Overview

Useful For
Evaluation of individuals who present the signs of ariboflavinosis

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

Portions of this test are covered by patent(s) held by Quest Diagnostics

NY State Available
Yes

Specimen

Specimen Type
Plasma Heparin

Shipping Instructions
Ship specimen in amber vial to protect from light.

Specimen Required

Patient Preparation: Fasting-overnight (12-14 hours) (infants-draw prior to next feeding)

Supplies: Amber Frosted Tube, 5 mL (T192)

Collection Container/Tube:
Preferred: Green top (sodium or lithium heparin)
Acceptable: Light-green top (sodium or lithium heparin plasma gel)

Submission Container/Tube: Amber vial

Specimen Volume: 0.5 mL

Collection Instructions: Centrifuge within 2 hours of collection and aliquot to amber vial.

Specimen Minimum Volume
0.25 mL

Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>OK</td>
</tr>
<tr>
<td>Gross lipemia</td>
<td>Reject</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</td>
</tr>
</tbody>
</table>

Specimen Stability Information
## Clinical and Interpretive

### Clinical Information

There are 3 principle vitamin B2-active flavins found in nature riboflavin, riboflavin 5-phosphate (flavin mononucleotide: FMN), and riboflavin-5’-adenosyl-diphosphate (flavin adenosine dinucleotide: FAD). In biological tissues, FMN and FAD serve as prosthetic units for a large variety of flavoproteins, which are hydrogen carriers in oxidation-reduction processes.

Dietary deficiency of riboflavin (ariboflavinosis) is characterized by sore throat, cheilosis (lesions on the lips), angular stomatitis (lesions on the angles of the mouth), glossitis (fissured and magenta-colored tongue), corneal vascularization, dyssebacia (red, scaly, greasy patches on the nose, eyelids, scrotum, and labia), and normocytic, normochromic anemia. Severe riboflavin deficiency may affect the conversion of vitamin B6 to its coenzyme, as well as conversion of tryptophan to niacin.

Riboflavin has a low level of toxicity and no case of riboflavin toxicity in humans has been reported. The limited absorptivity of riboflavin and its ready excretion in the urine normally preclude a health problem due to increased intake of riboflavin.

### Reference Values

Normal: 1-19 mcg/L

### Interpretation

Low concentrations in the blood plasma are indicative of nutritional deficiency. Concentrations below 1 mcg/L are considered significantly diminished. Marginally low levels probably represent nutritional deficiency that should be corrected.

### Cautions

Testing of nonfasting specimens or the use of dietary vitamin B2 supplementation can result in elevated plasma vitamin B2 concentrations.

### Clinical Reference


Test Definition: VITB2
Riboflavin (Vitamin B2), P

2002:48:1571-1577


Performance

Method Description
The stable isotope riboflavin (13)C(15)N2 is added to plasma as an internal standard. Meta-phosphoric acid solution is then added to precipitate the proteins. Following sedimentation of the proteins, an aliquot of the clarified supernatant fluid is subjected to separation of riboflavin and internal standard from other plasma components by reverse-phase high-performance liquid chromatography with quantitation by tandem mass spectrometry (LC-MS/MS).(Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Monday, Wednesday, Friday

Analytic Time
2 days

Maximum Laboratory Time
5 days

Specimen Retention Time
2 weeks

Performing Laboratory Location
Rochester

Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the U.S. Food and Drug Administration.
### CPT Code Information

84252

### LOINC® Information

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<td>Riboflavin (Vitamin B2), P</td>
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