

Scientists Link Gene to Human Speech

今回は、人間の言葉の起源に迫る、まるでミステリーのようなニュースです。私たちの言葉を操る能力は、体の設計図である「遺伝子 (gene)」と深く関係があるそうです。特に注目されているのは、ある遺伝子の「variant」というものです。「variant」は「異なる形、変異体」という意味で、遺伝子の場合、同じ遺伝子でも人によって少しずつ形が違ふことがあります。この記事では、言葉の発達を助けたかもしれない特別な遺伝子、「NOVA1プロテイン」に焦点を当てています。一体どんな発見があったのでしょうか？ レッスンで詳しく見ていきましょう。



1. Article

Read the following article aloud.

A new study suggests the beginnings of human speech are linked to genetics. The research identifies a protein – found only in people – that may have helped early humans develop spoken communication.

Scientists involved in the study say this new speaking ability became important for humans' survival. For example, speech permitted individuals to share information, organize activities and pass down knowledge. These abilities are now seen as an advantage humans had over their relatives, such as the Neanderthals and Denisovans.

The researchers recently published their findings in a study in the journal Nature Communications.

Liza Finestack teaches about speech and hearing at the University of Minnesota. She told The Associated Press (AP) the new study is "a good first step to start looking at the specific **genes**" that may affect speech and language development. Finestack was not **involved** in the study.

Dr. Robert Darnell has long been studying the protein – called NOVA1 – at his laboratory at New York's Rockefeller University. He helped lead the new research and was a writer of the study. Darnell told the AP the genetic version, or **variant**, included the protein that helped humans develop into the "**dominant** species" that remains today.

The latest research involved scientists using CRISPR gene editing methods to replace the NOVA1 protein found in mice with the one found in humans. The aim was to test the real-life effects of the genetic variant. The researchers were surprised to learn that the variant changed the way the animals called out to each other.

Baby mice with the human variant made a different sound than normal mice do when their mother came around. Adult male mice with the variant also made different sounds when they were near a female they wanted to **mate** with.

Darnell said both of these situations gave the mice a reason to speak. Those with the human variant "spoke differently," demonstrating the gene's influence in speech, he added.

This is not the first time a gene has been linked to speech. In 2001, British scientists said they had discovered the first gene tied to a language and speech disorder.

Researchers called this human language gene FOXP2. But even though FOXP2 was found to be linked to human language, the variant in modern humans was not found in our species alone. Later research found it was shared with Neanderthals. The NOVA1 variant in modern humans, on the other hand, is found only in our species, Darnell said.

The presence of a gene variant is not the only thing that permits people to speak. The ability also depends on physical elements in the human throat and areas of the brain that work together to help people produce speech and understand language.

Darnell said he hopes the recent work can lead to new ways to treat speech-related problems.

The University of Minnesota's Finestack noted the genetic findings could also one day permit scientists to identify people who might need help developing speech and language early in life.

"That's certainly a possibility," she said.

I'm Jill Robbins.

Laura Ungar reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

2. Key phrases and vocabulary

First repeat after your tutor and then read aloud by yourself.

1. gene (n.) a part of the DNA of a life-form

The genes HERC2 and OCA2 control eye color.

2. involve (v.) to include

Our history teacher involves us in discussions in every class.

3. variant (n.) a different form of the same thing

The new bird flu variant can affect humans.

4. dominant (adj.) having the most power or control

In the 1980s, IBM was the dominant computer company.

5. mate (v.) to have sex to produce offspring

When male bowerbirds want to mate, they build a beautiful nest and do a dance to attract a female.

3. Questions

Read the questions aloud and answer them.

1. What advantages do scientists think that speech gave early humans?
2. How did the mice with the human NOVA1 protein behave differently?
3. Besides genes, what other factors are important in human speech production?
4. How do other animals communicate without speech?
5. What other areas of genetic research are you interested in?