



# Test Definition: VITE

Vitamin E, Serum

## Overview

### Useful For

Assessing vitamin E status

Monitoring vitamin E supplementation or treatment

### Method Name

Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)

### NY State Available

Yes

## Specimen

### Specimen Type

Serum

### Shipping Instructions

Ship specimen in amber vial to protect from light.

### Specimen Required

#### Patient Preparation:

**Fasting: 12 hours, required;** infants should have specimen collected before next feeding

**Supplies:** Amber Frosted Tube, 5 mL (T915)

#### Collection Container/Tube:

**Preferred:** Red top

**Acceptable:** Serum gel

**Submission Container/Tube:** Amber vial

**Specimen Volume:** 0.5 mL

**Collection Instructions:** Within 2 hours of collection, centrifuge and aliquot serum into a light protected plastic vial.

### Forms

If not ordering electronically, complete, print, and send a [General Request](#) (T239) with the specimen.

### Specimen Minimum Volume

0.25 mL

### Reject Due To

Gross hemolysis	OK
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Gross lipemia	Reject
Gross icterus	OK

**Specimen Stability Information**

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	44 days	LIGHT PROTECTED
	Ambient	7 days	LIGHT PROTECTED
	Frozen	44 days	LIGHT PROTECTED

**Clinical & Interpretive****Clinical Information**

Vitamin E is the generic term for two different groups of methylated phenol compounds with a chromane alcoholic core linked to poly-carbon chains (tocopherols and tocotrienols).

These vitamins are all free radical scavengers, with  $\alpha$ -Tocopherol being the most potent one in humans, as most of the related compounds are not re-secreted by the liver, thus leading to much lower circulating concentrations.

Vitamin E deficiency is very rare and mostly seen in patients with extreme malabsorption of fat and in patients with abetalipoproteinemia, a rare inborn error of metabolism. Patients with these conditions may develop hemolytic anemia, peripheral neuropathy, myopathy, retinopathy, and immune deficiency.

There is a large body of scientific studies that indicates positive effects on outcomes of various diseases if regular Vitamin E supplementation is provided; however, several trials have shown evidence of increasing bleeding risks at high Vitamin E doses. Therefore, tables of tolerable doses in children and adults have been established, which should not be exceeded.

**Reference Values**

0-17 years: 3.8-18.4 mg/L

> or =18 years: 5.5-17.0 mg/L

**Interpretation**

Vitamin E levels below the reference interval suggest deficiency. Conversely, Vitamin E concentrations significantly above the upper healthy reference population range might indicate that Vitamin E intake exceeds the tolerable upper daily intake level(s).

The rare occurrence of low Vitamin A and E levels might correlate with potential deficiency and investigation of potential fat malabsorptions should be considered.

**Cautions**

Testing of nonfasting specimens or the use of vitamin supplementation can result in elevated serum vitamin concentrations. Reference values were established using specimens from individuals who were fasting.

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**Clinical Reference**

1. Sodi R, Taylor A. Vitamins and trace elements In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics. 8th ed. Elsevier; 2020:466-487
2. Vitamin A and Carotenoids-Fact Sheet for Health Professionals. US Department of Health and Human Services, National Institutes of Health. Updated March 10, 2025. Accessed October 7, 2025. Available at <https://ods.od.nih.gov/factsheets/VitaminA-HealthProfessional/>
3. Greaves RF, Woollard GA, Hoad KE, et al. Laboratory medicine best practice guideline: vitamins a, e and the carotenoids in blood. Clin Biochem Rev. 2014;35(2):81-113
4. Brigelius-Flohe R, Traber MG. Vitamin E: function and metabolism. FASEB J. 1999;13(10):1145-1155
5. Traber MG, Head B. Vitamin E: How much is enough, too much and why!. Free Radic Biol Med. 2021;177:212-225. doi:10.1016/j.freeradbiomed.2021.10.028
6. Traber MG. Vitamin E inadequacy in humans: causes and consequences. Adv Nutr. 2014;(5):503-14. doi:10.3945/an.114.006254

**Performance****Method Description**

Deuterated vitamin E (d6-alpha-tocopherol) is added to serum as an internal standard. Vitamin E (alpha-tocopherol) and the deuterated internal standard are extracted from the specimens and analyzed by liquid chromatography-tandem mass spectrometry.(Unpublished Mayo method)

**PDF Report**

No

**Day(s) Performed**

[Monday through Friday, Sunday](#)

**Report Available**

3 to 5 days

**Specimen Retention Time**

14 days

**Performing Laboratory Location**

Mayo Clinic Laboratories - Rochester Superior Drive

**Fees & Codes****Fees**

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact [Customer Service](#).

**Test Classification**

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

**CPT Code Information**

84446

**LOINC® Information**

Test ID	Test Order Name	Order LOINC® Value
VITE	Vitamin E, S	1823-4

Result ID	Test Result Name	Result LOINC® Value
2350	A-Tocopherol, Vitamin E	1823-4