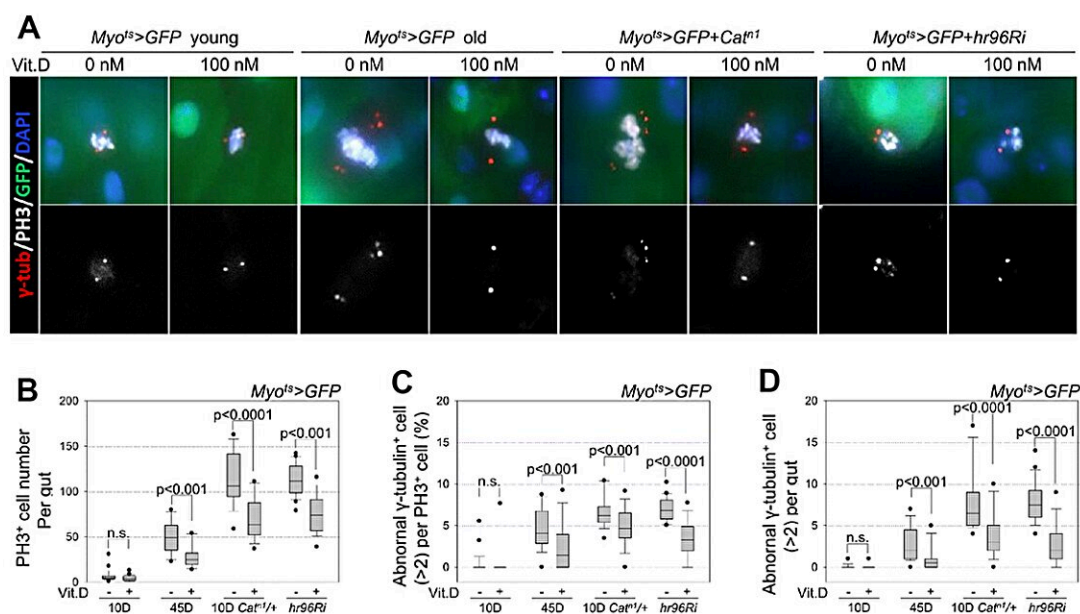


The anti-aging effect of vitamin D and its receptor in *Drosophila* midgut

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Inhibitory effect of VitD on age- and oxidative stress-related accumulation of supernumerary centrosomes in midgut ISCs. Credit: *Aging* (2024). DOI: 10.18632/aging.205518

A new research paper titled "The anti-aging effect of vitamin D and vitamin D receptor in *Drosophila* midgut" has been [published](#) in *Aging*.

Adult stem cells are pivotal for maintaining tissue homeostasis, and their functional decline is linked to aging and its associated diseases, influenced by the niche cells' environment. Age- and cancer-related reduction of vitamin D and its receptor levels are well documented in human clinical studies.

However, the mechanisms through which the vitamin D/vitamin D receptor (VitD/VDR) pathway contributes to anti-aging and extends [life expectancy](#) are not well understood. In this new study, researchers Joung-Sun Park, Hyun-Jin Na and Yung-Jin Kim from Pusan National University and Korea Food Research Institute aimed to determine the protective role of the vitamin D/vitamin D receptor pathway in differentiated enterocytes (ECs) during intestinal stem cell (ISC) aging.

"This study aimed to determine the protective role of VitD/VDR in differentiated ECs during ISC aging using the adult *Drosophila* intestine model," write the researchers.

By utilizing a well-established *Drosophila* midgut model for stem cell aging biology, the researchers revealed that vitamin D receptor knockdown in ECs induced ISC proliferation, EC death, ISC aging, and enteroendocrine cell differentiation. Additionally, age- and oxidative stress-induced increases in ISC proliferation and centrosome amplification were reduced by vitamin D treatment.

In conclusion, this study provides direct evidence of the anti-aging role of the VitD/VDR pathway, involving protecting ECs during aging, and provides valuable insights for exploring the [molecular mechanisms](#) underlying enhanced healthy aging in *Drosophila*.

"Our findings suggest direct evidence of the anti-aging role of the vitamin D/vitamin D receptor [pathway](#) and provide insights into the molecular mechanisms underlying healthy aging in *Drosophila*," the

researchers conclude.

More information: Joung-Sun Park et al, The anti-aging effect of vitamin D and vitamin D receptor in *Drosophila* midgut, *Aging* (2024).
[DOI: 10.18632/aging.205518](https://doi.org/10.18632/aging.205518)

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