
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: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](#)

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:	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. Remove plasma aliquot into a screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly.
Patient Preparation:	Patient should be fasting (if possible, but not required) prior to specimen collection. A 12 hour fast is preferred.
Sample Rejection:	Warm specimens; mislabeled or unlabeled specimens

Interpretive

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