SelfDecode™

CYP3A4 (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

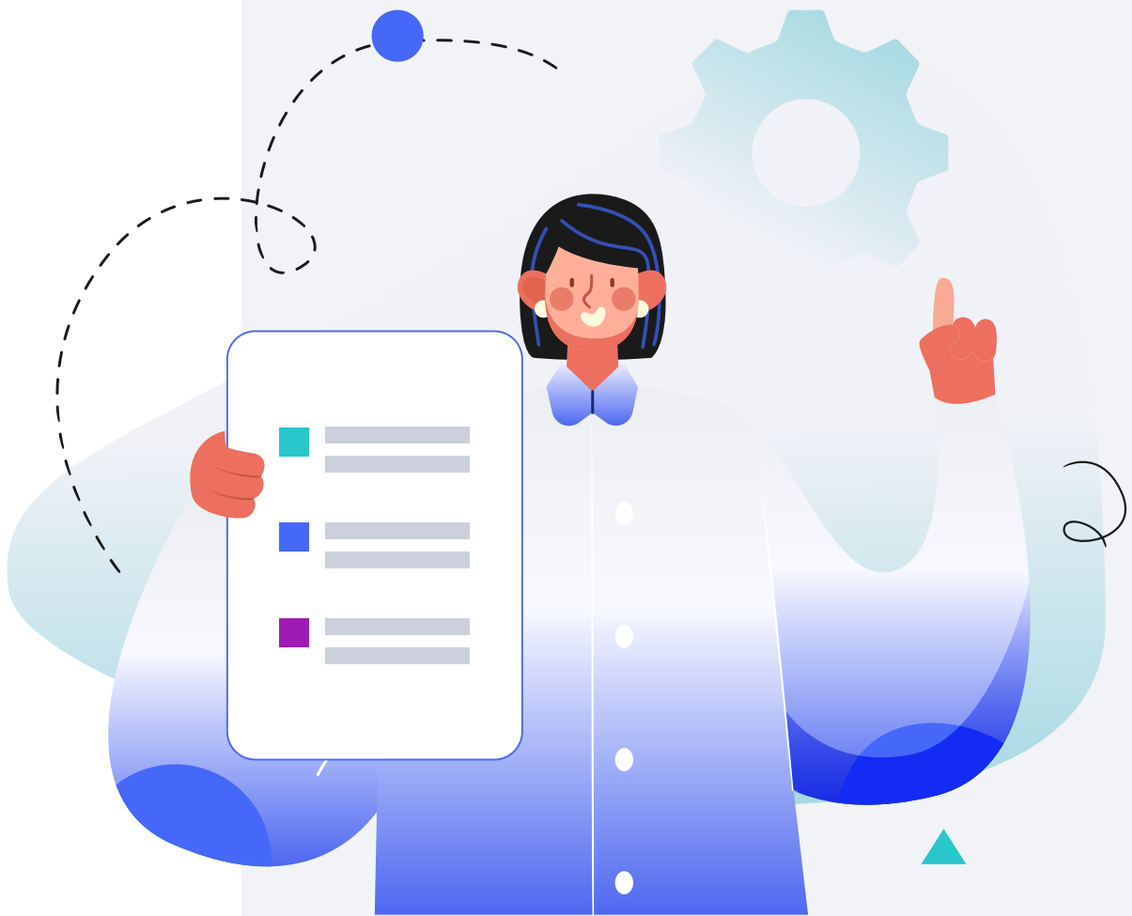
Male

HEIGHT

5ft 5" 165cm

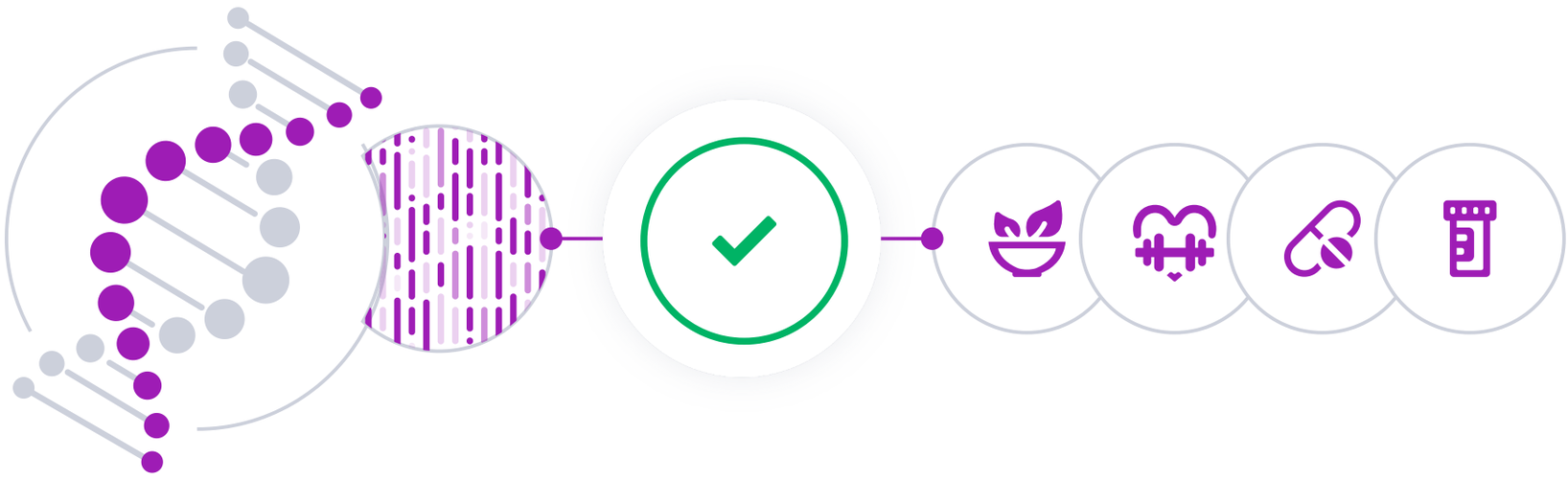
WEIGHT

137lb 62kg



How this works

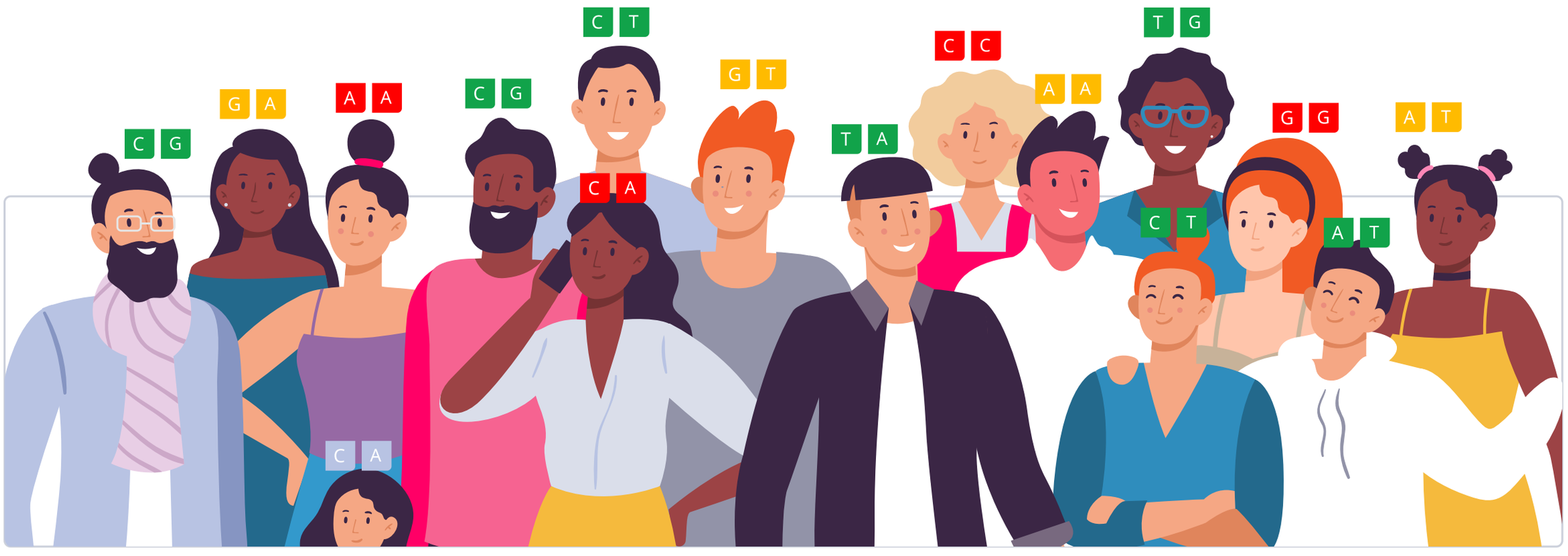
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

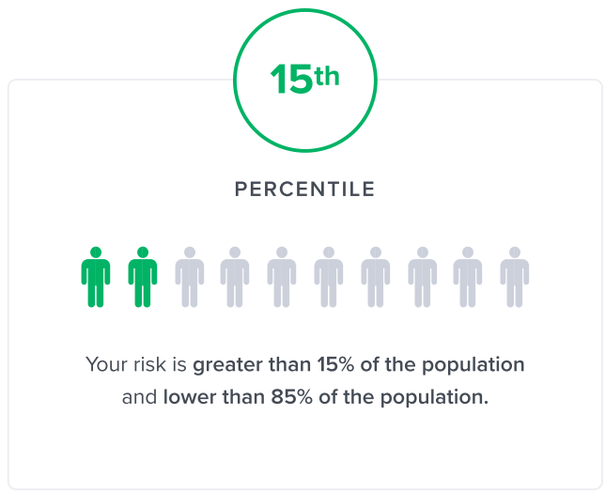
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

The *CYP3A4* gene encodes cytochrome P450 3A4, a member of the cytochrome P450 monooxygenase superfamily of enzymes. These proteins eliminate most drugs from the body [R, R].

CYP3A4 in particular is responsible for processing approximately 45–60% of prescribed drugs, including opiods, immunosuppressants, antihypertensive medication, anticancer drugs, and statins [R, R, R, R, R, R, R, R, R, R, R, R].

CYP3A4 also:

- Metabolizes many internal compounds such as cholesterol, fatty acids, prostaglandins, leukotrienes, retinoids, and biogenic amines [R].
- Detoxifies bile acids [R].
- Deactivates testosterone to biologically less active metabolites [R].
- Partly degrades vitamin D [R].

CYP3A4 also metabolizes the two main chemicals found in cannabis: THC and CBD. As opposed to CYP2C19 and CYP2C9, which oxidize CBD to 7-hydroxy-CBD (7-OH-CBD), CYP3A4 breaks it down through different pathways [R, R].

CYP3A4 can also metabolize the psychoactive cannabinoid THC. It converts THC into inactive metabolites such as 11-hydroxy-THC (a metabolite that still has psychoactive properties but is less potent than THC) and 11-nor-9-carboxy-THC (the non-psychoactive metabolite often used in drug testing) [R, R].

Alternatively, CBD, THC, and their metabolites can inhibit this enzyme and reduce its effectiveness at metabolizing drugs [R, R, R, R].

This enzyme is mainly found in the liver (40% of the total liver CYP content) but also in the small intestine, prostate, breast, colon, and brain. CYP3A4 is the most active CYP enzyme in the gut, which explains why what we eat and drink has a great effect on the activity of this enzyme [R, R, R, R].

The following supplements, chemicals, and factors may increase CYP3A4 activity:

- St. John's wort [R, R, R]
- Capsaicin [R, R]
- Common valerian [R]
- *Echinacea purpurea* [R]
- Kaempferol [R]
- Quercetin [R]
- Vitamin D and UV exposure [R]
- Being female [R]
- Diabetes [R]
- Fatty acids [R]
- Polycyclic aromatic hydrocarbons (PAH) found in cigarettes [R]
- Aflatoxin B1 [R]
- Some drugs such as carbamazepine and dexamethasone [R, R]

In contrast, CYP3A4 activity may be decreased by:

- Grapefruit juice [R, R, R]
- Starfruit juice [R]

- Aloe vera [R]
- Mixed vegetable juices [R]
- Kale [R]
- Garden cress [R, R]
- Fennel [R]
- Green tea [R, R]
- Black pepper [R, R]
- Goldenseal [R]
- Raspberry leaf [R]
- Milk thistle [R]
- Quercetin [R, R, R]
- Kaempferol [R]
- Berberine [R, R]
- Piperine [R, R]
- Licorice [R]
- Oleuropein, derived from olive oil [R]
- Sesamin, found in sesame seeds [R]
- Resveratrol [R, R, R]
- Sulforaphane [R]
- Apigenin [R]
- Coumestrol [R]
- Caffeic acid [R, R]
- Tannic acid [R]
- Gallic acid [R, R]
- Allyl isothiocyanate [R]
- Ginseng [R]
- *Schisandra chinensis* [R]
- Ritonavir, itraconazole [R]
- Miconazole, ketoconazole [R]
- Verapamil [R]
- Sertraline [R]
- Metformin [R]
- Nefazodone [R]
- Clarithromycin [R]

Curcumin has a paradoxical effect, since it may both increase and decrease the activity of CYP3A4 [R, R, R].

CYP3A4 Genetics and Metabolism

The ‘A’’ allele of **rs35599367**, also known as CYP3A4*22, reduces CYP3A4 levels and activity by approximately half, resulting in slower drug metabolism [R, R, R, R].

Similarly, the minor alleles ‘C’ of **rs12721627** (CYP3A4□16) and ‘G’ of **rs55785340** (CYP3A4*2) have been associated with lower enzyme activity [R, R].

Two other variants with decreased enzyme activity are ‘C’ at **rs2740574** (CYP3A4*1B) and ‘T’ at **rs2242480** (CYP3A4*1G) [R, R].

The minor ‘G’ allele of **rs680055** (CYP3A4*3) encodes a protein with an amino acid change believed to reduce enzyme activity [R].

In carriers of these variants, the breakdown of cannabinoids such as THC and CBD may be slower. Moreover, people with these variants shouldn’t use cannabis if they are being treated with ketoconazole, fluconazole, or diltiazem, which are CYP3A inhibitors [R, R].

In contrast, the ‘G’ allele of **rs28371759** (CYP3A4*18) increases enzyme activity [R, R].

TYPICAL ACTIVITY

Likely typical CYP3A4 activity based on 7 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP3A4	rs28371759	AA
CYP3A43	rs680055	CC
CYP3A4	rs55785340	AA
TRIM4	rs35599367	GG
TRIM4	rs2740574	TT
CYP3A5	rs2242480	CC
/	rs12721627	GG

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