MAGISNAT DNA WELLNESS TEST

Explore more than 100 selected DNA variants and unlock personalized guidance for optimizing your diet, physical activity, and overall wellness with our DNA WELLNESS TEST!

We have selected for you several genetic variants that have an impact on:

- **Vitamins metabolism**
- **Minerals metabolism**
- **Carbohydrates metabolism**
- **Lipids metabolism**
- **Food allergies, sensitivities, and intolerances**
- **Detoxification and antioxidation**
- **Physical activity**
- **Longevity**
- **Sleep and mood**

… and more!

The goal is to provide you with information to personalize your life choices to give a boost to your well-being.

What is the DNA Wellness Test?

The DNA Wellness Test falls into the second category of Low-Risk General Wellness Tests, that are not classified as Medical Devices. According to the FDA policy for Low Risk Devices, the intended uses relate to sustaining or offering general improvement to functions associated with a general state of health while referring to diseases or conditions. This category of general wellness claims is comprised of two subcategories: (I) may help to reduce the risk of certain chronic diseases or conditions or (II) may help living well with certain chronic disease or conditions.

Characteristics such as the ones listed above are characterized by multifactoriality, meaning they are influenced by multiple factors including environment, lifestyle, and genetics. The

DNA Wellness Test analyzes the target regions of genetic variants that may influence these (and more) characteristics. These genetic variants (called SNPs, Single Nucleotide Polymorphisms) have been carefully selected by our team based on literature data and experimentally validated on a test involving 515 subjects, in collaboration with the University of Sports of Tyrane (UST).

The information provided by the DNA Wellness Test may be used, with the help of a specialist, to develop personalized strategies to improve your diet, lifestyle, physical activity, and diet supplementation.

Why should you take the DNA Wellness Test?

- **Simplicity**: the DNA Wellness Test is a simple and straightforward process. Our kit will arrive at your home without any additional cost. You will only need to follow the detailed instructions provided to perform a simple buccal swab (have a look at the kit usage instructions).
- **One-time test**: once you take the DNA Wellness Test, you have a lifetime of information. You don't need to repeat the test as your genetic makeup remains constant throughout your life.
- **Data privacy and security**: we prioritize the security and privacy of your data. We handle all information in accordance with applicable laws and regulations, ensuring that sensitive data is never disclosed. Your personal information is treated with the utmost confidentiality. The data may be used in an aggregated and anonymized form for scientific publications and to improve the test, only if you consent to this usage. Moreover, the biological samples containing your DNA will be destroyed after 180 days.
- **Personalized approach**: the DNA Wellness Test allows you to embrace a personalized approach to your well-being: by understanding your genetic makeup, you can take a proactive stance towards your health

What will you find in the DNA Wellness Test report?

In your DNA Wellness Test report, you will discover a list of 106 observed genetic polymorphisms (SNPs) found in your DNA. Each SNP will be accompanied by a description of

the pathway it is involved in and the specific effect associated in literature with that polymorphism.

Furthermore, the report will provide general information about the characteristics impacted by these genetic variations and, if you have completed the accompanying optional questionnaire, the report will also include personalized recommendations.

Look at our sample report.

What are the risks and limitation of the DNA Wellness Test?

While there are no direct health risks associated with genetic tests for general well-being, it is important to be aware of certain aspects. Here are some points to consider:

- **Psychological impact**: Genetic test results can have psychological implications, so it's important to be prepared for potential emotional distress or anxiety related to learning about health risks.
- **Interpretation complexity**: Although the interpretation is intended for a healthcare expert, their meaning is not universally interpreted by the scientific community, and there is no universally accepted scientific evidence regarding their impact on diet, lifestyle choices, and physical activity.
- **Limited predictability**: The DNA Wellness test cannot predict future health outcomes with certainty due to the complex interplay of genetic and non-genetic factors, as well as the limited number of genetic variants analyzed.
- **Limited actionability**: While genetic information can be valuable, not all variations have clear actionable steps, and lifestyle factors play a significant role in overall well-being. Realistic expectations and professional guidance are necessary for making informed decisions based on the test results.
- **Unsuitable advice:** your healthcare provider may give you suggestion unsuitable for you, based on this test. We are not assuming responsibility about this.
- **Limited Scope**: The genes and variants analyzed by us are solely interpreted for their impact within the context of the wellness test. We do not exclude the possibility that, due to a phenomenon called pleiotropy, they may have other outcomes.

- **Genetic Discrimination**: Some analyzed variants may be interpreted differently in other contexts, potentially leading to genetic discrimination.
- **Data Security**: The data collection and processing system is secure, and the DNA sample is discarded 180 days after the analysis. We are not liable for any data breaches resulting from cyber-attacks or rare events beyond the control of our standard security measures.

Who is the DNA Wellness Test for?

The DNA Wellness Test is designed for adult individuals who are interested in gaining insights into their genetic makeup to proactively care for their well-being. For individuals with medical conditions, the results must be carefully evaluated by their healthcare provider, and it cannot replace medical advice related to the specific condition.

How does the DNA Wellness Test work?

1. Purchase the DNA Wellness Test on our eCommerce platform.
2. Fill the customer data form with your personal data, address, email, and telephone number. This is mandatory and required to ship the kit at your home.
3. Receive an email with payment confirmation, your kit number, and instructions on how to register in the reserved area.
4. Register in our reserved area and fill out the necessary forms. You will find:
    a. The informed consent, to be read, reviewed, and signed (mandatory).
    b. An optional questionnaire for collecting data about yourself and your lifestyle. This questionnaire is optional, but by completing it, you will help us provide you with even more accurate information and contribute to scientific research. As a thank you, you will also receive a 10% discount on the purchase of our supplements!
5. Receive our kit at your home, conveniently and with no additional shipping costs.
6. Perform the buccal swab to collect your biological sample by carefully following the instructions provided in the kit and below in this brochure.
7. Send the collected sample as described in the instructions included in the kit. The envelope is pre-paid, so you only need to send it without any costs!

8. Wait as we analyze your data, which will take approximately 4-6 weeks. Need something to read in the meantime? Take a look at our site and newsletter to explore the science behind natural molecules and the Mediterranean diet. Additionally, you will receive updates about the progress of your test via email and in your reserved area.
9. Access your reserved area and download the results (report and raw data).

How to use the biological sampling kit?

The biological sampling kit that will be delivered to your home contains:

- Two buccal swabs
- Two collection vials
- The return envelope
- Kit instructions

To perform the biological sampling follow this step-by-step simple procedure, detailed also in the kit instructions:

1. Place the unopened swabs and vials on clean, levels surface.
2. Remove one swab from its package and firmly scrape the inside of one cheek while rotating the swab for 45 seconds. Note: do not eat, drink, or chew gum for 60 minutes prior swabbing your cheeks.
3. Open one vial, insert the swab with the tip down, align the black line on the swab to the edge of the vial and snap it off with the swab tip remaining in the vial's liquid. Note: if the liquid from the vial is spilled, please send in you vial anyway as the sample might still be viable.
4. Use the second swab and vial to repeat the points 2 and 3 on the opposite cheek.
5. Ensure that the cap is securely fastened on both vials. Insert both into the plastic bag and then seal the bag.
6. Place the sealed plastic bag in the return envelope we provided and seal the envelope.
7. Send the envelope with your biological samples. The return postage is prepaid.

Which characteristics will be analyzed in the DNA Wellness Test?

Vitamins metabolism

Vitamin A

Vitamin A is a fat-soluble vitamin essential for maintaining healthy vision, supporting the immune system, and promoting proper growth and development in the body. Its primary functions include playing a crucial role in maintaining healthy skin, supporting reproductive health, and contributing to the formation and maintenance of various tissues and organs.

Vitamin A is a general term that covers several different forms of the vitamin. Animal food sources mainly provide a preformed vitamin A (ready to use), called retinol. Instead, plants contain carotenes that are precursor to vitamin A. The most common form, beta-carotene, shows up in abundance in carrots and other orange-colored foods. An enzyme in the intestine breaks down beta-carotene, also forming retinol.

The Recommended Daily Intake of vitamin A for adults is 900 mcg RAE (3,000 IU) per day, while for pregnant and lactating women it is 1,300 mcg RAE (4,333 IU) per day.

Gene	Gene Function	rsID	Alleles	Outcome
BCO1	**Beta-Carotene Oxygenase 1**. Key enzyme in beta-carotene metabolism to vitamin A. It catalyzes the cleavage of beta-carotene into two retinal molecules, an active form of vitamin A.	rs6564851	G/G	Lower beta-carotene conversion.
			G/T	Somewhat lower beta-carotene conversion.
			T/T	Typical.
		rs12934922	T/T	Decreased beta-carotene conversion; may affect lycopene also.
			A/T	Decreased beta-carotene conversion.
			A/A	Typical.
		rs7501331	T/T	Decreased beta-carotene conversion; lower lutein levels; may affect lycopene also.
			C/T	Decreased beta-carotene conversion.
			C/C	Typical.

Vitamin B12

Vitamin B12 is a water-soluble vitamin belonging to the B-complex group. It is crucial for organism development, formation of healthy red blood cells, and DNA and myelin synthesis.

Vitamin B12 is found in a wide range of foods of animal origin, such as meat, fish, eggs, milk and its derivatives.

The Recommended Daily Intake of vitamin B12 for adults is B12 is 2.4 mcg per day, while for pregnant and lactating women it is 2.8 mcg per day.

Gene	Gene Function	rsID	Alleles	Outcome
FUT2	**Fucosyltransferase 2**. Enzyme modifying glycoproteins and glycolipids (components of the cell membrane) which are involved in the absorption and utilization of vitamin B12.	rs602662	G/G	Greatest risk for low serum vitamin B12 levels, but only when the diet is low in bioavailable sources of vitamin B12.
			G/A	Greater risk for low serum vitamin B12 levels, but only when the diet is low in bioavailable sources of vitamin B12.
			A/A	Typical.
		rs492602	G/G	Lower vitamin B12 levels.
			G/A	Lower vitamin B12 levels.
			A/A	Typical.
CUBN	**Cubilin**. Endocytic receptor which plays a role in vitamins metabolism by facilitating their uptake.	rs1801222	A/A	Lower vitamin B12 concentrations.
			A/G	Somewhat lower vitamin B12 concentrations.
			G/G	Typical.
MTRR	**Methionine synthase reductase**. Enzyme involved in the regulation of a critical pathway for the metabolism of the amino acid methionine by providing	rs162036	G/G	Decrease in enzyme activity with potential negative impact on vitamin B12 concentration.
			A/G	Partial decrease in enzyme activity with

	electrons to regenerate the cofactor, vitamin B12.			potential negative impact on vitamin B12 concentration.
			A/A	Typical.

Vitamin B6

Vitamin B6 is a water-soluble vitamin belonging to the B-complex group. As primary function, vitamin B6 acts as a coenzyme supporting various enzymes primarily involved in amino acid metabolism.

Vitamin B6 is widely distributed in foods, but it is found especially in meat, fish, lightly refined grains, legumes, and nuts.

The Recommended Daily Intake of vitamin B6 for adults is 1.3 mcg per day, but in pregnant and breastfeeding women it is increased to 2.0 mcg per day.

Gene	Gene Function	rsID	Alleles	Outcome
ALPL	**Alkaline Phosphatase**. Enzyme metabolizing various phosphate compounds and playing a key role in skeletal mineralization and adaptive thermogenesis.	rs4654748	C/C	Lower vitamin B6 concentrations.
			C/T	Slightly lower vitamin B6.
			T/T	Typical.
CBS	**Cystathionine beta-synthase**. Enzyme involved in cysteine metabolism and in detoxification reactions.	rs5742905	G/G	Risk of increased homocysteine, responsive to vitamin B6.
			A/G	Risk of increased homocysteine, responsive to vitamin B6.
			A/A	Typical.

Vitamin B9

Vitamin B9, also known as folate or folic acid, is part of the B vitamins and is particularly important during periods of frequent cell division and growth, such as fetal development, infant growth, and pregnancy. In fact, it is essential for the synthesis and modification of DNA and RNA. Moreover, it is crucial for red blood cells formation.

Vitamin B9 is contained in liver, green leafy vegetables, milk, fruits, and cereals.

The Recommended Daily Intake of vitamin B9 for adults is 400 mcg DFE per day, but while for pregnant and lactating women it is 600 mcg DFE per day.

Gene	Gene Function	rsID	Alleles	Outcome
MTHFR	**Methylenetetrahydrofolate reductase**. Enzyme involved in the conversion of vitamin B9 into its biologically active form.	rs1801133	A/A	Enzyme function decreased by 70-80%.
			A/G	Enzyme function decreased by 40%.
			G/G	Typical.

Vitamin C

Vitamin C (also known as ascorbic acid) is involved in metabolism and electron transfer, and it is an essential source of physiological antioxidant involved in the regeneration of other antioxidants inside the body. Vitamin C also functions as a cofactor and antioxidant and assists non-heme iron supply through the intestine. Genetics play a role in how vitamin C is absorbed, transported, and used by the body.

Foods rich in Vitamin C are citrus fruits, tomatoes, potatoes, red and green peppers, kiwifruit, broccoli, strawberries, Brussels sprouts, and cantaloupe.

The Recommended Daily Intake of vitamin C for adults is 90 mg per day for men, while for pregnant and lactating women it is 120 mg per day.

Gene	Gene Function	rsID	Alleles	Outcome
SLC23A1	**Sodium-dependent vitamin C transporter 1**. Sodium/ascorbate cotransporter. Mediates electrogenic uptake of vitamin C.	rs33972313	T/T	9%-11% lower plasma vitamin C concentrations.
			C/T	Lower plasma vitamin C.
			C/C	Typical.
SLC23A2	**Sodium-dependent vitamin C transporter** 1. Sodium/ascorbate cotransporter. Mediates electrogenic uptake of vitamin C.	rs6053005	T/T	24% higher plasma vitamin C concentrations.
			C/T	Typical.
			C/C	Typical.

Vitamin D

Vitamin D serves various important functions in the body, being crucial for bone health, immune function, muscle function, and cell growth and differentiation. Vitamin D is a fat-soluble vitamin stored in the liver, therefore it is not necessary to take it regularly through food, since the body releases it in small doses when its use becomes necessary.

Vitamin D comes in two forms: ergocalciferol, which is taken in through food (*e.g.,* fatty fish, cod liver oil, fortified dairy products or plant-based milk, eggs, and beef liver), and cholecalciferol, which is synthesized by our bodies.

The Recommended Daily Intake of vitamin D for adults is 800 IU (20 mcg), while for pregnant and lactating women it is 600 IU (15 mcg).

Gene	Gene Function	rsID	Alleles	Outcome
GC	**Vitamin D-binding protein**. Protein binding vitamin D and its plasma metabolites to transport them to target tissues.	rs4588	A/A	Lower 25-hydroxyvitamin D (main circulating form) levels.
			A/C	Somewhat lower 25-hydroxyvitamin D (main circulating form) levels.
			C/C	Typical.
		rs2282679	G/G	Lower serum vitamin D levels.
			G/T	Somewhat lower total serum vitamin D levels.
			T/T	Typical.
		rs7041	A/A	Lower serum vitamin D levels.
			A/C	Somewhat lower vitamin D levels.
			C/C	Typical.
CYP2R1	**Cytochrome P450 2R1**. Enzyme converting vitamin D into the active ligand for the vitamin D receptor.	rs12794714	A/A	Lower vitamin D levels.
			A/G	Somewhat lower vitamin D levels.
			G/G	Typical.
		rs10741657	G/G	More likely to have vitamin D

				insufficiency or deficiency.
			A/G	More likely to have vitamin D insufficiency or deficiency.
			A/A	Typical.
VDR	**Vitamin D receptor**. Receptor allowing the body to respond to vitamin D.	rs2228570	G/G	Carrier of Fok1 variants; possibly decreased vitamin D levels.
			A/G	Typical.
			G/G	Typical

Vitamin E

Vitamin E (or tocopherol) is a fat-soluble antioxidant that protects cell membranes from reactive oxygen species. Vitamin E is essential for correct growth and development, and efficient nervous and immune systems.

Vitamin E is widely found in oily fruits and plant-based oils, wheat seeds, cereals, nuts, and green leafy vegetables.

The Recommended Daily Intake of vitamin E for adults is 22.4 IU (15 mg) per day, while for pregnant and lactating women it is 28,4 IU (19 mg).

Gene	Gene Function	rsID	Alleles	Outcome
SCARB1	**Scavenger receptor class B type 1**. Receptor facilitating the selective uptake of cholesterol from High-Density Lipoprotein (HDL) in the liver.	rs11057830	A/A	Lower plasma vitamin E concentration.
			G/A	Somewhat lower plasma vitamin E concentration.
			G/G	Typical.
CD36	**Platelet glycoprotein 4**. Membrane transporter of fatty acid.	rs1527479	A/A	Lower plasma vitamin E concentration.
			G/A	Somewhat lower plasma vitamin E concentration.
			G/G	Typical.
CYP4F2	**Cytochrome P450 4F2**. Enzyme involved in the metabolism of fatty acids and xenobiotics.	rs2108622	T/T	Lower plasma vitamin E concentration.
			C/T	Somewhat lower plasma vitamin E concentration.
			C/C	Typical.

Vitamin K

Vitamin K is a fat-soluble vitamin which ensures the proper functionality of specific proteins involved in calcium binding in bones and other tissues. It has also a crucial role in blood clotting (which avoid excessive bleeding) being the cofactors of enzyme involved in this process.

Vitamin K come in two forms: vitamin K1 (or phylloquinone) is widely distributed in plant-based foods, particularly leafy greens vegetable, while vitamin K2 (or menaquinone) is produced in the gut by specific bacteria and found in meat, cheese and fermented foods.

The Recommended Daily Intake of vitamin K for adults is 120 mcg per day, while for pregnant and lactating women it is 90 mcg per day.

Gene	Gene Function	rsID	Alleles	Outcome
VKORC1	**Vitamin K epoxide reductase complex subunit 1**. Protein involved in vitamin K metabolism. It recycles vitamin K epoxide back to its active form.	rs9923231	T/T	Decreased protein activity and increased anticoagulant drugs sensitivity.
			C/T	Decreased protein activity and increased anticoagulant drugs sensitivity.
			C/C	Typical.

Minerals metabolism

Calcium

Calcium is an extremely important mineral for our body, essential for the good health of bones and teeth, muscle function and nerve transmission.

Foods rich in calcium include dairy products, leafy green vegetables, almonds, fortified plant-based milk, salmon and sardines.

The Recommended Daily Intake of calcium for adults is 1,300 mg per day.

Gene	Gene Function	rsID	Alleles	Outcome
COL1A1	**Collagen Type I Alpha 1 Chain**. Main component of type I collagen, the fibrillar collagen found in most connective tissues, including bones, tendons, cartilage, and skin.	rs1800012	A/A	Lower Bone Mineral Density.
			A/C	Lower Bone Mineral Density.
			C/C	Typical.

Iron

Iron is one of the most abundant minerals in the body. It is a key component of hemoglobin and myoglobin, participates in the activity of many enzymes, and the body needs it to produce some hormones and connective tissue. When the body absorbs more iron than it needs for immediate use, excess iron is stored as ferritin in the cells, particularly in the liver, spleen, and bone marrow. Both iron deficiency and excess can result in health risk.

The foods richest in iron are liver, meat and fish, legumes, cereals, nuts, and dark green leafy vegetables.

The Recommended Daily Intake of iron for adults is 18 mg per day, while for pregnant and lactating women it is 27 mg per day.

Gene	Gene Function	rsID	Alleles	Outcome
SLC17A1	**Sodium-dependent phosphate transport protein 1**. Transport protein for sodium-dependent phosphate intake playing a crucial role in neurotransmission.	rs17342717	T/T	Higher ferritin.
			C/T	Higher ferritin.
			C/C	Typical.
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.	rs1800562	A/A	High ferritin levels.
			A/G	Increased ferritin levels.
			G/G	Typical.
TMPRSS6	**Transmembrane protease serine 6 or Matriptase-2**. Protein playing a critical role in the regulation of iron homeostasis in the body.	rs855791	A/A	Lower ferritin levels.
			G/A	Lower ferritin levels.
			G/G	Typical.

BTBD9	**BTB (Broad-Complex, Tramtrack, and Bric-a-Brac) domain-containing protein 9**. Protein implicated in various cellular processes and involved in neuronal signaling and synaptic function.	rs3923809	G/G	Higher ferritin.
			A/G	Higher ferritin.
			A/A	Typical.
TFR2	**Transferrin receptor protein 2**. Transferrin receptor, involved in iron absorption.	rs7385804	C/C	Lower serum iron.
			A/C	Lower serum iron.
			A/A	Typical.
TF	**Transferrin**. Transferrin, main iron transport protein in blood.	rs3811647	A/A	Higher ferritin.
			A/G	Higher ferritin.
			G/G	Typical.

Magnesium

Magnesium is an essential element in the body involved in several processes, such as DNA and RNA synthesis, protein synthesis, and glucose metabolism. Moreover, it is critical for skeletal composition, synaptic transmission, muscle function and heart function, and for an efficient immune system.

Magnesium-rich foods include legumes, nuts, cocoa, whole grains, some spices, sweet fruits, and green leafy vegetables.

The Recommended Daily Intake of magnesium for adults is 420 mg per day, while for pregnant and lactating women it is 400 mg per day.

Gene	Gene Function	rsID	Alleles	Outcome
TRPM6	**Transient receptor potential cation channel subfamily M member 6**. Ion receptor protein with crucial role in maintaining the magnesium homeostasis.	rs3750425	T/T	Lower serum magnesium levels; increased risk of hypomagnesia with proton pump inhibitors.
			C/T	Lower serum magnesium levels; increased risk of hypomagnesia with proton pump inhibitors.
			C/C	Typical.
		rs12255372	C/C	Lower magnesium levels on average; increased risk of hypomagnesia with proton pump inhibitors.
			C/T	Lower magnesium levels on average; increased risk of hypomagnesia with proton pump inhibitors.
			T/T	Typical.
CNNM2	**Cyclin M2 or Cyclin and CBS domain divalent metal cation transport mediator**	rs11191548	C/C	Higher levels of 25-hydroxyvitamin D (main circulating form of vitamin D).

	2. Protein involved in magnesium transport and metabolism.		C/T	Higher levels of 25-hydroxyvitamin D (main circulating form of vitamin D).
			T/T	Typical.

Selenium

Selenium is a very important mineral for the overall well-being of the body as it helps in performing many basic functions, from reproduction to fighting infections, and it has antioxidant properties. It is also crucial for proper thyroid, muscle, and reproductive system functioning. Finally, it is esstential for bones, hairs, and nails health.

The foods richest in selenium are fish, shellfish, red meat, poultry, dairy products, and cereals.

The Recommended Daily Intake of selenium is 55 mcg per day, while for pregnant and lactating women it is 70 mcg per day.

Gene	Gene Function	rsID	Alleles	Outcome
SELENOP	**Selenoprotein**. Protein that plays a crucial role in the transport and metabolism of selenium.	rs3877899	T/T	Lower serum selenium levels.
			C/T	Lower serum selenium levels.
			C/C	Typical.

Zinc

Zinc is a mineral that is part of numerous enzymatic complexes and is necessary for the proper functioning of many hormones, including insulin, growth hormone, and sex hormones.

Zinc is present in various foods: fish and meat, grains, legumes, nuts, and seeds.

The Recommended Daily Intake is 11 mg per day for men, while for pregnant and lactating women it is 13 mg per day.

Gene	Gene Function	rsID	Alleles	Outcome
SLC30A8	**Zinc transporter 8**. Protein playing a crucial role in the regulation of zinc homeostasis within insulin-secreting pancreatic cells.	rs13266634	C/C	Lower zinc level, increased glucose levels in blood.
			C/T	Lower zinc level, increased glucose levels in blood.
			T/T	Typical

Carbohydrates metabolism

Carbohydrates metabolism is very important for overall health and wellbeing. Indeed, carbohydrates are ingested and absorbed as simple sugars from the intestine to the systemic circulation. Then, they arrive at organs such as the brain and muscles, where they are used or stored as energy sources. These processes are finely tuned by insulin, and hormone secreted by pancreas. Thus, carbohydrate metabolism and insulin levels can highly influence blood glucose levels, which in turn is crucial in human health.

The main sources of carbohydrates are grains, fruits, vegetables, legumes, dairies, sugar, and sweets.

Gene	Gene Function	rsID	Alleles	Outcome
ADIPOQ	**Adiponectin**. Hormone playing a role in insulin sensitivity and glucose metabolism	rs266729	G/G	Diminished hormone levels.
			C/G	Diminished hormone levels.
			C/C	Typical.
LEP	**Leptin**. Hormone produced by adipose tissue and involved in the regulation of energy balance and body weight.	rs2167270	A/A	Higher risk of obesity and insulin resistance.
			G/A	Higher risk of obesity and insulin resistance.
			G/G	Typical.
LEPR	**Leptin receptor**. It binds leptin and, in concert with it, regulates energy metabolism and body weight.	rs7799039	A/A	Increased risk of obesity.
			A/G	Increased risk of obesity.
			G/G	Typical.
KCNJ11	**Potassium Voltage-Gated Channel Subfamily J Member 11**. It plays a critical role in glucose-induced insulin secretion in pancreatic cells.	rs5219	T/T	Impaired glucose-induced insulin secretion in obesity; greater impairment of insulin release.
			C/T	Impaired glucose-induced insulin secretion in obesity.
			C/C	Typical.
AMY1A	**Alpha-Amylase 1A**. Protein involved in the first steps of digestion of carbohydrates in saliva.	rs11185098	A/A	Lower amylase activity. Bad at breaking down carbs.
			A/G	Intermediate amylase activity. Still good at breaking down carbs.

			G/G	Typical.
UCP2	**Uncoupling Protein 2**. Protein present in the mitochondria and involved in energy equilibrium.	rs659366	T/T	Increased risk of higher BMI and obesity.
			C/T	Increased risk of higher BMI and obesity.
			C/C	Typical.
UCP3	**Uncoupling Protein 3**. Protein present in the mitochondria and involved in energy equilibrium.	rs1800849	A/A	Lower glucose levels, better weight loss on high protein/low carb diet.
			A/G	Less weight loss, no decrease in glucose or insulin levels on high protein/low carb diet.
			G/G	Typical.
PPARG	**Peroxisome Proliferator-Activated Receptor Gamma**. Receptor that regulates fatty acid deposition and glucose metabolism.	rs1801282	G/G	Increased risk of insulin resistance.
			C/G	Increased risk of insulin resistance.
			C/C	Typical.
PYGM	**Glycogen Phosphorylase (muscle form)**. Enzyme involved in glycogen metabolism, a macromolecule that serves as storage for glucose.	rs116987552	A/A	Absence of the enzyme.
			G/A	Deficiency of the enzyme.
			G/G	Typical.

Lipids metabolism

Lipids are the energy reserves of animals and perform various functions, such as maintenance of body temperature, whilst being the key constituents of cell membranes and serving as chemical messengers. The human body requires various types of useful lipid fat to maintain the healthy functions of its parts. Balancing lipid levels in the blood is an important part of staying healthy. Augmented lipids easily deposit to the walls of blood vessels, and the growing fatty scale causes a health risk.

The main sources of lipids are oils, nuts and seeds, fatty fish, poultry and meat, eggs, dairy product, and avocado.

Gene	Gene Function	rsID	Alleles	Outcome
FADS1	**Fatty acid desaturase 1**. Enzyme involved in the desaturation of polyunsaturated fats.	rs174547	C/C	Decreased fatty acid desaturase enzyme activity.
			T/C	Decreased fatty acid desaturase enzyme activity.
			T/T	Typical.
FTO	**Fat mass and obesity-associated protein**. Protein involved in the control of body weight and energy metabolism.	rs1558902	A/A	Higher BMI, but not associated with obesity-related problems; high-protein diet works best for weight loss.
			A/T	Slightly increased risk of higher BMI.
			T/T	Typical.
APOA2	**Apolipoprotein A-II**. Component of lipoproteins, present in the blood and playing a crucial role in lipid transport in the body.	rs5082	G/G	Increased risk of obesity, especially with high saturated fat consumption.
			A/G	Typical risk of obesity with high fat intake.
			A/A	Typical.
APOA5	**Apolipoprotein A-V**. Component of lipoproteins, present in the blood and playing a crucial role in lipid transport in the body.	rs662799	G/G	32% increase in triglyceride levels.
			A/G	16% increase in triglyceride levels.
			A/A	Typical.

APOC3	**Apolipoprotein C-III**. Component of lipoproteins, present in the blood and playing a crucial role in lipid transport in the body.	rs5128	G/G	Higher fasting plasma levels of APOC3, TG, TC and LDL-C.
			C/G	Higher fasting plasma levels of APOC3, TG, TC and LDL-C.
			C/C	Typical.
LIPC	**Hepatic lipase**. Enzyme breaking down triglycerides and phospholipids present in high-density lipoproteins (HDL).	rs2070895	G/G	Significantly higher HDL-C level.
			G/A	Significantly higher levels of FPG, TC, TG.
			A/A	Significantly higher levels of FPG, TC, TG.
TFAP2B	**Transcription factor AP-2 beta**. Transcription factor regulating genes that control cell growth, differentiation, apoptosis (programmed cell death).	rs987237	A/A	High-protein diets are beneficial for weight maintenance.
			A/G	Typical.
			G/G	Typical.
PCSK9	**Proprotein convertase subtilisin/kexin type 9**. Enzyme playing a critical role in the regulation of cholesterol levels in the bloodstream.	rs11591147	T/T	Decreased LDL-cholesterol.
			G/T	Decreased LDL-cholesterol.
			G/G	Typical.
		rs72646508	T/T	Decreased LDL.
			C/T	Decreased LDL.
			C/C	Typical.
		rs505151	G/G	Increased LDL.
			A/G	Increased LDL.
			A/A	Typical.
LPL	**Lipoprotein lipase**. Enzyme playing a crucial role in the breakdown of triglycerides present in circulating lipoproteins.	rs328	G/G	Lower triglycerides.
			C/G	Lower triglycerides.
			C/C	Typical.
		rs268	G/G	Higher triglycerides.
			A/G	Higher triglycerides.
			A/A	Typical.
UCP1	**Uncoupling protein 1**. Protein playing a	rs1800592	C/C	Weak protein activity, higher risk of abdominal fat, obesity.

	significant role in thermogenesis, a process by which the body generates heat in response to cold environments or other stimuli.		C/T	Probably normal risk for obesity.
			T/T	Typical.
ELOVL2	**Fatty acid elongase 2**. Protein involved in the synthesis of very long polyunsaturated fatty acids (VLC-PUFAs), which have several critical roles in our body.	rs3734398	C/C	Higher levels of EPA and DPA, lower levels of DHA (i.e., decreased conversion of EPA to DHA).
			C/T	Higher levels of EPA and DPA, lower levels of DHA (i.e., decreased conversion of EPA to DHA).
			T/T	Typical.

Food allergies, sensitivities, and intolerances

Food allergies occur when the body's immune system reacts to certain proteins in food. Food allergic reactions vary in severity from mild symptoms, involving hives and lip swelling, to severe, life-threatening symptoms, often called anaphylaxis, that may involve fatal respiratory problems and shock.

Food sensitivities and intolerances are more common than food allergies and they are not related to the response of the immune system. In this case, a food triggers an adverse reaction in your body since you are totally or partially unable to digest or metabolizing it. Food sensitivities and intolerances can manifest in many ways, as they can involve different systems and organs. Common symptoms include gastrointestinal issues, headaches, migraines, skin problems, fatigue, joint pain, and mood changes.

Gene	Gene Function	rsID	Alleles	Outcome
LCT	**Lactase**. Enzyme which breaking down lactose, the main sugar in mammalian milk.	rs4988235	G/G	No longer produces lactase as an adult.
			A/G	Still produces lactase as an adult, but less than typical.
			A/A	Still produces lactase as an adult.
ADH1B	**Alcohol Dehydrogenase 1B**. Enzyme metabolizing alcohol (ethanol) in the liver and producing acetaldehyde.	rs2066702	A/A	Faster metabolism of alcohol to acetaldehyde, causing a build-up of acetaldehyde (more common in African populations).
			A/G	Faster metabolism of alcohol to acetaldehyde, causing a build-up of acetaldehyde, reduced risk of alcohol dependency (more common in African populations).
			G/G	Typical.
ALDH2	**Aldehyde Dehydrogenase 2**. Enzyme required for clearance of cellular acetaldehyde, a toxic byproduct of alcohol	rs671	A/A	Slower elimination of acetaldehyde; alcohol flush reaction; decreased alcohol consumption (on average).

	metabolism, and formaldehyde, a toxic byproduct of some metabolic process and environmental pollutant and environmental pollutant.		A/G	Alcohol flush reaction; slower elimination of acetaldehyde.
			G/G	Typical.
FLG	**Filaggrin**. Essential structural protein found in the outermost layer of the skin, called the stratum corneum. It plays a crucial role in maintaining the skin's barrier function and hydration.	rs61816761	A/A	Increased risk of allergies and nickel sensitivity. Increased risk of peanut allergy (5-fold). More likely to be allergic to grass pollen.
			A/G	Increased risk of allergies and nickel sensitivity. Increased risk of peanut allergy. More likely to be allergic to grass pollen.
			G/G	Typical.
HNMT	**Histamine N-methyltransferase**. Enzyme responsible of degrading histamine and in regulating the airway response to histamine.	rs11558538	T/T	Reduced enzyme activity; higher histamine levels.
			C/T	Somewhat reduced degradation of histamine.
			C/C	Typical.
HLA-DQA1	**Human Leukocyte Antigen-DQA1**. Part of a cell surface protein playing a crucial role in the immune system, by presenting antigens to helper T cells.	rs2187668	C/C	Typical.
			C/T	Gluten intolerance is possible.
			T/T	Gluten intolerance is possible.
		rs9271588	C/C	Higher risk of wheat allergy.
			C/T	Typical.
			T/T	Typical.
HLA-DQB1	**Human Leukocyte Antigen-DQB1**. Part of a cell surface protein playing a crucial role in the immune system,	rs9275596	C/C	Increased relative risk of peanut allergy (3-fold) for Caucasians.
			C/T	Increased relative risk of peanut allergy (1.7-fold) for Caucasians.

	by presenting antigens to helper T cells.		T/T	Typical.
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.	rs20541	A/A	Higher IgE levels; higher risk of allergies, allergic rhinitis; increased risk of dust mite and shrimp allergies.
			A/G	Higher IgE levels; higher risk of allergies, allergic rhinitis; increased risk of dust mite and shrimp allergies.
			G/G	Typical.
		rs1800925	C/T	Increase IgE levels; typical risk of shrimp allergy.
			T/T	Increase IgE levels; increased risk of shrimp allergy.
			C/C	Typical.
		rs1295686	C/T	Increased risk of food allergies; elevated plasma IgE.
			T/T	Increased risk of food allergies; elevated plasma IgE.
			C/C	Typical.
IL-18	**Interleukin 18**. Signaling protein playing a key role in the immune system and part of the interleukin family of cytokines. It is involved in epithelial barrier repair and immune responses.	rs917997	T/T	Slightly increased relative risk of gluten intolerance.
			C/T	Slightly increased relative risk of gluten intolerance.
			C/C	Typical.
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,	rs2243250	C/C	Increased risk of food allergies in conjunction with vitamin D deficiency (most common genotype in Caucasians).
			C/T	Increased risk of food allergies in conjunction

	hematopoiesis and inflammation, and immune responses.			with vitamin D deficiency.
			T/T	Food allergy risk not dependent on vitamin D levels (most common genotype in Asian and African populations).

Detoxification and antioxidation

Detoxification is a set of processes aimed at managing acute intoxication and withdrawal, which means cleansing the blood from toxins. The body eliminates toxins through the liver, kidneys, intestines, lungs, lymphatic system, and skin during a body detox. However, when these systems are compromised, impurities aren't properly filtered, and the body is adversely affected.

Antioxidation includes several processes that aim to protect cells and tissues from oxidative damage caused by free radicals, highly reactive and unstable molecules generated as byproducts of normal cellular metabolism or introduced from external sources such as pollution, cigarette smoke, and certain foods. When this mechanism is unbalanced, a condition called oxidative stress occurs, which has been linked to aging and various health conditions.

Gene	Gene Function	rsID	Alleles	Outcome
SOD2	**Superoxide Dismutase 2**. Enzyme found in the mitochondria. It is an important enzyme for reducing oxidative stress in cells.	rs4880	T/T	Enzyme activity 33% higher.
			C/T	Enzyme activity 33% higher.
			C/C	Typical.
AS3MT	**Arsenic (+3 oxidation state) methyltransferase**. Enzyme playing a crucial role in the metabolism of arsenic in the body.	rs3740393	C/C	Faster and more effective arsenic detoxification.
			C/G	Typical.
			G/G	Typical.
CYP1A2	**Cytochrome P450 1A2**. Enzyme member of the cytochrome P450 superfamily. It catalyzes many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids.	rs72547515	A/A	Decreased activity or inactive enzyme.
			A/G	Decreased activity of the enzyme.
			G/G	Typical.
		rs762551	A/A	Fast metabolizer of caffeine.
			A/C	Medium caffeine metabolizer.
			C/C	Slower caffeine metabolizer.
ADORA2A	**Adenosine A2a receptor**. Receptor protein activated	rs2298383	T/T	No increase in anxiety from caffeine (in average amount).

	by the binding of adenosine. It determines vasodilation, anti-inflammatory effect, neurotransmitter modulation, cardiovascular protection.		C/T	No increase in anxiety from caffeine (in average amount).
			C/C	Caffeine is more likely to make you anxious.

Physical activity

WHO defines physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditure”. Then it refers to all movements performed by a person, including *e.g.,* work, hobbies, walk or cycle to transport. Physical activity has been widely demonstrated to improve general health and well-being, with no exceptions: both moderate- and vigorous-intensity physical activity are good for you. Among other things, it allows for maintaining a healthy body weight, improves mental health, and aids in preventing noncommunicable diseases. There are various methods to stay physically active: walking, cycling, engaging in sports, participating in active recreation and play.

Gene	Gene Function	rsID	Alleles	Outcome
NGF	**Nerve Growth Factor**. Important protein involved in the development and survival of nerve cells (neurons), especially those that transmit pain, temperature, and touch sensations.	rs6330	C/C	More anxious females, less anxious males.
			T/C	Typical.
			T/T	More anxious males, less anxious females.
CNTF	**Ciliary Neurotrophic Factor**. Hormone promoting neurotransmitter synthesis and neurite outgrowth in certain neuronal populations.	rs1800169	A/A	Typical.
			A/G	Typical.
			G/G	Better response to chiropractic treatment.
GABPB1	**GA-binding protein transcription factor subunit beta-1**. Transcription factor regulating various genes involved in energy metabolism, cellular respiration, and other essential cellular processes.	rs7181866	G/G	Likely poor at endurance running.
			G/A	Intermediate phenotype
			A/A	Likely better at endurance running and better aerobic capacity.
PPARA	**Peroxisome Proliferator-Activated Receptor Alpha**. Transcription factor regulating the expression of	rs4253778	G/G	More likely to have better endurance; more slow twitch fibers; better aerobic capacity; higher oxygen pulse.

	various genes involved in lipid metabolism and energy homeostasis		G/C	Moderate power and endurance.
			C/C	More likely to have better power; more fast twitch fibers; lower aerobic capacity; lower oxygen pulse.
PPARGC1A	**Peroxisome Proliferator-Activated Receptor Gamma Coactivator 1 Alpha**. Transcriptional coactivator regulating the expression of genes involved in energy metabolism, mitochondrial biogenesis, and adaptive thermogenesis.	rs8192678	A/A	More likely to have lower level of PGC-1, lower mitochondrial biogenesis on aerobic training. Less likely to have increased insulin sensitivity on aerobic training. More likely to have decreased VO2 max and higher level of blood lactate. Poor Endurance.
			A/G	More likely to have moderate level of PGC-1 and moderate mitochondrial biogenesis.
			G/G	More likely to have higher level of PGC-1, higher mitochondrial biogenesis on aerobic training, increased insulin sensitivity on aerobic training. More likely to have normal VO2 max and lower level of blood lactate. Better Endurance.
EPAS1	**Endothelial PAS Domain Protein 1**. Transcription factor regulating genes involved in the formation of new blood vessels, the production of red blood cells, glucose metabolism, and cell proliferation and survival.	rs1867785	A/A	Variant rare in the sprint/power athletes.
			A/G	Intermediate phenotype.
			G/G	Typical.

AMPD1	**Adenosine Monophosphate Deaminase 1**. Enzyme found in the skeletal muscles and playing a crucial role for movement, producing energy.	rs17602729	A/A	Loss of enzyme function. Muscle soreness in exercise but may have a benefit on cardiovascular function.
			A/G	50% reduction in enzyme function. Muscle soreness in exercise but may have a benefit on cardiovascular function.
			G/G	Typical.
CNR1	**Cannabinoid Receptor 1**. Receptor regulating various physiological processes, including pain sensation, mood, appetite, memory, and immune response.	rs6454672	T/T	Greater tolerance for higher-intensity exercise.
			C/T	Typical.
			C/C	Typical.
AGT	**Angiotensinogen**. Protein crucial for maintaining blood pressure, fluid balance, and electrolyte homeostasis.	rs699	G/G	Risk of high blood pressure. More likely to be power athlete than endurance athlete.
			A/G	Slightly higher risk of high blood pressure. More geared toward power athletics.
			A/A	Typical.
ACTN3	**Actinin Alpha 3**. Structural protein that is expressed in fast, type II fibers, where it plays an important role in the generation of explosive and powerful muscle contractions.	rs1815739	C/C	Functioning protein. More fast, type II muscle fiber. Optimal for elite power athletes.
			C/T	Functioning protein. Optimal for elite power athletes.
			T/T	Non-functioning protein. More likely to be an endurance athlete than power athlete.
BDKRB2	**Bradykinin Receptor B2**. Receptor that relaxes and widens blood vessels, leading to increased blood	rs1799722	T/T	Probably better endurance performance, than power performance.

	flow and decreased blood pressure		C/T	Probably better endurance performance, than power performance.
			C/C	Typical.
MSTN	**Myostatin**. Protein involved in the control of growth and development of muscle tissues.	rs1805086	C/C	Greater muscle mass.
			C/T	Greater muscle mass.
			T/T	Normal muscle mass, better jumping ability.
VEGFA	**Vascular Endothelial Growth Factor A**. Signaling protein involved in the regulation of blood vessel formation and blood vessel permeability.	rs2010963	C/C	Higher protein levels. Higher improvements in VO2max seen with aerobic training.
			C/G	Higher protein levels. Higher improvements in VO2max seen with aerobic training.
			G/G	Lower protein levels. Lower improvements in VO2max seen with aerobic training.

Longevity

Longevity refers to the state or quality of having a long duration of life or existence. It is the ability to live for an extended period, often beyond the average lifespan for a given population or species. Longevity is a concept commonly associated with human beings, where it refers to living to an advanced age, typically beyond 80 years. Uncovering the secrets of human longevity and healthy aging remains a primary challenge in the fields of biology and medicine, since comprehending the interplay between lifestyle and environmental factors, and genetics is hard. However, studying the genetic behind exceptional individuals' longevity and healthy aging offers invaluable biological insights.

Gene	Gene Function	rsID	Alleles	Outcome
FOXO3	**Forkhead box protein O3**. Transcription factor regulating apoptosis and tumor suppression. It is also involved in nutrient sensing and the response to oxidative stress.	rs2802292	G/G	Increased odds of living longer (1.5-to-2.75-fold increased odds); lower blood glucose levels in women.
			G/T	Somewhat increased odds of living longer.
			T/T	Typical.
BPIFB4	**Bactericidal/permeability-increasing fold-containing family B member 4**. Protein involved in host defense and immune responses.	rs2070325	G/G	Variant observed in long-lived individuals. Better endothelial function. Less likely to be frail in old age.
			A/G	Typical.
			A/A	Typical.

Sleep and mood

Sleep and mood are closely connected: poor or inadequate sleep can cause irritability and stress, while healthy sleep can enhance well-being. Not only does sleep affect mood, but mood and mental states can also affect sleep. Sleep is essential to the human brain and is regulated by genetics with many features conserved across species. Sleep is also influenced by health and environmental factor: to identify replicable genetic variants contributing to sleep may require accounting for these factors.

Gene	Gene Function	rsID	Alleles	Outcome
GSK3B	**Glycogen Synthase Kinase 3 Beta**. Enzyme involved in glycogen metabolism, cellular division, proliferation, motility and survival.	rs334558	G/G	Increased risk for severe insomnia.
			A/G	Increased risk for severe insomnia.
			A/A	Typical.
ADA	**Adenosine Deaminase**. Enzyme that prevents the accumulation of adenosine, that can interfere with normal cellular functions.	rs73598374	T/T	Reduce clearance of adenosine. More deep sleep but may feel sleepy when waking up.
			C/T	Reduced clearance of adenosine. More deep sleep but may feel sleepy when waking up.
			C/C	Typical clearance of adenosine.

Choline

Choline (sometimes referred to as vitamin J) is a component of phospholipids, that make up the cell membrane, and the neurotransmitter acetylcholine, which is involved in numerous physiological processes, including muscle movement, autonomic nervous system functions, learning, memory, and attention. Moreover, choline is essential for muscle and liver health.

The main dietary sources of choline are egg yolks, meat, seafood, dairy products, legumes, nuts, and seeds. Anyway, choline is produced in low quantity by the body.

The Recommended Daily Intake of choline for adults is 550 mg per day for men.

Gene	Gene Function	rsID	Alleles	Outcome
PEMT	**Phosphatidylethanolamine N-methyltransferase**. Enzyme playing a crucial role in the biosynthesis of phosphatidylcholine, a critical component for membrane structure.	rs12325817	G/G	Increased risk of organ dysfunction with low choline diet; lower betaine levels with inadequate choline intake.
			C/G	Increased risk of organ dysfunction with low choline diet.
			C/C	Typical.
		rs7946	T/T	Decreased enzyme activity.
			C/T	Somewhat decreased enzyme activity.
			C/C	Typical.

Pain perception

Pain is a sensory and emotional experience that the body perceives when there is actual or potential tissue damage. While pain is an essential protection mechanism, the variations in pain perception among individuals make it so that for some individuals, it can become a problem, even disabling. Therefore, it is essential to recognize the individuality with which the sensation of pain manifests, which is likely to be due to a complex interplay among genitic, environmental and personal factors.

Gene	Gene Function	rsID	Alleles	Outcome
SCN9A	**Sodium voltage-gated channel alpha subunit 9**. Protein essential for the generation and propagation of electrical signals neurons and muscle cells.	rs6746030	A /A	Increased perception of pain.
			A /G	Somewhat increased perception of pain.
			G /G	Typical.
NTRK1	**Neurotrophic receptor tyrosine kinase 1**. Protein essential for the development and survival of neurons, especially those that transmit information about sensations such as pain, temperature, and touch.	rs6334	A/A	Increased pain perception during acupuncture.
			A/G	Somewhat increased pain perception during acupuncture.
			G/G	Typical.

Tyramine intolerance

Tyramine is a biogenic amine naturally found at trace levels in the human body. Symptoms related to tyramine intolerance are headaches, migraines, palpitations, fluctuations in blood pressure, sweating, and digestive disturbances. Reduced enzyme activity in just one gene is not likely to cause you a whole lot of problems with high tyramine foods, since there are multiple ways your body can break it down, but reduced activity in a couple of genes theoretically could cause problems with tyramine metabolism.

Tyramine-rich foods are typically fermented foods or foods close to spoiling. These include aged cheeses, cured meats, fermented products like sauerkraut and soy sauce, certain alcoholic beverages, and certain types of fruits (e.g., bananas, avocados, and figs).

Gene	Gene Function	rsID	Alleles	Outcome
MAOA	**Monoamine oxidase A**. Enzyme involved in the regulation of neurotransmitters (such as serotonin, norepinephrine, and dopamine), essential for maintaining normal mood, emotions, and cognitive functions.	rs6323	T/T	Reduced enzyme activity; possibly decreased tyramine metabolism.
			T/G	Somewhat reduced enzyme activity.
			G/G	Typical.
FMO3	**Flavin-containing monooxygenase 3**. Hepatic enzyme catalyzing the oxygenation of a wide variety of nitrogen- and sulfur-containing compounds, including drugs and dietary compounds.	rs1736557	A/A	Decreased enzyme function.
			A/G	Decreased enzyme function.
			G/G	Typical.
		rs3832024	-/-	Decreased enzyme function.
			-/TG	Decreased enzyme function.
			TG/TG	Typical enzyme function.
		rs61753344	T/T	Decreased enzyme function.
			G/T	Decreased enzyme function.
			G/G	Typical enzyme function.
CYP2D6	**Cytochrome P450 2D6**. Enzyme member of the cytochrome P450	rs3892097	T/T	Reduced enzyme function. Poor metabolizer.
			C/T	Typical.

	superfamily. It catalyzes many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids.		C/C	Extensive metabolizer.
		rs5030655	-/-	Enzyme deletion. Poor metabolizer.
			-/A	Intermediate metabolizer.
			A/A	Typical.
		rs28371706	G/G	Typical.
			A/G	Carrier of one decreased or non-functioning allele.
			A/A	Possibly decreased or non-functioning.

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:** The chromosome is the structure in which the DNA is organized in the nucleus of the cells. Humans have 23 pairs of chromosomes, with one copy coming from the mother and one copy from the father.
- **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 base pairs.
- **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.
- **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 present 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.
- **Mutation:** A mutation is a change or alteration in the DNA sequence of a gene. The main mutation types include base substitutions, deletions, or insertions.
- **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 health.
- **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 mutation in one of the nucleotide bases composing DNA and found in more than 1% of the population.

DISCLAIMERS

The final results obtained by the Low-Risk General Wellness Test have not been evaluated by the Food and Drug Administration, and they are not intended to diagnose, treat, cure, or prevent any disease.

All information regarding the DNA Wellness Test is provided in good faith. While we have made every attempt to ensure that the information contained in this DNA Wellness Test is accurate to the best of our knowledge, we are not responsible for any errors or omissions or for the results obtained from the use of this information.

Before taking any action based on the information provided by the DNA Wellness Test, we urge you to consult with appropriate professionals as it is not a substitute for professional medical advice. In any case, we are not liable if you receive inadequate or even dangerous advice or recommendations for your health from third parties.

Genetic test results can have psychological implications, so it's important to be prepared for potential emotional distress or anxiety related to learning about health risks.

The use, any losses and/or damages incurred because of the use of the DNA Wellness Test, and the reliance of any information contained in this DNA Wellness Test are solely the responsibility of the user.

Any testimonials regarding the DNA Wellness Test are personal and are not representative of all users. We do not claim, and you should not assume that all users have the same experiences.

We make every effort to ensure the highest standards, the analysis for the DNA Wellness Test is performed in a CLIA (Clinical Laboratory Improvement Amendments)-certified laboratory and have validated the process to the best of our abilities. The sensitivity and specificity of the DNA Wellness Test are computed and may be consulted at this link. As a result, different tests may yield partially different results, also due to technical details. We do not assume any responsibility if such events were to occur.

Polymorphisms, due to a phenomenon known as pleiotropy, can be associated with multiple characteristics. For the purposes of the DNA Wellness Test, the considered polymorphisms are analyzed solely from the perspective of general well-being and are never associated with diseases or clinical conditions. The absence of this information should not be considered an omission but rather a specific directive. Similarly, the interpreted significance of these analyzed polymorphisms may vary in other contexts, potentially leading to genetic discrimination. We are not responsible for any improper use of the information provided by the DNA Wellness Test.

Some analyzed variants may be interpreted differently in other contexts, potentially leading to genetic discrimination. We are not responsible for this.

The data collection and processing system is secure, and the DNA sample is discarded 180 days after the analysis. We are not liable for any data breaches resulting from cyber-attacks or rare events beyond the control of our standard security measures. If consent has been provided, the collected data, both genetic and non-genetic, may be used solely for the purpose of improving our test and conducting scientific research approved by the ethics committee. The information may be shared, in an anonymous and aggregated form, exclusively through publications in scientific journals or books, communications in medical courses/congresses, and theses as part of university and post-graduate training courses.

We make no warranty of any kind, expressed or implied, as to the accuracy, adequacy, validity, reliability, or completeness of the information regarding the DNA Wellness Test.

If you have any questions, concerns, or need support in understanding the test, please call our support team on +XXXXXXXXXX or email info@magisnat.com or visit our website www.magisnat.com.