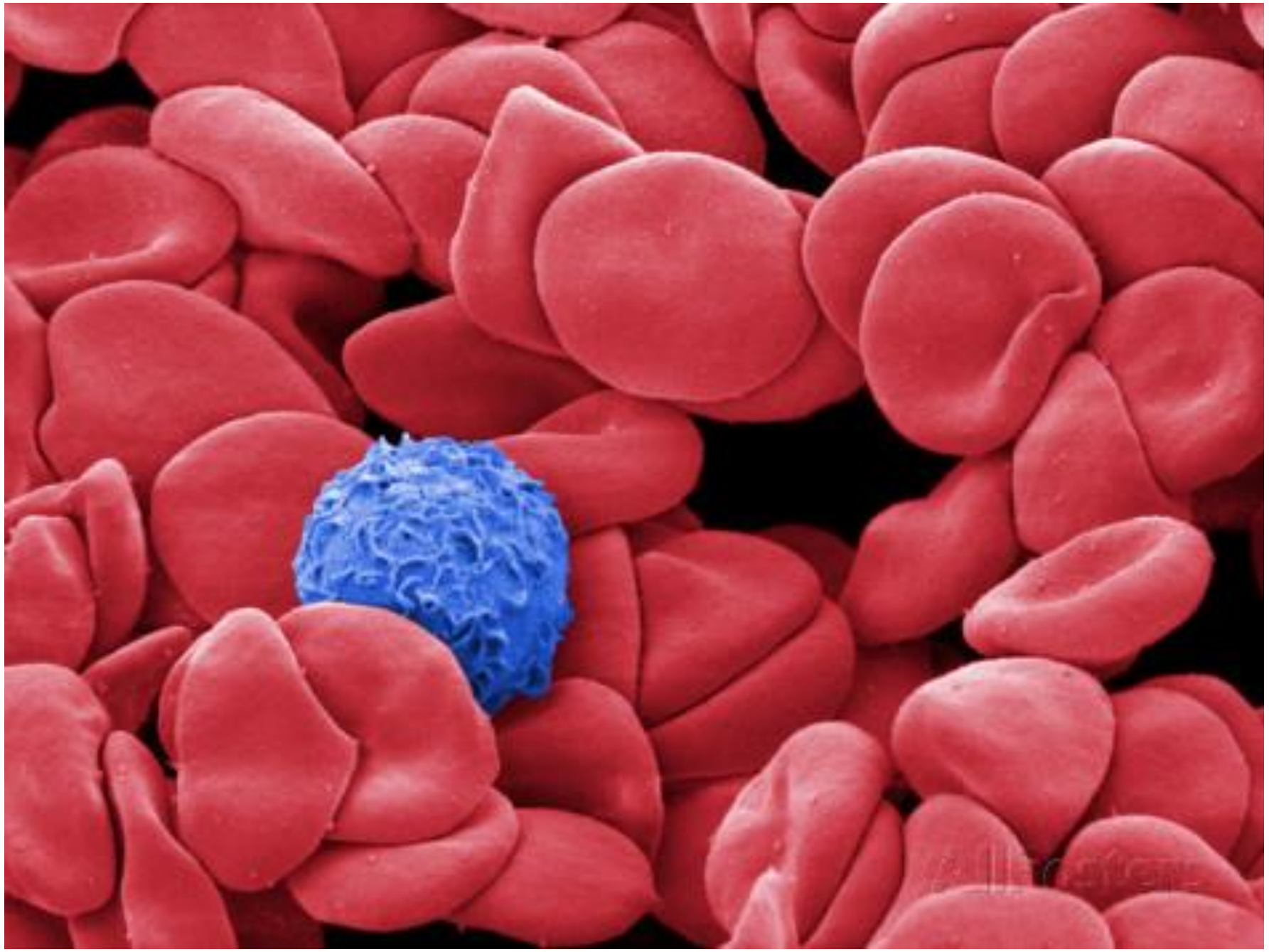
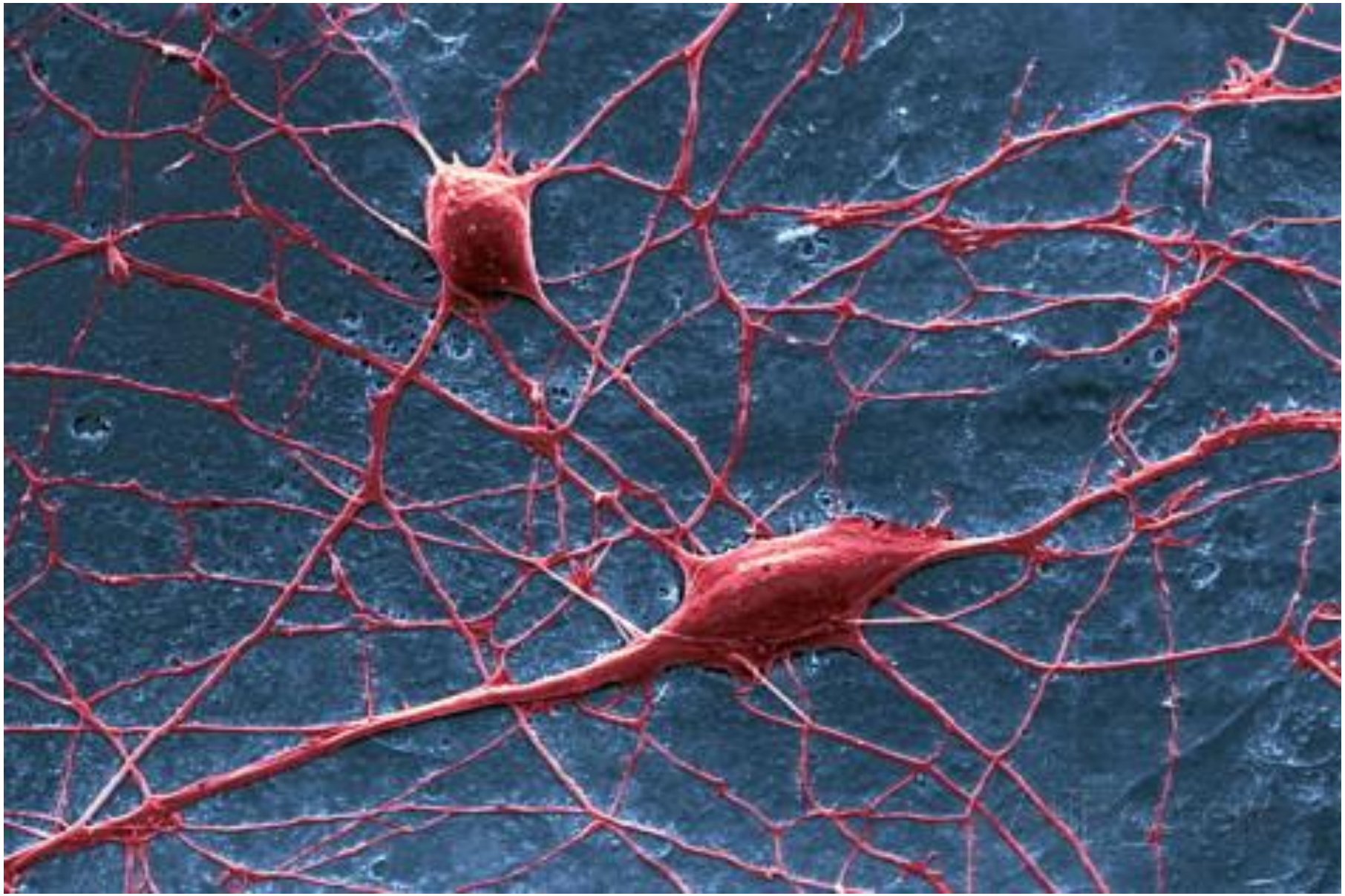
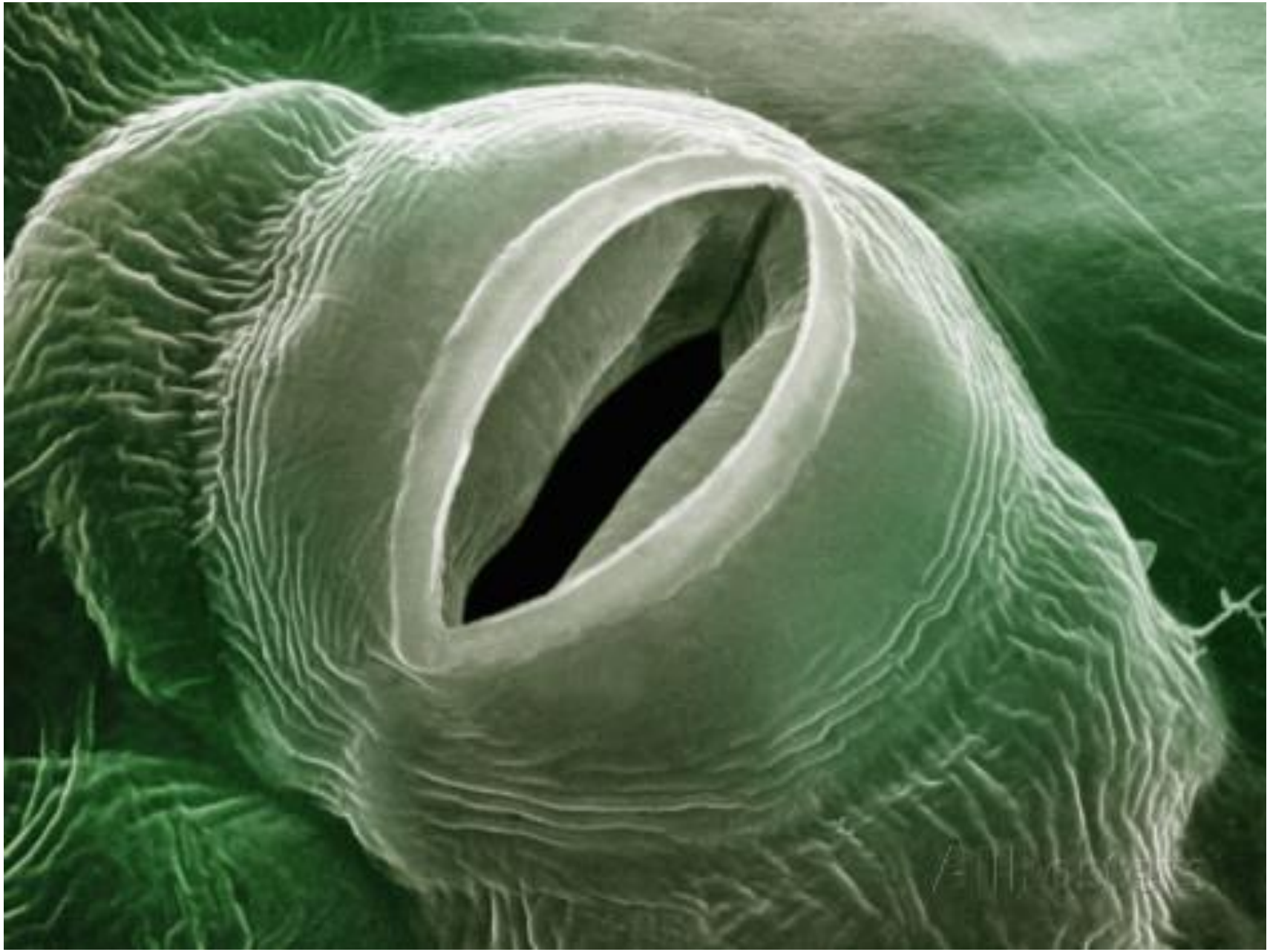
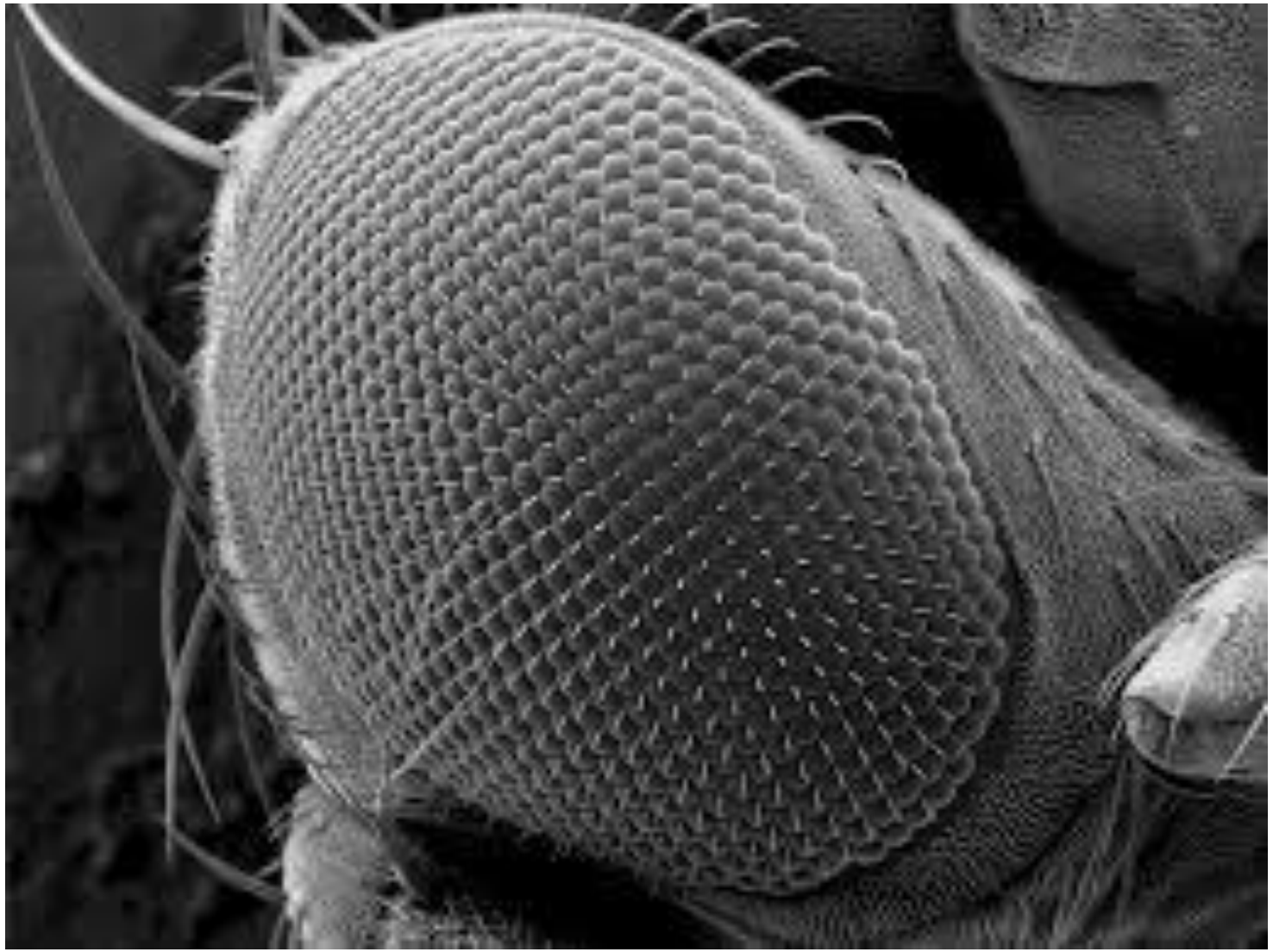
NOTES: Cellular Organelles

OBJ: TO UNDERSTAND THE FUNCTIONS OF ORGANELLES







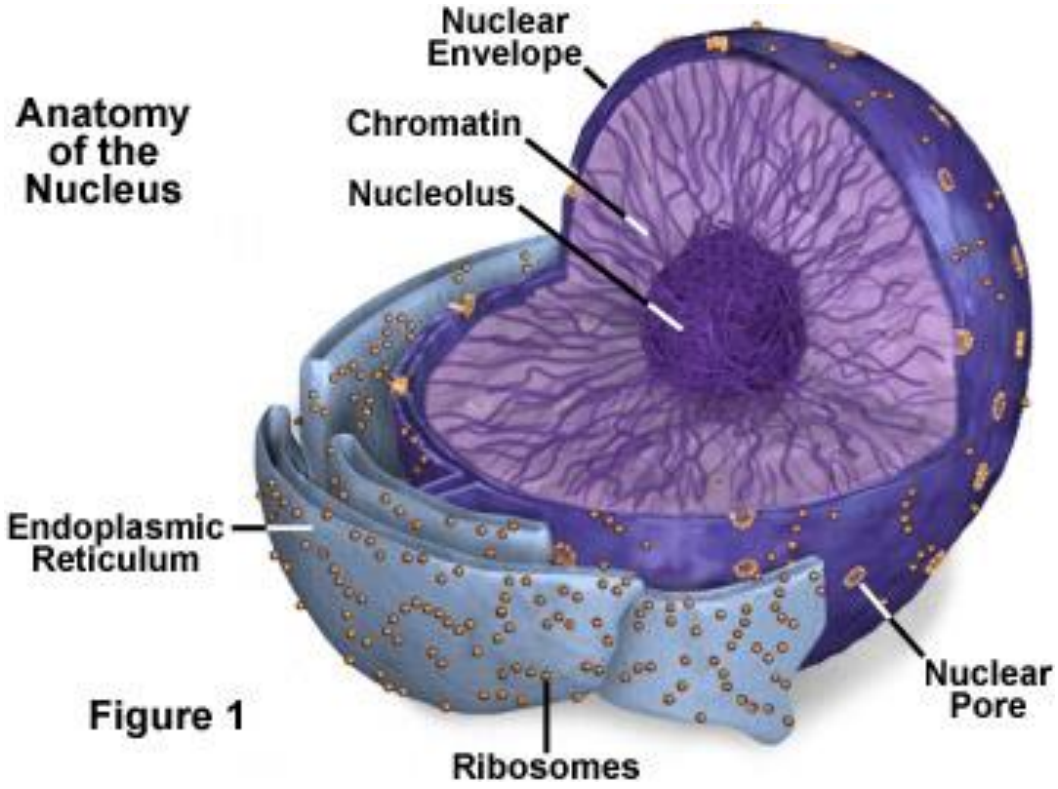


Cytoplasm

- "jelly-like" substance outside the nucleus
- Shock absorber
- Is found in prokaryotes too!

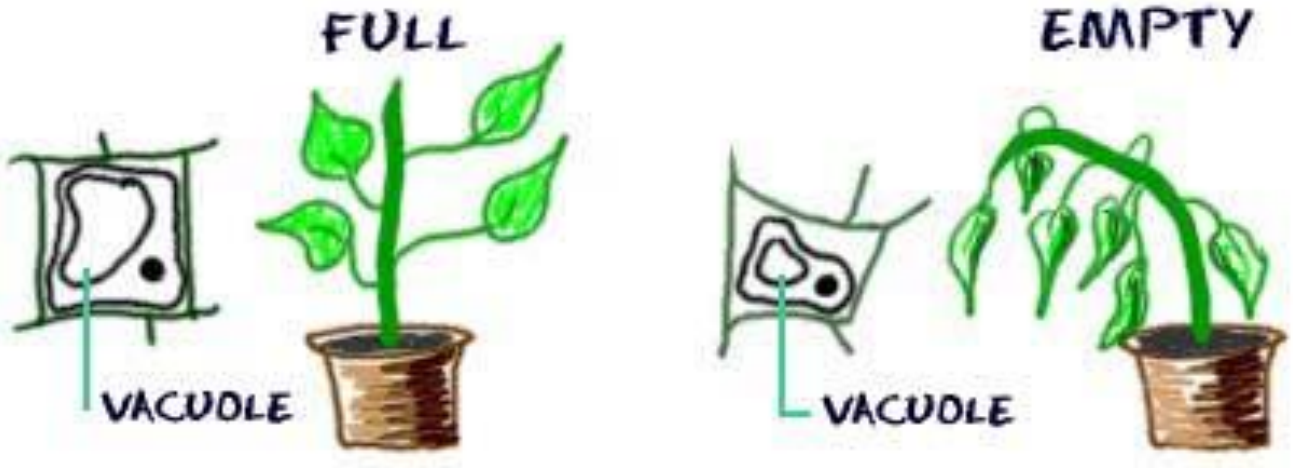
Nucleus

- "control center"
- Contains DNA
- Deoxyribonucleic acid
- Gives directions to rest of cell
- Prokaryotes do not have a nucleus, but do have DNA
- Surrounded by a nuclear envelope with pores
- Dense area (nucleolus) is where assembly of ribosomes begins



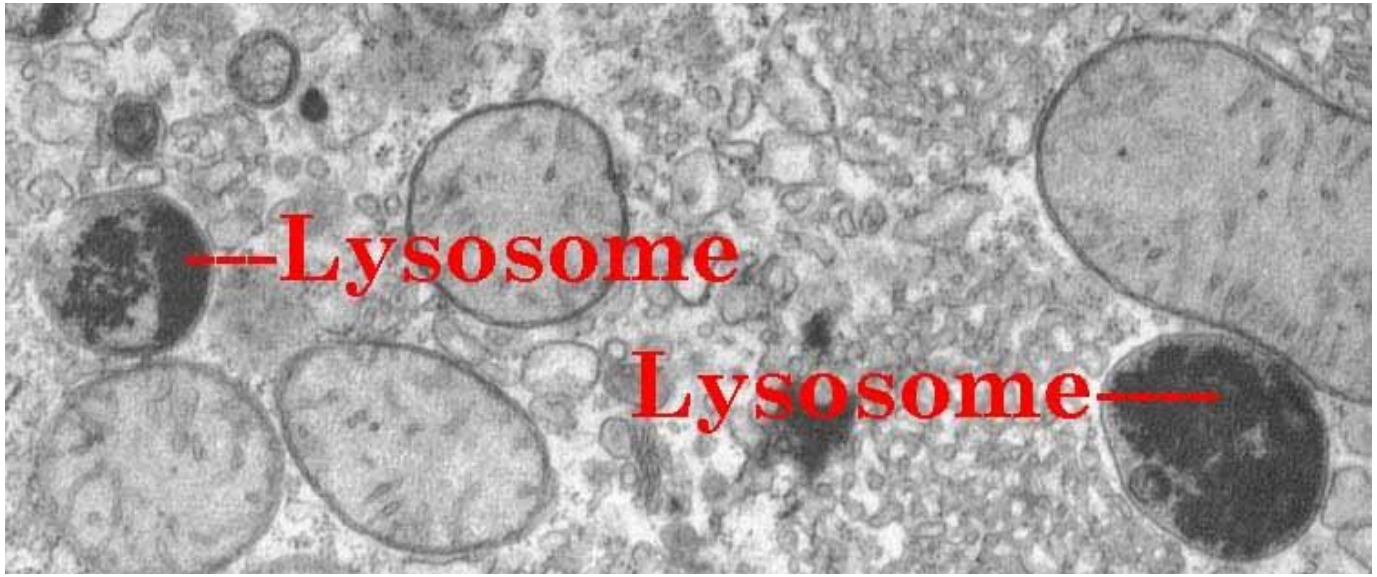
Vacuole

- Storage facility
- In plants there is usually one large vacuole
- Pumps materials out of cell
- Contains waste, excess sugar and salt as well as unneeded materials



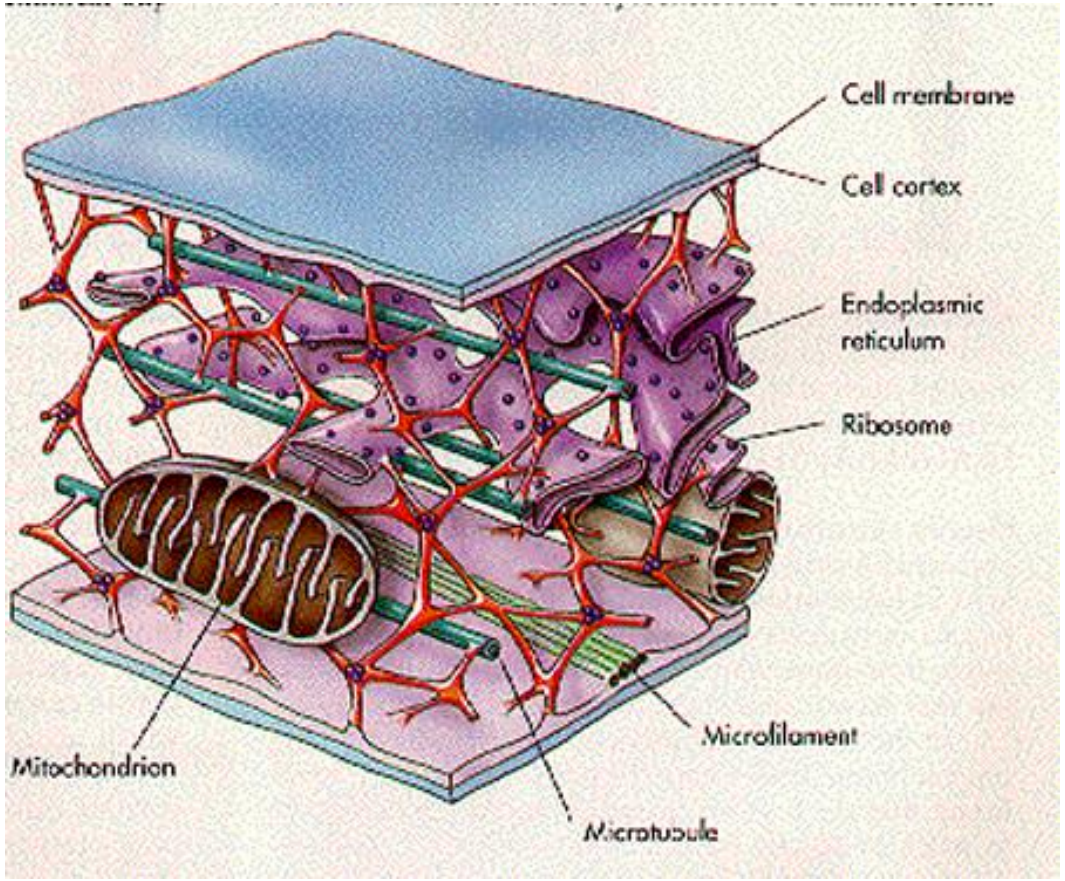
Lysosome

- "clean up crew"
- Contains enzymes that breakdown old or worn out organelles
- Also break down larger molecules into sizes that are more useful



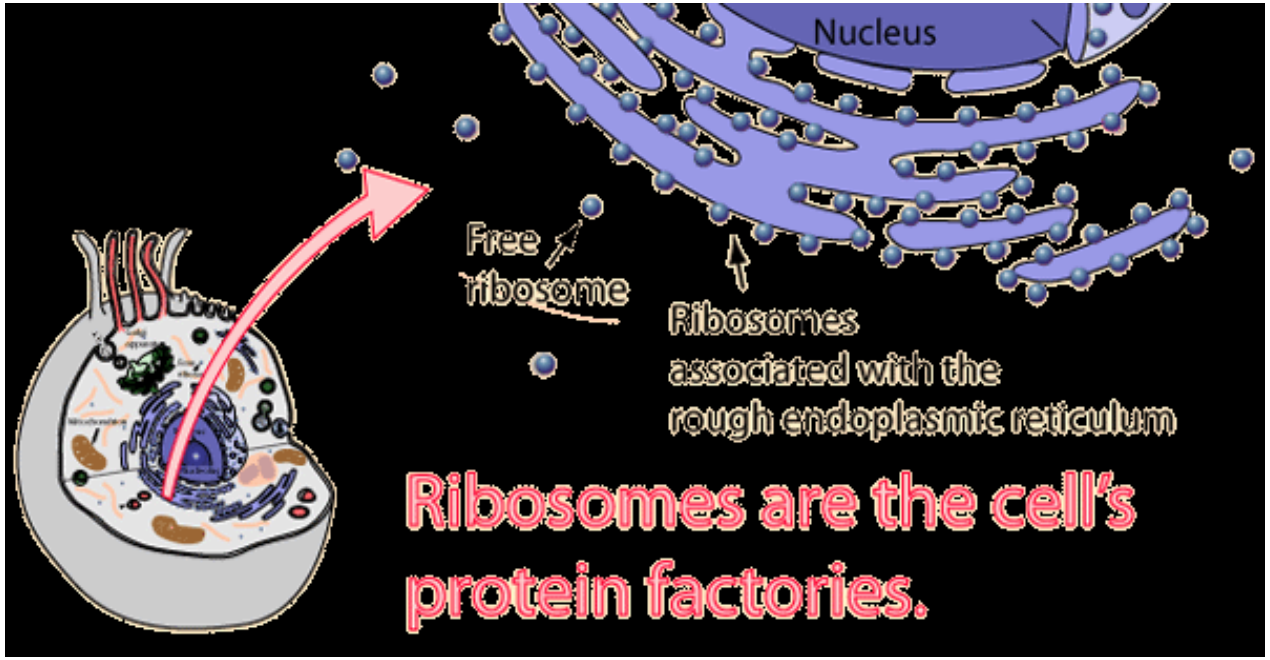
Cytoskeleton

- Protein filaments that provide cellular structure
- Acts as a scaffold for the cell
- Keep in mind: shape matters for a cell
- Cytoskeleton can also help with movement (cilia & flagella)



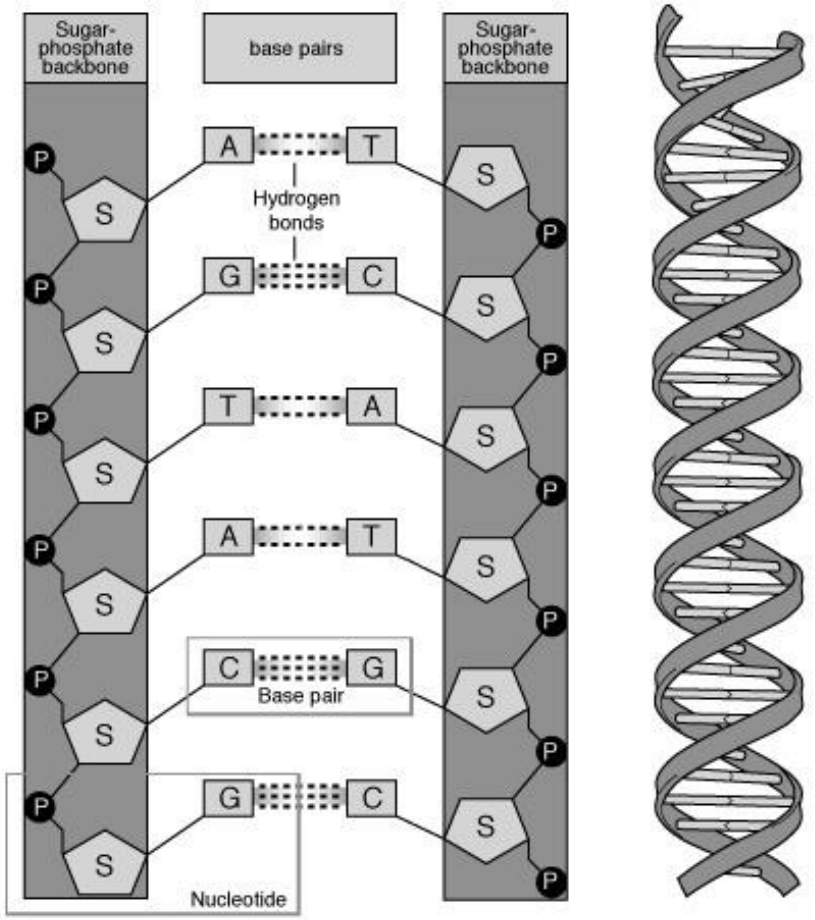
Ribosomes

- "protein factories"
- Multiple ribosomes in most cells
- Contain RNA which "reads" directions given through DNA
- RNA = ribonucleic acid



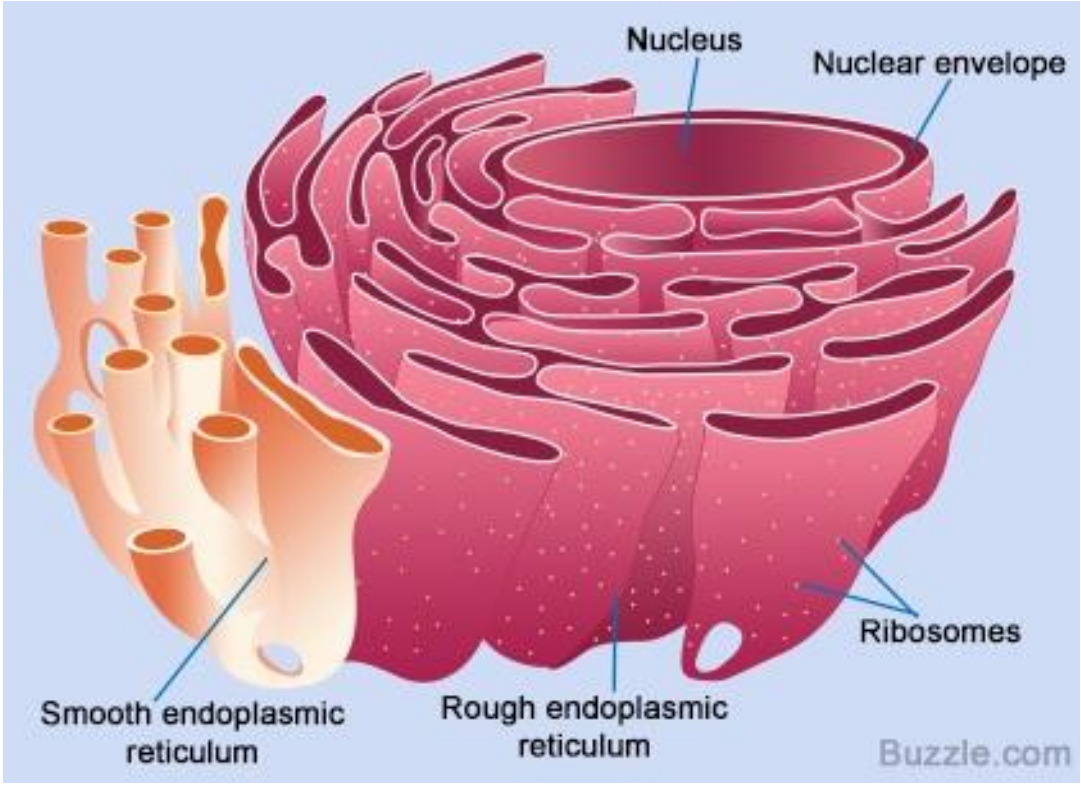
SIDEBAR: DNA

- Deoxyribonucleic acid
- Utilizes deoxyribose as its sugar
- Composed of a sugar-phosphate backbone attached to a base pair that is held together by hydrogen bonds



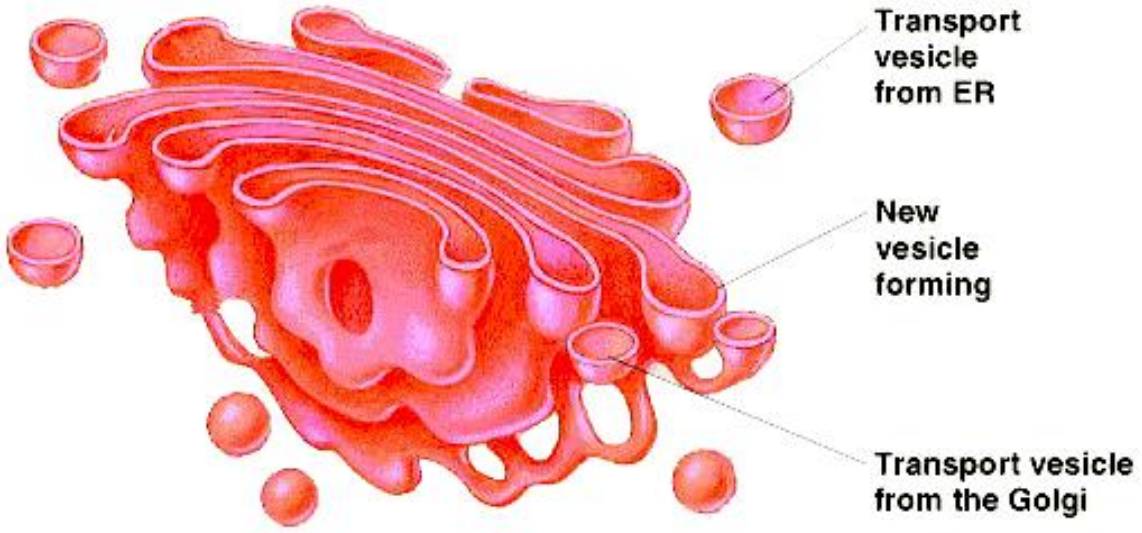
Endoplasmic Reticulum

- Where lipids (fats) and proteins are produced
- Smooth endoplasmic reticulum = no ribosomes
- The smooth ER specializes in synthesizing lipids and the detoxification of drugs (liver cells)
- Rough endoplasmic reticulum = ribosomes for export (out of the cell)



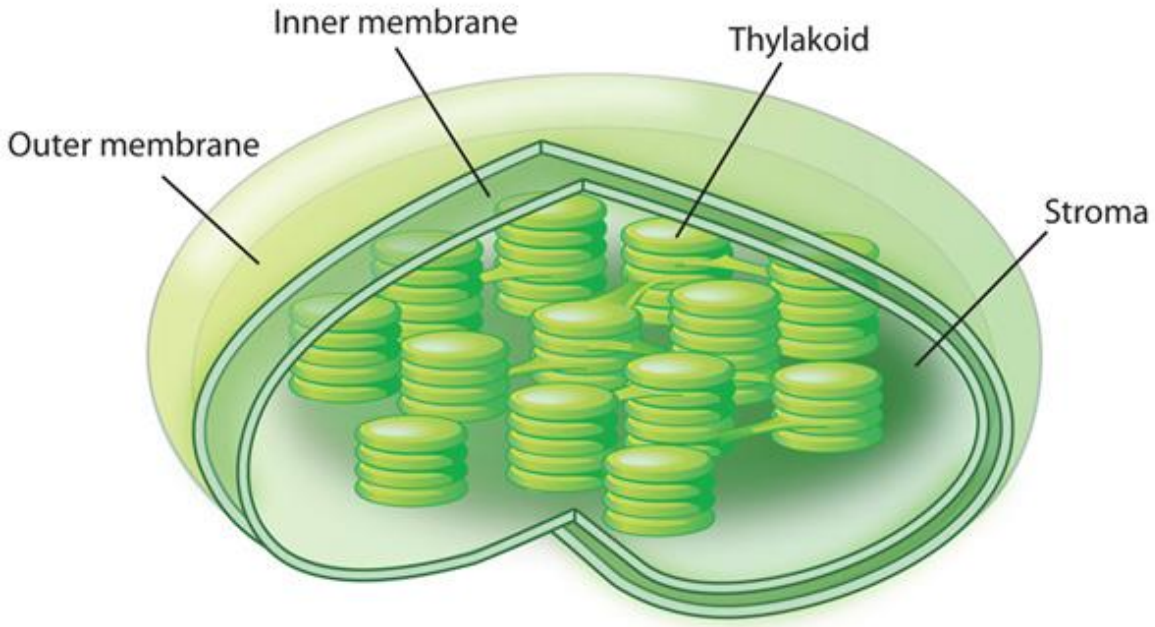
Golgi Apparatus

- "Factory"
- Modifies, sorts and packages proteins received from ribosomes
- Customization shop
- Works with the vesicle to transport proteins where they are needed



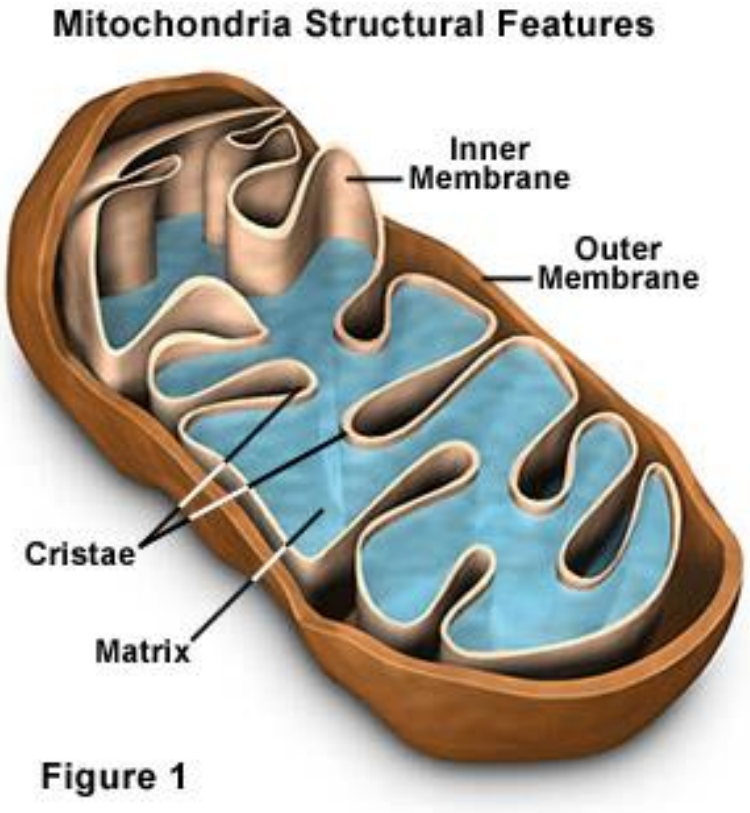
Chloroplast

- Energy production in plants
- Essentially solar power plants
- Converts light energy into sugars
- Double membraned



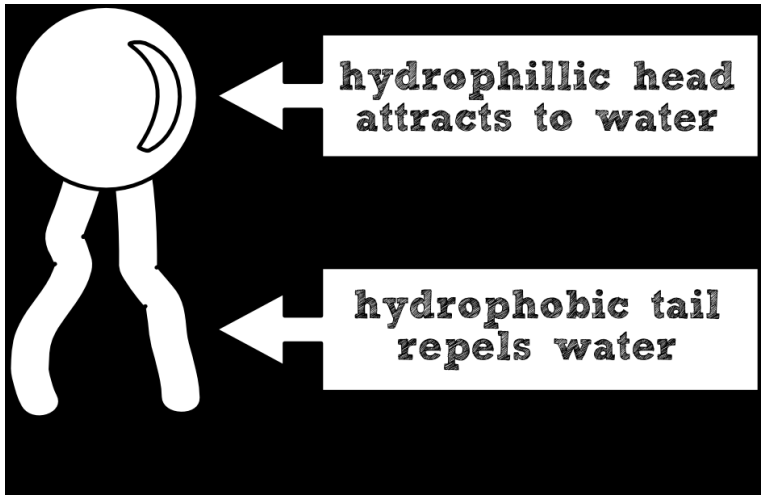
Mitochondria

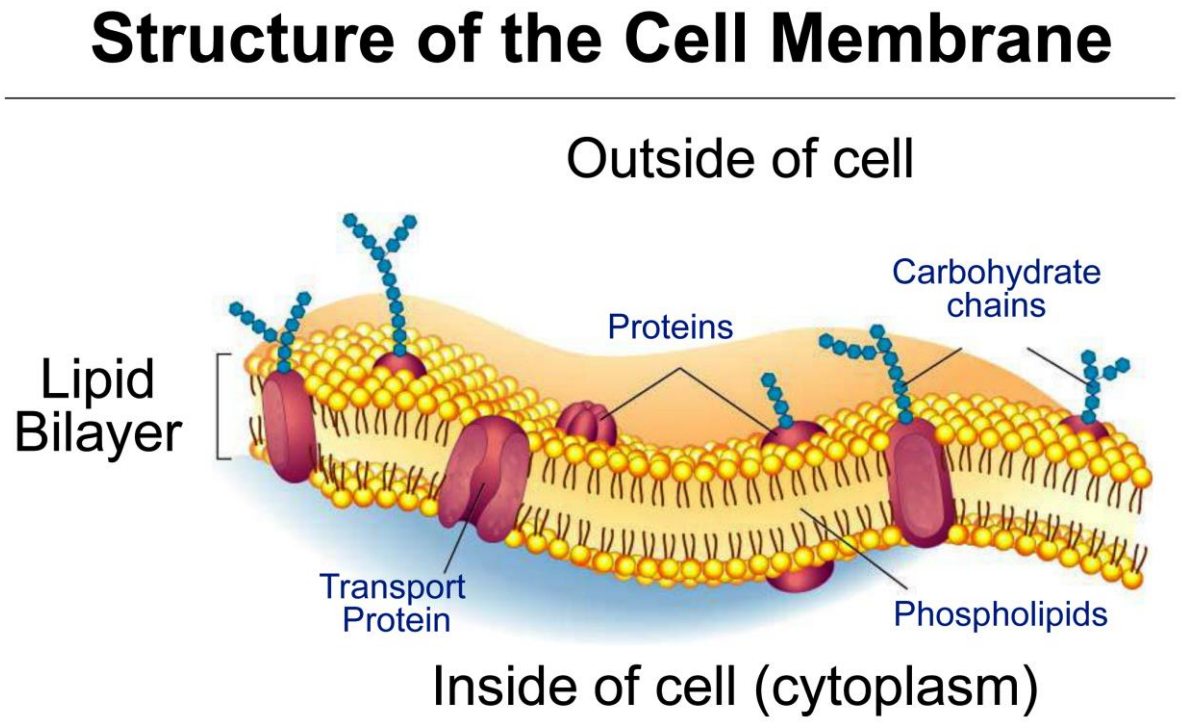
- Converts chemical energy (found in food) into energy [ATP]
- Double membrane (like the chloroplast)
- Mitochondrial DNA comes from mom!



Cell Membrane

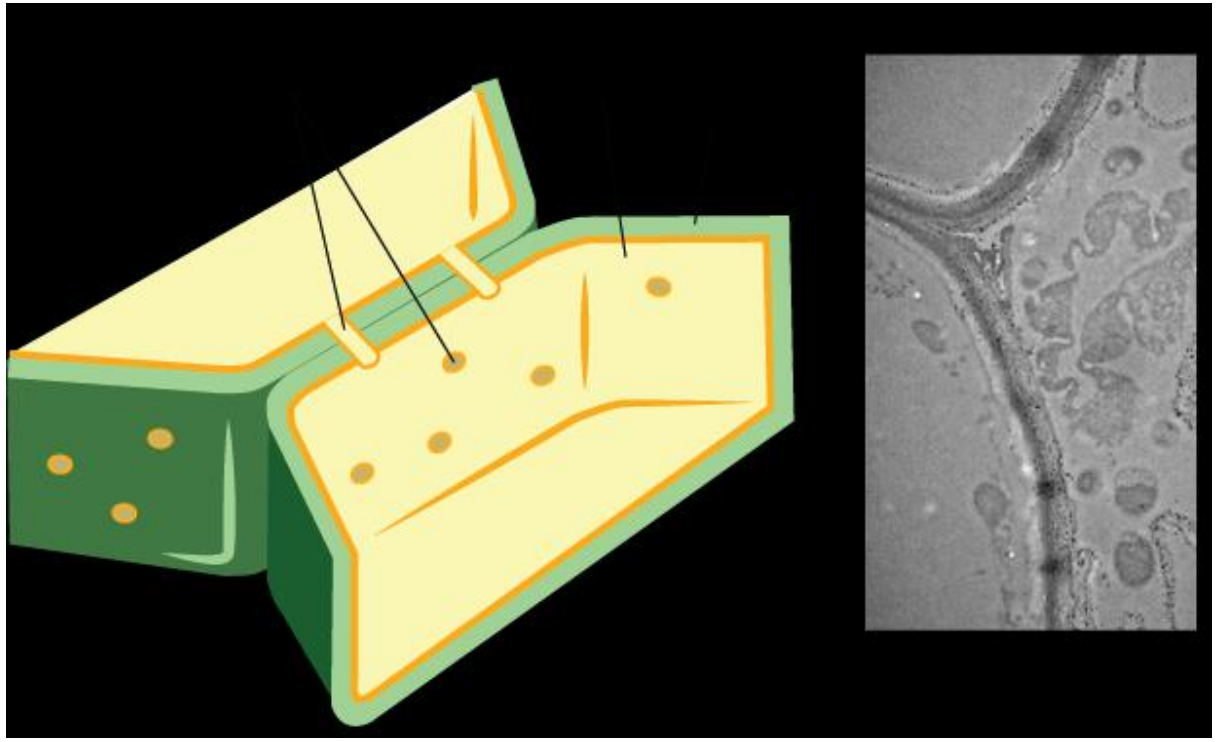
- Selectively permeable (allows certain things into and out of cell)
- Flexible structure
- Composed of a phospholipid bilayer





Cell Wall

- More rigid than cell membrane
- Helps maintain shape of plant cell and allows them to stand up against gravity



Homework

QUIZ OVER CELLULAR ORGANELLES

WEDNESDAY, JAN. 6