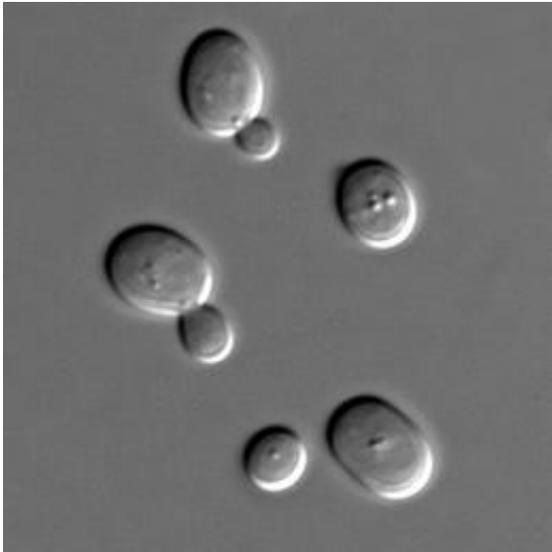


Aging can be good for you (if you're a yeast)

March 1 2017



Sacharomyces cerevisiae cells in DIC microscopy. Credit: Wikipedia.

It's a cheering thought for anyone heading towards their golden years. Research from the Babraham Institute has shown that ageing can be beneficial - albeit so far only in yeast.

The biological process of ageing is remarkably similar from fungi to plants to animals and the key pathways involved in ageing can be traced back to our ancient shared origins as simple single-celled [organisms](#).

By looking at the growth ability of budding [yeast](#), a single-celled fungi, in different environmental conditions, researchers at the Institute have found that ageing is not necessarily damaging to all organisms in all

conditions. In fact, changes that occur during ageing in yeast were shown to have potential benefits.

As described in the latest issue of the journal *Aging Cell*, older yeast cells were able to grow more successfully than the younger cells when their food source was switched from glucose to galactose.

Dr Jon Houseley, group leader in the epigenetics research programme at the Babraham Institute said: "We think this stems from the way yeast, like many organisms, are specialised for growth on a particular [food source](#), in this case glucose. As the cells age, the systems that enforce this specialisation start to break down. Declining functionality of cellular systems is what we expect from ageing, but in this case there is an unexpected side-effect: as the specialisation for glucose is lost with age, the fitness of these cells actually increases if they are growing in food sources other than glucose."

This research impacts the basic question "what is ageing?". It is generally seen as an inevitable process of wearing out, but the idea that it could be useful (or could have been useful in our evolutionary past) suggests that some aspects are not inevitable, and that ancient age-controlling mechanisms may exist.

Dr Houseley continues: "To what extent such regulatory systems have been conserved in more complex organisms remains to be determined. However, loss of specialisation seems intimately connected to ageing. Whereas this loss of specialisation confers an advantage in yeast by making them more adaptable, in higher multicellular organisms the inability of [cells](#) to perform specialised functions is a major contributor to age-related disease."

More information: Stephen Frenk et al, Aging yeast gain a competitive advantage on non-optimal carbon sources, *Aging Cell*

(2017). [DOI: 10.1111/ace.12582](https://doi.org/10.1111/ace.12582)

Provided by Babraham Institute

Citation: Aging can be good for you (if you're a yeast) (2017, March 1) retrieved 22 September 2024 from <https://phys.org/news/2017-03-aging-good-youre-yeast.html>

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