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Epilepsy (Song, 2021)

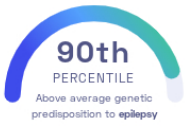
Meng Song, et al.
Frontiers in Neuroscience

Brain

STUDY SUMMARY

This report is based on a study that discovered 2 novel genetic variants associated with epilepsy.

YOUR RESULT



STUDY DESCRIPTION

The cells in our brains communicate with each other through electrical signals. Normally, this signaling occurs in an orderly and highly-controlled fashion. Sudden alterations of this system have the potential to cause seizures, which may result in changes to an individual's movement, behavior, or thoughts. For some, seizures occur repeatedly, in a condition known as epilepsy. Epilepsy often runs in families, and scientists suspect up to 70 percent of epilepsy cases are caused by genetic factors. To better define genetic variants associated with the onset of epilepsy, this study examined more than 800,000 individuals of African, Asian, and European ancestries. The researchers identified 3 genetic variants associated with an individual's risk of developing epilepsy, 2 of which were newly identified in this study. One gene linked to epilepsy in this study is GRM3. It is involved in many aspects of normal brain function, including the communication between brain cells.

Seizures are caused by distributions in the electrical activity of the brain.

DID YOU KNOW?

There are numerous types of seizures, and not all of them are characterized by the jerking muscle contractions often associated with epilepsy. For some, seizures may manifest as confusion or simply staring out into space.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to epilepsy we summed up the effects of genetic variants that were linked to epilepsy 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 epilepsy. The variants highlighted in blue have **negative effects sizes** and decrease your genetic predisposition to epilepsy. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to epilepsy. By adding up the effect sizes of the highlighted variants **we calculated your polygenic score for epilepsy to be 0.33**. 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 epilepsy is in the **90th percentile**. This means that it is higher than the polygenic scores 90% of people. We consider this to be an **above average genetic predisposition to epilepsy**. 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	GENE	EFFECT SIZE	VARIANT FREQUENCY	SIGNIFICANCE
rs11890028_T	**T / T**	TTC21B, SCN1A	0.08 (↑)	21%	7.76×10^{-13}
rs11978015_G NEW	**G / A**	GRM3	0.06 (↑)	40%	9.26×10^{-9}
rs28634186_T NEW	**T / T**	TNKS	0.05 (↑)	42%	4.39×10^{-8}