SelfDecode™

MTRR (Methylation)

Biohacker Report

REPORT CATEGORY

DETOX

Sample Client

Report date: 29 July 2025

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Personal information

NAME

Sample Client

SEX AT BIRTH

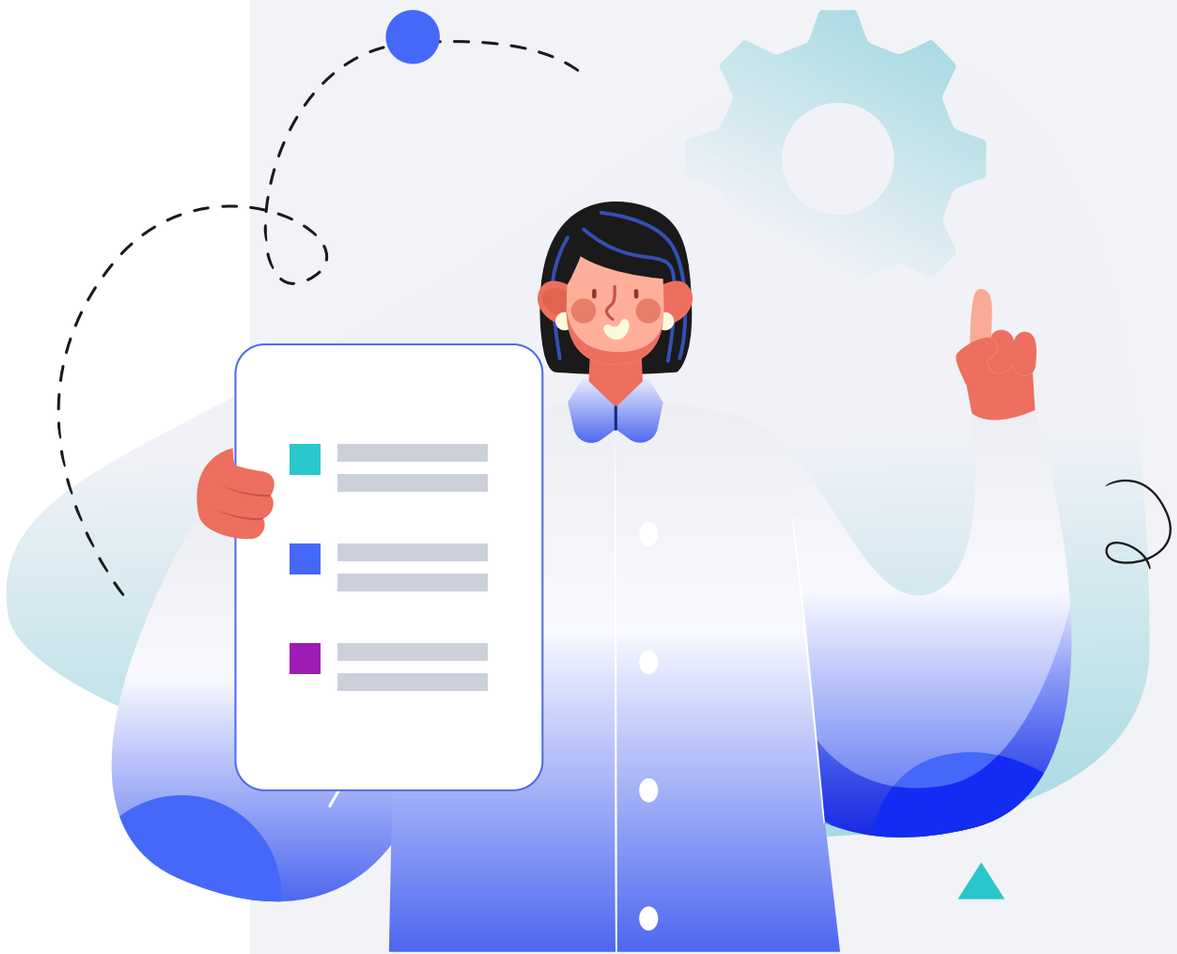
Female

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 a methyl group for methylation [R, R].

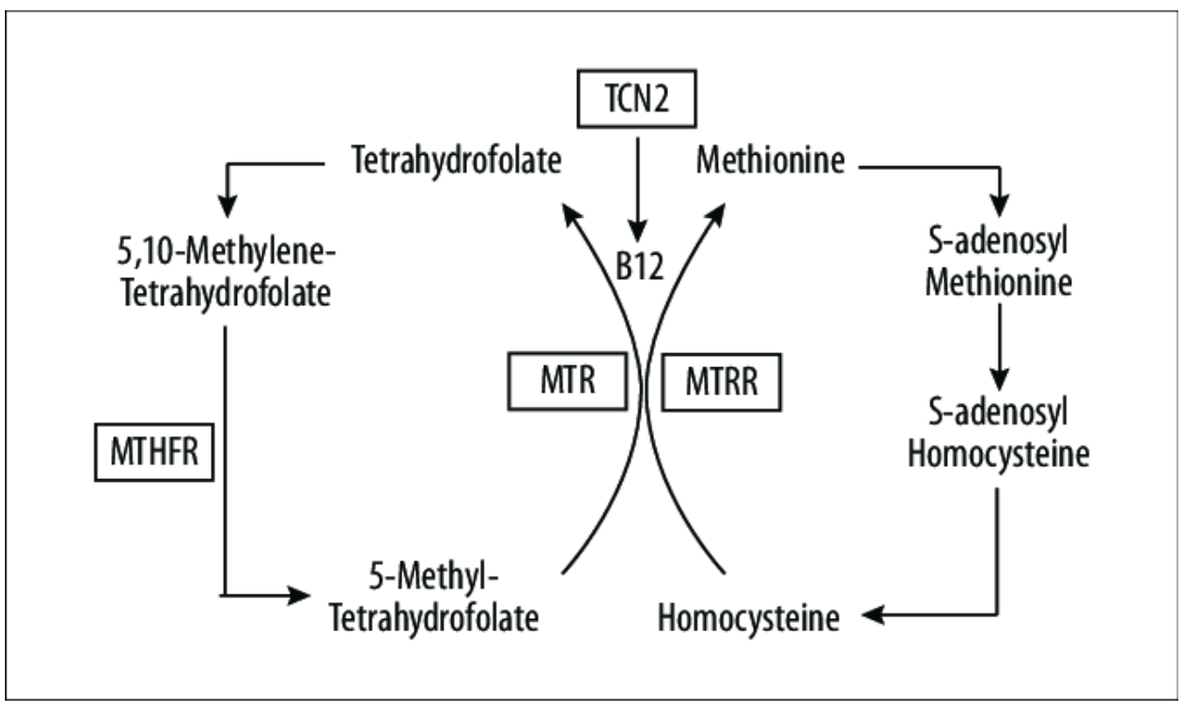


Image source: ResearchGate

The *MTRR* gene encodes an enzyme called methionine synthase reductase. This enzyme supports the function of methionine synthase, which turns homocysteine into methionine. This pathway also relies on vitamin B12 and zinc [R, R, R].

MTRR Genetics

PERSONALIZED TO GENES

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

The most studied SNP in the *MTRR* gene is **rs1801394 or A66G**. The **"G" allele** changes one amino acid in the MTRR structure, **reducing** its ability to bind and activate MTR [R].

This variant has shown mixed results when it comes to homocysteine levels. Most studies observed its link with elevated homocysteine but some found no link. People with rs1801394-G may have an impaired response to folic acid for homocysteine reduction [R, R, R, R, R].

Studies have observed a potential link between this variant and:

- Colorectal and other types of cancer [R, R]
- Male fertility issues (mostly in Asians) [R, R]
- ADHD in children [R]
- Congenital heart disease (only in Asians) [R, R]
- Down syndrome [R, R]
- Increased choline needs [R]

A large meta-analysis failed to confirm the link between this variant and neural tube defects. In one study, the "GG" genotype was linked to spina bifida only in a subgroup of mothers **deficient in vitamin B12** [R, R].

Another well-researched SNP in this gene is **rs1532268**. The **"T" allele** changes the enzyme structure and **reduces its activity** [R].

The effects of this variant may **also depend on vitamin B12 status**. In one study, it was associated with increased homocysteine when B12 status was low. Other studies have linked it to [R]:

TYPICAL ACTIVITY

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

45%

OF USERS SHARE THE SAME SCORE

You have the same genetic predisposition as **45% of our users.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MTRR	rs1801394	AG
MTRR	rs1532268	CT

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

- Gastric cancer [R]
- Congenital heart disease [R]
- Neural tube defects (mixed evidence) [R, R]