

Biology
The Cell
2012 - 2013
#3

- I. Cytoplasm = the material inside the cell
 - A. cytosol (hyaloplasm) = the fluid portion of the cytoplasm
 - B. organelles = the small structures (organs) of the cytoplasm
- II. Cytoskeleton = the support system of the cell
 - A. microtubules
 - B. microfilaments
- III. Nucleus = the “control center” of the cell
 - A. contains the genetic information
 - 1. chromatin = thin form of DNA
 - 2. chromosomes = thick form of DNA
 - B. surrounded by a nuclear envelope
 - 1. contains pores for materials to enter and leave the nucleus
 - C. contains the nucleolus = area of densely packed DNA
 - 1. makes ribosomes
- IV. Mitochondria = the “powerhouse” of the cell
 - A. converts glucose to ATP
 - 1. occurs during the process of respiration
 - 2. reaction occurs on the inner membrane of the mitochondria (cristae)
 - B. contains its own DNA = mtDNA
 - 1. used to identify bodies → Jesse James

- V. ribosomes = make proteins (attach amino acids into long chains)
 - A. some ribosomes are found floating in the cytoplasm
 - make proteins for use inside the cell
 - B. some ribosomes are found attached to the endoplasmic reticulum
 - make proteins for use outside of the cell
- VI. Rough endoplasmic reticulum (rough ER) = carry proteins through the cell (highway system)
 - A. has ribosomes attached
- VII. Smooth endoplasmic reticulum (smooth ER) = detoxifies the cell
 - A. has no ribosomes attached
- VIII. centrioles = act to move chromosomes during cell division
- IX. golgi bodies = put proteins into vesicles
- X. vacuoles = store enzymes and waste materials
- XI. lysosomes = contain enzymes used to help break down tissues (suicide sacs)
- XII. peroxisomes = bag of enzymes that help to break down chemicals
 - A. used to break down hydrogen peroxide in cells
- XIII. Cilia / flagella = move the cell or move substances past the cell
 - A. cilia = many on a cell, short in length
 - B. flagella = one or two on a cell, long in length