

Docs Genetics

Methylation Panel

GENETICS REPORT

1

Report Panels

10

Gene Variants

Demo Client
Docs Genetics

1

Methylation



Methylation is a vital biochemical process in which a methyl group—comprising one carbon atom and three hydrogen atoms—is transferred from one molecule to another. This process occurs in every cell of the body and plays a crucial role in various biological functions, including DNA synthesis, DNA repair, gene expression, detoxification, and neurotransmitter production.

The methyl group is typically donated by nutrients such as folate (a natural form of vitamin B9), vitamin B6, and vitamin B12. This section explores the genetics related to methylation, providing insights into methylation capacity and potential risks.

Genetic Influences on Methylation

Genetic variations in key genes involved in the methylation pathway—such as MTHFR, COMT, and others—can influence your body's methylation efficiency. These variations may affect detoxification, DNA repair, gene expression, and neurotransmitter levels, potentially leading to imbalances in these processes.

Understanding your genetic predispositions can show how your body processes and uses essential nutrients like folate, vitamin B12, and other cofactors involved in methylation. It may also reveal potential issues linked to suboptimal methylation, such as elevated homocysteine levels or reduced detoxification capacity.

Overmethylators versus Undermethylators

Overmethylators have an excess of methyl groups in their body, while undermethylators have insufficient methyl groups. This core difference results in opposing effects on neurotransmitter levels, leading to distinct symptoms and requiring different approaches to treatment.

Genetic mutations, particularly MTHFR gene, can predispose a person to methylation issues, but genetic testing alone cannot determine if a person is an over- or under- methylator. Because symptoms can overlap, a proper diagnosis requires blood tests to measure whole blood histamine and homocysteine levels. These tests, along with a comprehensive review of symptoms, provide a clearer picture of an individual's methylation status.

Supporting Optimal Methylation

Maintaining proper methylation is important for overall health and well-being. Lifestyle choices, diet, and targeted supplementation can support methylation capacity. This includes ensuring adequate intake of methyl-donating nutrients, adopting a diet rich in whole foods, managing stress, and making lifestyle choices that promote methylation balance.

Diet:

Your dietary choices can either support or inhibit methylation pathways. To promote healthy methylation, avoid refined carbohydrates, excessive sugar, high protein intake, and insufficient healthy fats.

Lifestyle:

Lifestyle factors can significantly impact methylation. A sedentary lifestyle may hinder it, while overtraining can also be detrimental. It's essential to stay well-hydrated and maintain electrolyte balance.

Sleep quality is vital—regular, deep sleep aligned with your body's circadian rhythm supports methylation. Stress at any age can impair DNA methylation, so establishing daily practices such as breathing exercises, emotional freedom techniques, laughter, and reducing negative self-talk can be beneficial.

Exposure to alcohol, pesticides, and heavy metals can also disrupt methylation processes.

1 Methylation (continued)

Environment:

Environmental toxins—found in food, water, air, and household products—can interfere with methylation. These include heavy metals like lead, mercury, and cadmium, as well as endocrine disruptors, air pollutants, plastics, and pesticides. To reduce exposure:

Choose organic foods when possible

Filter your water and air

Limit household and garden chemical use

Supplementation:

Consult your healthcare provider about supplements that can aid methylation. These may include methylated forms of folate (methyl folate), methylcobalamin (active B12), curcumin, pyrroloquinoline quinone (PQQ), and glutathione.

Supplements containing cofactors such as riboflavin (B2), zinc, choline, pyridoxine (B6), lithium, and magnesium can also support methylation.

Supplement Strategies:

Overmethylators: Reduce methyl groups and calm the nervous system: This can involve supplementing with nutrients like niacinamide, zinc, activated B6, magnesium, and inositol to help balance levels. Supplements like SAME should be avoided.

Undermethylators: Increase methyl groups: Treatment often includes supplements that act as methyl donors, such as methionine, SAME, calcium, magnesium, and activated B Vitamins like methylfolate and methylcobalamin.

Other supplements to Consider:

The synthetic form of B9, called folic acid, is common in many supplements and fortified foods. However, it is not natural and can block folate receptors, preventing natural folate from functioning properly. Folic acid added to foods can actually inhibit methylation, so it is advisable to avoid it.

Considerations for vaccinations and Methylation:

Many factors influence your body's ability to methylate. Certain medications—such as metformin, antacids, birth control pills, NSAIDs, and some hormone therapies—can impair methylation even if you do not have genetic predispositions.

Symptoms of impaired methylation may include acne, PMS, heart disease, headaches, diabetes, and obesity. Proper methylation can reduce the risk of these conditions and may also help prevent depression, anxiety, dementia, autoimmune diseases, and various cancers.

Consider supporting your child's methylation with the strategies outlined above—such as supplementing with methyl B-vitamins, adding methylation cofactors, and including antioxidants like glutathione.

Parents should consider administering vaccines gradually, one at a time, to give the body adequate time to manage each dose.

Always consult your healthcare provider for personalized guidance tailored to your child's health needs.

Our Core Remedy Pack is designed to support methylation with methyl B's, homeopathics and liver support. Click here: -

<https://docsgenetics.com/products/core-remedy-pack>

Below is yours or your child's overall gauge for methylation propensity (over methylator or under methylator):

GENE VARIANTS ANALYZED: 10

1 Methylation (continued)

METHYLATION PROPENSITY



UNDERSTANDING WHAT THIS MAY MEAN

Genetic variations associated with this result suggest that their bodies may have reduced capacity or efficiency in methylation, leading to potential imbalances in various biochemical pathways. Undermethylation can impact overall health and may be linked to conditions such as mood disorders, allergies, and cardiovascular issues. It is important for individuals with this result to work with healthcare professionals to support optimal methylation through appropriate supplementation, diet, and lifestyle modifications. Supporting micronutrient levels such as B vitamins, zinc, choline, and magnesium can be beneficial to support this system.

MTHFR ACTIVITY



UNDERSTANDING WHAT THIS MAY MEAN

Individuals with 25% MTHFR enzyme activity may be at an increased risk for elevated homocysteine levels and associated health problems, such as cardiovascular disease and neural tube defects during pregnancy. It is important for individuals with this enzyme activity level to work with their medical providers ensure adequate intake of folate and other B vitamins, as well as to avoid certain medications that may further decrease MTHFR activity.

MTR



UNDERSTANDING WHAT THIS MAY MEAN

While this is the most common result (~56% of individuals), it also corresponds with the greatest potential for undermethylation and elevated homocysteine levels

MTRR



UNDERSTANDING WHAT THIS MAY MEAN

Associated with reduced MTRR activity and methylation. Increased benefit from micronutrient support

1 Methylation (continued)

COMT

DECREASED ACTIVITY

UNDERSTANDING WHAT THIS MAY MEAN

Individuals with decreased COMT activity have a genetic profile that results in slower metabolism of certain neurotransmitters. This can lead to elevated levels of dopamine, which might affect stress tolerance and mood stability. Incorporating foods high in omega-3 fatty acids and antioxidants can support overall brain health, while practices such as yoga, mindfulness, or other relaxation techniques may help manage the physiological effects of this genetic trait.

AHCY

NEUTRAL

UNDERSTANDING WHAT THIS MAY MEAN

Normal AHCY variants. No impact.

CHOLINE NEED

NEUTRAL

UNDERSTANDING WHAT THIS MAY MEAN

Individuals with this result have a neutral genetic propensity for choline need. Since it is one of the most common deficiencies, it is important to consume sufficient amounts of choline through dietary sources such as eggs or liver as choline plays a critical role in various physiological processes such as brain function, nerve function, and metabolism. Additionally, supplementation with choline may be beneficial for individuals who have difficulty reaching sufficient choline levels.

GENETIC SUMMARY

GENE	RS ID	YOUR GENOTYPE	GENE	RS ID	YOUR GENOTYPE
MTHFR T1298G	rs1801131	TT	MTRR A66G	rs1801394	GG
MTHFR G677A	rs1801133	AA	BHMT G716A	rs3733890	AG
COMT G472A	rs4680	AA	CBS T317-917C	rs2851391	CC
MTR A2756G	rs1805087	AA	MTHFD1 G1958A	rs2236225	GG
MTR G2775+157T	rs2275565	GG			

[Back to Table of Contents](#)