Overview

Useful For
Detection of acute or very recent arsenic exposure
Monitoring the effectiveness of therapy

This test is not useful for evaluation of chronic arsenic exposure.

Special Instructions
- Trace Metals Analysis Specimen Collection and Transport

Method Name
InductivelyCoupledPlasma-MassSpectrometry(ICP-MS)

NY State Available
Yes

Specimen

Specimen Type
Whole blood

Advisory Information
The preferred method of screening for arsenic exposure is measurement of urinary arsenic concentration. Order either ASFR / Arsenic Fractionation, 24 hour, Urine or ASFRU / Arsenic Fractionation, Random, Urine.

Specimen Required

Patient Preparation: High concentrations of gadolinium and iodine are known to interfere with most metals tests. If either gadolinium- or iodine-containing contrast media has been administered, a specimen should not be collected for 96 hours.

Supplies: Metal Free B-D Tube (EDTA), 6 mL (T183)

Container/Tube: Royal blue-top (EDTA) plastic trace element blood collection tube

Specimen Volume: Full tube

Collection Instructions:
1. See Trace Metals Analysis Specimen Collection and Transport in Special Instructions for complete instructions.
2. Send specimen in original collection tube.

Additional Information: If ordering the trace element blood collection tube from BD, order catalog #368381.

Specimen Minimum Volume
0.3 mL

Document generated August 9, 2020 at 1:41am CDT
Test Definition: ASB
Arsenic, B

Reject Due To

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>OK</td>
</tr>
<tr>
<td>Gross lipemia</td>
<td>OK</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>OK</td>
</tr>
</tbody>
</table>

Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole blood</td>
<td>Refrigerated (preferred)</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambient</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>28 days</td>
<td></td>
</tr>
</tbody>
</table>

Clinical and Interpretive

Clinical Information

Arsenic (As) exists in a number of toxic and nontoxic forms. The toxic forms are the inorganic species As(5+), also denoted as As(V), the more toxic As(3+), also known as As(III), and their partially detoxified metabolites, monomethylarsine (MMA) and dimethylarsine (DMA). Detoxification occurs in the liver as As(3+) is oxidized to As(5+) and then methylated to MMA and DMA. As a result of these detoxification steps, As(3+) and As(5+) are found in the urine shortly after ingestion, whereas MMA and DMA are the species that predominate more than 24 hours after ingestion.

Blood concentrations of arsenic are elevated for a short time after exposure, after which arsenic rapidly disappears into tissues because of its affinity for tissue proteins. The body treats arsenic like phosphate, incorporating it wherever phosphate would be incorporated. Arsenic "disappears" into the normal body pool of phosphate and is excreted at the same rate as phosphate (excretion half-life of 12 days). The half-life of inorganic arsenic in blood is 4 to 6 hours, and the half-life of the methylated metabolites is 20 to 30 hours. Abnormal blood arsenic concentrations (>12 ng/mL) indicate significant exposure, but will only be detected immediately after exposure. Arsenic is not likely to be detected in blood specimens drawn more than 2 days after exposure because it has become integrated into nonvascular tissues. Consequently, blood is not a good specimen to screen for arsenic, although periodic blood levels can be determined to follow the effectiveness of therapy. Urine is the preferred specimen for assessment of arsenic exposure.

A wide range of signs and symptoms may be seen in acute arsenic poisoning including headache, nausea, vomiting, diarrhea, abdominal pain, hypotension, fever, hemolysis, seizures, and mental status changes. Symptoms of chronic poisoning, also called arseniasis, are mostly insidious and nonspecific. The gastrointestinal tract, skin, and central nervous system are usually involved. Nausea, epigastric pain, colic (abdominal pain), diarrhea, and paresthesias of the hands and feet can occur.

Reference Values

<13 ng/mL

Reference values apply to all ages.

Interpretation
Abnormal blood arsenic concentrations (>12 ng/mL) indicate significant exposure.

Absorbed arsenic is rapidly distributed into tissue storage sites with a blood half-life of <6 hours. Unless a blood specimen is drawn within 2 days of exposure, arsenic is not likely to be detected in a blood specimen.

Cautions
No significant cautionary statements

Clinical Reference


Performance

Method Description
Arsenic (As) is analyzed by inductively coupled plasma-mass spectrometry (ICP-MS) in kinetic energy discrimination (KED) mode using helium as a nonreactive gas to collide with polyatomic interferences such as argon chloride (ArCl). Internal standard used is gallium (Ga). A salt matrix calibration is used.(Unpublished Mayo method)

PDF Report
No

Day(s) and Time(s) Test Performed
Monday through Saturday; 2 p.m.

Analytic Time
1 day

Maximum Laboratory Time
3 days

Specimen Retention Time
14 days

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.
## Test Definition: ASB
Arsenic, B

### CPT Code Information

82175

### LOINC® Information

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASB</td>
<td>Arsenic, B</td>
<td>5583-0</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>32190</td>
<td>Arsenic, B</td>
<td>5583-0</td>
</tr>
</tbody>
</table>