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Date of Birth : 18-Aug-1980
 Sex : F
 Collected : 9/Oct/2018
 Received: 18-Oct-2018
 3/10 EVANS AVENUE
 EASTLAKES (ROSEBERY) NSW 2018
 Lab id : **3565598** UR#: 6535230

12/50 BELLEVUE ROAD
 BELLEVUE HILL NSW 2023

INTEGRATIVE MEDICINE

BLOOD - PLASMA

Result Range Units

Methylation Profile.

Methionine Metabolism Pathway

S-Adenosyl Methionine (SAME) is the most active methyl group donor in the body. Endogenously, SAME is formed in the Methionine Metabolism Pathway (Transmethylation). S-Adenosyl Methionine (SAME) is formed through a reaction involving the amino acid methionine and ATP.

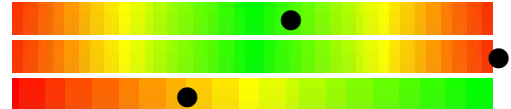
As SAME releases methyl groups to the methylation process, it is converted to S-Adenosyl Homocysteine (SAH), which in turn is converted to homocysteine. Thereafter, re-methylation of homocysteine to form methionine is required to continue the Methionine Metabolism Pathway.

Methyl groups are formed through the Folate Metabolism Cycle and donated to homocysteine which is converted to Methionine, which re-enters the Methionine Metabolism Cycle to form SAME.

Importantly, SAME functions to promote the following;

| | |
|---|---|
| synthesis of DNA and RNA | (for Gene Regulation) |
| synthesis of Glutathione | (for detoxification & metals removal), |
| synthesis of CoQ10, creatine, carnitine | (for energy and mitochondrial function). |
| inhibition of Histamine | (for anti-inflammatory effects) |
| crucial in neurotransmitter balance | (for conversion of Serotonin to Melatonin for promotion of sleep) |

| | | | |
|-------------------------|----------------|--------------|--------|
| S-Adenosyl Methionine | 121.5 | 86.0 - 145.0 | nmol/L |
| S-Adenosyl Homocysteine | 50.0 *H | 10.0 - 22.0 | nmol/L |
| SAM/SAH Ratio | 2.4 *L | > 4.0 | RATIO |



(*) Result outside normal reference range

(H) Result is above upper limit of reference rang (L) Result is below lower limit of reference range





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Folate Metabolism Pathway

The Folate Metabolism Pathway is required for the formation of Methyl groups that are utilised in the Methionine Metabolism Pathway for methylation purposes. It is also the regulator of the Methionine Metabolism Pathway.

Folates are naturally occurring vitamins and are found in numerous foods. In contrast Folic Acid, is a synthetic form of folate.

Methyl groups are acquired from either Trimethylglycine (TMG) or 5methyltetrahydrofolate (5MTHF). The former reaction however only occurs in the kidney and liver, whereas the latter reaction occurs in most cells of the body. Hence, the latter reaction is the preferential pathway.

5MTHF is the most abundant folate form in plasma and as such is the most important form for the methylation process. 5MTHF is converted to THF via the MTR enzyme and the MTHFR enzyme. In the process a Methyl group is donated to homocysteine to form methionine.

The effectiveness of this process is influenced by the genetic polymorphism of the MTHFR enzyme. MTHFR mutations don't allow efficient processing of folic acid to a readily utilisable form (5MTHF).

FOLINIC ACID (5-formyl THF), is an active and reduced form of folate. In the body, folinic acid may be converted into any of the other active forms of folate. Supplying the body with folinic acid bypasses many of the required metabolic steps, and it is rapidly converted to 5MTHF.

TETRAHYDROFOLATE (THF) is the basic, reduced form of folate from which other forms of reduced folate are made.

| | | | | |
|---------------------------|----------------|------------|--------|--|
| Tetrahydrofolate | 14.9 *H | 0.6 - 6.8 | nmol/L | |
| Folinic Acid | 21.0 | 9.0 - 35.5 | nmol/L | |
| 5-Methyl Tetrahydrofolate | 14.5 | 6.6 - 39.9 | nmol/L | |

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Methylation Comments

ELEVATED S-ADENOSYL HOMOCYSTEINE (SAH) LEVEL:

Elevated SAH levels suggest inadequate homocysteine metabolism to methionine. Check Homocysteine levels.

As SAH is a strong inhibitor of the methylation process, its levels need to be regulated.

May be due to NAD cofactor deficiency (B3) or commonly SNPs in AHCY.

Consider TMG (trimethylglycine) or Betaine to lower SAH.

LOW METHYLATION INDEX:

Balancing the SAME/SAH ratio is important to facilitate optimal enzymic activities in the methylation process.

A reduction in this ratio, below the reference range, is reflective of a decrease in methylation activity.

Tests ordered: CFee,5101

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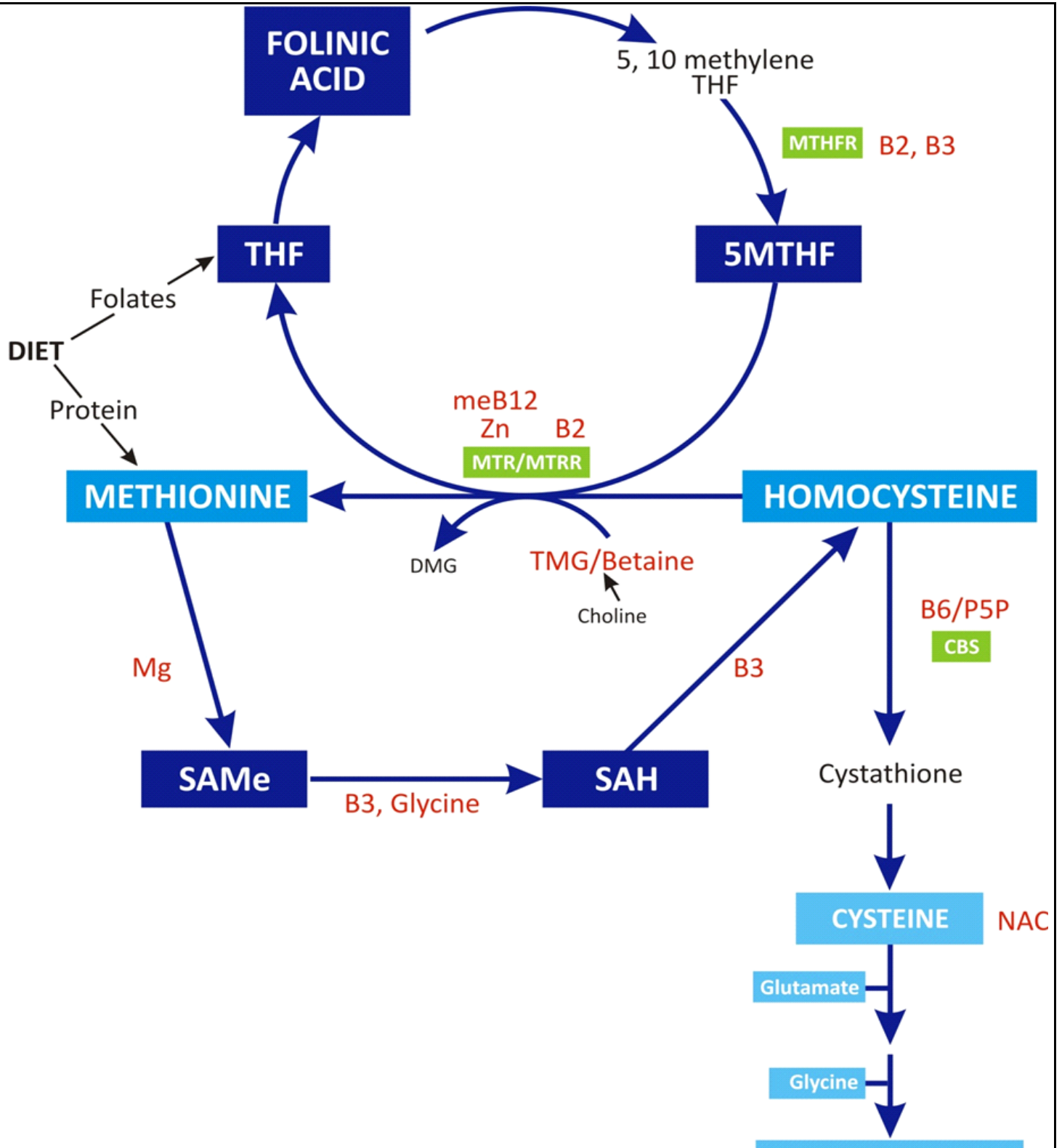
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GLUTATHIONE