Chloroplasts and mitochondria worksheet figure 1

Mitochondria (single = mitochondrial) are often called power plants or cell energy plants that are responsible for making adenosine triposphate (ATP), the cell's primary energy-bearing molecule. The formation of ATP from the decomposition of glucose is known as cellular respiration. Mitochondria are oval-shaped, double-membrane (Fig. 1) organelles with their own ribosomes and DANA. Each membrane is a two-layer phospholipid embedded in proteins. The inner layer has folds called cristae, which increase the surface area of the inner membrane. The area surrounded by folds is called the mitochondrial matrix. Krista and Matrix play different roles in cellular appropriation. Depending on our theme of form following function, it is important to note that muscle cells have a very high concentration of mitochondria because muscle cells need a lot of energy to contract. Figure 1 This electron microscope presents mitochondrion as it is observed with an electron microscope. Note the inner and thigh meth, the krista, and the mitochondria matrix. (Credit: Changing the Work by Matthew Britton; Scale Scale Data from Matt Russell) Like the mitochondria, chloroflasto also has their own DEN and ribosomes. Loroplast functions as photosynthesis and can be found in oceritic cells such as plants and seaweed. Carbon dioxide (CO2), water, and light energy are used to make glucose and oxygen photosynthesis. This is the main difference between plants and animals: plants (autotrophs) are able to make their own food, like glucose, while animals (heterotrops) must rely on other organisms for their organic compounds or food source. Like mitochondria, the chromoplast has an outer and inner membrane, but within the space surrounded by an inner membrane of a chromoplast is a set of connected and naked membrane sachies, filled with liquids called thylakoids (Fig. 2). Each stack of thylakoids is called grana (plural = grana). The liquid surrounded by the inner membrane and surrounding the grana is called stroma. Figure 2 This simple diagram of loroplast shows the membrane, inner membrane, thylakides, grana and stoma. Chloroplists contain a green pigment called chlorophyll, which captures the energy of sunlight for photosynthesis. Like plant cells, photosynthetic prosthetics also have loroplasts. Some bacteria also perform photosynthesis, but they do not have chloroplase. Their photosynthetic pigments are located in the thylacine membrane within the cell itself. We mentioned that both mitochondria and loroflasto contain danna and ribosomes. You were wondering why? Strong evidence points to endosimbiosis as an explanation. Symbiosis is a relationship in which organisms of two separate species live in close cooperation and usually exhibit specific matches to each other. Endosymbiosis is a relationship in which one organism lives within the other. Endosimbiotic Relationships Nature. Bacteria that produce vitamin K live inside the human gut. This relationship benefits us because we cannot sedithe vitamin K. It is also beneficial for the bacteria that are protected from other organisms and are provided for stable habitat and abundant food by living within the colon. Scientists have long observed that bacteria, mitochondria, and ochriplazets are similar in size. We also know that mitochondria and choloplesto have danna and ribosomes, just like bacteria. Scientists believe that host cells and bacteria formed a mutually beneficial endosimbiotic relationship when the host cells ingested aerobic bacteria and cyanovacteria but did not destroy them. Through evolution, these ingamed bacteria have become more specialized in their functions, with aerobic bacteria becoming mitochondria and the photosynthetic bacteria becoming loroplasts. References Unless otherwise specified, images on this page are allowed under OpenStax CC-BY 4.0. Adapted text from: OpenStax, Biology Concepts. Open Texas C.N.X. May 18, 2016 9.10 If you see this post, it means we have difficulty loading external resources on our website. If you are behind a web filter, make sure that the *.kastatic.org and *.kasandbox.org are not blocked. Not blocked.