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Title: Phenotypic Analysis of SRX-97, a GPCR Mutant in *Caenorhabditis elegans*

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Issue Date: 10-Oct-2019

Abstract: In *C.elegans*, 1341 genes of cs type GPCRs are expressed, out of which we have selected a single receptor called srx-97 and study its expression and defects caused by its mutation. The deletion mutation line was generated in the lab. We report expression in ASH (cilium and cellbody) at the head and PHB neuron at the tail, which are mostly polymodal nociceptive neurons. Majority of the harmful stimulus coming to the worm is addressed by this neuron like light, repellent, mechanical etc. From the literature we found its little expression in young adult stages and high expression in dauer stages but working with dauer is not easy thus we have tried to find the differences in various behavioral assays in L4/Young adult stage to address the difference in the wild organism and the mutant srx-97. Thus we hypothesize it's might be a pheromone sensing GPCR. We conducted chemotaxis, phototaxis, Drop test and Pharyngeal pumping rate assay but did not find much significant differences. At higher concentrations of benzaldehyde we saw a significant difference which mostly sensed by AWC neuron. The major metabolic pathways are not hampered as the growth and the fecundity is not decreased. Pheromone based assays also yield a non significant result. It may be possible since in signaling pathways there may be many redundant pathways, hence we didn't see any strong phenotypic differences.

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