

**PLANT PHYSIOLOGY Lecture 5 - Cell structure & function**

- I. The cell**
  - A. Cells are fundamental organizational units of all living things**
  - B. Types of cells**
    - 1. Prokaryotic
    - 2. Eukaryotic
      - a) Plant
      - b) Animal
- II. Protoplast**
  - A. Protoplasm within membrane / cell contents without the cell wall**
- III. Organelles**
  - A. Cell wall (primary and secondary)**
    - 1. Plants
    - 2. Support, structure, & protection
  - B. Nucleus**
    - 1. Genetic information - DNA
    - 2. Cell regulation - "the brains"
  - C. Chloroplasts**
    - 1. Plants
    - 2. Photosynthesis
      - a) Thylakoids - light capture
      - b) Stroma - conversion to sugar
    - 3. Contain some DNA
  - D. Mitochondria**
    - 1. Energy from sugars
    - 2. Contain some DNA
  - E. Cytoplasmic membrane system**
    - 1. Packaging & transport
      - a) Golgi apparatus (dictyosomes)
      - b) Endoplasmic reticulum
      - c) Ribosomes
  - F. Microbodies**
    - 1. peroxisomes - photorespiration
    - 2. glyoxisomes - conversion of fats into sugars
  - G. Microtubules - movement & wall synthesis**
  - H. Ergastic materials**
    - 1. Starch grains - storage
  - I. Vacuoles**
    - 1. Storage
    - 2. Waste
    - 3. Water regulation