Toolbox Methylation Report

Client

Demo Client

File

Module 1

Methylation Expanded

Methylation is a vital biochemical process that occurs in every cell of our body. It plays a crucial role in various biological functions, including DNA synthesis, gene expression, detoxification, neurotransmitter synthesis, and more. This section explores genetics related to methylation and provides insights into methylation capacity and potential risks.

Genetic variations in key genes involved in the methylation pathway, such as MTHFR, COMT, and others, can influence your methylation capacity. These variations can impact the efficiency of methylation reactions, potentially leading to imbalances in various metabolic processes.

Understanding genetic predispositions for methylation can help shed light on how the body may process and utilize essential nutrients like folate, vitamin B12, and other cofactors involved in the methylation cycle. It can also provide insights into potential risks associated with impaired methylation, such as elevated homocysteine levels or reduced detoxification capacity.

This section also includes related micronutrients which are relevant to methylation activity.

Optimal methylation is important for overall health and well-being. Lifestyle factors, diet, and targeted supplementation can assist in supporting methylation capacity. This can include ensuring adequate intake of methyl-donating nutrients, adopting a healthy diet rich in whole foods, managing stress, and optimizing lifestyle choices that promote overall methylation balance.

Methylation Propensity

Undermethylation Potential

Understanding what this may mean

Individuals with this genetic result have a potential for undermethylation. Genetic variations associated with this result suggest that their bodies may have a tendency towards reduced methylation capacity, but it may not necessarily lead to undermethylation in all cases. It is still important for individuals with this result to be mindful of factors that can influence methylation and take proactive steps to support optimal methylation through a well-balanced diet, adequate nutrient intake, and lifestyle practices that promote overall well-being. Foundational micronutrients which benefit from support include B vitamins, magnesium, choline and zinc.

MTHFR Activity

83% enzyme activity

Understanding what this may mean

Individuals with 83% MTHFR enzyme activity have a mild reduction in enzyme activity and are generally not at an increased risk for elevated homocysteine levels or associated health problems. This is the most common result. However, it is still important for individuals with this enzyme activity level to work with their medical providers to ensure adequate intake of folate and other B vitamins and to avoid certain medications that may further decrease MTHFR activity.

MTR

Neutral

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

Low activity (two variants)

Understanding what this may mean

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

COMT (Methylation)

Neutral Activity

Understanding what this may mean

Those with neutral COMT activity exhibit average methylation and neurotransmitter breakdown, mirroring the general population. Maintaining a balanced diet rich in nutrients that support methylation, such as folate, vitamin B12, and betaine, is recommended. Regular physical and mental health check-ups can help ensure that methylation processes are functioning optimally

Choline Need

Neutral

Understanding what this may mean

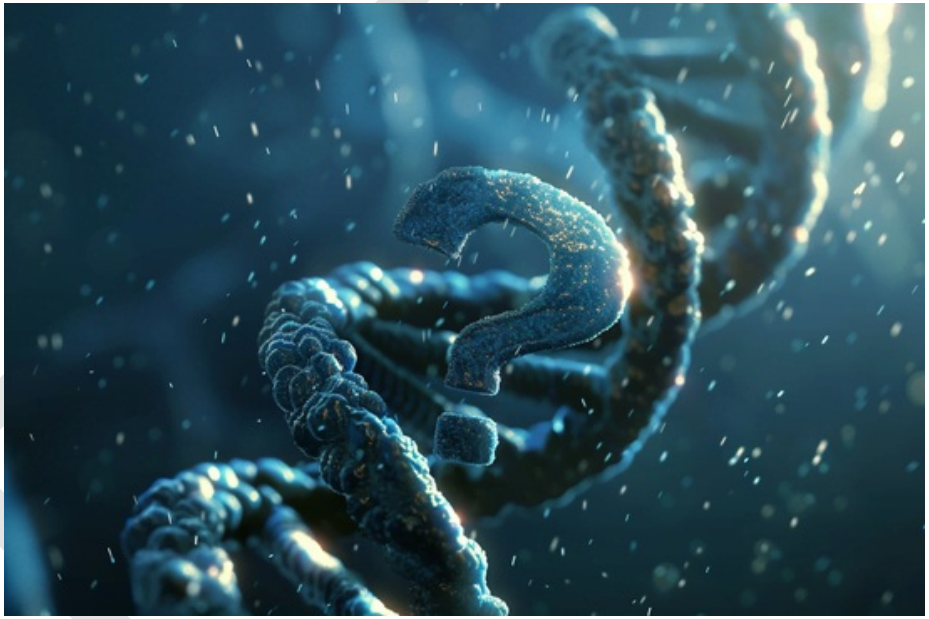
Individuals with this result have a neutral genetic propensity for choline need. Since it is one of the most common deficiencies, it is important to consume sufficient amounts of choline through dietary sources such as eggs or liver as choline plays a critical role in various physiological processes 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 9

SNP	Marker	Genotype	SNP	Marker	Genotype
MTHFR T1298G	rs1801131	AC	MTRR A66G	rs1801394	GG
MTHFR G677A	rs1801133	CC	BHMT G716A	rs3733890	AG
COMT G472A	rs4680	AG	CBS T317-917C	rs2851391	CC
MTR A2756G	rs1805087	AA	MTHFD1 G1958A	rs2236225	GG
MTR G2775+157T	rs2275565	GG			

Module 2

Controversial Methylation Genetics



This section explores the controversial aspects of methylation genetics, specifically focusing on how certain gene variants are presented in industry reports and what they might mean for health. There's a lot of buzz about these variants, but it's important to approach this area with care because most of the health claims associated with them haven't been confirmed by thorough scientific research.

Despite widespread belief, our review shows there's a significant lack of solid research backing the supposed effects of these gene variants. While some companies claim these variants can predict various health issues, we found little scientific evidence to support these claims. A key concern is the lack of peer-reviewed studies in well-known databases like PubMed, which raises questions about the reliability of these claims.

The few studies that do exist often have contrary findings or don't provide clear answers, highlighting the need for caution. Much of the discussion in this field is based on anecdotal evidence or outdated sources from the early 2000s. This abundance of unconfirmed information stresses the importance of being careful when interpreting genetic data and its implications for health.

In conclusion, although these gene variants are often talked about in the industry, their inclusion in genetic reports should be carefully considered, based on solid evidence. Looking ahead, both professionals and consumers should insist on clarity and thoroughness in genetic research, making sure that any claims are backed up by real evidence, not just guesswork or stories.

Technical Notes

To dig into the research directly, some questionable variants include:

AHCY Variants: rs819147 (C112T / Arg10Trp), rs7271501 (g.G32878481C), rs41301825 (G367A / Gly95Arg), rs116846245, rs13043752,

rs57344541, rs41312290. Additionally CBS G699A (rs234706).

The AHCY variants have been especially popularized by Gary Brecka and the 10x Health system genetic report, which claims these will impact addictive tendencies due to their impact on homocysteine. No research is cited. Research databases indicate these variants are benign based on the available research [R, R, R, R]

Other reports such as the methylation reports from NutraHacker and Fagron/GX Sciences include these variants as well. The citations for GX sciences include a blog post about toxins and studies on an autosomal disorder from unrelated AHCY mutations which have only been recorded in four humans, and which was not available in the report [R] [R].

Research shows that the first evidence of these unverifiable claims seem to have appeared in a ~2006 genetic report which didn't include citations, and which was then cited in subsequent reports. We believe any effects associated with this are most likely related to the placebo effect.

AHCY

Neutral

Understanding what this may mean

Normal AHCY variants. No impact.

CBS Activity

Typical

Understanding what this may mean

Typical CBS activity.

Genetic Summary 2

SNP	Marker	Genotype	SNP	Marker	Genotype
AHCY C112T	rs819147	TT	CBS G699A	rs234706	GG