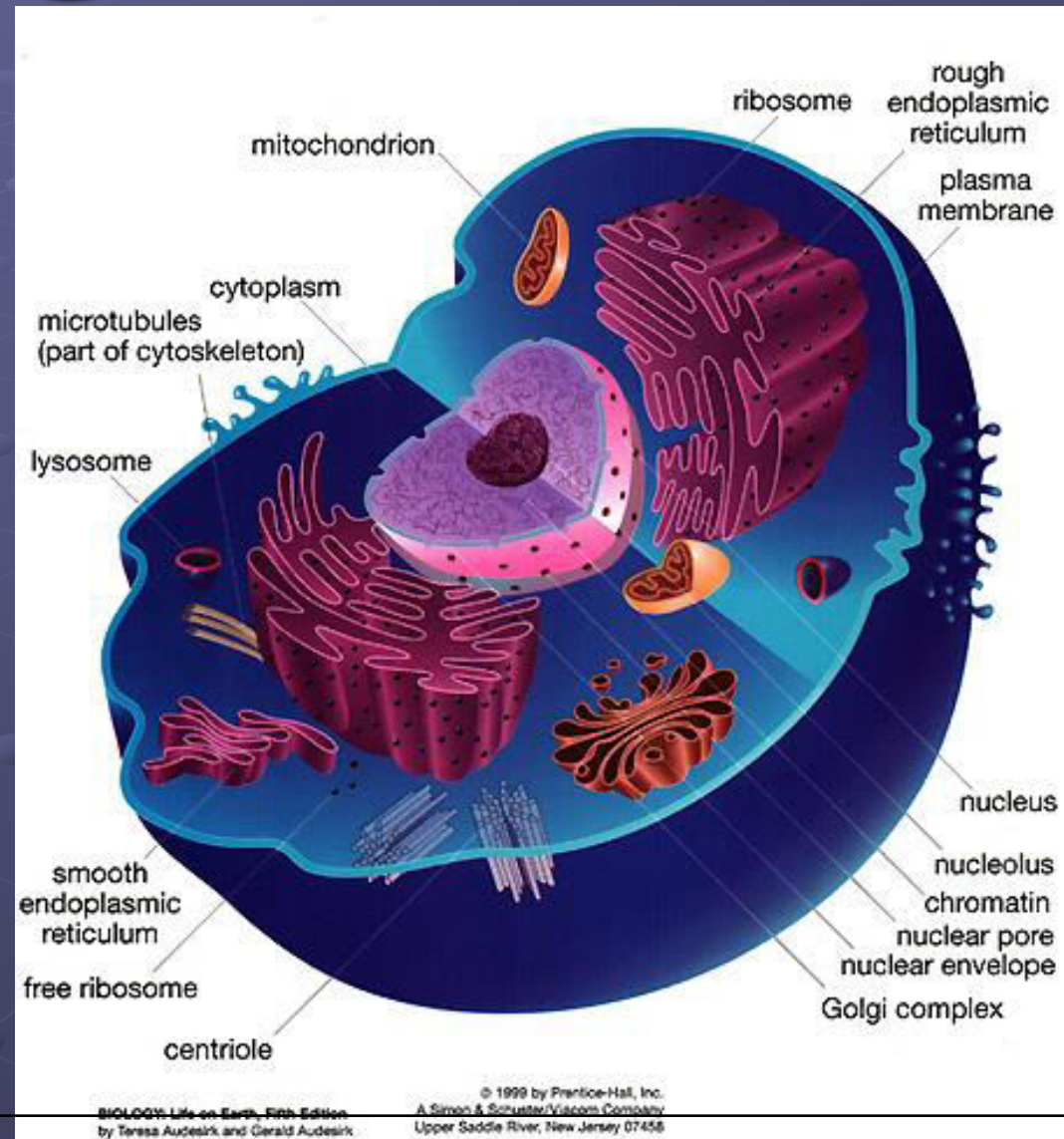


# Cell Organelles



# Cell Organelles

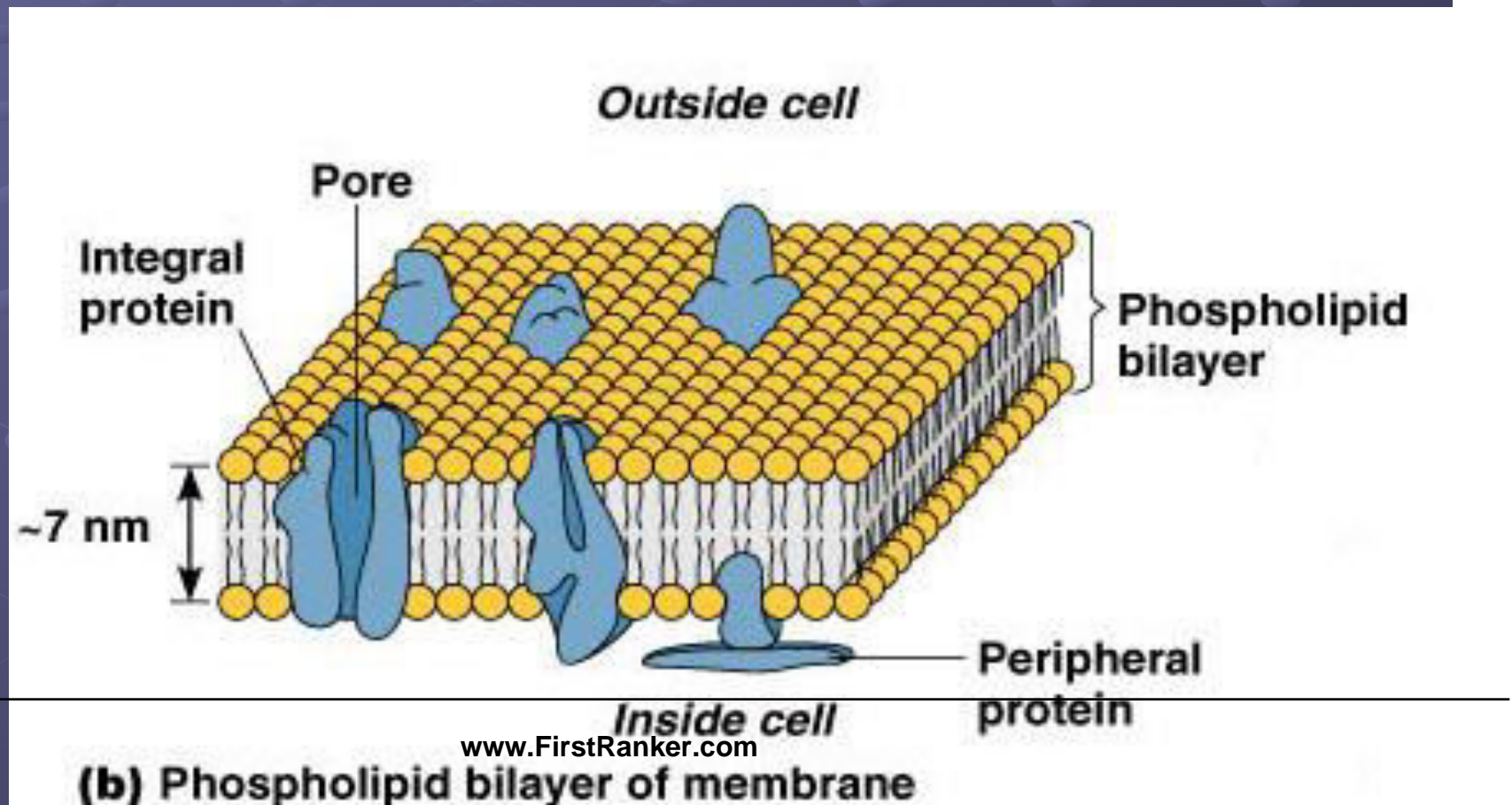
- Organelle= “little organ”
- Found only inside **eukaryotic cells**
- All the stuff in between the organelles is cytosol
- Everything in a cell except the nucleus is cytoplasm





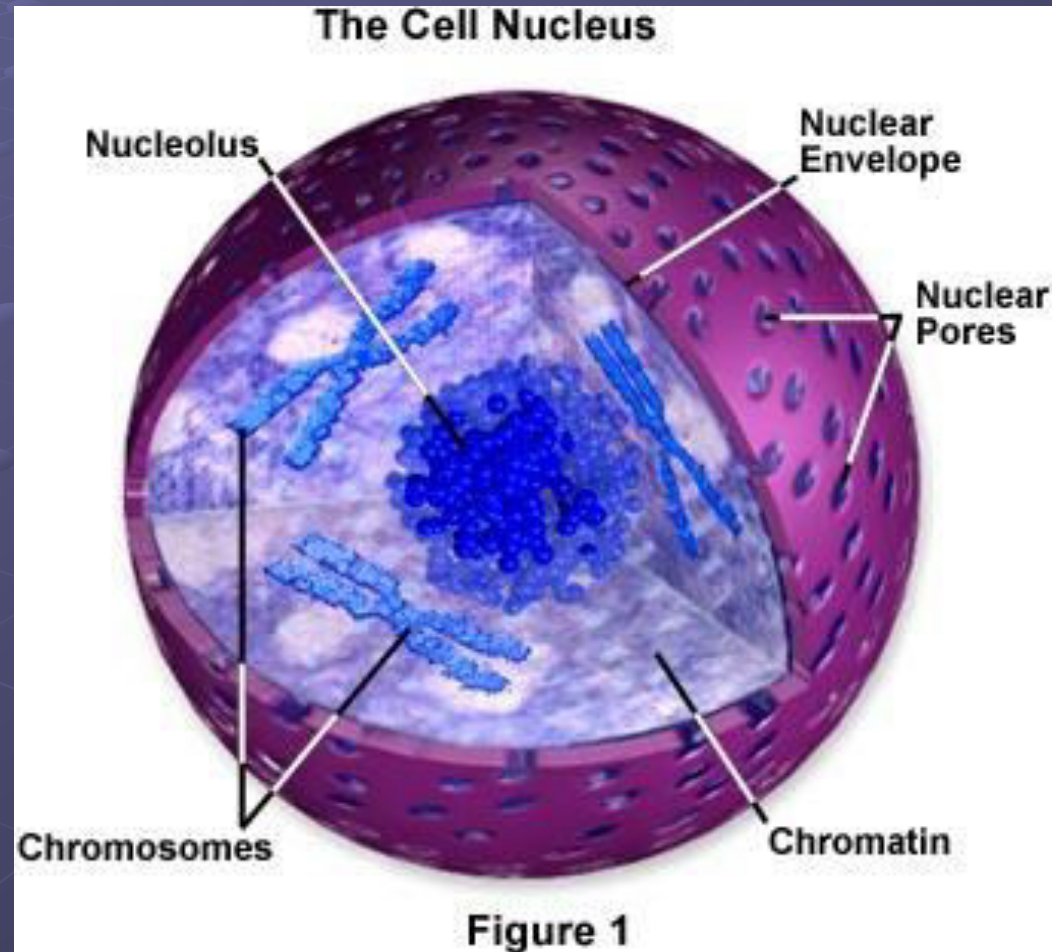
# Cell Membrane

- Boundary of the cell
- Made of a phospholipid bilayer



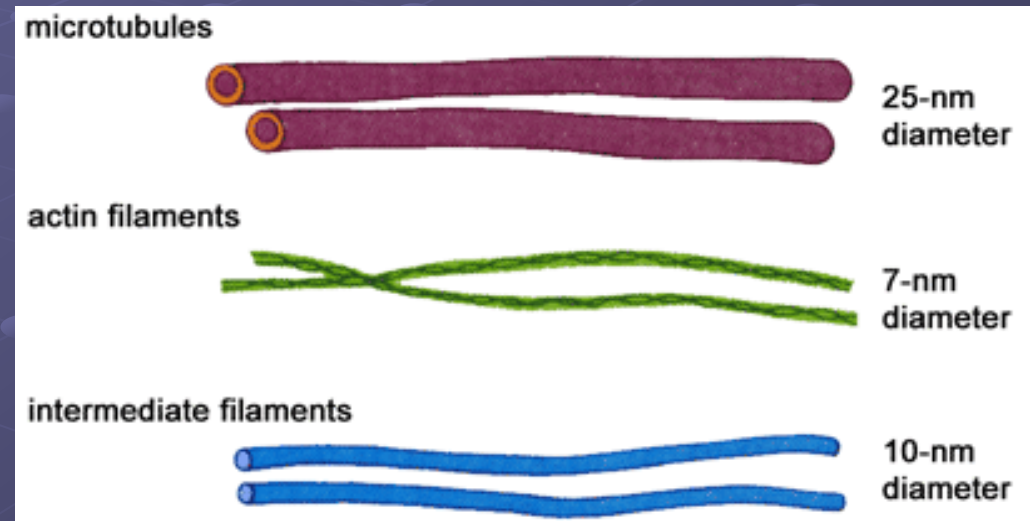
# Nucleus

- 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



# Cytoskeleton

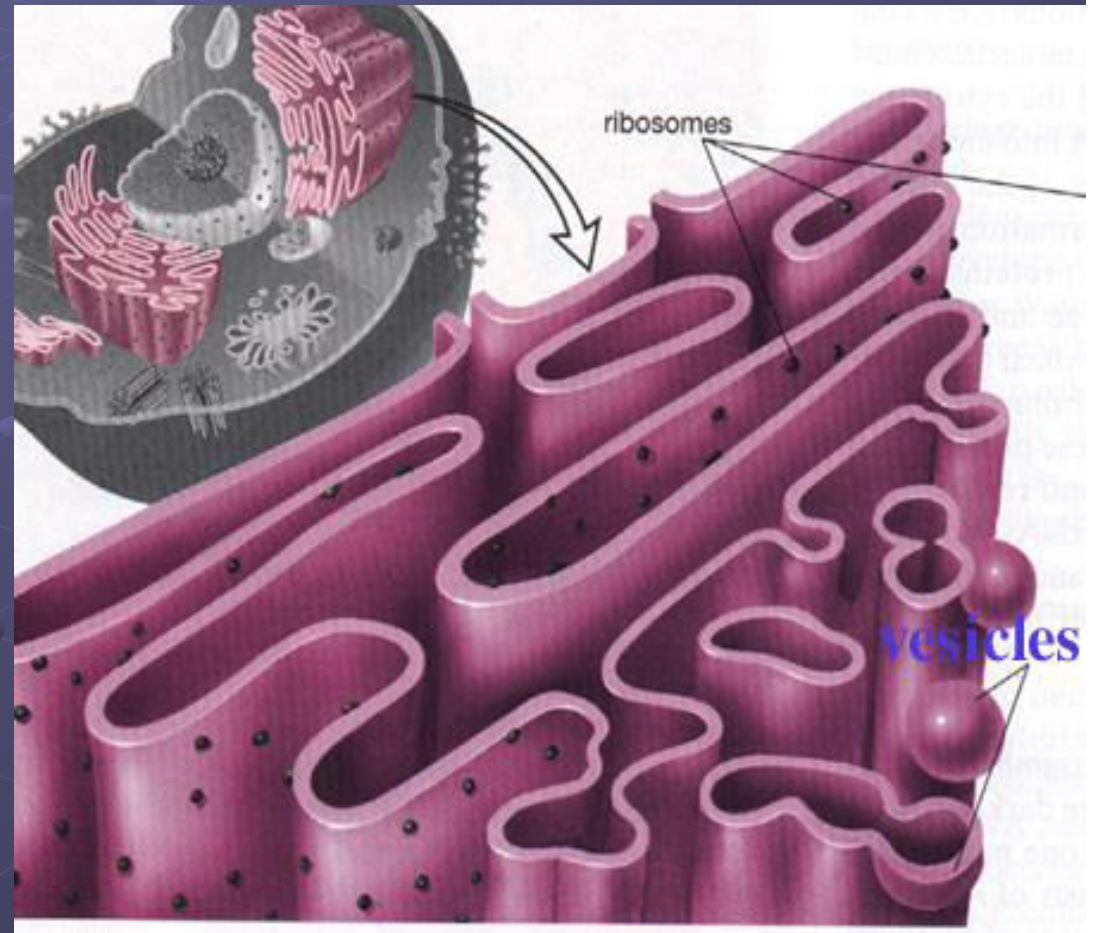
- Acts as **skeleton** and **muscle**
- Provides shape and structure
- Helps move organelles around the cell
- Made of three types of filaments





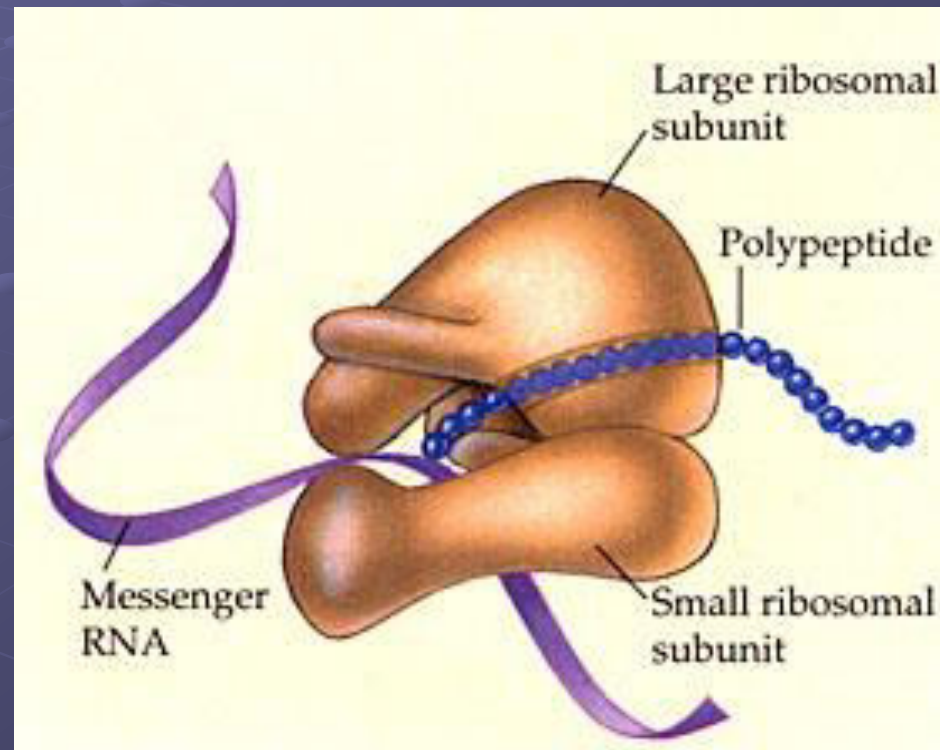
# Endoplasmic Reticulum

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



# Ribosome

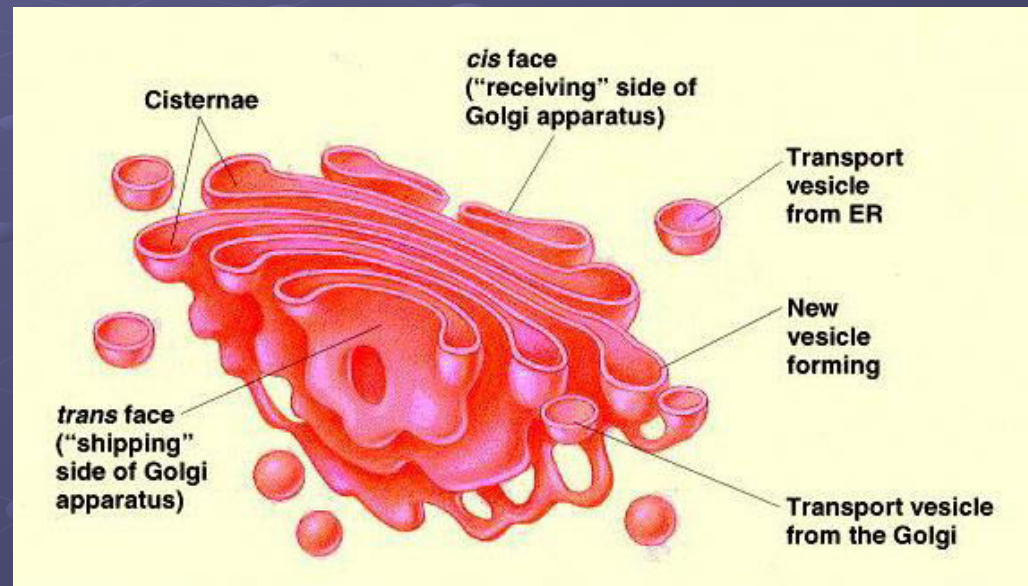
- Site of protein synthesis
- Found attached to rough ER or floating free in cytosol
- Produced in a part of the nucleus called the **nucleolus**



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

# Golgi Apparatus

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



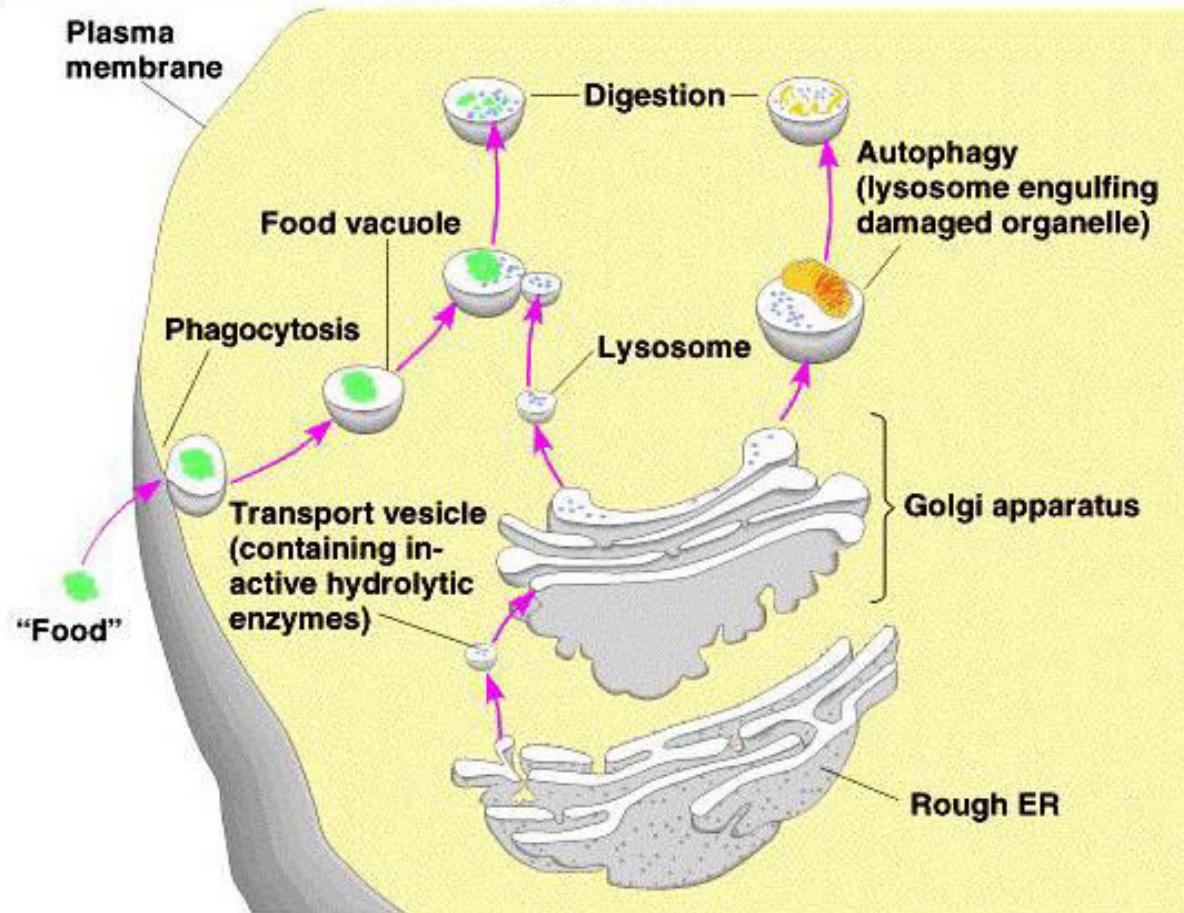


# Lysosomes

- Garbage disposal of the cell
- Contain digestive enzymes that break down wastes

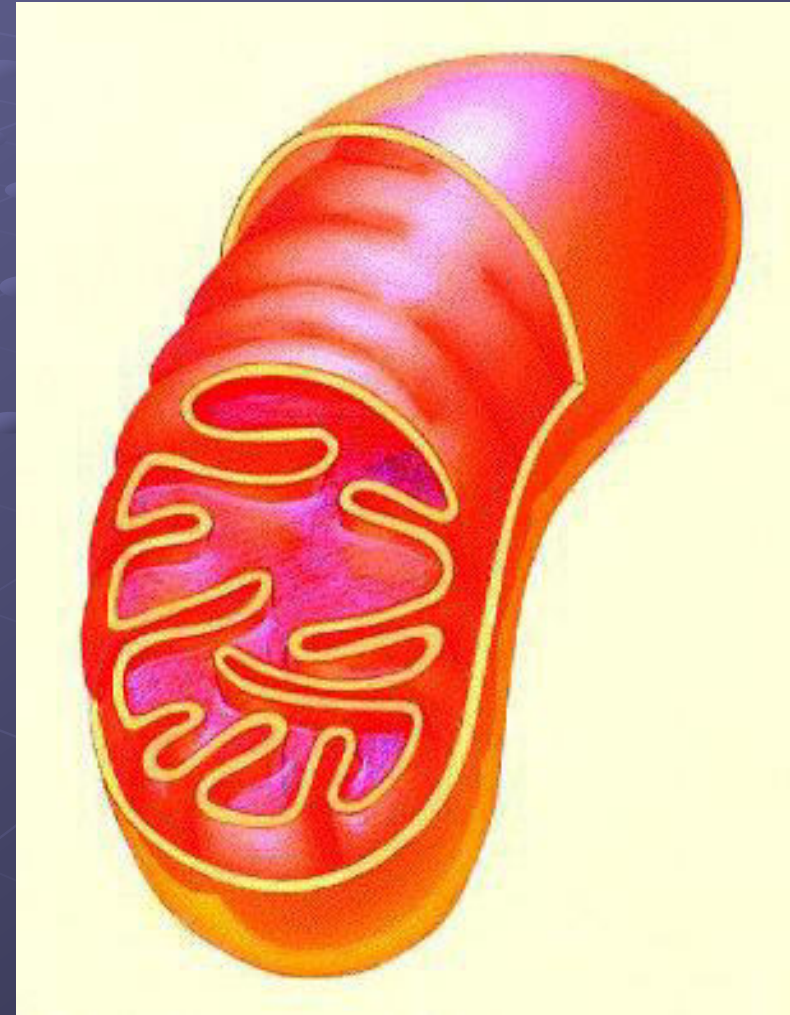
Which organelles do lysosomes work with?

Figure 7.14 Formation and functions of lysosomes



# Mitochondria

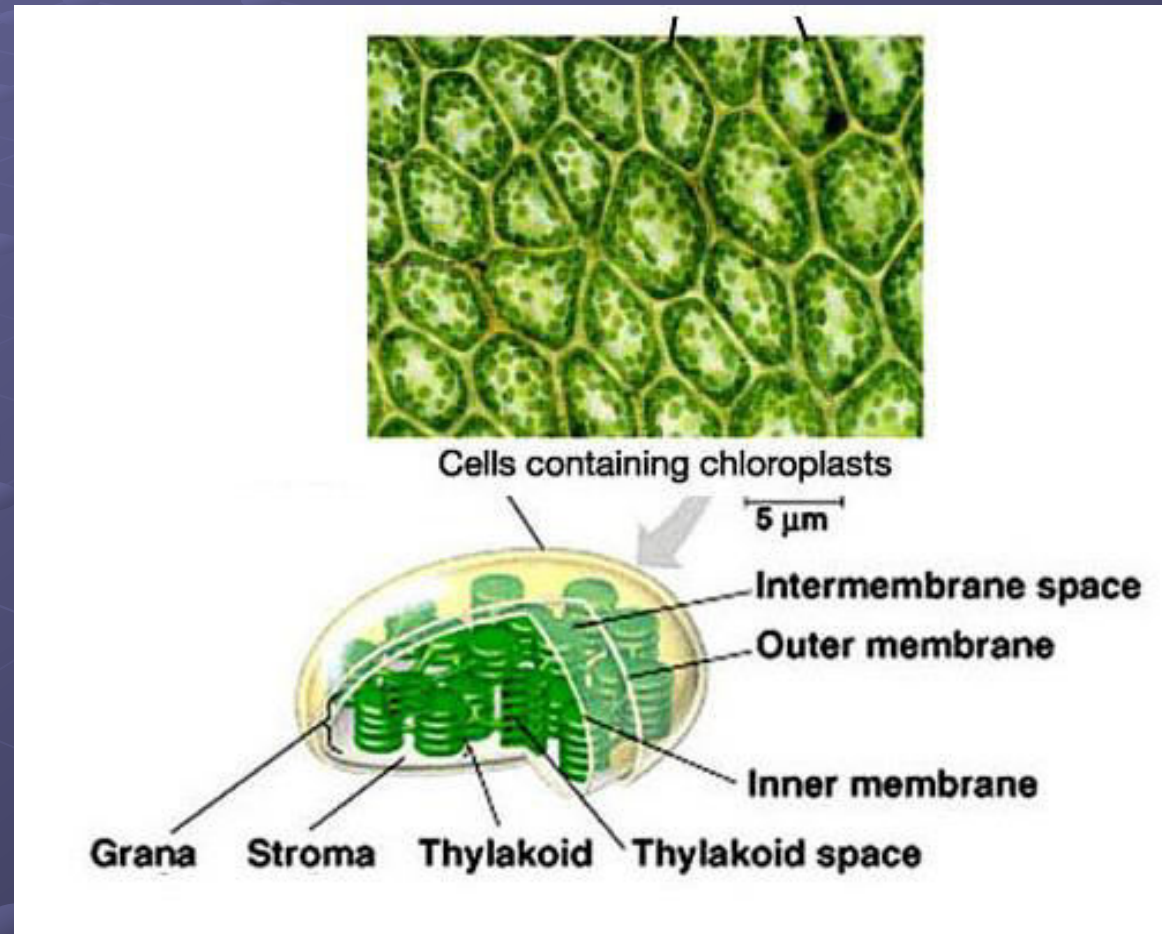
- “Powerhouse of the cell”
- Cellular respiration occurs here to release energy for the cell to use
- Bound by a double membrane
- Has its own strand of DNA





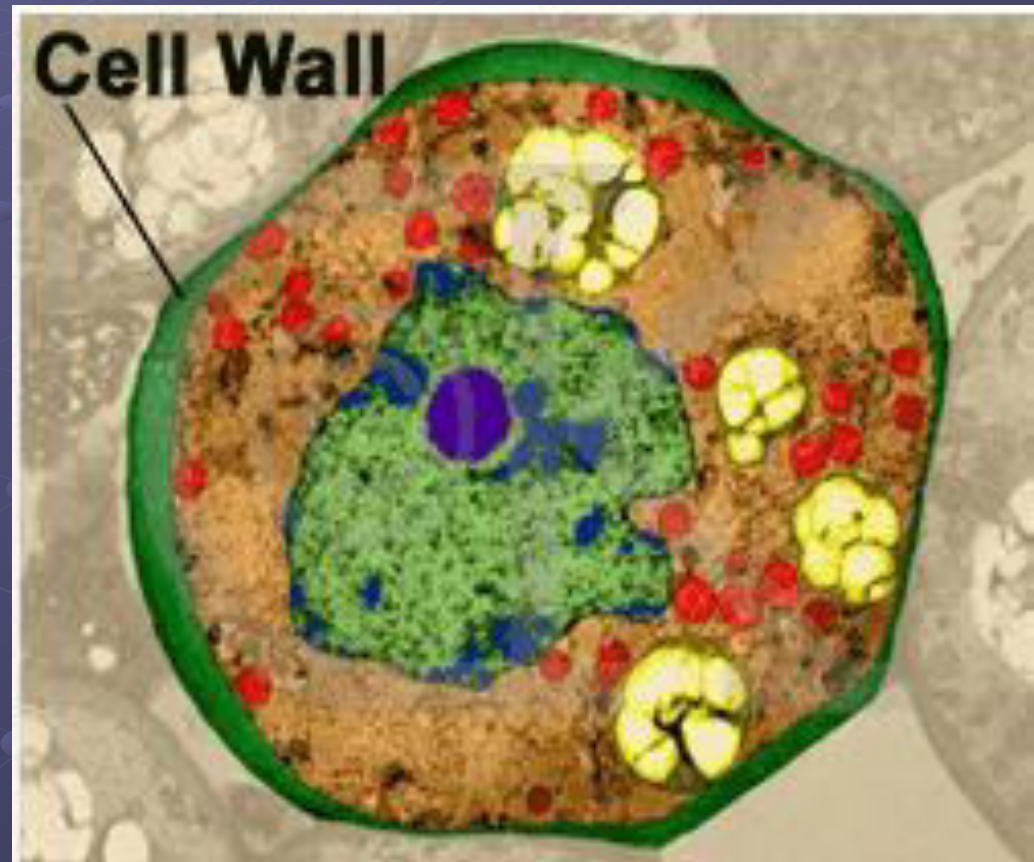
# Chloroplast

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



# Cell Wall

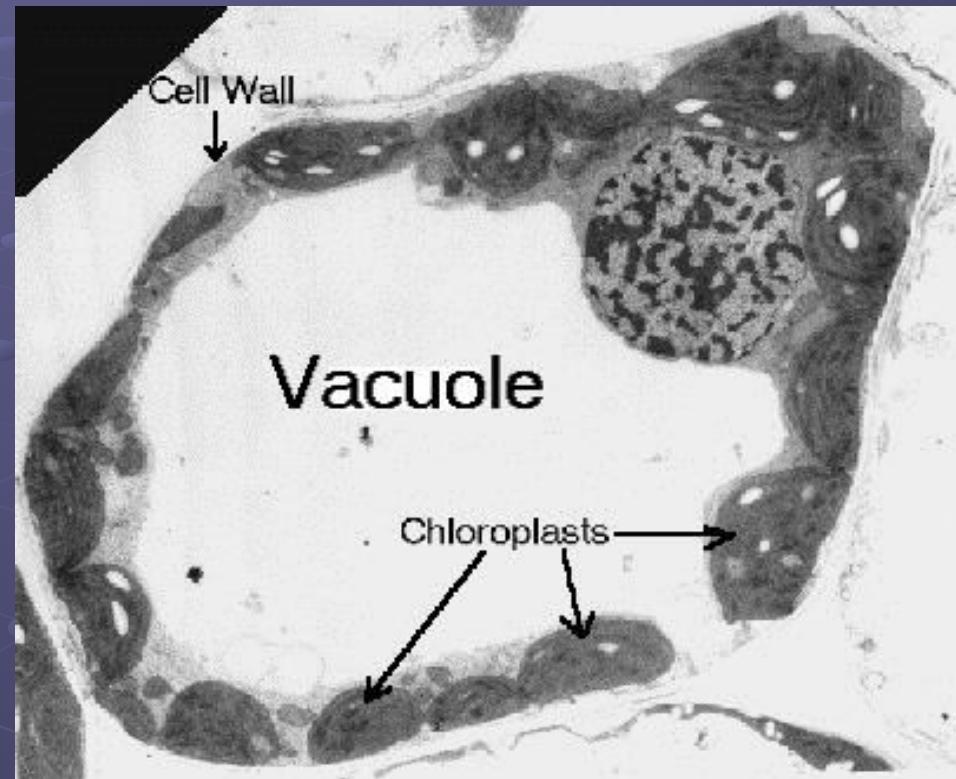
- Found in **plant** and **bacterial** cells
- Rigid, protective barrier
- Located outside of the cell membrane
- Made of cellulose (fiber)





# Vacuoles

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

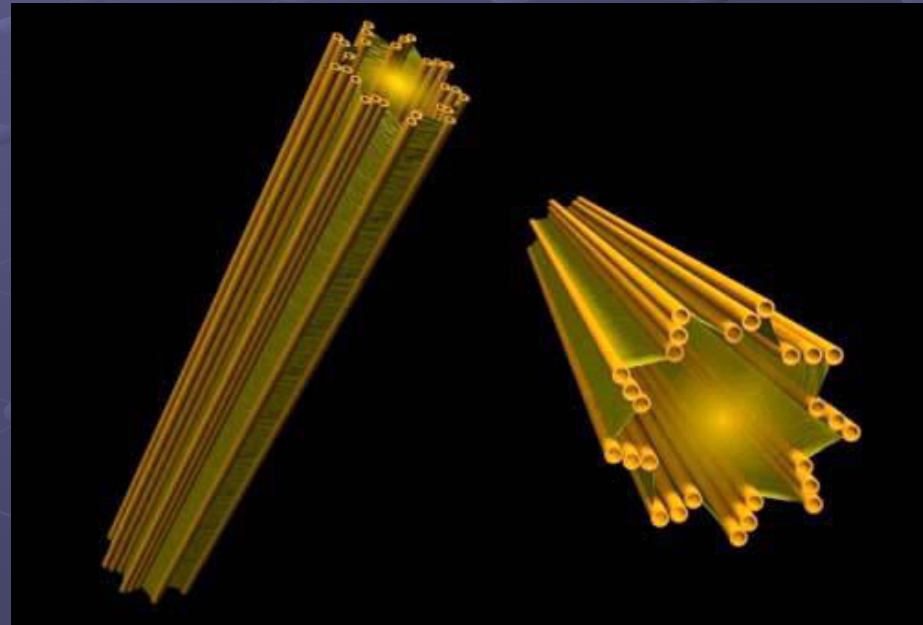


What type of microscope may have been used to take this picture?

# Centriole

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

Where else have we talked  
about microtubules?





# Quick Review

- Which organelle is the control center of the cell?

Nucleus

- Which organelle holds the cell together?

Cell membrane

- Which organelles are not found in animal cells?

Cell wall, central vacuole, chloroplasts

- Which organelle helps plant cells make food?

Chloroplasts

- What does E.R. stand for?

Endoplasmic reticulum