

## AP BIOLOGY - UNIT 3 STUDY GUIDE: Cells & Cell Transport (CH 6-7)

### Topics / Concepts to review and understand:

prokaryotic vs. eukaryotic cells cell organelles: structures and functions differences between plant & animal cells endomembrane system -which structures are involved? -how does it work? cell membranes -components (chemistry, behavior) -functions of the various components	passive vs. active transport processes -examples of each type -specific types of molecules hypotonic vs. hypertonic vs. isotonic -in which direction does water move? -why? -effect of cell wall / turgor pressure endocytosis vs. exocytosis types of endocytosis (phagocytosis, pinocytosis, receptor-mediated)
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### Vocabulary to review:

CHAPTER 6:		CHAPTER 7:	
light microscope	chloroplasts	selectively permeable	proton pump
electron microscope	mitochondria (&cristae)	phospholipid bilayer	cotransport
cell fractionation	peroxisome	integral proteins	exocytosis
centrifugation	cytoskeleton	peripheral proteins	endocytosis
prokaryote	microtubules	glycoproteins	phagocytosis
eukaryote	microfilaments	glycolipids	pinocytosis
cytoplasm	intermediate filaments	passive transport	receptor-mediated endocytosis
nucleus	centrioles	active transport	ligands
chromatin	cilia / flagella	diffusion	coated pits
chromosome	cell wall	facilitated diffusion	fluid mosaic model
nucleolus	collagen	osmosis	cholesterol
ribosome	plasmodesmata	hypertonic	transport proteins
ER (smooth & rough)	tight junctions	hypotonic	concentration gradient
glycoproteins	desmosomes	isotonic	turgor pressure
glycolipids	gap junctions	sodium-potassium pump	gated channels
Golgi apparatus		membrane potential	aquaporins
lysosomes		electrochemical gradient	
vacuole		sodium-potassium pump	

***\*\*Recommended: Do the "Test Your Understanding" questions in Chapter 6 (#1-7) and Chapter 7 (#1-6).***

### Review Assignment: complete on a separate piece of notebook paper.

- For each of the following, indicate which type of microscope you would use (and why):
  - the changes in shape of a living human white blood cell;
  - the details of surface texture of a human hair;
  - the detailed structure of an organelle in the cytoplasm of a human liver cell.
- Explain how and why phospholipids tend to organize when in an aqueous environment.
- Describe the structure and function of the various proteins associated with the cell membrane and how they provide for the interaction of the cell with the outside environment (i.e. transport, cell-cell recognition, receive & respond to signals, etc.).
- Compare and contrast the cellular characteristics of prokaryotes and eukaryotes.
- Compare and contrast the cellular characteristics of plant and animal cells.

- 6) Describe how an animal cell AND a plant cell might will react when placed in either a hypertonic, hypotonic, or isotonic environment.
- 7) After very small viruses infect a plant cell by crossing its membrane, the viruses often spread rapidly throughout the entire plant without crossing additional membranes. Explain how this occurs.
- 8) Consider the following organelles: mitochondrion, chloroplast, ribosome, lysosome, peroxisome. Which organelle does not belong in the list? Why not?
- 9) What is the relationship of chromosomes to chromatin?
- 10) For each structure, describe 2 functions:
- A) rough endoplasmic reticulum
  - B) smooth endoplasmic reticulum
  - C) microtubules
  - D) microfilaments
  - E) intermediate filaments
- 11) Which component of the cytoskeleton is most important in:
- A) holding the nucleus in place?
  - B) guiding transport vesicles from the the Golgi to the plasma membrane?
  - C) amoeboid movement?
  - D) moving flagella and cilia?
  - E) muscle contraction?
  - F) reinforcing the shape of a cell?
- 12) Describe the function of each intercellular junction listed below:
- A) plasmodesmata
  - B) tight junctions
  - C) desmosomes
  - D) gap junctions

***\*\*REVIEW Study Questions from CH 6 & 7; cell parts chart & cell processes chart; Lab 1A & 1B Prelab, concepts & results***