



| | |
|---|---|
| Title: | Differential Regulation of Innate and Learned Behavior by Creb1/Crh-1 in Caenorhabditis elegans |
| Authors: | Dahiya, Y. (/jspui/browse?type=author&value=Dahiya%2C+Y.)<br>Rose, Saloni (/jspui/browse?type=author&value=Rose%2C+Saloni)<br>Thapliyal, Shruti (/jspui/browse?type=author&value=Thapliyal%2C+Shruti)<br>Bhardwaj, Shivam (/jspui/browse?type=author&value=Bhardwaj%2C+Shivam)<br>Prasad, Maruthi (/jspui/browse?type=author&value=Prasad%2C+Maruthi)<br>Babu, Kavita (/jspui/browse?type=author&value=Babu%2C+Kavita) |
| Keywords: | Mammalian<br>CREB1/CRH-1<br>CRH-1e expression |
| Issue Date: | 2019 |
| Publisher: | The Journal of neuroscience : the official journal of the Society for Neuroscience |
| Citation: | The Journal of neuroscience : the official journal of the Society for Neuroscience,39(40),pp.7934-7946. |
| Abstract: | Memory formation is crucial for the survival of animals. Here, we study the effect of different crh-1 (C. elegans homolog of mammalian CREB1) isoforms on the ability of C. elegans to form long-term memory (LTM). Null mutants in creb1/crh-1 are defective in LTM formation across phyla. We show that a specific isoform of CREB1/CRH-1, CRH-1e, is primarily responsible for memory related functions of the transcription factor in C. elegans. Silencing of CRH-1e expressing neurons during training for LTM formation abolishes the long-term memory of the animal. Further, CRH-1e expression in RIM neurons is sufficient to rescue long-term memory defects of creb1/crh-1 null mutants. We go on to show that apart from being LTM defective, creb1/crh-1 null animals show defects in innate chemotaxis behavior. We further characterize the amino acids K247 and K266 as responsible for the LTM related functions of CREB1/CRH-1 while being dispensable for its innate chemotaxis behavior. These findings provide insight into the spatial and temporal workings of a crucial transcription factor that can be further exploited to find CREB1 targets involved in the process of memory formation. |
| URI: | https://www.jneurosci.org/content/early/2019/08/13/JNEUROSCI.0006-19.2019/tab-e-letters?versioned=true (https://www.jneurosci.org/content/early/2019/08/13/JNEUROSCI.0006-19.2019/tab-e-letters?versioned=true)<br>http://hdl.handle.net/123456789/1789 (http://hdl.handle.net/123456789/1789) |
| Appears in Collections: | Research Articles (/jspui/handle/123456789/9) |

Files in This Item:

| File | Description | Size | Format | |
|---|---|---|---|---|
| Need to add pdf.odt (/jspui/bitstream/123456789/1789/1/Need%20to%20add%20pdf.odt) | | 8.63 kB | OpenDocument Text | View/Open (/jspui/bitstream/12345 |

Show full item record (/jspui/handle/123456789/1789?mode=full)

(/jspui/handle/123456789/1789/statistics)