

## Highlight: Chloride increases response to pheromones and odors in mouse sensory neurons

December 28 2009

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The vomeronasal organ (VNO) is an odor detection system that mediates many pheromone-sensitive behaviors. Vomeronasal sensory neurons (VSNs), located in the VNO, are the initial site of interaction with odors and pheromones. How an individual VSN transduces chemical signals into electrical signals, however, has been a mystery.

In the January 2010 issue of the *Journal of General Physiology*, researchers from the University of Vermont show that a  $\text{Ca}^{2+}$ -activated chloride current contributes approximately 80% of the response to urine in mouse VSNs.

Using patch clamp recordings and whole cell recordings, the team found that that urine-induced inward current was decreased in the presence of chloride channel blockers. Furthermore, the urine-induced currents were eliminated when both extracellular  $\text{Ca}^{2+}$  and  $\text{Na}^{+}$  were removed.

The team's overall findings show that chloride acts as a major amplifier for [signal transduction](#) in mouse VSNs, increasing the responsiveness to pheromones or odorants.

**More information:** Yang, C., and R.J. Delay. 2009. *J. Gen. Physiol.* [doi:10.1085/jgp.200910265](https://doi.org/10.1085/jgp.200910265).

Provided by Rockefeller University

Citation: Highlight: Chloride increases response to pheromones and odors in mouse sensory neurons (2009, December 28) retrieved 5 May 2024 from <https://medicalxpress.com/news/2009-12-highlight-chloride-response-pheromones-odors.html>

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