

- Golgi Body: flattened membranes stacked on top of each other
- <http://www.bio.miami.edu/~cmallery/150/cells/golgi2TEM.jpg>
  - o lumen area
- <http://www.bio.miami.edu/~cmallery/150/cells/CRMgolgi.jpg>
  - o one side is cis phase - receiving side
  - o fuse and form membrane on cis side
  - o cis/trans: in-phase out phase
  - o trans: out phase
  - o product of trans side is going to encapsulate them into a vessel called transport vesicles
- <http://www.bio.miami.edu/~cmallery/150/cells/c7.6.13.Golgi.jpg>
- Inside of lysosome has low pH
  - o Comes about by pumps
  - o Pump: protein that will use cellular energy of ATP, hydrolyze ATP, and use the energy to move something against concentration gradient
  - o H<sup>+</sup> will be transported into inside lysosome to make it very acidic
  - o Pump: splits ATP to move something against concentration gradient
- Phagocytosis: outside to inside lysosome digesting food
- Autophagy: lysosome breaking down damaged organelle
- Proteasome:
  - o Large organelle structure

- o 12-15 nanometers
- o Ubiquitin: highly conserved in all cells in all life
- o Proteasome recognizes that something may be wrong
- o Strong amino acid inside proteasome
- o Proteasome gets rid of bad proteins
- Endocytotic Pathway:
  - o Process to produce product that is endocytotic vessel
  - o Vessel could be lysosome or something else
  - o Golgi will modify the sugars
- Golgi:
  - o The post office
- 3 ways to tag proteins for transport:
  - o nuclear localizing signal
  - o signal sequence
  - o carbohydrate tags
- "which of the following is a way to signal"
- actin filaments, microtubules, intermediate filaments based on size
- G-actin (monomer) will turn into F-actin (polymer) and turn into microfilaments
- Assembly is at + end
- Disassembly is at - end
- 3 types of actin

- o alpha: muscle contraction
  - o beta: cell motility
  - o gamma: cell motility
- microfilaments help make more surface area by pushing through membrane
- intermediate filaments - 10nm in diameter
- microtubule protein - individual globular tubular
  - o Assembles itself into a hollow core
  - o + and - end
  - o spindle microtubule: opposite
    - one end is depolymerized
    - pushing and pulling from one side to another
- Role of cytoskeleton:
  - o [Possible role of cytoskeleton in cell structure](#)
  - o framework among which you can hang things
  - o Holds it in 3 dimensional space
  - o San Francisco Gate Bridge
  - o Baltimore harbor
- Flagella
  - o Allow things to move by allowing flagella like structure in a propeller motion
- Cilia:
  - o Fixed at a particular point