

🌟 Cerebral cortex thickness (Grasby, 2020)

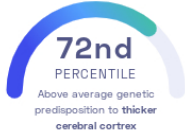
Katrina Grasby, et al.  
Science

Brain

STUDY SUMMARY

Identification of 27 genetic regions associated with cortical thickness.

YOUR RESULT



STUDY DESCRIPTION

The *cerebral cortex* is the outer layer of the brain that is responsible for cognitive tasks such as perception, thought, and memory. The thick cortex of the human brain is believed to have evolved to fulfill these functions. To identify genetic variants associated with cortical thickness, this study combined genetic data with brain imaging data from over 60,000 individuals. The study identified 27 genetic regions, which explain an estimated 26% of the heritability of cortical thickness. These regions are near genes that encode laminin receptors which are implicated in *neuronal* cell differentiation and migration.

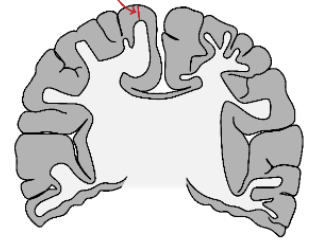
DID YOU KNOW?

"Thickheaded" is a misnomer. Although "thickheadedness" typically refers to a person who is not intelligent, some neuroimaging studies indicate that intelligence is positively correlated with cortical thickness during early childhood.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to thicker cerebral cortex we summed up the effects of genetic variants that were linked to thicker cerebral cortex 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 thicker cerebral cortex. The variants highlighted in blue have **negative effect sizes** and decrease your genetic predisposition to thicker cerebral cortex. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to thicker cerebral cortex. By adding up the effect sizes of the highlighted variants **we calculated your polygenic score for thicker cerebral cortex to be -0.07**. 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 thicker cerebral cortex is in the **72nd percentile**. This means that it is higher than the polygenic scores 72% of people. We consider this to be an **above average genetic predisposition to thicker cerebral cortex**. 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](#).

Cortical thickness



The thick cortex of human brain enables a dense packing of many nerve cells.

VARIANT <sup>⓪</sup>	YOUR GENOTYPE <sup>⓪</sup>	EFFECT SIZE <sup>⓪</sup>	VARIANT FREQUENCY <sup>⓪</sup>	SIGNIFICANCE <sup>⓪</sup>
rs71471500_C	C / C	-0.02 (↓)	91%	8.78 x 10 <sup>-56</sup>
rs10861383_C	G / G	0.01 (-)	22%	3.33 x 10 <sup>-18</sup>
rs62002282_A	A / A	-0.01 (↓)	88%	2.78 x 10 <sup>-16</sup>
rs56023709_A	C / C	-0.00 (-)	39%	7.66 x 10 <sup>-12</sup>
rs149142_T	T / C	-0.01 (↓)	61%	8.62 x 10 <sup>-12</sup>
rs533577_T	C / T	-0.01 (↓)	49%	8.43 x 10 <sup>-11</sup>
rs2316766_T	T / T	0.01 (↑)	21%	2.90 x 10 <sup>-10</sup>
rs11692435_A <span>NEW</span>	G / G	-0.01 (-)	9%	3.18 x 10 <sup>-10</sup>
rs117461235_A	G / G	-0.01 (-)	13%	7.45 x 10 <sup>-10</sup>
rs62115964_A <span>NEW</span>	A / A	-0.01 (↓)	80%	7.47 x 10 <sup>-10</sup>
rs117461235_A	G / G	-0.01 (-)	13%	1.26 x 10 <sup>-9</sup>
rs4955920_T <span>NEW</span>	C / T	-0.00 (↓)	72%	1.58 x 10 <sup>-9</sup>
rs35021943_A <span>NEW</span>	A / A	-0.01 (↓)	76%	2.98 x 10 <sup>-9</sup>
rs4823878_T <span>NEW</span>	T / C	0.00 (↑)	29%	4.13 x 10 <sup>-9</sup>
rs160459_A	A / C	-0.01 (↓)	54%	4.89 x 10 <sup>-9</sup>
rs10495963_T <span>NEW</span>	T / T	0.00 (↑)	72%	5.20 x 10 <sup>-9</sup>
rs1822105_T	T / C	-0.00 (↓)	58%	6.99 x 10 <sup>-9</sup>
rs3847803_T <span>NEW</span>	T / T	0.02 (↑)	86%	7.66 x 10 <sup>-9</sup>
rs73215353_T <span>NEW</span>	C / C	0.01 (-)	10%	8.79 x 10 <sup>-9</sup>
rs7824177_A <span>NEW</span>	A / A	0.01 (↑)	84%	8.92 x 10 <sup>-9</sup>
rs12058942_A <span>NEW</span>	A / A	-0.01 (↓)	95%	1.10 x 10 <sup>-8</sup>
rs4672176_T <span>NEW</span>	T / T	-0.00 (↓)	60%	2.02 x 10 <sup>-8</sup>
rs11745941_T <span>NEW</span>	T / C	0.00 (↑)	46%	2.14 x 10 <sup>-8</sup>
rs12110247_A	G / A	-0.01 (↓)	37%	3.04 x 10 <sup>-8</sup>
rs9637915_T <span>NEW</span>	T / C	-0.00 (↓)	58%	3.90 x 10 <sup>-8</sup>
rs12764880_T	T / C	0.01 (↑)	43%	4.08 x 10 <sup>-8</sup>