NutriPATH
Integrative Pathology Services
P: 1300 688 522
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IMOGEN HARPER

Date of Birth : 11-Sep-1986
Sex : F
Collected : 17/Mar/2022
Received: 17/Mar/2022
3/53 LAUDERDALE AVENUE
FAIRLIGHT NSW 2094
Lab id : **3803968** UR#: 6600943

-.ALEXANDRA MIDDLETON

6 EDWARDS BAY ROAD
MOSMAN NSW 2088

INTEGRATIVE MEDICINE

BLOOD - PLASMA

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)

	Result	Range	Units	
S-Adenosyl Methionine	**140.0**	86.0 - 145.0	nmol/L	
S-Adenosyl Homocysteine	**10.1**	10.0 - 22.0	nmol/L	
SAM/SAH Ratio	**13.9**	> 4.0	RATIO	

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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 utiliseable 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.

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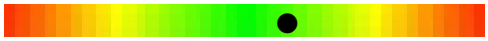
Tetrahydrofolate	**0.8**	0.6 - 6.8	nmol/L	
Folinic Acid	**25.0**	9.0 - 35.5	nmol/L	
5-Methyl Tetrahydrofolate	**27.8**	6.6 - 39.9	nmol/L	

Tests ordered: 5101,CFee

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