

**Sample Test Name**

 Date Of Birth: 04 OCT 1972  
 Sex: M  
 Lab ID: #####

**Test Physician**

 Dr. Edward Chan  
 11 - 1, Wisma Laxton,  
 Jalan Desa, Taman Desa, 58100.

**BIOCHEMISTRY**

BLOOD - SERUM

**25 OH VITAMIN D**
**Vitamin D Comment**

Result	Range	Units
<b>51</b>	50 - 250	nmol/L



The Working Group of the Australian and New Zealand Bone and Mineral Society, Endocrine Society of Australia and Osteoporosis Australia have recommended that the Vitamin D level should be greater than 50 nmol/L.

BLOOD - PLASMA

**HOMOCYSTEINE**

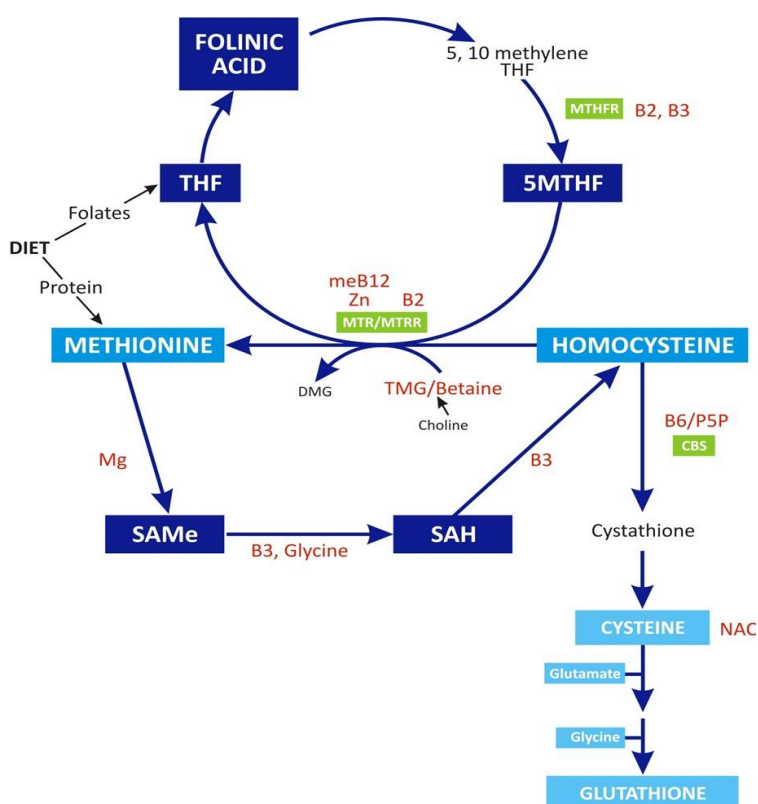
Result	Range	Units
<b>8.0</b>	6.0 - 15.0	umol/L


**INTEGRATIVE MEDICINE**

BLOOD - SERUM

**Free Copper Index**
**COPPER**
**Copper ug/dl**
**CAERULOPLASMIN**
**CPLS-bound Cu**
**% Free Copper**

Result	Range	Units
<b>22.2*H</b>	11.0 - 22.0	umol/L
<b>141.4</b>		ug/dL
<b>0.32</b>	0.18 - 0.40	g/L
<b>94.5</b>		%



(\*) Result outside normal reference range

(H) Result is above upper limit of reference rang



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**Integrative Medicine Comments**

**ELEVATED COPPER LEVEL:**

Copper is needed for neurotransmitter production, regulation of immune function, energy metabolism, growth. Cu is carried through the blood attached/bound to a protein or metalothionein called caeruloplasmin. Copper not bound to ceruloplasmin is free copper which can be toxic if elevated.

Copper overload tends to deplete Dopamine and increase NA in the brain leading to anxiety or more serious conditions like paranoid schizophrenia, Bipolar disorder, ADHD and PND.

**ELEVATED Cu/Zn RATIO:**

The ratio of copper to zinc is clinically more important than the individual levels of each analyte.

Elevated copper/Zinc ratios can be particularly serious for persons with low blood histamine (over methylation). This combination of imbalances has been associated with anxiety, panic disorders, paranoia and hallucinations.

**LOW CAERULOPLASMIN LEVEL:**

Low Caeruloplasmin levels are associated with conditions such as Autism, Alzheimer's disease, Parkinson's disease

**Treatment Considerations:**

Assess copper status and treat accordingly. Investigate and treat oxidative stress (e.g. CoQ10, acai berry, glutathione)

**ELEVATED FREE COPPER:**

Consider chelation therapy, Vit C, Zinc, Molybdenum, Glutamine, Histidine and threonine.

Optimal free Copper of 5-25% is recommended by Dr B Walsh.

Retesting Zinc and Copper levels after 3 months of treatment is recommended.

Signs of Cu overload include hyperactivity, skin sensitivity to metals. Skin tags, estrogen dominance, emotional meltdowns, tinnitus, abnormal periods.

<b>S-Adenosyl Methionine</b>	<b>151.0*H</b>	86.0 - 145.0	nmol/L	
<b>S-Adenosyl Homocysteine</b>	<b>81.0*H</b>	10.0 - 22.0	nmol/L	
<b>SAM/SAH Ratio</b>	<b>1.9*L</b>	> 4.0	RATIO	

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



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**Methylation Comments**

**ELEVATED SAME LEVELS:**

Elevated SAME levels may be due to oral supplementation with SAME or a high protein / Paleo diet. Monitor to assess the degree of negative feedback. Niacin may be used to assist in the reduction of side effects through over supplementation. Also consider Glycine to reduce SAME.

**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.

**HISTAMINE**

**23.0\*L** 28.0 - 51.0 ug/L



**Histamine Comment**

**LOW HISTAMINE LEVELS:**

Low histamine is otherwise known as Histapenia. Serum/plasma copper levels in histapenic patients are often abnormally high. As copper is a brain stimulant (and also destroys histamine), the elevated serum/plasma (and presumably brain) copper level probably accounts for many visible symptoms, including the low blood histamine level.

Behavioral symptoms in high-copper histapenia include paranoia and hallucinations in younger patients. In older patients, depression may predominate. Some studies of schizophrenics have revealed high blood copper, as seen in histadelia, with low urinary copper (showing that copper is being retained) as well as low blood zinc.

**Treatment considerations:**

Treatment protocol consists of the administration of Amino Acid Histidine, (converts to histamine), a diet high in protein, supplement with B6, Folic Acid & B12 injections as they increase histamine levels while lowering the degree of symptoms. Zinc and manganese with vitamin C remove copper from the tissues. Copper destroys histamine and therefore as copper levels decrease, histamine levels should return towards normal. With this treatment the high blood copper is slowly reduced and symptoms are slowly relieved in several months' time.

**BLOOD - NA HEP**

**ZINC**

**16.7** 10.9 - 16.8 umol/L



**Copper/Zinc Ratio**

**1.32 \*H** 0.80 - 1.00 RATIO



Tests ordered: HIAM,ZN,HOMO,VITD,CFee,SAMe,SAHe,SAM/SAH,Cu/Zn,FCuInd

(\*) Result outside normal reference range (H) Result is above upper limit of reference rang (L) Result is below lower limit of reference range