

Review

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The stem-cell niche theory: lessons from flies

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Stem cells are characterized by their ability to self-renew and to produce numerous differentiated cell types, and are directly responsible for generating and maintaining tissues and organs. This property has long been attributed to the instructive signals that stem cells receive from their microenvironment – the so-called 'stem-cell niche'. Studies of stem cells in the *Drosophila* gonad have yielded much exciting insight into the structure of the niche and the signalling pathways that it produces to regulate the self-renewal of stem cells. These findings are illuminating our understanding of the self-renewing mechanisms of tissue stem cells in general.

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