**MEDICARE COVERAGE OF LABORATORY TESTING**

Please remember when ordering laboratory tests that are billed to Medicare/Medicaid or other federally funded programs, the following requirements apply:

1. Only tests that are medically necessary for the diagnosis or treatment of the patient should be ordered. Medicare does not pay for screening tests except for certain specifically approved procedures and may not pay for non-FDA approved tests or those tests considered experimental.
2. If there is reason to believe that Medicare will not pay for a test, the patient should be informed. The patient should then sign an Advance Beneficiary Notice (ABN) to indicate that he or she is responsible for the cost of the test if Medicare denies payment.
3. The ordering physician must provide an ICD-9 diagnosis code or narrative description, if required by the fiscal intermediary or carrier.
4. Organ- or disease-related panels should be billed only when all components of the panel are medically necessary.
5. Both ARUP- and client-customized panels should be billed to Medicare only when every component of the customized panel is medically necessary.
6. Medicare National Limitation Amounts for CPT codes are available through the Centers for Medicare & Medicaid Services (CMS) or its intermediaries. Medicaid reimbursement will be equal to or less than the amount of Medicare reimbursement.

The CPT Code(s) for test(s) profiled in this bulletin are for informational purposes only. The codes reflect our interpretation of CPT coding requirements, based upon AMA guidelines published annually. CPT codes are provided only as guidance to assist you in billing. ARUP strongly recommends that clients reconfirm CPT code information with their local intermediary or carrier. CPT coding is the sole responsibility of the billing party.

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<td>2011457</td>
<td>Smith-Lemli-Opitz Syndrome (DHCR7) Sequencing Available Date 1/20/2015</td>
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<td>Smith-Lemli-Opitz Syndrome (DHCR7) Sequencing, Fetal Available Date 1/20/2015</td>
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<td>0081054</td>
<td>Squamous Cell Carcinoma Antigen, Serum</td>
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<td>0050642</td>
<td>Streptococcus pyogenes, Group A Antibody (Streptozyme) with Reflex to Titer</td>
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<td>Tapentadol and Metabolite - Confirmation/Quantitation - Serum or Plasma</td>
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<td>Test Number</td>
<td>Test Name</td>
<td>Name Change</td>
<td>Methodology</td>
<td>Performed/Reported Schedule</td>
<td>Specimen Requirements</td>
<td>Reference Interval</td>
<td>Note</td>
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<td>Thiocyanate, Serum or Plasma</td>
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<td>2011783</td>
<td>Thiothixene, Serum or Plasma</td>
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<td>Thyroglobulin by LC-MS/MS, Serum or Plasma</td>
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<td>Tramadol and Metabolites - Confirmation/Quantitation - Serum or Plasma</td>
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<td>0050477</td>
<td><em>Treponema pallidum</em> Antibody, IgG by IFA (FTA-ABS), Serum</td>
<td>x x x x x x</td>
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<td>0055273</td>
<td><em>Treponema pallidum</em> Antibody, IgG by IFA (FTA-ABS), CSF</td>
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<td>62</td>
<td>2011025</td>
<td>Tropheryma whippeli Detection by PCR (Pricing Change Only)</td>
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<td>62</td>
<td>2011025</td>
<td>Tropheryma whippeli Detection by PCR, Blood (Pricing Change Only)</td>
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<td>x</td>
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<td>63</td>
<td>0060714</td>
<td>Unusual Organism Culture Available Date 1/20/2015</td>
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<td>63</td>
<td>2005416</td>
<td>Urticaria-Induced Basophil Activation</td>
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<td>63</td>
<td>2007957</td>
<td>Venlafaxine and Metabolite, Serum or Plasma</td>
<td>x</td>
<td>x</td>
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<td>2007955</td>
<td>Ziprasidone, Serum or Plasma</td>
<td>x</td>
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**0090131**  
**Alcohols**  
**ALCT**

**Reference Interval:**

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<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Therapeutic Range</th>
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<tbody>
<tr>
<td><strong>Yes (0090145)</strong></td>
<td>Isopropanol (Includes Acetone)</td>
<td>Effective February 19, 2013</td>
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<tr>
<td><strong>Components</strong></td>
<td>Reference Interval</td>
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<tr>
<td>Isopropanol</td>
<td>No therapeutic range - Limit of detection: 5 mg/dL.</td>
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</tr>
<tr>
<td></td>
<td>Toxic: &gt; 50 mg/dL.</td>
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</tr>
<tr>
<td>Acetone, Quantitative</td>
<td>No therapeutic range - Limit of detection: 5 mg/dL.</td>
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</tr>
<tr>
<td></td>
<td>Toxic: &gt; 100 mg/dL.</td>
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<tr>
<td><strong>Yes (0090115)</strong></td>
<td>Ethanol</td>
<td>Effective February 17, 2013</td>
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<tr>
<td></td>
<td>No therapeutic range Test detection limit 5 mg/dL.</td>
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<tr>
<td></td>
<td>Therapy for Methanol: 100-200 mg/dL.</td>
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<tr>
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<td>Toxic Level: Greater than 250 mg/dL.</td>
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<tr>
<td><strong>Yes (0090005)</strong></td>
<td>Acetone, Quantitative</td>
<td>Therapeutic Range</td>
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<tr>
<td></td>
<td>Not well established. Limit of detection: 5 mg/dL.</td>
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<tr>
<td></td>
<td>Toxic Level: Greater than 100 mg/dL.</td>
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<tr>
<td><strong>Yes (0090165)</strong></td>
<td>Methanol</td>
<td>No therapeutic range - Test detection limit 3 mg/dL.</td>
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<td></td>
<td>Toxic: Greater than 20 mg/dL.</td>
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<tr>
<td>New Test</td>
<td>Methodology</td>
<td>Reported</td>
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<tr>
<td>2011431</td>
<td>Immunohistochemistry/ Fluorescence in situ Hybridization</td>
<td>1-5 days; 12 days if reflexed</td>
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</table>

**Interpretive Data:** Refer to report

See Compliance Statement A: www.aruplab.com/CS

**CPT Code(s):** 88342; if reflexed add 88366

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

<table>
<thead>
<tr>
<th>2007324</th>
<th>ALK (D5F3) with Interpretation by Immunohistochemistry</th>
<th>ALKD5F3 IP</th>
<th></th>
<th><strong>HOT LINE NOTE:</strong> There is a component change associated with this test: Remove component 2007326, ALK(D5F3) by IHC Pct of Tumor Staining</th>
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<tbody>
<tr>
<td>CPT Code(s):</td>
<td>88342</td>
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<table>
<thead>
<tr>
<th>2006102</th>
<th>ALK Gene Rearrangements by FISH, Lung</th>
<th>ALK GENE</th>
<th></th>
<th><strong>HOT LINE NOTE:</strong> There is a clinically significant charting name change associated with this test: Change the charting name of component 2006127 from ALK Gene Rearrangements in NSCL by FISH to ALK by FISH - Result</th>
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<tr>
<td>CPT Code(s):</td>
<td>88366</td>
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</table>
## New Test 2011723 Allergen, Food, Avocado IgG AVOCADOIGG

**Available January 20, 2015**

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).  
**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.  
**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 9.14 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

## New Test 2011725 Allergen, Food, Broccoli IgG BROCCIGG

**Available January 20, 2015**

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).  
**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.  
**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 9.33 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
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<tr>
<th>New Test</th>
<th>Allergen, Food, Cashew IgG</th>
<th>CASHEW IGG</th>
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<tbody>
<tr>
<td><strong>Available January 20, 2015</strong></td>
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</table>

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).  
**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.  
**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 7.19 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: [www.aruplab.com/CS](http://www.aruplab.com/CS)

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

<table>
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<tr>
<th>New Test</th>
<th>Allergen, Food, Cheddar Cheese IgG</th>
<th>CHEDCHEESE</th>
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</thead>
</table>

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).  
**Specimen Preparation:** Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.  
**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 46.23 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: [www.aruplab.com/CS](http://www.aruplab.com/CS)

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test 2011729 Allergen, Food, Cheese Mold IgG CHSMLD IGG

Available January 20, 2015

Methodology: Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed: Sun
Reported: 1-8 days

Specimen Required: Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST). Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL) Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval: Less than 85.57 mcg/mL

Interpretive Data: Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

CPT Code(s): 86001

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

New Test 2011731 Allergen, Food, Clam IgG CLAM IGG

Available January 20, 2015

Methodology: Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed: Sun
Reported: 1-8 days

Specimen Required: Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST). Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL) Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval: Less than 12.81 mcg/mL

Interpretive Data: Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

CPT Code(s): 86001

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
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<th>2011733</th>
<th>Allergen, Food, Coconut IgG</th>
<th>COCONUTIGG</th>
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<td>Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay</td>
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<td>Performed:</td>
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<tr>
<td>Reported:</td>
<td>1-8 days</td>
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<tr>
<td>Specimen Required:</td>
<td>Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST). Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)</td>
<td>Storage/Transport Temperature: Refrigerated.</td>
<td>Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.</td>
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<td>Specimen Preparation:</td>
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<td>Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year</td>
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<td>Reference Interval:</td>
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<td>Interpretive Data:</td>
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<th>New Test</th>
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<th>Allergen, Food, Crab IgG</th>
<th>CRAB IGG</th>
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<tr>
<td>Methodology:</td>
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<td>Reported:</td>
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<tr>
<td>Specimen Required:</td>
<td>Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST). Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)</td>
<td>Storage/Transport Temperature: Refrigerated.</td>
<td>Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.</td>
</tr>
<tr>
<td>Specimen Preparation:</td>
<td></td>
<td>Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year</td>
<td></td>
</tr>
<tr>
<td>Reference Interval:</td>
<td>Less than 9.13 mcg/mL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpretive Data:</td>
<td>Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT Code(s):</td>
<td>86001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOT LINE NOTE:</td>
<td>Refer to the Test Mix Addendum for interface build information.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**New Test** 2011737 Allergen, Food, Lobster IgG  
**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days  
**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K₃ EDTA), Lavender (K₂ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).  
**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.  
**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year  
**Reference Interval:** Less than 7.29 mcg/mL  
**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.  
**CPT Code(s):** 86001  
**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

**New Test** 2011815 Allergen, Food, Olives IgG  
**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days  
**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K₃ EDTA), Lavender (K₂ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).  
**Specimen Preparation:** Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.  
**Stability (collection to initiation of testing):** After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year  
**Reference Interval:** Less than 21.61 mcg/mL  
**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.  
**CPT Code(s):** 86001  
**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
# New Test 2011739 Allergen, Food, Oyster IgG

**Available January 20, 2015**

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days  

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).  
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
Storage/Transport Temperature: Refrigerated.  
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.  
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year  

**Reference Interval:** Less than 13.42 mcg/mL  

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS  

**CPT Code(s):** 86001  

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

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# New Test 2011741 Allergen, Food, Pineapple IgG

**Available January 20, 2015**

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days  

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).  
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
Storage/Transport Temperature: Refrigerated.  
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.  
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year  

**Reference Interval:** Less than 12.48 mcg/mL  

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS  

**CPT Code(s):** 86001  

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
### New Test 2011743 Allergen, Food, Scallop IgG

**Available January 20, 2015**

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay

**Performed:** Sun

**Reported:** 1-8 days

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).

**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)

**Storage/Transport Temperature:** Refrigerated.

**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.

**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 10.99 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

### New Test 2011745 Allergen, Food, Shrimp IgG

**Available January 20, 2015**

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay

**Performed:** Sun

**Reported:** 1-8 days

**Specimen Required:** Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA) or Serum separator tube (SST).

**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)

**Storage/Transport Temperature:** Refrigerated.

**Unacceptable Conditions:** Hemolyzed, icteric, or lipemic specimens.

**Stability (collection to initiation of testing):** Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 10.41 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
<table>
<thead>
<tr>
<th>New Test</th>
<th>2011747</th>
<th>Allergen, Food, Strawberry IgG</th>
<th>STRWBRYIGG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>January 20, 2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay

**Performed:** Sun

**Reported:** 1-8 days

**Specimen Required:**
- Collect: Green (Sodium Heparin), Lavender (K₃ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).
- Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)
- Storage/Transport Temperature: Refrigerated.
- Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
- Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 12.11 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

<table>
<thead>
<tr>
<th>New Test</th>
<th>2011749</th>
<th>Allergen, Food, Tuna IgG</th>
<th>TUNA IGG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>January 20, 2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay

**Performed:** Sun

**Reported:** 1-8 days

**Specimen Required:**
- Collect: Green (Sodium Heparin), Lavender (K₃ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).
- Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)
- Storage/Transport Temperature: Refrigerated.
- Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
- Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 3.76 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
<table>
<thead>
<tr>
<th>New Test</th>
<th>2011751</th>
<th>Allergen, Food, Turkey IgG</th>
<th>TURKEY IGG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>January 20, 2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days

**Specimen Required:**  
Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).  
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
Storage/Transport Temperature: Refrigerated.  
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.  
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 6.15 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

<table>
<thead>
<tr>
<th>New Test</th>
<th>2011753</th>
<th>Allergen, Food, Walnut IgG</th>
<th>WALNUT IGG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>January 20, 2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Methodology:** Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay  
**Performed:** Sun  
**Reported:** 1-8 days

**Specimen Required:**  
Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).  
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
Storage/Transport Temperature: Refrigerated.  
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.  
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

**Reference Interval:** Less than 6.84 mcg/mL

**Interpretive Data:** Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 86001

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test 2011819  Allergen, Food, Whole Egg, IgG

Methodology: Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed: Sun
Reported: 1-8 days

Specimen Required: Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).
Specimen Preparation: Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.50 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.20 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval: Less than 30.21 mcg/mL

Interpretive Data: Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

CPT Code(s): 86001

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

New Test 0097308  Allergen, Fungi and Molds, Stemphylium herbarum/botryosum IgG

Available January 20, 2015

Methodology: Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed: Sun
Reported: 1-8 days

Specimen Required: Collect: Green (Sodium Heparin), Lavender (K₂ EDTA), Lavender (K₃ EDTA), Pink (K₂ EDTA) or Serum separator tube (SST).
Specimen Preparation: Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.50 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.20 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval: Less than 115.01 mcg/mL

Interpretive Data: Values less than 2.00 mcg/mL represent absent or undetectable levels of allergen-specific IgG antibody. Values 2.00 mcg/mL and above indicate progressive increases in the relative concentration of allergen-specific IgG.

See Compliance Statement B: www.aruplab.com/CS

Note: The units of measure mcg/mL and mgA/L are interchangeable. 1 mg/L = 1000 mcg/1000 mL

CPT Code(s): 86001

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test 2011622  Alpha Globin (HBA1 and HBA2) Deletion/Duplication  HBA DD

Methodology: Multiplex Ligation-dependent Probe Amplification
Performed: Varies
Reported: Within 2 weeks

Specimen Required: Collect: Lavender (EDTA), pink (K2EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: By report

Interpretive Data:
Background Information: Alpha Globin (HBA1 and HBA2) Deletion/Duplication
Characteristics: Alpha thalassemia is caused by decreased or absent synthesis of the hemoglobin alpha-chain resulting in variable clinical presentations. Alpha (+) thalassemia results from mutation of a single alpha2 globin gene (α/αα) and is clinically asymptomatic (silent carrier). Alpha (0) thalassemia (trait) is caused by mutation of both alpha2 globin genes (α/αα), or mutations in the alpha1 and alpha2 globin genes on the same chromosome, (α/αα) and results in mild microcytic anemia. Hemoglobin H disease occurs due to mutation of three alpha globin genes (α/αα) and results in hemolysis with Heinz bodies, moderate anemia, and splenomegaly. Hb Bart Hydrops Fetalis Syndrome results when mutations occur in all four alpha globin genes (α/αα) and is lethal in the fetal or early neonatal period. Alpha globin gene triplications result in three active alpha globin genes on a single chromosome.
Incidence: Carrier frequency in Mediterranean (1:30-50), Middle Eastern, Southeast Asian (1:20), African, African-American (1:3).
Inheritance: Autosomal recessive.
Cause: Pathogenic mutations in the alpha globin gene cluster.
Clinical Sensitivity: Varies by ethnicity, up to 95 percent.
Methodology: Multiplex ligation-dependent probe amplification (MLPA) of the alpha globin gene cluster (HBZ, HBM, HBA2, HBA1, HBQ1) and its HS-40 regulatory region.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Deletions/duplications in exon 1 are not reported. Diagnostic errors can occur due to rare sequence variations. Single base pair substitutions, small deletions/duplications, regulatory region mutations, and deep intronic mutations are not detected. The breakpoints of large deletions/duplications are not determined.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

CPT Code(s): 81404

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test 2011708 Alpha Globin (HBA1 and HBA2) Sequencing and Deletion/Duplication

**Patient History for Hemoglobinopathy/Thalassemia Testing**

**Additional Technical Information**

**Methodology:** Polymerase Chain Reaction/Sequencing./Multiplex Ligation-dependent Probe Amplification.

**Performed:** Sun- Sat

**Reported:** 21-28 days

**Specimen Required:** Collect: Lavender (EDTA), pink (K2EDTA), or Yellow (ACD Solution A or B).

**Specimen Preparation:** Transport 3 mL whole blood. (Min: 2 mL)

**Storage/Transport Temperature:** Refrigerated.

**Stability (collection to initiation of testing):** Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

**Interpretive Data:**

**Background Information for Alpha Globin (HBA1 and HBA2) Sequencing and Deletion/Duplication**

**Characteristics:** Alpha thalassemia is caused by decreased or absent synthesis of the hemoglobin alpha-chain resulting in variable clinical presentations. Alpha (+) thalassemia results from mutation of a single alpha2 globin gene (α/αα) and is clinically asymptomatic (silent carrier). Alpha (0) thalassemia (trait) is caused by mutation of both alpha2 globin genes (α/α), or mutations in the alpha1 and alpha2 globin genes on the same chromosome, (--/αα) and results in mild microcytic anemia. Hemoglobin H disease occurs due to mutation of three alpha globin genes (--/αα) and results in hemolysis with Heinz bodies, moderate anemia, and splenomegaly. Hb Bart Hydrops Fetalis Syndrome results when mutations occur in all four alpha globin genes (--/--). Alpha globin gene triplications result in three active alpha globin genes on a single chromosome. Non-deletional alpha globin mutations may be pathogenic or benign; both may result in an abnormal protein detectable by hemoglobin evaluation. Pathogenic non-deletional mutations often have a more severe effect than single gene deletions.

**Incidence:** Carrier frequency in Mediterranean (1:30-50), Middle Eastern, Southeast Asian (1:20), African, African-American (1:3).

**Inheritance:** Autosomal recessive.

**Cause:** Pathogenic mutations in the alpha globin gene cluster.

**Clinical Sensitivity:** 99 percent.

**Methodology:** Bidirectional sequencing of the HBA1 and HBA2 coding regions, intron-exon boundaries, proximal promoter regions, 5' and 3' untranslated regions, and polyadenylation signals. Multiplex ligation-dependent probe amplification (MLPA) of the alpha globin gene cluster (HBZ, HBM, HBA1, HBA2, HBQ1) and its HS-40 regulatory region.

**Analytical Sensitivity and Specificity:** 99 percent.

**Limitations:** Diagnostic errors can occur due to rare sequence variations. Sequence analysis will not detect all regulatory region mutations or mutations in alpha globin cluster genes other than HBA1 and HBA2. It may not be possible to determine the phase of identified sequence variants. Specific breakpoints of large deletions/duplications will not be determined; therefore, it may not be possible to distinguish mutations of similar size. Individuals carrying both a deletion and duplication within the alpha globin gene cluster may appear to have a normal number of alpha globin gene copies. Sequencing of both HBA1 and HBA2 may not be possible in individuals harboring large alpha globin deletions on both alleles. Rare syndromic or acquired forms of alpha thalassemia associated with ATRX mutations will not be detected.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

**CPT Code(s):** 81404, 81405

New York DOH approval pending. Call for status update.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test 2011415  Alpha-Iduronidase Enzyme Activity in Leukocytes  A-I LEUK

Available January 20, 2015

Patient History For Biochemical Genetics

Methodology:  Quantitative Fluorometry
Performed:  Varies
Reported:  3-10 days

Specimen Required:  Collect: Yellow (ACD Solution B), Lavender (K2 EDTA), or Lavender (K3 EDTA).

Storage/Transport Temperature: Room Temperature. Also acceptable: Refrigerated.

Remarks: Additional information is required: Clinical Indication for testing.

Unacceptable Conditions: Grossly hemolyzed or heparinized specimens.

Stability (collection to initiation of testing): Ambient: 3 days; Refrigerated: 3 days; Frozen: Unacceptable

Reference Interval: 12 – 65 nmol hydrolyzed/hr/mg protein

Interpretive Data: Refer to report.

CPT Code(s): 82657

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

New Test 2011699  Aquaporin-4 Receptor Antibody, IgG by IFA, CSF with Reflex to Titer  AQP4 CSF

Methodology:  Semi-Quantitative Indirect Fluorescent Antibody
Performed:  Wed
Reported:  1-8 days

Specimen Required:  Collect: CSF.

Storage/Transport Temperature: Refrigerated.

Unacceptable Conditions: Hemolyzed, contaminated specimens or severely lipemic specimens.

Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval: less than 1:1

Interpretive Data: Diagnosis of neuromyelitis optica (NMO) requires the presence of longitudinally extensive acute myelitis (lesions extending over 3 or more vertebral segments) and optic neuritis. Approximately 75 percent of patients with NMO express antibodies to the aquaporin-4 (AQP4) receptor. While the absence of AQP4 receptor antibodies does not rule out a diagnosis of NMO, presence of this antibody is diagnostic for NMO.

See Compliance Statement B: www.aruplab.com/CS

Note: If AQP4 antibody IgG is positive, then an AQP4 antibody IgG titer is reported. Additional charges apply.

CPT Code(s):  86255; if reflexed, add 86256

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
2007945  Aripiprazole and Metabolite, Serum or Plasma  ARIPIPRAZO

Specimen Required: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011432, Aripiprazole Dose
Add component 2011433, Aripiprazole Dose Frequency
Add component 2011435, Aripiprazole Type of Draw

2011058  Arylsulfatase A, Leukocytes, Blood  ARYL LEUK

HOT LINE NOTE: There is a result type change associated with this test:
Component 2011061, Reason for Referral, is changing from a prompt result type to a resultable
Component 2011062, Reviewed by, is changing from a prompt result type to a resultable

New Test 2011411  Bath Salts Panel, Serum or Plasma  BATHSLT SP

Available January 20, 2015

Methodology: Quantitative High Performance Liquid Chromatography/Tandem Mass Spectrometry
Performed: Varies
Reported: 3-10 days

Specimen Required: Collect: Light blue (Sodium Citrate) or Plain Red.
Specimen Preparation: Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.8 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Unacceptable Conditions: Gel Separator Tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 2 weeks

Reference Interval: By report

Note: Test includes: DMAA (1, 3-dimethylamylamine; Methylhexaneamine) MDPV(1-(1,3-benzodioxol-5-yl)-2-pyrrolidin-1-ylpentan-1-one; MDPK; Methylenedioxypyrovalerone); Methylone; Pentedrone; alpha-PVP ((RS)-1-phenyl-2-(1-pyrrolidinyl)-1-pentanone; alpha-Pyrrolidinovalerophenone)

CPT Code(s): 80371 (Alt code: 82492)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
Benzodiazepines - Confirmation/Quantitation - Serum or Plasma

**Perform:** Mon, Wed, Fri

**Reported:** 1-5 days

**Methodology:** Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry.

**Drugs covered:** alprazolam, alpha-hydroxyalprazolam, clonazepam, 7-aminoclonazepam, diazepam, lorazepam, midazolam, nordiazepam, oxazepam, and temazepam.

Identification of specific drug(s) taken by specimen donor is problematic due to common metabolites, some of which are prescription drugs themselves.

<table>
<thead>
<tr>
<th>Positive cutoff</th>
<th>Cutoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Alpha-hydroxyalprazolam</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>7-aminoclonazepam</td>
<td>5 ng/mL</td>
</tr>
</tbody>
</table>

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

**HOT LINE NOTE:** There is a component change associated with this test:
Remove component 2010456, Alpha-Hydroxytriazolam, Serum/Plasma
Remove component 2010457, 2-hydroxyethylflurazepam, Serum/Plasma
Remove component 2010458, Desalkylflurazepam, Serum or Plasma

Benzodiazepines - Confirmation/Quantitation - Urine

**Methodology:** Quantitative Liquid Chromatography/Tandem Mass Spectrometry

**Drugs covered:** alprazolam, alpha-hydroxyalprazolam, chlordiazepoxide, clonazepam, 7-aminoclonazepam, diazepam, lorazepam, midazolam, alpha-hydroxymidazolam, nordiazepam, oxazepam, temazepam, and zolpidem.

<table>
<thead>
<tr>
<th>Positive cutoff</th>
<th>Cutoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Alpha-hydroxyalprazolam</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>5 ng/mL</td>
</tr>
<tr>
<td>7-aminoclonazepam</td>
<td>5 ng/mL</td>
</tr>
</tbody>
</table>

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

**HOT LINE NOTE:** There is a component change associated with this test:
Remove component 2007843, Alpha-hydroxytriazolam, Urine
Remove component 2007844, 2-hydroxyethylflurazepam, Urine
Remove component 2007845, Desalkylflurazepam, Urine
Remove component 2007849, Prazepam, Urine
New Test 2011436  Bromide, Serum or Plasma  BROMIDE

Methodology: Quantitative Spectrophotometry
Performed: Mon, Thu
Reported: 1-5 days

Specimen Required: Collect; Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

Unacceptable Conditions: Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 weeks; Frozen: Indefinitely

Reference Interval:
Therapeutic Range:
Sedation: 10-50 mg/dL (values greater than 50 mg/dL may be associated with mild toxicity)
Epilepsy seizure control: 75-150 mg/dL (many patients will exhibit toxic symptoms within this range)
Greater than 150 mg/dL: May be associated with debilitating toxicity
Greater than 300 mg/dL: May be fatal

CPT Code(s): 80299

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
Add component 2011441, Bromide Dose
Add component 2011437, Bromide Dose Frequency
Add component 2011438, Bromide Route
Add component 2011439, Bromide Type of Draw

2010357  Bupropion, Serum or Plasma  BUPRO

Specimen Required: Submit With Order
Remarks: Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011442, Bupropion Dose
Add component 2011443, Bupropion Dose Frequency
Add component 2011444, Bupropion Route
Add component 2011445, Bupropion Type of Draw

Remove component 2010134, Bupropion Draw Time
Remove component 2010135, Bupropion Dose Information
**New Test** 2011603 Caffeine, Serum or Plasma  CAFFEINE S

**Methodology:** Quantitative Enzyme Multiplied Immunoassay Technique  
**Performed:** Wed, Sat  
**Reported:** 1-5 days

**Specimen Required:** Collect: Serum Random or Plasma Random in Plain Red, Serum separator tube (SST), Lavender (K₃ EDTA), Lavender (K₃ EDTA), Green (Lithium Heparin), Green (Sodium Heparin), Gray (Potassium Oxalate/Sodium Fluoride), Plasma Separator Tube (PST), or Pink (K₂ EDTA).

**Specimen Preparation:** Separate from cells ASAP or within 6 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)

**Storage/Transport Temperature:** Refrigerated.

**Remarks:** Submit With Order

1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**Unacceptable Conditions:** Citrated Plasma.

**Stability (collection to initiation of testing):** Ambient: 1 week; Refrigerated: 1 week; Frozen: 2 months

**Reference Interval:**

<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>6-20 µg/mL (neonates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxie</td>
<td>Greater than 40 µg/mL</td>
</tr>
</tbody>
</table>

**Interpretive Data:** Toxic concentrations may cause tremor, cardiac abnormalities and seizures.

**CPT Code(s):** 80155

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

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**0095200 Candida albicans Antibodies IgA, IgG, and IgM by ELISA  CANDIDA AB**

**Specimen Required:** Specimen Preparation: Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube (Min: 0.15 mL)

**Reference Interval:** Effective February 17, 2015

<table>
<thead>
<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Reference Interval</th>
</tr>
</thead>
</table>
| No                   | Candida Antibody, IgG | 0.89 EV or less | Negative - No significant level of detectable Candida albicans antibody.  
|                      |            | 0.90-0.99 EV | Equivocal - Questionable presence of antibodies. Repeat testing in 10-14 days may be helpful.  
|                      |            | 1.00 EV or greater | Positive - Antibody to Candida albicans detected, which may indicate a current or past infection.  |
| No                   | Candida Antibody, IgM | 0.89 EV or less | Negative - No significant level of detectable Candida albicans antibody.  
|                      |            | 0.90-0.99 EV | Equivocal - Questionable presence of antibodies. Repeat testing in 10-14 days may be helpful.  
|                      |            | 1.00 EV or greater | Positive - Antibody to Candida albicans detected, which may indicate a current or past infection.  |
| No                   | Candida Antibody, IgA | 0.89 EV or less | Negative - No significant level of detectable Candida albicans antibody.  
|                      |            | 0.90-0.99 EV | Equivocal - Questionable presence of antibodies. Repeat testing in 10-14 days may be helpful.  
|                      |            | 1.00 EV or greater | Positive - Antibody to Candida albicans detected, which may indicate a current or past infection.  |

**Interpretive Data:** The best evidence for current infection is a significant change on two appropriately timed specimens where both tests are done in the same laboratory at the same time. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.

See Compliance Statement D: www.aruplab.com/CS
New Test 2011763  Carbamazepine, Free and Total, Serum or Plasma  CARB FT

Methodology: Quantitative Enzyme Multiplied Immunoassay Technique
Performed: Mon, Wed, Fri
Reported: 1-5 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red or Serum separator tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Citrated Plasma. Tubes that contain liquid anticoagulant.
Stability (collection to initiation of testing): Ambient: 5 days; Refrigerated: 5 days; Frozen: 4 months

Reference Interval:

<table>
<thead>
<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Total Carbamazepine</td>
<td>Therapeutic Range 4.0-12.0 µg/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic Range Greater than 20 µg/mL</td>
</tr>
<tr>
<td>No</td>
<td>Free Carbamazepine</td>
<td>Therapeutic Range 1.0-3.0 µg/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic Range Greater than 3.8 µg/mL</td>
</tr>
<tr>
<td>No</td>
<td>Percent Free Carbamazepine</td>
<td>8.0-35.0%</td>
</tr>
</tbody>
</table>

Interpretive Data: The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Free carbamazepine may be important to monitor in patients with altered or unpredictable protein binding capacity. Carbamazepine is also subject to drug-drug interactions due to displacement of protein binding and extensive metabolism. Cross-reactivity with metabolites may account for differences in carbamazepine among analytical methods. Calculating percent free attempts to minimize differences in assay cross-reactivity and may be useful in dose optimization.

CPT Code(s): 80156; 80157

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test 2011418  Carbapenem-Resistant Organism Culture  MC CRO

Available January 20, 2015

Time Sensitive

Methodology: Culture/Identification
Performed: Sun-Sat
Reported: Within 1 week

Specimen Required: Collect: Rectal swab. Before submitting specimen(s), call (800) 242-2787, ext. 2248, to notify the Bacteriology Laboratory of the number of specimens being shipped and the date of shipment.
Specimen Preparation: Transport swab in Eswab transport media (ARUP Supply #45877). Available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787.
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable

Reference Interval: Culture negative for carbapenem-resistant organisms.

Note: Identification and susceptibility tests are billed separately from culture.

CPT Code(s): 87081; Identification CPT codes may vary based on method

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

New Test 2011450  Carisoprodol and Meprobamate, Serum or Plasma  CARIS SP

Methodology: Quantitative Gas Chromatography/Mass Spectrometry
Performed: Mon, Fri
Reported: 1-4 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Submit with order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood, Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 months

Reference Interval:

<table>
<thead>
<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Therapeutic Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Carisoprodol</td>
<td>Less than 8 µg/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic</td>
</tr>
<tr>
<td>No</td>
<td>Meprobamate, Serum or Plasma</td>
<td>Greater than or equal to 8 µg/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dose-Related Range 5-20 µg/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Toxic</td>
</tr>
</tbody>
</table>

Interpretive Data: Adverse effects may include drowsiness, dizziness and headache.

CPT Code(s): 80369 (Alt codes: G6052; 80299)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
2005018  Celiac Disease (HLA-DQ2, and HLA-DQ8) Genotyping

Specimen Required: Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Interpretive Data:
Background Information for Celiac Disease (HLA-DQ2, and HLA-DQ8) Genotyping:
Characteristics: Celiac disease is a systemic autoimmune disorder that may be associated with gastrointestinal symptoms including: diarrhea, weight loss, anorexia, lactose intolerance, and abdominal distention and discomfort. Non-gastrointestinal characteristics are highly variable and include: chronic fatigue, joint pain/inflammation, migraines, depression, attention deficit disorder, iron-deficiency anemia, vitamin deficiency, osteoporosis/osteopenia, short stature, delayed puberty, dental enamel defects, infertility, recurrent fetal loss, and dermatitis herpetiformis.
Incidence: One in 133 individuals in the US is affected.
Inheritance: Multifactorial.
Cause: The presence of either the HLA-DQ2 or the HLA-DQ8 allele in combination with dietary gluten.
Alleles tested: HLA-DQ2 (encoded by HLA-DQA1*05 and HLA-DQB1*02) and HLA-DQ8 (encoded by HLA-DQB1*03:02).
Clinical Sensitivity and Specificity: Approximately 100 percent and 3 percent, respectively.
Methodology: PCR with melting curve analysis.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Rare diagnostic errors may occur due to primer site mutations. Copy number of each detected allele will not be determined. Other alleles other than HLA-DQ2 and HLA-DQ8 will not be identified. Other genetic and non-genetic factors that influence celiac disease are not evaluated.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011755, HLA Celiac Specimen

New Test 2011616 Colon Cancer Gene Panel, Somatic CRC MASS

Available January 20, 2015

Additional Technical Information

Methodology: Mass Spectrometry
Performed: DNA Extraction: Sun-Sat
Assay: Tue, Thu
Reported: 7-10 days

Specimen Required: Collect: Tissue Tumor, Tissue Resections, or Tissue Small Biopsies.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin) and paraffin embed tissue. Protect from excessive heat.
Transport block and/or slides in a tissue transport kit (ARUP supply #47808) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787.
Resections: 8 unstained 5-micron slides. (Min: 5 slides)
Small biopsies: 15 unstained 5-micron slides. (Min: 10 slides)
Storage/Transport Temperature: Room temperature. Ship in cooled container during summer months.
Remarks: Include surgical pathology report.
Unacceptable Conditions: Less than 10 percent tumor. Specimens fixed/processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives. Decalcified specimens.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Interpretive Data: Refer to report.

See Compliance Statement B: www.aruplab.com/CS

Note: This panel will detect hot spot mutations in KRAS, BRAF, PIK3CA and NRAS genes.

CPT Code(s): 88381, 81210 (BRAF), 81275 (KRAS), 81404 (NRAS), 81479 (PIK3CA)

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
<table>
<thead>
<tr>
<th>Test Code</th>
<th>Description</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>0070416</td>
<td>C-Telopeptide, Beta-Cross-Linked, Serum</td>
<td>CTX</td>
</tr>
<tr>
<td>0081344</td>
<td>CYFRA 21-1 (Cytokeratin 19 Fragment), Serum</td>
<td>CYFRA</td>
</tr>
<tr>
<td>2001933</td>
<td>Cystic Fibrosis (CFTR) 32 Mutations</td>
<td>CF PAN</td>
</tr>
<tr>
<td>2001968</td>
<td>Cystic Fibrosis (CFTR) 32 Mutations with Reflex to Sequencing</td>
<td>CF PAN-SEQ</td>
</tr>
<tr>
<td>2001967</td>
<td>Cystic Fibrosis (CFTR) 32 Mutations with Reflex to Sequencing and Reflex to Deletion/Duplication</td>
<td>CF COMPR</td>
</tr>
<tr>
<td>2001969</td>
<td>Cystic Fibrosis (CFTR) 32 Mutations, Atypical</td>
<td>CF PAN 5T</td>
</tr>
<tr>
<td>2001970</td>
<td>Cystic Fibrosis (CFTR) 32 Mutations, Fetal</td>
<td>CF PAN FE</td>
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<tr>
<td>0056003</td>
<td>Cystic Fibrosis (CFTR) 5T Mutation</td>
<td>IVS-8</td>
</tr>
<tr>
<td>0056006</td>
<td>Cystic Fibrosis Cis-Trans (CFTR) R117H and 5T Mutations</td>
<td>CFcis-TRAN</td>
</tr>
</tbody>
</table>

**Specimen Required:**
- **Collect:** Serum separator tube, pink (K<sub>2</sub>EDTA), or green (lithium heparin).
**Cytochrome P450 Pain Management Panel (CYP2D6, CYP2C9, CYP2C19), PAIN PGX**

**Common Variants**

**Methodology:** Polymerase Chain Reaction/Primer Extension (CYP2D6)  
Polymerase Chain Reaction/DNA Hybridization/Electrochemical Detection (CYP2C9, CYP2C19)

**Performed:** Mon, Thu (CYP2C9)  
Tue, Fri (CYP2C19, CYP2D6)

**Reported:** 1-2 weeks

**Interpretive Data:**

**Background Information for Cytochrome P450 Pain Management Panel (CYP2D6, CYP2C9, CYP2C19), Common Variants:**

Characteristics: CYP2D6, CYP2C19, and CYP2C9 metabolic phenotypes may be predicted by genotype. Predicted phenotype may apply clinically to drug and dose selection decisions, based on whether a drug is activated or inactivated by the respective cytochrome P450 enzyme. For example, a CYP2D6 poor metabolizer should avoid opioids that require CYP2D6 for activation or inactivation. Examples of opioids that do not require CYP2D6 for activation or inactivation include buprenorphine, hydromorphone, morphine, oxymorphone, and meperidine.

The combined effect of variant CYP2D6, CYP2C9, and CYP2C9 genotypes on phenotype is not well understood. Pharmacodynamics factors, such as sensitivity of the opioid receptors, and non-genetic factors, such as drug-drug interactions, should also be considered.

**Inheritance:** Autosomal recessive.

**Negative:** No variants detected is predictive of *1 functional alleles and normal enzymatic activity.

**CYP2D6 Variants Tested:**

(Variants are numbered according to M33388 sequence.)

- **Functional:** *2 (2850C>T), *2A (-1584C>G; 2850C>T),
  - Decreased function: *9 (2613-5delAGA), *10 (100C>T), *17 (1023C>T), *29 (1659G>A), *41 (2988G>A).
  - Increased function: Duplicated functional alleles.

**CYP2C9 Variants Tested:**

(Variants are numbered according to NM_000771 transcript).

- Decreased function: *2 (c.430C>T),
  - Non-functional: *3 (c.1075A>C).

**CYP2C19 Variants Tested:**

(Variants are numbered according to NM_000769 transcript).

- Decreased function: *9 (c.431G>A); *10 (c.680C>T),
  - Non-functional: *2 (c.681G>A); *3 (c.636G>A), *4 (c.1A>G), *6 (c.395G>A), *7 (c.819+2T>A), *8 (c.358T>C).
  - Increased function: *17 (c.390C>T; increased gene transcription),

**Penetrance:** Drug dependent.

**Clinical Sensitivity:** In Caucasians, greater than 95 percent of CYP2D6, 90 percent of CYP2C9, and 87 percent of CYP2C19 allelic variants are detected.

**Methodology:** CYP2D6: multiplex polymerase chain reaction and detection primer extension. CYP2C9 and CYP2C19: multiplex polymerase chain reaction, DNA hybridization, and electrochemical detection.

**Analytical Sensitivity and Specificity:** Greater than 99 percent for the variants tested.

**Limitations:** Only the targeted CYP2D6, CYP2C9, and CYP2C19 variants will be detected. Variants in other genes are not detected. Diagnostic errors can occur due to rare sequence variations. Variant detection is not a substitute for therapeutic drug monitoring or other clinical monitoring.

**References:** Overview of CYPs (http://www.anaesthetist.com/physiol/basics/metabol/cyp/Index.htm), nomenclature of CYP alleles (www.cypalleles.ki.se/), drug substrates/inhibitors/inducers for CYP (http://medicine.iupui.edu/clinpharm/ddis/main-table/).

### ANALGESIC SUBSTRATES OF CYTOCHROME P450

<table>
<thead>
<tr>
<th>Cytochrome P450 (CYP)</th>
<th>2C9</th>
<th>2C19</th>
<th>2D6</th>
</tr>
</thead>
<tbody>
<tr>
<td>acetaminophen</td>
<td>***</td>
<td>***</td>
<td>Inactivation</td>
</tr>
<tr>
<td>buprenorphine</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>codeine</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>fentanyl</td>
<td>***</td>
<td>***</td>
<td>Inactivation</td>
</tr>
<tr>
<td>hydrocodone</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>hydromorphone</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>ibuprofen</td>
<td>Inactivation</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>meperidine</td>
<td>***</td>
<td>***</td>
<td>***</td>
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<td>methadone</td>
<td>***</td>
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<td>morphine</td>
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<tr>
<td>naproxen</td>
<td>Inactivation</td>
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</tr>
<tr>
<td>oxycodone</td>
<td>***</td>
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<td>***</td>
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<td>oxymorphone</td>
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<td>***</td>
<td>***</td>
</tr>
<tr>
<td>propoxyphene</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>tapentadol</td>
<td>Inactivation</td>
<td>Inactivation</td>
<td>Inactivation</td>
</tr>
<tr>
<td>transadol</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
</tbody>
</table>

**Note:** Table indicates the metabolic outcome for each drug substrate. "***" indicates that the drug substrate is metabolized by the cytochrome P450 enzyme, "Inactivation" indicates the drug substrate is not metabolized or is inactivated by the enzyme, and "***" indicates that the enzyme is not involved in the metabolism or inactivation of the drug substrate.
New Test  2011813  Cytomegalovirus Antibody, IgG Avidity  CMV G AVID

Methodology:  Semi-Quantitative Enzyme-Linked Immunosorbent Assay
Performed:  Tue
Reported:  1-8 days

Specimen Required:  Collect: Serum separator tube (SST).
Specimen Preparation: Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval:
<table>
<thead>
<tr>
<th>Index</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50 Index or less</td>
<td>Low Avidity</td>
</tr>
<tr>
<td>0.51-0.59 Index</td>
<td>Intermediate Avidity</td>
</tr>
<tr>
<td>0.60 Index or greater</td>
<td>High Avidity</td>
</tr>
</tbody>
</table>

Interpretive Data: Identifying CMV infections in pregnant women during the first trimester is of significant importance for clinical care. Acute infection is typically characterized by increased CMV-specific IgM and IgG antibodies. However, CMV IgM antibodies may persist for several months or even years after initial infection, which limits their utility in the accurate diagnosis of recent CMV infection. CMV IgM antibodies can also be detected during viral reactivation, thus complicating the diagnosis of a recent primary infection. Therefore, measuring IgG antibody avidity to CMV antigens can aid in discriminating recent from prior CMV infections. Index values of 0.5 or less generally indicate recent infection (within the previous 3 to 4 months). However low avidity values cannot exclude the possibility of persistent IgG antibodies with low avidity. Index values of 0.6 or greater indicate an infection occurring more than 3 months prior to testing. Because IgG avidity testing for CMV after the first trimester is not easily interpreted, detection of high avidity CMV IgG antibodies during the first trimester (12 to 16 weeks gestation) helps exclude a diagnosis of an acute CMV infection post-conception.

See Compliance Statement B: www.aruplab.com/CS

CPT Code(s):  86644

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

New Test  2011487  Desipramine, Serum or Plasma by Tandem Mass Spectrometry  DESIPRAMIN

Methodology:  Quantitative Liquid Chromatography/Tandem Mass Spectrometry
Performed:  Mon, Wed, Fri
Reported:  1-5 days

Specimen Required:  Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months

Reference Interval:
<table>
<thead>
<tr>
<th>Level</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic Range</td>
<td>100-300 ng/mL</td>
</tr>
<tr>
<td>Toxic</td>
<td>Greater than 500 ng/mL</td>
</tr>
</tbody>
</table>

Interpretive Data: Toxic concentrations may cause anticholinergic effects, drowsiness and cardiac abnormalities.

CPT Code(s):  80335 (Alt code: G6032)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test  2011632  Disopyramide, Serum or Plasma  DISOP

Methodology:  Quantitative Enzyme Multiplied Immunoassay Technique
Performed:  Tue, Fri
Reported:  1-5 days

Specimen Required:  Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration Serum or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL.)
Storage/Transport Temperature: Refrigerated.
Remarks: Please indicate in the supplied fields:
1.  Dose - List drug amount and include the units of measure
2.  Route - List the route of administration (IV, oral, etc.)
3.  Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4.  Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood, Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 4 days; Refrigerated: 2 months; Frozen: 2 months

Reference Interval:

<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>2.0-5.0 µg/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic</td>
<td>Greater than 7.0 µg/mL</td>
</tr>
</tbody>
</table>

Interpretive Data: Toxic concentrations may cause dry mouth, hypotension and cardiac abnormalities.

CPT Code(s):  80299

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

2010168  DOG1 by Immunohistochemistry  DOG1 IHC

Note: All stains will be handled as "Stain and Return" without interpretation. To request a consultation, submit the pathology report, all associated case materials (clinical history, blocks, slides, etc.), and the Anatomic Pathology requisition form (ARUP form # 32960) in place of the Immunohistochemistry Stain Form.

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011611, DOG1 Client Case or Reference Number
**Drug Detection Panel by High-Resolution Time-of-Flight Mass Spectrometry, Serum or Plasma**

**Interpretive Data:**

**Methodology:** Qualitative Liquid Chromatography/ Time of Flight Mass Spectrometry

The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. The concentration must be greater than or equal to the cutoff to be reported as present. If specific drug concentrations are required, contact the laboratory within two weeks of specimen collection to request confirmation and quantification by a second analytical technique.

For medical purposes only; not valid for forensic use.

**Drugs covered and range of cutoff concentrations. Note that some drugs are identified based on the presence of unique drug metabolites not listed below.**

See Compliance Statement B: [www.aruplab.com/CS](http://www.aruplab.com/CS)

<table>
<thead>
<tr>
<th>Drugs/Drug Classes</th>
<th>Range of Cutoff Concentrations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opioids:</strong></td>
<td></td>
</tr>
<tr>
<td>buprenorphine, codeine, fentanyl, heroin, hydrocodone, hydromorphone, meperidine, methadone, morphine, naloxone, naltrexone, oxycodone, oxymorphone, propoxyphene, tapentadol, tramadol</td>
<td>1-25 ng/mL</td>
</tr>
<tr>
<td><strong>Stimulants:</strong></td>
<td></td>
</tr>
<tr>
<td>amphetamine, cocaine, methamphetamine, MDMA (Ecstasy), MDEA (Eve), MDA, methylphenidate, phentermine</td>
<td>20-40 ng/mL</td>
</tr>
<tr>
<td><strong>Sedative-hypnotics:</strong></td>
<td></td>
</tr>
<tr>
<td>alprazolam, amobarbital, butalbital, chlordiazepoxide, clonazepam, diazepam, lorazepam, midazolam, nordiazepam, oxazepam, pentobarbital, phenobarbital, secobarbital, temazepam, zolpidem</td>
<td>25-500 ng/mL</td>
</tr>
<tr>
<td><strong>Cannabinoids (11-nor-9-carboxy-THC)</strong></td>
<td>60 ng/mL</td>
</tr>
<tr>
<td><strong>Phencyclidine (PCP)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 ng/mL</td>
</tr>
</tbody>
</table>

**HOT LINE NOTE:** There is a component change associated with this test:

- Remove component 2003606, Dihydrocodeine (cutoff 10 ng/mL)
- Remove component 2003643, Alpha-OH-Alprazolam (cutoff 25 ng/mL)
- Remove component 2003644, Alpha-OH-Triazolam (cutoff 25 ng/mL)
- Remove component 2003645, 2-OH-Ethylflurazepam (cutoff 50 ng/mL)
- Remove component 2003646, Desalkylflurazepam (cutoff 25 ng/mL)
- Remove component 2007592, Flunitrazepam (cutoff 25 ng/mL)
- Remove component 2007593, 7-Aminoflunitrazepam (cutoff 25 ng/mL)
- Remove component 2007594, Flurazepam (cutoff 25 ng/mL)
- Remove component 2007595, Alpha-OH-midazolam (cutoff 25 ng/mL)
- Remove component 2007596, Nitrazepam (cutoff 25 ng/mL)
- Remove component 2007597, Triazolam (cutoff 25 ng/mL)
### Drug Detection Panel by High-Resolution Time-of-Flight Mass Spectrometry, Umbilical Cord Tissue

**Methodology:** Qualitative Liquid Chromatography/Time of Flight Mass Spectrometry/ Liquid Chromatography/Tandem Mass Spectrometry/Enzyme-Linked Immunosorbent Assay

**Performed:** Sun-Sat

**Reported:** 1-3 days

**Interpretive Data:**

Detection of drugs in umbilical cord tissue is intended to reflect maternal drug use during pregnancy. The pattern and frequency of drug(s) used by the mother cannot be determined by this test. A negative result does not exclude the possibility that a mother used drugs during pregnancy. Detection of drugs in umbilical cord tissue depends on the extent of maternal drug use, as well as drug stability, unique characteristics of drug deposition in umbilical cord tissue, and the performance of the analytical method. Drugs administered during labor and delivery may be detected. Detection of drugs in umbilical cord tissue does not insinuate impairment and may not affect outcomes for the infant. Interpretive questions should be directed to the laboratory. Glucuronide metabolites are indicated as -G.

Results based on immunoassay detection that do not match clinical expectations should be interpreted with caution.

For medical purposes only; not valid for forensic use unless testing was performed within Chain of Custody process.

See Compliance Statement B: www.aruplab.com/CS

### ERBB2 (HER2/neu) (HercepTest) by Immunohistochemistry, Tissue with Reflex to FISH if 2+

**0049178**

**HERCEP2IP**

**HOT LINE NOTE:** There is a component change associated with this test:
- Remove component 2009596, Homogeneous dark circumferential pattern
- Remove component 2009597, Uniformity of staining

### ERBB2 (HER2/neu) (HercepTest) with Interpretation by Immunohistochemistry, Tissue

**0049174**

**HERCEPIP**

**HOT LINE NOTE:** There is a component change associated with this test:
- Remove component 2009596, Homogeneous dark circumferential pattern
- Remove component 2009597, Uniformity of staining

### Estrogen/Progesterone Receptor with Interpretation by Immunohistochemistry

**0049210**

**ERPR IP**

**HOT LINE NOTE:** There is a component change associated with this test:
- Add component 2011429, EstrogRecp IHC Internal Control Staining
- Remove component 2010754, Internal Control Staining
- Add component 2011430, ProgstRecp IHC Internal Control Staining

### Ethosuximide, Serum or Plasma

**2010358**

**ETHOSUX**

**Specimen Required:** Submit With Order
- Please indicate in the supplied fields:
  1. Dose - List drug amount and include the units of measure
  2. Route - List the route of administration (IV, oral, etc.)
  3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
  4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**HOT LINE NOTE:** There is a component change associated with this test:
- Add component 2011497, Ethosuximide Dose
- Add component 2011498, Ethosuximide Dose Frequency
- Add component 2011499, Ethosuximide Route
- Add component 2011500, Ethosuximide Type of Draw
- Remove component 2010130, Ethosuximide Dose Information
- Remove component 2010131, Ethosuximide Draw Time
New Test

| Methodology: | Quantitative Gas Chromatography/Mass Spectrometry |
| Performed: | Mon, Thu |
| Reported: | 1-5 days |

**Specimen Required:**

- **Collect:** Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
- **Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
- **Storage/Transport Temperature:** Refrigerated.

**Remarks:**

1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**Unacceptable Conditions:** Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).

**Stability (collection to initiation of testing):**

- Ambient: 4 days;
- Refrigerated: 4 days;
- Frozen: 3 weeks

**Reference Interval:**

- **Dose-Related Range:** 5-50 µg/mL, Dose (Adult): 1-3 g/d
- **Toxic:** Greater than 55 µg/mL

**Interpretive Data:**

Adverse effects may include dizziness, nausea, vomiting and headache.

**CPT Code(s):**

- 80339; (Alt code: 80299)

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

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**2006332**

**Exome Sequencing Symptom-Guided Analysis**

**EXOME SEQ**

**Specimen Required:**

- **Patient Specimen:** Lavender (EDTA) or yellow (ACD Solution A or B). Peripheral blood required. Contact ARUP's genetic counselor at (800) 242-2787 ext. 2141 if there are questions prior to test submission.

**Specimen Preparation:**

- Patient Specimen: Transport 3 mL whole blood. (Min: 1 mL)
- Maternal Specimen: Transport 3 mL whole blood. (Min: 1 mL)
- Paternal Specimen: Transport 3 mL whole blood. (Min: 1 mL)

**2006336**

**Exome Sequencing Symptom-Guided Analysis, Patient Only**

**EXOSEQ PRO**

**Specimen Required:**

- **Patient Specimen:** Lavender (EDTA) or yellow (ACD Solution A or B). Peripheral blood required. Contact ARUP's genetic counselor at (800) 242-2787 ext. 2141 prior to test submission.

**Specimen Preparation:**

- Patient Specimen: Transport 3 mL whole blood. (Min: 1 mL)
- Maternal Specimen: Transport 3 mL whole blood. (Min: 1 mL)
- Paternal Specimen: Transport 3 mL whole blood. (Min: 1 mL)

**2002350**

**Fat, Fecal Quantitative, Homogenized Aliquot**

**FECQ FAT**

**Specimen Required:**

- **Specimen Preparation:** Weigh entire collection. Homogenize entire collection (using a graduated cylinder, add sufficient water to give "milk shake" consistency) and aliquot 20 mL (20 g) to a clean, unpreserved vial (ARUP supply #40910). (Min: 5 mL) Collection can be obtained using a Timed Stool Collection Kit (ARUP supply #44192). Additional containers may be used as needed (ARUP supply #28077). Available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. A homogenized aliquot should be made and submitted from these collection containers. Refer to instructions in Stool Collection-Timed Specimens (24, 48, 72 Hours) under Specimen Handling at www.aruplab.com.
New Test 2011776 Fentanyl and Metabolite, Quantitation, Serum or Plasma CDCO FNSP

Methodology: Quantitative Liquid Chromatography/Tandem Mass Spectrometry
Performed: Tue, Thu, Sat
Reported: 1-4 days

Specimen Required: Collect: Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), Green (Sodium Heparin), Gray (Potassium Oxalate/Sodium Fluoride), or Pink (K₂ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 4 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood. Serum separator tubes, Light Blue (Sodium Citrate), or Plasma separator tubes. Specimens exposed to repeated freeze/thaw cycles.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years

Reference Interval: By report

Interpretive Data:
Methodology: LC-MS/MS

Drugs covered: Fentanyl and norfentanyl.

Positive cutoff: 0.1 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

See Compliance Statement B: www.aruplab.com/CS

CPT Code(s): 80354 (Alt code: G6056)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

0091517 Formic Acid, Serum or Plasma FORMIC P

Methodology: Quantitative Ion Chromatography

Specimen Required: Collect: Lavender (K2EDTA), Pink (K2EDTA), or plain red.
Specimen Preparation: Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 1 week; Frozen: 6 months

2006160 Free Estradiol by ED/LC-MS/MS ESDIOL FR

Performed: Tue
Reported: 2-10 days
Quarterly HOT LINE: Effective February 17, 2015

### Fungal Culture

**Specimen Required:**
- **Collect:** Material or body fluid from any site except blood
- **Specimen Preparation:** Fluids: Transport 3 mL fluid in a sterile container. (Min: 1 mL). **Material:** Transfer to sterile container.
  - A single specimen may be cultured for both bacteria and fungi. Place each specimen in an individually sealed bag.
  - Storage/Transport Temperature: Specimens from a sterile body site (fluids, tissues, etc.): Room temperature: If CSF cannot be transported within eight hours, hold at 35°C until the time of transport.
  - **Cutaneous specimens (skin, hair, nails):** Room temperature
  - **Specimens from other non-sterile site (respiratory, GI tract, etc.):** Refrigerated.
  - Remarks: Additional information required: Specimen source. Notify laboratory if *Malassezia furfur* is suspected, special media must be used for the cultivation of this yeast.

**Unacceptable Conditions:**
- Blood, Catheter tips.

**Storage/Transport Temperature:**
- CSF: Ambient 48 hours; Refrigerated 1 week; Frozen Unacceptable
- Hair or Skin or Nail Scrapings: Ambient: 2 weeks; Refrigerated: Unacceptable Frozen: Unacceptable
- All others: Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

**Note:** If *Histoplasma, Coccidioides, or Blastomyces* is the presumptive diagnosis, a DNA probe will be added for confirmation at an additional charge per probe.

Identification performed on mold isolates. Limited yeast identification performed from non-sterile sites. Identification of molds and/or yeasts on positives is billed separately from culture.

Fungal smear must be ordered separately. Refer to Fungal Stain, KOH with Calcofluor White (ARUP test code 2004589).

Order test according to source type:
- Blood/Bone Marrow: Blood Culture, Fungal (ARUP test code 0060070)

### New Test

**2011660 Gastrointestinal Parasite and Microsporidia by PCR**

**Methodology:** Qualitative Polymerase Chain Reaction
**Performed:** Tue, Fri
**Reported:** 2-5 days

**Specimen Required:**
- **Collect:** Stool.
  - **Specimen Preparation:** Transfer 1 mL stool to an unpreserved stool transport vial (ARUP supply #40910). Available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

**Storage/Transport Temperature:** Frozen.

**Remarks:** Additional information required: Specimen source.

**Unacceptable Conditions:** Specimens in Viral Transport Media. Stool in formalin.

**Stability (collection to initiation of testing):**
- Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 2 weeks

**Reference Interval:**

<table>
<thead>
<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (2011150)</td>
<td>Gastrointestinal Parasite Panel by PCR</td>
<td>See Report</td>
</tr>
<tr>
<td>Yes (2011626)</td>
<td>Microsporidia by PCR</td>
<td>See Report</td>
</tr>
</tbody>
</table>

**Interpretive Data:** Refer to report.

See Compliance Statement B: www.aruplab.com/CS

**Note:** Refer to individual components.

**CPT Code(s):** 87505; 87798 x2

New York DOH approval pending. Call for status update.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
Patient History for GLI3-related Disorders

Methodology: Multiplex Ligation-dependent Probe Amplification
Performed: Varies
Reported: Within 2 weeks

Specimen Required: Collect: Lavender (EDTA), pink (K$_2$EDTA), or yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: By report

Interpretive Data:
Background information for GLI3-Related Disorders (GLI3) Deletion/Duplication
Characteristics: Mutations in the GLI3 gene cause multiple disorders. The most common disorders are Pallister-Hall syndrome (PHS) and Greig Cephalopolysyndactyly syndrome (GCPS).

PHS is characterized by hypothalamic hamartoma, postaxial/central polydactyly, and bifid epiglottis. Some individuals may exhibit imperforate anus, renal, genitourinary, pulmonary, or non-polydactyly skeletal anomalies.

Greig Cephalopolysyndactyly syndrome (GCPS) is characterized by preaxial polysyndactyly, hypertelorism, and macrocephaly. Severe cases may exhibit seizures, hydrocephalus, and/or intellectual disability.

Inheritance: Autosomal dominant
Cause: Pathogenic germline mutations in the GLI3 gene.
Clinical sensitivity: PHS - unknown; GCPS - 5-10 percent
Methodology: Multiplex ligation-dependent probe amplification (MLPA) to detect large exonic GLI3 deletions and duplications.
Analytical sensitivity and specificity: Greater than 98 percent.

Deletions/duplications in exon 1 are not reported. Diagnostic errors can occur due to rare sequence variations. Single base pair substitutions, small deletions/duplications, regulatory region mutations, and deep intronic mutations are not detected. The breakpoints of large deletions/duplications are not determined.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

Refer to Statement C under Testing Information at http://www.aruplab.com/CS

CPT Code(s): 81479

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test 2011470  GLI3-Related Disorders (GLI3) Sequencing  GLI3 FGS

Available January 20, 2015

Patient History for GLI3-related Disorders

Additional Technical Information

**Methodology:** Polymerase Chain Reaction/Sequencing
**Performed:** Sun- Sat
**Reported:** 2-3 weeks

**Specimen Required:** Collect: Lavender (EDTA), pink (K2EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

**Interpretive Data:**

**Background Information for GLI3-Related Disorders (GLI3) Sequencing:**

**Characteristics:** Mutations in the GLI3 gene cause multiple disorders. The most common disorders are:

- **Pallister-Hall syndrome (PHS):** characterized by hypothalamic hamartoma, postaxial/central polydactyly, and bifid epiglottis. Some individuals may exhibit imperforate anus, renal, genitourinary, pulmonary, or non-polydactyly skeletal anomalies.
- **Greig Cephalopolysyndactyly syndrome (GCPS):** characterized by preaxial polysyndactyly, hypertelorism, and macrocephaly. Severe cases may exhibit seizures, hydrocephalus, and/or intellectual disability.

**Inheritance:** Autosomal dominant

**Cause:** Pathogenic germline mutations in the GLI3 gene.

**Clinical sensitivity:** PHS: 95 percent; GCPS: 75-80 percent

**Methodology:** Bidirectional sequencing of the entire coding region and intron/exon boundaries of the GLI3 gene.

**Analytical sensitivity and specificity:** Greater than 99 percent for sequencing.

**Limitations:** Diagnostic errors can occur due to rare sequence variations. Regulatory region mutations, deep intronic mutations, and large deletions/duplications are not detected. Exon 1 is a non-coding region and not covered by this assay. Mutations in genes other than GLI3 are not detected.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

**CPT Code(s):** 81479

New York DOH approval pending. Call for status update.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test 2011465 GLI3-Related Disorders (GLI3) Sequencing and Deletion/Duplication GLI3 FGA

Available January 20, 2015

Patient History for GLI3-related Disorders Additional Technical Information

Methodology: Polymerase Chain Reaction/ Sequencing/Multiplex Ligation-dependent Probe Amplification
Performed: Sun- Sat
Reported: 2-3 weeks

Specimen Required: Collect: Lavender (EDTA), pink (K<sub>2</sub>EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Interpretive Data:
Background Information for GLI3-Related Disorders (GLI3) Sequencing and Deletion/Duplication:
Characteristics: Mutations in the GLI3 gene cause multiple disorders. The most common disorders are Pallister-Hall syndrome (PHS) and Greig Cephalopolysyndactyly syndrome (GCPS).
PHS is characterized by hypothalamic hamartoma, postaxialcentral polydactyly, and bifid epiglottis. Some individuals may exhibit imperforate anus, renal, genitourinary, pulmonary, or non-polydactyly skeletal anomalies.
GCPS is characterized by preaxial polysyndactyly, hypertelorism, and macrocephaly. Severe cases may exhibit seizures, hydrocephalus, and/or intellectual disability.
Inheritance: Autosomal dominant
Cause: Pathogenic germline mutations in the GLI3 gene.
Clinical sensitivity: PHS - 95 percent; GCPS - 75-80 percent
Methodology: Bidirectional sequencing of the entire coding region and intron/exon boundaries of the GLI3 gene. Multiplex Ligation-dependent Probe Amplification (MLPA) to detect large exonic GLI3 deletions and duplications.
Analytical sensitivity and specificity: Greater than 99 percent for sequencing; greater than 98 percent for MLPA.
Limitations: Diagnostic errors can occur due to rare sequence variations. Regulatory region mutations, deep intronic mutations, and large deletions/duplications are not detected. Exon 1 is a non-coding region and not covered by this assay. The breakpoints of large deletions and duplications are not determined. Mutations in genes other than GLI3 are not detected.
Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.
See Compliance Statement C: www.aruplab.com/CS

CPT Code(s): 81479 x2

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
2010925  Helicobacter pylori Breath Test, Pediatric  UBT PED

Specimen Required: Patient Prep: This test requires the pediatric patient (3-17 years old) to fast and abstain from smoking for 1 hour prior to test administration. The patient should not have taken antibiotics, proton pump inhibitors (e.g., Prilosec, Prevacid, Aciphex, Nexium), or bismuth preparations (e.g., Pepto-Bismol) within the previous 14 days. When used to monitor treatment, the test should be performed four weeks after cessation of definitive therapy. The patient should be informed that the Pranactin-Citric drink that will be administered contains phenylalanine. Phenylketonurics restrict dietary phenylalanine.

Unacceptable Conditions: Underinflated bags. Specimens from patients younger than 3 years.

2005792  Hemoglobin Evaluation Reflexive Cascade  HB CASCADE

HOT LINE NOTE: There is a component change associated with this test:
Remove component 0081268, Hemoglobin, Acid Electrophoresis
Add component 2011645, Alpha Globin (HBA1 and HBA2) Del/Dup Rst
Remove component 0081269, Hemoglobin, Alkaline Electrophoresis
Remove component 2005801, Alpha Thalassemia, 7 Deletions

0050610  Hemoglobin Evaluation with Reflex to Electrophoresis and/or RBC Solubility  HGBEL

CPT Code(s): 83021; if reflexed, add 85660 or 83021

HOT LINE NOTE: There is a component change associated with this test:
Remove component 0081268, Hemoglobin, Acid Electrophoresis
Remove reflex component 0081272, Acid HGB Electrophoresis Bill
Remove component 0081269, Hemoglobin, Alkaline Electrophoresis
Remove reflex component 0081273, Alk HGB Electrophoresis Bill

New Test  2011654  Hepatitis E Virus by Quantitative PCR  HEV QNT

Available January 20, 2015

Methodology: Quantitative Polymerase Chain Reaction

Performed: Mon, Thu

Reported: 2-5 days

Specimen Required: Collect: Lavender (EDTA), pink (K2EDTA) or Serum separator tube (SST).
Specimen Preparation: Separate from cells. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Frozen.
Remarks: Additional information required: Specimen source
Unacceptable Conditions: Heparinized specimens.
Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 week

Reference Interval: Not detected

Interpretive Data: The quantitative range of this assay is 3.3- 8.3 log IU/mL (1,800 - 180,000,000 IU/mL). One IU/mL of HEV RNA is approximately 2.25 copies/mL.

A negative result (less than 3.3 log IU/mL or less than 1,800 IU/mL) does not rule out the presence of PCR inhibitors in the patient specimen or HEV RNA concentrations below the level of detection of the test. Inhibition may also lead to underestimation of viral quantitation.

See Compliance Statement B: www.arulab.com/CS

Note: The limit of quantification for this RNA test is 3.3 log IU/mL (1,800 IU/mL). If the test DID NOT DETECT the virus, the test result will be reported as "< 3.3 log IU/mL (≤ 1,800 IU/mL).” If the test DETECTED the presence of the virus but was not able to accurately quantify the number of international units, the test result will be reported as "Not Quantified.”

CPT Code(s): 87799

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test 2011461 Hereditary Paraganglioma-Pheochromocytoma (SDHA) Sequencing

Available January 20, 2015

Methodology: Polymerase Chain Reaction/Sequencing
Performed: Sun- Sat
Reported: 2-3 weeks

Specimen Required: Collect: Lavender (EDTA), pink (K2EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Interpretive Data:
Background Information for Hereditary Paraganglioma-Pheochromocytoma (SDHA) Sequencing:
Characteristics: Hereditary paraganglioma-pheochromocytoma (PGL/PCC) syndrome is characterized by paragangliomas (neuroendocrine tumors of the autonomic nervous system) and pheochromocytomas (paragangliomas of the adrenal medulla). Pathogenic germline mutations in a number of genes, including SDHA, predispose to paraganglioma and pheochromocytoma with risk of malignant transformation.
Incidence: About 1 in 300,000 per year.
Inheritance: Autosomal dominant.
Cause: Pathogenic succinate dehydrogenase, subunits A, B, C, and D (SDHA, SDHB, SDHC, and SDHD) gene mutations. Mutations in other genes, including TMEM127, EGLN1, MAX, and SDHAF2, may also be causative.
Clinical Sensitivity: Less than 3 percent.
Methodology: Bidirectional sequencing of all coding regions and intron-exon boundaries of the SDHA gene. Sequencing primers are specifically selected to target the functional SDHA gene.
Analytical Sensitivity and Specificity: 96 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations. Regulatory region mutations, deep intronic mutations, and large deletions/duplications in SDHA are not detected. In some cases, results may be uninterpretable due to technical limitations in the presence of pseudogenes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

CPT Code(s): 81406

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
New Test 2011721 Herpesvirus 6 (HHV-6) Antibodies, IgG and IgM with Reflex to IgM Titer

Available January 20, 2015

Methodology: Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Semi-Quantitative Indirect Fluorescent Antibody
Performed: Tue, Thu
Reported: 1-6 days

Specimen Required: Collect: Serum separator tube (SST)
Specimen Preparation: Transfer 1.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Contaminated, heat-inactivated, hemolyzed, or lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 6 months

Reference Interval:

<table>
<thead>
<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (0065288)</td>
<td>Herpesvirus 6 (HHV-6) Antibody, IgG</td>
<td>0.89 IV or less</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative - No significant level of detectable HHV-6 IgG antibody.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.90-1.10 IV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equivocal - Questionable presence of HHV-6 IgG antibody. Repeat testing in 10-14 days may be helpful.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.11 IV or greater</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Positive - IgG antibody to HHV-6 detected, which may indicate current or past infection.</td>
</tr>
<tr>
<td>Yes (2011420)</td>
<td>Herpesvirus 6 Antibody, IgM Screen with Reflex to Titer by IFA</td>
<td>&lt;1:10</td>
</tr>
</tbody>
</table>

Interpretive Data: The best evidence for current infection is a significant change on two appropriately timed specimens, where both tests are done in the same laboratory at the same time.

See Compliance Statement A: www.aruplab.com/CS

Note: Specimens containing IgM antibodies to cytomegalovirus and adenovirus may have falsely reactive results. If HHV-6 IgM antibody is detected at 1:10, an IgM titer will be added. Additional charges apply

CPT Code(s): 86790 x2; if reflexed add 86790

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

2007463 Iodine, Serum IODINESER

Interpretive Data: Values greater than 250 µg/L may indicate iodine overload.

See Compliance Statement B: aruplab.com/CS

0020037 Iron, Plasma or Serum FE

Reference Interval:

<table>
<thead>
<tr>
<th>Age</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn 0-6 weeks</td>
<td>100-250 µg/dL</td>
</tr>
<tr>
<td>Infant 7 weeks – 11 months</td>
<td>40-100  µg/dL</td>
</tr>
<tr>
<td>Child 1 year – 10 years</td>
<td>50-120  µg/dL</td>
</tr>
<tr>
<td>Male 11 years and older</td>
<td>50-170  µg/dL</td>
</tr>
<tr>
<td>Female 11 years and older</td>
<td>30-160  µg/dL</td>
</tr>
</tbody>
</table>

0020505 Lactate Dehydrogenase Total, Body Fluid LDH-FL

Interpretive Data: Refer to report

See Compliance Statement B: www.aruplab.com/CS
Interpretive Data: Elevated results may be due to skin or collection-related contamination, including use of a noncertified lead-free tube. Elevated levels of blood lead should be confirmed with a second specimen collected in a lead-free tube.

Repeat testing is recommended prior to initiating chelation therapy or conducting environmental investigations of potential lead sources.

Information sources for reference intervals and interpretive comments include the "CDC Response to the 2012 Advisory Committee on Childhood Lead Poisoning Prevention Report" and the "Recommendations for Medical Management of Adult Lead Exposure, Environmental Health Perspectives, 2007." Thresholds and time intervals for retesting, medical evaluation, and response vary by state and regulatory body. Contact your State Department of Health and/or applicable regulatory agency for specific guidance on medical management recommendations.

### Lead, Blood (Capillary)

<table>
<thead>
<tr>
<th>Age</th>
<th>Concentration</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>5-9.9 µg/dL</td>
<td>Adverse health effects are possible, particularly in children under 6 years of age and pregnant women. Discuss health risks associated with continued lead exposure. For children and women who are or may become pregnant, reduce lead exposure.</td>
</tr>
<tr>
<td>All ages</td>
<td>10-19.9 µg/dL</td>
<td>Reduced lead exposure and increased biological monitoring are recommended. Consider chelation therapy when concentrations exceed 50 µg/dL and symptoms of lead toxicity are present.</td>
</tr>
<tr>
<td>Less than 19 years of age</td>
<td>Greater than 44.9 µg/dL</td>
<td>Critical. Immediate medical evaluation is recommended. Consider chelation therapy when symptoms of lead toxicity are present.</td>
</tr>
<tr>
<td>Greater than 19 years of age</td>
<td>Greater than 69.9 µg/dL</td>
<td>Critical. Immediate medical evaluation is recommended. Consider chelation therapy when symptoms of lead toxicity are present.</td>
</tr>
</tbody>
</table>

See Compliance Statement B: aruplab.com/CS

### Lead, Blood (Venous)

Specimen Required: Unacceptable Conditions: Serum. Heparinized or clotted specimens.

Stability (collection to initiation of testing): If the specimen is drawn and stored in the appropriate container, the trace element values do not change with time. Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Interpretive Data: Elevated results may be due to skin or collection-related contamination, including use of a noncertified lead-free tube. Elevated levels of blood lead should be confirmed with a second specimen collected in a lead-free tube.

Information sources for reference intervals and interpretive comments include the "CDC Response to the 2012 Advisory Committee on Childhood Lead Poisoning Prevention Report" and the "Recommendations for Medical Management of Adult Lead Exposure, Environmental Health Perspectives, 2007." Thresholds and time intervals for retesting, medical evaluation, and response vary by state and regulatory body. Contact your State Department of Health and/or applicable regulatory agency for specific guidance on medical management recommendations.

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<td>All ages</td>
<td>20-69.9 µg/dL</td>
<td>Removal from lead exposure and prompt medical evaluation are recommended. Consider chelation therapy when concentrations exceed 50 µg/dL and symptoms of lead toxicity are present.</td>
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See Compliance Statement B: aruplab.com/CS
Specimen Required: Unacceptable Conditions: Serum. Heparinized, hemolyzed or clotted specimens.

Interpretive Data: Elevated results may be due to skin or collection-related contamination, including use of a noncertified lead-free tube. Elevated levels of blood lead should be confirmed with a second specimen collected in a lead-free tube.

Reference interval and interpretive comments are based on the Recommendations for Medical Management of Adult Lead Exposure, Environmental Health Perspectives, 2007. Thresholds and time intervals for retesting, medical evaluation, and response vary by state and regulatory body. Actions described by OSHA in 1978 are shown below. Contact your State Department of Health and/or applicable regulatory agency for specific guidance on medical management recommendations.

### Action required for workers with Elevated Lead Values OSHA, Occupational Exposure to Lead, 1978

<table>
<thead>
<tr>
<th>No. of Tests</th>
<th>Lead</th>
<th>Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Greater than or equal to 40.0 µg/dL</td>
<td>Notification of worker in writing; medical examination of worker and consultation.</td>
</tr>
<tr>
<td>3 (average)</td>
<td>Greater than or equal to 50.0 µg/dL</td>
<td>Removal of worker from job with potential lead exposure.</td>
</tr>
<tr>
<td>1</td>
<td>Greater than or equal to 60.0 µg/dL</td>
<td>Removal of worker from job with potential lead exposure.</td>
</tr>
<tr>
<td>2</td>
<td>Less than 40.0 µg/dL</td>
<td>Reinstatement of worker in job with potential lead exposure is based upon symptoms and medical evaluation.</td>
</tr>
</tbody>
</table>

OSHA requirements in effect since 1978 call for the measurement of whole blood lead and zinc protoporphyrins (ZPP)(NCCLS document C42-A, Nov. 1996) to evaluate the occupational exposure to lead. OSHA requires ZPP whole blood testing in units of µg/dL. For adults, conversion of ZPP units of µg/dL whole blood assumes a hematocrit of 45 percent. Conversion factor: umol/mol heme x 0.584 = µg/dL.

Information sources for reference intervals and interpretive comments provided below include the "CDC Response to the 2012 Advisory Committee on Childhood Lead Poisoning Prevention Report" and the "Recommendations for Medical Management of Adult Lead Exposure, Environmental Health Perspectives, 2007." Thresholds and time intervals for retesting, medical evaluation, and response vary by state and regulatory body. Contact your State Department of Health and/or applicable regulatory agency for specific guidance on medical management recommendations.

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<td>Greater than 69.9 µg/dL</td>
<td>Critical: Immediate medical evaluation is recommended. Consider chelation therapy when symptoms of lead toxicity are present.</td>
</tr>
</tbody>
</table>

See Compliance Statement B: aruplab.com/CS

### New Test 021413 Lead, RBC LEAD RBC

Available January 20, 2015

Methodology: Quantitative Inductively Coupled Plasma-Mass Spectrometry

Performed: Varies

Reported: 3-9 days

Specimen Required: Collect: Royal Blue (K<sub>2</sub> EDTA).

Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL Red Blood Cells to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116). Available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.7 mL)

Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature.

Stability (collection to initiation of testing): Ambient: Undefined; Refrigerated: Undefined; Frozen: Unacceptable

Reference Interval: By report

CPT Code(s): 83655

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
Long QT Syndrome (LQTS) Sequencing Panel, 12 Genes

HOT LINE NOTE: Name change only.

Lung Mutation and Translocation Panel by Next Generation Sequencing

Available January 20, 2015

Additional Technical Information

Methodology: Massive Parallel Sequencing
Performed: Varies
Reported: 12-14 days

Specimen Required:
- Collect: Tissue Tumor, Tissue Resections, or Tissue Small Biopsies.
- Specimen Preparation: Formalin fix (10 percent neutral buffered formalin) and paraffin embed tissue. Protect from excessive heat.
- Transport block and/or slides in a tissue transport kit (ARUP supply #47808) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787.
- Resections: 8 unstained 5-micron slides. (Min: 5 slides)
- Small biopsies: 15 unstained 5-micron slides. (Min: 10 slides)
- Storage/Transport Temperature: Room temperature. Ship in cooled container during summer months.
- Remarks: Include surgical pathology report.
- Unacceptable Conditions: Less than 10 percent tumor. Specimens fixed/processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives. Decalcified specimens.

Interpretive Data: Refer to report.

See Compliance statement B: www.aruplab.com/CS

Note: A full list of the targeted regions of the genes and fusion partners can be found at: http://www.aruplab.com/lung-cancer-panel.

CPT Code(s): 81445

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

Meperidine and Metabolite - Confirmation/Quantitation - Serum or Plasma

Specimen Required: Submit With Order
1. Dose – List drug amount of drug and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week or as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011511, Meperidine Dose
Add component 2011512, Meperidine Dose Frequency
Add component 2011513, Meperidine Route
Add component 2011514, Meperidine Type of Draw
### New Test 201151 Mephabarital, Serum or Plasma  MEPHO

**Methodology:** Quantitative Gas Chromatography/Mass Spectrometry  
**Performed:** Wed, Sat  
**Reported:** 1-5 days

**Specimen Required:** Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).

**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

**Storage/Transport Temperature:** Refrigerated.

**Remarks:** Submit With Order 
1. Dose - List drug amount and include the units of measure  
2. Route - List the route of administration (IV, oral, etc.)  
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)  
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**Unacceptable Conditions:** Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).

**Stability (collection to initiation of testing):** Ambient: 24 hours; Refrigerated: 10 days; Frozen: 10 days

**Reference Interval:**

<table>
<thead>
<tr>
<th>Dose-Related Range</th>
<th>Toxic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7 µg/mL, Dose (Adult): 200-600 mg/d</td>
<td>Greater than 15 µg/mL</td>
</tr>
</tbody>
</table>

**Interpretive Data:** Adverse effects may include sedation, dizziness, nausea, hypotension and respiratory depression.

**Note:** Order phenobarbital separately.

**CPT Code(s):** 80345 (Alt code: G6043)

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

### New Test 2011521 Meprobamate, Serum or Plasma  MEPRO SP

**Methodology:** Quantitative Gas Chromatography  
**Performed:** Mon, Fri  
**Reported:** 1-4 days

**Specimen Required:** Collect: Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).

**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

**Storage/Transport Temperature:** Refrigerated.

**Remarks:** Submit With Order 
1. Dose - List drug amount and include the units of measure  
2. Route - List the route of administration (IV, oral, etc.)  
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)  
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**Unacceptable Conditions:** Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).

**Stability (collection to initiation of testing):** Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 months

**Reference Interval:**

<table>
<thead>
<tr>
<th>Dose-Related Range</th>
<th>Toxic</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-20 µg/mL</td>
<td>Greater than 40 µg/mL</td>
</tr>
</tbody>
</table>

**Interpretive Data:** Adverse effects may include drowsiness, dizziness and headache.

**CPT Code(s):** 80369 (Alt code: G6052)

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
**New Test** 2011531  **Methsuximide and Normethsuximide, Serum or Plasma**  **METHSUXI**

**Methodology:** Quantitative Gas Chromatography/Mass Spectrometry

**Performed:** Mon, Thu

**Reported:** 1-5 days

**Specimen Required:** Collect: Plain Red, Lavender (K$_2$EDTA), Lavender (K$_3$EDTA), or Pink (K$_2$EDTA).

Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Storage/Transport Temperature: Refrigerated.

**Remarks:** Submit With Order

Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**Unacceptable Conditions:** Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).

**Stability (collection to initiation of testing):** Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 1 month

**Reference Interval:**

<table>
<thead>
<tr>
<th>Therapeutic Range Total (methsuximide and normethsuximide)</th>
<th>10-40 µg/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic Range Methsuximide</td>
<td>Less than 1 µg/mL</td>
</tr>
<tr>
<td>Therapeutic Range Normethsuximide</td>
<td>10-40 µg/mL</td>
</tr>
<tr>
<td>Toxic Level Total (methsuximide and normethsuximide)</td>
<td>Greater than 60 µg/mL</td>
</tr>
</tbody>
</table>

**CPT Code(s):** 80339 (Alt codes: G6054; 80299)

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

**2003114**  **Methylphenidate and Metabolite - Confirmation/Quantitation - Serum or Plasma**  **METHPHENSP**

**Specimen Required:** Submit With Order

Please indicate in the supplied fields
1. Dose - List drug amount of drug and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week or as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**HOT LINE NOTE:** There is a component change associated with this test:
Add component 2011527, Methylphenidate Dose
Add component 2011528, Methylphenidate Dose Frequency
Add component 2011529, Methylphenidate Route
Add component 2011530, Methylphenidate Type of Draw
New Test 2011539  Mexiletine, Serum or Plasma  MEXILE

Methodology: Quantitative Liquid Chromatography/Tandem Mass Spectrometry
Performed: Tue, Thu, Sat
Reported: 1-5 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), or Pink (K$_2$ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 5 days; Frozen: 2 months

Reference Interval:

<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>1.0-2.0 µg/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic Level</td>
<td>Greater than 2.0 µg/mL</td>
</tr>
</tbody>
</table>

Interpretive Data: Toxic concentrations may cause hypotension, tremor and cardiac abnormalities.

CPT Code(s): 80299

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

New Test 2011626  Microsporidia by PCR  MICROSPCR

Available January 20, 2015

Methodology: Qualitative Polymerase Chain Reaction
Performed: Tue, Fri
Reported: 2-5 days

Specimen Required: Collect: Stool.
Specimen Preparation: Transfer 1 mL stool to an unpreserved stool transport vial (ARUP supply #40910). Available online through eSupply using ARUP Connect® or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)
Storage/Transport Temperature: Frozen.
Remarks: Additional information required: Specimen source
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 2 weeks

Interpretive Data: A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

This test is performed pursuant to an agreement with Roche Molecular Systems, Inc.

See Compliance Statement B: www.aruplab.com/CS

Note: This test detects and speciates Enterocytozoon bieneusi. The nucleic acid from Encephalitozoon intestinalis, Encephalitozoon hellem, and Encephalitozoon cuniculi will be detected by this test but cannot be differentiated.

CPT Code(s): 87798 x 2

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
**New Test**  2011713  *Mycobacterium tuberculosis* Drug Resistance by Sequencing  TB RESIST

**Available January 20, 2015**

**Methodology:** Polymerase Chain Reaction/Sequencing

**Performed:** Sun-Sat

**Reported:** 5-7 days

**Specimen Required:**
- **Collect:** Pure culture of *M. tuberculosis* complex on solid or liquid media.
- **Specimen Preparation:** Transport sealed container with pure culture on solid or in liquid media. Place each specimen in an individually sealed bag.
- **Storage/Transport Temperature:** Room temperature. If culture is suspected of being a microorganism listed as infectious substance affecting humans on IATA list, submit specimen according to Biological Substance, Category A, shipping guidelines.
- **Remarks:** Organism identification required.
- **Unacceptable Conditions:** Mixed cultures, isolates other than *M. tuberculosis* complex, non-viable organism. Agar Plates.
- **Stability (collection to initiation of testing):** Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: Unacceptable

**Interpretive Data:** This assay detects known resistance mutations in subregions of the *M. tuberculosis rpoB, katG*, and *embB* genes and the *inhA* promoter by sequencing. This assay does not determine drug resistance originating from other genes or mechanisms. Mutations in sub-populations below 20 percent of total may not be detected. Results should not be used as a substitute for routine (phenotypic) susceptibility testing.

See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 87153 x3

New York DOH approval pending. Call for status update.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

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**2005023**  Narcolepsy (*HLA-DQB1*06:02) Genotyping  NARCOLEPSY

**HOT LINE NOTE:** There is a component change associated with this test:
Add component 2011703, Narcolepsy - Specimen

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**0055506**  Neutrophil-Associated Antibodies  ANTI-NEU

**Performed:** Mon, Thu

**Reported:** 1-5 days

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**2005093**  Opiates, Screen with Reflex to Confirmation, Urine  OPI RFX UR

**HOT LINE NOTE:** There is a component change associated with this test:
Remove component 2005243, EER Opiates Screen w/Reflex, Urine
### New Test 2011697 Oxalate, Plasma POXAL

**Methodology:** Quantitative Spectrophotometry

**Performed:** Mon

**Reported:** 1-8 days

**Specimen Required:**
- **Patient Prep:** Patient should avoid ingestion of vitamin C for 24 hours prior to sample collection
- **Collect:** Green (lithium heparin) or Lavender (EDTA) or pink (K2EDTA).
- **Specimen Preparation:** Place tube on wet ice immediately after collection. Separate plasma from cells ASAP or within 1 hour of collection. Transfer 2 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 1.5 mL)
- **Storage/Transport Temperature:** Frozen
- **Unacceptable Conditions:** Samples that are not plasma. Samples not received frozen.
- **Stability (collection to initiation of testing):** After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 year

**Reference Interval:** Less than or equal to 1.9 µmol/L

**Interpretive Data:** See Compliance Statement B: www.aruplab.com/CS

**CPT Code(s):** 83945

New York DOH Approval pending.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

### 2005103 Oxycodone/Oxymorphone Screen Only, Urine OXY SCR UR

**HOT LINE NOTE:** There is a component change associated with this test:
- Remove component 2005245, EER Oxycodone/Oxymorphone Screen, Urine

### 2007479 Pain Management Drug Panel by High-Resolution Time-of-Flight Mass Spectrometry and Enzyme Immunoassay, Urine PAIN HYB U

**HOT LINE NOTE:** There is a clinically significant charting name change associated with this test:
- Change the charting name of component 2007638, from 6-acetylmorphine (cutoff 10 ng/mL) to 6-acetylmorphine (cutoff 20 ng/mL)

### 2009288 Pain Management Drug Screen with Interpretation by High-Resolution Time-of-Flight Mass Spectrometry and Enzyme Immunoassay, Urine PAIN HYB 2

**HOT LINE NOTE:** There is a clinically significant charting name change associated with this test:
- Change the charting name of component 2007638, from 6-acetylmorphine (cutoff 10 ng/mL) to 6-acetylmorphine (cutoff 20 ng/mL)

### 2007949 Paliperidone, Serum or Plasma PALIPERID

**Specimen Required:**
- **Remarks:** Submit With Order
  - Please indicate in the supplied fields:
    1. Dose - List drug amount and include the units of measure
    2. Route - List the route of administration (IV, oral, etc.)
    3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
    4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**HOT LINE NOTE:** There is a component change associated with this test:
- Add component 2011545, Paliperidone Dose
- Add component 2011546, Paliperidone Dose Frequency
- Add component 2011547, Paliperidone Route
- Add component 2011548, Paliperidone Type of Draw
New Test 2011549  Pentobarbital, Serum or Plasma  PENTOBAR

Methodology: Quantitative Gas Chromatography/Mass Spectrometry
Performed: Wed, Sat
Reported: 1-5 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), or Pink (K$_2$ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 3 months; Refrigerated: 3 months; Frozen: 1 year

Reference Interval:

<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>Sedation</th>
<th>1-5 µg/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intracranial Pressure (ICP) Therapy</td>
<td>25-35 µg/mL</td>
<td></td>
</tr>
<tr>
<td>Coma</td>
<td>10-50 µg/mL</td>
<td></td>
</tr>
<tr>
<td>Toxic Level</td>
<td>Greater than 10 µg/mL</td>
<td></td>
</tr>
</tbody>
</table>

Interpretive Data: Toxic concentrations may cause respiratory depression, hypotension, coma and death.

CPT Code(s): 80345 (Alt code: G6043)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
Perphenazine, Serum or Plasma

Methodology: Quantitative Liquid Chromatography/Tandem Mass Spectrometry
Performed: Mon, Wed, Fri
Reported: 1-3 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Please indicate in the supplied fields:
  1. Dose - List drug amount and include the units of measure
  2. Route - List the route of administration (IV, oral, etc.)
  3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
  4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Citrated Plasma. Tubes that contain liquid anticoagulant.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month

Reference Interval:

<table>
<thead>
<tr>
<th></th>
<th>Therapeutic Range</th>
<th>Toxic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.6-2.4 ng/mL</td>
<td>Greater than 12 ng/mL</td>
</tr>
</tbody>
</table>

Interpretive Data: Adverse effects may include extrapyramidal effects, tardive dyskinesia, drowsiness and neuroleptic malignant syndrome.

CPT Code(s): 80342 (Alt code: G6057)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

Phenytoin, Free and Total

Specimen Required: Submit With Order
Remarks: Please indicate in the supplied fields:
  1. Dose - List drug amount and include the units of measure
  2. Route - List the route of administration (IV, oral, etc.)
  3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
  4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011597, Phenytoin Dose
Add component 2011598, Phenytoin Dose Frequency
Add component 2011599, Phenytoin Route
Add component 2011600, Phenytoin Type of Draw

Porphobilinogen (PBG) Deaminase, Erythrocyte

Specimen Required:

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011401, Hemoglobin (client supplied)
### New Test 2011609 Pregabalin, Serum or Plasma

**Methodology:** Quantitative Liquid Chromatography/Tandem Mass Spectrometry  
**Performed:** Tue, Sat  
**Reported:** 1-6 days  

**Specimen Required:**  
Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).  
**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Remarks:** Submit With Order  
Please indicate in the supplied fields:  
1. **Dose** - List drug amount and include the units of measure  
2. **Route** - List the route of administration (IV, oral, etc.)  
3. **Dose Frequency** - Indicate how often the dose is administered (per day, per week, as needed, etc.)  
4. **Type of Draw** - Indicate the type of blood draw (Peak, Trough, Random, etc.)  
**Unacceptable Conditions:** Citrated Plasma.  
**Stability (collection to initiation of testing):** Ambient: 1 month; Refrigerated: 1 month; Frozen: 2 months

**Reference Interval:**  
<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>Toxic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not well established</td>
<td>Not well established</td>
</tr>
</tbody>
</table>

**Interpretive Data:** Therapeutic and toxic ranges are not well established. Proposed Dose-Related Range: 2 – 10 µg/mL. Adverse effects may include peripheral edema, allergic reactions, dizziness and somnolence.

See Compliance Statement B: [www.aruplab.com/CS](http://www.aruplab.com/CS)

**CPT Code(s):** 80299

New York DOH approval pending. Call for status update.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

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### New Test 2011561 Propafenone, Serum or Plasma

**Methodology:** Quantitative Liquid Chromatography/Tandem Mass Spectrometry  
**Performed:** Tue, Thu, Sat  
**Reported:** 1-5 days  

**Specimen Required:**  
Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).  
**Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)  
**Storage/Transport Temperature:** Refrigerated.  
**Remarks:** Submit With Order  
Please indicate in the supplied fields:  
1. **Dose** - List drug amount and include the units of measure  
2. **Route** - List the route of administration (IV, oral, etc.)  
3. **Dose Frequency** - Indicate how often the dose is administered (per day, per week, as needed, etc.)  
4. **Type of Draw** - Indicate the type of blood draw (Peak, Trough, Random, etc.)  
**Unacceptable Conditions:** Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).  
**Stability (collection to initiation of testing):** Ambient: 4 hours; Refrigerated: 1 month; Frozen: 1 month

**Reference Interval:**  
<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>Toxic Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50-2.00 µg/mL</td>
<td>Greater than 2.00 µg/mL</td>
</tr>
</tbody>
</table>

**Interpretive Data:** Toxic concentrations may cause hypotension, seizures and cardiac abnormalities.

**CPT Code(s):** 80299

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test 2007031 PTEN with Interpretation by Immunohistochemistry

Available January 20, 2015

Immunohistochemistry Stain Form Recommended (ARUP form #32978)

Methodology: Immunohistochemistry
Performed: Mon-Fri
Reported: 1-5 days

Specimen Required: Collect: Tissue or cells.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin) and paraffin embed specimen (cells must be prepared into a cellblock). Protect paraffin block and/or slides from excessive heat. Transport tissue block or 5 unstained (3 to 5-micron thick sections), positively charged slides in a tissue transport kit (ARUP supply #47808). Available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 2 slides). If sending precut slides, do not oven bake.
Storage/Transport Temperature: Room temperature or refrigerated. Ship in cooled container during summer months.
Remarks: IMMUNOHISTOCHEMISTRY ORDERING AND SUBMISSION DETAILS: Submit electronic request. If you do not have electronic ordering capability, use an ARUP Immunohistochemistry Stain Form (#32978) with an ARUP client number. For additional technical details, contact ARUP Client Services at (800) 522-2787.
Unacceptable Conditions: Specimens submitted with non-representative tissue type. Depleted specimens.
Stability (collection to initiation of testing): Ambient: Indefinitely, Refrigerated: Indefinitely, Frozen: Unacceptable

Interpretive Data: By Report
See Compliance Statement B: www.aruplab.com/CS

Note: This stain available in conjunction with a surgical pathology consult only.
CPT Code(s): 88360

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

2007443 Rapid Plasma Reagin (RPR) with Reflex to RPR Titer or T. pallidum Antibody by Particle Agglutination

Specimen Required: Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA), or Serum separator tube (SST).
Specimen Preparation: Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.25 mL). Avoid freezing if possible.

0050011 Rapid Plasma Reagin (RPR) with Reflex to Titer and FTA-ABS

Methodology: Semi-Quantitative Charcoal Agglutination/Semi-Quantitative Indirect Fluorescent Antibody
Performed: Sun-Sat
Reported: Within 24 hours

Note: This panel is for clients in states where automatic confirmation using a treponemal test is required for all reactive RPR tests.
If RPR is reactive, then a titer to endpoint and FTA-ABS confirmation will be added. Additional charges apply.
CPT Code(s): 86592; if reflexed, add 86593; 86780

0050478 Rapid Plasma Reagin (RPR) with Reflex to Titer and TP-PA Confirmation

Specimen Required: Collect: Green (Sodium Heparin), Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), Pink (K$_2$ EDTA), or Serum separator tube (SST).
Specimen Preparation: Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.25 mL) Avoid freezing if possible.
New Test 2011457 Smith-Lemli-Opitz Syndrome (DHCR7) Sequencing DHCR7 FGS

Available January 20, 2015

Patient History for Smith-Lemli-Opitz Syndrome

Additional Technical Information

Methodology: Polymerase Chain Reaction/Sequencing
Performed: Sun- Sat
Reported: 2-3 weeks

Specimen Required: Collect: Lavender (EDTA), pink (K3EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions:
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Interpretive Data:
Background information for Smith-Lemli-Opitz Syndrome (DHCR7) Sequencing:
Characteristics: Smith-Lemli-Opitz syndrome (SLOS) is caused by mutations in the DHCR7 gene that disrupt the final step of cholesterol biosynthesis. Affected individuals typically have elevated serum concentration of 7-dehydrocholesterol (7-DHC). Characteristic findings include growth deficiency, postaxial polydactyly, 2-3 toe syndactyly, intellectual disability, cardiac defects, feeding difficulty, congenital cataracts, sensorineural hearing loss, and characteristic facial features. Males with SLOS may have genitourinary anomalies such as hypospadias, cryptorchidism or undermasculinization of the external genitalia.
Incidence: 1 in 10,000-1 in 60,000 live births.
Inheritance: Autosomal recessive.
Cause: Pathogenic germline mutations in the DHCR7 gene.
Clinical Sensitivity: 96 percent.
Methodology: Bidirectional sequencing of the entire DHCR7 coding region and intron/exon boundaries.
Analytical Sensitivity and Specificity: Greater than 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations. Regulatory region mutations, deep intronic mutations, mutations in non-coding exons 1-2, and large deletion/duplications will not be detected. Mutations in genes other than DHCR7 are not evaluated.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

CPT Code(s): 81405

New York DOH approval pending. Call for status update.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.
### New Test

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2011704</td>
<td>Smith-Lemli-Opitz Syndrome (DHCR7) Sequencing, Fetal DHCR7 FE</td>
</tr>
</tbody>
</table>

Available January 20, 2015

#### Patient History for *Smith-Lemli-Opitz* Syndrome

#### Additional Technical Information

<table>
<thead>
<tr>
<th>Methodology:</th>
<th>Polymerase Chain Reaction/Sequencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>Sun-Sat</td>
</tr>
<tr>
<td>Reported:</td>
<td>5-10 days</td>
</tr>
</tbody>
</table>

#### Specimen Required:

**Fetal Specimen:** Two t-25 flasks at 80% confluent culture of amniocytes. If the client is unable to culture amniocytes, this can be arranged by contacting ARUP Client Services at (800) 522-2787. Or amniotic fluid

**AND Maternal Whole Blood** in Lavender (K<sub>EDTA</sub>) or Lavender (K<sub>EDTA</sub>) or Pink (K<sub>EDTA</sub>) or yellow (ACD Solution A or B)

**Specimen Preparation:**

- **Cultured Amniocytes:** Fill flask with culture media. Transport two T-25 flasks at 80% confluent of culture amniocytes filled with culture media.
- **OR Amniotic Fluid:** Transport 10 mL unspun fluid (Min: 5 mL)
- **AND Maternal Whole Blood:** Transport 3 mL whole blood (Min: 1mL)

**Storage/Transport Temperature:**

- **Cultured Amniocytes:** CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to liability of cells.
- **Amniotic fluid:** Room temperature
- **Maternal Whole Blood:** Room temperature

**Remarks:** Maternal sample is recommended for proper test interpretation.

**Unacceptable Conditions:**

- **Stability (collection to initiation of testing):**
  - **Fetal Specimen:** Ambient: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable.
  - **Maternal Whole Blood:** Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

**Interpretive Data:**

**Background information for Smith-Lemli-Opitz Syndrome (DHCR7) Sequencing, Fetal:**

**Characteristics:** Smith-Lemli-Opitz syndrome (SLOS) is caused by mutations in the DHCR7 gene that disrupt the final step of cholesterol biosynthesis. Affected individuals typically have elevated serum concentration of 7-dehydrocholesterol (7-DHC). Characteristic findings include growth deficiency, postaxial polydactyly, 2-3 toe syndactyly, intellectual disability, cardiac defects, feeding difficulty, congenital cataracts, sensorineural hearing loss, and characteristic facial features. Males with SLOS may have genitourinary anomalies such as hypospadias, cryptorchidism or undermasculinization of the external genitalia.

**Incidence:** 1 in 10,000-1 in 60,000 live births.

**Inheritance:** Autosomal recessive.

**Cause:** Pathogenic germline mutations in the DHCR7 gene.

**Clinical Sensitivity:** 96 percent.

**Methodology:** Bidirectional sequencing of the entire DHCR7 coding region and intron/exon boundaries.

**Analytical Sensitivity and Specificity:** Greater than 99 percent.

**Limitations:** Diagnostic errors can occur due to rare sequence variations. Regulatory region mutations, deep intronic mutations, mutations in non-coding exons 1-2, and large deletion/duplications will not be detected. Mutations in genes other than DHCR7 are not evaluated.

For quality assurance purposes, ARUP Laboratories will confirm the above result at no charge following delivery. Order Confirmation of Fetal Testing and include a copy of the original fetal report (or the mother's name and date of birth) with the test submission. Please contact an ARUP genetic counselor at (800) 242-2787 extension 2141 prior to specimen submission.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online at www.aruplab.com.

See Compliance Statement C: www.aruplab.com/CS

**CPT Code(s):** 81405; 81265

New York DOH approval pending. Call for status update.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test | 2011757 | Sotalol, Serum or Plasma | SOTAL

Methodology: Quantitative Liquid Chromatography/Tandem Mass Spectrometry
Performed: Mon, Thu
Reported: 1-5 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K3 EDTA), Lavender (K2 EDTA), or Pink (K2 EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)
Unacceptable Conditions: Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Stability (collection to initiation of testing): Ambient: 8 hours; Refrigerated: 1 month; Frozen: 1 month

Reference Interval:

<table>
<thead>
<tr>
<th>Therapeutic Range</th>
<th>1.0-4.0 µg/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic</td>
<td>Greater than 4 µg/mL</td>
</tr>
</tbody>
</table>

Interpretive Data: Adverse effects may include cardiac arrhythmias, fatigue, dizziness and muscle weakness.

CPT Code(s): 80299

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

2005978 | Special Stain, Oil Red O | OIL RED SS

Specimen Required: Storage/Transport Temperature: Ship in cooled container during summer months. Ship frozen on dry ice.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: Indefinitely; Frozen: Indefinately

0081054 | Squamous Cell Carcinoma Antigen, Serum | SCC

Performed: Tue
Reported: 1-8 days

0050642 | Streptococcus pyogenes, Group A Antibody (Streptozyme) with Reflex to Titer | STZ R

Reference Interval: Effective February 17, 2015

<table>
<thead>
<tr>
<th>Available Separately</th>
<th>Components</th>
<th>Reference Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Streptococcus pyogenes, Group A Antibody (Streptozyme Screen)</td>
<td>None Detected</td>
</tr>
<tr>
<td>No</td>
<td>Streptococcus pyogenes, Group A Antibody (Streptozyme Titer)</td>
<td>≤ 1:100: Negative</td>
</tr>
</tbody>
</table>

Note: If S. pyogenes Ab is detected, then titer will be added. Additional charges apply.
**2003133  Tapentadol and Metabolite - Confirmation/Quantitation - Serum or Plasma**

**Specimen Required:** Submit With Order

**Remarks:**
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**HOT LINE NOTE:** There is a component change associated with this test:
Add component 2011571, Tapentadol Dose
Add component 2011572, Tapentadol Dose Frequency
Add component 2011573, Tapentadol Route
Add component 2011574, Tapentadol Type of Draw

**2004246  Testosterone Free and Total by ED/LC-MS/MS (Free) and LC-MS/MS (Total), Adult Males**

**Performed:** Sun, Wed-Sat  
**Reported:** 1-6 days

**2003246  Testosterone, Free, Adult Males by ED/LC-MS/MS**

**Performed:** Sun, Wed-Sat  
**Reported:** 1-6 days

**New Test 2011575  Thiocyanate, Serum or Plasma**

**Methodology:** Quantitative Colorimetry

**Performed:** Mon, Fri

**Reported:** 1-5 days

**Specimen Required:**
- **Collect:** Plain Red, Lavender (K₂ EDTA), Lavender (K₃ EDTA), or Pink (K₂ EDTA).
- **Specimen Preparation:** Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
- **Storage/Transport Temperature:** Refrigerated.

**Remarks:** Submit With Order

**Please indicate in the supplied fields:**
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**Unacceptable Conditions:** Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).

**Stability (collection to initiation of testing):** Ambient: 5 days; Refrigerated: 5 days; Frozen: 5 days

**Reference Interval:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonsmoker</td>
<td>1.4 µg/mL</td>
</tr>
<tr>
<td>Smoker</td>
<td>3.12 µg/mL</td>
</tr>
<tr>
<td>Toxic</td>
<td>Greater than 50 µg/mL</td>
</tr>
<tr>
<td>Values seen with nitroprusside therapy</td>
<td>6.29 µg/mL</td>
</tr>
</tbody>
</table>

**CPT Code(s):** 84430

New York DOH Approved.

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.
New Test 2011783 Thiothixene, Serum or Plasma THIOTX

Methodology: Quantitative Liquid Chromatography/Tandem Mass Spectrometry
Performed: Mon, Wed, Fri
Reported: 1-5 days

Specimen Required: Collect: Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K$_2$ EDTA), Lavender (K$_3$ EDTA), or Pink (K$_2$ EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

Unacceptable Conditions: Whole blood, Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).

Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 month (avoid freeze/thaw cycles)

Reference Interval:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapeutic Range</td>
<td>1.0-15.0 ng/mL</td>
</tr>
<tr>
<td>Toxic</td>
<td>Not well established</td>
</tr>
</tbody>
</table>

Interpretive Data: Adverse effects may include drowsiness, tachycardia, hypotension, extrapyramidal symptoms, dystonia and neuroleptic malignant syndrome.

CPT Code(s): 80342; (Alt code: 80299)

New York DOH Approved.

HOT LINE NOTE: Refer to the Test Mix Addendum for interface build information.

2006550 Thyroglobulin by LC-MS/MS, Serum or Plasma THYROG MS

Performed: Mon, Thu, Sat
Reported: 1-6 days

2002764 Tramadol and Metabolites - Confirmation/Quantitation - Serum or Plasma TRAMAD SP

Specimen Required: Remarks: Submit With Order
Please indicate in the supplied fields:
1. Dose - List drug amount and include the units of measure
2. Route - List the route of administration (IV, oral, etc.)
3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

HOT LINE NOTE: There is a component change associated with this test:
Add component 2011585, Tramadol Dose
Add component 2011586, Tramadol Dose Frequency
Add component 2011587, Tramadol Route
Add component 2011588, Tramadol Type of Draw
**Treponema pallidum Antibody, IgG by IFA (FTA-ABS), Serum**

**Methodology:**  
Semi-Quantitative Indirect Fluorescent Antibody

**Performed:**  
Sun-Sat

**Reported:**  
Within 24 hours

**Reference Interval:**  
Nonreactive

**Note:**  
The Fluorescent Treponema Antibody (FTA) is recommended for follow-up of reactive nontreponemal tests for syphilis, and as a single test in patients suspected of late syphilis. The FTA may be used to resolve discrepancies between laboratory results and clinical impressions. FTA tests for syphilis may be falsely positive in some cases of systemic lupus erythematosus, pregnancy, and leprosy.

Can be used to provide additional evidence of neurosyphilis when VDRL-CSF test results are reactive.

**CPT Code(s):**  
86780

**HOT LINE NOTE:**  
There is a component change associated with this test:  
Remove reflex component 0050777, Treponema pallidum Ab by TP-PA

---

**Treponema pallidum Antibody, IgG by IFA (FTA-ABS), CSF**

**Performed:**  
Sun-Sat

**Reported:**  
Within 24 hours

**Interpretive Data:**  
The significance of a reactive result in the FTA-ABS CSF test is unknown. The CSF from persons treated in the secondary or latent stage of syphilis and without signs of neurosyphilis may be reactive. A nonreactive result in the FTA-ABS CSF test suggests the absence of neurosyphilis.

*Treponema pallidum* (VDRL), Cerebrospinal Fluid with Reflex to Titer (0050206) is the recommended test for CSF specimens. If suspicion of neurosyphilis remains after VDRL testing, testing of the CSF with FTA-ABS may be considered.

See Compliance Statement B: www.aruplab.com/CS

**HOT LINE NOTE:**  
Remove information found in the Note field.

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**Tropheryma whippelii Detection by PCR**

**HOT LINE NOTE:**  
There is a price change associated with this test. Please contact ARUP Client Services at (800) 522-2787 for additional information.

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**Tropheryma whippelii Detection by PCR, Blood**

**HOT LINE NOTE:**  
There is a price change associated with this test. Please contact ARUP Client Services at (800) 522-2787 for additional information.
**New Test 0060714 Unusual Organism Culture MC UORG**

Available January 20, 2015

**Methodology:** Culture
**Performed:** Sun-Sat
**Reported:** 1-10 days

**Specimen Required:** Collect: Please contact Bacteriology (801) 583-2787 at extension 2350 for specimen collection and transport instructions. Storage/Transport Temperature: Please contact Bacteriology (801) 583-2787 at extension 2350 for specimen collection and transport instructions.

**Reference Interval:** By report.

**Note:** Specify suspected organism with submission. This culture is for unusual organism requests, such as *Streptobacillus moniliformis, Haemophilus ducreyi, Neisseria gonorrhoeae*, etc, for which there is no stand-alone culture. For *Helicobacter pylori*, refer to *Helicobacter pylori Culture* (ARUP test code 2006686). Identification and susceptibility tests are billed separately from culture.

**CPT Code(s):** 87070; Identification CPT codes may vary based on method.

New York DOH Approved

**HOT LINE NOTE:** Refer to the Test Mix Addendum for interface build information.

---

**2005416 Urticaria-Induced Basophil Activation UIBA**

**Reference Interval:**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-26 percent</td>
<td>Negative – No basophil activation detected.</td>
</tr>
<tr>
<td>27-38 percent</td>
<td>Indeterminate – Borderline basophil activation detected.</td>
</tr>
<tr>
<td>39 percent or greater</td>
<td>Positive - Basophil activation detected.</td>
</tr>
</tbody>
</table>

**2007957 Venlafaxine and Metabolite, Serum or Plasma VENLAFAXSP**

**Specimen Required:** Submit With Order
- Please indicate in the supplied fields:
  1. Dose - List drug amount and include the units of measure
  2. Route - List the route of administration (IV, oral, etc.)
  3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
  4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**HOT LINE NOTE:** There is a component change associated with this test:
Add component 2011589, Venlafaxine Dose
Add component 2011590, Venlafaxine Dose Frequency
Add component 2011591, Venlafaxine Route
Add component 2011592, Venlafaxine Type of Draw

---

**2007955 Ziprasidone, Serum or Plasma ZIPRASIDO**

**Specimen Required:** Submit With Order
- Please indicate in the supplied fields:
  1. Dose - List drug amount and include the units of measure
  2. Route - List the route of administration (IV, oral, etc.)
  3. Dose Frequency - Indicate how often the dose is administered (per day, per week, as needed, etc.)
  4. Type of Draw - Indicate the type of blood draw (Peak, Trough, Random, etc.)

**HOT LINE NOTE:** There is a component change associated with this test:
Add component 2011593, Ziprasidone Dose
Add component 2011594, Ziprasidone Dose Frequency
Add component 2011595, Ziprasidone Route
Add component 2011596, Ziprasidone Type of Draw
Quarterly HOT LINE: Effective February 17, 2015

The following will be discontinued from ARUP’s test menu on February 17, 2015. Replacement test options are supplied if applicable.

<table>
<thead>
<tr>
<th>Test Number</th>
<th>Test Name</th>
<th>Refer To Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>0053214</td>
<td>Allergen, Food, Black Olive IgG</td>
<td>Allergen, Food, Olives IgG (2011815)</td>
</tr>
<tr>
<td>2007353</td>
<td>Allergen, Food, Cheese, Cheddar IgG</td>
<td>Allergen, Food, Cheddar, Cheese IgG (2011817)</td>
</tr>
<tr>
<td>2007355</td>
<td>Allergen, Food, Egg, Whole Egg IgG</td>
<td>Allergen, Food, Whole Egg, IgG (2011819)</td>
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<tr>
<td>0091237</td>
<td>Amoeba and Metabolite Quantitation, Urine</td>
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<tr>
<td>2011048</td>
<td>AMPA-Receptor (Glur1/2) Antibody IgG, CSF</td>
<td></td>
</tr>
<tr>
<td>2011050</td>
<td>AMPA-Receptor (Glur1/2) Antibody IgG, Serum</td>
<td></td>
</tr>
<tr>
<td>0091331</td>
<td>Boron, Urine</td>
<td></td>
</tr>
<tr>
<td>0090035</td>
<td>Bromide</td>
<td>Bromide, Serum or Plasma (2011436)</td>
</tr>
<tr>
<td>0090090</td>
<td>Caffeine</td>
<td>Caffeine, Serum or Plasma (2011436)</td>
</tr>
<tr>
<td>0090091</td>
<td>Carbamazepine, Free and Total</td>
<td>Carbamazepine, Free and Total, Serum or Plasma (2011763)</td>
</tr>
<tr>
<td>0090060</td>
<td>Carisoprodol and Meprobamate</td>
<td>Carisoprodol and Meprobamate, Serum or Plasma (2011450)</td>
</tr>
<tr>
<td>2000044</td>
<td>Cytomegalovirus IgG Avidity (AviDx), ELISA</td>
<td>Cytomegalovirus Antibody, IgG Avidity (2011813)</td>
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<tr>
<td>0090072</td>
<td>Desipramine</td>
<td>Desipramine, Serum or Plasma by Tandem Mass Spectrometry (2011447)</td>
</tr>
<tr>
<td>0090095</td>
<td>Disopyramide</td>
<td>Disopyramide, Serum or Plasma (2011632)</td>
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<tr>
<td>0093254</td>
<td>Drugs of Abuse Confirmation/Quantitation - Propoxyphene and Metabolite - Meconium</td>
<td></td>
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<tr>
<td>2007329</td>
<td>ERBB2 (HER2) (4B5) by Immunohistochemistry</td>
<td>ERBB2 (HER2) (HercepTest) by Immunohistochemistry (2007332)</td>
</tr>
<tr>
<td>0090221</td>
<td>Ethotoin</td>
<td>Ethotoin, Serum or Plasma (2011501)</td>
</tr>
<tr>
<td>0092509</td>
<td>Fentanyl and Metabolite - Confirmation/Quantitation - Serum or Plasma</td>
<td>Fentanyl and Metabolite, Quantitation, Serum or Plasma (2011776)</td>
</tr>
<tr>
<td>0060728</td>
<td>Fungal Culture, Skin, Hair or Nails</td>
<td>Fungal Culture (0060149)</td>
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<tr>
<td>0091469</td>
<td>Furosemide Quantitative, Urine</td>
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<tr>
<td>2011021</td>
<td>Gamma-Aminobutyric Acid-B (GABA-B) Receptor Antibody, CSF</td>
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<tr>
<td>2011023</td>
<td>Gamma-Aminobutyric Acid-B (GABA-B) Receptor Antibody, Serum</td>
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<tr>
<td>0060010</td>
<td>Gonorether Culture</td>
<td>Unusual Organism Culture (0060714)</td>
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<tr>
<td>0040116</td>
<td>Haptoglobin (HP) Genotyping</td>
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<tr>
<td>0051811</td>
<td>Hepatitis C Virus RNA Quantitative bDNA</td>
<td>Hepatitis C Virus by Quantitative PCR (0098268)</td>
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<tr>
<td>2002684</td>
<td>Hepatitis C Virus RNA Quantitative bDNA with Reflex to Genotype</td>
<td>Hepatitis C Virus (HCV) by Quantitative PCR with Reflex to HCV Genotype by Sequencing (2002685)</td>
</tr>
<tr>
<td>0072682</td>
<td>Hepatitis C Virus RNA Quantitative bDNA with Reflex to Hepatitis C Virus RNA Quantitative, Real-Time PCR</td>
<td>Hepatitis C Virus by Quantitative PCR (0098266)</td>
</tr>
<tr>
<td>0020346</td>
<td>Human Immunodeficiency Virus 1 RNA Quantitative bDNA</td>
<td>Human Immunodeficiency Virus 1 by Quantitative PCR (0055595)</td>
</tr>
<tr>
<td>2002688</td>
<td>Human Immunodeficiency Virus 1 RNA Quantitative bDNA with Reflex to Genotype</td>
<td>Human Immunodeficiency Virus 1 (HIV-1) by Quantitative PCR with Reflex to HIV-1 Genotype by Sequencing (2002689)</td>
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<tr>
<td>0088060</td>
<td>Insulin Binding, Fibroblasts</td>
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<tr>
<td>0090231</td>
<td>Meprobamate</td>
<td>Meprobamate, Serum or Plasma (2011515)</td>
</tr>
<tr>
<td>0090256</td>
<td>Meprobamate, Blood</td>
<td>Meprobamate, Serum or Plasma (2011521)</td>
</tr>
<tr>
<td>0091146</td>
<td>Methsuximide and Normethsuximide</td>
<td>Methsuximide and Normethsuximide, Serum or Plasma (2011531)</td>
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<tr>
<td>0091344</td>
<td>Metoclopramide Quantitative, Serum or Plasma</td>
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<tr>
<td>0090276</td>
<td>Mexiletine</td>
<td>Mexiletine, Serum or Plasma (2011539)</td>
</tr>
<tr>
<td>2008593</td>
<td>Neuromyelitis Optica (NMO)/Aquaporin-4-IgG (AQP4), CSF</td>
<td>Aquaporin-4 Receptor Antibody, IgG by IFA, CSF with Reflex to Titer (2011449)</td>
</tr>
<tr>
<td>0091108</td>
<td>Oxalate Quantitative, Serum or Plasma</td>
<td>Oxalate, Plasma (2011692)</td>
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<tr>
<td>0091146</td>
<td>Parathion, Serum or Plasma</td>
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<tr>
<td>0090225</td>
<td>Pentobarbital</td>
<td>Pentobarbital, Serum or Plasma (2011549)</td>
</tr>
<tr>
<td>0090985</td>
<td>Perphenazine</td>
<td>Perphenazine, Serum or Plasma (2011555)</td>
</tr>
<tr>
<td>2002564</td>
<td>Pregabalin Quantitative, Serum or Plasma</td>
<td>Pregabalin (2011561)</td>
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<td>0090146</td>
<td>Propafenone</td>
<td>Propafenone, Serum or Plasma (2011561)</td>
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<tr>
<td>0090301</td>
<td>Sotalol</td>
<td>Sotalol, Serum or Plasma (2011757)</td>
</tr>
<tr>
<td>0090061</td>
<td>Thaocyanate, Serum</td>
<td>Thaocyanate, Serum or Plasma (2011575)</td>
</tr>
<tr>
<td>0090094</td>
<td>Thiothixene</td>
<td>Thiothixene, Serum or Plasma (2011783)</td>
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</table>