



ORGANELLES

Section 7.3

CYTOPLASM AND CYTOSKELETON

○ **Cytoplasm**

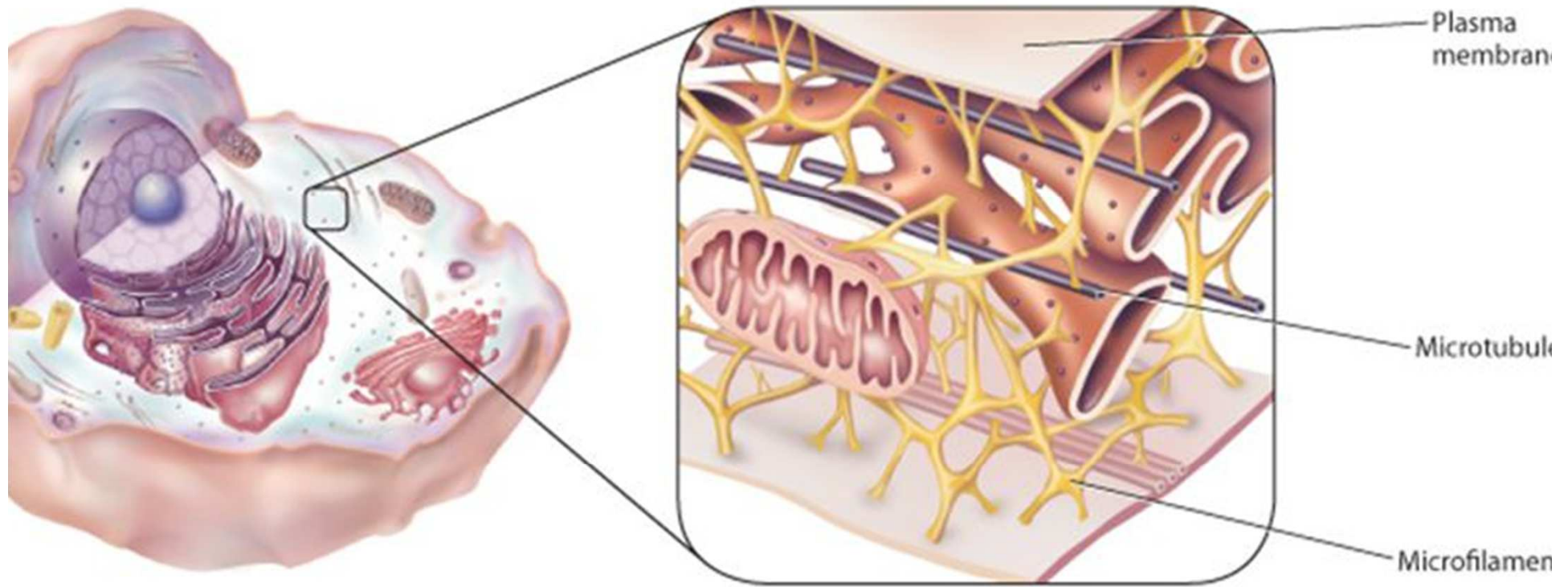
- Semifluid material
- In prokaryotes – all cellular processes take place here
 - Ex: breaking down sugar to make energy
- In eukaryotes – cellular processes are in organelles
 - Organelles are held within the cytoplasm

○ **Cytoskeleton**

- Support structure in the cytoplasm
- Long, thin protein fibers make a framework and anchor system
- Made of microtubules and microfilaments
 - Help with cell movement



Cytoplasm and Cytoskeleton

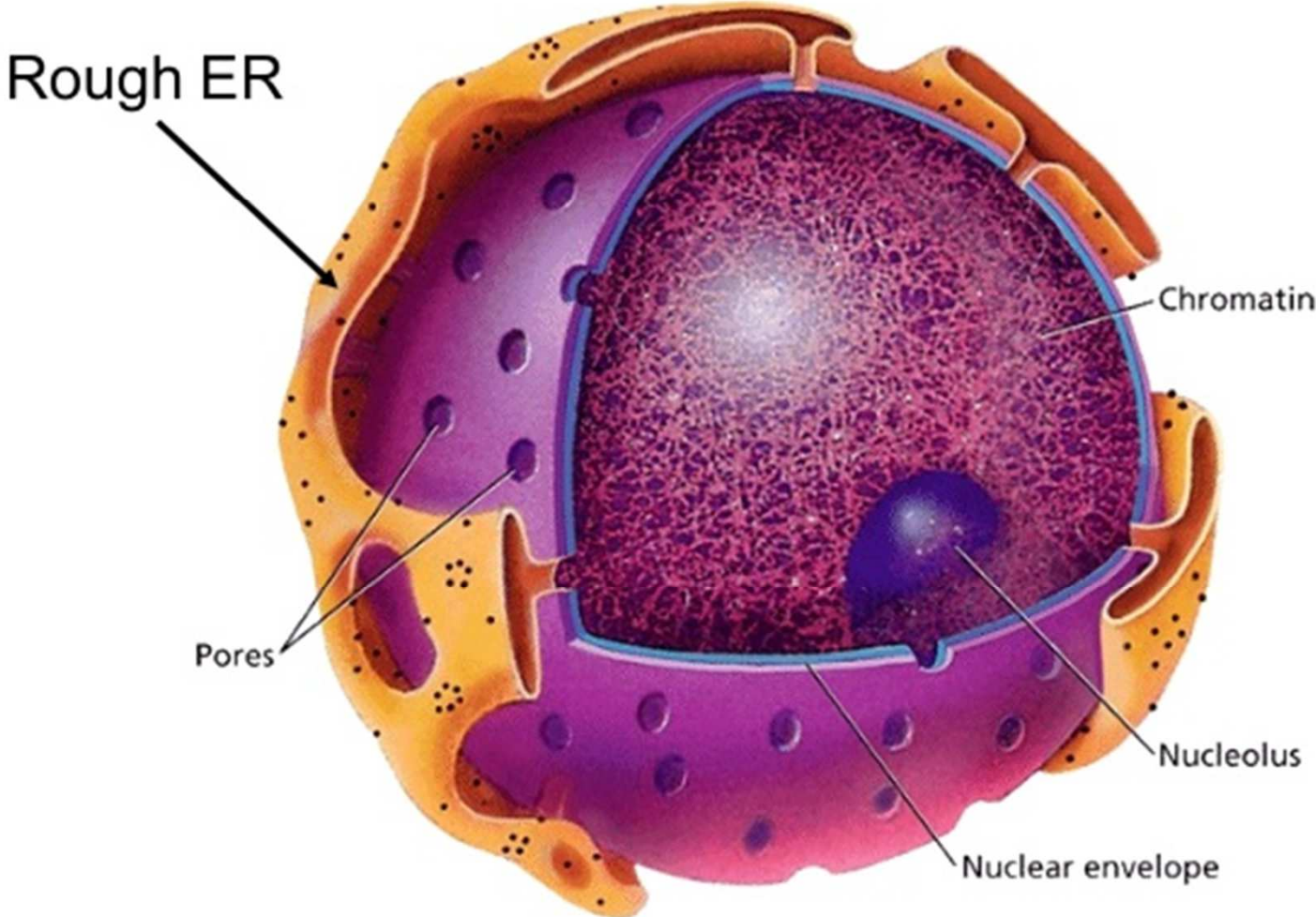


NUCLEUS

- Directs all cell processes
- Contains most of the cell's DNA
- Stores information for making proteins:
 - Cell growth
 - Cell function
 - Cell reproduction
- Surrounded by a double membrane – **nuclear envelope**
 - Allows larger-sized things to go in and out of the nucleus



Nucleus

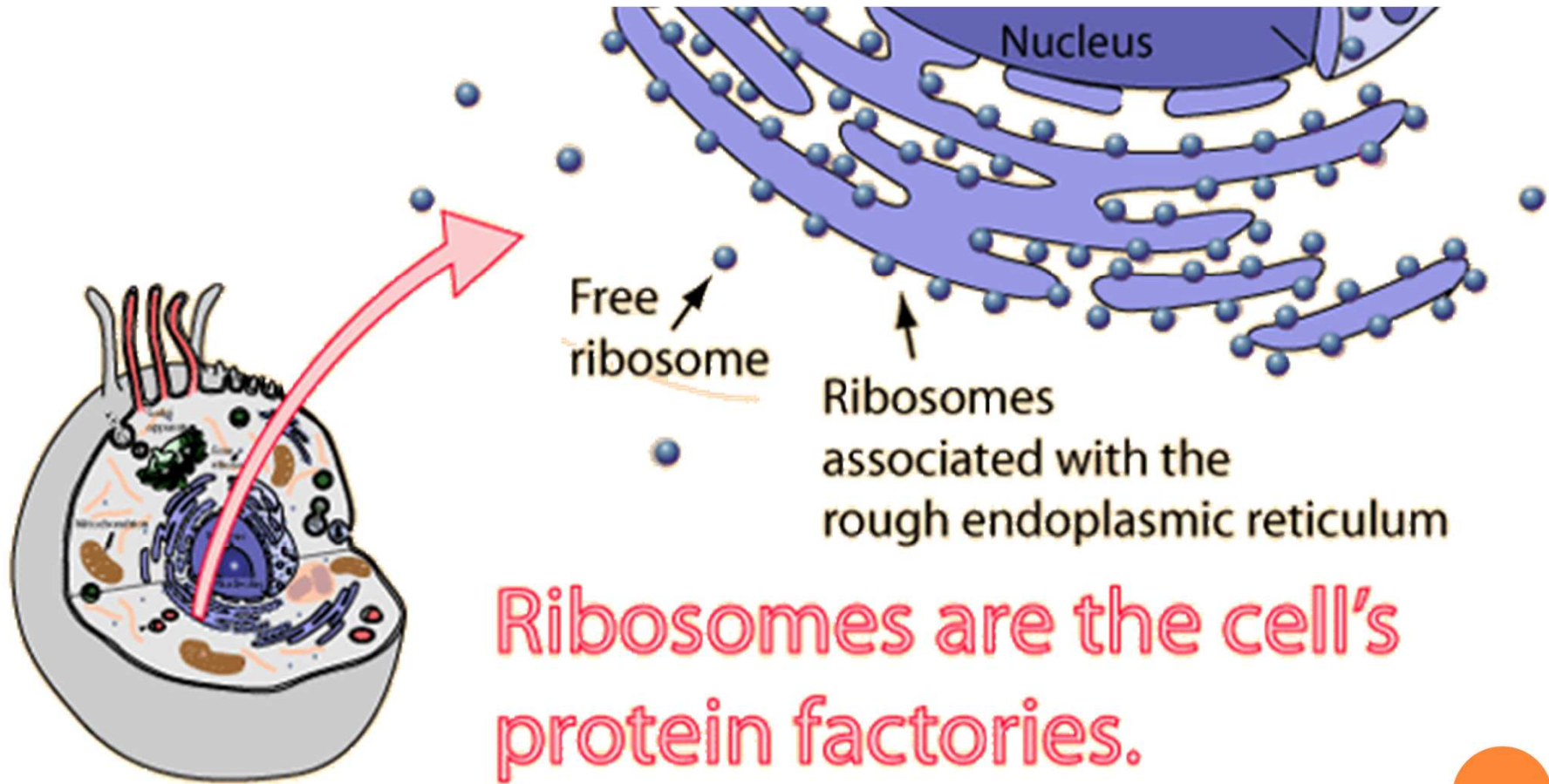


RIBOSOMES

- Manufacture proteins
- Made of RNA and protein
- Not bound by a membrane
- Produced in the nucleus in structure called – **nucleolus**
- Produce a variety of proteins



RIBOSOMES



Ribosomes are the cell's protein factories.

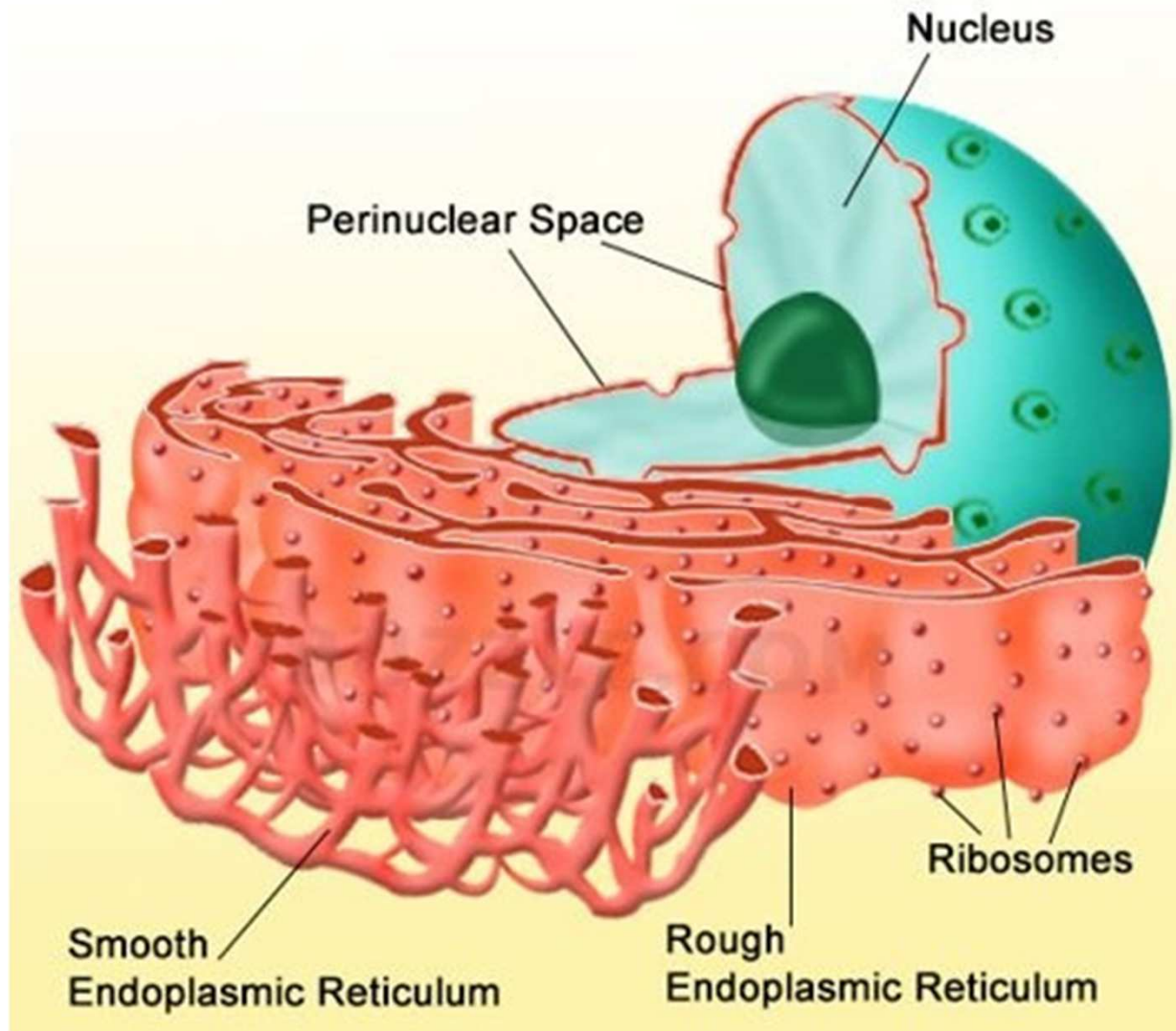


ENDOPLASMIC RETICULUM

- Shortened name – **ER**
- Membrane system of folded sacs and interconnected channels
- Site for protein and lipid synthesis
- When ribosomes attach – **Rough ER**
 - Produces proteins for other cells
 - Will be sent out of the cell
- No ribosomes attached – **Smooth ER**
 - Makes lipids and carbohydrates
 - Helps to detoxify certain substances

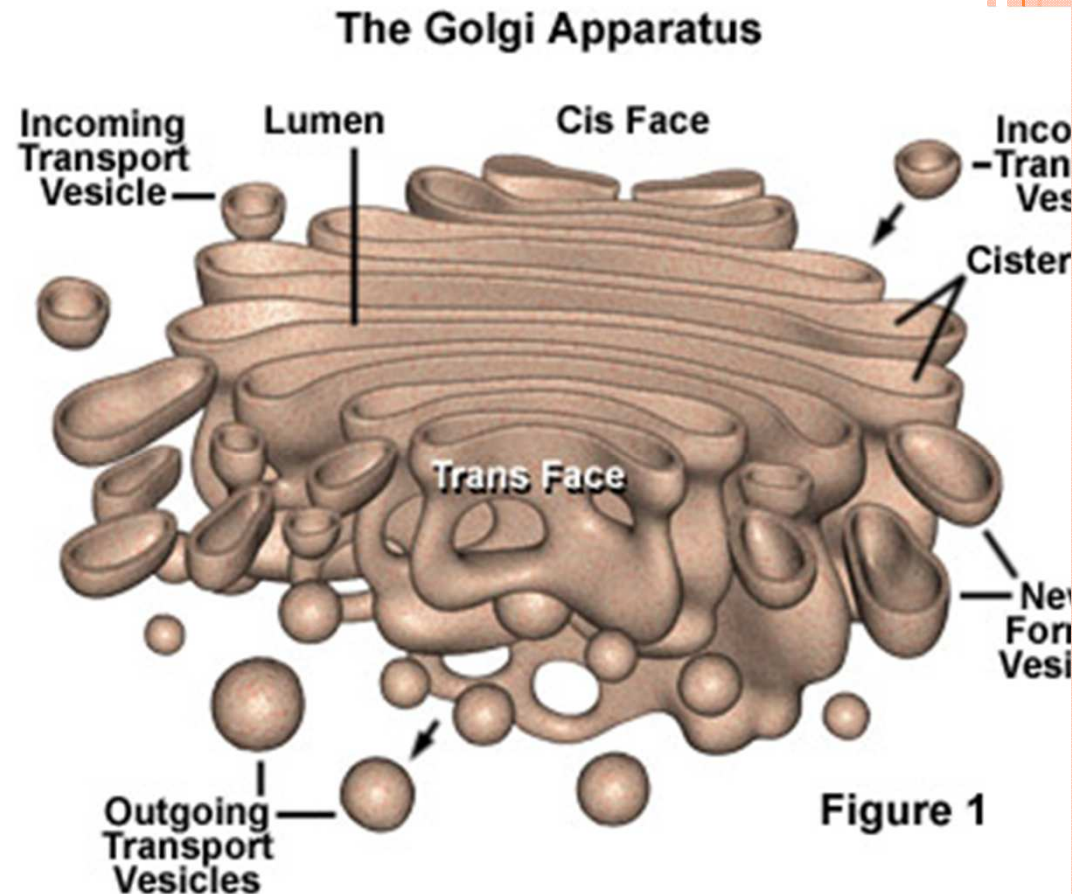


ENDOPLASMIC RETICULUM



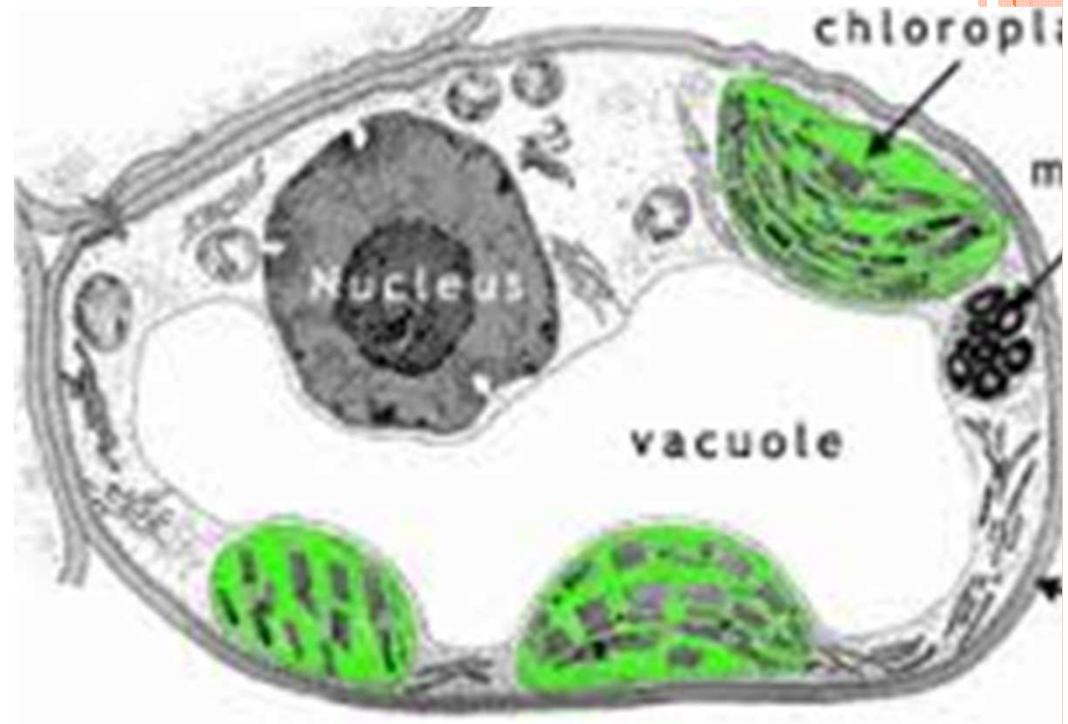
GOLGI APPARATUS

- Flattened stack of membranes
- Modifies, sorts and packages proteins
- Proteins form sacs called **vesicles**
- Vesicles fuse with cell membrane to release proteins
- Proteins then enter the outside of the cell and go throughout body



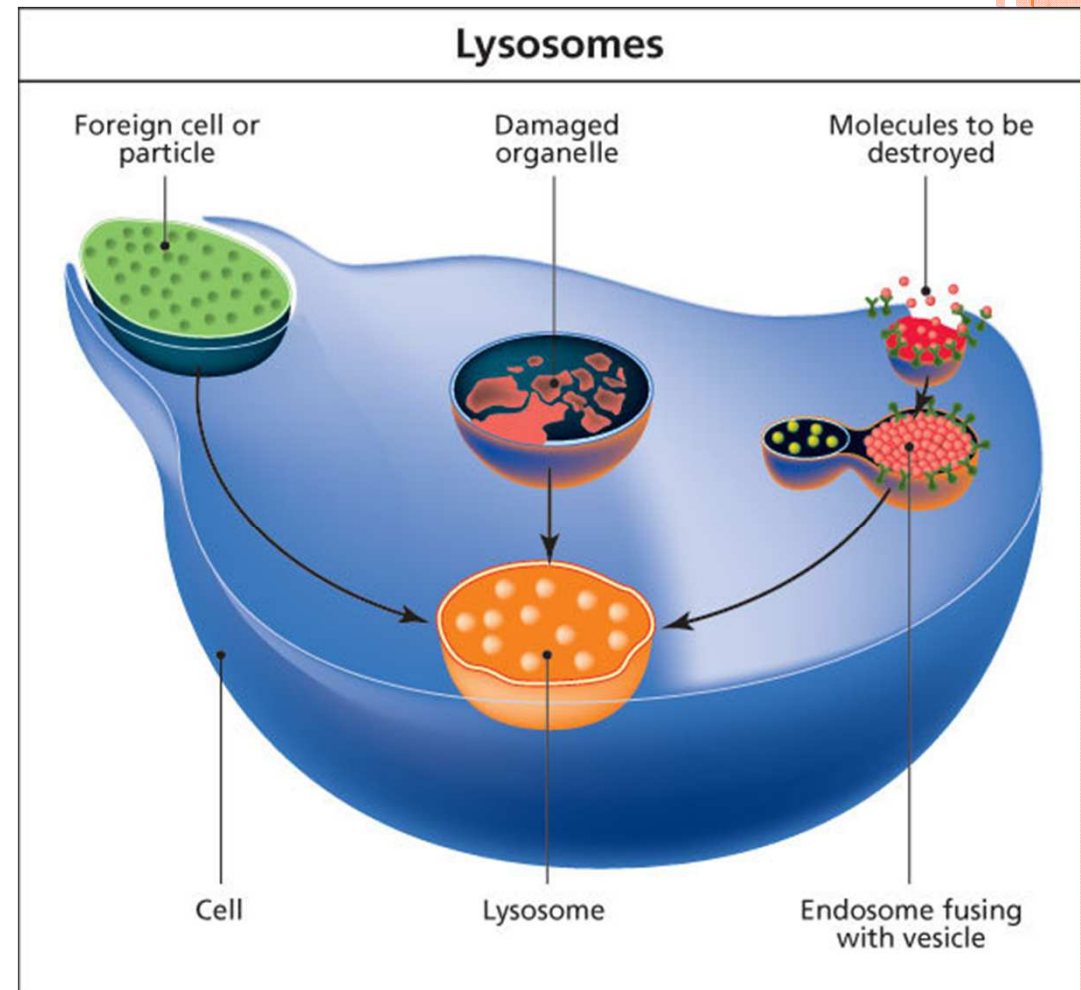
VACUOLES

- **USUALLY ONLY IN PLANT CELLS**
- a sac used to store food, enzymes and other materials a cell needs
- Can also store waste products
- Temporary storage
- If found in an animal cell, it is much smaller



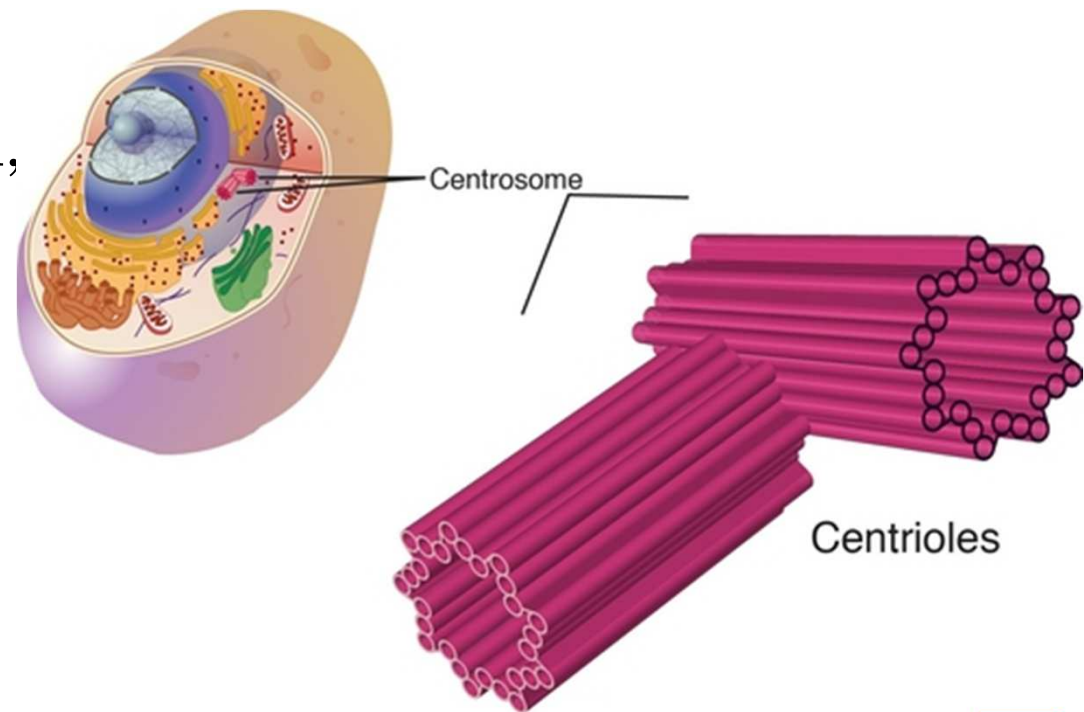
LYSOSOME

- Vesicles that digest excess worn out organelles or food particles
- Can digest bacteria and viruses that enter the cell
- Membrane prevents the enzymes inside it from destroying the cell
- Can fuse with vacuoles to digest the wastes inside



CENTRIOLES

- Made of fibers called microtubules
- Help during cell division
- Found in cytoplasm, near the nucleus in animal cells



MITOCHONDRIA

- “powerhouse of the cell”
- Converts fuel particles (usually sugars) into usable energy
- Has two membranes
 - Inner membrane – highly folded, helps break bonds in sugars
- Energy produced is stored in bonds of other compounds
- Has it’s own DNA

