MAGISNAT®

DNA Wellness Report:

Brain and Sleep Insights

For:

Alex Morgan

KIT ID: SAMPLE-DNA-0001

Report type: Wellness

Genetic variations: 14 SNPs

Date: 2026-09-24

Dear Alex Morgan

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

Table of contents

Introduction

GENETICS is important

DNA Wellness Report: Brain and Sleep Insights

Brain- and sleep-related pathways include biological processes influenced by both environmental factors and genetic variation. This DNA report analyzes **14 selected genetic variants (SNPs)** that have been studied in relation to biological pathways associated with sleep-related traits, stress-response pathways, mood-related traits, attention-related processes, memory-related functions, and brain-related processes. Scientific literature suggests that genetic variation may be associated with differences in certain sleep-related and cognitive-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 brain- and sleep-related biological pathways. **This report is not intended to diagnose, treat, cure, or prevent any disease.**

Traits

Sleep Insights

Stress Response, Mood and Focus Insights

Brain Function Insights

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.

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.

Report summary

Sleep Insights

Gene:	SNP:	Alleles:	Page
MTHFR	rs1801133	G/A	5
VDR	rs2228570	A/G	6
CYP1A2	rs762551	C/C	7
ADA	rs73598374	C/C	8

Stress Response, Mood and Focus Insights

Gene:	SNP:	Alleles:	Page
MAOA	rs6323	T/G	9
ADORA2A	rs2298383	C/T	10
COMT	rs4680	G/A	11

Brain Function Insights

Gene:	SNP:	Alleles:	Page
ELOVL2	rs3734398	T/T	12
IL6	rs1800795	G/C	13
TNF	rs1800629	A/A	14

Genetic Data Results

Sleep Insights

Sleep-related pathways include biological processes associated with circadian rhythm and sleep-related patterns. This section presents information about selected genetic variants that have been studied in relation to biological pathways associated with sleep-related traits. Scientific literature suggests that genetic variation may be associated with differences in certain sleep-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 sleep-related biological pathways.

Reference:

Ramar, Kannan et al. "Sleep is essential to health: an American Academy of Sleep Medicine position statement." Journal of Clinical Sleep Medicine vol. 17,10 (2021): 2115-2119. doi:10.5664/jcsm.9476

Your results

Gene:	SNP:	Alleles:
MTHFR	**rs1801133**	**G/A**

Methylenetetrahydrofolate reductase.

Enzyme involved in folate metabolism that converts 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate and contributes to homocysteine remethylation.

Possible differences in homocysteine levels in relation to sleep duration among A-allele carriers. [1-3]

The MTHFR gene encodes methylenetetrahydrofolate reductase, an enzyme involved in folate metabolism and homocysteine remethylation.[3] Some studies have explored whether genetic variation in MTHFR, including rs1801133, is associated with differences in enzyme activity and homocysteine levels in relation to sleep duration.[1-3] The rs1801133 A allele, when present in one copy (heterozygosity; G/A genotype), is associated with reduced MTHFR enzyme activity compared with the G/G genotype.[3] In one population study, G/A individuals were analyzed together with A/A individuals as A-allele carriers, and this combined group showed a stronger association between long sleep duration and higher homocysteine levels than individuals with the G/G genotype; therefore, a separate sleep-related association for the G/A genotype was not established.[1] This genetic result does not determine your individual homocysteine levels or sleep patterns, which may be influenced by multiple genetic, nutritional, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene:	SNP:	Alleles:
VDR	**rs2228570**	**A/G**

Vitamin D receptor.

Receptor allowing the body to respond to vitamin D.

No specific association established with sleep quality. [4-8]

The VDR gene encodes the vitamin D receptor, a protein that mediates the biological effects of vitamin D.[4] Some studies have explored whether genetic variation in VDR, including rs2228570, is associated with differences in vitamin D-related traits and sleep quality.[4-8] In one population-based study of adults, individuals with one copy of the rs2228570 G allele (heterozygosity; A/G genotype) were analyzed together with individuals having the A/A genotype as the comparison group for those with the G/G genotype; therefore, no specific association with sleep quality was established for the A/G genotype alone.[7] This genetic result does not determine your individual vitamin D status or sleep quality, which may be influenced by multiple genetic, nutritional, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene:	SNP:	Alleles:
CYP1A2	**rs762551**	**C/C**

Cytochrome P450 1A2.

Enzyme of the cytochrome P450 family involved in the metabolism of caffeine, various drugs, and other compounds.

Possible lower CYP1A2 activity and slower caffeine metabolism than in A-allele carriers. [24-26]

The CYP1A2 gene encodes cytochrome P450 1A2, an enzyme involved in the metabolism of caffeine and various other compounds.[24] Some studies have explored whether genetic variation in CYP1A2, including rs762551, is associated with differences in CYP1A2 activity and caffeine metabolism.[25] The rs762551 C allele, when present in two copies (homozygosity; C/C genotype), has been associated with lower CYP1A2 activity compared with A-allele carriers and therefore with relatively slower caffeine metabolism.[25] Caffeine dose and timing can independently influence subsequent sleep-related measures.[26] This genetic result does not determine your individual caffeine metabolism, caffeine sensitivity, or sleep response, which may be influenced by multiple genetic, physiological, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs

Gene:	SNP:	Alleles:
ADA	**rs73598374**	**C/C**

Adenosine deaminase.

Enzyme involved in the conversion of adenosine to inosine and in the regulation of adenosine levels.

Possible relatively higher ADA activity than in T-allele carriers. [27-31]

The ADA gene encodes adenosine deaminase, an enzyme involved in the conversion of adenosine to inosine and the regulation of adenosine levels.[27][28] Some studies have explored whether genetic variation in ADA, including rs73598374, is associated with differences in ADA activity and sleep-related measures.[27-31] Individuals with two copies (homozygosity) of the rs73598374 C allele (C/C genotype) were used as the main comparison group in the reviewed studies, while carriers of the T allele showed relatively lower ADA activity and differences in selected sleep-related measures.[27-31] No specific favorable or unfavorable sleep profile was established for the C/C genotype in the reviewed studies. This genetic result does not determine your individual sleep quality or sleep characteristics, which may be influenced by multiple genetic, physiological, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Your notes

Stress Response, Mood and Focus Insights

Stress response-, mood-, and focus-related pathways include biological processes influenced by both environmental factors and genetic variation. This section presents information about selected genetic variants that have been studied in relation to biological pathways associated with stress response, mood-related traits, and attention-related processes. Scientific literature suggests that genetic variation may be associated with differences in certain stress-related, mood-related, and focus-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:

Ellenbogen, Mark A et al. “Stress and selective attention: the interplay of mood, cortisol levels, and emotional information processing.” Psychophysiology vol. 39,6 (2002): 723-32. doi:10.1111/1469-8986.3960723

Your results

Gene:	SNP:	Alleles:
MAOA	**rs6323**	**T/G**

Monoamine oxidase A.

Mitochondrial enzyme involved in the oxidative metabolism of monoamine neurotransmitters, including serotonin, norepinephrine, and dopamine. MAOA is located on the X chromosome. For individuals with one X chromosome, this variant is interpreted according to the single observed allele (hemizygous state).

Possible differences in MAOA activity. [11-16]

The MAOA gene encodes monoamine oxidase A, a mitochondrial enzyme involved in the metabolism of monoamine neurotransmitters, including serotonin, norepinephrine, and dopamine.[11] Some studies have explored whether genetic variation in MAOA, including rs6323, is associated with differences in MAOA activity and related behavioral and emotional traits.[12-16] In individuals with two X chromosomes, the rs6323 T and G alleles, when present together (heterozygosity; T/G genotype), represent one copy of each allele, which have been associated with differences in MAOA activity.[12][13] In individuals with one X chromosome, only a single rs6323 allele is present in a hemizygous state and a T/G genotype therefore does not occur. Differences in rs6323 have also been investigated in relation to stress response, emotional processing, and behavioral traits, but these associations do not establish a specific mood, behavioral, or cognitive profile for an individual.[14-16] This genetic result does not determine your individual mood, stress response, or cognitive characteristics, which may be influenced by multiple genetic, physiological, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene:	SNP:	Alleles:
ADORA2A	**rs2298383**	**C/T**

Adenosine A2A receptor.

Receptor activated by adenosine, a molecule involved in cellular signaling. It contributes to the regulation of neurotransmitter activity, vascular function, inflammatory pathways, and other physiological processes.

Possible differences in sleep- and attention-related measures. [17-23]

The ADORA2A gene encodes the adenosine A2A receptor, a receptor involved in adenosine signaling and the regulation of neurotransmitter activity and sleep-related biological processes.[17-21] Some studies have explored whether genetic variation in ADORA2A, including rs2298383, is associated with differences in sleep- and attention-related measures.[22][23] In one population study, individuals with one copy (heterozygosity) of the rs2298383 C allele (C/T genotype) were analyzed together with individuals having the C/C genotype as C-allele carriers and compared with individuals having the T/T genotype.[22] Because the C/T and C/C genotypes were analyzed together, a separate association with sleep- or attention-related measures was not established for the C/T genotype.[22] Other research has found that associations between rs2298383 and sleep-related measures may vary according to the specific sleep outcome and caffeine consumption.[23] This genetic result does not determine your individual sleep quality, attention, or response to caffeine, which may be influenced by multiple genetic, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene:	SNP:	Alleles:
COMT	**rs4680**	**G/A**

Catechol-O-methyltransferase.

Enzyme that helps process catechol compounds, including neurotransmitters such as dopamine, epinephrine, and norepinephrine.

Possible intermediate COMT enzyme activity. [32-35]

The COMT gene encodes catechol-O-methyltransferase, an enzyme involved in the metabolism of catecholamines, including dopamine, epinephrine, and norepinephrine.[32][33] Some studies have explored whether genetic variation in COMT, including rs4680, is associated with differences in COMT activity and cognitive performance.[32-35] Individuals with one copy of the rs4680 G allele and one copy of the A allele (heterozygosity; G/A genotype) have been associated with intermediate COMT enzyme activity compared with the lower-activity A/A and higher-activity G/G genotypes.[32][33] Studies of attention and executive function have reported genotype-related differences that may vary according to task demands and stress conditions, rather than a consistently favorable or unfavorable profile for the G/A genotype.[34][35] This genetic result does not determine your individual attention, stress response, mood, or cognitive performance, which may be influenced by multiple genetic, physiological, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Your notes

Brain Function Insights

Brain function–related pathways include biological processes associated with cognitive-related functions and age-related changes influenced by both environmental factors and genetic variation. This section presents information about selected genetic variants that have been studied in relation to biological pathways associated with brain function–related processes. Scientific literature suggests that genetic variation may be associated with differences in certain cognitive-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 brain-related biological pathways.

Reference:

Xia, Haishuo et al. "Understanding cognitive control in aging: A brain network perspective." Frontiers in Aging Neuroscience vol. 14, 1038756,2022. doi:10.3389/fnagi.2022.1038756

Your results

Gene:	SNP:	Alleles:
ELOVL2	**rs3734398**	**T/T**

Fatty acid elongase 2.

Enzyme involved in the elongation of polyunsaturated fatty acids, including omega-3 fatty acids, contributing to the production of longer-chain fatty acids involved in cellular structures and normal biological functions.

No specific unfavorable association identified with omega-3 fatty acid profile. [9][10]

The ELOVL2 gene encodes fatty acid elongase 2, an enzyme involved in the elongation of polyunsaturated fatty acids, including omega-3 fatty acids.[9] Some studies have explored whether genetic variation in ELOVL2, including rs3734398, is associated with differences in omega-3 fatty acid profiles.[9][10] In one dietary intervention study, individuals with two copies (homozygosity) of the rs3734398 T allele (T/T genotype) were used as the comparison group for C-allele carriers (C/T + C/C), who had lower plasma DHA proportions at baseline and showed differences in plasma EPA and DHA proportions following fish-oil supplementation.[9] No specific unfavorable association with omega-3 fatty acid profile was established for the T/T genotype in the reviewed study.[9] Omega-3 fatty acids contribute to normal brain function and are important components of brain cell membranes.[10] This genetic result does not determine your individual omega-3 fatty acid profile, which may be influenced by multiple genetic, dietary, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene:	SNP:	Alleles:
IL6	**rs1800795**	**G/C**

Interleukin 6.

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

No specific association established with cognitive function. [36][37]

The IL6 gene encodes interleukin-6, a signaling protein involved in immune responses and other physiological processes. Some studies have explored whether genetic variation in IL6, including rs1800795, is associated with differences in brain structure and cognitive function.[36][37] In one study of healthy adults, individuals with one copy of the rs1800795 G allele and one copy of the C allele (heterozygosity; G/C genotype) had a smaller right hippocampal gray matter volume than individuals with the G/G genotype.[36] This structural association does not establish a specific difference in cognitive function, and a longitudinal study of non-demented older adults did not establish an association between rs1800795 and cognitive decline over time.[37] This genetic result does not determine your individual brain structure or cognitive performance, which may be influenced by multiple genetic, physiological, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are appropriate for your individual needs.

Gene:	SNP:	Alleles:
TNF	**rs1800629**	**A/A**

Tumor necrosis factor-alpha.

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

Possible association with maintenance of global cognitive function over time among A-allele carriers; a genotype-specific association has not been established. [37-40]

The TNF gene encodes tumor necrosis factor-alpha, a signaling protein involved in immune and inflammatory responses. Some studies have explored whether genetic variation in TNF, including rs1800629, is associated with differences in cognitive measures and cognitive changes over time.[37-40] The rs1800629 A allele, when present in two copies (homozygosity; A/A genotype), was generally analyzed together with the G/A genotype as part of an A-allele carrier group (G/A + A/A).[37-40] In the reviewed studies, A-allele carriers showed differences in selected attention-related measures and were associated with maintenance of global cognitive function over time in one longitudinal study; however, because A/A and G/A individuals were mainly analyzed together, a separate association for the A/A genotype was not established.[37-40] This genetic result does not determine your individual cognitive performance or cognitive changes over time, which may be influenced by multiple genetic, physiological, lifestyle, and environmental factors. A qualified healthcare professional can help assess whether your overall diet and lifestyle are 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.

Scientific References

[1] Mo, Tingting, et al. "Sleep Duration, Midday Napping, and Serum Homocysteine Levels: A Gene-Environment Interaction Study." Nutrients, vol. 15, no. 1, 2023, article 210. doi:10.3390/nu15010210.

[2] Ji, Xiaopeng, et al. "The Relationship between Micronutrient Status and Sleep Patterns: A Systematic Review." Public Health Nutrition, vol. 20, no. 4, 2017, pp. 687–701. doi:10.1017/S1368980016002603.

[3] Frosst, P., et al. "A Candidate Genetic Risk Factor for Vascular Disease: A Common Mutation in Methylenetetrahydrofolate Reductase." Nature Genetics, vol. 10, no. 1, 1995, pp. 111–113. doi:10.1038/ng0595-111.

[4] Micheletti, C., et al. "Nutrigenomics: SNPs Correlated to Vitamins' Deficiencies." La Clinica Terapeutica, vol. 174, suppl. 2, no. 6, 2023, pp. 173–182. doi:10.7417/CT.2023.2485.

[5] Sadat-Ali, Mir, et al. "Genetic Influence on Circulating Vitamin D among Saudi Arabians." Saudi Medical Journal, vol. 37, no. 9, 2016, pp. 996–1001. doi:10.15537/smj.2016.9.14700.

[6] Gaffney-Stomberg, Erin, et al. "Association Between Single Gene Polymorphisms and Bone Biomarkers and Response to Calcium and Vitamin D Supplementation in Young Adults Undergoing Military Training." Journal of Bone and Mineral Research, vol. 32, no. 3, 2017, pp. 498–507. doi:10.1002/jbmr.3008.

[7] Menezes-Júnior, Luiz Antônio Alves de, et al. "The Role of Interaction between Vitamin D and VDR FokI Gene Polymorphism (rs2228570) in Sleep Quality of Adults." Scientific Reports, vol. 14, no. 1, 2024, article 8141. doi:10.1038/s41598-024-58561-2.

[8] da Silva Sabião, Thaís, et al. "Interaction between FokI Polymorphism and Vitamin D Deficiency in the Symptoms of Mental Disorders in Adults: A Population-Based Study." Scientific Reports, vol. 14, no. 1, 2024, article 6925. doi:10.1038/s41598-024-57558-1.

[9] Alsaleh, Aseel, et al. "ELOVL2 Gene Polymorphisms Are Associated with Increases in Plasma Eicosapentaenoic and Docosahexaenoic Acid Proportions after Fish Oil Supplement." Genes & Nutrition, vol. 9, no. 1, 2014, article 362. doi:10.1007/s12263-013-0362-6.

[10] Bazinet, R., and S. Layé. "Polyunsaturated Fatty Acids and Their Metabolites in Brain Function and Disease." Nature Reviews Neuroscience, vol. 15, 2014, pp. 771–785. doi:10.1038/nrn3820.

[11] Shih, Jean C., Kevin Chen, and Michael J. Ridd. "Monoamine Oxidase: From Genes to Behavior." Annual Review of Neuroscience, vol. 22, 1999, pp. 197–217. doi:10.1146/annurev.neuro.22.1.197.

[12] Hotamisligil, Gökhan S., and Xandra O. Breakefield. "Human Monoamine Oxidase A Gene Determines Levels of Enzyme Activity." American Journal of Human Genetics, vol. 49, no. 2, 1991, pp. 383–392.

[13] Kolla, Nathan J., and Marco Bortolato. "The Role of Monoamine Oxidase A in the Neurobiology of Aggressive, Antisocial, and Violent Behavior: A Tale of Mice and Men." Progress in Neurobiology, vol. 194, 2020, article 101875. doi:10.1016/j.pneurobio.2020.101875.

[14] Larson, Christine L., Lauren E. Taubitz, and Jordan S. Robinson. "MAOA T941G Polymorphism and the Time Course of Emotional Recovery Following Unpleasant Pictures." Psychophysiology, vol. 47, no. 5, 2010, pp. 857–862. doi:10.1111/j.1469-8986.2010.01005.x.

[15] Zhang, Wenxin, et al. "Monoamine Oxidase A (MAOA) and Catechol-O-Methyltransferase (COMT) Gene Polymorphisms Interact with Maternal Parenting in Association with Adolescent Reactive Aggression but Not Proactive Aggression: Evidence of Differential Susceptibility." Journal of Youth and Adolescence, vol. 45, no. 4, 2016, pp. 812–829. doi:10.1007/s10964-016-0442-1.

[16] Zhao, Bao, et al. "Parenting Practices and Adolescent Effortful Control: MAOA T941G Gene Polymorphism as a Moderator." Frontiers in Psychology, vol. 11, 2020, article 60. doi:10.3389/fpsyg.2020.00060.

[17]Guest, Nanci S., et al. "Sport Nutrigenomics: Personalized Nutrition for Athletic Performance." Frontiers in Nutrition, vol. 6, 2019, article 8. doi:10.3389/fnut.2019.00008.

[18] Bonetti, G., et al. "Nutrigenomics: SNPs Correlated to Detoxification, Antioxidant Capacity and Longevity." La Clinica Terapeutica, vol. 174, suppl. 2, no. 6, 2023, pp. 209–213. doi:10.7417/CT.2023.2489.

[19] Childs, Emma, et al. "Association between ADORA2A and DRD2 Polymorphisms and Caffeine-Induced Anxiety." Neuropsychopharmacology, vol. 33, no. 12, 2008, pp. 2791–2800. doi:10.1038/npp.2008.17.

[20] Renda, Giulia, et al. "Genetic Determinants of Cognitive Responses to Caffeine Drinking Identified from a Double-Blind, Randomized, Controlled Trial." European Neuropsychopharmacology, vol. 25, no. 6, 2015, pp. 798–807. doi:10.1016/j.euroneuro.2015.03.001.

[21] Hohoff, Christa, et al. "Association of Adenosine Receptor Gene Polymorphisms and In Vivo Adenosine A1 Receptor Binding in the Human Brain." Neuropsychopharmacology, vol. 39, no. 13, 2014, pp. 2989–2999. doi:10.1038/npp.2014.150.

[22]Oliveira, Sílvia, et al. "Impact of Genetic Variations in ADORA2A Gene on Depression and Symptoms: A Cross-Sectional Population-Based Study." Purinergic Signalling, vol. 15, no. 1, 2019, pp. 37–44. doi:10.1007/s11302-018-9635-2.

[23] Erblang, Mégane, et al. "The Impact of Genetic Variations in ADORA2A in the Association between Caffeine Consumption and Sleep." Genes, vol. 10, no. 12, 2019, article 1021. doi:10.3390/genes10121021.

[24] "CYP1A2 Gene—Cytochrome P450 Family 1 Subfamily A Member 2." GeneCards: The Human Gene Database, Weizmann Institute of Science. Accessed 3 Sept. 2026.

[25] Koonrungsesomboon, Nut, et al. "The Impact of Genetic Polymorphisms on CYP1A2 Activity in Humans: A Systematic Review and Meta-Analysis." The Pharmacogenomics Journal, vol. 18, no. 6, 2018, pp. 760–768. doi:10.1038/s41397-017-0011-3.

[26] Gardiner, Carissa L., et al. "Dose and Timing Effects of Caffeine on Subsequent Sleep: A Randomized Clinical Crossover Trial." Sleep, vol. 48, no. 4, 2025, article zsae230. doi:10.1093/sleep/zsae230.

[27] Rétey, Julia V., et al. "A Functional Genetic Variation of Adenosine Deaminase Affects the Duration and Intensity of Deep Sleep in Humans." Proceedings of the National Academy of Sciences of the United States of America, vol. 102, no. 43, 2005, pp. 15676–15681. doi:10.1073/pnas.0505414102.

[28] Battistuzzi, G., P. Iudicone, P. Santolamazza, and R. Petrucci. "Activity of Adenosine Deaminase Allelic Forms in Intact Erythrocytes and in Lymphocytes." Annals of Human Genetics, vol. 45, no. 1, 1981, pp. 15–19. doi:10.1111/j.1469-1809.1981.tb00301.x.

[29] Bachmann, Valérie, et al. "Functional ADA Polymorphism Increases Sleep Depth and Reduces Vigilant Attention in Humans." Cerebral Cortex, vol. 22, no. 4, 2012, pp. 962–970. doi:10.1093/cercor/bhr173.

[30] Mazzotti, Diego Robles, et al. "Effects of the Adenosine Deaminase Polymorphism and Caffeine Intake on Sleep Parameters in a Large Population Sample." Sleep, vol. 34, no. 3, 2011, pp. 399–402. doi:10.1093/sleep/34.3.399.

[31] Tartar, Jaime L., et al. "A Functional Adenosine Deaminase Polymorphism Associates with Evening Melatonin Levels and Sleep Quality." Journal of Circadian Rhythms, vol. 19, 2021, article 5. doi:10.5334/jcr.209.

[32]Lachman, Herbert M., et al. "Human Catechol-O-Methyltransferase Pharmacogenetics: Description of a Functional Polymorphism and Its Potential Application to Neuropsychiatric Disorders." Pharmacogenetics, vol. 6, no. 3, 1996, pp. 243–250. doi:10.1097/00008571-199606000-00007.

[33] Chen, Jingshan, et al. "Functional Analysis of Genetic Variation in Catechol-O-Methyltransferase (COMT): Effects on mRNA, Protein, and Enzyme Activity in Postmortem Human Brain." American Journal of Human Genetics, vol. 75, no. 5, 2004, pp. 807–821. doi:10.1086/425589.

[34] Blasi, Giuseppe, et al. "Effect of Catechol-O-Methyltransferase Val158Met Genotype on Attentional Control." The Journal of Neuroscience, vol. 25, no. 20, 2005, pp. 5038–5045. doi:10.1523/JNEUROSCI.0476-05.2005.

[35] Zareyan, Shahab, et al. "First Demonstration of Double Dissociation between COMT-Met158 and COMT-Val158 Cognitive Performance When Stressed and When Calmer." Cerebral Cortex, vol. 31, no. 3, 2021, pp. 1411–1426. doi:10.1093/cercor/bhaa276.

[36] Baune, Bernhard T., et al. "Interleukin-6 Gene (IL-6): A Possible Role in Brain Morphology in the Healthy Adult Brain." Journal of Neuroinflammation, vol. 9, 2012, article 125. doi:10.1186/1742-2094-9-125.

[37] Lawrence, Karen A., et al. "Associations between IL-1β, IL-6, and TNFα Polymorphisms and Longitudinal Trajectories of Cognitive Function in Non-Demented Older Adults." Brain, Behavior, & Immunity - Health, vol. 39, 2024, article 100816. doi:10.1016/j.bbih.2024.100816.

[38] Baune, Bernhard T., et al. "Association between Genetic Variants of IL-1β, IL-6 and TNF-α Cytokines and Cognitive Performance in the Elderly General Population of the MEMO-Study." Psychoneuroendocrinology, vol. 33, no. 1, 2008, pp. 68–76. doi:10.1016/j.psyneuen.2007.10.002.

[39] Beste, Christian, et al. "Associations between the Tumor Necrosis Factor Alpha Gene (-308G→A) and Event-Related Potential Indices of Attention and Mental Rotation." Neuroscience, vol. 170, no. 3, 2010, pp. 742–748. doi:10.1016/j.neuroscience.2010.07.058.

[40] Beste, Christian, et al. "Variations in the TNF-α Gene (TNF-α -308G→A) Affect Attention and Action Selection Mechanisms in a Dissociated Fashion." Journal of Neurophysiology, vol. 104, no. 5, 2010, pp. 2523–2531. doi:10.1152/jn.00561.2010.

Disclaimers

This DNA Wellness Report is intended only for general wellness, educational, and informational purposes. It provides information about
selected genetic variants that may be associated with non-diagnostic wellness traits, such as general nutrition, fitness, lifestyle, and other
wellness-related characteristics, based on scientific literature and internal interpretation methods available at the time the report is prepared.

This test and report have not been reviewed, cleared, approved, or authorized by the U.S. Food and Drug Administration, unless expressly
stated otherwise in writing. This report is not intended to diagnose, treat, cure, mitigate, or prevent any disease or medical condition, and it
should not be used as a substitute for professional medical advice, diagnosis, treatment, screening, or care.

This report does not provide medical genetic testing, clinical diagnosis, disease-risk assessment, carrier-status testing, pharmacogenetic or
medication-response guidance, ancestry analysis, paternity or family-relationship testing, or interpretation of medically actionable variants.
Do not use this report to start, stop, or change any medication, medical treatment, supplement program, diet, or exercise program without
consulting a qualified healthcare professional.

The test analyzes selected genetic variants only. It does not analyze all variants in any gene, does not evaluate the entire genome, and may
not detect genetic factors that are relevant to a trait or condition. Wellness traits are influenced by many factors, including genetics, diet,
physical activity, sleep, environment, age, sex, health history, and other personal circumstances. A genetic association does not guarantee a
particular trait, outcome, benefit, or response.

Scientific understanding of genetics continues to evolve. The interpretation of a genetic variant may change over time as new research
becomes available, and different laboratories, databases, or interpretation methods may classify or explain genetic information differently.
While reasonable efforts are made to provide accurate and current information, no test, analysis, database, or interpretation is error-free.

If this report includes questionnaire- based or self- reported information, those results depend on the accuracy and completeness of the
information provided by the user. Questionnaire- based results are not independently verified and are processed using internal analytical
methods informed by published references.

If laboratory analysis is performed by a CLIA-certified and/or CAP-accredited laboratory, that certification or accreditation relates to laboratory
quality standards and laboratory operations. It does not mean that the FDA has reviewed, cleared, approved, or authorized this DNA Wellness
Report, the wellness interpretations, or any related recommendations.

Your sample, genetic data, questionnaire responses, and related personal information are handled in accordance with our Privacy Policy and
applicable data- protection procedures. They are used to provide the test, generate and deliver this report, provide customer support,
maintain quality and security, comply with legal obligations, and support your privacy choices as described in the Privacy Policy. We do **not**
use your sample, genetic data, questionnaire responses, or report information for research, scientific publication, external research
collaborations, or research databases.

Any testimonials, reviews, or user experiences related to the DNA Wellness Test reflect individual experiences only. They are not evidence of
test performance, are not medical claims, and do not represent typical, promised, or guaranteed outcomes.

Use of this report and any actions taken based on its contents are the responsibility of the user. For questions about this report, please
contact **info@magisnat.com** or visit **www.magisnat.com**.