Overview

Useful For
Evaluation of suspected iron deficiency in patients who may have inflammation, infection, or chronic disease and other conditions in which ferritin concentration does not correlate with iron status, including:

-Cystic fibrosis patients who frequently have inflammation or infections(1-2)

-Evaluating insulin-dependent diabetics who may have iron-deficiency resulting from gastric autoimmunity and atrophic gastritis(3)

Method Name
Immunoturbidimetric Assay

NY State Available
Yes

Specimen

Specimen Type
Serum

Specimen Required
Collection Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Serum gel tubes should be centrifuged within 2 hours of collection.

2. Red-top tubes should be centrifuged and aliquoted within 2 hours of collection.

Specimen Minimum Volume
0.25 mL

Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemolysis</td>
<td>Mild OK; Gross reject</td>
</tr>
<tr>
<td>Lipemia</td>
<td>NA</td>
</tr>
<tr>
<td>Icterus</td>
<td>NA</td>
</tr>
<tr>
<td>Other</td>
<td>NA</td>
</tr>
</tbody>
</table>
**Specimen Stability Information**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum</td>
<td>Frozen (preferred)</td>
<td>90 days</td>
</tr>
<tr>
<td></td>
<td>Refrigerated</td>
<td>7 days</td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>72 hours</td>
</tr>
</tbody>
</table>

**Clinical and Interpretive**

**Clinical Information**

Iron uptake into cells is mediated through internalizing iron-transferrin complexes. The iron-transferrin complex binds to transferrin receptors present on the external face of the plasma membrane, and is internalized through endosomes with ultimate release of iron into the cytoplasm. Plasma membrane-bound transferrin receptor is released by proteolytic cleavage of the extracellular domain, resulting in the formation of a truncated soluble transferrin receptor (sTfR) that circulates freely in the blood.

The concentration of sTfR is an indicator of iron status. Iron deficiency causes overexpression of transferrin receptor and sTfR levels, while iron repletion results in decreased sTfR levels. While ferritin measurement is the accepted method for assessment of iron deficiency, ferritin is an acute-phase reactant and elevates in response to processes that do not correlate with iron status, including inflammation, chronic disease, malignancy, and infection. sTfR is not an acute-phase reactant and the interpretation of iron status using sTfR measurement is not affected by these confounding pathologies.

**Reference Values**

1.8-4.6 mg/L

It is reported that African Americans may have slightly higher values.

**Interpretation**

Soluble transferrin receptor (sTfR) concentrations are inversely related to iron status; sTfR elevates in response to iron deficiency and decreases in response to iron repletion.

**Cautions**

The soluble transferrin receptor (sTfR) immunoassay should not be used for the routine clinical evaluation of patients for iron status when ferritin immunoassay (FERR / Ferritin, Serum) would be appropriate, such as in the absence of confounding pathologies (inflammation, infection, chronic disease, or malignancy).

Patients with hemolysis and recent blood loss may have falsely elevated sTfR levels.

sTfR is elevated in patients with thalassemia and sickle cell disease. Caution should be exercised in managing anemia in these individuals based on the sTfR test results.

**Clinical Reference**


**Performance**

**Method Description**

Latex-bound anti-sTfR antibodies react with the antigen in the sample to form an antigen/antibody complex. Following agglutination, the complex is measured turbidimetrically on a Roche P Modular. (Package insert: The Tina-quant Soluble Transferrin Receptor Immunoturbidimetric assay for the in vitro quantitative determination of soluble transferrin receptor. Roche Corporation, Indianapolis, IN 46250, 2001)

**PDF Report**

No

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

Monday through Sunday; Continuously

**Analytic Time**

Same day/1 day

**Maximum Laboratory Time**

2 days

**Specimen Retention Time**

Stored Serum 1 week

**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 has been cleared or approved by the U.S. Food and Drug Administration and is used per manufacturer’s instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA.
Test Definition: STFR
Soluble Transferrin Receptor (sTfR)

requirements.

CPT Code Information
84238

LOINC® Information

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>STFR</td>
<td>Soluble Transferrin Receptor (sTfR)</td>
<td>30248-9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result ID</th>
<th>Test Result Name</th>
<th>Result LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>STFR</td>
<td>Soluble Transferrin Receptor (sTfR)</td>
<td>30248-9</td>
</tr>
</tbody>
</table>