In this Issue of *Worm*

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Short Communication: Does My Nematode Look Fat in These Bacteria?, pp. 93-97

If you are conducting any studies that rely on the size of your worms, you may end up adjusting your protocols after reading this short communication. So, Garan, Miyahara and Ohshima have discovered that the speed of development and overall size of multiple species of nematode, including *C. elegans*, is largely dependent on what strain of bacteria it feeds on. The authors have also determined that this food-dependent size is also influenced by temperature, as well as sex of the nematode.

Review: Plastic Phenotypes, pp. 98-106

Evolutionary fitness is absolutely dependent on an underlying genotype, but the ability to alter the phenotype to fit a specific environment, say a long-term drought, is even more useful when it comes to an animal's ultimate survival. Viney and Diaz use the ability of *C. elegans* to develop into either a dauer or non-dauer state, depending on the appropriate environment, as an example of this phenotypic plasticity. The authors delve into the understanding of the genetic basis that lies behind these phenotypically plastic traits.

Commentaries: A Niche for Seam Cells, pp. 107-111

Inarguably, stem cells are extremely valuable in many aspects of biological research, from both basic to clinical settings. The stem cell niche, the micro-environment surrounding a population of stem cells, is equally invaluable as it is responsible for many aspects of stem

cell development, including potency. The neuroectodermal seam cells of *C. elegans* have proven to be a good model for studying stem cells, however, they are not ideal as they lack a specified niche and therefore are not considered "true" stem cells. In this commentary, Charles Brabin and Alison Woollard discuss their recent findings that local signals have, in part, the ability to direct stem-like properties of seam cells. These results may impact the future status of seam cells in the realm of stem cell biology.

Nuclear Positioning: Where and Why?, pp. 112-115

One of the major tactics in organogenesis is determining the ultimate shape of the organ. This is a process accomplished by the extension and branching of epithelial tubes. In *C. elegans*, gonadal distal tip cells (DTCs) lead this process. During the cells' migration, their nuclei consistently translocate to a specific location, at the leading edge of the cell wall. In this commentary, Hon-Song Kim and Kiyoji Nishiwaki discuss their findings on the role that VAB-10B1/spectraplakins play in the regulation of nuclear translocation by controlling microtubule growth. The authors further consider possible explanations for the importance of nuclear positioning.

Homologous Homology, pp. 116-120

Meiosis starts with a diploid cell, containing two sets of chromosomes, that undergoes homologous recombination and eventually splits to produce gametes. During homologous recombination, chromosomes swap matching sequences from the maternal and paternal chromosomes, thus introducing genetic variation in

offspring. How the chromosomal pairing occurs, however, is not quite understood. In this commentary, Kentaro Nabeshima reveals findings that *C. elegans* chromosomes align during meiosis in a similar manner to other organisms, contrary to what was previously thought. The author presents hypothetical models for this pairing.

On the PCP-Like Pathway to Inhibiting Neurites, pp. 121-124

The eventual polarization of a neuron, indicated by the extension of an axon, is long determined by a cascade of extracellular cues, a cascade that is relatively well understood. However, little is known about the mechanisms that prevent neurite extension, an equally important part during the sculpting of neural connections. Antonia Colivita et al. are making headway, however, and in this commentary, Antonio Colavita discusses their recent findings of a PCP-like pathway that does, indeed, prevent neurite growth.

A Connectivity Model for the Rear End of *C. elegans*, pp. 125-128

C. elegans may not be a very verbal animal, but its locomotor activity can tell us a lot about its behavior. While much is known about the connectivity and wiring of many of the motorneurons in *C. elegans*, the posterior of the animal has largely been missed out. Gay Haspel and Michael O'Donovan have recently used a new method to extrapolate the connectivity of anterior motorneurons to the motorneurons of the posterior. In this commentary, the authors detail the analytical process and expand on the features of this novel connectivity model.

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**Natural Selection Based
Endo-siRNA, pp. 129-133**

The well-established, and immensely useful, phenomenon of RNA interference, the introduction of double stranded RNA into an organism to induce gene silencing, has led to other interesting discoveries. In fact, there are endogenous RNAs that play a similar role and are involved in developmental timing, and interestingly, these endo-siRNAs, or endogenous short interfering RNAs, are most likely not limited to *C. elegans*. In this commentary, Alla Grishok focuses on ZFP-1 and its role as an endo-siRNA. The author also proposes a model for natural selection via variations in siRNA pools between individuals.

**Injuring Worms Provides Insight
into the Healing Process,
pp. 134-138**

An organism's survival relies on its ability to heal after it has been wounded. As important as it is, the molecular mechanisms that underpin the healing process are not well understood. Suhong Xu, Tiffany Hsiao and Andrew Chisholm use live imaging of *C. elegans* as a model to investigate what happens at the molecular level in the epidermis after injury. The authors find that a calcium influx in the epidermis provides a necessary signal that directs wound closure. This finding highlights the advantages of using *C. elegans* as a model for further understanding of skin wound repair.

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