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Short Article

Decline in Self-Renewal Factors Contributes to Aging of the Stem Cell Niche in the *Drosophila* Testis

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Received 25 February 2007; revised 13 May 2007; accepted 6 August 2007. Published: October 10, 2007. Available online 10 October 2007.

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 Lei Pan, Shuyi Chen, Changjiang Weng, Gerald Call, Dongxiao Zhu, Hong Tang, Nian Zhang, Ting Xie
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Summary

Aging is characterized by compromised organ and tissue function. A decrease in stem cell number and/or activity could lead to the aging-related decline in tissue homeostasis. We have analyzed how the process of aging affects germ line stem cell (GSC) behavior in the

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Drosophila testis and report that significant changes within the stem cell microenvironment, or niche, occur that contribute to a decline in stem cell number over time. Specifically, somatic niche cells in testes from older males display reduced expression of the cell adhesion molecule DE-cadherin and a key self-renewal signal *unpaired* (*upd*). Loss of *upd* correlates with an overall decrease in stem cells residing within the niche. Conversely, forced expression of *upd* within niche cells maintains GSCs in older males. Therefore, our data indicate that age-related changes within stem cell niches may be a significant contributing factor to reduced tissue homeostasis and regeneration in older individuals.

Author Keywords: STEMCELL

Article Outline

[Introduction](#)

[Results](#)

[Age-Related Decline in GSCs](#)

[Decline in GSC Divisions in Testes from Aging Males](#)

[The Apical Hub Remains Intact in Testes from Aged Males](#)

[Age-Related Decline in Stem Cell Niche Function](#)

[Constitutive Expression of *upd* in Hub Cells Delays Loss of GSCs](#)

[Discussion](#)

[Experimental Procedures](#)

[Fly Husbandry and Stocks](#)

[Immunofluorescence](#)

[Quantification of GSCs and Hub Cells](#)

[BrdU Incorporation](#)

[RNA In Situ Hybridization](#)

[Statistical Analyses](#)

[Acknowledgements](#)

[Supplemental Data](#)

[References](#)

Cell Stem Cell

Volume 1, Issue 4, 11 October 2007, Pages 470-478

[Result list](#) | [previous](#) < 19 of 19 > [next](#)

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