

MTR (Methylation)

Gene Report

REPORT CATEGORIES —



NUTRITION



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.

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

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 methyl group for methylation [R, R].

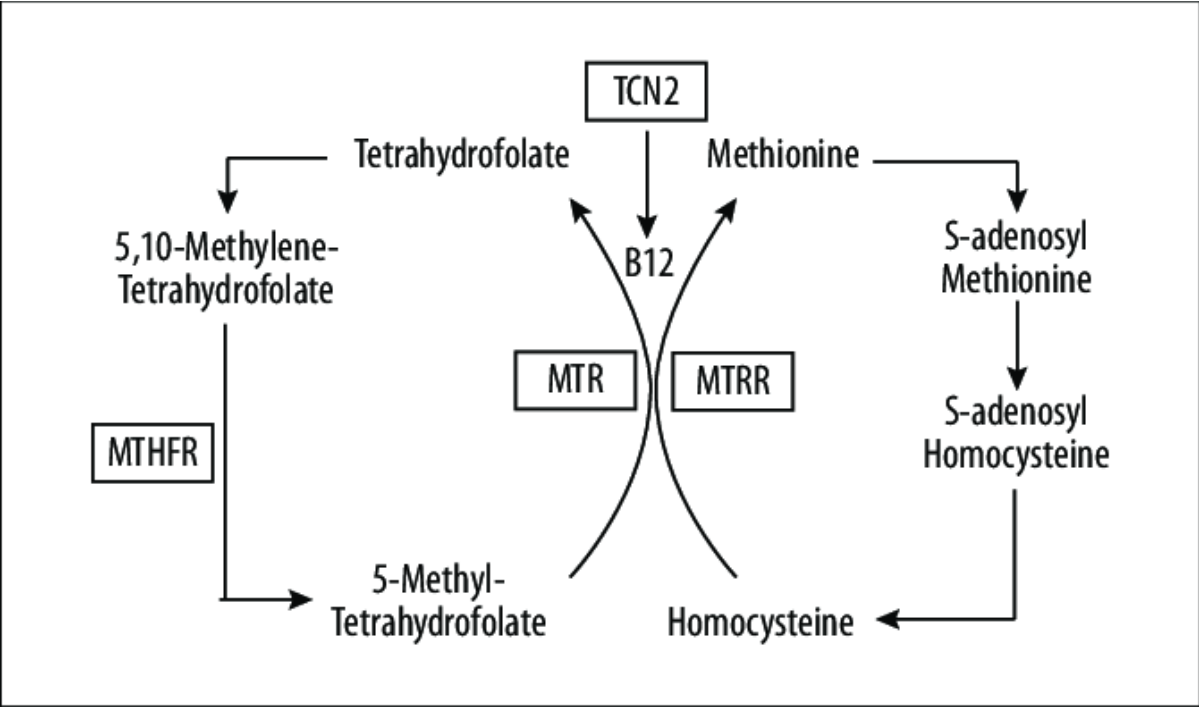


Image source: [ResearchGate](#)

The [MTR](#) gene provides instructions for making an enzyme called **methionine synthase**. This enzyme plays a key role in methylation—it helps convert homocysteine to methionine. To work well, methionine synthase requires **methylcobalamin** (a form of vitamin B12) and another enzyme, encoded by the [MTRR](#) gene [R].

MTR Genetics

 PERSONALIZED TO GENES

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

The main *MTR* gene variant is [rs1805087](#) or **A2756G**. The “G” allele changes the enzyme structure and appears to **increase** MTR activity, judging by its link with **lower homocysteine levels** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, studies have also linked this allele to:

- Fertility problems [\[R\]](#)
- Autism [\[R\]](#)
- Depression and stress [\[R\]](#), [\[R\]](#)
- Cognitive impairment [\[R\]](#)

Assuming a higher activity, the “G” allele should increase methylation, and some studies have confirmed this. The mechanism behind the negative associations of this allele is not clear, but it may involve **excessive or altered DNA methylation** [\[R\]](#), [\[R\]](#).

Finally, studies have found negative or mixed results for the link between rs1805087 and:

- Cancer [\[R\]](#), [\[R\]](#)
- Neural tube defects [\[R\]](#)
- Congenital heart disease [\[R\]](#)



LOWER ACTIVITY

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

65%

OF USERS SHARE THE SAME SCORE



You have the same genetic predisposition as 65% of our users.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTR	rs1805087	AA

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	Vitamin B12	10 mcg	2	Zinc	10 mg

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 assists with the MTR (MTR being a gene that plays a significant role in methylation) as it helps to convert homocysteine to methionine, a crucial step in methylation. Methylation, a chemical reaction in the body, is important for cellular repair, detoxification, energy production, and immune response.

Vitamin B12 helps the MTR enzyme work properly and turn homocysteine into methionine [\[R\]](#).

People with high vitamin B12 levels may have lower homocysteine. Supplementation with vitamin B12 (1 mg/day) may lower homocysteine levels in older people [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Methylcobalamin is the active form of this vitamin used by MTR. In theory, this form may be more effective at increasing MTR activity.

2



Zinc

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a 15 mg zinc supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

10 mg

Description

Zinc is an essential mineral found in various foods, including meat, dairy, and nuts. It is crucial for immune function, wound healing, DNA synthesis, and maintaining healthy skin and nails. Zinc supplements are sometimes used to support immune health and manage zinc deficiencies.

[Zinc](#) is an essential mineral. Your body needs it to [\[R\]](#), [\[R\]](#):

- Defend against disease
- Protect DNA from damage
- Heal wounds
- Control blood sugar

Some of the best sources of zinc include **shellfish, pork, beef, and beans**. It is also available as a supplement [\[R\]](#).

Adults should get **8-11 mg of zinc** per day [\[R\]](#).

How it helps

Zinc is crucial for proper methylation because it supports the functioning of enzymes that transfer methyl groups to DNA. You can consider it as fuel for your body's methylation engine, helping it to work efficiently.

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		9 Nov 2025
	Active B12	500 pmol/L		13 Jan 2026
	Homocysteine	12.84 umol/L		9 Nov 2025