



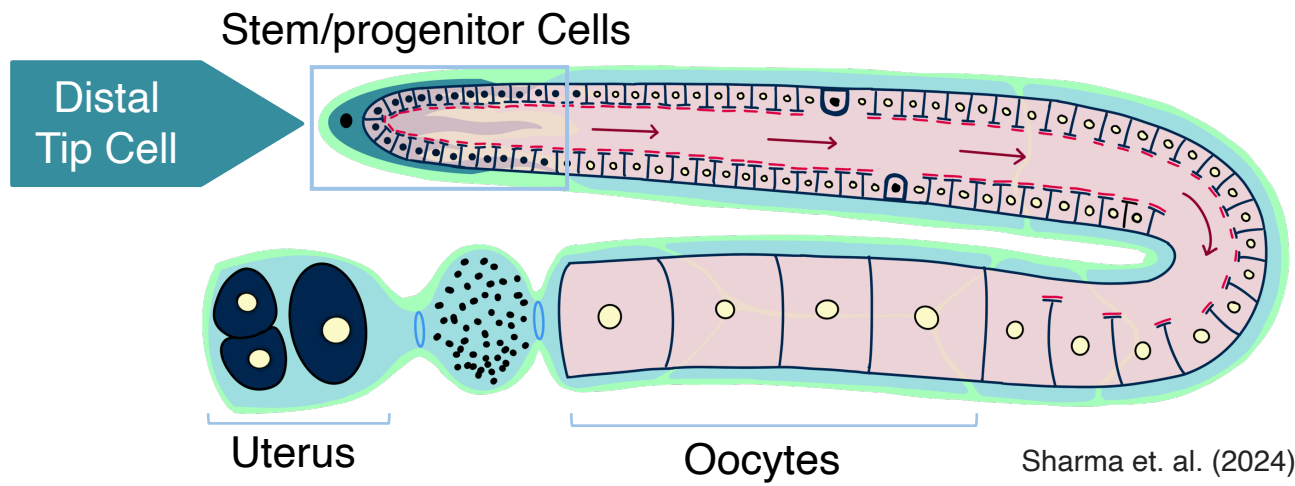
Role of PEZO-1 in Maintenance of the Germline Stem Cell Population in *Caenorhabditis elegans*

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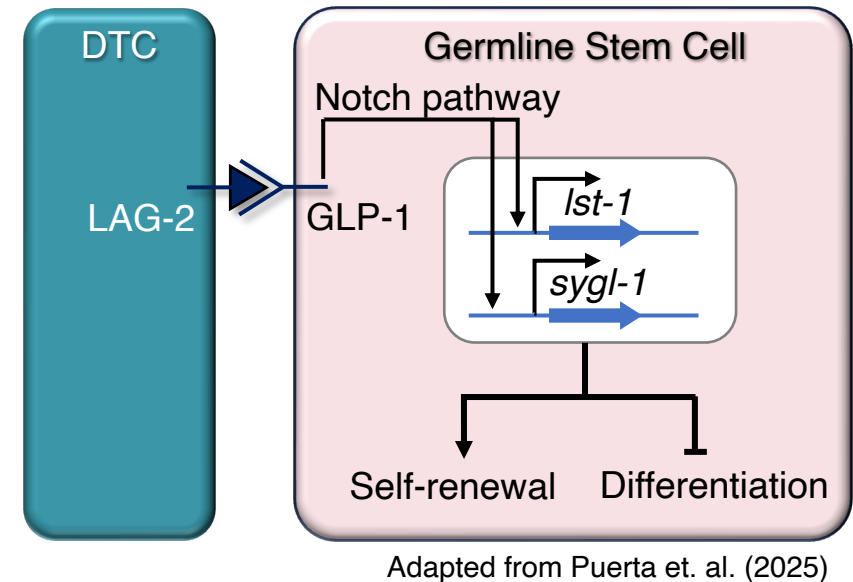
INTRODUCTION

- Stem cell fate determination is mechanically regulated.
- The germline stem cell population of *Caenorhabditis elegans* (*C. elegans*) hermaphrodites is an attractive model for study of adult stem cells.
- PEZO-1 is the ortholog of the mechanosensitive proteins Piezo1 and Piezo2, in *C. elegans*.



WHAT IS KNOWN?

- Germline stem/progenitor cell population decreases with age in the worms, i.e. *C. elegans*.
- A single-cell somatic niche, called the Distal Tip Cell (DTC), maintains the germline stem cell population, via the Notch Signaling Pathway.

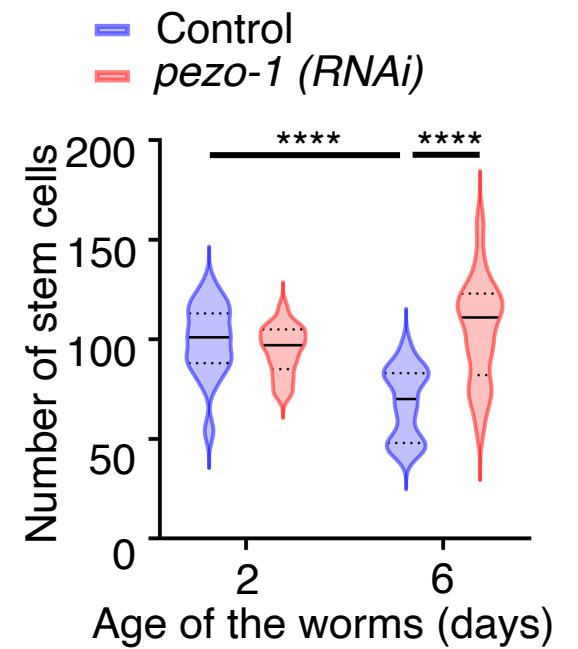
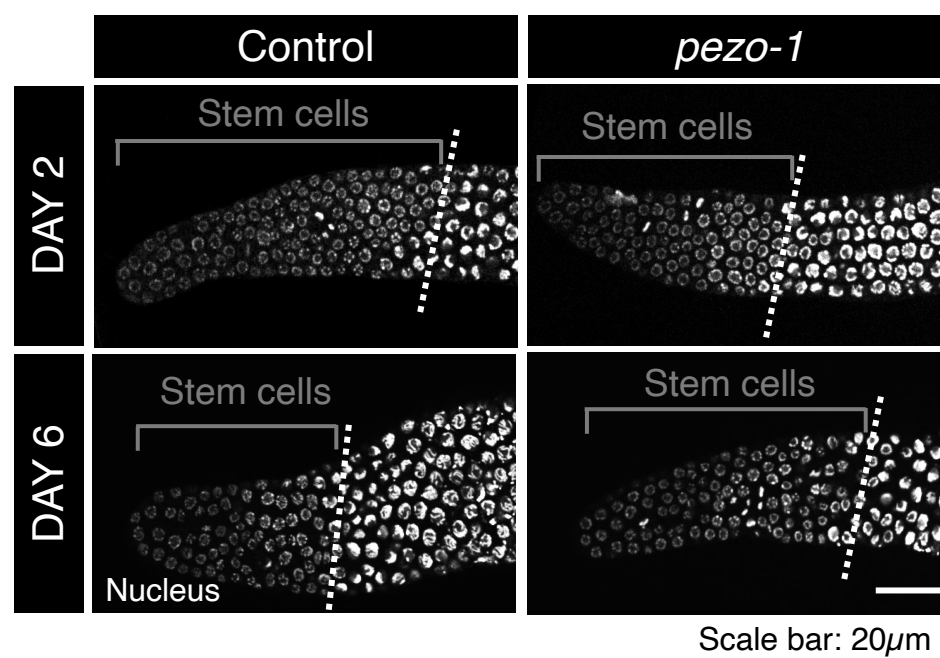
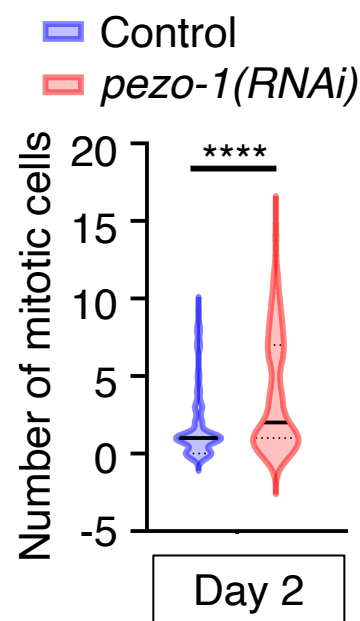
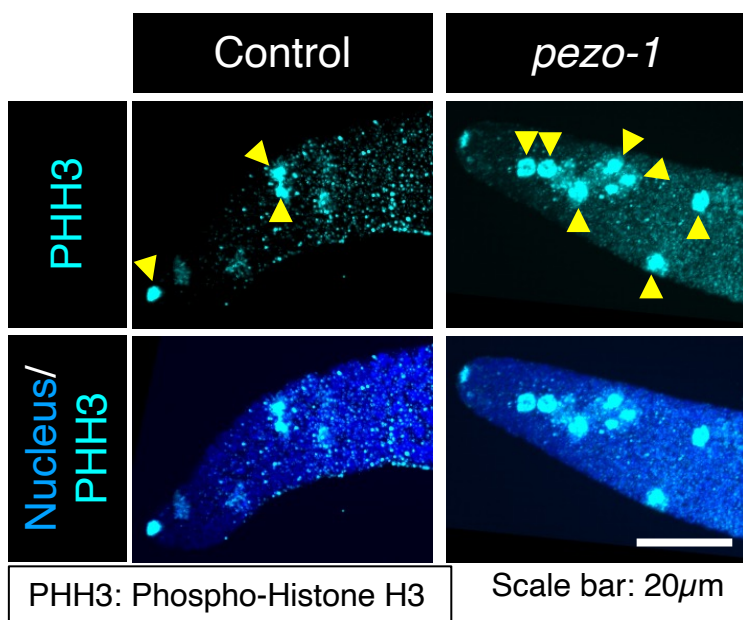


QUESTION

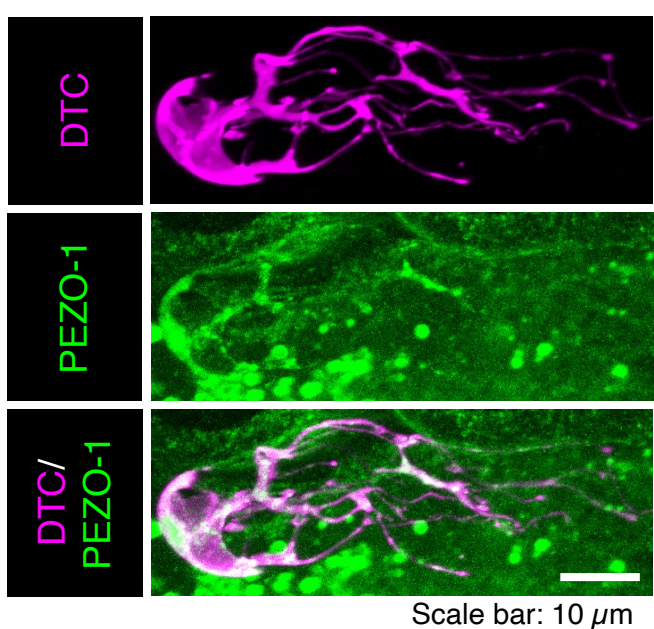
Does PEZO-1 affect the germline stem/progenitor cell population?

RESULTS

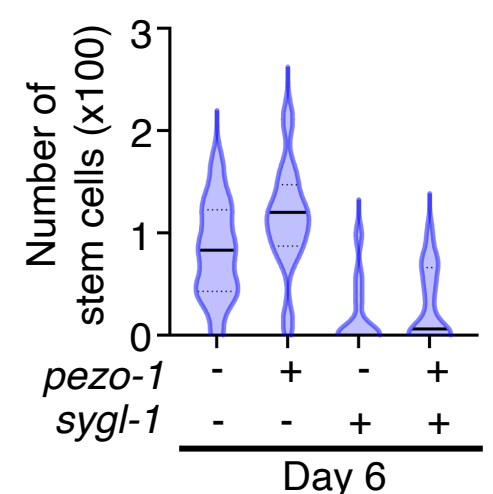
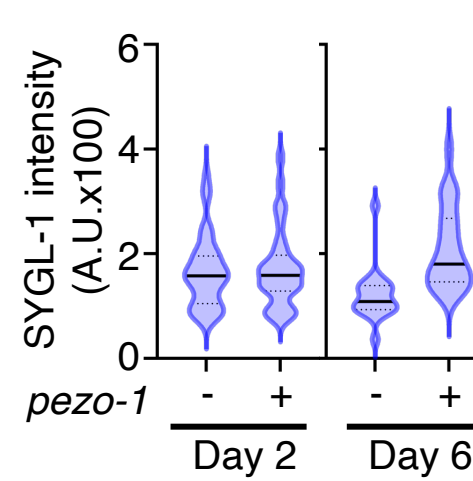
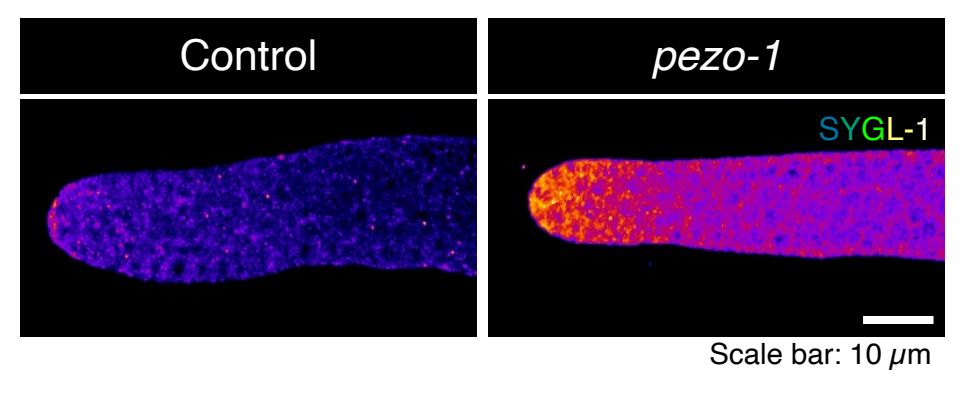
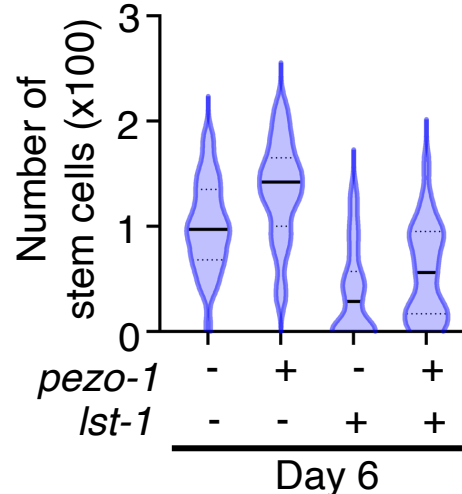
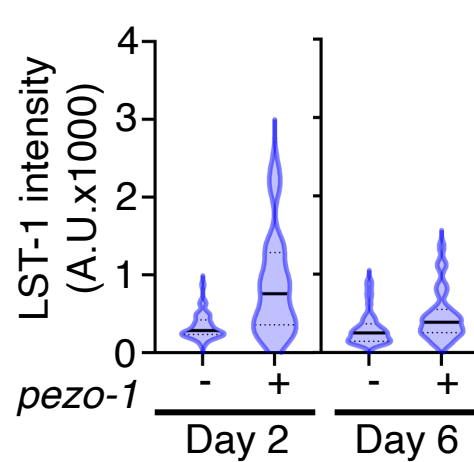
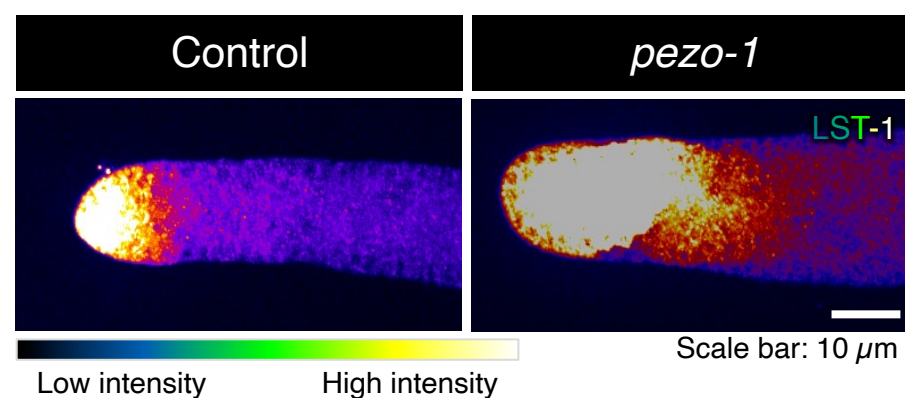
1. PEZO-1 Depletion Leads to an Increase in the Number of Mitotic Cells Resulting in Accumulation of Germline Stem Cells in Older Worms



2. PEZO-1 is Expressed at the Stem Cell Niche, the DTC, but does not Affect its Morphology



3. PEZO-1 Interacts with the Stem Cells via the Notch Signalling Pathway



SUMMARY

- Depletion of PEZO-1 maintains the germline stem cell population in older worms, by increasing the rate of mitosis.
- The observed phenotype is a result of PEZO-1's interaction with the Notch signalling pathway.

FUTURE WORK

- To elucidate the contribution of PEZO-1 expressed in the DTC versus the germ cells, in bringing about the observed phenotype.
- To determine how PEZO-1 interacts with the Notch signalling pathway.

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