

Study reveals how stress response in cells can slow down ageing, promote longevity

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Representative Image

Singapore, October 19 (ANI): Researchers discovered that turning on stress response in cells at a post-reproductive age could be the key to slowing ageing and promoting longevity.

In lab experiments on a type of roundworm that shares similarities with humans, the NTU Singapore team found that switching on this stress response in aged worms by feeding them a high-glucose diet extended their lifespan as compared to worms fed a normal diet.

<https://theprint.in/health/study-reveals-how-stress-response-in-cells-can-slow-down-ageing-promote-longevity/1175049/>

This is the first time a link between this stress response and ageing has been uncovered, said the NTU team in their findings published on 19 October in Nature Communications.

While further studies are needed to gain a deeper understanding of this link, the scientists said their findings open the door to the development of therapies that could delay the onset or even tackle age-related disorders such as cancer, dementia, and stroke.

Cell biologist and study lead Associate Professor Guillaume Thibault from the NTU School of Biological Sciences said: “Ageing is a critical risk factor for a variety of human pathologies, from metabolic diseases such as diabetes to cancer and neurodegenerative diseases. From a public health perspective, determining the cellular pathways that underpin the ageing process could take us one step closer to developing novel therapeutic strategies to treat age-related disorders.

“While our study found that a high-glucose diet could be useful to slow down ageing and promote longevity in aged worms, we are not recommending that the aged population should now turn to a high-sugar diet. This study shows that triggering certain stress responses in cells may translate to longevity, and that activating this stress response with a drug might be critical to decelerate cellular ageing.”

Aside from showing that the effect of manipulating this stress response in aged worms, the NTU scientists also showed that the same response, when ‘switched off’ in young worms fed a high-glucose diet, helped them to live longer than worms on a normal diet.

Commenting as an independent expert, Professor Rong Li, Director of the Mechanobiology Institute at the National University of Singapore said: “Metabolic diseases have serious consequences in the elderly if left untreated. This work is impactful because the scientists identified a cellular pathway, called the unfolded protein response, which affects lifespan in animals fed a high-glucose diet. They found that inhibiting this pathway dramatically extended the lifespan of these animals. They, therefore, propose that targeting this pathway may extend lifespan in humans with metabolic disorder.”

This study is aligned with the research pillar of the University’s NTU2025 five-year strategic plan, which focuses on health and society as one area with potential for significant intellectual and societal impact.

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