

Specimen ID:
Control ID:

Acct #:

Phone:

Rte:



Patient Details

DOB:
Age(y/m/d):
Gender: SSN:
Patient ID:

Specimen Details

Date collected:
Date received:
Date entered:
Date reported:

Physician Details

Ordering:
Referring:
ID:
NPI:

General Comments & Additional Information

Clinical Info: NORMAL REPORT

Ordered Items

Anemia, Megaloblastic, Serum

TESTS	RESULT	FLAG	UNITS	REFERENCE INTERVAL	LAB
Anemia, Megaloblastic, Serum					
Methylmalonic Acid, Serum	200		nmol/L	0 - 378	01
2-Methylcitric Acid, Serum	225		nmol/L	60 - 228	01
Homocysteine, Serum	10.0		umol/L	5.1 - 13.9	01
Cystathionine, Serum	100		nmol/L	44 - 342	01

Disclaimer:

This test was developed and its performance characteristics determined by LabCorp. It has not been cleared or approved by the Food and Drug Administration.

Reference Ranges:

Vitamin Status:	Normal		B12 Deficiency		Folate Def.	
	[% High]		[% High]		[% High]	
Serum Metabolite	Range	Values	Range	Values	Range	Values
Methylmalonic Acid	0-378	<1	379-200,000	>95	0-	378 <1
2-Methylcitric Acid	60-228	<3	229- 15,000	>80	60-	228 <3
Homocysteine	5.1-13.9	<3	14- 500	>95	14-	250 >95
Cystathionine	44-342	<3	343- 4,000	>80	343-18,000	>80

Continued:

- NOTE 2) Serum Methylmalonic Acid and Homocysteine are the primary metabolic tests for diagnosing and distinguishing between B12 and folate deficiency. They can be used in conjunction with the serum B12 which is usually low or low normal (<350 pg/mL) in B12 deficiency and the serum Folate which is usually low or low normal (<5 ng/mL) in folate deficiency. 2-Methylcitric acid and cystathionine provide confirmatory evidence for such deficiencies. Homocysteine and especially cystathionine may also be high in B6 deficiency.
- NOTE 3) Elevated levels of serum metabolites will correct to normal after treatment with the appropriate vitamin but will not correct after treatment with the wrong vitamin, even in pharmacologic amounts.
- NOTE 4) Any of the four metabolites can be elevated due to

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	renal insufficiency or intravascular volume depletion. This occurs most commonly in the case of 2-Methylcitric Acid and Cystathionine. Elevated metabolite levels do not correct with B12, Folate or B6 treatment unless vitamin deficiency coexists.					
NOTE 5)	Serum metabolite levels can be rechecked 5 to 15 days after vitamin therapy.					
NOTE 6)	Normal ranges 6 hours post oral Methionine load (100 MG L-Methionine/KG BODY WT.) are as follows: Homocysteine 16.5-45.7 mcmoles/liter and Cystathionine 424-2500 nmoles/liter. Methylmalonic Acid and 2-Methylcitric Acid do not change after a Methionine load.					