



## STUDY SUMMARY

This study identified novel genetic variants that may influence the subcortical brain structures which are involved in complex activities including movement, emotions, and learning.

## YOUR RESULT



## STUDY DESCRIPTION

The subcortical region consists of structures located below the outer layer of the brain. These structures have functions related to regulation of movement, learning, memory, and motivation. In this study, the volume of subcortical brain structures of 30,717 individuals was measured using Magnetic Resonance Imaging (MRI). The study identified associations between genetic variants and the volume of different subcortical structures. The strongest associations were found near developmental genes that regulate apoptosis (programmed cell death) and the growth of *neurons*. This discovery provides insight into the causes of variability in human brain development.

## DID YOU KNOW?

You can increase mental acuity by continuously learning new things, maintaining a healthy lifestyle, socializing, and sleeping well.

## YOUR DETAILED RESULTS

To calculate your genetic predisposition to larger brain volume we summed up the effects of genetic variants that were linked to larger brain volume 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 larger brain volume. The variants highlighted in blue have **negative effect sizes** and decrease your genetic predisposition to larger brain volume. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to larger brain volume. By adding up the effect sizes of the highlighted variants **we calculated your polygenic score for larger brain volume to be 120.25**. 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 larger brain volume is in the **92nd percentile**. This means that it is higher than the polygenic scores 92% of people. We consider this to be a **high genetic predisposition to larger brain volume**. 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 <sup>Ⓞ</sup>	YOUR GENOTYPE <sup>Ⓞ</sup>	COMMENTS	EFFECT SIZE <sup>Ⓞ</sup>	VARIANT FREQUENCY <sup>Ⓞ</sup>	SIGNIFICANCE <sup>Ⓞ</sup>
rs945270_C	C / C	Putamen	48.89 (↑)	58%	$1.08 \times 10^{-33}$
rs77956314_T	T / T	Hippocampus	-55.18 (↓)	91%	$2.82 \times 10^{-16}$
rs62097986_A	C / C	Putamen	30.28 (-)	44%	$1.01 \times 10^{-13}$
rs6087771_T	T / T	Putamen	33.58 (↑)	71%	$1.28 \times 10^{-12}$
rs683250_A	A / G	Putamen	-27.95 (↓)	63%	$3.94 \times 10^{-11}$
rs61921502_T	T / G	Hippocampus	39.90 (↑)	84%	$6.87 \times 10^{-11}$
rs1318862_T	T / T	Caudate	26.86 (↑)	58%	$6.17 \times 10^{-9}$