

Olfactory Receptors in Vertebrates

The sense of smell, or olfaction, involves chemoreceptors usually located in the nasal passages. Anatomically, there are three components of the olfactory circuitry: the olfactory epithelium, the olfactory bulb, and the olfactory tract (**figure 1**).

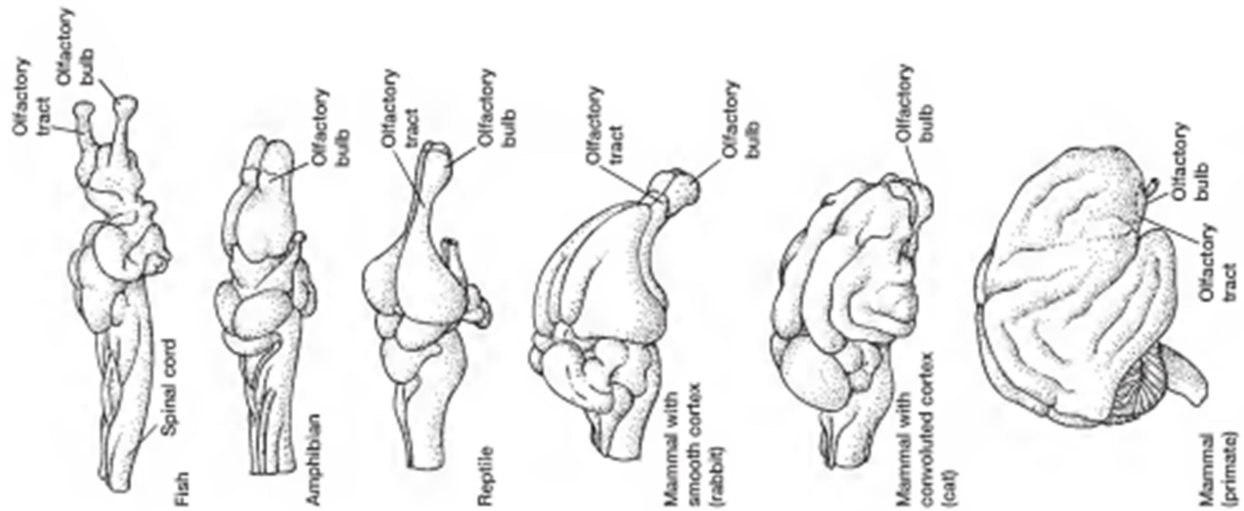


Figure1: Olfactory bulb and tract

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The **olfactory epithelium** is a specialized patch of epithelium within the nasal cavity that collects pertinent chemicals in the airstream. It contains basal cells, which are probably replacement cells, and sustentacular cells, which secrete mucus and support the olfactory sensory cells (figure 2).

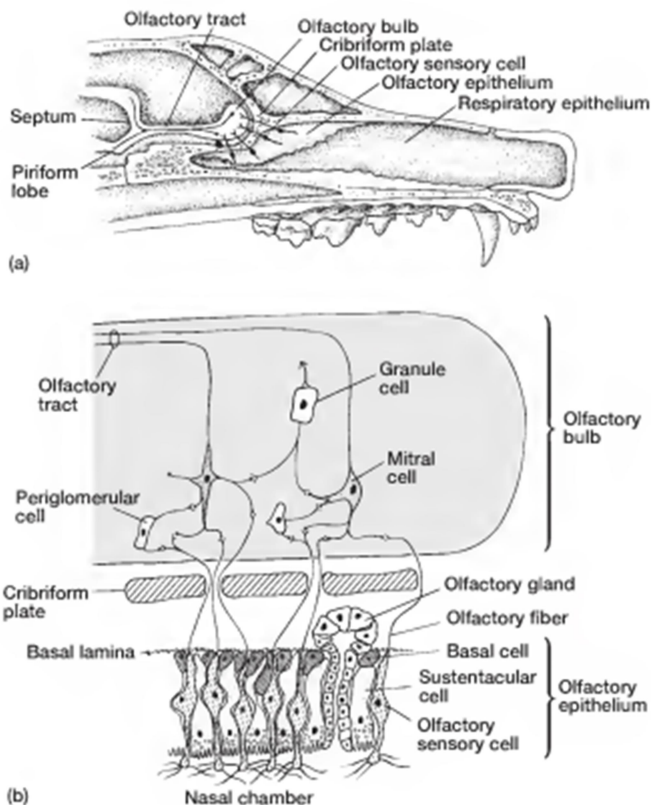


Figure2: Olfactory epithelium, (a) Nasal passages in mammals are lined with respiratory epithelium. The olfactory epithelium is a small region of this lining that contains specialized neuronal fibers that make contact with neurons of the olfactory tract. These processes relay impulses to the piriform lobe and septal area of the brain, (b) Histology of olfactory epithelium. The olfactory epithelium includes supportive sustentacular cells, basal cells, and olfactory sensory cells. The apical surface of each olfactory cell develops cilia that project into the air passage. Its basal end consists of a nerve fiber that travels through the cribriform plate into the olfactory bulb, where it synapses with periglomerular, mitral, and granule cells. Fibers of the mitral cells constitute the olfactory tract, which goes to the brain.