Overview

Useful For
Diagnosis and monitoring of Fabry disease

Genetics Test Information
This test is used to diagnose and monitor patients with Fabry disease.

Testing Algorithm
The following algorithms are available in Special Instructions:

- Fabry Disease: Newborn Screen-Positive Follow-up
- Fabry Disease Diagnostic Testing Algorithm

Special Instructions

- Fabry Disease Diagnostic Testing Algorithm
- Fabry Disease: Newborn Screen-Positive Follow-up
- Biochemical Genetics Patient Information

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

NY State Available
Yes

Specimen

Specimen Type
Serum

Advisory Information
This test is not useful for determining carrier status. Order FABRZ / Fabry Disease, Full Gene Analysis for carrier testing.

Necessary Information
1. Patient’s age is required.
2. Reason for referral is required.

Specimen Required
Collection Container/Tube:

Preferred: Red top
Acceptable: Serum gel

Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL

Forms

1. Biochemical Genetics Patient Information (T602) in Special Instructions.

2. If not ordering electronically, complete, print, and send an Inborn Errors of Metabolism Test Request (T798) with the specimen.

Specimen Minimum Volume

0.5 mL

Reject Due To

<table>
<thead>
<tr>
<th>Gross hemolysis</th>
<th>OK</th>
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<tbody>
<tr>
<td>Gross lipemia</td>
<td>Reject</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</td>
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Specimen Stability Information

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<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
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<tbody>
<tr>
<td>Serum</td>
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<td>Refrigerated</td>
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Clinical and Interpretive

Clinical Information

Fabry disease is an X-linked recessive lysosomal storage disorder caused by a deficiency of the enzyme alpha-galactosidase A (alpha-Gal A). Reduced enzyme activity results in accumulation of glycosphingolipids in the lysosomes throughout the body, in particular, the kidney, heart, and brain. Severity and onset of symptoms are dependent on the residual enzyme activity. Symptoms may include acroparesthesias (pain crises), multiple angiokeratomas, reduced or absent sweating, corneal opacity, renal insufficiency leading to end-stage renal disease, and cardiac and cerebrovascular disease. There are renal and cardiac variant forms of Fabry disease that may be underdiagnosed. Heterozygous females of Fabry disease can have clinical presentations ranging from asymptomatic to severely affected, and they may have alpha-Gal A activity in the normal range. The estimated incidence varies from 1 in 3,000 infants detected via newborn screening to 1 in 10,000 males diagnosed after onset of symptoms. Unless irreversible damage has already occurred, treatment with enzyme replacement therapy (ERT) has led to significant clinical improvement in affected individuals. For this reason, early diagnosis and treatment are desirable, and in a few US states early detection of Fabry disease through newborn screening has been implemented.

Absent or reduced alpha-Gal A in blood spots, leukocytes (AGA / Alpha-Galactosidase, Leukocytes), or serum (AGAS / Alpha-Galactosidase, Serum) can indicate a diagnosis of classic or variant Fabry disease. Molecular sequence analysis of the GLA gene (FABRZ / Fabry Disease, Full Gene Analysis) allows for detection of the disease-causing mutation in males and females. Molecular genetic testing is the recommended diagnostic test for females as alpha-galactosidase activity may be in the normal range in an affected female patient. The glycosphingolipid, globotriaosylsphingosine (LGb3), may be elevated in symptomatic patients and supports a
Test Definition: LGB3S
Lyso-GB3, S

Diagnosis of Fabry disease. It may also be helpful as a tool for monitoring disease progression as well as determining treatment response in known patients. In addition, measurement or globotriaosylsphingosine (LGb3), may provide additional diagnostic information in the evaluation of uncertain cases, such as in asymptomatic heterozygous females, individuals with novel GLA variants of unclear clinical significance, as well as asymptomatic patients identified by family screening.

Reference Values
< or =1.0 ng/mL

Interpretation
Elevation of globotriaosylsphingosine (Lyso-GB3) is diagnostic for Fabry disease.

Cautions
Carrier detection using globotriaosylsphingosine (Lyso-GB3) is unreliable.

Some patients with Fabry disease, and patients with pseudodeficiency of alpha-galactosidase enzyme, may have normal concentrations of globotriaosylsphingosine (LGb3).

Clinical Reference

Performance
Method Description
Internal standard is added to the serum. Globotriaosylsphingosine (Lyso-GB3) is extracted from the serum prior to injection onto a liquid chromatography-tandem mass spectrometry (LC-MS/MS) system. Following chromatographic isolation, the concentration is measured by MS/MS analysis in the selected reaction monitoring positive mode. The ratio of extracted peak area to internal standard is utilized to calculate the concentration of Lyso-GB3 in the sample. (Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Varies

Analytic Time
8 days
Maximum Laboratory Time
15 days

Specimen Retention Time
1 month

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
82542

LOINC® Information

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