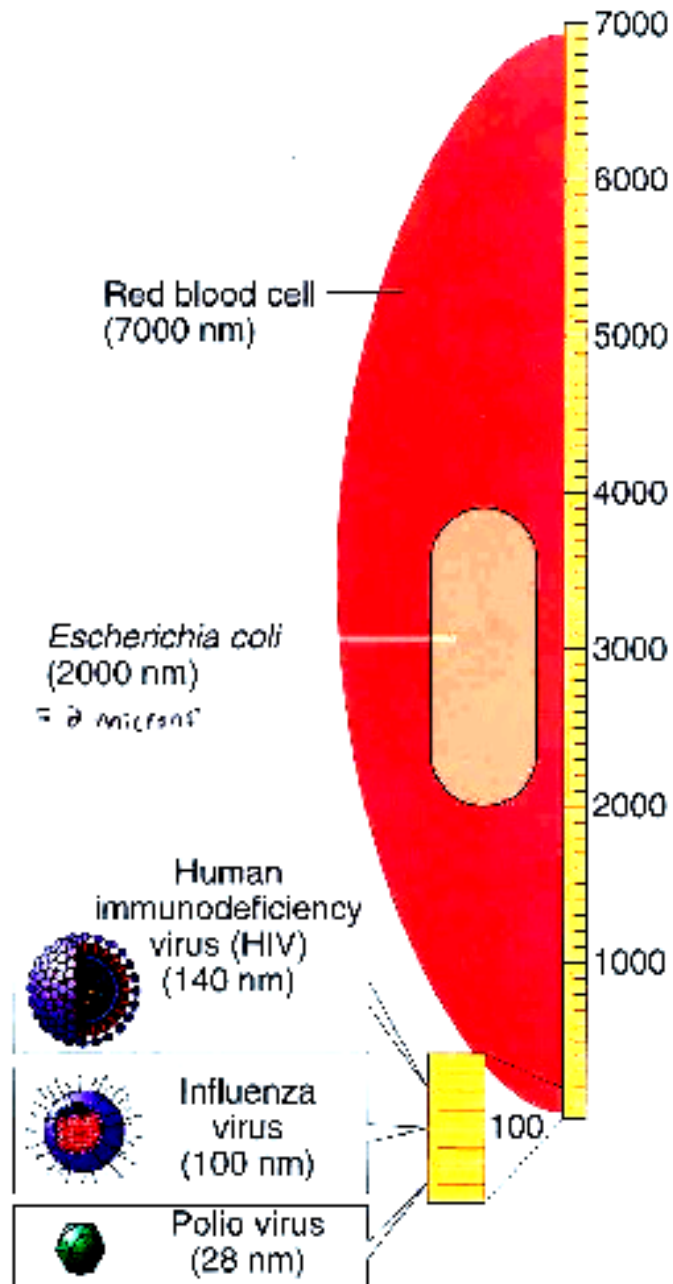
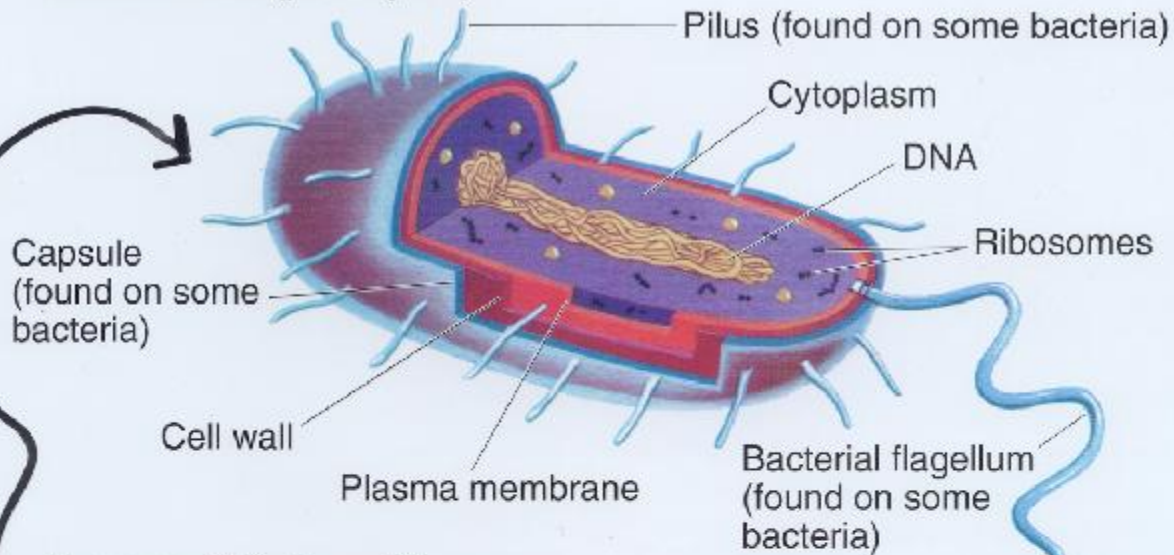


# Scale Bacteria vs. Eucaryotes

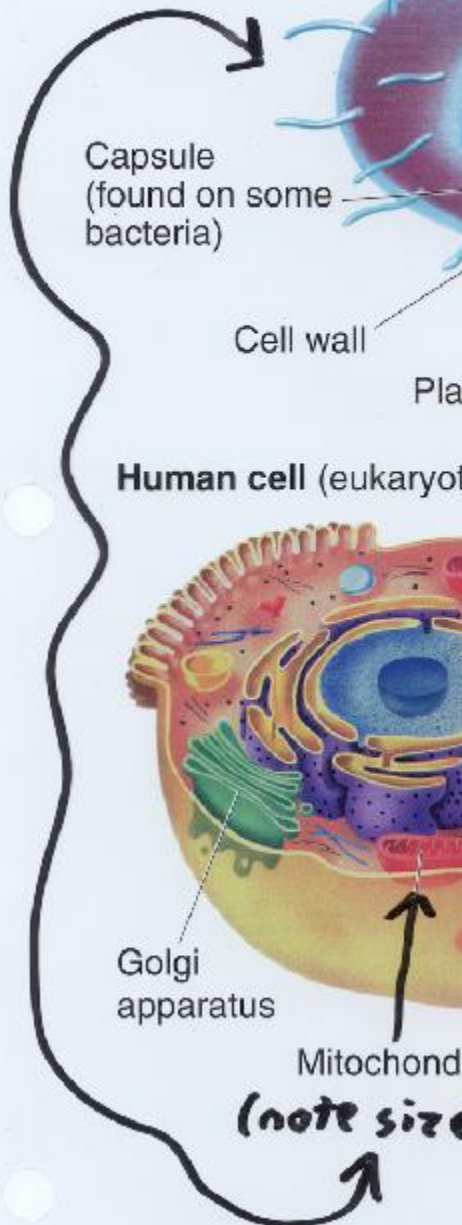
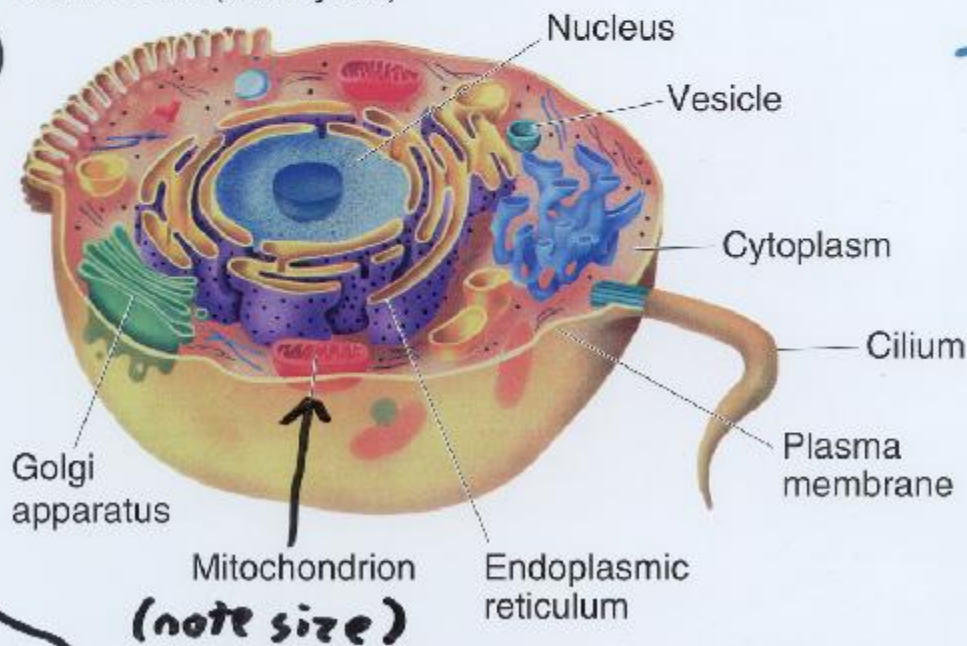


# Bacteria vs. Eucaryotes

**Bacterial cell (prokaryotic)**



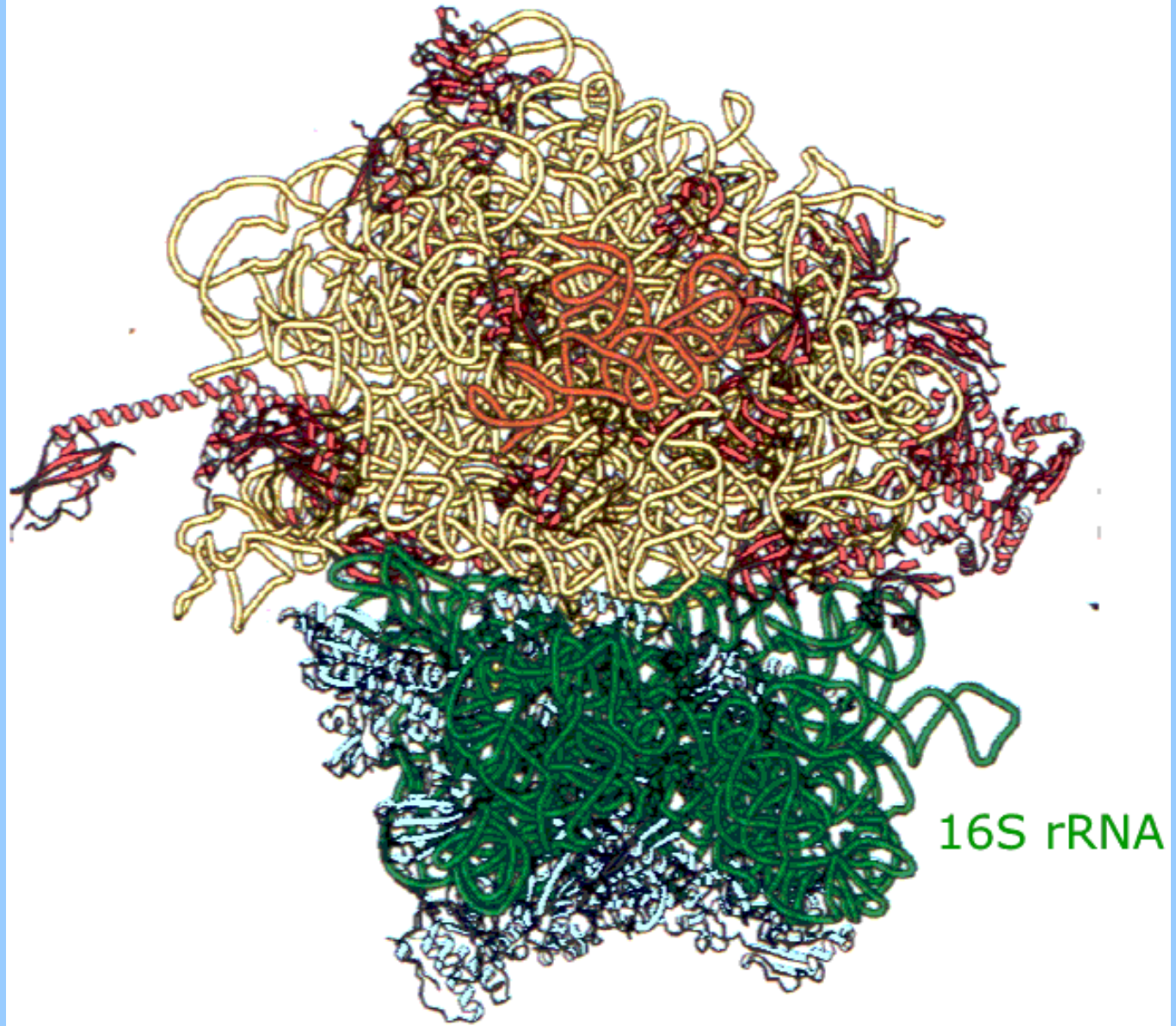
**Human cell (eukaryotic)**







# Three Cellular Domains



Bacterial ribosome (70S)

# hybrid

medical animation



# Diversity of Bacterial Shapes



Coccus



Coccobacillus



Vibrio



Bacillus

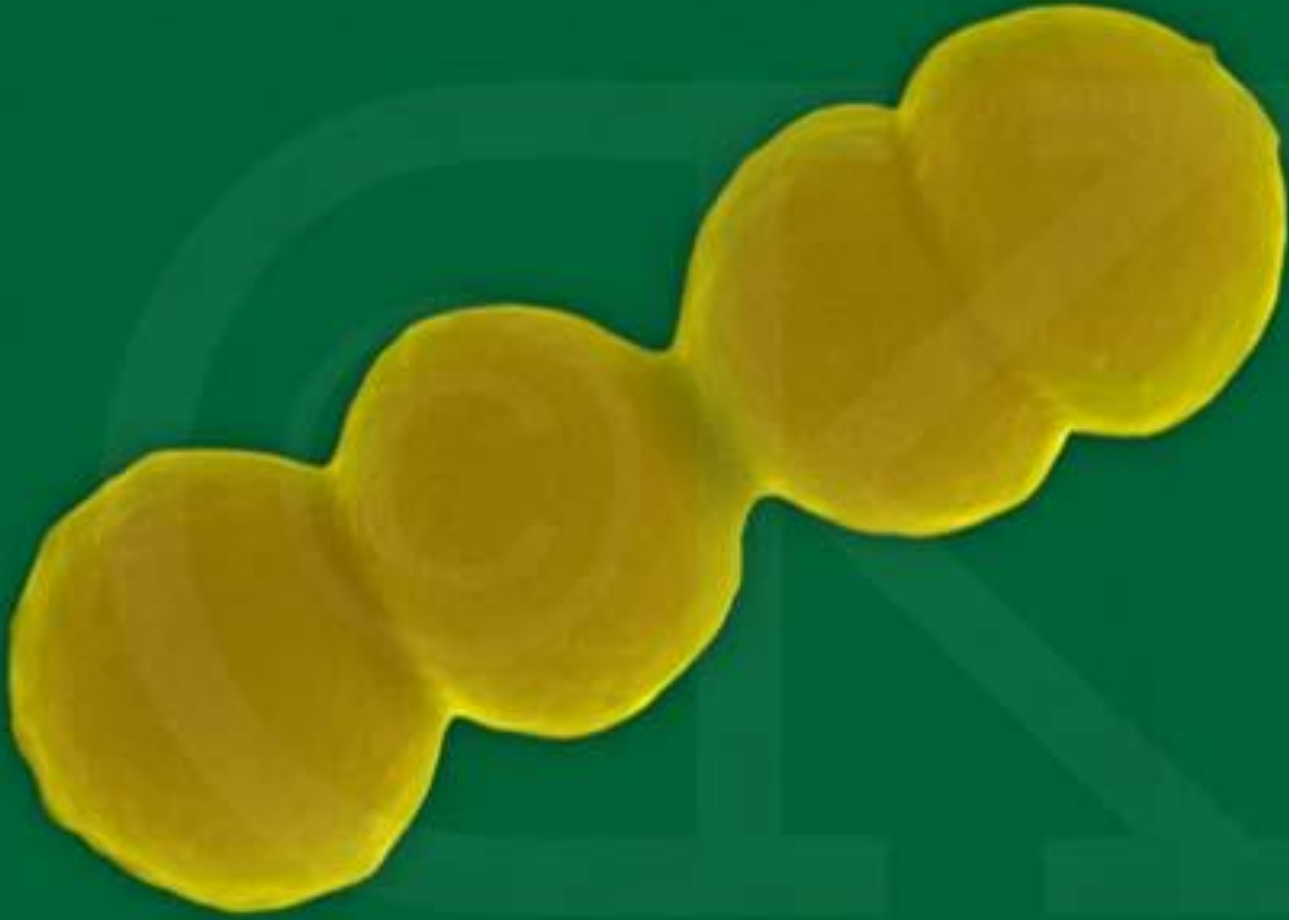


Spirillum



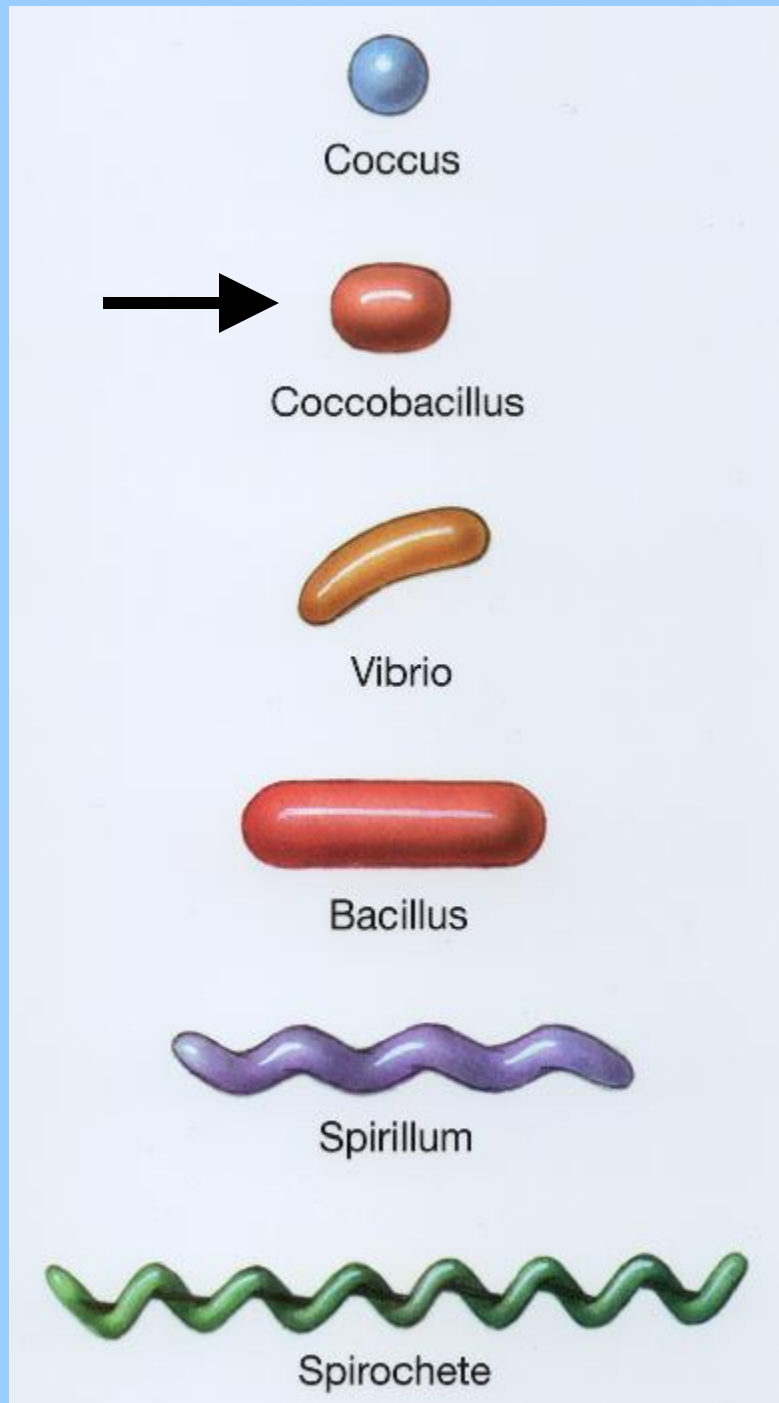
Spirochete

# Coccus (pl. Cocci)





# Diversity of Bacterial Shapes

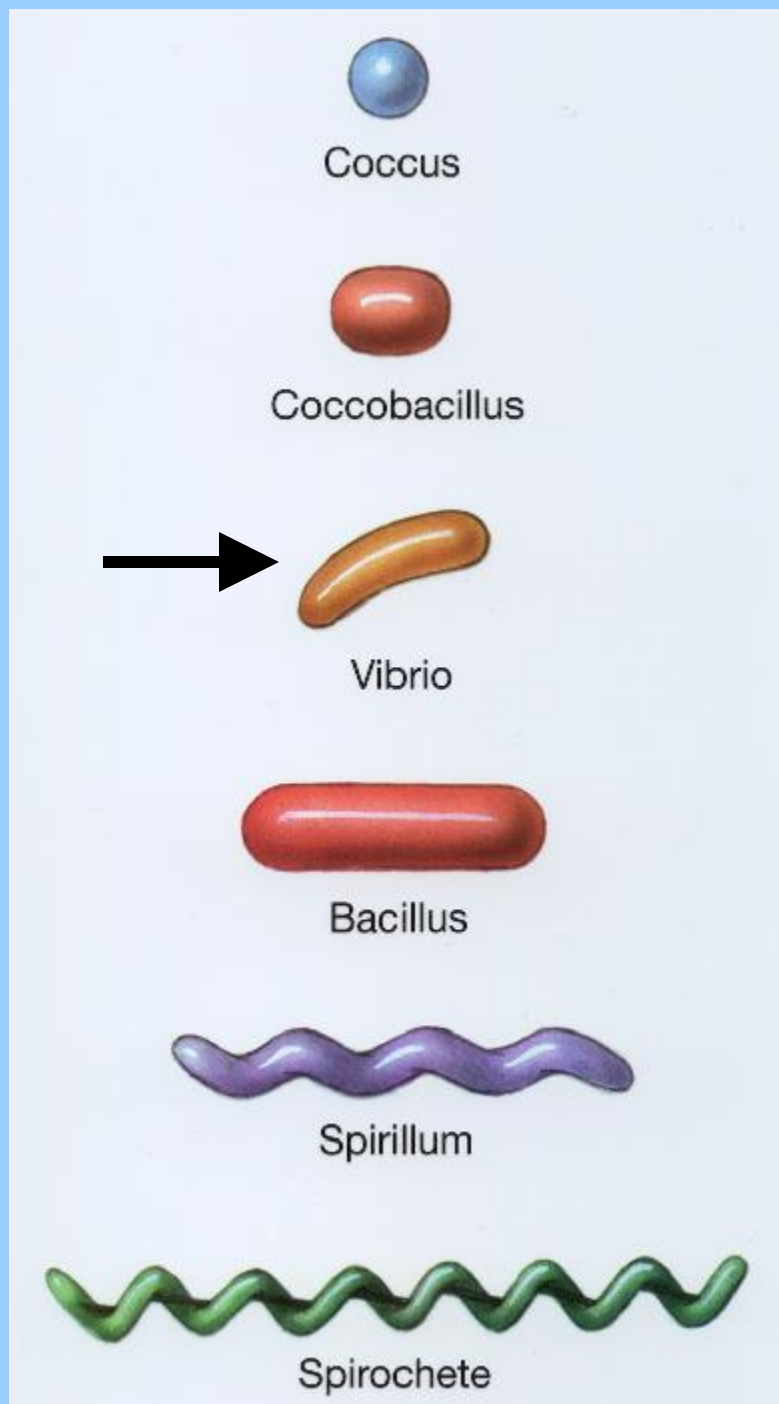




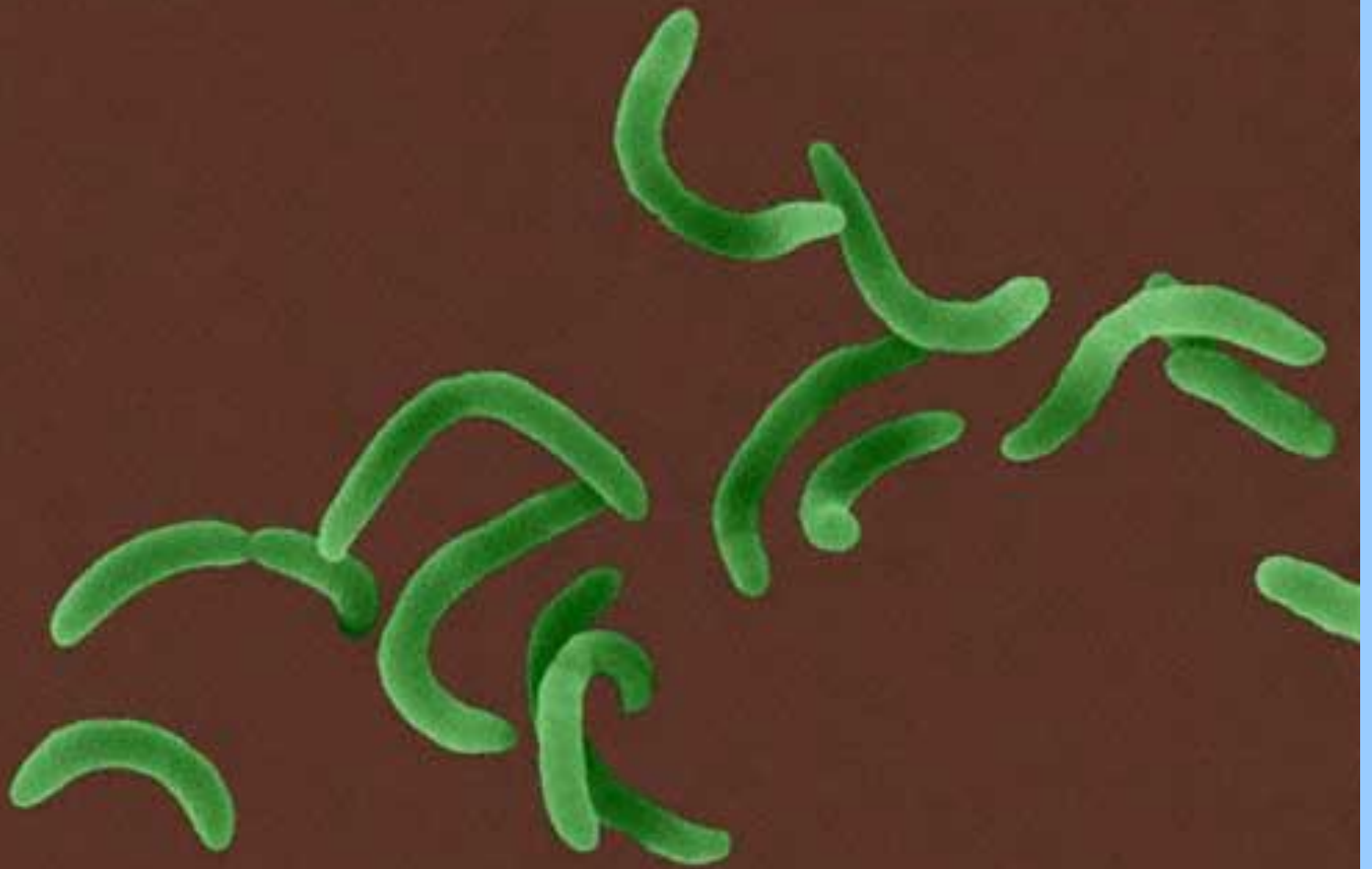
# Coccobacillus



# Diversity of Bacterial Shapes



# Vibrio



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# Diversity of Bacterial Shapes



Coccus



Coccobacillus



Vibrio



Bacillus



Spirillum



Spirochete



# Bacillus (pl. Bacilli)



# *Escherichia coli*



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# Diversity of Bacterial Shapes



Coccus



Coccobacillus



Vibrio



Bacillus

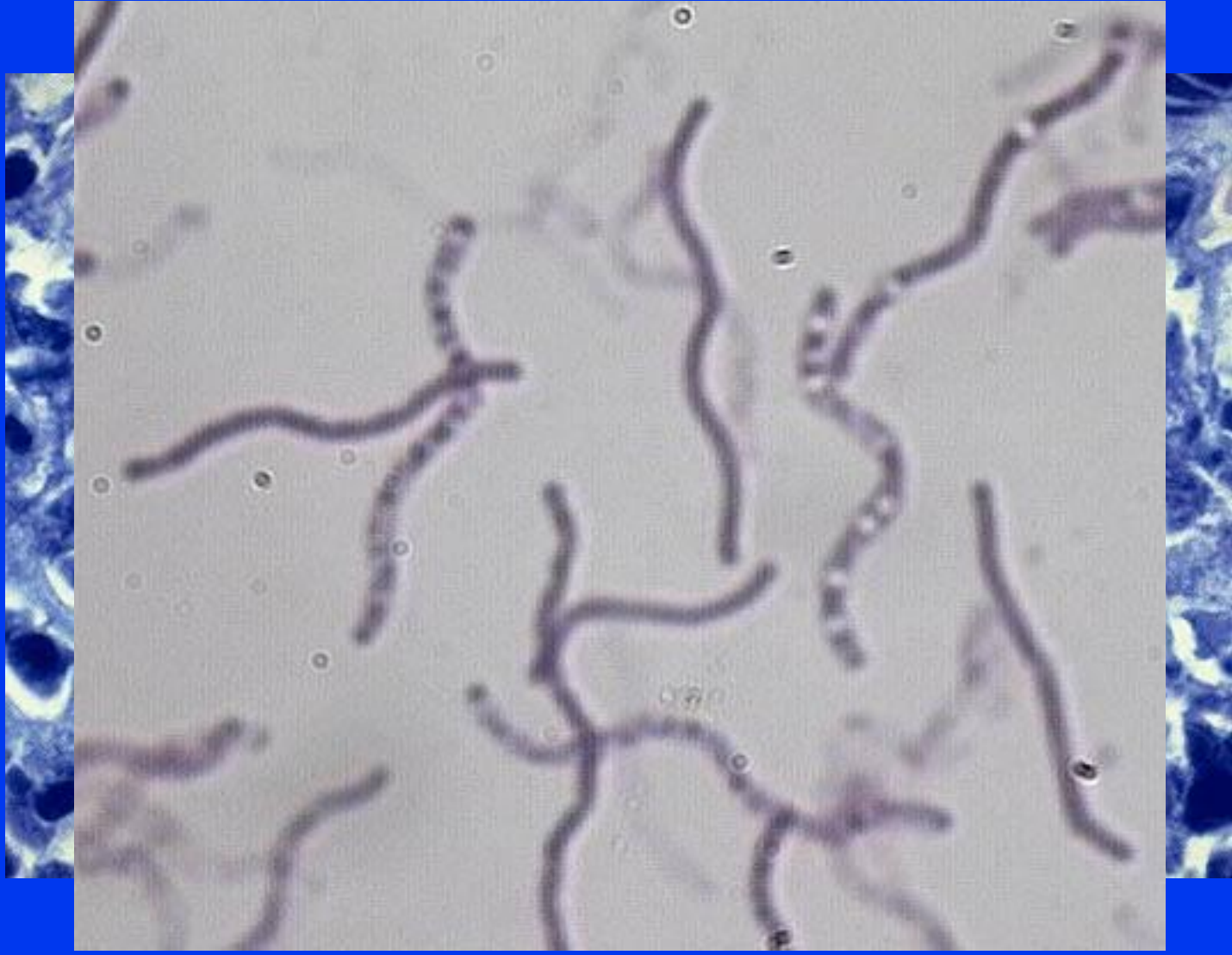


Spirillum



Spirochete

# Spirillum





# Diversity of Bacterial Shapes



Coccus



Coccobacillus



Vibrio



Bacillus

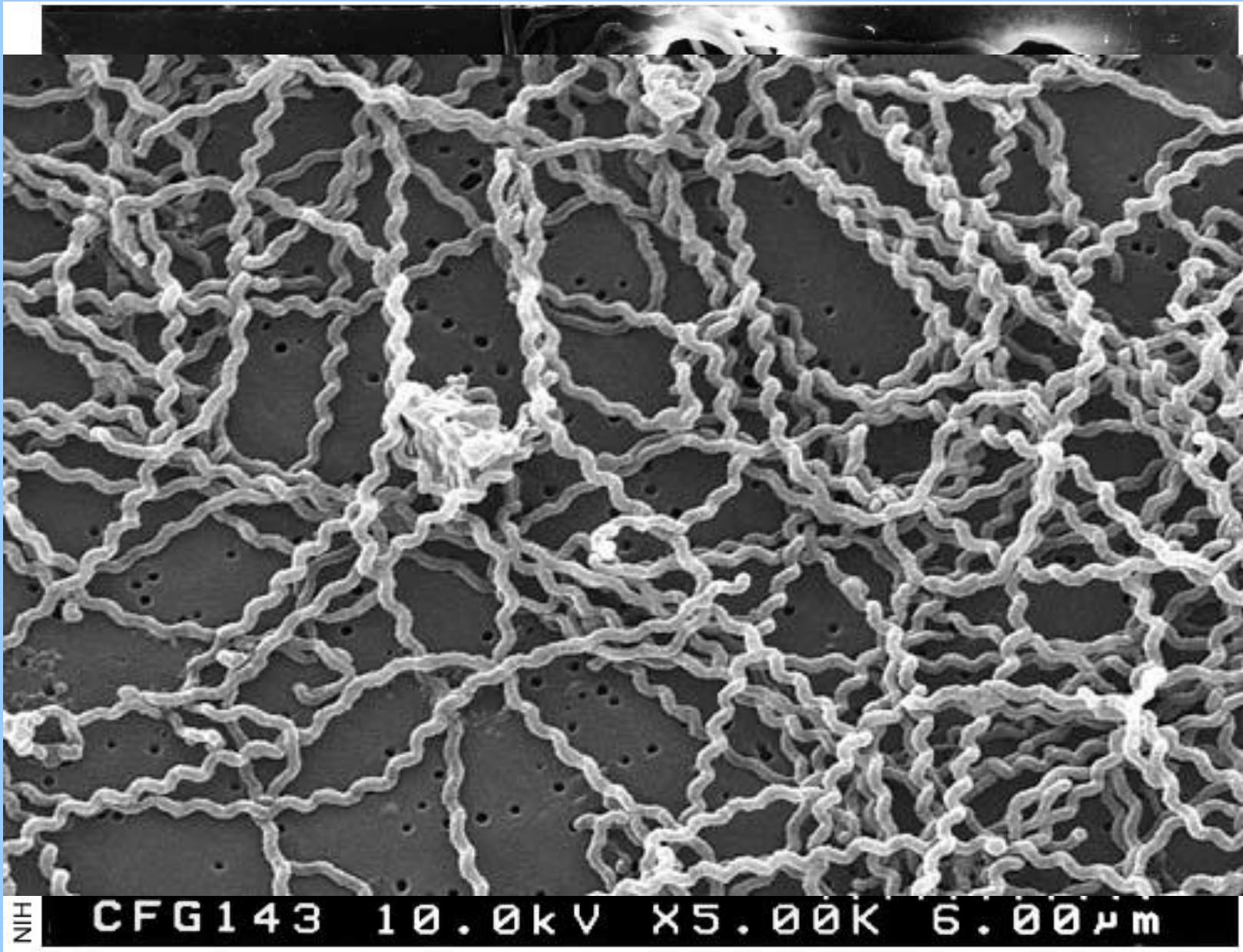


Spirillum

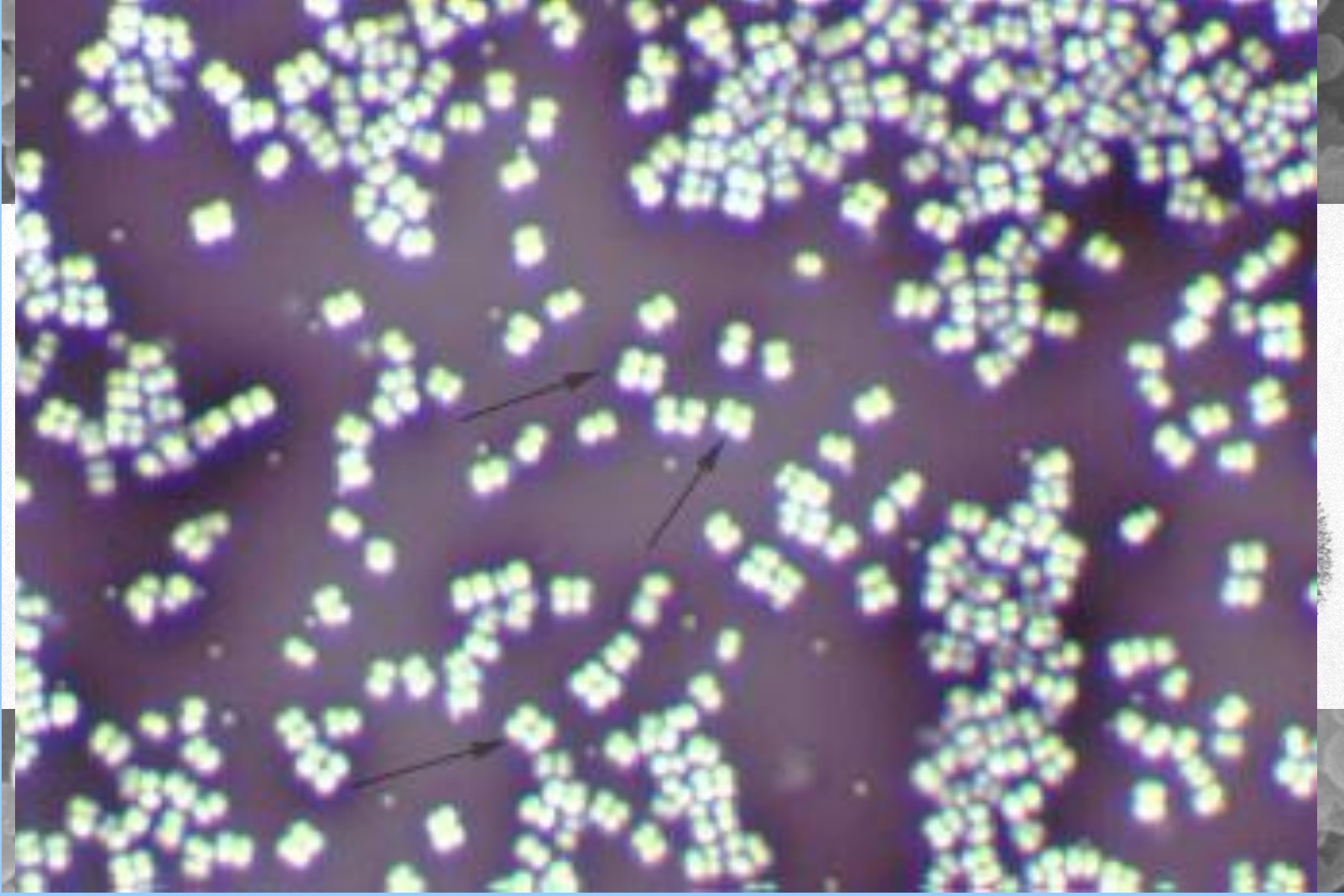


Spirochete

# Spirochete

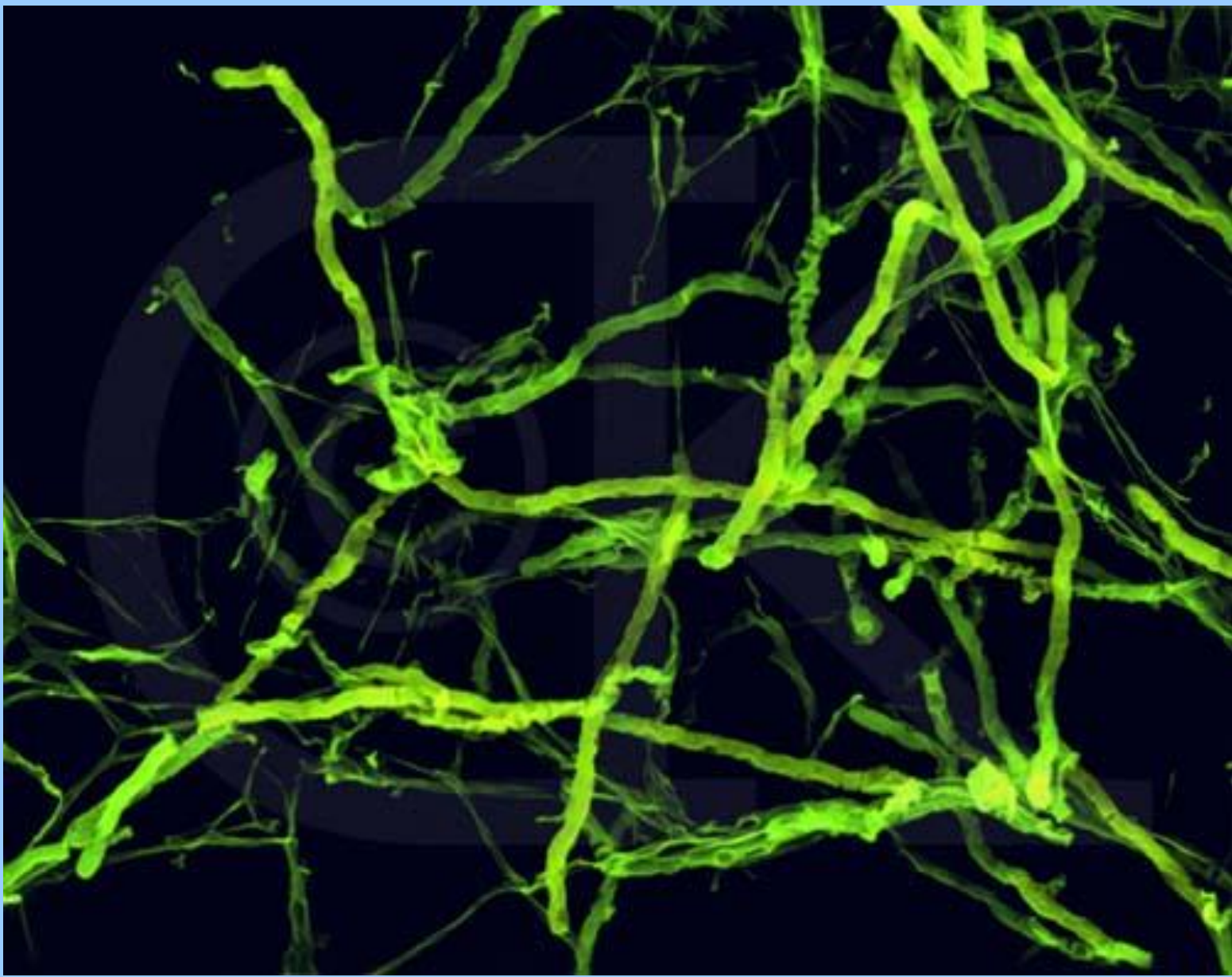


# Bacterial Cellular Arrangements





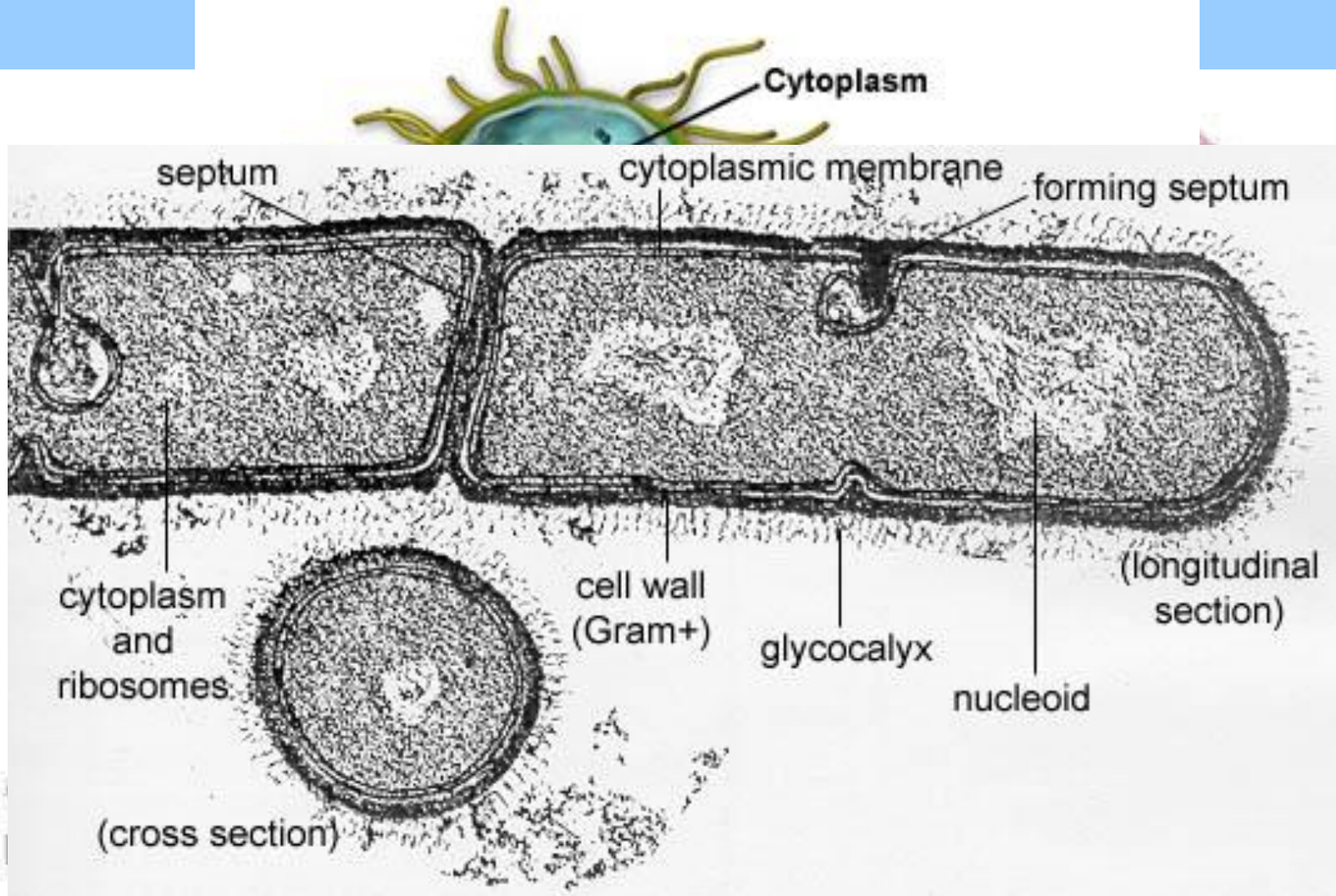
# Filamentous Bacteria





# Bacterial Anatomy (Overview)

## Prokaryotic Cell Structure



Ca

Figure 1

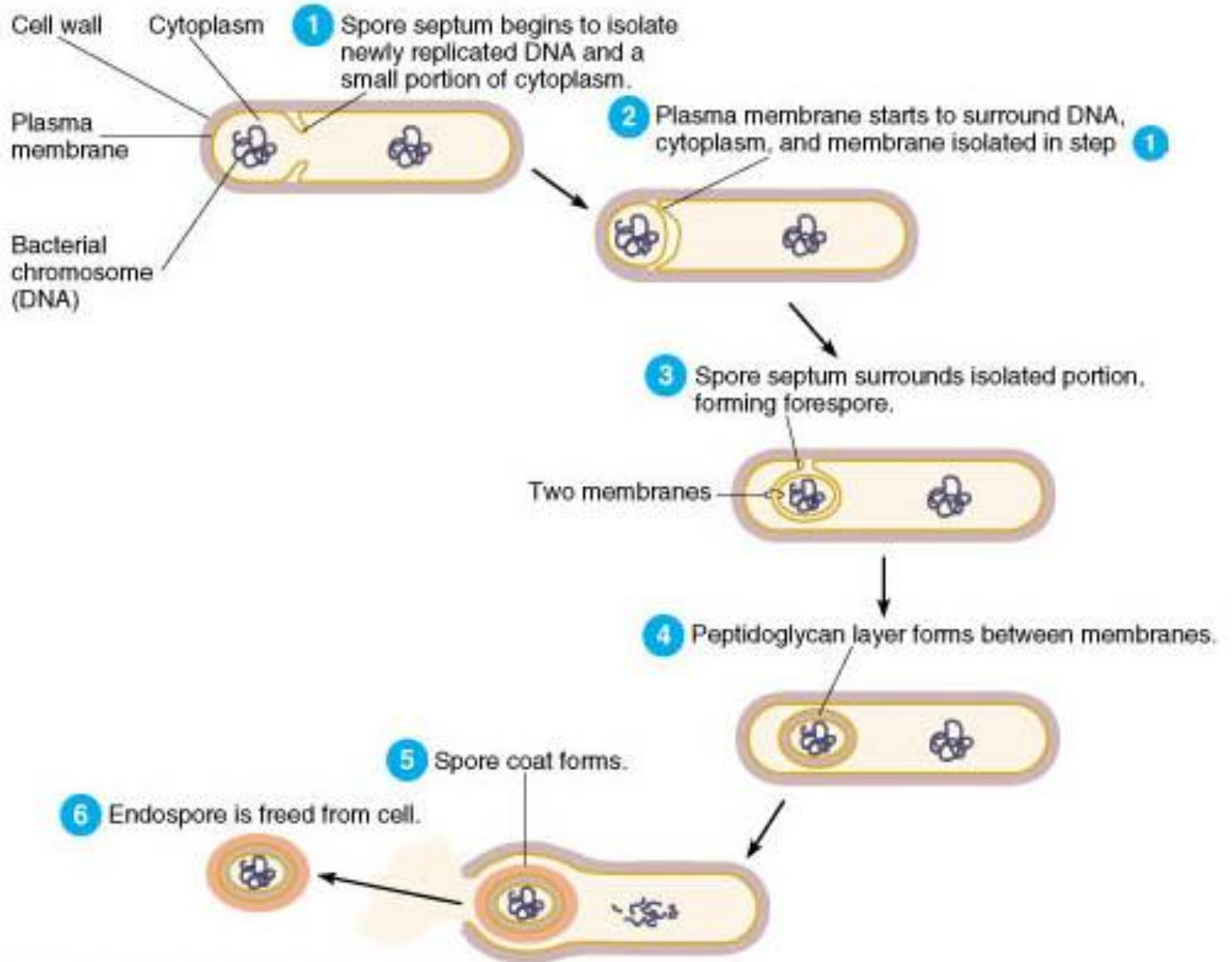
# Nucleoid



E. coli (TEM)

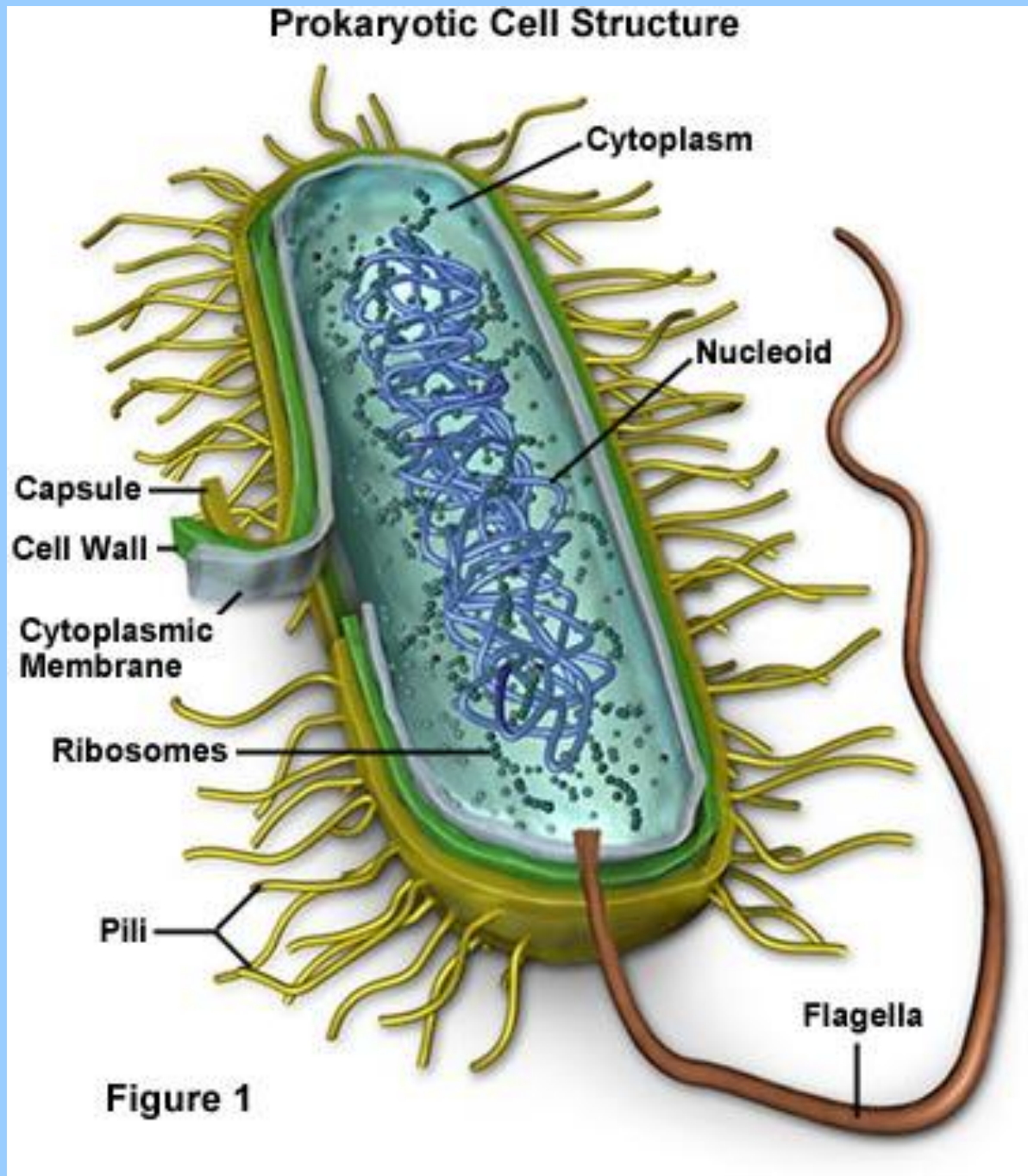
# Endospores

## ENDOSPORE FORMATION





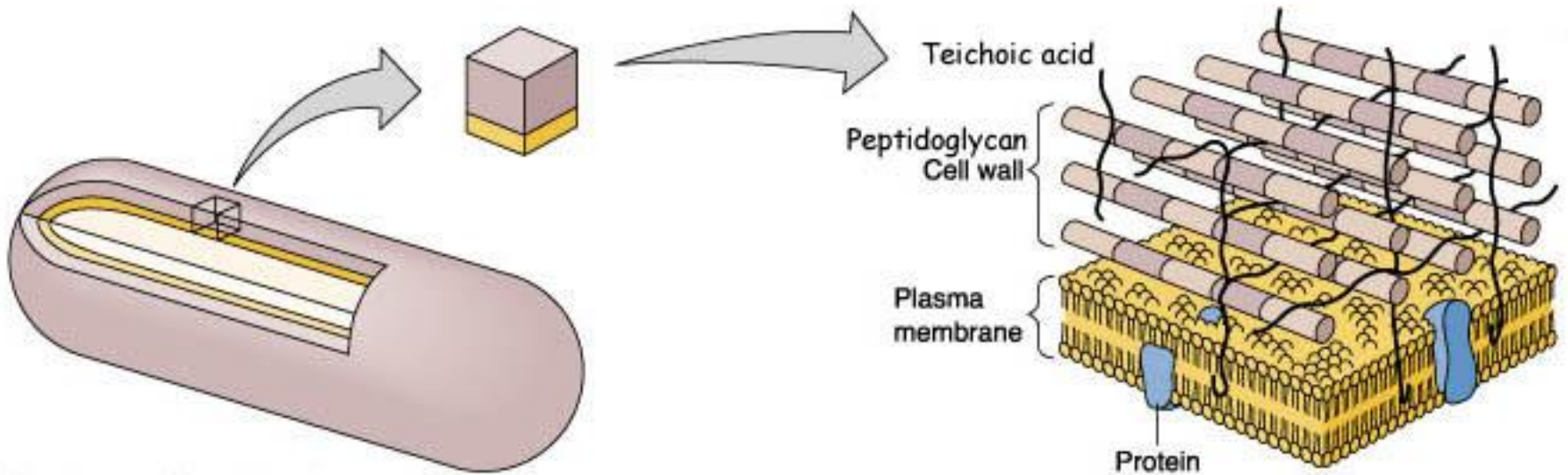
# Bacterial Anatomy (Cell Envelopes)



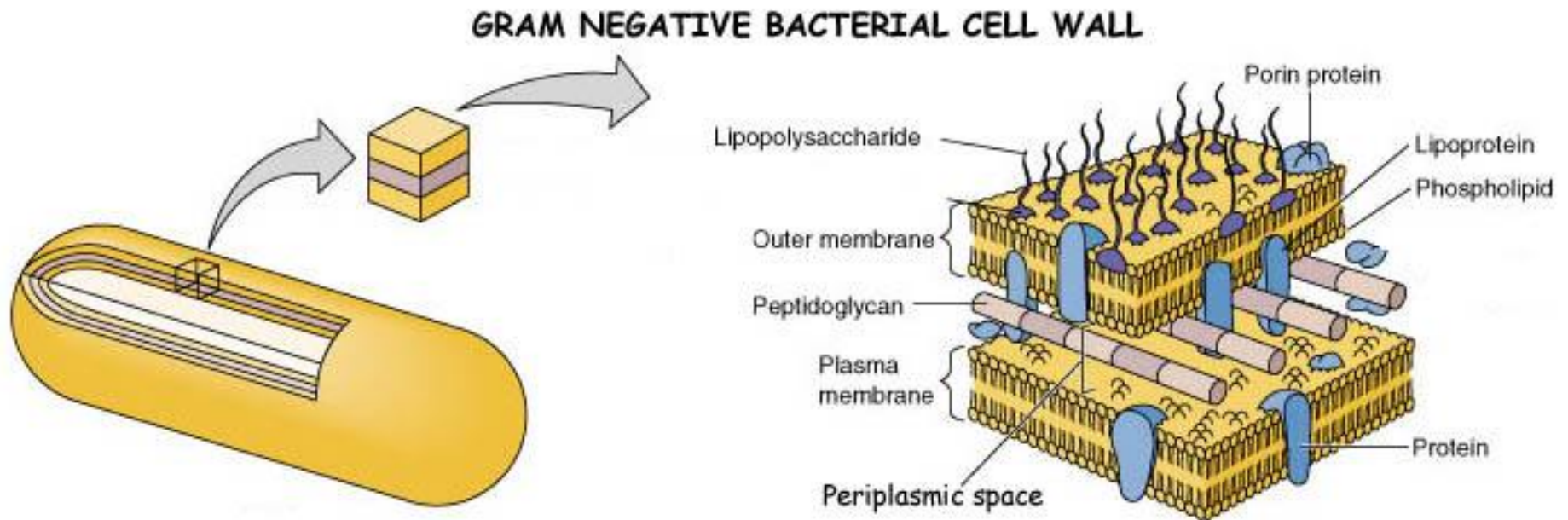


# Gram Positive Cell Envelope

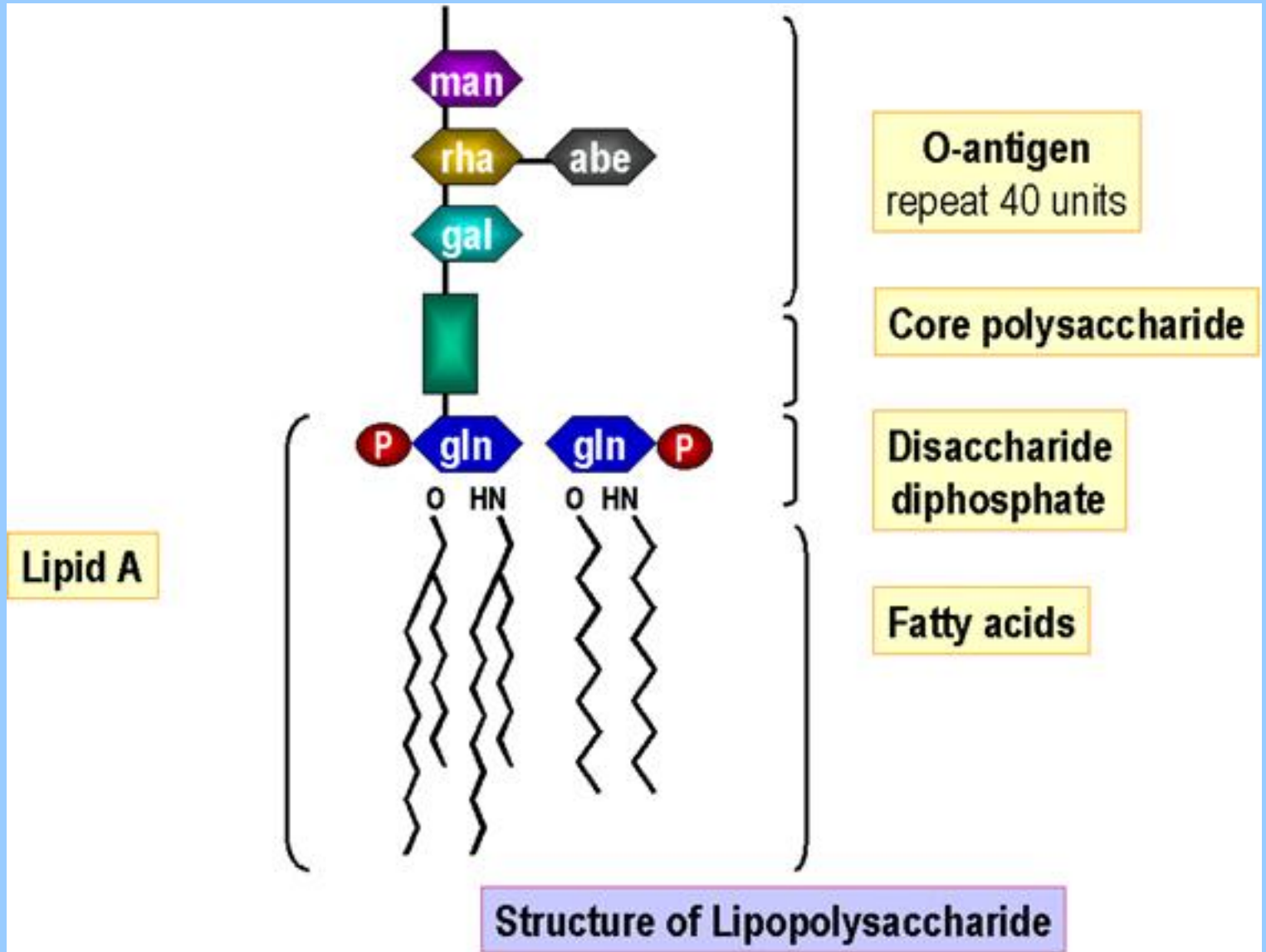
GRAM POSITIVE BACTERIAL CELL WALL



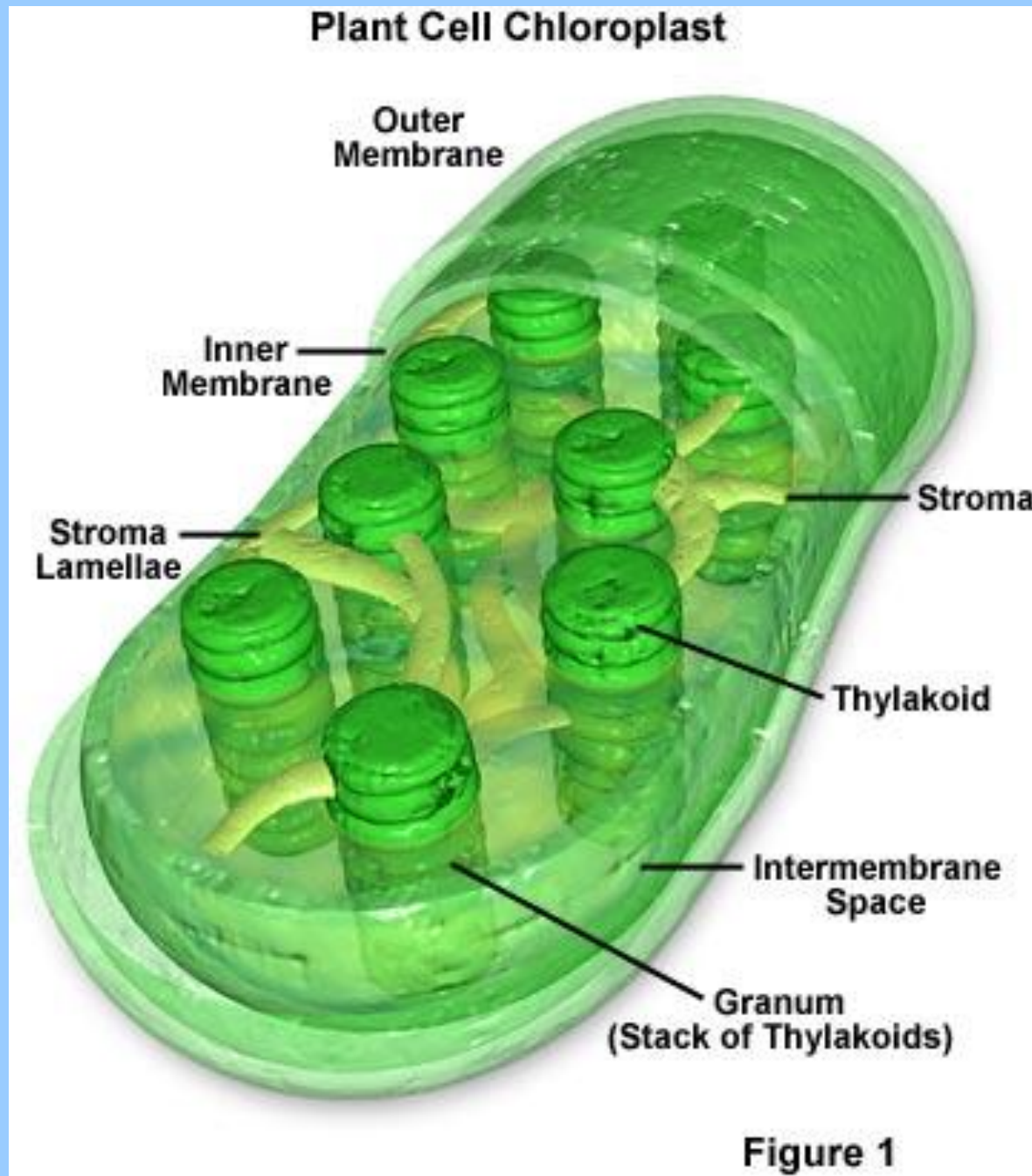
# Gram Negative Cell Envelope



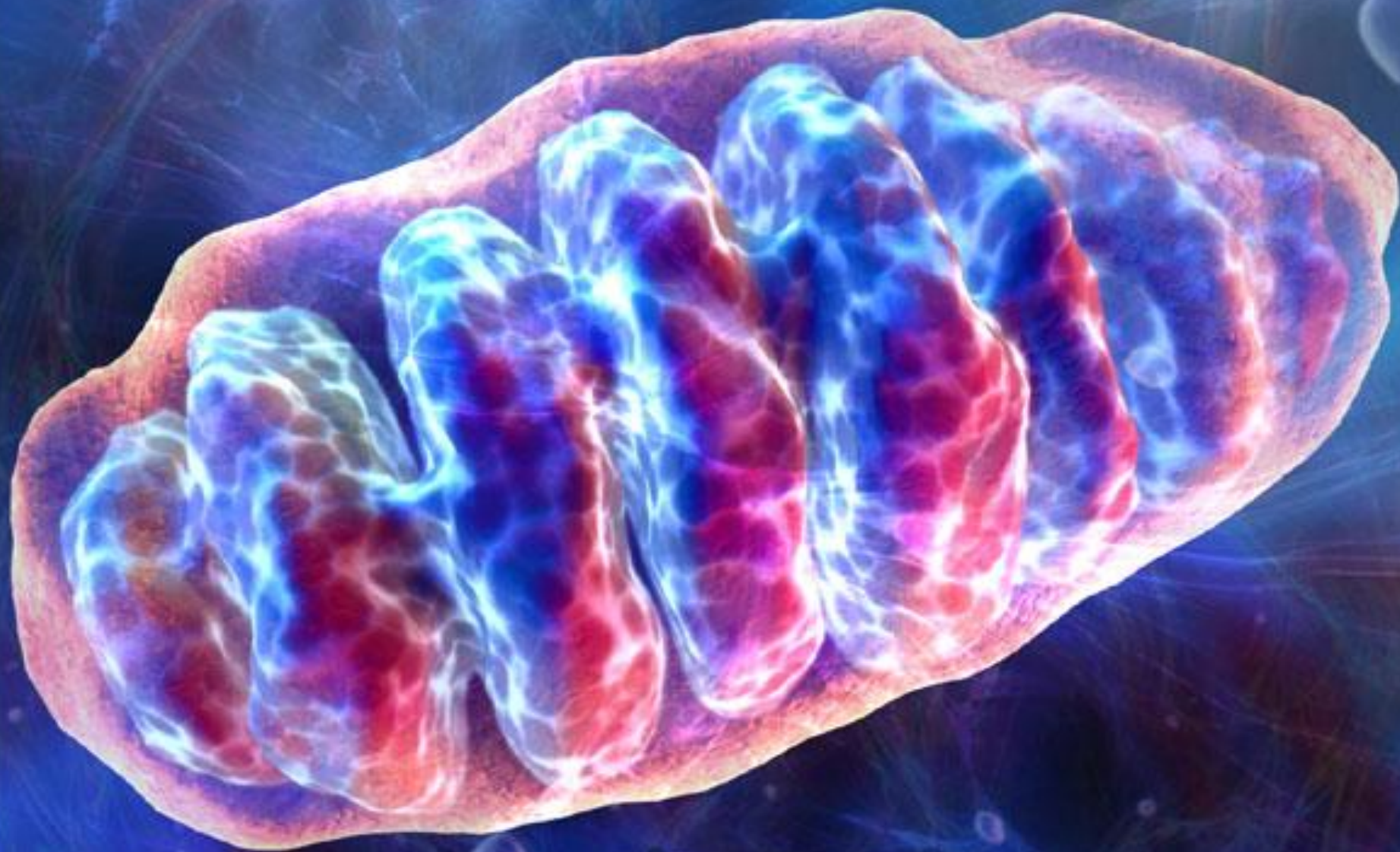
# Lipopolysaccharide



# Endosymbiosis



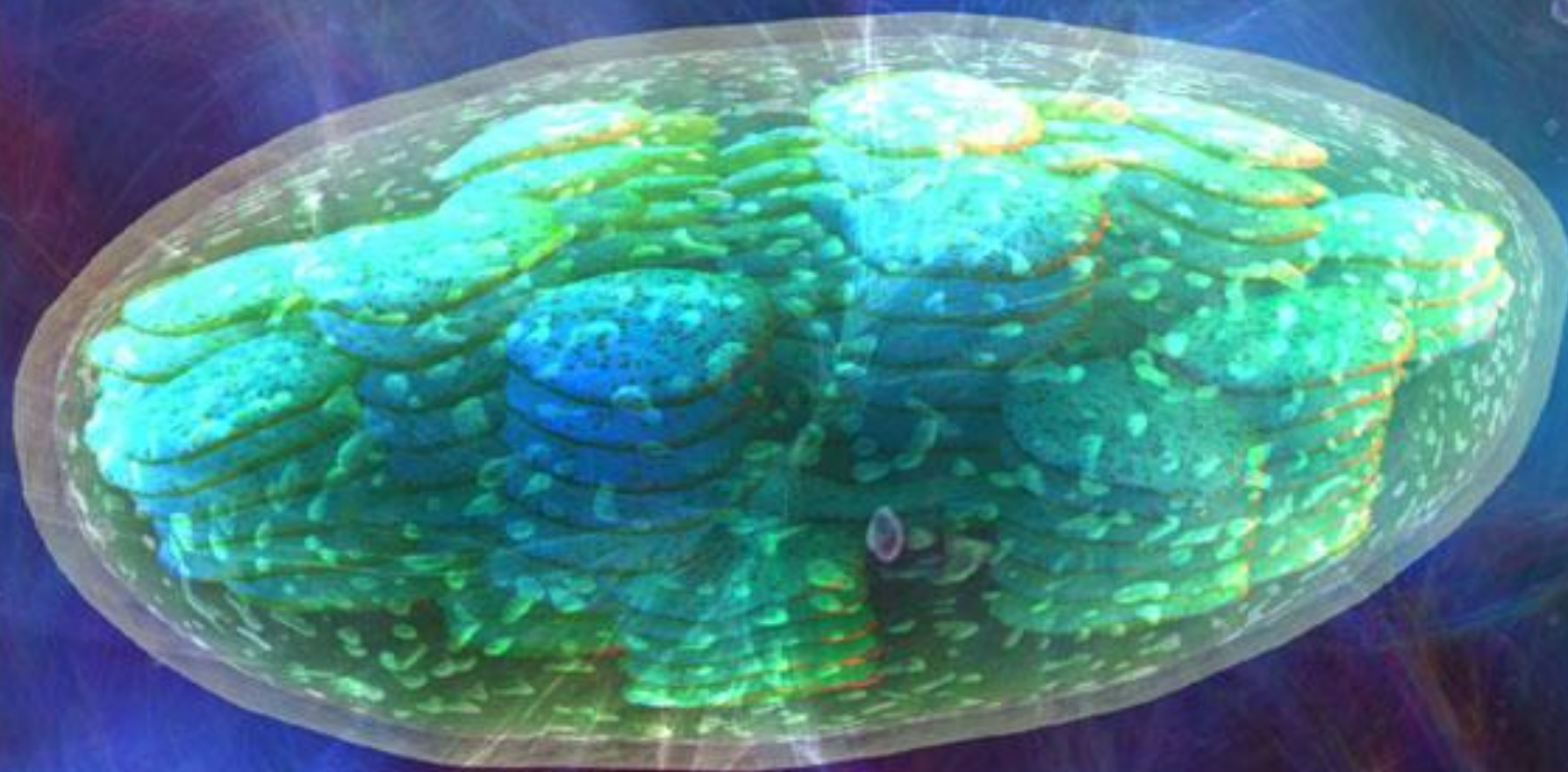




HybriO

an educational tool for molecular biology

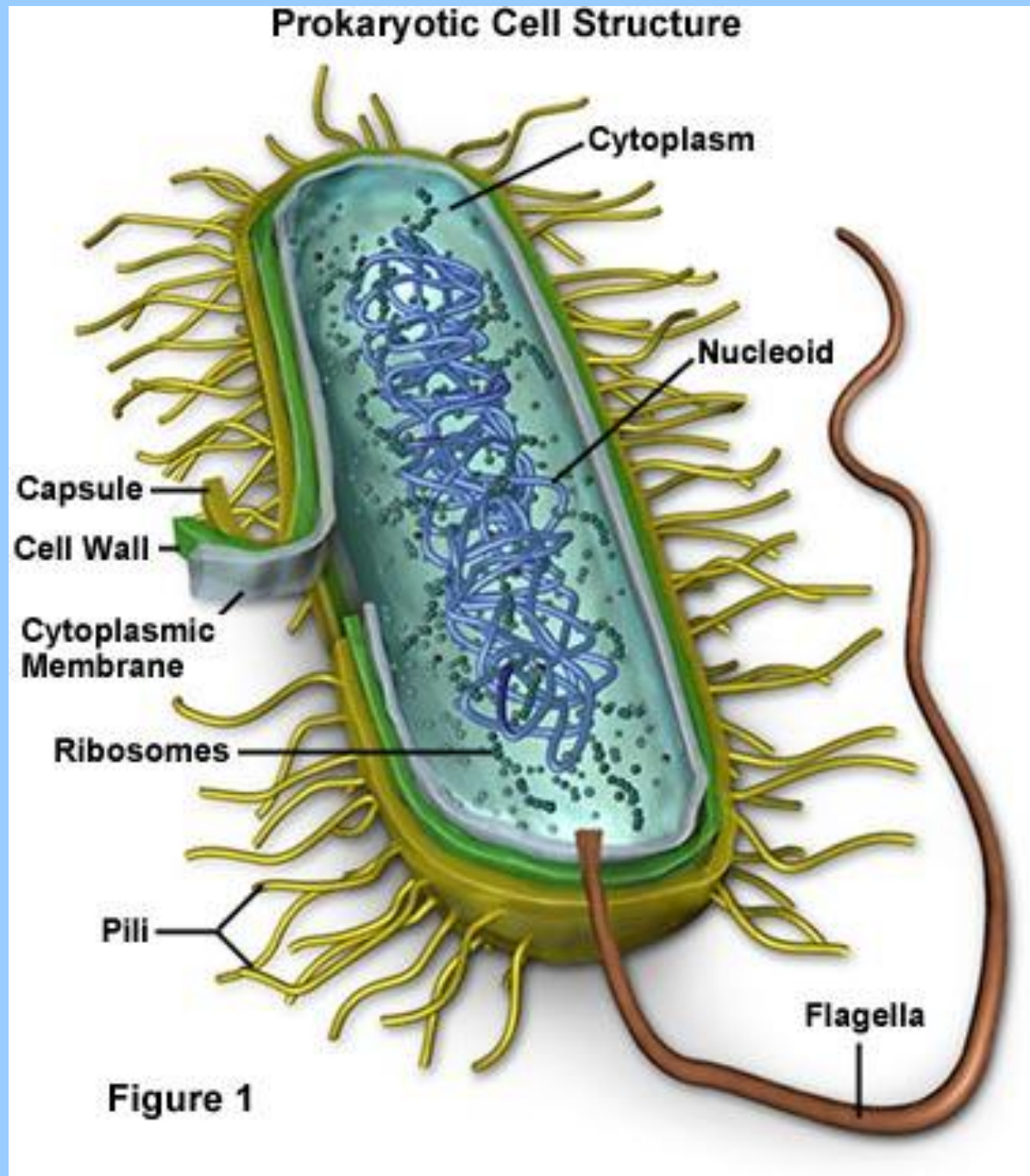




hybrid

med. cat. & d. m. a. l. e. n.

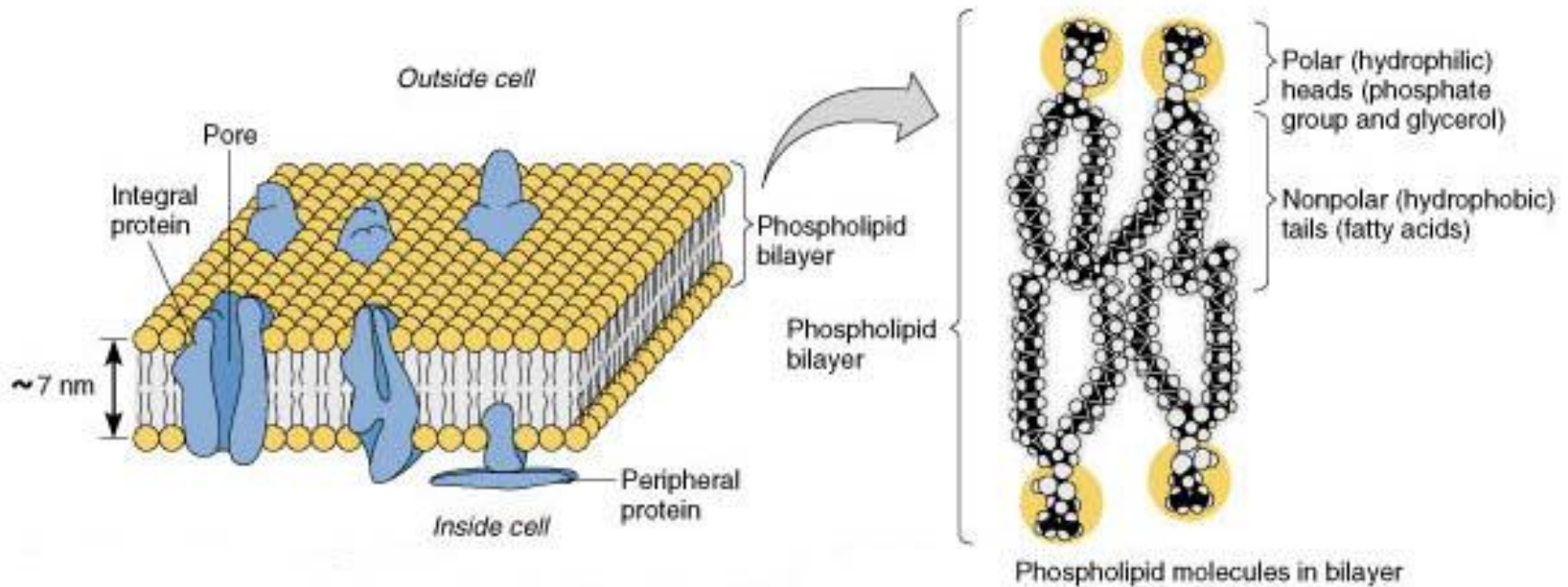
# Bacterial Anatomy (Plasma Membrane)



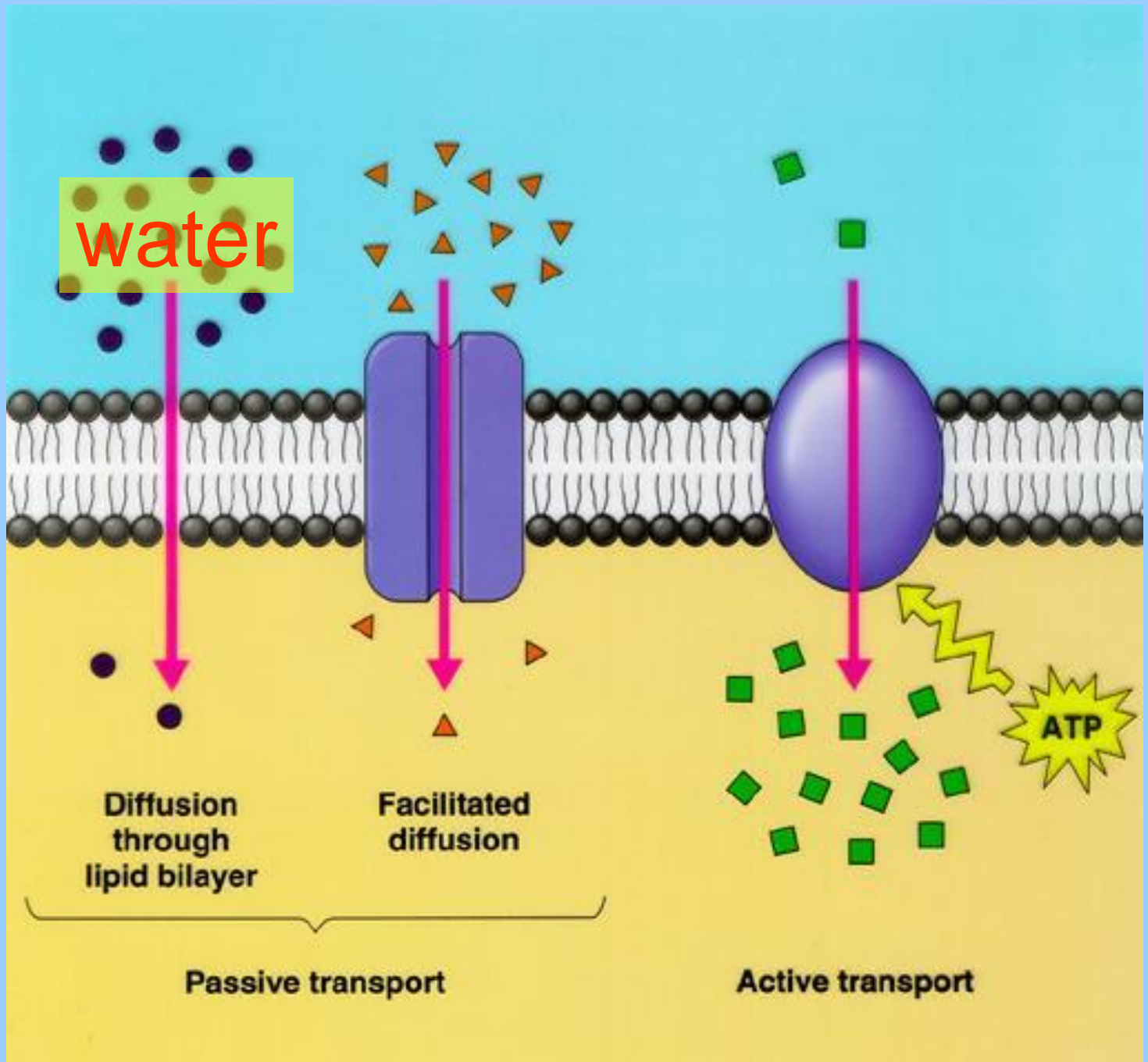


# Plasma Membrane

## PHOSPHOLIPID BILAYER MEMBRANE

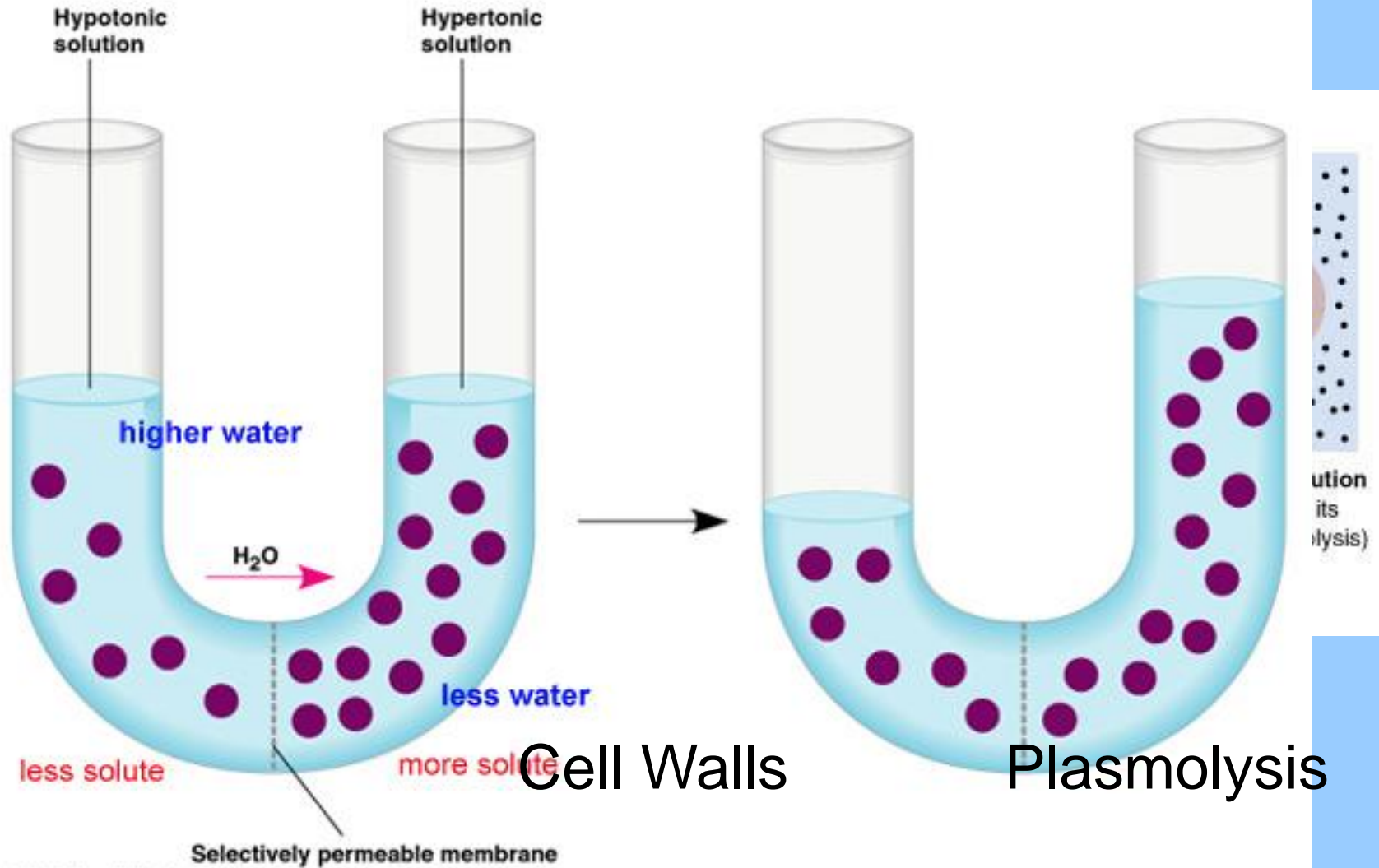


# Movement Across Membranes



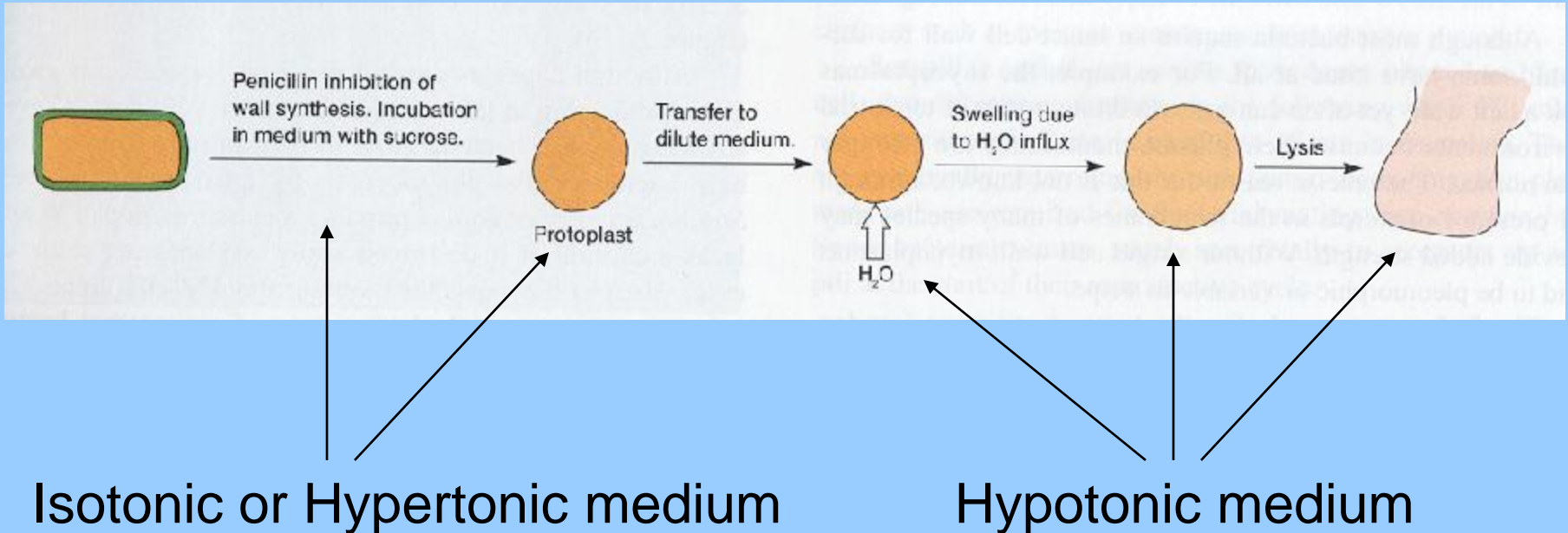


# Osmosis & Tonicity



Copyright

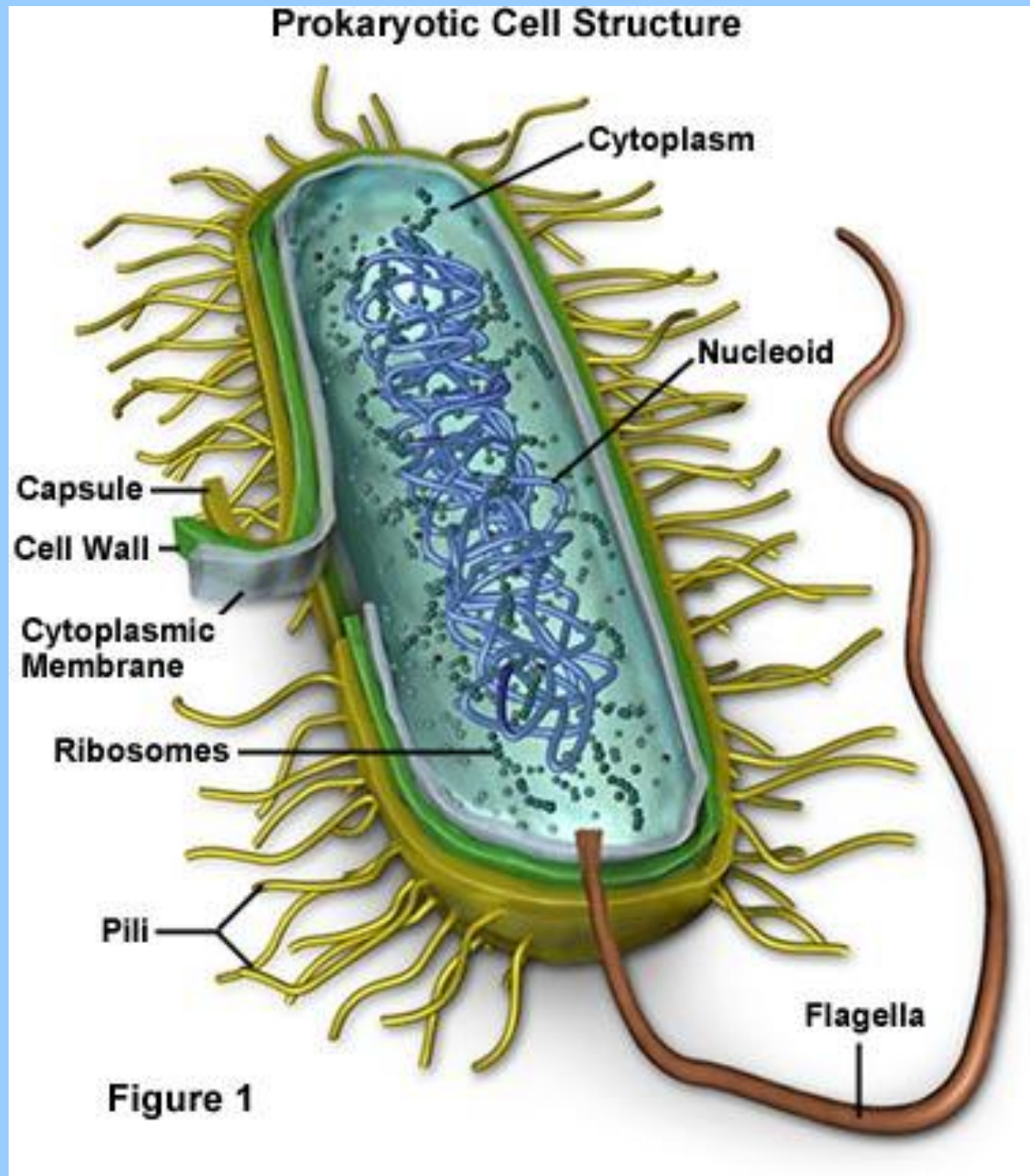
# Protoplast & Spheroplast



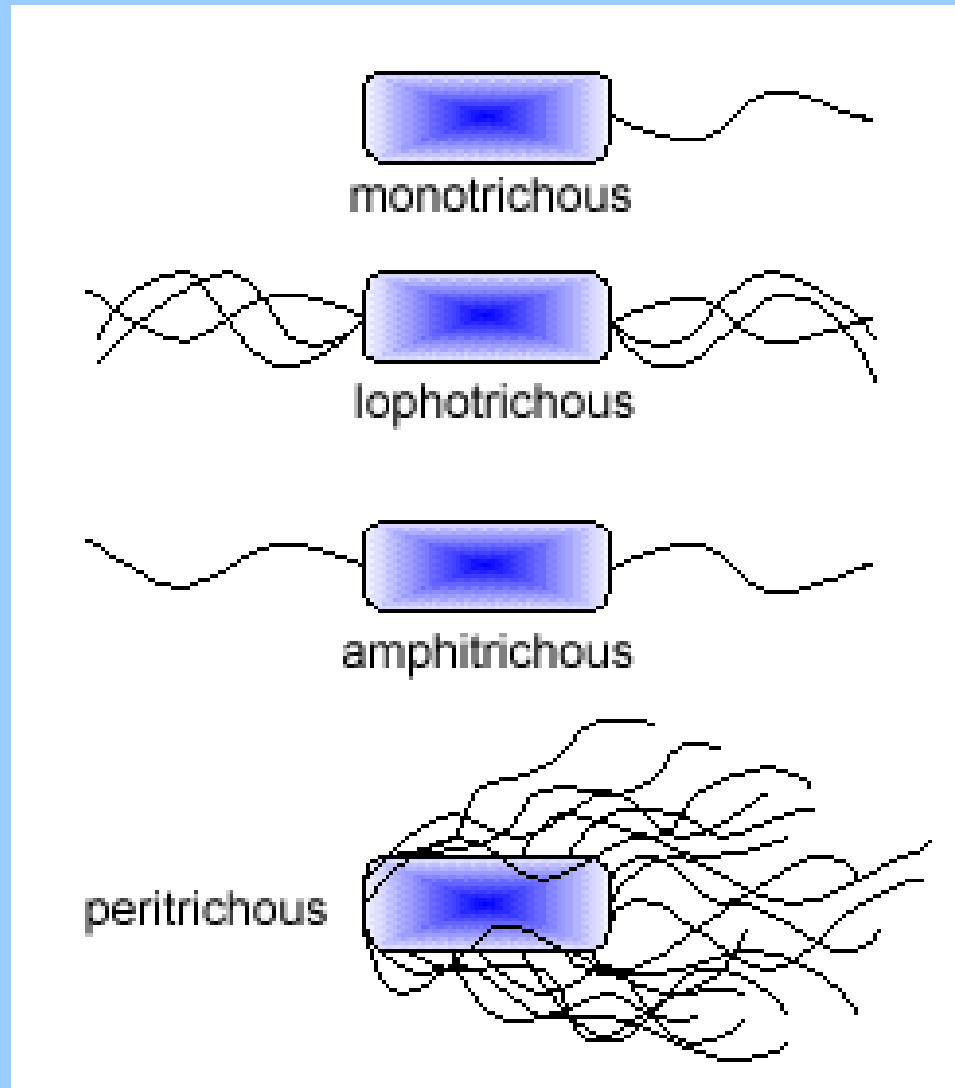
A **P**rotoplast is a Gram-**P**ositive bacterium without its cell wall

A **S**pheroplast is a Gram-**N**egative bacterium lacking most of its cell wall

# Bacterial Anatomy (Flagella)



# Flagellum (p. Flagella) (1/2)



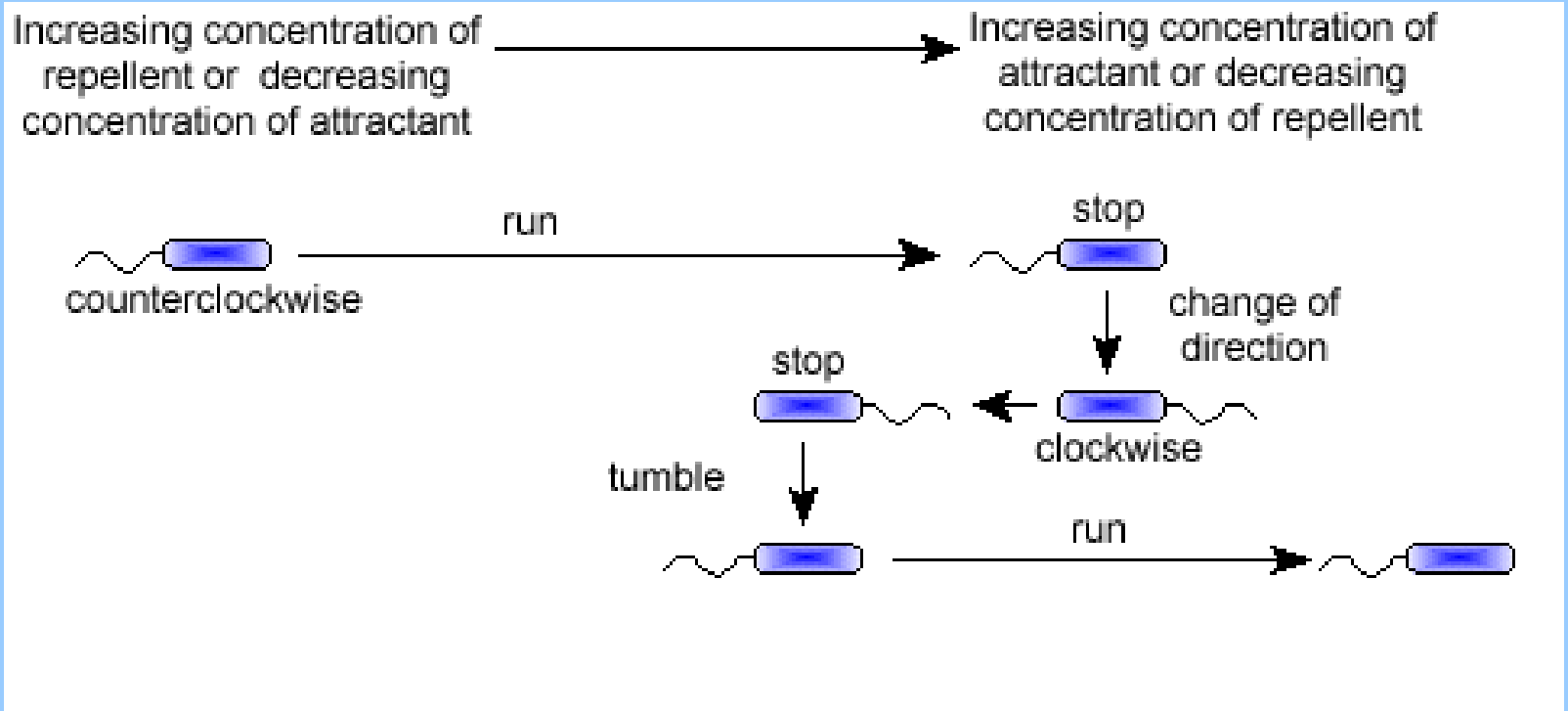
also “atrichous”



# Flagellum (p. Flagella) (2/2)



# Taxis



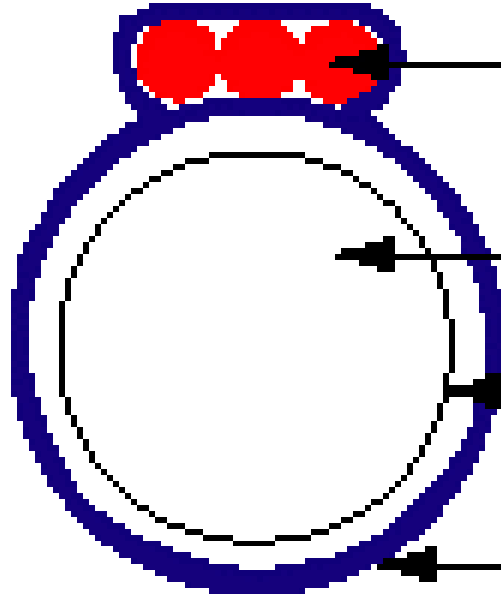
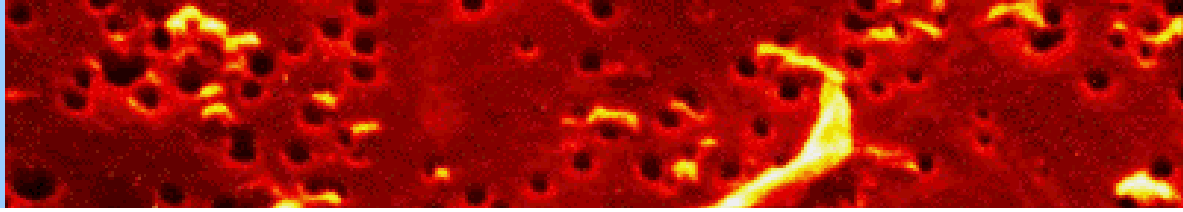
Negative Chemotaxis is away from specific substances

Positive Chemotaxis is towards specific substances

Negative Phototaxis is away from light

Positive Phototaxis is towards light

# Axial Filament (EndoFlagella)

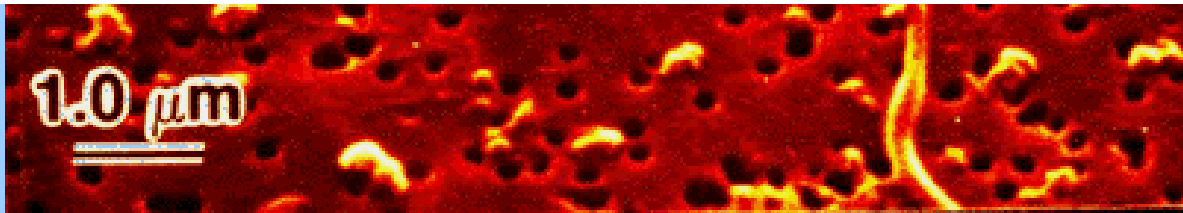


Axial filaments

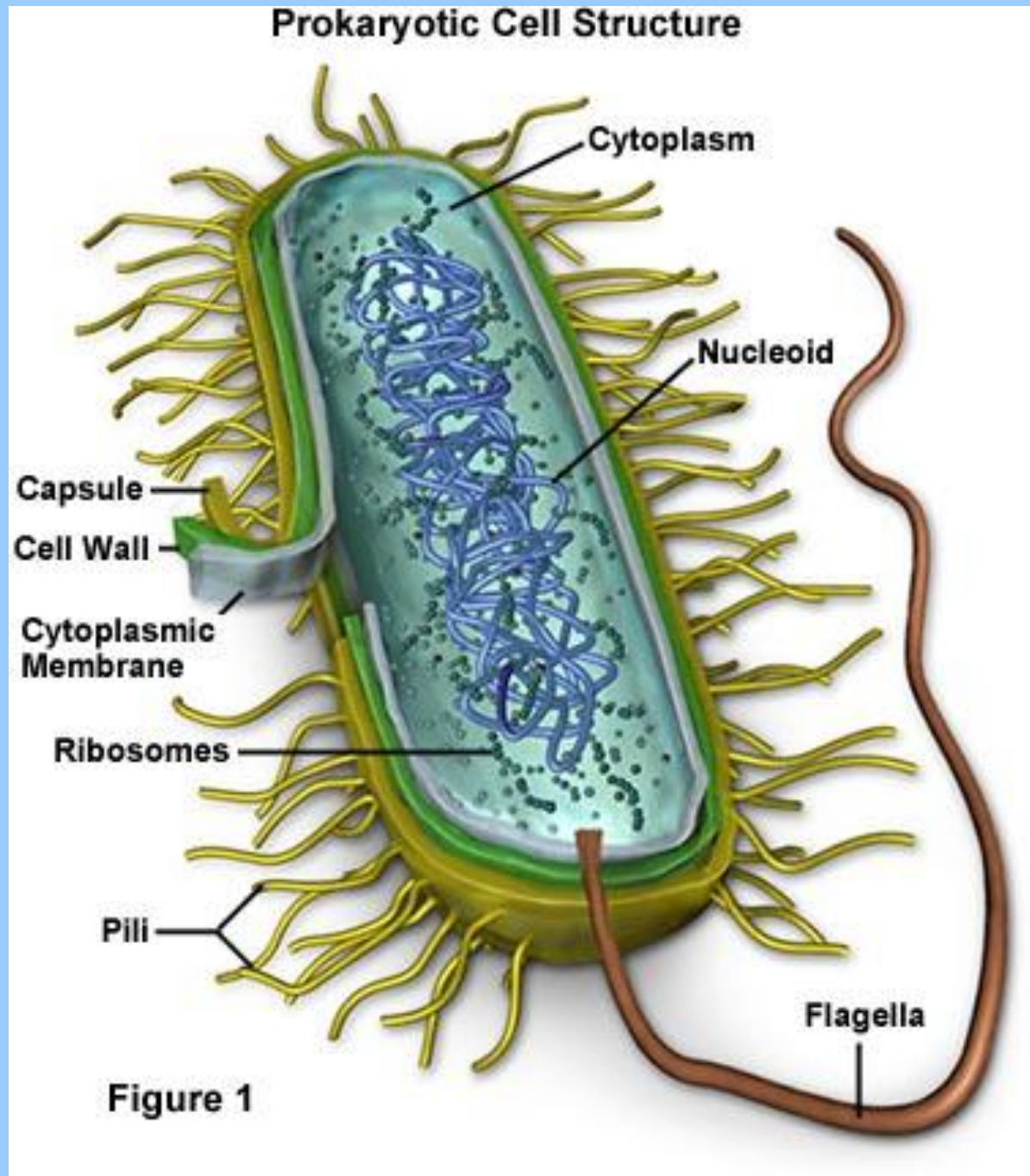
Cytoplasm

Cytoplasmic membrane

Outer sheath

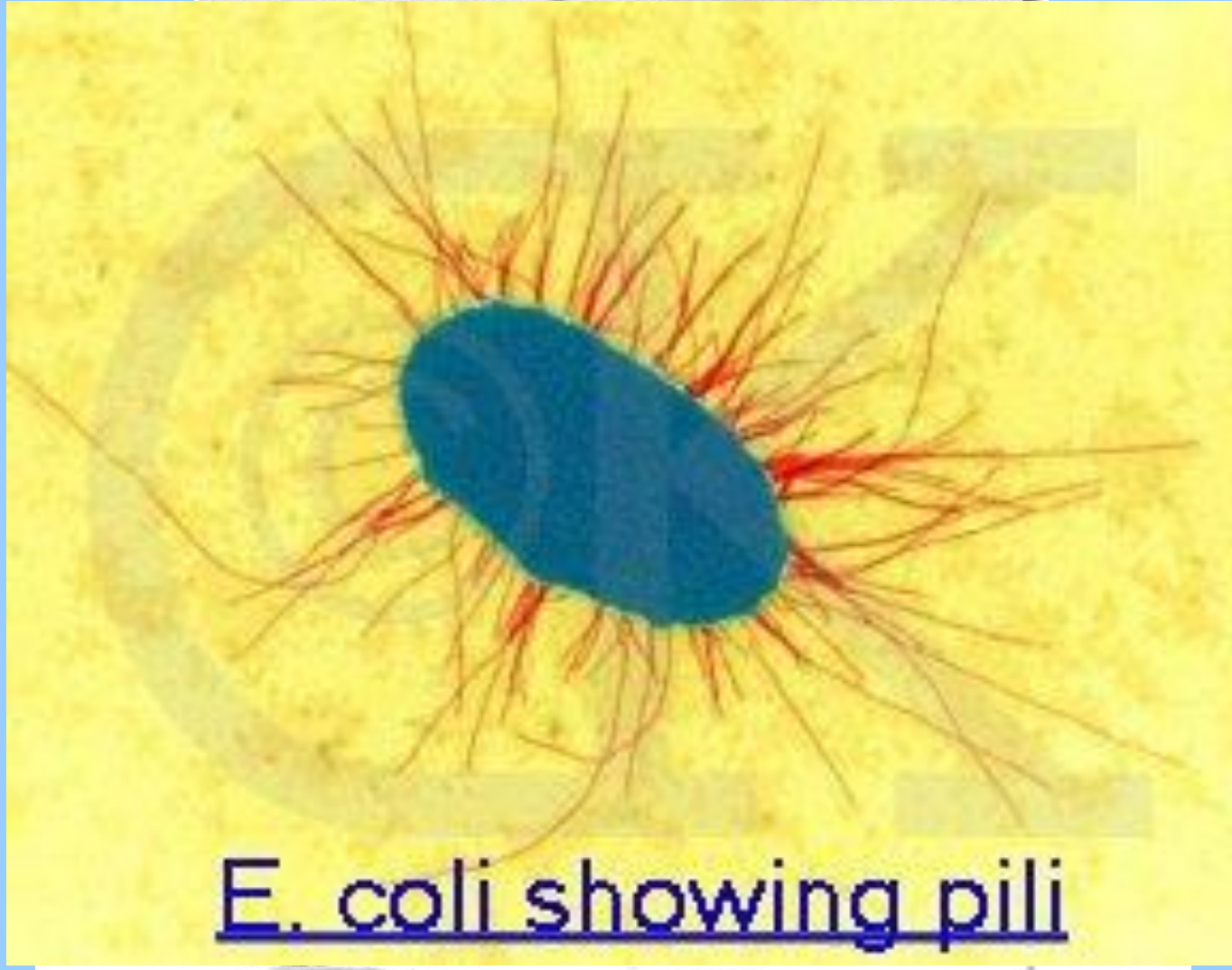


# Bacterial Anatomy (Pili)





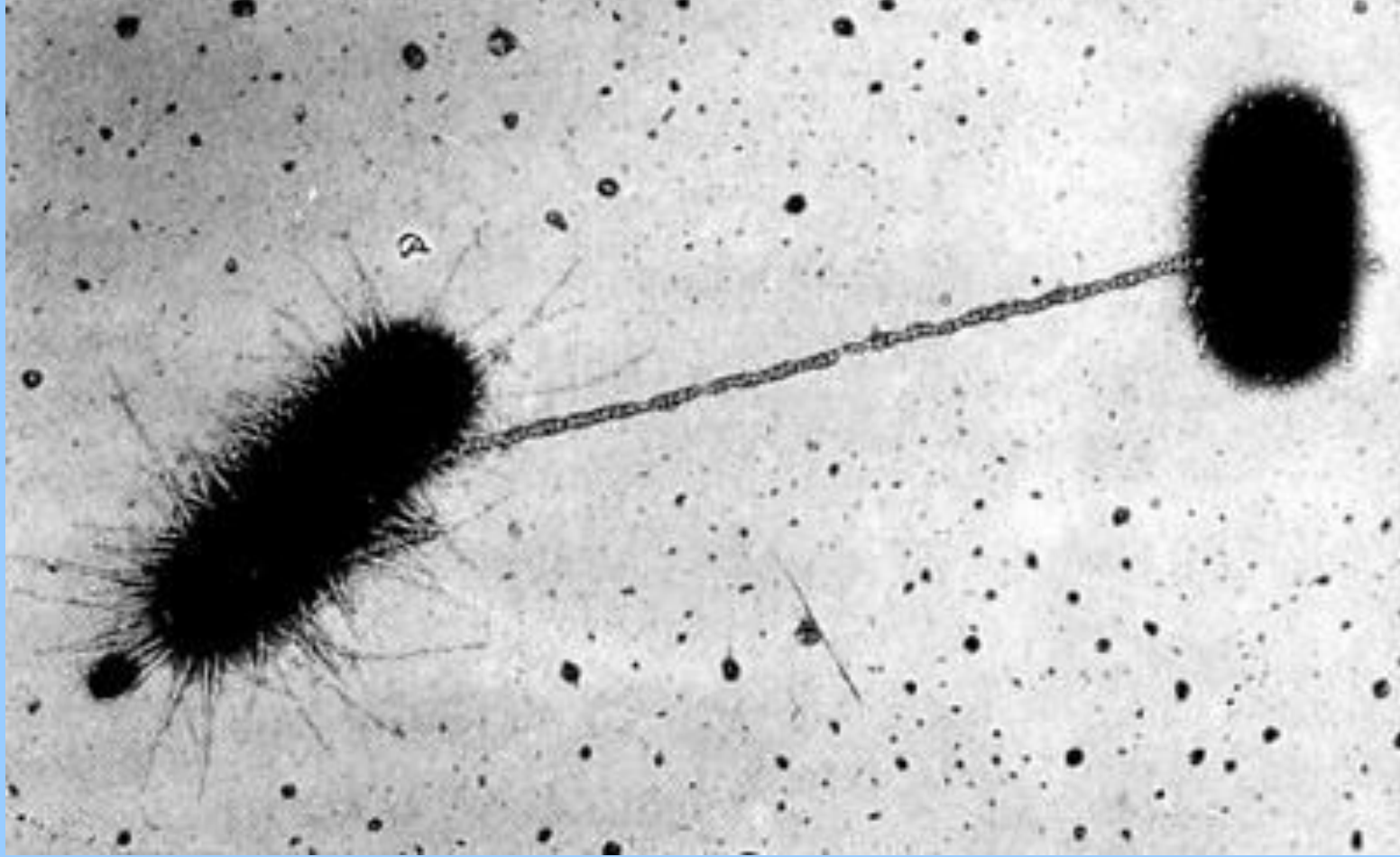
# Pilus (pl. pili) -- Fimbria



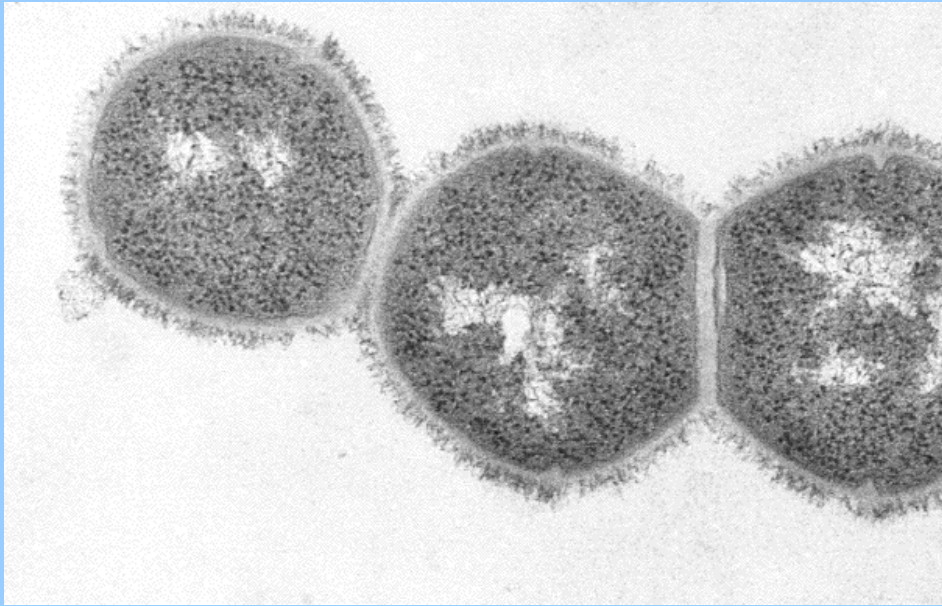
E. coli showing pili



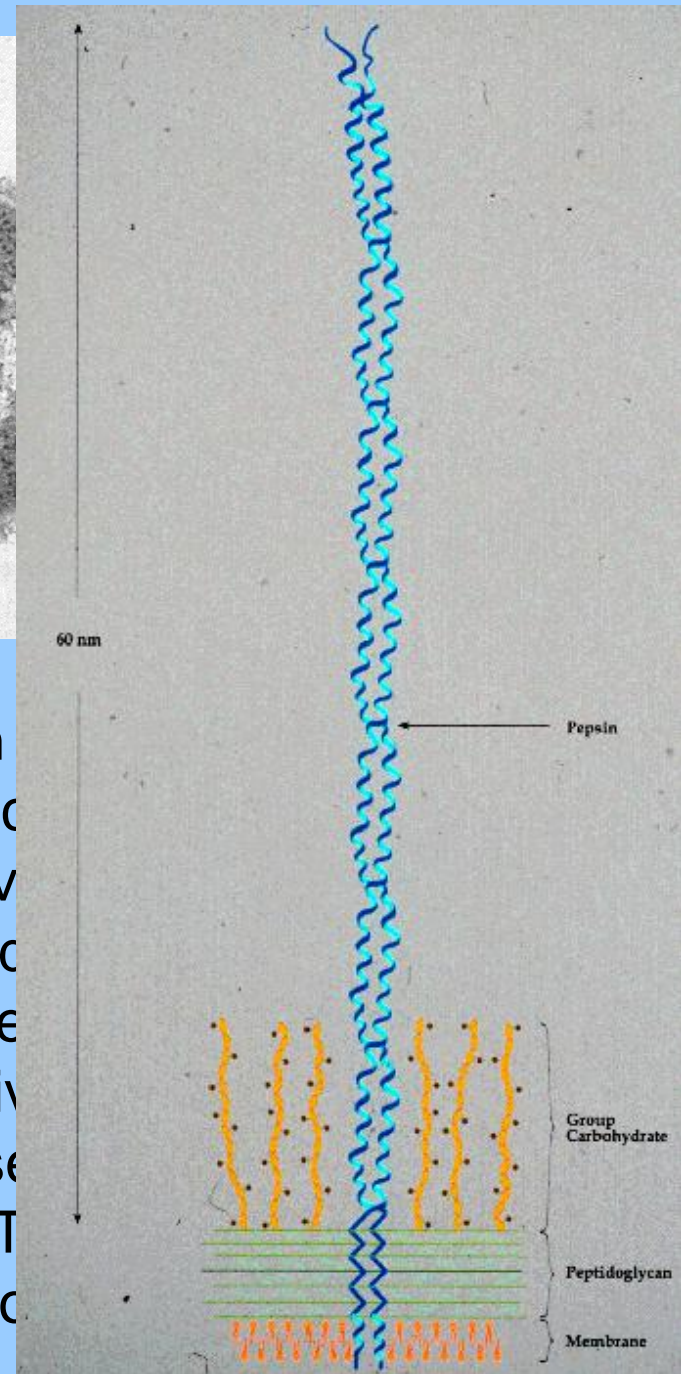
# Sex Pili



# Cell-Surface Fibrils

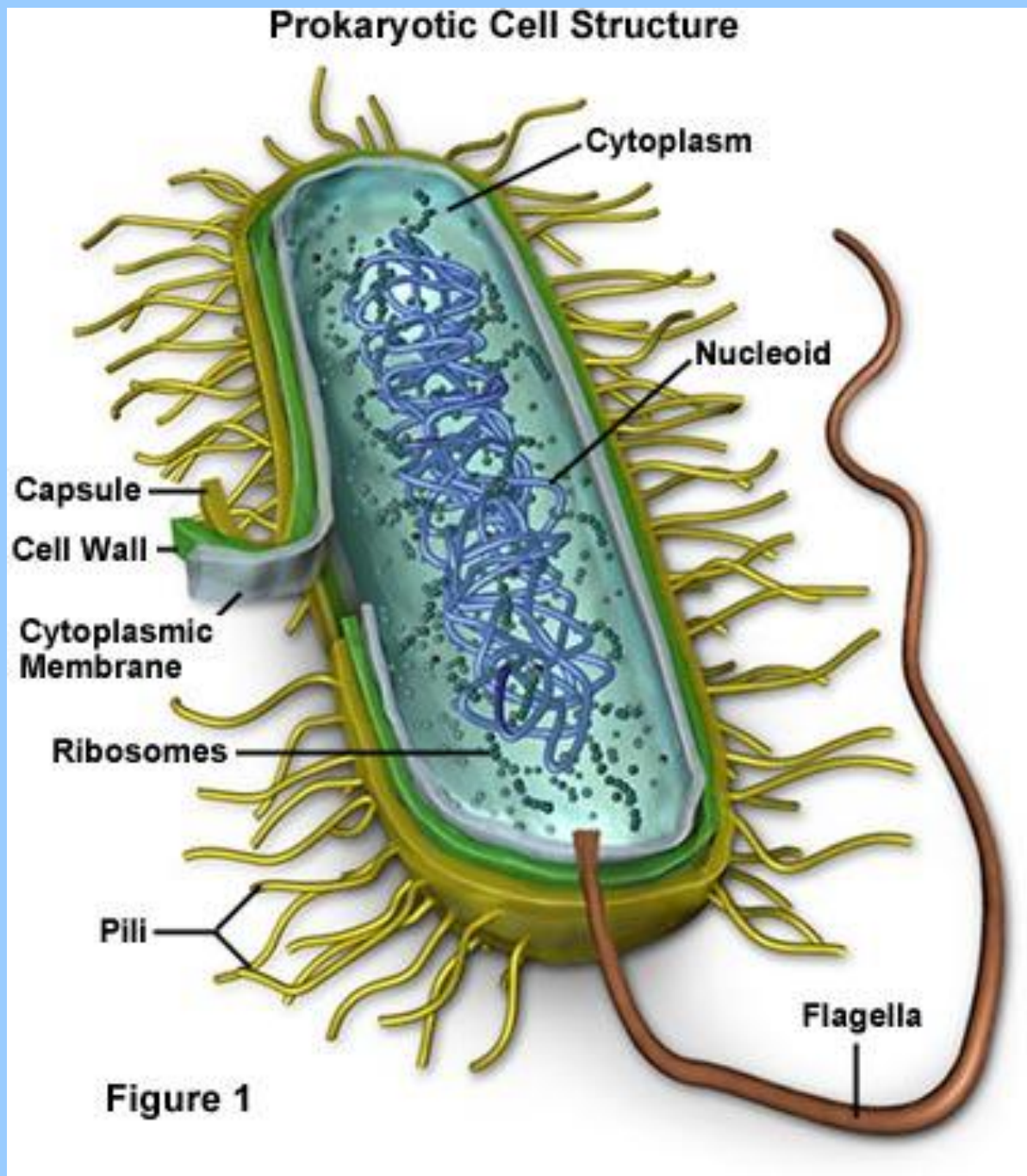


Electron micrograph of an ultra-thin group A streptococci. The cell surface primarily of M protein, are clearly visible. The cell wall, to which the fibrils are attached, is the light staining region between the staining cell interior. Incipient cell division is indicated by the nascent septum formation (seen as a thin line) near the cell equator. The cell diameter is equal to approximately 1.0 μm.



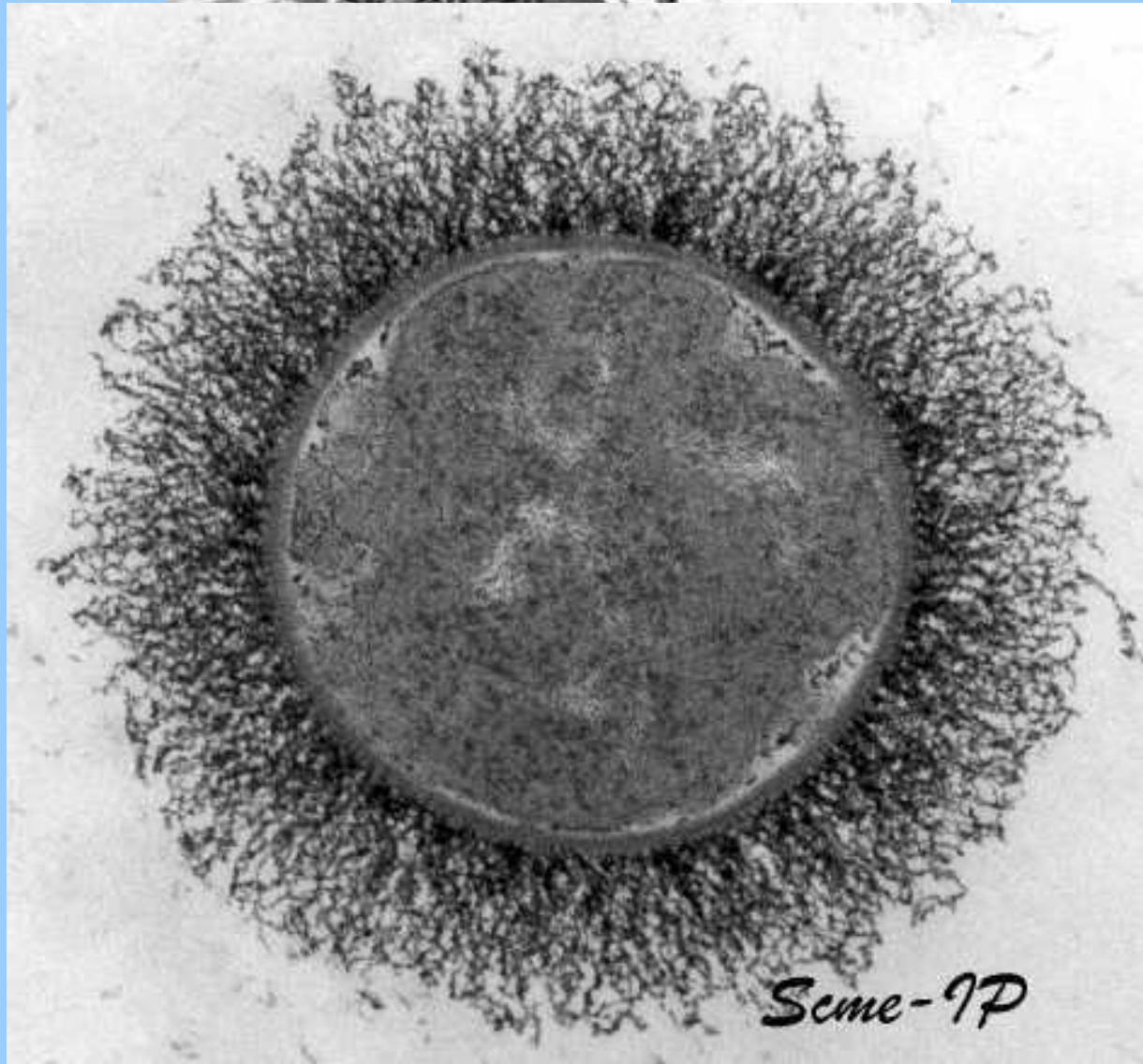


# Bacterial Anatomy (Glycocalyx)





# Glycocalyx



# Bacterial Anatomy (Overview)

