


"Organelles"

* We'll talk today
about the organelles

- structure?
- LM, EM?
- Types?
- Function?

* their 



' Ribosome '


- Non membranous organelles,
 - consist of proteins, vRNA
 - H and E = not seen, but if large in number \rightarrow the cytoplasmic is basophilic
 - EM low mag: Electron dense granules
high mag: 2 subunits
 - \rightarrow small: RNA 30 protein
 - \rightarrow large: 2 RNA 40 protein
 - Types:
 - \rightarrow Attached
 - \rightarrow Free
 - \rightarrow solitary.
 - \rightarrow polysoms.
- * in all cells



(P)

Ribosomes = protein synthesis

- Attached: p. for secretion outside cell
- Free
 - solitary: reserve.
 - polysomes: p. used by the cell.



"Endoplasmic reticulum"

- membranous organelle
- Interconnecting tubules and cisternae.
- LM: not seen.

types :

rough (rER)

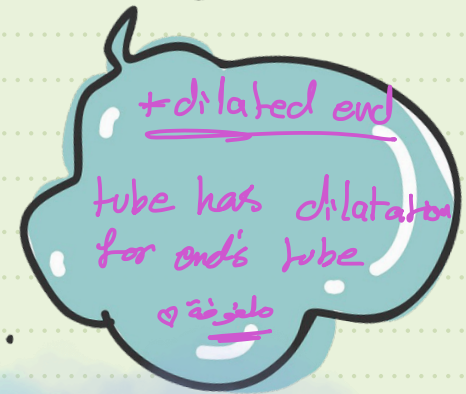
- Interconnected cisternae.
- Has attached ribosomes.

* protein synthesis

↳ A. receiving of polypeptide chains in ER lumen.

B. storage.

C. protein transport



smooth (sER)

- Interconnected short tubles
- lack ribosomes

* Lipid synthesis

* Glycogen synthesis - (carbohydrate)

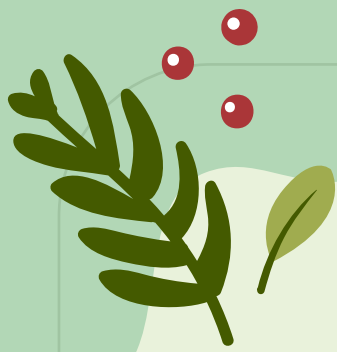
* Muscle Contraction Ca

↳ Control calcium ions storage.

→ "sarcoplasmic reticulum!"

* Detoxification of toxic substance.

in liver



"Golgi apparatus"

- Membranous organelle.
- LM : It and E = not apparent (-ve image)
* stains by : silver stain.
- EM : A. Transport vesicles,
B. Cisternae,
C. Secretory vesicles.

has = cis - trans part:

cis

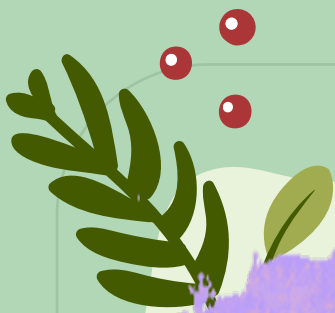
- Incoming transport vesicles

trans

- for transport vesicle
(Macro vesicle)

cisternae

- modification of protein.
- forming primary lysosomes
- secretion of cell membrane
- Renewal of the cell membrane.
Reycles



to recycling the cell membrane

* we need protein and lipid

→ we get protein from Golgi bodies

→ we get lipid - phospholipids - from S-ER

to synthesis protein

the cell use

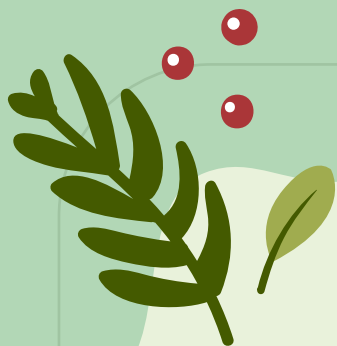
* Nucleus → information

* Ribosomes → factory

* Rough ER

* Golgi apparatus

* Mitochondria → power house

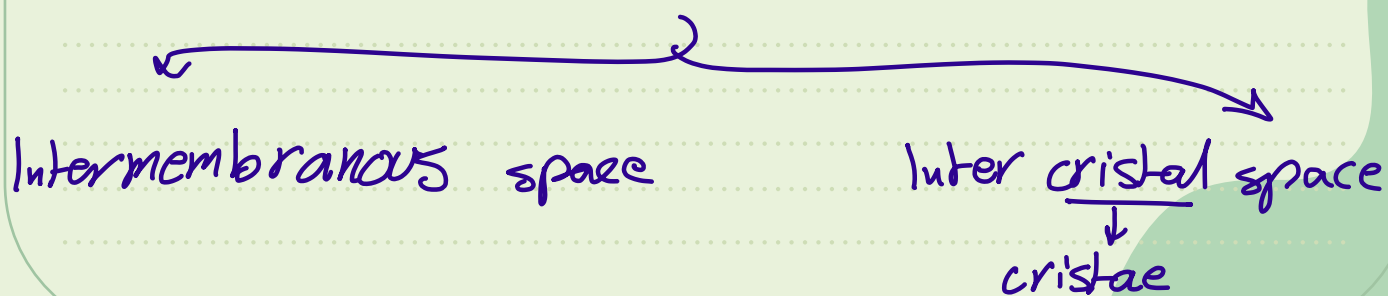
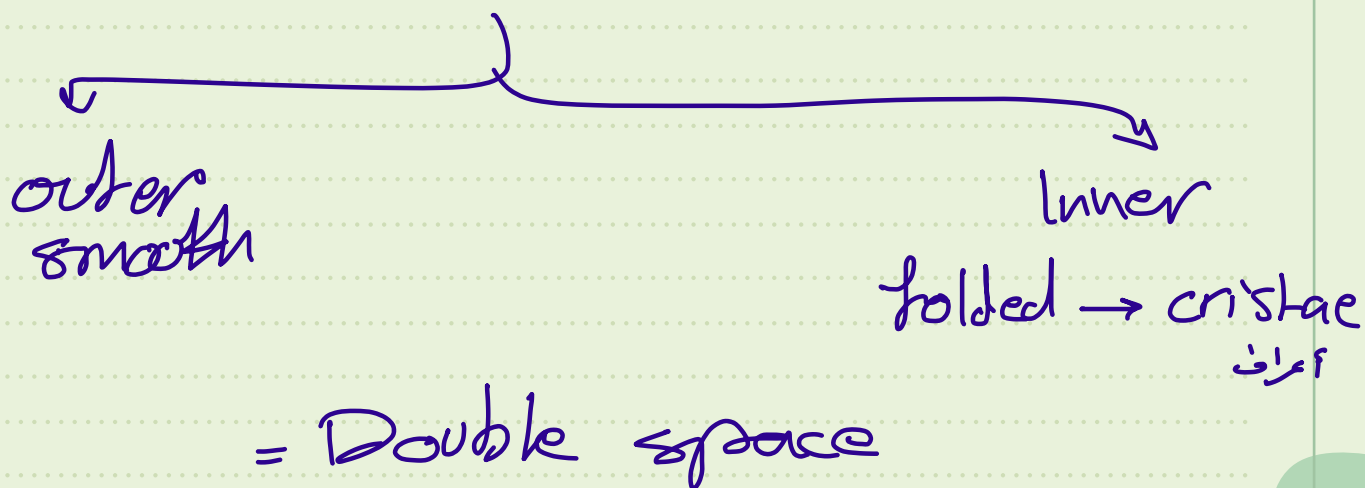


"Mitochondria"

Mitos = thread chondros = granule

- Variable shaped / rod shaped thread or granule shaped
- Surrounded by 2 membrane
- LM = A and E : not seen.
stain by: silver stain.

- EM = Double membrane



* Matrix space



own DNA

enzymes

- Generation of ATP.
- Cellular respiration.

They can form their own proteins and undergo self replication.



"Lysosomes"

- Small membrane bound organelles
- Lysosomes > Ribosomes.
(larger)
- has 40 hydrolytic enzymes
to break down materials in cells.
- LM: H and E = not seen.

lysosomes

primary lysosomes

- small.
- regular.
- homogenous.

secondary lysosome

- long.
- irregular.
- heterogenous.

* not act as phagosomes * has material inside yet. * digestion

* داخل الميتوكوندريا / الميتوكوندريا * لم يتحلل الميتوكوندريا بعد

ميتوكوندريا



B.D

* Breaks down food, bacteria, waste.

→ Autophagy: (B.D) of old and damaged organelles,
programmed for cell death:
(B.D) the died cell
called → suicidal bags of cell

* الموت البرمج -



"Centrosome"

- Non membranous organelle
- 1 centrosome = 2 centrioles
- 1 centrioles = 9 ^(pair) triplets of microtubules
- 1 centrioles = 27 microtubules
- LM = Hand E not seen.

* Microtubules organizing center.

- help in divide the cell during cell division via mitotic spindle

no centrioles

no centrosome - no division

↓ eg

nerve cells.



* We are using selvar station in

A. Golgi apparatus.

B. Mitochondria.

اللهم كن لأهلنا في غزة؛ أشرف جرحهم، وثقيل شهيدهم، وأطعم جائعهم، وانصرهم على عدوهم

Dr. Raghad