

CYP1A1 (Detox)

Gene Report

REPORT CATEGORY —



Sample Client

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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.

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

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



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, a few 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 [CYP1A1](#) gene encodes cytochrome P450 1A1, a member of the cytochrome P450 monooxygenase superfamily of enzymes. These proteins eliminate most drugs from the body. While most CYP enzymes are found in the liver, CYP1A1 is mainly found in the lungs [\[R\]](#), [\[R\]](#), [\[R\]](#).

In line with its location in the lungs, this enzyme helps clear toxins that are released from burning coal, oil, gasoline, trash, tobacco, wood, and charcoal-broiled meat. However, it may “activate” some of these compounds, such as polycyclic aromatic hydrocarbons (PAHs), N-nitrosamines, and aflatoxin B1, and turn them into cancer-causing chemicals [\[R\]](#), [\[R\]](#).

In addition, there are studies that suggest that CYP1A1 may also protect against oxidative stress, by neutralizing reactive oxygen species (ROS) in the lungs [\[R\]](#).

CYP1A1 also metabolizes estrogen outside the liver [\[R\]](#).

Certain *CYP1A1* variants are linked to [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Cancer
- PCOS
- Diabetes

The following natural substances may increase CYP1A1 activity:

- Indole-3-carbinol, found in cruciferous vegetables [\[R\]](#)
- [Resveratrol](#) [\[R\]](#)
- [Andrographolide](#), from the [Andrographis paniculata](#) plant [\[R\]](#)
- [Astaxanthin](#) [\[R\]](#)
- [Fish oil](#) and [garlic](#) oil [\[R\]](#)
- Green and [black tea](#) [\[R\]](#)

In contrast, CYP1A1 activity may be decreased by:

- Berries and their component ellagic acid [\[R\]](#)
- [Green tea](#) extracts [\[R\]](#)
- [Sulforaphane](#) found in broccoli [\[R\]](#)
- [St. John’s Wort](#) [\[R\]](#)
- [Lycopene](#) found in tomatoes, carrots, and watermelon [\[R\]](#)
- Naringenin and 6’,7’-dihydroxybergamottin from [grapefruit](#) juice) [\[R\]](#)
- Galangin and [propolis](#) [\[R\]](#)
- Zyflamend, a widely used herbal formulation produced from the extracts of ten common herbs ([rosemary](#), turmeric, [ginger](#), [holy basil](#), [green tea](#), hu zhang, Chinese goldthread, barberry, [oregano](#), and Baikal skullcap) [\[R\]](#)

CYP1A1 Genetics

The ‘G’ allele of [rs4646903](#), linked to higher CYP1A1 levels, has been associated with an increased risk of leukemia, cervical, hepatocellular, lung, prostate, colorectal, breast and head and neck cancers, possibly by turning PAHs into cancer-causing chemicals. This variant may also increase the risk of PCOS, recurrent pregnancy loss, and male infertility through its role in estrogen metabolism [\[R, R, R, R, R, R, R, R, R\]](#).

Similarly, the ‘C’ variant of [rs1048943](#) increases CYP1A1 activity and has been associated with an increased risk of lung cancer, laryngeal cancer, oral cancer, colorectal cancer, cervical cancer, hepatocellular carcinoma, prostate cancer, and leukemia. In the case of lung cancer, the risk may be even higher in smokers carrying this variant [\[R, R, R, R, R, R, R, R, R\]](#).

The ‘A’ allele of [rs2606345](#) may decrease CYP1A1 levels. This variant has been associated with an increased risk of lung conditions such as pneumonia or ARDS, possibly by increasing inflammation and oxidative stress in the lungs. In contrast, the ‘C’ allele has been associated with esophageal and testicular cancer [\[R, R, R, R, R, R, R\]](#).

The ‘T’ allele of [rs2472297](#) may increase CYP1A1 activity. This variant has been associated with greater coffee consumption, as well as with a decreased increment in blood glucose after consuming caffeine [\[R, R, R\]](#).

Finally, the ‘A’ allele of [rs4646421](#) has been associated with hepatocellular carcinoma, endometrial cancer (especially in women with abdominal obesity), esophageal cancer (in hot tea drinkers), laryngeal cancer, decreased lung function in elderly people exposed to PAHs, and chronic hepatitis B infection [\[R, R, R, R, R\]](#).



Likely typical CYP1A1 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CSK	rs2606345	AC
ULK3	rs2472297	CC
CYP1A1	rs4646903	AA
CYP1A1	rs1048943	TT
ARID3B	rs4646421	GG

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

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

DOSAGE		DOSAGE			
1	Astaxanthin	12 mg	2	Resveratrol	150 mg
3	Andrographis	300 mg	4	Indole-3-Carbinol	200 mg
5	Cruciferous Vegetables				

1



Astaxanthin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an astaxanthin supplement daily, with a typical dosage ranging from 4 to 12 mg. It is best taken with a fat-containing meal to enhance absorption.

TYPICAL STARTING DOSE
12 mg

Description

Astaxanthin is a powerful antioxidant found in certain microalgae and seafood. It is known for its potential benefits in reducing oxidative stress, supporting skin health, and promoting eye health.

[Astaxanthin](#) is a naturally-occurring orange-red pigment carotenoid found in algae, shrimp, lobster, crab, and salmon [\[R\]](#).
As an antioxidant, astaxanthin is **10 times stronger than zeaxanthin, lutein and [beta-carotene](#)**, and **100 times stronger than [vitamin E](#)** [\[R\]](#).
People take astaxanthin to:

- Support skin health [\[R, R\]](#)
- Reduce exercise fatigue [\[R, R\]](#)
- Prevent heart disease [\[R, R, R\]](#)

How it helps

Astaxanthin may increase CYP1A1 activity. If you're predisposed to decreased CYP1A1 activity, consider supplementing with astaxanthin [\[R\]](#).

2



Resveratrol

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 150-500 mg of resveratrol as a supplement daily, preferably with meals to enhance absorption. This dosage range is based on studies for various health benefits, and it's advised to not exceed 500 mg per day without medical supervision.

TYPICAL STARTING DOSE

150 mg

Description

Resveratrol is a natural compound found in red grapes, red wine, and some berries. It is known for its potential antioxidant properties and its role in promoting heart health.

[Resveratrol](#) is an antioxidant found mainly in [\[R\]](#):

- Berries
- Red grapes
- Red wine
- Peanuts

It’s purported to have anti-inflammatory and antioxidant effects [\[R, R, R\]](#).

How it helps

Resveratrol may increase CYP1A1 activity. If you're predisposed to decreased CYP1A1 activity, consider supplementing with resveratrol [\[R\]](#).

3



Andrographis

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an Andrographis supplement following the dosages provided on the product label, usually ranging from 300 to 600 mg daily. This is typically divided into two to three doses throughout the day, with meals, and should be done for up to 8 weeks to support immune function or relieve cold symptoms.

TYPICAL STARTING DOSE

300 mg

Description

Andrographis is a medicinal herb native to South Asian countries like India and Sri Lanka. It is known for its potential health benefits, primarily due to its active compound, andrographolide, which has anti-inflammatory and immune-boosting properties. Andrographis is often used in traditional medicine to treat conditions such as upper respiratory tract infections, fever, and digestive issues.

[Andrographis](#) (*Andrographis paniculata*) is an Ayurvedic plant known as the “king of [bitters](#)” People traditionally use it to fight infections and the common cold [\[R\]](#).

How it helps

[Andrographolide](#) from *Andrographis paniculata* may increase CYP1A1 activity. If you're predisposed to decreased CYP1A1 activity, consider supplementing with andrographis [\[R\]](#).

4



Indole-3-Carbinol

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an indole-3-carbinol supplement with a glass of water, preferably with meals to enhance absorption. Dosages typically range from 200 to 400 mg per day, divided into two doses. Continue daily for as long as recommended by your healthcare provider, which can vary based on the specific condition being addressed.

TYPICAL STARTING DOSE

200 mg

Description

Indole-3-carbinol is a compound found in cruciferous vegetables that may support hormonal balance and has been studied for its potential to reduce the risk of certain cancers.

How it helps

Indole-3-carbinol from cruciferous vegetables may increase CYP1A1 activity. If you're predisposed to decreased CYP1A1 activity, consider supplementing with indole-3-carbinol [\[R\]](#).

5



Cruciferous Vegetables

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate a serving of cruciferous vegetables, such as broccoli, cauliflower, Brussels sprouts, kale, or cabbage, into at least one meal each day. A serving size is about a half cup cooked or one cup raw. Try to maintain this habit consistently over time for the best health outcomes.

Description

Cruciferous vegetables like broccoli, cauliflower, and kale are rich in vitamins, fiber, and antioxidants. Including them in your diet can promote overall health and may offer cancer-protective properties.

Cruciferous vegetables are a group of vegetables that belong to the Brassicaceae family. They are rich in fiber, vitamins, minerals, and other nutrients.

Some common cruciferous vegetables include broccoli, cauliflower, cabbage, kale, and brussels sprouts.

How it helps

Indole-3-carbinol from cruciferous vegetables may increase CYP1A1 activity. If you're predisposed to decreased CYP1A1 activity, consider eating more cruciferous vegetables [\[R\]](#).