

UNIVERSITY OF WESTERN ONTARIO

**Anatomy 9535.** Anatomical  
Foundations of Neuroscience

## CHEMICAL SENSES

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#### SMELL (Olfaction)

Detects gases, aerosols

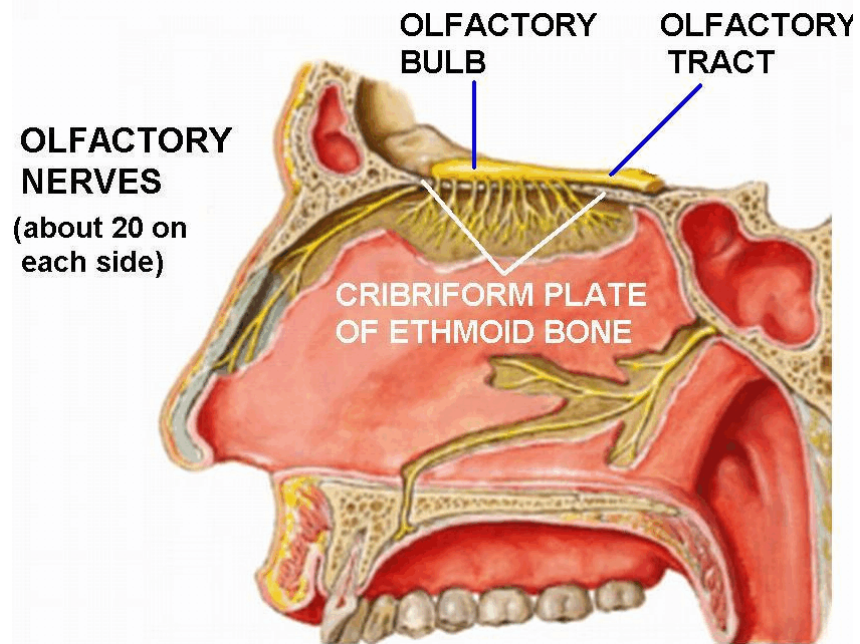
Olfactory epithelium → Forebrain structures  
|  
(I)

#### TASTE (Gustation)

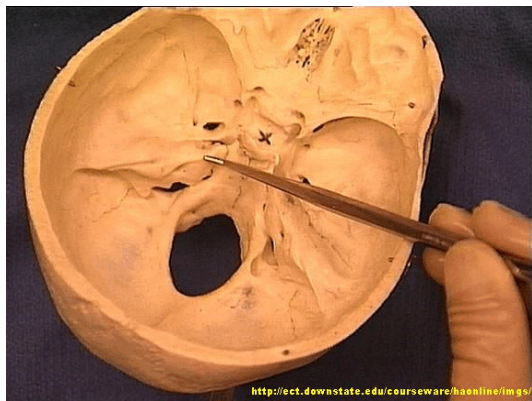
Detects liquids

Taste buds → Brain stem → Thalamus → Cortex  
|  
(VII, IX, X)

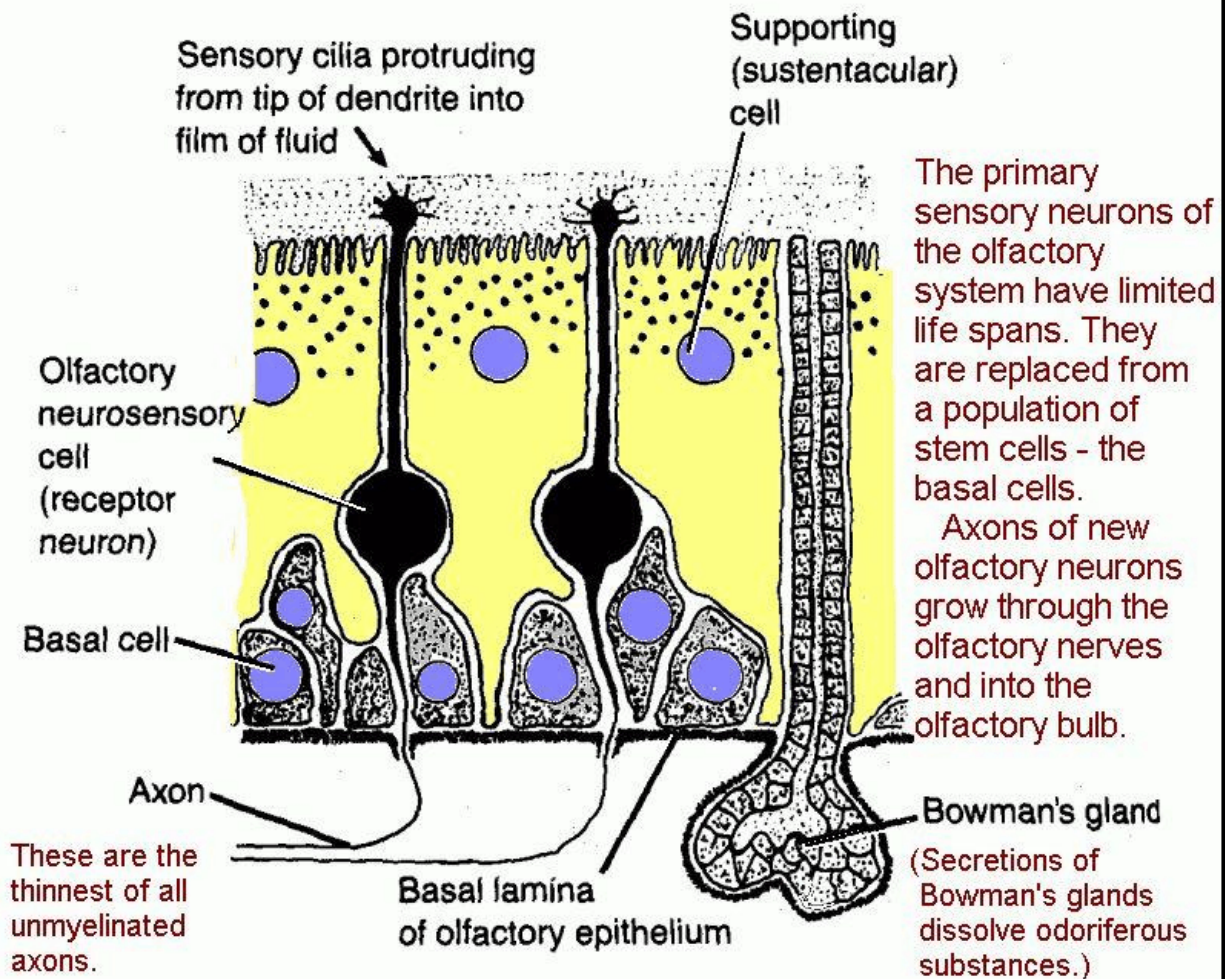
↓  
FUNCTIONAL  
CONVERGENCE  
↑



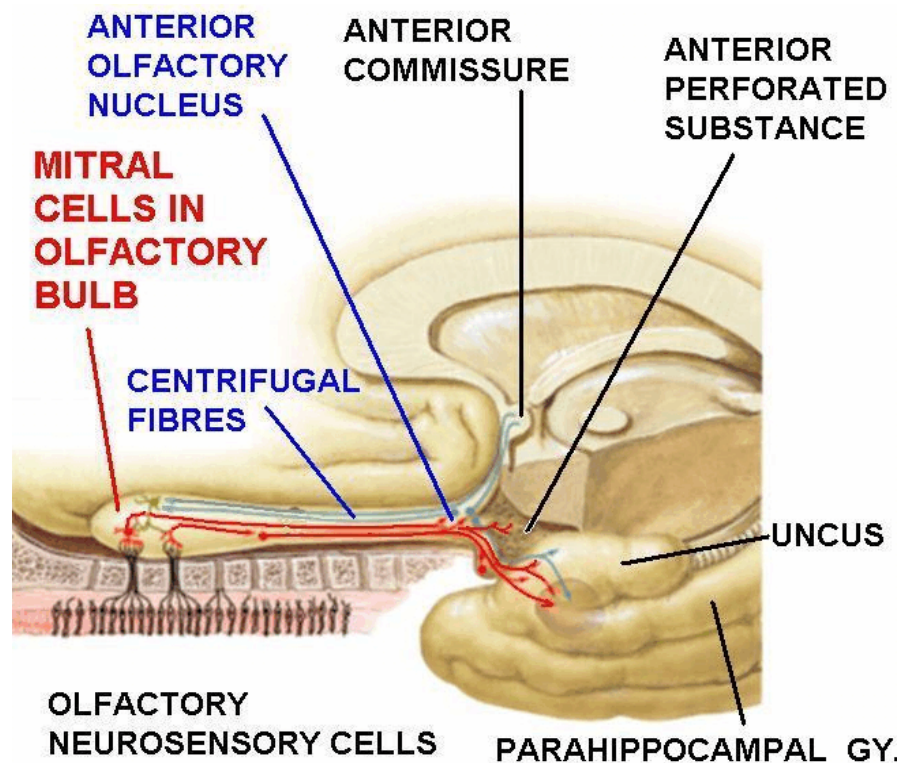
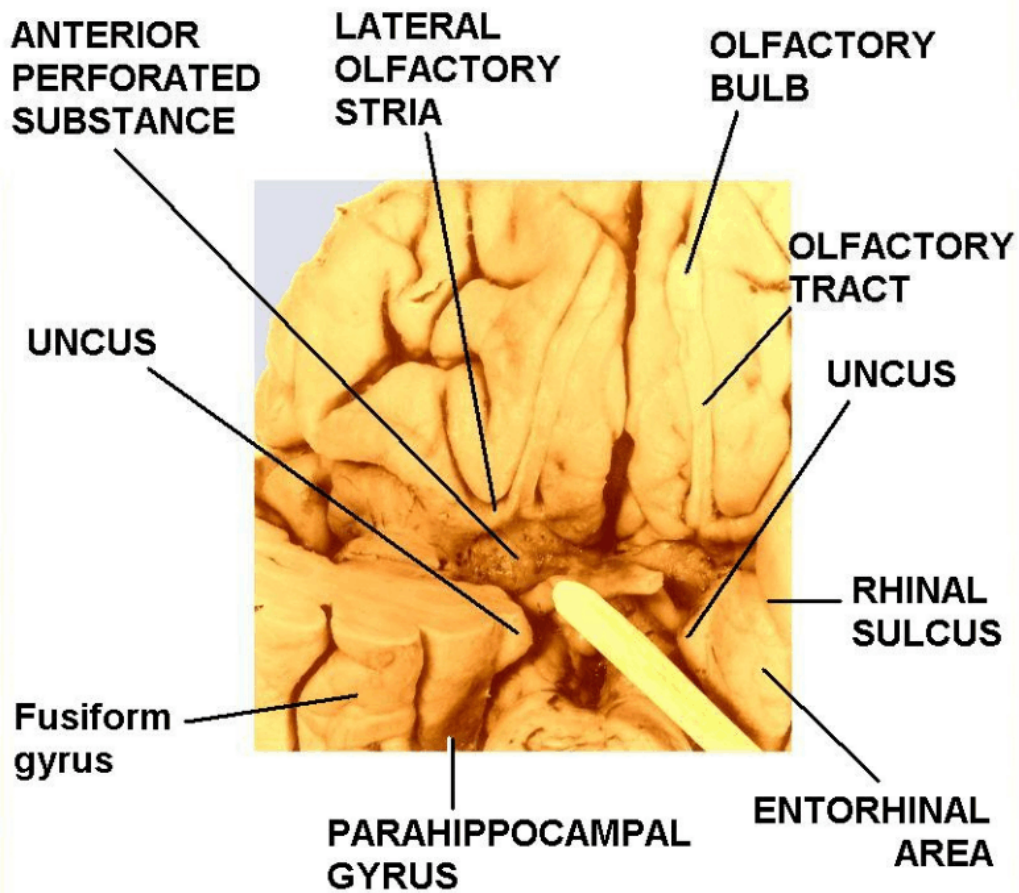
Cribriform plate  
of ethmoid bone

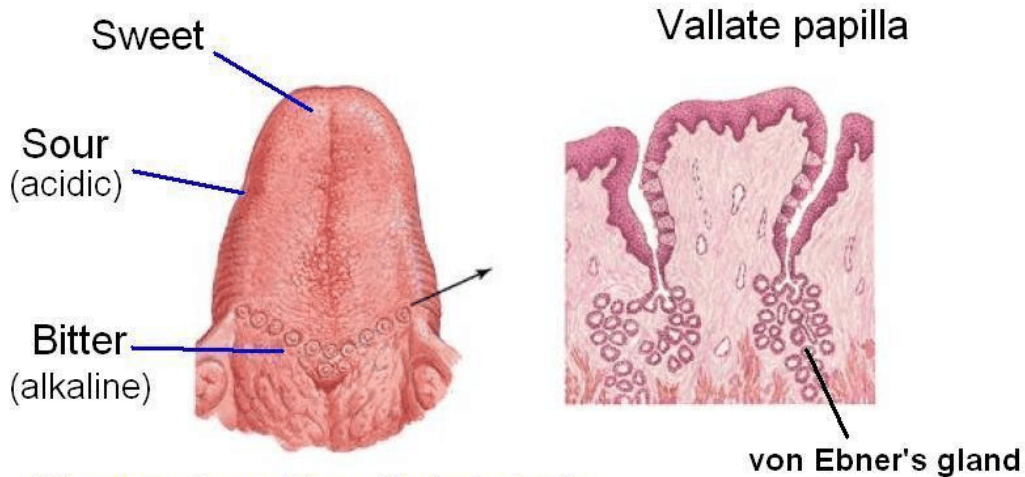


## OLFACTORY EPITHELIUM







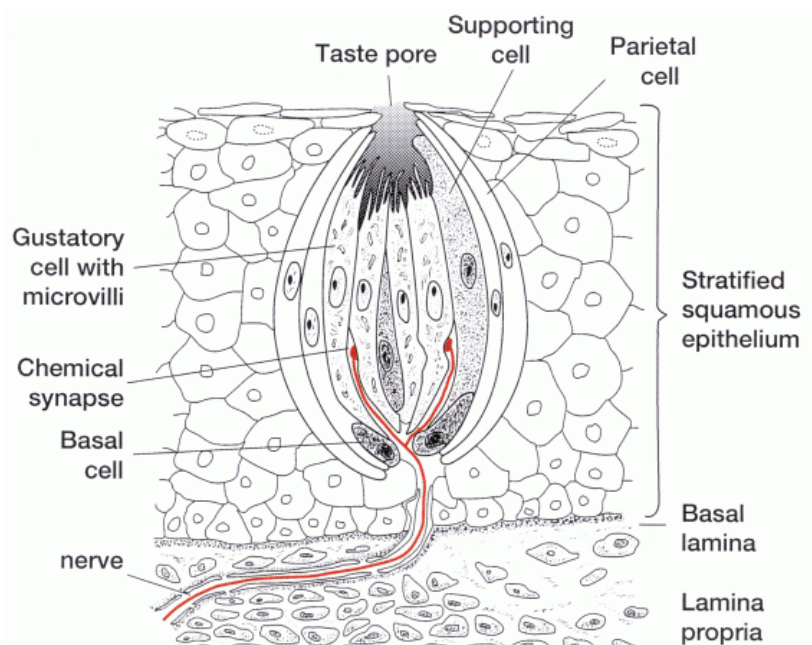


**Microscopic papillae with taste buds:**

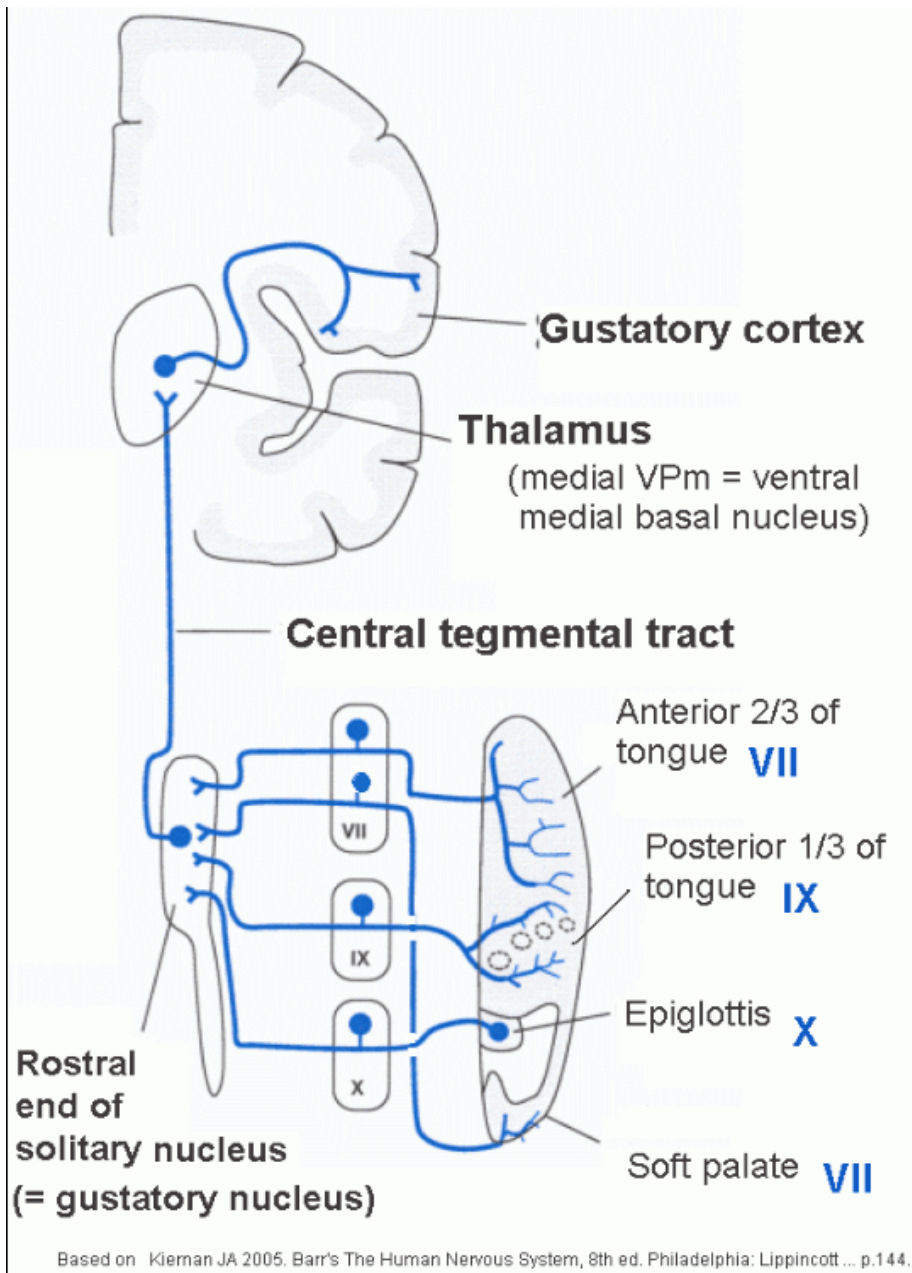
**Fungiform** – on dorsal surface

**Foliate** – on sides of tongue

(Filiform papillae do not support taste buds.)



Kiernan JA 2005. Barr's The Human Nervous System, 8th ed. Philadelphia: Lippincott ... p.142



In some mammals (but not primates) the pathway for taste includes a relay in the parabrachial nuclei (in the midbrain). See Travers, Travers and Norgren 1987 *Annu. Rev. Neurosci.* **10**: 595-632.