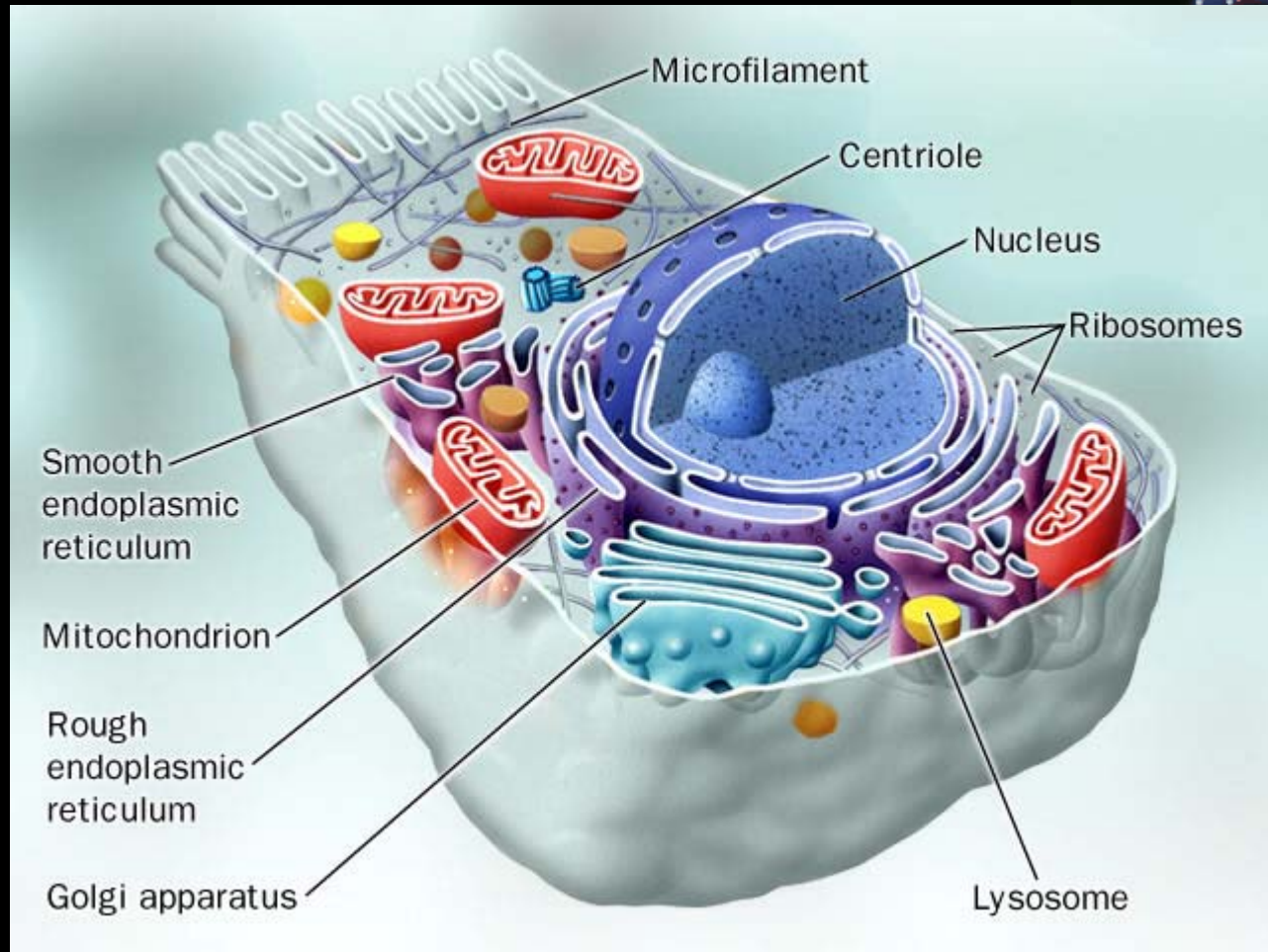




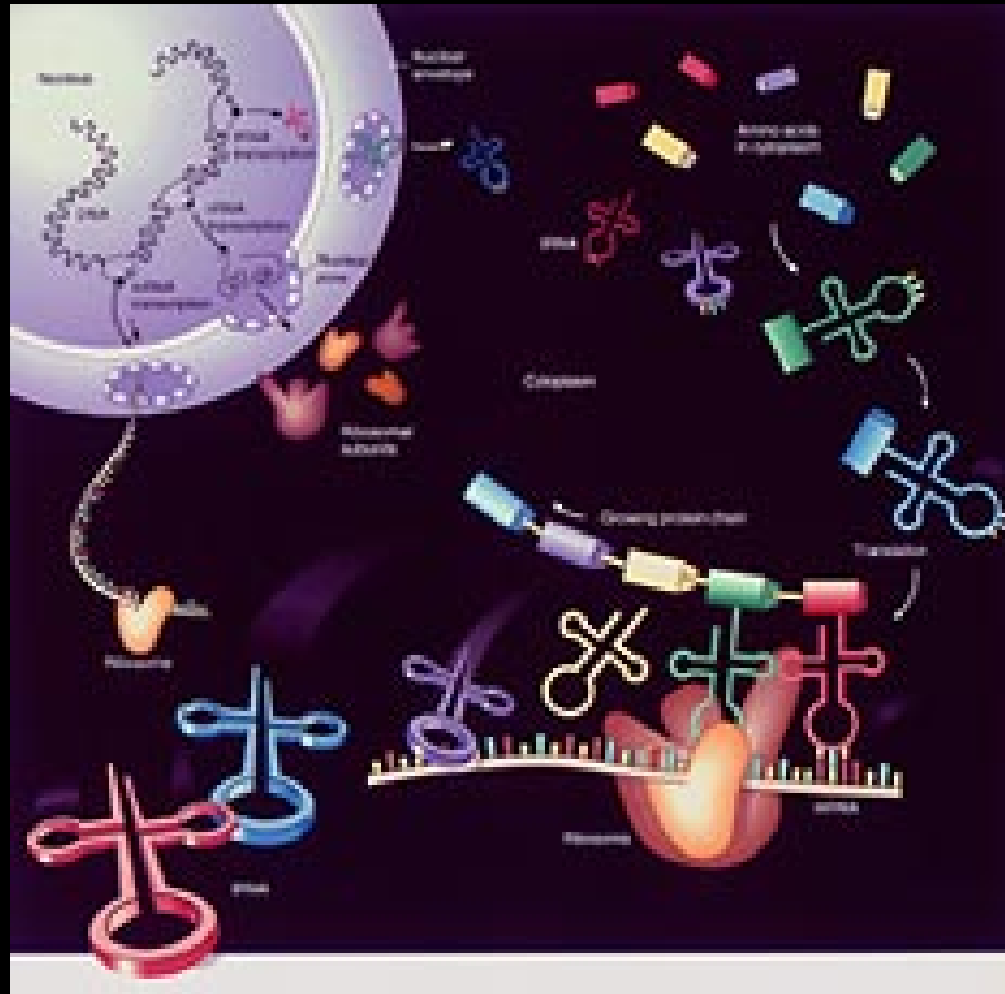
Bioquímica
Celular y Motores
Moleculares

Ricardo Silva, Ph.D., C.C.E.

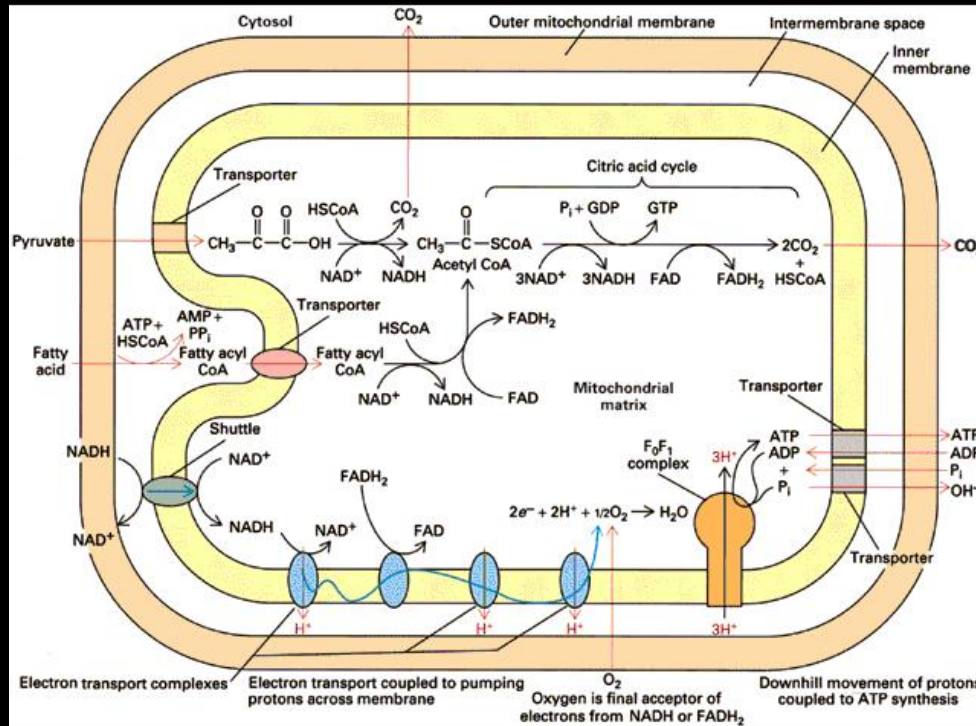
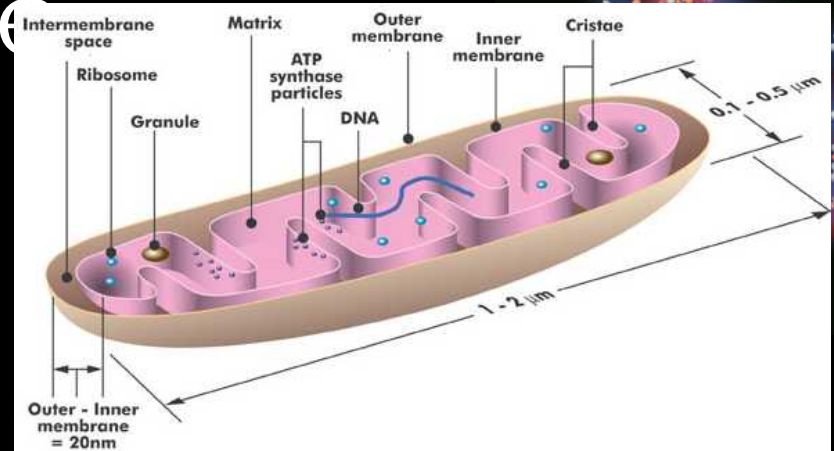
La Célula



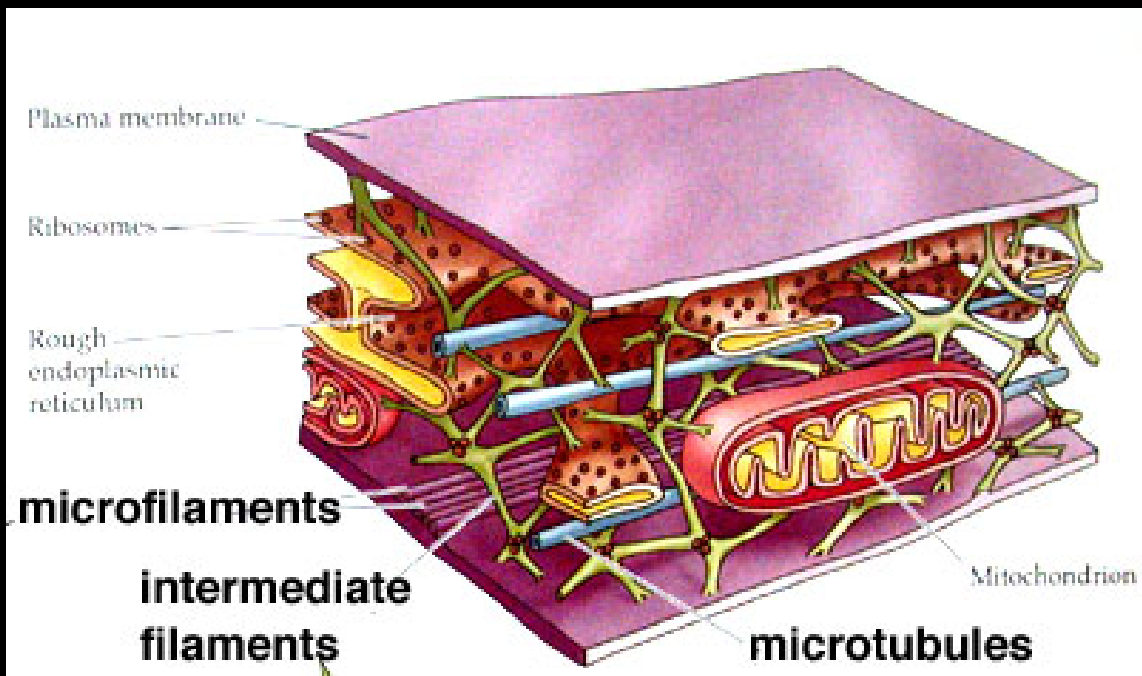
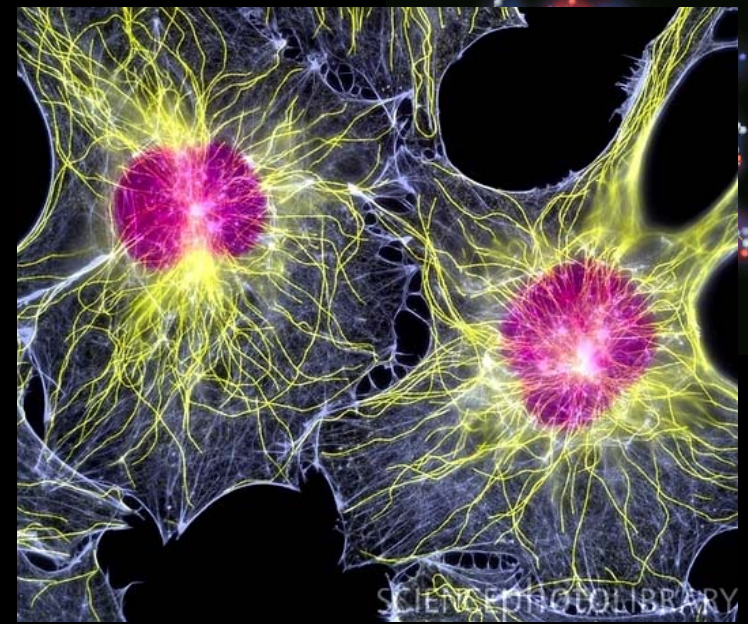
Síntesis de Proteínas



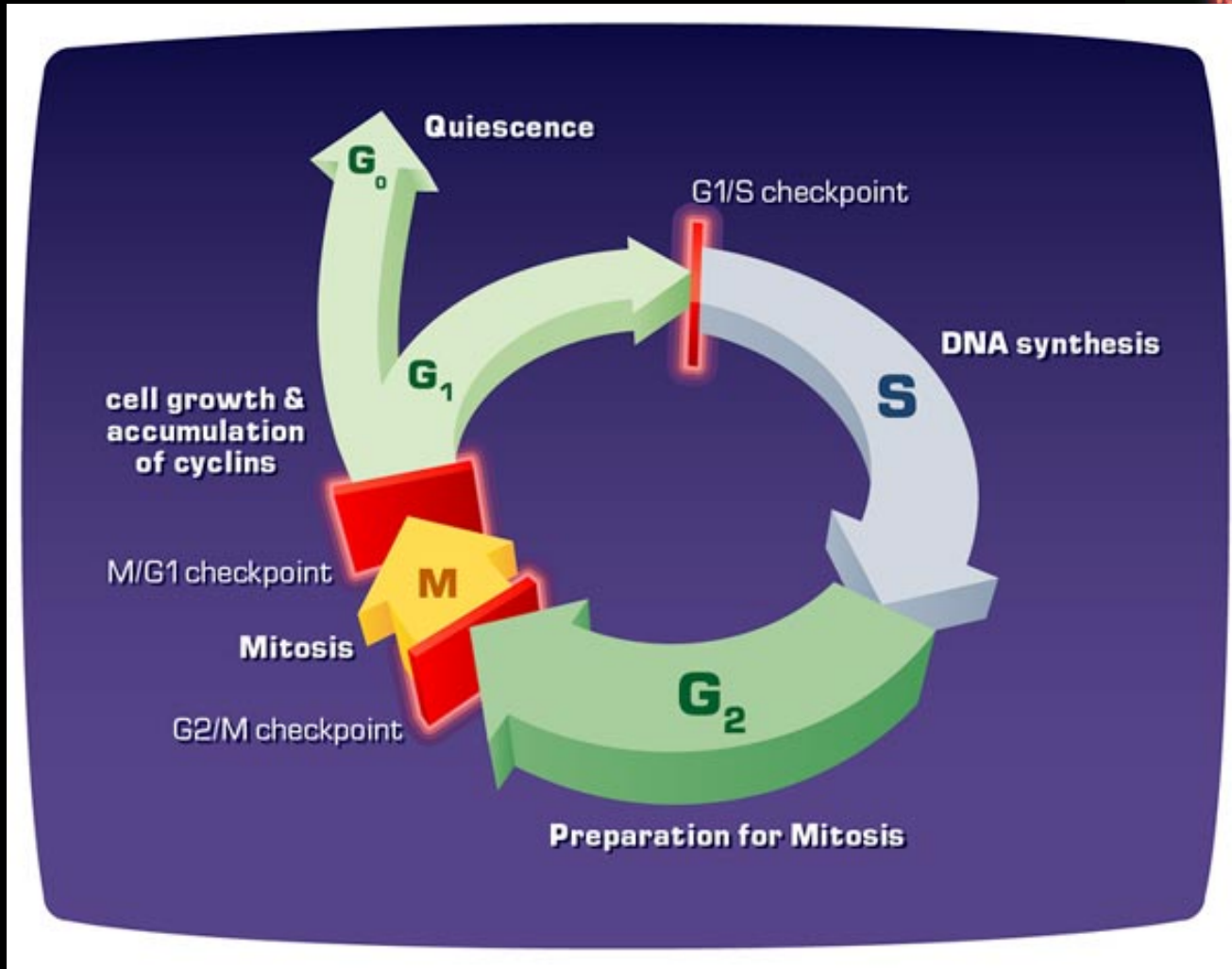
Generación de Energía (Mitocóndria)



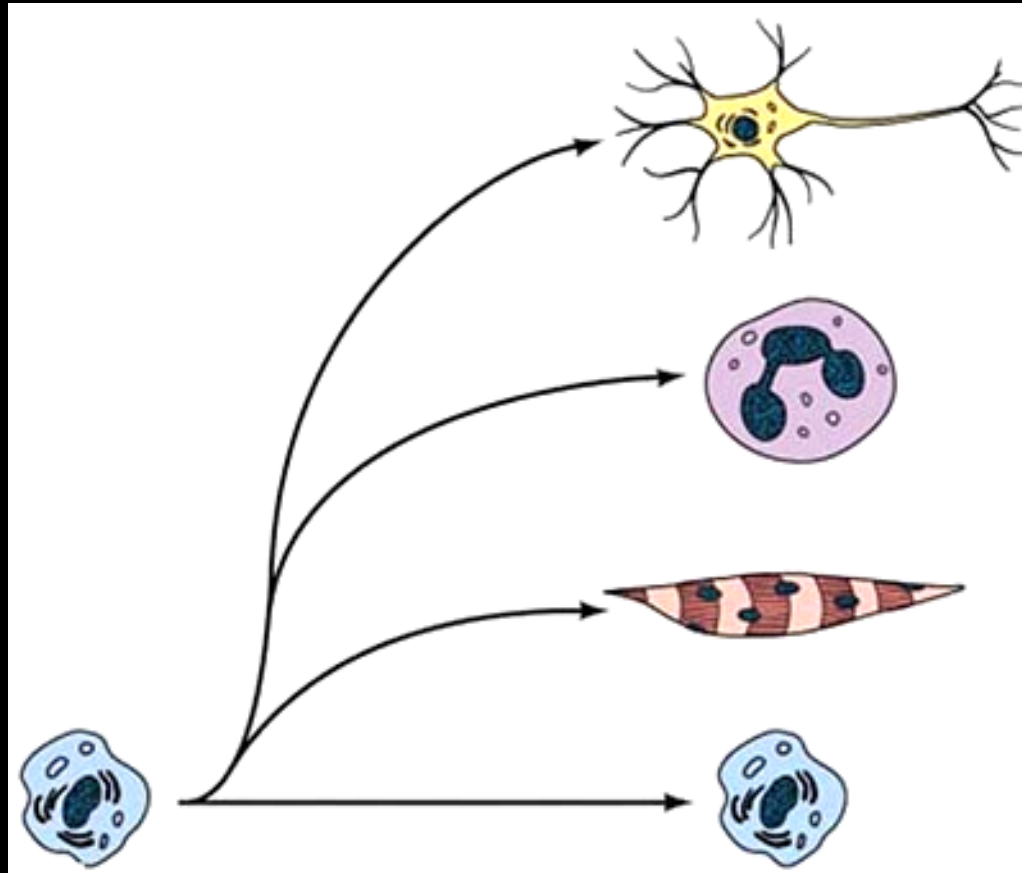
Citoesqueleto



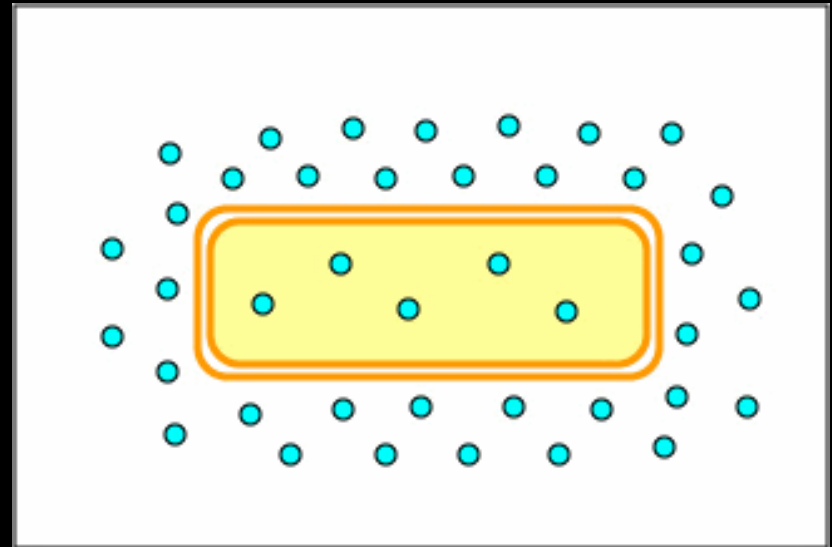
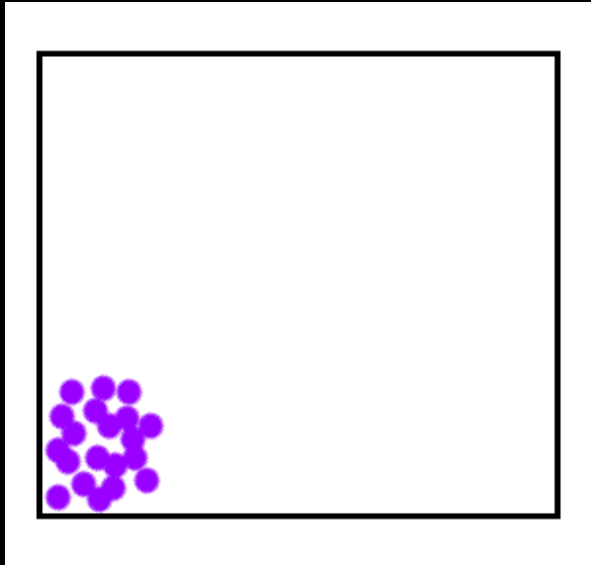
Ciclo Celular



Diferenciación Celular

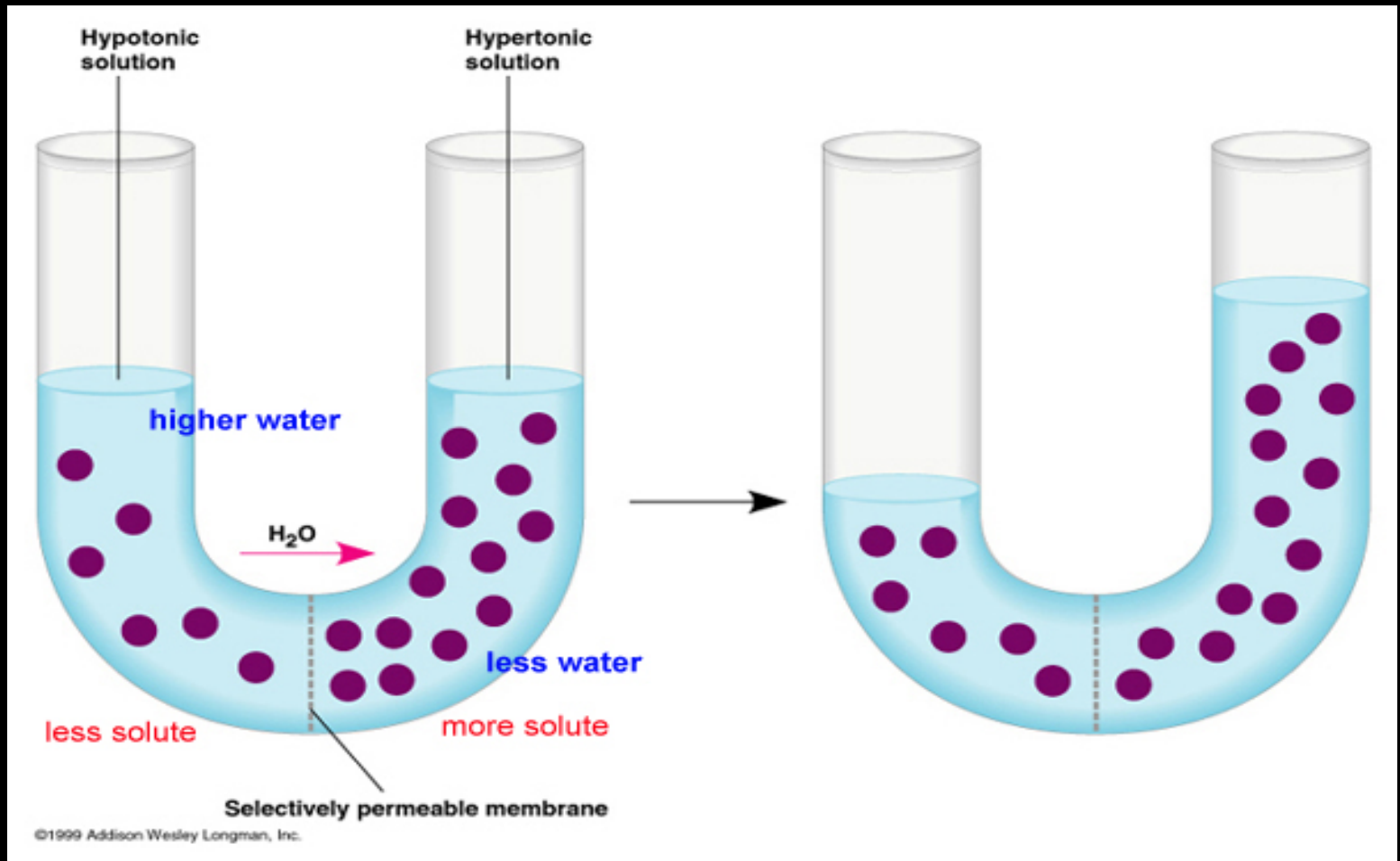


Difusión



<http://www.biosci.ohiou.edu/introbioslab/Bios170/diffusion/Diffusion.html>

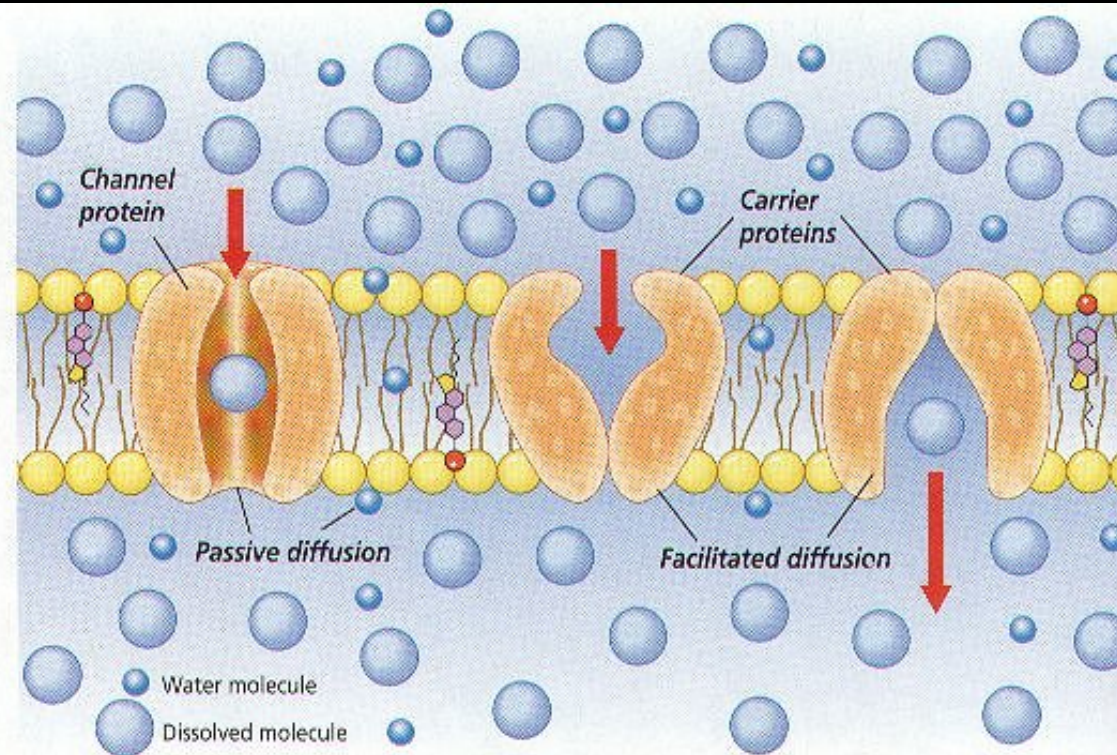
Ósmosis



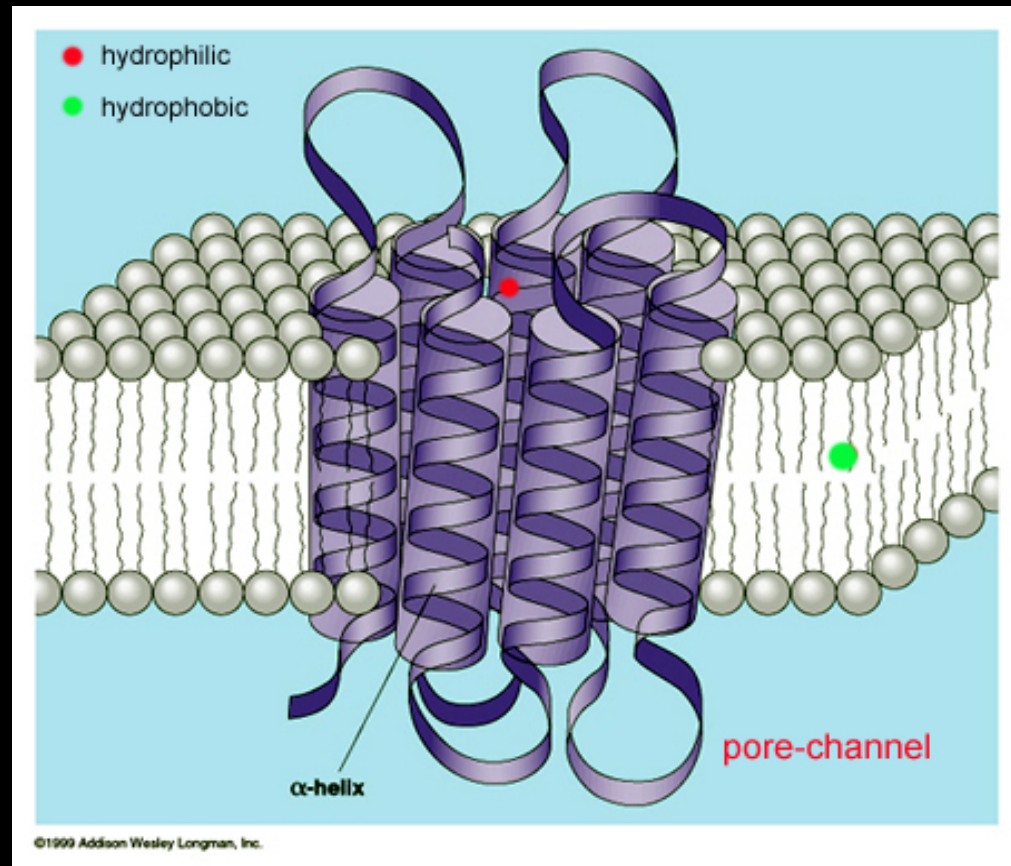
Transporte Pasivo



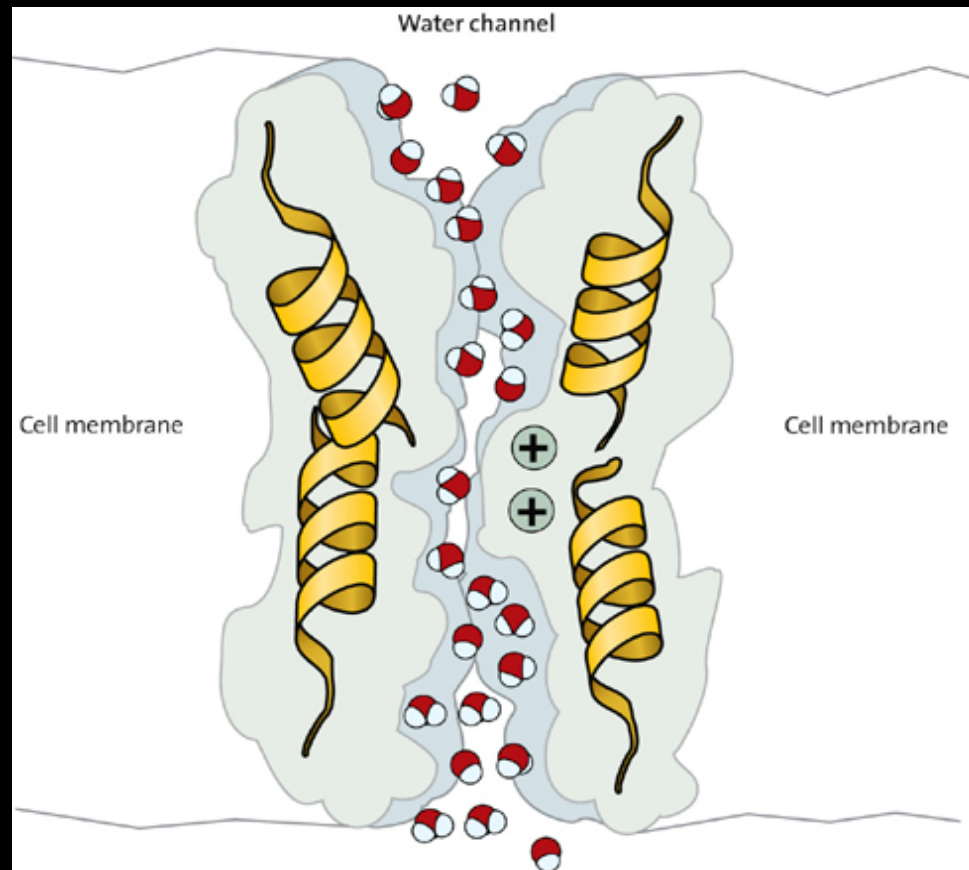
Channel proteins provide the openings through which small, dissolved particles, especially ions, diffuse by passive transport.



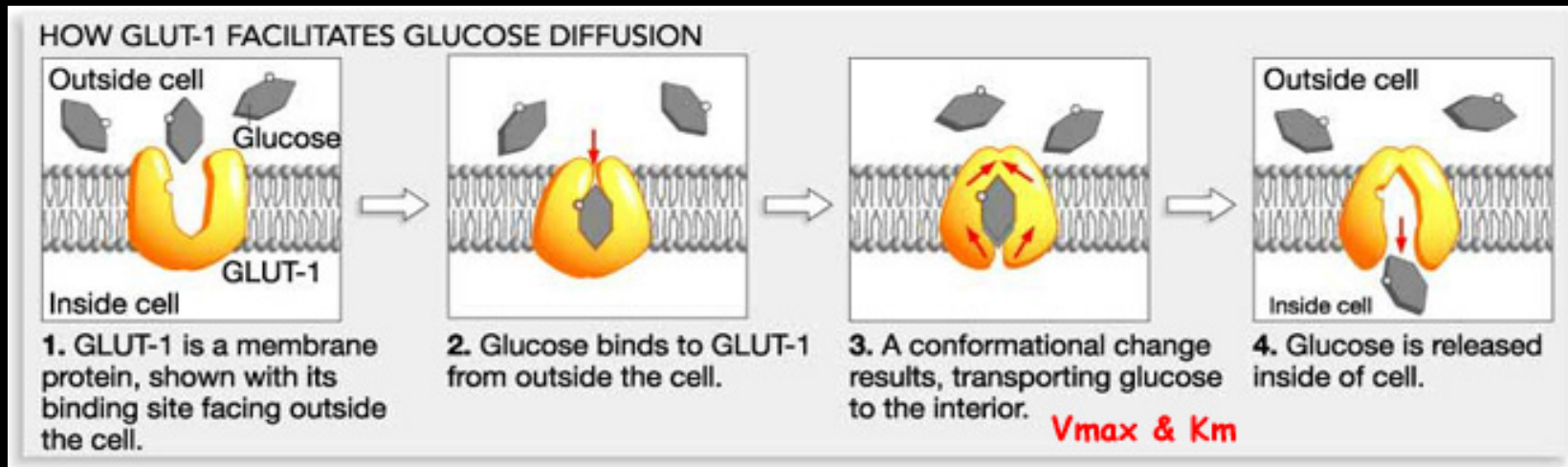
Poro Protéico



Poro de H₂O



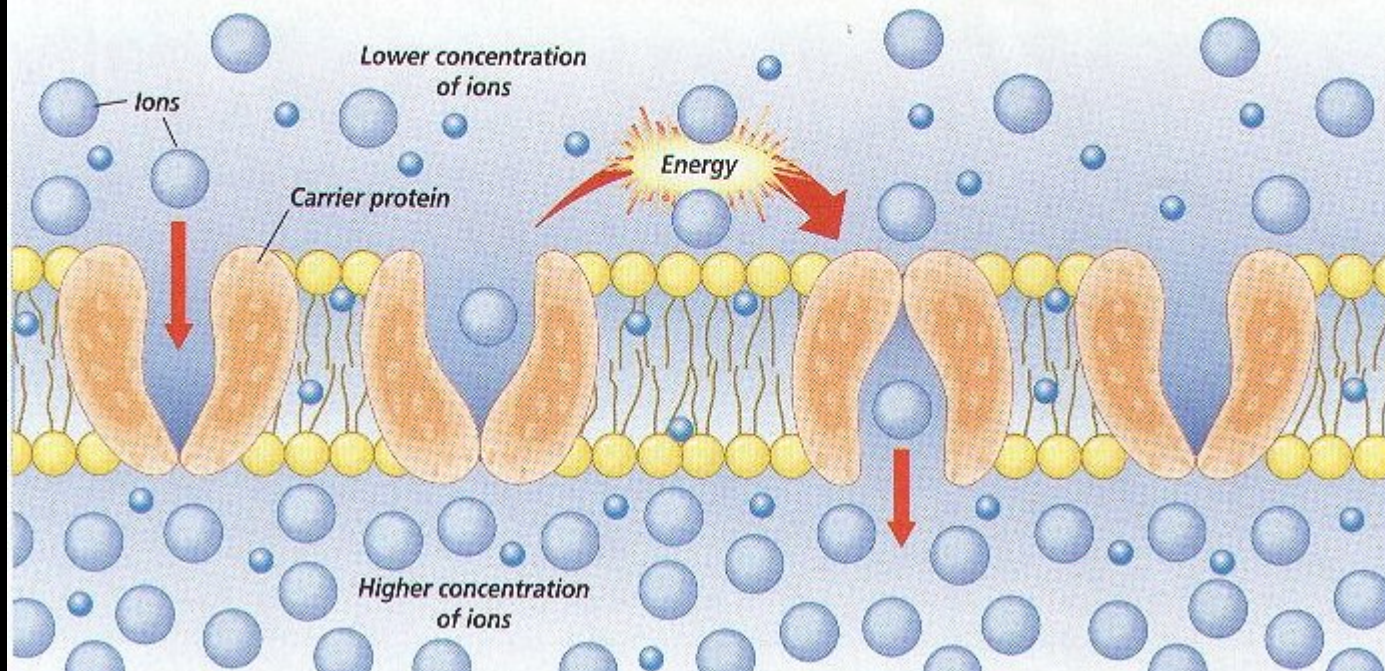
Difusión Facilitada



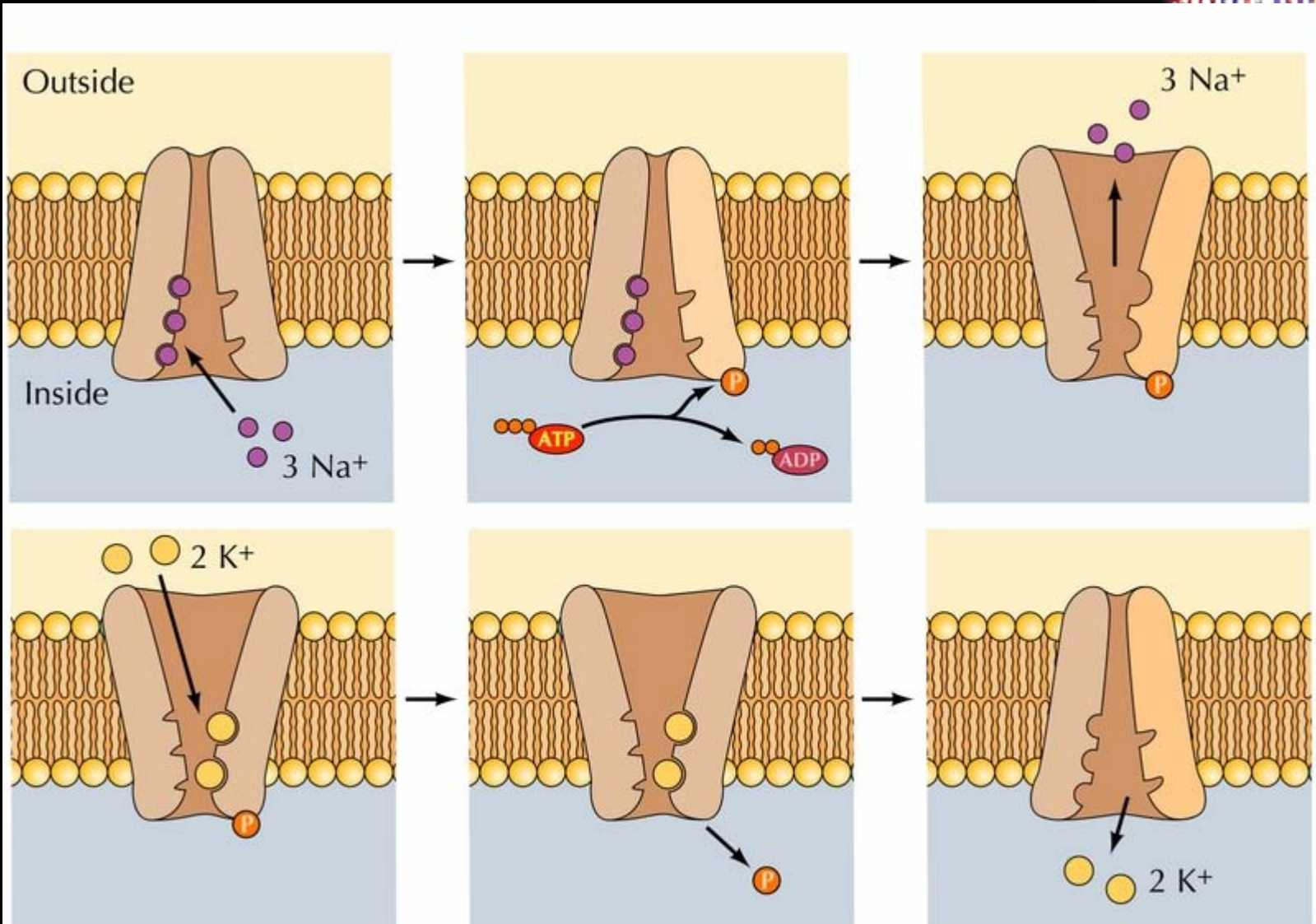
Transporte Activo



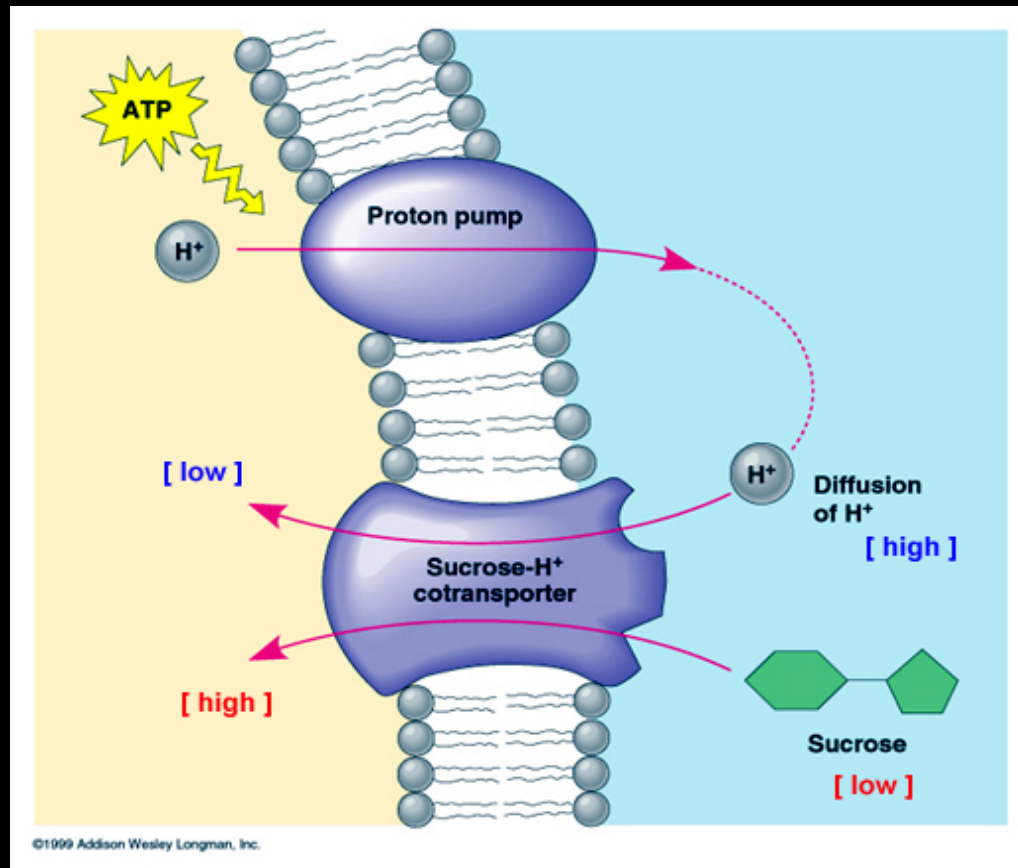
Carrier proteins are used in active transport to pick up ions or molecules from near the cell membrane, carry them across the membrane, and release them on the other side. Active transport requires energy.



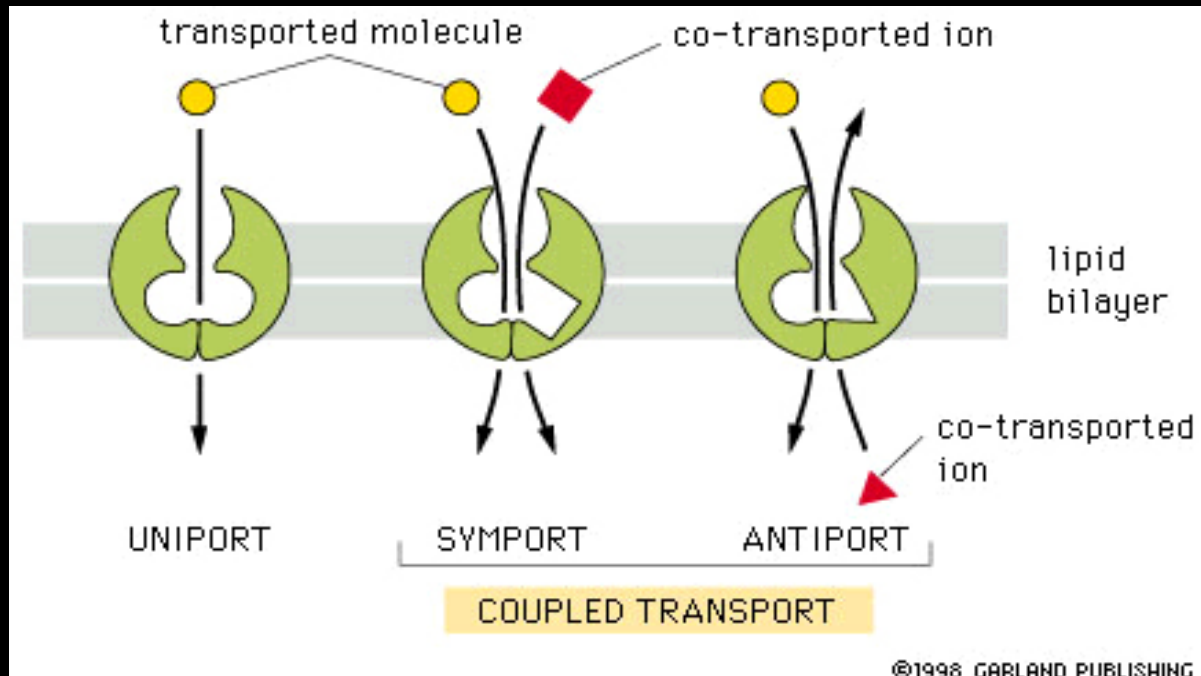
Na-K ATP-asa



Cotransporte



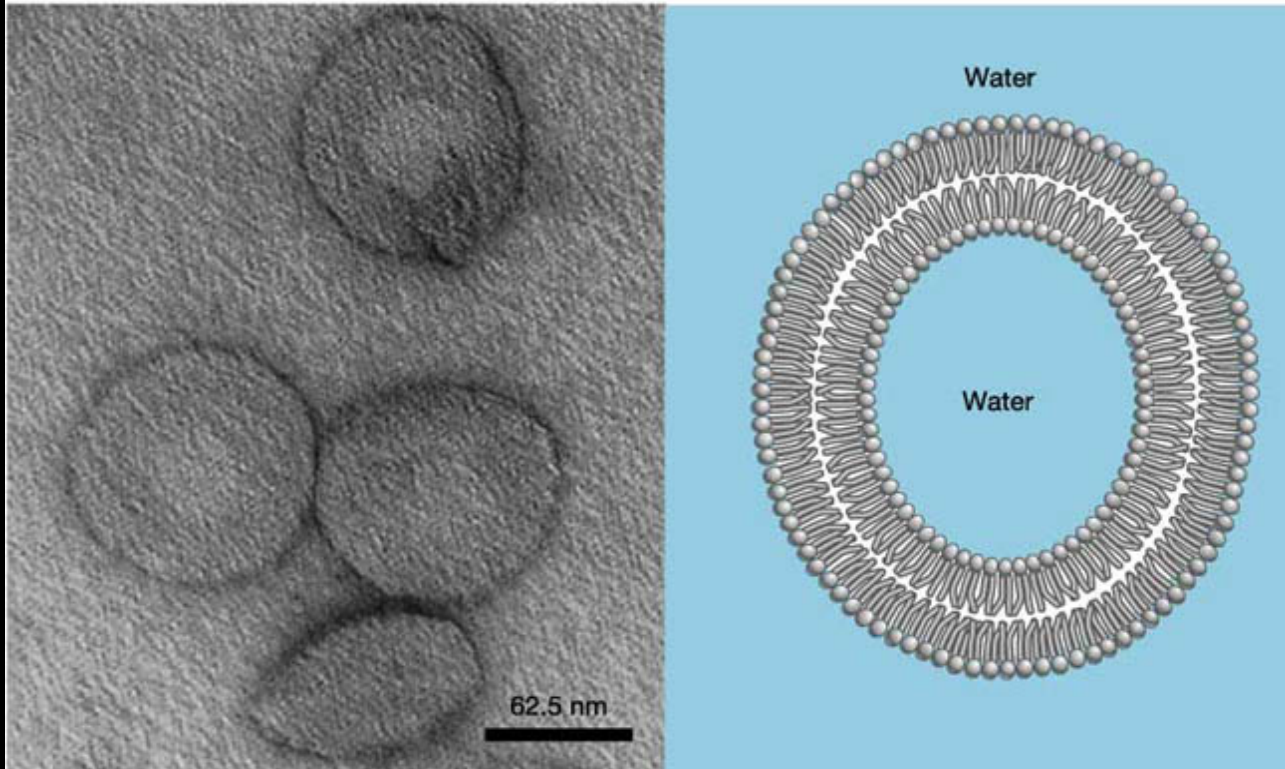
Tipos de Cotransporte



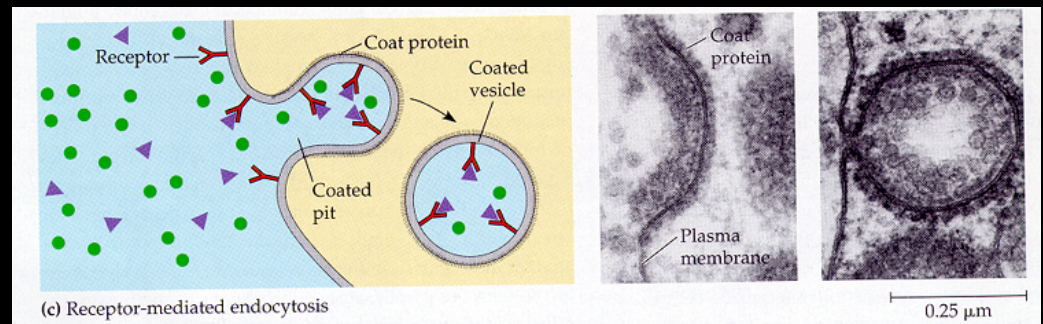
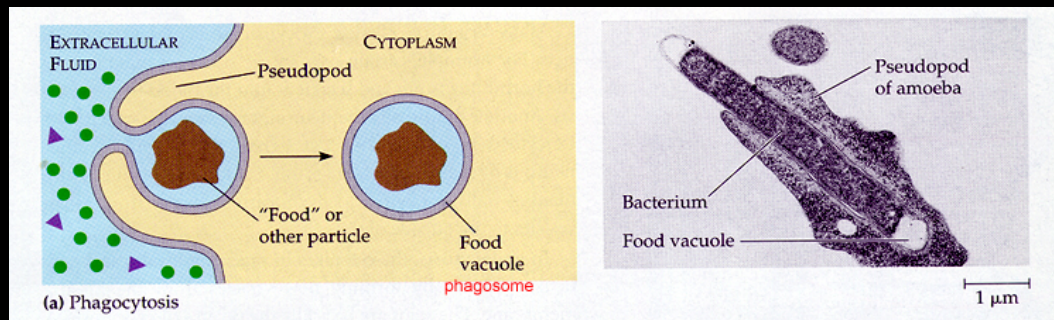
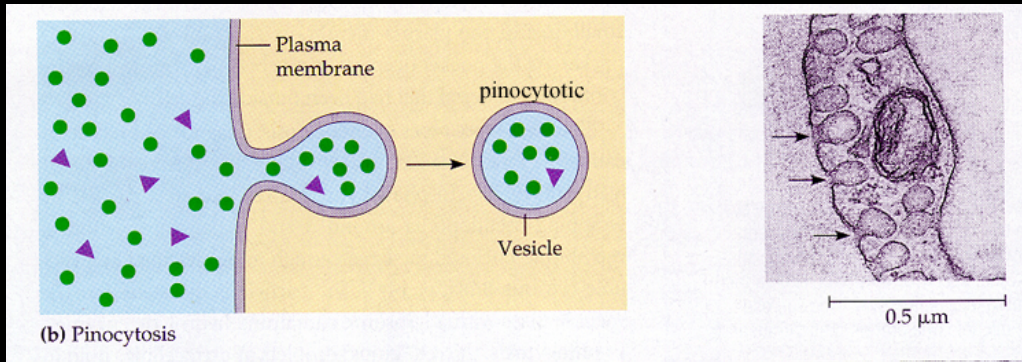
Transporte mediado por Vesículas



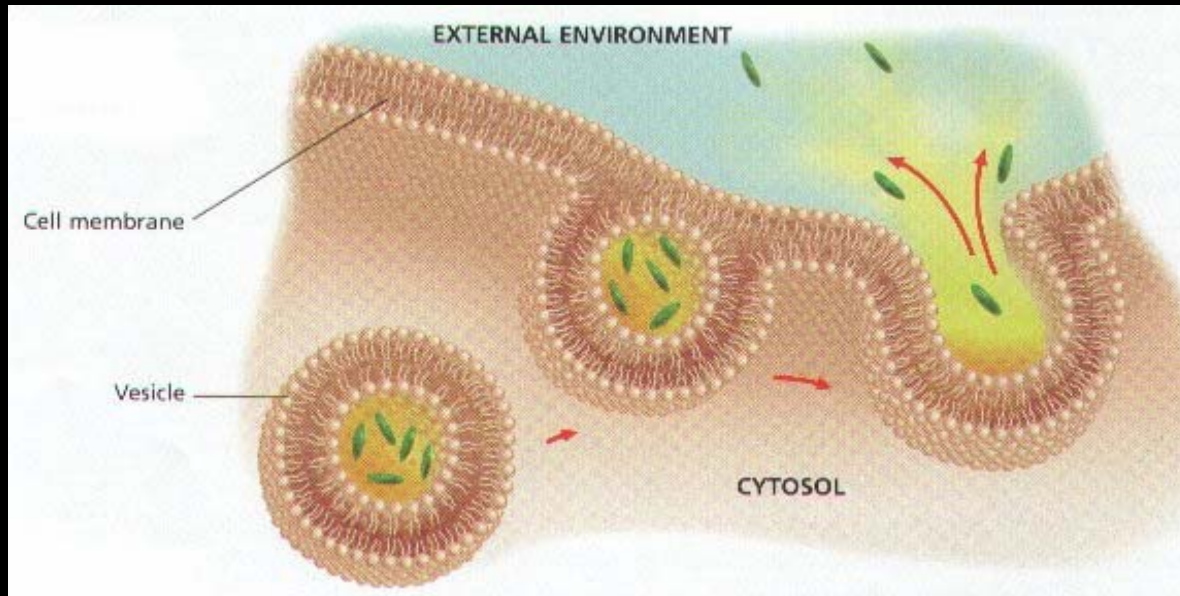
An EM of liposomes in cross section (left) and a cross-sectional diagram of the phospholipid bilayer in a liposome (right).



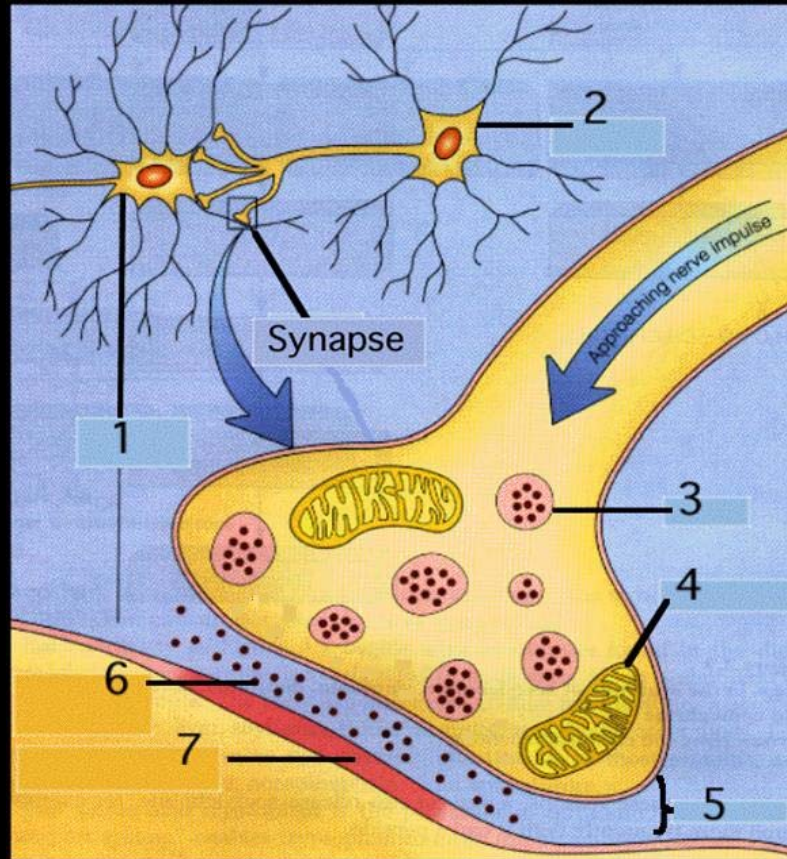
Endocytosis



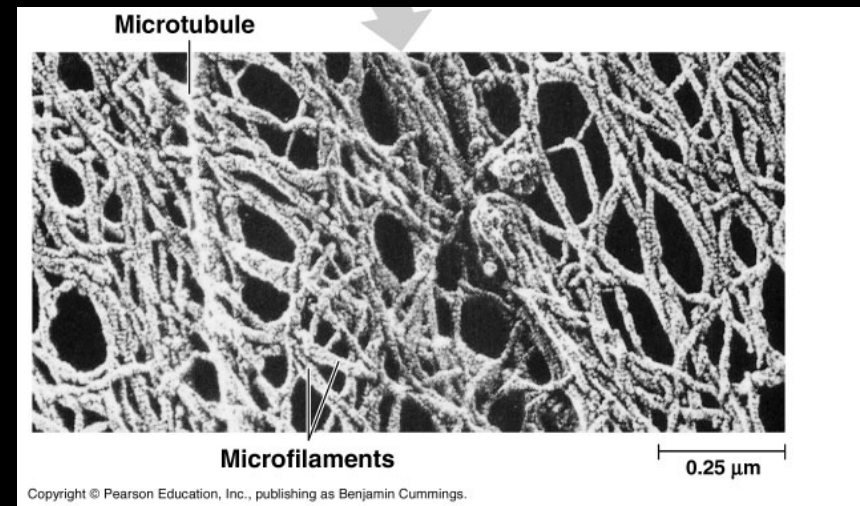
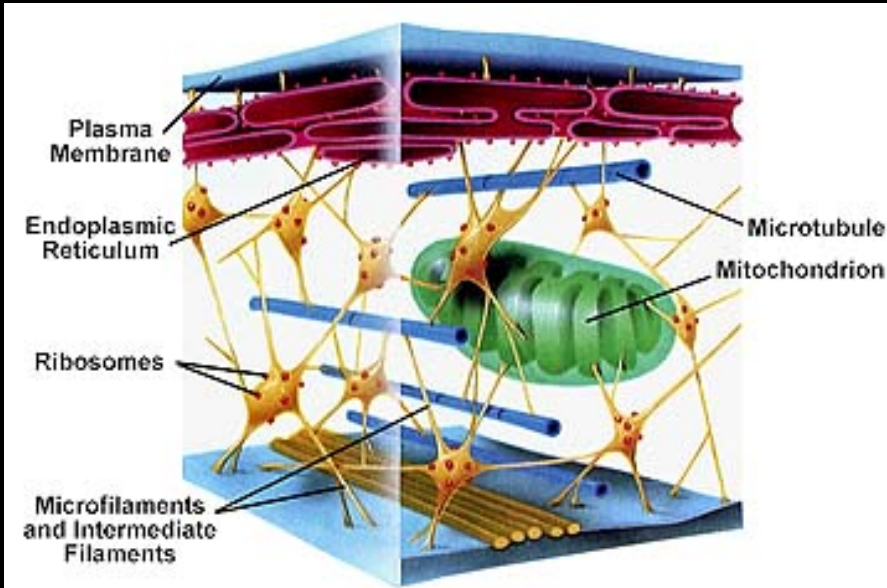
Exocytosis



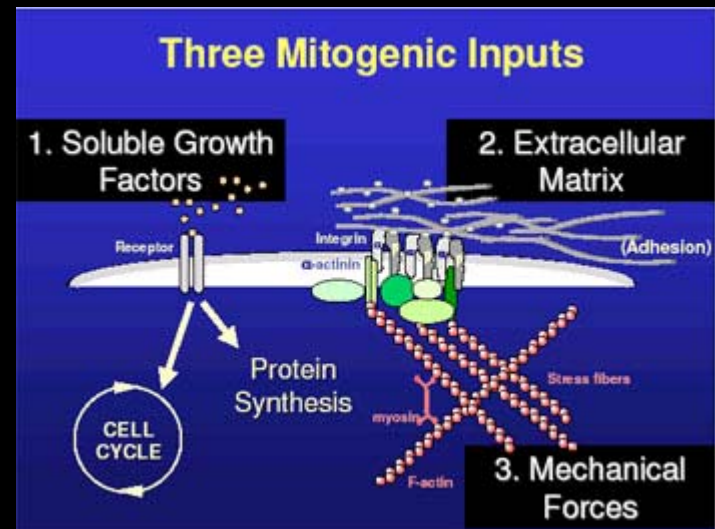
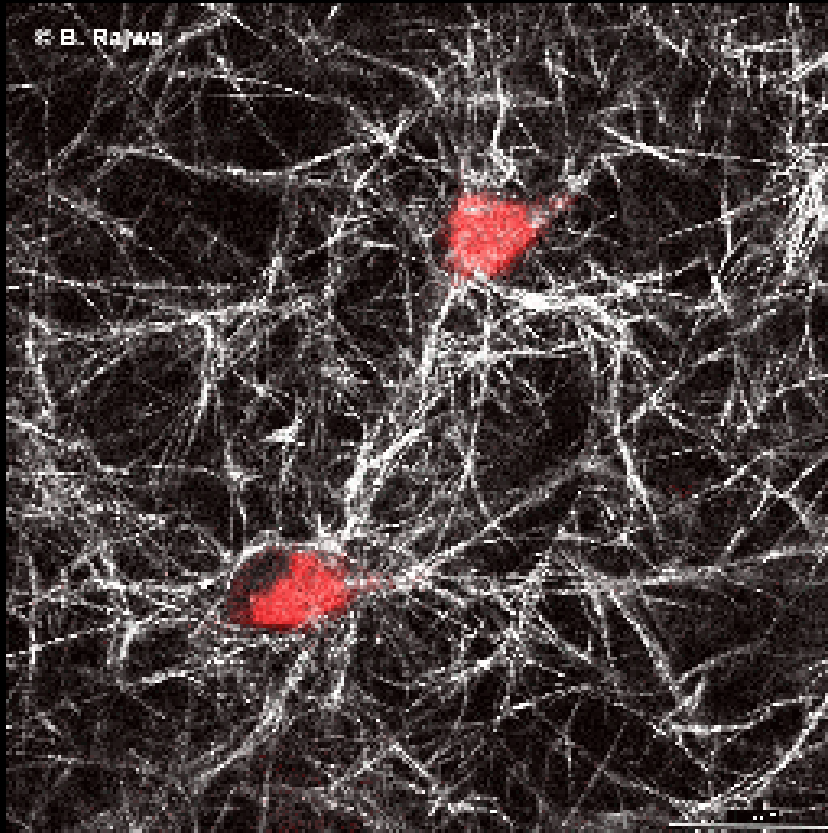
Transmisión Sináptica



Citoesqueleto



Matriz Extracelular



Microfilamentos



Tobin/Dusheck, Asking About Life, 2/e
Figure 4.16

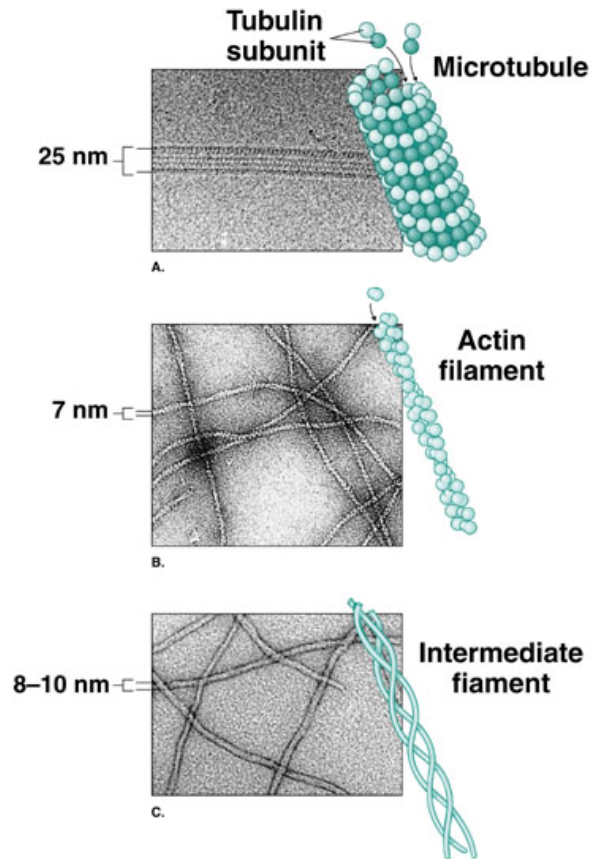
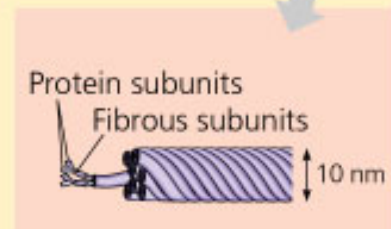
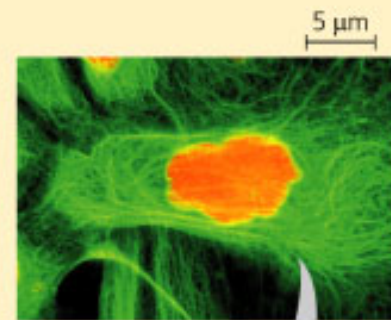
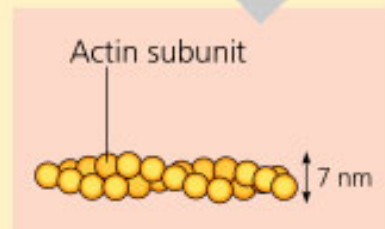
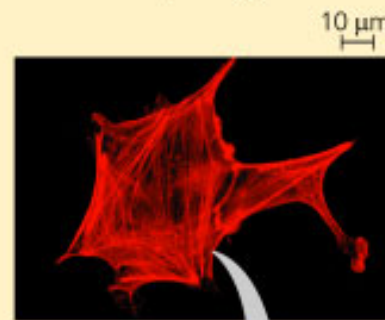
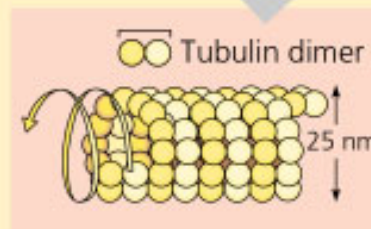
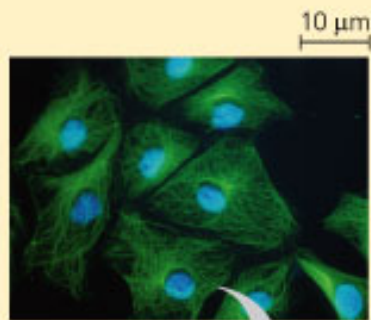


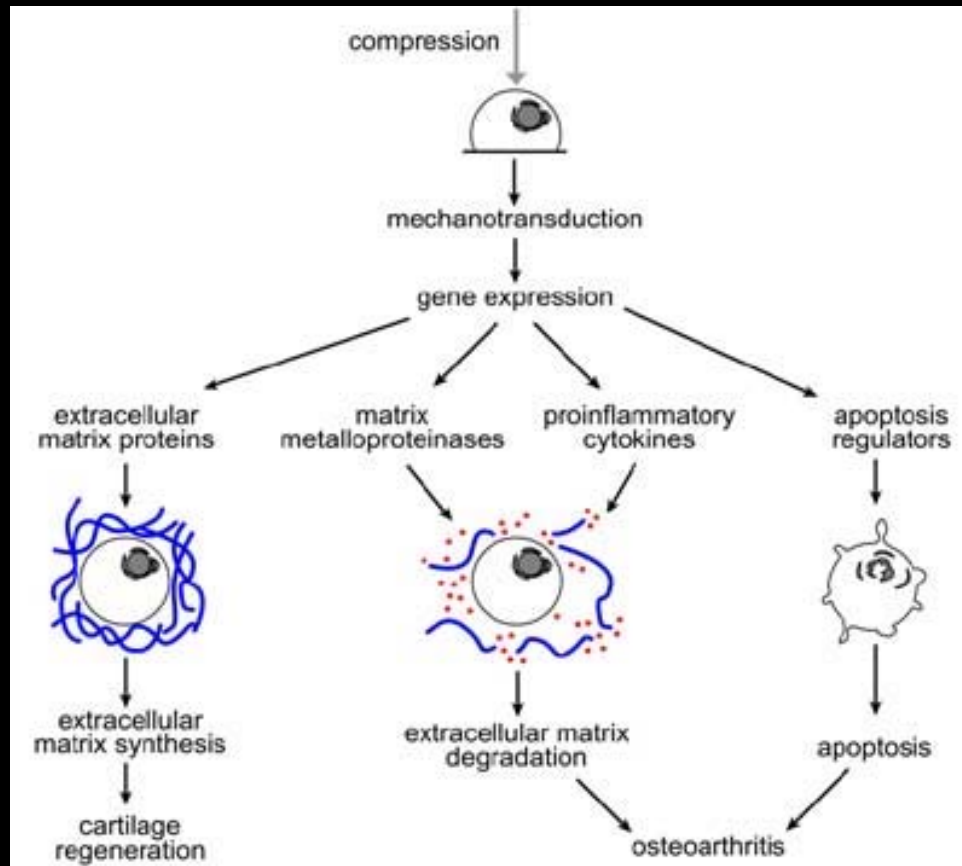
Table 7.2 The Structure and Function of the Cytoskeleton

Property	Microtubules	Microfilaments (Actin Filaments)	Intermediate Filaments
Structure	Hollow tubes; wall consists of 13 columns of tubulin molecules	Two intertwined strands of actin	Fibrous proteins supercoiled into thicker cables
Diameter	25 nm with 15-nm lumen	7 nm	8–12 nm
Protein subunits	Tubulin, consisting of α -tubulin and β -tubulin	Actin	One of several different proteins of the keratin family, depending on cell type
Main functions	Maintenance of cell shape (compression-resisting “girders”) Cell motility (as in cilia or flagella) Chromosome movements in cell division Organelle movements	Maintenance of cell shape (tension-bearing elements) Changes in cell shape Muscle contraction Cytoplasmic streaming Cell motility (as in pseudopodia) Cell division (cleavage furrow formation)	Maintenance of cell shape (tension-bearing elements) Anchorage of nucleus and certain other organelles Formation of nuclear lamina

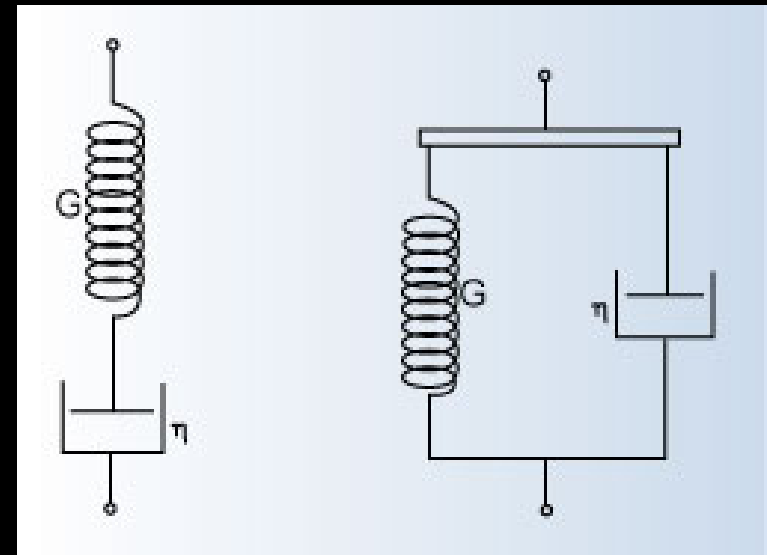
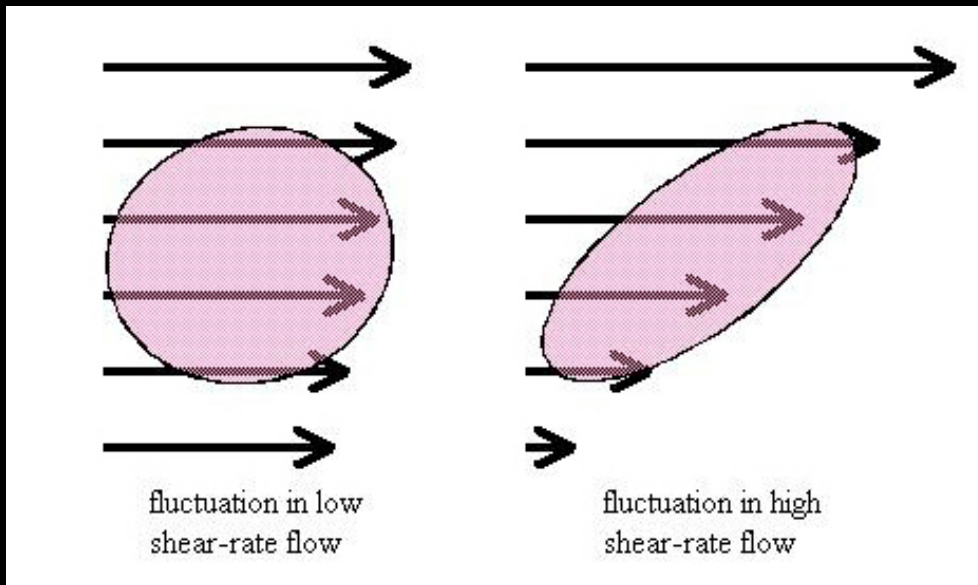


SOURCE: Adapted from W. M. Becker, L. J. Kleinsmith, and J. Hardin, *The World of the Cell*, 4th ed. (San Francisco, CA: Benjamin Cummings, 2000), p. 753.

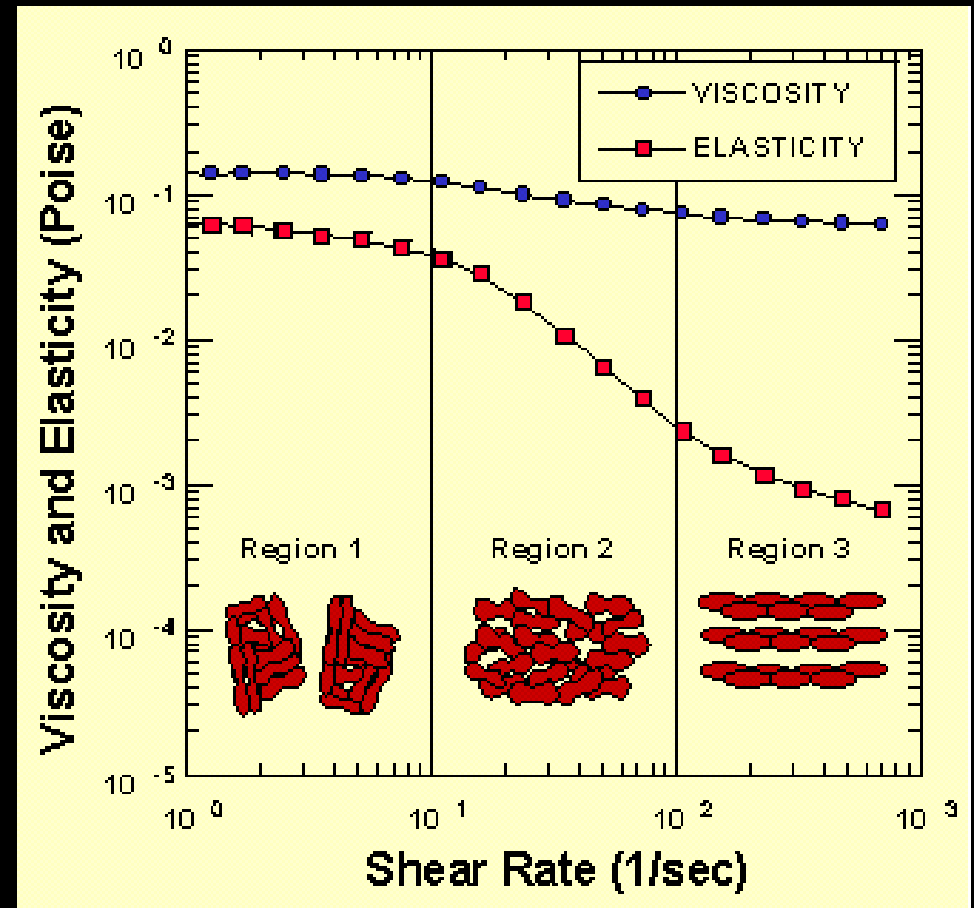
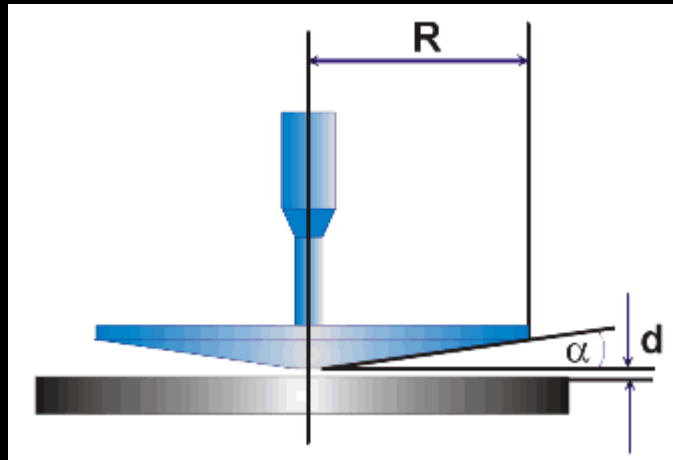
Respuestas Inducidas por Esfuerzo



Sistema Visco-Elástico



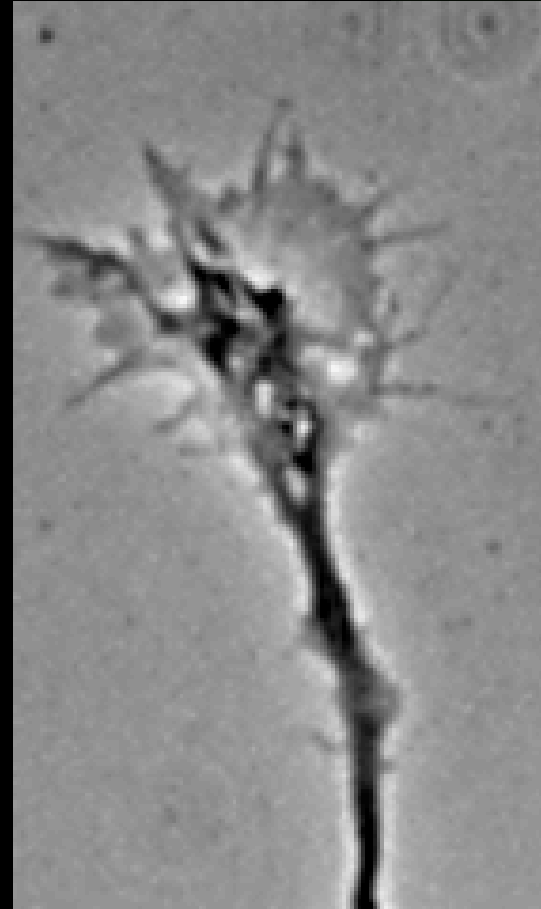
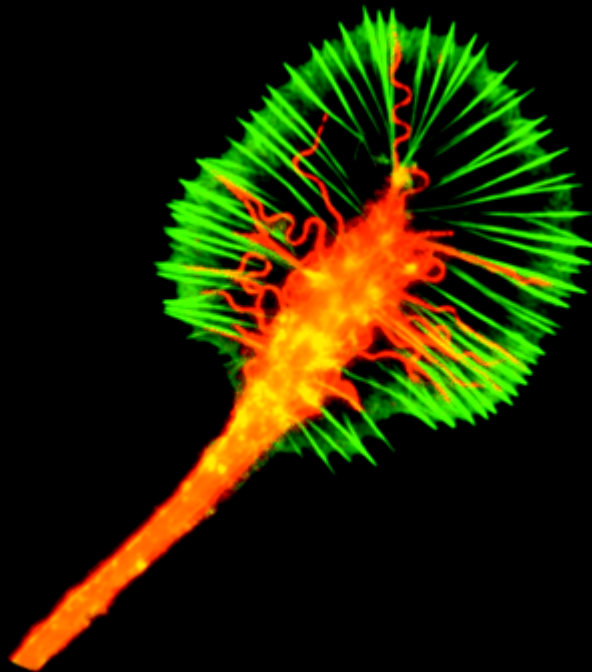
Sangre, Fluido Tixotrópico

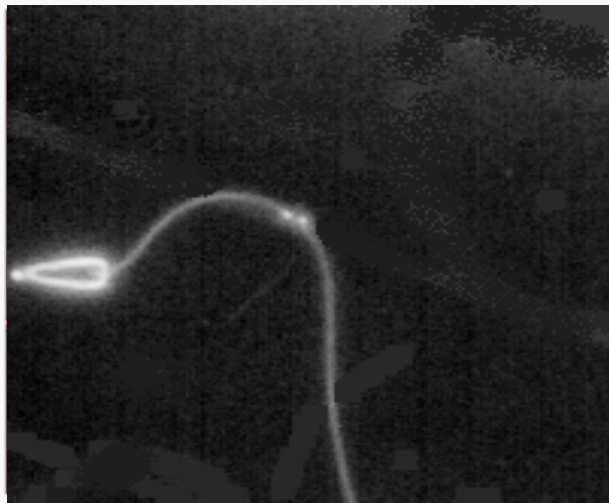
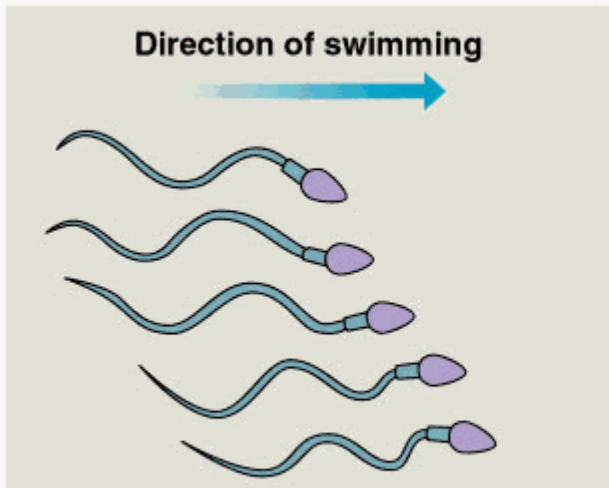


Pseudópodos

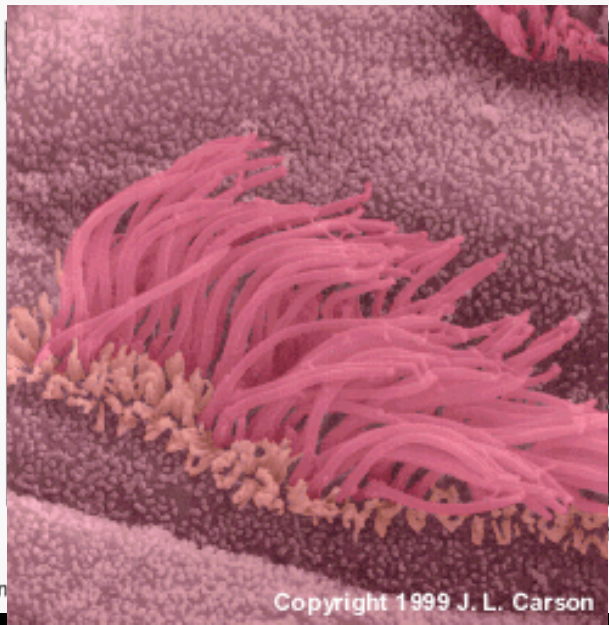
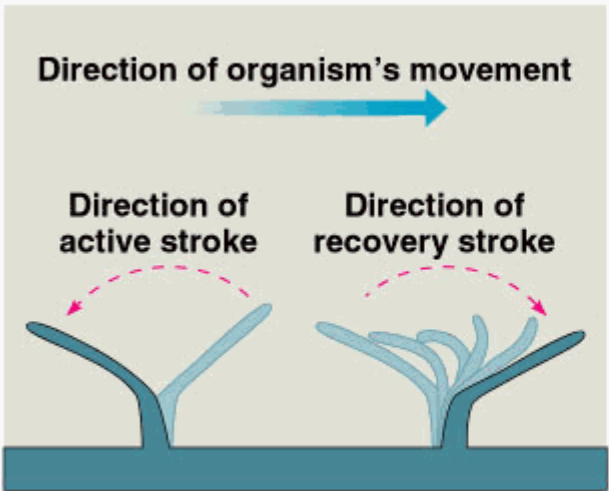


Conos de Crecimiento (filipodia)

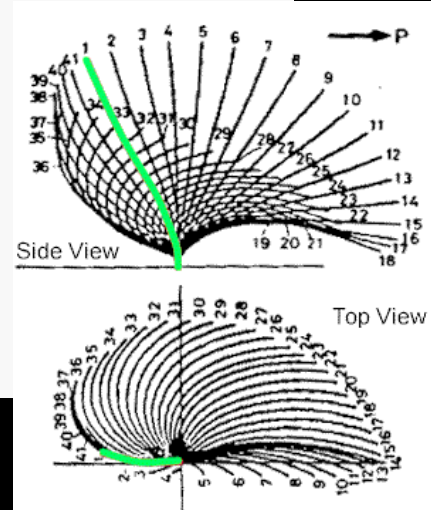




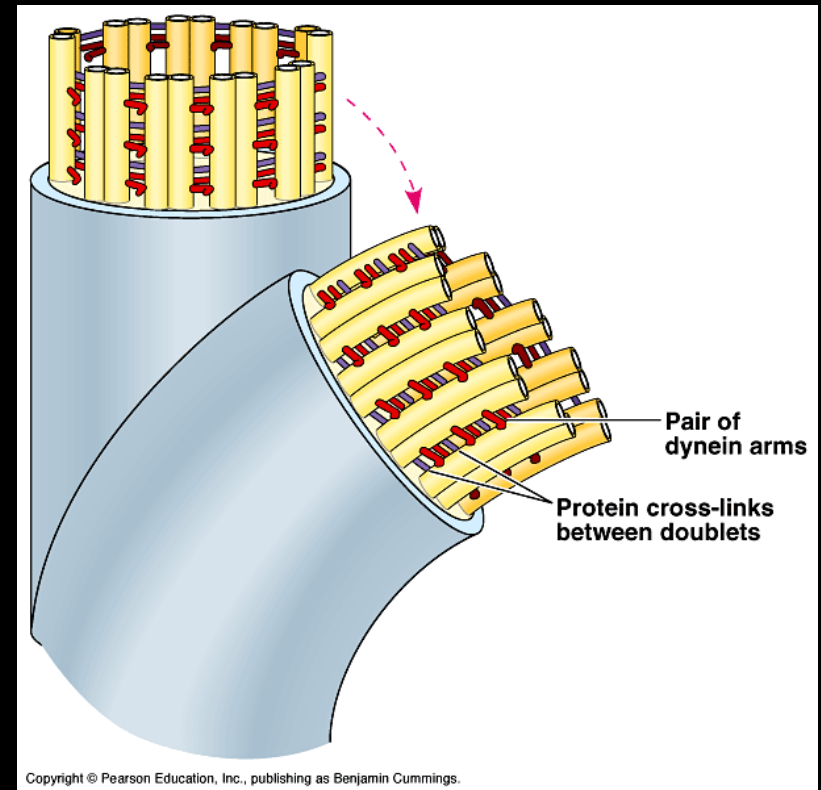
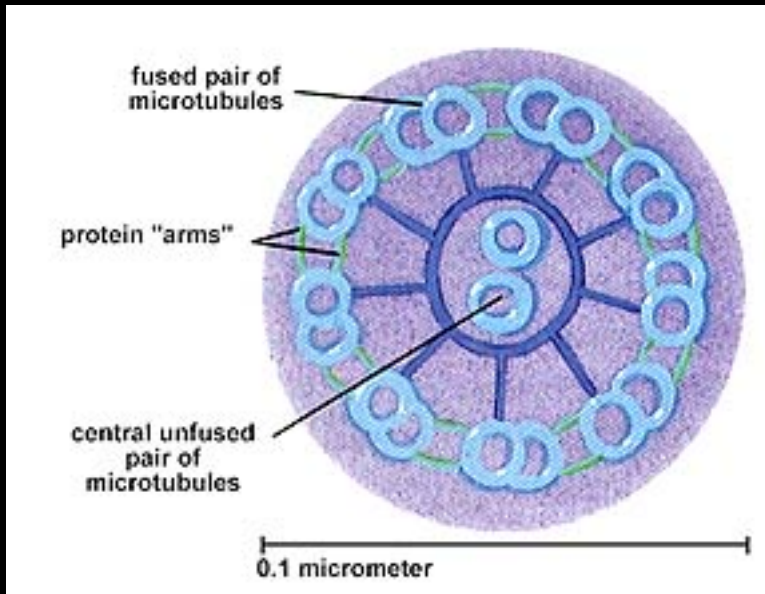
(a) Motion of flagella



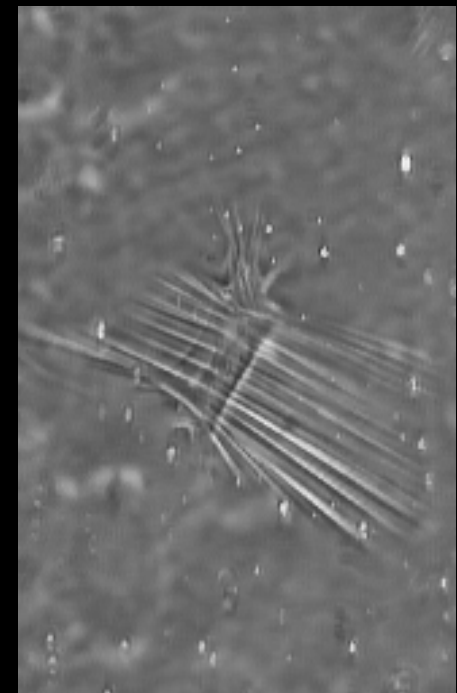
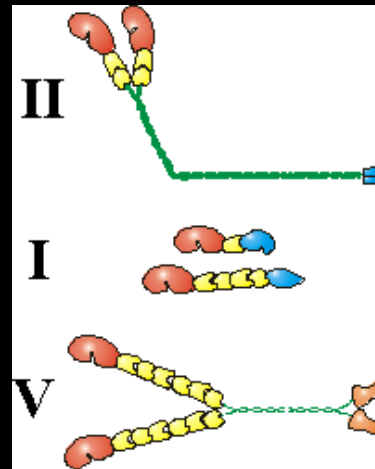
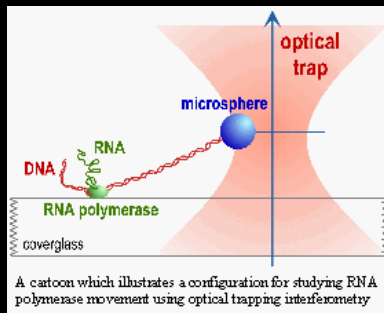
(b) Motion of cilia



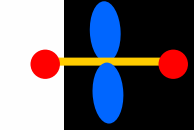
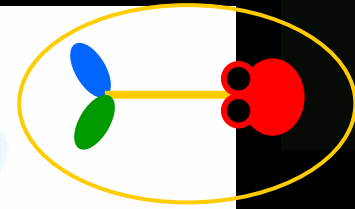
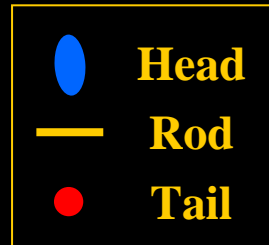
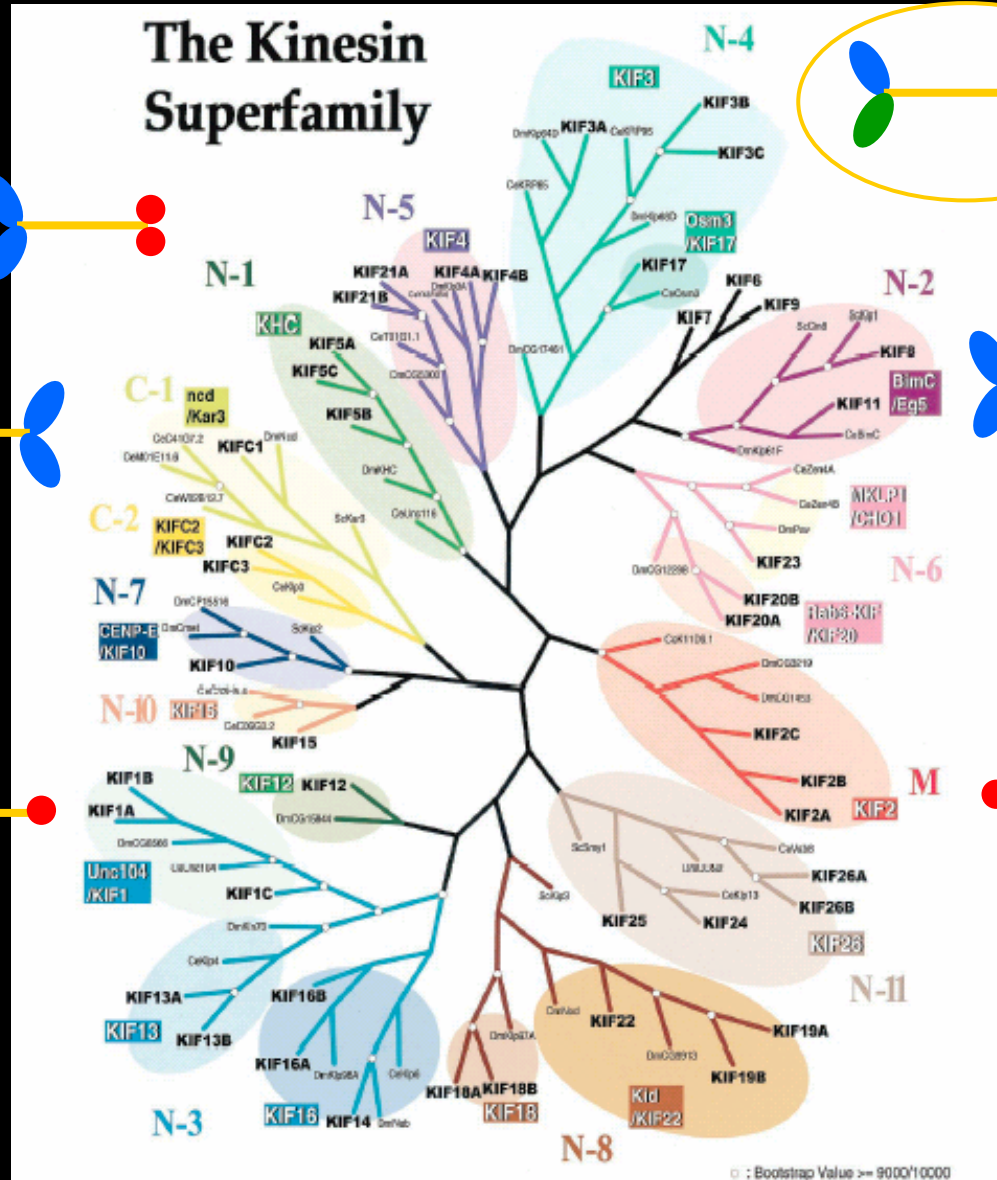
Estructura Flagelar



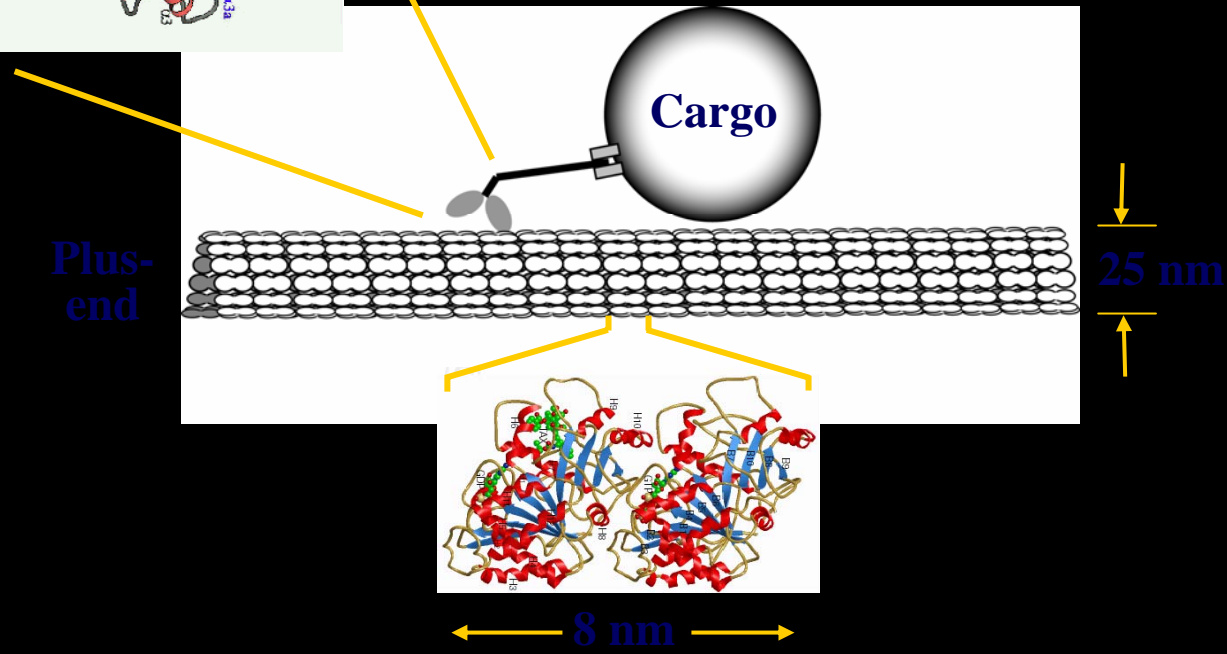
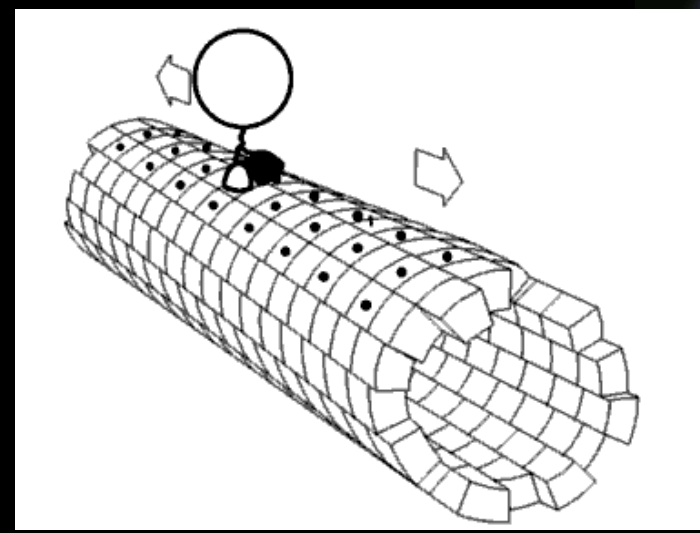
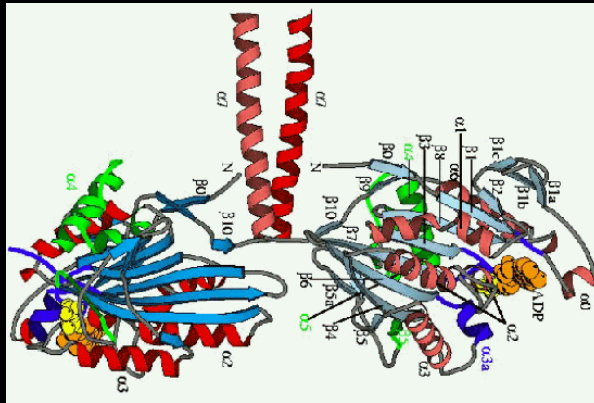
Motores Moleculares



44 genes humanos

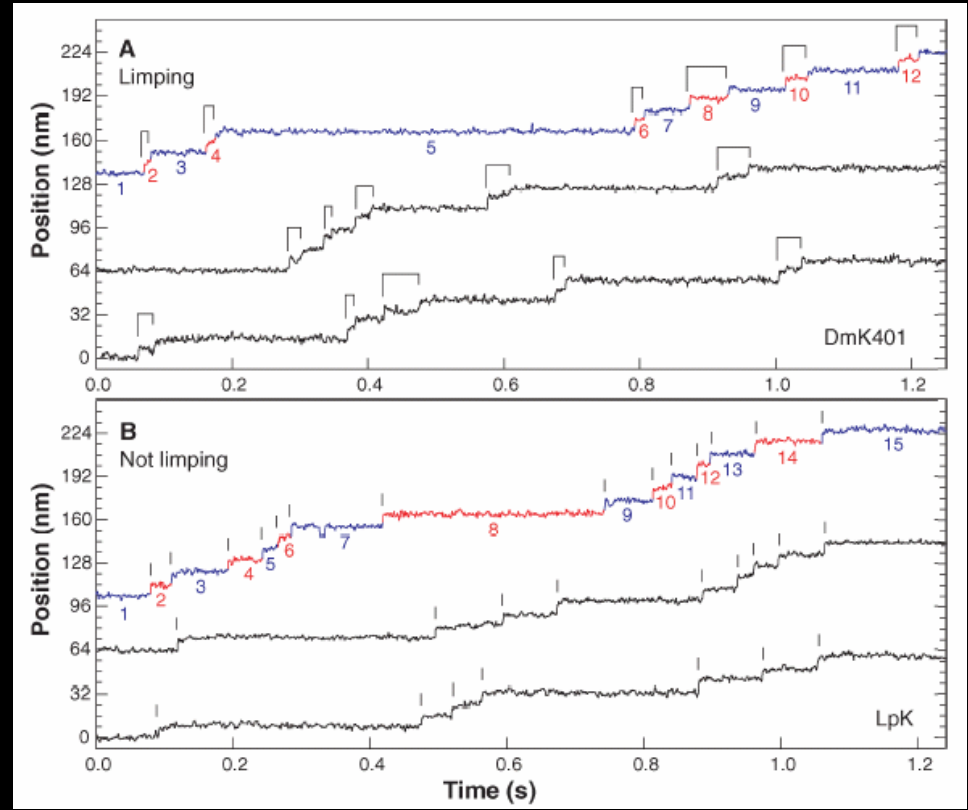
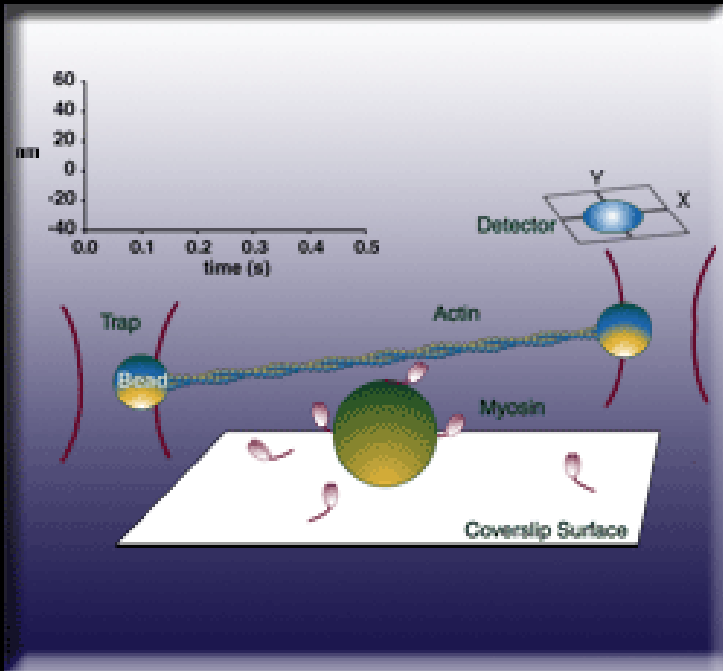


Kinesinas

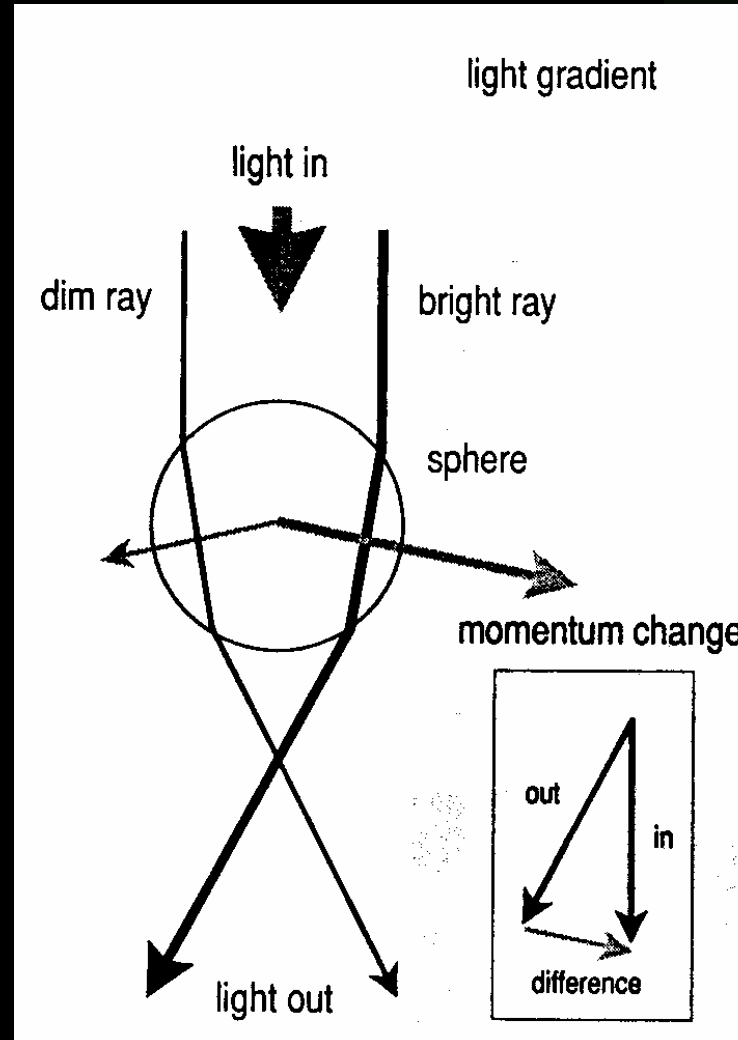
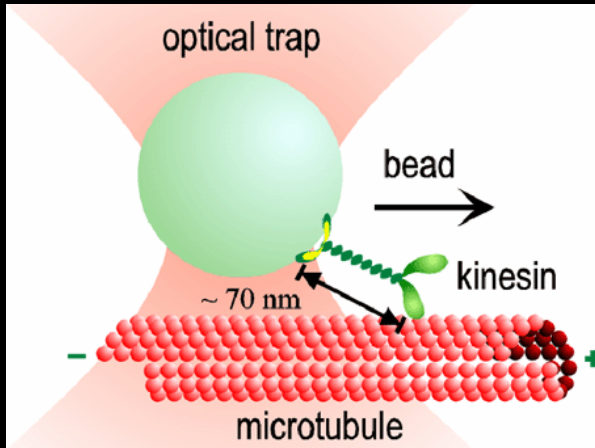


Kozielski et al.
Nogales et al.
Cooper, 2nd ed.

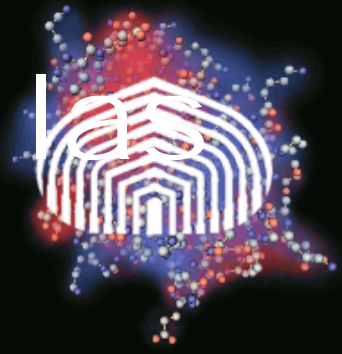
Bead motility assay



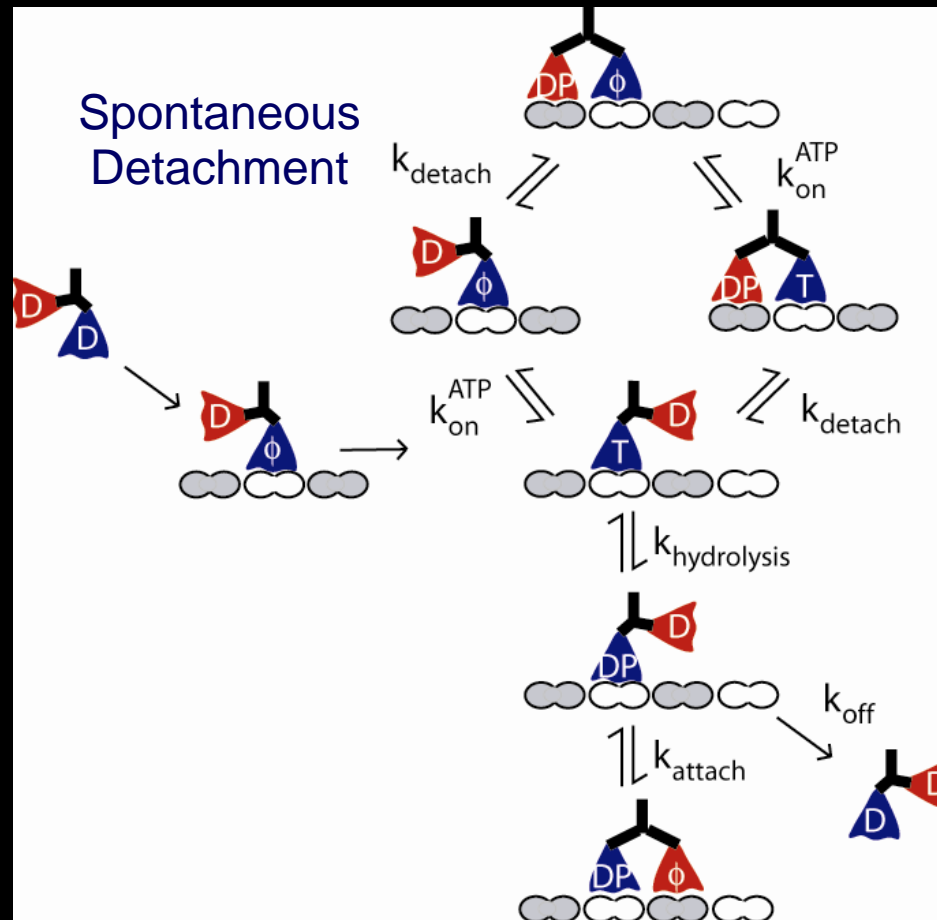
Pinzas Ópticas

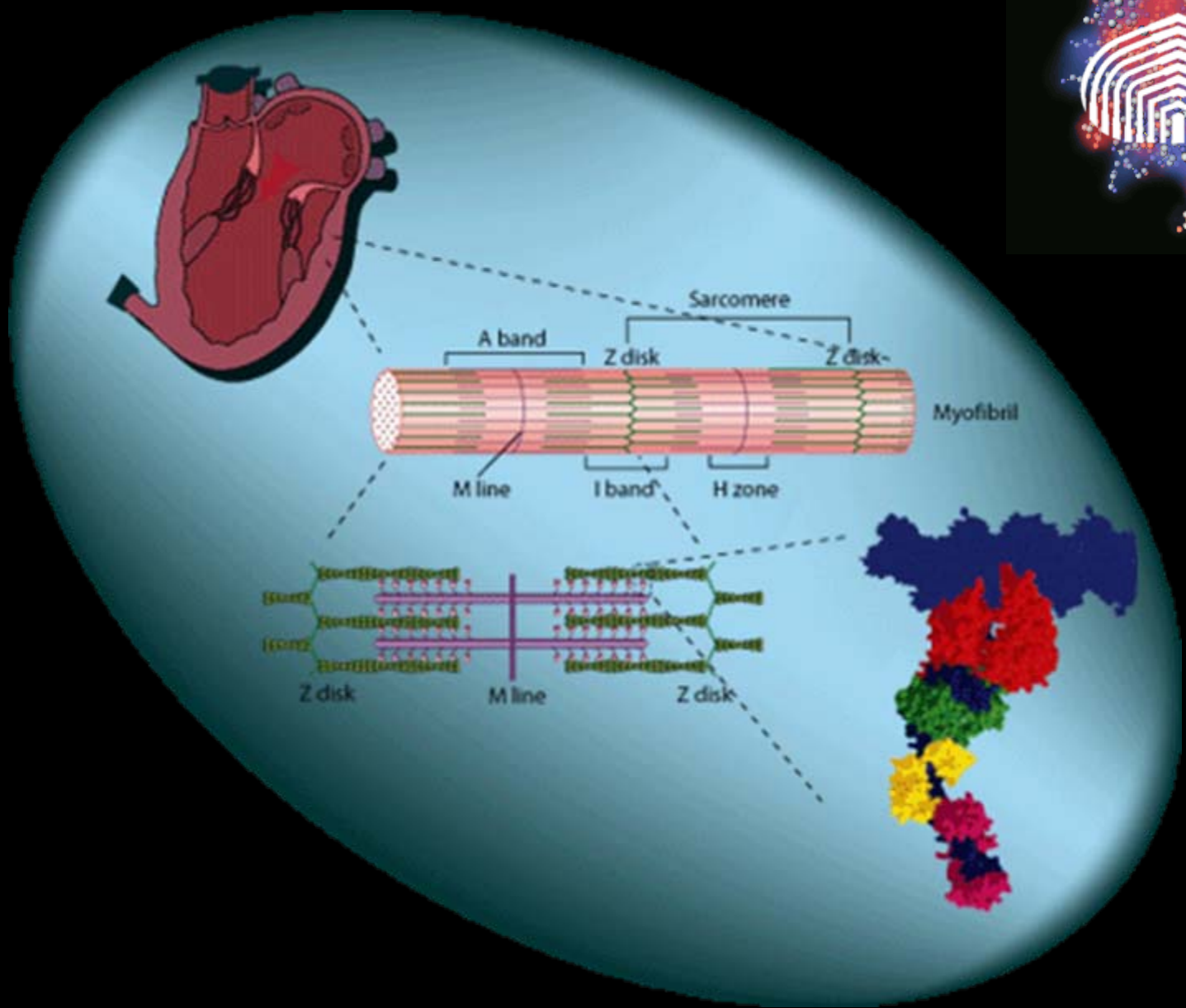


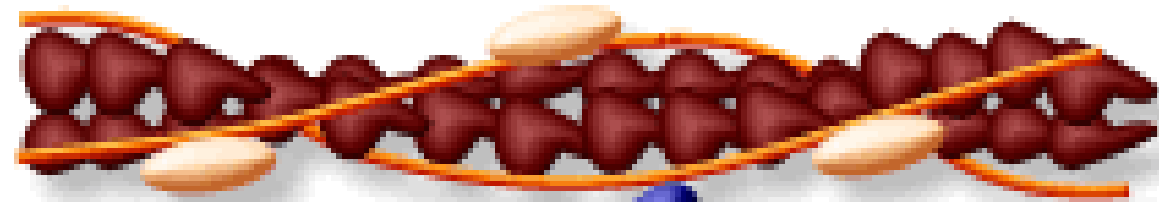
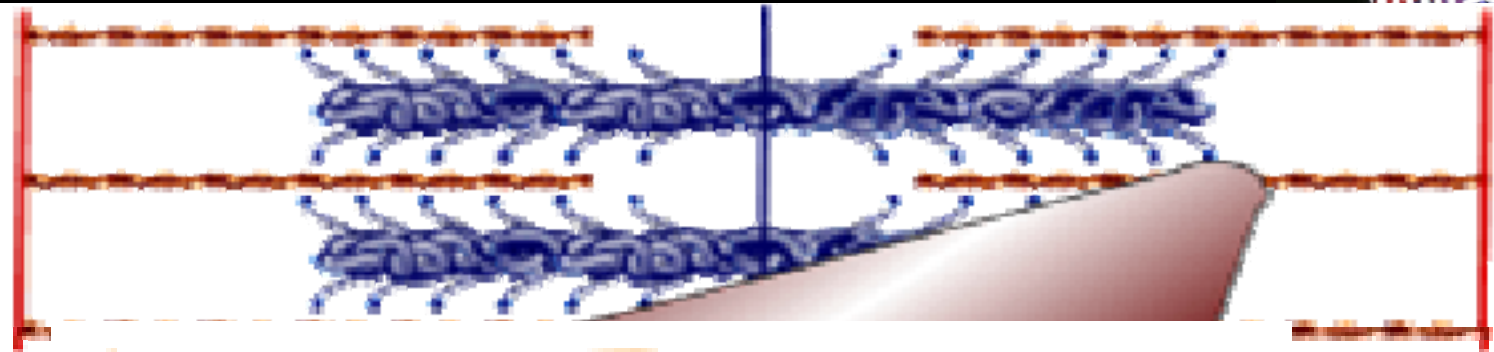
Ciclo de Hidrolisis de Kinesinas



ATP Induced
Detachment







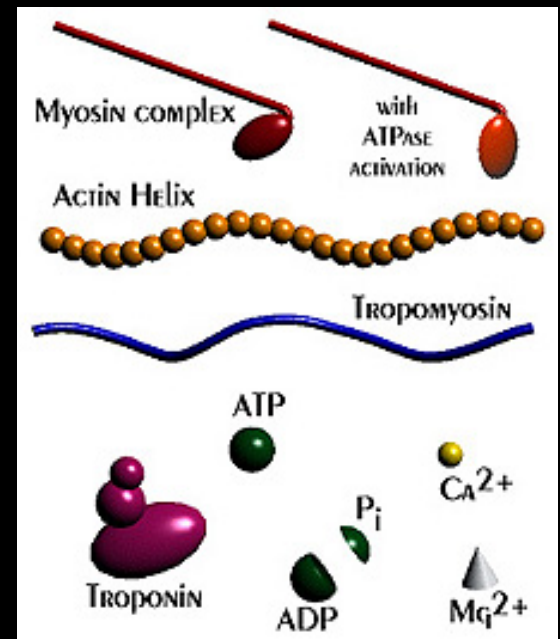
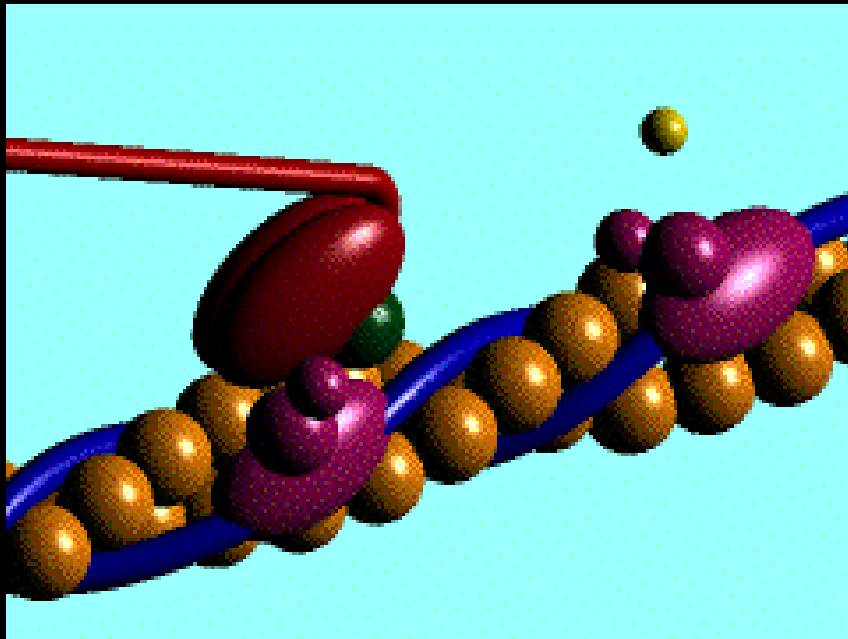
ament
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tropor

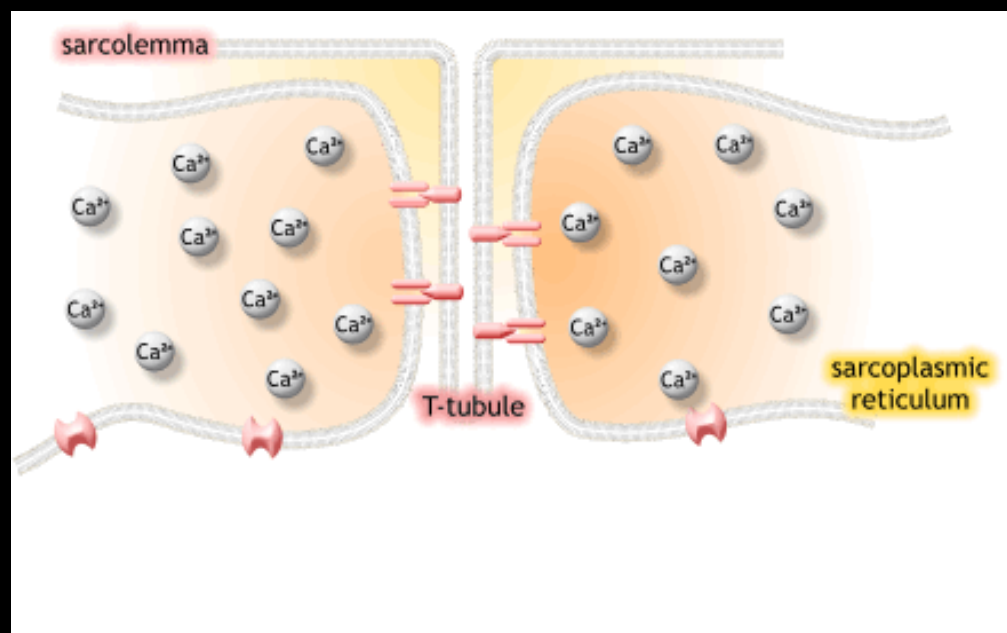
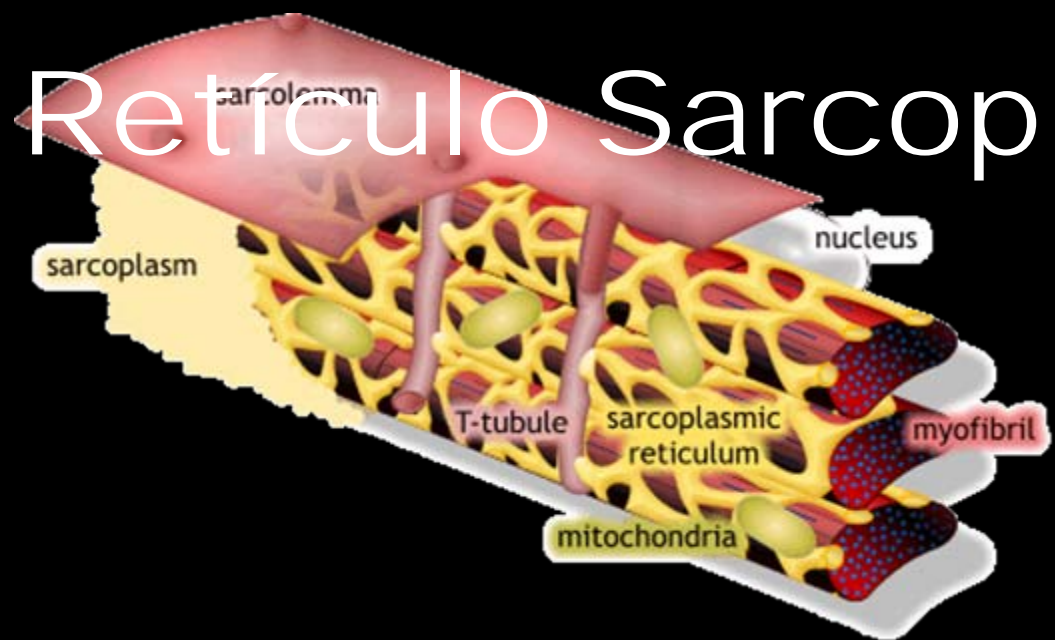


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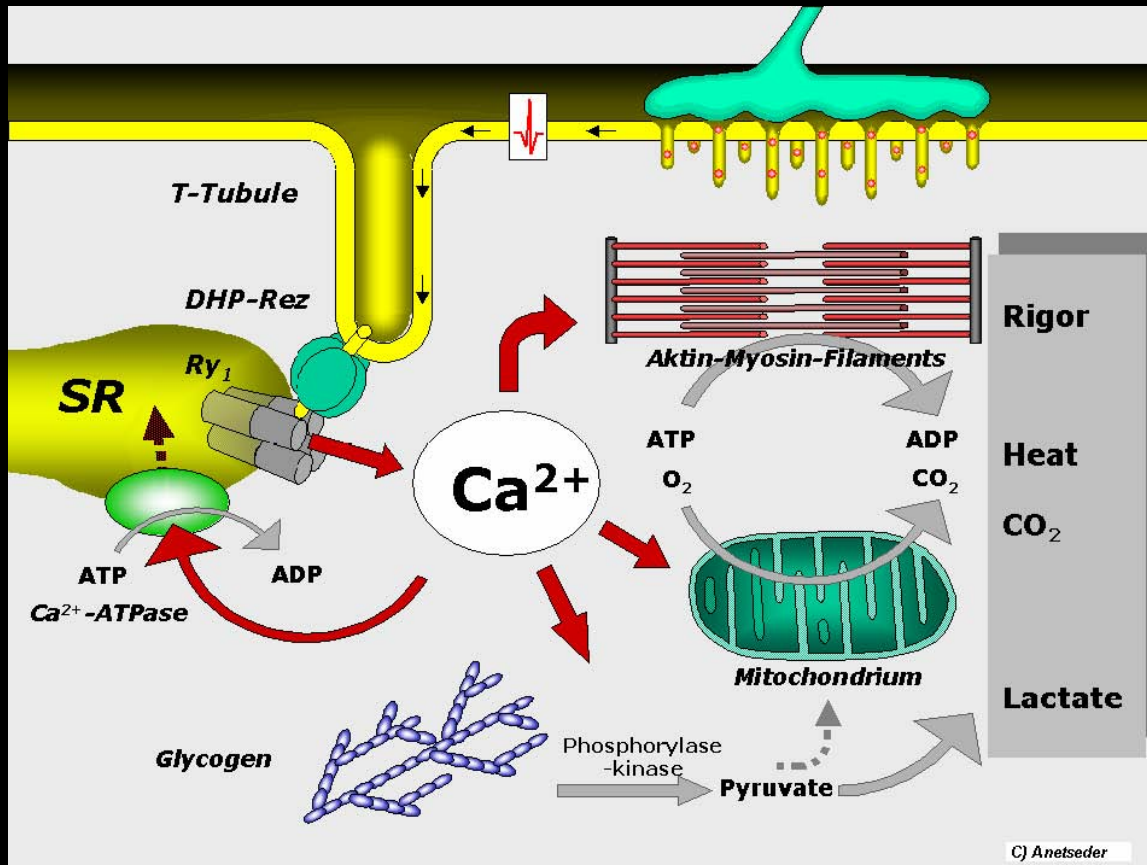
Ciclo Contráctil



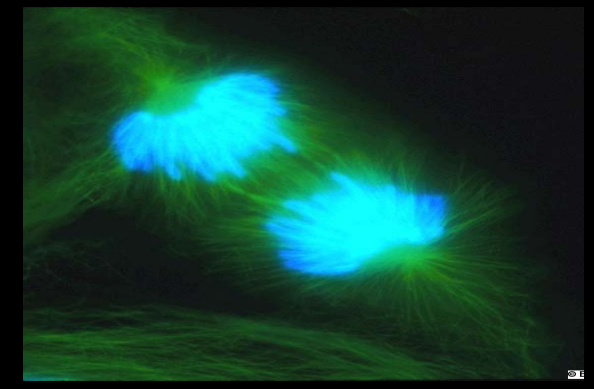
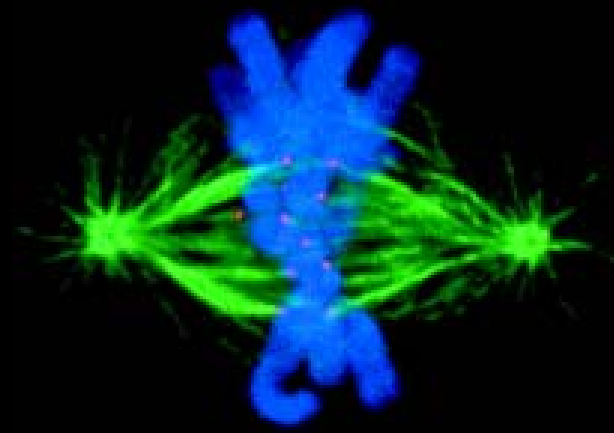
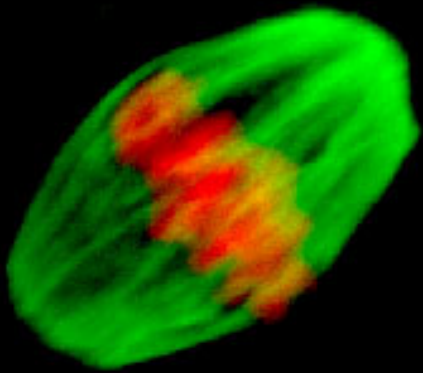
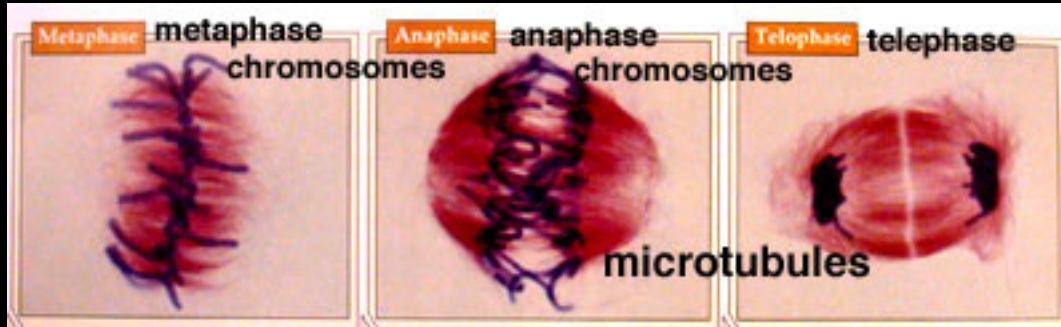
Retículo Sarcoplásmico

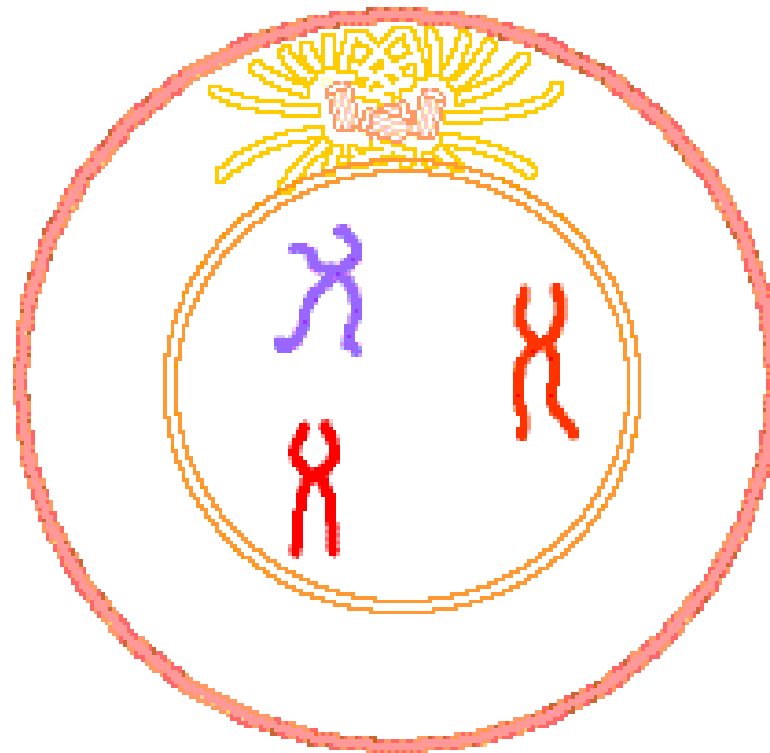


Ciclo del Calcio



Mitosis





Prophase:

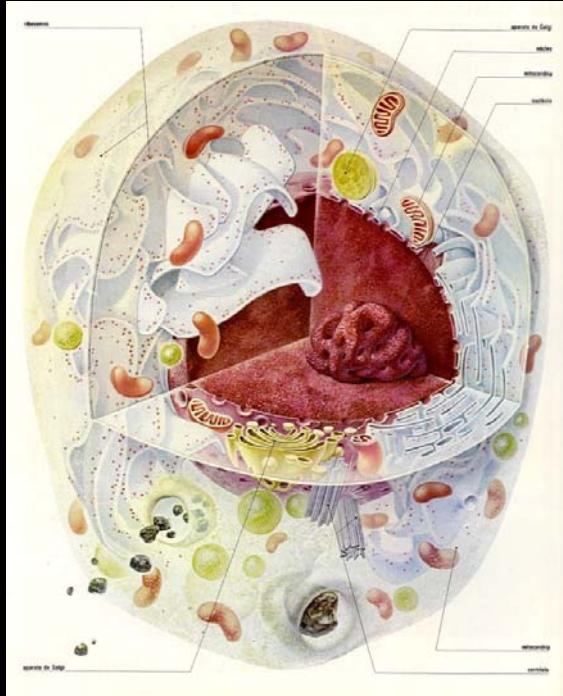
- condensation of chromosomes
- disappearance of nucleoli and nuclear envelope



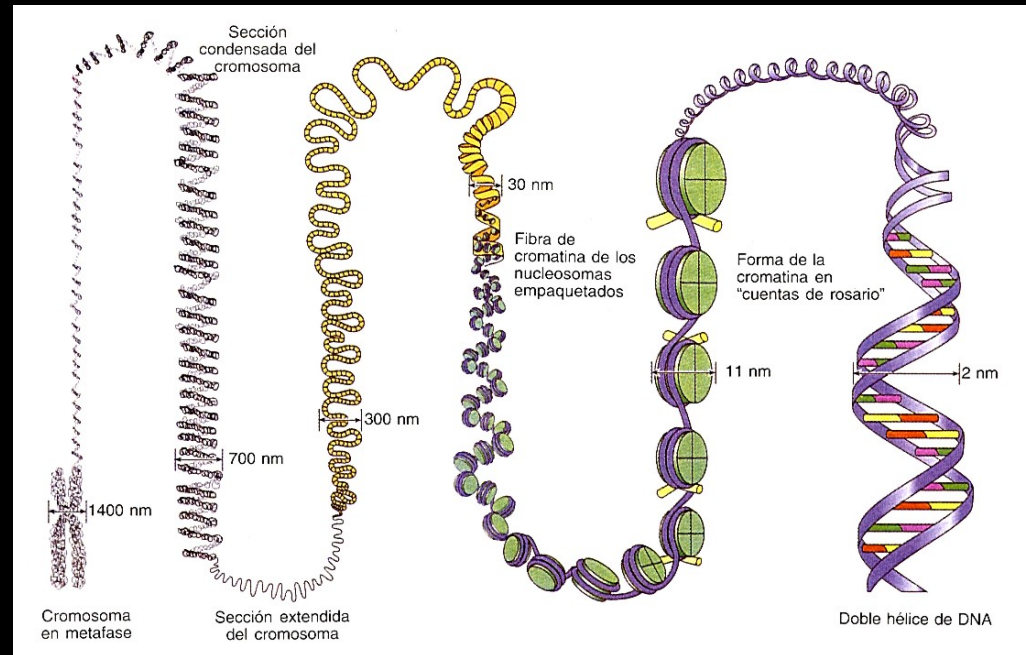
Genética



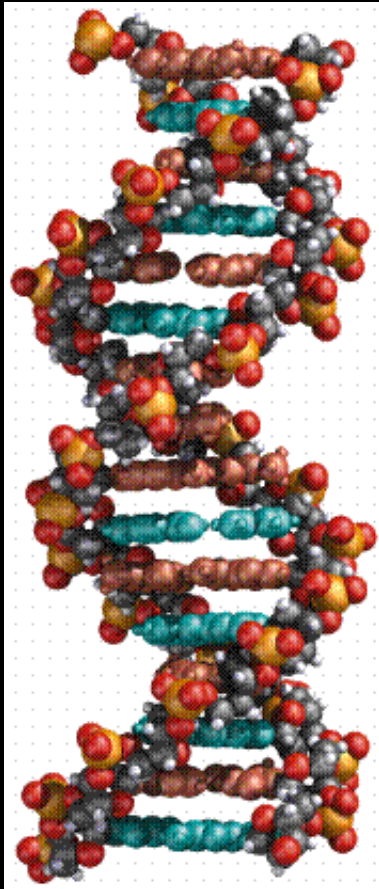
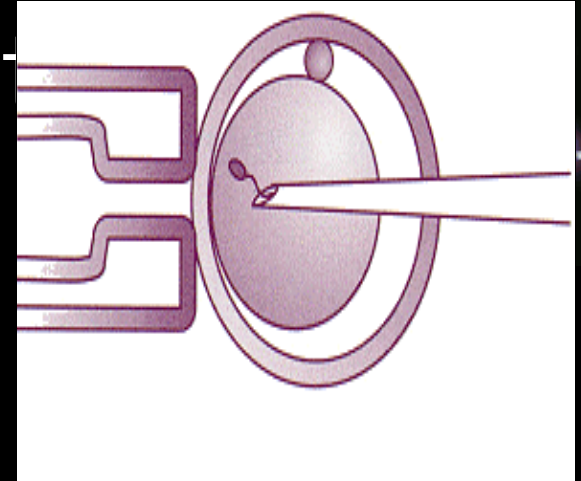
Material Genético



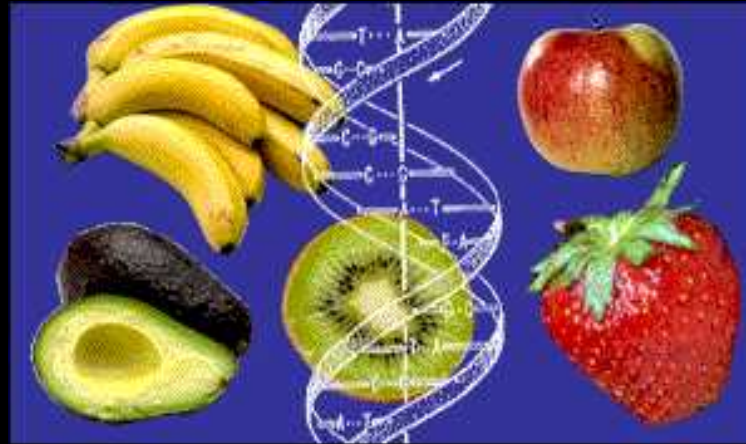
Célula



Manipulación Genética



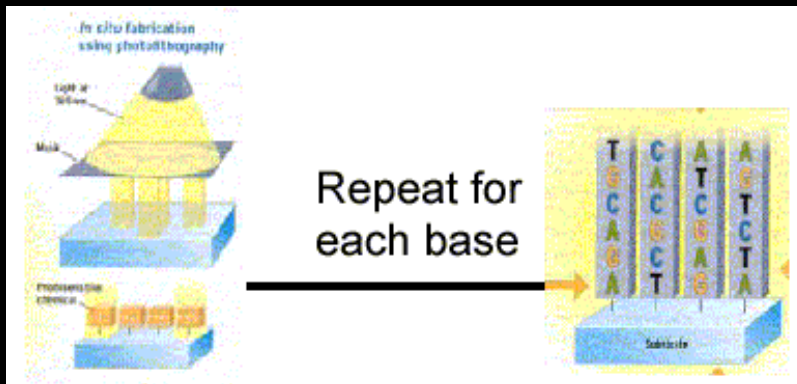
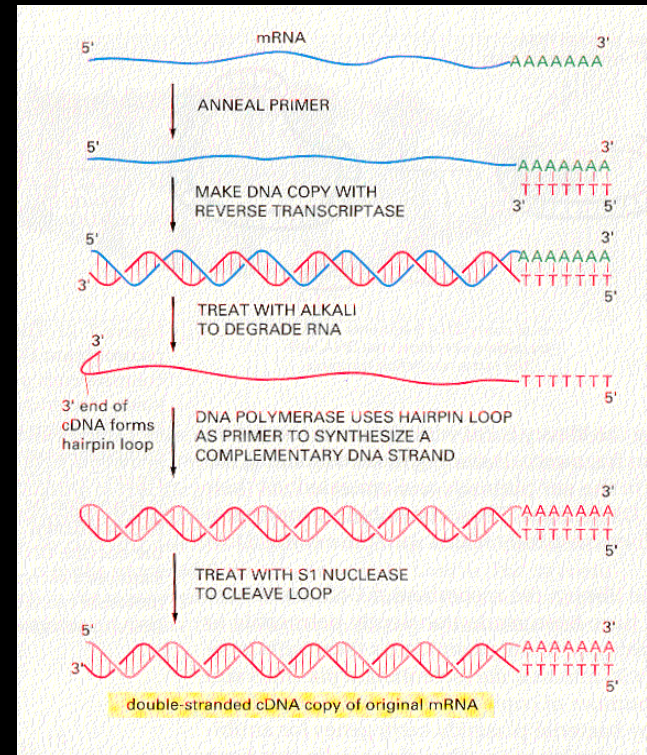
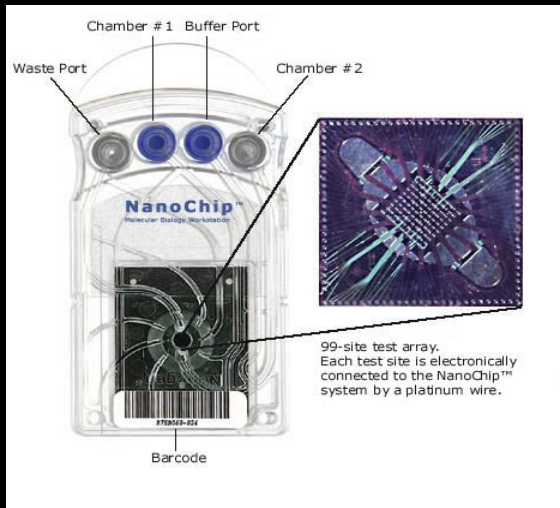
Transgén



mais transgénique
autorisation

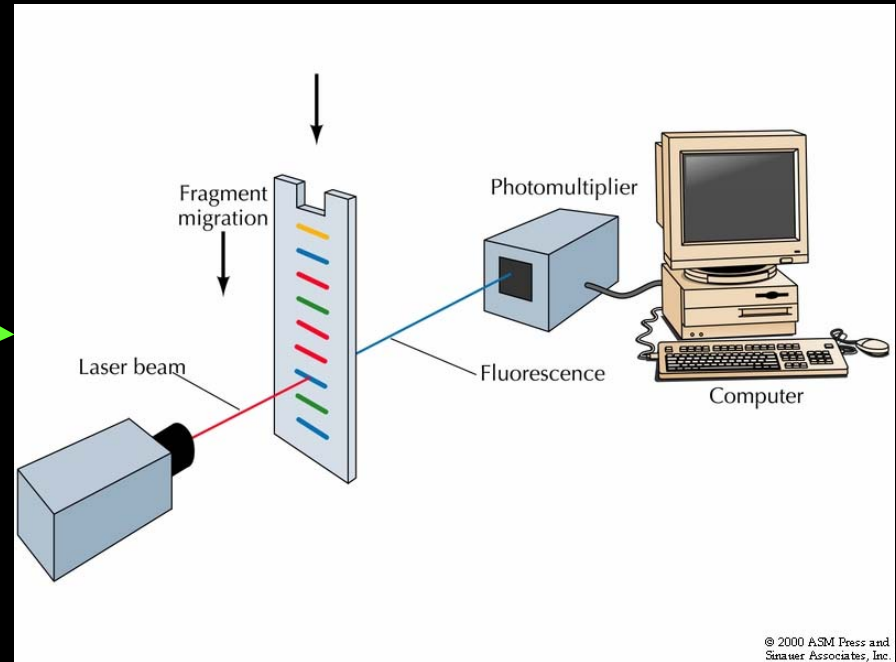
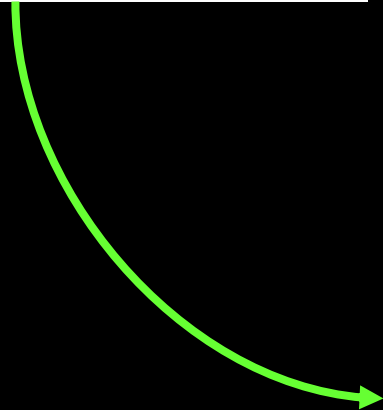


Genomica

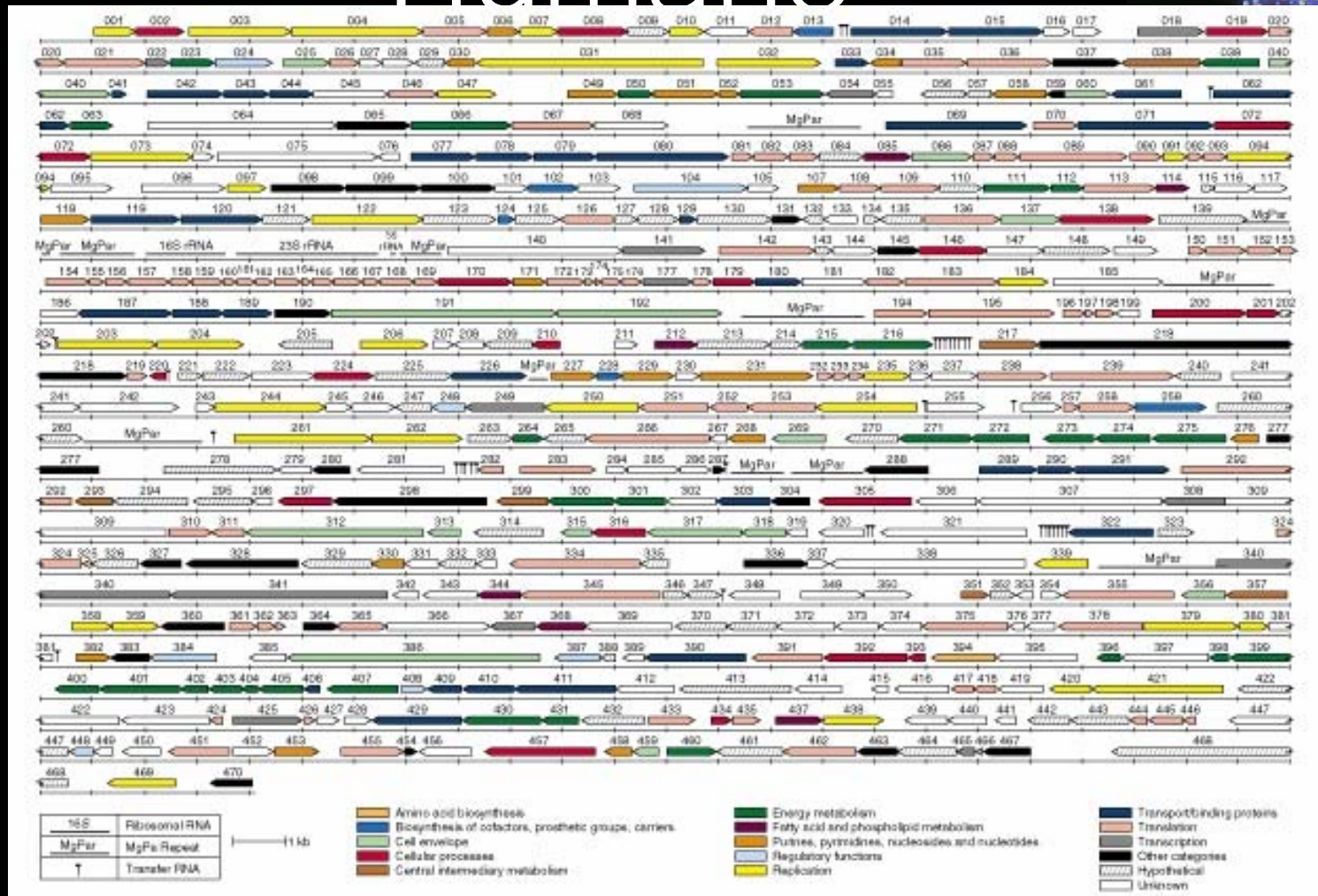




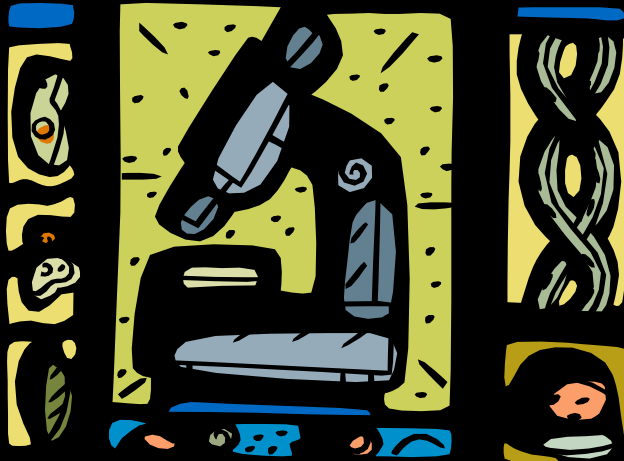
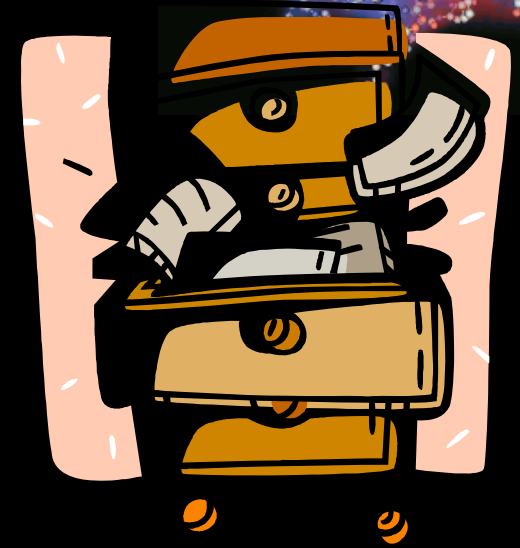
Secuencias Genéticas

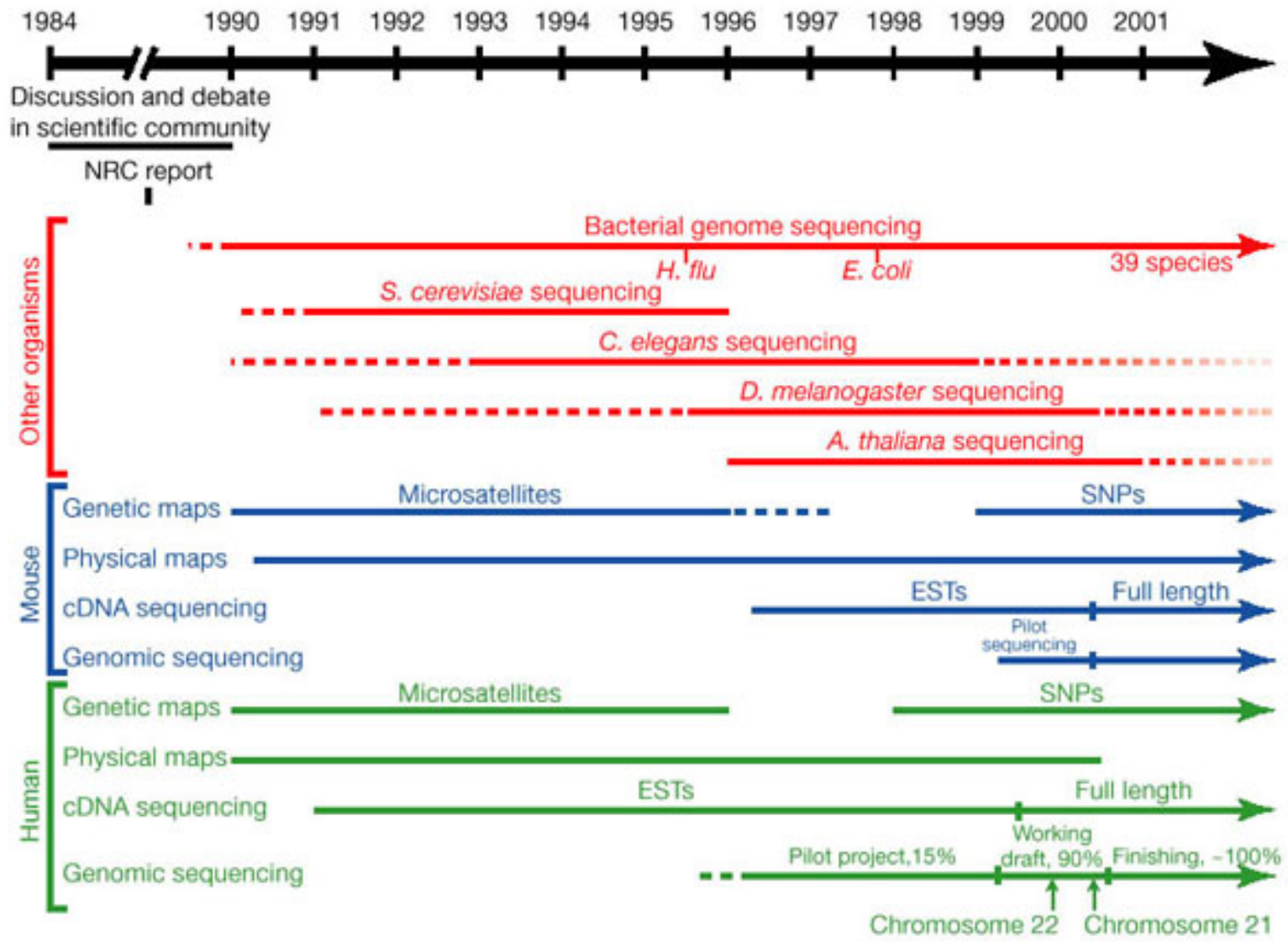
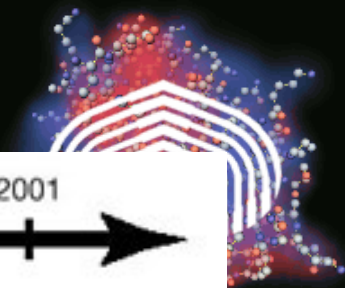


Mapa Genético Humano

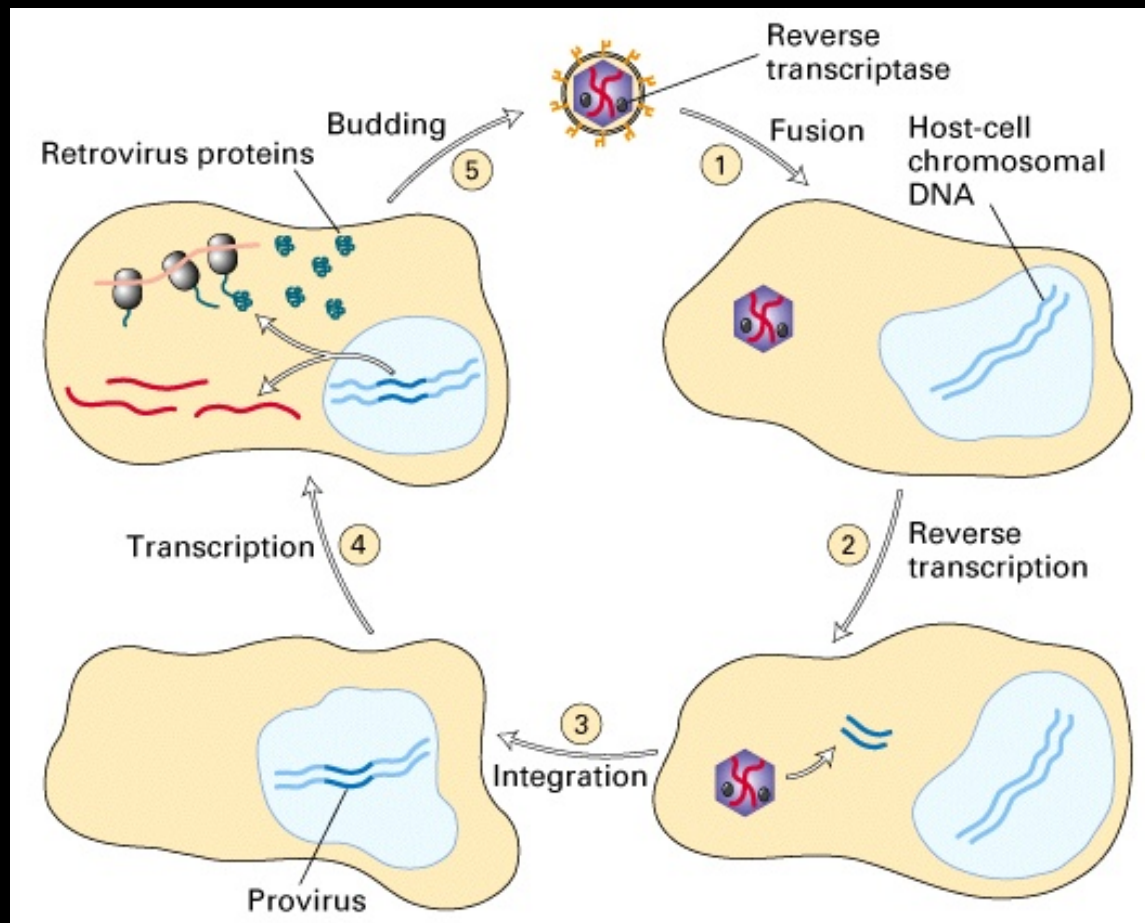


Bioinformática





Fabricas Biológicas





Ingeniería de Tejidos

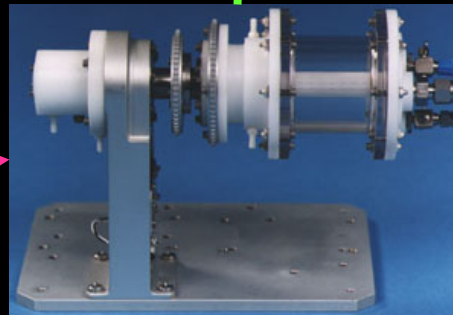


Image of TransCyte (tm) courtesy of Advanced Tissue Sciences, Inc.

Órgano de Reemplazo



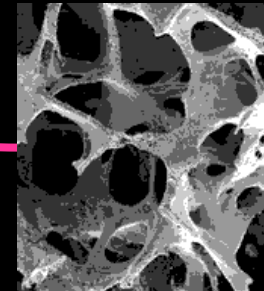
Celulas Germinales



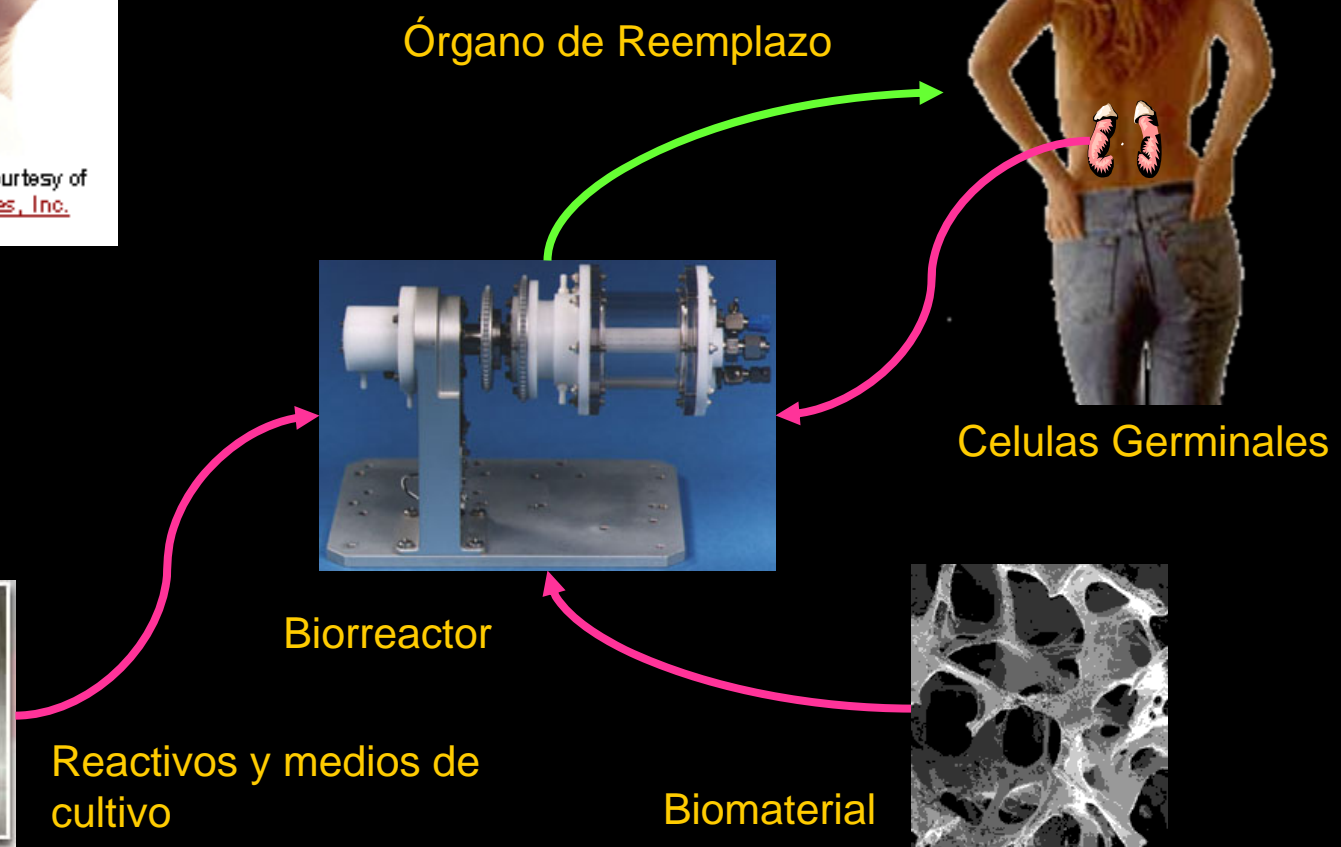
Biorreactor



Reactivos y medios de cultivo



Biomaterial



Ingeniería de Tejido



biology (bi-oh'eej) n. 1. The science of living organisms and life processes, including the study of anatomy, physiology, growth, origin, evolution, and distribution of living organisms.

project (proj'ekt) n. 1. A plan or program of activity. 2. An undertaking requiring concerted effort. 3. A research undertaking.



Miostati na

