SelfDecode™

NAT2 (Detox)

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

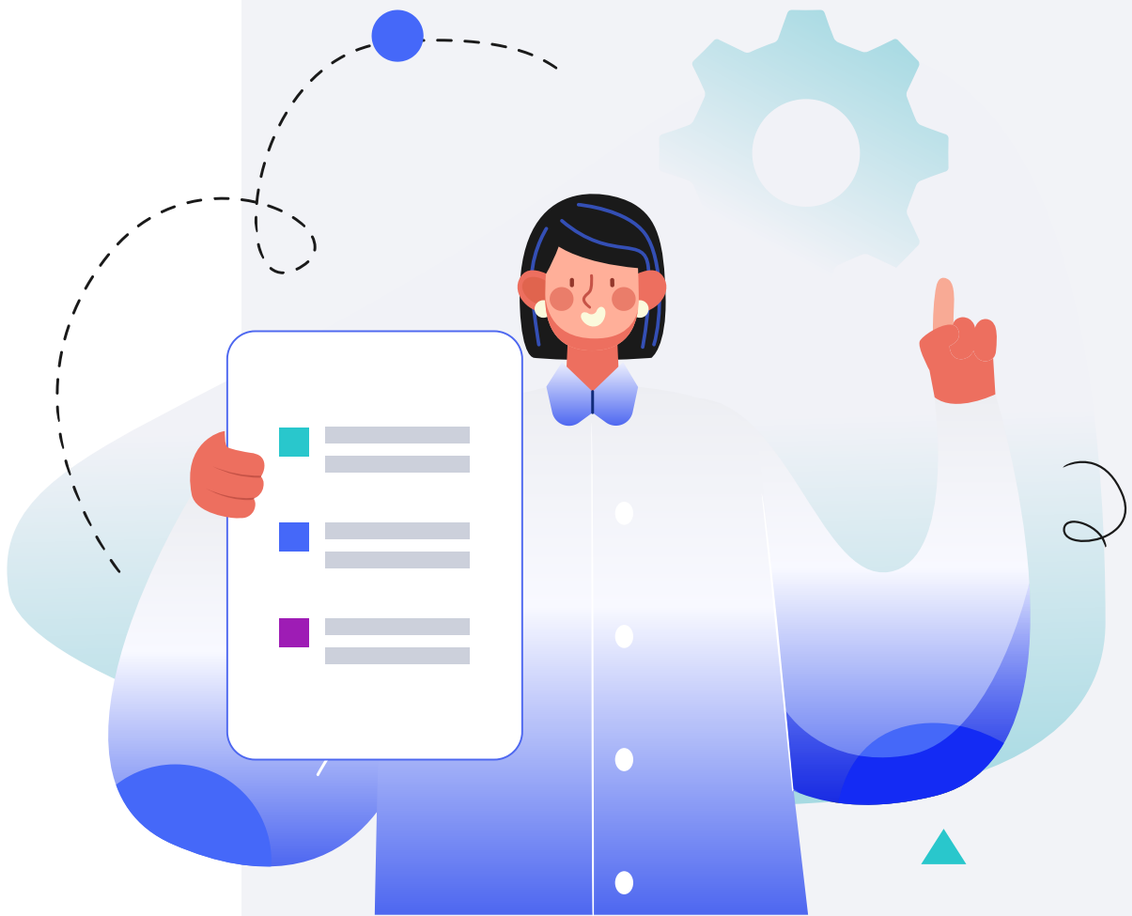
Male

HEIGHT

5ft 5" 165cm

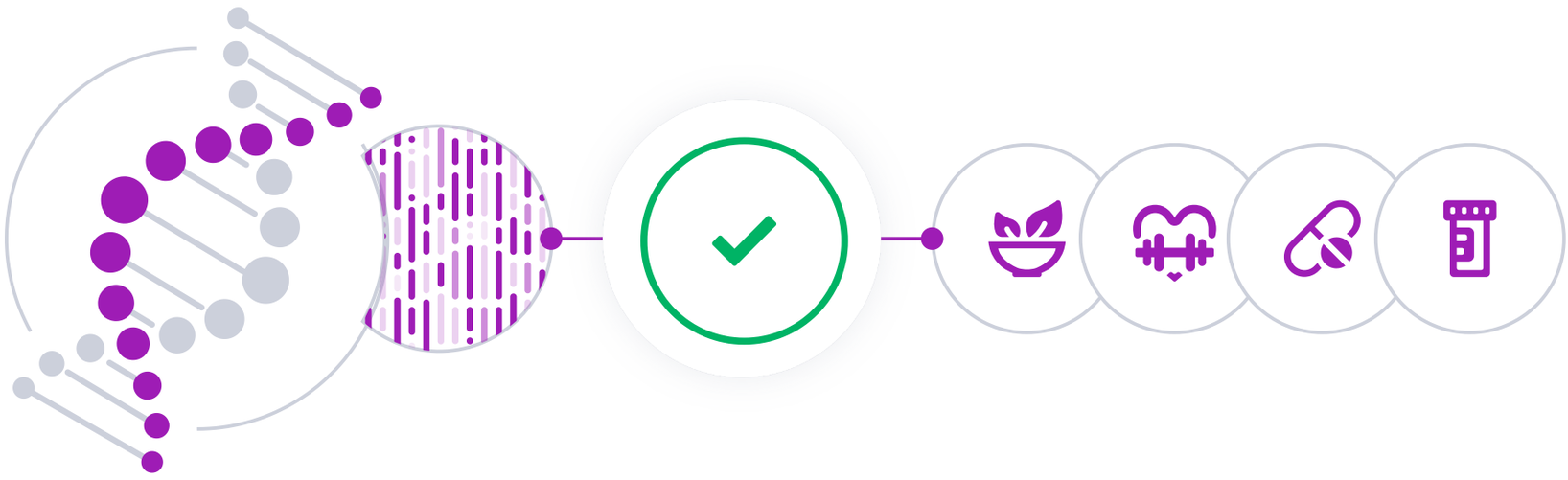
WEIGHT

137lb 62kg



How this works

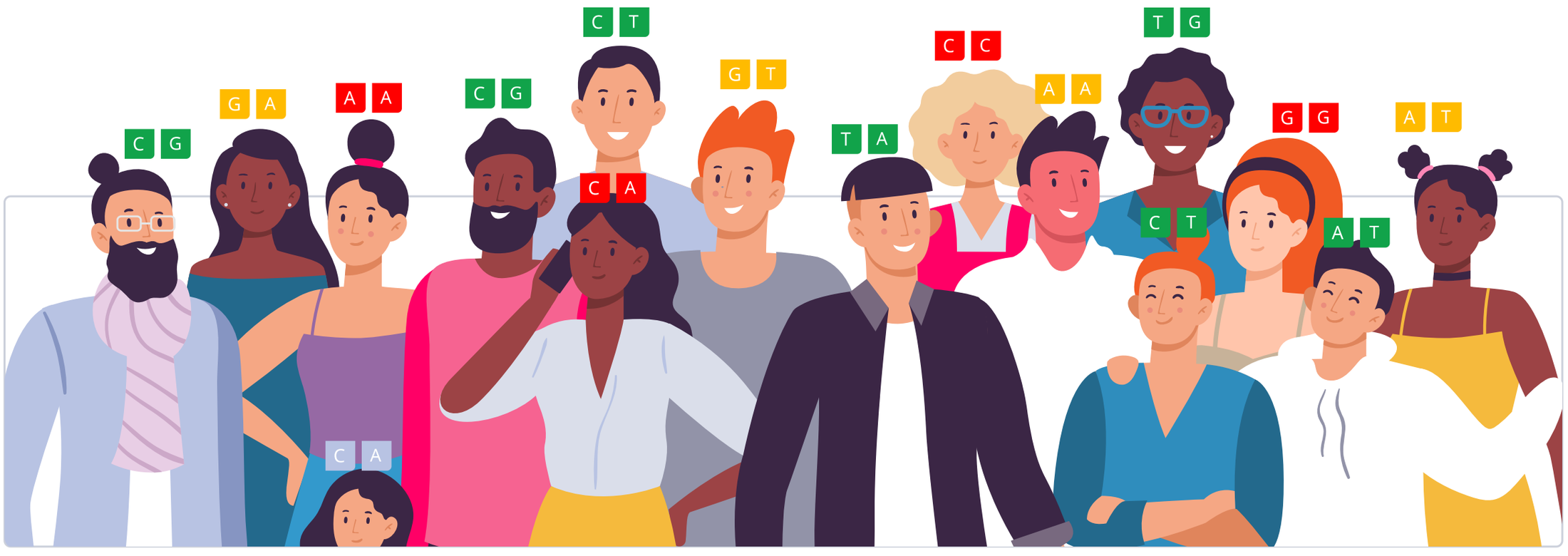
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

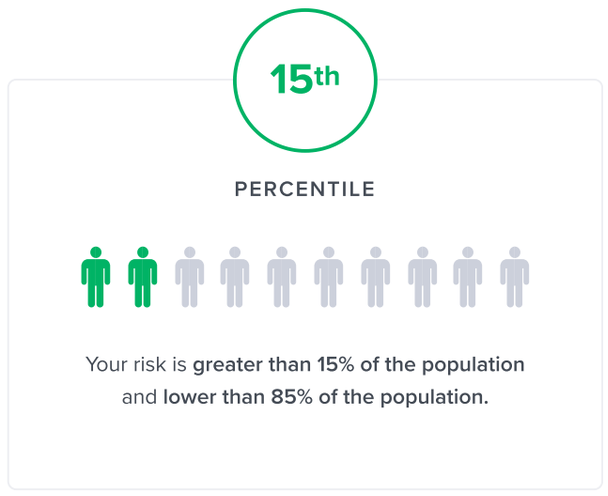
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

N-acetyltransferase 2 (NAT2) is an enzyme that plays a crucial role in the metabolism and detoxification of numerous drugs, environmental toxins, and endogenous substances. It is mostly active in the liver [R].

NAT2's role in detox is integral to the body's defense mechanism against potentially harmful substances. It enables the **acetylation** of certain compounds found in medications, carcinogens, and environmental toxins. This process makes these compounds more water-soluble, enhancing their removal from the body [R].

There are considerable differences in acetylator status among individuals, classifying them as **slow or fast acetylators**. Most resources also acknowledge an **intermediate** group [R].

Slow acetylators metabolize certain drugs and toxins more slowly, potentially leading to increased toxicity and a higher risk of adverse drug reactions. Rapid acetylators generally have better detox potential. However, they may be more vulnerable to toxins that get activated by NAT2 into more harmful metabolites [R, R].

Understanding an individual's NAT2 acetylator status is crucial in personalized wellness and medicine, influencing detox ability, risks of different health conditions, drug treatment efficacy, and more.

NAT2 Genetics and Health Effects

NAT2 activity or status varies widely among individuals due to **genetic differences**. This status influences how one's body processes a range of environmental toxins.

Research has linked a lot of *NAT2* gene variants to changes in enzyme activity, but most resources use 7 main variants to determine the acetylator status. The frequency of this status varies widely between different ethnicities. Roughly **45%** of the overall population and **60%** of European descendants are **slow acetylators** [R].

Being a slow NAT2 acetylator may be linked to higher odds of different types of cancer, especially bladder cancer. This link tends to be stronger in people exposed to **cigarette smoke and chemical dyes** [R, R, R, R, R].

The link between the slow NAT2 status and other types of cancer and other chronic conditions like asthma and diabetes is weaker [R, R, R].

Slow acetylators may also have a harder time detoxing certain drugs, which may put them at higher odds of side effects. For example, they tend to have higher rates of liver injury from the anti-tuberculosis drug isoniazid [R].

On the other hand, fast acetylators may be more prone to colon cancer, especially if they consume **well-done meat** frequently. This may be due to activation (O-acetylation) of certain toxins by NAT2 in the colon [R, R].

NAT2 also indirectly affects **histamine metabolism** by acetylating compounds that influence histamine levels. "Slow acetylators" with reduced NAT2 activity may experience more pronounced histamine intolerance symptoms due to difficulty processing dietary histamine or histamine-releasing substances.

INTERMEDIATE

Likely an intermediate acetylator based on 7 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NAT2	rs1041983	CT
NAT2	rs1799930	GA
ASAH1	rs4271002	CG
NAT2	rs1801280	TT
NAT2	rs1801279	GG
NAT2	rs1799931	GG
NAT2	rs1799929	CC
NAT2	rs1208	AA

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

Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.