

## **Types of Cells**

Cells are similar to factories with different labourers and departments that work towards a common objective. Various types of cells perform different functions. Based on cellular structure, there are two types of cells:

- Prokaryotes
- Eukaryotes

## **Prokaryotic Cells**

1. Prokaryotic cells have no nucleus. Instead, some prokaryotes such as bacteria have a region within the cell where the genetic material is freely suspended. This region is called the nucleoid.
2. They all are single-celled microorganisms. Examples include archaea, bacteria, and cyanobacteria.
3. The cell size ranges from 0.1 to 0.5  $\mu\text{m}$  in diameter.
4. The hereditary material can either be DNA or RNA.
5. Prokaryotes generally reproduce by binary fission, a form of asexual reproduction. They are also known to use conjugation – which is often seen as the prokaryotic equivalent to sexual reproduction (however, it is NOT sexual reproduction).

## **Eukaryotic Cells**

1. Eukaryotic cells are characterised by a true nucleus.
2. The size of the cells ranges between 10–100  $\mu\text{m}$  in diameter.
3. This broad category involves plants, fungi, protozoans, and animals.
4. The plasma membrane is responsible for monitoring the transport of nutrients and electrolytes in and out of the cells. It is also responsible for cell to cell communication.
5. They reproduce sexually as well as asexually.

6. There are some contrasting features between plant and animal cells. For e.g., the plant cell contains chloroplast, central vacuoles, and other plastids, whereas the animal cells do not.

### Difference between Prokaryotic and Eukaryotic Cells

	<b>Prokaryotes</b>	<b>Eukaryotes</b>
<b>Type of Cell</b>	Always unicellular	Unicellular and multi-cellular
<b>Cell size</b>	Ranges in size from 0.2 $\mu\text{m}$ – 2.0 $\mu\text{m}$ in diameter	Size ranges from 10 $\mu\text{m}$ – 100 $\mu\text{m}$ in diameter
<b>Cell wall</b>	Usually present; chemically complex in nature	When present, chemically simple in nature
<b>Nucleus</b>	Absent. Instead, they have a nucleoid region in the cell	Present
<b>Ribosomes</b>	Present. Smaller in size and spherical in shape	Present. Comparatively larger in size and linear in shape
<b>DNA arrangement</b>	Circular	Linear
<b>Mitochondria</b>	Absent	Present
<b>Cytoplasm</b>	Present, but cell organelles absent	Present, cell organelles present
<b>Endoplasmic reticulum</b>	Absent	Present
<b>Plasmids</b>	Present	Very rarely found in eukaryotes
<b>Ribosome</b>	Small ribosomes	Large ribosomes
<b>Lysosome</b>	Lysosomes and centrosomes are absent	Lysosomes and centrosomes are present
<b>Cell division</b>	Through binary fission	Through mitosis
<b>Flagella</b>	The flagella are smaller in size	The flagella are larger in size
<b>Reproduction</b>	Asexual	Both asexual and sexual
<b>Example</b>	Bacteria and Archaea	Plant and Animal cell

## Cell Structure

The cell structure comprises individual components with specific functions essential to carry out life's processes. These components include- cell wall, cell membrane, cytoplasm, nucleus, and cell organelles.

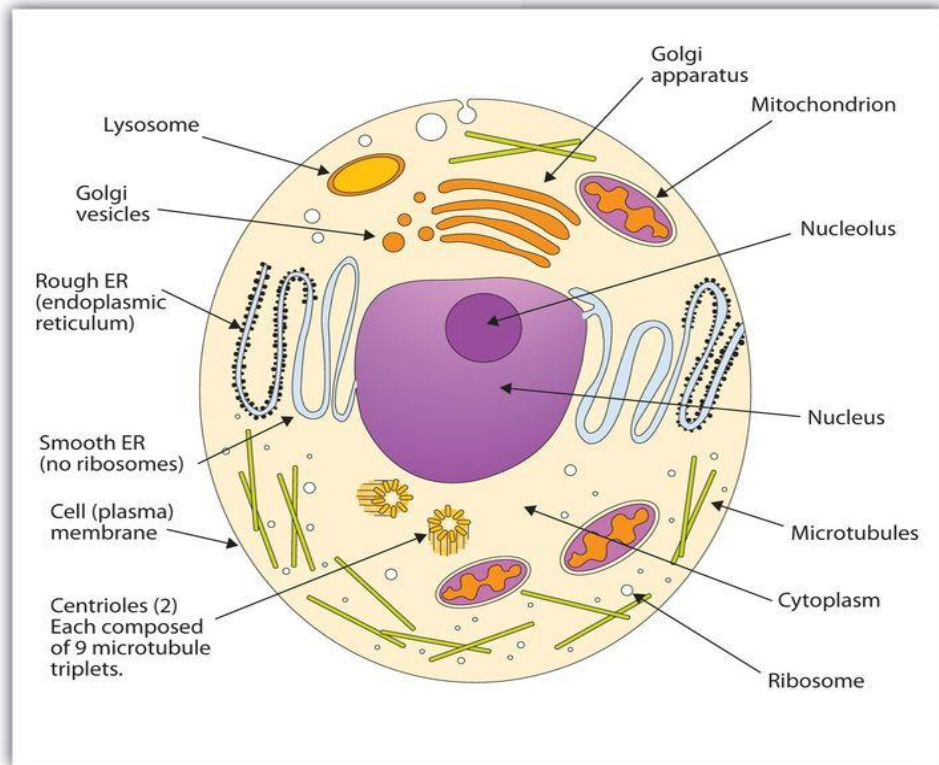


Fig. A typical Animal Cell