

Cell Organelles

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- A. **Cell walls:** found only in plants, fungi, some protists, and some bacteria; they consist mainly of cellulose in plant and help control osmotic uptake of water
- B. **Centrioles:** give rise to spindle fibers that aid in mitosis, almost exclusively found in animal cells
- C. **Chloroplasts:** site for photosynthesis in plants cells, they contain photosynthetic pigments, including chlorophyll
- D. **Chromosomes:** genetic material in the nucleus of the cell, they pass on hereditary information and regulate the cell through the production of proteins
- E. **Cilia and flagella:** have the same construction, aid in the movement of individual cells or movement of water past cells that are part of tissues
- F. **Endoplasmic Reticulum(ER):** both smooth(no ribosomes) and rough(ribosomes embedded). Rough ER is site where ribosomes make proteins for use in cell and for export from cell with the aid of various RNAs. Smooth ER makes lipids and detoxifies enzymes

Cell cycles - Interphase

Active phase of mitosis, including two growth phases *G1* and *G2* and an *S* phase. Following these phases, the cell undergoes mitosis, or an *M* phase where karyokinesis occurs followed by cytokinesis.

1. *G1*: primarily a growth phase of the cell
2. *S*: growth and duplication of DNA
3. *G2*: growth and preparation for karyokinesis(mitosis)
4. *M*: the four stages of mitosis followed by cytokinesis