

MAT1A (Methylation)

Gene Report

REPORT CATEGORIES —



NUTRITION



HEART & BLOOD
VESSELS

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 *MAT1A* gene provides instructions for producing the enzyme **methionine adenosyltransferase (MAT)**. The enzyme helps turn methionine into S-adenosylmethionine (SAM-e), making it a key component of the methylation cycle [R].

Variants in the MAT1 gene may affect its activity and compromise methylation.

MAT1A Variants and Health Outcomes

A study has linked one MAT1A variant, **rs3851059** or d18777A, with methylation issues. People with the “**A**” **allele** had higher homocysteine levels if their folate status was low. They also had over 4x higher odds of stroke [R].

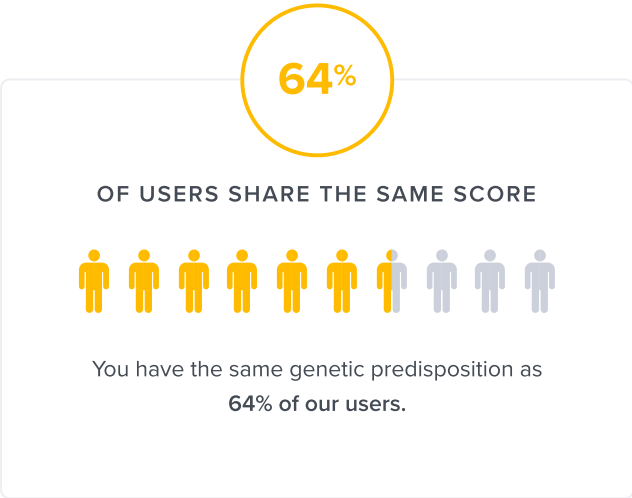
In the same study, people with another MAT1A variant, **rs7087728-A**, were less likely to have high blood pressure and stroke. They also had lower rates of DNA damage, especially if their vitamin B6 levels were high [R].

Interestingly, another study found a link between rs3851059-A and high homocysteine only in people with **higher fat intake** [R].



TYPICAL ACTIVITY

Likely typical MAT1A activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MAT1A	rs3851059	AG
MAT1A	rs7087728	GA

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	Methylfolate	400 mcg	2	SAM-e	400 mg
3	Limit Dietary Fats		4	Pyridoxine (Vitamin B6)	50 mg

1



Methylfolate

IMPACT

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EVIDENCE

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How to implement

Take an L-methyl folate supplement (400-800 micrograms daily), ideally with a meal, to improve absorption. This dosage is recommended for adults, including pregnant women, to support overall health, especially to reduce the risk of neural tube defects in developing fetuses. Continue daily use as part of your regular supplement routine.

TYPICAL STARTING DOSE

400 mcg

Description

Folate, a B-vitamin, is crucial for DNA synthesis, cell growth, and the formation of red blood cells. Adequate folate intake supports overall health and reduces the risk of neural tube defects during pregnancy.

[Vitamin B9](#) (*folate*) plays an essential role in [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Making DNA
- Metabolism
- Energy production

SelfDecode recommends L-methylfolate as the preferred folate supplement for those who need one. It is superior to folic acid because it doesn't require activation, but the research is still ongoing [\[R\]](#), [\[R\]](#).

How it helps

Increasing folate intake may lower homocysteine levels [\[R\]](#).

Supplementation with folate (0.5-1 mg/day), both alone and combined with [vitamin B12](#), may lower homocysteine levels in healthy people, those at risk of heart disease or cognitive decline, and patients with type 2 diabetes. A dose of 0.8 mg/day may be most effective [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

The combination of folate, vitamin B12, vitamin B6, and omega-3 fatty acids may further lower homocysteine levels [\[R\]](#).

B vitamins are required for the enzymes that break down homocysteine to work [\[R\]](#).

Please note: *You shouldn't consume more than 1,000 micrograms of folate from supplements per day* [\[R\]](#).

 PERSONALIZED TO YOUR GENES

People with your [MAT1A](#) gene variant may have higher homocysteine levels and an increased risk of stroke if their folate levels are low [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
MAT1A	rs3851059	AG	

2



SAM-e

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Take 400-1600 mg of SAM-e as a supplement daily, preferably on an empty stomach to enhance absorption. It is often recommended to start with low dosage and observe how your body responds over a few weeks, adjusting as necessary under the guidance of a healthcare provider.

TYPICAL STARTING DOSE
400 mg

Description

[SAM-e](#) is a chemical that helps maintain liver and brain health. Your body makes SAM-e from the amino acid *methionine*, but it’s also available as a supplement [\[R\]](#).

SAM-e supplementation may help with:

- Joint pain [\[R\]](#)
- Liver disease [\[R\]](#)
- Depression [\[R\]](#)

Please note: *SAM-e may not be safe for people with a bipolar disorder. It may also interact with 5-HTP, St. John’s wort, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take SAM-e supplements without consulting your doctor [\[R\]](#), [\[R\]](#), [\[R\]](#).*

How it helps

S-adenosylmethionine or [SAM-e](#) provides methyl groups for methylation reactions and helps clear homocysteine [\[R\]](#), [\[R\]](#).

It also boosts glutathione and may help support liver health, mood, and more [\[R\]](#).

The MAT1A enzyme helps turn methionine to SAM-e, making it a key component of the methylation cycle [\[R\]](#).

Please note: *SAM-e may not be safe for people with bipolar disorder. It may also interact with 5-HTP, St. John’s wort, and different medications. Combining it with antidepressants can be dangerous and even life-threatening. Never take SAM-e supplements without consulting your doctor [\[R\]](#), [\[R\]](#), [\[R\]](#).*

3



Limit Dietary Fats

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Reduce your total fat intake to less than 30% of your total daily calories. This means if you consume 2000 calories a day, aim for less than 67 grams of fat per day. Choose lean meats, opt for low-fat or fat-free dairy products, and cook with minimal amounts of healthy oils like olive or canola oil.

Description

Limiting dietary fats, particularly unhealthy saturated and trans fats, can help reduce the risk of heart disease and maintain a healthy weight. Choosing leaner sources of fats and moderating overall fat intake supports cardiovascular health and general well-being.

How it helps

High-fat diets can elevate homocysteine levels through several pathways. They can impair methylation processes by reducing the bioavailability of vitamins B6, B12, and folate, which are essential for homocysteine metabolism. Additionally, high-fat intake often leads to increased oxidative stress and inflammation, which disrupts enzyme activities like methylenetetrahydrofolate reductase (MTHFR), thereby inhibiting homocysteine breakdown. Elevated LDL and triglyceride levels associated with high-fat diets may also contribute to increased homocysteine levels by impacting shared metabolic pathways.

 PERSONALIZED TO YOUR GENES

Your **MAT1A** gene variant has been associated with higher homocysteine levels only in people with a high fat intake [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
MAT1A	rs3851059	AG	

4



Pyridoxine (Vitamin B6)

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take a pyridoxine (vitamin B6) supplement daily. Requirements range from 1.3 to 1.7 milligrams per day for adults, but supplement doses usually start from 50 mg. Consult with a healthcare provider for higher doses or specific medical conditions that might benefit from increased supplementation.

TYPICAL STARTING DOSE

50 mg

Description

A **vitamin B6 supplement** of up to 1.3-1.7 mg per day can be taken to meet needs not achieved through diet. Long term supplementation of vitamin B6 can be problematic, so talk to your doctor before using.

How it helps

People with methylation issues may have increased needs for B vitamins, especially folate, B12, and B6 [\[R\]](#).

Vitamin B6 helps support methylation. It’s crucial for the **transsulfuration pathway** that clears homocysteine and produces glutathione [\[R\]](#).

 PERSONALIZED TO YOUR GENES

People with your [MAT1A](#) gene variant may have lower rates of high blood pressure, stroke, and DNA damage, especially if their vitamin B6 levels are high [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
MAT1A	rs7087728	GA	