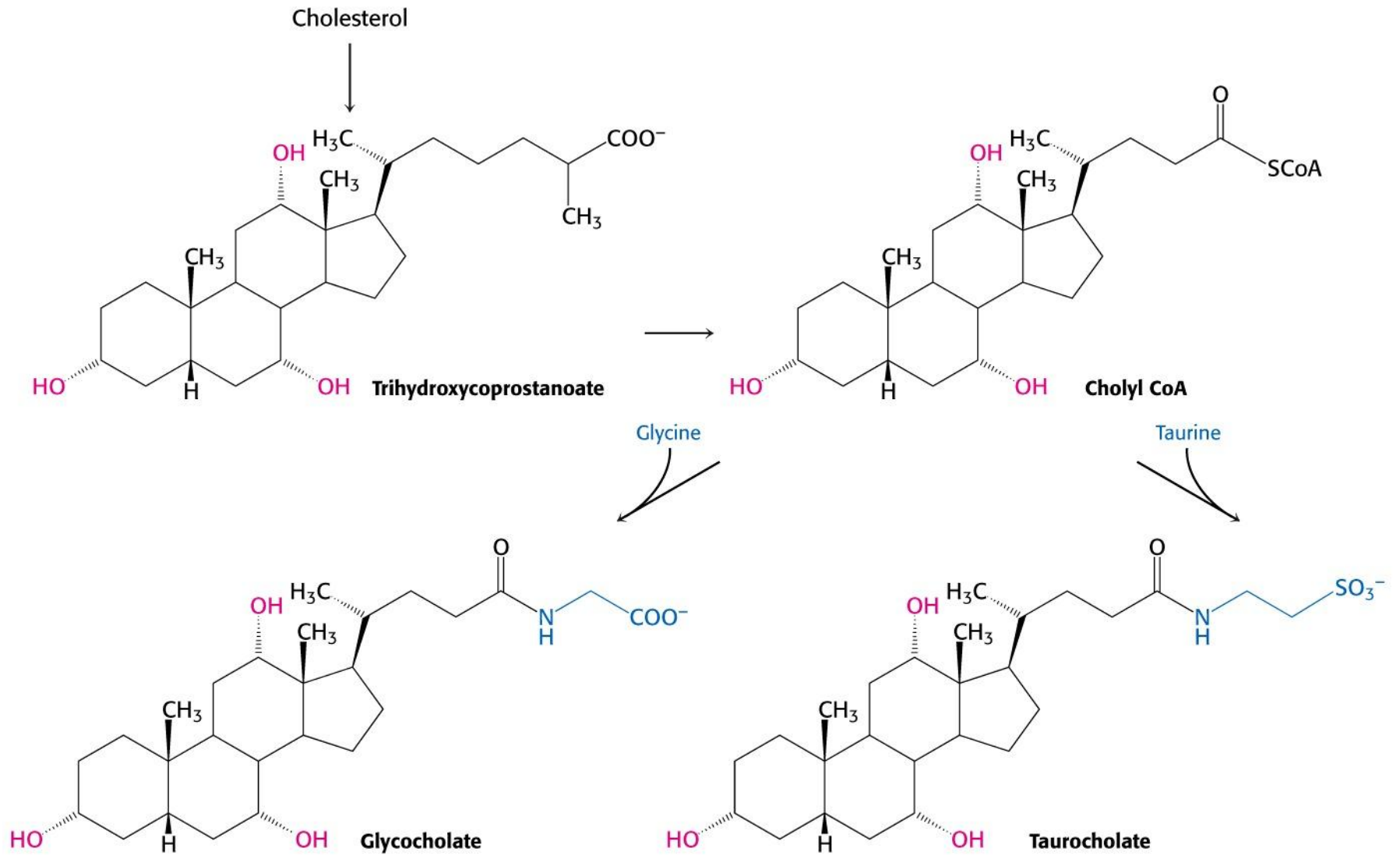


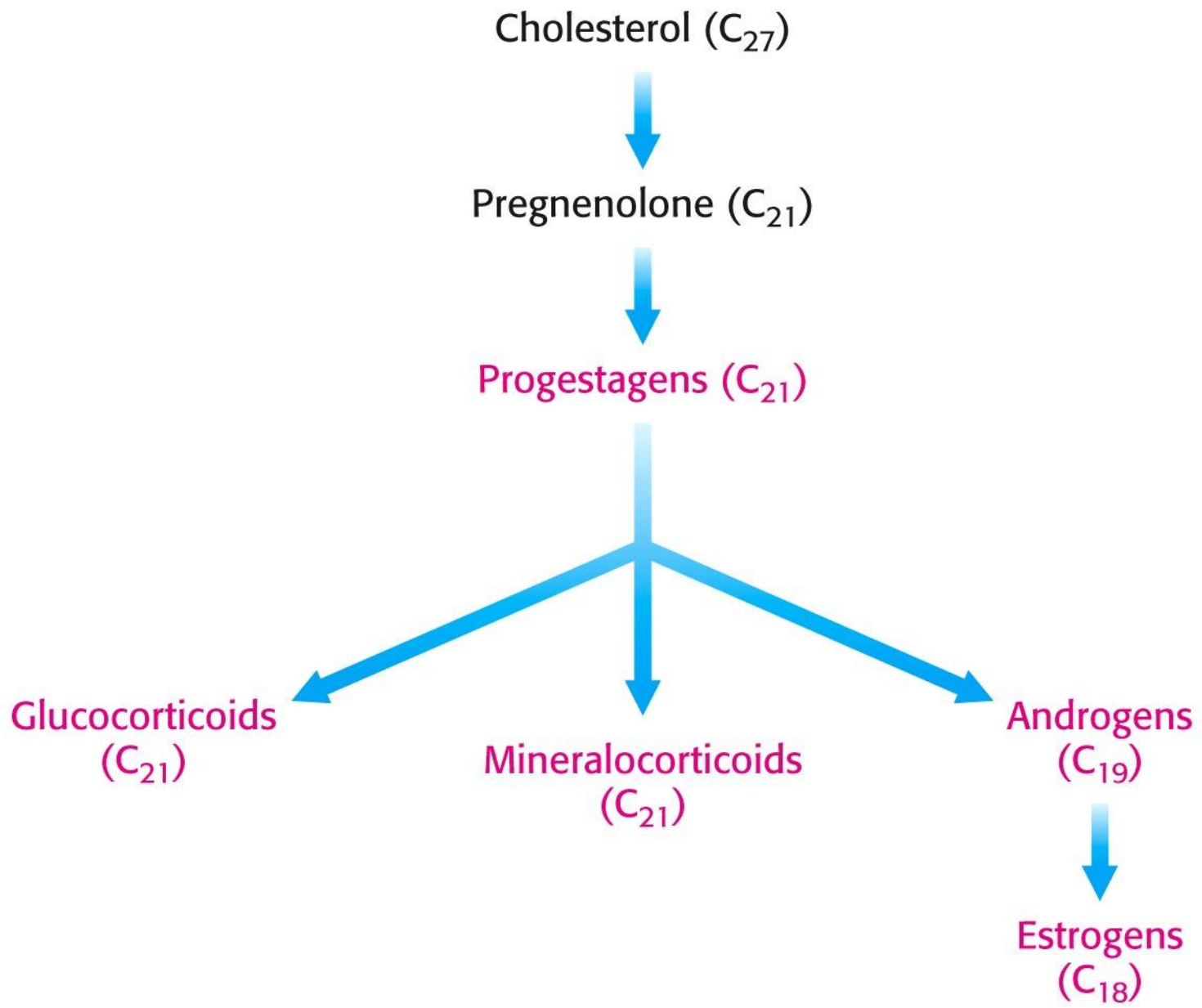


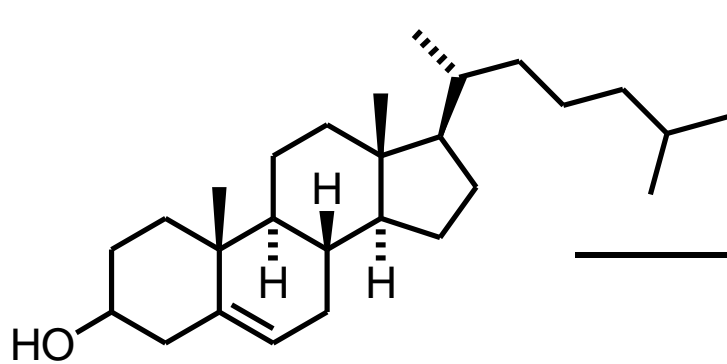
19 steps



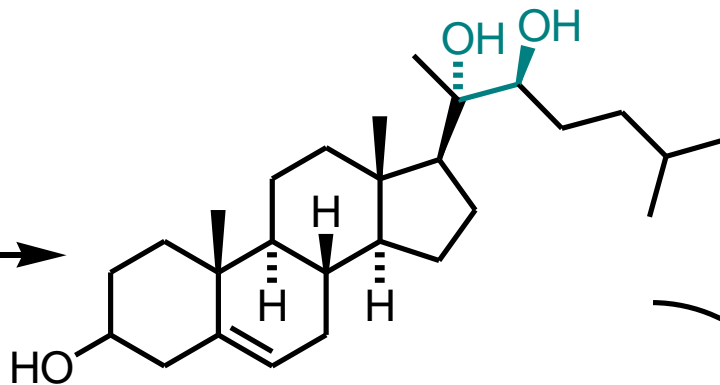
Choláty – detergenty trávicího ústrojí



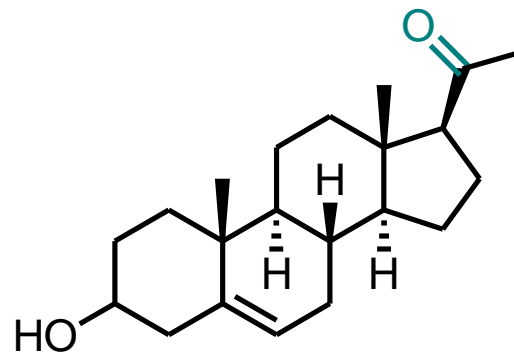
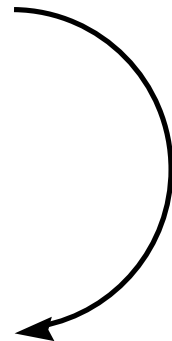




cholesterol

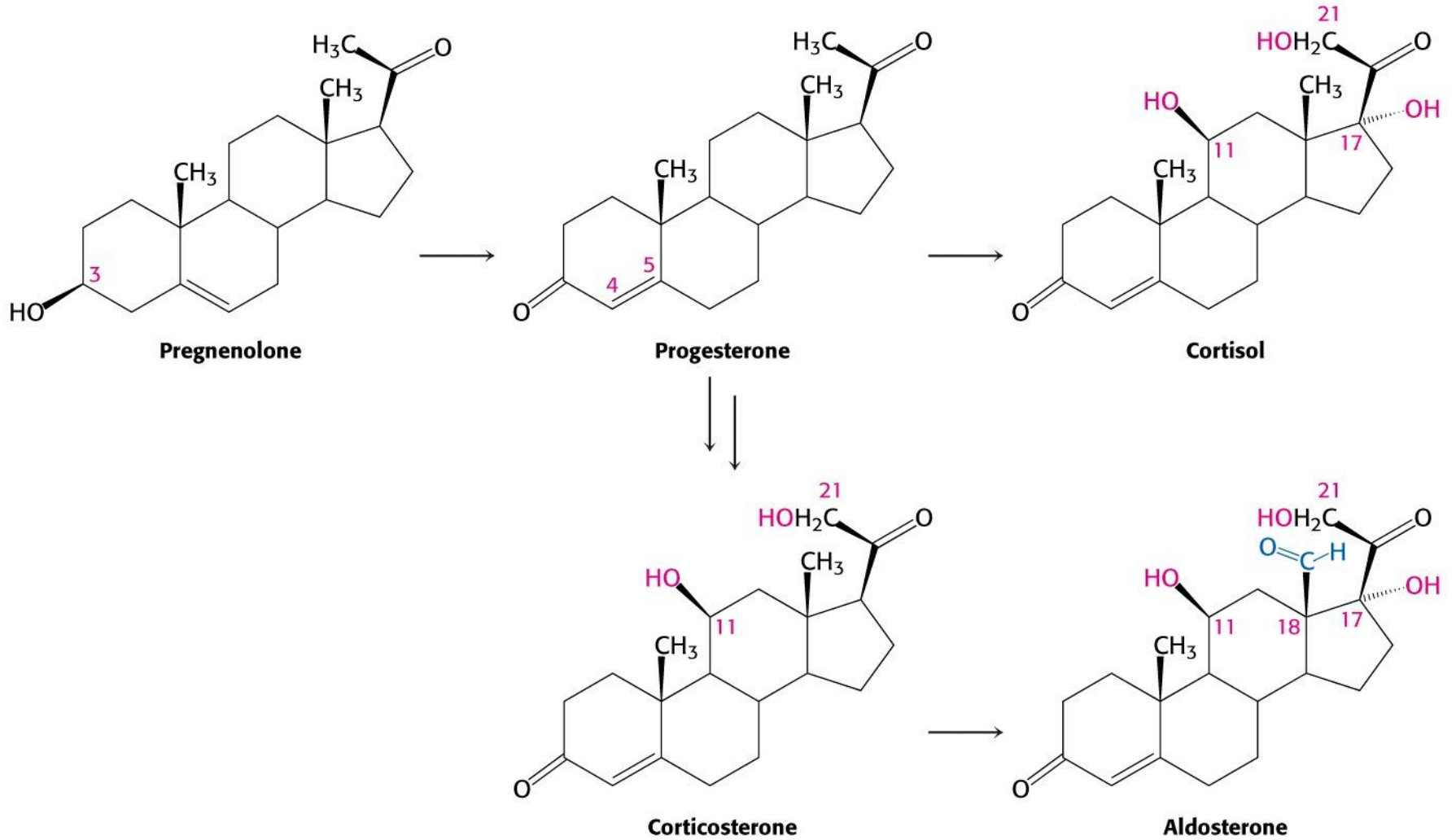


20 α ,22 β -dihydroxycholesterol



pregnenolone

Kortikoidy



Pohlavní hormony

