

TASTE RECEPTORS (Gustatoreceptors)

Location

The taste receptors are in the taste buds, mainly on the tongue but also on the roof of the mouth, throat, and even in the upper part of the esophagus. As you get older, the number of taste buds goes down.

Structures: Every taste bud is shaped like an oval and made up of three types of cells.

Gustatory Receptor Cells: These cells have tiny hair-like projections called microvilli at their free end, reaching into the taste pore. The microvilli have special protein receptors that connect with taste molecules from the food. Nerve fibers from cranial nerves VII (facial), IX (glossopharyngeal), or X (Vagus) wrap around these taste cells and form connections with them. The taste cells, also known as gustatory receptor cells, last for about 10 days before new cells take their place.

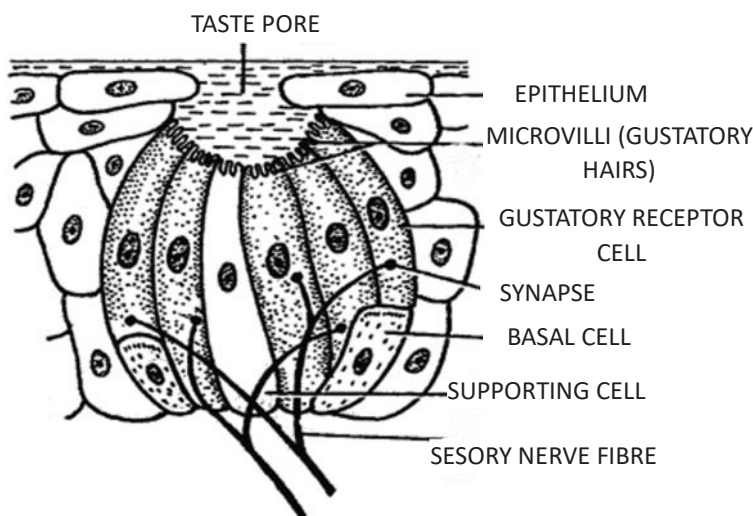


Fig.: Vertical section through a taste bud

Supporting cells: These cells are in the taste bud, sitting between the taste receptor cells. They have microvilli but don't have nerve endings.

Basal Cells: These cells are located around the edges of the taste bud. They create supporting cells, which later turn into taste receptor cells.

Working: When chemicals dissolve in a liquid, they enter the taste bud through the taste pore and connect with protein receptors on the microvilli of the taste cells. These cells then create nerve signals in sensory nerve fibers. These signals travel to the taste center in the brain, like the parietal lobe of the cerebrum, where the sense of taste is experienced. When we taste food or drink, the brain combines the various inputs from the taste buds, creating a complex flavor sensation.

The facial nerve (VII) handles the front two-thirds of the tongue, the glossopharyngeal nerve (IX) takes care of the back one-third of the tongue, and the vagus nerve (X) works with the pharynx and epiglottis but not the tongue.

Note: The senses of taste (gustation) and smell (olfactory) are similar in how they work and are connected to each other.