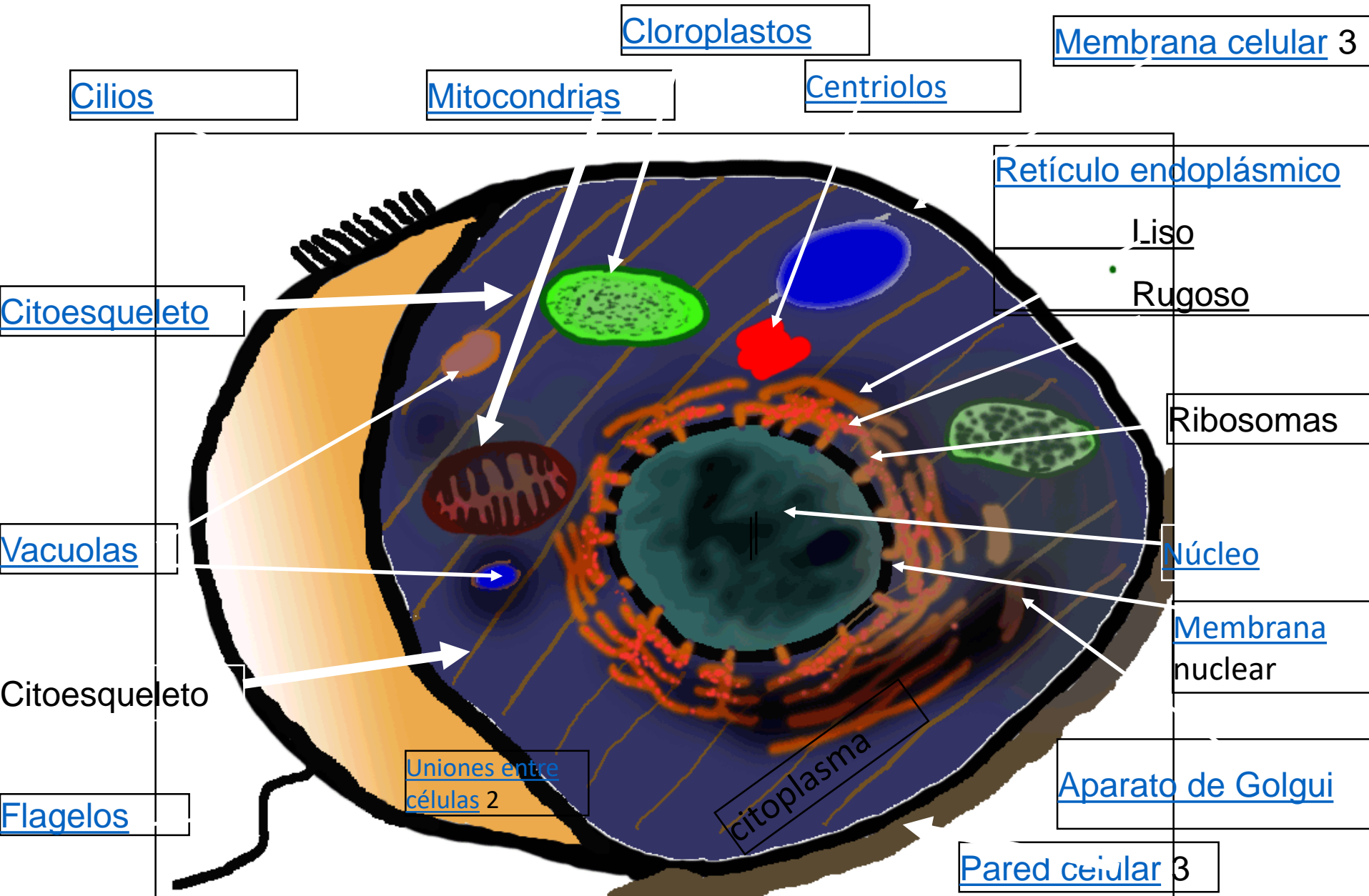


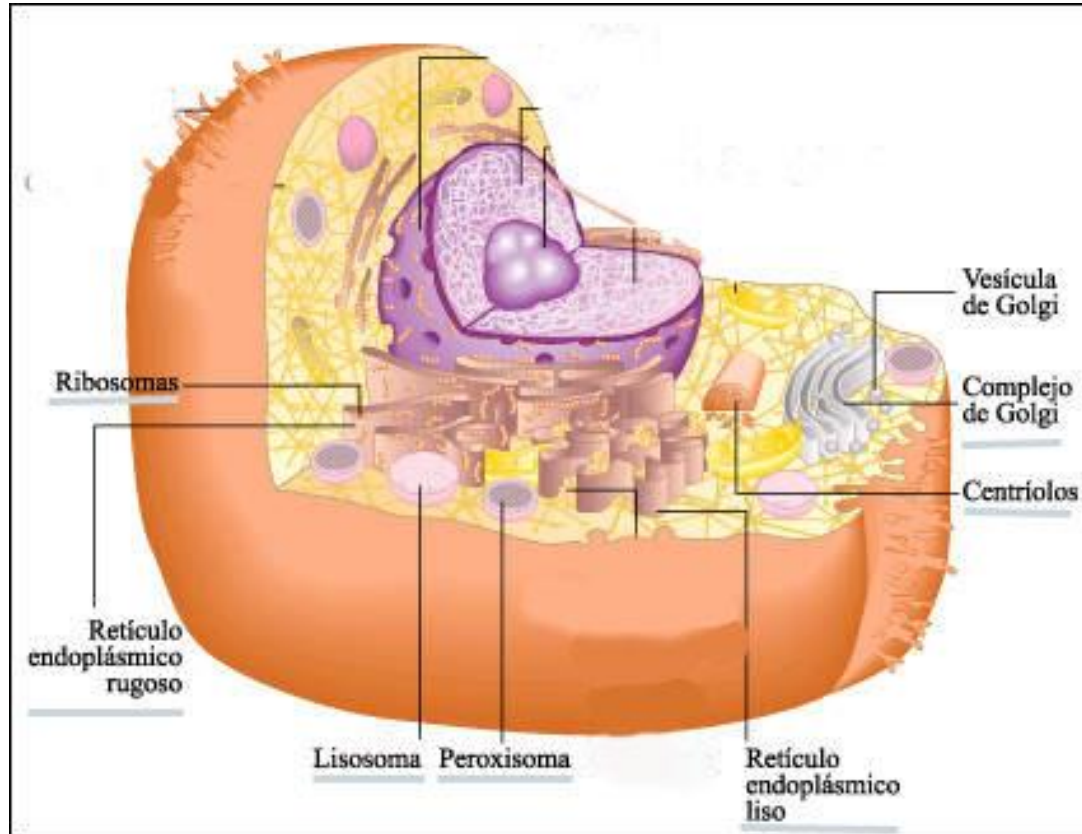
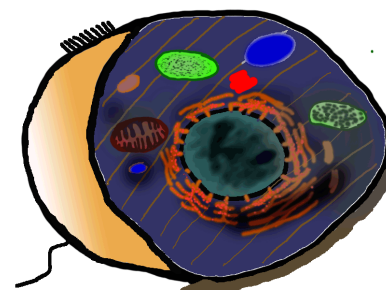
# UNIDAD I. Introducción a la biología celular y molecular

Esquema de la estructura celular (protección del cuerpo, sistema de membranas, organelos especiales)

# Modelo general de la célula



# Citoplasma



# Pared celular



**Tiene fibras resistentes a la tensión, en una matriz resistente a la compresión.**

**Las fibras, formadas celulosa,**

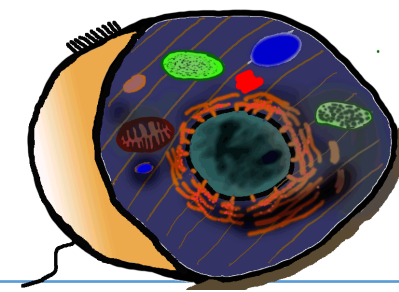
**En la matriz predominan:**

**hemicelulosas**

**pectinas,**

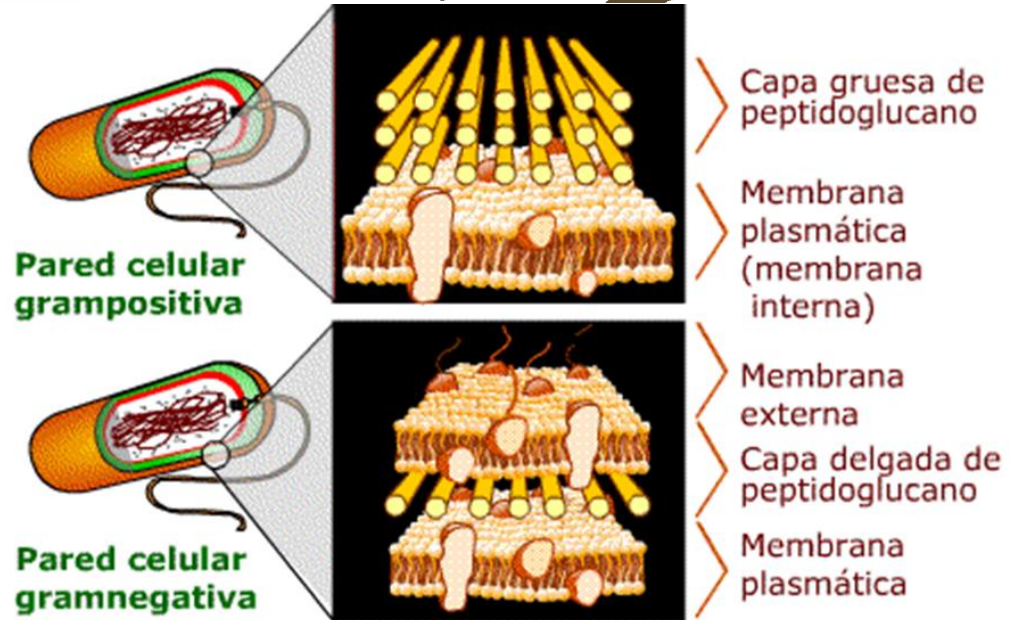
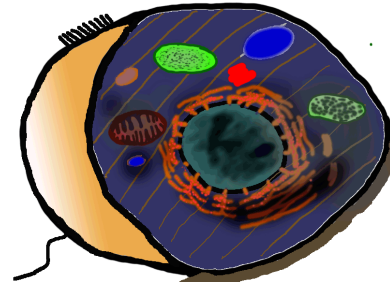
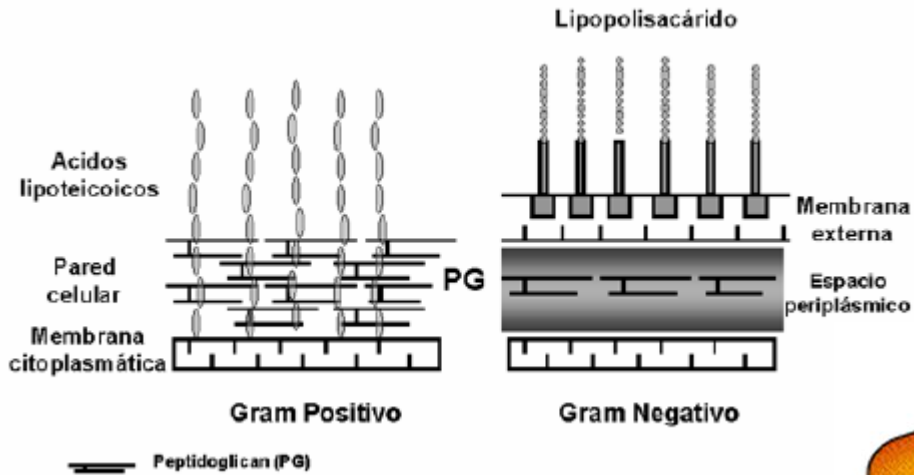
**además de glucoproteínas y compuestos de naturaleza fenólica, entre los que se incluyen la lignina.**

# Pared celular hongos



	Tipo de pared celular	Grupo taxonómico	Géneros representativos
I	Celulosa-glucógeno	Acrasiomicetes	<i>Polysphondylium, Dictyostelium</i>
II	Celulosa-®-Glucana	Oomicetes <sup>a</sup>	<i>Phytophthora, Pythium, Saprolegnia</i>
III	Celulosa-quitina	Hifoquitridiomycetes	<i>Rhizidiomyces</i>
IV	Quitina-Quitosana	Zygomycetes	<i>Mucor, Phycomyces, Misorhynchus</i>
V	Quitina-®-Glucana	Quitridiomycetes, Ascomycetes, Deuteromicetes y Basidiomicetes	<i>Allomyces, Blastocladiella</i> <i>Neurospora, Ajellomyces</i> <i>Aspergillus</i> <i>Schizophyllum, Fomes, Polyporus</i>
VI	Manana-®-Glucana	Ascomycetes	<i>Saccharomyces<sup>b</sup>, Candida</i>
VII	Quitina-Glucana	Basidiomicetes	<i>Sporobolomyces, Rhodotorula</i>
VIII	Galactosamina-Polímeros de galactosa	tricomycetes	<i>Amoebidium</i>

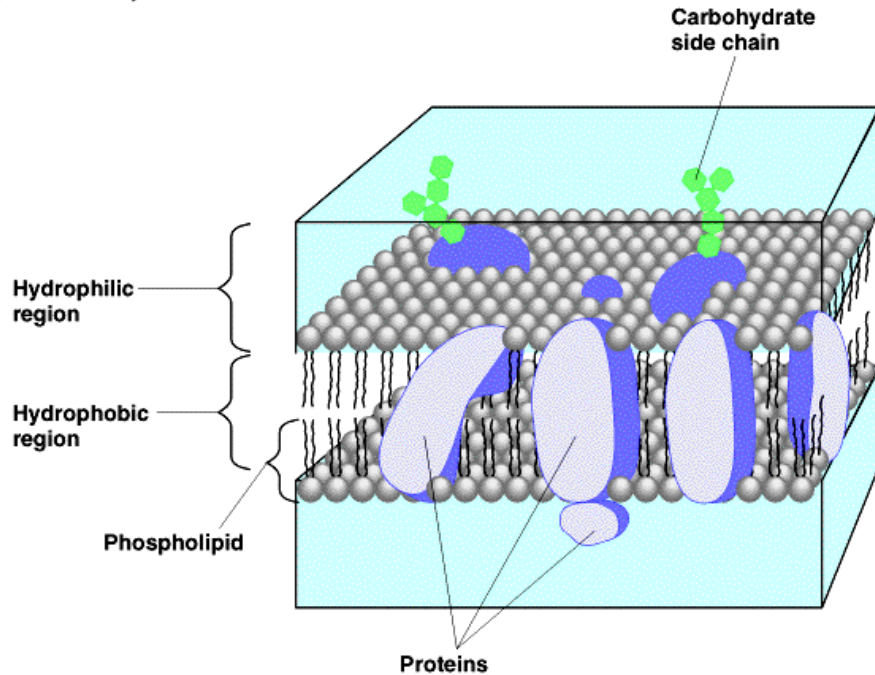
# Pared celular procariontes



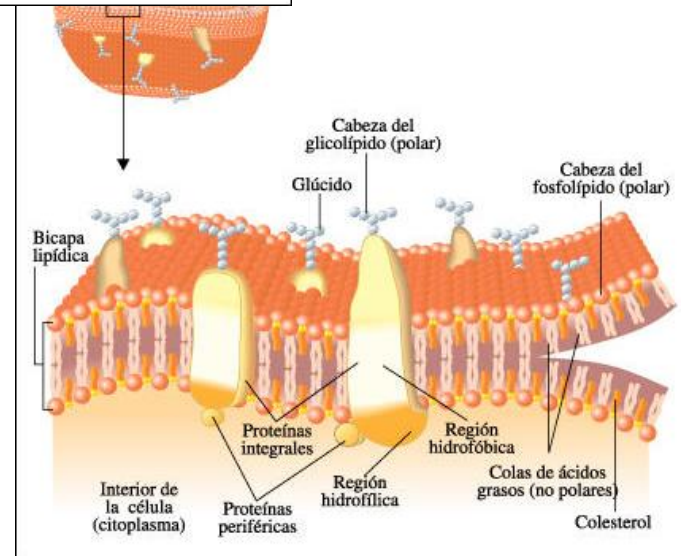
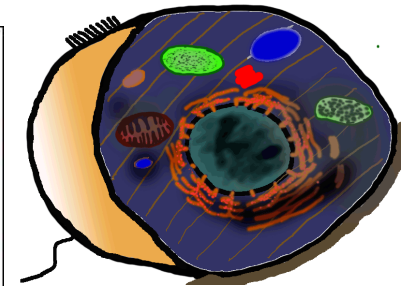
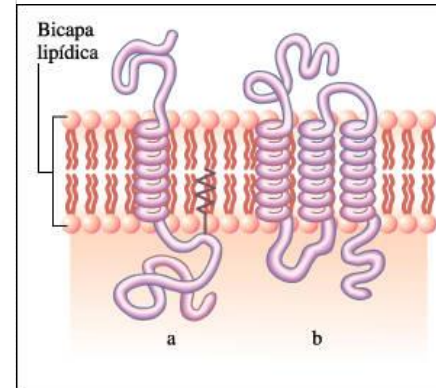


# Membrana celular

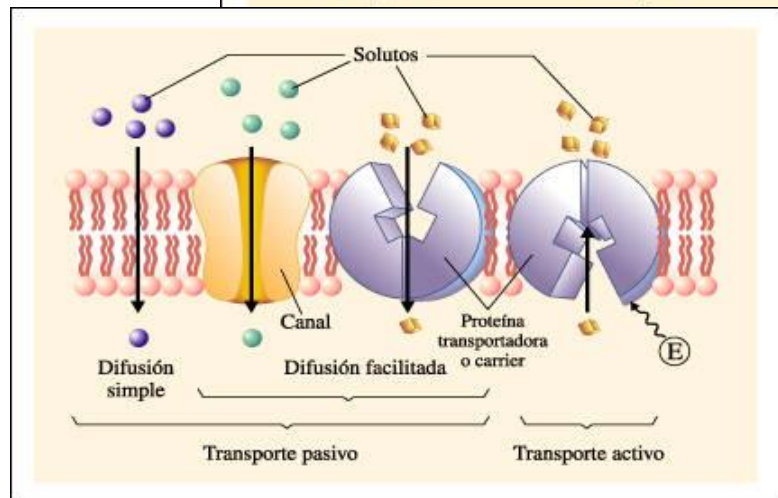
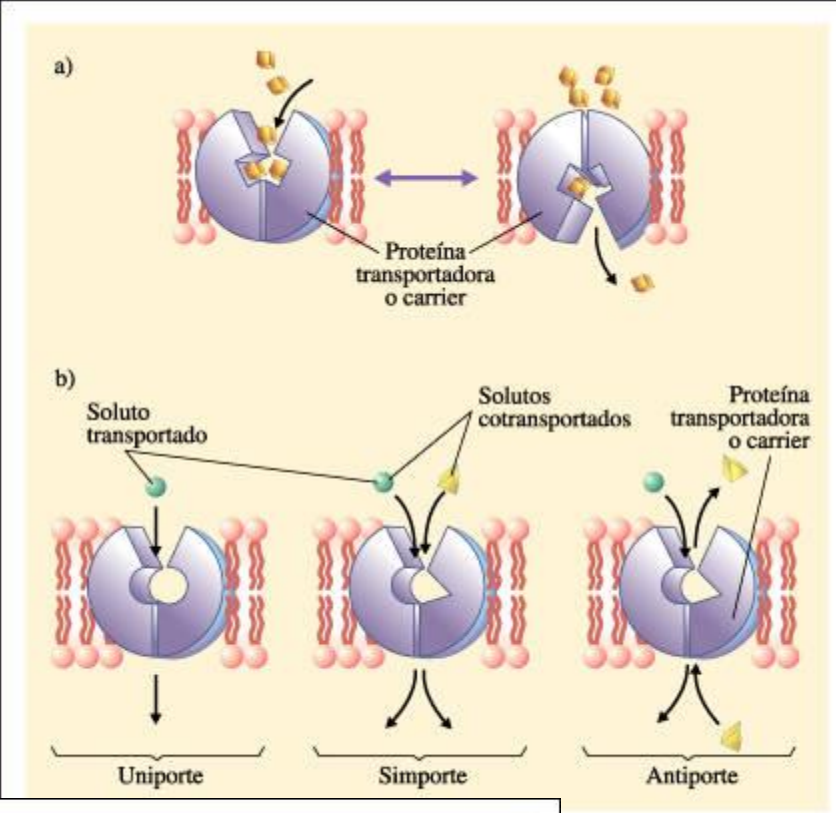
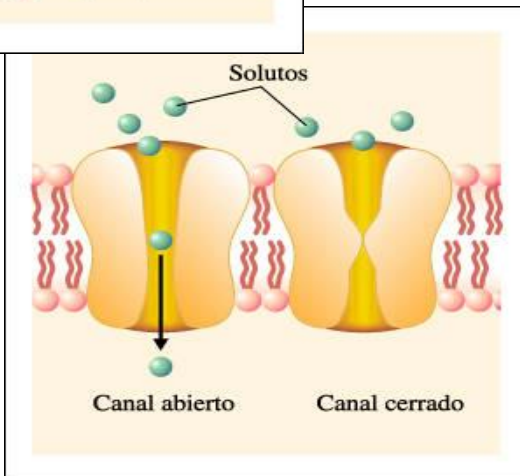
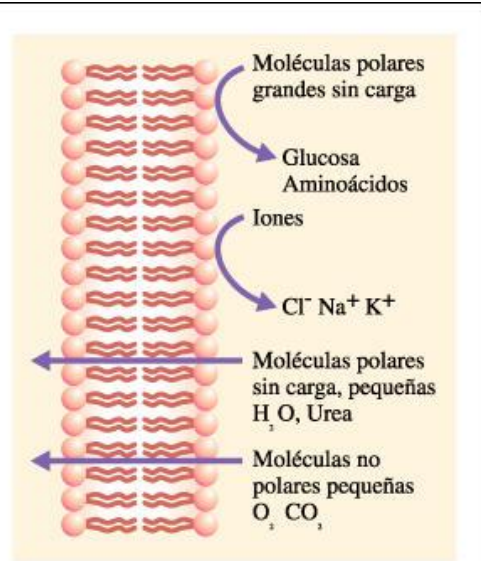
Figure 7.6 The plasma membrane



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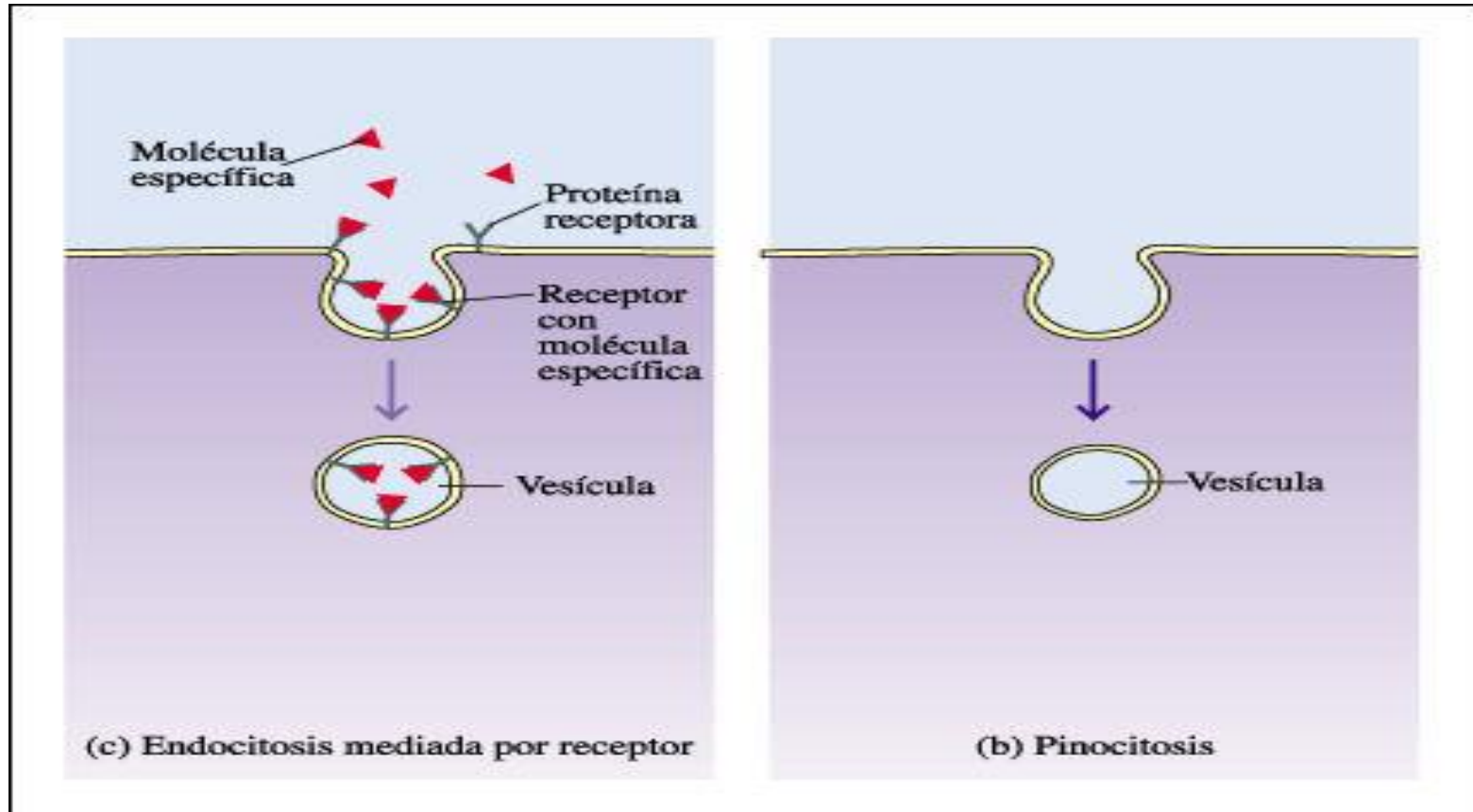


# Transporte por membrana

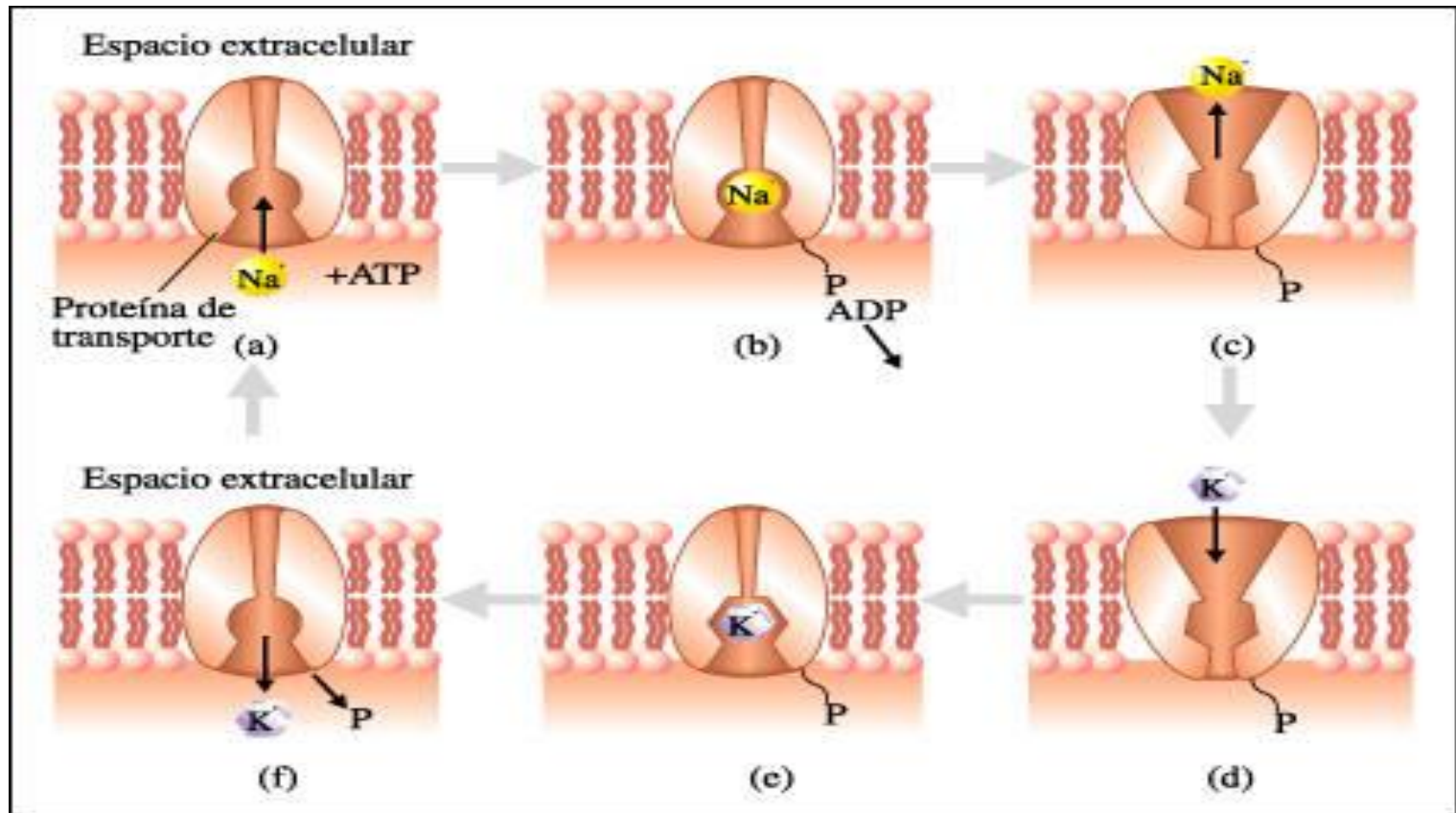




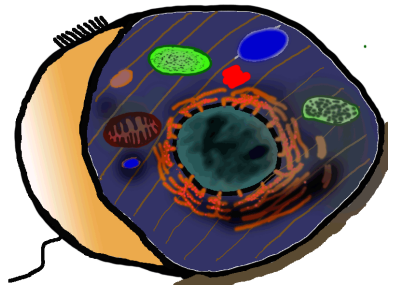
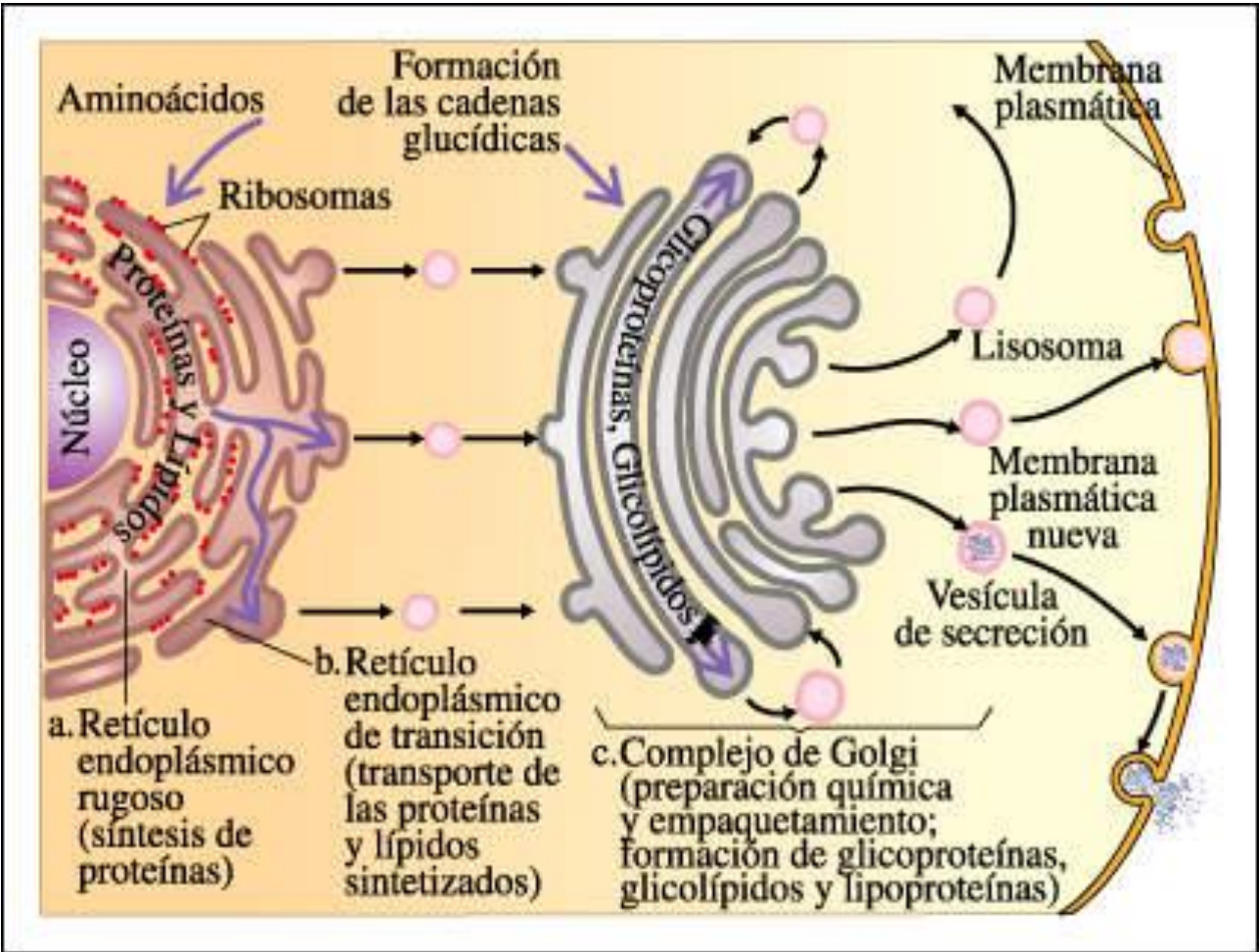
# Fagocitosis y pinocitosis



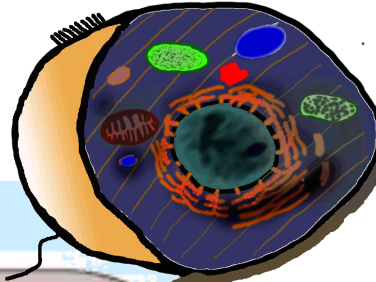
# Bomba Sodio



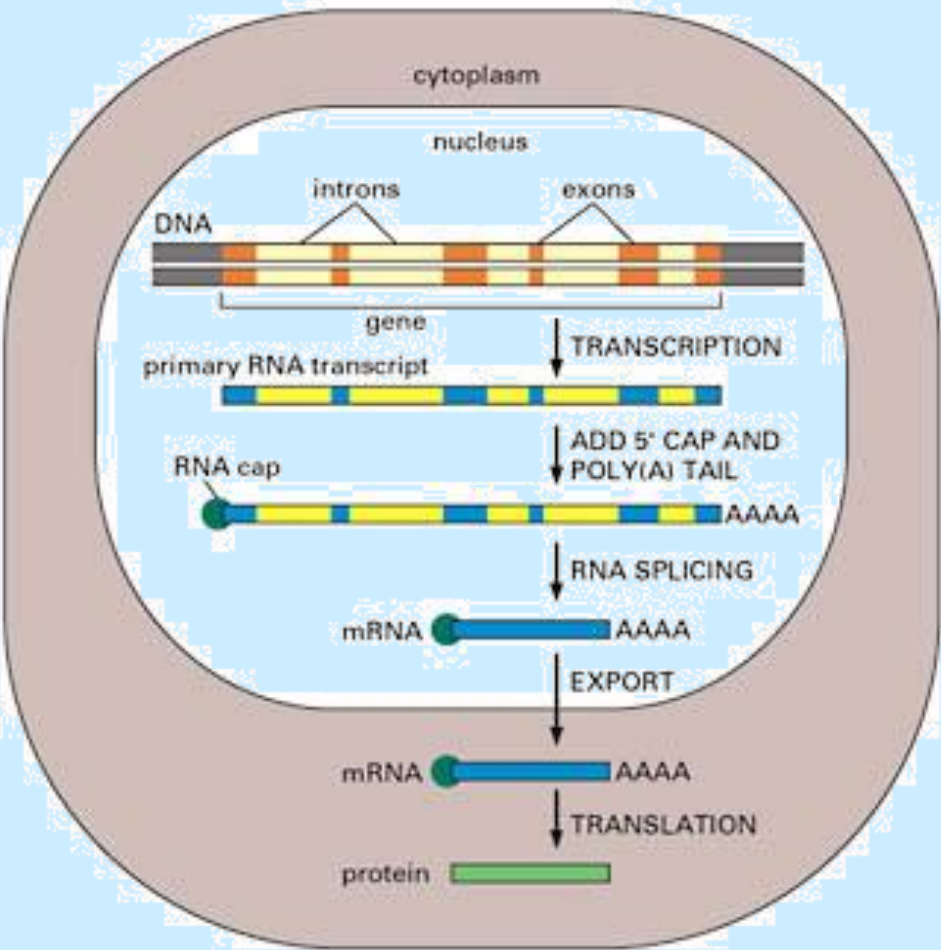
# Sistema de Membranas



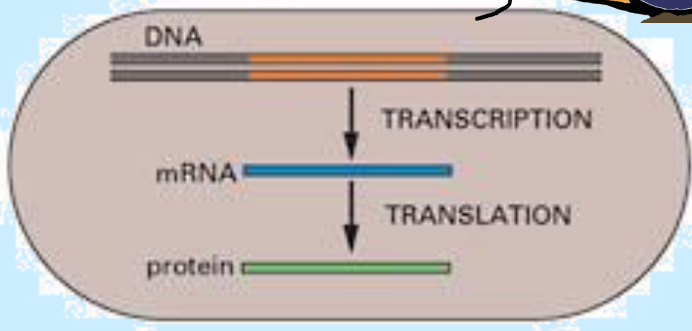
# Traducción



(A) EUCARYOTES



(B) PROCARYOTES





# Núcleo

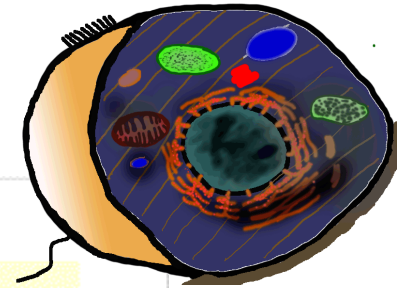
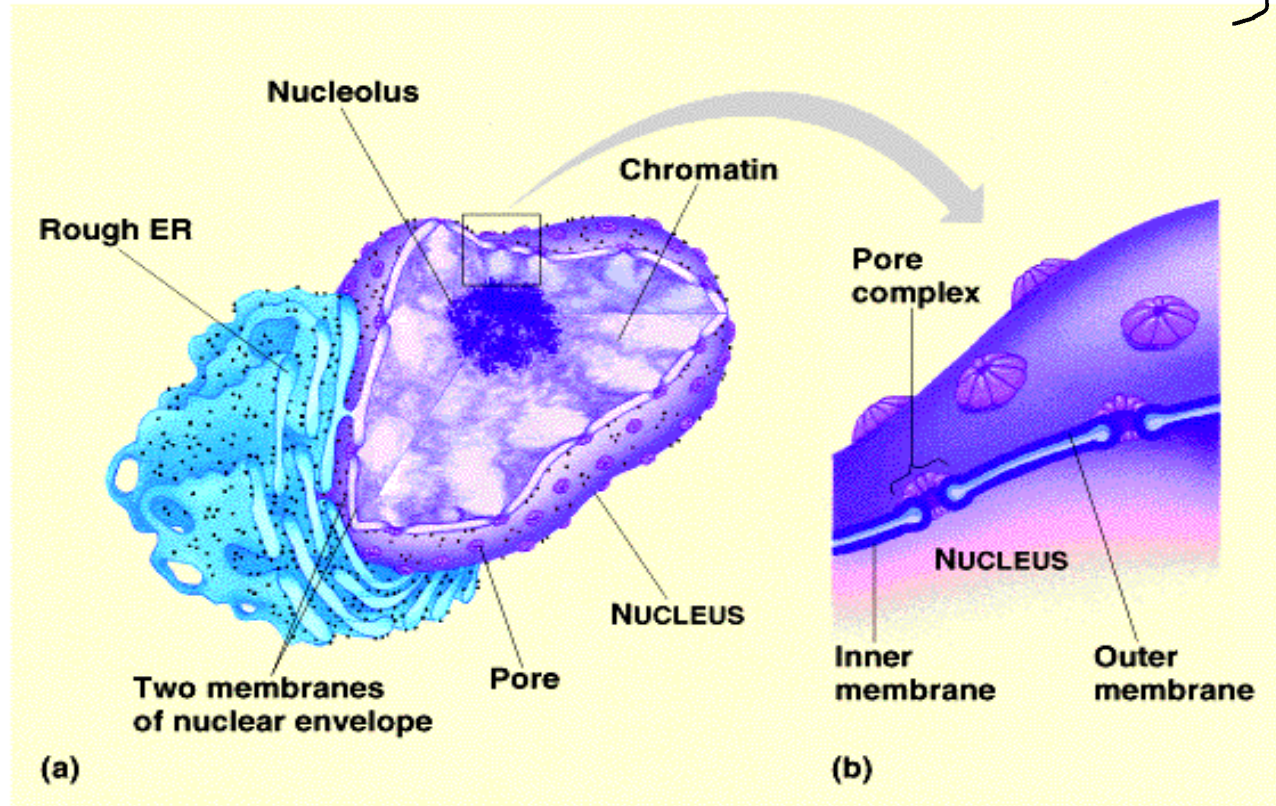
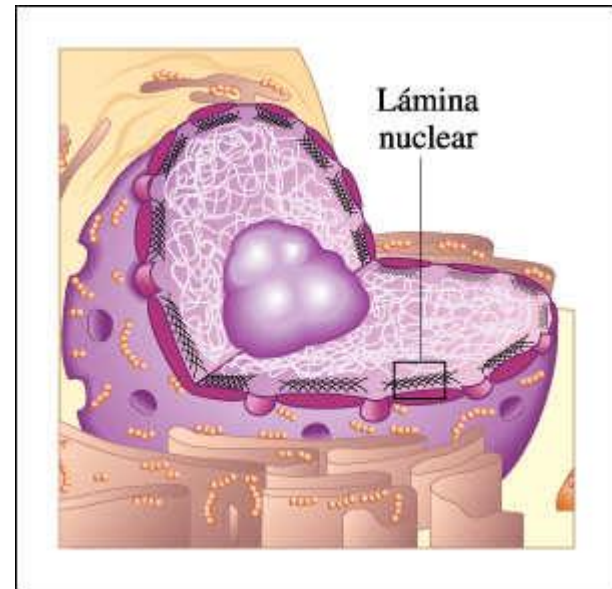
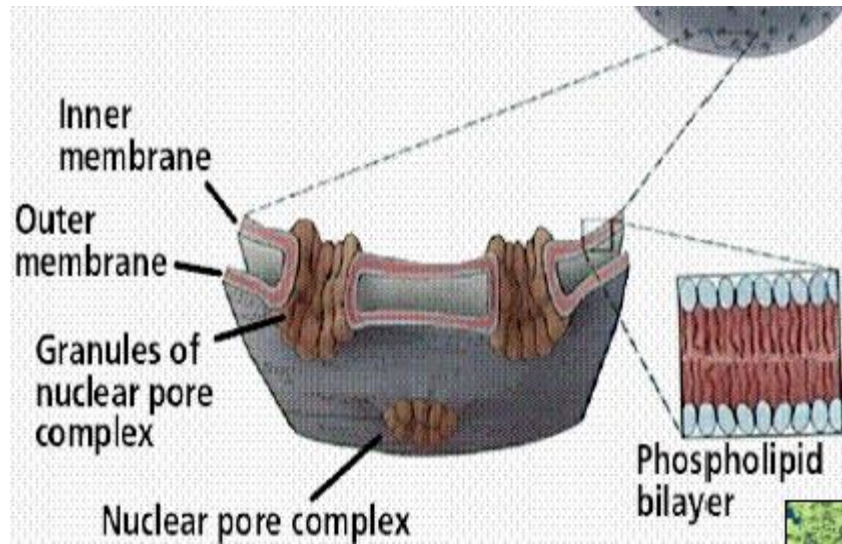
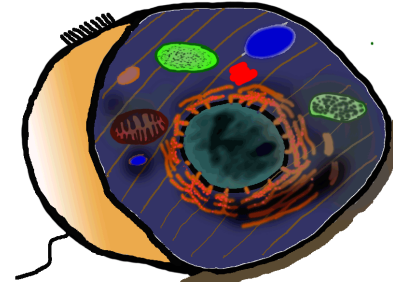


Figure 7.9 The nucleus and its envelope



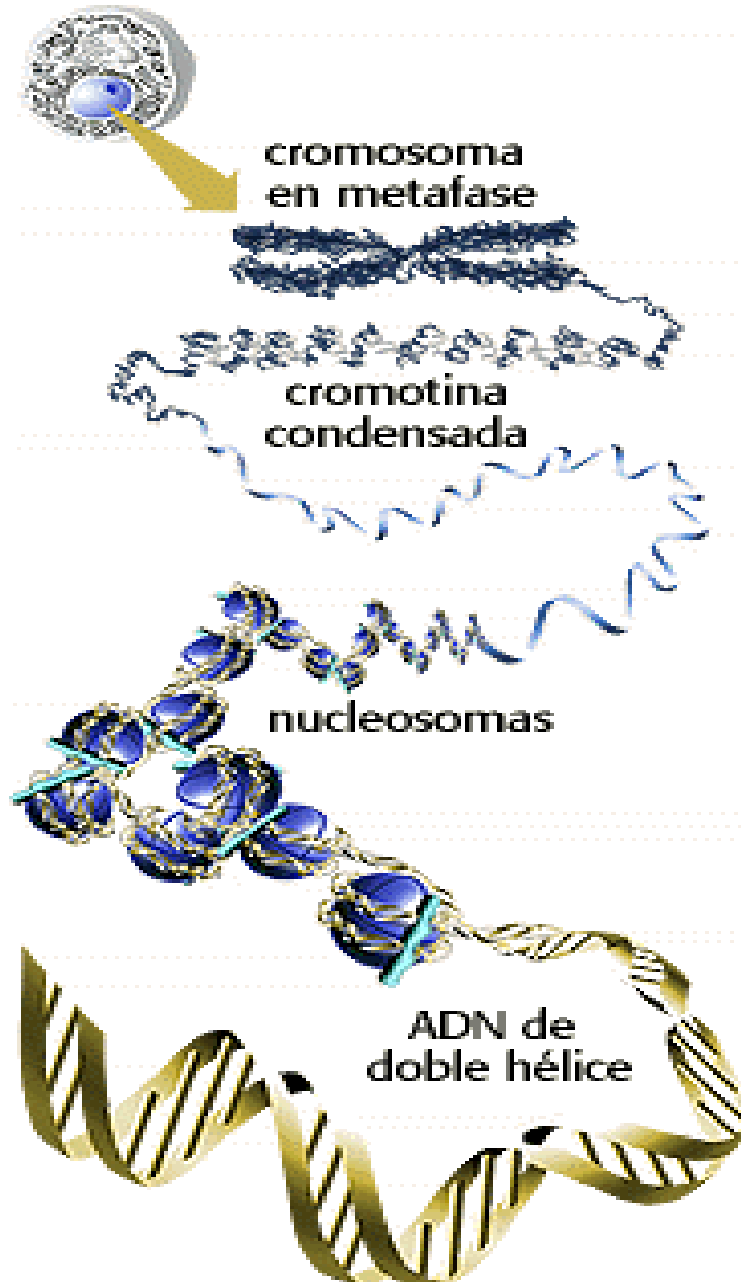


# Membrana nuclear

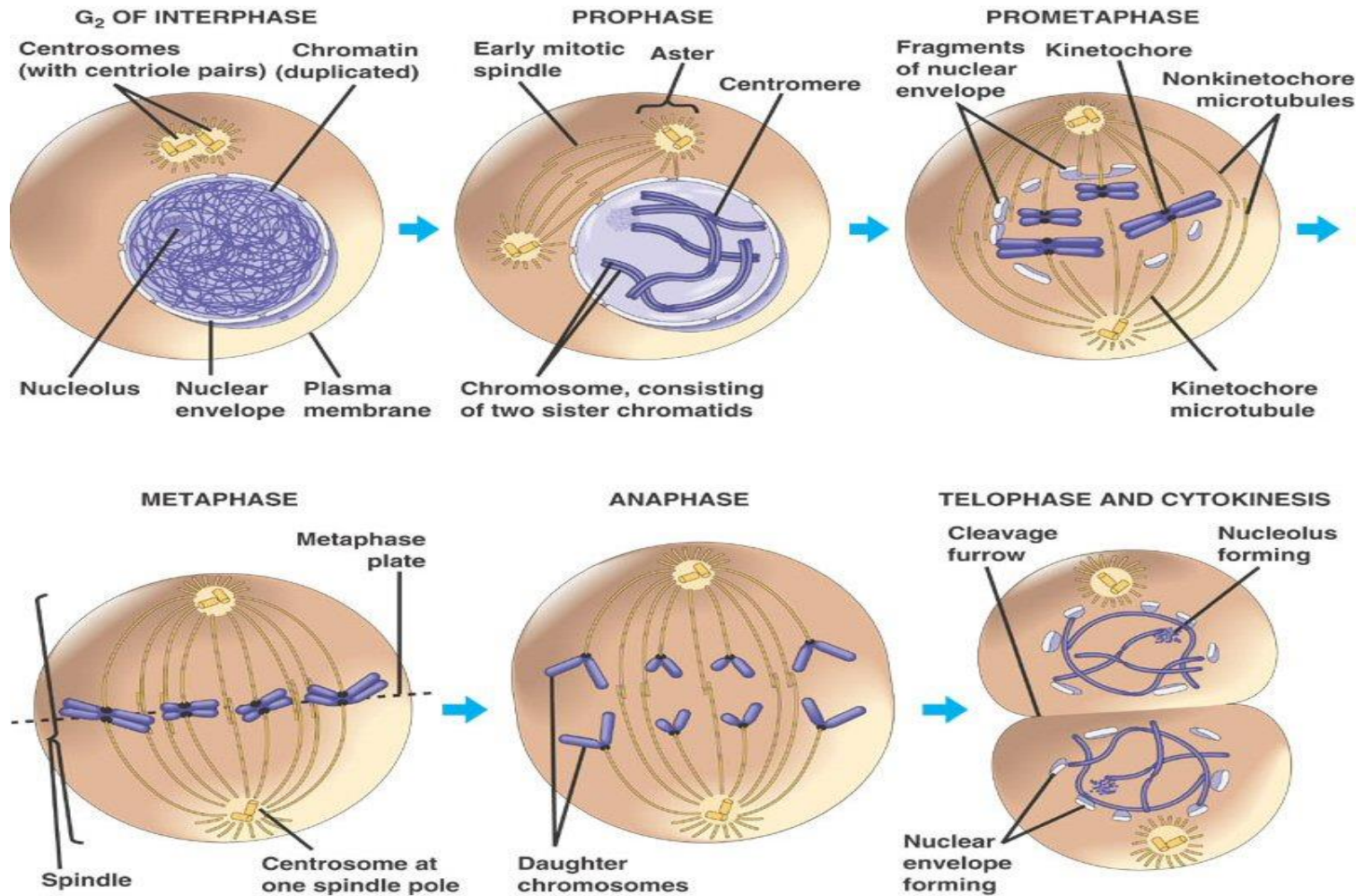


# Empaquetamiento del ADN en el cromosoma en metafase

ADN



# Mitosis



# Retículo

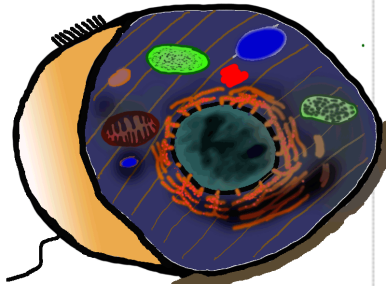
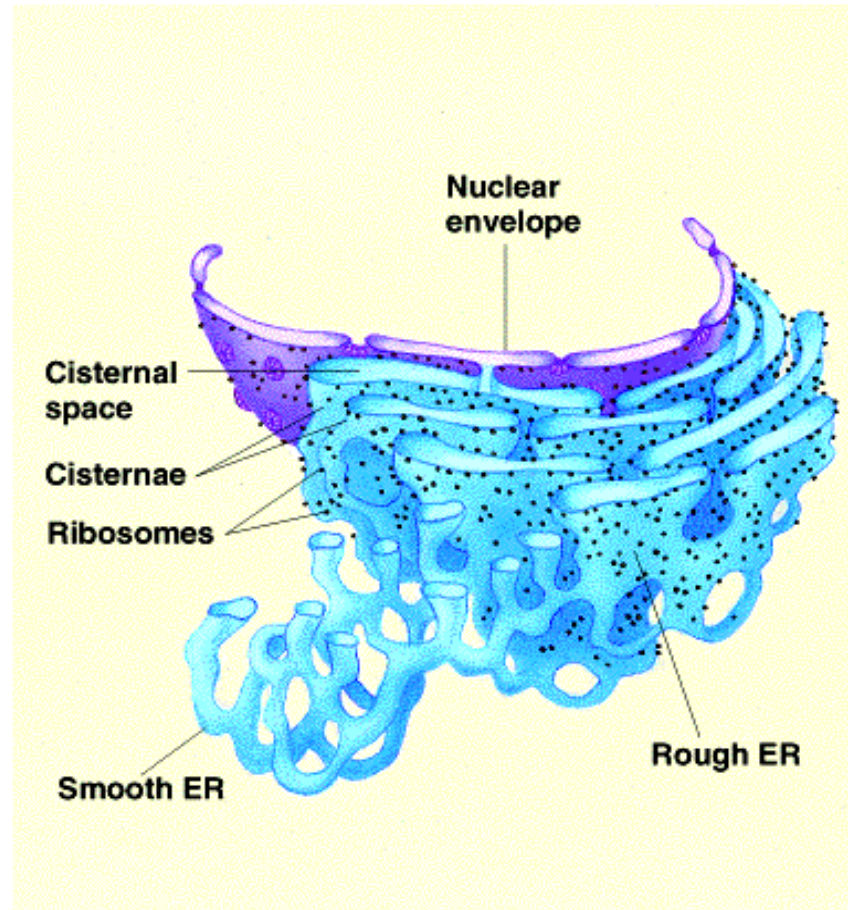


Figure 7.11 Endoplasmic reticulum

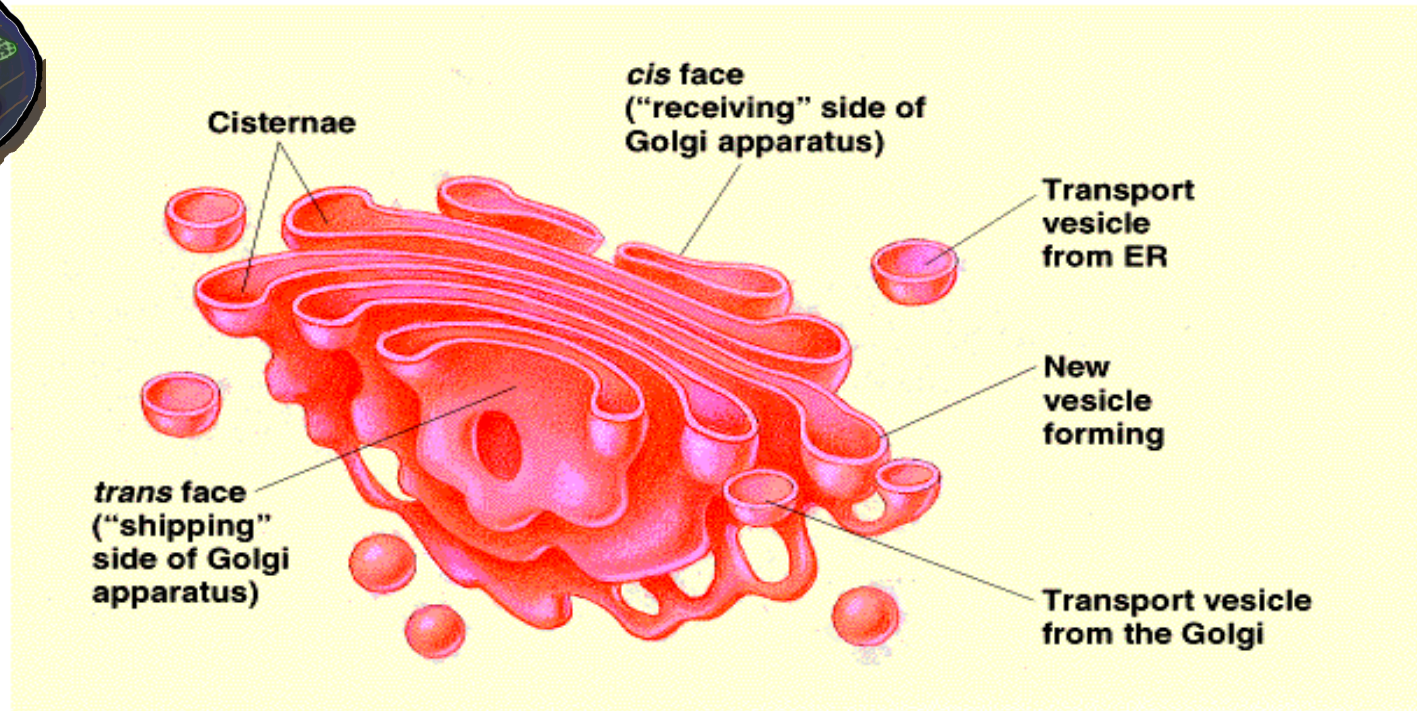
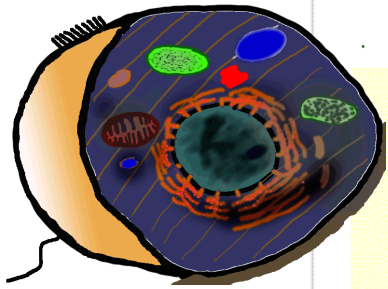


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# Golgi

Figure 7.12 The Golgi apparatus





# Lisosomas y el golgi

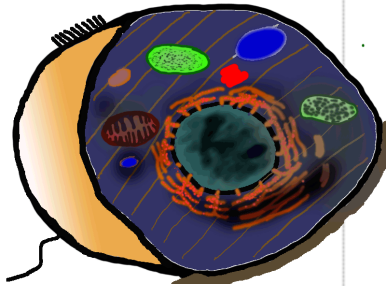
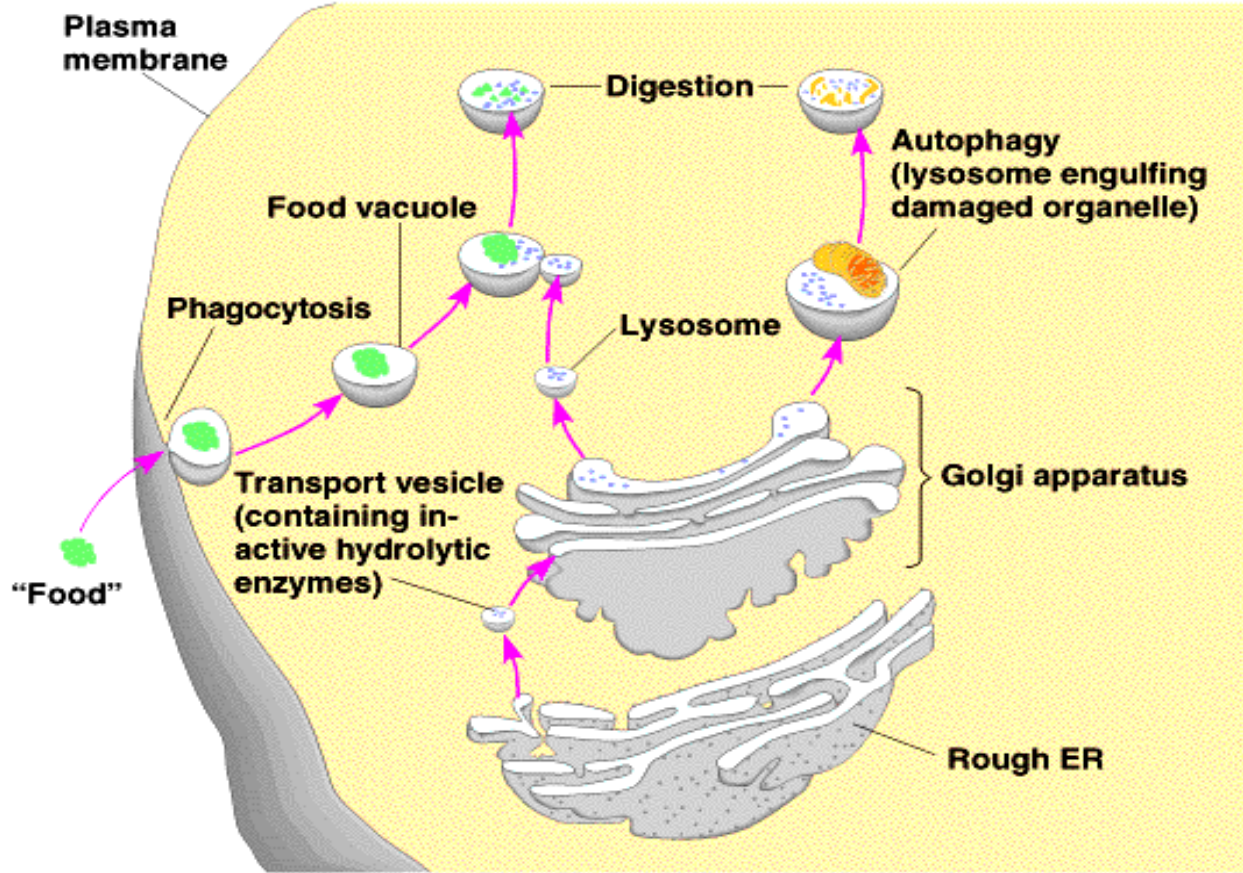
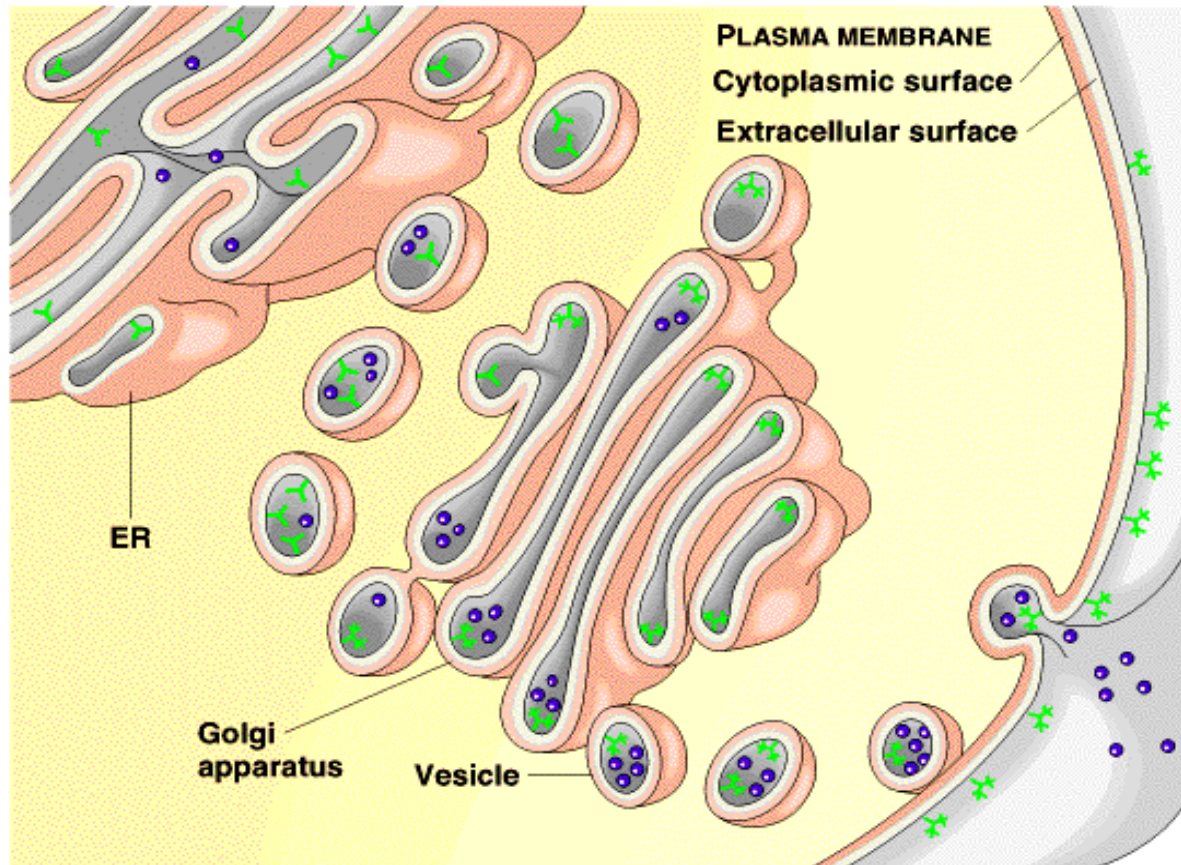


Figure 7.14 Formation and functions of lysosomes

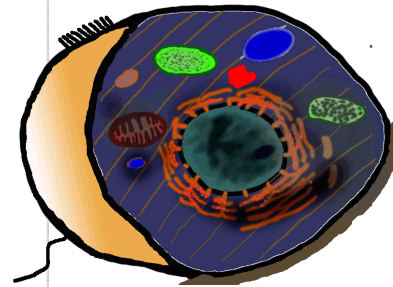


# Relación de organelos

Figure 8.7 Sidedness of the plasma membrane



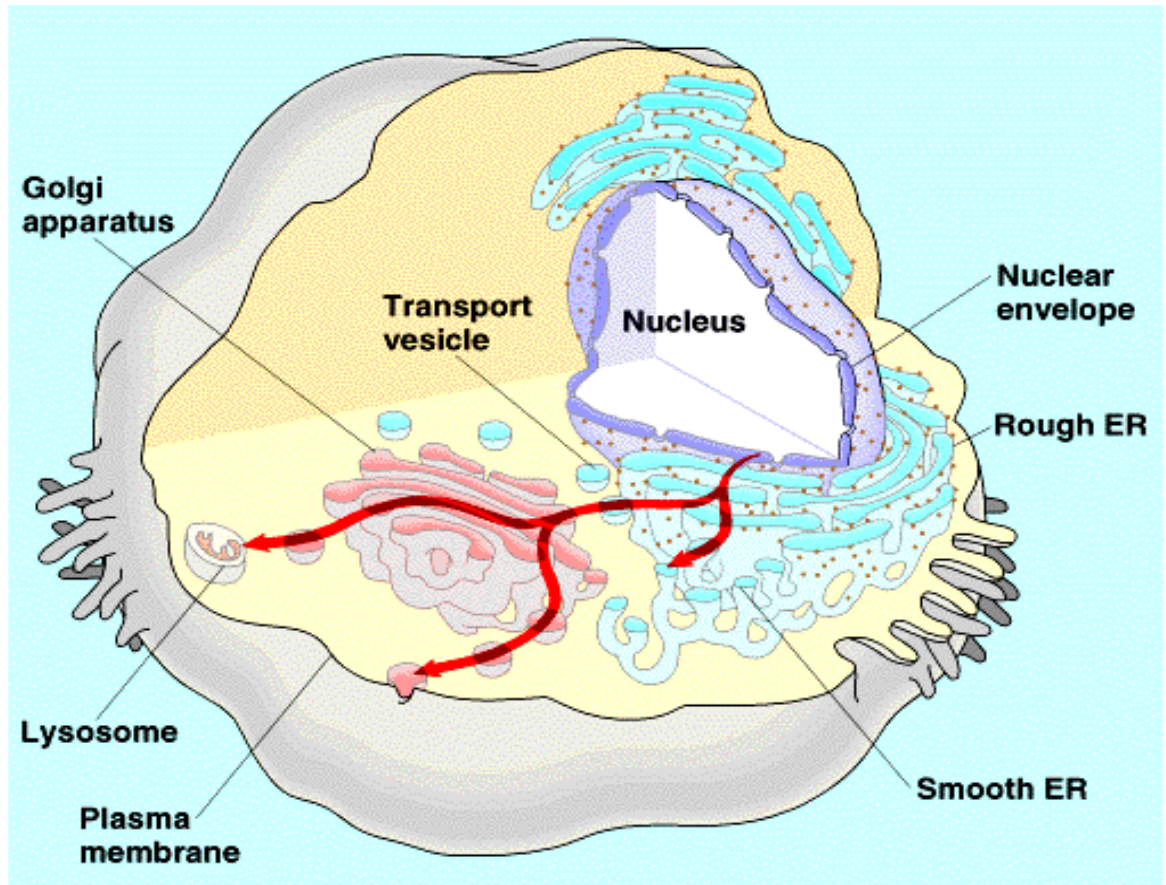
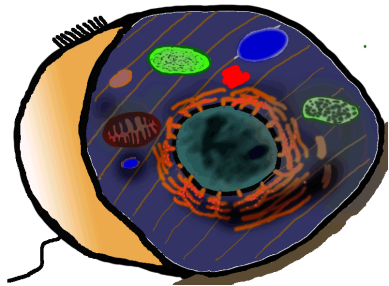
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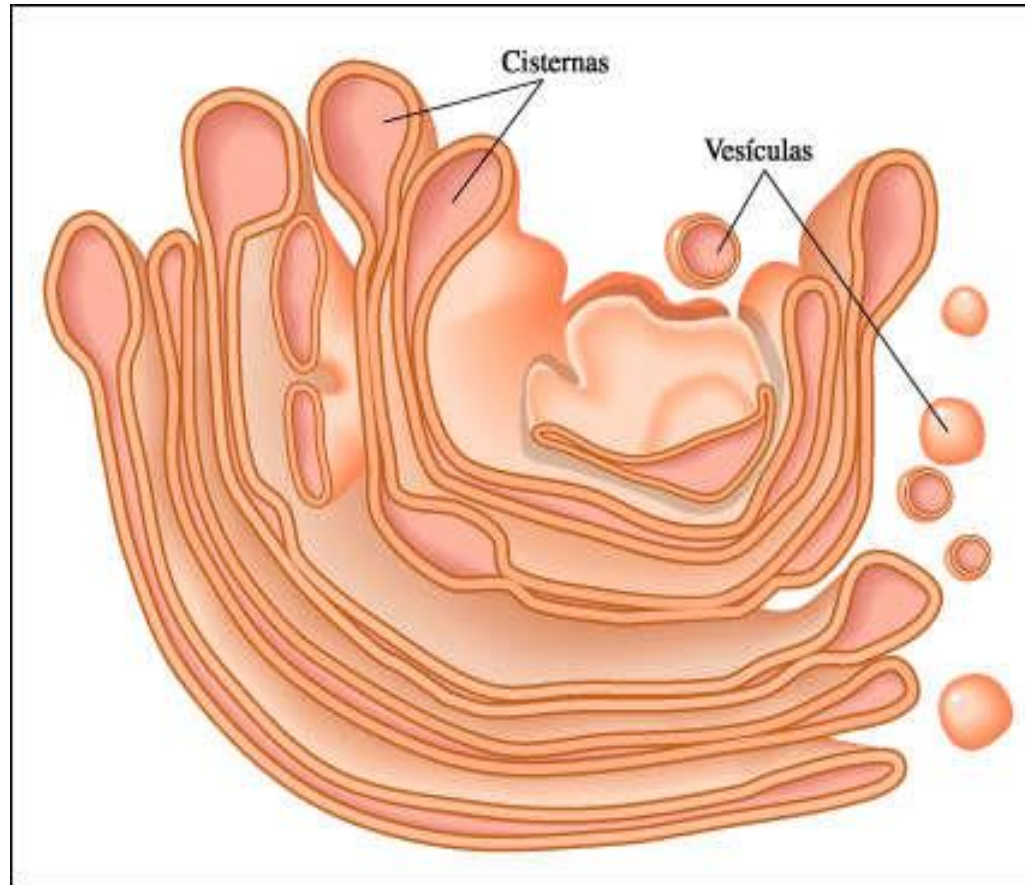
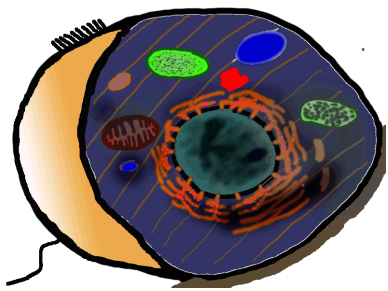
# Endomembranas

Figure 7.16 Review: relationships among endomembranes



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# Retículo a Golgi



# Mitochondria

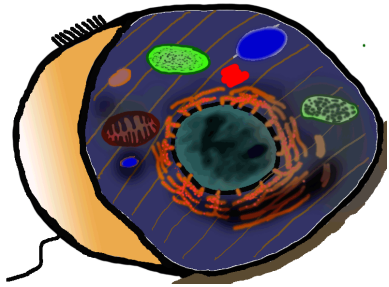
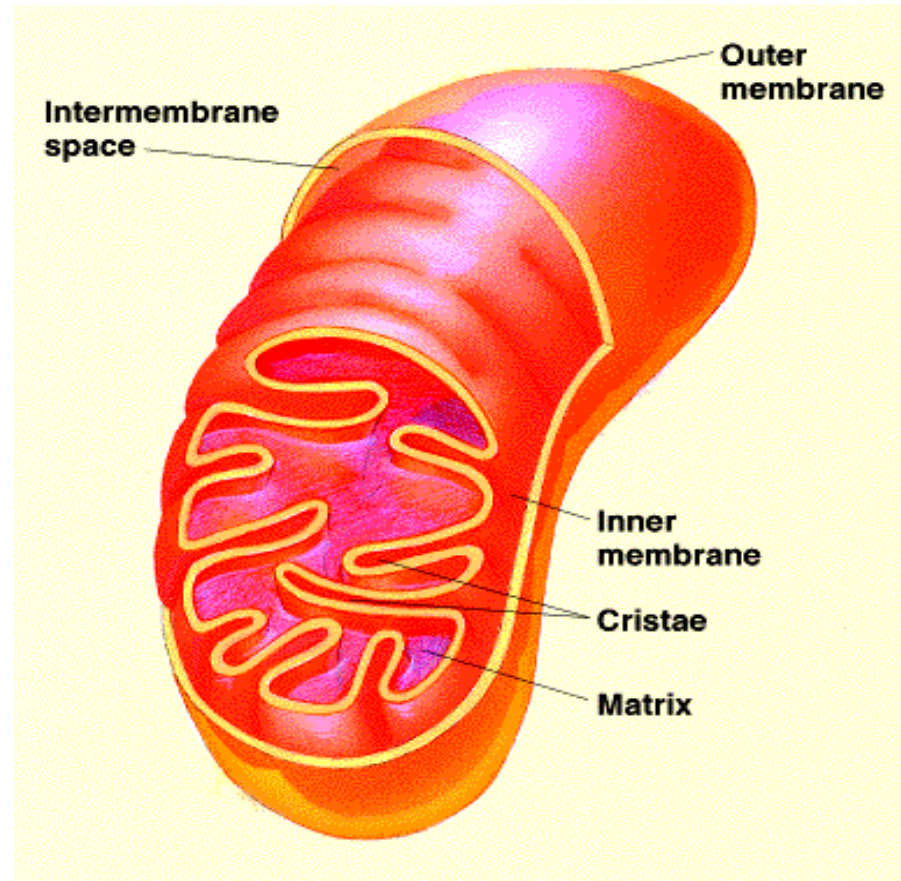


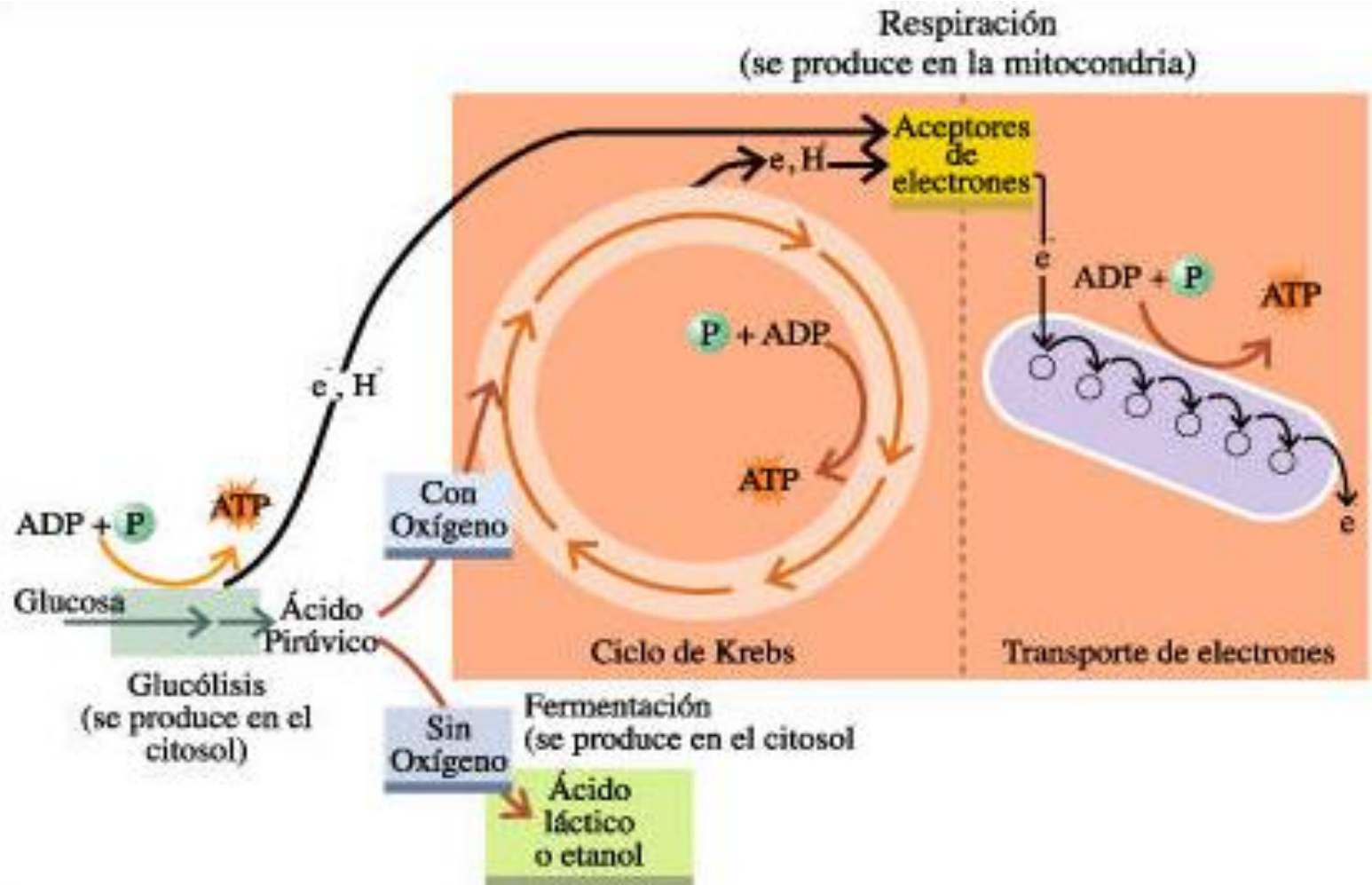
Figure 7.18 The mitochondrion



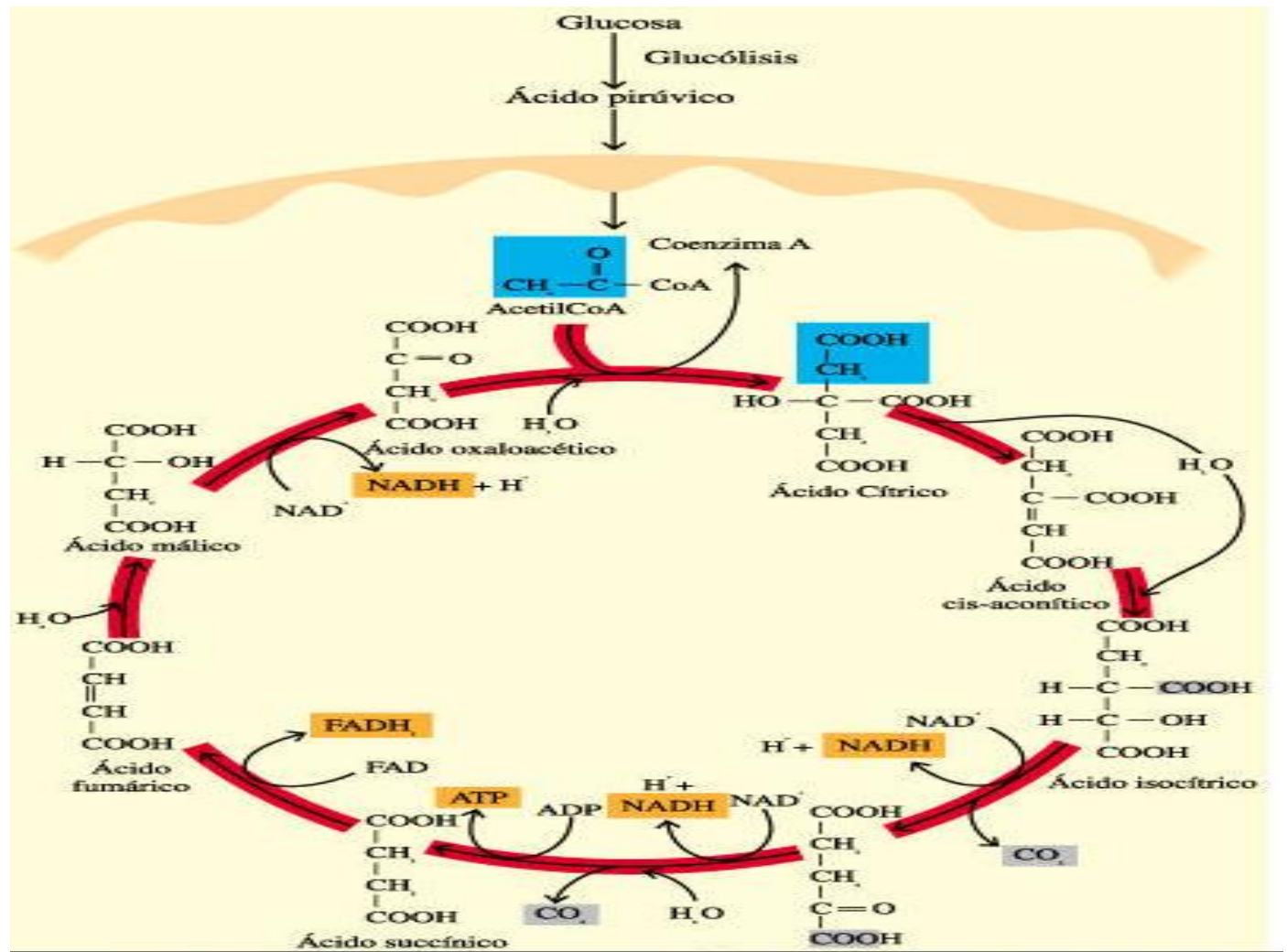
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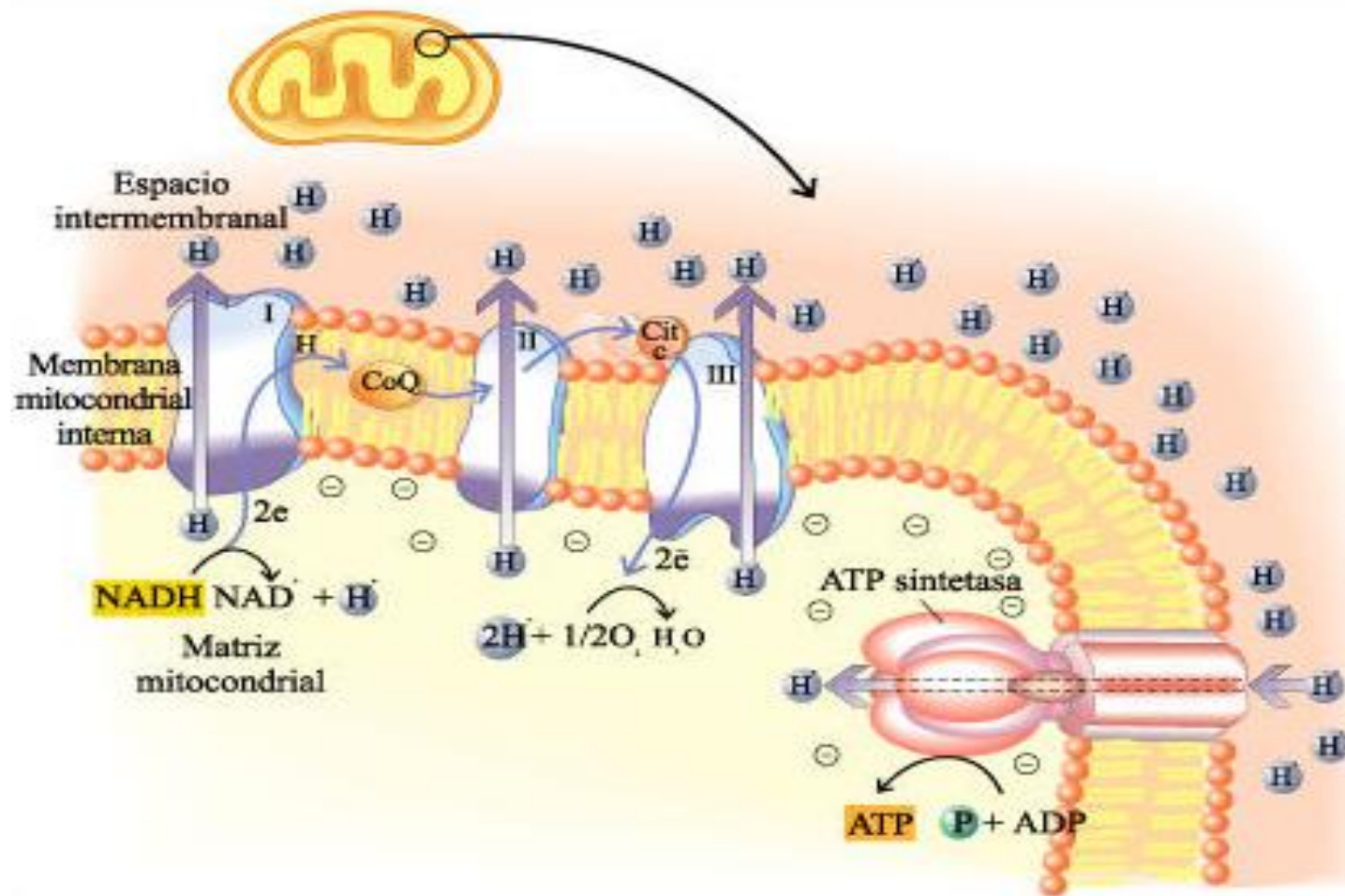
# Respiración



# Ciclo Krebs



# Fosforilación



# Ganancia

Resumen del rendimiento energético máximo obtenido por la oxidación completa de la glucosa

Producción de moléculas en:

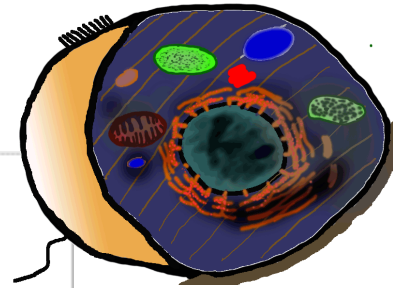
Proceso		Citosol	Matriz mitocondrial	Transporte electrónico
Glucólisis		2 ATP		2 ATP
		2 NADH		6 ATP
Respiración	Ácido Pirúvico a acetil CoA		2 x (1 NADH)	2 x (3 ATP) → 6 ATP
	Ciclo de Krebs		2 x (1 ATP)	2 ATP
			2 x (3 NADH)	2 x (9 ATP)
			2 x (1 FADH <sub>2</sub> )	2 x (2 ATP) → 4 ATP

Total: 38 ATP

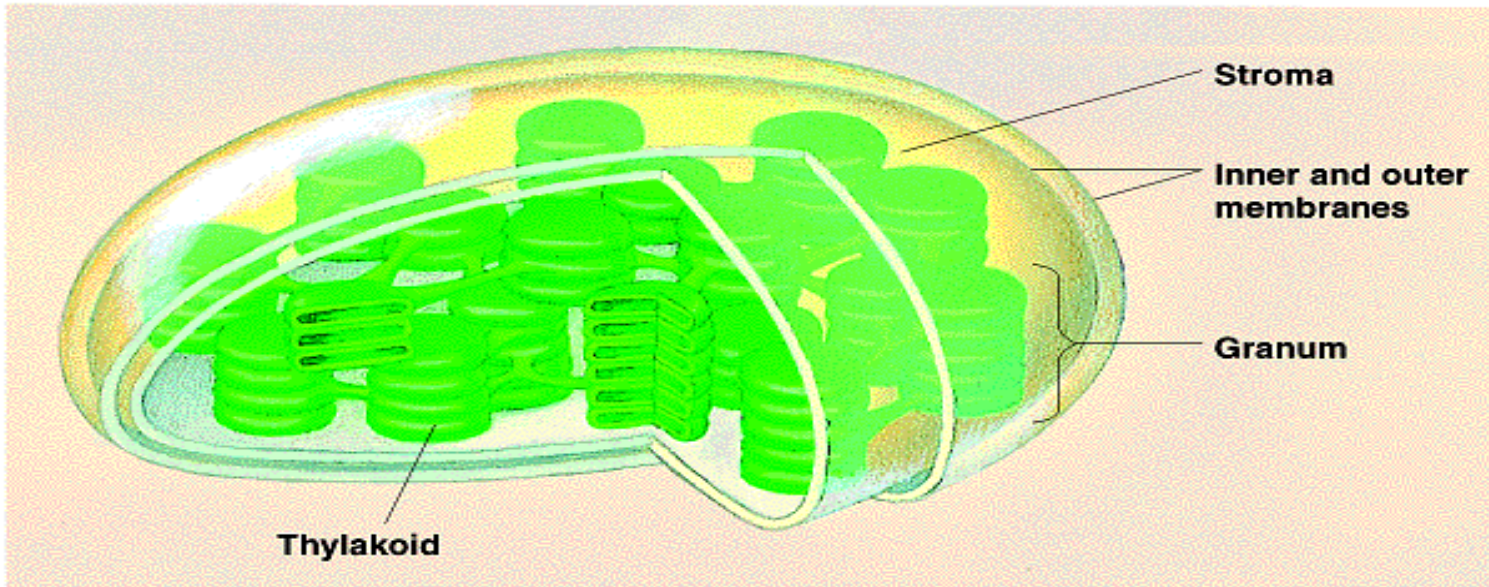
\* En algunas células, el costo energético de transportar electrones desde el NADH formado en la glucólisis, a través de la membrana interna del mitocondrio, baja la producción neta de estos 2 NADH a 4 ATP; así, la producción máxima total en estas células es 36 ATP.



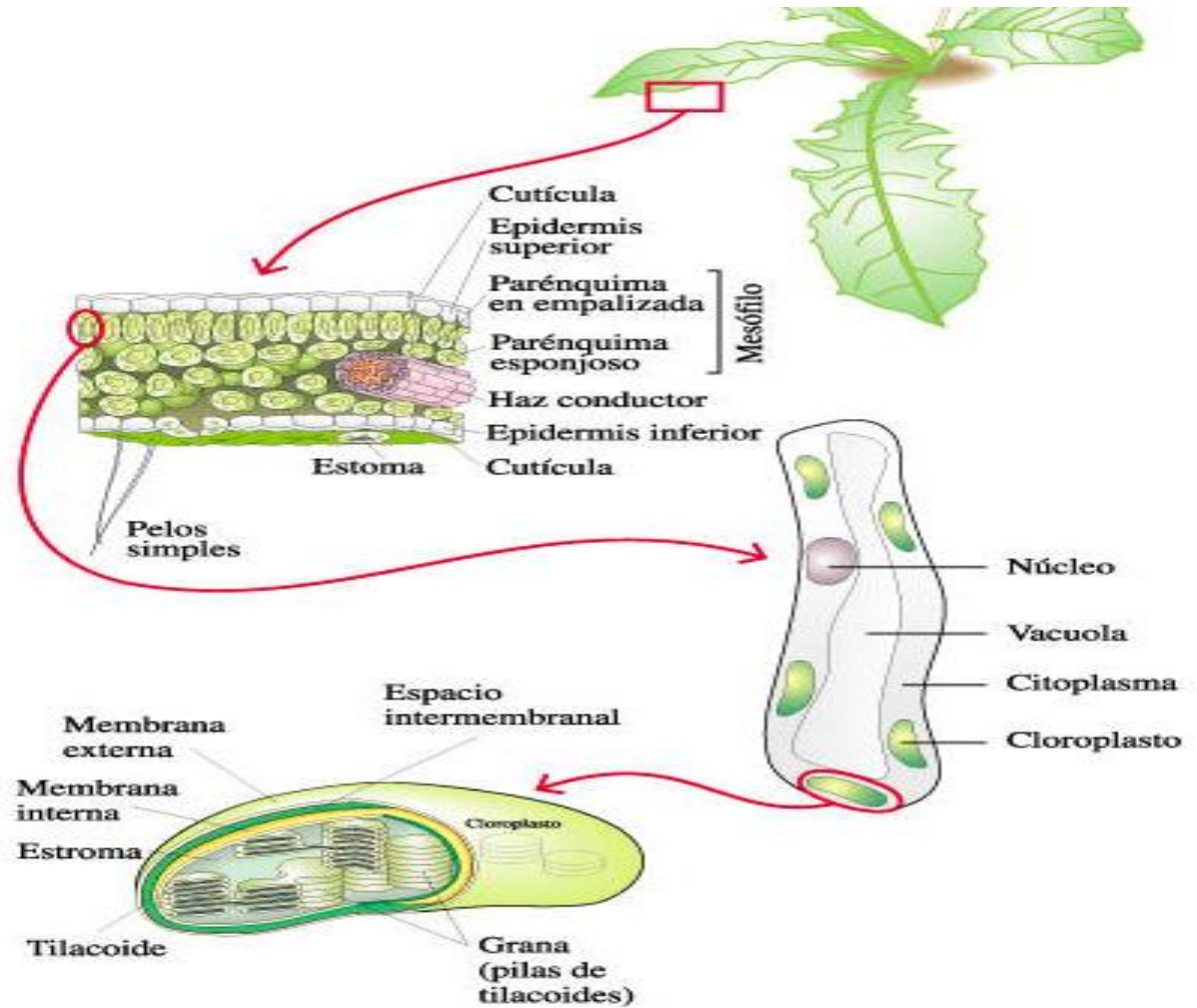
# Cloroplastos



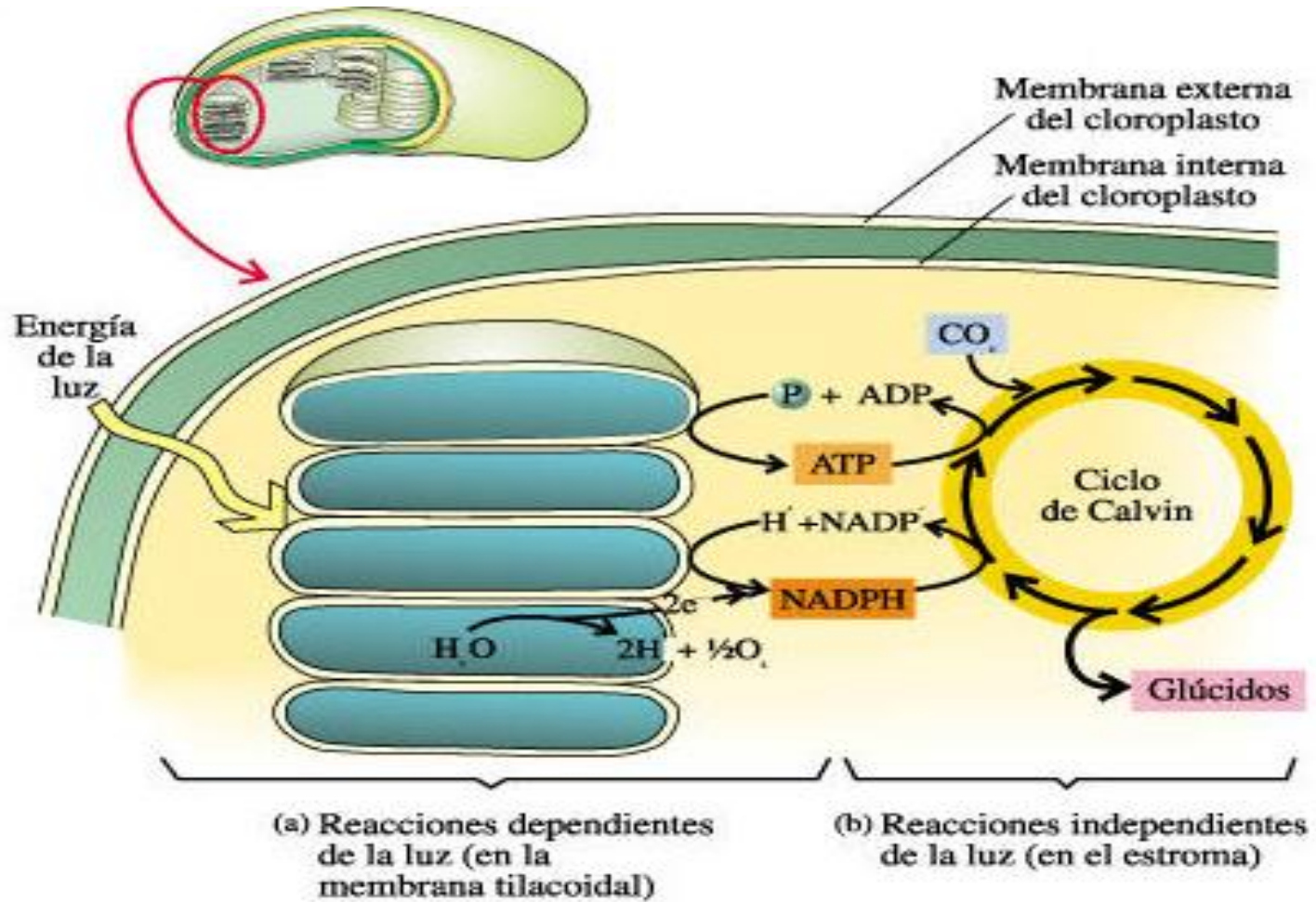
**Figure 7.19 The chloroplast**



# Cloroplastos

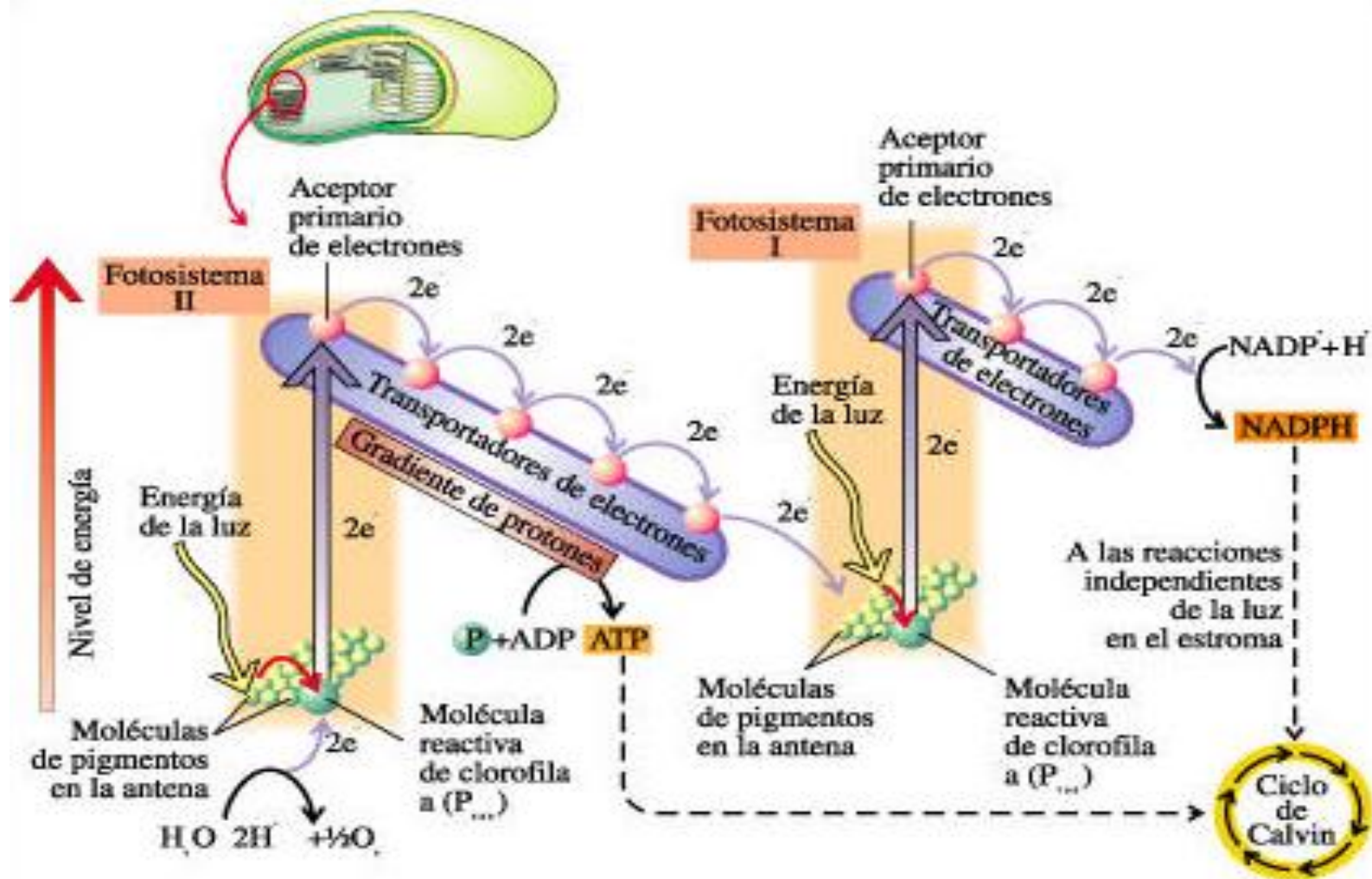


# Fotosíntesis



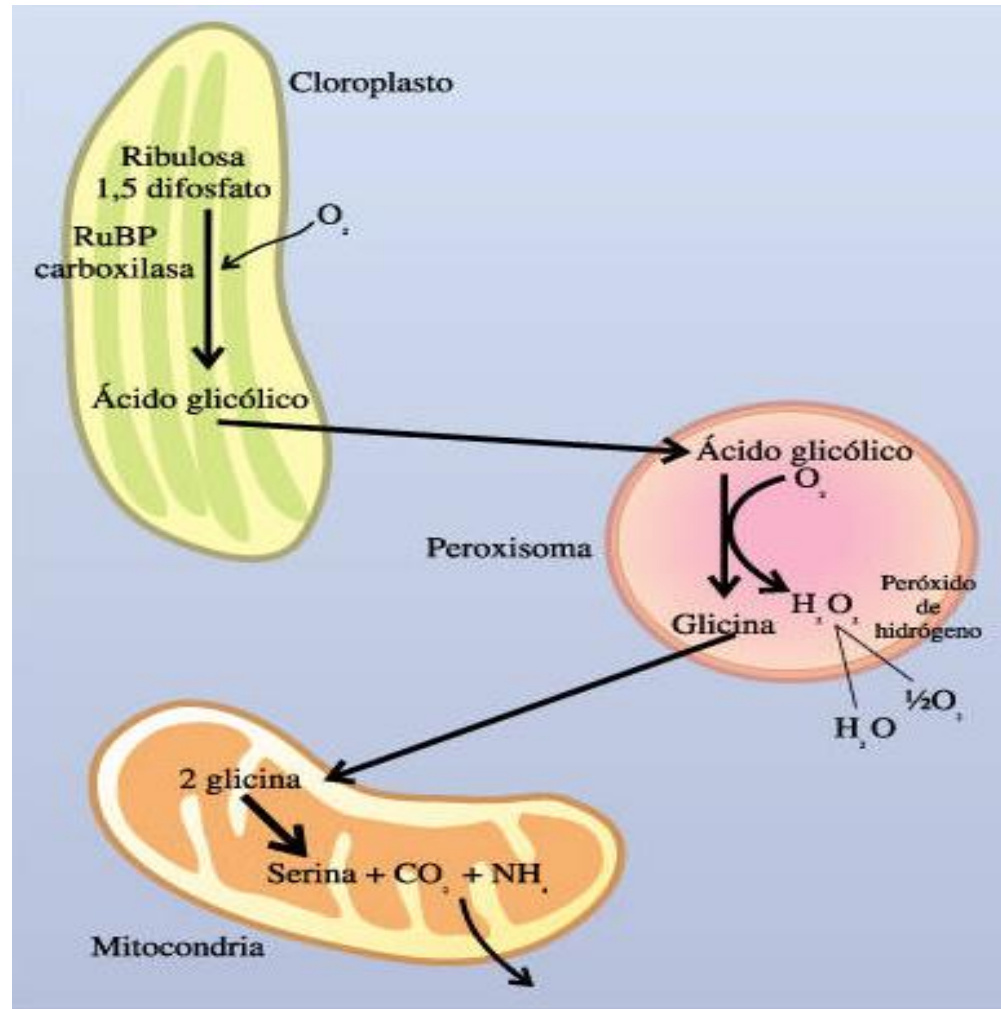


# Transporte electrónico





# Fotosíntesis respiración



# Centriolos

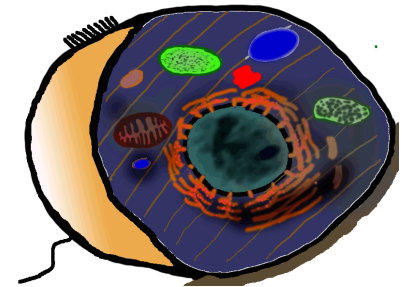
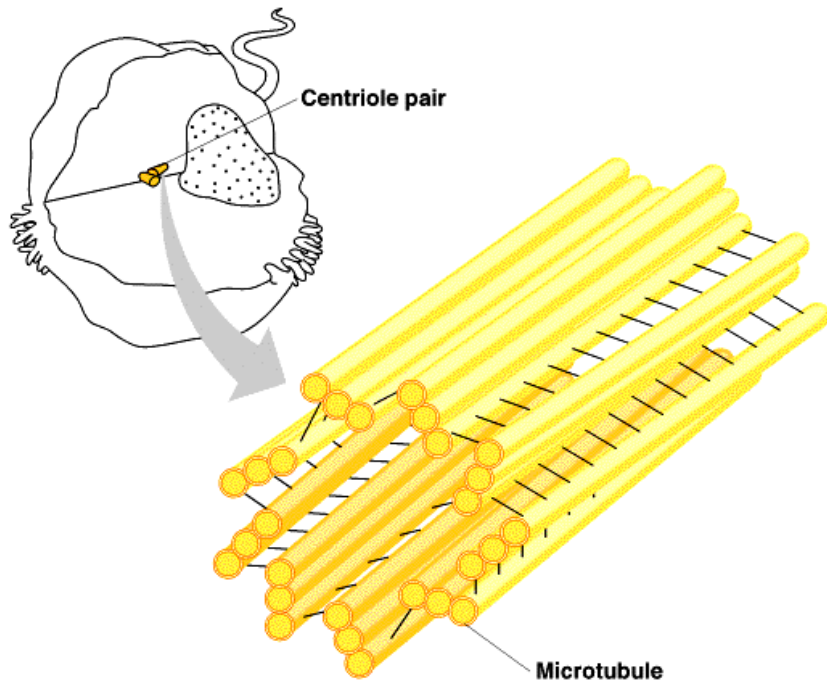
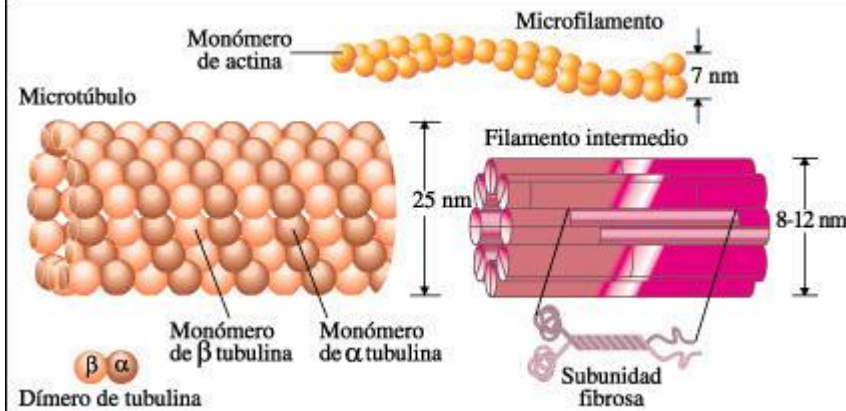
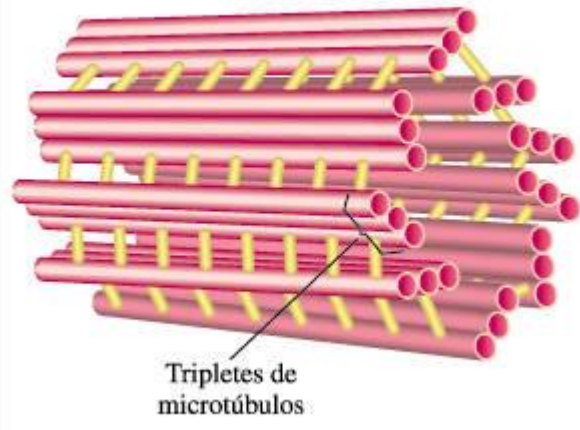


Figure 7.22 Centrioles

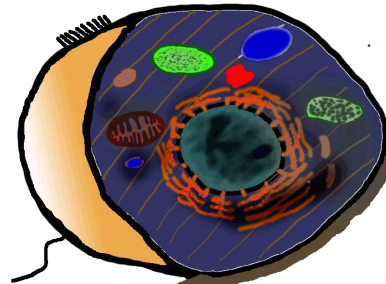
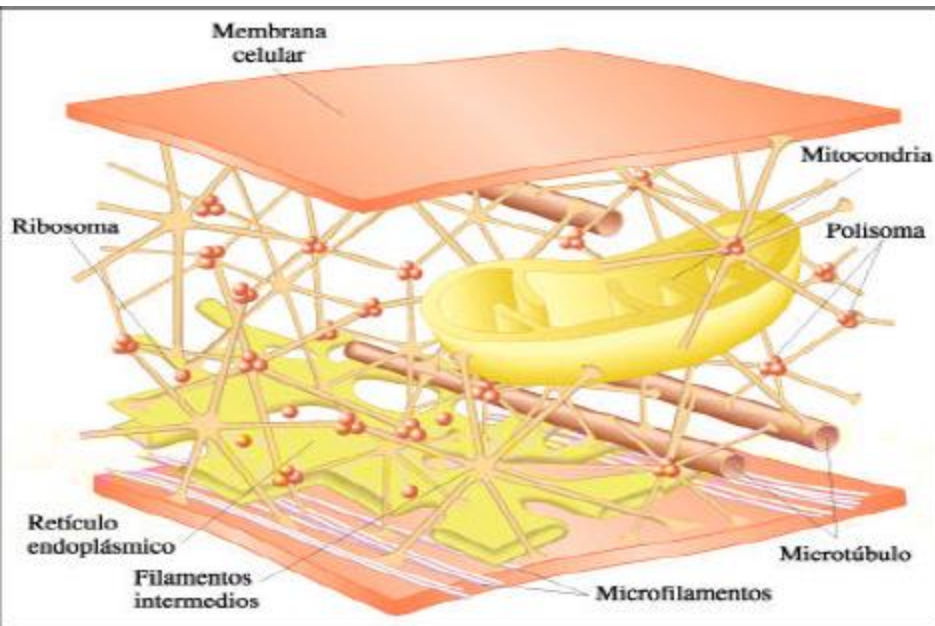


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Estructura de un centriolo

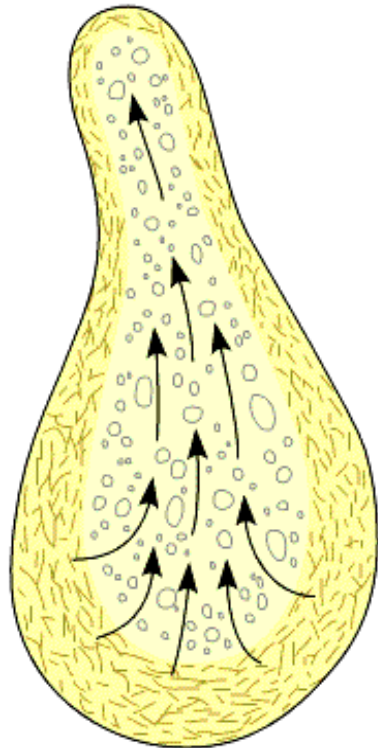


# Citoesqueleto

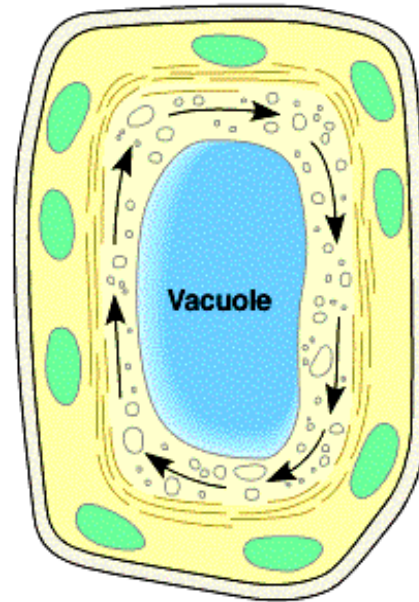


# Vacuolas

Figure 7.27 Microfilaments and motility in nonmuscles



(a) Ameboid movement



(b) Cytoplasmic streaming

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