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⭐ Osteoarthritis (arcOGEN Consortium, 2012)

arcOGEN Consortium
The Lancet

`Autoimmunity` `Joints`

STUDY SUMMARY

A genetic variant in the GNL3 gene may increase the risk of osteoarthritis.

YOUR RESULT

10th
PERCENTILE
Low genetic predisposition
to **osteoarthritis**

STUDY DESCRIPTION

Osteoarthritis is the most common form of arthritis worldwide. It is also called "wear and tear" arthritis and occurs when the _cartilage_ between joints breaks down, leading to pain, stiffness, and swelling. Osteoarthritis is known to have a heritable component that contributes to risk, but the genetic factors are not well defined. This study examined 18,419 individuals of European descent and identified a variant in the GNL3 gene that is associated with osteoarthritis. The GNL3 protein, also known as nucleostemin, is essential for regulating the cell cycle in _stem cell_s. Although the exact relationship between nucleostemin and _cartilage_ cells is unknown, studies have shown that increased nucleostemin protein levels are found in osteoarthritis patients. This suggests that the GNL3 gene may be important in the progression of osteoarthritis.

DID YOU KNOW?

Low-impact exercise that includes strength training and stretching with aerobic exercise may improve joint health and help prevent osteoarthritis. Maintaining a proper weight and resting injured or swollen joints can also reduce your risk for osteoarthritis.

YOUR DETAILED RESULTS

To calculate your genetic predisposition to osteoarthritis we summed up the effects of genetic variants that were linked to osteoarthritis 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 osteoarthritis. The variants highlighted in blue have **negative effects sizes** and decrease your genetic predisposition to osteoarthritis. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to osteoarthritis. By adding up the effect sizes of the highlighted variants **we calculated your polygenic score for osteoarthritis to be 0.61**. 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 osteoarthritis is in the **10th percentile**. This means that it is higher than the polygenic scores 10% of people. We consider this to be a **low genetic predisposition to osteoarthritis**. 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 ⓘ	EFFECT SIZE ⓘ	VARIANT FREQUENCY ⓘ	SIGNIFICANCE ⓘ
rs143383_A	G / A	0.16 (↑)	80%	6.00×10^{-11}
rs6976_T 🆕	C / T	0.11 (↑)	37%	7.24×10^{-11}
rs4836732_C 🆕	C / T	0.18 (↑)	47%	6.11×10^{-10}
rs9350591_T 🆕	C / C	0.17 (−)	11%	2.42×10^{-9}
rs10492367_T 🆕	G / G	0.13 (−)	19%	1.48×10^{-8}
rs835487_G 🆕	A / A	0.12 (−)	34%	1.64×10^{-8}
rs11842874_A	A / G	0.16 (↑)	93%	2.07×10^{-8}