

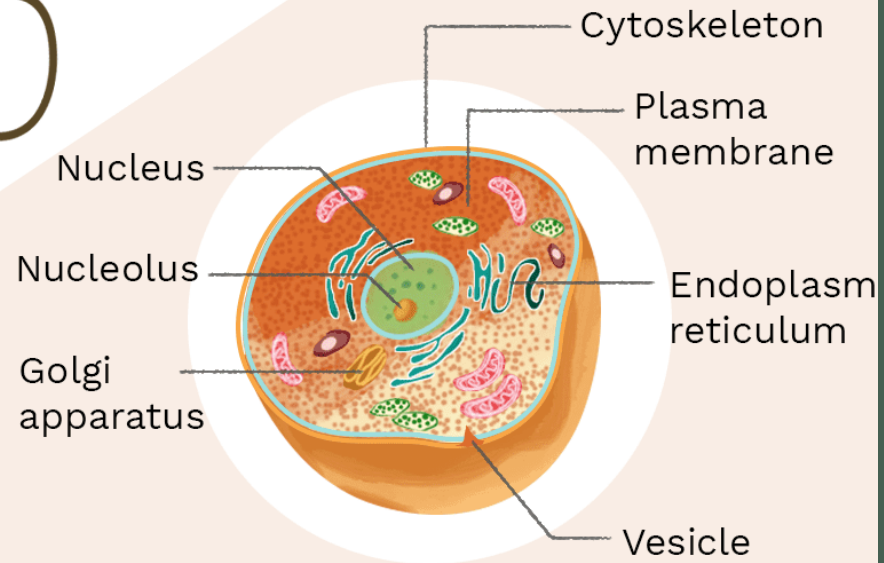
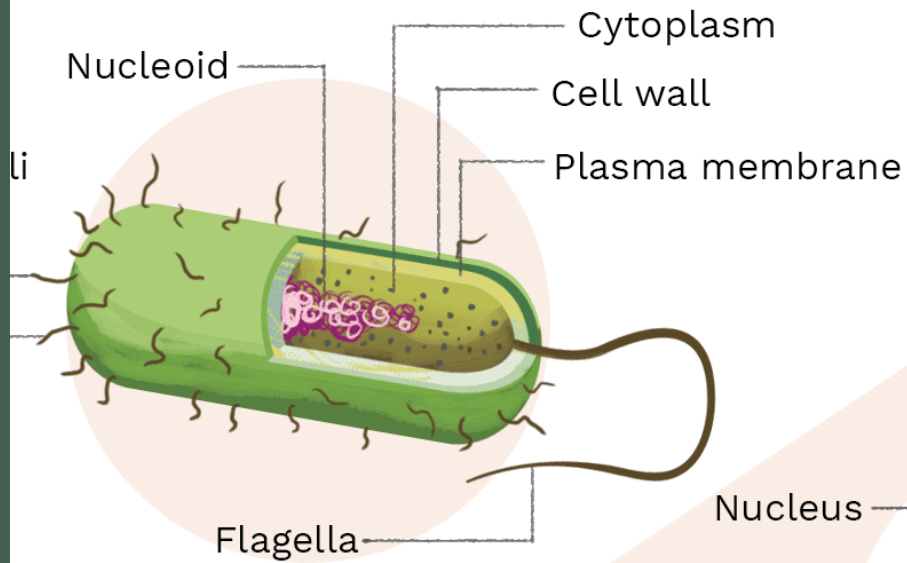


**LECTURES OF MICROBIOLOGY
THIRD STAGE
PROF.DR. DHAFER AL RAWI**

Introduction of Microbiology

- presence of microorganism .
- Taxonomic position of microorganism .
- Prokaryotes and Eukaryotes .
- The discovery of microorganism .
- The origin of life and its theories.

PROKARYOTIC CELL



EUKARYOTIC CELL

The cell theory

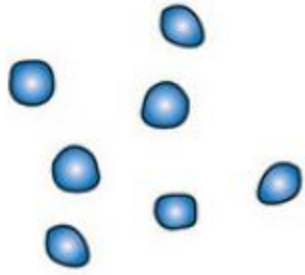
-Louis Pasteur 1822- 1895

-Robert Koch 1843-1910

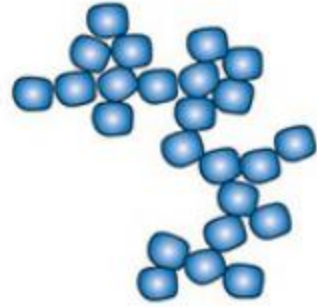
Bacteria

- **Size and Morphology**

- Bacterial cell and bacterial colony**



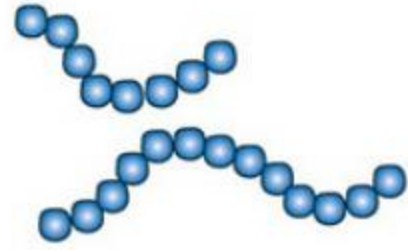
Cocci



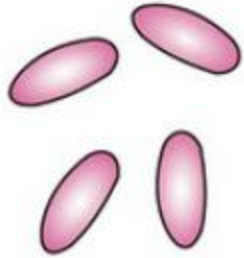
Staphylococci



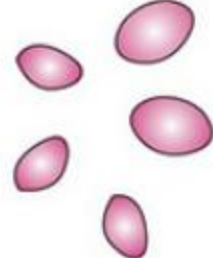
Diplococci



Streptococci



Bacilli



Coccobacilli



Vibrio



Coryneform bacilli



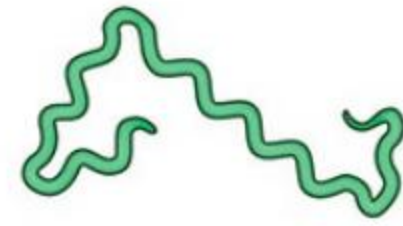
Spirilla



Borrelia-type
spirillum



Treponema-type
spirillum



Leptospira-type
spirillum

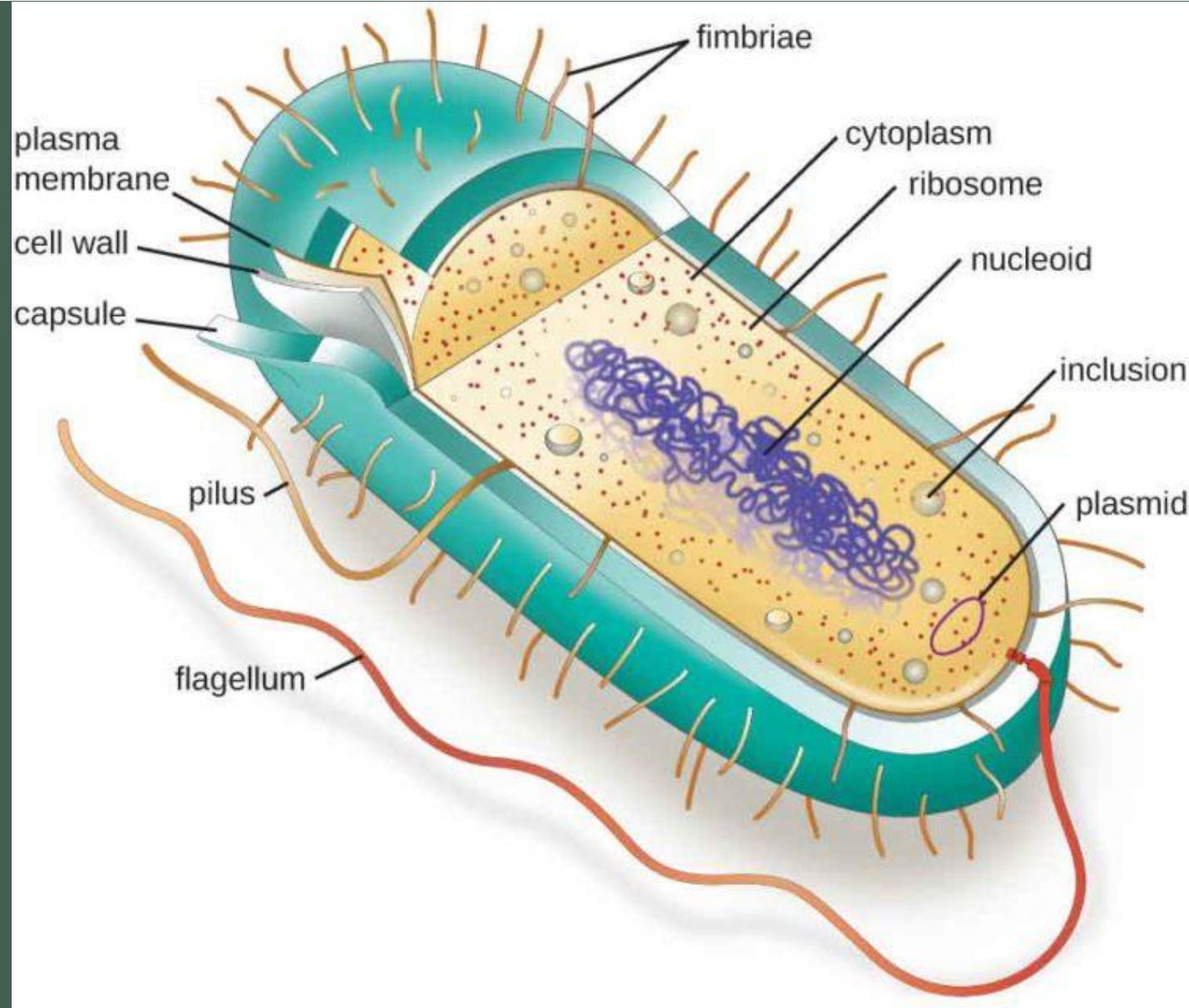
Functional Anatomy of Bacteria :

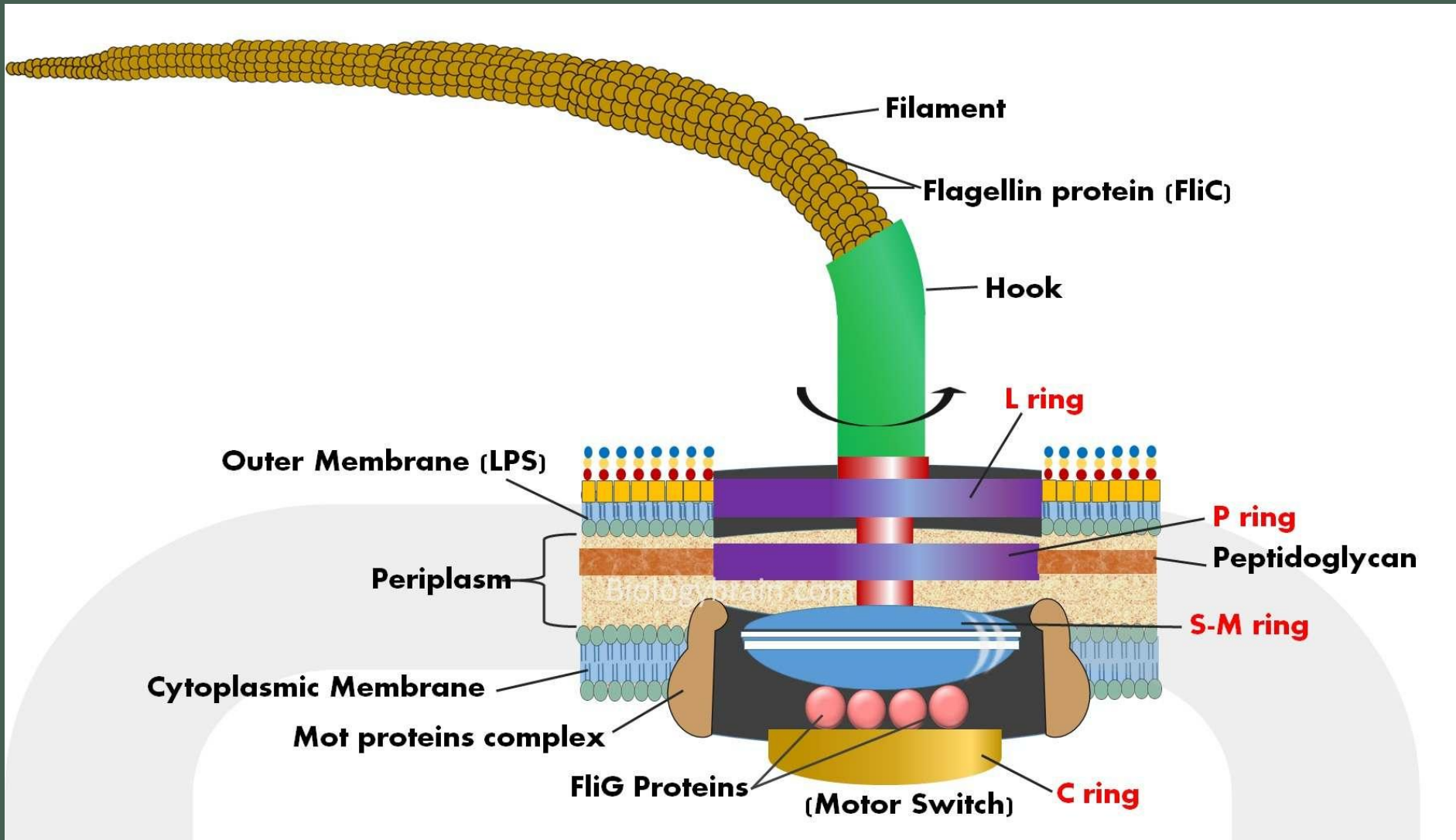
Flagella .

Structure of flagella .

Distribution of flagella .

Mechanism of movement.





Pilli :

Capsule.

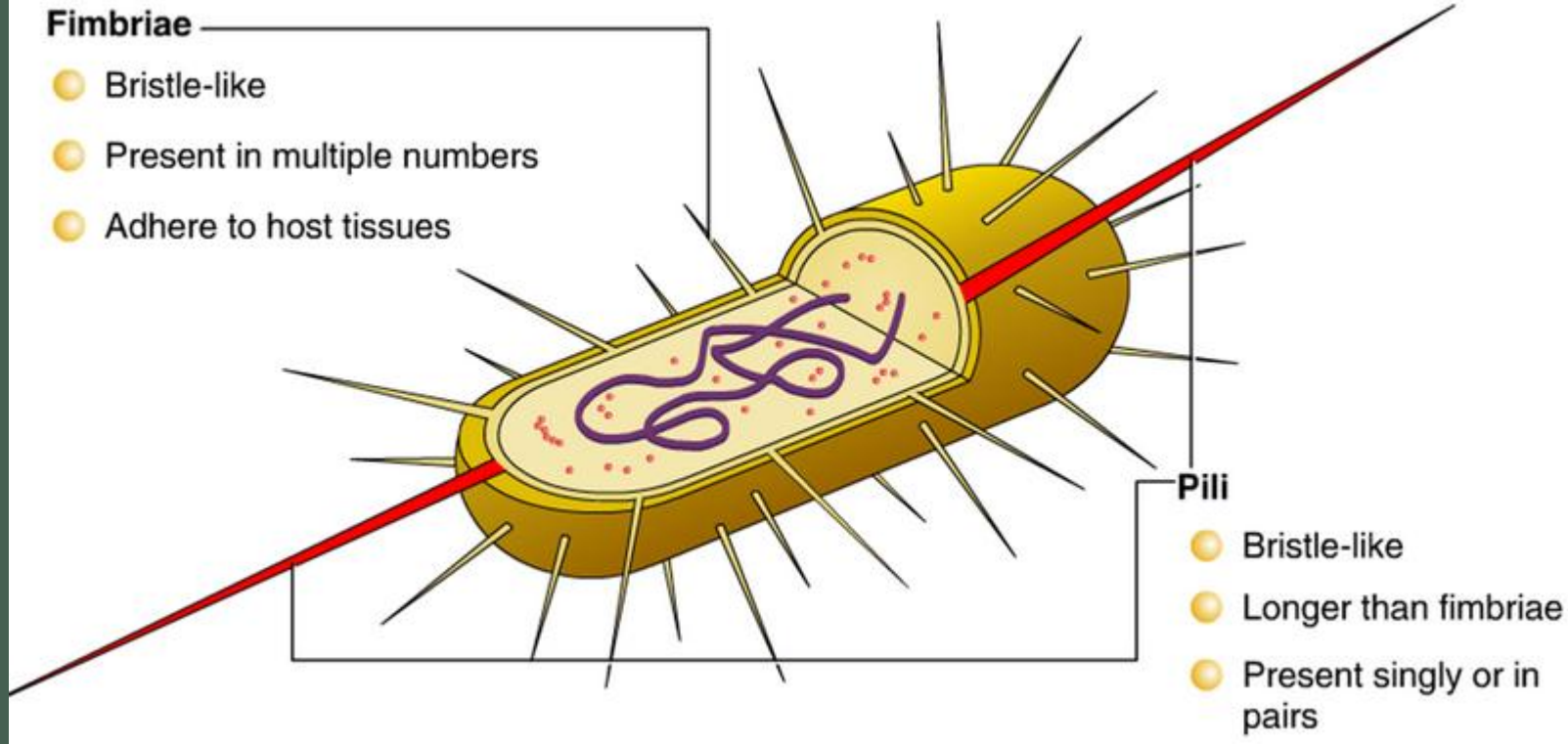
The Cell Wall:

The chemical composition of cell wall.

Protoplast and Spheroplast .

Fimbriae

- Bristle-like
- Present in multiple numbers
- Adhere to host tissues



Pili

- Bristle-like
- Longer than fimbriae
- Present singly or in pairs

Mycoplasma :

Cytoplasmic Membrane :

Function of cytoplasmic membrane.

Mesosomes :

Nucleoid :

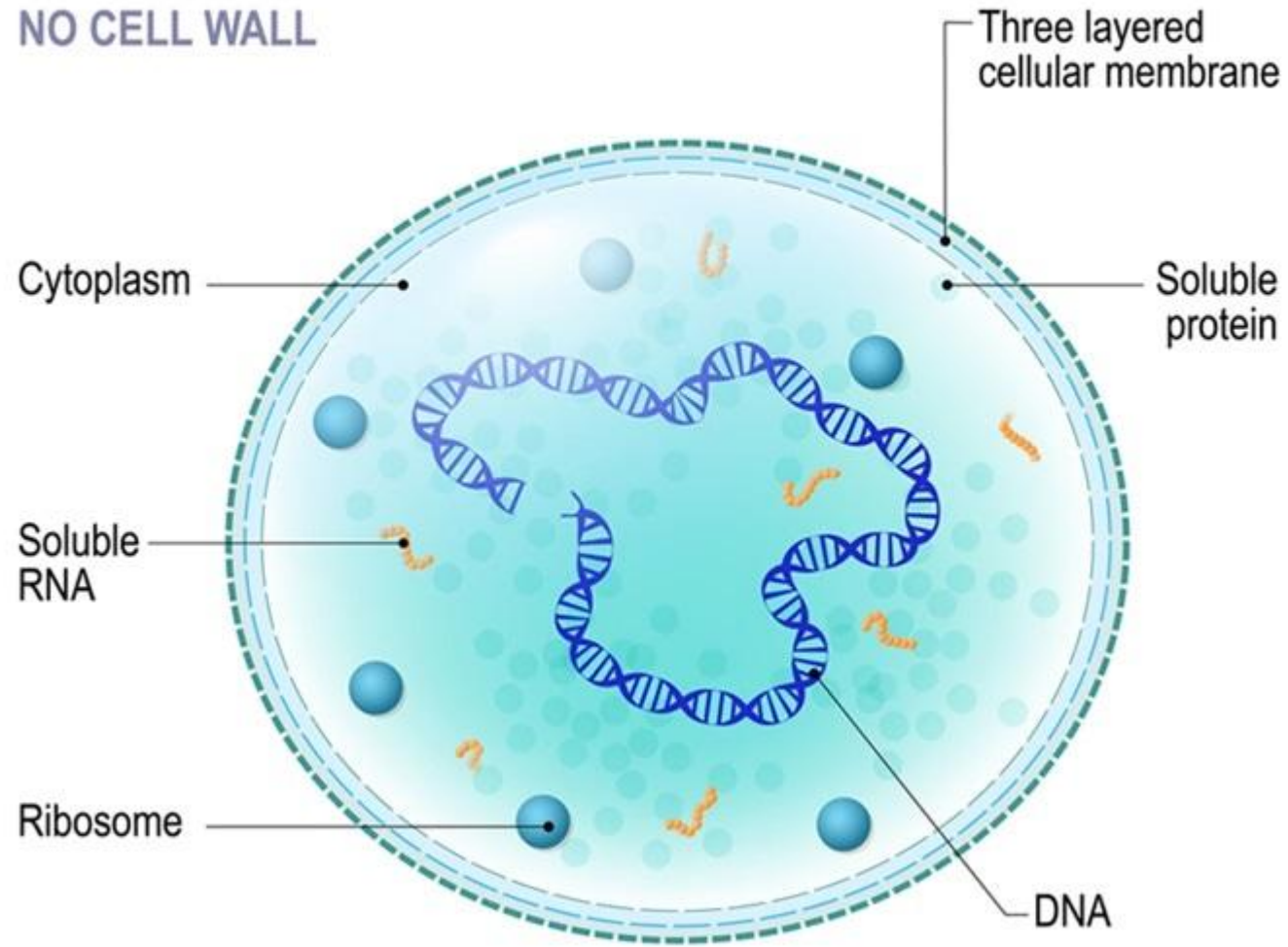
Plasmid .

Ribosomes .

Spores.

Mycoplasma

NO CELL WALL



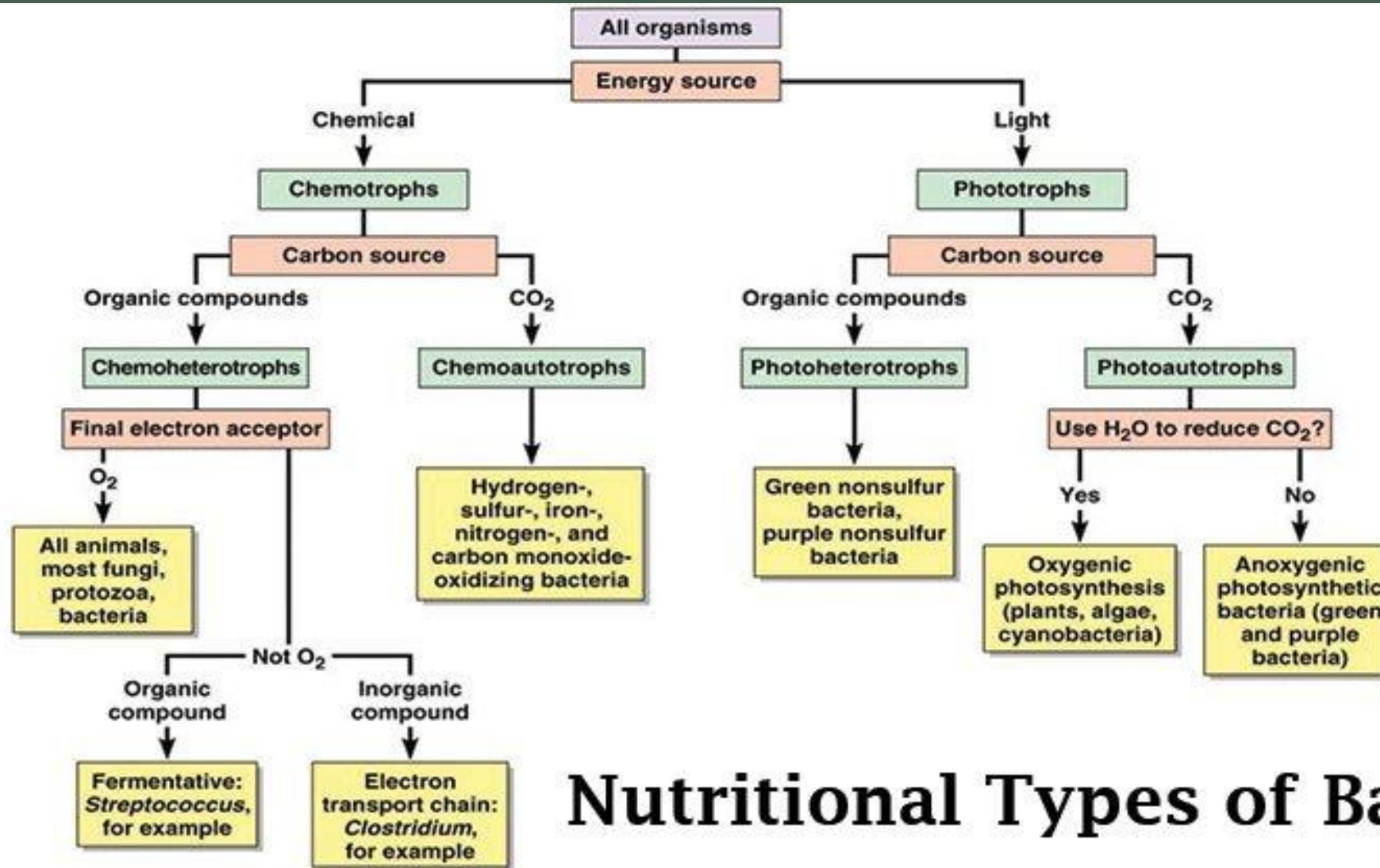
Nutrition of Bacteria :

Carbon and Energy sources

Nitrogen sources

Growth Factors

Water



Nutritional Types of Bacteria

-Culture Media

-Temperature

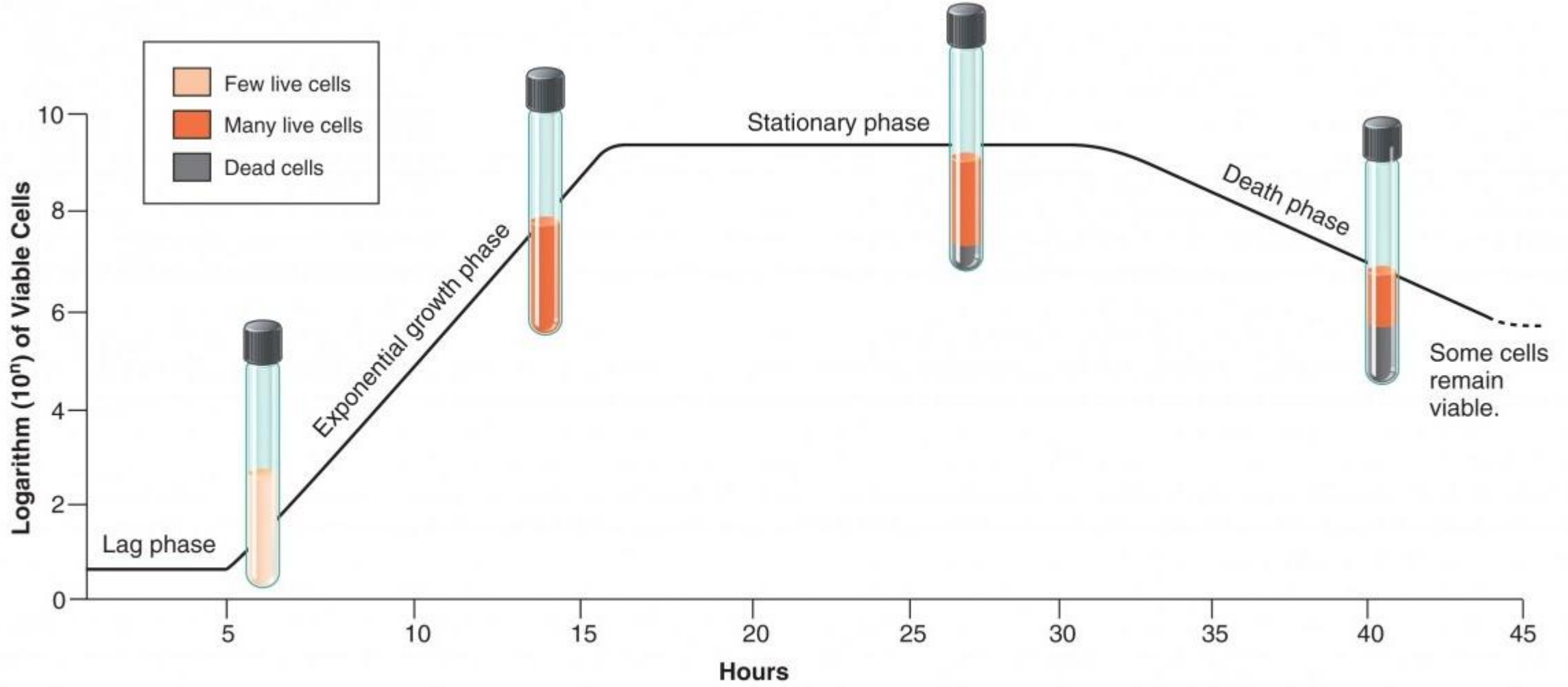
-Osmotic Pressure

-pH

-Oxygen

Bacterial growth And Reproduction

Bacterial growth curve



Total cells in population, live and dead, at each phase.

Bacterial Genetic :

Nucleic acid Structure

Mutations

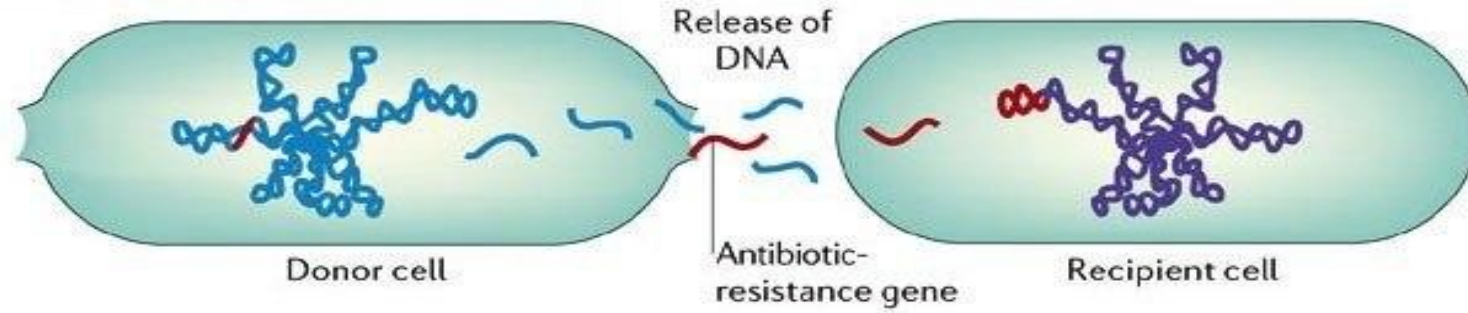
Genetic Exchange

Transformation

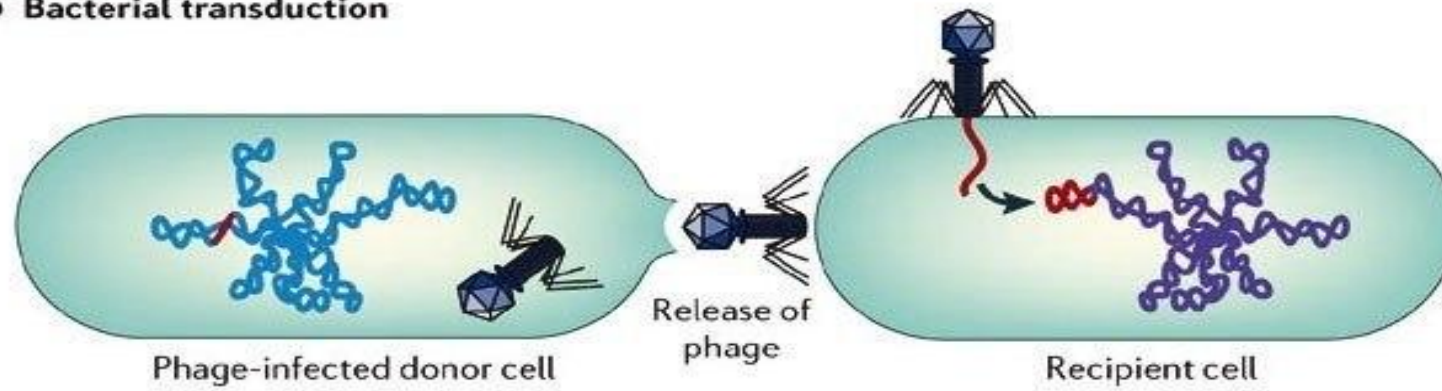
Transduction

Conjugation

a Bacterial transformation



b Bacterial transduction



c Bacterial conjugation

