**The nervous system and neural communication**

|  |  |
| --- | --- |
| afferent neuron | A major division of the nervous system consisting of the brain and spinal cord. |
| Efferent neuron | A division of the peripheral nervous system that transmits sensory information received from sensory receptor cells inwards towards the central nervous system and motor messages from the central nervous system to the body’s voluntary skeletal muscles. |
| (PNS) system nervous p | A type of neuron carries signals away from the central nervous system in order to initiate an action. Also known as a motor neuron. |
| Sensory receptor sites | A neurotransmitter that stops a neuron from firing and hence inhibits a response. |
| neuron | A bundle of nerve fibres that connects the brain and the peripheral nervous system. |
| (CNS) | A division of the peripheral nervous system that transmits sensory information received from sensory receptor cells inwards towards the central nervous system and motor messages from the central nervous system to the body’s voluntary skeletal muscles. |
| autonomic nervous system | A type of neuron usually located in the central nervous system that transmits information between sensory neurons and motor neurons. |
| Parasympathetic nervous system | Branched structures found on neurons that receive and detect neural information from neighbouring neurons. |
| sympathetic Nervous  | A fatty white substance found on the axon of some neurons that acts as an electrical insulator to increase the speed of neural signals down the axon. |
| Somatic nervous | Chemical messengers that are released from the axon terminals of a presynaptic neuron in order to transmit neural information across a synapse. |
| homeostasis | An organ with nerve endings (for example, in the skin, eye, ear, nose or mouth) that responds to stimulation. |
| Conscious response | The division of the peripheral nervous system that transmits motor messages from the brain to the body’s internal organs and glands, resulting in involuntary activity of these organs and glands, and transmits messages back to the brain about the activity level of these organs and glands. This consists of the parasympathetic and sympathetic nervous systems. |
| Motor neuron | A type of cell that enables communication within the nervous system by receiving, processing and/or transmitting information. Also known as a nerve cell. |
| receptor site | A protein molecule found on the dendrites of neurons that receives chemical signals from neurotransmitters through a binding process similar to fitting a key into a lock. |
| spinal cord | A neuron on the sending end of a synapse (‘presynaptic’ meaning ‘before the synapse’). Also known as a ‘sender neuron’. |
| spinal reflex | A neurotransmitter effect that blocks a receiving neuron from firing. |
| Sensory neuron | Structures located at the end of the axon of a neuron that store and release neurotransmitters in order to allow for the transmission of information from one neuron to another. |
| neuron | A process in which a neurotransmitter affects target cells by acting as a ‘key’ by binding to a specific receptor molecule which acts as ‘lock’. |
| interneuron | A major division of the nervous system consisting of all the nerves outside the central nervous system that transmit sensory information inwards to the central nervous system and transmits motor messages from the brain outwards to the rest of the body. |
| axon | A type of neuron that sends information away from the central nervous system to muscles and glands. Also known as an efferent neuron. |
| cell body | A division of the autonomic nervous system that is responsible for homeostasis by countering the actions of the sympathetic nervous system once a cause of stress is no longer present, returning the body to a state of calm. |
| Myelin sheath | A type of neuron which carries signals from sensory receptors towards the central nervous system. Also known as a sensory neuron. |
| receptor site | A gap between the axon terminal of one neuron and the dendrite of another where neurotransmitters are released to enable communication between the two neurons. |
| dendrites | A neuron on the receiving end of a synapse (‘postsynaptic’ meaning ‘after the synapse’). Also known as a ‘receiver neuron’. |
| Axon terminals | A protein molecule found on the dendrites of neurons that receives chemical signals from neurotransmitters through a binding process similar to fitting a key into a lock. |
| Action potential | A neurotransmitter that causes a neuron to fire and hence stimulates a response. |
| Inhibitory effect | A type of neuron that sends information from sensory receptors, such as the skin, eyes, nose, tongue or ears, towards the central nervous system. Also known as an afferent neuron. |
| Postsynaptic neuron | A neurotransmitter effect that stimulates a receiving neuron to generate an action potential. |
| receptor site | The maintenance of a relatively stable internal environment through automatic day to day bodily functions. Examples of aspects of the body maintained by homeostasis are body temperature, normal digestion and breathing. |
| Excitatory effect | A single tube-like, fluid-filled structure of a neuron that carries a neural impulse away from the cell body towards the axon terminals. |
| neurotransmitters | The change in electrical potential associated with the passage of an impulse along a neuron. |
| Presynaptic neuron | A type of cell that enables communication within the nervous system by receiving, processing and/or transmitting information. Also known as a nerve cell. |
| synapse | A disease that results in progressive loss of structure or function and/or death of neurons. Examples include Alzheimer’s disease and Parkinson’s disease. |
| Excitatory neurotransmitter | An inhibitory neurotransmitter which plays an important role in stabilizing mood. |
| Inhibitory neurotransmitter | The nucleus-containing structure of a neuron responsible for controlling whether the neuron will be activated and keeping it alive. |
| glutamate | A protein molecule found on the dendrites of neurons that receives chemical signals from neurotransmitters through a binding process similar to fitting a key into a lock. |
| lock-and-key process | The most prominent inhibitory neurotransmitter in the nervous system that plays an essential role in motor control and the regulating anxiety. GABA stands for gamma amino butyric acid. |
| serotonin | An inhibitory neurotransmitter which plays an important role in stabilising mood. |
| GABA | A term used to describe a condition that persists for a long period of time or constantly recurs. |
| chronic | A voluntary, intentional response to sensory stimuli. |
| Parkinson’s disease | The most prominent excitatory neurotransmitter in the nervous system that plays an essential role in memory formation, learning and movement. |
| neurodegenerative | A neurodegenerative disease characterised by the degeneration of dopamine producing neurons. Symptoms include slowness of movement, rigidity, involuntary tremors, pain and depression. |
| dopamine | An excitatory neurotransmitter that plays an important role in urges, motivation and motor movement. |