

M U N I
S C I

C5730 Biochemie - seminář

Mgr. Lukáš Faltinek

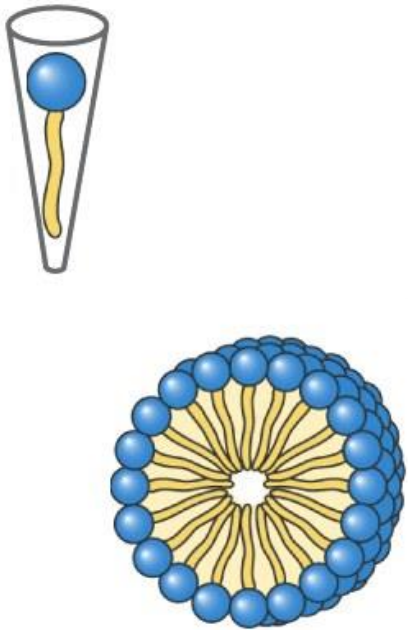
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M U N I
S C I

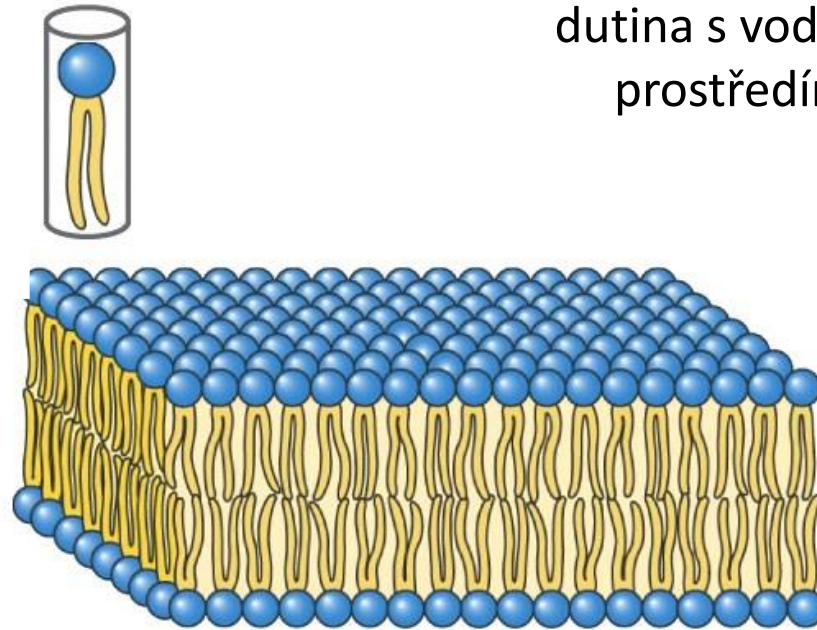
Membránový transport

Formy lipidových agregátů

micela



dvojvrstva



dutina s vodným
prostředím

vezikul (liposom)

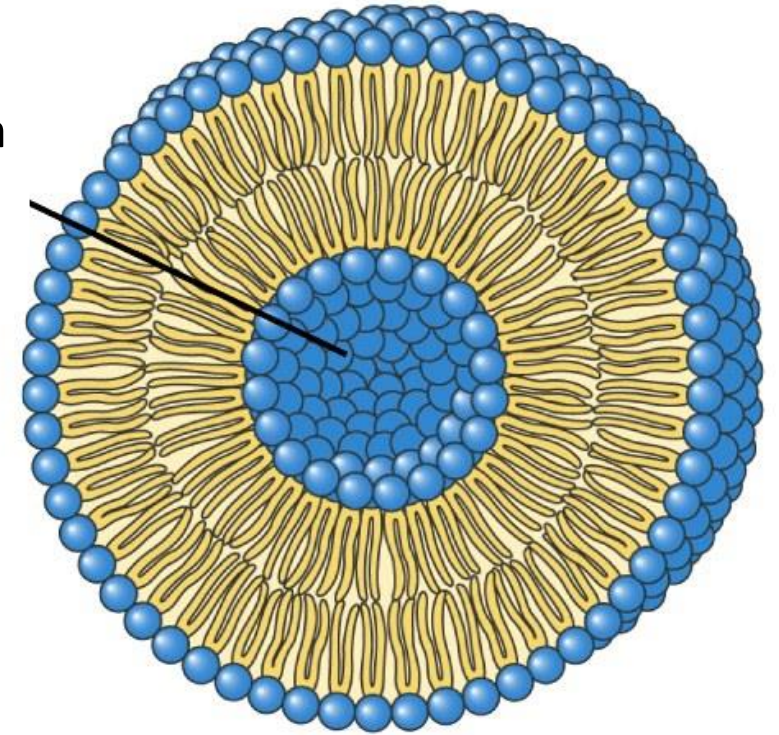


Figure 11-4

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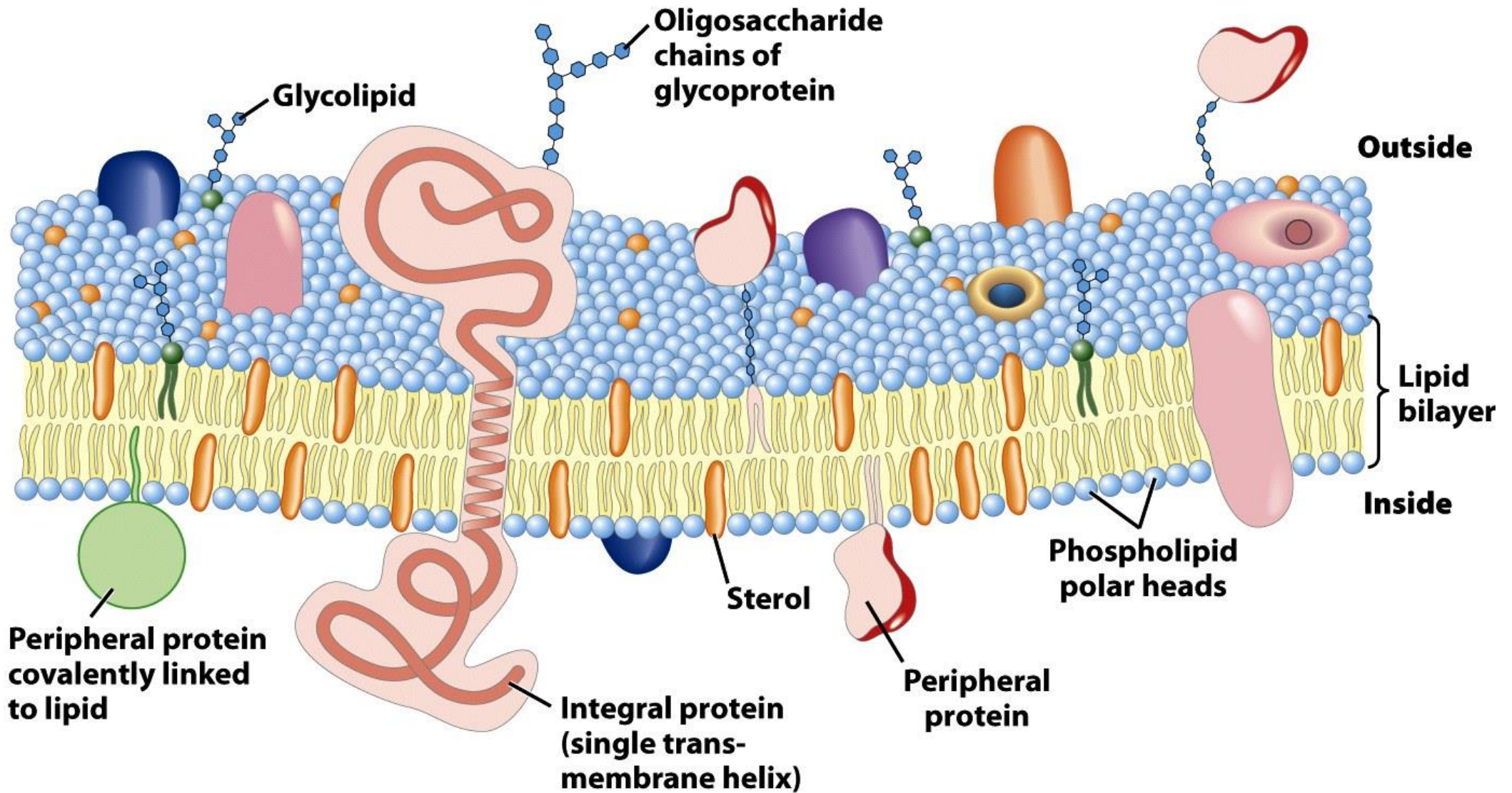


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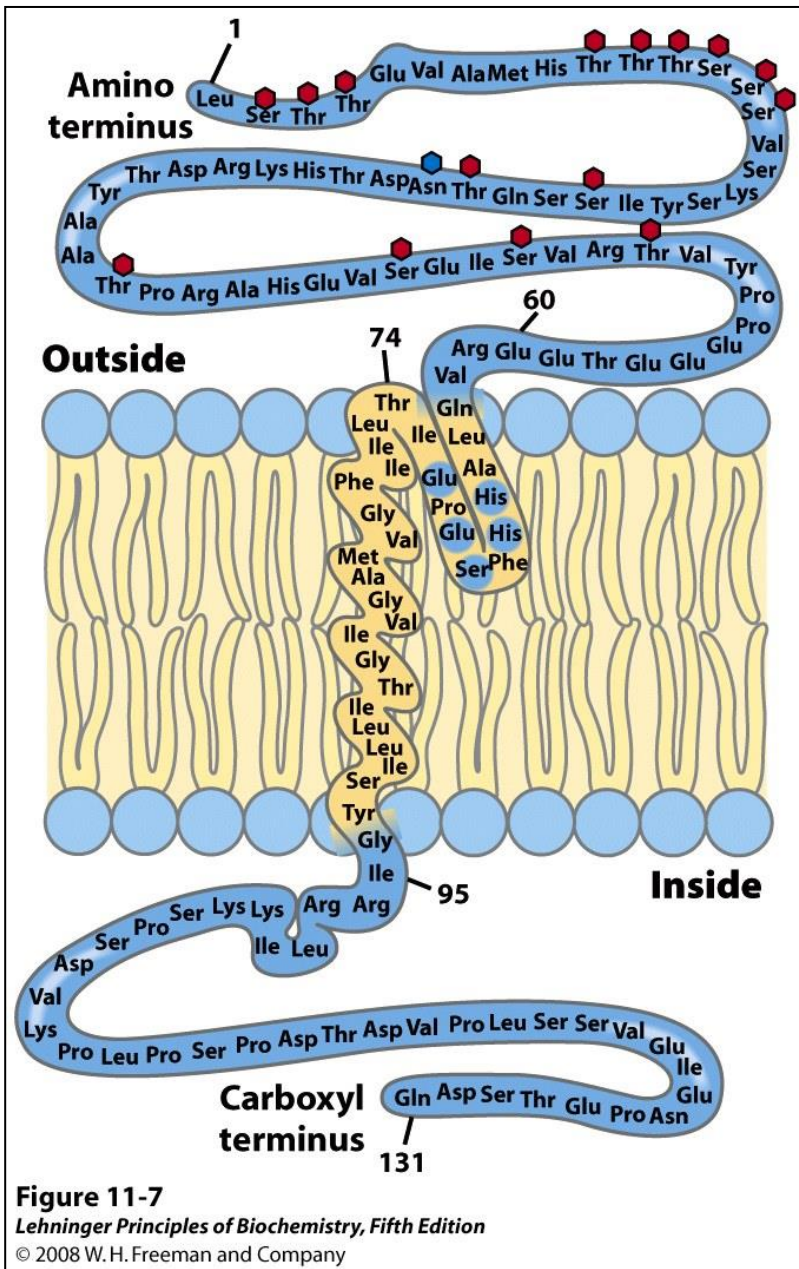


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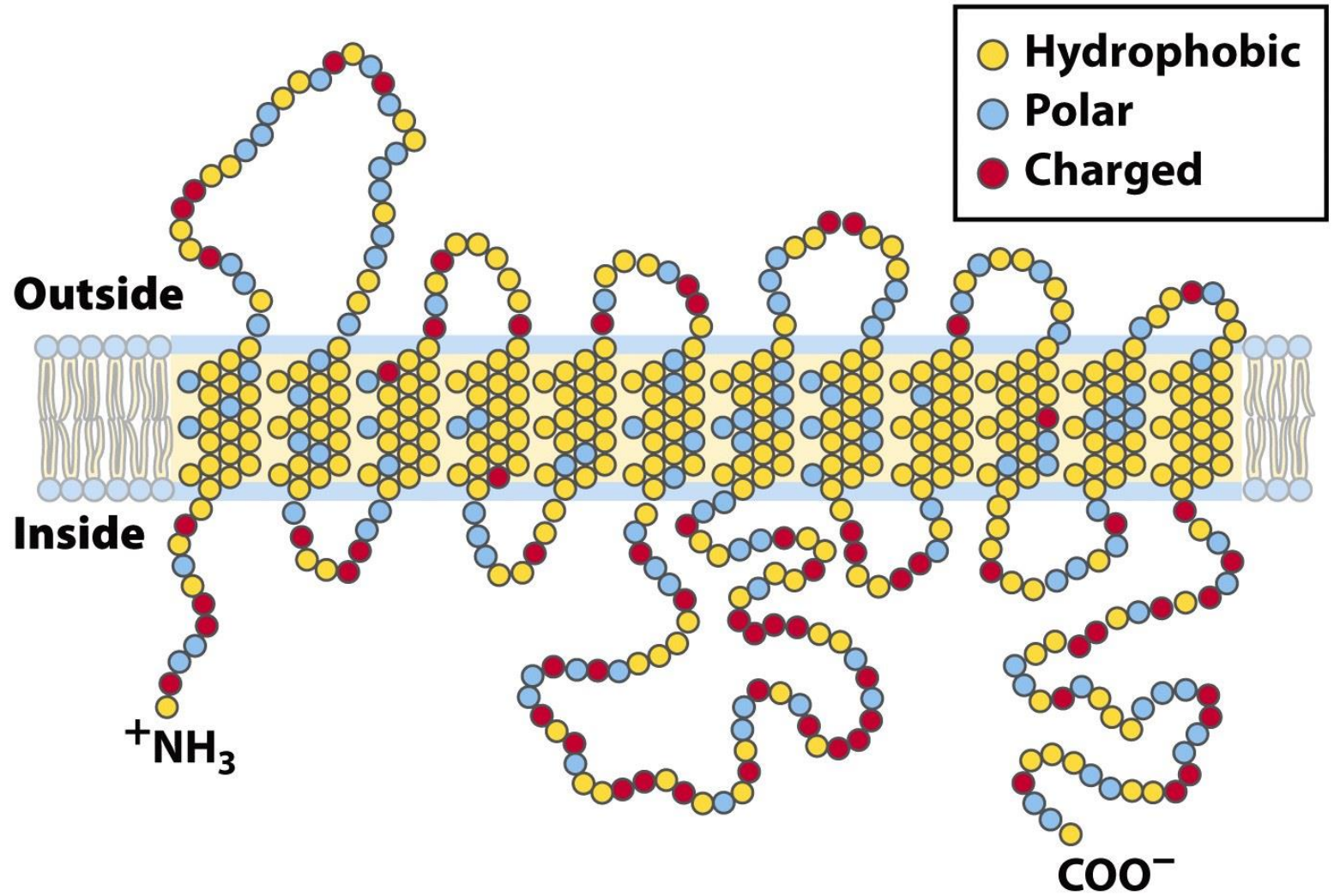
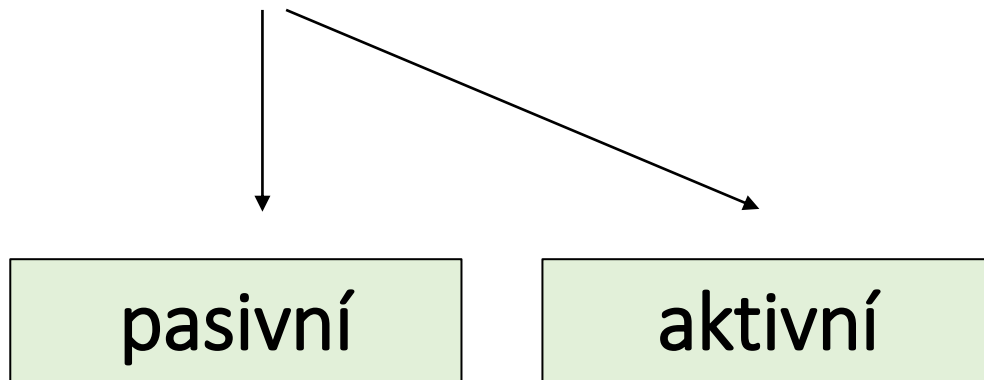


Figure 11-29a
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Membránový transport

- přesun látek přes plasmatickou membránu
- typy transportů:



membrána

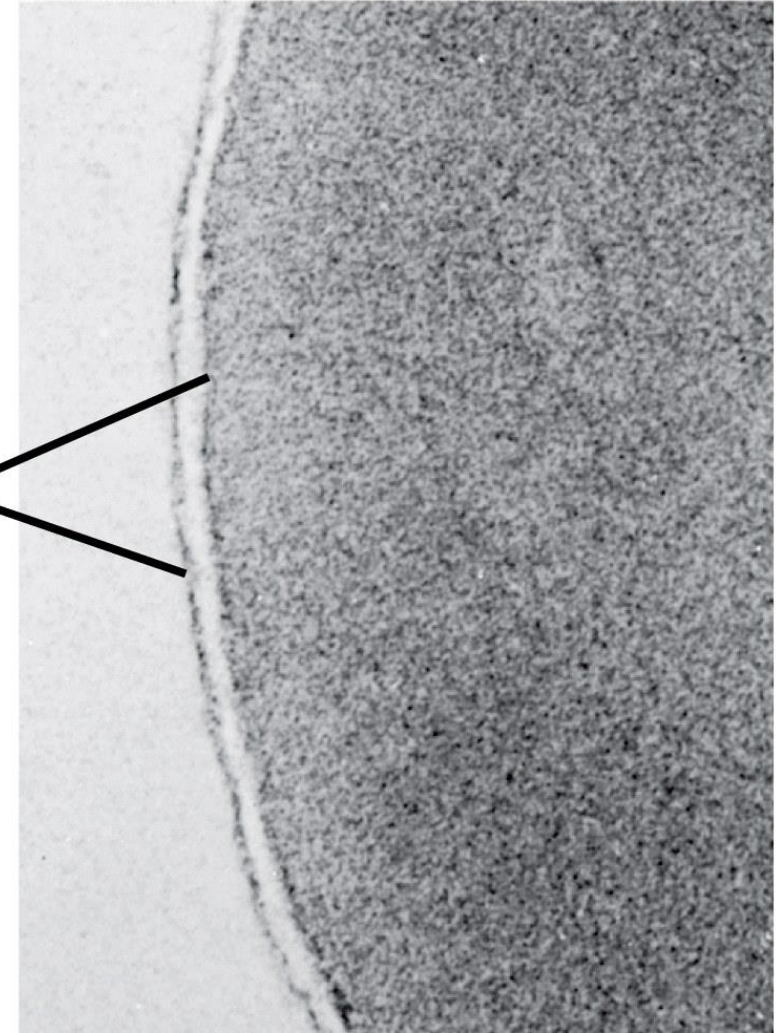


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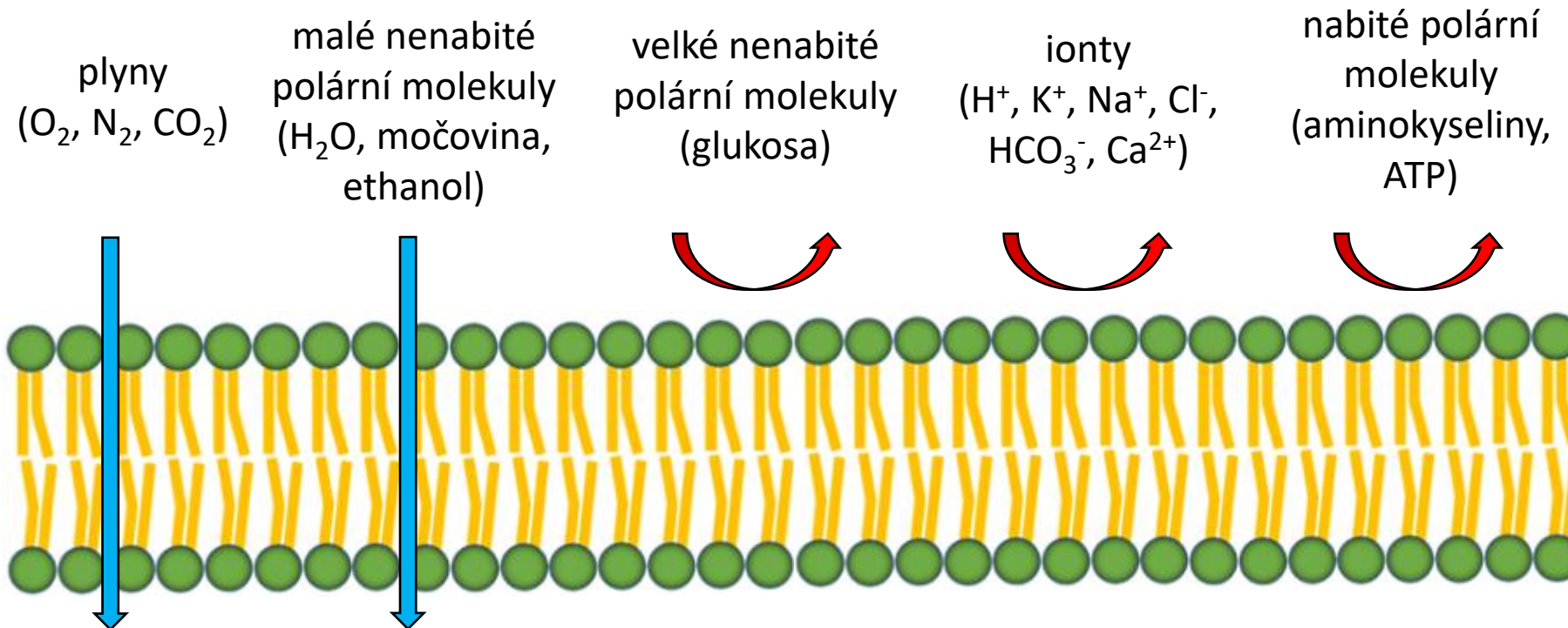
Pasivní transport - difuze

➤ pohyb látek ve směru koncentračního gradientu bez spotřeby energie

➤ volná (prostá)

X

usnadněná



Pasivní transport - difuze

- pohyb látek ve směru koncentračního gradientu bez spotřeby energie
- volná (prostá) X **usnadněná**
- mohou procházet větší molekuly a ionty (aminokyseliny, glukosa, Na⁺)
- probíhá přes **proteinové kanály** a **přenašeče** (transportní proteiny)

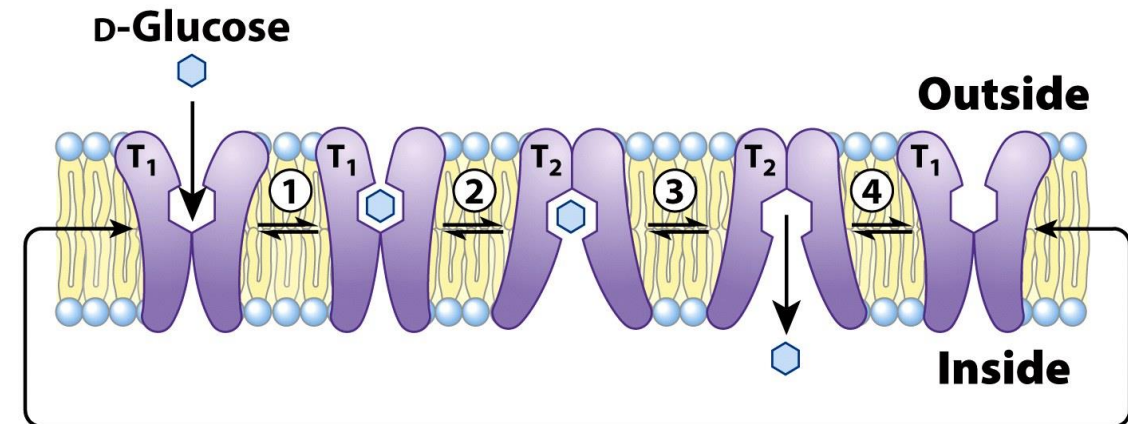
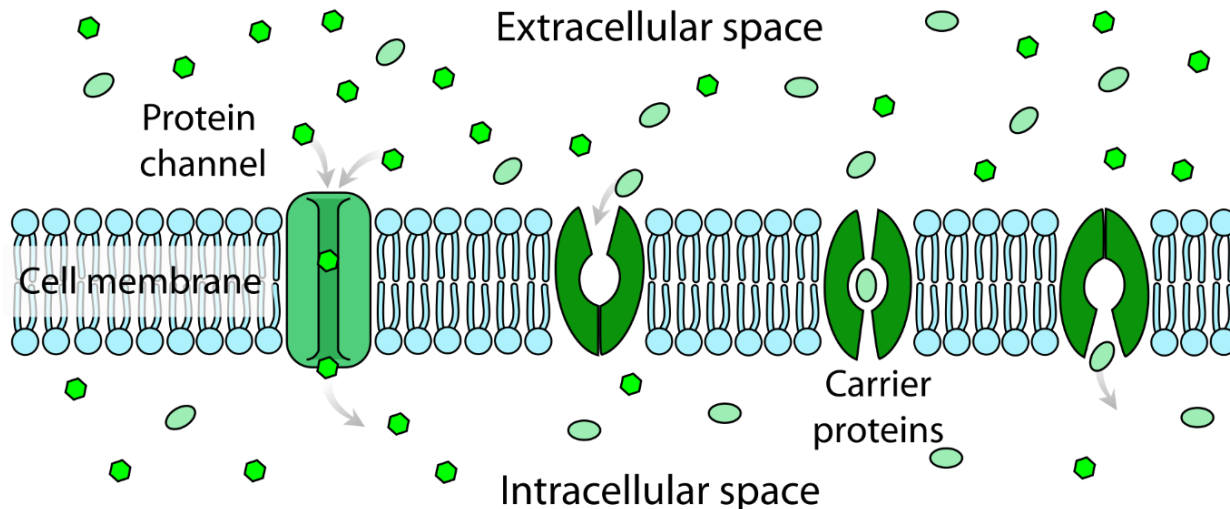


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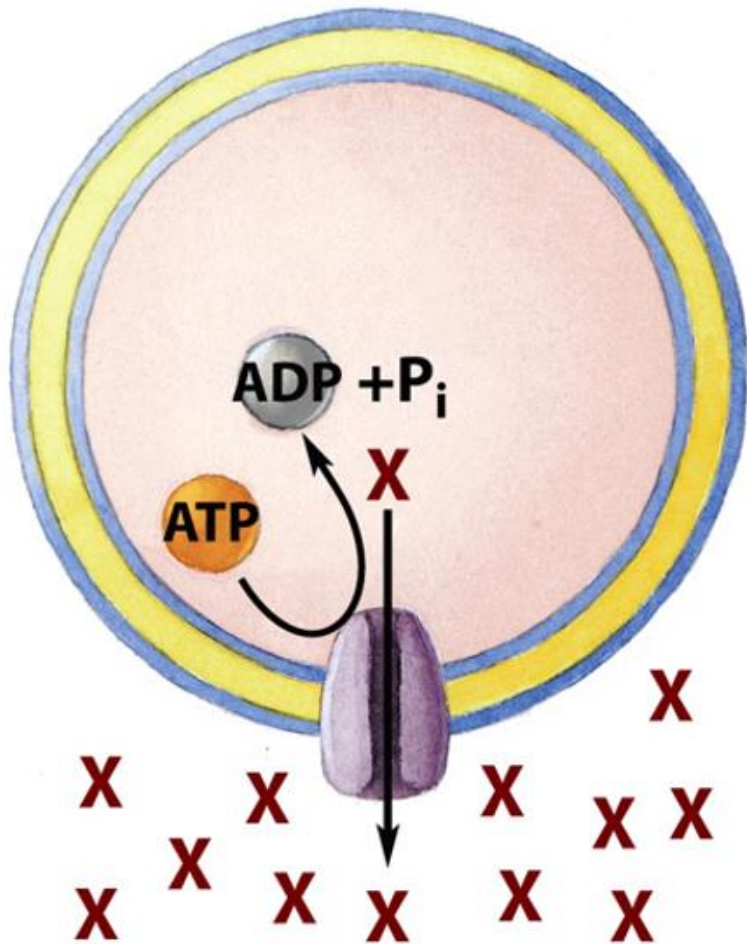
Aktivní transport

- je spojený se **spotřebou energie**
- molekuly mohou být transportovány **proti** koncentračnímu či elektrochemickému gradientu

Kde se vezme energie
pro transport?

- chemická vazebná energie
 - nejčastěji **hydrolýza ATP**, ale existuje například i transport poháněný dekarboxylací
- elektrická energie spojená s gradientem náboje

Primární transport



Sekundární transport

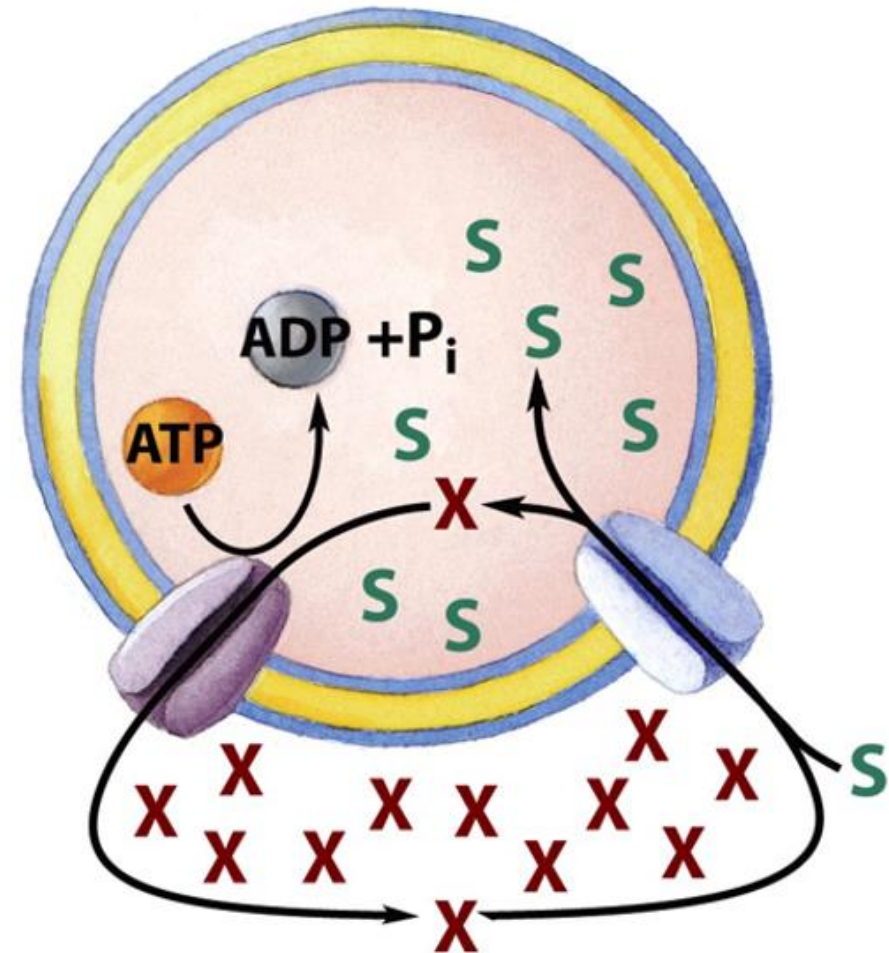


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Příklady vybraných transportních systémů

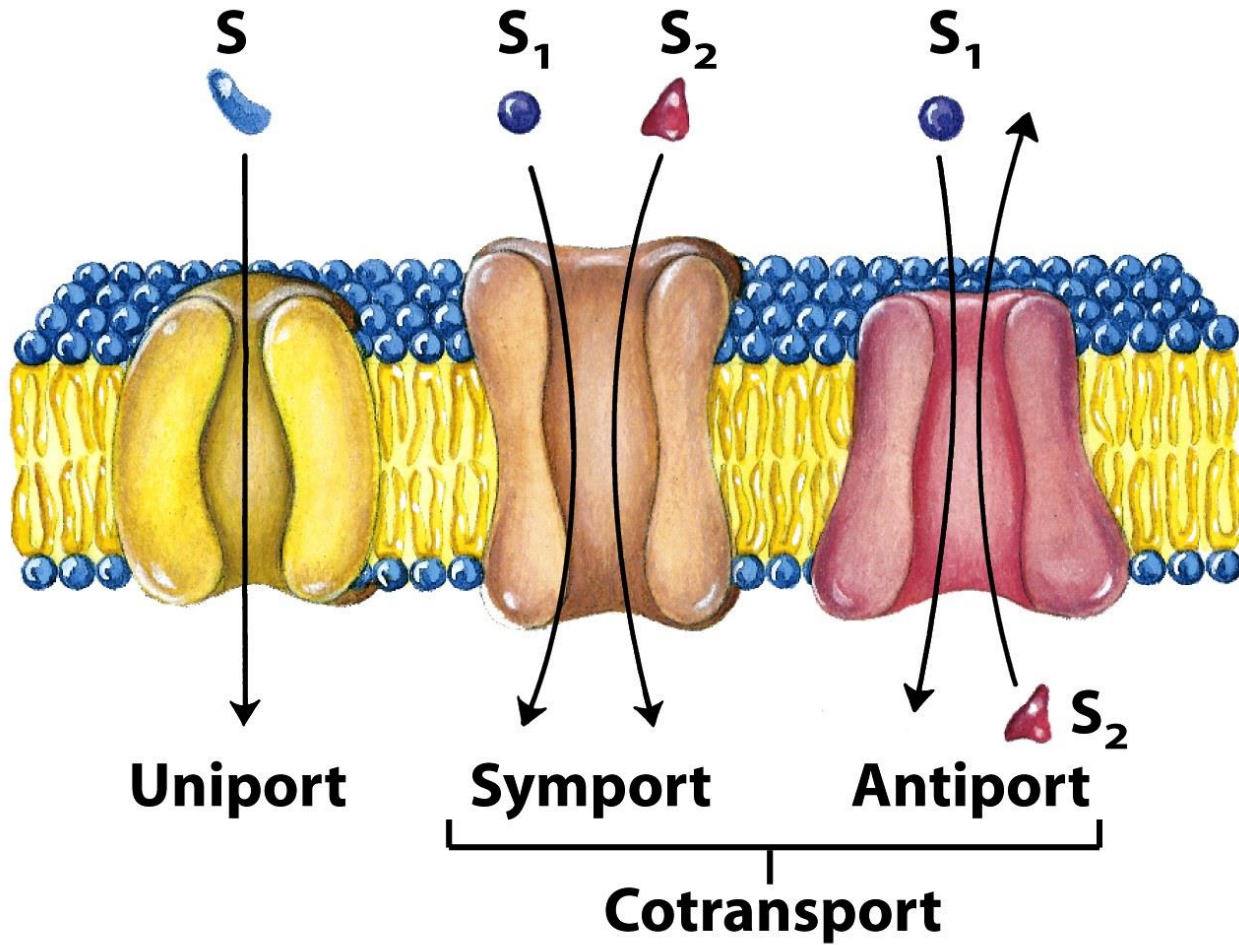


TABLE 11-4

Cotransport Systems Driven by Gradients of Na^+ or H^+

Organism/ tissue/cell type	Transported solute (moving against its gradient)	Cotransported solute (moving down its gradient)	Type of transport
<i>E. coli</i>	Lactose	H^+	Symport
	Proline	H^+	Symport
	Dicarboxylic acids	H^+	Symport
Intestine, kidney (vertebrates)	Glucose	Na^+	Symport
	Amino acids	Na^+	Symport
Vertebrate cells (many types)	Ca^{2+}	Na^+	Antiport
Higher plants	K^+	H^+	Antiport
Fungi (<i>Neurospora</i>)	K^+	H^+	Antiport

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Table 11-4
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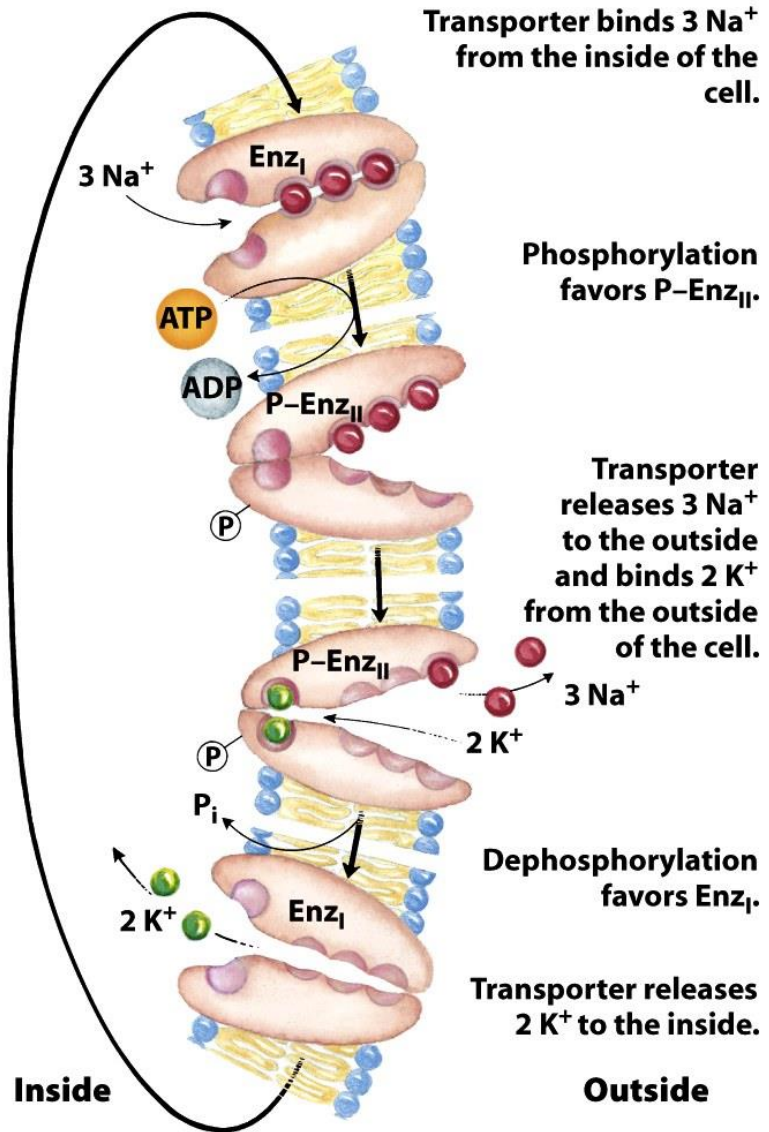


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Sodno-draselná pumpa

udržuje membránový potenciál

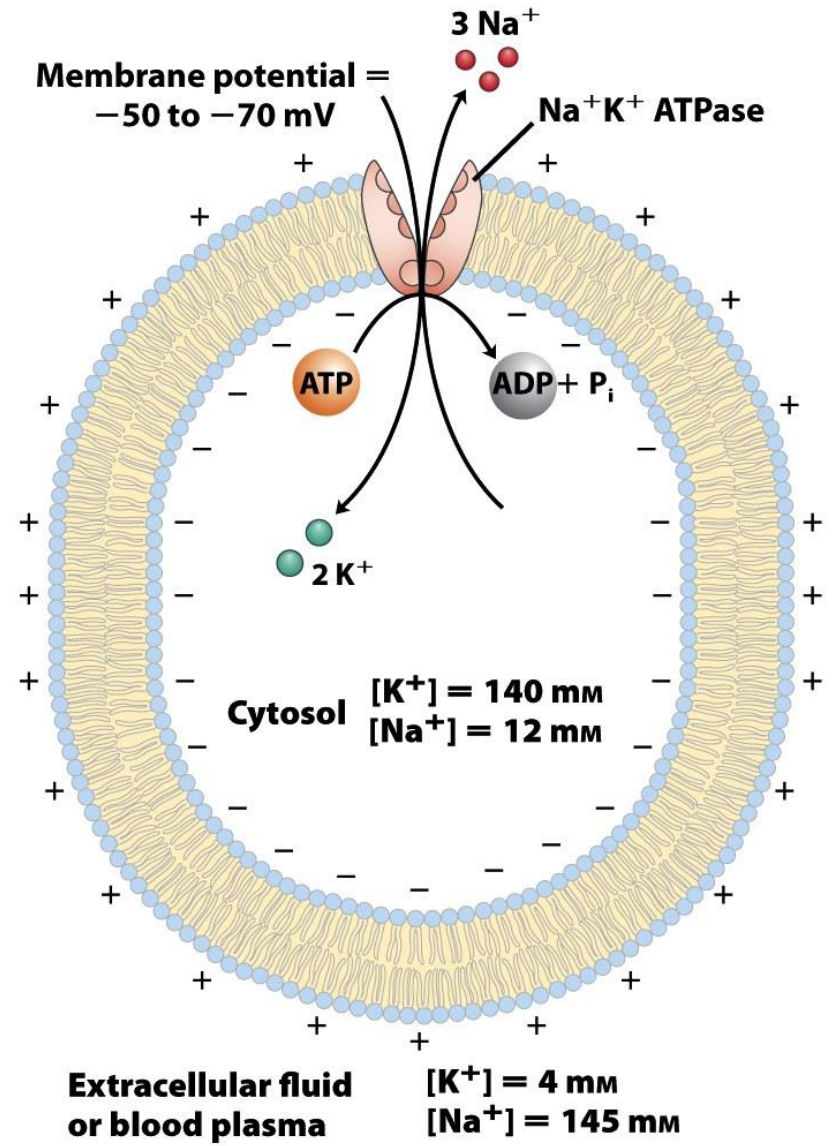


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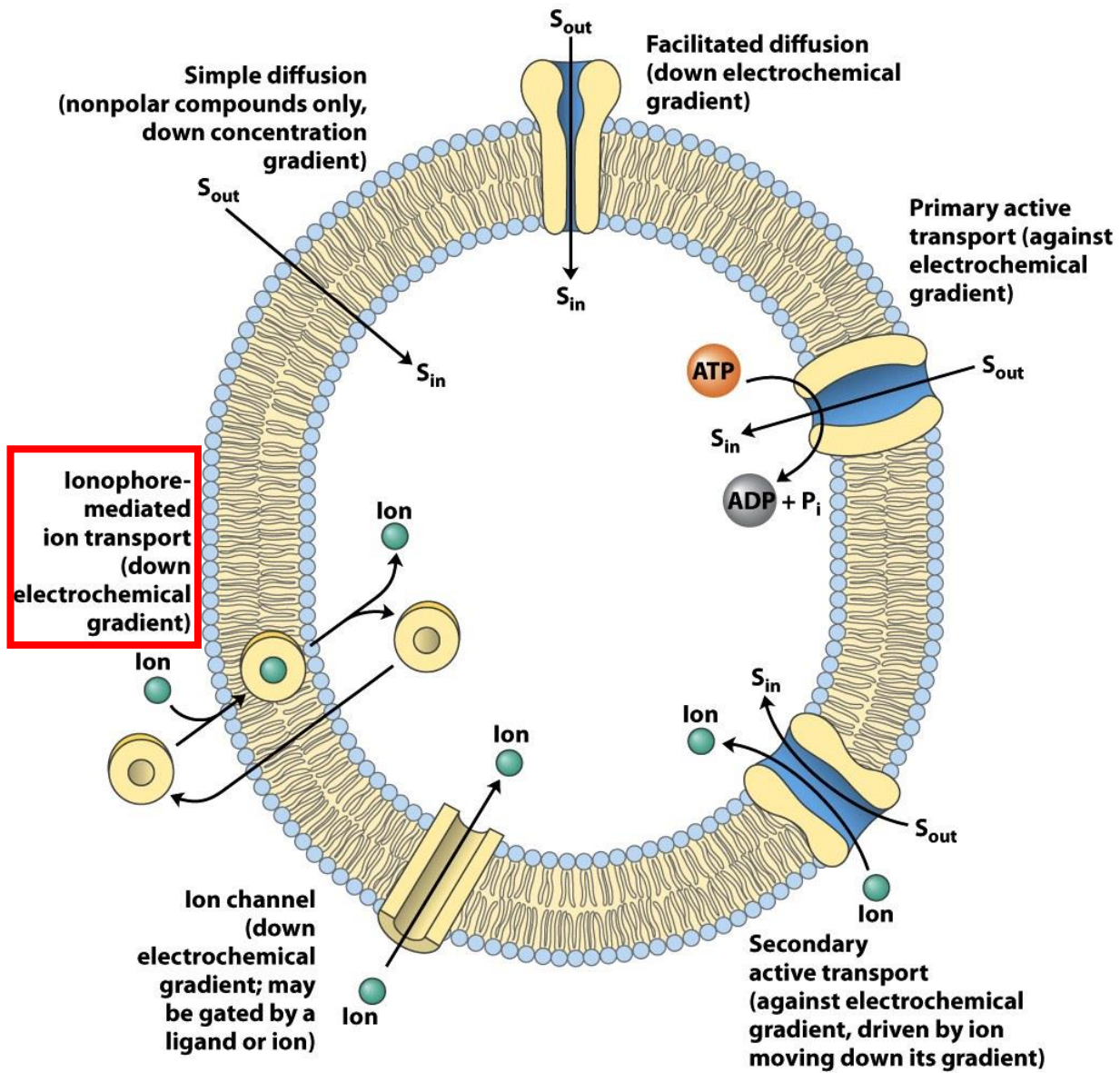


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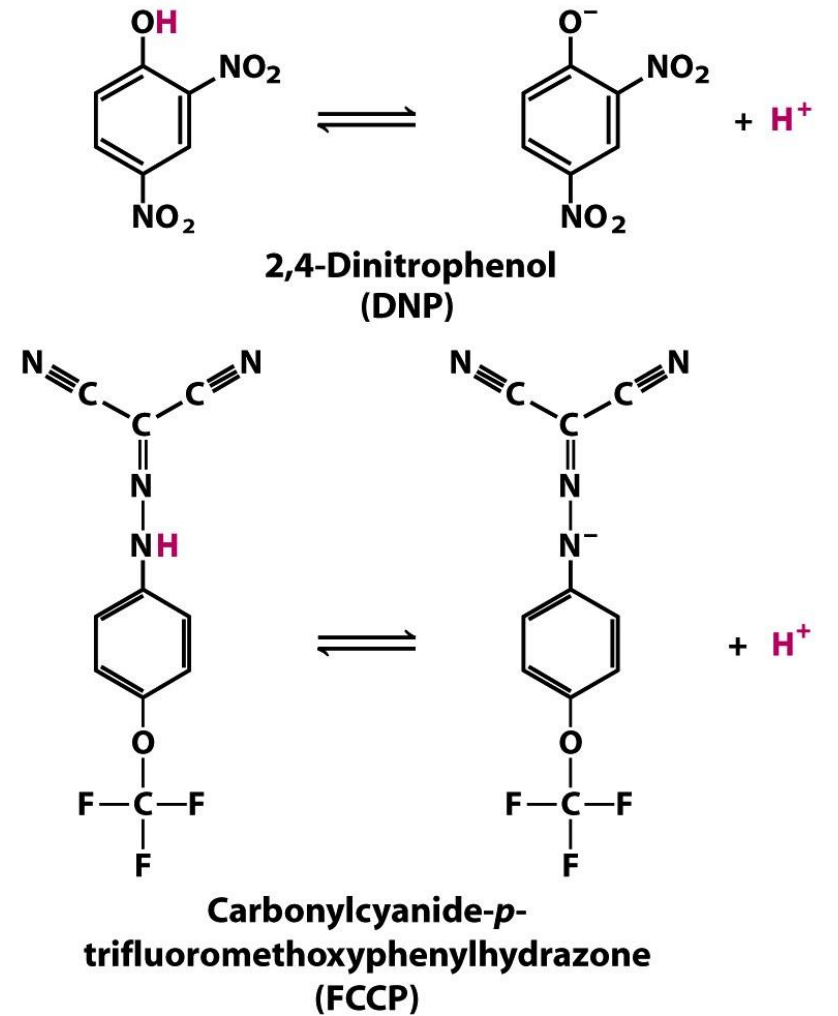
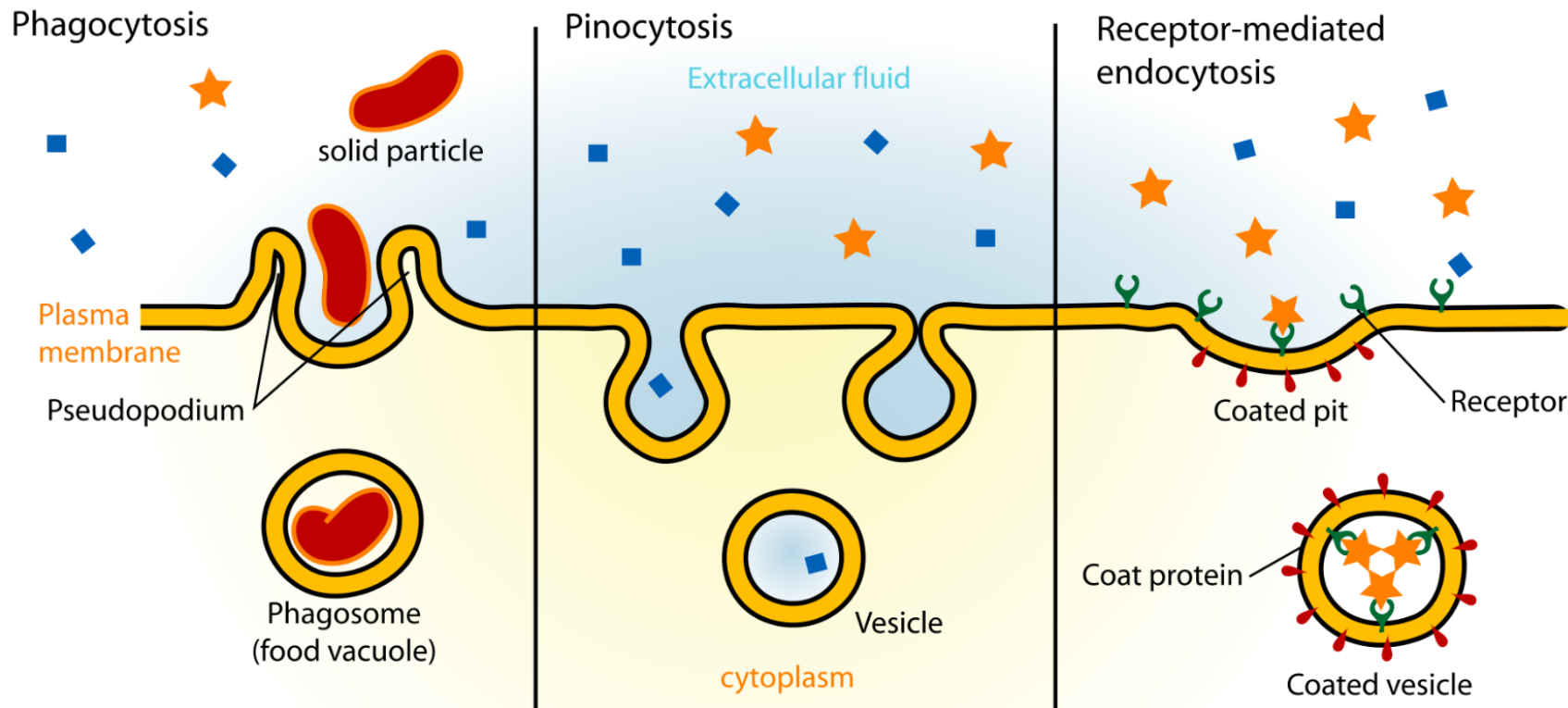


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Cytóza

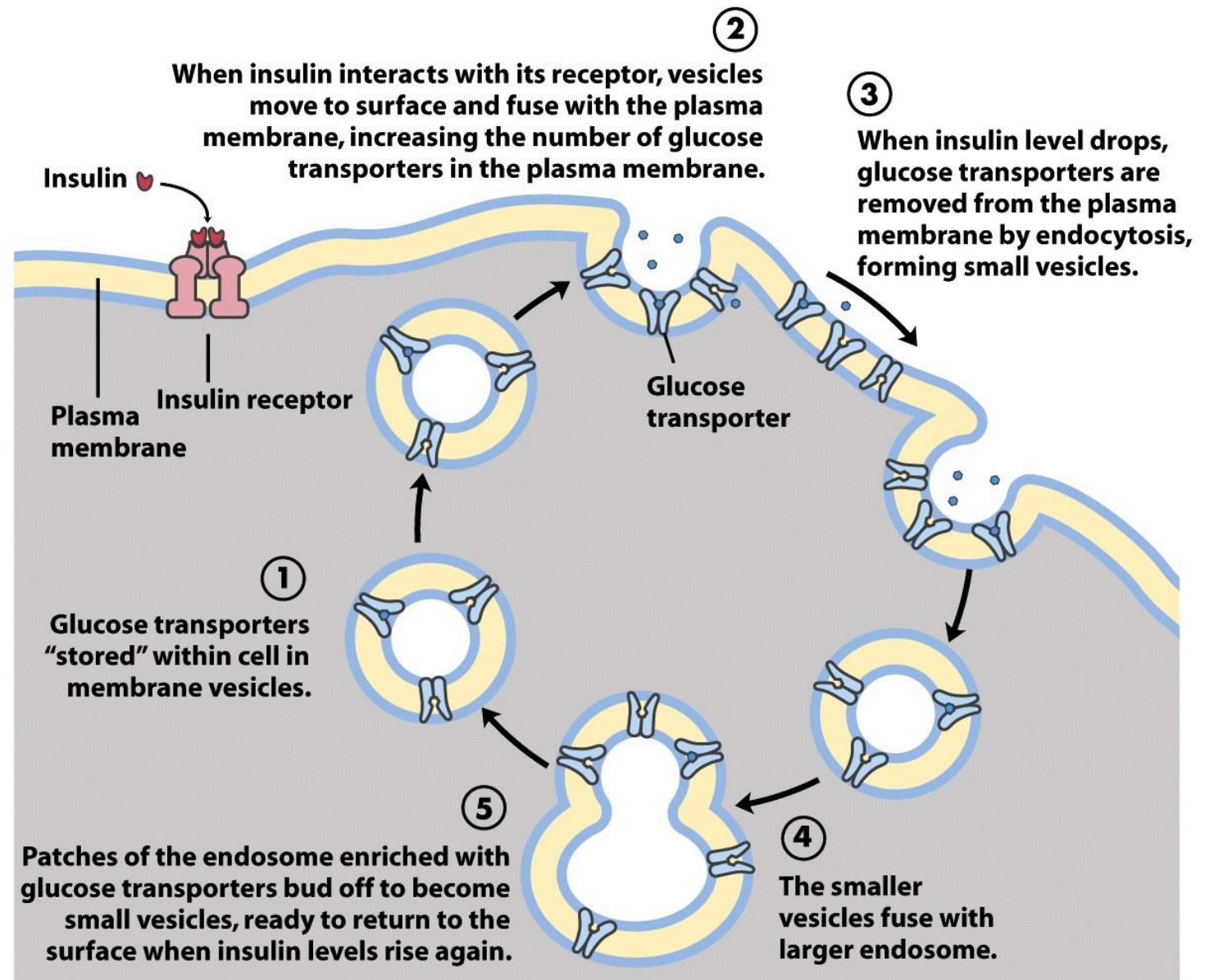
- transport látek z buňky (**exocytóza**) nebo do buňky (**endocytóza**)

Typy endocytózy



Exocytóza receptoru GLUT4

- vystavení receptoru pro glukosu pomocí exocytózy po vazbě insulinu na insulinový receptor
- po poklesu insulinu se GLUT4 odstraní z povrchu endocytózou



Box 11-2 figure 1
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Způsoby membránové fúze

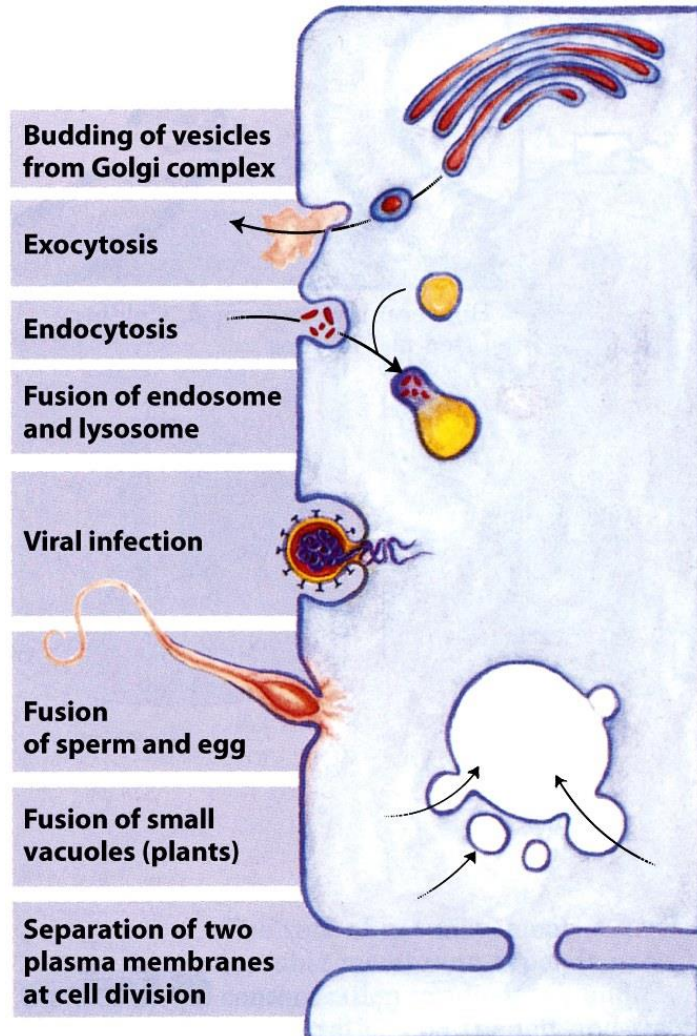


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Užitečný odkaz

Membránový transport

<https://www.youtube.com/watch?v=oxX2fq2DBBo>

