

Flatworm helps researchers study stem cells and cancer

September 17 2008

Any way you slice it, the planarian's contributions to biological research just keep on growing.

The planarian, a flatworm normally living in freshwater, is well known for its amazing ability to regenerate – a single planarian cut into 200 pieces can generate 200 new individuals. New research now demonstrates that the planarian is not merely a fascinating master of regeneration, but can help scientists understand the basis of human development and disease.

In a new study published in *Disease Models & Mechanisms* (DMM), dmm.biologists.org, researchers at the University of Utah and the Forsyth Institute at Harvard report that planaria contain a gene highly similar to the human gene PTEN, one of the most frequently mutated genes in human cancer.

They found that PTEN was present in many planaria cell types, including stem cells. Additionally, disruption of PTEN pathways in the cell resulted in abnormal growths, drastic changes in body shape, and, eventually, death.

This research demonstrates that PTEN is not only important to cell proliferation in mammals. The role of PTEN has been strongly conserved in evolution as planaria PTEN is likewise critical to cell proliferation. Additionally, this work demonstrates that planaria are a new animal model to use in researching the biology of human stem cells

and cancer cells.

Source: The Company of Biologists

Citation: Flatworm helps researchers study stem cells and cancer (2008, September 17) retrieved 19 April 2023 from <https://medicalxpress.com/news/2008-09-flatworm-stem-cells-cancer.html>

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