MAGISNAT®
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DNA Wellness Report
Longevity and Immune Insights

For: Test User

KIT ID: X-M1PT00 | Report type: Wellness | Genetic variations: 22 SNPs | Date: 05/07/2026

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Dear **Test User**

Thank you for choosing our genetic analysis service.

We are pleased to provide you with personalized information based on your genetic data. This report is designed to offer educational insights into selected genetic variants and their associations described in scientific literature.

Our goal is to present your results in a clear and informative format to support a better understanding of certain genetic characteristics related to general wellness. This information is intended for educational purposes only and is not intended to diagnose, treat, cure, or prevent any disease.

We hope your experience with our service has been clear, informative, and valuable. If you have any questions or need additional assistance, our team is available to help.

Thank you again for placing your trust in us.

Sincerely,
MAGISNAT OMICS LLC Team

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GENETIC is important

DNA Wellness Report: Longevity and Immune Insights

Longevity- and immune-related pathways include biological processes influenced by both environmental factors and genetic variation. This DNA report analyzes **22 selected genetic variants (SNPs)** that have been studied in relation to biological pathways associated with cellular maintenance, oxidative stress response, detoxification, nutrient metabolism, and immune-related processes. Scientific literature suggests that genetic variation may be associated with differences in certain longevity-related and immune-related processes among individuals. The information in this report is provided for educational and general wellness purposes and is intended to offer context about genetic variation and these biological pathways. **This report is not intended to diagnose, treat, cure, or prevent any disease.**

Traits

- **Longevity and Antioxidant Response Insights**
- **Immune Function**
- **Essential Nutrient Metabolism**

Understanding the report

How to read your genetic results

This report presents information about selected genetic variants identified through the analysis of specific genes and their variations, known as single nucleotide polymorphisms (SNPs).

Each result is displayed in a dedicated section that includes the gene name, a description of its biological role, the specific SNP analyzed, and the genotype identified (alleles).

The information provided in this report is based on findings from published scientific research describing associations between certain genetic variants and biological processes.

For clarity, each genetic variant is presented using a color-coded system that summarizes how the identified genotype relates to scientific observations reported in literature. This system is intended to help readers easily interpret the information presented in the report.

The content of this report is provided for educational and informational purposes only and is not intended to diagnose, treat, cure, or prevent any disease.

- Typically reported variation
- No clear reported association
- Moderate reported variation
- Greater reported variation

Report summary

Longevity and Antioxidant Response Insights

SNP: rs2282679 T/G
SNP: rs73598374 C/C
SNP: rs1801131 T/G
SNP: rs2802292 G/T
SNP: rs3740393 G/C
SNP: rs2070325 G/G
SNP: rs4680 G/A
SNP: rs659366 C/T
SNP: rs1800629 G/A
SNP: rs1805086 T/T
SNP: rs1800795 C/C
SNP: rs4880 A/G
SNP: rs1800562 G/G

Immune Function

SNP: rs20541 A/G
SNP: rs2243250 C/C
SNP: rs4986791 C/C
SNP: rs121917864 C/C
SNP: rs1800925 C/T
SNP: rs2275913 A/A
SNP: rs4987105 C/T

Essential Nutrient Metabolism

SNP: rs1801133 G/A
SNP: rs492602 G/G

Genetic Data Results

Longevity and Antioxidant Response Insights

Longevity- and antioxidant-related pathways include biological processes involved in oxidative stress response, detoxification mechanisms, and cellular maintenance. This section presents information about selected genetic variants that have been studied in relation to biological pathways associated with these processes. Scientific literature suggests that genetic variation may be associated with differences in certain oxidative stress–related and cellular maintenance–related processes among individuals. The information in this section is provided for educational and general wellness purposes and is intended to offer context about genetic variation and these biological pathways.

Reference:

Krishnamurthy, Hari Krishnan et al. Inside the genome: understanding genetic influences on oxidative stress. Frontiers in Genetics, vol. 15, 1397352,2024. doi:10.3389/fgene.2024.1397352

Your results

Gene: GC — Vitamin D-binding protein.

Protein binding vitamin D and its plasma metabolites to transport them to target tissues.

SNP: rs2282679 **Alleles: T/G** Normal function. [1-3][4]

Gene: BPIFB4 — Bactericidal/permeability-increasing fold-containing family B member 4.

Protein involved in host defense and immune responses.

SNP: rs2070325 **Alleles: G/G** Possible association with favorable endothelial-related measures over time. [5-8]

The gene BPIFB4 encodes the bactericidal/permeability-increasing fold-containing family B member 4, a protein involved in host defense and immune response. Some observational studies have explored whether the rs2070325 variant, when present in two copies (homozygosity), is observed more frequently in some long-lived populations and is associated with differences in endothelial function–related measures and frailty-related traits in older adults.[5-8]

Gene: MSTN — Myostatin.

Protein involved in the control of growth and development of muscle tissues.

SNP: rs1805086 **Alleles: T/T** Normal function. [9-11][12]

Gene: ADA — Adenosine Deaminase.

Enzyme that prevents the accumulation of adenosine, that can interfere with normal cellular functions.

SNP: rs73598374 **Alleles: C/C** Normal Function. [13-14][15]

Gene: COMT — Catechol-O-methyltransferase.

Enzyme playing a role in the breakdown of catecholamines, such as dopamine, epinephrine, and norepinephrine, in the brain and other tissues.

SNP: rs4680 **Alleles: G/A** Normal function. [16-17]

Gene: IL6 — Interleukin 6.

Signaling protein involved in immune response, inflammation, and various physiological process.

SNP: rs1800795 **Alleles: C/C** Possible lower IL-6–related measures with possible association with favorable aging-related measures over time. [18]

The IL6 gene encodes for interleukin-6, which is a cytokine and a key mediator of the immune response and inflammation. It belongs to a family of proteins known as interleukins, which play crucial roles in cell communication within the immune system, and it is produced by various cell types, including immune cells, fibroblasts, and endothelial cells, in response to infection, injury, or inflammation. Some observational studies have explored whether the rs1800795 variant, when present in two copies (homozygosity), is associated with lower IL-6 levels and with patterns observed in certain aging-related measures.[18]

Gene: MTHFR — Methylenetetrahydrofolate reductase.

Enzyme involved in the conversion of vitamin B9 into its biologically active form.

SNP: rs1801131 **Alleles: T/G** Normal function. [1-2][19]

Gene: UCP2 — Uncoupling Protein 2.

Protein present in the mitochondria and involved in energy equilibrium.

SNP: rs659366 **Alleles: C/T** Possible slightly higher oxidative stress-related markers and shorter telomere-related measures. [20][21-26][27]

The UCP2 gene encodes the Uncoupling Protein 2, which is primarily expressed in pancreatic beta cells, where it plays a role in regulating glucose homeostasis. It influences the balance between glucose utilization and fat metabolism. [20] [21-25] Some observational studies have explored whether the rs659366 variant, when present in one copy (heterozygosity), is associated with somewhat higher oxidative stress–related markers and differences in telomere-related measures, including shorter telomere length in some study populations. [26] A qualified healthcare professional can help assess whether your diet, including olive- derived polyphenols and other antioxidant-containing foods, is appropriate for your individual needs.[27]

Gene: SOD2 Superoxide Dismutase 2.

Enzyme found in the mitochondria. It is an important enzyme for reducing oxidative stress in cells.

SNP: rs4880 **Alleles: A/G** Possible intermediate enzyme activity. [5][28-31][27]

The SOD2 gene encodes the manganese-dependent superoxide dismutase 2, an enzyme playing a crucial role in cellular antioxidant defense by converting superoxide radicals (a type of reactive oxygen species or ROS) into hydrogen peroxide and molecular oxygen. [5] [28-30]Some observational studies have explored whether the rs4880 variant, when present in one copy (heterozygosity), is associated with intermediate SOD2 enzyme activity and oxidative stress–related measures. [31] A qualified healthcare professional can help assess whether your diet, including olive-derived polyphenols and other antioxidant-containing foods, is appropriate for your individual needs.[27]

Gene: FOXO3 Forkhead box protein O3.

Transcription factor regulating apoptosis. It is involved in nutrient sensing and in the response to oxidative stress.

SNP: rs2802292 **Alleles: G/T** Possible intermediate FOXO3-related activity. [5][32-36][27]

The FOXO3 gene encodes for the Forkhead box protein, a transcription factor playing a crucial role in regulating the expression of genes involved in various cellular processes, such as apoptosis (programmed cell death), cell cycle control, DNA repair, oxidative stress resistance, and metabolism. [5] [32-35] Some observational studies have explored whether the rs2802292 variant, when present in one copy (heterozygosity), is associated with somewhat different oxidative stress– related responses in some study populations. [36]

Gene: TNF Tumor Necrosis Factor-alpha.

Signaling protein (cytokine) involved in immune response, inflammation, and cell death (apoptosis).

SNP: rs1800629 **Alleles: G/A** Possible reduced TNF-related measures. [37][27]

The TNF gene encodes for tumor necrosis factor (TNF), a multifunctional cytokine involved in the regulation of various biological processes, particularly in the immune system. TNF plays a central role in inflammation and immune responses. It is produced by various immune cells, including macrophages and T lymphocytes, in response to infection, injury, or other stimuli. Some observational studies have explored whether the rs1800629 variant, when present in one copy (heterozygosity), is associated with lower TNF-α levels, longer telomere-related measures, and lower oxidative stress–related markers in some study populations.[37]

Gene: HFE Hemojuvelin or High Fe (iron) protein.

Protein involved in the regulation of iron homeostasis in the body by controlling iron absorption from the diet and the maintenance of iron levels in the bloodstream.

SNP: rs1800562 **Alleles: G/G** Normal Function. [2][38][39]

Gene: AS3MT Arsenic (+3 oxidation state) methyltransferase.

Enzyme playing a crucial role in the metabolism of arsenic in the body.

SNP: rs3740393 **Alleles: G/C** Normal function. [5][40-41]

Your notes

Immune Function

Immune-related biological pathways include signaling and regulatory processes involved in communication among cells. This section presents information about selected genetic variants that have been studied in relation to biological pathways associated with immune-related signaling and regulation. Scientific literature suggests that genetic variation may be associated with differences in certain immune-related processes among individuals. The information in this section is provided for educational and general wellness purposes and is intended to offer context about genetic variation and immune-related biological pathways.

Reference:

Arneth, Borros. Molecular Mechanisms of Immune Regulation: A Review. Cells, vol. 14, no. 4, 283, 2025. doi:10.3390/cells14040283

Your results

Gene: IL-13 Interleukin 13.

Signaling protein playing a key role in the immune system and part of the interleukin family of cytokines. It is involved in regulating various immune responses, particularly those related to allergic and inflammatory reactions.

SNP: rs20541 **Alleles: A/G** Possible higher IgE-related measures. [44-50]

The IL13 gene encodes for interleukin-13 (IL-13), which is a cytokine involved in the immune system's response. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. Some studies have reported that the polymorphism rs20541, when present in one copy (heterozygosity), is associated with higher levels of immunoglobulin E (IgE), an immune-related biomarker.[44-50] A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

SNP: rs1800925 **Alleles: C/T** Possible higher IgE-related measures. [44-51]

The IL13 gene encodes for interleukin-13 (IL-13), which is a cytokine involved in the immune system's response. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. Some studies have reported that the polymorphism rs1800925, when present in one copy (heterozygosity), is associated with higher levels of immunoglobulin E (IgE), an immune-related biomarker.[44-51] A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene: IL-4 Interleukin 4.

Signaling protein playing a key role in the immune system and part of the interleukin family of cytokines. It is involved in regulating antibody production, hematopoiesis and inflammation, and immune responses.

SNP: rs2243250 **Alleles: C/C** Possible higher IgE-related measures and lower vitamin D-related measures. [44][52-54]

The IL4 gene encodes for interleukin-4 (IL-4), which is a cytokine involved in the immune system's response. Interleukins are signaling molecules that play a key role in communication between cells of the immune system. Some studies have reported that the polymorphism rs2243250, when present in two copies (homozygosity), is associated with differences in certain immune-related measures, including higher IgE levels and lower vitamin D levels.[44][52-54] A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene: IL17A Interleukin 17A.

Signaling protein crucial for immune responses and inflammation.

SNP: rs2275913 **Alleles: A/A** Possible increased inflammation-related measures. [55]

The IL17A gene encodes for interleukin-17A, which is a cytokine that plays a central role in the immune system, particularly in inflammatory responses. It acts on various cell types, including epithelial cells, fibroblasts, and other immune cells, influencing inflammation and immune responses. Some studies have reported that the polymorphism rs2275913, when present in one copy (heterozygosity), is associated with differences in certain inflammation-related measures.[55] A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene: TLR4 Toll-Like Receptor 4.

Receptor involved in the recognition of microbial pathogens, thus playing a crucial role in the immune system.

SNP: rs4986791 **Alleles: C/C** Normal function. [56-58]

Gene: ALOX5 Arachidonate 5-Lipoxygenase.

Enzyme involved in the synthesis of leukotrienes, which are signaling molecules that play a role in inflammation and immune responses.

SNP: rs4987105 **Alleles: C/T** Possible increased inflammation-related measures. [59]

The ALOX5 gene encodes for arachidonate 5-lipoxygenase, an enzyme that plays a crucial role in the synthesis of leukotrienes. Leukotrienes are signaling molecules that play a role in the immune response, inflammation, and various physiological processes. Some studies have reported that the polymorphism rs4987105, when present in one copy (heterozygosity), is associated with differences in certain immune-related measures.[59] A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene: TLR2 Toll-Like Receptor 2.

Receptor involved in the recognition of microbial pathogens, thus playing a crucial role in the immune system.

SNP: rs121917864 **Alleles: C/C** Normal function. [60-61]

Your notes

Essential Nutrient Metabolism

Essential nutrient metabolism includes the biological processes involved in the digestion, absorption, transport, and use of vitamins, minerals, and other dietary components in the body. This section presents information about selected genetic variants that have been studied in relation to biological pathways associated with nutrient metabolism. Scientific literature suggests that genetic variation may be associated with differences in certain nutrient-related processes among individuals. The information in this section is provided for educational and general wellness purposes and is intended to offer context about genetic variation and nutrient-related biological pathways.

Reference:

Morris AL, Mohiuddin SS. Biochemistry, Nutrients. [Updated 2023 May 1]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK554545/

Your results

Gene: MTHFR — Methylenetetrahydrofolate reductase.

Enzyme involved in the conversion of vitamin B9 into its biologically active form.

SNP: rs1801133 **Alleles: G/A** Possible reduced enzyme function. [1-2][42]

The MTHFR gene encodes the enzyme Methylenetetrahydrofolate reductase, which is responsible for converting folate in its biologically active form. This active form is essential for various biochemical reactions, including the metabolism of homocysteine. Some studies have reported that the rs1801133 polymorphism, when present in one copy (heterozygosity), is associated with reduced activity of the related enzyme. As a result, individuals with this genetic variant may show differences in homocysteine levels in the blood.[1-2] One scientific study also explored whether homocysteine levels are associated with certain immune-related biomarkers, including complement component C4, C- reactive protein, and immunoglobulin M; these findings are observational and do not establish a specific health or clinical outcome.[42] A qualified healthcare professional can help assess whether your overall diet, including folate intake, is appropriate for your individual needs.

Gene: FUT2 — Fucosyltransferase 2.

Enzyme modifying glycoproteins and glycolipids (components of the cell membrane) which are involved in the absorption and utilization of vitamin B12.

SNP: rs492602 **Alleles: G/G** Possible lower vitamin B12-related measures. [1][3][43]

The FUT2 gene encodes the enzyme Fucosyltransferase 2, which plays a role in the modification of certain molecules, including those related to the absorption and utilization of vitamin B12. Some studies have reported that the rs492602 polymorphism, when present in two copies (homozygosity), is associated with lower vitamin B12 levels in the blood.[1][3] Some scientific studies have also explored whether lower vitamin B12 levels are associated with differences in measures related to normal immune function.[43] A qualified healthcare professional can help assess whether your overall diet, including vitamin B12 intake, is appropriate for your individual needs.

Your notes

Scientific Glossary

When discussing genetics, it's often necessary to use many technical terms, and there's no way to avoid it if we want to maintain accuracy in explanations. That's why we have compiled a scientific glossary - to enable everyone to understand without getting overwhelmed.

Anyway, it is important to emphasize that our scientific glossary does not aim to be exhaustive and is not intended to replace the advice provided by your healthcare provider. Professional medical support is essential for a proper interpretation of genetic data and for developing a personalized health and wellness plan.

Allele

An allele is one of the different forms of a specific gene. The differences among alleles arise from small changes in the DNA sequence and can lead to changes in the characteristic controlled by the gene itself.

Chromosome

An allele is one of the different forms of a specific gene. The differences among alleles arise from small changes in the DNA sequence and can lead to changes in the characteristic controlled by the gene itself.

Dietary supplement

A dietary supplement is a product that contains one or more dietary ingredients, such as vitamins, minerals, herbs, amino acids, enzymes, or other substances, intended to supplement the diet. These supplements are available in various forms, including pills, capsules, tablets, powders, or liquids.

DNA

DNA stands for Deoxyribonucleic Acid. It is the macromolecule containing the information to build the organism. It is made up of 4 different nucleotides (Adenine, Cytosine, Guanine and Thymine). The human DNA have 3 billion nucleotide basepairs.

Gene

A gene is a segment of a chromosome that occupies a given locus on it and codes for a protein, each one with a specific function: some build the structure of our cells, some respond to signaling molecules, some catalyze reactions (these are called enzymes), and so on.

Genetic Variant

A genetic variant is a change or alteration in the DNA sequence of a gene. The main genetic variant types include base substitutions, deletions, or insertions.

Genomics

Genomics is a field of biology that focuses on the study of an organism's entire genome, which is the complete set of its genetic material. It involves the comprehensive analysis of genes, their functions, interactions, and variations within and between populations.

Genotype

The genotype is the genetic makeup of an organism, then the combination of alleles presents in an individual's DNA at a particular locus on a chromosome. The genotype represents the specific genetic information that an organism inherits from its parents.

Heterozygosity

Heterozygosity refers to having two different alleles at a specific genetic locus. If an individual has one copy of the "A" allele and one copy of the "B" allele for a certain gene (AB genotype), they are said to be heterozygous for that gene.

Homozygosity

Homozygosity refers to having two identical alleles at a specific genetic locus. If an individual has two copies of the "A" allele for a certain gene (AA genotype), they are said to be homozygous for that gene.

Macronutrient

Macronutrients are essential nutrients that are required by the body in large quantities to maintain proper functioning, growth, and overall health. These nutrients provide the necessary energy and building blocks needed for various physiological processes. The three primary macronutrients are: carbohydrates, lipids (fat), and proteins.

Micronutrient

Micronutrients are essential nutrients required by the body in smaller quantities but are equally important for maintaining overall health and supporting various physiological functions. Micronutrients include two main groups: vitamins and minerals.

Nutritional deficiency

Nutritional deficiency, also known as malnutrition, refers to a condition in which the body does not receive enough macronutrients or micronutrients, which are needed to support proper growth, development, and overall wellness.

Phenotype

The phenotype is any observable trait arising from a complex interplay between a given genotype and environmental factors. Examples of phenotypes are height, eye color and blood type.

rsID number

rsID numbers are identifiers used by researchers to name different SNPs.

SNPs (Single Nucleotide Polymorphism)

A SNP, or single nucleotide polymorphism, is a genetic variant in one of the nucleotide bases composing DNA and found in more than 1% of the population.

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