



Alzheimer 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

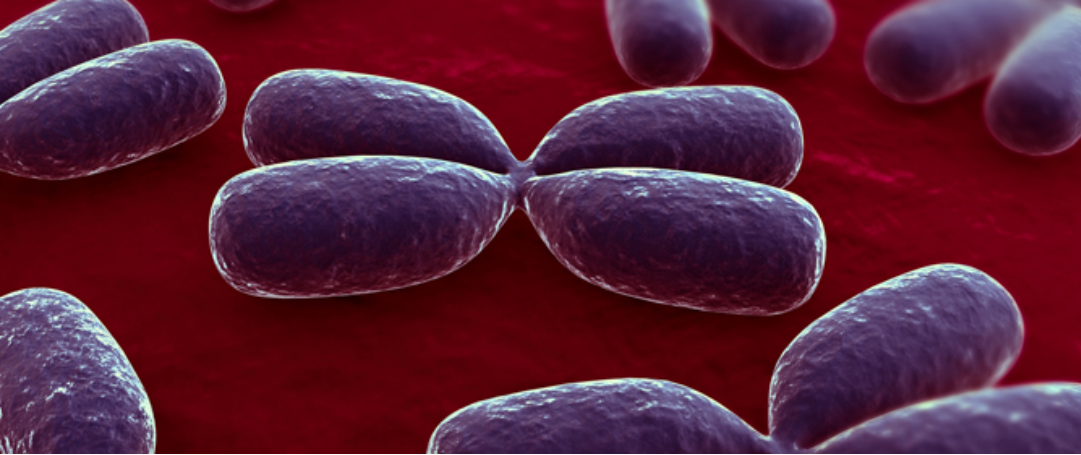
Florian Schneebauer, MSc.
Laboratory Manager

Alzheimer Sensor

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

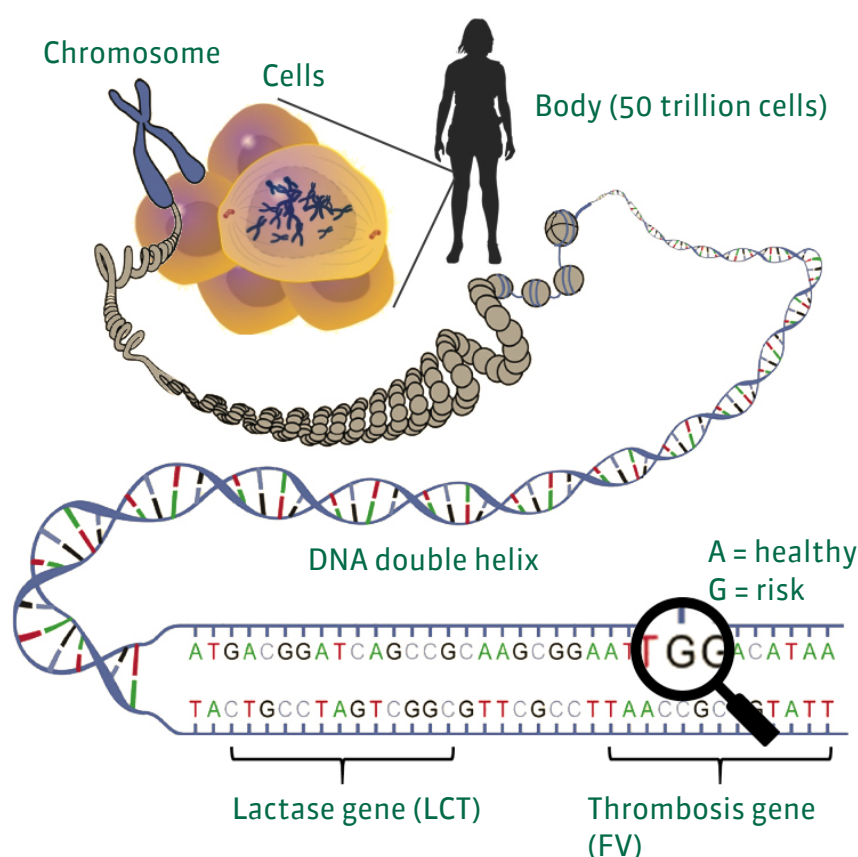
Order number:
DEMO_DS

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.

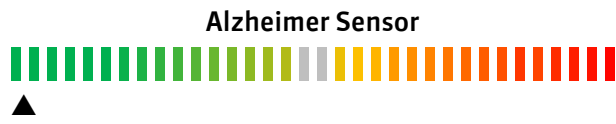
Experts estimate that every person carries about 2,000 genetic defects, which may affect their health, and in some cases, cause illnesses. A variety of factors can cause changes in our genes (also called mutations). In a few cases, these mutations can benefit us. However, the vast majority either have 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.

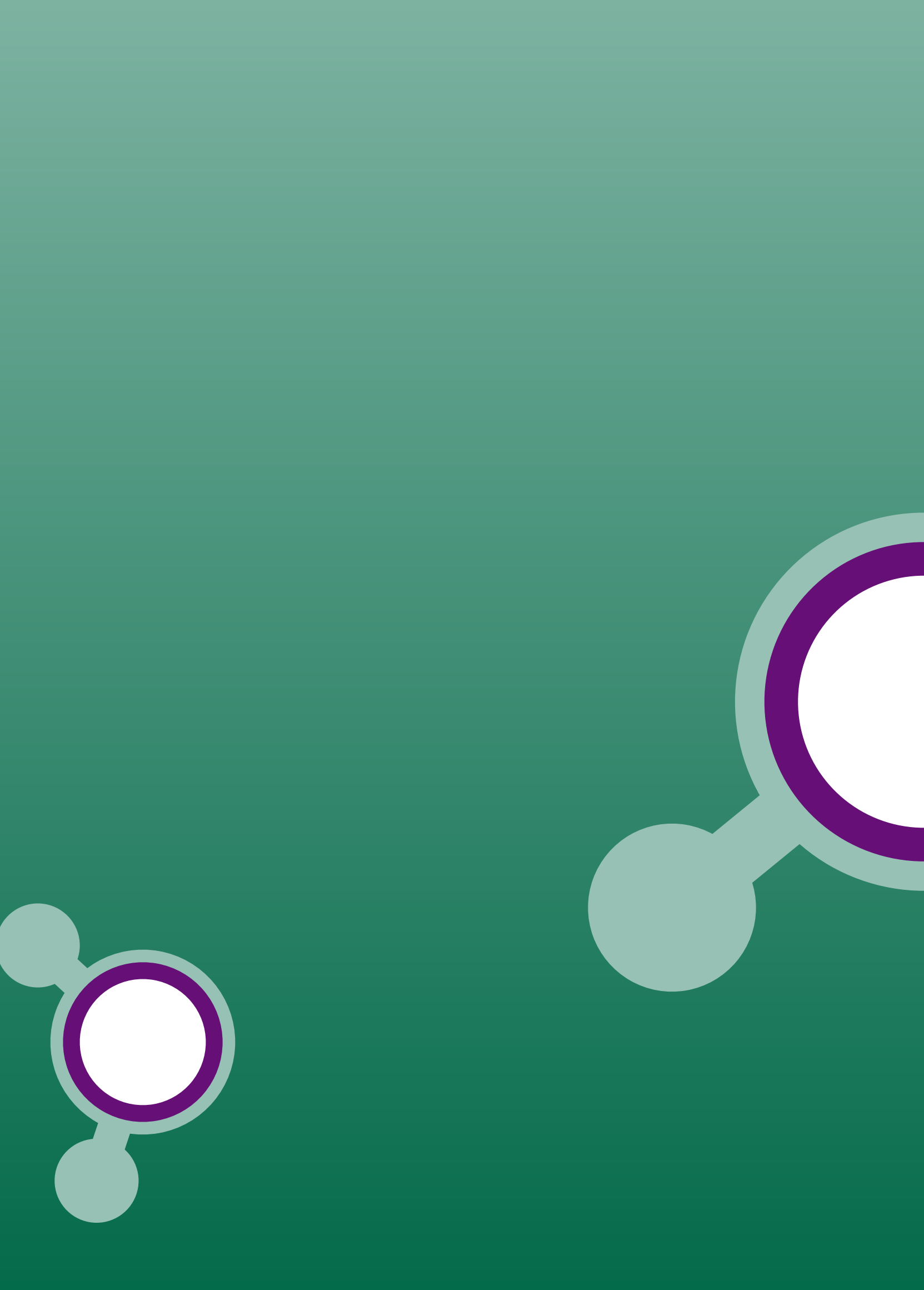
External influences can affect individual genes and disrupt their function, but the majority of our defective genes are inherited from our parents. Each embryo receives half of its genes from the father and half from the mother, resulting in a new human being with some characteristics of each parent. 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

METABOLISM

Not ordered

MOVEMENT

Not ordered

DIGESTION

Not ordered

OPHTHALMOLOGY

Not ordered

ODONTOLOGY

Not ordered

OTHERS

Not ordered

SCIENCE

ADDITIONAL INFORMATION



Alzheimer Sensor

Risk assessment, prevention and better treatment



Alzheimer's disease

Alzheimer's disease (often simply called Alzheimer's) is a disease characterized by a progressive loss of certain brain cells. The cause of Alzheimer's is not fully understood. However, certain genetic traits have been clearly linked to a significantly increased risk of developing the disease. These traits cause abnormally folded proteins to accumulate in certain regions of the brain and allow for the development of large numbers of toxic molecules, known as free radicals, that damage brain cells. The damaged brain cells in the affected regions of the brain slowly deteriorate.



Early signs of Alzheimer's can be detected as early as eight years before diagnosis. Examples of early symptoms include short term memory loss and difficulties with language, as well as depression and apathy. The disease is often not recognized until the person develops noticeable learning disorders; short term memory loss increases while long term memory remains unaffected. In advanced stages, persons diagnosed with Alzheimer's completely lose even basic skills and abilities; they may eventually cease to

recognize close friends and family, or even day-to-day objects. Irritability and aggression are common and as the disease progresses, the person becomes increasingly dependent on caregivers.

Alzheimer's disease accounts for approximately 60% of the roughly 24 million diagnosed cases of dementia worldwide. The most common form affects individuals over the age of 65. Around 2% of 65-year-olds are affected whereas among 70-year-olds the figure rises to 3%. 6% of 75-year-olds and roughly 20% of 85-year-olds display symptoms of the disease.

So far, the scientific community has not found a cure for Alzheimer's disease. However, there are number of preventative measures that can be effective for people with a genetic predisposition to Alzheimer's. Memory training, changes in lifestyle, an appropriate diet and controlling certain other conditions can all play an important role in preventing Alzheimer's. These measures can delay the development of Alzheimer's for many years, or even prevent it entirely. It is therefore especially important for persons who carry these genetic defects to learn about their risk and begin preventative measures as early as possible.



Genes associated with Alzheimer's disease

A combination of two different polymorphisms plays a role in the development of Alzheimer's disease. There are combinations linked to a 15-fold higher risk of Alzheimer's. Other combinations are linked to a 30% reduction in the risk of Alzheimer's compared to the population average. Your gene analysis shows the following:

Genetic traits			
SYMBOL	rs NCBI	POLYMORPH	GENOTYPE
APOE	rs429358	T>C	T/T
APOE	rs7412	T>C	T/C
ApoE type	combination	E2/E3/E4	E2/E3

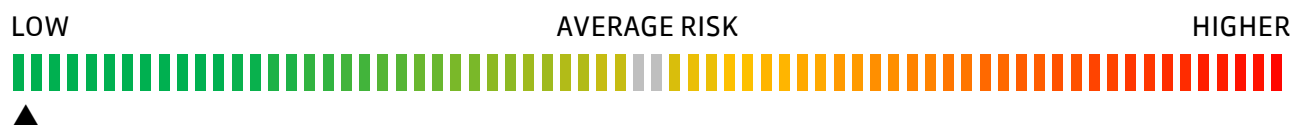
LEGEND: rsNCBI = description of examined genetic variation, POLYMORPHISM = form of the genetic variation, GENOTYPE = personal analysis result

Summary of effects

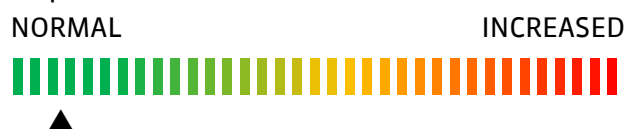
Here you can see a summary of the influence your genetic variations have on your health:

- Based on your genetic profile, you have a lower than average risk of Alzheimer's

Your risk for Alzheimer's disease



Required antioxidants





Nutritional Genes - Brain



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

Alcohol

Fibre

High Glyc.

Coffee

EPA

Folic Acid

Fructose

Satur. fat

Potassium

Manganese

Sodium

DHA

Saccharose

Selenium

Unsat. Fat

Vit B2

Vitamin C

Vitamin D3

Vit. B6/B12

Vitamin E

Zinc

Sugar

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

Your genetic profile shows that you have a lower than normal chance of developing Alzheimer's. However, you can reduce your risk even further by taking measures that reduce the likelihood of developing Alzheimer's. Clinical studies have shown that the following measures reduce the risk of Alzheimer's:

Exercise: studies show that regular physical activity reduces the risk of developing Alzheimer's. At least 15 minutes of physical activity, 3 days per week can reduce the risk by 40%. It is recommended that you follow an exercise program that you enjoy, and also consider joining an exercise group or gym.

Socializing: Studies have found that socially active people have a lower risk of developing dementia. Regular contact with friends or participation in different groups will benefit you. Therefore, keep in touch with friends and stay active in social groups in your community.

Smoking: smoking has many negative health effects and it is always a good idea to quit. Smoking is a risk factor for Alzheimer's, and so if you have a genetic predisposition for Alzheimer's it is absolutely necessary for you to quit smoking.

Diet: diet seems to play an important role in the prevention of Alzheimer's. Since free radicals can cause damage to the brain cells, a diet high in antioxidants is recommended for brain health. Antioxidants include:

- Vitamin C: is found in citrus fruits and various vegetables
- Vitamin E: a fat-soluble vitamin found in cereals, nuts and various vegetable oils
- Beta-carotene: is contained in various fruits and vegetables
- Studies have also found that a Mediterranean diet provides some protection against Alzheimer's and other diseases.

Education and mental stimulation: studies have shown that a high level of education and frequent mentally challenging activities (including puzzles, reading, listening to the radio and cultural activities) reduce the likelihood of Alzheimer's by as much as 75% and can also significantly delay its development. Spending long hours in front of the TV seems to increase the chance of developing Alzheimer's. Pick a challenging hobby that mentally stimulates you (crossword puzzles, chess, art appreciation, etc.) and practice it regularly.

Cholesterol: high cholesterol also contributes to the development of Alzheimer's, and so you should have your cholesterol checked every six months. If your cholesterol is too high, you can lower it with exercise and diet. If these are not effective, your doctor may prescribe cholesterol-lowering drugs. A healthy cholesterol level is important for preventing both atherosclerosis and Alzheimer's.

Blood pressure: high blood pressure is one of the most significant risk factors in the development of Alzheimer's disease. Measure your blood pressure regularly (once a week) after

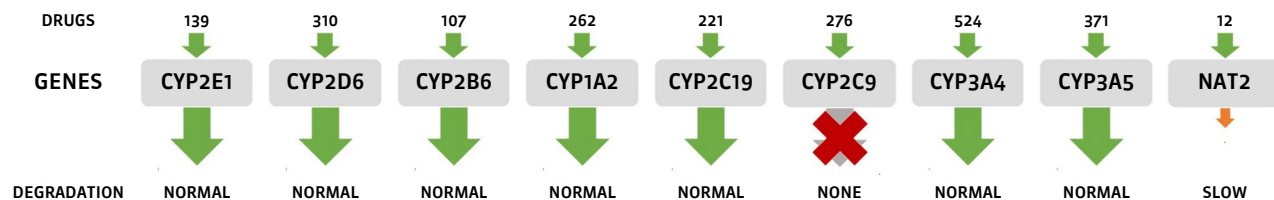
10 minutes of sitting, and try to keep it within the normal range.

If your blood pressure is too high, the following measures can lower it. If these steps do not lower your blood pressure into the normal range, talk to your doctor about taking medication to lower your blood pressure.





Drug compatibility



Effect on relevant medication

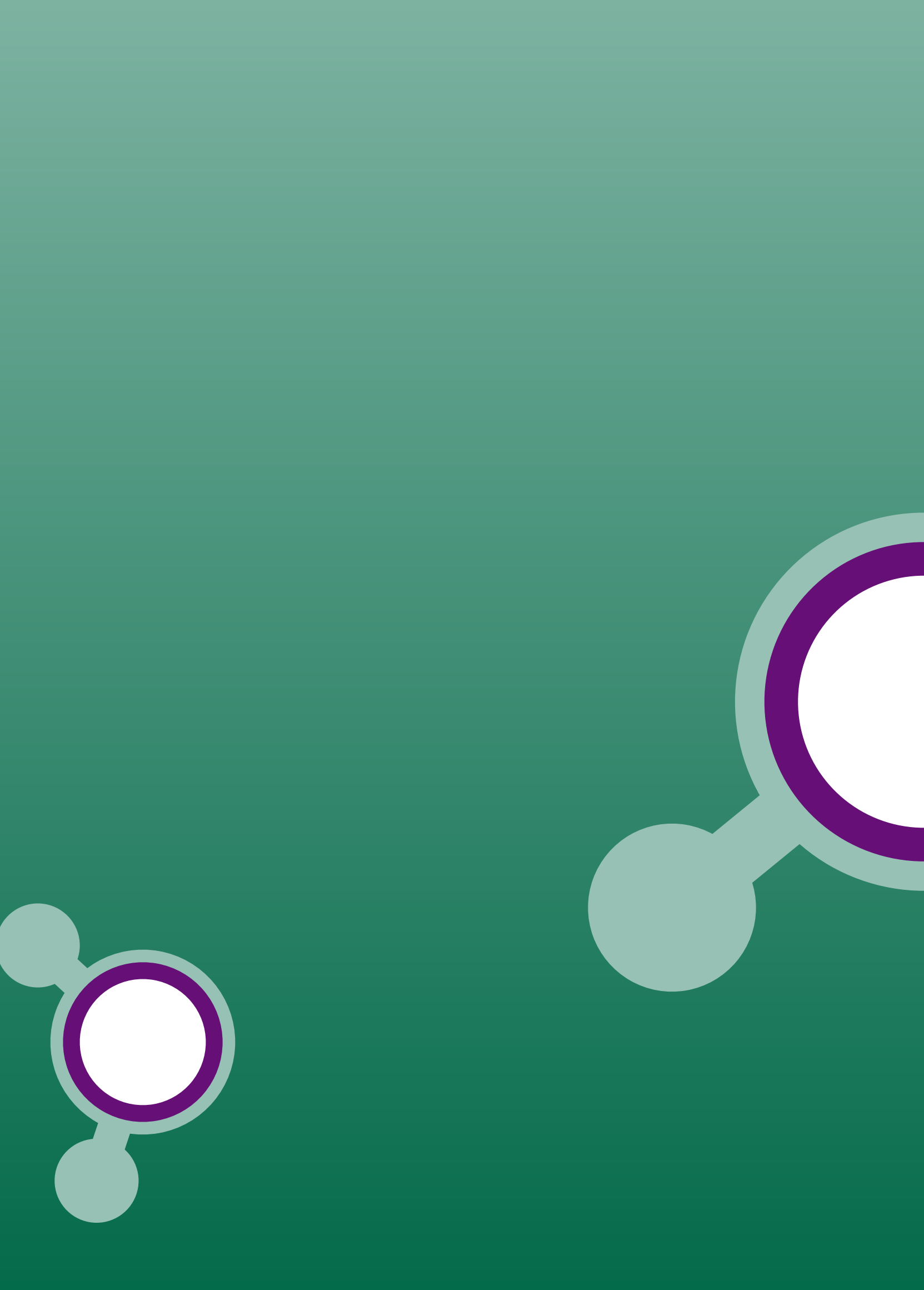
	Effect	Breakdown	Dose		Effect	Breakdown	Dose		Effect	Breakdown	Dose
Agomelatine	✓	✓	✓	Amitriptyline	✓	✓	✓	Amlodipine	✓	↑	↑
Aripiprazole	✓	↑	✓	Atorvastatin	✓	↑	↑	Bosentan	✓	↓	↓
Bupropion	✓	✓	✓	Buspirone	✓	↑	↑	Candesartan	✓	↓	↓
Carbamazepine	↑	↑	↓	Cerivastatin	✓	↑	↑	Chloral Hydrate	✓	✓	✓
Chlorpromazine	✓	✓	✓	Citalopram	✓	↑	✓	Clobazam	✓	↑	↑
Clomipramine	↑	✓	✓	Clonazepam	✓	↑	↑	Clozapine	✓	✓	✓
Cyclobenzaprine	✓	✓	✓	Desipramine	✓	✓	✓	Diazepam	✓	↑	↑
Diltiazem	✓	↑	↑	Donepezil	✓	↑	↑	Doxepin	✓	✓	✓
Duloxetine	✓	✓	✓	Escitalopram	✓	↑	✓	Eszopiclone	✓	↑	↑
Felodipine	✓	↑	↑	Fluoxetine	✓	✗	✗	Fluvastatin	✓	✓	✓
Fluvoxamine	✓	✓	✓	Galantamine	✓	↑	↑	Haloperidol	✓	↑	✓
Iloperidone	✓	✓	✓	Imipramine	✓	✓	✓	Irbesartan	✓	✗	✗
Lercanidipine	✓	↑	↑	Lorazepam	✓	✓	✓	Losartan	✗	↓	✗
Lovastatin	✓	↑	↑	Memantine	✓	✓	✓	Mianserin	✓	✓	✓
Minaprine	✓	✓	✓	Mirtazapine	✓	✓	✓	Moclobemide	✓	✓	✓
Nefazodone	✓	↑	↑	Nifedipine	✓	↑	↑	Nisoldipine	✓	↑	↑
Nitrendipine	✓	↑	↑	Nortriptyline	✓	✓	✓	Olanzapine	✓	✓	✓
Oxazepam	✓	↑	↑	Oxcarbazepine	✓	✓	✓	Paroxetine	✓	✓	✓

	Effect	Breakdown	Dose		Effect	Breakdown	Dose		Effect	Breakdown	Dose
Perphenazine	✓	✓	✓	Pimozide	✓	↑	↑	Protriptyline	✓	✓	✓
Quetiapine	✓	↑	↑	Reboxetine	✓	↑	↑	Remoxipride	✓	✓	✓
Risperidone	✓	✓	✓	Rivastigmine	✓	✓	✓	Sertraline	✓	✓	✓
Tacrine	✓	✓	✓	Temazepam	✓	✓	✓	Thioridazine	✓	✓	✓
Trazodone	✓	↑	↑	Trimipramine	✓	✓	✓	Valproic Acid	✓	↓	↓
Venlafaxine	✓	✓	✓	Verapamil	✓	↑	↑	Zaleplon	✓	↑	↑
Ziprasidone	✓	↑	↑	Zolpidem	✓	↑	↑	Zuclopenthixol	✓	✓	✓

Please note: The right choice and dose of medication is always the responsibility of the doctor. Never make your own decision on whether to stop taking a medication or changing its dose!

Legend:

- Effect: Normal. Degradation: Normal. Recommendation: Normal dosage.
- Effect: Normal. Degradation: Slower. Recommendation: Reduce the dosage.
- Effect: Normal. Degradation: None. Recommendation: Alternative drug.
- Effect: Lower. Degradation: Normal. Recommendation: Normal dosage.
- Effect: Lower. Breakdown: Lower. Recommendation: Reduce the dosage.
- Effect: Stronger. Degradation: Stronger. Recommendation: Normal dosage.





PHARMACO GENETICS

Not ordered

ONCOLOGY

Not ordered

CARDIOVASCULAR SYSTEM

Not ordered

NEUROLOGY

METABOLISM

Not ordered

MOVEMENT

Not ordered

DIGESTION

Not ordered

OPHTHALMOLOGY

Not ordered

ODONTOLOGY

Not ordered

OTHERS

Not ordered

SCIENCE

ADDITIONAL INFORMATION



SCIENCE

This chapter shows the science behind the test.



Alzheimer Sensor

APOE - apolipoprotein E (E2/E3/E4)

APoE (apolipoprotein E) metabolizes triglyceride-rich lipoprotein constituents, and plays a central role in the lipid metabolism. The ApoE gene is present in three common types, which are called allele E2, E3 and E4. The E4 allele is associated with an increased risk of heart disease and Alzheimer.

RES	Genotype	POP	Possible results
	E2/E2	1%	Protection against Alzheimer's disease (OR: 0.7)
X	E2/E3	6%	Protection against Alzheimer's disease (OR: 0.7)
	E3/E3	66%	No increased risk of Alzheimer's disease
	E2/E4	2%	Increased risk of Alzheimer's disease (OR: 2.5)
	E3/E4	24%	Increased risk of Alzheimer's disease (OR: 3.2)
	E4/E4	1%	Increased risk of Alzheimer's disease (OR: 15)

References

Jin-Tai Yu et al. Apolipoprotein E in Alzheimer's Disease: An Update. Annual Review of Neuroscience 2014.

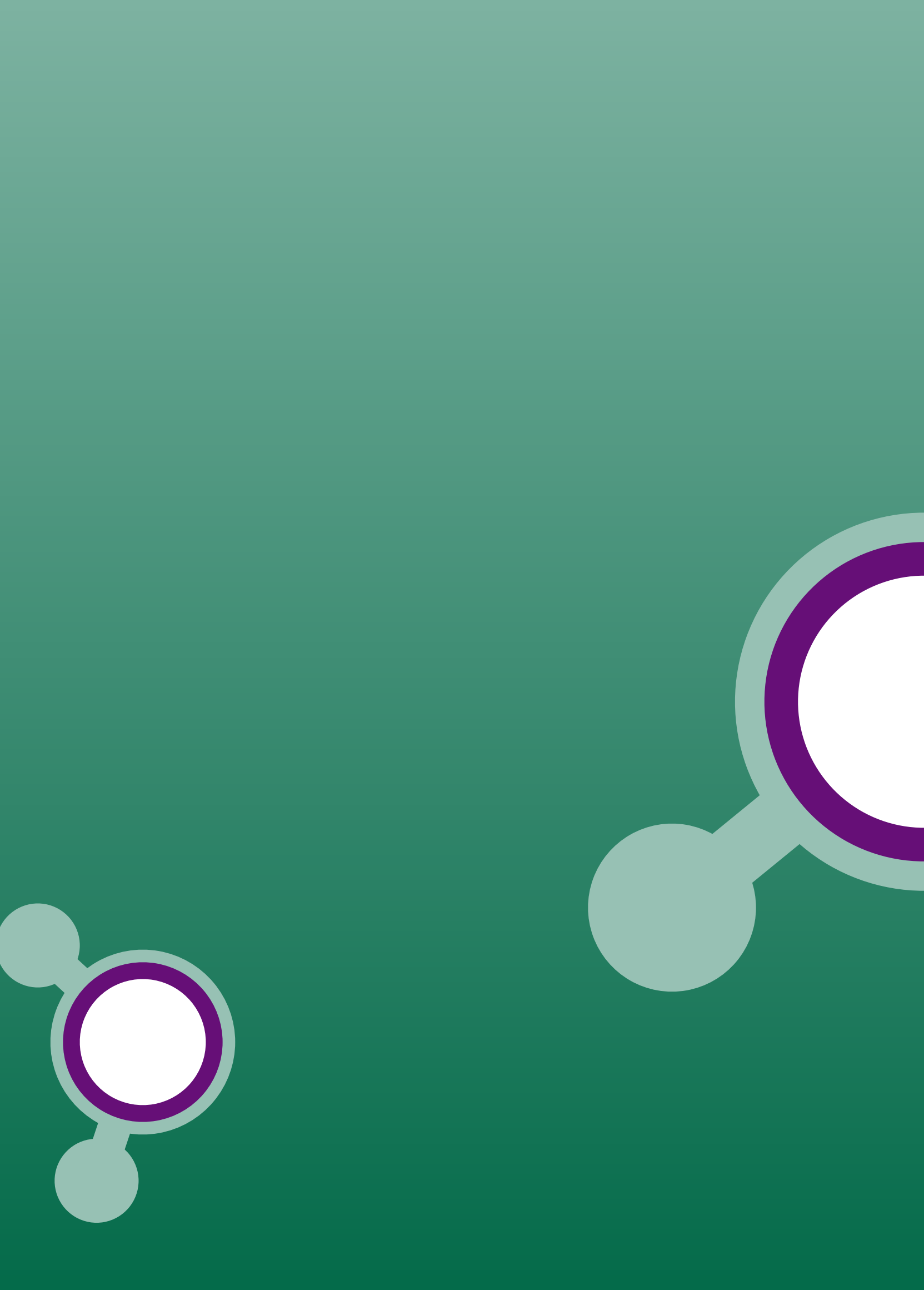
Liu CC et al. Apolipoprotein E and Alzheimer disease: risk, mechanisms and therapy. Nat Rev Neurol. 2013 Feb,9(2):106-18.

Farrer et al. Effects of age, sex, and ethnicity on the association between apolipoprotein E genotype and Alzheimer disease. A meta-analysis. APOE and Alzheimer Disease Meta Analysis Consortium. JAMA. 1997 Oct 22-29,278(16):1349-56.

Tang et al. The APOE-epsilon4 allele and the risk of Alzheimer disease among African Americans, whites, and Hispanics. JAMA. 1998 Mar 11,279(10):751-5.

Bagyinszky E et al. The genetics of Alzheimer's disease. Clin Interv Aging. 2014 Apr 1,9:535-51.

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.





PHARMACO GENETICS

Not ordered

ONCOLOGY

Not ordered

CARDIOVASCULAR SYSTEM

Not ordered

NEUROLOGY

METABOLISM

Not ordered

MOVEMENT

Not ordered

DIGESTION

Not ordered

OPHTHALMOLOGY

Not ordered

ODONTOLOGY

Not ordered

OTHERS

Not ordered

SCIENCE

ADDITIONAL INFORMATION



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 17:12:51

Product codes

M5ALZ

Current version

V538

Ordering company

ProGenom GmbH
Riedstrasse 1
6343 Rotkreuz
SWITZERLAND

Analyzing company

DNA Plus - Zentrum für Humangenetik
Georg Wrede Strasse 13
83395 Freilassing
Deutschland

Laboratory Director

Dr. Daniel Wallerstorfer Bsc.

Laboratory Manager

Florian Schneebauer, MSc.

NOTES:



