

microRNAge: The role of microRNAs in aging of the *Drosophila* germline stem cell niche**Hila Toledano**

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Highly regenerative tissues are supported by rare populations of tissue-specific stem cells that continuously divide to both self-renew and generate differentiated progeny. Aging is characterized by aberrant tissue regeneration that is attributed to deteriorated function of stem and its surrounding cells; however it is not clear whether this process is genetically regulated. Heterochronic microRNAs (controlling the timing of events) were initially described to control the timing of developmental stages; however their role in the regulation of aging is just beginning to be studied. Previously we have linked the role of the heterochronic miRNA let-7 to the declined function of the germline stem cell in aged *Drosophila* males. Our recent findings indicate that the expression of the evolutionary conserved *miR-9a* increases significantly during aging in both stem and progenitor germ cells. We further show that *miR-9a* directly down regulates the levels of N-cadherin, which is required to enable stem cells detachment from the niche. Thus we conclude that *miR-9a* promotes differentiation and attenuates tissue degeneration. Characterizing the microRNA based posttranscriptional regulatory network and its temporal modulation is critical towards understanding the role of regulation in driving and responding to aging.

Biography

Hila Toledano has received her PhD from The Weizmann Institute Israel (2003) and completed her Postdoctoral studies at the Salk Institute, San Diego CA (2012). She is a PI at University of Haifa, Israel and her lab is focused on post-transcriptional regulation of adult stem cells.

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