



TECHNICAL NOTICE

SOUTH BEND MEDICAL FOUNDATION

June 2009

Vitamin E (Tocopherol) by HPLC

Effective Date: June 1, 2009

Performing Department: Manual Laboratory

Method: High Performance Liquid Chromatography (HPLC)

Use: Quantitation of circulating Vitamin E (tocopherol) concentration

Clinical Significance:

Vitamin E is an antioxidant that is widely distributed in foodstuffs, such as wheat germ oil and sunflower oil, grains and nuts. It is absorbed in the small intestine in the presence of bile. Although deficiency rarely occurred from diet, mal-absorption and deficiency may develop in cases of chronic intraluminal interstitial bile deficiency.

Inhibition of free-radical chain reactions of lipid peroxidation is the most thoroughly defined role of vitamin E.

Vitamin E inhibits lipid peroxidation mainly because it scavenges lipid peroxy radicals faster than the radical can react with adjacent fatty acid side chains or membrane proteins. The resultant tocopheryl or tocotrienyl radicals may then react with further peroxy radicals to produce tocopherones (nonradicals), or be generated by transferring an electron to ascorbate to form the ascorbyl radical. Vitamins E and C act synergistically to reduce lipid peroxidation.

Vitamin E has been also recognized as necessary for neurological and reproductive functions, for protecting the red cell from hemolysis and for prevention of retinopathy in premature infants.

Reference Range: 5.5–18 mg/L

Specimen Requirements and Collection:

Patient Preparation:

- Fasting for at least 8 hours
- Recommend abstaining from alcohol for 24 hours before specimen collection

Preferred Specimen: • Serum from gold top (SST) or red top (serum) tube

Alternate Specimen: • Plasma from lavender top (EDTA) tube

Requested Volume: • 1.0 mL

Minimum Volume: • 0.5 mL

Processing: • After collection, protect collected serum or plasma from light, promptly separate from cells and refrigerate

Stability: • 48 hours refrigerated (2-8°C) and protected from light • 3 months frozen (-20°C) and protected from light

Storage/Transport: • Refrigerated and protected from light

Testing Schedule: • Tuesday and Friday • If specimen received by 7:00 am, results available by 5:00 pm same day

Order: • Vitamin E, Serum or Plasma..... Test #: 23303CPT: • 84446

Please direct questions or comments regarding this notice to William J. Kaliney, M.D., Deborah H. Sun, Ph.D., or Sherrie White of South Bend Medical Foundation, (574) 234-4176 or (800) 544-0925.

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530 N. Lafayette Boulevard • South Bend, IN 46601 • (574) 234-4176

Elkhart (574) 293-8441 • (800) 544-0925

Robert J. Tomec, M.D. • *Medical Director*