

Caenorhabditis elegans



E' un nematode trasparente, tutte le sue 959 cellule somatiche sono facilmente osservabili al microscopio ottico

Viene manipolato come un microrganismo (+ ***RNA interference***)

E' un ermafrodita che si riproduce essenzialmente per autofertilizzazione.

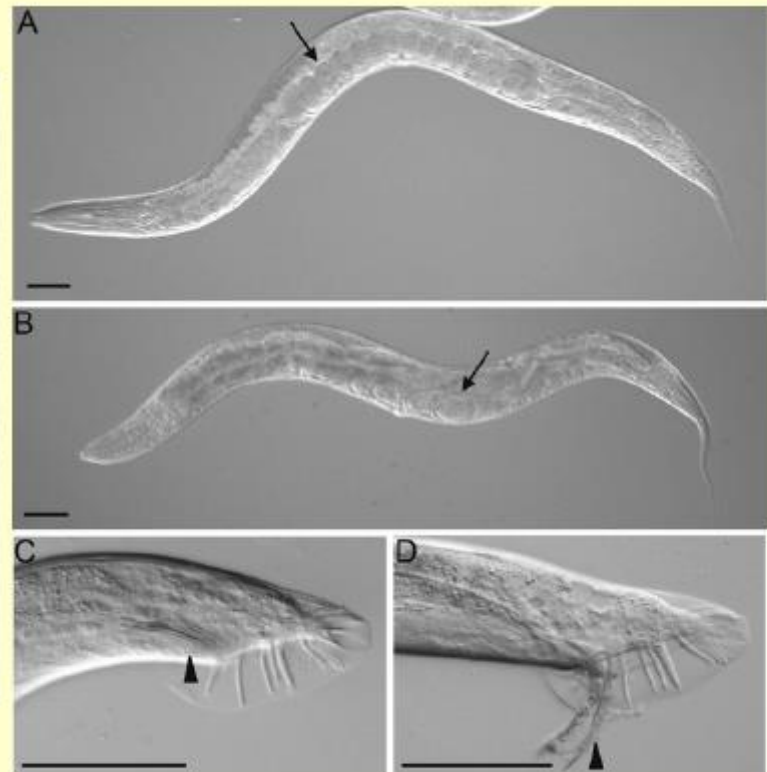


C.elegans
A free living
1mm nematode

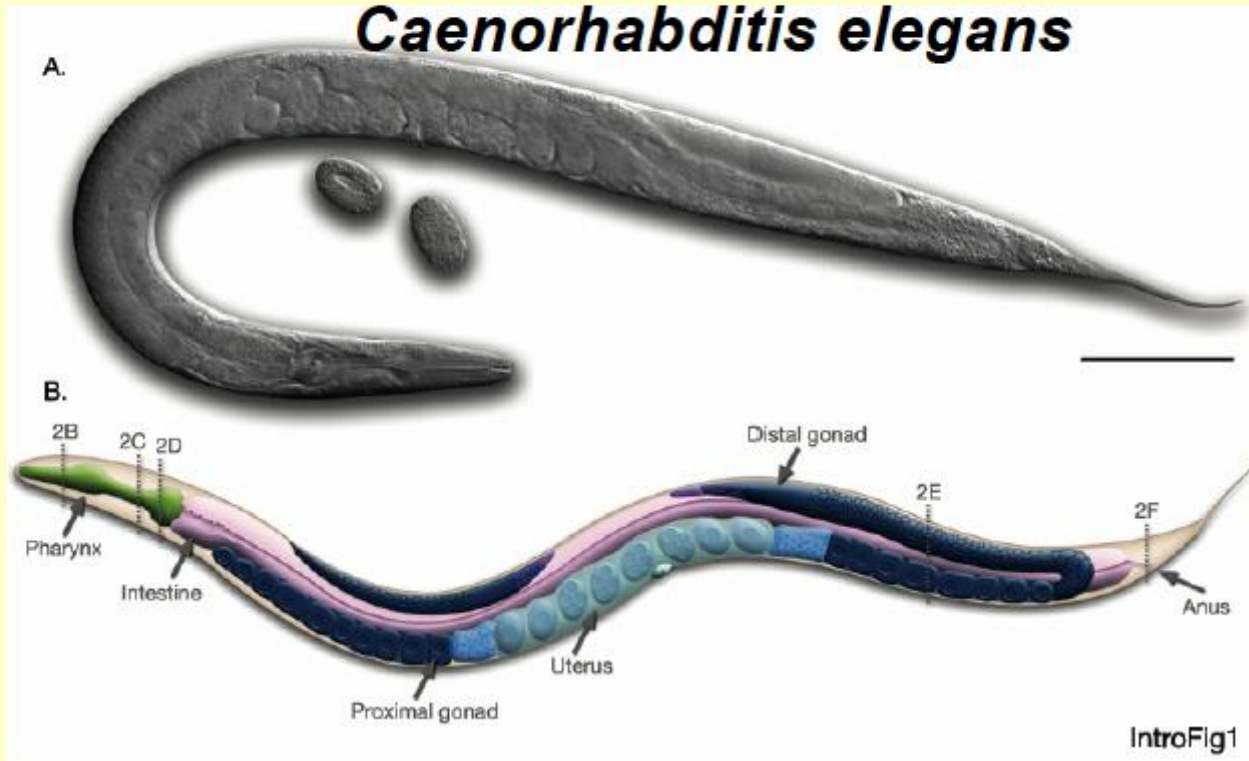
- ~ 50 hours life cycle (egg to egg; facultative hermaphrodite)
- Life span ~ 3 weeks
- Ease of Culture (Grows on *E.coli* lawns at 20°C)
- Power of Genetics (Screen for Suppressor, Complementation, etc.)
- Strains Can Be Frozen
- 959 Cells
- Complete Cell Lineage Characterized (from zygote to adult)

Males (1031 cells)

In *C. elegans*, males (5AA;X0) arise spontaneously in XX hermaphrodite populations by means of X chromosome nondisjunction during meiosis in the germ line at a frequency of about 0.1-0.3 % . The males mate with hermaphrodites to produce a 1:1 ratio of male and hermaphrodite cross-progeny, but additional hermaphrodites are almost always produced by selfing.



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Questo nematode ha cellule differenziate, tessuti ed organi (cellule muscolari, neuroni, faringe, intestino, gonadi

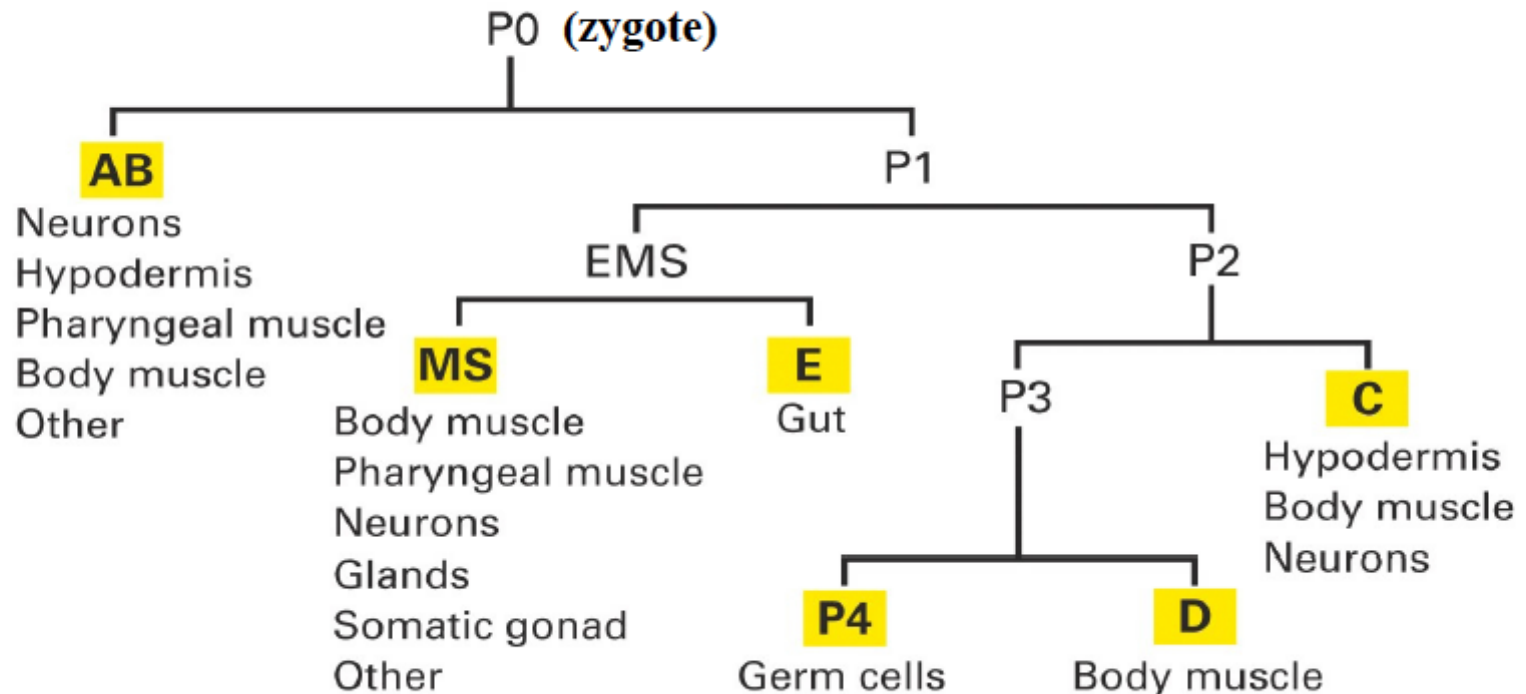
Adult hermaphrodite 959 cells (302 neurons, 152 muscle cells, ~7000 synapses)

The pattern of differentiation is so rigid it has been possible to trace the lineage of every single somatic cell in the animal.

EUTELY - the pattern of development and cell number is **INVARIABLE** from worm to worm.

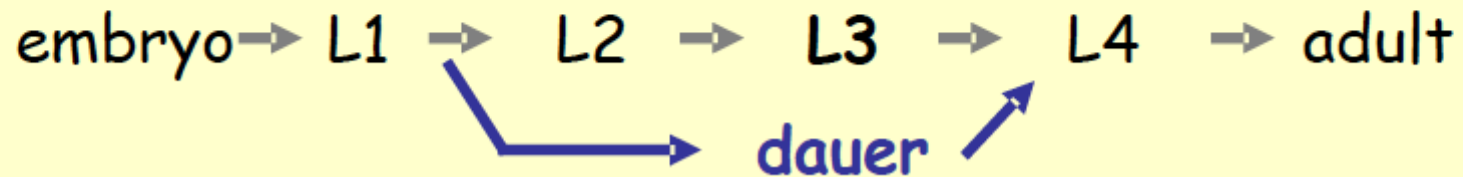
558 cells at hatching, ; in the developing embryo 131 cells die by **APOPTOSIS**.

C. elegans develops from Six Founder Cells



Adverse environmental conditions induce dauer arrest in *C. elegans*

normal environment



adverse environment



- growth arrest
- increased fat
- extended lifespan

