

Ion channels from chemosensory olfactory neurons

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The olfactory epithelium has the ability to respond to a large number of volatile compounds of small molecular weight. Ultimately, such a property lies on a specialized type of neuron, the olfactory receptor cell. In the presence of odorants, the olfactory receptor neuron responds with action potentials whose frequency depends on odorant concentration. The primary events in the process of olfactory transduction are thought to occur at the cilia of olfactory receptor neurons and involve the binding of odorants to receptor molecules followed by the opening of ion channels. A crucial step in understanding olfactory transduction requires identifying the mechanisms that regulate the electrical activity of olfactory cells. In the last couple of years, patch-clamp recording from isolated olfactory cells and reconstitution of olfactory membranes in planar lipid bilayers have begun to shed light on some of these mechanisms. Although the information emerging from such studies is still preliminar