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**Lab Dept:** Chemistry

**Test Name:** HOMOCYSTEINE, TOTAL, PLASMA

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***General Information***

**Lab Order Codes:** HOMC

**Synonyms:** Amino Acid Homocysteine

**CPT Codes:** 83090 - Homocysteine

**Test Includes:** Homocysteine, Total, Plasma measured in mcmol/L.

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***Logistics***

**Test Indications:** As an aid for screening patients suspected of having an inherited disorder of methionine metabolism including:

- Cystathionine beta-synthase deficiency (homocystinuria)
- Methylenetetrahydrofolate reductase deficiency (MTHFR) and its thermolabile variants
- Methionine synthase deficiency
- Cobalamin (Cbl) metabolism
- Combined methyl –Cbl and adenosyl-Cbl deficiencies: Cbl IC2, Cbl D2, and Cbl F3
- Methyl-Cbl specific deficiencies: Cbl D-Var1, Cbl E, ;and Cbl G deficiencies
- Transcobalamin II deficiency
- Adenosylhomocysteinase (AHCY) deficiency
- Glycine N-methyltransferase (GNMT) deficiency
- Methionine adenosyltransferase (MAT) I/III deficiency

**Lab Testing Sections:** Chemistry - Sendouts

**Referred to:** Mayo Medical Laboratories (MML Test:HCYSP)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 2 - 4 days, test set-up Monday – Saturday

**Special Instructions:** See [Patient Preparation](#)

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***Specimen***

<b>Specimen Type:</b>	Blood
<b>Container:</b>	Lavender top (EDTA) tube
<b>Draw Volume:</b>	1.2 mL (Minimum: 0.5 mL) blood
<b>Processed Volume:</b>	0.4 mL (Minimum: 0.15 mL) plasma
<b>Collection:</b>	Routine venipuncture from fasting patient. Mix sample by gentle inversion. Place specimen on wet ice and deliver to the lab for immediate processing.
<b>Special Processing:</b>	<p>Lab Staff: Centrifuge specimen within 4 hours of draw. A refrigerated centrifuge is not required if the 4-hour time restraint is met. Alternatively, if blood is not immediately placed on ice, plasma must be removed from cells within 1 hour of draw.</p> <p>Remove plasma aliquot into a screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly.</p>
<b>Patient Preparation:</b>	Patient should be fasting (if possible, but not required) prior to specimen collection. A 12 hour fast is preferred.
<b>Sample Rejection:</b>	Warm specimens; mislabeled or unlabeled specimens

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### ***Interpretive***

<b>Reference Range:</b>	<p>Adults: &lt; or =13 mcml/L Reference values apply to fasting specimens only.</p> <p>Homocysteine levels of &gt;13 mcml/L are considered abnormal, in patients under evaluation for Cardiovascular disease and Neurovascular disease.</p> <p>Hyperhomocysteinemia suggests that genetic and nutritional factors are potentially involved in the etiology of the disease.</p> <p>Response to dietary treatment can be evaluated by monitoring plasma homocysteine levels over time.</p>
<b>Critical Values:</b>	N/A
<b>Limitations:</b>	<p>A fasting specimen is recommended; however, non-fasting homocysteine concentrations produce slightly higher, but clinically insignificant changes.</p> <p>Other factors that may influence and increase plasma homocysteine include: Age, Smoking, Poor diet/cofactor deficiencies, Chronic kidney disease/renal disease, hypothyroidism</p>
<b>Methodology:</b>	Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) Stable Isotope Dilution

**References:**

[Mayo Medical Laboratories Web Page](#) December 2017

**Updates:**

11/16/2010: Units change from  $\mu\text{mol/L}$  to  $\text{mcmol/L}$ .