Lab Dept: Chemistry

Test Name: VITAMIN A AND E ASSAY

General Information

Lab Order Codes: VAE
Synonyms: Alpha tocopherol, serum; Retinol, serum
CPT Codes: 84446 – Tocopherol alpha (Vitamin E)
            84590 – Vitamin A
Test Includes: Specific quantitation of retinol and alpha-tocopherals. Vitamin A is reported in mcg/dL and Vitamin E is reported in mg/L.

Logistics

Test Indications: Vitamin A is useful for diagnosis of Vitamin A deficiency and toxicity. Evaluating persons with intestinal malabsorption of lipids. Vitamin E is useful for diagnosis of (or evaluation of) individuals with motor and sensory neuropathies, monitoring vitamin E status of premature infants requiring oxygenation, and evaluation of persons with intestinal malabsorption of lipids.

Lab Testing Sections: Chemistry - Sendouts
Referred to: Mayo Medical Laboratories (Test: VAE)
Phone Numbers: MIN Lab: 612-813-6280
                STP Lab: 651-220-6550
Test Availability: Daily, 24 hours
Turnaround Time: 2 - 5 days, set up Monday - Friday
Special Instructions: See Patient Preparation and Collection below.

Specimen

Specimen Type: Blood
Container: SST - (Gold or Marble top tube)
Draw Volume: 3 mL (Minimum: 1.5 mL) blood
Processed Volume: 1 mL (Minimum: 0.5 mL) serum

Collection: Routine venipuncture, protect specimen from light by wrapping in foil.

Special Processing: Lab Staff: Centrifuge specimen, remove serum aliquot into an amber light resistant vial (Mayo Supply T192). Store and ship at refrigerated temperatures. If light resistant vial is not available, wrap specimen in foil. Forward promptly.

Patient Preparation: Fasting patient for 12 - 14 hours (overnight fast) before specimen is collected is recommended. For infants, draw prior to next feeding.

Sample Rejection: Serum separator tubes are not acceptable, warm specimens >24 hours, lipemic specimens, mislabeled or unlabeled specimens

Interpretive

<table>
<thead>
<tr>
<th>Reference Range:</th>
<th>Vitamin A (Retinol)</th>
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<tbody>
<tr>
<td>0 - 6 years:</td>
<td>11.3 – 64.7 mcg/dL</td>
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<tr>
<td>7 - 12 years:</td>
<td>12.8 – 81.2 mcg/dL</td>
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<tr>
<td>13 - 17 years:</td>
<td>14.4 – 97.7 mcg/dL</td>
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<tr>
<td>≥18 years:</td>
<td>32.5 – 78.0 mcg/dL</td>
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<table>
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<tr>
<th>Vitamin E (Alpha Tocopherol)</th>
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<tbody>
<tr>
<td>0 - 17 years:</td>
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<tr>
<td>≥18 years:</td>
</tr>
<tr>
<td>Significant VE Deficiency:</td>
</tr>
<tr>
<td>Significant VE Excess:</td>
</tr>
</tbody>
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Critical Values: N/A
**Limitations:**

Testing of 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.

Acute ethanol ingestion may result in increasing serum vitamin A levels.

Failure to follow specimen processing instructions (protecting from light and freezing) may result in falsely-decreased values.

**Methodology:**

Liquid chromatography specific quantitation of retinol and alpha-tocopherols

**References:**

[Mayo Medical Laboratories Web Page](https://www.mayoclinic.org) November 2017

**Updates:**

9/4/2007: Lipemic specimens will be rejected. MML notification due to issues with fat solubility.
11/18/2008: Test update (order code).
4/4/2011: Volumes for minimum are the same as recommended collection/processed.
3/30/2016: SST tubes are acceptable.
11/6/2017: Draw volume increase per MML.