

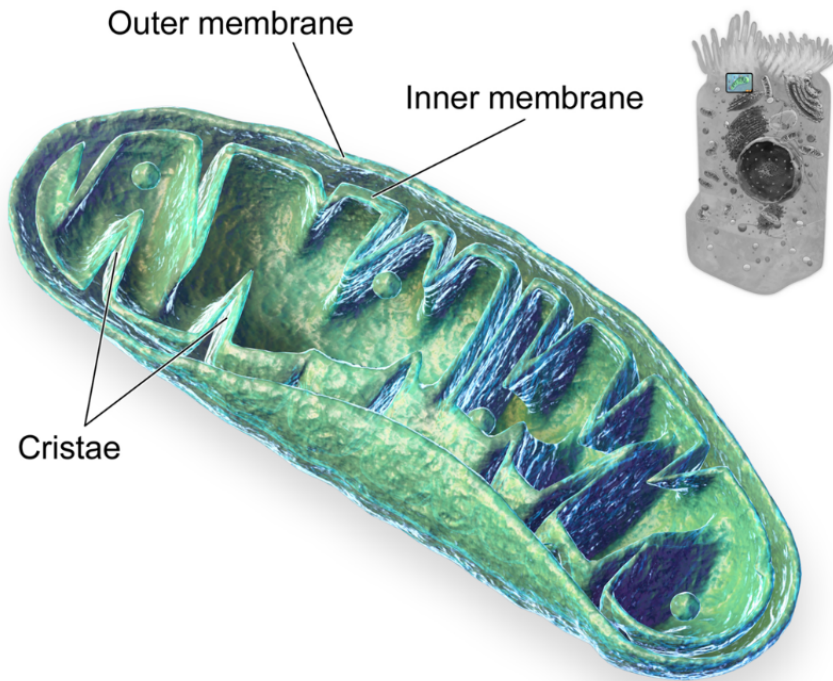
4.1.4

The Mitochondrion

The mitochondrion (or mitochondria in the plural form) is usually described as the “power plant” because it generates the energy (in the form of adenosine triphosphate or ATP) required for normal cellular function. Like the nucleus, mitochondria also have two membranes, which are critical for its function in energy production (further detail will be given later as we study metabolism). Also, like the nucleus, the mitochondrion has its own set of DNA with its own set of genes. Mitochondria are very important in metabolism and they can be stimulated to synthesize proteins from its DNA and even divide and create more mitochondria when metabolic demands increase (this happens with exercise training). The mitochondrion is composed of an outer and an inner membrane (a balloon within a balloon) that gives five distinct structural components.

1. The outer mitochondrial membrane
2. The intramembranous space (space between outer and inner membranes)
3. The inner mitochondrial membrane
4. Cristae (foldings of the inner membrane)
5. The matrix (space of the interior of the mitochondrion)

Each region is associated with a particular function as it relates to mitochondrial activity. The number of mitochondria per cell varies widely with more than 2000 per cell in liver cells and down to zero for red blood cells.



Mitochondria

Mitochondria. File: Blausen 0644 Mitochondria.png; Author: Blausen.com staff. "Blausen gallery 2014". *Wikiversity Journal of Medicine*. DOI:10.15347/wjm/2014.010. ISSN 20018762; License: Creative Commons Attribution 3.0 Unported license.

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