

Study identifies genes that protect against aging

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Scientists at the University of Liverpool have developed a new method to help researchers identify genes that can help protect the body during the ageing process.

The team developed a method of analysing [genes](#) in multiple ageing tissue types in both animals and humans. The analysis, which included more than five million gene measurements, highlighted the mechanisms used by the body to protect against cellular changes with age that can result in conditions such as muscle degeneration and cognitive ageing.

The new method could help further understanding into anti-ageing interventions by identifying genes that indicate biological changes as a result of ageing. Research has suggested that some genes respond to age-related conditions by increasing key protein levels, allowing the body to manage the ageing process more effectively.

Dr Joao Pedro Magalhaes, from the University's School of Biological Sciences, explains: "We developed a new algorithm to analyse microarray data of genes from different species, and combined data from multiple studies to obtain a picture of how genes respond to ageing in a whole organism. This method is similar to the way scientists study the molecular characteristics of cancer, but it is the first time it has been used to research ageing.

"Studies so far have looked at the ageing process in particular tissues, but have not been able to build a coherent view of ageing in whole

organisms. Results have suggested that genes can adapt to ageing and help protect the body, or even slow down the ageing process. By combining large amounts of data from various tissue types across different species, however, we were able to identify many more examples of adaptive gene behaviour in animals and humans. This demonstrates that the body has natural mechanisms to respond to age-related conditions.

"We found that some genes - previously unconnected with ageing - become more abundant with age to help protect the body. We can use these genes as a biomarker - or 'signature' - of ageing so that scientists can help develop products and treatments that help manage the ageing process effectively."

More information: The research is published in *Bioinformatics*.

Source: University of Liverpool ([news](#) : [web](#))

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