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1 | Cells

1.1 | The Two Major Cell Types

- **Prokaryotic cells** — often in single-cellular cells, has a cell wall, and contained in capsules
- **Eukaryotic cells** — in multicellular cell elements, contains a plasma membranes and nucleus

1.2 | Prokaryotic vs Eukaryotic Cells

Prokaryotic Cells	Both	Eukaryotic Cells
Cell wall	DNA	Plasma membrane
Capsule container	Cytoplasm	Nucleus
	Ribosomes	Mitochondria
	Membranes	

1.3 | Eukaryotic Cells, a deep dive

1.3.1 | Plant and Animal Cells, Compare and Contrast

Animal Cells	Plant Cells
Has soft plasma membrane	Has hard cell wall
No chloroplast	Has chloroplast to do photosynthesis
Has cytoplasm	Has cytoplasm
Has Ribosomes	Has Ribosomes
Has mitochondria	Has mitochondria
No plastids	Has plastids — organelles that form pigments
Has cilia — hair like extrusions	Mostly no cilia

1.3.2 | Endosymbiotic theory

Endosymbiotic theory states that organelles within our current eukaryotic cells — the mitochondria and chloroplasts — are originally prokaryotic cells in their own right. This is because they divide independently through binary fission, and also contains circular DNA that is independent of the main cell itself.

1.3.3 | Organelles in Eukaryotic Cells

See [KBhBIO101EukaryoticOrganelles](#)