

Chapter 15: Development of the Nervous System

The nervous system develops from three germ layers: ectoderm, mesoderm, and endoderm. The ectoderm gives rise to the neural tube, which eventually forms the brain and spinal cord. The mesoderm gives rise to the somites, which eventually form the peripheral nervous system. The endoderm gives rise to the gut tube, which eventually forms the enteric nervous system.

15.1 The Neural Tube and Somites The neural tube is a hollow tube that is formed by the folding of the ectoderm. It eventually gives rise to the brain and spinal cord.

15.2 The Somites Somites are blocks of mesoderm that are arranged in a regular pattern along the length of the body. They eventually give rise to the skeletal muscle, cartilage, and vertebrae.

15.3 The Enteric Nervous System The enteric nervous system is a complex network of neurons that is located in the gut wall. It is responsible for controlling the functions of the digestive system.

15.4 The Peripheral Nervous System The peripheral nervous system consists of all the neurons that are located outside the brain and spinal cord.

15.5 The Central Nervous System The central nervous system consists of the brain and spinal cord. It is responsible for processing information and controlling the body's actions.

15.6 The Development of the Nervous System The development of the nervous system is a complex process that involves the migration and differentiation of neurons.

15.7 The Development of the Brain The brain develops from the neural tube. It is a highly complex organ that is responsible for processing information and controlling the body's actions.

15.8 The Development of the Spinal Cord The spinal cord develops from the neural tube. It is a long, thin structure that is responsible for transmitting information between the brain and the rest of the body.

15.9 The Development of the Peripheral Nervous System The peripheral nervous system develops from the neural tube and somites. It is responsible for transmitting information between the central nervous system and the rest of the body.

15.10 The Development of the Enteric Nervous System The enteric nervous system develops from the gut tube. It is responsible for controlling the functions of the digestive system.

15.11 The Development of the Blood Vessels The blood vessels develop from the mesoderm. They are responsible for transporting blood throughout the body.

15.12 The Development of the Immune System The immune system develops from the mesoderm. It is responsible for defending the body against infection and disease.

15.13 The Development of the Skin The skin develops from the ectoderm. It is the largest organ in the body and is responsible for protecting the body from the environment.

15.14 The Development of the Hair and Nails The hair and nails develop from the ectoderm. They are specialized structures that are used for protection and sensation.

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Marcel A. Müller



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