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### **PATHWAY INVOLVED IN TASTE**

The tongue contains small bumps called papillae, within or near which taste buds are situated. In the tongue's taste buds, the taste receptors receive sensory input via two important mechanisms – depolarization and neurotransmitter release. Intake of salty foods leads more sodium ions to enter the receptor, causing the said mechanisms. The same is true with intake of sour foods (hydrogen ions) and sweet foods (sugar molecules), both of which result to the closing of K<sup>+</sup> channels upon their entry.

#### **The sensory pathway of the taste receptor**

From the axons of the taste receptors, the sensory information is transferred to the three taste pathways via the branches of **cranial nerves VII, IX and X**. The chorda tympani of CN VII (facial nerve) carries the taste sensory input from the tongue's anterior two-thirds

#### **The nerve pathways involved in taste**

THE TASTE PATHWAY. 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). In addition, the trigeminal nerve carries signals from the touch / temperature / pain system.

### **The three types of taste receptors**

Tissue distribution. The gustatory system consists of taste receptor cells in taste buds. Taste buds, in turn, are contained in structures called papillae. There are three types of papillae involved in taste: fungiform papillae, foliate papillae, and circumvallate papillae.

### **The function of taste receptors**

Taste Receptors and the Transduction of Taste Signals Although receptor molecules that bind various tastants are found primarily on the apical microvilli of the taste cells, the transduction machinery involves ion channels on both the apical and basolateral membranes

From the axons of the taste receptors, the sensory information is transferred to the three taste pathways via the branches of cranial nerves VII, IX and X. The chorda tympani of CN VII (facial nerve) carries the taste sensory input from the tongue's anterior two-thirds. Then, the rest of the taste sensations from the throat, palate and posterior tongue are transmitted by the branches of CN IX (glossopharyngeal nerve) and CN X (vagus nerve). From these cranial nerves, taste sensory input travels through the nerve fiber synapses to the solitary tract, the ventral posteromedial thalamic nuclei, and the thalamus. In these three locations, there are clustered neurons which respond to the same taste (sweet, sour, salty or bitter). The thalamus relays the information to the primary gustatory cortex located in the

somatosensory cortex. The primary gustatory cortex is where the perception of a particular taste is processed