

Study more



**ASSIGN
BUSTER**

The brain and spinal cord are made up of many cells, including neurons and glial cells. Neurons are cells that send and receive electro-chemical signals to and from the brain and nervous system. There are about 100 billion neurons in the brain. There are many more glial cells; they provide support functions for the neurons, and are far more numerous than neurons. There are many type of neurons. They vary in size from 4 microns (. 004 mm) to 100 microns (. 1 mm) in diameter. Their length varies from a fraction of an inch to several feet.

Neurons are nerve cells that transmit nerve signals to and from the brain at up to 200 mph. The neuron consists of a cell body (or soma) with branching dendrites(signal receivers) and a projection called an axon, which conduct the nerve signal. At the other end of the axon, the axon terminals transmit the electro-chemical signal across a synapse (the gap between the axon terminal and the receiving cell). The word " neuron" was coined by the German scientist Heinrich Wilhelm Gottfried von Waldeyer-Hartz in 1891 (he also coined the term " chromosome").

The axon, a long extension of a nerve cell, and take information away from the cell body. Bundles of axons are known as nerves or, within the CNS (central nervous system), as nerve tracts or pathways. Dendrites bring information to the cell body. Myelin coats and insulates the axon (except for periodic breaks called nodes of Ranvier), increasing transmission speed along the axon. Myelin is manufactured by Schwann's cells, and consists of 70-80% lipids (fat) and 20-30% protein.

The cell body (soma) contains the neuron's nucleus (with DNA and typical nuclear organelles). Dendrites branch from the cell body and receive

messages. A typical neuron has about 1, 000 to 10, 000 synapses (that is, it communicates with 1, 000-10, 000 other neurons, muscle cells, glands, etc.).

DIFFERENT TYPES OF NEURONS

There are different types of neurons. They all carry electro-chemical nerve signals, but differ in structure (the number of processes, or axons, emanating from the cell body) and are found in different parts of the body. Sensory neurons or Bipolar neurons carry messages from the body's sense receptors (eyes, ears, etc.) to the CNS. These neurons have two processes. Sensory neuron account for 0. 9% of all neurons. (Examples are retinal cells, olfactory epithelium cells.) *

Motoneurons or Multipolar neurons carry signals from the CNS to the muscles and glands. These neurons have many processes originating from the cell body. Motoneurons account for 9% of all neurons. (Examples are spinal motor neurons, pyramidal neurons, Purkinje cells. *

Interneurons or Pseudopolar (Spelling) cells form all the neural wiring within the CNS. These have two axons (instead of an axon and a dendrite). One axon communicates with the spinal cord; one with either the skin or muscle. These neurons have two processes. (Examples are dorsal root ganglia cells.)

LIFE SPAN OF NEURONS

Unlike most other cells, neurons cannot regrow after damage (except neurons from the hippocampus). Fortunately, there are about 100 billion neurons in the brain.

GLIAL CELLS

Glial cells make up 90 percent of the brain's cells.

Glial cells are nerve cells that don't carry nerve impulses. The various glial (meaning " glue") cells perform many important functions, including: digestion of parts of dead neurons, manufacturing myelin for neurons, providing physical and nutritional support for neurons, and more. Types of

glial cells include Schwann's Cells, Satellite Cells, Microglia, Oligodendroglia, and Astroglia. Neuroglia (meaning "nerve glue") are the another type of brain cell. These cells guide neurons during fetal development.