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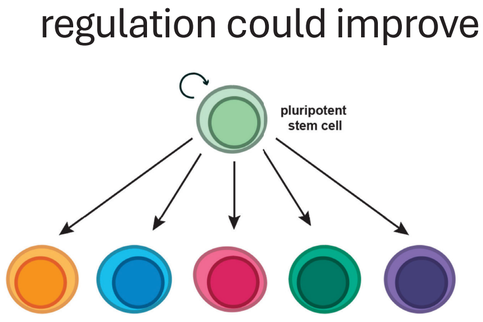
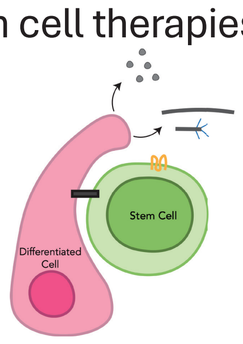
A Parenchymal Niche Modulates Pluripotent Stem Cell Function

By studying an animal that uses pluripotent stem cells at a high rate, we can begin to understand how the most potent adult stem cell type is regulated within an organism.

Understanding pluripotent stem cell regulation could improve stem cell therapies

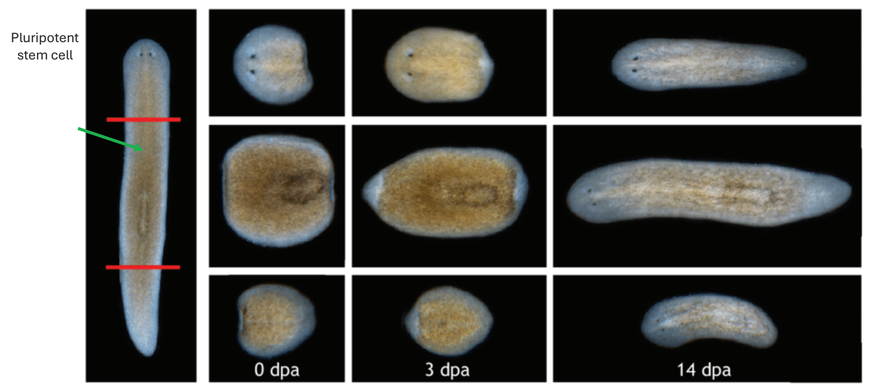


Pluripotent stem cells create all adult cell types



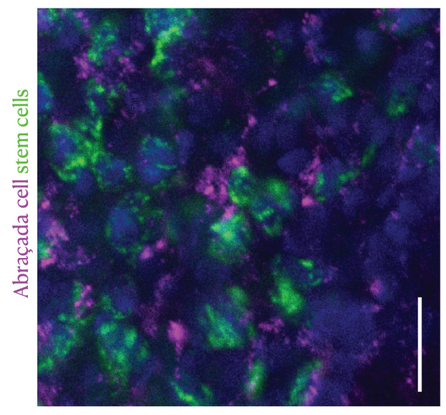
Stem cells are regulated by their **niche**, or surrounding environment.

Planarians possess pluripotent stem cells that give them whole body regeneration

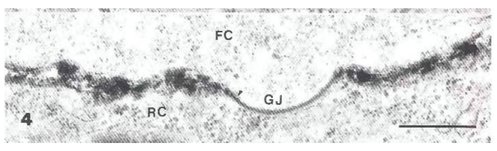


Ivankovic et al., 2019

Identified abraçada cells as the most frequent pluripotent stem cell neighbor

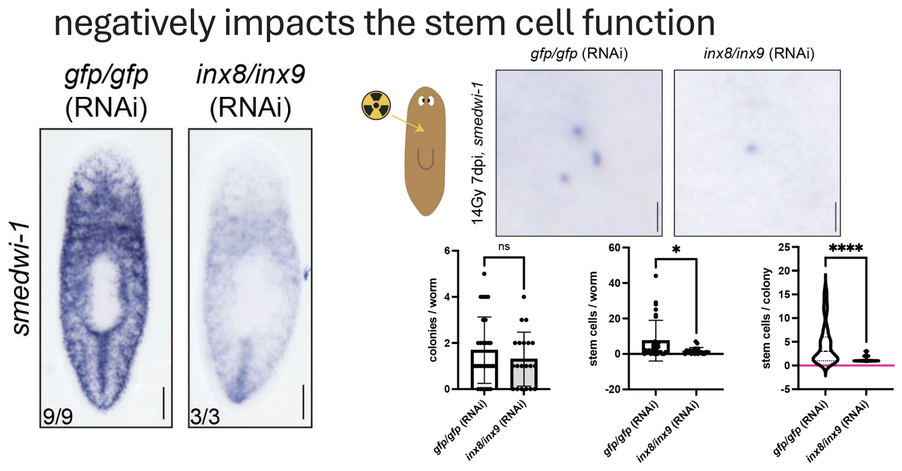


How / Are abraçada cells interacting with pluripotent stem cells?

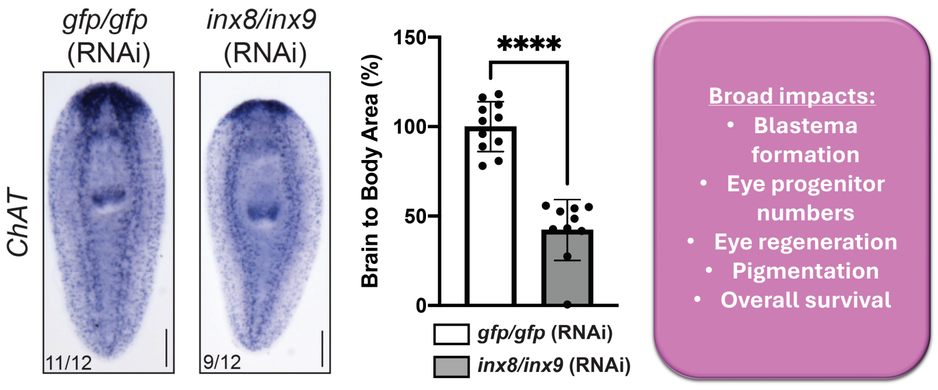


Hori et al.,1991

Disrupting gap junction proteins in abraçada cells negatively impacts the stem cell function



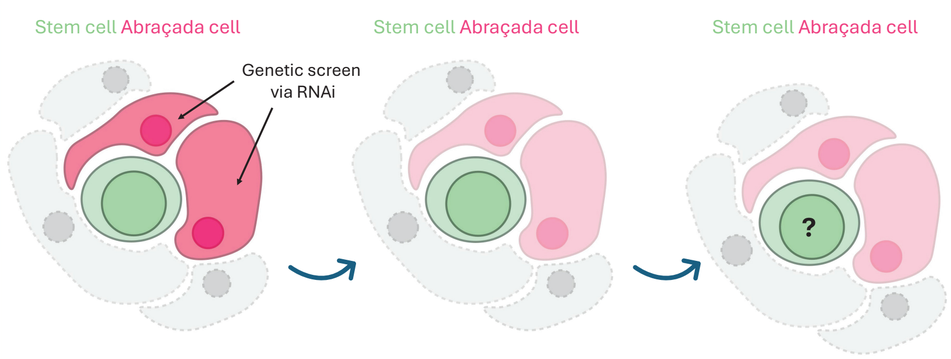
Disrupting gap junction proteins in abraçada cells has broad impacts throughout the planarian



Broad impacts:

- Blastema formation
- Eye progenitor numbers
- Eye regeneration
- Pigmentation
- Overall survival

Working to find genes needed for abraçada cell survival



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