



What is *Caenorhabditis elegans* and why work on it?

C. elegans is a nematode – a member of the phylum Nematoda:

Nematoda - the roundworms and threadworms; a phylum of smooth-skinned, unsegmented worms with a long cylindrical body shape tapered at the ends; includes free-living and parasitic forms both aquatic and terrestrial (*Academic Press Dictionary of Science and Technology*)

A small worm found in many parts of the world, *C. elegans* grows to about 1mm in length and lives in the soil – especially rotting vegetation – where it survives by feeding on microbes such as bacteria.

A brief description of *C. elegans*

C. elegans is a free-living nematode. There are two sexes: a self-fertilizing hermaphrodite and a male. The adult essentially comprises a tube, the exterior cuticle, containing two smaller tubes, the pharynx and the gut, and the reproductive system. Most of the volume of the animal is taken up by the reproductive system.

Of the 959 somatic cells of the hermaphrodite some 300 are neurons. Neural structures include a battery of sense organs in the head which mediate responses to taste, smell, temperature, and touch – and, although *C. elegans* has no eyes, it might respond slightly to light. Among other neural structures is an anterior nerve ring with a ventral nerve cord running back down the body. (There is also a smaller dorsal nerve cord.)

There are 81 muscle cells. *C. elegans* moves by means of four longitudinal bands of muscle paired sub-dorsally and sub-ventrally. Alternative flexing and relaxation generates dorsal-ventral waves along the body, propelling the animal along. The development and function of this diploid organism is encoded by an estimated 17,800 distinct genes.

Information from the Riddle lab: <http://www.riddlelab.msl.ubc.ca/>

