Major functions of membrane
1. transport
2. Enzyme activity
3. Signal transduction
4. cell-cell
5. intracellular joing - connecting cells to the cytoskeleton
6. Attachment

all are specific - have specific jobs
all are multigene families - can be changed by
all are integral membrane proteins

transport proteins:

Channels:
- fastest (10^6 10^8 particles/sec)
least motion of chair (maybe a slight pulse)
must move things from high to low concentration so no energy is required (diffusion) passive transport
a aquaporin = channel for water - not all polar can get across bilayer

Carriers:
10^4 particles/sec
obvious binding + movement
move down concentration gradient (high to low)

Pumps:
10^2 particles/sec
- most movement require energy can move particles against gradient (low to high)
active transport

aqueous pore formed by many proteins in a group in Membrane

Primary Pumps get their energy by converting ATP-D ADP through hydrolysis
secondary pumps - uses energy from molecules that goes from high to low (energy is created by gradient is created by primary pump) to pump diff. molecule from low to high
diffusion - moves solute (particle)
Osmosis - moves H_2O (or solvent)