

SAFALTA CLASSTM

An Initiative by **अमरउजाला**

Cell:

जीवात्मक संरचनात्मक क्रियात्मक

- A cell is the smallest (biological, structural and functional) unit of life.
- Cell (dead cell) was discovered by Robert Hook in 1665 but first living cell was discovered by Antony Van Leuwenhoek.

Cell Theory:

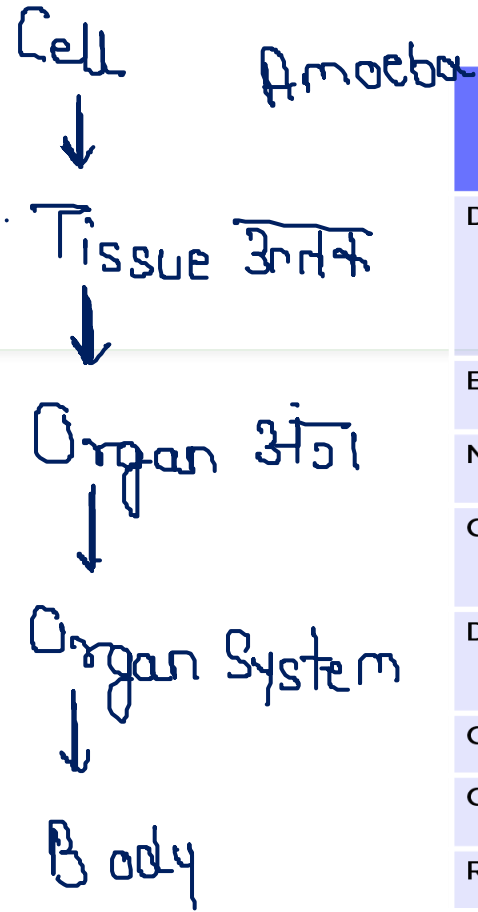
- It was given by theodor Schwann and Matthias Jakob Schleiden

The three principles of the cell theory are as described below:

- All living organisms are composed of one or more cells.
- The cell is the basic unit of structure and organization in organisms.
- Cells arise from pre-existing cells.

Eukaryotic vs. Prokaryotic Cells

Characteristics	Eukaryotic Cells	Prokaryotic Cells
Definition	Any cell that contains a clearly defined nucleus and membrane bound organelles	Any unicellular organism that does not contain a membrane bound nucleus or organelles
Examples	Animal, plant, fungi, and protist cells <i>Protozoa, Algae</i>	Bacteria and Archaea
Nucleus	Present (membrane bound)	Absent (nucleoid region)
Cell Size	Large (10-100 micrometers)	Small (less than a micrometer to 5 micrometers)
DNA Replication	Highly regulated with selective origins and sequences	Replicates entire genome at once
Organism Type	Usually multicellular	Unicellular
Chromosomes	More than one	One long single loop of DNA and plasmids
Ribosomes	Large	Small
Growth Rate/Generation Time	Slower	Faster
Organelles	Present	Absent
Ability to Store Hereditary Information	All eukaryotes have this ability	All prokaryotes have this ability
Cell Wall	Simple: Present in plants and fungi	Complex: Present in all prokaryotes
Plasma Membrane	Present	Present
Cytoplasm	Present	Present

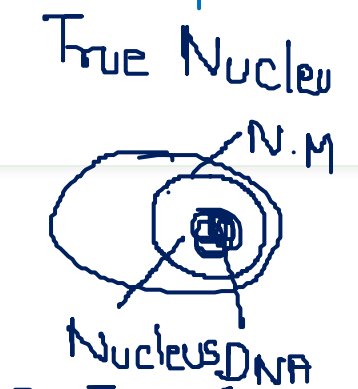


Amoeba

Virus *विषाणु*:

Non living -
Acellular *अकोशिकीय*

Eukaryotic



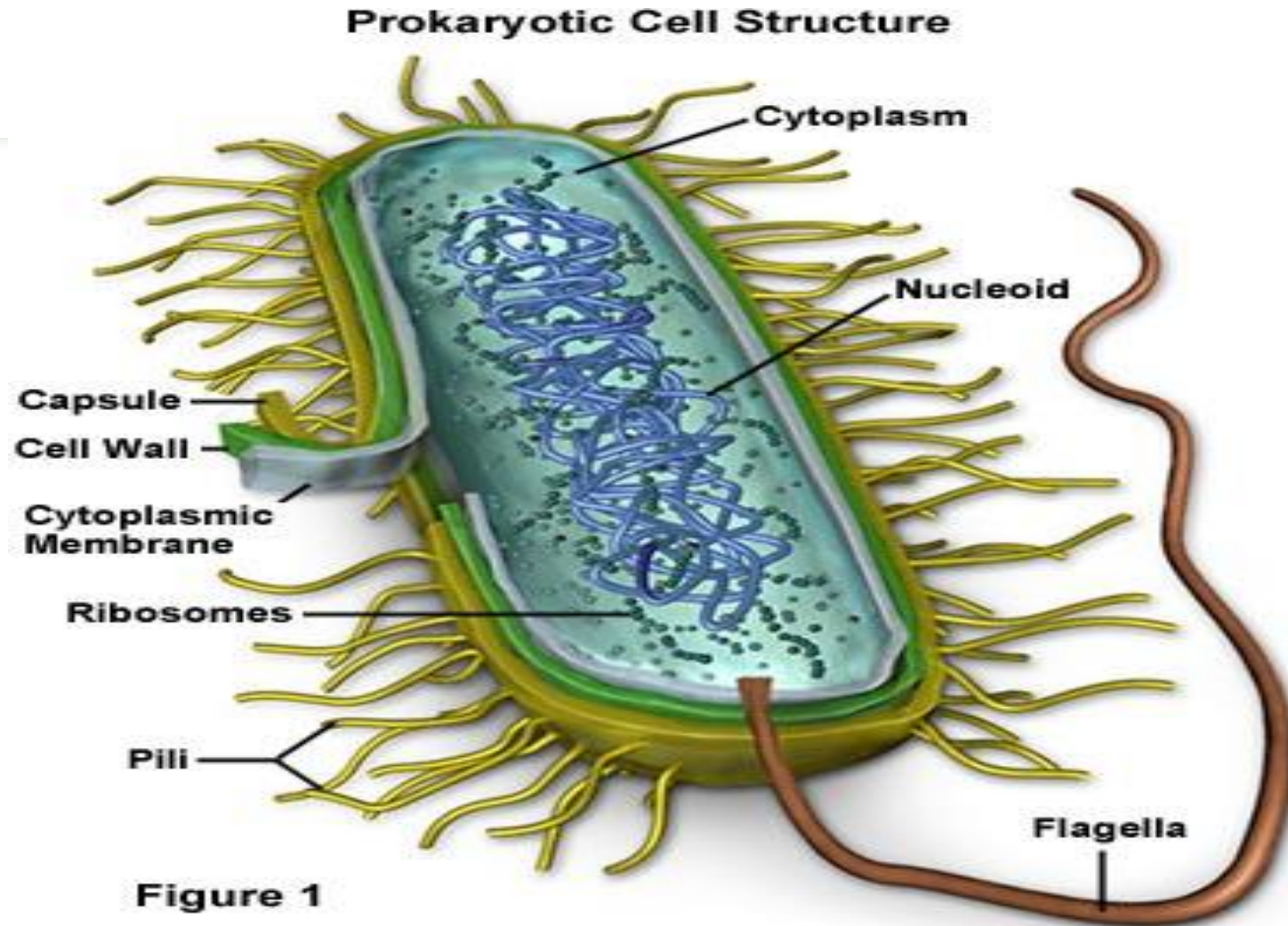
Proka -
Primitive



Exception of cell theory
↓
Virus

(120-130)
Sudden change
"Mutation"
अचानक

- Prokaryotic Cell (Bacterial Cell):



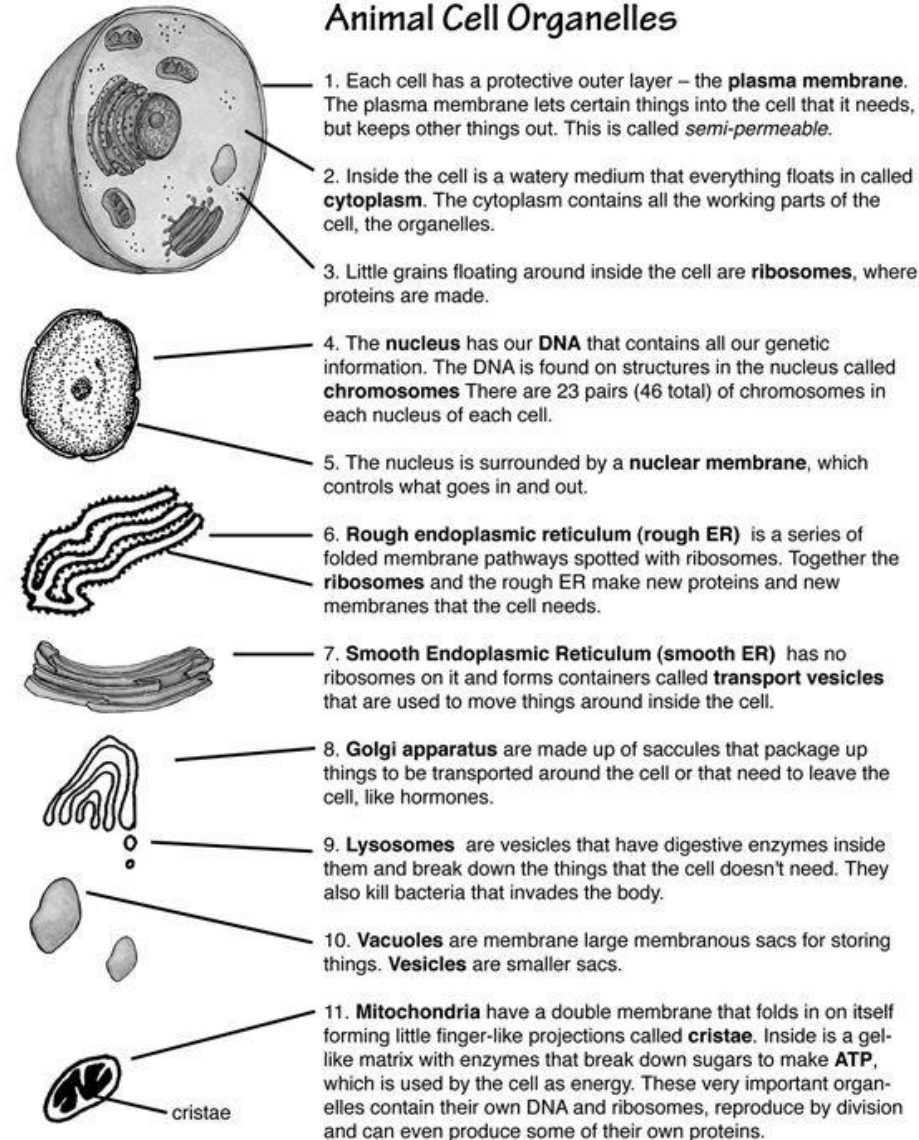
Function	Organelle
Propels the cell	Flagella
Appendages that allow a bacterium to stick to a surface	Fimbriae/pili
Rigid structure that surrounds, supports, and protects the cell	Cell wall
Acts as a selective barrier, allowing passage of oxygen, nutrients, and wastes	Plasma membrane
Site of protein synthesis	Ribosome
Contains the genes that control the cell	Nucleoid

Eukaryotic Cell: It can be divided into 2 parts-

PLANT CELLS VERSUS ANIMAL CELLS

Plant cells are usually larger in size	Animal cells are smaller in size
Have a rectangular, fixed shape	Have a round, irregular shape
Composed of a cell wall made up of cellulose	Don't have a cell wall
Have one or more, comparatively very smaller vacuoles	Have one, large, central vacuole taking 90% of cell volume
Centrioles are present in lower forms of plants	Centrioles are present in all animals
Composed of chloroplast to produce their own food	Do not contain chloroplast
Don't consist of lysosomes	Consist of lysosomes
Composed of glyoxysomes	Not composed of glyoxysomes
Reserve food in the form of starch	Reserve food in the form of glycogen

• Animal Cell:



Que :

Largest organ: Skin
Longest organ-SI

- ① Largest cell : Ostrich egg
- ② Smallest cell : Mycoplasma (PPLO) - Bacteria
→ Pleuron pneumonia like organism
- ③ Longest cell of human : Neuron ~~नर्वन~~ कीशिका
- ④ Largest " " : Egg cell अणु ~~अणु~~ कीशिका
- ⑤ Smallest " " " Sperm शुक्राणु

