SelfDecode™

SOD2 (Oxidative Stress)

Gene Report

REPORT CATEGORY

DETOX

Sample Client

Report date: 15 January 2026

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Table of Contents

Personal information

NAME

Sample Client

SEX AT BIRTH

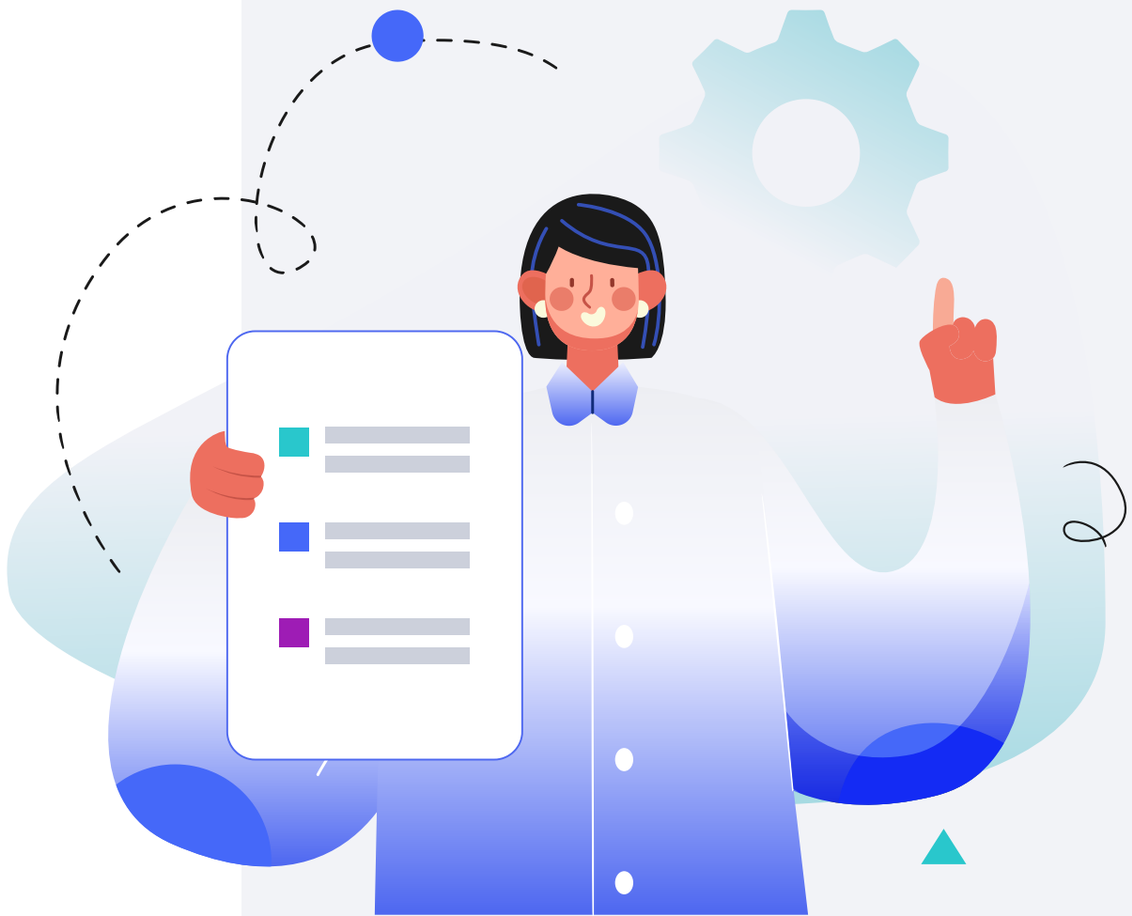
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

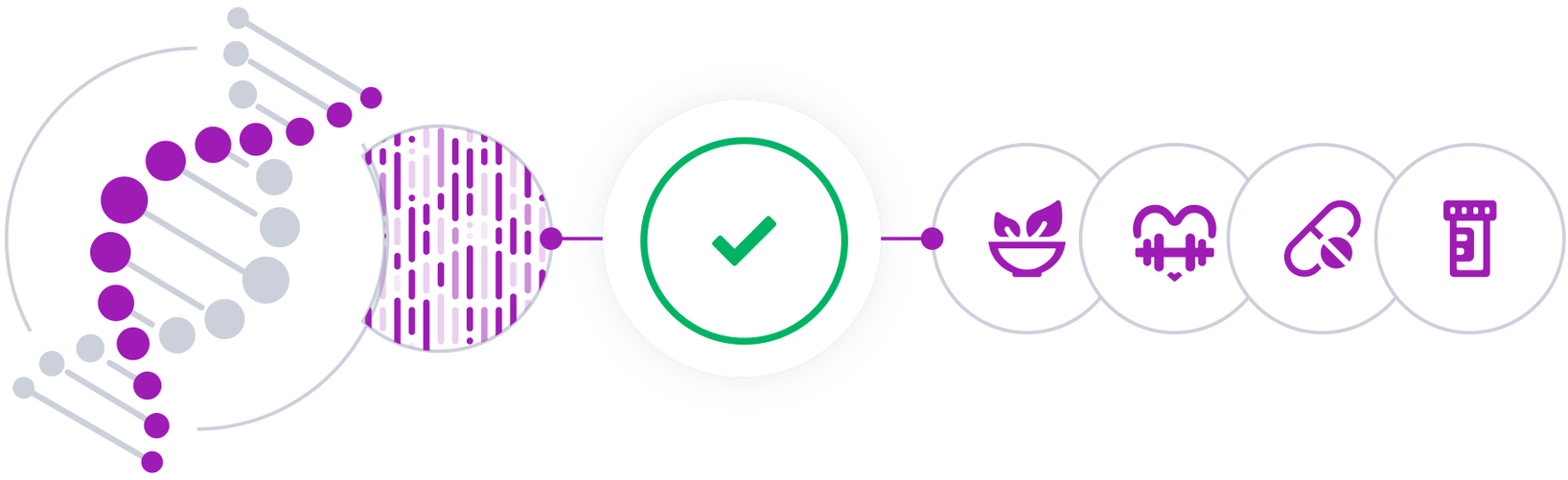


DISCLAIMER

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.

How this works

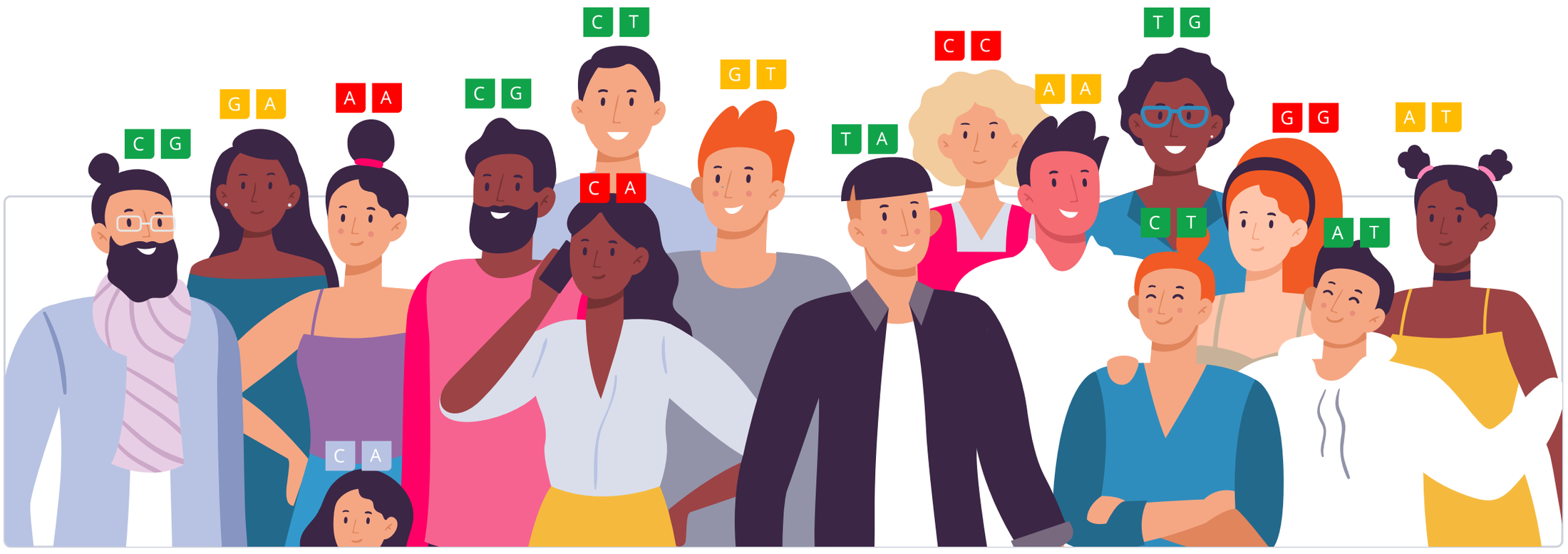
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

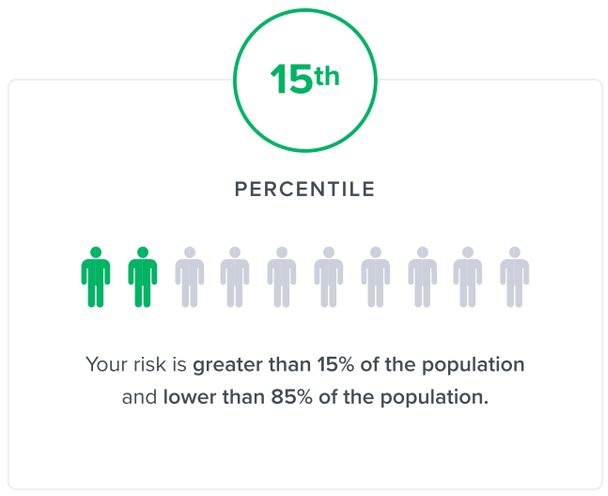
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

Superoxide dismutases are enzymes that transform the superoxide (O2-) radical into either ordinary oxygen (O2) or hydrogen peroxide (H2O2).

Superoxide is produced as a by-product of oxygen metabolism. If left be, it can cause widespread cell damage. Thus, SOD is an important part of antioxidant defense in all cells exposed to oxygen [R].

SOD2 (also called MnSOD) is one of the superoxide dismutase enzymes, alongside SOD1 and SOD3. SOD2 is unique in that it requires manganese (Mn) to work, whereas the other two need copper and zinc.

SOD2 transforms the superoxide produced by the mitochondria into the less toxic hydrogen peroxide and oxygen. This allows SOD2 to clear mitochondrial reactive oxygen species (ROS) and confer some protection against cell death [R, R].

SOD2 Genetics

PERSONALIZED TO GENES

Based on the genetic variants we looked at, you likely have lower SOD2 enzyme activity. This means you may have higher oxidative stress levels. However, keep in mind that other factors can also influence your SOD2 activity.

The *SOD2* gene has many described polymorphisms. Among them, rs4880 has got most of the spotlight in SOD2 research. Its minor allele ‘G’ is associated with decreased activity and worse protection against oxidative stress. However, some cell research suggests that this variant can cross the mitochondrial membrane more easily [R].

Owing to its decreased antioxidant activity, this variant has been associated with diseases such as [R, R, R, R]:

- Breast, prostate, and colorectal cancer
- Hypertension
- Sporadic motor neuron disease
- Alzheimer’s disease
- Parkinson’s disease
- Noise-induced hearing loss
- Cisplatin-induced ear toxicity
- Infertility
- Phthalate-induced lung damage

In contrast, the major ‘A’ variant is more common among people with [R]:

- Cardiomyopathy
- Atherosclerosis
- Lung cancer

The association of this variant with longevity isn’t straightforward either. While a study found the ‘G’ variant was more common among very elderly Danish people, the ‘A’ variant was prevalent among very elderly Ashkenazi Jewish men in another study. Nevertheless, **the growing consensus is that ‘G’ is the risk allele of rs4880** [R, R].

A second SNP, rs2758331, has also been associated with lifespan. In one study of exceptionally long-lived people in New England, the ‘C’ allele of rs2758331 was significantly

LOWER ACTIVITY

Likely lower SOD2 activity based on the genetic variants we looked at

23%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **23% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SOD2	rs4880	GG
TCP1	rs2758331	AA

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

more common in the oldest old than in the general population [R].

This SNP is nowhere near as well-studied as rs4880, and only a single study has investigated its effect on lifespan so far. Furthermore, while the ‘A’ allele of rs2758331 has been associated with prostate cancer (thereby supporting the idea of a beneficial ‘C’ allele), the ‘C’ allele has been associated with liver damage after bisphenol A (BPA) exposure [R, R].

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
1	Manganese supplements	1 mg

		DOSAGE
2	Curcumin	500 mg

1

Manganese supplements

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 1-5 mg of manganese supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

1 mg

Description

Discuss manganese supplements with your doctor [R, R]. Keep in mind that most supplements contain 5-20 mg, which might be excessive if you get enough manganese from your diet [R]

How it helps

SOD2 requires manganese to function, so it's important to make sure you get enough manganese in your diet. Higher than average manganese levels were found in the hair of people who lived to a hundred years of age. However, both manganese deficiency and excess manganese have been linked with oxidative stress and degenerative disease [R, R].

2

Curcumin

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE

500 mg

Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

Turmeric is a yellow spice from India. It may reduce inflammation and oxidative stress [R].

The most important active compound in turmeric is **curcumin.** People use curcumin for [R, R, R, R, R, R]:

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

How it helps

In fly, mouse, and cell studies, supplemental curcumin increased SOD2 activity and reduced markers of oxidative stress and aging [R, R].

A meta-analysis of three human trials found that curcumin did not seem to directly increase SOD concentrations. However, curcumin supplementation did measurably decrease malondialdehyde (MDA), a marker of oxidative stress [R].

Please note: *curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements* [R, R, R].

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.