Review 08

Microscopes, con't.

light microscope

scanning e.m.

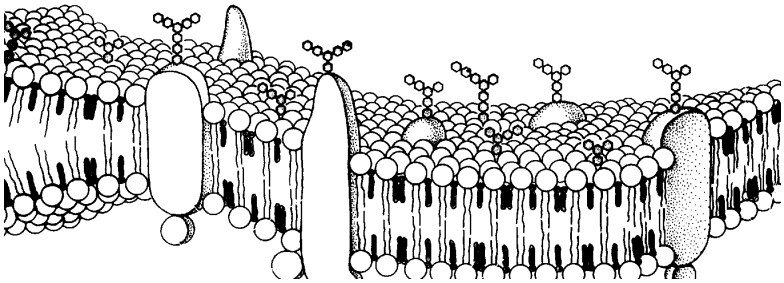
transmission e.m. 50,000,000X mag; 0.00004 μ resolving power

look at very thin sections of dead, dried, treated specimens

Be able to recognize the different kinds of images created by these three types of microscopes!

Cell Membrane--barrier between living and non-living

- **controls, to large extent, what enters and leaves the cell**
- **composed of lipids, proteins & a small amt of carbohydrate**
- **FLUID MOSAIC MODEL of membrane structure....know this!**



Movement of substances into and out of cells

- **Diffusion**
  - **★movement of substances from where they are in higher concentration to where they are in lower concentration**
  - **★a purely physical process resulting from constant molecular movement**

Cell membrane is

- **★hydrophobic barrier to movement of hydrophilic substances**
- **★selectively permeable**

The hydrophobic stuff moves readily into cell membrane, giving it access to inside or outside of cell - no problem!

The hydrophilic stuff can't move *on its own* across cell membrane—so how?

- **Hydrophilic pores/channels**
  - **★ movement of water and certain small ions**
  - **★ proteins which form channels through membrane (e.g. aquaporins)**

OSMOSIS = diffusion of water through a semi- (selectively) permeable membrane - know terms hypertonic, hypotonic, isotonic and how to predict movement of water via osmosis

Review 08, con't

- Carriers—small molecules such as sugars, amino acids
  - ★ characteristics of carriers
    - ✓proteins
    - ✓specific for molecules transported
    - ✓limited in quantity—exhibit saturation kinetics
  - ★ types of carriers:

    Facilitated transport (facilitated diffusion)
    - ✓moves molecules *with* their diffusion gradients
    - ✓no energy required

    Active transport
    - ✓moves molecules *against* their diffusion gradients
    - ✓requires energy