Do You Have the MTR or MTRR Gene Variant?

This could be affecting your B12 levels, energy, mood, and detox pathways.

What Are the MTR and MTRR Genes?

The **MTR** (methionine synthase) and **MTRR** (methionine synthase reductase) genes play a crucial role in methylation — the process your body uses to detox, repair DNA, and regulate mood and energy.

These genes help recycle **vitamin B12** and convert **homocysteine into methionine**, a vital step for producing SAMe, your body's "universal methyl donor."

What Happens When These Genes Don't Work Well?

If you have variants (SNPs) in the **MTR or MTRR** genes, your body may not recycle B12 efficiently — leading to a "functional" B12 deficiency even if your labs look normal.

This can disrupt your entire methylation cycle and lead to symptoms like:

- Fatigue that doesn't go away
- Brain fog or memory issues
- Low mood or anxiety
- Poor detox ability (sensitive to chemicals)
- Numbness or tingling in hands/feet
- Trouble with sleep or focus
- High homocysteine on labs

How to Support MTR/MTRR Gene Variants Naturally

Functional medicine focuses on **supporting your pathways, not overriding them.** Here's how you can help your body compensate:

1. Prioritize Active B12 Forms

Look for **methylcobalamin** and **adenosylcobalamin** — more easily absorbed than synthetic B12 (cyanocobalamin).

2. Support the Full Methylation Pathway

Don’t just supplement B12. Make sure you’re getting:

- **Folate (NOT folic acid)** — choose methylfolate (L-5-MTHF)
- **B6 and B2** — essential cofactors
- **Magnesium and zinc** — for enzyme function

3. Focus on Gut Health

You need a healthy gut to absorb and activate B12. Address any issues with acid reflux, SIBO, or low stomach acid.

4. Test & Track

Ask your provider to monitor:

- **Serum B12**
- **MMA (methylmalonic acid)**
- **Homocysteine levels**

Key Takeaway

MTR/MTRR gene variants may impair how your body recycles B12 — affecting your **mood, energy, and detox**.

With the right nutritional support and lifestyle tools, you can take control of your methylation.