



Gluten Sensor

Jane Doe
DEMO_DS



Dear Ms. Doe,

Your sample for the analysis arrived on in the laboratory and was evaluated according to the highest laboratory quality standards. The results were evaluated and released by two independent geneticists and molecular biologists. After obtaining the results, your personal report was compiled. We hereby convey the results to you in the format of your choice.

We would like to thank you for your trust and hope that you are satisfied with our service. We are always open to questions and suggestions. Please do not hesitate to contact us. We value your feedback. This is the only way we can continuously improve our services.

We hope the analysis meets your expectations.

Kind regards,

Dr. Daniel Wallerstorfer BSc.
Laboratory Director

Florian Schneebauer, MSc.
Laboratory Manager

Gluten Sensor

Personal analysis results for:
Jane Doe | Date of birth: 01/01/1990

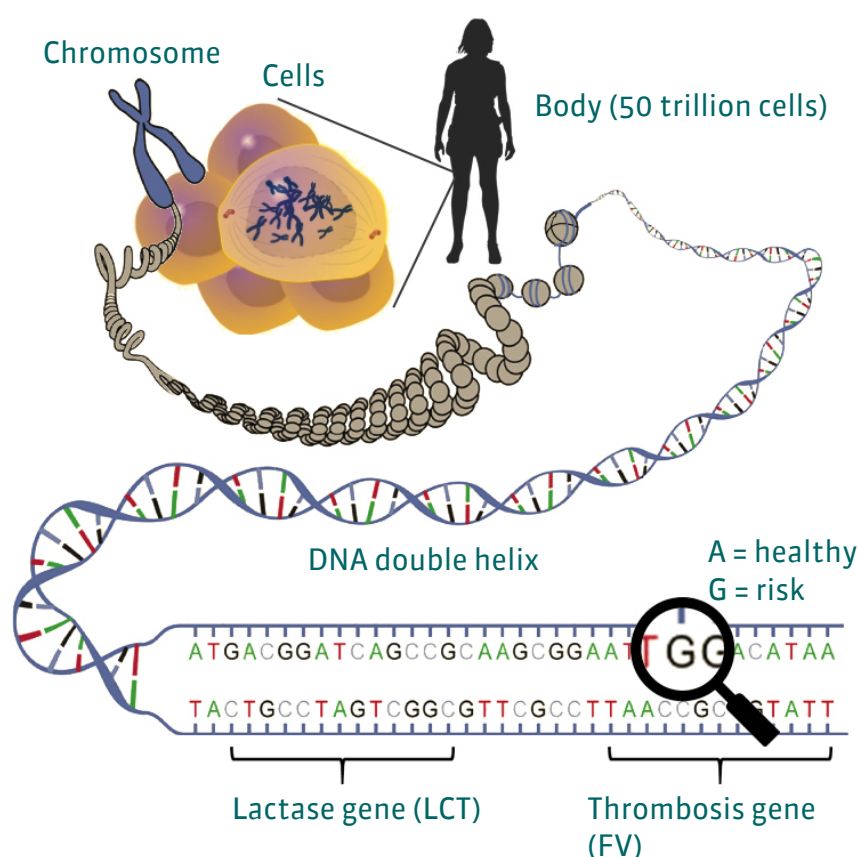
Order number:
DEMO_DS

This report contains personal medical information that is highly confidential. Data protection must be ensured.



How genes influence our health

The human body consists of about 50 trillion individual cells. Most of these cells have a nucleus, which contains 46 chromosomes. A chromosome consists of a very closely wound thread, the DNA "double helix."



DNA, the genetic code, is the blueprint of the human body. This genetic code consists of approximately 3.1 billion molecules, which are each represented by a letter. About 1% of this code makes up the genes. Each gene is an instruction for the body, usually with a single function. For example, some genes tell the body how to colour the iris and differences in these genes produce different eye colors. Every function of the body is controlled by one or more genes, including the way we break down food or medication.

Our genes are not completely error-free. The genes of each person are altered slightly by environmental effects. Most of these changes have no effect but a small number have a harmful effect. An even tinier number can produce a beneficial effect. Parents pass these changes, including defects, to their children. Thus most of our genetic defects are inherited from our parents.

In addition, our genes evolved to help us live in a completely different world, and some of our genetic traits can interact with our modern environment to create negative effects on the body. For example, the genetic predisposition to store dietary fat quickly and lose it slowly is beneficial for people who go through times when food is scarce: they have a better chance of surviving because their bodies use fat efficiently and store it for later. However, in the modern world, this trait is harmful because it programs the body to gain weight quickly and lose weight

slowly. Genes increase our risk of heart attacks, trigger asthma and allergies, cause lactose intolerance, and many other disorders.

Genetic traits can affect our health. While some genetic defects cause disease in all cases, most genetic traits just increase our risk of developing a disease. For example, a person may have genes that increase their risk for diabetes. However, not everyone at risk for diabetes actually develops the disease. Furthermore, even people with a high risk of diabetes can lower their risk with the right diet and exercise plan. Other genetic traits only cause illness when they are triggered by a specific environmental feature. For example, lactose intolerance is a genetic condition that causes a person who drinks milk to have digestive issues. A lactose-intolerant person who never drinks milk will not have any symptoms.

Thanks to the latest technologies, it is now possible to test specific genes to determine if you have genetic traits that are linked to various diseases. Based on the results of the analysis, we can develop a prevention program that significantly reduces your personal disease risk and helps you stay healthy.

A healthy lifestyle will decrease your risk of many diseases whether or not you have specific information about your genetic traits. However, we provide you with additional information that may point out other changes to your lifestyle that are not part of the standard medical advice. There are many examples, but one of the traits we test for is a gene that increases your body's ability to absorb iron. If you have this trait, you must not take iron supplements as the iron would accumulate and cause a life-threatening disease called haemochromatosis.

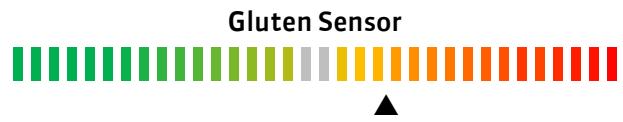
Experts estimate that every person carries about 2,000 genetic defects, which may affect their health, and in some cases, cause illnesses. A variety of factors can cause changes in our genes (also called mutations). In a few cases, these mutations can benefit us. However, the vast majority either have no effect or have a negative impact on our health. The best-known cause of mutations is radioactivity. Radioactive rays and particles actually impact the DNA in our cells and physically alter our genes. They mostly go unnoticed or cause deadly diseases, such as cancer, or congenital abnormality in newborns. Mutations are also caused by substances in burned food. The substances enter the cells and damage our genes, which can lead to colon cancer, among other forms of cancer. UV radiation from the sun can also damage our genes and cause diseases, such as skin cancer.

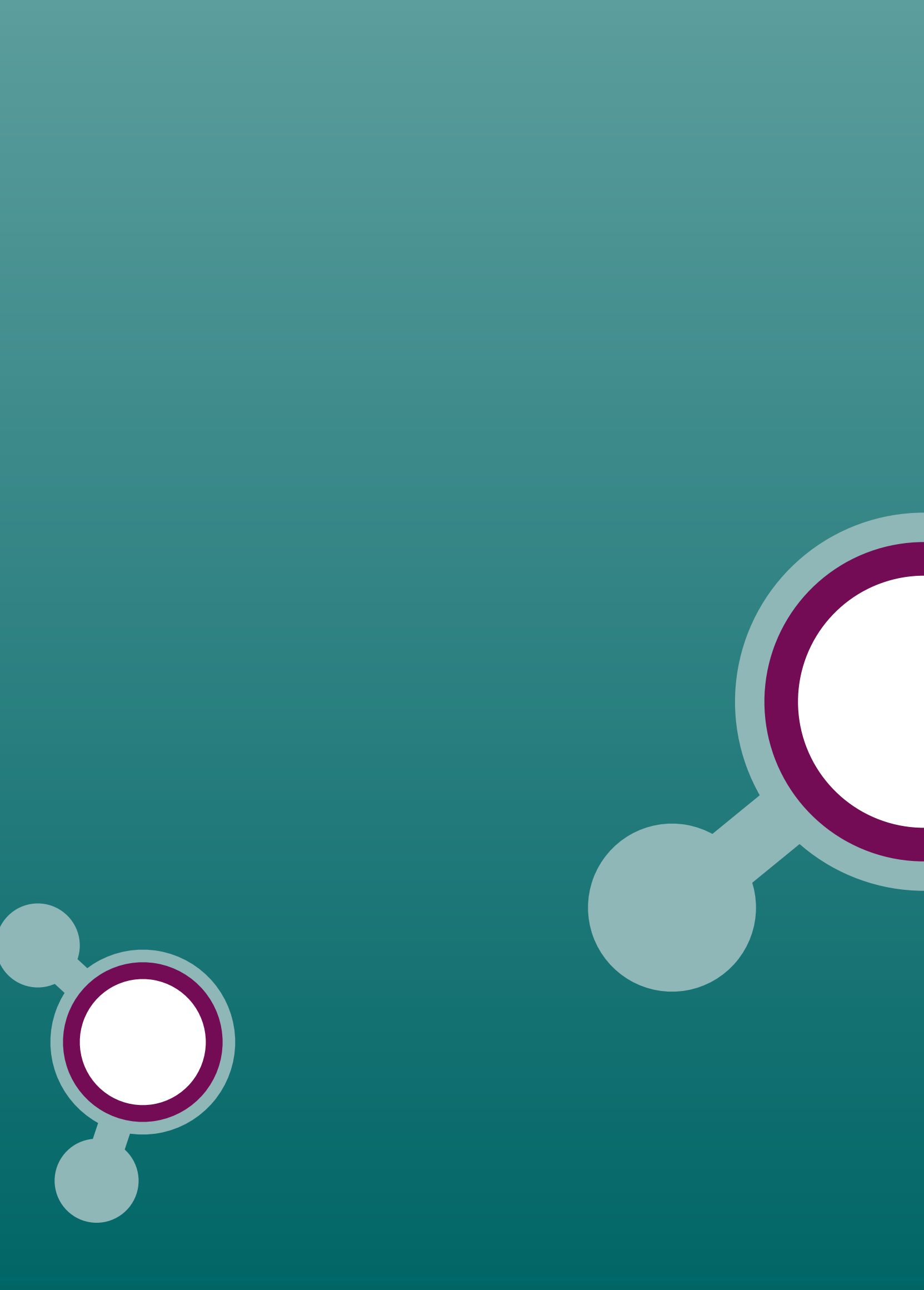
External influences can affect individual genes and disrupt their function, but the majority of our defective genes are inherited from our parents. Each embryo receives half of its genes from the father and half from the mother, resulting in a new human being with some characteristics of each parent. Whether a genetic defect is passed on, is determined randomly, and it may be that some of the children carry the defective gene and others do not.

Each person is the unique product of generations of accumulation and combination of different genetic traits. Some of those traits have negative effects on our health. With the latest technology, it is now finally possible to examine genes and determine personal health risks and strengths. In many cases, taking advantage of this knowledge, and following some precautionary measures, the diseases may be prevented. This is the next step in preventive medicine and a new generation of health care.

Action index

Discuss risks marked in orange or red with your doctor. All other results do not require any further attention assuming there are no current medical conditions.







PHARMACO GENETICS

Not ordered

ONCOLOGY

Not ordered

CARDIOVASCULAR SYSTEM

Not ordered

NEUROLOGY

Not ordered

METABOLISM

Not ordered

MOVEMENT

Not ordered

DIGESTION

OPHTHALMOLOGY

Not ordered

ODONTOLOGY

Not ordered

OTHERS

Not ordered

SCIENCE

ADDITIONAL INFORMATION



Gluten Sensor

Early detection and nutritional adjustments



Gluten intolerance

Gluten intolerance, also known as celiac disease, is a widespread food intolerance that affects approximately 1 in 120 humans. While a person can develop gluten intolerance at any age, it is especially prevalent in two stages of life: when an infant is introduced to solid food or between 30-40 years of age. Women are affected more frequently than men.

Gluten is a protein found in many foods. In some people, gluten triggers an immune response in the intestine that attempts to fight gluten as if it were a bacterial infection. 95% of gluten intolerance cases are caused by a hereditary trait in two specific genes that are involved in regulating the immune system. The body's response to gluten usually leads to a chronic condition causing damage to the small intestine and a variety of other symptoms including diarrhoea, loss of appetite and weight loss. If untreated, it can eventually cause malnutrition, fatigue and occasional vomiting. For infants and toddlers, these can cause growth disorders. The symptoms of gluten intolerance are so varied, therefore it is difficult to diagnose and it can go unrecognized for many years. At the same time, some people believe that they are intolerant to gluten when they are actually suffering from other conditions. A genetic test will help you and your doctor determine if you are gluten-intolerant.

Gluten intolerance is often accompanied by other conditions, including type 1 diabetes, anaemia and osteoporosis. Other conditions, such as lactose intolerance can develop. If a gluten-intolerant person continues to consume gluten over a period of years, it can cause serious damage to the intestine. In the worst case, untreated gluten intolerance can cause tumours in different parts of the body. The mortality rate for untreated gluten intolerance is 12%. This risk can generally be eliminated with proper treatment and

adjustment to the diet. Damage to intestinal villi prevents the body from absorbing essential nutrients, which can result in vitamin and mineral deficiencies. For this reason, it is important that affected individuals adhere to a balanced, gluten-free diet and take necessary dietary supplements.

There is currently no cure for gluten intolerance and the treatment consists of a lifelong gluten-free diet. Proper treatment usually leads to the regeneration of the intestinal mucosa and complete disappearance of symptoms. Affected individuals must familiarize themselves with the list of foods containing gluten, and also check ingredient lists on food packaging. In rare cases, when the affected person does not respond well to the diet, other medical treatment is possible. Even though gluten intolerance is fairly common, it is often misdiagnosed as a common digestive disorder because its symptoms are so variable. This gene test is a valuable tool for helping you to determine your risk for gluten intolerance. If you have elevated risk, you can adjust your diet accordingly to avoid further discomfort and prevent harmful secondary conditions.



The genetics of gluten intolerance

The development of gluten intolerance is largely dependent on the presence of certain polymorphisms. The analysis of these polymorphisms shows the following:

Genetic traits			
SYMBOL	rs NCBI	POLYMORPH	GENOTYPE
HLA DQ2.5	rs2187668	HLA DQ2.5	G/G
HLA DQ8	rs7454108	HLA DQ8	T/C

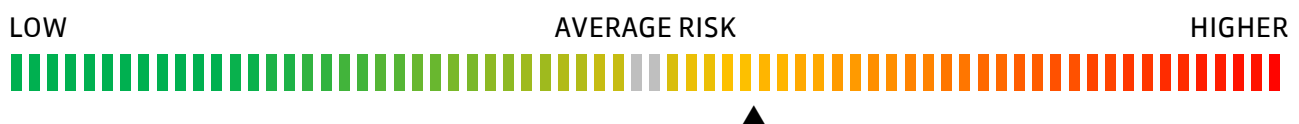
LEGEND: rsNCBI = description of examined genetic variation, POLYMORPHISM = form of the genetic variation, GENOTYPE = personal analysis result

Summary of effects

Gluten intolerance only occurs in people who have specific genes. People who do not have the genetic trait associated with gluten intolerance have virtually no risk of developing it. However, many people with the gluten intolerance gene never actually develop the disease. Even if you are at risk for gluten intolerance, there is a good chance that you will never actually develop it. However, you should pay close attention to your body so you can recognize symptoms early and prevent organ damage by adopting the right diet. Here you can see a summary of the influence your genetic variations have on your health:

- Your genetic profile contains genes associated with gluten intolerance
- You have an elevated risk of gluten intolerance

Risk of gluten intolerance





Nutritional Genes - Cereal



Your nutrition is very important. Based on your genes and their associated strengths and weaknesses you should increase or decrease certain foods and nutrients. These recommendations are calculated based on your genetic profile.

Your personalized recommendations based on this section:

- β-Carotene
- Fibre
- EPA
- Gluten
- Iron
- Calcium

- Copper
- Lactose
- Manganese
- DHA
- Selenium
- Unsat. Fat

- Vit B2
- Vitamin C
- Vitamin D3
- Vitamin E
- Vit. B6/B12
- Zinc

Legend: GREEN ARROWS > this nutrient or substance is classed as healthy for your genetic profile. Try to increase the intake of this substance. RED ARROWS > this substance is classed as unhealthy for your genetic profile. Try to reduce your intake of the substance. NO ARROWS > There is no effect of the nutrient on the genetics of this section. PLEASE NOTE! This interpretation only considers your genetic profile of this section.



Prevention

As a result of your genetic analysis, we determined that you have an increased risk of gluten intolerance. If you experience symptoms of gluten intolerance, a gluten-free diet would be advisable. However, keep in mind that your genetic profile does not necessarily cause gluten intolerance. Many people who share your genetic traits consume gluten without any ill effects.

Therefore, it is advisable that you pay attention to see if foods with gluten trigger symptoms. If so, you can correct this and eliminate the symptoms by following a gluten-free diet. A controlled diet can also restore the normal condition of the small intestine even if it has already been damaged, and helps you avoid further complications. If you are gluten intolerant, you should learn about foods that contain gluten and then reduce or, if possible, completely eliminate gluten from your diet. The types and severity of symptoms of gluten intolerance are different from person to person, and mostly depend on how much damage was already caused to the small intestine. Some people are affected by very low gluten levels and must follow a gluten-free diet for their whole lives. It is especially important for them to be familiar with a detailed list of foods containing gluten. In most cases, symptoms will resolve quickly and not recur once gluten is eliminated from the diet. However, if the diet has no effect then the patient must undergo medical treatment. It is especially important to seek treatment to ensure that the symptoms are not caused by another disease. Furthermore, when the small intestine is irritated by gluten, it cannot absorb essential nutrients such as vitamins and minerals. A person with gluten intolerance must take additional measures to ensure that their body has enough vitamins and minerals (in the form of a balanced gluten-free diet or through supplements). Gluten intolerance may lead to lactose intolerance, in which case the patient should avoid milk and dairy products, as well. By following a gluten-free diet, it is possible for the intestine to recover enough to digest milk and dairy products in the future. If you suspect you suffer from gluten intolerance, you should double check with a doctor. Celiac disease can be diagnosed by examining the colon and performing a blood test for specific antibodies. Speak with your doctor as soon as the first symptoms appear.

Typical symptoms of gluten intolerance are:

- Diarrhoea or abnormal stools
- Flatulence
- Malaise, fatigue and abdominal cramps
- Iron deficiency anaemia leading to muscle and joint pain
- Occasional vomiting
- Loss of appetite and weight loss, possibly leading to malnutrition
- Painful, itchy blisters
- Growth retardation in infants if the intolerance is undetected and untreated for a long time
- Serious follow-up diseases such as: lactose intolerance, ear, nose and throat tumors (9 times increased risk) or tumors in the lymphatic system (40-80 times increased risk).



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Not ordered

SCIENCE

ADDITIONAL INFORMATION



SCIENCE

This chapter shows the science behind the test.



Gluten Sensor

HLA DQ 2.5 (rs2187668)

The human leukocyte antigen system (HLA system) is a group of genes that play a central role in the immune system. It has been shown that certain polymorphisms are associated with the celiac disease.

RES	Genotype	POP	Possible results
X	G/G	85%	Gluten intolerance/ celiac disease are practically impossible in the absence of other risk variants.
	A/G	14%	There is a genetic predisposition for gluten intolerance
	A/A	1%	There is a genetic predisposition for gluten intolerance

References

Monsuur et al. Effective Detection of Human Leukocyte Antigen Risk Alleles in Celiac Disease Using Tag Single Nucleotide Polymorphisms. PLoS One. 2008 May 28.3(5):e2270.

Wolters et al. Genetic background of celiac disease and its clinical implications. Am J Gastroenterol. 2008 Jan,103(1):190-5.

Louka et al. A collaborative European search for non-DQA1*05-DQB1*02 celiac disease loci on HLA-DR3 haplotypes: analysis of transmission from homozygous parents. Hum Immunol. 2003 Mar,64(3):350-8.

HLA DQ 8 (rs7454108)

The human leukocyte antigen system (HLA system) is a group of genes that play a central role in the immune system. It has been shown that certain polymorphisms are associated with the celiac disease.

RES	Genotype	POP	Possible results
	T/T	67%	Gluten intolerance/ celiac disease are practically impossible in the absence of other risk variants.
X	C/T	30%	There is a genetic predisposition for gluten intolerance
	C/C	3%	There is a genetic predisposition for gluten intolerance

References

Monsuur et al. Effective Detection of Human Leukocyte Antigen Risk Alleles in Celiac Disease Using Tag Single Nucleotide Polymorphisms. PLoS One. 2008 May 28.3(5):e2270.

Wolters et al. Genetic background of celiac disease and its clinical implications. Am J Gastroenterol. 2008 Jan,103(1):190-5.

Louka et al. A collaborative European search for non-DQA1*05-DQB1*02 celiac disease loci on HLA-DR3 haplotypes: analysis of transmission from homozygous parents. Hum Immunol. 2003 Mar,64(3):350-8.

LEGEND: RES = your personal analysis result (marked with an X), GENOTYPE = different variations of the gene (called alleles), POP = percent of the general population that have this genetic result, POSSIBLE RESULTS = influence of the genetic variation.





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Not ordered

SCIENCE

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ADDITIONAL INFORMATION

In this chapter you will receive useful information



Certifications

Our laboratory is one of the most modern and automated laboratories in Europe and has numerous certifications and quality assurance systems that meet, and even exceed, international standards. The various areas of business are certified separately to the highest standards.

Laboratory diagnostics, manufacturing & sales

Quality management system in accordance with ISO 9001:2015



Licensed for medical genetics

Approved by the Federal Ministry of Health, Austria



Cosmetic/genetic diagnostics and cosmetics manufacturing

Good manufacturing practice (GMP) in accordance with ISO 22716:2007



Food supplement manufacturing

Management system for food safety in accordance with ISO 22000:2018





Customer Service

Questions or comments about our service?

Our customer service team is happy to help with any enquiries or problems. You can contact us in the following ways:

- Phone +41 (0) 41 525 100.1
- office.ch@progenom.com

Our team is looking forward to your call. Customer satisfaction is our first priority. If you are not fully satisfied with our service, please let us know. We will do our best to help find a satisfactory solution to your problem.

Contact | Impressum

ProGenom GmbH
Riedstrasse 1
6343 Rotkreuz
SWITZERLAND



Technical details

Order number

DEMO_DS

Date of birth

01/01/1990

Established analysis methods

qRT-PCR, DNA sequencing, fragment length analysis, CNV assay, GC-MS, Immunocap ISAC, Cytolisa

Report generated

19/03/2021 17:59:50

Product codes

M2GLU

Current version

V538

Ordering company

ProGenom GmbH
Riedstrasse 1
6343 Rotkreuz
SWITZERLAND

Analyzing company

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Laboratory Director

Dr. Daniel Wallerstorfer Bsc.

Laboratory Manager

Florian Schneebauer, MSc.

NOTES:



