Table S1 Loss of frk-1 does not result in functional, precociously differentiated seam cells. Although seam cells do express markers present from embryo to adult, the late-larval and adult specific GFP-reporters do not express in the absence of *frk-1.*

reporter gene	stage	SC expression
col-19::GFP	**adult**	**no**
col-49::GFP	**L4-gravid**	**no**
col-38::GFP	**L4-gravid**	**no**
bli-1::GFP	**L4-gravid**	**no**
grd-10::GFP	**emb-L4**	**yes**
egl-18::GFP	**emb-adult**	**yes**

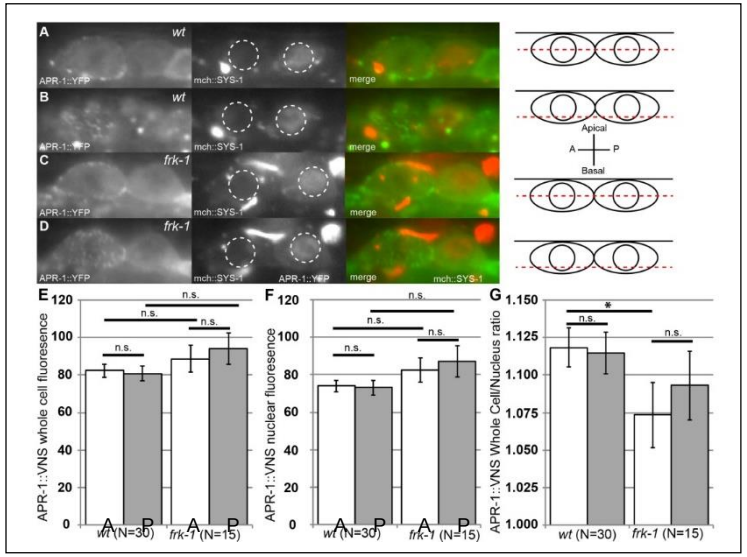

Figure S1 Loss of FRK-1 does not significantly affect subcellular localization of APR-1 or SYS-1 in dividing seam cells. APR-1 is normally symmetric in dividing seam cells, while SYS-1 is asymmetric, with higher concentrations in the posterior daughter (A,B). In *frk-1(ok760)* mutants, the SYS-1 asymmetry is unaffected; however, APR-1 becomes slightly asymmetric with higher concentrations in the anterior cytoplasm compared to the posterior daughter (C,D). APR-1 whole cell, nucleus and whole-cell/nucleus ratios in WT versus in *frk-1(ok760)* mutants (E,F). Bar graphs: x-axis: white bar is the anterior nucleus [A], while the filled bars represent the posterior nucleus [P]; y-axis: relative fluorescence units of APR-1::Venus expression.

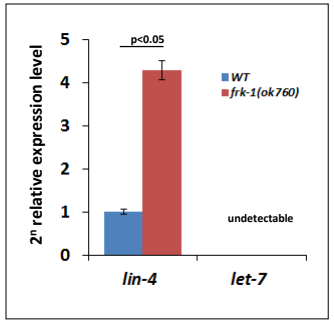

Figure S2 The absence of FRK-1 results in aberrant heterochronic miRNA expression. The heterochronic regulating miRNA, *lin-4,* is expressed at significantly higher levels in *frk-1* mutants, while *let-7* remains undetectable in arrested mutants, similar to wildtype larvae at the same stage.

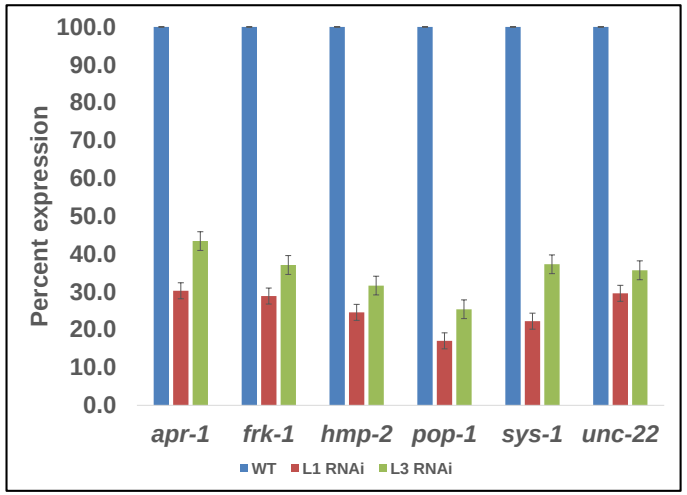

Figure S3 RNAi knockdown efficiency for the asymmetric Wnt pathway genes examined in this study. Quantitative PCR was performed on gene targets after RNAi from the L3-L4 transition. Knockdown efficiency ranged from 57-75% depending on the gene target. The bar graph shows gene expression remaining after knockdown via RNAi, with the expression levels being normalized to wildtype (represented as 100%). There was a slight decrease in knockdown efficiency (increase in remaining expression) when RNAi was performed at the L3 stage (green bars) when compared to RNAi performed at the L1 stage (red). [The rationale for examining L3-L4 transition is due to the fact that when *frk-1(RNAi)* was performed on L1 animals there were more complications leading to arrest than when we performed RNAi at a later larval stage. Thus, since we wanted to observe the specific effect on seam cell proliferation, we chose to observe the L3-L4 seam cell division, just prior to the onset of adulthood when the seam cells differentiate.]