Searching for genetic fountain of youth? Study suggests we'll never find a 'longevity gene'

What do naked mole rats, elephants, bats and whales have in common? They are all exceptionally longlived mammals, and <u>recent research</u> suggests that studying commonalities in the ways they evolved extreme life spans may provide fresh insights into the genetic basis of longevity.

Distantly related mammals evolved long life spans through a biological phenomenon known as convergent evolution, a process by which unrelated species independently develop the same trait. ... By making the connection between evolutionary changes in life span and gene evolution, my colleagues and I were able to find genes associated with life span that are shared by many species.

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Our results were surprising. Rather than finding genes that evolved faster to drive increase in life span, we instead found that gene evolutionary rates primarily decreased as species evolved longer lives. In other words, rather than experiencing genetic changes associated with longer life, many genes were instead prevented from undergoing genetic changes.

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Our findings, coupled with existing evidence, suggest that there is no "longevity gene" that can be altered to increase life span in mammals, because aging is a complex, multifaceted process. Increasing human life span may instead depend on reducing the damage DNA incurs over time and tackling diseases related to old age.

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