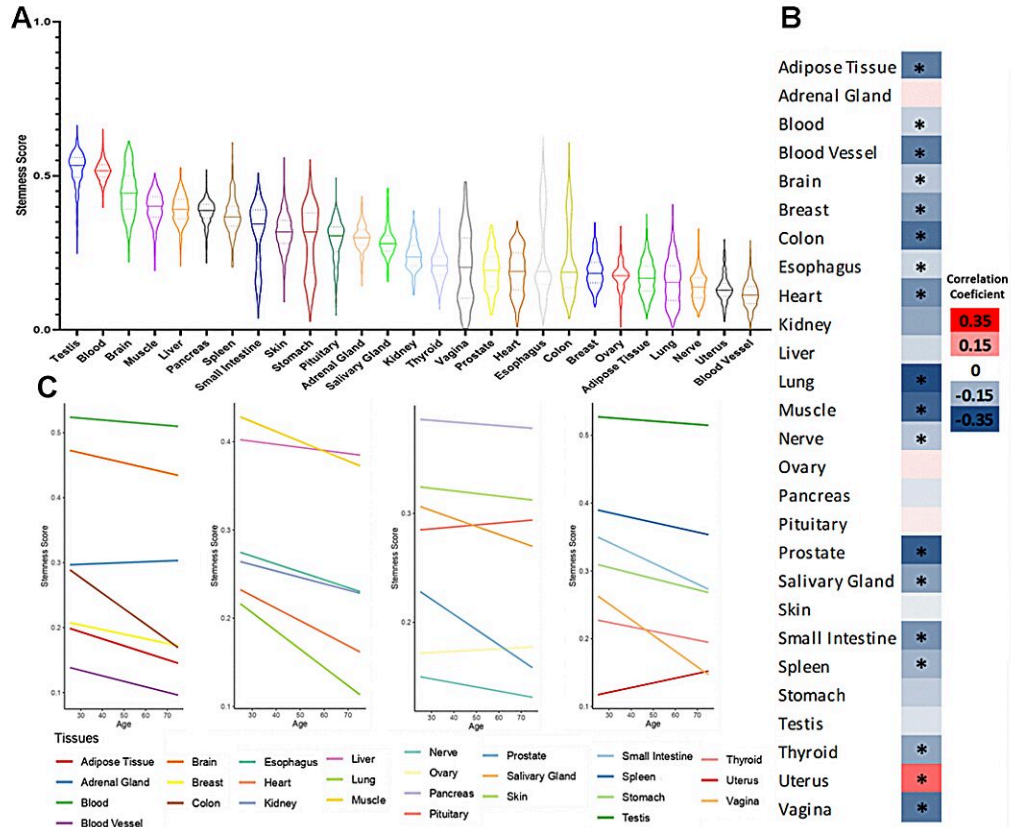


Evidence of a pan-tissue decline in stemness during human aging

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Stemness levels during human aging. Credit: 2024 Santos et al.

A new research paper was published on the cover of *Aging*, entitled, "[Evidence of a pan-tissue decline in stemness during human aging.](#)"

Despite their biological importance, the role of stem cells in human aging remains to be elucidated. In a new study, researchers Gabriel Arantes dos Santos, Gustavo Daniel Vega Magdaleno, and João Pedro de Magalhães from the Universidade de Sao Paulo, University of Birmingham, and the University of Liverpool applied a machine learning method to detect stemness signatures from transcriptome data of healthy human tissues.

"In this work, we applied a machine learning methodology to GTEx transcriptome data and assigned stemness scores to 17,382 healthy samples from 30 human tissues aged between 20 and 79 years."

The team found that ~60% of the studied tissues exhibit a significant negative correlation between the subject's age and stemness score. The only significant exception was the uterus, where they observed an increased stemness with age.

Moreover, the researchers observed that stemness is positively correlated with [cell proliferation](#) and negatively correlated with [cellular senescence](#). Finally, they also observed a trend that [hematopoietic stem cells](#) derived from older individuals might have higher stemness scores.

"In conclusion, we assigned stemness scores to human samples and show evidence of a pan-tissue loss of stemness during human aging, which adds weight to the idea that stem cell deterioration may contribute to [human aging](#)."

More information: Gabriel Arantes dos Santos et al, Evidence of a

pan-tissue decline in stemness during human aging, *Aging* (2024). [DOI: 10.18632/aging.205717](https://doi.org/10.18632/aging.205717)

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