

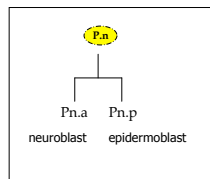
C. elegans nervous system development regulated by HOM-C genes

The worm is born with 12 ectodermal 'P cells' along the ventral midline of the body.

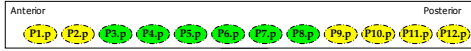


C. elegans L1 larva hatching

Each ectodermal P cell divides once to form a neuroblast and an epidermoblast.



The central Pn.p cells (P3-8.p) can give rise to vulva.

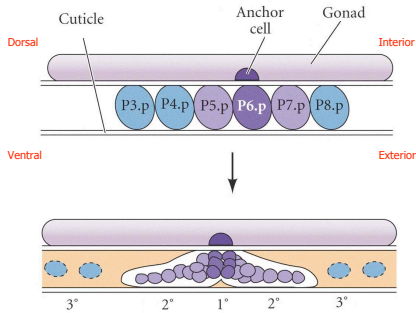


The central Pn.p cells are the vulval precursor cells (VPCs).



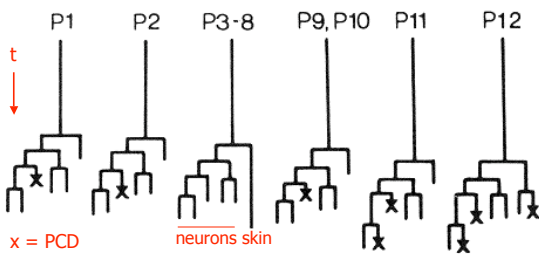
The vulva under construction during larval stage 4 (L4)

The central Pn.P cells can give rise to vulva.



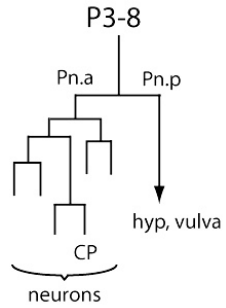
Gilbert, Fig 6.19 (turned 90°)

P cell-derived neuroblasts divide to produce VNC neurons

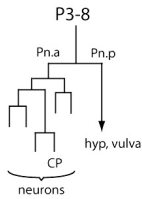


P ectodermoblast cell divisions (lineage)

In the male, the 'C' position cells divides one more time



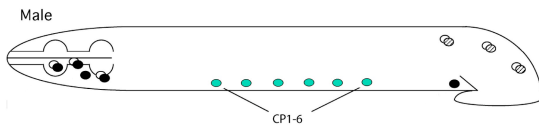
In the male, the 'C' position cells divides one more time



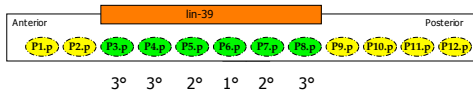
Pn.aapp cell

	3	4	5	6	7	8
Neurons:	CP1	CP2	CP3	CP4	CP5	CP6

The male CP neurons use the neurotransmitter serotonin



The six central Pn.p cells (P3.p - P8.p) are specified as Vulval Precursor Cells (VPCs) by the central body HOM-C gene *lin-39*.



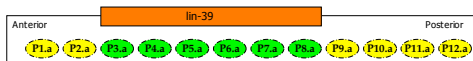
The six central Pn.p cells (P3.p - P8.p) are specified as Vulval Precursor Cells (VPCs) by the central body HOM-C gene *lin-39*.



lin-39(-/-) 3° 3° 3° 3° 3° 3°

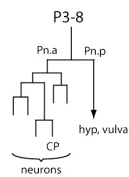
In *lin-39(-/-)* mutants, all six VPCs fuse with the hypodermal syncytium (3° fate), leaving the animal vulvaless.

The central Pn.a neuroblasts (P3.a - P8.a) are also specified by the central body HOM-C gene *lin-39*.

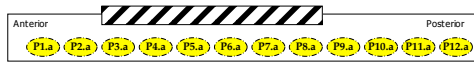


Male CPs:

wildtype



The central Pn.a neuroblasts (P3.a - P8.a) are also specified by the central body HOM-C gene *lin-39*.

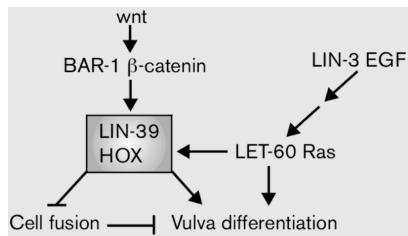


Male CPs:

lin-39(-/-) x x o o o o

In *lin-39* mutants, CPs make no serotonin or die

Wnt Signaling in C. elegans vulval development



RTK & Wnt signaling pathways interact to specify vulval cell fates in *C. elegans*

However, RTK & Wnt signaling pathway genes have little or no effect on the neuronal CP cell fates.
