Transferring Worms grown on NGM plates

Background

Throughout the course, you will need to transfer individual worms from mixed populations of worms of all developmental stages. Several methods are used for transferring *C. elegans* from one petri plate to another. A quick and convenient method is "chunking", wherein a sterilized scalpel or spatula is used to move a chunk of agar from an old plate to a fresh plate. The worms will crawl out of the chunk and spread out onto the bacterial lawn of the new plate. This method works well for transferring worms that have burrowed into the agar or are difficult to pick individually (such as on a starved plate).

Alternatively, individual worms can be transferred from one plate to another using a thin platinum wire and some bacteria as “glue” to temporarily attach the worms to the wire. The platinum wire heats and cools quickly and can be flamed often (between transfers) to avoid contaminating the worm stocks. For ease of manipulation, this wire is attached to the end of a glass Pasteur pipette or a worm pick. Because of the small size of the worms and the pick, transferring worms can only be done under the microscope and will require some practice.

Materials

- Seeded Nematode Growth Media (NGM) maintenance plates
- Plate with worms to be transferred
- Worm pick
- Goop plate (old NGM plates seeded with thick bacteria lawn)

Procedure

1. Light your Bunsen burner and set to the lowest possible setting while still maintaining a flame.

2. Place the plate with worms face-up on the microscope stage and remove the lid. Looking through the microscope objectives, adjust the focus until the agar surface and the worms are clearly visible.

3. Once you have identified the worm you want to transfer, you are ready to load your pick. Sterilize the worm pick by briefly passing the wire through the Bunsen burner flame for a few seconds. Gently scrape the tip of the wire through the bacterial lawn on the goop plate so that you end up with a glob of bacteria on the end of your pick.

4. Carefully guide your loaded pick such that it is between the worm plate and the microscope lens (but be careful not to touch the plate or lens with the pick). If the wire is not in your field of vision, slowly move the pick back and forth until it is visible (it may be easier to do this step on the lower magnification settings until you get more used to this).

5. To get the worm onto the pick, gently touch the top of the worm with the glob of bacteria on the end of your pick. It may take a few gentle touches before the worm adheres to the goop on the pick. *Note: Avoid poking holes in the agar. Worms crawl into the holes, making it difficult to see or pick them.*

6. Once you have a worm on the end of your pick, gently draw the end of the pick across the surface of the new NGM plate to drag the worm off the pick. It can be difficult to remove a worm from a pick – sometimes simply touching the end of the pick to the plate surface and just waiting for the worm to crawl off the pick onto the plate is the best way to remove the worm without damaging the animal. Try to avoid gouging the agar surface or the worm with the pick.

7. Once you have successfully completed a worm transfer, sterilize your pick again by passing it through your Bunsen burner flame for a few seconds. It is important to sterilize your pick before and after EVERY worm transfer you make in order to keep the worms clean of unwanted microbes and to prevent cross-contamination of different worm strains.

Note: Several animals at a time can be picked by this method, although worms left too long on the pick will desiccate and die.

References

Stiernagle, T. Maintenance of *C. elegans* (February 11, 2006), *WormBook*, ed. The *C. elegans* Research Community, WormBook, doi/10.1895/wormbook.1.101.1, http://www.wormbook.org.

7.15 Experimental Molecular Genetics

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