SelfDecode™

MTR (Methylation)

Biohacker Report

REPORT CATEGORIES

DETOX

NUTRITION

Sample Client

Report date: 29 July 2025

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Personal information

NAME

Sample Client

SEX AT BIRTH

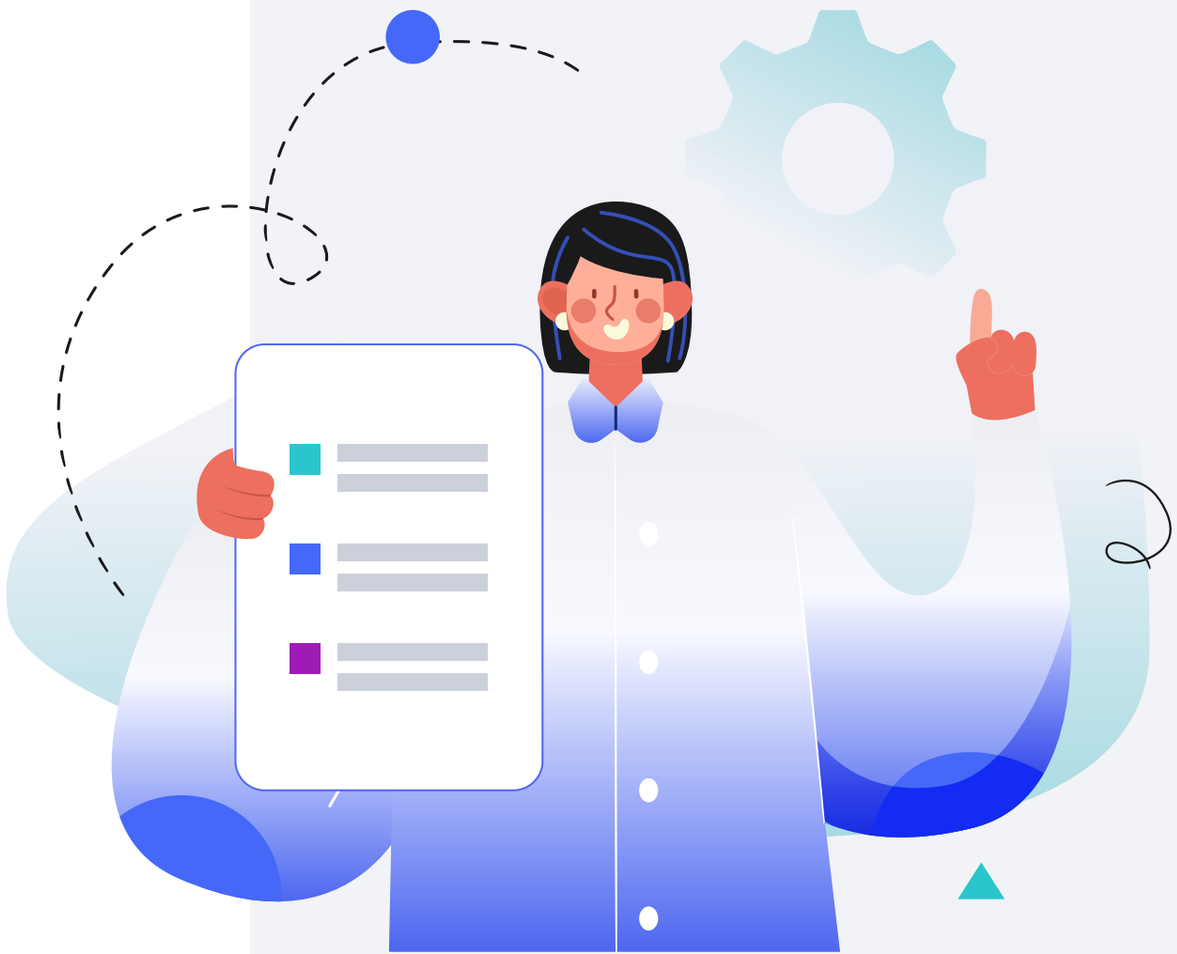
Female

HEIGHT

5ft 9" 175.0cm

WEIGHT

165lb 75.0kg



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.

Introduction

Methylation is when a methyl group is transferred from one compound to another. Methyl groups are switches that turn on or off genes based on environmental cues. This is called *epigenetics*.

Methyl groups also signal which hormones, brain chemicals, and amino acids need to be broken down and removed, maintaining a healthy balance in the body. Issues with the methylation cycle play a role in heart health, mental health, fertility problems, birth defects, cancer, and more [R, R, R].

The methylation cycle uses folate to produce the active vitamin methylfolate (5-methyl THF). This step is crucial for turning harmful homocysteine into methionine [R].

In the next step, methionine obtained via these pathways creates SAM-e (S-adenosyl-methionine), a compound that provides methyl group for methylation [R, R].

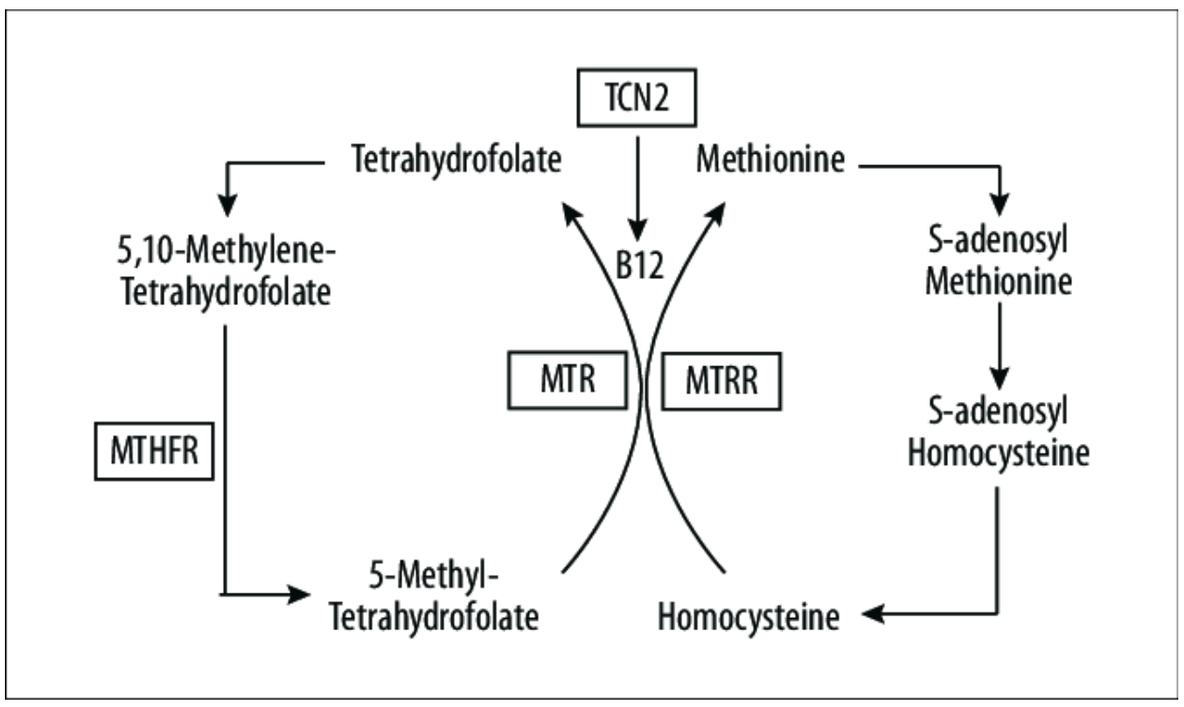


Image source: ResearchGate

The *MTR* gene provides instructions for making an enzyme called **methionine synthase**. This enzyme plays a key role in methylation—it helps convert homocysteine to methionine. To work well, methionine synthase requires **methylcobalamin** (a form of vitamin B12) and another enzyme, encoded by the *MTRR* gene [R].

MTR Genetics

PERSONALIZED TO GENES

Based on the genetic variant that we looked at, you may be predisposed to a lower MTR activity. This means your MTR enzyme may be less effective at homocysteine removal. However, keep in mind that other genetic and environmental factors can influence your MTR activity and methylation.

The main *MTR* gene variant is **rs1805087 or A2756G**. The "**G**" allele changes the enzyme structure and appears to **increase** MTR activity, judging by its link with **lower homocysteine levels** [R, R, R, R, R].

However, studies have also linked this allele to:

- Fertility problems [R]
- Autism [R]
- Depression and stress [R, R]
- Cognitive impairment [R]

Assuming a higher activity, the "G" allele should increase methylation, and some studies have confirmed this. The mechanism behind the negative associations of this allele is not clear, but it may involve **excessive or altered DNA methylation** [R, R].

Finally, studies have found negative or mixed results for the link between rs1805087 and:

- Cancer [R, R]
- Neural tube defects [R]
- Congenital heart disease [R]

LOWER ACTIVITY

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

65%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **65% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTR	rs1805087	AA

The number of "risk" variants in this table doesn't necessarily reflect your overall result.