

# What's the secret to living past 110?

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Is there some secret that lets a human live past the age of 110? A research team collaborating with the University of Tokyo is betting it's in their genes.

The team, led by Keio University lecturer Nobuyoshi Hirose, has started analyzing the genomes of 50 supercentenarians, people who lived to the age of 110 or older, in an effort to find out the secret to their longevity.

People who live into their 100s are known to have a lower frequency of developing conditions such as diabetes, [arteriosclerosis](#) and cancer. The team hopes to identify common features in their genes, which could contribute to treating and preventing the conditions.

An increasing number of people are living beyond 100. As of 2011, the Health, Labor and Welfare Ministry of Japan estimated there were 47,756 people in their 100s nationwide.

However, the number of people aged 110 or older is still relatively small. The 2010 national census showed there were 78 such people.

[Medical experts](#) believe that human life spans are 20 percent to 30 percent determined by individual [genetic factors](#).

A single nucleotide polymorphism (SNP) is a single variation in genome sequences found in one person in 20. Past research comparing SNPs among people 100 years or older did not identify any genes that would significantly affect the human life span.

For this reason, experts believe extreme longevity may be affected by very rare genetic variations found only in one in a million people and may involve two or more genes.

For its research, the team, which is working at the National Institute of Genetics, selected blood samples from 50 people who lived past 110 from among 700 people aged 100 or older.

The research is expected to uncover common features in the genes of supercentenarians that past research on [SNPs](#) was unable to identify. Such [genetic markers](#) include rare variations, defects and repetitions in sequences, as well as changes in gene order.

The team also plans to compare the genetic makeup of people who lived past 110 with that of cancer and diabetes patients, in an effort to identify the causes of those diseases.

Last year, the research team successfully produced induced pluripotent stem (iPS) cells using blood samples from people 110 or older. It plans to create blood vessels and heart muscle using iPS cells and conduct analyses on them.

"We'd like to uncover the secrets of healthy longevity through research on iPS cells and genome analysis," Hirose said.

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