



A human neuron, or nerve cell, is a specialized cell that transmits electrical and chemical signals in the nervous system. Neurons have three main parts:

Cell Body (Soma):

The cell body, also known as the soma, is the main part of the neuron. It contains the nucleus, which houses the cell's genetic material (DNA). The cell body integrates signals received from dendrites and, based on this input, decides whether to generate and transmit an electrical signal (action potential) down the axon.

Dendrites:

Dendrites are branch-like extensions that radiate from the cell body. They receive signals from other neurons or sensory receptors and transmit these signals toward the cell body. Dendrites play a crucial role in collecting and integrating information from the neuron's environment.

Axon:

The axon is a long, slender extension that extends from the cell body. It is responsible for transmitting the electrical signal, known as the action potential, away from the cell body and toward the axon terminals. The axon is covered by a fatty substance called myelin, which acts as an insulator and helps speed up the transmission of the electrical signal.

Nodes of Ranvier: These are small gaps in the myelin sheath along the axon. Action potentials "jump" from one node to the next, allowing for faster signal propagation.

Axon Terminals: At the end of the axon, there are specialized structures called axon terminals or synaptic terminals. These terminals form synapses, which are junctions with other neurons or target

cells. The release of neurotransmitters from the axon terminals enables the transmission of signals to the next cell in the circuit.

The process of signal transmission in neurons involves an electrical signal (action potential) traveling along the axon and converting into a chemical signal at the synapse through the release of neurotransmitters. This chemical signal then influences the electrical activity of the next neuron or target cell in the communication pathway. Neurons are the basic building blocks of the nervous system, and their complex network allows for the transmission of information throughout the body.