

**INTRODUCTION**

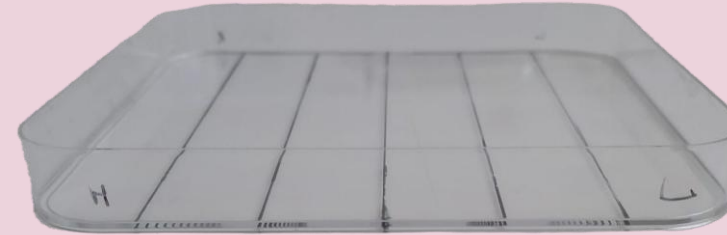
- *Caenorhabditis remanei* are free living nematodes
- *C. elegans* is a closely related species (Teterina *et al.* 2023)
- Research on *C. elegans* show association between salt chemotaxis and memory (Kunitomo *et al.* 2013)

**STUDY AIM**

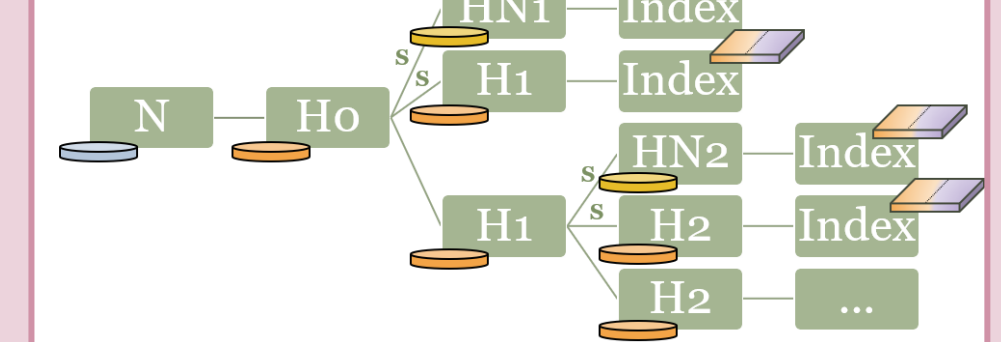
- Detecting preference across salt concentrations
- Analyzing memory for preference

**MATERIALS AND METHODS**

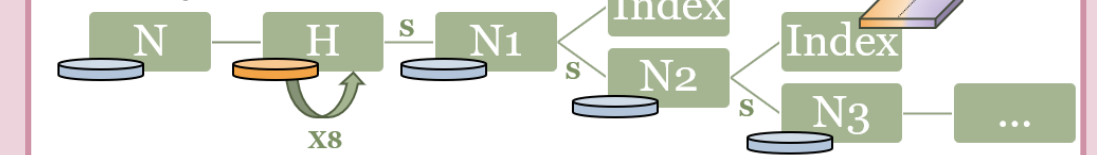
- **Maintenance:** either on high or low salt
- **Synchronization:** obtain worms of identical age
- **Gradient:** trace preference and memory
- **Chemotaxis index:** quantify directional movement of worms along salt gradient



**Preference**



**Memory**



**RESULTS**

**Preference**

**Expectations:** worm exposure during development can induce behavioral changes in adults

- Conditioned on high have high chemotaxis index (same for low)
- More impact on males than females
- Influence by environmental conditions
- Salt preference is plastic

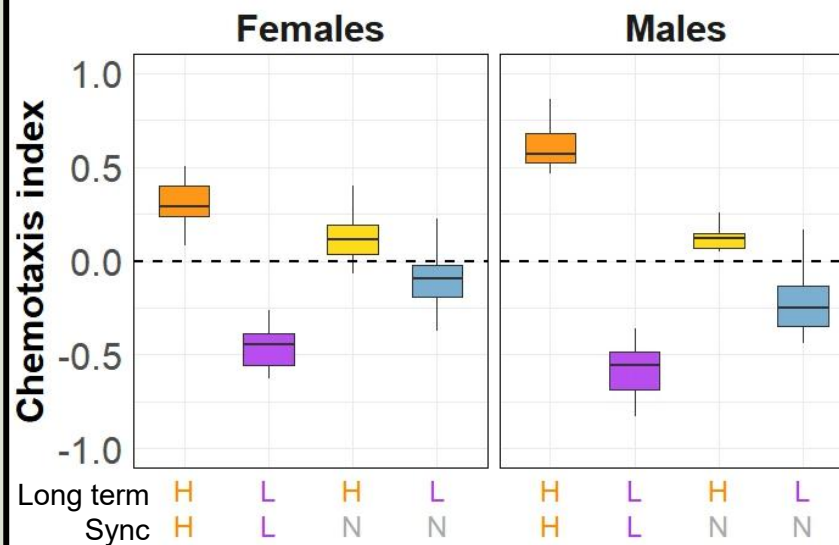
**Memory**

**Expectations:** slow decay of memory across generations

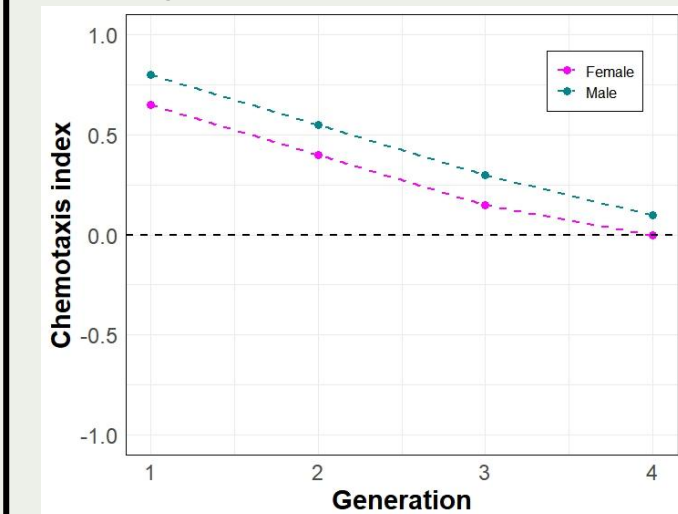
- High chemotaxis index in first generation, decreases in next generations
- Cross generational epigenetic memory
- Estimate number of generations

**Expected results**

**Preference**

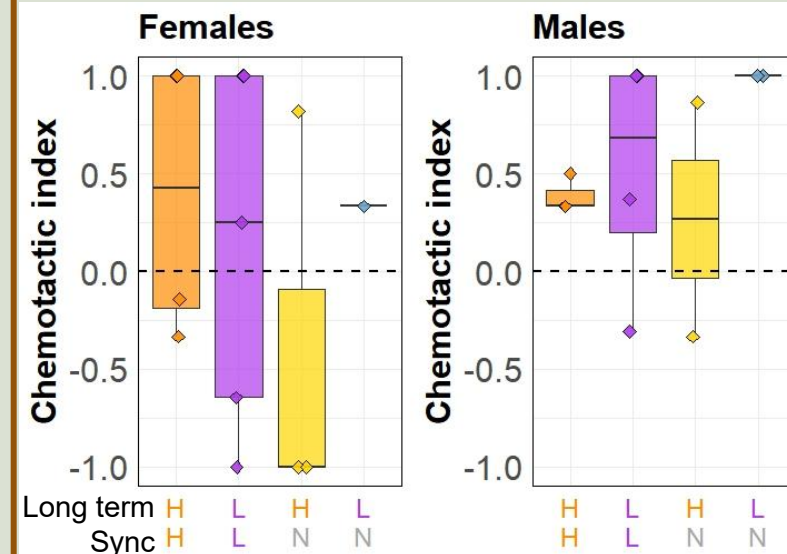


**Memory**

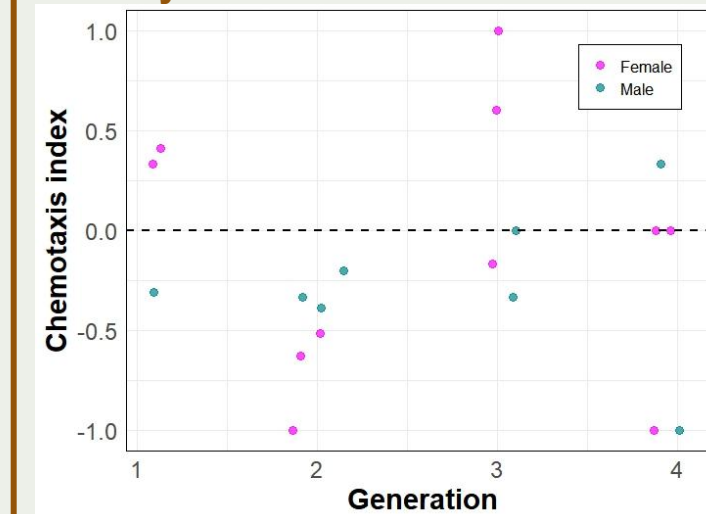


**Actual results**

**Preference**



**Memory**



**IMPROVEMENTS**

- Consistent timing between maintenance, synchronization, putting on gradient
- Food availability

**CONCLUSION**

No evidence for preference nor memory across concentrations was detected

**REFERENCES**

1. Kunitomo H, Sato H, Iwata R, et al. (2013) Concentration memory-dependent synaptic plasticity of a taste circuit regulates salt concentration chemotaxis in *Caenorhabditis elegans*. *Nature Communications* 4:2210. <https://doi.org/10.1038/ncomms3210>
2. Teterina AA, Willis JH, Lukac M, et al. (2023) Genomic diversity landscapes in outcrossing and selfing *Caenorhabditis* nematodes. *PLoS Genetics* 19:e1010879. <https://doi.org/10.1371/journal.pgen.1010879>