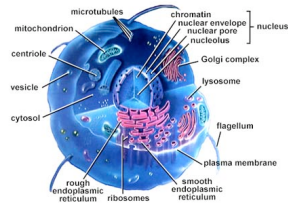


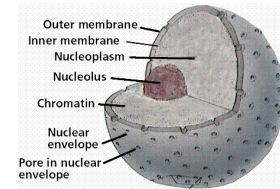
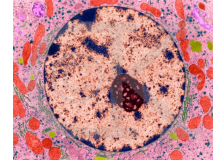
Organelles

- Specialized structures within eukaryotic cells that perform different functions...
- Sack lunch, with baggies
- Perform functions such as :
 - protein production (insulin, lactase...)
 - Produce carbohydrates and lipids...



Organelles of Note: The Nucleus

- Contains the genetic material (DNA), controls protein synthesis.
- DNA --> RNA --> Protein
- Surrounded by a **double** membrane with pores
- Contains the **chromosomes** = fibers of coiled DNA & protein
- Nuclear membrane is continuous with the rough ER



Nucleus

- **Structure:**
 - Largest organelle; can take 10% of cell space
 - surrounded by a double membrane
 - Nuclear pores (holes)
 - Contains chromatin and nucleolus
- **Function:**
 - controls the metabolic activities of cell.
 - central control center; monitors internal and external conditions and turns on or off different genetic programs.
- **Structure-Function:**
 - Spherical for efficiency; usually centrally located
 - Protective membrane
 - Contains chromatin (instructions and blueprint)

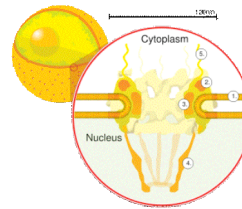
Nuclear Envelope (Membrane)

- **Structure:**
 - similar in structure to the plasma or cell membrane but is a **DOUBLE** membrane.
 - Nuclear pores or holes occur at intervals along the membrane.
- **Function:**
 - Keeps outside things out and inside things in
- **Structure-Function:**

Nucleolus

- **Structure:**
 - densely packed chromosomes
 - protein and precursor RNA strands from which the subunits of ribosomes are formed
- **Function:**
 - Rich in RNA
 - ribosome synthesis
- **Structure-Function:**
 - .

Nuclear Pore



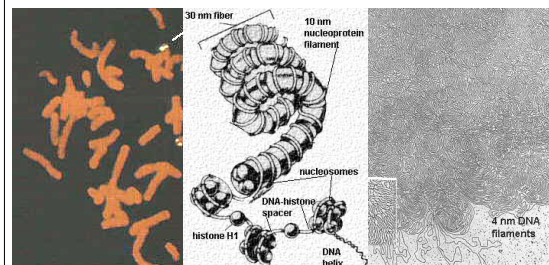
1. nuclear envelope
2. outer ring
3. spokes
4. basket
5. filaments.

- **Structure:**
 - Nuclear pores or holes occur at intervals along the membrane.
- **Function:**
 - provide a way for the nucleus to communicate with the cytoplasm.
 - Substances pass in and out of the nucleus through these openings.
- **Structure-Function:**
 - .

Chromatin

- **Structure:**
 - made up of genes
 - are in turn made up of DNA.
 - The chemical components and the order of the chemical components determine the specific characteristics.
- **Function:**
 - Carries the genetic code which determines characteristics of an organism
- **Structure-Function:**
 - .

Chromosomes



All Chromosomes from a single cell

One chromosome Pulled apart

A single chromosome Showing the amount of DNA within