Prokaryotic and eukaryotic cells

Prokaryotic and Eukaryotic Cells Cells are divided into two ifications called prokaryotic and eukaryotic. Prokaryotic cells are much simpler construction than the eukaryotic and serve a different function. Plants, fungi, and animals are either single eukaryotic cells or are composed of eukaryotic cells (Krough, Ch. 4). Prokaryotic cells are classified as either bacteria or archaea. Another major difference is that eukaryotic cells have most DNA strands contained in a nucleus, whereas prokaryotic cells have circular DNA and do not have a nucleus (Fancher). Eukaryotic cells also have organelles, which are specialized structures that transfer energy that prokaryotic cells do not have (Krough, Ch. 4). While prokaryotes are single-celled, most eukaryotes are multi-celled which influences the cells mobility and defines their function. The simplicity and specialization of the prokaryotic cells and the complexity of the multi-celled structure of the eukaryotic cells limit and allow for the unique functions of each classification.

The simplicity of the prokaryotic cell gives it an independence and mobility that most eukaryotic cells do not possess. Prokaryotic cells are the building blocks of our immune system and have the ability to attack foreign life forms that invade their sphere. They form the bacteria in our intestines that provide necessary vitamins as well as preventing the growth of harmful fungus within our body. Prokaryotic cells are located almost everywhere in nature and are continually in the process of decomposing and recycling dead organisms (Campbell and Reece, 527). This process returns the basic chemical elements back to the earth, which will be used to fertilize plants and feed animals. It is the simplicity of the parkaryotic cell that gives it the diversity and flexibility to support the eukaryotic cells.

Eukaryotic cells are typically multi-celled organisms that have a complex

DNA structure that has evolved from prokaryotic cells. Eukaryotic cells have a well-defined nucleus and organelles, which have specialized functions that form a more complex structure than the prokaryotic cells (Fancher). While this complexity has limited their mobility, it has been useful in creating the building blocks for higher life forms such as plants and animals. Eukaryotic cells are able to attach to other similar cells and form tissue and organs necessary to carry out the reproduction and growth of plants and animals (Campbell and Reece, 112-113). Their more complex structure and dependence on other eukaryotic cells limits their mobility but greatly increases their functionality in nature.

Eukaryotic cells are able to communicate and coordinate by " channels called plasmodesmata in plants and channels called gap junctions in animal cells" (Krough, Ch. 4). Plasmodesmata are perforated channels in the cell wall that that passes cystol forming a line of communication. Water, solutes, protiens, and RNA are freely exchanged between cells through this process (Campbell and Reece, 134). Animal cells have gap junctions, which are large enough to pass salts ions, amino acids, and small molecules between cells. In addition, the gap junction allows for the exchange of electrical signals that are especially important to the animal's development (Campbell and Reece, 134).

Works Cited

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