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Use of telomerase catalytic protein component to stop effects of ageing

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Telomeres are protective caps present at the end of chromosomes. Every time a cell divides, some of these telomeric strands are lost. Telomeres are just a non-coding region consisting of repetitive ‘TTAGGG’ sequences, which help in maintaining the length of chromosomes in the stem, reproductive and cancer cells. The adult human body does not have the property to produce more of these telomeres. Hence, after a few successive rounds of cell division, the telomeric strands are lost, and the chromosome is unable to divide further. The cell, which is unable to reproduce further, dies without replacing itself, which is considered a major reason for ageing, death or failure of tissues or organs in animals. Recent studies have shown that telomeres can be induced by the addition of a telomerase catalytic protein component, human telomerase reverse transcriptase (hTERT), into such cells. This increases the lifespan of cells after they have lost all their telomeres on their chromosomes. If this is implemented properly, ageing can be stopped after a certain point in life, rather than having to take supplements of telomerase catalytic protein components. If the human genome is edited and made capable of producing these telomere promoting complex enzymes, the lifespan of humans can be extended by dealing with the negative effects associated with ageing.

Keywords: Telomeres, Chromosomes, Humans, Telomerase catalytic protein component, Ageing, Immortality

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