

THE PATHWAY INVOLVED IN TASTE

Taste or gustation, is a sense that develops through the interaction of dissolved molecules with taste buds. Currently five sub-modalities (tastes) are recognized, including; sweet, salty, bitter, sour, and umami (savory taste or the taste of protein). Taste is associated mainly with the tongue, although there are taste (gustatory) receptors on the palate and epiglottis as well. The surface of the tongue, along with the rest of the oral cavity, is lined by a stratified squamous epithelium. In the surface of the tongue are raised bumps, called papilla, that contain the taste buds. There are three types of papilla, based on their appearance: vallate, foliate, and fungiform.

The taste buds present on the anterior 2/3rd of the tongue are innervated by the facial nerve, posterior 1/3rd by the glossopharyngeal and epiglottis by vagus. These afferent fibers relay in the nucleus of tractus solitarius (NTS). Fibers from the NTS synapse in the thalamus, which pass to the somatosensory cortex. The variation lies between the NTS and thalamus, which are:

- (a) The second order neurons from NTS synapse at thalamus and the fibers project to the ipsilateral cerebral cortex;
- (b) The second order neurons arising from NTS, cross to opposite side and synapse at the thalamus, which projects to the contralateral cerebral cortex;
- (c) Few fibers from NTS decussate and terminate at the contralateral somatosensory cortex, whereas majority of the fibres continuing on ipsilateral side, project to the ipsilateral cerebral cortex (i.e., a bilateral representation)

Three nerves carry taste signals to the brain stem: the chorda tympani nerve (from the front of the tongue), the glossopharyngeal nerve (from the back of the tongue) and the vagus nerve (from the throat area and palate).