

Supplementary Information

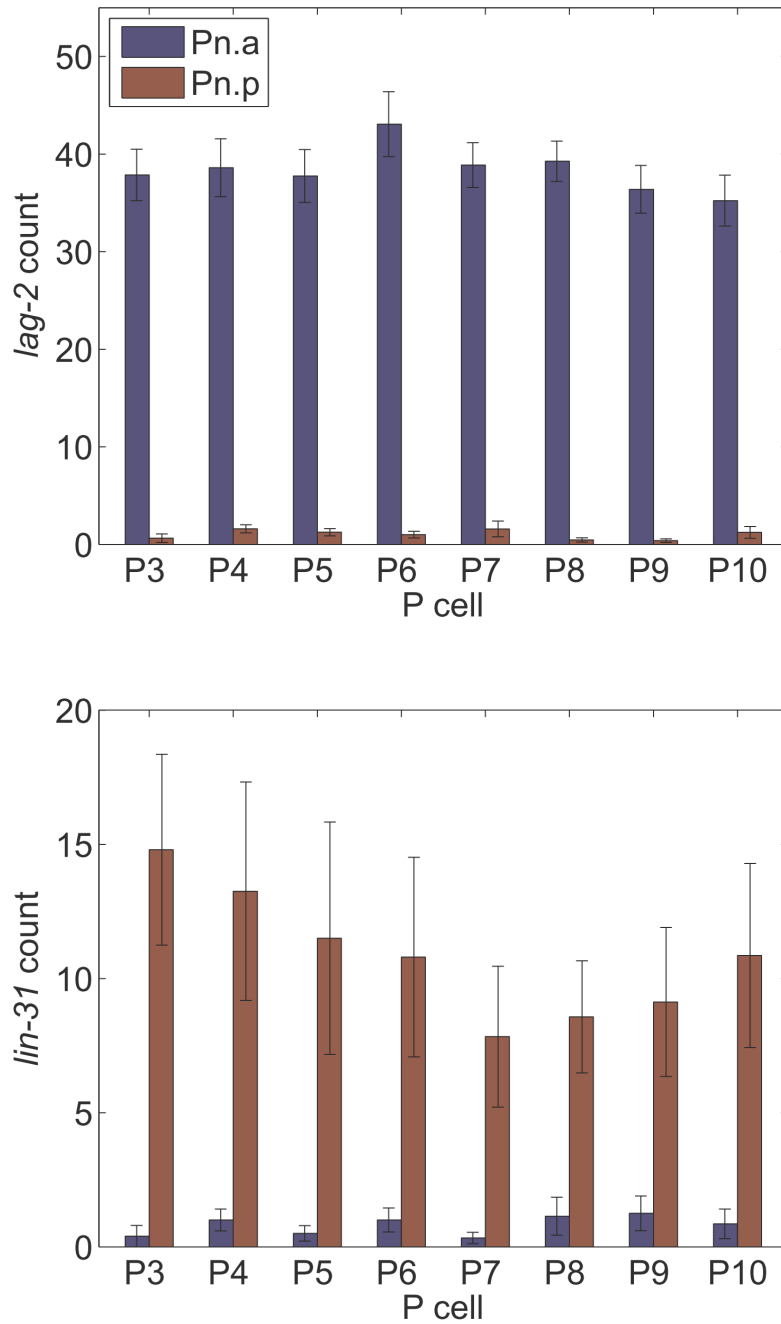


Fig. S1: Plot of *lag-2* and *lin-31* transcripts in the anterior (blue) and posterior (red) daughters of the P3 - P10.

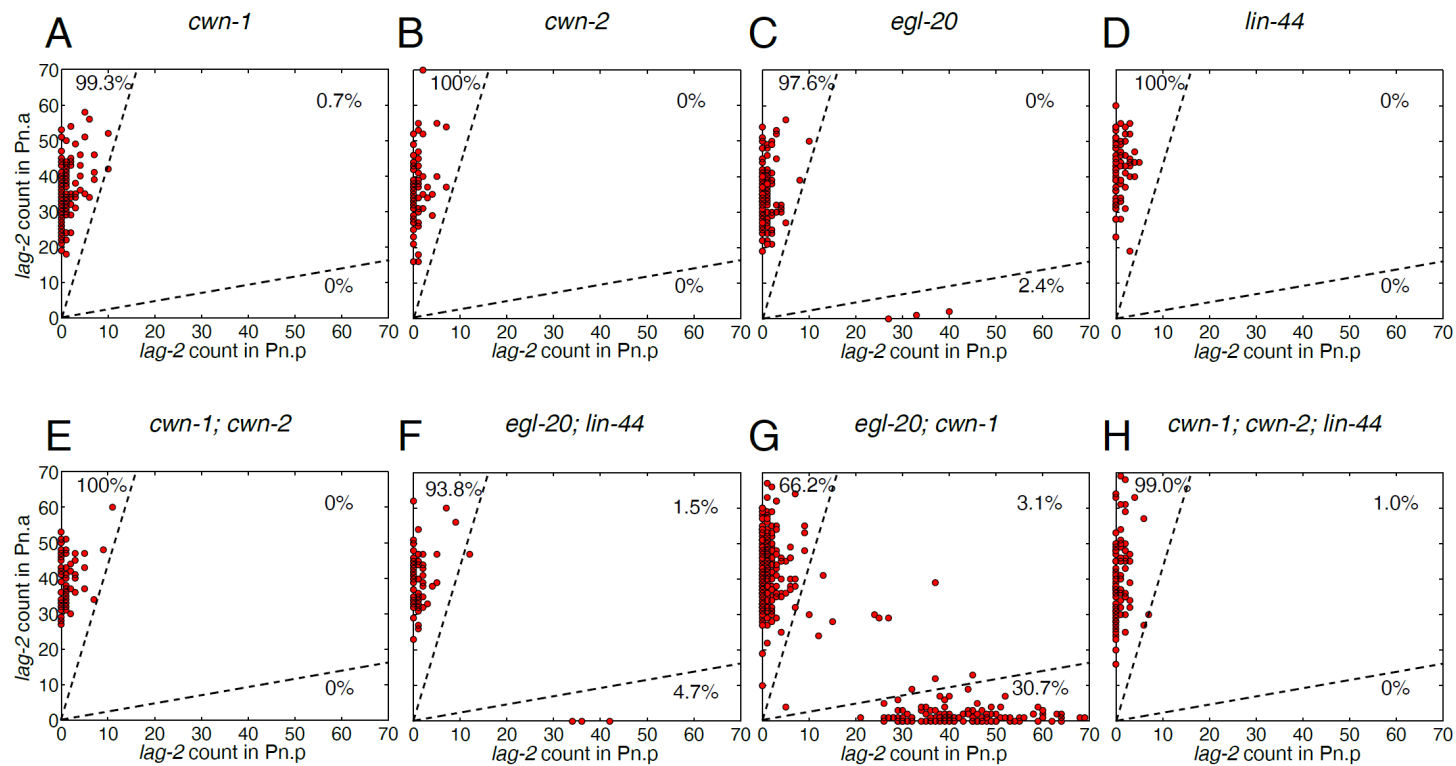
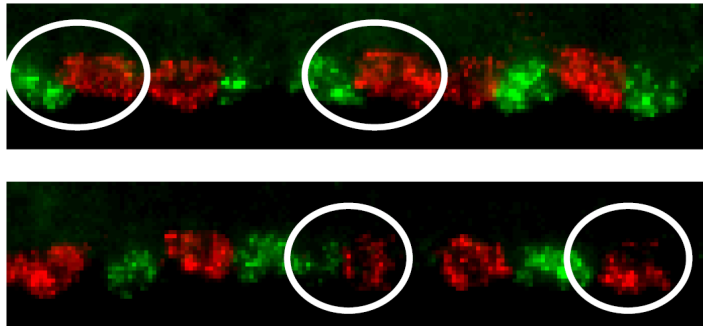


Fig. S2: Plot of *lag-2* mRNA counts in Pn.p versus Pn.a in ligands mutants (A) *cwn-1*, (B) *cwn-2*, (C) *egl-20*, (D) *lin-44*, (E) *cwn-1; cwn-2*, (F) *egl-20; lin-44*, (G) *egl-20; cwn-1* and (H) *cwn-1; cwn-2; lin-44*. Dotted lines divide the plot of *lag-2* expression in Pn.p versus Pn.a into regions for correct polarity, loss of polarity and reverse polarity. Fractions of cells that fall into these three regions are indicated on the plots.

ligands mutant (*cwn-1; cwn-2; egl-20*)



receptors mutant (*mom-5; lin-17*)

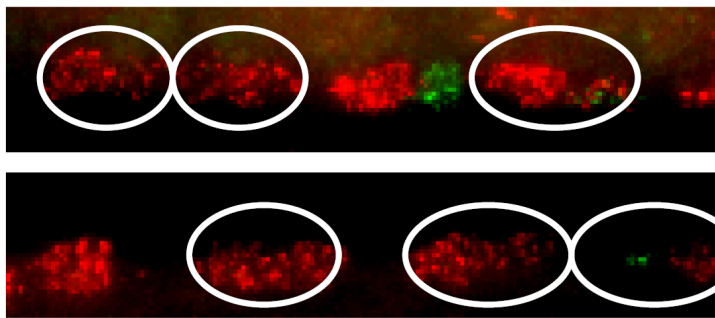


Fig. S3: *lag-2* and *lin-31* expression in Pn.p and Pn.a in ligands mutants, *egl-20; cwn-1; cwn-2*, and receptor mutant, *mom-5; lin-17*. Daughters cell that show polarity reversals or loss of polarity are circled.

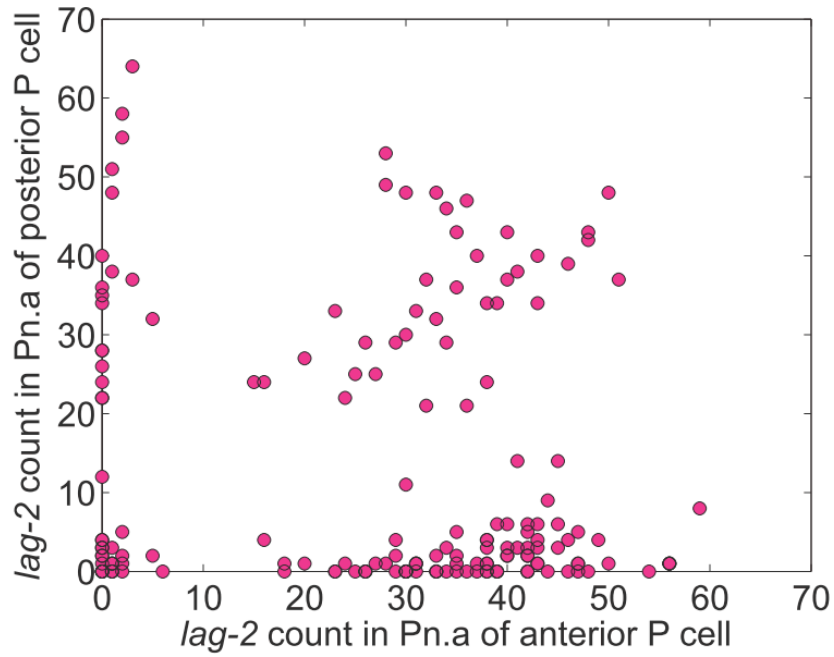


Fig. S4: Plot of lag-2 expression in the Pn.a daughter of the anterior P cell versus that of the posterior P cell for each pair of P cell in contact between division.

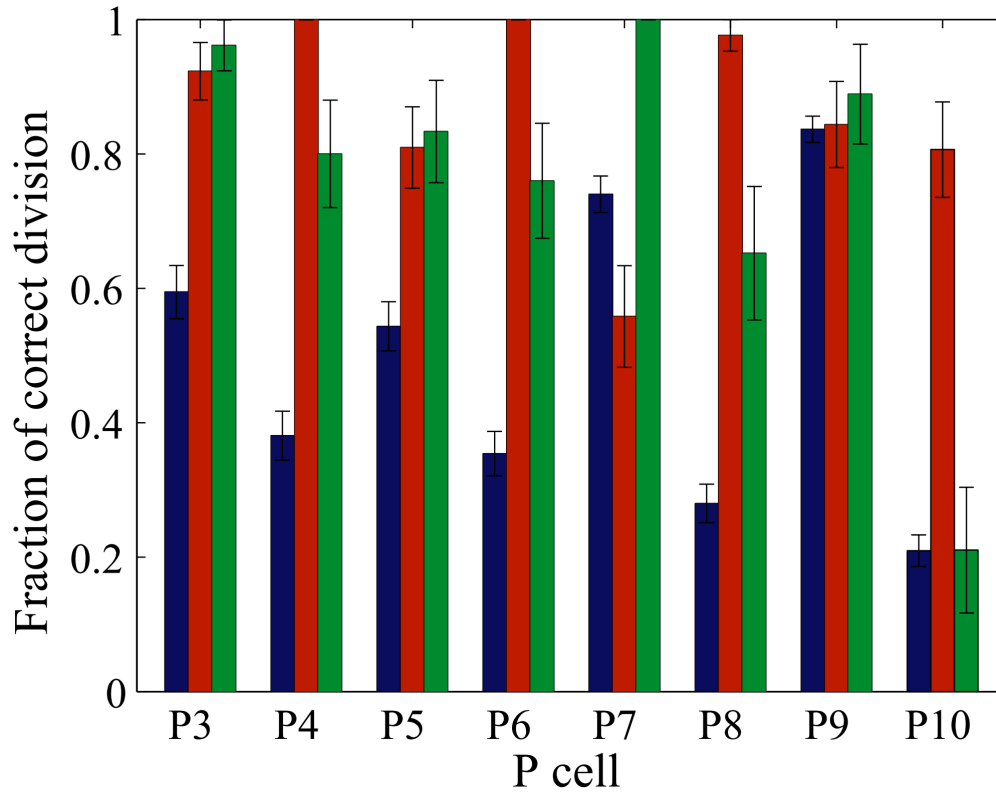


Fig. S5: Fraction of correct division observed in *cwn-1; cwn-2; egl-20* strain (blue), *cwn-1; cwn-2; egl-20 + Pegl-20::cwn-2* (red) and *cwn-1; cwn-2; egl-20 + Pmyo-3::cwn-2* (green). Error bars are standard errors.

II Supplementary Table

	Genes	Pn.a	Pn.p	Fold Difference
Wnt	<i>lin-17</i>	13	6	2.34
	<i>lin-18</i>	3	1	2.17
	<i>mig-1</i>	10	4	2.35
	<i>mom-5</i>	7	1	6.63
	<i>cwn-1</i>	10	5	2.08
	<i>cwn-2</i>	9	2	4.89
	<i>egl-20</i>	-	-	-
	<i>mom-2</i>	-	-	-
Notch	<i>lag-2</i>	31	1	29.21
	<i>lin-12</i>	4	7	0.40
	<i>apx-1</i>	21	6	3.19
	<i>glp-1</i>	0	3	0.11
	<i>hlh-2</i>	45	13	3.27
FGFR	<i>egl-17</i>	10	4	2.52
EGFP	<i>let-23</i>	-	-	-
TGF	<i>daf-1</i>	-	-	-
	<i>daf-4</i>	-	-	-
	<i>daf-7</i>	-	-	-
	<i>sma-6</i>	-	-	-
Genes with reported expression in P cells or their descendants	<i>lin-31</i>	1	11	0.07
	<i>hlh-3</i>	17.7	9.2	1.92
	<i>lin-26</i>	5	12	0.43
	<i>pag-3</i>	-	-	-
	<i>cnd-1</i>	-	-	-
	<i>unc-3</i>	-	-	-
	<i>unc-4</i>	-	-	-

Table S1: Table shows expression of genes from major signaling pathways (Wnt, Notch, FGF, EGF, and TGF) and genes that were previously reported to be expressed in P cells or their descendants. – indicates that the gene is not expressed. Fold difference is defined as the amount of transcript count in Pn.a divided by that in Pn.p.