

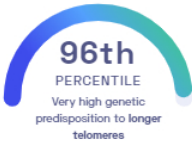
Veryan Codd, et al.
Nature Genetics

Aging

STUDY SUMMARY

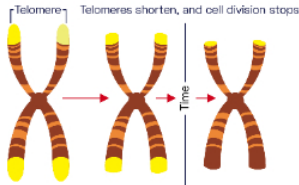
Identification of 5 novel genetic regions linked to the length of telomeres.

YOUR RESULT



STUDY DESCRIPTION

The DNA in our cells is tightly packed into structures called chromosomes. The sequences at the ends of chromosomes form caps known as telomeres. These structures help to protect our chromosomes much like how the plastic tips on shoelaces protect the ends from fraying. Over many cell divisions during which a cell's entire DNA is copied, telomeres progressively get shorter until the DNA gets damaged and the cells eventually die. It is estimated that up to 80% of an individual's telomere length is heritable. Short telomeres have been linked to increased risk of several age-related diseases. Telomere length has also been linked to cancer but the effect directionality of this association is less clear. This study examined genetic data from nearly 50,000 individuals of European descent and identified 7 genetic regions associated with telomere length, 5 of which are novel. Genetic variation in these regions collectively explains over 1% of variance in telomere length.



The telomeres shorten as we age, but telomere length is also influenced by genetics.

DID YOU KNOW?

While our telomeres naturally shorten throughout our lives, some lifestyle choices are known to speed this process up! In particular, smoking and UV exposure may quicken the shortening of telomeres and increase susceptibility to various diseases.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to longer telomeres we summed up the effects of genetic variants that were linked to longer telomeres in the [study that this report is based on](#). These variants can be found in the table below. The variants highlighted in green have **positive effect sizes** and increase your genetic predisposition to longer telomeres. The variants highlighted in blue have **negative effect sizes** and decrease your genetic predisposition to longer telomeres. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to longer telomeres. By adding up the effect sizes of the highlighted variants **we calculated your polygenic score for longer telomeres to be -0.36**. To determine whether your score is high or low, we compared it to the scores of 5,000 other Nebula Genomics users. We found that your polygenic score for longer telomeres is in the **96th percentile**. This means that it is higher than the polygenic scores 96% of people. We consider this to be a **very high genetic predisposition to longer telomeres**. However, please note that genetic predispositions do not account for important non-genetic factors like lifestyle. Furthermore, the genetics of most traits has not been fully understood yet and many associations between traits and genetic variants remain unknown. For additional explanations, click on the column titles in the table below and visit our [Nebula Library tutorial](#).

VARIANT [ⓘ]	YOUR GENOTYPE [ⓘ]	EFFECT SIZE [ⓘ]	VARIANT FREQUENCY [ⓘ]	SIGNIFICANCE [ⓘ]
rs10936599_T ^{NEW}	C / C	-0.10 (-)	25%	2.54 x 10 ⁻³¹
rs2736100_A	C / C	-0.08 (-)	51%	4.38 x 10 ⁻¹⁹
rs7675998_A ^{NEW}	G / G	-0.07 (-)	22%	4.35 x 10 ⁻¹⁶
rs9420907_A	A / A	-0.07 (↓)	87%	6.90 x 10 ⁻¹¹
rs8105767_A ^{NEW}	A / G	-0.05 (↓)	71%	1.11 x 10 ⁻⁹
rs755017_A ^{NEW}	A / G	-0.06 (↓)	87%	6.71 x 10 ⁻⁹
rs11125529_C ^{NEW}	C / C	-0.06 (↓)	86%	4.48 x 10 ⁻⁸