Title:	Study of reversal behavior and chemotaxis in Caenorhabditis elegans
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Abstract:	The free living nematode C. elegans is an important yet simple animal to study various behaviours and their underlying neuronal circuits. Having just 302 neurons and a transparent body allows researchers to study and trace new molecules and pathways in the nervous system In First half, I will talk about how the level of AMPA type glutamate receptor (GLR-1) on neuronal cells is regulated through the endocytic pathways. In case of endocytic pathways different organelles are involved in trafficking; one such organelle is the endocytic recycling compartment (ERC) which plays important role in recycling of trafficked cargos. AMPA/GLR-1 receptors are also maintained through the ERC pathways, any defect in the pathway leads to decrease in the active receptors on the membrane. In case of C. elegans, decrease in active amounts of AMPA/GLR-1 receptors on neuronal membranes results in behavioural consequences such as altered reversals. Further, the mechanism of such molecules that are involved in recycling of these cargos in the ERC will be discussed. In second part, I will talk about newly identified G-protein Coupled receptor (GPCR) and its role in chemosensory neurons of C. elegans. Chemosensation is the only way to navigate the surrounding for a blind animal like C. elegans. Through chemosensation C. elegans searches for food, mates and successfully escapes danger. Majority of the chemosensory neurons are present in the head and a few are found in the tail. These chemosensory neurons express numerous GPCRs which act as receptors for the surrounding cues and activate downstream signalling pathways that help the animal to modulate behaviours. Some GPCR enable C. elegans to sense lower and higher concentrations of chemicals. We have found an as yet undescribed GPCR which specifically senses higher concentrations of chemical and the loss of which results in aberrant animal behaviour.
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