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Promising Fly Research Could ZIP UP Human Aging

A previously unknown molecular mechanism that shows promise in slowing the aging process in fruit flies and has implications for doing the same in humans has been discovered as part of a National Institute of Health (NIH) funded study conducted by researchers at the Department of Biological Sciences, Hunter College of CUNY (NYC).

Damaged proteins in fruit flies are constantly removed by a molecular “machine” dubbed “26S proteasome” said team spokesperson, Maria E. Figueiredo-Pereira, Ph.D. The 26S proteasome is fully assembled and functional in young fruit flies helping to keep their cells vital and active. However, our researchers have discovered that its functional assembly declines dramatically as the flies reach old age at 43 to 47 days. A related finding is that ATP (adenosine triphosphate), which provides critical cellular energy for the 26S proteasome functional assembly also declines significantly at the same time.

“It’s notable that, the steep reduction in ATP and 26S proteasome levels in aging fruit flies coincides with a major drop in their climbing performance which is a key mile stone in their aging process” she added.

The findings suggest that the decline in 26S proteasome levels and ATP may be the same mechanism that leads to protein build-up detectable in such human age related neurodegenerative disorders as Alzheimer’s, Parkinson’s and ALS. “Now that we have found this mechanism we can attempt to apply it to delaying the human aging process and its related wasting diseases” said Professor Figueiredo-Pereira.

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