SelfDecode™

ALDH2 (Alcohol Sensitivity)

Gene Report

REPORT CATEGORY

DETOX

Sample Client

Report date: 15 January 2026

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

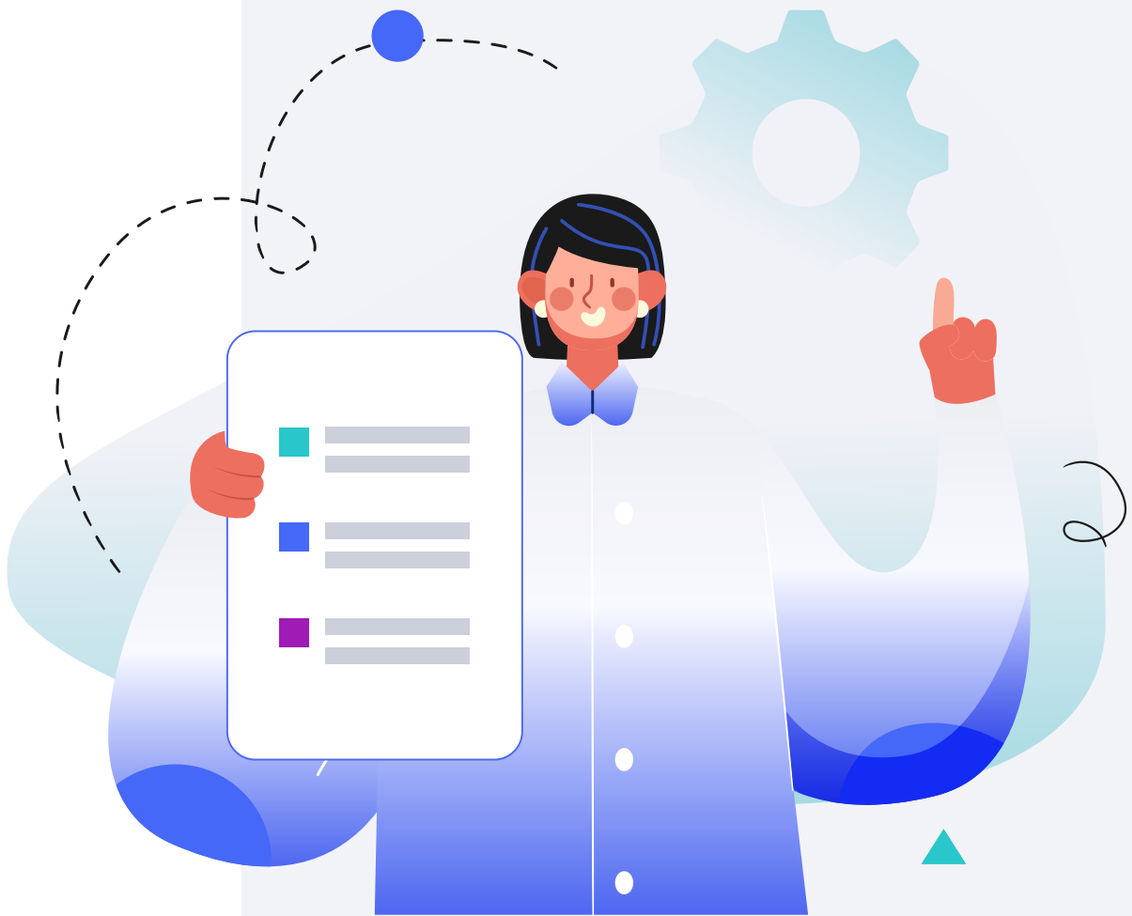
Male

HEIGHT

5ft 5" 165cm

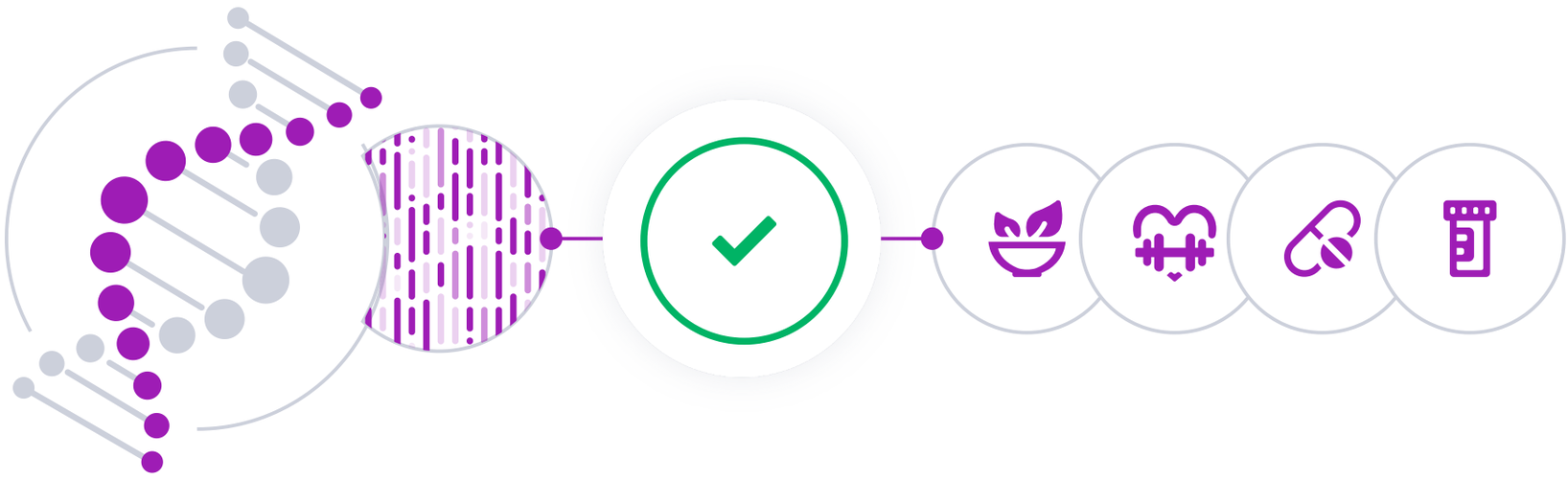
WEIGHT

137lb 62kg



How this works

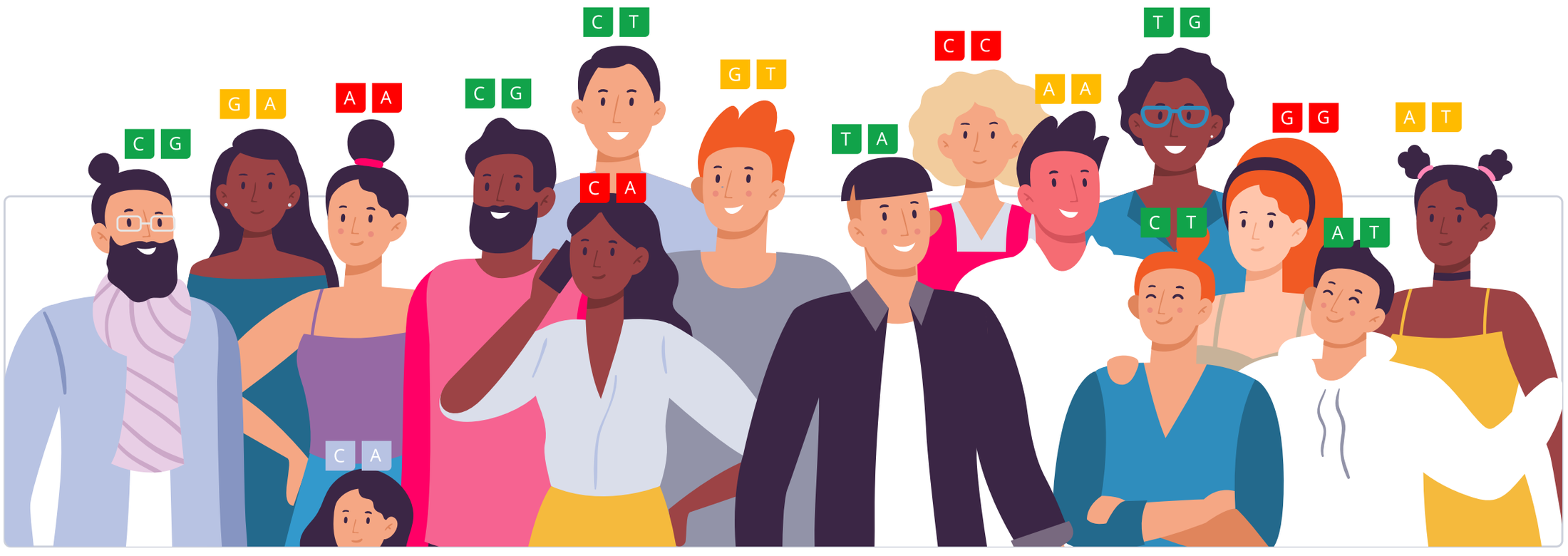
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



Similarly, our Trait Reports look at how your DNA influences your traits.

Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

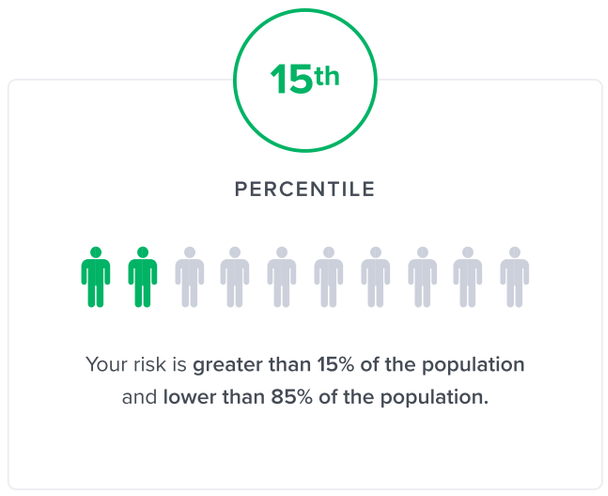
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

In total, we analyze up to 83 million genetic variants.



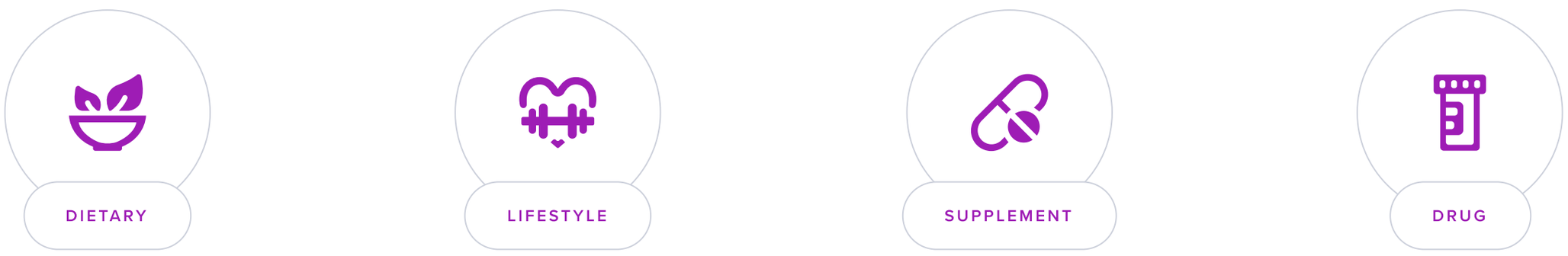
Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):

Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, afew large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

The *ALDH2* g*ene* encodes for part of an enzyme named aldehyde dehydrogenase (ALDH), which is involved in the breakdown of alcohol in the liver.

ADH enzymes are responsible for the first step of alcohol metabolism, where alcohol is converted to potentially toxic acetaldehyde. ALDH enzymes are responsible for the second step, breaking down acetaldehyde to acetic acid.

Certain *ALDH2* variants produce fewer or less active ALDH enzymes, and may reduce the enzyme activity to zero, largely reducing the rate at which acetaldehyde is converted to acetic acid. This can lead to a build-up of acetaldehyde following alcohol consumption. Acetaldehyde build-up is toxic and bad for your health, and can result in negative effects such as [R, R, R]:

- Flushing
- Sweating
- Nausea
- Accelerated heart rate
- Vomiting

ALDH2 Genetics

A study of 251 Japanese people found that carriers of an ‘A’ allele at the *ALDH2* rs671 variant were more likely to experience a hangover. As a result, carriers drink less and are less likely to be alcohol-dependent than non-carriers [R].

Carriers of the ‘A’ allele have been reported to get drunk faster and are more likely to experience a hangover, especially if they have vitamin B12 deficiency. Vitamin B12 can assist in acetaldehyde breakdown. Variant carriers who drink alcohol with this deficiency may be more at risk of the negative health effects associated with acetaldehyde buildup [R, R].

The rs671 SNP is most prevalent in Asian populations and is almost non-existent in other populations. 31% of individuals of East Asian descent carry at least one copy of the ‘A’ allele, while less than 1% of any other ethnicity carry a copy [R].

Enzyme activity is completely reduced in those who carry two copies of the ‘A’ allele, and by 50-70% for those who carry one [R].

Acetaldehyde is toxic and has also been shown to damage DNA. This means that the acetaldehyde buildup caused by drinking alcohol whilst carrying the rs671 variant may inflict nerve pain. This may also put the carrier at increased risk of cancer, such as throat, stomach, liver, bowel, and mouth [R, R, R, R, R].

In fact, one study noted that carriers of the rs671 variant were at 20% higher relative risk of developing cancers than non-carriers, although this was not related to alcohol intake [R].

Individuals with 'AA' or 'AG' genotypes of rs671 have a higher heart disease risk if they don’t **exercise regularly** or if they eat fried food regularly [R].

The rs671 variant has also been linked to:

- Nonalcoholic fatty liver disease [R]
- Alzheimer's disease [R]
- Parkinson’s disease [R]

LOWER ACTIVITY

Likely typical ALDH2 activity based on the genetic variants we looked at

93%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **93% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ALDH2	rs671	GG

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

ALDH enzymes (particularly ALDH2) metabolize imidazole acetaldehyde, the intermediate compound created when **histamine** is broken down by diamine oxidase (DAO). This step is essential for converting histamine byproducts into forms safely eliminated from the body.