XCODE LIFE

MTHFR and Methylation

Uncover the health impacts of your *MTHFR* gene

For informational purpose only. Not for medical use.

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Introduction

Why Does Homocysteine Methylation Matter?

This report discusses a natural process called homocysteine methylation, which helps regulate our body's inflammation levels.
When homocysteine methylation is disrupted, it can contribute to a wide range of everyday health concerns, including:

- Acne and hives
- Stomach cramps and diarrhea
- Allergies and asthma
- Fatigue and sleep disturbances
- Joint aches
- Unexplained weight gain

A simple, non-invasive genetic test can reveal how efficiently your body carries out this process. With the right nutrients and personalized dietary guidance, it's possible to normalize homocysteine methylation and reduce inflammation, paving the way for better overall health.

What Is Homocysteine Methylation?

Each one of the trillions of cells in your body needs to breathe, eat, eliminate waste, and stay in balance, the same way we do too.
During these processes, by-products such as homocysteine are produced, which need to be recycled or cleared promptly to prevent a harmful buildup that could set off inflammation.
Homocysteine methylation is the vital cellular process that oversees homocysteine clearance and inflammation control.
This process relies on specific enzymes, and for these enzymes to function effectively, they require key nutrients, such as folate. Together, they help convert homocysteine into methionine, a beneficial amino acid, through the homocysteine methylation cycle.
When this process doesn't work efficiently, homocysteine can build up, triggering inflammation. Chronic (long-term) inflammation may contribute to a range of health issues, including obesity, high blood pressure, heart disease, stroke, nerve problems, joint aches, premature skin aging, and digestive issues like Irritable Bowel Syndrome (IBS) or Inflammatory Bowel Disease (IBD).
Understanding how well your body manages homocysteine methylation can be a powerful first step toward optimizing your health through the right nutrition and lifestyle choices.

Introduction

The Science Behind Your Genetic Results

We have comprehensively analyzed your DNA, focusing on over 65 genetic variations across 15 key genes.
These variations are studied across three major biological pathways that regulate inflammation, promote detoxification, and normalize overall cell health.
The pathways include:

- **Homocysteine recycling (folate and methionine cycles)**: Responsible for producing methionine, a critical methyl donor (SAMe) needed for hundreds of processes, including DNA repair and removal of toxic substances.
- **Homocysteine clearance (transsulfuration pathway & nitric oxide production)**: Converts excess homocysteine into glutathione (a key antioxidant) and maintains healthy nitric oxide levels for efficient detoxification.
- **Inflammation control (neurotransmitter regulation)**: Balances dopamine, serotonin, and norepinephrine, which influence mood, stress response, and inflammation control.

What To Expect From This Report

This report provides a comprehensive overview of your genetic makeup as it relates to the body's homocysteine methylation processes.
It includes:

- **Gene-by-gene insights**: Fifteen key genes involved in homocysteine methylation have been categorized into three core biological pathways. Each gene's activity level is assessed based on your unique genetic profile.
- **Detailed variant analysis**: A deep dive into 65 specific genetic variants (SNPs) that influence homocysteine methylation efficiency, highlighting the number of risk alleles you carry for each.
- **Targeted recommendations**: Based on your results, the report offers gene-specific and pathway-level nutrigenomic recommendations. These include essential nutrients, such as vitamins and cofactors, needed to support optimal enzyme function.
- **Actionable guidance**: In addition to genetic findings, you'll receive lifestyle and dietary suggestions customized to improve overall homocysteine methylation, support detoxification, and reduce inflammation.

Together, these insights provide a practical and personalized framework to support your health through optimized homocysteine methylation.

How To Read Your Report

Your overall health and well-being are shaped by a complex interplay between genetics and your environment, including factors like your lifestyle, diet, activity levels, stress levels, and many more.
The report is intended to be user-friendly. As such, these FAQs will help maximise the value you get out of this report.

1. What do "Normal Allele" and "Risk Allele" in the tables indicate?

Normal alleles are common genetic variants found in the general population. They are not linked to any particular disease or condition. In the context of this report, normal alleles are associated with normal, healthy enzyme levels or activity.

Risk alleles are genetic variants associated with an increased risk of developing a particular disease or trait. In the context of this report, risk alleles are associated with lower enzyme levels or activity.

2. In the "Gene Markers/SNPs Analyzed" table, what do the green, yellow, and red highlights signify?

The color is a visual aid; a rough estimation of your risk.

If "Your Genotype" has two copies of the normal allele, that rsID is highlighted in green.

If "Your Genotype" has one copy of the risk allele, it is highlighted in yellow.

If "Your Genotype" has two copies of the risk allele, it is highlighted in red.

3. What does the term "Implication" in the Prominent *MTHFR* SNPs table mean?

The term "Implication" describes the consequences or effect of the genotype you carry. In the context of this report, it refers to the activity or levels of the MTHFR enzyme.

4. What is the "Genes Involved In Homocysteine Methylation" page about?>

Besides *MTHFR*, several important genes regulate your body's methylation processes.

This section describes their functions. Color-coded indicators denote the activity of the enzyme produced by the respective genes.

5. Why are some gene pages circled in green and others in orange and red?

The colors denote how well the genes function.

Red and yellow indicate the presence of risk alleles that interfere with the gene functioning. Risk alleles are associated with lower levels or activity of the enzyme produced by that particular gene.

Green denotes a normal functioning gene and hence is associated with normal enzyme levels/activity.

6. What is the "Gene Markers/SNPs Analyzed" page about?

The page is a comprehensive overview of the specific Single Nucleotide Polymorphisms (SNPs) present in the important methylation genes. Depending on your genotype, these SNPs could affect the level/activity of some methylation enzymes in your body.

7. Why do some SNPs have an asterisk (*) next to them?

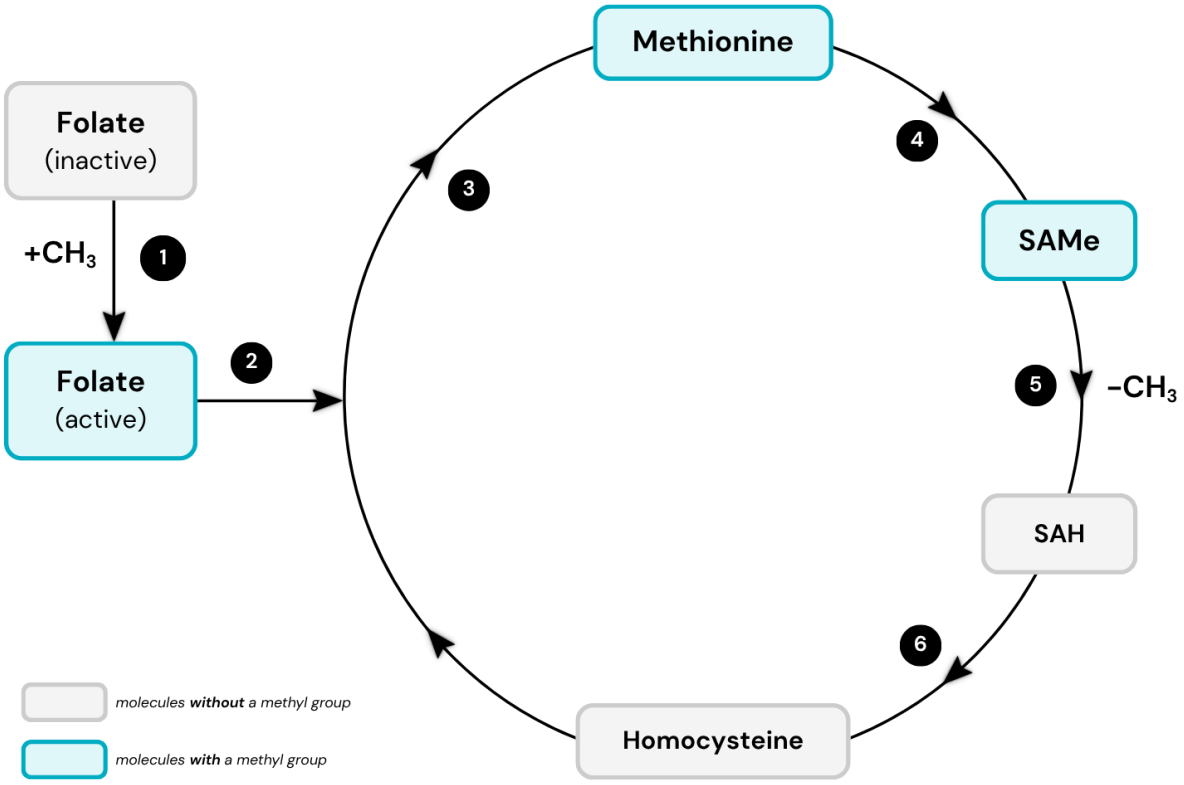
The asterisk indicates the use of a proxy SNP. We use proxies when a SNP isn't available in your DNA data, substituting it with a variant that is known to exist very close to the original. Due to its proximity, it likely has the same effect on the gene's activity.

8. How was the information in the report curated?

The information included in this report is based on scientific studies published in international journals and high-authority public resources like PLOS ONE, Nature, Elsevier, ClinVar, GWAS, and SNPedia, among others.

How Does Homocysteine Methylation Work?

This is a highly simplified flow diagram of the process of homocysteine methylation, whereby homocysteine is converted to methionine.



1. Inactive folate is converted to active folate by adding one methyl (CH_3) group to it.
2. Active folate donates this methyl group to the methylation cycle.
3. This methyl group attaches onto homocysteine, converting it to methionine.
4. Methionine converts to SAMe, which uses its methyl group in hundreds of biochemical reactions.
5. When SAMe uses up its methyl group, it is converted to SAH.
6. SAH inhibits methylation in excess. Converting it to homocysteine restarts methylation, prolonging the cycle.

Your *MTHFR* Result

Results based on prominent *MTHFR* SNPs.

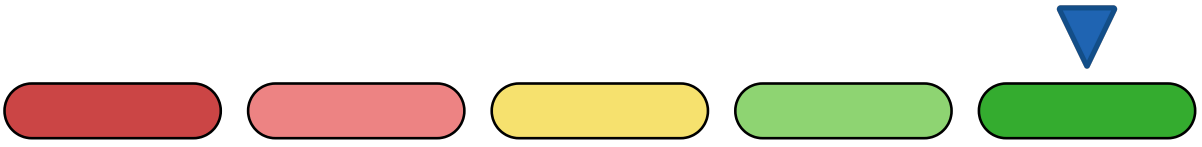
Your result: Normal MTHFR enzyme activity

The MTHFR gene produces the methylenetetrahydrofolate reductase enzyme. It converts folate into its active form. This is crucial for converting the harmful amino acid homocysteine to methionine, which is safe for the body. Two common variants in this gene are C677T and A1298C, which can lead to MTHFR enzyme activity and increased homocysteine levels.

Prominent *MTHFR* SNPs

rsID	Nucleotide Change	Normal Allele	Risk Allele	Your Genotype	Implication
rs1801131	A1298C	T	G	**TT**	**Normal** MTHFR enzyme activity
rs1801133	C677T	G	A	**GG**	**Normal** MTHFR enzyme activity

Your Result



**The visual aid above is for illustrative purposes only. It does not indicate your actual levels of the MTHFR enzyme.*

Understanding Your Results

Your result: Likely to have normal MTHFR enzyme activity

Based on your genetic data, you are likely to have **normal *MTHFR* gene function and, therefore, normal homocysteine levels.**

However, other factors like diet and environment can influence the MTHFR enzyme activity and homocysteine levels.

Some known causes of high homocysteine levels include:

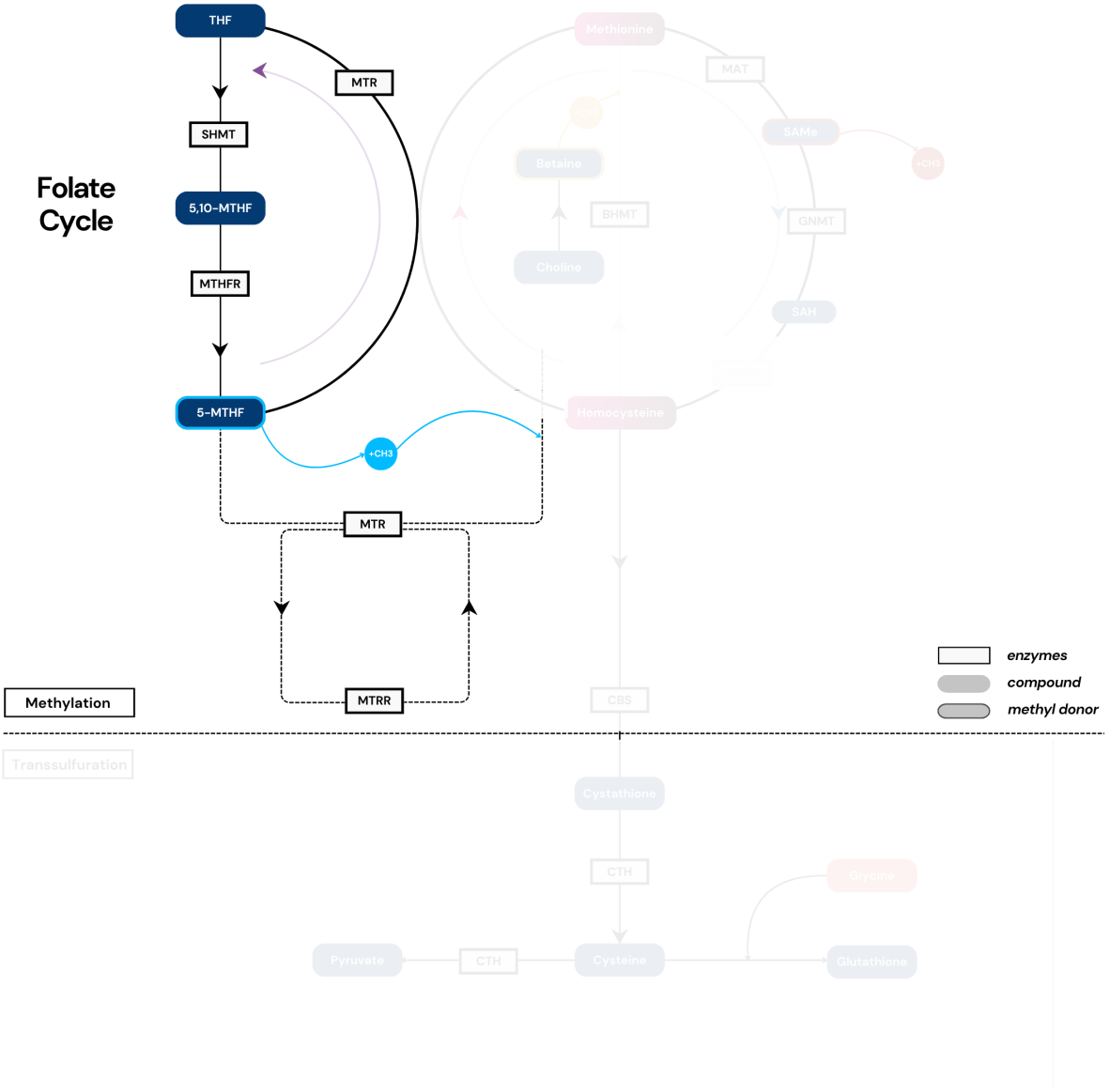
- Low levels of thyroid hormone
- Certain medications
- Kidney disease
- Psoriasis
- Vitamin B9 deficiency
- Vitamin B12 deficiency

It is important to note that not everyone with *MTHFR* mutations will have high homocysteine levels.

This is an informational report and is not intended for clinical use. Consult your healthcare provider for any health concerns or before making any changes to your health management plan.

Genes Involved In Homocysteine Methylation

1. Homocysteine Recycling Genes



Genes Involved In Homocysteine Methylation

Homocysteine Recycling Genes: Your Results

If your DNA doesn't contain any known homocysteine methylation markers on some genes, they may be omitted from these results. The possible enzyme activity results are normal, moderately reduced, and reduced.

MTHFD1

Your result: Likely to have normal MTHFD1 enzyme activity

About *MTHFD1*

The *MTHFD1* gene produces the methylenetetrahydrofolate dehydrogenase 1 enzyme that catalyzes the 3-step folate metabolism pathway. This is an important step in generating methyl donors for the homocysteine methylation cycle. Variants in this gene can alter the levels or activity of the enzyme produced, and can lead to disturbances in the homocysteine methylation cycle.

Nutrients That Support *MTHFD1*

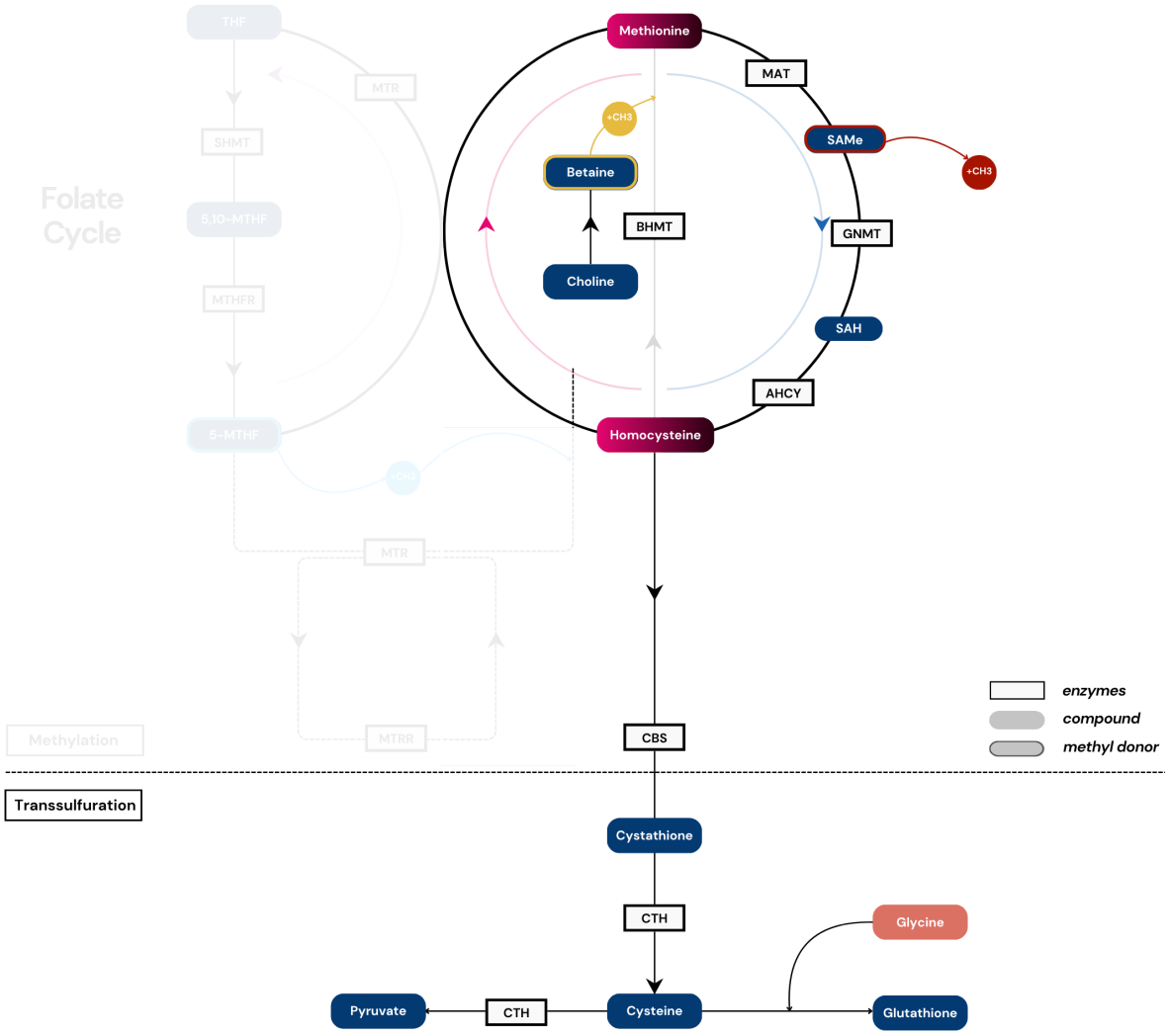
Folate (vitamin B9) provides essential methyl groups that support MTHFD1 enzyme activity and help maintain proper DNA methylation and synthesis.
The daily recommended intake for Vitamin B9 (folate) is 400 micrograms (mcg).
Try adding dark, leafy greens (like spinach and broccoli), beans, nuts, avocado, turnips, oranges, tomatoes, green peas, kidney beans, and wheat germ to your meals.

Optimizing Your Diet For *MTHFD1*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence MTHFD1 enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Genes Involved In Homocysteine Methylation

2. Homocysteine Clearance/Transsulfuration Genes



Genes Involved In Homocysteine Methylation

Homocysteine Clearance & Transsulfuration Genes: Your Results

If your DNA doesn't contain any known homocysteine methylation markers on some genes, they may be omitted from these results. The possible enzyme activity results are normal, moderately reduced, and reduced.

CBS

Your result: Likely to have normal CBS enzyme activity

About *CBS*

The *CBS* gene produces the cystathionine beta-synthase enzyme. It is crucial in the transsulfuration pathway, a branch of the homocysteine methylation cycle. The CBS enzyme catalyzes the first step of converting homocysteine into another amino acid called cysteine. Variants in the *CBS* gene can impair this conversion, leading to increased homocysteine levels.

Nutrients That Support *CBS*

Vitamin B6 (pyridoxine) supports CBS enzyme activity by acting as a cofactor, helping the enzyme break down homocysteine and maintain healthy sulfur metabolism.
The daily recommended intake for Vitamin B6 is 1.3mg, which increases to 1.5-1.7mg after age 50. Try adding B6-rich foods like nuts, lentils, cheese, shellfish, sweet potatoes, green peas, bananas, and avocados to your meals.

Optimizing Your Diet For *CBS*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence CBS enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Homocysteine Clearance & Transsulfuration Genes (Cont'd): Your Results

The possible enzyme activity results are normal, moderately reduced, and reduced.

AHCY

Your result: Likely to have normal AHCY enzyme activity

About *AHCY*

The *AHCY* gene produces the S-adenosylhomocysteine hydrolase enzyme. It converts a molecule called S-adenosylhomocysteine (SAH) to adenosine and homocysteine. This is crucial as a buildup of SAH can inhibit the work of methyltransferases which are responsible for the transfer of methyl groups to various substrates in the homocysteine methylation cycle.

Nutrients That Support *AHCY*

Vitamin B3 (niacin) supports AHCY enzyme activity by promoting NAD^+ production, which is essential for converting S-adenosylhomocysteine (SAH) into homocysteine.
The daily recommended intake for vitamin B3 is 14mg for men and 16mg for women.
Top food sources of vitamin B3 include chicken breast, salmon, lean meats (e.g., turkey, beef), peanuts, and mushrooms (especially crimini and portobello).

Optimizing Your Diet For *AHCY*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence AHCY enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Homocysteine Clearance & Transsulfuration Genes (Cont'd): Your Results

The possible enzyme activity results are normal, moderately reduced, and reduced.

CPS1

Your result: Likely to have normal CPS1 enzyme activity

About *CPS1*

The *CPS1* gene produces the carbomyl phosphate synthetase enzyme. It plays an important role in the urea cycle which converts excess ammonia in the body to urea. This cycle regulates the neuronal health and oxidative stress. Variants in the *CPS1* gene have been associated with higher homocysteine levels. However, the mechanism behind this is unclear.

Nutrients That Support *CPS1*

Vitamins B12 and **B6**, along with **glutamine**, support amino acid metabolism and nitrogen balance. This may help reduce ammonia levels and indirectly support the urea cycle, though N-acetylglutamate regulates *CPS1* activity.

The daily recommended intake for vitamin B12 is 2.4 micrograms (mcg); for vitamin B6 is 1.3mg (1.5-1.7mg after age 50), and for glutamine is 5-10g.

Include vitamin B12 and B6-rich foods like eggs, dairy products, fish, lentils, and bananas.

Beef, chicken, fish, shrimp, spinach, red cabbage, and yogurt are among the richest sources of glutamine.

Optimizing Your Diet For *CPS1*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence CPS1 enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Genes Involved In Homocysteine Methylation

Homocysteine Clearance & Transsulfuration Genes (Cont'd): Your Results

The possible enzyme activity results are normal, moderately reduced, and reduced.

BHMT

Your result: Likely to have normal BHMT enzyme activity

About *BHMT*

The *BHMT* gene produces the betaine-homocysteine S-methyltransferase enzyme. It transfers a methyl group from a compound called betaine to homocysteine to convert it into methionine. Methionine is then converted into SAMe. Variants in the *BHMT* gene can affect the enzyme levels or activity and may result in higher levels of homocysteine.

Nutrients That Support *BHMT*

Choline (vitamin B4) and its derivative **betaine** support BHMT enzyme activity by donating methyl groups to convert homocysteine into methionine. This pathway helps maintain methylation balance, especially when folate or B12 function is compromised.

The daily recommended intake (DRI) for choline is 330-468mg for men and 269-444mg for women; for betaine is 2.5g.

Choline and betaine-rich food sources include eggs, spinach, tofu, beetroot, and quinoa

Optimizing Your Diet For *BHMT*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence BHMT enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Genes Involved In Homocysteine Methylation

Homocysteine Clearance & Transsulfuration Genes (Cont'd): Your Results

The possible enzyme activity results are normal, moderately reduced, and reduced.

SHMT

Your result: Likely to have normal SHMT enzyme activity

About *SHMT*

The *SHMT* gene produces the serine hydroxymethyl transferase enzyme. It catalyzes the conversion of serine to glycine, essential for producing a form of folate, which reacts with the MTHFR enzyme. Variations in the *SHMT* gene can interfere with glycine production, which may result in reduced availability of folate and hence, higher homocysteine levels.

Nutrients That Support *SHMT*

Vitamin B6 supports SHMT enzyme function by enabling the conversion of serine to glycine, a key step in folate metabolism and methylation. A deficiency can disrupt this balance, potentially affecting DNA synthesis and homocysteine regulation.
The daily recommended intake for Vitamin B6 is 1.3mg, which increases to 1.5-1.7mg after age 50.
Rich sources of B6 include lentils, bananas, shellfish, sweet potatoes, and avocados.

Optimizing Your Diet For *SHMT*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence MTHFR enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Homocysteine Clearance & Transsulfuration Genes (Cont'd): Your Results

The possible enzyme activity results are normal, moderately reduced, and reduced.

GNMT

Your result: Likely to have normal GNMT enzyme activity

About *GNMT*

The *GNMT* gene produces the glycine N-methyltransferase enzyme. It transfers a methyl group from SAM to glycine to generate S-adenosylhomocysteine (SAH) and sarcosine. Variations in the *GNMT* gene can result in lower levels of the enzyme, which may cause homocysteine levels to build up.

Nutrients That Support *GNMT*

Betaine supports methylation by donating methyl groups via the BHMT pathway, helping maintain SAMe levels and indirectly regulating *GNMT* activity. This function is especially relevant when folate or B12 metabolism is under stress.

The daily recommended intake for betaine is 2.5g.

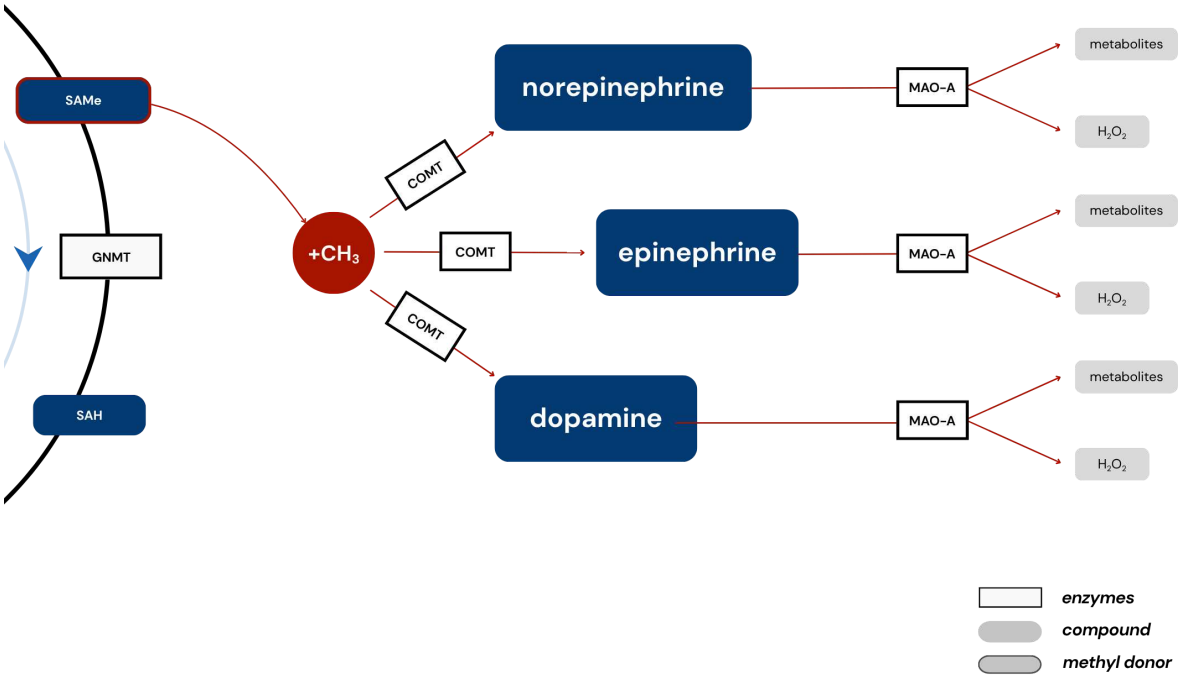
Top betaine-rich choices include beetroot, spinach, quinoa, sweet potatoes, and wheat bran.

Optimizing Your Diet For *GNMT*

In addition to genetic factors, factors such as nutritional status, lifestyle, and environmental exposures can influence GNMT enzyme activity. Refer to the Recommendations section at the end of this report for evidence-based strategies to support optimal methylation.

Genes Involved In Homocysteine Methylation

3. Inflammation Control Genes



Genes Involved In Homocysteine Methylation

Inflammation Control Genes: Your Results

If your DNA doesn't contain any known homocysteine methylation markers on some genes, they may be omitted from these results. The possible enzyme activity results are normal, moderately reduced, and reduced.

COMT

Your result: Likely to have moderately reduced COMT enzyme activity

About *COMT*

The *COMT* gene produces the catechol-o-methyltransferase enzyme. This enzyme transfers a methyl group from SAMe (a by-product of homocysteine to methionine conversion) to brain chemicals like dopamine and norepinephrine. Variants in the *COMT* gene may lead to imbalances in the brain chemicals, increasing the risk of certain psychiatric disorders.

Nutrients That Support *COMT*

Magnesium acts as a cofactor in COMT function, **omega-3 fatty acids** reduce neuroinflammation, and **gut-supporting foods** (rich in probiotics and prebiotics) influence dopamine metabolism through the gut-brain axis.

The daily recommended intake for magnesium is 420mg for men and 320mg for women; for omega-3 fatty acids is 1.1g for women and 1.6g for men (ALA) and 250-500mg (EPA+DHA); for probiotics is 5-10 billion colony forming units (CFU) per day for children, and 10-20 billion CFU for adults; for prebiotics is 3-13g.

To support this pathway, focus on:

- **Probiotics and prebiotics:** Yogurt, kefir, kimchi, garlic, onions, oats, green bananas
- **Omega-3s:** Salmon, flaxseeds, walnuts, chia seeds, mackerel
- **Magnesium-rich picks:** Pumpkin seeds, spinach, almonds, avocado, cashews

Optimizing Your Diet For *COMT*

- Start your day with yogurt topped with flaxseeds and sliced banana.
- Add garlic and onions to sautés, soups, or roasted vegetables.
- Snack on walnuts or chia pudding during the day.
- Choose grilled salmon or mackerel a few times a week.
- Toss spinach, pumpkin/flax seeds, and avocado into whole grain bowls or add them to salads.

Gene Markers/SNPs Analyzed

Gene	RSID	Normal Allele	Risk Allele	Your Genotype
MTHFD1	rs2236225	G	A	AG
MTHFD1	rs1950902	G	A	GG
CBS	rs234706	T	C	GG
CBS	rs2851391	C	T	CT
CBS	rs234714	C	T	CT
CBS	rs121964962	G	A	CC
AHCY	rs13043752	C	T	GG
CPS1	rs1047891	C	A	CC
CPS1	rs715	T	C	TT
BHMT	rs16876394*	T	C	TT
BHMT	rs16876394*	T	C	TT
BHMT	rs16876394*	T	C	TT
BHMT	rs3733890	G	A	GG
SHMT	rs1979277	C	T	GG
GNMT	rs3805946*	T	C	TT
COMT	rs4680	G	A	AG
COMT	rs9606186*	G	C	CG

Supplement Guide

This guide covers genes where your results indicate moderately reduced or reduced enzyme activity.

The supplements listed in this report are provided for informational purposes only and are not intended as prescriptions or direct recommendations.

The decision to begin, modify, or discontinue any supplement routine should be made in consultation with a qualified healthcare provider or dietitian who is familiar with your medical history and nutrient needs.

> ***COMT***
>
> **Your result: Likely to have moderately reduced COMT enzyme activity**
>
> **Probiotic supplemental form:** 10-20 CFU/day
>
> **Prebiotic supplemental form:** Either of the following in a day- Galactooligosaccharides (5-20g)/Fructooligosaccharides (5-15g)/Oligofructose (2-6 g)/Chicory fiber/inulin (5-10g) (contraindication- small intestinal bacterial overgrowth/SIBO or FODMAPs intolerance- Fermentable Oligosaccharides, Disaccharides, Monosaccharides, and Polyols)
>
> **Omega-3 supplemental form:** Fish oil (EPA+DHA): 250-500 mg/day Flax oil (ALA): 1.1 g for women; 1.6g for men (FDA recommends no more than 2 g/day deriving from supplements)
>
> **Magnesium supplemental form:** Magnesium- citrate/aspartate/lactate/oxide/chloride; <350mg

Recommendations

These nutrigenetic recommendations are designed to support healthy homocysteine methylation and reduce inflammation by optimizing your nutrition and daily habits.

Daily Do's And Don'ts For Better Homocysteine Methylation

1. **Include whole grains in every meal**
   Include at least one serving of whole grains (like brown rice, oats, or quinoa) in each meal to support steady fiber intake and energy production.
2. **Add non-starchy vegetables generously**
   Aim for at least one cup of cooked non-starchy vegetables with every main meal. Great options include:
   - Artichokes, Brussels sprouts, kale, spinach, Swiss chard
   - Okra, cluster beans, cowpeas, cauliflower
   - High-fiber veggies like carrots, beets, cucumber, capsicum, and celery (best consumed raw or lightly cooked)
3. **Eat your greens to boost folate**
   Green leafy vegetables like spinach, kale, asparagus, and collard greens are rich in folate, a vital component of homocysteine methylation. Lightly steam them for 3–5 minutes and add them to your meals. Avoid boiling them, as they may lose nutrients to the water.
4. **Prioritize plant-based eating**
   Many food-based dietary guidelines (FBDGs) worldwide recommend that two-thirds of your plate should come from plant-based foods. The remaining one-third can include lean animal proteins such as:
   - Low-fat dairy
   - Eggs, poultry, seafood, and lean meats. (Limit red meat intake to less than 98g of cooked meat per week, as recommended by the American Heart Association.)
5. **Include dairy or suitable alternatives**
   Add fermented and fresh dairy like yogurt, kefir, buttermilk, or cottage cheese to meals regularly. If lactose intolerant, opt for fortified alternatives, such as almond, soy, or rice milk.
6. **Don't end your day without a fruit**
   Never skip fruits. Eat them fresh, not juiced, to retain their fiber. A colorful variety is encouraged: guava, pears, apples, papaya, kiwi, watermelon, avocado, berries, plums, oranges, grapefruit, and dragon fruit.
7. **Avoid inflammatory fats**
   Minimize intake of trans fats found in processed meats, full-fat dairy, egg yolks, tropical oils, and baked goods. Instead, choose these healthy fats:
   - Olive oil (1 tbsp/day)
   - Walnuts (4–5 kernels/day)
   - Avocado (2–3 times a week)
   - Fatty fish (2–3 times a week)
8. **Watch your caffeine levels:** Avoid consuming caffeine (coffee/tea) along with meals, as it can reduce iron absorption from your diet.
9. **Commit to daily movement & good sleep**
   Exercise for at least 30 minutes a day to boost circulation and metabolic health. Paired with 6-8 hours of restful sleep, it supports the body's inflammation-control mechanisms.

Recommendations

Supporting The Homocysteine Methylation Process

These nutrients improve the efficiency of homocysteine clearance and strengthen your body's antioxidant defense.

1. **Vitamin C (Improves folate absorption)**
   Helps increase folate bioavailability and supports overall cell health. Add at least one serving of:
   - Guava, oranges, tangerines, kiwi, grapefruit, strawberries, gooseberries
   - Fresh lemon or grapefruit juice
2. **Vitamin B12 (Key for methylation enzymes)**
   Supports folate activity and healthy red blood cell production. Recommended sources include:
   - **Nutritional yeast**: Great for plant-based diets; use on pasta, popcorn, salads
   - **Shiitake mushrooms**: Use in stir-fries, stews, or soups
   - **Edible seaweed**: Such as dried green/purple laver
   - **Fatty fish**: Salmon, tuna, mackerel, sardines (2-3 times/week)
   - **Animal products**: Eggs, chicken, turkey, lean meats
3. **Vitamin B6, Vitamin B2, and Magnesium (Aids methylation)**
   - **Vitamin B6-rich foods + protein**: Pair spinach with cottage cheese or sunflower seeds with yogurt
   - **Magnesium**: Improves vitamin B6 function, helps manage fatigue. Include brown rice, soybeans, black beans, cashews, and peanut butter.
   - **Vitamin B2**:Helps retain active B6. Choose whole grains, yogurt, fish, fruits, andgreen vegetables.

Other Anti-inflammatory Ingredients

These ingredients provide added anti-inflammatory and detoxification benefits, perfectly complementing your methylation-friendly diet.

1. **Turmeric: Inflammation Fighter**
   Turmeric (curcumin) promotes detoxification and antioxidant function. Aim to consume roughly one teaspoon a day:
   - Mix into rice, lentils, or vegetable dishes
   - Sprinkle on scrambled eggs or roasted vegetables
   - Add to golden milk or herbal teas (pair with black pepper for absorption)
   - Sauté with healthy oils like olive, sesame, or coconut
   - Roast nuts like cashews or pistachios with turmeric and spices
2. **Garlic: Glutathione Support**
   Garlic contains sulfur compounds that help increase glutathione, the body's key antioxidant that helps counter inflammation.
   Aim for 5–10 cooked cloves daily; add to meals, dips, or spreads.
3. **Nitrate Boosters**
   Beetroot, carrot, celery, lettuce, Swiss chord, kale, spinach are good sources of nitrates. Nitrates and their nitrites help produce nitric oxide, which efficiently removes homocysteine.

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