

# Development of the Olfactory System

The first sign of the development of the olfactory apparatus is the development of the olfactory placode.

## Olfactory placode

The olfactory placode is formed by a thickened layer of ectoderm that appears on the frontonasal process. Its development and thus the development of the entire system is induced by the ventral part of the telencephalon.

## Olfactory epithelium

The receptor cells of the olfactory epithelium are specialized chemoreceptors. These are primary sensory cells, i.e. modified neurons. Their axons run to the olfactory bulb. During the ossification of the olfactory bone, the lamina cribrosa ossis ethmoidalis is formed around these axons, which have long been formed here. These axons are referred to as **fila olfactoria**, together they form the I. cranial nerve - nervus olfactorius (olfactory nerve). Its connection to the neurons of the bulb occurs around the 7th week.

## Bulbus olfactorius

It emerges from the anterior part of the telencephalon. Mitral neurons of the bulb – secondary neurons of the olfactory pathway. They receive afferent connections from the olfactory nerve and send axons further to the telencephalon. Together, these axons form the **olfactory tract**.

During the development of the telencephalon, the bulb elongates conspicuously. It is caused by the expansion of the neurocranium, thereby increasing the distance between the bulbus olfactorium and the **trigonum olfactorium**, where most fibers of the tr. olfactorius directs.

## Links

## References

- SADLER, T.W. *Langman's Medical Embryology*. 10. edition. 2006. 385 pp. ISBN 978-0-7817-9485-5.
- MOORE, Keith L – PERSAUD, T.V.N. *Zrození člověka : Embryologie s klinickým zaměřením*. 1. edition. 2000. 564 pp. ISBN 80-85866-94-3.