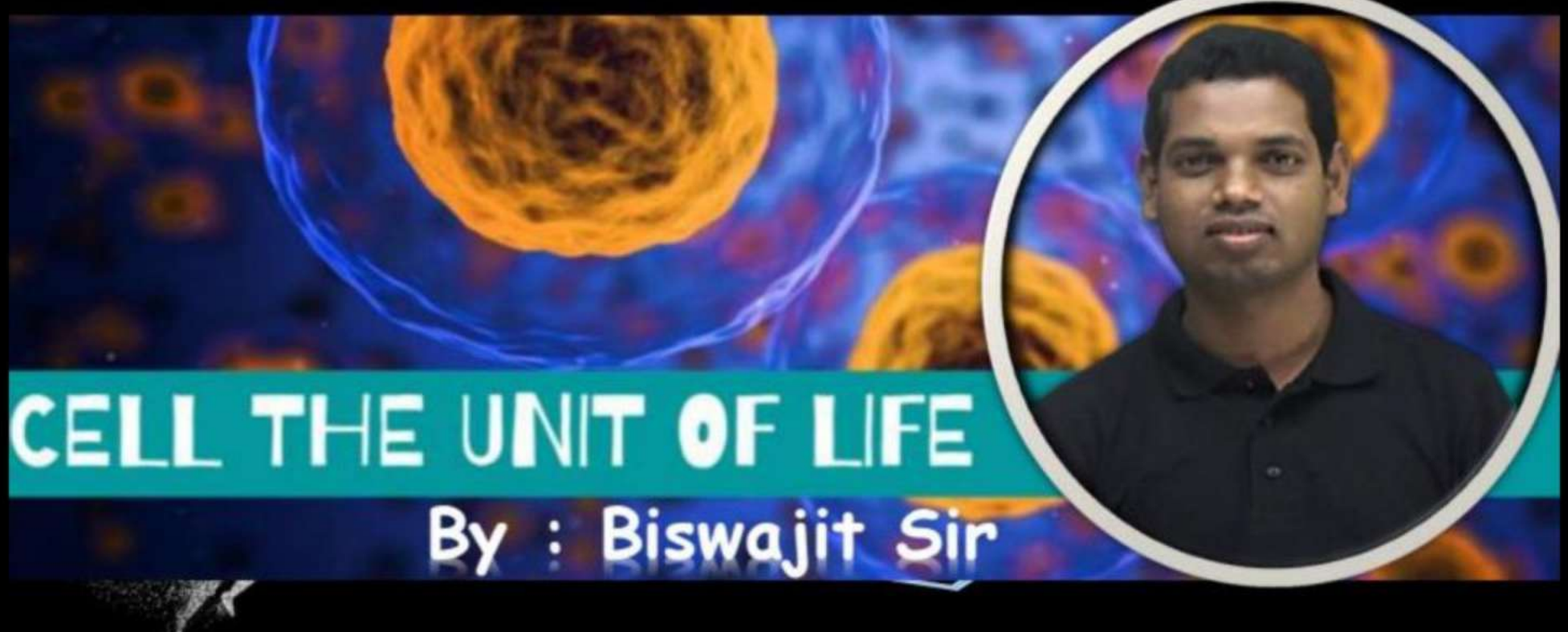
ARJUNA NEET BATCH



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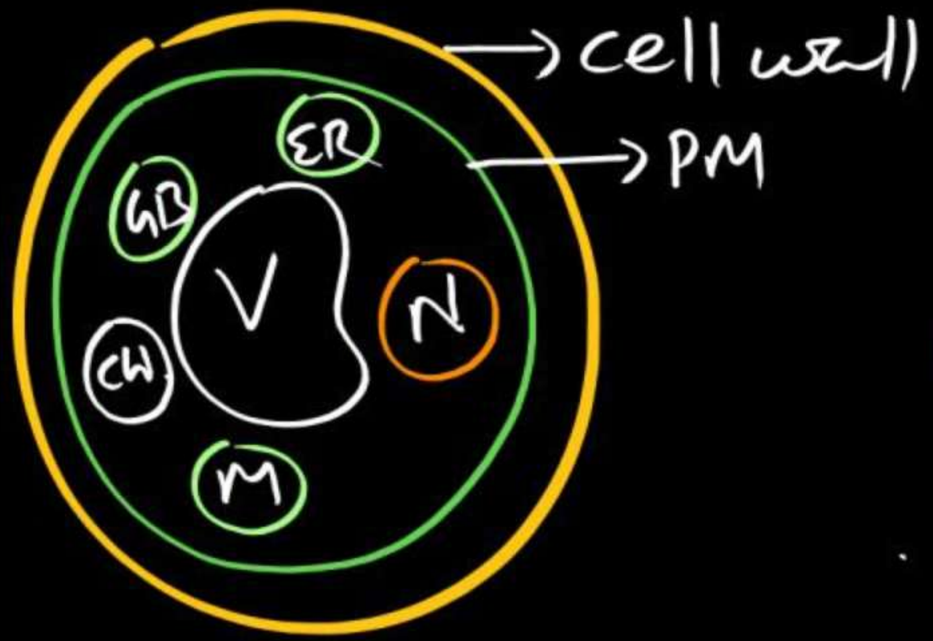
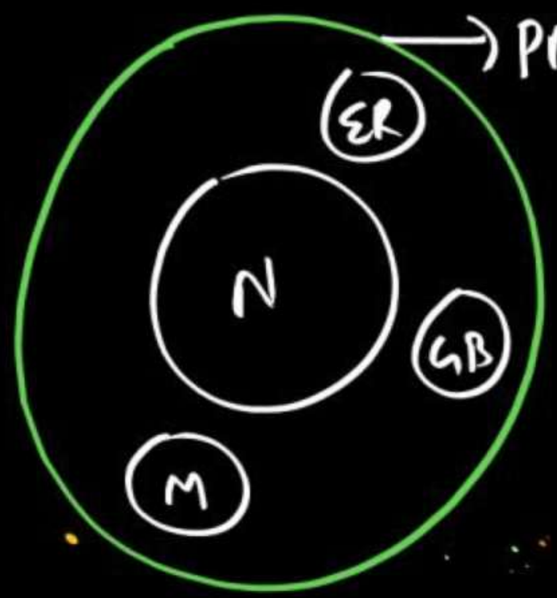
Plant cell (EK cell)



cell wall
Plasmamembrane } 1x Env

membrane of all organelles → 1x Env.

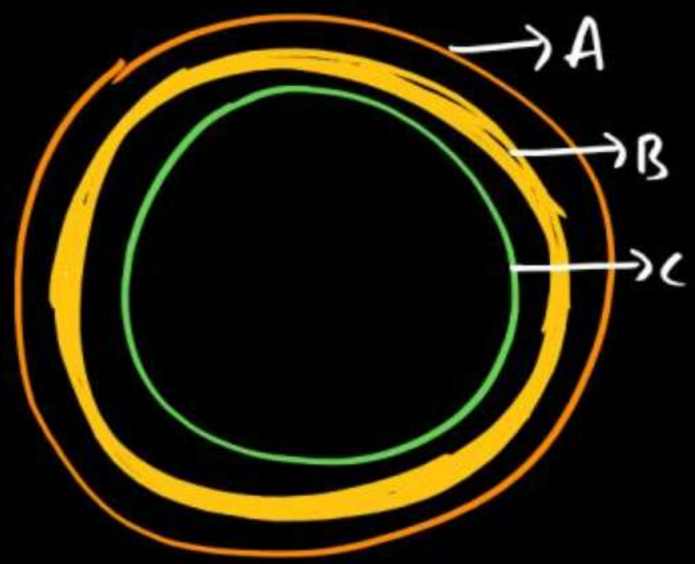
Animal cell (EK cell)



Plasmamembrane → 1x Env.

membrane of all organelles → 1x env.

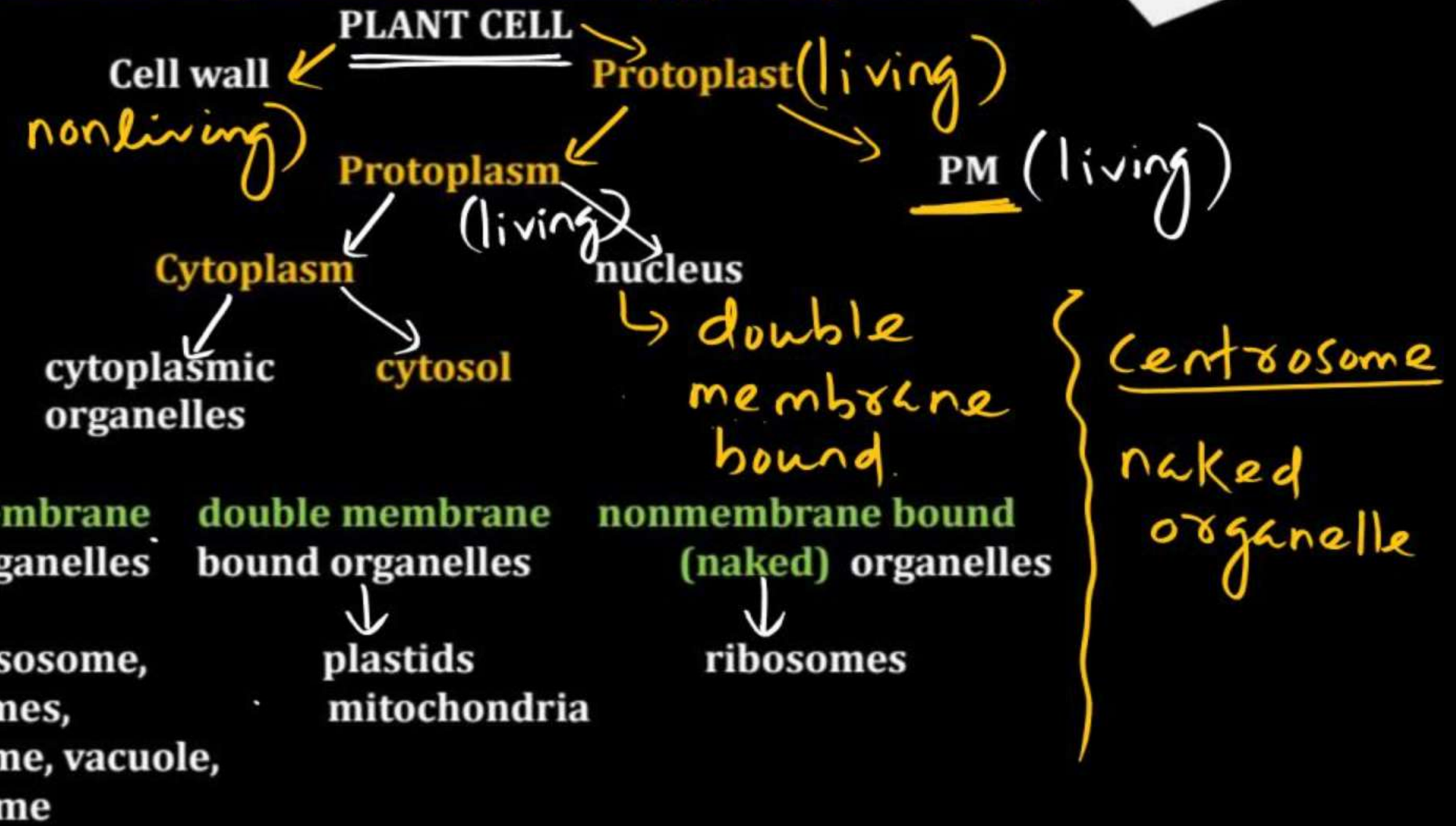
(PK cell) Bacterial cell

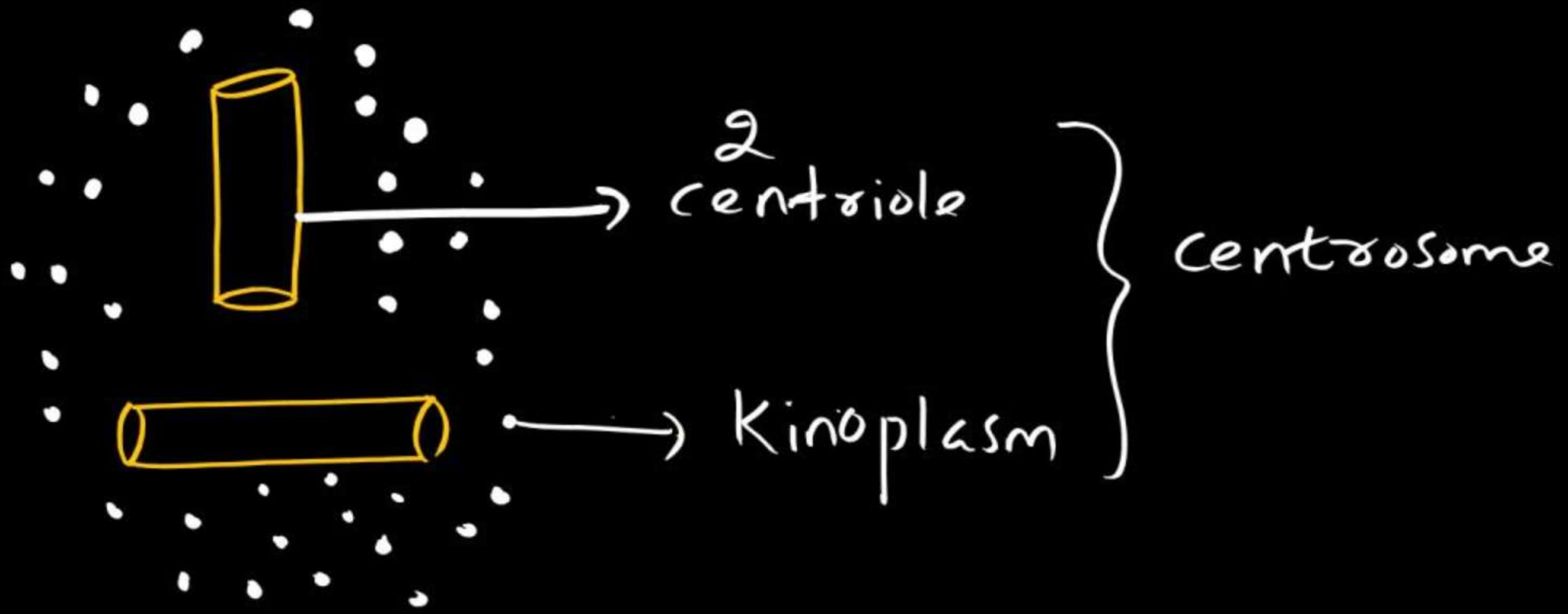


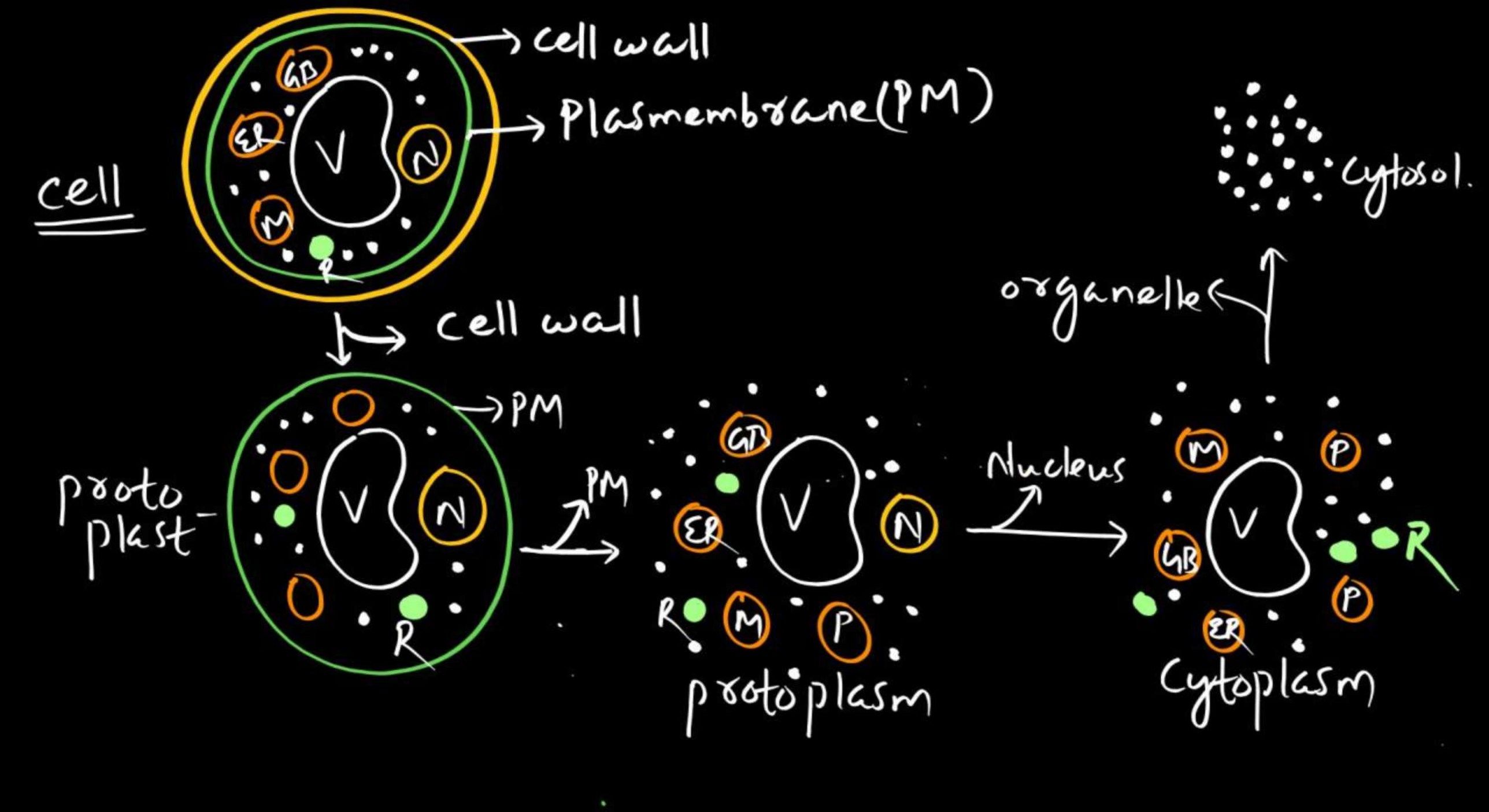
A → glycocalyx
B → cell wall
C → Plasmamembrane.

1x env.

Various components of EK cell (typical plant cell)




2
centriole
Kinoplasm
centrosome


cell
cell wall
Plasmembrane(PM)
GB
ER
V
N
M
R
cytosol
organelles
cell wall
PM
proto plast
PM
Nucleus
protoplasm
Cytoplasm
P

PLASMAMEMBRANE (PM)

- Known as plasmalemma, cell membrane

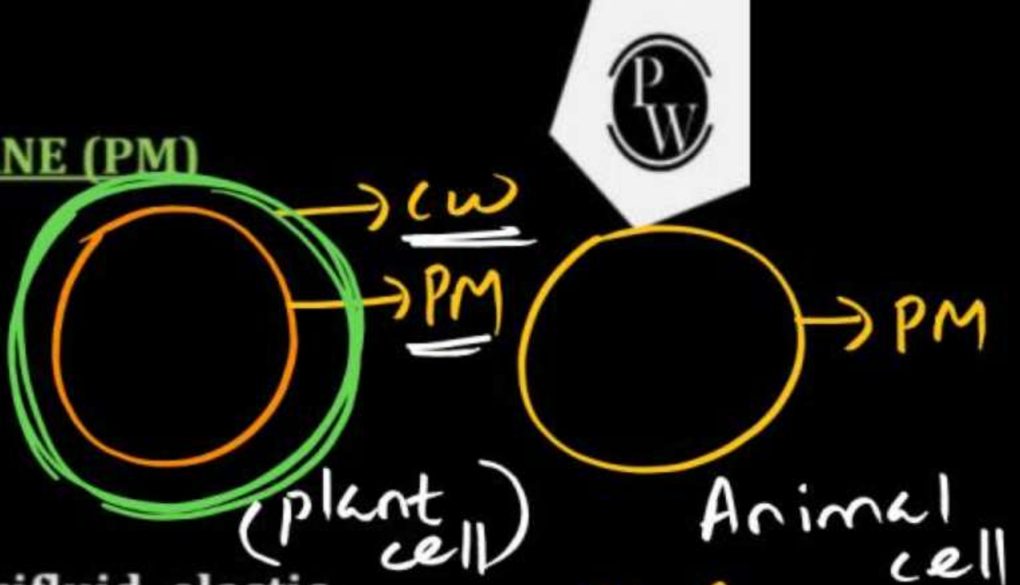
- Outer most living boundary of all cells.
- Occurrence: all types of cells

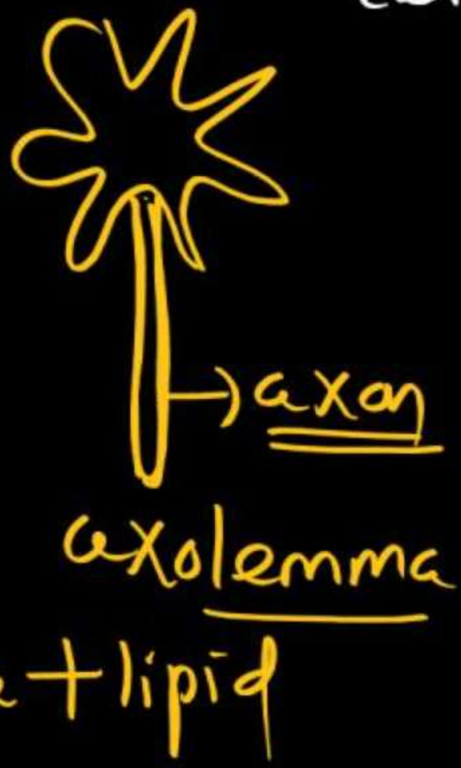
- **Structurally similar** in PK and EK cells
- Nature: living, dynamic, asymmetric, quasifluid, elastic, **selectively permeable (differentially permeable)** **(extensible)**
- determines the internal composition of cell

Study of PM

- After advent of electron microscope in 1950s
- Source of PM: human RBC

- Chemical study: PM → lipid + protein
- Biochemical study: PM → proteins + carbohydrate + lipid





Overton

↓

PM study

↓

lipid

Danieli, Davson

PM study

↓

lipid + protein

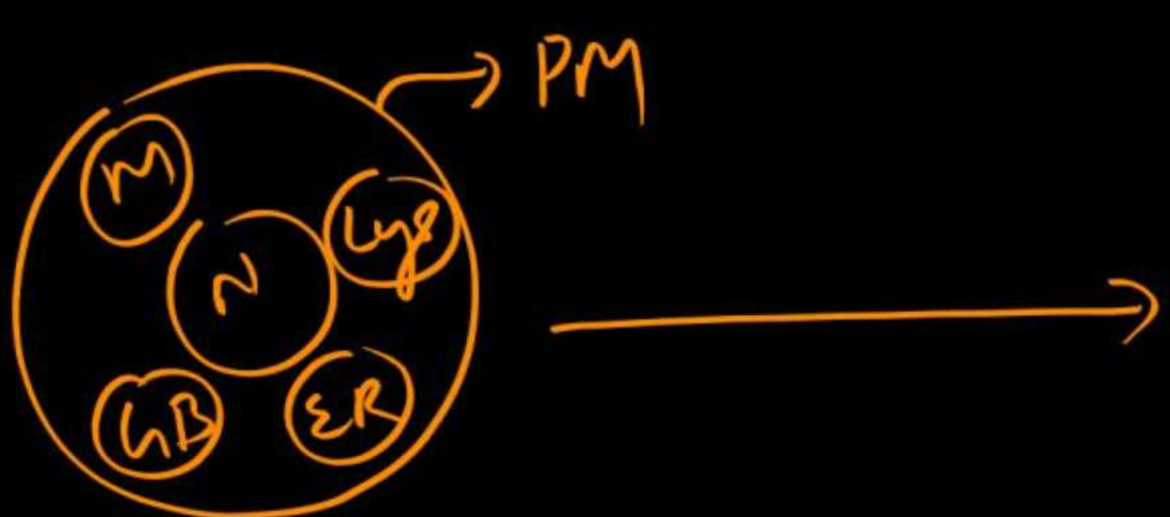
Robertson

↓

PM study

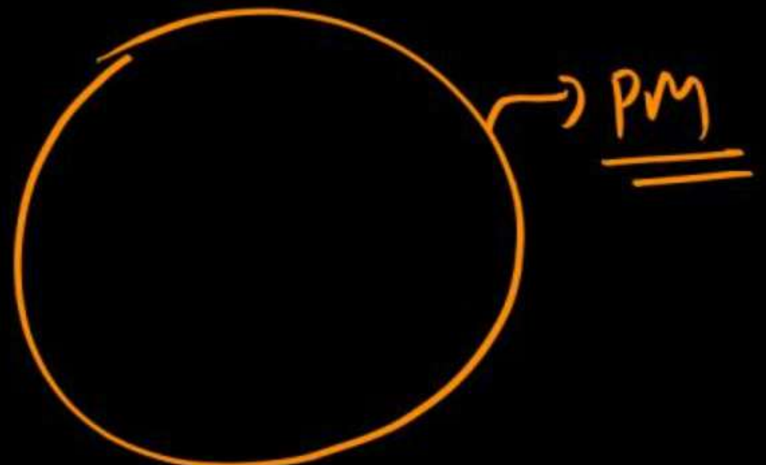
↓

lipid + protein + carbohydrate

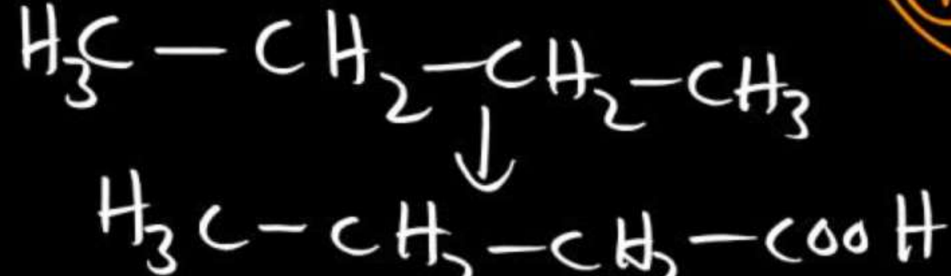


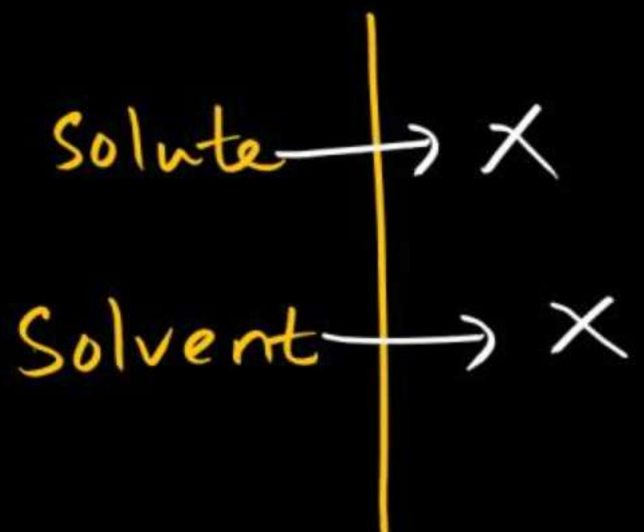
immature Human RBC

WBC

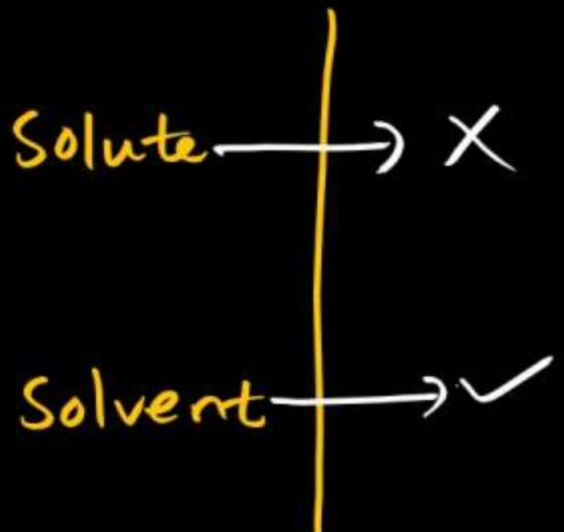


mature human RBC

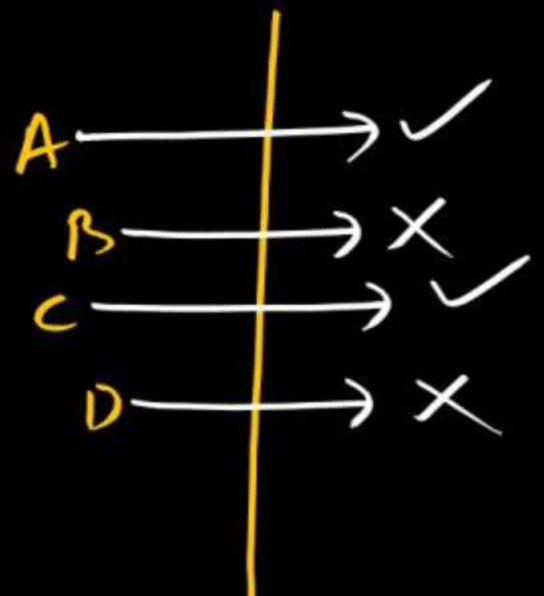




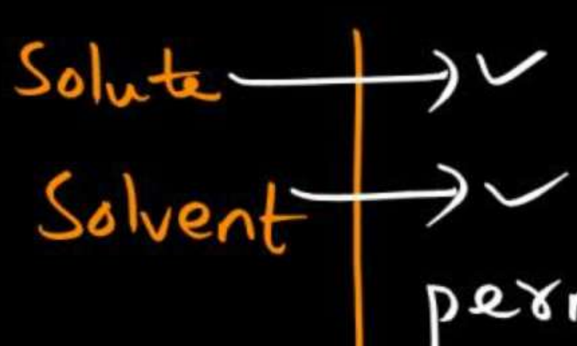
impermeable membrane



Semipermeable membrane



Selectively permeable



permeable membrane

Q. Prokaryotes and eukaryotes resemble each other with respect to

A. ribosome α

B. plasmamembrane $=$

C. nucleus α

D. Endoplasmic reticulum $=\alpha$

	PK cell	EK cell
ribosome	70S	70S, 80S
Nucleus	−	+
ER	−	+

Chemical composition of PM

Chemically PM – lipids, proteins, carbohydrates (minor component)

major components

their proportion varies from cell to cell

human RBC PM- lipids : protein

40% 52%

gm

Chemical composition of PM

plasmamembrane

A. Lipids
- phospholipids
  - glycerophospholipid
  - Sphingophospholipid
- glycolipids

sterol

B. Proteins
- integral proteins
- peripheral proteins

C. Carbohydrates
- monosaccharides
- oligosaccharides

most common PM lipid

phosphoglyceride

major PM lipid

PM lipids

a. Phospholipids → major PM lipid

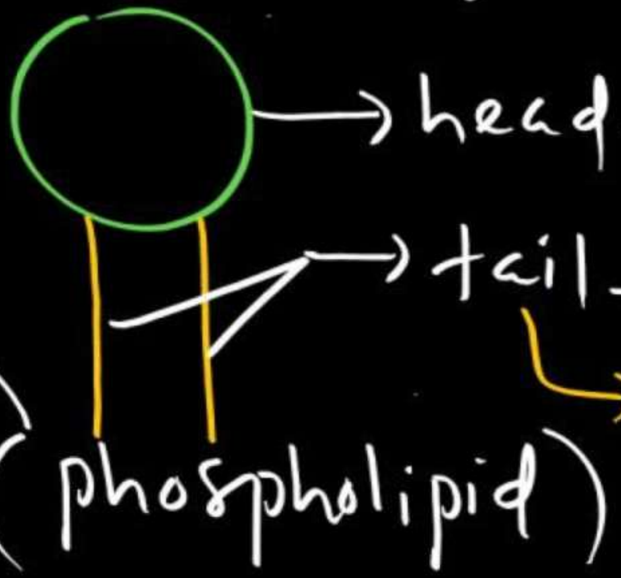
↳ glycerophospholipid / phosphoglyceride

Sphingophospholipid

polar + nonpolar

→ present in the bilayer form

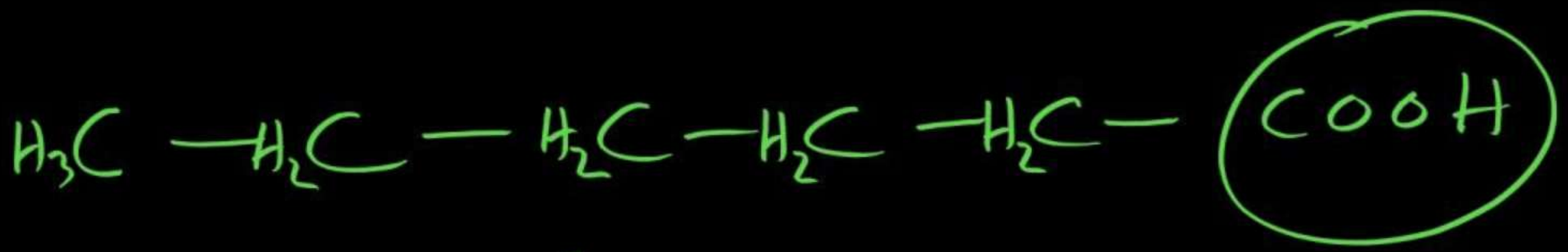
→ Amphiphilic or Amphipathic



↳ fatty acids

↳ Saturated hydrocarbon

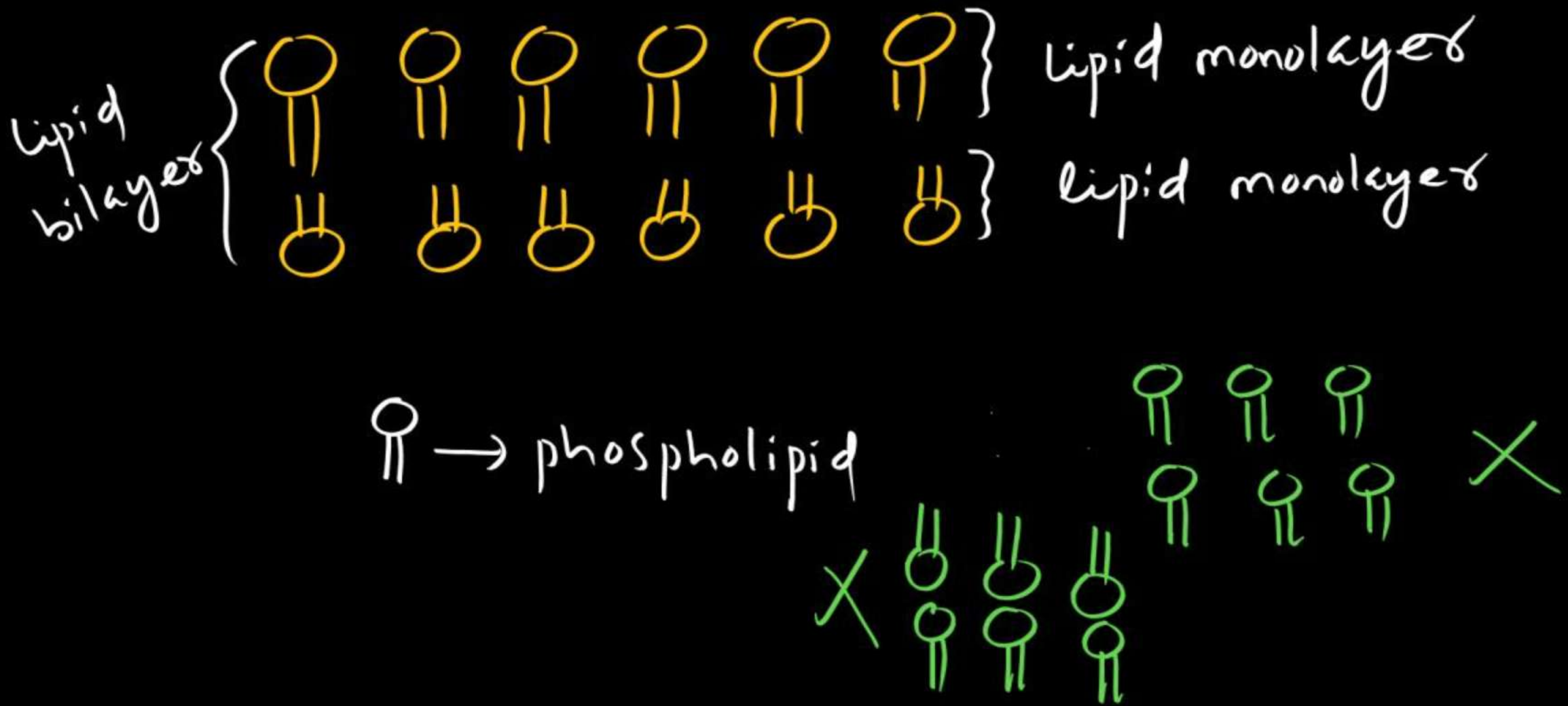
philous



fatty acid

Saturated → C – C

unsaturated → C = C / C ≡ C


lipid bilayer
lipid monolayer
lipid monolayer
→ phospholipid

Thank You बच्चों

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