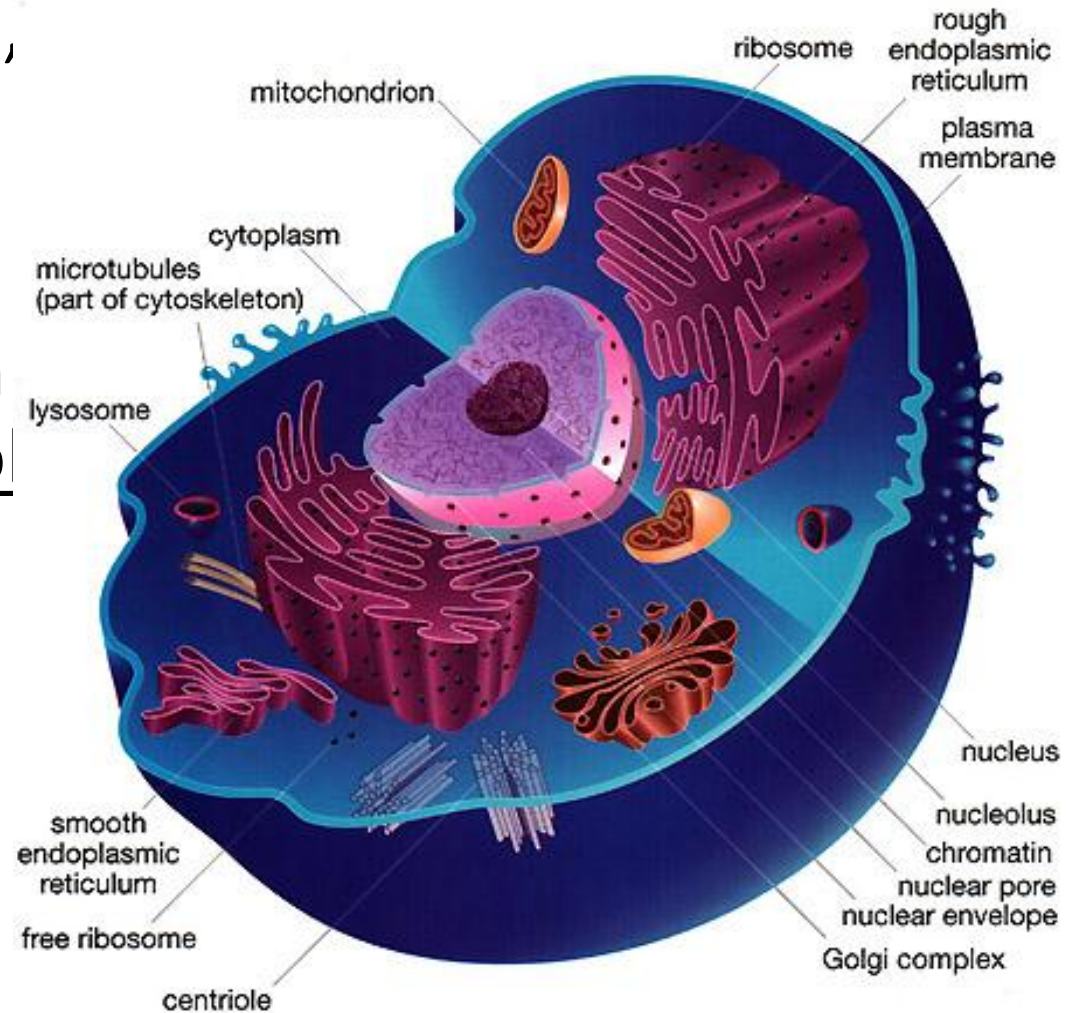


Cell Organelles

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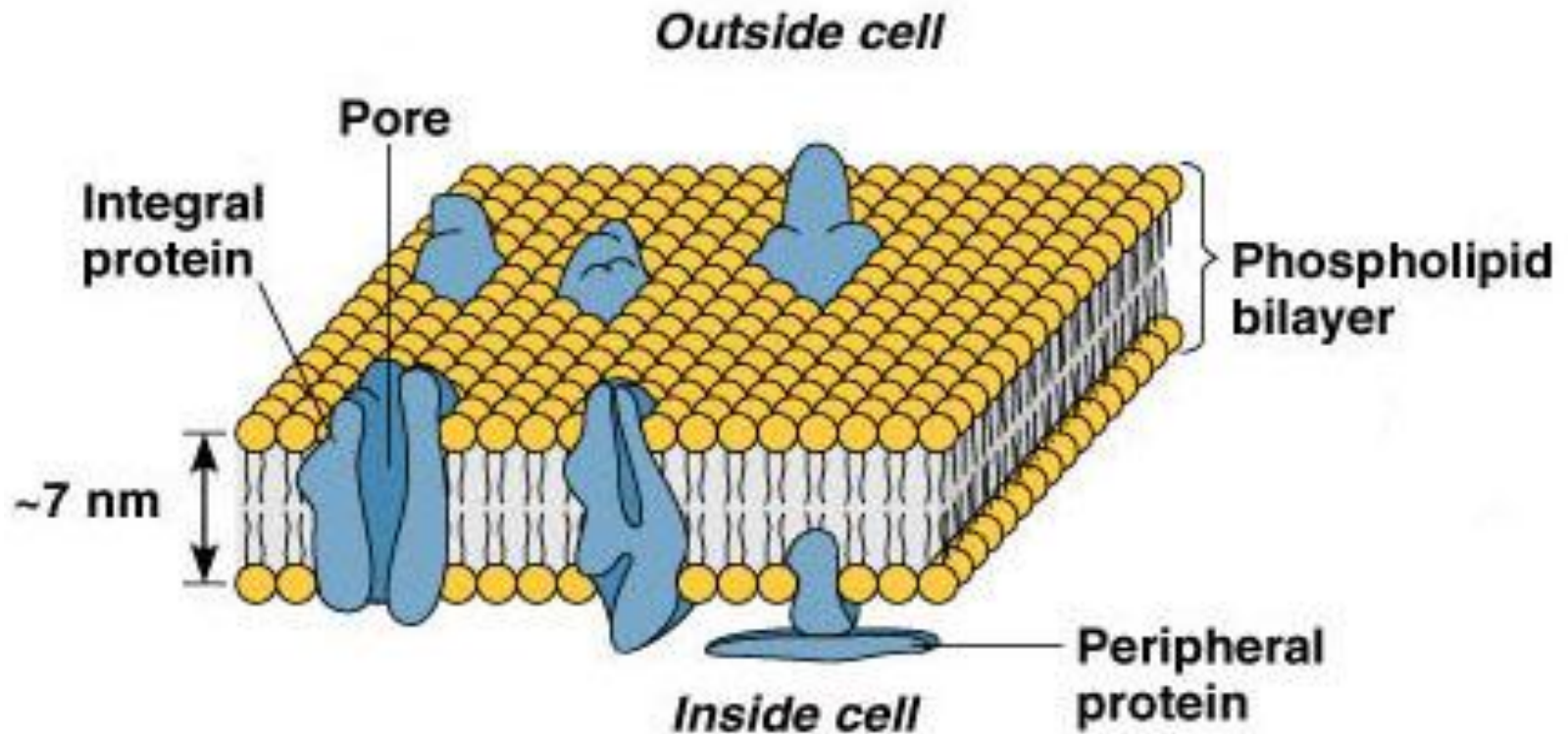
Cell Organelles

- Organelle= “little organ’
- Found only inside **eukaryotic cells**
- All the stuff in between the organelles is cytoplasm
- Everything in a cell except the nucleus is cytoplasm



Cell Membrane

- Boundary of the cell
- Made of a phospholipid bilayer with proteins embedded (Fluid-Mosaic Model)



(b) Phospholipid bilayer of membrane

Nucleus

- Control center of the cell
- Contains **DNA**
- Surrounded by a double membrane
- Usually the easiest organelle to see under a microscope
- Usually one per cell

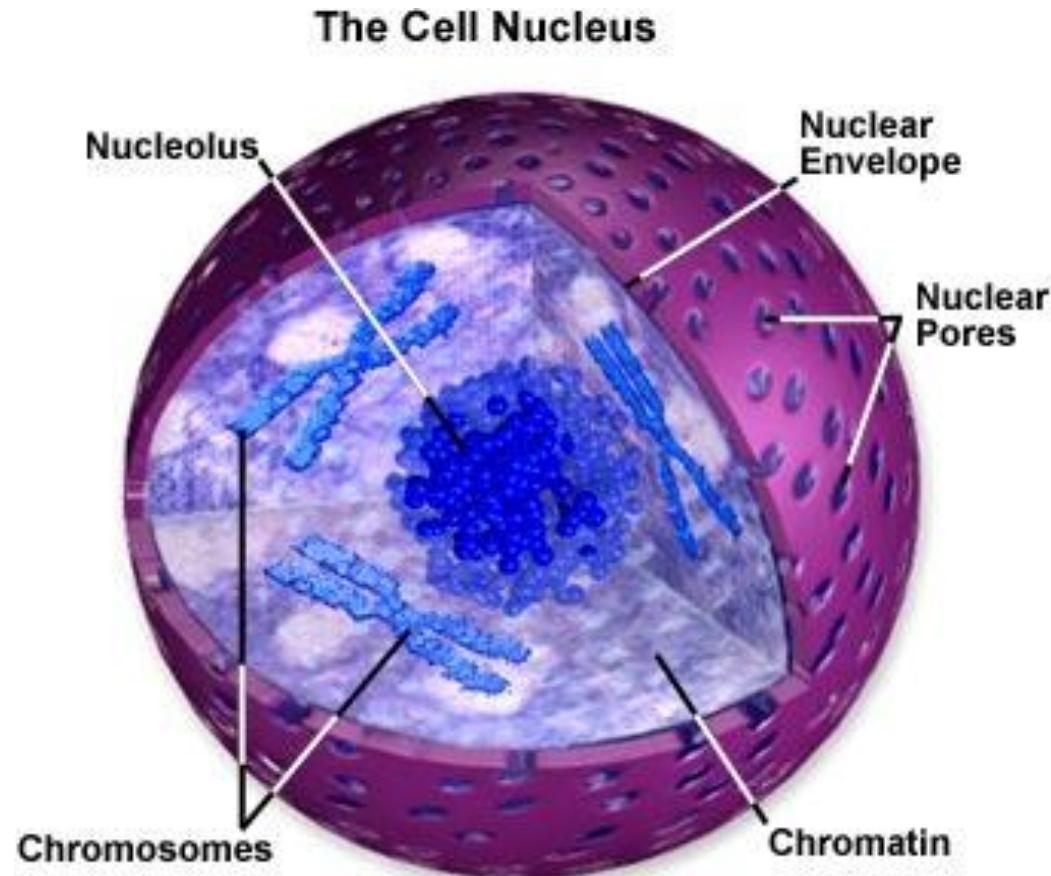
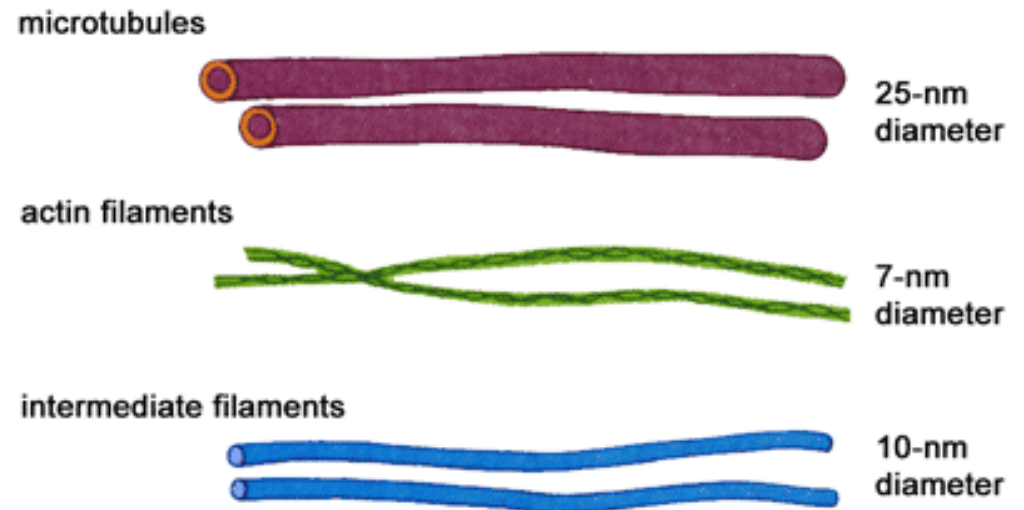


Figure 1

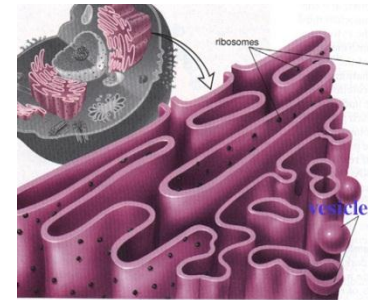
Cytoskeleton

- Acts as **skeleton** and **muscle**
- Provides shape and structure
- Helps move organelles around the cell
- Made of three types of filaments



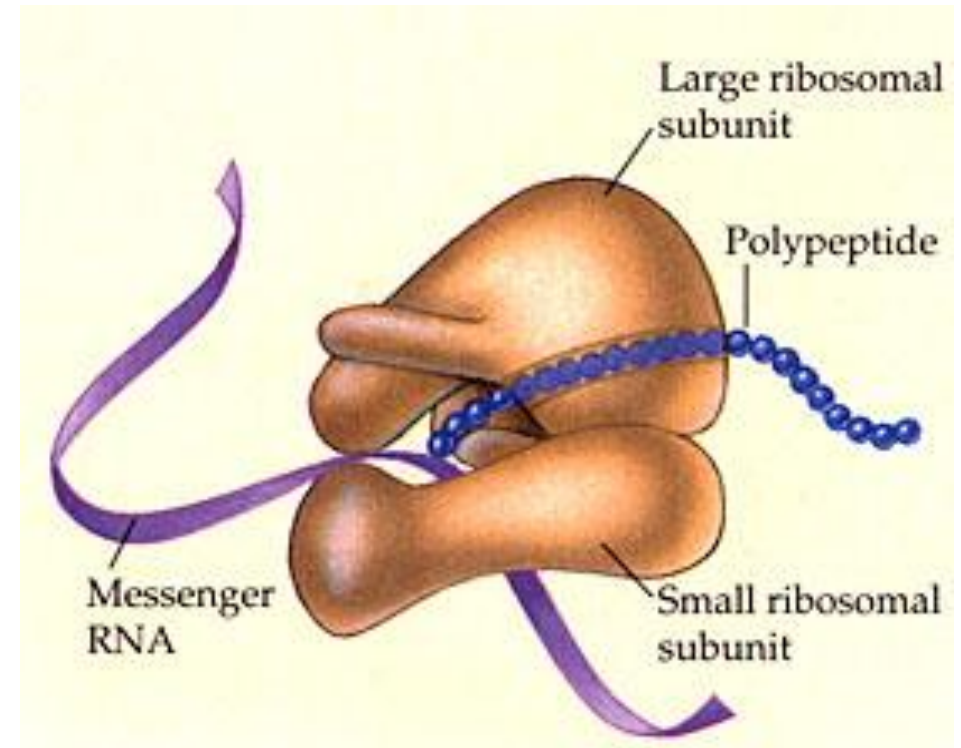
Endoplasmic Reticulum

- A.k.a. “E.R.”
- Connected to nuclear membrane
- Highway of the cell – used for transport
- **Rough ER:** studded with ribosomes; it makes proteins
- **Smooth ER:** no ribosomes; it makes lipids



Ribosome

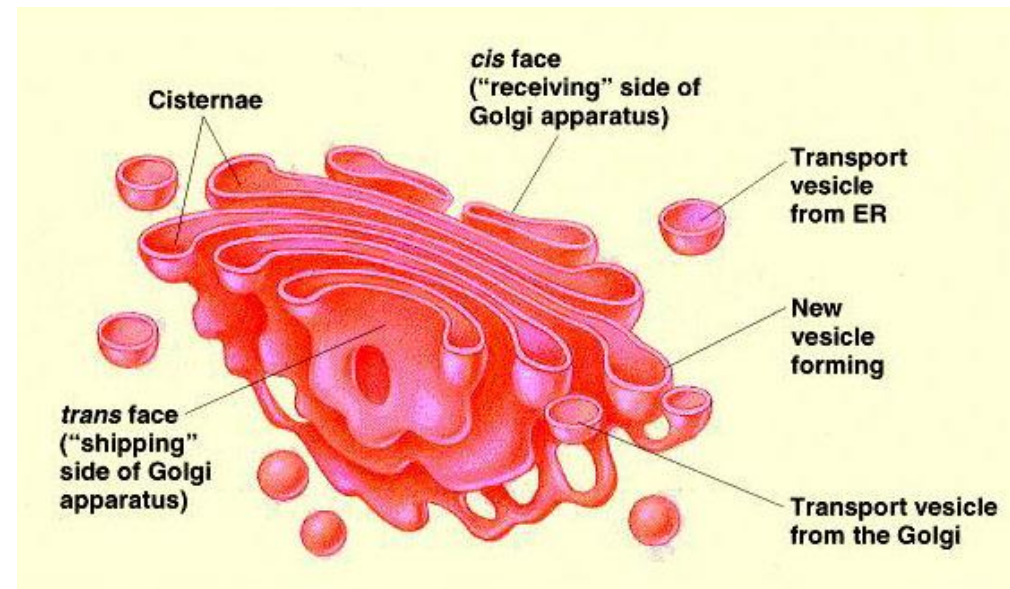
- Site of protein **synthesis**
- Found attached to rough ER or floating free in cytosol
- Produced in a part of the nucleus called the **nucleolus**



That looks familiar...what is a **polypeptide**?

Golgi Apparatus

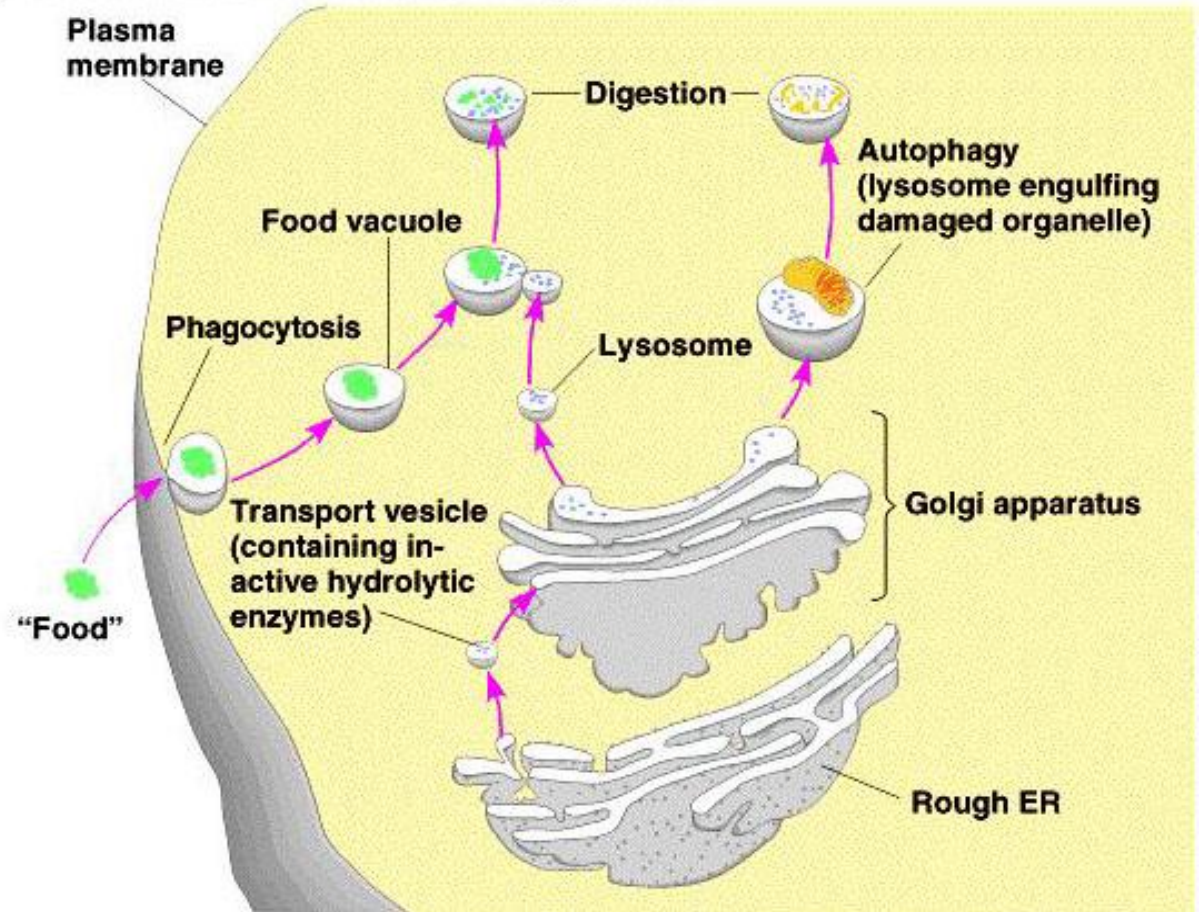
- Looks like a stack of pancakes
- Stores, modifies and packages proteins
- Molecules transported to and from the Golgi by means of **vesicles**



Lysosomes

Figure 7.14 Formation and functions of lysosomes

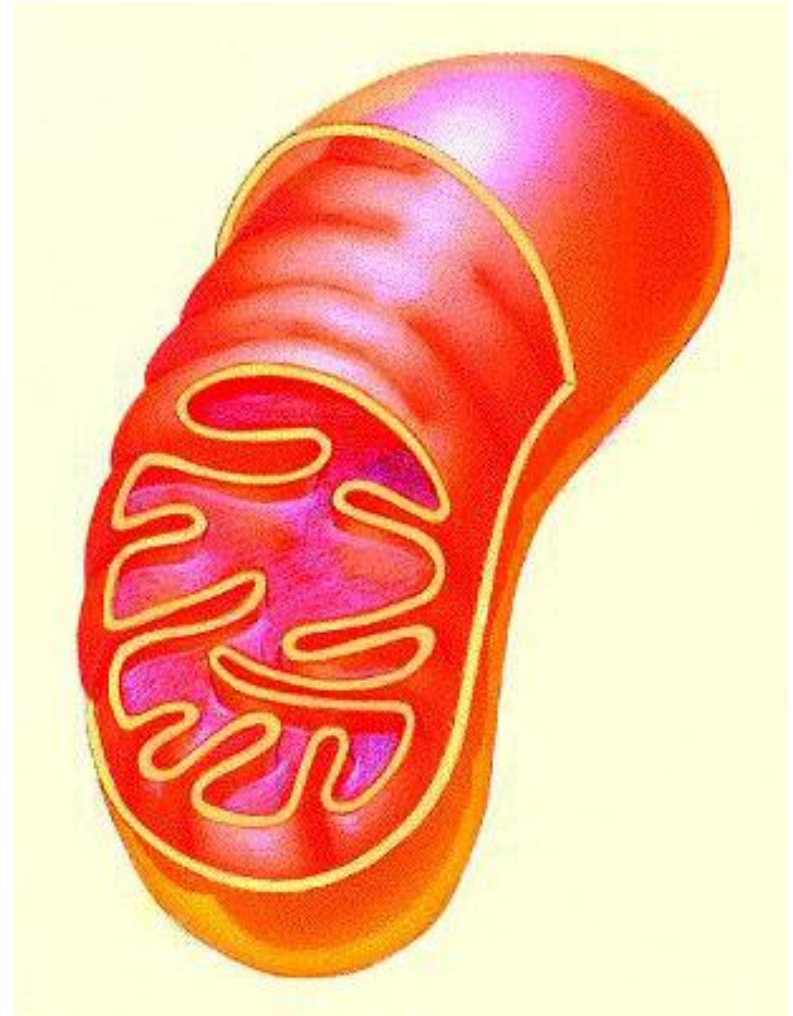
- Garbage disposal of the cell
- Contain digestive enzymes
- Can help break down food, waste, or old organelles



Which organelles do lysosomes work with?

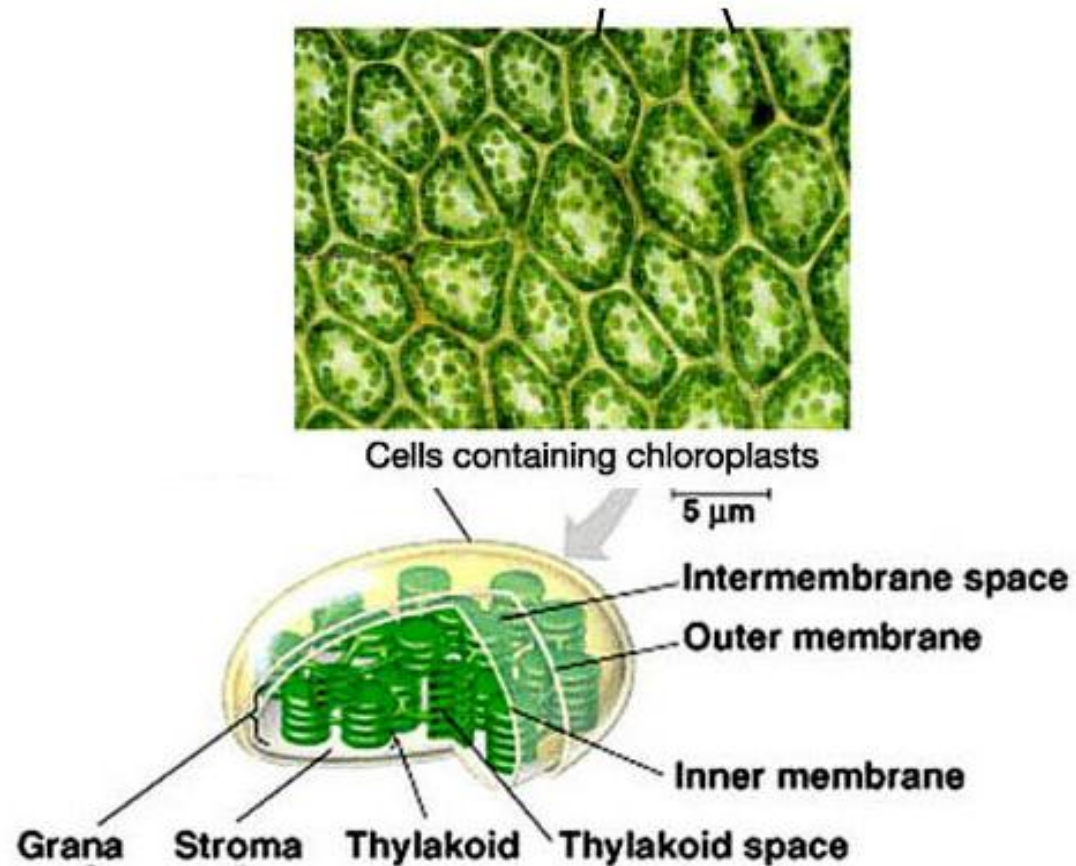
Mitochondria

- “Powerhouse” of the cell
- Cellular respiration occurs here to release energy for the cell (ATP)
- Bound by a double membrane
- Has its own strand of DNA
- Cristae (folds) increase surface area



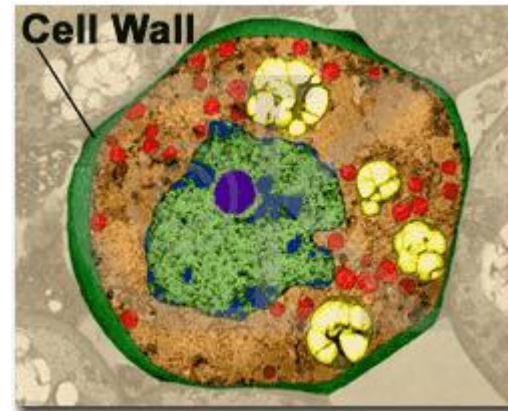
Chloroplast

- Found only in plant cells
- Contains the green pigment **chlorophyll**
- Site of food (**glucose**) production
- Bound by a double membrane
- Has its own strand of DNA



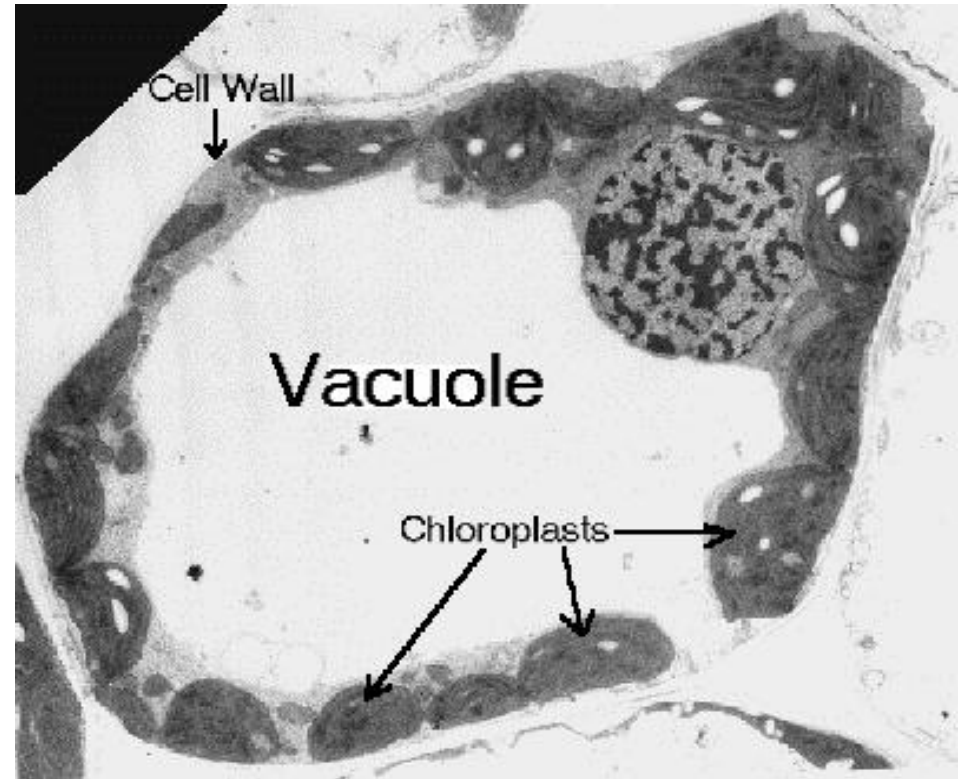
Cell Wall

- Found in **plant** and **bacterial** cells
- Rigid, protective barrier
- Located outside of the cell membrane
- Made of cellulose and lignin (**fiber**)



Vacuoles

- Large central vacuole usually in **plant** cells
- Many smaller vacuoles in **animal** cells
- Storage container for water, food, **enzymes**, wastes, pigments, etc.



What type of microscope may have been used to take this picture?

Centriole

- Aids in cell division
- Usually found only in animal cells
- Made of microtubules

Where else have we talked
about microtubules?

