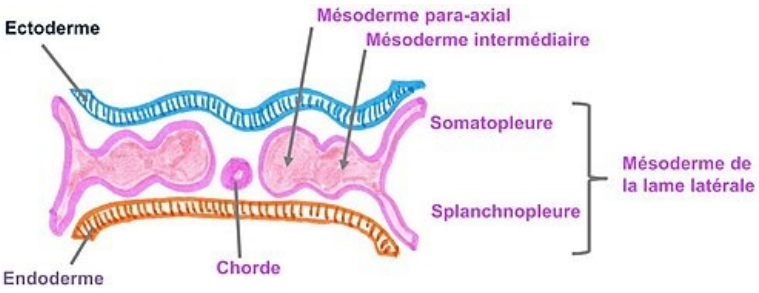
# Mesoderm

Mesoderm is formed in the third week of development of the germ, which is referred to as **gastrulation**. Gastrulation begins with the development of a primitive strip, through which they subsequently invaginate the cells under the epiblast. The cells that remain in the middle part during invagination are called **mesoderm.**

## Division of Mesoderm

The mesoderm is divided into several groups (**paraaxial**, **intermediate** and **lateral**). From each part of the mesoderm, other structures of the embryo subsequently arise.

## Paraaxial mesoderm



Division of cotyledons

At the beginning of the 3rd week, it is divided into **segments,** which over time have been labeled as **somitomeres**. At the end of the third period, the paraxial mesoderm begins to divide into spherical groups of cells that we call **somites**. In the center of the somites there is a cavity, the somitocoel, which contains a small group of cells. The first pairs of somites begin to form in the occipital region of the embryo. From this area, the development of other somites proceeds in craniocaudal order. Their formation ends at the end of the 5th week, when 42-44 pairs of somites are formed. Since somites are formed in a regular sequence, we can determine the age of the embryo by their number. The segmentation of the paraxial mesoderm is influenced by certain genes - cyclic genes. These genes include, for example, **Notch** and **WNT**. At the beginning of the 4th week, the cells of the ventral and medial border of the somites begin to separate, change their shape and cluster around the chorda. These cells are called the **sclerotome**, from which the connective cells around the spinal cord and chorda differentiate. Bones also form from the sclerotome. Cells on the ventrolateral part give rise to a **myotome**, which then becomes muscles. The remaining cells on the dorsal part turn into a **dermomyotome**, which differentiates into **a dermatome** and **a myotome**. The dermatome gives rise to the dermis and hypodermis, and the myotome to the hypaxial muscle.

## Intermediate mesoderm

The **urogenital system structures** differentiate from this part of the mesoderm. Future nephrotomes are formed in the upper cervical region. A nephrogenic blastema arises more caudally.

## Lateral plate mesoderm

During development, it is divided into **visceral** (splanchnopleura) and **parietal sheet**(somatopleura). These sheets subsequently**line the intraembryonic cavity**and **cover the organs**. The **somatopleura** forms the **lateral and ventral body wall**. The **Splanchnopleura** gives rise to the **wall gut**.

## Coelom

The **cavity** located between the somatopleura and the splanchnopleura.

## Links

### Related articles

• Third week of embryo development

### References

• SADLER, Thomas. *Langmanova lékařská embryologie.* 10. vydání edition. 2011. ISBN 978-80-247-2640-3.