

- Today-

- Announcements:

Chapter 6-Part b

Overhead notes

- I. The Endomembrane System Revisited
- **The endomembrane system is a group of organelles that share membranes, either by direct contact, or by indirect contact through vesicles.**
 - Nuclear envelope
 - Rough and smooth ER
 - Golgi Apparatus
 - Plasma Membrane
 - ~~Lysosome~~
 - ~~Vacuole~~

II. Lysosomes

- Is a membranous sac of hydrolytic enzymes
- “Recycling Center” of the cell.
- Rich in digestive enzymes.
- pH 5
- Not found in plant cells

II. Lysosomes

- Functions include:
 - Phagocytosis = *phagein* (to eat); *ketos* (vessel);

II. Lysosomes

- Functions include:
 - Autophagy =

II. Lysosomes

- **Functions also include:**
 - **Digestion of Macromolecules using...**
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 - **Genetic Diseases Include...**
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Question 6.5

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III. Vacuoles

- **Membrane-enclosed organelles that are larger than a transport vesicle or lysosome.**
- **Three different types**

III. Vacuoles

- **Food vacuoles**

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- **Contractile vacuoles**

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III. Vacuoles

- **Central Vacuole**

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IV. Leaving the Endomembrane System

- Nuclear envelope
- Rough and smooth ER
- Golgi Apparatus
- Plasma Membrane
- Lysosome
- Vacuole

V. Peroxisomes

- **Not part of the endomembrane system.**

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V. Peroxisomes

- **Oxidase enzyme removes hydrogens from the substrate:**



- **Catalase enzyme converts toxic hydrogen peroxide to water.**



VI. Mitochondria and Chloroplasts

- **Semiautonomous organelles.**
- **Contain own ribosomes and some DNA.**

A. Mitochondria

- Major site for ATP synthesis (cellular respiration, Ch 9)
- In almost all Eukaryotic Cells
- For Exam 2:
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B. Chloroplasts

- Found only in plants and algae
- Are the sites of photosynthesis (Ch 10)
- For Exam 2:
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Question 6.6

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VII. Extracellular Structures

A. Cell Walls in Plants

- Basic design = strong *cellulose* fibers embedded in a matrix of other polysaccharides and proteins.
- Function =

VII. Extracellular Structures

B. Extracellular Matrix (ECM) in Animal Cells

- Basic design = Matrix of glycoproteins and other macromolecules
- Function =

VIII. Cytoskeloton

- Three components:
 - A. Microtubules
 - B. Microfilaments
 - C. Intermediate Filaments

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VII. Cytoskeleton

A. Microtubules

Structure:

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VII. Cytoskeleton

A. Microtubules

Functions:

- 1.
- 2.

VII. Cytoskeleton

A. Microtubules

Functions (con't):

- 3.
- 4.

Cilia (singular, cilium)	Flagella (singular, flagellum)
Occur in large numbers on a cell surface.	One or a few per cell.
Work like oars, alternating power with recovery strokes.	Undulating motion that creates force in the same direction as the axis of the flagellum.

A. Microtubules

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VII. Cytoskeleton

B. Microfilaments

Structure:

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VII. Cytoskeleton

B. Microfilaments

Functions include:

- 1.
- 2.
- 3.
- 4.

VII. Cytoskeleton

C. Intermediate filaments

Structure:

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Functions:

- 1.
- 2.
- 3.

VIII. Cell-Cell Communication

- Plant Cells = Plasmodesmata

- Animal Cells = Gap Junctions

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Question 6.7

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