

Supplementary Information

Supplementary Table 1. The *cdc-42(RNAi)* Muv phenotype requires Ras signalling

Strain	% Muv (n)	
	Control	<i>cdc-42(RNAi)</i>
N2	0 (393)	15 (378)
<i>lin-3(n378)</i>	0 (600)	1.2 (167)
<i>let-23(sy1)</i>	0 (141)	1.1 (181)
<i>lin-45(wu48)</i>	0 (212)	0 (41)

Animals were scored for multiple protrusions as adults.

Supplementary Figure 1. Vulval junctions and polarity are largely unaffected

(A,B) AJM-1 at the apical junctions of Pn.pxx stage VPC descendants, after induction. (A) wild-type, with 12 descendants of three induced cells. (B) hyperinduced *cdc-42(RNAi)* animal with 16 descendants of four induced cells. AJM-1 appeared normal in 28/28 *cdc-42(RNAi)* animals (of which 7 were hyperinduced) and 12/12 *par-3(RNAi)* animals (of which 2 were hyperinduced). Brackets indicate descendants of a single VPC and asterisks mark cells where, although AJM-1::GFP remains apical, the cells have adopted unusual shapes. (C-E) PAR-6::GFP at the apical domain of vulval cells at early L4. Apical localisation was maintained in 9/9 *cdc-42(RNAi)* and 4/4 *par-3(RNAi)* animals with multiple invaginations. (C'-E') Nomarski images of (C-E)

(F,G) LET-413::GFP at the basolateral domain of vulval cells at mid-L4. Basolateral localisation was maintained in 7/7 *cdc-42(RNAi)* animals with multiple invaginations. (F'-G') Nomarski images of (F-G)

Anterior, left; ventral, down (excluding (A) and (B) which are ventral views); scale bars, 10µm

Supplementary Figure 2. Adjacent 1^o fate VPCs both downregulate LIN-12

Projections of fluorescence images of Pn.px stage L3 animals expressing *egl-17::CFP*. Monoclonal MH27 (red) marks VPC apical junctions, anti-GFP (blue) marks *egl-17* expressing 1^o fate cells and anti-LIN-12 (green) marks the apical membrane of 2^o fate vulval cells and cells within the gonad, including the Anchor Cell (AC). Descendants of induced VPCs are marked with brackets, cells expressing LIN-12 with filled arrowheads, cells which have down-regulated LIN-12 with unfilled arrowheads and ACs with asterisks.

(A) Wild type animals have a single AC which induces a single VPC (P6.p) to adopt the 1^o fate and downregulate LIN-12 (19/19 animals).

(B) Some *cdc-42(RNAi)* animals have two ACs which each induce their underlying VPC to adopt the 1^o fate, resulting in adjacent 1^o fate cells, both of which downregulate LIN-12 (7/7 animals with adjacent 1^o fates).

Anterior, left; ventral, down; scale bar, 10µm.

Supplementary Figure 3. P4 cell remnants become incorporated in the gonad, following its ablation

(A) Gonad primordium of L1 *ehn-3::GFP* animal following ablation (during embryogenesis) of the germ cell precursor P4. Remnants of the ablated cell (P4 corpse) are associated with the gonad primordium. *ehn-3::GFP* fluorescence marks the SGPs, Z1 and Z4. Dotted line outlines the gonad.

Anterior, left; ventral, down; scale bar 10µm.