SelfDecode™

MTRR (Methylation)

Gene Report

REPORT CATEGORY

DETOX

Sample Client

Report date: 15 January 2026

Powered by omicsedge

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Personal information

NAME

Sample Client

SEX AT BIRTH

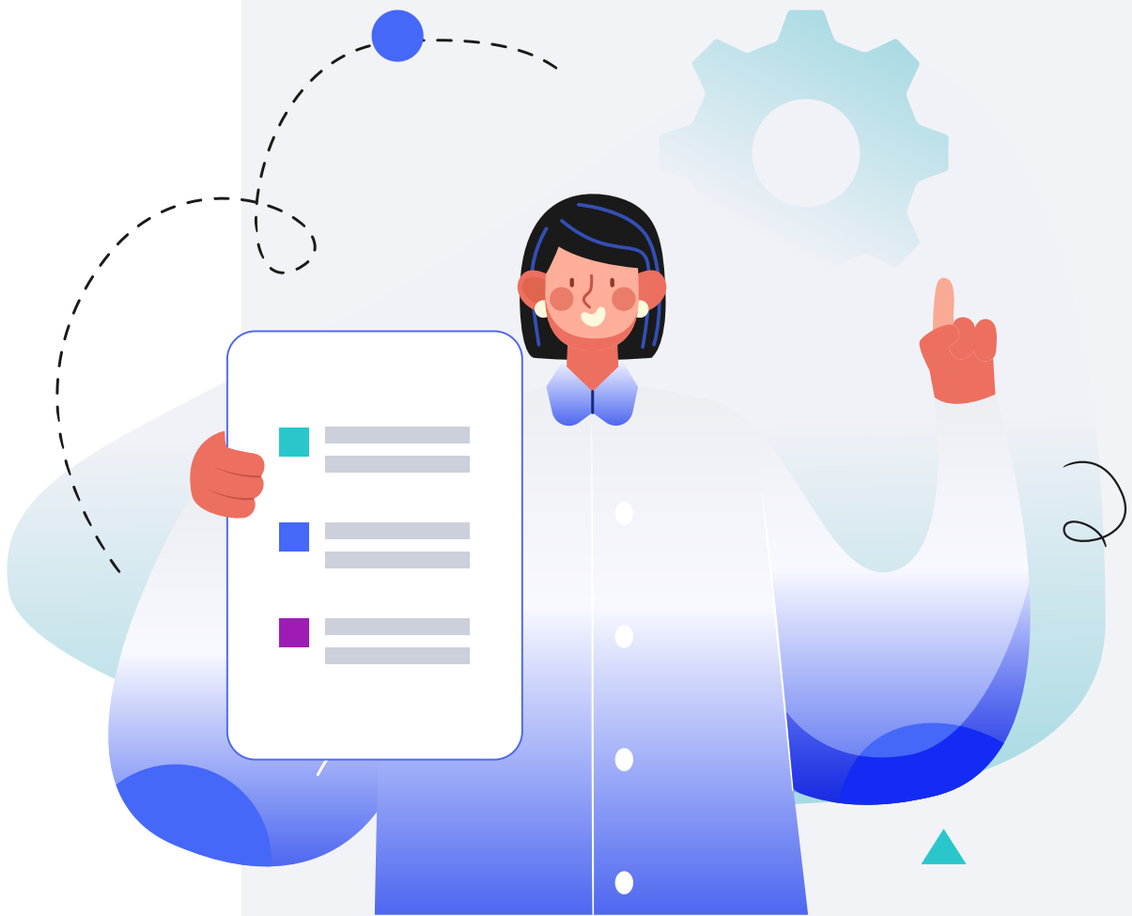
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

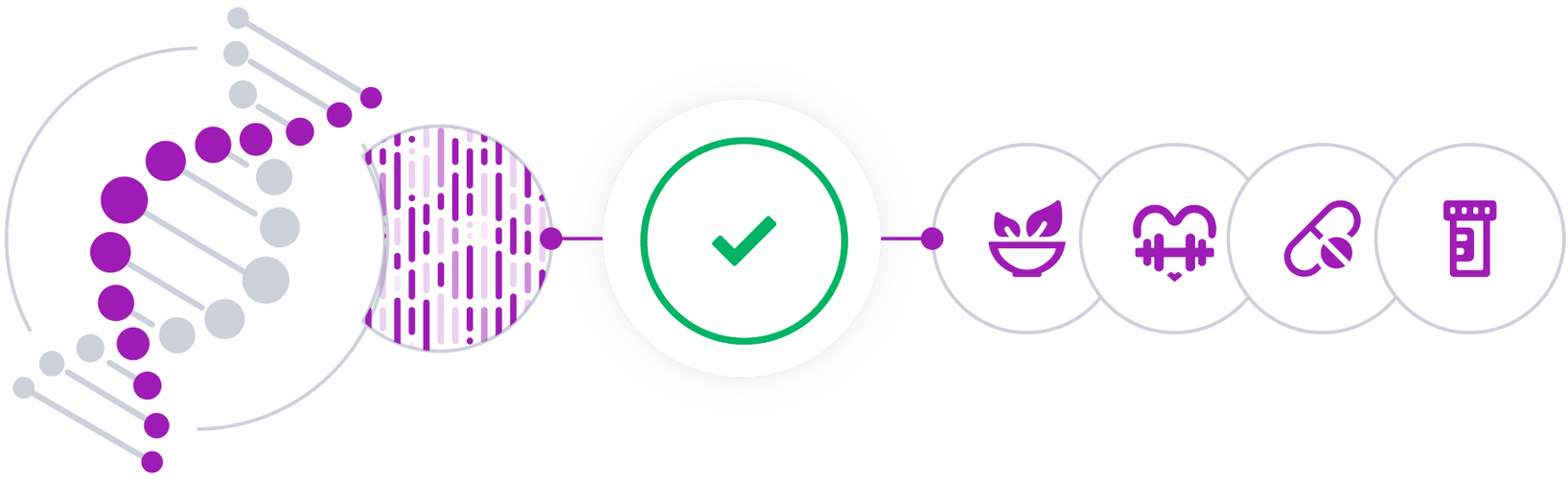


DISCLAIMER

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

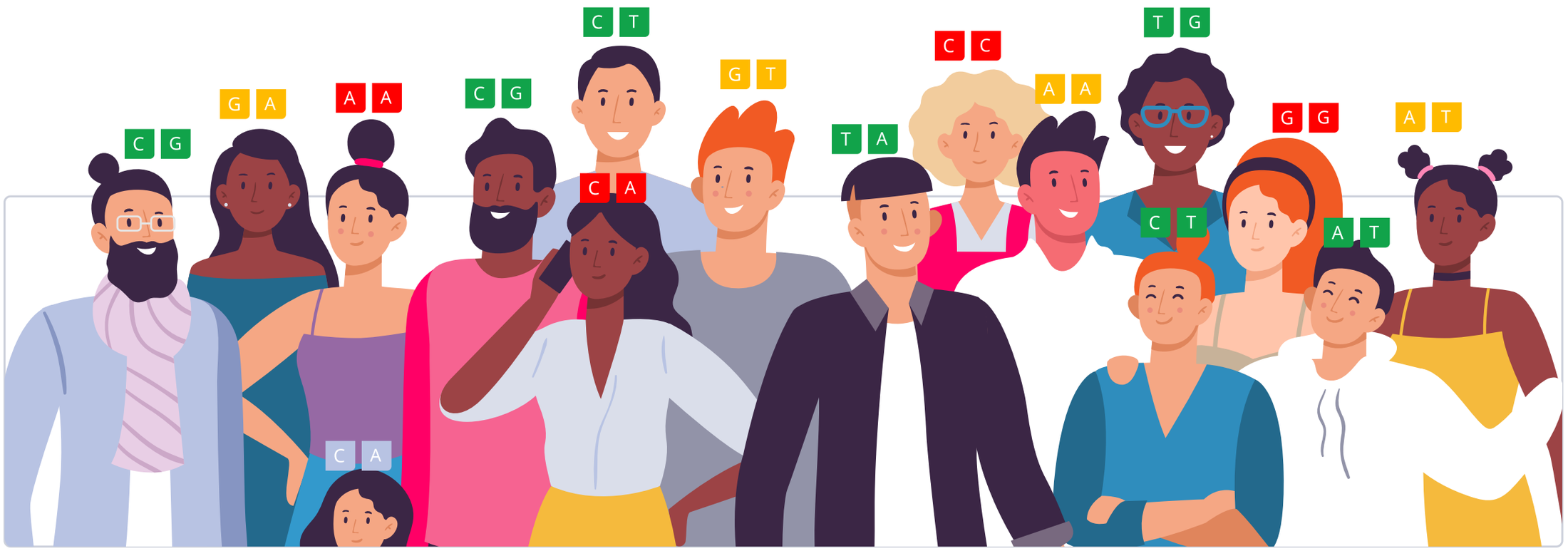
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

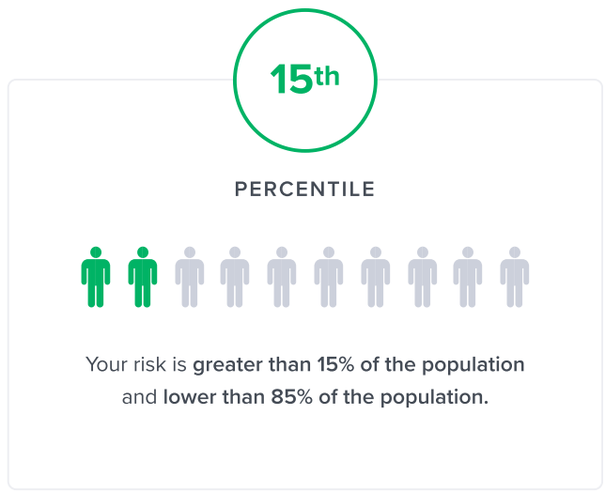
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

Methylation is when a methyl group is transferred from one compound to another. Methyl groups are switches that turn on or off genes based on environmental cues. This is called *epigenetics*.

Methyl groups also signal which hormones, brain chemicals, and amino acids need to be broken down and removed, maintaining a healthy balance in the body. Issues with the methylation cycle play a role in heart health, mental health, fertility problems, birth defects, cancer, and more [R, R, R].

The methylation cycle uses folate to produce the active vitamin methylfolate (5-methyl THF). This step is crucial for turning harmful homocysteine into methionine [R].

In the next step, methionine obtained via these pathways creates SAM-e (S-adenosyl-methionine), a compound that provides a methyl group for methylation [R, R].

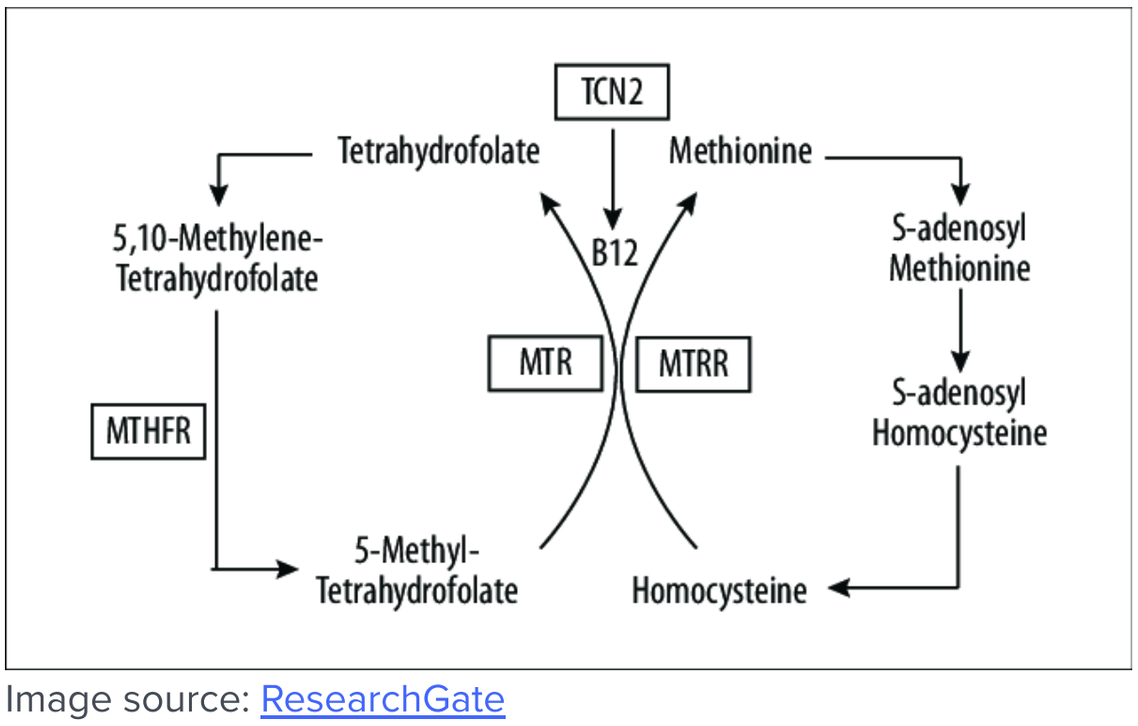


Image source: ResearchGate

The *MTRR* gene encodes an enzyme called methionine synthase reductase. This enzyme supports the function of methionine synthase, which turns homocysteine into methionine. This pathway also relies on vitamin B12 and zinc [R, R, R].

MTRR Genetics

PERSONALIZED TO GENES

Based on the genetic variants that we looked at, you may be predisposed to a typical MTRR activity. This means your MTRR enzyme may be typically effective at methylation and homocysteine removal. However, keep in mind that other genetic and environmental factors can influence your MTRR activity.

The most studied SNP in the *MTRR* gene is **rs1801394 or A66G**. The **"G" allele** changes one amino acid in the MTRR structure, **reducing** its ability to bind and activate MTR [R].

This variant has shown mixed results when it comes to homocysteine levels. Most studies observed its link with elevated homocysteine but some found no link. People with rs1801394-G may have an impaired response to folic acid for homocysteine reduction [R, R, R, R, R].

Studies have observed a potential link between this variant and:

- Colorectal and other types of cancer [R, R]
- Male fertility issues (mostly in Asians) [R, R]
- ADHD in children [R]
- Congenital heart disease (only in Asians) [R, R]
- Down syndrome [R, R]
- Increased choline needs [R]

A large meta-analysis failed to confirm the link between this variant and neural tube defects. In one study, the "GG" genotype was linked to spina bifida only in a subgroup of mothers **deficient in vitamin B12** [R, R].

Another well-researched SNP in this gene is **rs1532268**. The **"T" allele** changes the enzyme structure and **reduces its activity** [R].

The effects of this variant may **also depend on vitamin B12 status**. In one study, it was associated with increased homocysteine when B12 status was low. Other studies have linked it to [R]:

- Gastric cancer [R]
- Congenital heart disease [R]

TYPICAL ACTIVITY

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

45%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **45% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTRR	rs1801394	AG
MTRR	rs1532268	CT

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

- Neural tube defects (mixed evidence) [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	Vitamin B12	10 mcg

1

Vitamin B12

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take a 50 mcg vitamin B12 supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

10 mcg

Description

Vitamin B12 is a water-soluble vitamin primarily found in animal-based foods like meat, fish, and dairy products. It plays a crucial role in maintaining healthy nerve cells, DNA synthesis, and red blood cell formation. Vitamin B12 deficiency can lead to anemia, neurological issues, and fatigue.

Vitamin B12 is important for [R, R]:

- Building DNA
- Nervous system function
- Energy production

You can get vitamin B12 from [R]:

- Animal products (meat, fish, eggs, and dairy)
- Fortified foods
- Supplements

Adults should be getting **2.4 micrograms** of vitamin B12 every day [R].

How it helps

Vitamin B12, an essential component of the MTRR (Methionine synthase reductase) pathway, aides in the process of DNA synthesis and repair. When there's a mutation in MTRR, vitamin B12 supplementation can help compensate, ensuring that methylation - a key biochemical process - occurs optimally.

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.

Vitamin B12	**687 pg/mL**	200 – 400 – 1000 – 1100	9 Nov 2025
Active B12	**500 pmol/L**	20 – 35 – 134	13 Jan 2026
Homocysteine	**12.84 umol/L**	5 – 9 – 15 – 100	9 Nov 2025