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**Elucidate the pathway of taste**

The sensory nerve fibers from the taste buds on the anterior two-thirds of the tongue travel in the chorda tympani branch of the facial nerve, and those from the posterior third of the tongue reach the brain stem via the glossopharyngeal nerve. The fibers from areas other than the tongue (e.g., pharynx) reach the brain stem via the vagus nerve. On each side, the myelinated but relatively slowly conducting taste fibers in these three nerves unite in the gustatory portion of the

nucleus of the solitary tract (NTS) in the medulla oblongata. From there, axons of second-order neurons ascend in the ipsilateral medial lemniscus and, in primates, pass directly to the ventral posteromedial nucleus of the thalamus. From the

thalamus, the axons of the third-order neurons pass to neurons in the anterior insula and the frontal operculum in the ipsilateral cerebral cortex. This region is rostral to the face area of the postcentral gyrus, which is probably the area t hat mediates conscious perception of taste and taste discrimination.

Receptors for taste sensation are the type 3 cells of taste buds. Each taste bud is innervated by about 50 sensory nerve fibers and each nerve fiber supplies at least five taste buds through its terminals.

FIRST ORDER NEURON

First order neurons of taste pathway are in the nuclei of three different cranial nerves, situated in medulla oblongata. Dendrites of the neurons are distributed to the taste buds. After arising from taste buds, the fibers reach the cranial nerve nuclei by running along the following nerves:

1. Chorda tympani fibers of facial nerve(from the front of the tongue), which run from anterior two third of tongue

2. Glossopharyngeal nerve fibers(from the back of the tongue), which run from posterior one third of the tongue

3. Vagus fibers(from the throat area and palate region) which run from taste buds in other regions.

Axons from first order neurons in the nuclei of these nerves run together in medulla oblongata and terminate in the nucleus of tractus solitarius.

SECOND ORDER NEURON

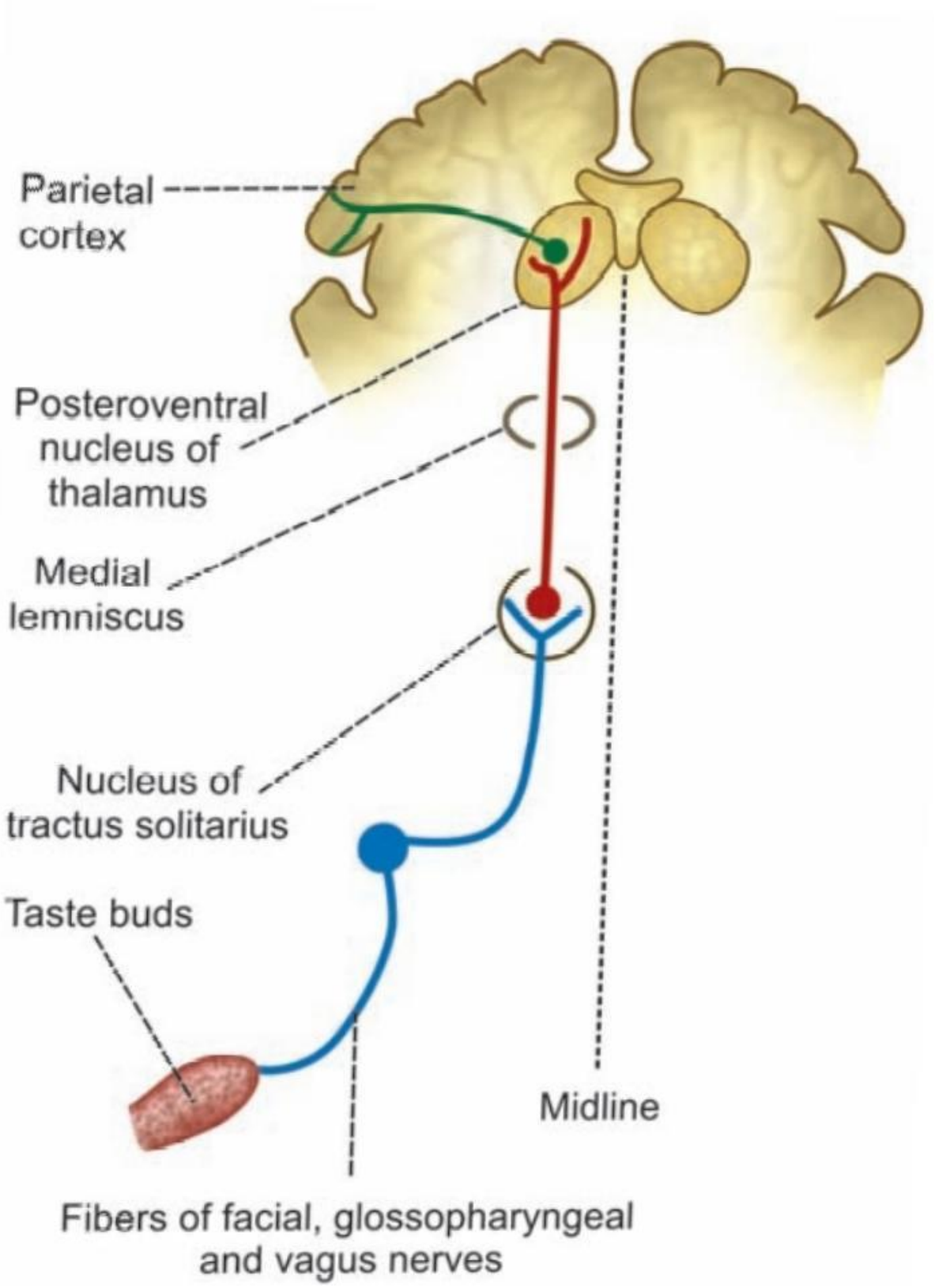
Second order neurons are in the nucleus of tractus solitarius. Axons of second order neurons run through medial lemniscus and terminate in posteroventral nucleus of thalamus.

 THIRD ORDER NEURON

Third order neurons are in the posteroventral nucleus of thalamus. Axons from third order neurons project into parietal lobe of the cerebral cortex.

 TASTE CENTER

Center for taste sensation is in opercular insular cortex, i.e. in the lower part of postcentral gyrus, which receives cutaneous sensations from face. Thus, the taste fibers do not have an independent cortical projection.




**TASTE PATHWAY WAY**