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Title:	The G-Protein-Coupled Receptor SRX-97 Is Required for Concentration-Dependent Sensing of Benzaldehyde in <i>Caenorhabditis elegans</i>
Authors:	Kadam, Nagesh Y (/jspui/browse?type=author&value=Kadam%2C+Nagesh+Y) Behera, Sukanta (/jspui/browse?type=author&value=Behera%2C+Sukanta) Kumar, Sandeep (/jspui/browse?type=author&value=Kumar%2C+Sandeep) Roy, Anindya Ghosh- (/jspui/browse?type=author&value=Roy%2C+Anindya+Ghosh-) Babu, Kavita (/jspui/browse?type=author&value=Babu%2C+Kavita)
Keywords:	G-Protein-Coupled Receptor SRX-97 Concentration Benzaldehyde
Issue Date:	2021
Publisher:	Eneuro
Citation:	Eneuro,8(1).
Abstract:	The G-protein (heterotrimeric guanine nucleotide-binding protein)-coupled receptors (GPCRs) in the olfactory system function to sense the surrounding environment and respond to various odorants. The genes coding for olfactory receptors in <i>Caenorhabditis elegans</i> are larger in number in comparison to those in mammals, suggesting complexity in the receptor-odorant relationships. Recent studies have shown that the same odorant in different concentrations could act on multiple receptors in different neurons to induce attractive or repulsive responses. The ASH neurons are known to be responsible for responding to high concentrations of volatile odorants. Here, we characterize a new GPCR, SRX-97. We found that the <i>srx-97</i> promoter drives expression specifically in the head ASH and tail PHB chemosensory neurons of <i>C. elegans</i> . Moreover, the SRX-97 protein localizes to the ciliary ends of the ASH neurons. Analysis of clustered regularly interspaced short palindromic repeats (CRISPR)-based deletion mutants of the <i>srx-97</i> locus suggests that this gene is involved in recognition of high concentrations of benzaldehyde. This was further confirmed through rescue and neuronal ablation experiments. Our work brings novel insights into concentration-dependent receptor function in the olfactory system, and provides details of an additional molecule that helps the animal navigate its surroundings.
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1523/eneuro.0011-20.2020">https://doi.org/10.1523/eneuro.0011-20.2020</a> ( <a href="https://doi.org/10.1523/eneuro.0011-20.2020">https://doi.org/10.1523/eneuro.0011-20.2020</a> ) <a href="http://hdl.handle.net/123456789/4484">http://hdl.handle.net/123456789/4484</a> ( <a href="http://hdl.handle.net/123456789/4484">http://hdl.handle.net/123456789/4484</a> )
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