
Lab Dept: Chemistry

Test Name: VITAMIN C, PLASMA

General Information

Lab Order Codes: VITC

Synonyms: Ascorbic Acid, Plasma

CPT Codes: 82180 – Ascorbic Acid (Vitamin C), blood

Test Includes: Vitamin C (Ascorbic acid) level reported in mg/dL.

Logistics

Test indications: Diagnosing Vitamin C deficiency.
Used as an aid to deter excessive intake.

Lab Testing Sections: Chemistry - Sendouts

Referred to: Mayo Clinic Laboratories (Mayo test code: VITC)

Phone Numbers: MIN Lab: 612-813-62

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: Performed Monday – Friday, results in 3-5 days

Special Instructions: Specimen needs to be placed on wet ice after collecting and processed in the lab within 4 hours of collection.

Specimen

Specimen Type: Blood

Container: Green (Lithium heparin) tube

Alternate container: Sodium heparin green tube

No gel and plasma gel separator tubes are both acceptable.

Draw Volume: 3 mL (Minimum: 1.5 mL) blood

Processed Volume: 1 mL (Minimum: 0.5 mL) plasma

Collection:	Routine blood collection
Special Processing:	<p>Lab Staff: Specimen should come to lab on wet ice and must be processed with 4 hours of collection.</p> <p>Centrifuge specimen at 4°C, remove plasma aliquot and place in Amber Vial (Mayo supply T192) to PROTECT FROM LIGHT. Store and ship at frozen temperatures.</p> <p>Plasma is stable frozen and light protected for 14 days.</p>
Patient Preparation:	Fasting overnight (12-14 hours) (For infants, draw prior to next feeding). Water can be taken as needed.
Sample Rejection:	Gross hemolysis; improper specimen; mislabeled or unlabeled specimens

Interpretive

Reference Range:	<p>0.4 – 2.0 mg/dL</p> <p>* Values below 0.2 mg/dL indicate significant deficiency. * Values greater than or equal to 0.2 mg/dL and less than 0.4 mg/dL are consistent with a moderate risk of deficiency due to inadequate tissue stores. * Values of 0.4 to 2.0 mg/dL indicate adequate supply.</p> <p>The actual level at which vitamin C is excessive has not been defined. Values above 3.0 mg/dL are suggestive of excess intake. Whether vitamin C in excess is indeed toxic continues to be uncertain. However, limited observations suggest that this condition may induce uricosuria and, in individuals with glucose-6 phosphate dehydrogenase deficiency, may induce increased red blood cell fragility.</p>
Critical Values:	N/A
Limitations:	<p>Testing in non-fasting specimens or the use of vitamin supplementation can result in elevated plasma vitamin concentrations. Reference values were established in patients who were fasting.</p> <p>After consuming vitamin C, plasma values rapidly rise within 1 to 2 hours and reach peak concentration within 3 to 6 hours after ingestion.</p>
Methodology:	Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS0)
References:	Mayo Clinic Laboratories (September 2023)
Updates:	9/26/2023: Added alternative containers and specimen stability. Added Plasma to test display name.