



MINERAL ANALYSIS			Hair	
<h1 style="text-align: center;">Sample Report</h1>			Lab Number	
			Test Date	
			Age	
			Page	
Doctor		Sex		
Patient Name				
Clinical Information				
	Acceptable Range	Test Value		
<b>Essential Trace Elements (ppm = mg/kg = mcg/g)</b>				
Chromium	0.02 --- 0.21	0.13		
Cobalt	0.01 --- 0.30	0.02		
Copper	10.00 --- 41.00	43.29	↑	
Iodine	0.05 --- 5.00	0.37		
Iron	4.60 --- 17.70	8.18		
Manganese	0.05 --- 0.92	0.19		
Molybdenum	0.03 --- 1.10	0.02	↓	
Selenium	0.40 --- 1.70	0.60		
Vanadium	0.01 --- 0.20	0.02		
Zinc	150.00 --- 272.00	222.70		
<b>Essential Macroelements (ppm = mg/kg = mcg/g)</b>				
Calcium	220.00 --- 1,600.00	676.48		
Magnesium	20.00 --- 130.00	40.88		
<b>Nonessential Trace Elements (ppm = mg/kg = mcg/g)</b>				
Boron	< 0.84	< 0.25		
Germanium	< 1.65	< 0.00		
Lithium	< 0.30	0.00		
Strontium	0.65 --- 6.90	0.78		
Tungsten	< 0.01	0.00		
<b>Potentially Toxic Elements (ppm = mg/kg = mcg/g)</b>				
Aluminum	< 8.00	5.10		
Antimony	< 0.30	0.12		

n.n. = not detected

Accreditation: DIN EN ISO 17025; Quality control: Dipl. Ing. Friedle, Ing. J. Merz, Dr. Rauland; Validation: Dr. E.Blaurock-Busch PhD, Laboratory physician: Dr. med. A. Schönberger

# Australian Biologics Testing Services

in Cooperation with Micro Trace Minerals Laboratory

Fayworth House Suite 605; 6th Floor 379-383 Pitt Street  
Sydney, NSW 2000

Phone: (02) 9283 0807

Facsimile: (02) 9283 0910

E-mail:

info@australianbiologics.com.au



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Acceptable Range

Test Value

### Potentially Toxic Elements (ppm = mg/kg = mcg/g)

Element	Acceptable Range	Test Value	Visual Indicator
Arsenic-total	< 0.20	0.03	
Barium	< 4.64	0.56	
Beryllium	< 0.10	< 0.01	
Bismuth	< 0.20	< 0.01	
Cadmium	< 0.20	0.05	
Lead	< 3.00	20.01	
Mercury	< 0.60	0.53	
Nickel	< 1.00	0.17	
Palladium	< 0.10	< 0.05	
Platinum	< 0.01	n.n.	
Silver	< 1.00	0.07	
Thallium	< 0.01	< 0.00	
Tin	< 0.70	0.13	
Titanium	< 1.50	0.24	
Uranium	< 0.10	0.03	
Zirconium	< 0.50	< 0.05	

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### Ratios

	Acceptable Range	Ratios	
Ca/Cu	5.50 --- 292.00	15.63	
Ca/Fe	16.10 --- 293.00	82.67	
Ca/Mg	1.69 --- 80.00	16.55	
Ca/Sr	40.70 --- 5,517.00	868.62	
Ca/Zn	0.89 --- 11.30	3.04	
Fe/Cu	0.14 --- 2.50	0.19	
Fe/Mn	5.46 --- 195.00	44.16	
Zn/Cr	383.00 --- 2,254.00	1,663.34	
Zn/Cu	3.55 --- 45.30	5.14	
Zn/Fe	10.40 --- 45.40	27.21	
Zn/Mg	1.09 --- 12.40	5.45	
Zn/Mn	142.00 --- 3,542.00	1,201.89	

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**COPPER (Cu)** Brain and liver are the main storage sites, while the liver is the main organ for excretion. High hair levels of copper suggest elevated liver storage, and the body's inability to complex copper with amino acids such as histidine, threonine and glutamine. This insufficient complexing prevents the transport of copper between the liver and various peripheral tissues. High hair copper levels have been linked to headache, dizziness, depression and mood disorders, migraines, an increased sensitivity to pain, collagen disease, leukemias and other malignancies. Symptoms include nausea, diarrhea, vomiting, and discoloration of skin. High copper levels are often accompanied by zinc deficiency. High copper levels increase the toxic effect of selenium and suppress iron absorption.

**SOURCES:** shellfish, nuts, organ meats, eggs, cocoa, chocolate, Brewer's yeast and copper-rich drinking water.

**THERAPEUTIC CONSIDERATION:** To normalize levels, evaluate iron, manganese, zinc and molybdenum levels. These trace elements are natural antagonists of copper, and deficiency in one of those elements may cause increased absorption of the others. Vitamin C increases the copper excretion, especially when used with amino acids and vitamin B6. In cases of chronic copper intoxication, chelation may be recommended.

**MOLYBDENUM (Mo)** deficiency has been linked to gout. Low levels in heavy meat eaters reflect digestive disorder, the need for digestive enzymes and dietary changes. Such patients should avoid pork, beef, whole grain and rather eat poultry, fish and other light proteins. Vegetarians should either add some meat to their diet or take molybdenum chelate with B-vitamins, which aid the absorption of molybdenum. Dietary molybdenum is readily absorbed by the intestine and is excreted in the urine and bile. **SOURCES:** whole grains, legumes, leafy vegetables and organ meats. The recommended daily intake is 0,15-0,5 mg/day, depending on age and status. Acute deficiency symptoms are unknown in humans. Excess intake of copper, zinc, and sulfates can depress Mo-update, causing disturbances in the uric acid cycle. Low molybdenum levels have been associated with impotency, increased cancer susceptibility, gout, dental caries, defects in the metabolism of sulfur-containing amino acids, and asthma.

**LEAD (Pb):** Occupational and environmental exposure are the common causes of exposure. Lead reduces the body's ability to utilize calcium, magnesium, zinc, iron and other important nutrients. This heavy metal greatly affects health. It is a known cause of anemia, and children are easily affected by lead exposure. **TOXICITY SYMPTOMS** include abdominal pain, anorexia, anxiety, constipation, fatigue, headaches, impaired coordination, indigestion, irritability, muscle pains, learning and neurological disorders, incl. tremors, severe anemias and immune deficiencies, learning disabilities, hyperactivity and violent behavior. **SOURCES:** leaded gasoline, canned goods, lead paint, newsprint, tobacco smoke, air pollution, and contaminated water. **THERAPEUTIC CONSIDERATION:** Vitamin C, sulfur-bearing amino acids and other oral chelating agents can increase the urinary excretion. In acute cases of exposure, chelation treatments using chelating agents such as EDTA or DMPS. Check with your physician.

**The following nutritional program is aimed at providing optimum health. The program is suitable for patients 12 years and older. It is recommended for 3-4 months, after which a repeat analysis is recommended. A follow-up test would evaluate and determine your body's ability to digest and absorb nutrients. If any questions or problems arise, consult your medical doctor or health care provider.**

### Copper (Cu)

To normalize copper levels, support liver function and increase your intake of B-vitamins and antioxidants. Avoid chocolate, meat, oysters and other copper-rich foods. Testing of drinking water may be recommended, provided your drinking water flows in copper pipes.

### Molybdenum (Mo)

To improve molybdenum levels, increase intake of molybdenum-rich foods such as whole grains, legumes, leafy vegetables. B-vitamins improve the molybdenum absorption. Ask your doctor about molybdenum supplementation.

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