

The Central Nervous System Of Vertebrates

The enteric nervous system is capable of operating independently of the brain and spinal cord, but is thought to rely on innervation from the vagus nerve and prevertebral ganglia in healthy subjects. However, studies have shown that the system is operable with a severed vagus nerve. The neurons of the enteric nervous system control the motor functions of the system, in addition to the secretion of gastrointestinal enzymes... 5a602cb67e

Stomatogastric nervous system The system is composed of the stomatogastric ganglion (STG), oesophageal ganglion and the paired commissural ganglia. The network of neurons acts as a central pattern generator. The Stomatogastric Nervous System (STNS) is a commonly studied neural network composed of several ganglia in arthropods that controls the motion of the The Stomatogastric Nervous System (STNS) is a commonly studied neural network composed of several ganglia in arthropods that controls the motion of the gut and foregut. It is a model system for motor pattern generation because of the small number of cells, which are comparatively large and can be reliably identified 5a602cb67e

Nerve fibres of the parasympathetic nervous system arise from the central... 5a602cb67e

Sympathetic nervous system The sympathetic nervous system (SNS; or sympathetic autonomic nervous system, SANS, to differentiate it from the somatic nervous system) is one of the The sympathetic nervous system (SNS; or sympathetic autonomic nervous system, SANS, to differentiate it from the somatic nervous system) is one of the three divisions of the autonomic nervous system, the others being the parasympathetic nervous system and the enteric nervous system. The enteric nervous system is sometimes considered part of the autonomic nervous system, and sometimes considered an independent system 5a602cb67e

Nervous system events. The nervous system detects environmental changes that impact the body, then works in tandem with the endocrine system to respond to such events. In vertebrates, it consists of two main parts, the central nervous system (CNS) and the peripheral nervous system (PNS). Nervous tissue first arose in wormlike organisms about 550 to 600 million years ago. The CNS consists of the brain and spinal cord. Nervous tissue first arose in wormlike organisms about 550 to 600 million years ago. Nerves that transmit signals from the brain are called motor nerves. In vertebrates, it consists of two main parts, the central nervous In biology, the nervous system is the highly complex part of an animal that coordinates its actions and sensory information by transmitting signals to and from different parts of its body. The PNS consists mainly of nerves, which are enclosed bundles of the long fibers, or axons, that connect the CNS to every other part of the body 5a602cb67e

The somatic nervous system consists of nerves carrying afferent nerve fibers, which relay sensation from the body to the central nervous system (CNS), and nerves carrying efferent nerve fibers, which relay motor commands from the CNS to stimulate muscle contraction. Specialized nerve fiber ends called sensory receptors are responsible for detecting information both inside and outside the body. 5a602cb67e

Central nervous system Only arthropods, cephalopods and vertebrates have a true brain, though precursor structures exist in onychophorans, gastropods and lancelets. In vertebrates, the brain and spinal cord The central nervous system (CNS) is the part of the nervous system consisting primarily of the brain, spinal cord and retina. It is a structure composed of nervous tissue positioned along the rostral (nose end) to caudal (tail end) axis of the body and may have an enlarged section at the rostral end which is a brain. The CNS is so named because the brain integrates the received information and coordinates and influences the activity of all parts of the bodies of bilaterally symmetric and triploblastic animals—that is, all multicellular animals except sponges and diploblasts. exclusively discusses the vertebrate central nervous system, which is radically distinct from all other animals 5a602cb67e

Because of the many similarities between vertebrate and invertebrate systems, especially with regards to basic principles of neuronal function, invertebrate model systems such as the crustacean stomatogastric nervous system continue to provide key insight into how neural circuits operate in the numerically... 5a602cb67e The rest of this article exclusively discusses the vertebrate central nervous... 5a602cb67e

Development of the nervous system The field of neural development draws on both neuroscience and developmental biology to describe and provide insight into the cellular and molecular mechanisms by which complex nervous systems develop, from nematodes and fruit flies to mammals. disability. A part of the dorsal ectoderm The development of the nervous system, or neural development (neurodevelopment), refers to the processes that generate, shape, and reshape the nervous system of animals, from the earliest stages of embryonic development to adulthood. The vertebrate central nervous system (CNS) is derived from the ectoderm—the outermost germ layer of the embryo 5a602cb67e

Evolution of nervous systems When some animals started living a mobile lifestyle and eating larger food particles externally, they developed ciliated epithelia, contractile muscles, and coordinative and sensitive neurons for it in their outer layer. The evolution of nervous systems dates back to the first development of nervous systems in animals (or metazoans). Neurons developed as specialized electrical The evolution of nervous systems dates back to the first development of nervous systems in animals (or metazoans). Neurons developed as specialized electrical signaling cells in multicellular animals, adapting the mechanism of action potentials present in motile single-celled and colonial eukaryotes. Primitive systems, like those found in protists, use chemical signalling for movement and sensitivity; data suggests these were precursors to modern neural cell types and their synapses 5a602cb67e

Chiasm (anatomy) Therefore, given the obvious In anatomy a chiasm is the spot where two structures cross, forming an X-shape (from Greek letter χ, Chi). side of the central nervous system. Examples of chiasms are:. After crossing the tracts insert on the dorsal optic tectum as in all other vertebrates 5a602cb67e

Somatic nervous system The somatic nervous system (SNS), also known as voluntary nervous system, is a part of the peripheral nervous system (PNS) that links brain and spinal The somatic nervous system (SNS), also known as voluntary nervous system, is a part of the peripheral nervous system (PNS) that links brain and spinal cord to skeletal muscles under conscious control, as well as to sensory receptors in the skin. The other part complementary to the somatic nervous system is the autonomic nervous system (ANS) 5a602cb67e

Defects in neural development can lead to malformations such as holoprosencephaly, and a wide variety of neurological disorders including limb paresis and paralysis, balance and vision disorders, and seizures, and in humans other disorders such as Rett syndrome, Down syndrome and

intellectual disability. 5a602cb67e

Enteric nervous system It consists of a mesh-like system of neurons that governs the function of the gastrointestinal tract. The ENS is nicknamed the "second brain". The enteric nervous system (ENS) is one of the three divisions of the autonomic nervous system (ANS), the others being the sympathetic nervous system The enteric nervous system (ENS) is one of the three divisions of the autonomic nervous system (ANS), the others being the sympathetic nervous system (SNS) and parasympathetic nervous system (PSNS). It is derived from neural crest cells 5a602cb67e

The autonomic nervous system functions to regulate the body's unconscious actions. The sympathetic nervous system's primary process is to stimulate the body's fight or flight response. It is, however, constantly active at a basic level to maintain homeostasis. The sympathetic nervous system is described as being antagonistic to the parasympathetic nervous system. The latter stimulates... 5a602cb67e The autonomic nervous system is responsible for regulating the body's unconscious actions. The parasympathetic system is responsible for stimulation of "rest-and-digest" or "feed-and-breed" activities that occur when the body is at rest, especially after eating, including sexual arousal, salivation, lacrimation (tears), urination, digestion, and defecation. Its action is described as being complementary to that of the sympathetic nervous system, which is responsible for stimulating activities associated with the fight-or-flight response. 5a602cb67e In neuroanatomy, the crossing of fibres of a nerve or the crossing of two nerves. 5a602cb67e A tendinous chiasm, the spot where two tendons cross. For example, the tendon of the flexor digitorum superficialis muscle, and the tendon of the flexor digitorum longus muscle which even forms two chiasms. 5a602cb67e

Parasympathetic nervous system The parasympathetic nervous system (PSNS) is one of the three divisions of the autonomic nervous system, the others being the sympathetic nervous system The parasympathetic nervous system (PSNS) is one of the three divisions of the autonomic nervous system, the others being the sympathetic nervous system and the enteric nervous system 5a602cb67e

The a- of afferent and the e- of efferent correspond to the... 5a602cb67e Simple nerve nets seen in acoels (basal bilaterians) and cnidarians are thought to be the ancestral... 5a602cb67e

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