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Cellular Biology

Cells are the structural units of all living things (with the possible exceptions of viruses and prions). Prokaryotic cells lack a formed nucleus to house the genetic material (DNA) and nuclear proteins called histones. These cells, found only among bacteria, are small (1-5 microns), have a cell wall outside the cell membrane and lack membrane bound organelles. Eukaryotic cells are larger, have a membrane bound nucleus and various cellular organelles. They also have histones in association with the DNA in the nucleus. Except where specified, this site is dedicated to animal eukaryotic cell biology.

Cells arise in the body from progenitor or stem cells and become specialized for one or more distinct functions such as contraction, nerve conduction, secretion, absorption, or protection. This process of cell specialization is known as cell differentiation. Structural or morphological modifications during differentiation are accompanied by biochemical changes. For example, formation of red blood cells requires the differentiating cells to make specialized proteins for oxygen transport and jetison the nucleus.

Milestones in Cell Biology

- 1626 Redi postulated that living things do not arise from spontaneous generation.
- 1655 Hooke described 'cells' in cork.
- 1674 Leeuwenhoek discovered protozoa. He saw bacteria some 9 years later.