

The nervous system is a complex network of cells that coordinate and integrate information from the environment and the body, and then coordinate a response. It is divided into the central nervous system (CNS) and the peripheral nervous system (PNS).

The CNS consists of the brain and spinal cord. The PNS consists of all other neurons and supporting cells. The brain is the control center of the nervous system, and the spinal cord is the main communication pathway between the brain and the rest of the body.

Neurons are the basic units of the nervous system. They are specialized cells that receive and transmit information. A neuron consists of a cell body (soma) and one or more processes (dendrites and axons). Dendrites receive signals from other neurons or sensory receptors, and the axon transmits signals to other neurons or effector organs.

The cell body contains the nucleus, which is the control center of the cell. It contains DNA, which provides the instructions for the synthesis of proteins. The axon hillock is the region where the axon meets the cell body, and it is the site where action potentials are initiated.

Supporting cells, called glia, are also present in the nervous system. They provide structural and metabolic support for neurons. There are several types of glia, including astrocytes, oligodendrocytes, and microglia in the CNS, and Schwann cells and satellite cells in the PNS.

The nervous system is highly organized and specialized. Different regions of the brain and spinal cord are responsible for different functions, such as sensory processing, motor control, and higher-level cognitive functions. The nervous system also has the ability to learn and adapt to new information and experiences.