
Lab Dept: Chemistry

Test Name: HOMOCYSTEINE, TOTAL, PLASMA

General Information

Lab Order Codes: HOMC

Synonyms: Amino Acid Homocysteine

CPT Codes: 83090 - Homocysteine

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

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:80379/HCYSP)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 2 - 5 days, test set-up Monday – Friday

Special Instructions: See [Patient Preparation](#)

Specimen

Specimen Type:	Blood
Container:	Lavender top (EDTA) tube
Draw Volume:	1.2 mL (Minimum: 0.5 mL) blood
Processed Volume:	0.4 mL (Minimum: 0.15 mL) plasma
Collection:	Routine venipuncture from fasting patient. Mix sample by gentle inversion. Place specimen on wet ice and deliver to the lab for immediate processing.
Special Processing:	<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>
Patient Preparation:	Patient should be fasting (if possible and not required) prior to specimen collection. A 4 hour fast is preferred.
Sample Rejection:	Warm specimens; mislabeled or unlabeled specimens

Interpretive

Reference Range:	<p>Adults: < or =13 mcmol/L Reference values apply to fasting specimens only.</p> <p>Homocysteine levels of >13 mcmol/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>
Critical Values:	N/A
Limitations:	<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>
Methodology:	Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) Stable Isotope Dilution

References:

[Mayo Medical Laboratories Web Page](#) October 2014

Updates:

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