Life Pediatric panel

First Name / Second Name

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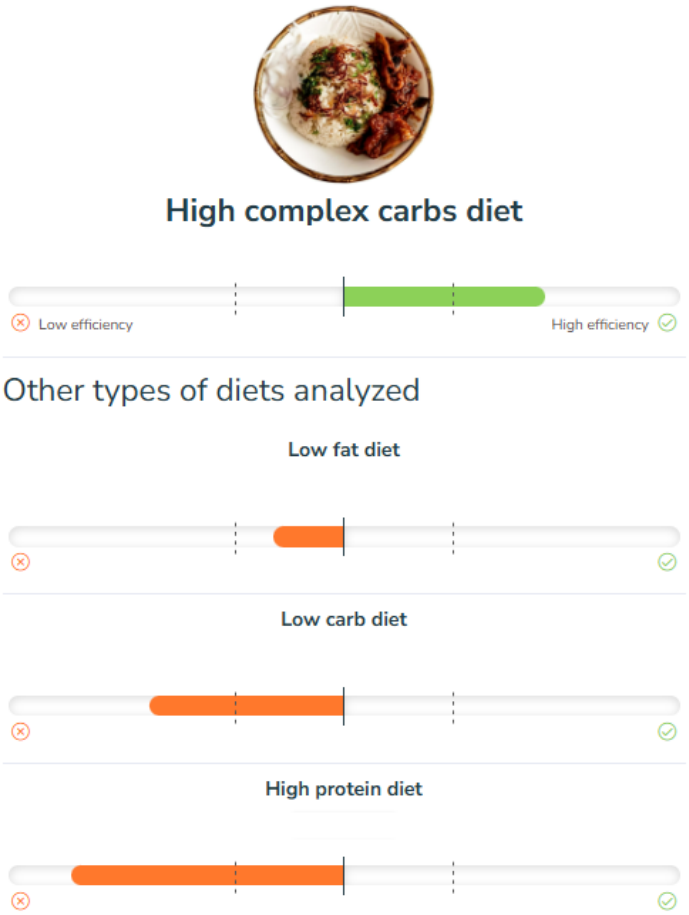
This report is based on genetic analyzes of genetic variants found in multiple SNPs associated with genetic predispositions.

Nutrition



- Complex carbohydrates, like simple carbohydrates, are transformed into glucose but more slowly due to their high fiber content.
- Complex carbohydrates have a low glycemic index causing a feeling of fullness, especially those foods that contain a greater amount of fiber. Due to their characteristics, they are especially recommended for diabetics and those who are on a diet and want to lose weight.
- Complex carbohydrates have the advantage of providing dietary fiber, which has been associated with the reduction of risk factors for some types of cancer, diabetes, hypertension and cardiovascular diseases. Likewise, they regulate intestinal motility, that is, they help to carry out digestion correctly, and favor the growth and activity of beneficial bacteria that inhabit the digestive tract. They are also high in vitamin B, iron and minerals.

- A healthy diet high in complex carbohydrates should be based on the consumption of whole grains, so at least half of the grains eaten daily should be whole grain.
- Base your diet on rice, pasta, whole grain, lentils, chickpeas, beans, wholemeal bread, potatoes
- Try to avoid sugar, fats and fried food
- Reduce intake of meat and fish
- As you have variants associated with a slightly high appetite, we suggest a fractioned and conscious diet: 5 meals a day, with 1 vegetable dish at main meals and 2 snacks rich in fiber that provide more satiety (wholemeal bread, nuts, fruit, vegetables, etc.). Follow a more or less stable meal schedule (to create a routine) and avoid watching TV or using your mobile phone, so that you are aware of the quantities you are eating.
- Your DNA contains genetic variants associated with fat burning (triglyceride breakdown) similar to the population average, but we suggest avoiding simple carbohydrate (sugars) intake and maintaining a balanced and varied diet with fiber intake, low saturated fat intake, and an increase in vegetables and legumes.
- We have found variants associated with an average metabolism linked to the generation of heat. You are fine, but don´t let your guard down and keep a healthy diet.

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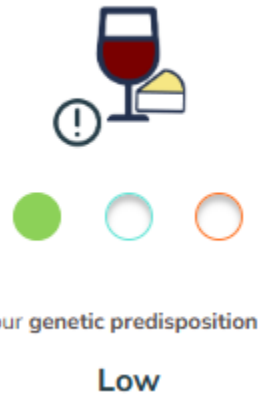
Food intolerances and allergies

1. Histamine Intolerance

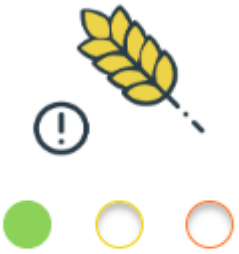


You present a risk copy for one or more genetic variants. You're probably not intolerant, but you produce a lower amount of enzymes responsible for breaking down histamine (DAO and HNMT). You may experience discomfort when consuming large amounts of foods high in histamine.

RSID	Chromosome and location	Genotype
rs11558538	2:138759649	CC
rs2052129	7:150548972	CC
rs10156191	7:150553605	CC
rs1049742	7:150554553	CC
rs1049793	7:150557665	CC

Reference: García-Martín E, Martínez C, Serrador M, Alonso-Navarro H, Ayuso P, Navacerrada F, Agúndez JA, Jiménez-Jiménez FJ. Diamine oxidase rs10156191 and rs2052129 variants are associated with the risk for migraine. Headache. 2015 Feb;55(2):276-86. doi: 10.1111/head.12493. Epub 2015 Jan 22. PMID: 25612138.

2. Gluten intolerance



Gluten intolerance (protein found in some cereals) is a chronic intestinal disease present in 1% of the population. Due to alteration of the mucosa of the proximal duodenum, it causes malabsorption along with other symptoms such as abdominal pain, diarrhea, fatigue and anemia.

Its cause depends on genetic and environmental factors. The major genetic contribution relay on the genes of the HLA-DQ region, to which in most cases, it is attributed the susceptibility to develop this intolerance.

Your results:

HLA-DQA1 01:02 01:02

HLA-DQB1 06:02 06:02

After analyzing ***HLA-DQA1*** **and** ***HLA-DQB1*** genes, we have not detected variants associated with celiac disease.

Your risk of developing celiac disease is 4 times lower than the average population.

Reference: Megiorni, F., Pizzuti, A. HLA-DQA1 and HLA-DQB1 in Celiac disease predisposition: practical implications of the HLA molecular typing. J Biomed Sci 19, 88 (2012). https://doi.org/10.1186/1423-0127-19-88

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3. Lactose intolerance

Your **genetic predisposition** is

High

RSID	Chromosome	Position	Risk alelle	Genotype
rs4988235	2	136608646	G	GG
rs182549	2	136616754	C	CC

Analyzed genes: MCM6

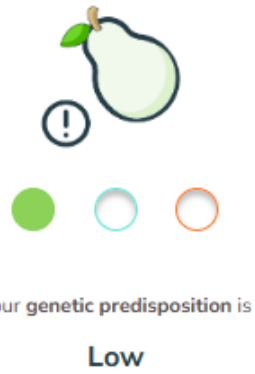
You present two risk copies. You are probably intolerant. The frequency of presenting two risk copies in European populations is around 30%. However, it is estimated that only 10% of Europeans are lactose intolerant.

Lactose intolerance occurs when the body does not produce enough lactase to digest lactose. When the gene that produces lactase is inactivated, the body is unable to break down lactose. As a result, the undigested lactose passes into the large intestine, where it is fermented by intestinal bacteria, causing uncomfortable symptoms such as bloating, abdominal pain and diarrhea.

It is a common condition affecting approximately 70% of the world's adult population with a very heterogeneous distribution. Lactose intolerance is low in European populations (about 10% of the population) and highly common in Asian populations (about 70%). This heterogeneity is hypothesized to be a product of natural selection and the development of livestock domestication.

Reference: Anguita-Ruiz A, Aguilera CM, Gil Á. Genetics of Lactose Intolerance: An Updated Review and Online Interactive World Maps of Phenotype and Genotype Frequencies. Nutrients. 2020 Sep 3;12(9):2689. doi: 10.3390/nu12092689. PMID: 32899182; PMCID: PMC7551416.

4. Fructose intolerance



RSID	Chromosome	Position	Risk alelle	Genotype
rs78340951	9	104184181	C	GG
rs76917243	9	104189780	T	GG
rs1800546	9	104189856	G	CC
rs387906225	9	104190770	D	II
rs118204428	9	104193160	A	GG

Analyzed genes: ALDOB

Your result: We have not detected variants associated with hereditary fructose intolerance. However, we would like to remind you that we have only analyzed the most prominent variants of the ALDOB gene.

People with HFI have difficulty breaking down fructose properly due to the absence or deficiency of the enzyme. As a result, unabsorbed fructose reaches the colon, where it is fermented by intestinal bacteria, leading to gas production and intestinal discomfort. The most common symptoms of HFI include abdominal pain and bloating, gas, diarrhea and general malaise.

Reference: Esposito G, Santamaria R, Vitagliano L, Ieno L, Viola A, Fiori L, Parenti G, Zancan L, Zagari A, Salvatore F. Six novel alleles identified in Italian hereditary fructose intolerance patients enlarge the mutation spectrum of the aldolase B gene. Hum Mutat. 2004 Dec;24(6):534. doi: 10.1002/humu.9290. PMID: 15532022.

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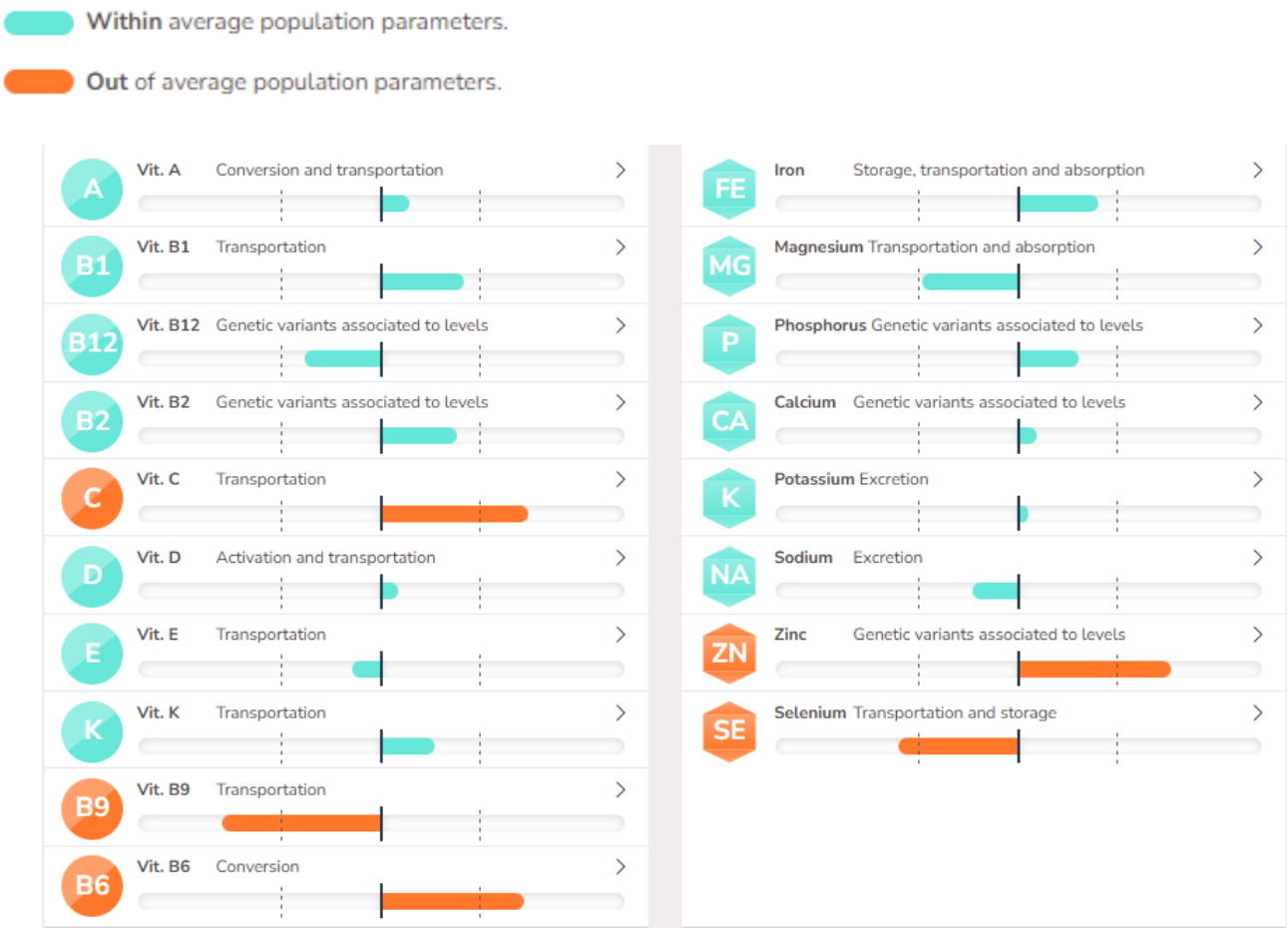
Vitamins and Minerals

*Genetics helps you understand your metabolic capacity, but **never determines your actual levels** as these depend on your lifestyle (can only be determined with a blood test).



- Regarding your results in the vitamins and minerals section, the following food products favorably complement your diet:

    - Red meat - Red meat will help you in your vitamin B9 and selenium levels. Especially the visceral part (liver and kidneys).
    - Mussels - They will increase your magnesium and vitamin B12.
    - Almonds - Easy to carry, easy to eat. Increase your levels of calcium and vitamin E with almonds.

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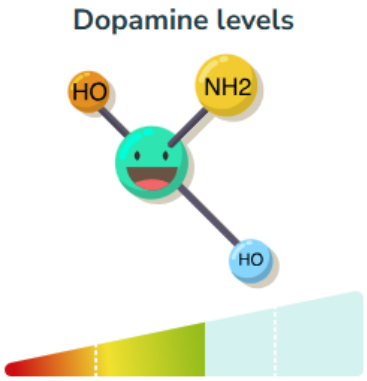
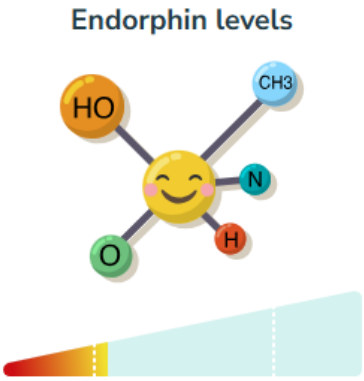
Hormones



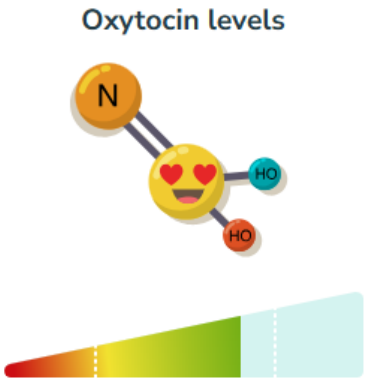
Average

Motivation hormone



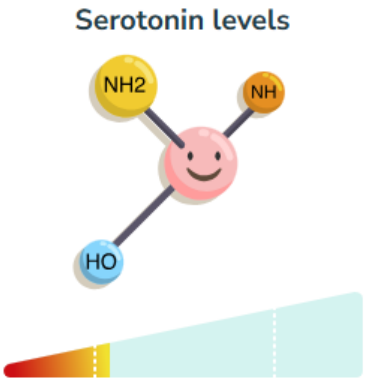
Average/Low

Pleasure and sport hormone



Average

Love or hug hormone



Average/Low

Hormone against depression

Dopamine

Dopamine is a neurotransmitter and a hormone. It communicates chemical messages between nerve cells in your brain or between your brain and the rest of your body. It plays an important role in many of your body's functions, including memory, motivation, learning, reward and movement.

Dopamine deficiency means having a low level of dopamine. Low dopamine levels are linked with certain health conditions like Parkinson's disease or depression. It may also make you more susceptible to taking risks or developing addictions.

Symptoms of dopamine deficiency (low dopamine levels) may include:

You lack motivation, "the drive."

You're tired.
You can't concentrate.
You're moody or anxious.
You don't feel pleasure from previously enjoyable experiences.
You're depressed; you feel hopeless.
You have a low sex drive.
You have trouble sleeping or have disturbed sleep.
Other symptoms of low dopamine levels include:

Hand tremors or other tremors at rest, loss of balance or coordination, increased muscle/limb stiffness, muscle cramps (symptoms of Parkinson's disease).
Restless legs syndrome.
Problems with short-term memory, managing daily tasks and solving simple thinking problems (symptoms of cognitive changes).
Problems with anger, low self-esteem, anxiety, forgetfulness, impulsiveness and lack of organizational skill (symptoms of attention deficit hyperactivity disorder).
Social withdrawal, reduced emotions, don't feel pleasure (negative symptoms of schizophrenia).
Gastrointestinal symptoms, including chronic constipation.

Treatment of dopamine deficiency depends on the underlying cause.

Parkinson's disease. Levodopa may be prescribed for Parkinson's disease. In some cases, dopamine agonists, such as pramipexole (Mirapex®), ropinirole (Requip®) or rotigotine (Neupro®) may be used.
Dopamine agonists work by mimicking dopamine, causing nerve cells to react in the same way.

Restless legs syndrome. This condition is also treated by the dopamine agonists pramipexole (Mirapex®), ropinirole (Requip®) or rotigotine (Neupro®).

Depression. Treatment of depression may include selective serotonin uptake inhibitors, such as fluoxetine (Prozac®), that affect both the neurotransmitters serotonin and dopamine to make them work.

Attention deficit hyperactivity disorder (ADHD). This condition can be treated with methylphenidate (Concerta®, Ritalin®), which increases dopamine activity.
If you think you have a low level of dopamine, see your healthcare provider. You may have a disease that's associated with dopamine deficiency that's treatable. If an illness can't be diagnosed, you may wish to try remedies that naturally increase dopamine. Keep in mind that further research is needed on the effects of food on neurotransmitters such as dopamine.

Eat a diet that's high in magnesium and tyrosine-rich foods. These are the building blocks of dopamine production. Tyrosine is an amino acid. It's absorbed in your body and then goes to your brain, where it's converted into dopamine. Foods known to increase dopamine include chicken,

almonds, apples, avocados, bananas, beets, chocolate, green leafy vegetables, green tea, lima beans, oatmeal, oranges, peas, sesame and pumpkin seeds, tomatoes, turmeric, watermelon and wheat germ.
Engage in activities that make you happy or feel relaxed. This is thought to increase dopamine levels. Some examples include exercise, meditation, yoga, massage, playing with a pet, walking in nature or reading a book.

Endorphin

Endorphins are chemicals (hormones) that your body releases when it feels pain or stress. They are released during pleasurable activities such as exercise, massage, eating and sex. Endorphins help relieve pain, reduce stress and improve your sense of well-being.

Endorphins are made in your pituitary gland and hypothalamus, which are located in the brain. Endorphins are a type of neurotransmitter or messenger in your body. They attach to your brain's reward centers (opioid receptors) and transmit signals throughout your nervous system.

Endorphin comes from the words "endogenous," meaning inside the body, and "morphine," an opiate pain reliever. Taken together, this means that endorphins are natural pain relievers. They are "feel good" chemicals because they can make you feel better and put you in a positive state of mind.

When endorphin levels are high, a person can experience feelings of euphoria, pleasure and reduced pain perception. They may also have increased energy, improved immune function, and reduced stress and anxiety.

Symptoms of endorphin deficiency include:

- Depression.
- Anxiety.
- Body aches and pains.
- Addiction.
- Sleep problems.
- Impulsive actions.

If you experience the following symptoms of endorphin deficiency, you should immediately contact your doctor:

- Depression.
- Fibromyalgia.
- Exercise addiction.
- Self-harm.

Serotonin

Serotonin, also known as 5-hydroxytryptamine (5-HT), is a monoamine neurotransmitter. It also acts as a hormone.

As a neurotransmitter, serotonin carries messages between nerve cells in your brain (your central nervous system) and throughout your body (your peripheral nervous system). These chemical messages tell your body how to work. Serotonin plays several roles in your body, including influencing learning, memory, happiness as well as regulating body temperature, sleep, sexual behavior and hunger. Lack of enough serotonin is thought to play a role in depression, anxiety, mania and other health conditions.

Most of the serotonin found in your body is in your gut (intestines). About 90% of serotonin is found in the cells lining your gastrointestinal tract. It's released into your blood circulation and absorbed by platelets. Only about 10% is produced in your brain.

Serotonin is made from the essential amino acid tryptophan. An essential amino acid means it can't be made by your body. It has to be obtained from the foods you eat.

Serotonin plays a role in many of your body's functions:

Mood: Serotonin in your brain regulates your mood. It's often called your body's natural "feel good" chemical. When serotonin is at normal levels, you feel more focused, emotionally stable, happier and calmer. Low levels of serotonin are associated with depression. Many medications used to treat anxiety, depression and other mood disorders often target ways to increase the level of serotonin in your brain.

Digestion: Most of your body's serotonin is in your GI tract where it helps control your bowel function and plays a role in protecting your gut. Your gut can increase serotonin release to speed digestion to rid your body of irritating foods or toxic products. Serotonin also plays a part in reducing your appetite while eating.

Nausea: Nausea is triggered when serotonin is released into your gut faster than it can be digested. The chemical message is received by your brain, which you perceive as nausea. Many drugs used to reduce feelings of nausea and vomiting target specific serotonin receptors in your brain.

Sleep: Serotonin, together with another neurotransmitter dopamine, plays a role in the quality of your sleep (how well and how long you sleep). Your brain also needs serotonin to make melatonin, a hormone that regulates your sleep-wake cycle.

Wound healing: Serotonin is released by platelets in your blood to help heal wounds. It also causes the tiniest blood vessels, arterioles, to narrow, which slows blood flow and helps clots to form. This is an important process in wound healing.

Bone health: Serotonin levels may play a role in the density of your bones. High levels of serotonin in your gut may play a role in making bones weak, which can lead to bone breaks (fractures) and osteoporosis.

Sexual health: Serotonin also plays a role — together with the neurotransmitter dopamine — in your desire for sex.

Low levels of serotonin may be associated with many health conditions including:

- Depression and other mood problems.
- Anxiety.
- Sleep problems.
- Digestive problems.
- Suicidal behavior.
- Obsessive-compulsive disorder.
- Post-traumatic stress disorder.
- Panic disorders.
- Schizophrenia.
- Phobias.

Oxytocin

Oxytocin is a natural hormone that manages key aspects of the female and male reproductive systems, including labor and delivery and lactation, as well as aspects of human behavior. Your hypothalamus makes oxytocin, but your posterior pituitary gland stores and releases it into your bloodstream.

Hormones are chemicals that coordinate different functions in your body by carrying messages through your blood to your organs, muscles and other tissues. These signals tell your body what to do and when to do it.

Your hypothalamus is the part of your brain that controls functions like blood pressure, heart rate, body temperature and digestion.

Your pituitary gland is a small, pea-sized endocrine gland located at the base of your brain below your hypothalamus.

The two main physical functions of oxytocin are to stimulate uterine contractions in labor and childbirth and to stimulate contractions of breast tissue to aid in lactation after childbirth.

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Oxytocin also acts as a chemical messenger in your brain and has an important role in many human behaviors and social interactions, including:

- Sexual arousal.
- Recognition.
- Trust.
- Romantic attachment.
- Parent-infant bonding.

The effects of oxytocin on your brain are complex. Scientists are currently researching the role of oxytocin in various conditions, including:

- Addiction.
- Anorexia.
- Anxiety.
- Autism spectrum disorder.
- Depression.
- Post-traumatic stress disorder (PTSD).

Low levels of oxytocin could stop uterine contractions during the birthing process and prevent milk ejection after giving birth. Although it's rare, the most common cause of lower-than-normal oxytocin levels is panhypopituitarism, a condition in which all the levels of hormones your pituitary gland releases are below normal.

Low oxytocin levels have been linked to autism spectrum disorder and depressive symptoms. Scientists are still researching the connection between oxytocin and these conditions, and the potential of using synthetic oxytocin as a treatment.

Mental health

Autism panel

Autism spectrum disorder is a highly heritable and heterogeneous group of neurodevelopmental unikphenotypes diagnosed in more than 1% of children. Common genetic variants contribute significantly to susceptibility to autism, but to date no single variant has been strongly linked to the development of autism.

Environmental factors and lifestyle have between 4 and 5 times more impact than genetics on the development of this disease. In case of doubt, please consult your doctor.

Analyzed genes: C8orf74, SOX7, PINX1, KMT2E, SRPK2, MROH5, CADPS, MACROD2, Intergenic, KIZ, XRN2, NKX2-2, NKX2-4

Reference: Nat Genet. 2019 Mar;51(3):431-444. doi: 10.1038/s41588-019-0344-8. Epub 2019 Feb 25.
Identification of common genetic risk variants for autism spectrum disorder

RSID	Chromosome and location	Genotype
rs2391769	1:96978961	AG
rs6701243	1:99092784	AC
rs11185408	1:104792257	GG
rs6692705	1:193502609	GA
rs148587110	3:20641966	TT
rs1452075	3:62481063	CT
rs79940520	3:191838169	AA
rs4916723	5:87854395	CC
rs2635182	5:92255166	TT
rs325485	5:103995368	AA
rs13188074	5:113801423	GG
rs34509057	5:153601262	GG
rs210894	6:11731999	TT

rs12203328	6:23767038	GC
rs740883	6:29575405	AT
rs72934503	6:98583488	AG
rs111931861	7:104744219	AA
rs10099100	8:10576775	GG
rs183563276	8:48036474	AA
rs10110094	8:131472047	GA
rs11787216	8:142615222	CT
rs45595836	10:16691399	CC
rs113764414	10:64649396	AA
rs141319505	10:65421442	AA
rs117603308	11:106827977	CC
rs77691144	13:66970212	TT
rs112635299	14:94838142	GG
rs12942300	17:43859405	TT
rs141455452	17:44019083	TG
rs143609523	18:33265230	AA
rs292441	18:55872558	AA
rs138867053	19:37439641	GG
rs6047270	20:21122212	CT
rs910805	20:21248116	AG

Symptomatology: Autistic behavior, poor eye contact, aggressive behavior, intellectual disability, stereotypy, hypomimic face, delayed speech and language development, head-banging, abnormality of coordination, clumsiness, behavioral abnormality, absent speech, self-injurious behavior, pain.

ADHD Panel

Neurodevelopmental mental disorder. It is characterized by difficulty paying attention, excessive activity, and acting out regardless of consequences, which are otherwise inappropriate for the person's age.

Analysed genes: SORCS3, DUSP6, RNF219-AS1,CADPS2, PTPRF, intergenic, SGO1-AS1, LINC00461, SGO1-AS1, FOXP2, LINC01288, SPAG16

Reference: Nat Genet. 2019 Jan;51(1):63-75. doi: 10.1038/s41588-018-0269-7. Epub 2018 Nov 26.

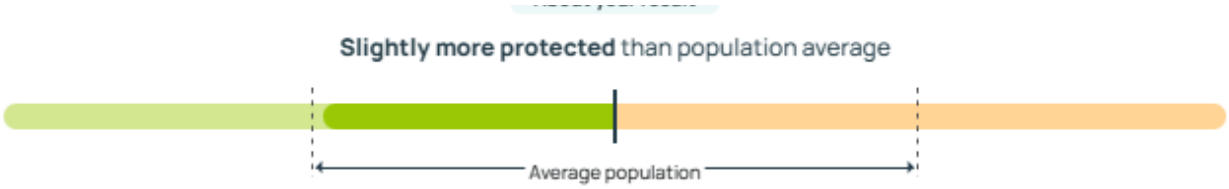
Discovery of the first genome-wide significant risk loci for attention deficit/hyperactivity disorder

RSID	Chromosome and location	Genotype
rs3001723	1:44037685	GG
rs2391769	1:96978961	AG
rs9677504	2:215181889	GG
rs4858241	3:20669071	TT
rs56135409	3:20725016	AA
rs4916723	5:87854395	CC
rs1592757	5:103889998	CC
rs28452470	7:121957582	TT
rs74760947	8:34352610	AA
rs10956838	8:93404442	AC
rs11591402	10:106747354	TT
rs4275621	11:28652996	AA
rs1427829	12:89760744	AA
rs2243517	13:78904797	CT

Symptomatology: Low frustration tolerance, impulsivity, hyperactivity, restlessness, mood swings, vomiting.

Panel: Reading disability or specific language impairment

Reading disability or Specific language impairment (SLI) is diagnosed when a child's language does not develop normally and the difficulties cannot be accounted for by generally slow development, physical abnormality of the speech apparatus, autism spectrum disorder, etc. More commonly it results from the combined influence of multiple genetic variants, each of which is found in the general population, as well as environmental influences.



Analysed genes: TRIAP1, SFRS9, GATC, DYNLL1, COX6A1, STK24, intergenic, FLNC, CCDC136, OPN1SW, CALU, ATP6V1F, RBFOX2, Intergenic, ZFP64

Reference: Genes Brain Behav. 2014 Sep;13(7):686-701. doi: 10.1111/gbb.12158. Epub 2014 Aug 29.

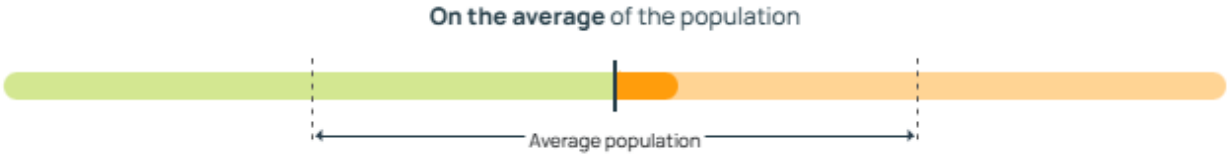
Genome-wide screening for DNA variants associated with reading and language traits

RSID	Chromosome and position	Genotype
rs10774547	12:120862716	TT
rs141994868	13:99222422	CC
rs28655387	16:72259192	TT
rs13384469	2:7649521	GG
rs6737417	2:222213043	GA
rs72626581	20:50783449	TT
rs5995177	22:36309553	AG
rs59197085	7:128460756	GA

Symptomatology: Symptoms in children: taking longer to put words together in sentences than other children of the same age, having difficulty learning new words and conversing, having difficulty following instructions due to misunderstanding the words that are said to them and frequently make grammatical errors when speaking

Panel: Epilepsy

A disorder of the central nervous (neurological) system in which brain activity becomes abnormal, causing seizures or periods of unusual behaviors or sensations, and sometimes loss of consciousness.



Analysed genes: PCDH7, GOLIM4, SCN1A, MMP8, PCDH7, VRK2, FANCL, GABRA2, intergenic, SCN1A

Reference: Lancet Neurol. 2014 Sep;13(9):893-903. doi: 10.1016/S1474-4422(14)70171-1. Epub 2014 Jul 30. **Genetic determinants of common epilepsies: a meta-analysis of genome-wide association studies**

RSID	Chromosome and position	Genotype
rs1939012	11:102595135	CC
rs2947349	2:58059803	AA
rs12987787	2:166858391	CT
rs6732655	2:166895066	TT
rs111577701	3:167861408	CC
rs1044352	4:31147874	TT
rs28498976	4:31151357	AA
rs535066	4:46240287	GT
rs55670112	5:114268470	AC

Symptomatology: Loss of consciousness, seizures, stereotypy, abnormality of brain morphology, involuntary movements, dysphagia, narcolepsy, confusion, vertigo, paraesthesia, migraine, anxiety, deja vu, eyelid fasciculation, rigidity, urinary incontinence, muscle fibrillation, tachycardia, syncope, hearing impairment, stroke, neoplasia, EEG abnormality, abnormal lung morphology.

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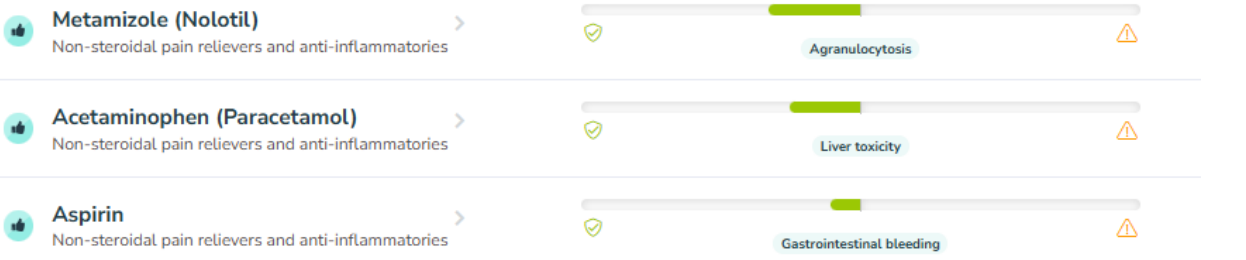
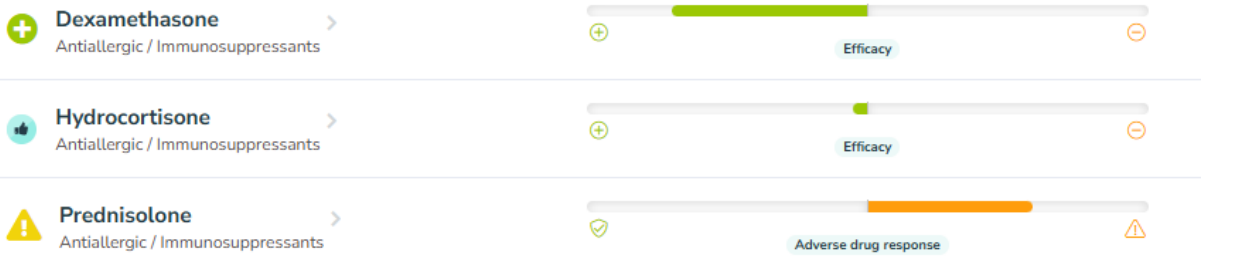
Pharmacogenetic (Basic panel)

Non-steroidal pain relievers and anti-inflammatories

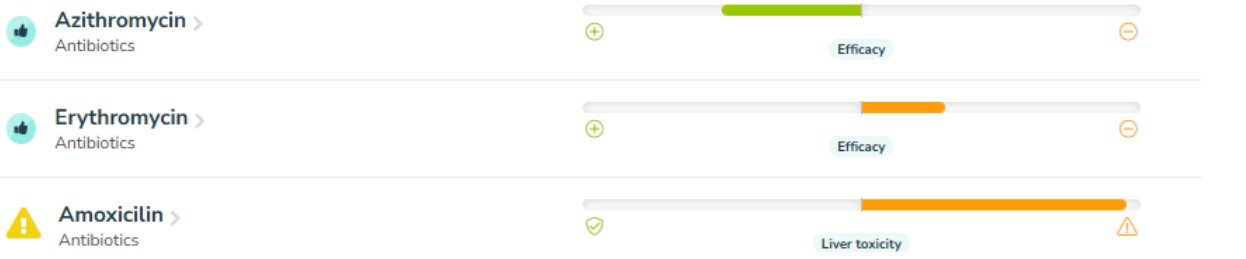


Opioid pain relievers

Antiallergic / Immunosuppressants



Antibiotics

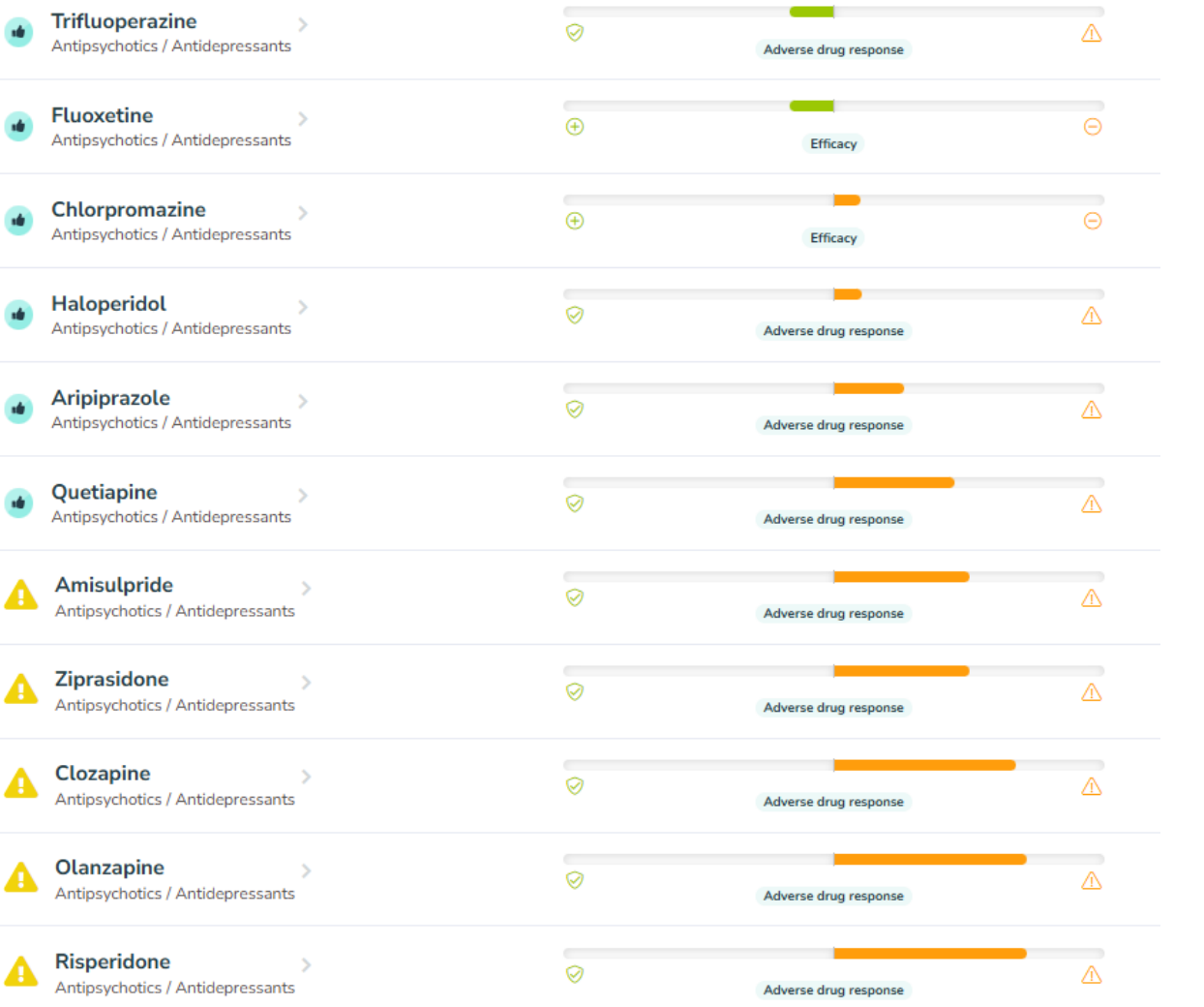


Antifungals

Antivirals

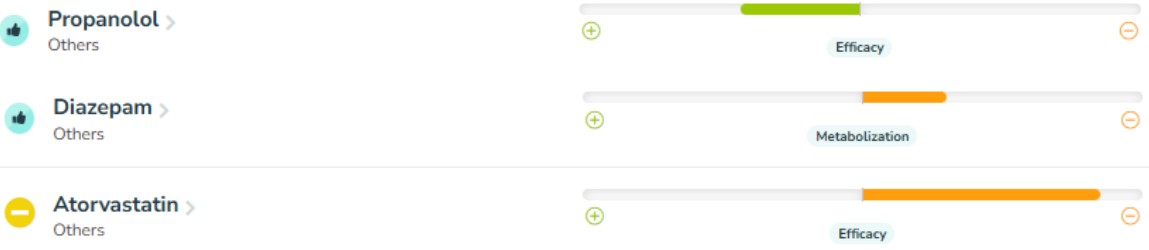
G-Life
www.g-life.care
e-mail:contact@g-life.care

Psychotherapeutic / Antidepressant



Antiasthmatics

Others



Methodology

The laboratory sample for this client was analyzed by mircoarray technology. Genomic DNA is extracted from the submitted sample and amplified by polymerase chain reaction (PCR). The polymorphisms in this report were targeted with oligonucleotide primers. Single nucleotide polymorphisms are determined by fluorophore-based detection of doubly labeled probes hybridized to complementary target sequences. These analyzes detect only those single nucleotide polymorphisms that are included in this report.

Restrictions

This test does not detect polymorphisms other than those listed in the report. Polymorphisms not covered by this series of analyzes may also include mutations that predispose to some of the disorders discussed in this report. The absence of a genetic variant or polymorphism does not imply that the tested individual has no chance of developing any of the conditions discussed in this report. In very rare situations, primer polymorphisms at the binding sites of the probe primers may also affect the result. This test does not include non-genetic factors that may also contribute to a predisposition to developing some of the conditions analyzed in this report. This test should not be used as sole diagnostic evidence. Genetic screening is not a substitute for regular clinical examinations for any condition mentioned in this report.

Sample processing:

Sample processed by Dynamic DNA Laboratories, LLC, 2144 East Republic Road, B204, Springfield, MO 65804. Phone: (417) 319-1047, Fax: (417) 319-7142, Laboratory Director: Elaine Allgood, MD, CLIA/ CAP: 26D2106631/9449559, https://dynamicdnalabs.com/.

Data communication between Dynamic DNA laboratories and G-Life Lab takes place anonymously, without personal data and through a secure HIPAA-compliant portal in accordance with GDPR protocols.

The overall bioinformatic processing of the obtained data was carried out in G-Life Lab using software tools GeneAI, GlassAI, Franklin Genoox.