

# We do not live forever

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## Abstract

Why do people age? This has always been an age-old question of humanity. We all know that we do not live forever and that life on our planet will end one day. Life comes with death, but it is a natural process. It is an imposed order that mankind lives up to.

Until the 1970's, people did not know what telomeres were and what their function is in our organs. Hence, aging had been a mystery. Between 1975 and 1977 Elisabeth Blackburn, a postdoctoral fellow at Yale University, together with Joseph Gail discovered telomeres. Later in 2009 Elisabeth Blackburn was awarded the Nobel Prize in Physiology or Medicine for her discovery.

## Telomeres – what are they?

Today there are many ways to slow down the apparent aging of our body. These range from Botox injections to hydrating creams to all sorts of other medical solutions. The list is long. But what is the reason behind our body aging from year to year? The answer is: Telomeres.

Telomeres are parts of the chromatid. They can be compared with the plastic tip on a shoelace because they make sure that the end of the chromosome does not start fraying. If that happened an organism's genetic information would be destroyed.

When a cell divides, the telomeres get shorter and shorter. This is because the chromatid cannot get copied. Then when chromosomes run out of telomeres, and this happens after approximately 60- 70 times of cell dividing, the cell cannot divide anymore and it dies. Of course, this does not happen at the same time with all cells in our body.

## Does telomerase kill cancer cells?

Recently, it has been found that the enzyme telomerase gives the fantastic opportunity to replace short bits of telomeres.

After a cell has divided many times its telomeres will be very short and perhaps it will die. However, a small number avoid that destiny it can mutate into rogue, cancer cells and activate the enzyme telomerase, which prevents the telomeres from getting any shorter.

In medicine, many scientists are trying to figure out how to use this newfound knowledge about telomeres. Doctors, for example, are trying to use this in cancer treatment. This can be achieved by controlling the amount of telomerase produced- but this is as yet unsolved. Many people want to do everything in their power to live long and enjoy good health.

Perhaps telomeres are the hidden key to a longer life. Who knows?

## References

<http://en.wikipedia.org/wiki/Telomerase>

<http://videnskab.dk/krop-sundhed/derfor-bliver-kroppen-aeldre>

Documentary film "How to live forever"