



Bacterial Preference in *C. elegans* & *C. inopinata*

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Introduction

Background:

- *C. elegans* and *C. inopinata* are the model organisms.
- *C. elegans* are found in rotting plants all over the world whereas *C. inopinata* are only found in figs prominently in Japan.
- Observing the two nematodes and their behavior when it comes to different types of bacteria is the basis of the experiment. This is because *C. elegans* N2 are lab adapted and *C. inopinata* are not.

Question:

- Do *C. inopinata* and *C. elegans* have a preference over different types of bacteria?

Methods

Part 1: Identifying bacteria

- A polymerase chain reaction was completed to be able to amplify microbial 16S ribosomal DNA
- This product was then sequenced using Sanger sequencing
- Sequences were BLASTed on a database of other bacteria

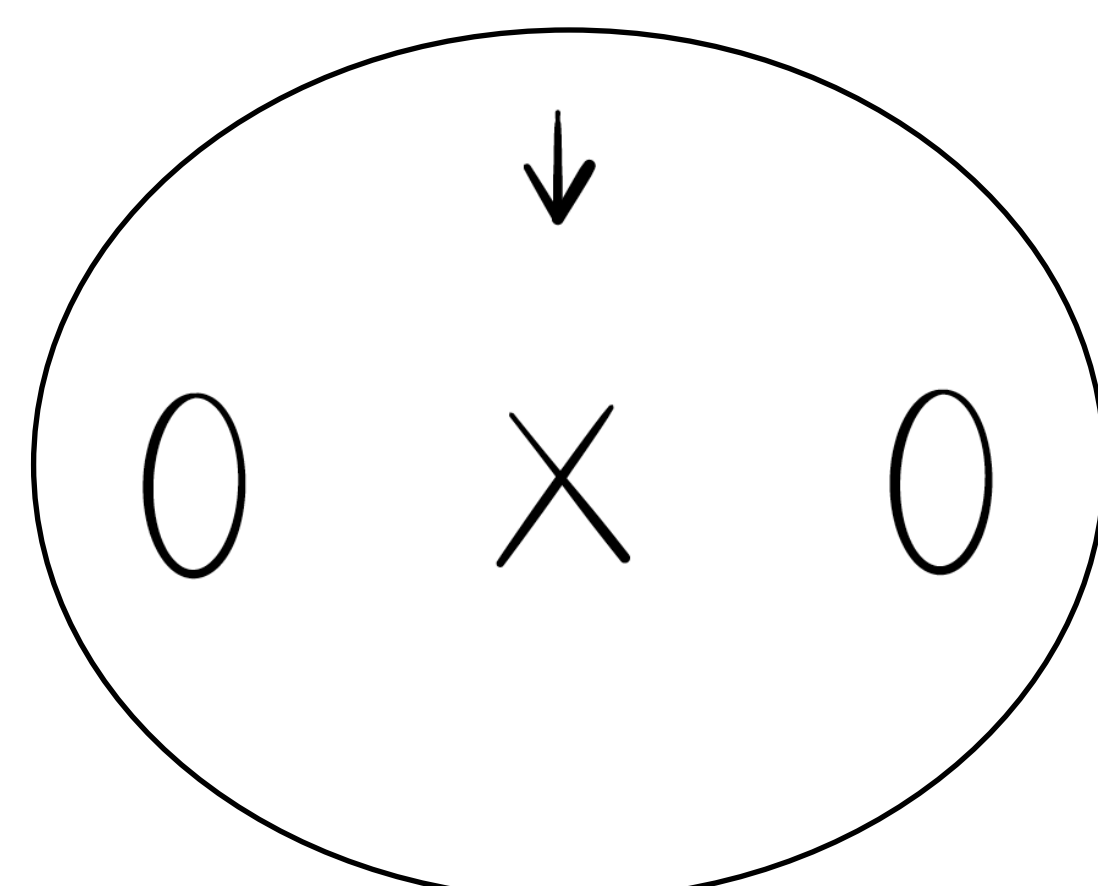


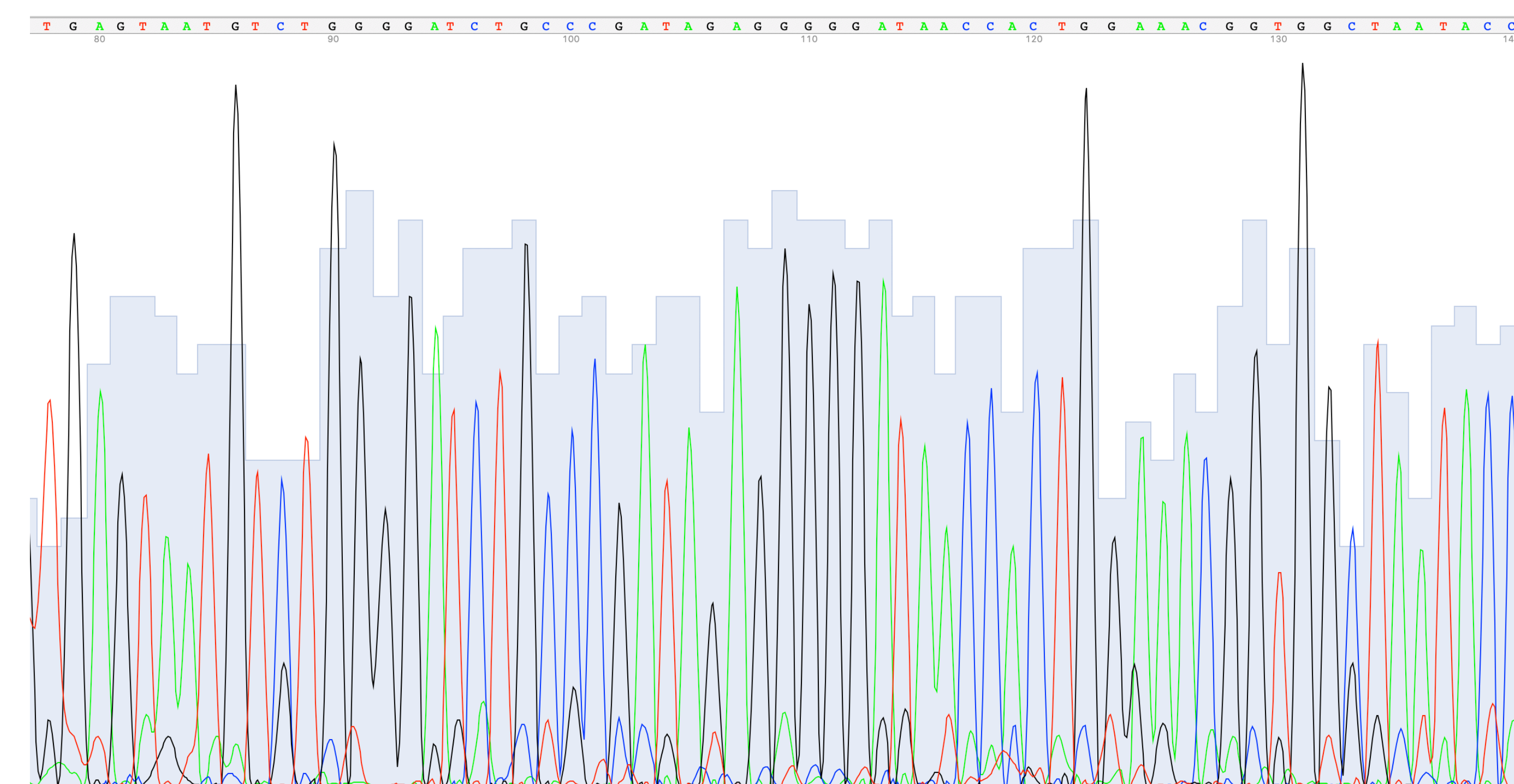
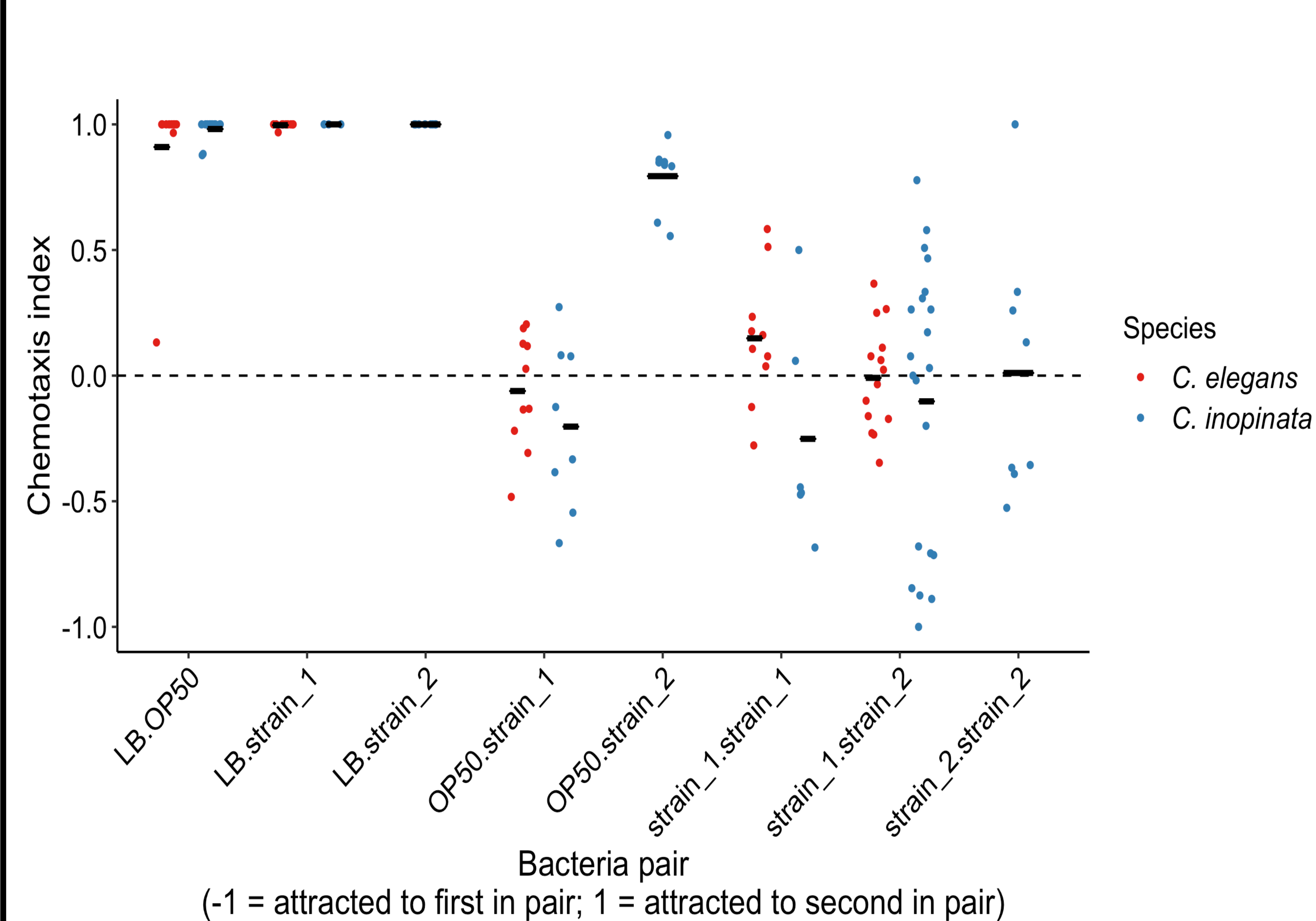
Figure 1: Chemotaxis stencil

Part 2:

- Nematodes were placed on a petri dish and all petri dishes were marked like figure 1.
- Each spot contained bacteria or media
- The nematodes were placed onto the X portion of the petri dish.
- After ~2 hours the worms on each spot was counted
- We estimated the chemotaxis index as: (number of worms in spot A – number of worms in spot B)/(total number of worms in spots A and B)

Results

No significant preference for one strain over the other in most comparisons



Conclusions and Analysis

Key Takeaways:

- The bacteria was identified. Strain 1 being *Pseudomonas* sp., and strain 2 being *Pantoea* sp.
- The worms preferred bacteria over no bacteria (LB media).
- For the most part, no specific bacteria was preferred over the other. *C. inopinata* appears to prefer *Pantoea* sp. to *E. coli*.
- Chemotaxis index evenly distributed around zero, indicating little preference for a certain bacteria regardless of lab adapted or not.

Future Experiments:

- Utilize certain amounts of bacteria.
- Use of different types of bacteria.
- Male vs. Female

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