

Betaine

Biohacker Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026



Powered by

 omicsege

Table of Contents

03 How this works

- 04 Impact
- 05 Evidence
- 06 Some things to keep in mind

07 Introduction

08 Your genetics

09 Your recommendations

12 Next Steps

- 12 Your Lab Results

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.

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

Trimethylglycine (TMG) is a compound that occurs naturally in the body and is found in beetroot and other food sources. It was originally known as betaine because it was first discovered in sugar beets. However, TMG is one of the many betaines that have since been identified [R].

People consume TMG normally in their diet, though supplements are also available. TMG is also produced by the body from [choline](#). Dietary sources include [R]:

- Sugarbeets, from which commercial betaine is often extracted
- Spinach, beets, and other leafy green vegetables
- Wheat bran, wheat germ, and whole grains
- Shellfish and seafood

The main roles of TMG in the body include:

- Methylation support: Betaine is involved in the methylation cycle, where it donates methyl groups necessary for various critical biochemical processes, including the metabolism of homocysteine [R].
- Cellular protection: As an osmolyte, betaine protects cells by maintaining the integrity and stability of proteins and enzymes under stress conditions [R].
- Nitric oxide production: TMG supplementation may increase blood levels of nitric oxide. Nitric oxide widens blood vessels and increases muscle blood flow during short-term exercise [R, R].
- Antioxidant effects: When TMG donates a methyl group, it helps produce S-adenosylmethionine, an antioxidant [R, R].
- Mood balance and cognitive support: TMG increases S-adenosyl-methionine (SAME), which helps produce [serotonin](#), [dopamine](#), and [norepinephrine](#). Neurotransmitter balance supports good mental health [R].

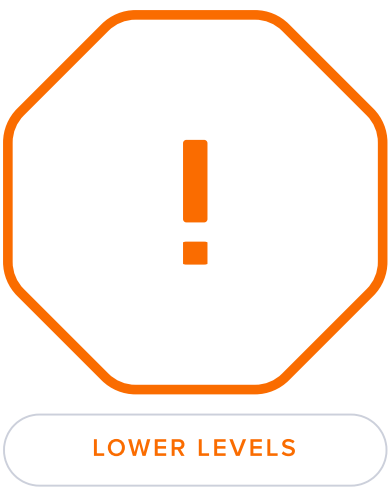
Factors Affecting Betaine (TMG) Levels

The amount of betaine-rich foods consumed significantly affects betaine levels in the body. A normal dietary intake of TMG from food is 0.5-2 g/day [R].

Limited human studies suggest that 2.5 g/day of TMG from supplements may be needed to increase blood TMG levels. **Because TMG supplements have been shown to increase total cholesterol, LDL-cholesterol, and triglyceride levels, they should only be taken under medical supervision [R, R, R].**

Other factors that may affect TMG levels include:

- Overall health: Conditions affecting liver function or methylation processes can impact betaine levels and requirements.
- Genetics and metabolism: Genetic factors can influence how effectively the body metabolizes betaine and other related compounds.



Predisposed to lower betaine levels based on 11,354 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC6A12	rs11061978	TT
SLC6A12	rs10848574	AA
BHMT	rs2431951	TC
BHMT	rs595653	GA
BHMT	rs6877698	GC
PEMT	rs746900	AA
CPS1	rs1047891	AC
BHMT	rs617219	AC
CPS1	rs715	CT
CBS	rs2851391	TC
SLC6A12	rs768912369	CC
BHMT	rs16876512	CC
SLC22A1	rs1564348	TT
SLC6A12	rs499368	AA
BHMT	rs17823774	CC
BHMT	rs16876394	TT

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	Beetroot Juice	2	Beetroot
3	Betaine (TMG)		500 mg

1



Beetroot Juice

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Consume 200-250ml of beetroot juice daily, at least 1-2 hours before engaging in physical activity or as part of your breakfast routine. This regimen should be maintained consistently for at least 2 weeks to start noticing benefits in terms of increased stamina and blood pressure regulation.

Description

Beetroot juice is a concentrated source of dietary nitrates, known for their potential to enhance athletic performance and improve blood pressure regulation. It is often consumed by athletes to enhance stamina and aid in recovery.

Beetroot (*Beta vulgaris*) contains iron, nitrates, sodium, potassium, and betalaine [R].

Beets are an inexpensive and mineral-rich vegetable that are widely used in Western cooking. Compared to other vegetables with high iron content, beets have a low price and are easy to store [R].

How it helps

Beetroot juice contains high levels of betaine, which can help improve liver health and reduce levels of homocysteine in the blood.

2



Beetroot

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate beetroot into your diet by eating it raw in salads or drinking beetroot juice. Aim for a serving of about one small beetroot or 200-250 ml of beetroot juice daily. You can maintain this dietary practice consistently as part of your regular diet.

Description

Beetroot is a vegetable rich in dietary nitrates, which may help improve cardiovascular health and exercise performance.

How it helps

Beetroot is a rich source of betaine, which may help support liver function, aid in detoxification, and reduce feelings of fatigue.

3



Betaine (TMG)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

To take Betaine (TMG) as a supplement, consume 500-2000 mg daily, preferably with a meal to enhance absorption. It is recommended to start at the lower end of the dosage range and adjust based on personal tolerance and effectiveness. This supplement can be taken indefinitely for ongoing support of heart health and liver function.

TYPICAL STARTING DOSE

500 mg

Description

Betaine is a compound found in various foods and used in dietary supplements for its potential to support liver health and contribute to healthy homocysteine levels.

How it helps

Betaine (Trimethylglycine/TMG) helps improve liver function, detoxification, and fat metabolism. It can also support cardiovascular health by reducing homocysteine levels in the blood.

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

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.

