What is a cell? Describe its structure and function.

A cell is the basic unit of life that is responsible for carrying out all the functions necessary for an organism's survival. It has a plasma membrane, cytoplasm, and a nucleus (in eukaryotic cells). The plasma membrane acts as a barrier between the inside and outside of the cell, regulating what enters and leaves. The cytoplasm contains various organelles that perform different functions, such as energy production (mitochondria) and protein synthesis (ribosomes). The nucleus contains the cell's genetic material (DNA) and controls cell activities.

What are the different types of cells? How do they differ in structure and function?

There are two main types of cells: prokaryotic and eukaryotic. Prokaryotic cells, such as bacteria, lack a nucleus and other membrane-bound organelles. Eukaryotic cells, such as animal and plant cells, have a nucleus and various organelles that perform specialized functions.

What is altered cellular function? Give examples.

Altered cellular function refers to any change in the normal functioning of a cell. Examples include cancerous cells, which grow and divide uncontrollably, and sickle cell anemia, which is caused by a genetic mutation that alters the structure of red blood cells.

What is the cellular environment? How does it affect cellular function?

The cellular environment refers to the conditions surrounding a cell, such as the concentration of nutrients and oxygen. The cellular environment can affect cellular function by influencing gene expression and protein synthesis.

What is homeostasis? How does it relate to cellular function?

Homeostasis is the maintenance of a stable internal environment within an organism. It relates to cellular function because cells need to maintain a specific balance of nutrients, ions, and other molecules in order to function properly. Disruptions in homeostasis can lead to altered cellular function and disease.