ARUP LABORATORIES

*A nonprofit enterprise of the University of Utah and its Department of Pathology*

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**Effective as of 10/20/2025**

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0020042 | LIP-P | Phospholipids, Serum or Plasma | | | x | | | | | | | | | | | | | | | | |
| 0020159 | PCHE PHENO | Pseudocholinesterase, Dibucaine Inhibition | | | x | | | | | | | | | | | | | | | | |
| 0020167 | CHE-P | Pseudocholinesterase, Total | | | x | | | | | | | | | | | | | | | | |
| 0030002 | VW MUL PAN | von Willebrand Multimeric Panel | | | x | | | | | | | | | | | | | | | | |
| 0030026 | F8 BETHR | Factor VIII Activity with Reflex to Bethesda Quantitative, Factor VIII | | | x | | | | | | | | | | | | | | | | |
| 0030041 | PROT CF R | Protein C, Functional with Reflex to Protein C, Total Antigen | | | x | | | | | | | | | | | | | | | | |
| 0030095 | F8 | Factor VIII, Activity | | | x | | | | | | | | | | | | | | | | |
| 0030111 | PROT C | Protein C, Total Antigen | | | x | | | | | | | | | | | | | | | | |
| 0030112 | PROT S | Protein S, Total Antigen | | | x | | | | | | | | | | | | | | | | |
| 0030113 | Protein C Funct | Protein C, Functional | | | x | | | | | | | | | | | | | | | | |
| 0030114 | PROT S F | Protein S, Functional | | | x | | | | | | | | | | | | | | | | |
| 0030116 | C/S TOTAL | Protein C and S Panel, Total, Antigen | | | x | | | | | | | | | | | | | | | | |
| 0030125 | VW PANEL | von Willebrand Panel | | | x | | | | | | | | | | | | | | | | |
| 0030127 | APC RST | APC Resistance Profile | | | x | | | | | | | | | | | | | | | | |
| 0030182 | C/S PANEL | Protein C and S Panel, Functional | | | x | | | | | | | | | | | | | | | | |
| 0030190 | PLG | Plasminogen Activity | | | x | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0030192 | APC R | APC Resistance Profile with Reflex to Factor V Leiden | | | x | | | | | | | | | | | | | | | | |
| 0030250 | vWF RCF | von Willebrand Factor Activity (Ristocetin Cofactor) | | | x | | | | | | | | | | | | | | | | |
| 0030284 | VW PANEL 2 | von Willebrand Modified Panel | | | x | | | | | | | | | | | | | | | | |
| 0030285 | VWF/AG | von Willebrand Factor Antigen | | | x | | | | | | | | | | | | | | | | |
| 0050011 | RPR FTA | Rapid Plasma Reagin (RPR) with Reflex to Titer and FTA-ABS | | | x | | | | | x | | | | | | | | | | | |
| 0050471 | RPRT | Rapid Plasma Reagin (RPR) with Reflex to Titer | | | x | | | | | x | | | | | | | | | | | |
| 0050478 | RPR PAN | Rapid Plasma Reagin (RPR) with Reflex to Titer and TP-PA Confirmation | | | x | | | | | x | | | | | | | | | | | |
| 0051076 | CHAGAS G | Trypanosoma cruzi IgG, purified antigen | | x | | | x | x | x | | x | | | | | | | | | | |
| 0051684 | G6PD AFRIC | Glucose-6-Phosphate Dehydrogenase (G6PD) 2 Mutations | | | x | | x | | x | | | | | | | | | | | | |
| 0060043 | PARVPCR | Parvovirus B19 by Qualitative PCR | | | x | | | | | | | | | | | | | | | | |
| 0060841 | ML TICAR | Antibiotic Level, Ticarcillin | | | x | | | | | | | | | | | | | | | | |
| 0060842 | ML PIP | Antibiotic Level, Piperacillin | | | x | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0060843 | ML NAF | Antibiotic Level, Nafcillin | | | x | | | | | | | | | | | | | | | | |
| 0060844 | ML MERO | Antibiotic Level, Meropenem | | | x | | | | | | | | | | | | | | | | |
| 0060845 | ML AZTREO | Antibiotic Level, Aztreonam | | | x | | | | | | | | | | | | | | | | |
| 0070010 | ACTH | Adrenocorticotropic Hormone | | | x | | | | | | | | | | | | | | | | |
| 0070045 | ESTRA | Estradiol (Adult Premenopausal Females or Individuals on Estrogen Hormone Therapy) | | | x | | | | | x | | | | | | x | | | | | |
| 0070060 | IGFBP-3 | Insulin-Like Growth Factor Binding Protein-3 (IGFBP-3) | | | | | | | x | x | | | | | | | | | | | |
| 0070172 | PTHI | Parathyroid Hormone, Intact with Calcium | | | | | | | x | x | | | | | | | | | | | |
| 0070283 | STR | Soluble Transferrin Receptor (Change effective as of 10/20/25: Refer to 3020070 in the October Hotline) | | | | | | | | | | | | | | | | | | x | |
| 0070346 | PTH-INT | Parathyroid Hormone, Intact | | | | | | | x | x | | | | | | | | | | | |
| 0080045 | B-OH | Beta-Hydroxybutyric Acid | | | | | | | | x | | | | | | x | x | | | | |
| 0080135 | G6PD | Glucose-6-Phosphate Dehydrogenase | | | x | | | | x | x | | | | | | | | | | | |
| 0081208 | AFP L3 | Alpha Fetoprotein, Total and L3 Percent | | | x | | | | | | | | | | | | | | | | |

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| 0092281 | VWF MULTI | von Willebrand Factor Multimers | | | x | | | | | | | | | | | | | | | | |
| 0098727 | ALPHA 2A | Alpha-2-Antiplasmin, Activity | | | x | | | | | | | | | | | | | | | | |
| 0098894 | Protein S Free | Protein S Free, Antigen | | | x | | | | | | | | | | | | | | | | |
| 0099165 | GLUCA | Glucagon | | | x | x | | | | x | | | | | | | | | | | |
| 0099640 | HALO | Haloperidol | | | | | | | x | x | | | | | | | | | | | |
| 0099906 | FLUPHEN | Fluphenazine | | | | | | | x | x | | | | | | | | | | | |
| 2001491 | PTH FNA | Parathyroid Hormone, Fine Needle Aspiration (FNA) | | | x | | | | | | | | | | | | | | | | |
| 2002269 | PRS FREE R | Protein S, Free Antigen with Reflex to Protein S, Total Antigen | | | x | | | | | | | | | | | | | | | | |
| 2002357 | JAK2 EX12 | JAK2 Exon 12 Mutation Analysis by PCR (Change effective as of 10/20/25: Refer to 3020079 in the October Hotline) | | | | | | | | | | | | | | | | | | x | |
| 2002378 | FISH EOS P | Eosinophilia Panel by FISH (Change effective as of 10/20/25: Refer to 3020097 in the October Hotline) | | | | | | | | | | | | | | | | | | x | |
| 2003118 | QUETIAP | Quetiapine, Serum or Plasma | | | | | | | x | | | | | | | | | | | | |
| 2003220 | FAC 13 MUT | Factor XIII (F13A1) V34L Variant | | | | | x | | | | | | | | | | | | | | |

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| 2003386 | PROT C/S R | Protein C, Functional with Reflex to Protein C, Total and Protein S, Free with Reflex to Protein S, Total | | | x | | | | | | | | | | | | | | | | |
| 2003387 | VW PANEL R | von Willebrand Panel with Reflex to von Willebrand Multimeric Analysis | | | x | | | | | | | | | | | | | | | | |
| 2004886 | ML CEFTAZ | Antibiotic Level, Ceftazidime | | | x | | | | | | | | | | | | | | | | |
| 2005506 | TVAG AMD | Trichomonas vaginalis by Transcription-Mediated Amplification (TMA) | | | x | x | x | | x | | | | | | | | | | | | |
| 2006182 | F13 A | Factor XIII Activity | | | x | | | | | | | | | | | | | | | | |
| 2006258 | STD PANEL1 | Sexually Transmitted Disease Panel 1 by Transcription-Mediated Amplification | | | x | x | | | | | | | | | | | | | | | |
| 2006491 | FDP PLASMA | Fibrin/Fibrinogen Degradation Split Products, Plasma | | | x | | | | | | | | | | | | | | | | |
| 2006550 | THYROG MS | Thyroglobulin by LC-MS/MS, Serum or Plasma | | | x | | | | | | | | | | | | | | | | |
| 2007132 | BRAF HCL | BRAF V600E Mutation Detection in Hairy Cell Leukemia by Real-Time PCR, Quantitative | | | | | | | | | | x | | | | | | | | | |

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| 2007443 | RPR REV | Rapid Plasma Reagin (RPR) with Reflex to RPR Titer or T. pallidum Antibody by Particle Agglutination | | | x | | | | | x | | | | | | | | | | | |
| 2007473 | ADENOPCR | Adenovirus by Qualitative PCR | | | x | | | | | | | | | | | | | | | | |
| 2007945 | ARIPIPRAZO | Aripiprazole and Metabolite, Serum or Plasma | | | | | | | x | x | | | | | | | | | | | |
| 2008460 | RBC BAND3 | RBC Band 3 Protein Reduction in Hereditary Spherocytosis | | | x | | | | | | | | | | | | | | | | |
| 2009418 | HISTOGM U | Histoplasma Galactomannan Antigen Quantitative by EIA, Urine | | | | | | | | | | | | x | | x | | | | | |
| 2013070 | PGE | Platelet Surface Glycoprotein Expression (PGE) by Flow Cytometry, Whole Blood | | | x | | | | | | | | | | | | | | | | |
| 2013433 | CLOZAP SP | Clozapine and Metabolites, Serum or Plasma, Quantitative | | | | | | | x | x | | | | | | | | | | | |
| 3000724 | B-ALL MRD | B-Lymphoblastic Leukemia (B-ALL) Minimum Residual Disease Detection by Flow Cytometry | | | x | | | | | | | | | | | | | | | | |

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| 3001255 | 14-3-3 TAU | Prion Markers (CJD), CSF (Change effective as of 10/20/25: Refer to 3019310 in the October Hotline) | | | | | | | | | | | | | | | | | | x | |
| 3002069 | MM MRD | Multiple Myeloma Minimum Residual Disease by Flow Cytometry | | | x | | | | | | | | | | | | | | | | |
| 3002343 | CHROM F8 | Chromogenic Factor VIII, Activity | | | x | | | | | | | | | | | | | | | | |
| 3002638 | COVID19NAA | SARS-CoV-2 (COVID-19) by NAA | | | x | | | | x | | | | | | | | | | | | |
| 3004071 | VWF GPIBM | von Willebrand Factor (VWF) GPIbM Activity (Change effective as of 10/20/25: Refer to 3019671 in the October Hotline) | | | | | | | | | | | | | | | | | | x | |
| 3004090 | APIX | Apixaban Level | | | x | | | | | | | | | | | | | | | | |
| 3004094 | RIVAROX | Rivaroxaban Level | | | x | | | | | | | | | | | | | | | | |
| 3004308 | MLH1 PCR | MLH1 Promoter Methylation | | | | | | | | | | x | | | | | | | | | |
| 3005874 | KRA QQQ CD | Kratom, Umbilical Cord, Qualitative | | | | | x | | | | | | | | | | | | | | |
| 3006247 | AS-PWS DD | Angelman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA | | | x | x | | | x | | | | | | | | | x | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3006343 | PRENAT HEP | Prenatal Hepatitis Panel (Change effective as of 10/20/25: Refer to 3019856) | | | | | | | | | | | | | | | | | | x | |
| 3016840 | PV REFLEX | JAK2 (V617F) Mutation by ddPCR, Qualitative With Reflex to JAK2 Exon 12-Mutation Analysis by PCR | | x | | | | x | | | | | x | | | | | | | | |
| 3016866 | CORT S TMS | Cortisol by LC-MS/MS, Salivary | | | x | | | | | | | | | | | | | | | | |
| 3019126 | 11Q FISH | 11Q Aberrations by FISH | x | | | | | | | | | | | | | | | | | | |
| 3019135 | HGBCL RFLX | High-Grade B-Cell Lymphoma Reflex Panel by FISH, Tissue | x | | | | | | | | | | | | | | | | | | |
| 3019310 | PRION | Prion Markers (CJD) in CSF | x | | | | | | | | | | | | | | | | | | |
| 3019671 | VWF_GPIBM | von Willebrand Factor (VWF) GPIbM Activity | x | | | | | | | | | | | | | | | | | | |
| 3019803 | AS-PWSDDFE | Angelman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA, Fetal | x | | | | | | | | | | | | | | | | | | |
| 3019856 | VPRENATHEP | Viral Hepatitis Prenatal Panel | x | | | | | | | | | | | | | | | | | | |
| 3019882 | STR DON PR | Chimerism, Donor, Pretransplant Process and Hold | x | | | | | | | | | | | | | | | | | | |

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| 3019908 | HENS G R | Bartonella henselae Antibody, IgG With Reflex to Endpoint Titer | x | | | | | | | | | | | | | | | | | | |
| 3019937 | HD PCR FE | Huntington Disease (HD) CAG Repeat Expansion, Fetal | x | | | | | | | | | | | | | | | | | | |
| 3020058 | CHAGAS PAN | Trypanosoma cruzi Antibody, IgG Panel | x | | | | | | | | | | | | | | | | | | |
| 3020065 | QUINT G R | Bartonella quintana Antibody, IgG With Reflex to Endpoint Titer | x | | | | | | | | | | | | | | | | | | |
| 3020070 | STFR | Soluble Transferrin Receptor, Serum or Plasma | x | | | | | | | | | | | | | | | | | | |
| 3020079 | JAK2EX12 | JAK2 Exon 12-Mutation Analysis by PCR | x | | | | | | | | | | | | | | | | | | |
| 3020097 | FISH EOSP | Eosinophilia Panel by FISH | x | | | | | | | | | | | | | | | | | | |

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Effective Date: October 20, 2025

## TEST CHANGE

Phospholipids, Serum or Plasma

0020042, LIP-P

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Patient should fast for 12 hours prior to collection. |
| Collect: | Serum separator tube, plain red, lavender~~. Also acceptable: Lavender~~ (EDTA), pink (K2EDTA), or green (sodium or lithium heparin). |
| Specimen Preparation: | Allow specimen to clot completely at room temperature. Transfer 1 mL serum or plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | Refrigerated~~.~~ |
| Unacceptable Conditions: | |
| Remarks: | |
| Stability: | After separation from cells: Room Temperature~~Ambient~~: 8 hours; Refrigerated: 1 month; Frozen: 1 month |
| Methodology: | Quantitative Spectrophotometry |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 84311 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

160-300 mg/dL

Deleted Cells

## TEST CHANGE

# Pseudocholinesterase, Dibucaine Inhibition

0020159, PCHE PHENO

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Specimen must be drawn prior to surgery or more than two days following surgery. Do not draw in recovery room. |
| Collect: | Serum separator tube, plain red, green (sodium or lithium heparin), lavender (EDTA), or pink (K2EDTA). |
| Specimen Preparation: | Allow specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transport 1 mL serum or plasma. (Min: 0.25 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Lt. blue (sodium citrate) or gray (oxalate/fluoride). Whole blood. |
| Remarks: | |
| Stability: | Room TemperatureAmbient: 4 hours; Refrigerated: 1 week; Frozen: 3 months |
| Methodology: | Quantitative Enzymatic Assay |
| Performed: | Mon-Fri |
| Reported: | 1-5 days |
| Note: | Patients with acute or chronic liver disease, organophosphate poisoning, chronic renal disease, in late stages of pregnancy, or on estrogen therapy may have markedly decreased PChE activities. |
| CPT Codes: | 82638; 82480 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The dibucaine number (DN) is the percent of pseudocholinesterase (PChE) enzyme activity that is inhibited by dibucaine. Together, the DN and the PChE enzyme activity results can help to identify individuals at risk for prolonged paralysis following the administration of succinylcholine.?. Decreased PChE enzyme activity in conjunction with a DN less than 30 suggests high risk for prolonged paralysis. Normal to decreased PChE enzyme activity in conjunction with a DN 30-79 suggests variable risk. Although decreased PChE activity in conjunction with DN greater than or

equal to 80 suggests variable risk, these results may be caused by exposure to organophosphates, the presence of liver disease, pregnancy, or circulating succinylcholine. Specimens should be collected 48 hours after the administration of succinylcholine.

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Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Pseudocholinesterase, Total | 2,900-7,100 U/L |
| | Dibucaine Number | Greater than or equal to 80 |

## TEST CHANGE

# Pseudocholinesterase, Total

0020167, CHE-P

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Specimen must be drawn prior to surgery or more than two days following surgery. Do not draw in recovery room. |
| Collect: | Serum separator tube, plain red, lavender (EDTA), or pink (K2EDTA). |
| Specimen Preparation: | Allow serum specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transport 0.5 mL serum or plasma. (Min: 0.1 mL) |
| Transport Temperature: | Refrigerated~~.~~ |
| Unacceptable Conditions: | Whole blood on clot. Hemolyzed specimens. |
| Remarks: | Plasma values are slightly lower than serum. |
| Stability: | Room Temperature~~Ambient~~: 4 hours; Refrigerated: 1 week; Frozen: 3 months |
| Methodology: | Quantitative Enzymatic Assay |
| Performed: | Mon-Fri |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 82480 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |
| 2,900-7,100 U/L | |

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## TEST CHANGE

von Willebrand Multimeric Panel

0030002, VW MUL PAN

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 3 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum, EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Electrophoresis / ~~/~~Clotting / ~~/~~Microlatex Particle-Mediated Immunoassay / ~~/~~Platelet Agglutination |
| Performed: | Mon-Sat |
| Reported: | 1-11 days |
| Note: | |
| CPT Codes: | 85247; 85240; 85246; 85245 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| ~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~ | |
| Reference Interval: | |

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| Test Number | Components | Reference Interval |
|---|---|---|
| | Factor VIII, Activity | |
| | | Age: Reference Interval (%)<br>0-6 years: 56-191<br>7-9 years: 76-199<br>10-11 years: 80-209<br>12-13 years: 72-198<br>14-15 years: 69-237<br>16-17 years: 63-221<br>18 years and older: 56-191 |
| | von Willebrand Factor, Antigen | |
| | | Age: Reference Interval (%)<br>0-6 years: 52-214<br>7-9 years: 62-180<br>10-11 years: 63-189<br>12-13 years: 60-189<br>14-15 years: 57-199<br>16-17 years: 50-205<br>18 years and older: 52-214 |
| | von Willebrand Factor, Activity (RCF) | |
| | | Age: Reference Interval (%)<br>0-6 years: 51-215<br>7-9 years: 52-176<br>10-11 years: 60-195<br>12-13 years: 50-184<br>14-15 years: 50-203<br>16-17 years: 49-204<br>18 years and older: 51-215 |
| | von Willebrand Multimeric | Normal |

## TEST CHANGE

Factor VIII Activity with Reflex to Bethesda Quantitative, Factor VIII

0030026, F8 BETHR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer two 3 mL aliquots of platelet-poor plasma to ARUP standard transport tubes.~~Standard Transport Tubes.~~ (Min: 2 mL/each) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | If Factor VIII activity is 20 percent or less, then Bethesda Quantitative, Factor VIII will be added. Additional charges apply. |
| CPT Codes: | 85240; if reflexed, add 85335 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Test Number | Components | Reference Interval |
|---|---|---|
| | Bethesda Quantitative, F8 | 0.5 BU or less |
| | Factor VIII, Activity | |
| | | Age: Reference Interval (%)<br>0-6 years: 56-191<br>7-9 years: 76-199<br>10-11 years: 80-209<br>12-13 years: 72-198<br>14-15 years: 69-237<br>16-17 years: 63-221<br>18 years and older: 56-191 |

## TEST CHANGE

# Protein C, Functional with Reflex to Protein C, Total Antigen

0030041, PROT CF R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection / ~~/~~Enzyme-Linked Immunosorbent Assay (ELISA) |
| Performed: | Sun-Sat |
| Reported: | 1-5 days |
| Note: | If protein C functional is decreased, then Protein C, Total Antigen, will be added. Additional charges apply. |
| CPT Codes: | 85303; if reflexed, add 85302 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |
| By report | |

## TEST CHANGE

Factor VIII, Activity

0030095, F8

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Light blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85240 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Age | Reference Interval |
|---|---|
| 0-6 years | 56-191% |
| 7-9 years | 76-199% |
| 10-11 years | 80-209% |
| 12-13 years | 72-198% |
| 14-15 years | 69-237% |
| 16-17 years | 63-221% |
| 18 years and older | 56-191% |

## TEST CHANGE

# Protein C, Total Antigen

0030111, PROT C

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Enzyme-Linked Immunosorbent Assay (ELISA) ~~Immunoassay~~ |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85302 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Patients on warfarin may have decreased protein C values. Patients should be off warfarin therapy for two weeks for accurate measurement of protein C.

Reference Interval:

1-4 days: 17-53%
5-29 days: 20-64%
30-89 days: 21-65%
90-179 days: 28-80%
180-364 days: 37-81%

1-5 years: 40-92%
6-10 years: 45-93%
11 years and older: 63-153%

## TEST CHANGE

# Protein S, Total Antigen

0030112, PROT S

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Microlatex Particle-Mediated Immunoassay |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85305 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Patients on warfarin may have decreased protein S values. Patients should be off warfarin therapy for two weeks for accurate measurement of protein S.

Reference Interval:

| Age | Male | Female |
|---|---|---|
| 1-4 days | 12-60% | 12-60% |
| 5-29 days | 22-78% | 22-78% |
| 30-89 days | 33-93% | 33-93% |
| 90-179 days | 54-118% | 54-118% |
| 180-364 days | 55-119% | 55-119% |
| 1-5 years | 54-118% | 54-118% |
| 6-10 years | 41-114% | 41-114% |
| 11 years and older | 84-134% | 63-126% |

## TEST CHANGE

# Protein C, Functional

0030113, PROT C F

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85303 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report | |
| Reference Interval: | |

Effective November 17, 2014

| Age | Reference Interval |
|---|---|
| 1-4 days | 17-53% |
| 5-29 days | 20-64% |
| 30-89 days | 21-65% |
| 90-179 days | 28-80% |
| 180-364 days | 37-81% |
| 1-6 years | 40-92% |
| 7-9 years | 70-142% |
| 10-11 years | 68-143% |
| 12-13 years | 66-162% |
| 14-15 years | 69-170% |
| 16-17 years | 70-171% |
| 18 years and older | 83-168% |

## TEST CHANGE

# Protein S, Functional

0030114, PROT S F

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85306 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Patients on warfarin may have decreased functional protein S values. Patients should be off warfarin therapy for two weeks for accurate measurement of functional protein S. Artificially increased functional protein S values may be due to heparin therapy or the presence of direct thrombin inhibitors or factor Xa inhibitors.

Reference Interval:

Male
1-89 days: 15-55%
90-179 days: 35-92%

180-364 days: 45-115%
1-5 years: 62-120%
6 years:  62-130%
7-9 years: 66-140%
10-11 years: 65-139%
12-13 years: 72-139%
14-15 years: 68-145%
16-17 years: 77-167%
18 years and older: 66-143%

Female
1-89 days: 15-55%
90-179 days: 35-92%
180-364 days: 45-115%
1-5 years: 62-120%
6 years:  62-130%
7-9 years: 62-151%
10-11 years: 65-142%
12-13 years: 70-140%
14-15 years: 55-145%
16-17 years: 51-147%
18 years and older: 57-131%

## TEST CHANGE

Protein C and S Panel, Total, Antigen

0030116, C/S TOTAL

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Enzyme-Linked Immunosorbent Assay (ELISA) / ~~)~~Microlatex Particle-Mediated Immunoassay |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85302; 85305 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

| Test Number | Components | Reference Interval |
|---|---|---|
| | Protein C, Total Antigen | |
| | | Age: Reference Interval (%)<br>1-4 days: 17-53<br>5-29 days: 20-64<br>30-89 days: 21-65<br>90-179 days: 28-80<br>180-364 days: 37-81<br>1-5 years: 40-92<br>6-10 years: 45-93<br>11 years and older: 63-153 |
| | Protein S, Total Antigen | |
| | | Age: Male (%): Female (%)<br>1-4 days: 12-60: 12-60<br>5-29 days: 22-78: 22-78<br>30-89 days: 33-93: 33-93<br>90-179 days: 54-118: 54-118<br>180-364 days: 55-119: 55-119<br>1-5 years: 54-118: 54-118<br>6-10 years: 41-114: 41-114<br>11 years and older: 84-134: 63-126 |

# TEST CHANGE

## von Willebrand Panel

0030125, VW PANEL

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 3 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum, EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection / ~~/~~Platelet Agglutination / ~~/~~Microlatex Particle-Mediated Immunoassay |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85240; 85246; 85245 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Test Number | Components | Reference Interval |
|---|---|---|
| | Factor VIII, Activity | |
| | | Age: Reference Interval (%)<br>0-6 years: 56-191<br>7-9 years: 76-199<br>10-11 years: 80-209<br>12-13 years: 72-198<br>14-15 years: 69-237<br>16-17 years: 63-221<br>18 years and older: 56-191 |
| | von Willebrand Factor, Activity (RCF) | |
| | | Age: Reference Interval (%)<br>0-6 years: 51-215<br>7-9 years: 52-176<br>10-11 years: 60-195<br>12-13 years: 50-184<br>14-15 years: 50-203<br>16-17 years: 49-204<br>18 years and older: 51-215 |
| | von Willebrand Factor, Antigen | |
| | | Age: Reference Interval (%)<br>0-6 years: 52-214<br>7-9 years: 62-180<br>10-11 years: 63-189<br>12-13 years: 60-189<br>14-15 years: 57-199<br>16-17 years: 50-205<br>18 years and older: 52-214 |

TEST CHANGE

# APC Resistance Profile

0030127, APC RST

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection |
| Performed: | Mon-Sat |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 85307 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Ratios less than 2.00 suggest APC resistance. This method uses factor V deficient plasma; therefore, APC resistance due to a nonfactor V mutation will not be detected. Extreme factor V deficiency or presence of direct oral anticoagulants (DOACs) may cause an unreliable ratio.

Reference Interval:

2.00~~0~~ or greater

## TEST CHANGE

Protein C and S Panel, Functional

0030182, C/S PANEL

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Light blue (sodium citrate). Special~~Blue (Sodium Citrate). Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Electromagnetic Mechanical Clot Detection |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85303; 85306 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

<table>
<tr><th>Test Number</th><th>Components</th><th>Reference Interval</th></tr>
<tr><td></td><td>Protein C Functional</td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Age</th><th>Reference Interval (%)</th></tr>
<tr><td>1-4 days</td><td>17-53</td></tr>
<tr><td>5-29 days</td><td>20-64</td></tr>
<tr><td>30-89 days</td><td>21-65</td></tr>
<tr><td>90-179 days</td><td>28-80</td></tr>
<tr><td>180-364 days</td><td>37-81</td></tr>
<tr><td>1-6 years</td><td>40-92</td></tr>
<tr><td>7-9 years</td><td>70-142</td></tr>
<tr><td>10-11 years</td><td>68-143</td></tr>
<tr><td>12-13 years</td><td>66-162</td></tr>
<tr><td>14-15 years</td><td>69-170</td></tr>
<tr><td>16-17 years</td><td>70-171</td></tr>
<tr><td>18 years and older</td><td>83-168</td></tr>
</table>
</td></tr>
<tr><td></td><td>Protein S Functional</td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Age</th><th>Male (%)</th><th>Female (%)</th></tr>
<tr><td>1-89 days</td><td>15-55</td><td>15-55</td></tr>
<tr><td>90-179 days</td><td>35-92</td><td>35-92</td></tr>
<tr><td>180-364 days</td><td>45-115</td><td>45-115</td></tr>
<tr><td>1-5 years</td><td>62-120</td><td>62-120</td></tr>
<tr><td>6 years</td><td>62-130</td><td>62-130</td></tr>
<tr><td>7-9 years</td><td>66-140</td><td>62-151</td></tr>
<tr><td>10-11 years</td><td>65-139</td><td>65-142</td></tr>
<tr><td>12-13 years</td><td>72-139</td><td>70-140</td></tr>
<tr><td>14-15 years</td><td>68-145</td><td>55-145</td></tr>
<tr><td>16-17 years</td><td>77-167</td><td>51-147</td></tr>
<tr><td>18 years and older</td><td>66-143</td><td>57-131</td></tr>
</table>
</td></tr>
</table>

## TEST CHANGE

# Plasminogen Activity

0030190, PLG

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: ~~at -20 Degrees C:~~ 3 months~~; at -70 Degrees C: 6 months~~ |
| Methodology: | Chromogenic Assay |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 85420 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |
| 71-144% | |

## TEST CHANGE

APC Resistance Profile with Reflex to Factor V Leiden

0030192, APC R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Light blue (sodium citrate~~Blue (Sodium Citrate~~) AND l~~L~~avender (EDTA), p~~P~~ink (K2EDTA), or y~~Y~~ellow (ACD s~~S~~olution A or B). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transport 1.5 mL platelet-poor plasma AND 3 mL whole blood. (Min: 1 mL/each) |
| Transport Temperature: | Plasma: CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. Whole Blood: Frozen. |
| Unacceptable Conditions: | Serum, clotted or hemolyzed specimens. Frozen specimens in glass collection tubes. |
| Remarks: | |
| Stability: | Plasma: Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ Whole Blood: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month |
| Methodology: | Electromagnetic Mechanical Clot Detection / ~~/~~Polymerase Chain Reaction (PCR) / ~~)/~~Fluorescence Monitoring |
| Performed: | Mon-Sat |
| Reported: | 1-5 days |
| Note: | If APC resistance is normal, then no further testing will be added. If APC resistance is low, then Factor V Leiden by PCR will be added. Additional charges apply. |
| CPT Codes: | 85307; if reflexed, add 81241 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Ratios less than 2.00 suggest APC resistance. This method uses factor V deficient plasma; therefore, APC resistance due to a nonfactor V mutation will not be detected. Extreme factor V deficiency or presence of direct oral anticoagulants (DOACs) may cause an unreliable ratio.

Note: If APC resistance is normal, then no further testing will be added. If APC resistance is low, or if a valid result cannot be obtained for the APC portion of the profile, then Factor V Leiden by PCR will be added. Additional charges apply.

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | APC Resistance | 2.00 or greater |

## TEST CHANGE

# von Willebrand Factor Activity (Ristocetin Cofactor)

0030250, RCF

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: ~~at -20 Degrees C:~~ 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Platelet Agglutination |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85245 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Age | Reference Interval |
|---|---|
| 0-6 years | 51-215% |
| 7-9 years | 52-176% |
| 10-11 years | 60-195% |
| 12-13 years | 50-184% |
| 14-15 years | 50-203% |
| 16-17 years | 49-204% |
| 18 years and older | 51-215% |

## TEST CHANGE

von Willebrand Modified Panel

0030284, VW PANEL 2

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum, EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Platelet Agglutination / ~~/~~Microlatex Particle-Mediated Immunoassay |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85245; 85246 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Test Number | Components | Reference Interval | |
|---|---|---|---|
| | von Willebrand Factor, Antigen | | |
| | | Age | Reference Interval (%) |
| | | 0-6 years | 52-214 |
| | | 7-9 years | 62-180 |
| | | 10-11 years | 63-189 |
| | | 12-13 years | 60-189 |
| | | 14-15 years | 57-199 |
| | | 16-17 years | 50-205 |
| | | 18 years and older | 52-214 |
| | von Willebrand Factor, Activity (RCF) | | |
| | | Age | Reference Interval (%) |
| | | 0-6 years | 51-215 |
| | | 7-9 years | 52-176 |
| | | 10-11 years | 60-195 |
| | | 12-13 years | 50-184 |
| | | 14-15 years | 50-203 |
| | | 16-17 years | 49-204 |
| | | 18 years and older | 51-215 |

## TEST CHANGE

# von Willebrand Factor Antigen

0030285, VWF/AG

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate).Special ~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum, EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Microlatex Particle-Mediated Immunoassay |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85246 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Age | Reference Interval |
|---|---|
| 0-6 years | 52-214% |
| 7-9 years | 62-180% |
| 10-11 years | 63-189% |
| 12-13 years | 60-189% |
| 14-15 years | 57-199% |
| 16-17 years | 50-205% |
| 18 years and older | 52-214% |

## TEST CHANGE

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

0050011, RPR FTA

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube. |
| Specimen Preparation: | Separate serum from cells ASAP or within 2 hours of collection. Transfer 1mL serum to an ARUP standard transport tube. (Min: 0.5 mL) Avoid freezing if possible. |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, grossly hemolyzed, grossly lipemic, plasma, CSF, cord blood, or other body fluids. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year |
| Methodology: | Semi-Quantitative Particle Agglutination |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 86592; if reflexed, add 86593; 86780 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

| Component | Interpretation |
|---|---|
| Rapid Plasma Reagin (RPR) | RPR (+) = Reactive RPR (-) = Nonreactive |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Rapid Plasma Reagin (RPR) | NonreactiveNon Reactive |
| | Rapid Plasma Reagin (RPR) | |
| | | Component Result: Rapid Plasma; Interpretation: RPR (+) = |

| | | | | |
|---|---|---|---|---|
| | | Reagin (RPR) | Reactive RPR (-) = Nonreactive | |

## TEST CHANGE

# Rapid Plasma Reagin (RPR) with Reflex to Titer

0050471, RPRT

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube. |
| Specimen Preparation: | Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL) Avoid freezing if possible. |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, grossly hemolyzed, grossly lipemic, plasma, CSF, cord blood, or other body fluids. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles) |
| Methodology: | Semi-Quantitative Particle Agglutination |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | If RPR is reactive, then a titer will be added. Additional charges apply. |
| CPT Codes: | 86592; if reflexed, add 86593 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

| Component | Interpretation |
|---|---|
| Rapid Plasma Reagin (RPR) | RPR (+) = Reactive RPR (-) = Nonreactive |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Rapid Plasma Reagin (RPR) | Nonreactive~~Non Reactive~~ |
| | Rapid Plasma Reagin (RPR) | |
| | | Component Result: Rapid Plasma Reagin (RPR) — Interpretation: RPR (+) = Reactive RPR (-) = Nonreactive |

## TEST CHANGE

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

0050478, RPR PAN

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube |
| Specimen Preparation: | Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL) Avoid freezing if possible. |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, grossly hemolyzed, grossly lipemic, plasma, CSF, cord blood, or other body fluids. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles) |
| Methodology: | Semi-Quantitative Particle Agglutination |
| Performed: | Sun-Sat |
| Reported: | 1-4 days |
| 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 TP-PA confirmation will be added. Additional charges apply. |
| CPT Codes: | 86592; if reflexed, add 86593; 86780 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Test Number | Components | Reference Interval |
|---|---|---|
| | Rapid Plasma Reagin (RPR) | NonreactiveNon Reactive |
| | Rapid Plasma Reagin (RPR) | |
| | | Component Result: Rapid Plasma Reagin (RPR); Interpretation: RPR (+) = Reactive RPR (-) = Nonreactive |
| | Rapid Plasma Reagin (RPR) Titer | < 1:1 |
| | Treponema pallidum Ab by TP-PA Reflex | Nonreactive |

## TEST CHANGE

Trypanosoma cruzi ~~Antibody,~~ IgG, purified antigen

0051076, CHAGAS G

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube. |
| 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: 0.3 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days of the acute specimens. Mark specimens plainly as "acute" or "convalescent." |
| Transport Temperature: | Refrigerated. Also acceptable: Room temperature or frozen. |
| Unacceptable Conditions: | Plasma. Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year |
| Methodology: | Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA) |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-6~~8~~ days |
| Note: | T. cruzi IgG , Purified Antigen assay is performed using the Hemagen Chagas Kit. |
| CPT Codes: | 86753 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

~~*This assay should not be used for blood donor screening or associated re-entry protocols, or for screening Human Cell and Cellular Tissue-Based Products (HCT/Ps).*~~

According to the CDC, at least two different serologic tests should be used to make the laboratory diagnosis of chronic Chagas Disease, as no single serologic test is sufficiently sensitive and specific. If results between the two assays are discrepant, repeat testing or testing by a third method may be helpful.

*This assay should not be used for blood donor screening or associated re-entry protocols, or for screening Human Cell and Cellular Tissue-Based Products (HCT/Ps).*

| Component | Unit Of Measure | Interpretation |
|---|---|---|
| Trypanosoma cruzi Antibody, IgG | 1.0 IV or less 1.1 IV 1.2 IV or greater | Negative - No significant level of Trypanosoma cruzi IgG antibody detected. Equivocal - Questionable presence of Trypanosoma cruzi IgG antibody detected. Repeat testing in 10-14 days may be helpful. Positive - IgG antibodies to Trypanosoma cruzi detected, which may suggest current or past infection. |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Trypanosoma~~T.~~ cruzi Antibody, IgG~~, Purified Antigen~~ | 1.0 IV or less |

TEST CHANGE

# Glucose-6-Phosphate Dehydrogenase (G6PD) 2 Mutations

0051684, G6PD AFRIC

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA), pink (K2EDTA), or yellow (ACD sSolution A or B). |
| Specimen Preparation: | Transport 3 mL whole blood. (Min: 1 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Frozen specimens in glass collection tubes. |
| Remarks: | |
| Stability: | Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month |
| Methodology: | Polymerase Chain Reaction (PCR) / )/Fluorescence Monitoring |
| Performed: | VariesMon, Thu |
| Reported: | 4-10 days |
| Note: | This assay detects the following variants: c.376A>G and c.202G>A in the G6PD gene. |
| CPT Codes: | 81247 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Refer to report. Background Information for Glucose-6-Phosphate Dehydrogenase (*G6PD*) 2 Mutations:
Characteristics: Although *G6PD* deficiency is usually asymptomatic, it can result in episodic hemolytic anemia triggered by infections, specific foods, and drugs. In newborns, it may be causal for life-threatening acute hemolytic anemia with jaundice. Variants are classified as follows: Class I: severe enzyme deficiency associated with chronic nonspherocytic hemolytic anemia; Class II: severe enzyme deficiency (<10 percent of normal activity); Class III: mild to moderate enzyme deficiency (10-60 percent of normal activity); and Class IV: normal range (>60 percent of normal enzyme activity). G6PD deficiency is best managed by avoiding known environmental triggers. For a list of drugs that may cause adverse reactions in individuals with G6PD deficiency refer to the Clinical Pharmacogenetics Implementation Consortium: https://cpicpgx.org/genes-drugs/.
Incidence: Highly variable but ranges between 5-30 percent in males of African, Asian, Mediterranean, and Middle Eastern descent
Inheritance: X-linked.

Cause: Hemizygosity for a pathogenic *G6PD* germline variant in men, and homozygosity or compound heterozygosity in women. Some heterozygous women may be affected due to skewed X-chromosome inactivation.
Variants Tested: c.376A>G and c.202G>A (A- allele: both variants present in cis; A+ allele: c.376A>G alone; c.202G>A is rarely if ever seen alone).
Clinical Sensitivity: Variable; dependent on the country of origin.
Methodology: Polymerase Chain Reaction/Fluorescence Monitoring
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Only the two *G6PD* gene variants targeted (c.376A>G and c.202G>A) will be detected. This assay cannot determine phase; thus, concurrent detection of c.376A>G and c.202G>A is presumed to reflect the complex A- allele. Diagnostic errors can occur due to rare sequence variations. Interpretation of this test result may be impacted if this patient has had an allogeneic stem cell transplantation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Reference Interval:

ARUP LABORATORIES | *A nonprofit enterprise of the University of Utah and its Department of Pathology*

Effective Date: October 20, 2025

## TEST CHANGE

### Parvovirus B19 by Qualitative PCR

0060043, PARVPCR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA), pPink (K2EDTA), or serum separator tubeSerum Separator Tube (SST). Also acceptable: Amniotic fluid, CSF, tissue, paraffin embedded tissue, or synovial fluid, or bone marrow (EDTA and K2EDTA). |
| Specimen Preparation: | Separate serum or plasma from cells. Transfer 1 mL serum, plasma, bone marrow, amniotic fluid, CSF, or synovial fluid to a sterile container. (Min: 0.5 mL) Fresh Tissue: Transfer fresh tissue to a sterile container and freeze immediately. Paraffin Embedded Tissue: Transport in a Tissue Transport Kit (ARUP supply #47808), available online through eSupply using ARUP Connect or contact ARUP Client Services at {800-} 522-2787. |
| Transport Temperature: | Frozen. Bone Marrow: Refrigerated. Paraffin Embedded Tissue: Room temperature. |
| Unacceptable Conditions: | Heparinized specimens, tissues in optimal cutting temperature compound. |
| Remarks: | Specimen source required. |
| Stability: | Ambient: 24 hours; Refrigerated: 5 days; Frozen: 6 months Bone Marrow: Ambient: 1 week; Refrigerated: 1 week; Frozen: 1 week Fresh Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months Paraffin Embedded Tissue: Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable |
| Methodology: | Qualitative Polymerase Chain Reaction (PCR) |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 87798 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|

Deleted Cells

Inserted Cells

## TEST CHANGE

Antibiotic Level, Ticarcillin

0060841, ML TICAR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. |
| Specimen Preparation: | Aseptically remove 2 mL serum to a sterile tube (ARUP supply #43115) and freeze. Available online through eSupply using ARUP Connect(TM) or~~Connector~~ contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. (Min: 1 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | SST or Plasma. |
| Remarks: | Required information includes: time and date of collection, time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. |
| Stability: | Ambient: 2 hours; Refrigerated: 24 hours; Frozen: 1 week |
| Methodology: | Quantitative Bioassay |
| Performed: | Sun-Sat |
| Reported: | 2-3 days |
| Note: | Please include time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. This information is important for laboratory handling and essential for subsequent physician interpretation of results. |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Normal peak serum concentration for ticarcillin is 324 ug~~u~~g/mL with a 3.1 g IV dose of ticarcillin/clavulanate. Trough serum concentration is not well established.

For bioassay measurements, the presence of other antimicrobial agents may interfere with the assay. Other factors that may influence antimicrobial levels include inherent differences among patients and their underlying physical conditions as well as the dose and route of administration of the antimicrobial agent.

Reference Interval:

## TEST CHANGE

# Antibiotic Level, Piperacillin

0060842, ML PIP

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. |
| Specimen Preparation: | Aseptically remove 2 mL serum to a sterile tube (ARUP supply #43115) and freeze. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. (Min: 1 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | SST or Plasma. |
| Remarks: | Required information includes: time and date of collection, time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. |
| Stability: | Ambient: 2 hours; Refrigerated: 24 hours; Frozen: 1 week |
| Methodology: | Quantitative Bioassay |
| Performed: | Sun-Sat |
| Reported: | 2-3 days |
| Note: | Please include time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. This information is important for laboratory handling and essential for subsequent physician interpretation of results. |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Normal peak serum concentration for piperacillin is 389-484 ug~~u~~g/mL with a 4 g IV dose of piperacillin, 209 ug~~u~~g/mL with a 3.375 g IV dose of piperacillin/tazobactam, or 224 ug~~u~~g/mL with a 4.5 g IV dose of piperacillin/tazobactam. Trough serum concentration is not well established.

For bioassay measurements, the presence of other antimicrobial agents may interfere with the assay. Other factors that may influence antimicrobial levels include inherent differences among patients and their underlying physical conditions as well as the dose and route of administration of

the antimicrobial agent.

Reference Interval:

## TEST CHANGE

# Antibiotic Level, Nafcillin

0060843, ML NAF

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. |
| Specimen Preparation: | Aseptically remove 2 mL serum to a sterile tube (ARUP supply #43115) and freeze. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. (Min: 1 mL). |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | SST or Plasma. |
| Remarks: | Required information includes: time and date of collection, time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. |
| Stability: | Ambient: 2 hours; Refrigerated: 24 hours; Frozen: 1 week |
| Methodology: | Quantitative Bioassay |
| Performed: | Sun-Sat |
| Reported: | 2-3 days |
| Note: | Please include time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. This information is important for laboratory handling and essential for subsequent physician interpretation of results |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Normal peak serum concentration for nafcillin is 7.7 ug~~µg~~/mL with a 1 g PO dose, 7.6 ug~~µg~~/mL with a 1 g IM dose or 40 ug~~µg~~/mL with a 500 mg IV dose. Trough serum concentration is not well established.

For bioassay measurements, the presence of other antimicrobial agents may interfere with the assay. Other factors that may influence antimicrobial levels include inherent differences among patients and their underlying physical conditions as well as the dose and route of administration of

the antimicrobial agent.

Reference Interval:

## TEST CHANGE

Antibiotic Level, Meropenem

0060844, ML MERO

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. |
| Specimen Preparation: | Aseptically remove 2 mL serum to a sterile tube (ARUP supply #43115) and freeze. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. (Min: 1 mL) |
| Transport Temperature: | Frozen |
| Unacceptable Conditions: | SST or Plasma. |
| Remarks: | Required information includes: time and date of collection, time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. |
| Stability: | Ambient: 2 hours; Refrigerated: 24 hours; Frozen: 1 week |
| Methodology: | Quantitative Bioassay |
| Performed: | Sun-Sat |
| Reported: | 2-3 days |
| Note: | Please include time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. This information is important for laboratory handling and essential for subsequent physician interpretation of results |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Normal peak serum concentration for meropenem is 26 ug~~u~~g/mL with a 500 mg IV dose or 55-62 ug~~u~~g/mL with a 1 g IV dose. Trough serum concentration is not well established.

For bioassay measurements, the presence of other antimicrobial agents may interfere with the assay. Other factors that may influence antimicrobial levels include inherent differences among patients and their underlying physical conditions as well as the dose and route of administration of the antimicrobial agent.

Reference Interval:

# TEST CHANGE

## Antibiotic Level, Aztreonam

0060845, ML AZTREO

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. |
| Specimen Preparation: | Aseptically remove 2 mL serum to a sterile tube (ARUP supply #43115) and freeze. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. (Min: 1 mL). |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | SST or Plasma. |
| Remarks: | Required information includes: time and date of collection, time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. |
| Stability: | Ambient: 2 hours; Refrigerated: 24 hours; Frozen: 1 week |
| Methodology: | Quantitative Bioassay |
| Performed: | Sun-Sat |
| Reported: | 2-3 days |
| Note: | Please include time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. This information is important for laboratory handling and essential for subsequent physician interpretation of results. |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Normal peak serum concentration for aztreonam is 90-164 ug~~u~~g/mL with a 1 g IV dose or 204-255 ug~~u~~g/mL with a 2 g IV dose. Trough serum concentration is not well established.

For bioassay measurements, the presence of other antimicrobial agents may interfere with the assay. Other factors that may influence antimicrobial levels include inherent differences among patients and their underlying physical conditions as well as the dose and route of administration of the antimicrobial agent.

Reference Interval:

## TEST CHANGE

# Adrenocorticotropic Hormone

0070010, ACTH

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Morning collection (7 a.m. to 10 a.m.) is preferred. |
| Collect: | Lavender (K2-EDTA),~~K2EDTA) or~~ Pink (K2-EDTA), or K3-EDTA.~~K2EDTA).~~ Collection tube must be siliconized glass or plastic. |
| Specimen Preparation: | Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum, heparinized plasma, tissue or urine. Grossly hemolyzed specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 3 hours; Refrigerated: 4 hours; Frozen: 10 weeks (No freeze/thaw cycles.) |
| Methodology: | Quantitative Electrochemiluminescent Immunoassay (ECLIA) |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | No reference intervals established for p.m. collections. |
| CPT Codes: | 82024 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Reference interval based on samples collected between 7 a.m. and 10 a.m. No reference intervals established for p.m. collections. Pediatric reference values are the same as adults (Acta Paediatr Scand 1981;70:341-345). This assay measures intact ACTH 1-39; some types of synthetic ACTH and ACTH fragments are not detected by this assay.

Reference Interval:

Effective August 5, 2019
7.2?-?~~-~~63.3 pg/mL (a.m. draws)

TEST CHANGE

# Estradiol (Adult Premenopausal Females or Individuals on Estrogen Hormone Therapy)

0070045, ESTRA

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum Separator Tube (SST). Also acceptable: Green (Sodium or Lithium Heparin) |
| 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: 0.4 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | Grossly hemolyzed or lipemic specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 8 hours; Refrigerated: 1 week; Frozen: 1 month~~6 months~~ |
| Methodology: | Quantitative Chemiluminescent Immunoassay (CLIA) |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | |
| CPT Codes: | 82670 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

This immunoassay is not recommended when low estradiol concentrations, such as those found in children, cisgender males, and postmenopausal females, are expected, or for monitoring antiestrogen (e.g., aromatase inhibitor) therapy. The preferred estradiol test in these cases is Estradiol (Adult Males, Children, Postmenopausal Females, or Individuals on Estrogen-Suppressing Hormone Therapy) (ARUP test code 0093247).

No reference intervals have been established for prepubertal females or for cisgender males. For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0070045

Reference Interval:

| Test Number | ~~Effective May 11, 2021~~ | | Components | Reference Interval | |
|---|---|---|---|---|---|
| ~~Female~~ | | | Estradiol by Immunoassay | | |
| ~~Follicular phase~~ | ~~27-122 pg/mL~~ | | | | |
| ~~Mid Cycle phase~~ | ~~95-433 pg/mL~~ | | | | |
| ~~Luteal Phase~~ | ~~49-291 pg/mL~~ | | | | |
| ~~Post-Menopausal~~ | ~~Less than 41 pg/mL~~ | | | | |
| | | | | Female | |
| | | | | Early Follicular Phase | 22.4 - 115 pg/mL |
| | | | | Mid Follicular Phase | 25.0 - 115 pg/mL |
| | | | | Ovulatory Peak Phase | 32.1 - 517 pg/mL |
| | | | | Mid Luteal Phase | 36.5 - 246 pg/mL |
| | | | | Post-menopausal | <25.1 pg/mL |

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HOTLINE NOTE: There is a numeric map change associated with this test. Refer to the Hotline Test Mix for interface build information.

TEST CHANGE

# Insulin-Like Growth Factor Binding Protein-3 (IGFBP-3)

0070060, IGFBP-3

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube. Also acceptable: Green (sodium heparin). |
| Specimen Preparation: | Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | Tissue or urine. Grossly hemolyzed or lipemic specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 year |
| Methodology: | Quantitative Chemiluminescent Immunoassay (CLIA) |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 82397 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

| Tanner Stage | Male (ng/mL) | Female (ng/mL) |
|---|---|---|
| Tanner Stage I | 1400-5200 | 1200-6400 |
| Tanner Stage II | 2300-6300 | 2800-6900 |
| Tanner Stage III | 3100-8900 | 3900-9400 |
| Tanner Stage IV | 3700-8700 | 3300-8100 |
| Tanner Stage V | 2600-8600 | 2700-9100 |

Reference Interval:

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| Test Number | Components | Reference Interval | | |
|---|---|---|---|---|
| | IGF Binding Protein 3 | | | |
| | | Age | Reference IntervalsMale (ng/mL) | Female (ng/mL) |
| | | 0-7 days | 500-900 | |
| | | 8-14 days | 500-1400 | |
| | | 15 days-110-12 months | Reference intervals not available1039-3169 | 1039-3169 |
| | | 1 year | 700-3600 | |
| | | 2 years | 800-3900 | |
| | | 1-3 years | 900-4300972-4123 | 1590-4225 |
| | | 4-5 years | 1000-47001843-4968 | 2169-4790 |
| | | 5 years | 1100-5200 | |
| | | 6-7 years | 1300-56001838-4968 | 2188-4996 |
| | | 7 years | 1400-6100 | |
| | | 8-9 years | 1600-65001932-5858 | 2072-5504 |
| | | 9 years | 1800-7100 | |
| | | 10-11 years | 2100-77001828-6592 | 2456-6992 |
| | | 11 years | 2400-8400 | |
| | | 12-13 years | 2700-89002134-6598 | 2838-6846 |
| | | 13 years | 3100-9500 | |
| | | 14-15 years | 3300-100002330-6550 | 2654-6680 |
| | | 15 years | 3500-10000 | |
| | | 16-17 years | 3400-95002380-6400 | 2756-6908 |
| | | 17 years | 3200-8700 | |
| | | 18-19 years | 3100-79002340-6632 | 2700-6492 |
| | | 19 years | 2900-7300 | |
| | | 20-24 years | 2900-72002404-5948 | 3032-5992 |
| | | 21-25-29 years | 3400-78002614-5792 | 2926-5858 |
| | | 26-30-34 years | 3500-76002500-5806 | 2878-6650 |
| | | 31-35-39 years | 3500-70002474-5208 | 2786-6084 |

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| | | | | |
|---|---|---|---|---|
| | | 36-40-44 years | 3400-67002360-5560 | 2514-6014 |
| | | 41-45-49 years | 3300-66002314-5700 | 2838-4954 |
| | | 46-50-54 years | 3300-67002528-5050 | 2562-5596 |
| | | 51-55-59 years | 3400-68002482-5460 | 2574-5914 |
| | | 56-60-64 years | 3400-69002592-4770 | 2684-5130 |
| | | 61-65 years and older | 3200-66002698-5680 | 2462-5274 |
| | | 66-70 yearsTanner Stage I | 3000-62001878-6190 | 2314-6086 |
| | | 71-75 yearsTanner Stage II | 2800-57002112-6208 | 2732-6738 |
| | | 76-80 yearsTanner Stage III | 2500-51002372-6602 | 2870-7068 |
| | | Tanner Stage IV & V | 2336-6414 | 2756-7232 |
| | IGF Binding Protein 3 | | | |
| | | Age | Reference Intervals (ng/mL) | |
| | | 81-85 years | 2200-2500 | |
| | | 86 years and older | Reference intervals not established | |

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Effective Date: October 20, 2025

## TEST CHANGE

Parathyroid Hormone, Intact with Calcium

0070172, PTHI

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red or serum separator tube. |
| Specimen Preparation: | Allow serum specimen to clot fully at room temperature before centrifuging. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 0.5 mL) |
| Transport Temperature: | Frozen. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Body fluid (refer to Parathyroid Hormone, FNA, ARUP test code 2001491). Specimens collected in EDTA. Rapid serum tubes (RST). Hemolyzed samples. Grossly lipemic samples. |
| Remarks: | If requesting Ionized Calcium with PTH, submit two separate specimens. Refer to Calcium, Ionized, Serum (ARUP test code 0020135) for requirements. |
| Stability: | After separation from cells: Ambient: 8 hours; Refrigerated: 48 hours; Frozen: 6 months |
| Methodology: | Quantitative Electrochemiluminescent Immunoassay (ECLIA) |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | |
| CPT Codes: | 83970; 82310 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

For patients 18 years of age and above: Parathyroid hormone (PTH) reference intervals reflect expected values in normocalcemic, normophosphatemic individuals with optimal vitamin D concentrations; results should be interpreted concurrently.

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Reference Interval:

<table>
<tr><th>Test Number</th><th>Components</th><th>Reference Interval</th></tr>
<tr><td></td><td>Calcium for Parathyroid Hormone, Intact</td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Age</th><th>Reference Interval (mg/dL)</th></tr>
<tr><td>0 - 10 days</td><td>7.6-10.4</td></tr>
<tr><td>10 days - 2 years</td><td>9.0-11.0</td></tr>
<tr><td>2 -12 years</td><td>8.8-10.8</td></tr>
<tr><td>12 - 18 years</td><td>8.4-10.2</td></tr>
<tr><td>18 - 60 years</td><td>8.6-10.0</td></tr>
<tr><td>60 - 90 years</td><td>8.8-10.2</td></tr>
<tr><td>greater than 90 years</td><td>8.2-9.6</td></tr>
</table>
</td></tr>
<tr><td></td><td>Parathyroid Hormone, Intact</td><td>18-59~~15-65~~ pg/mL</td></tr>
</table>

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Effective Date: October 20, 2025

## TEST CHANGE

Parathyroid Hormone, Intact

0070346, PTH-INT

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (K2 or K3EDTA~~K3 EDTA~~) or pink (K2EDTA~~K2 EDTA~~). Also acceptable: Serum separator tube~~Separator Tube~~ (SST). |
| Specimen Preparation: | Allow serum specimen to clot fully at room temperature and centrifuge immediately. Transfer 2 mL serum or plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | Frozen. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Body f~~F~~luid (refer to Parathyroid Hormone, FNA, ARUP test code 2001491); u~~U~~rine. Rapid serum tubes~~Serum Tubes~~ (RST). Hemolyzed samples. Grossly lipemic samples. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 8 hours; Refrigerated: 48 hours; Frozen: 6 months |
| Methodology: | Quantitative Electrochemiluminescent Immunoassay (ECLIA) |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | PTH is unstable in unseparated serum. If collecting serum instead of plasma, tubes should be centrifuged immediately after clotting. |
| CPT Codes: | 83970 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| | For patients 18 years of age and above: Parathyroid hormone (PTH) reference intervals reflect expected values in normocalcemic, normophosphatemic individuals with optimal vitamin D concentrations; results should be interpreted |

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concurrently.

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| Parathyroid Hormone, Intact | 18-5915-65 pg/mL | 18-59 pg/mL |

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# TEST CHANGE

## Beta-Hydroxybutyric Acid

0080045, B-OH

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube, lavender (EDTA), pink (K2EDTA), green (sodium or lithium heparin), or gray (sodium fluoride/potassium oxalate). |
| Specimen Preparation: | Allow serum specimen to clot completely at room temperature. Transfer 1 mL serum or plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.2 mL) |
| Transport Temperature: | Refrigerated~~.~~ |
| Unacceptable Conditions: | |
| Remarks: | |
| Stability: | After separation from cells: Room Temperature~~Ambient~~: 2 hours; Refrigerated: 1 week; Frozen: 2 months |
| Methodology: | Quantitative Enzymatic Assay |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 82010 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |
| 0.02-0.27 mmol/L~~-3.0 mg/dL~~ | |

HOTLINE NOTE: There is a numeric map change associated with this test. Refer to the Hotline Test Mix for interface build information.

HOTLINE NOTE: There is a unit of measure change associated with this test. Refer to the Hotline Test Mix for interface build information.

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Effective Date: October 20, 2025

## TEST CHANGE

Glucose-6-Phosphate Dehydrogenase

0080135, G6PD

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Yellow (ACD solution A). Also acceptable: Green (sodium or lithium heparin), lavender (K2EDTA or K3EDTA), or pink (K2EDTA). Enzyme most stable in acid citrate dextrose (ACD). |
| Specimen Preparation: | Do not freeze. Transport 3 mL whole blood. (Min: 1.5 mL heparin and~~or~~ EDTA collection tubes; Min: 0.5 mL pediatric collection tubes). |
| Transport Temperature: | Refrigerated~~.~~ |
| Unacceptable Conditions: | Clotted, frozen, or hemolyzed specimens. |
| Remarks: | Pediatric minimum 0.5 mL if collected and transported in a pediatric collection K2EDTA tube. ACD collection tubes should be filled to maximum collectible volume and are not recommended for pediatric specimen collection or preservation.<br>ARUP G6PD results are normalized to Hemoglobin. Reporting units are U/g Hb. Alternative methods may normalize G6PD results to red blood cells and use different reporting units. |
| Stability: | Room Temperature~~Ambient~~: 8 hours; Refrigerated: 1 week; Frozen: Unacceptable |
| Methodology: | Quantitative Enzymatic Assay |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | Patients who have recently received transfusions have normal donor cells that may mask G-6-PD deficient erythrocytes. |
| CPT Codes: | 82955 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| | World Health Organization guidance on classification |

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of G6PD activity is as follows:
Males: G6PD activity less than 30% of the normal median are regarded as G6PD deficient. Males with G6PD activity of 30% or more of the normal median can be regarded as G6PD normal.
Females: G6PD activity less than 30% of the normal median are regarded as G6PD deficient. Females with G6PD activity of 80% or more of the normal median can be regarded as G6PD normal. G6PD activity between 30% and 80% of the normal median are regarded as intermediate activity.
Cutoffs and results are specific to this G6PD assay and configuration and cannot be used interchangeably across different assays, parameters, and/or instrument configurations.
Reference: Guide to G6PD deficiency rapid diagnostic testing to support P. vivax radical cure. Geneva: World Health Organization; 2018. ISBN 978-92-4-151428-6

Percent of Normal Activity (U/g Hb)

| Age | 100% | 80% | 30% |
|---|---|---|---|
| <8 days | 19.7 | 15.8 | 5.9 |
| 8 - 30 days | 18.2 | 14.6 | 15.5 |
| 1 - 6 months | 16.1 | 12.9 | 4.8 |
| 7 - 12 months | 13.8 | 11.0 | 4.1 |
| 1 - 17 years | 12.9 | 10.3 | 3.9 |
| = 18 years | 12.7 | 10.2 | 3.8 |

Percentage of normal activity cutoffs to G6PD enzyme activity. 100% for males and females is defined as the 50th percentile of non-affected males.

Reference Interval:

~~Effective November 17, 2014~~
~~9.9-16.6 U/g Hb~~

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## TEST CHANGE

# Alpha Fetoprotein, Total and L3 Percent

0081208, AFP L3

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube or plain red. |
| Specimen Preparation: | Allow specimen to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. ~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | Plasma. |
| Remarks: | |
| Stability: | After separation from cells: Room Temperature ~~Ambient~~: 8 hours; Refrigerated: 5 days; Frozen: 3 months (avoid repeated freeze/thaw cycles) |
| Methodology: | Quantitative Liquid Chromatography / ~~/~~Immunoassay |
| Performed: | Mon, Thu |
| Reported: | 1-5 days |
| Note: | |
| CPT Codes: | 82107 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The u~~#~~TASWako method is used. Results obtained with different assay methods or kits cannot be used interchangeably. The AFP L3 Percent assay is intended as a risk assessment for the development of hepatocellular carcinoma in patients with chronic liver diseases. Patients with elevated serum AFP-L3 percent should be more intensely evaluated for evidence of hepatocellular carcinoma since elevated values have been shown to be associated with a seven-fold increase in the risk for developing hepatocellular carcinoma within 21 months. Results cannot be interpreted as absolute evidence of the presence or absence of malignant disease. For pregnant females, the result is not interpretable as a tumor marker.

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Alpha Fetoprotein Total | 0-15 ng/mL |
| | Alpha Fetoprotein L3 Pct | 0.0-9.9 percent |

By report

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Effective Date: October 20, 2025

## TEST CHANGE

von Willebrand Factor Multimers

0092281, VWF MULTI

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -70 Degrees C: 6 months; Frozen at -20 Degrees C~~: 3 months |
| Methodology: | Qualitative Electrophoresis |
| Performed: | Mon-Fri |
| Reported: | 4-11 days |
| Note: | |
| CPT Codes: | 85247 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

By report

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Effective Date: October 20, 2025

## TEST CHANGE

Alpha-2-Antiplasmin, Activity

0098727, ALPHA 2A

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 0.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: ~~at -20 Degrees C:~~ 3 months~~; at -70 Degrees C: 6 months~~ |
| Methodology: | Chromogenic Assay |
| Performed: | Thu |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 85410 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

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| Age | Activity (%) |
|---|---|
| 1-4 days | 55-115% |
| 5-29 days | 70-130% |
| 30-89 | 76-124% |
| 90-179 days | 76-140% |
| 180-364 days | 83-139% |
| 1-5 years | 93-117% |
| 6 years | 89-110% |
| 7-9 years | 88-147% |
| 10-11 years | 90-144% |
| 12-13 years | 87-142% |
| 14-15 years | 83-136% |
| 16-17 years | 77-134% |
| 18 years and older | 82-133% |

~~By Report~~

| ~~Age~~ | ~~Activity (%)~~ |
|---|---|
| ~~1-4 days~~ | ~~55-115%~~ |
| ~~5-29 days~~ | ~~70-130%~~ |
| ~~30-89~~ | ~~76-124%~~ |
| ~~90-179 days~~ | ~~76-140%~~ |
| ~~180-364 days~~ | ~~83-139%~~ |
| ~~1-5 years~~ | ~~93-117%~~ |
| ~~6 years~~ | ~~89-110%~~ |
| ~~7-9 years~~ | ~~88-147%~~ |
| ~~10-11 years~~ | ~~90-144%~~ |
| ~~12-13 years~~ | ~~87-142%~~ |
| ~~14-15 years~~ | ~~83-136%~~ |
| ~~16-17 years~~ | ~~77-134%~~ |
| ~~18 years and older~~ | ~~82-133%~~ |

## TEST CHANGE

Protein S Free, Antigen

0098894, PRO S FREE

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Light blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Microlatex Particle-Mediated Immunoassay |
| Performed: | Mon-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85306 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report | |
| Reference Interval: | |

| Age | Male | Female |
|---|---|---|
| 1-89 days | 15-55% | 15-55% |
| 90-179 days | 35-92% | 35-92% |
| 180-364 days | 45-115% | 45-115% |
| 1-5 years | 62-120% | 62-120% |
| 6-9 years | 62-130% | 62-130% |
| 10-17 years | 60-140% | 60-140% |
| 18 years and older | 74-147% | 55-123% |

## TEST CHANGE

Glucagon

0099165, GLUCA

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Fast 8-12 hours prior to collection. |
| Collect: | Lavender or pink (K2EDTA or K3EDTA). ~~Protease inhibitor tube (PPACK; Phe-Pro-Arg-chloromethylketone) (ARUP supply #49662), available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. A winged collection set must be used.~~ |
| Specimen Preparation: | Mix well. Separate from cells within 1 hour of collection. Transfer 2~~1~~ mL plasma to an ARUP standard transport tube. (Min: 0.5 mL) |
| Transport Temperature: | Frozen. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Hemolyzed, lipemic, icteric or clotted~~Grossly hemolyzed~~ specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 4 hours~~Unacceptable~~; Refrigerated: 3 days~~48 hours~~; Frozen: 1 month~~3 months~~ |
| Methodology: | Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)~~Radioimmunoassay~~ |
| Performed: | Tue |
| Reported: | 3-11 days |
| Note: | |
| CPT Codes: | 82943 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

Reference Interval:

~~Effective December 1, 2014~~
~~Adult:~~ Less than or equal to 150 pg/mL~~208 ng/L~~

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Effective Date: October 20, 2025

TEST CHANGE

# Haloperidol

0099640, HALO

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Timing of specimen collection: Pre-dose (trough) draw?-? ~~-~~ At steady state concentration. |
| Collect: | Plain red. Also acceptable: Lavender (K 2~~K2~~ or K 3 EDTA~~K3EDTA~~) or pink (K 2 EDTA~~K2EDTA~~). |
| Specimen Preparation: | Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 4 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles) |
| Methodology: | Quantitative Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-7 days |
| Note: | |
| CPT Codes: | 80173 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects to haloperidol therapy may include drowsiness, blurred vision, tardive dyskinesia, tachycardia, hypotension, and muscular rigidity.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA -certified laboratory and is intended for clinical purposes.

Reference Interval:

| | |
|---|---|
| Therapeutic Range: | 1.0-10.0 ng/mL |
| Toxic: | Greater than or equal to 15.0 ng/mL |

~~Effective February 16, 2021~~

| | |
|---|---|
| ~~Therapeutic Range:~~ | ~~5.0-20.0 ng/mL~~ |
| ~~Toxic:~~ | ~~Greater than 50 ng/mL~~ |

Inserted Cells

ARUP LABORATORIES | *A nonprofit enterprise of the University of Utah and its Department of Pathology*

Effective Date: October 20, 2025

## TEST CHANGE

Fluphenazine

0099906, FLUPHEN

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Timing of specimen collection: Pre-dose (trough) draw?-? ~~-~~ At steady state concentration. |
| Collect: | Plain red. Also acceptable: Lavender (K 2~~K2~~ or K 3 EDTA~~K3EDTA~~) or pink (K 2~~K2~~ EDTA). |
| Specimen Preparation: | Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Whole blood. Hemolyzed specimens. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles) |
| Methodology: | Quantitative Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 80342 (Alt code: G0480) |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects to fluphenazine therapy may include extrapyramidal symptoms, seizures, and neuroleptic malignant syndrome.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA -certified laboratory and is intended for clinical purposes.

Reference Interval:

Inserted Cells

| | |
|---|---|
| Therapeutic Range: | 1.0-10.0 ng/mL |
| Toxic: | Greater than or equal to 15.0 ng/mL |

~~Effective February 16, 2021~~

| | |
|---|---|
| ~~Therapeutic Range:~~ | ~~1.0-10.0 ng/mL~~ |
| ~~Toxic:~~ | ~~Greater than 15 ng/mL~~ |

## TEST CHANGE

# Parathyroid Hormone, Fine Needle Aspiration (FNA)

2001491, PTH FNA

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Fine needle aspiration in saline. ~~Also acceptable: Specimens collected in Green (Sodium or Lithium Heparin) or Lavender (EDTA).~~ |
| Specimen Preparation: | Specimen must be nonviscous, nonhemolyzed, and free of particulate matter. Centrifuge to remove cellular material and visible hemolysis. Transfer 0.5 mL saline needle rinse to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | Specimen types other than those listed. Specimens too viscous to be aspirated by the instrument. Grossly hemolyzed samples. Grossly lipemic samples. |
| Remarks: | Indicate source on test request form. |
| Stability: | Ambient: 8 hours; Refrigerated: 24 hours; Frozen: 6 months |
| Methodology: | Quantitative Electrochemiluminescent Immunoassay (ECLIA) |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | |
| CPT Codes: | 83970 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Parathyroid hormone (PTH) is measured by Roche electrochemiluminescent immunoassay. This test is FDA cleared but is not labeled for use with FNA fluid. The performance characteristics of this test were determined by ARUP.

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.~~

Reference Interval:

A reference interval has not been established for body fluid specimens.

## TEST CHANGE

# Protein S, Free Antigen with Reflex to Protein S, Total Antigen

2002269, PRS FREE R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~, at -70 Degrees C: 6 months~~ |
| Methodology: | Microlatex Particle-Mediated Immunoassay |
| Performed: | Mon-Sat |
| Reported: | 1-4 days |
| Note: | If low Protein S Free Antigen is detected, then Protein S, Total Antigen, will be added. Additional charges apply. |
| CPT Codes: | 85306; if reflexed, add 85305 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Refer to report

Reference Interval:

1-89 days: 15-55%
90-179 days: 35-92%
180-364 days: 45-115%

1-5 years: 62-120%
6-9 years: 62-130%
10-17 years: 60-140%
18 years and older Male: 74-147%
18 years and older Female: 55-123%

## TEST CHANGE

# Quetiapine, Serum or Plasma

2003118, QUETIAP

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. Also acceptable: Lavender (K 2~~K2~~ or K 3 EDTA~~K3EDTA~~) or pink (K 2~~K2~~ EDTA). |
| Specimen Preparation: | Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). |
| Remarks: | |
| Stability: | Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 4 months |
| Methodology: | Quantitative Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Wed |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 80342 (Alt code: G0480) |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration.~~Quetiapine is an antipsychotic drug indicated for the treatment of schizophrenia and bipolar disorder.~~ The pharmacokinetics of quetiapine are influenced by drug-drug interactions that may inhibit or induce CYP3A4 metabolism. Adverse effects to quetiapine therapy may include somnolence, hypotension, dizziness, neuroleptic malignant syndrome, tardive dyskinesia, and~~fatigue, constipation,~~ weight gain.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA -certified laboratory and is intended for clinical purposes.

Reference Interval:

Effective Date: November 14, 2022

| | |
|---|---|
| Therapeutic Range: | 100-1000 ng/mL |
| Toxic: | Greater than 1000 ng/mL |

TEST CHANGE

# Factor XIII (F13A1) V34L Variant

2003220, FAC 13 MUT

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA), pink (K2EDTA), or yellow (ACD solution A or B). |
| Specimen Preparation: | Transport 3 mL whole blood. (Min: 1 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Frozen specimens in glass collection tubes. |
| Remarks: | |
| Stability: | Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month |
| Methodology: | Polymerase Chain Reaction (PCR) / Fluorescence Monitoring |
| Performed: | VariesMon, Thu |
| Reported: | 2-7 days |
| Note: | |
| CPT Codes: | 81400 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Background Information for Factor XIII (*F13A1*) V34L Variant:
Characteristics: The Factor XIII (*F13A1*) ), V34L sequence variant is a protective factor against pulmonary embolism, deep vein thrombosis, and myocardial infarction in Caucasians.? —;It may also have a slight protective effect against coronary artery disease. Limited data suggests the V34L sequence variant may also be associated with idiopathic spontaneous subconjunctival hemorrhage (SSH), but this finding has not been confirmed.
Allele Frequency: Caucasian 0.27, African American 0.17, American Indian 0.29, Asian 0.01.
Inheritance: Autosomal dominant.
Cause: Homozygosity or heterozygosity for *F13A1*; V34L
Variant Tested: *F13A1* c.103G>T; p.Val34Leu.
Clinical Sensitivity: Varies by ethnicity.
Methodology: Polymerase chain reaction and fluorescence monitoring.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Mutations in the *F13A1* or *F13B* genes, other than the V34L sequence variant, are not evaluated. Diagnostic errors can occur due to rare sequence variations.
The protective effect of the V34L sequence variant has not been established for ethnicities other

than Caucasian and may be altered by other genetic and nongenetic factors not assessed by this assay.

Reference Interval:

By report

## TEST CHANGE

# Protein C, Functional with Reflex to Protein C, Total and Protein S, Free with Reflex to Protein S, Total

2003386, PROT C/S R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). SpecialRefer to Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf for hemostasis/thrombosis specimen handling guidelines. |
| Specimen Preparation: | Transfer 4 mL platelet-poor plasma to an ARUP standard transport tube.Standard Transport Tube. (Min: 2 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20 Degrees C: 3 months, at -70 Degrees C: 6 months |
| Methodology: | Electromagnetic Mechanical Clot Detection / /Enzyme-Linked Immunosorbent Assay (ELISA) / /Microlatex Particle-Mediated Immunoassay |
| Performed: | Mon-Fri |
| Reported: | 1-5 days |
| Note: | If Protein C Functional is low, Protein C, Total Antigen will be added. If Protein S Free is low, Protein S Total Antigen will be added. Additional charges apply. |
| CPT Codes: | 85303; 85306; if reflexed add 85302; if reflexed, add 85305 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

| Test Number | Components | Reference Interval |
|---|---|---|
| | Protein C Functional | |
| | | Age: Reference Interval (%)<br>1-4 days: 17-53<br>5-29 days: 20-64<br>30-89 days: 21-65<br>90-179 days: 28-80<br>180-364 days: 37-81<br>1-6 years: 40-92<br>7-9 years: 70-142<br>10-11 years: 68-143<br>12-13 years: 66-162<br>14-15 years: 69-170<br>16-17 years: 70-171<br>18 years and older: 83-168 |
| | Protein S Ag Free | |
| | | Age: Male (%): Female (%)<br>1-89 days: 15-55: 15-55<br>90-179 days: 35-92: 35-92<br>180-364 days: 45-115: 45-115<br>1-5 years: 62-120: 62-120<br>6-9 years: 62-130: 62-130<br>10-17 years: 60-140: 60-140<br>18 years and older: 74-147: 55-123 |

## TEST CHANGE

von Willebrand Panel with Reflex to von Willebrand Multimeric Analysis

2003387, VW PANEL R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 3 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. Clotted. Nonfrozen~~Non-frozen~~ or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen ~~at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months~~ |
| Methodology: | Electrophoresis / ~~/~~Clotting / ~~/~~Microlatex Particle-Mediated Immunoassay / ~~/~~Platelet Agglutination |
| Performed: | Mon-Sat |
| Reported: | 1-11 days |
| Note: | If von Willebrand ristocetin cofactor (RCF) or von Willebrand factor antigen (vWF Ag) or Factor VIII is low, von Willebrand Multimeric Analysis testing will be added. If the ratio of RCF/vWF Ag is less than 0.7, vW Multimeric Analysis testing will be added. |
| CPT Codes: | 85240; 85246; 85245; if reflexed, add 85247 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Test Number | Components | Reference Interval |
|---|---|---|
| | Factor VIII, Activity | |
| | | Age: Reference Interval (%)<br>0-6 years: 56-191<br>7-9 years: 76-199<br>10-11 years: 80-209<br>12-13 years: 72-198<br>14-15 years: 69-237<br>16-17 years: 63-221<br>18 years and older: 56-191 |
| | von Willebrand Factor, Activity (RCF) | |
| | | Age: Reference Interval (%)<br>0-6 years: 51-215<br>7-9 years: 52-176<br>10-11 years: 60-195<br>12-13 years: 50-184<br>14-15 years: 50-203<br>16-17 years: 49-204<br>18 years and older: 51-215 |
| | von Willebrand Factor, Antigen | |
| | | Age: Reference Interval (%)<br>0-6 years: 52-214<br>7-9 years: 62-180<br>10-11 years: 63-189<br>12-13 years: 60-189<br>14-15 years: 57-199<br>16-17 years: 50-205<br>18 years and older: 52-214 |

# TEST CHANGE

## Antibiotic Level, Ceftazidime

2004886, ML CEFTAZ

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red. |
| Specimen Preparation: | Aseptically remove 2 mL serum to a sterile tube (ARUP supply #43115) and freeze. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. (Min: 1 mL) |
| Transport Temperature: | Frozen. |
| Unacceptable Conditions: | SST or Plasma. |
| Remarks: | Required information includes: time and date of collection, time of last dose, and list of all antibiotics that the patient is receiving or has received in the past 48 hours. |
| Stability: | Ambient: 2 hours; Refrigerated: 24 hours (local clients only); Frozen: 1 week |
| Methodology: | Bioassay |
| Performed: | Sun-Sat |
| Reported: | 2-3 days |
| Note: | Please include time of last dose, and list all antibiotics that the patient is receiving or has received in the past 48 hours. This information is essential for performing the test and subsequent physician interpretation of results. |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Normal peak serum concentration for ceftazidime is 42 ug~~u~~g/mL with a 500 mg IV dose, 69 ug~~u~~g/mL with a 1 g IV dose or 159-186 ug~~u~~g/mL with a 2 g IV dose. Trough serum concentration is not well established.

For bioassay measurements, the presence of other antimicrobial agents may interfere with the assay. Other factors that may influence antimicrobial levels include inherent differences among

patients and their underlying physical conditions as well as the dose and route of administration of the antimicrobial agent.

Reference Interval:

## TEST CHANGE

### Trichomonas vaginalis by Transcription-Mediated Amplification (TMA)

2005506, TVAG AMD

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | ~~MultiTest~~ Swab or ThinPrep Collection: Patient must be 14 years of age or older. |
| Collect: | Refer to "Sample Collection for the Diagnosis of STD" under Specimen Handling at www.aruplab.com for specific specimen collection and transport instructions.Vaginal specimen collected with pink swab from Aptima MultiTest Swab Collection kit (ARUP supply #55224 PK/50 or #55229 PK/10) available online through eSupply using ARUP Connect or contact Client Services at ~~(~~800~~-)~~ 522-2787. ~~Also acceptable:~~ Cervical specimen collected with blue swab from Aptima Unisex Swab Specimen Collection kit (ARUP supply #28907 PK/50 or #54555 PK/10)~~,~~ F~~f~~irst catch urine collected in sterile container then transferred to Aptima Urine tube Cervical~~or cervical~~ brush in ThinPrep Pap test collection kit. ~~Refer to "Sample Collection for the Diagnosis of STD" under Specimen Handling at www.aruplab.com for specific specimen collection and transport instructions.~~ |
| Specimen Preparation: | Swab: Place swab in Swab Specimen Transport Tube, break shaft off at scoreline then recap tube. Urine: Within 24 hours, transfer~~Transfer~~ 2 mL urine ~~within 24 hours~~ to Aptima Urine Specimen Transport Tube (ARUP supply #28908 PK/50 or #54556 PK/10). Liquid level must be between fill lines on tube. ThinPrep: Vortex ThinPrep PreservCyt solution and transfer 1 mL to an Aptima Specimen Transfer Tube (ARUP supply #42711). |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Large white swab included in Aptima Unisex Swab Specimen Collection kit is for preparatory cleaning of the endocervix and is unacceptable for testing. Specimens in any transport media other than indicated above. Specimen in swab transport media without a swab. |
| Remarks: | Specimen source required. |
| Stability: | MultiTest or Unisex Swab: Ambient: 2 months; Refrigerated: 2 months; Frozen: 1 year Aptima Urine Specimen Transport Tube: Ambient: 1 month; Refrigerated: 1 month; Frozen: 1 year Aptima Specimen Transfer Tube: Ambient: 2 weeks; |

| | |
|---|---|
| | Refrigerated: 1 month; Frozen: 1 year ThinPrep: Ambient: 1 month; Refrigerated: 1 month; Frozen: Unacceptable |
| Methodology: | Qualitative Nucleic Acid~~Transcription-Mediated~~ Amplification Test (NAAT) |
| Performed: | Sun-Sat<br>~~Mon, Wed, Fri~~ |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 87661 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

A negative result does not completely rule out infection with *T. vaginalis*.

Results should be interpreted in conjunction with other clinical data. ~~This test has not been validated for use with self-collected vaginal swab specimens from patients.~~

This test is intended for medical purposes only and is not valid for the evaluation of suspected sexual abuse or for other forensic purposes.

Reference Interval:

Negative.

ARUP LABORATORIES | A nonprofit enterprise of the University of Utah and its Department of Pathology

Effective Date: October 20, 2025

## TEST CHANGE

Factor XIII Activity

2006182, F13 A

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special~~Refer to~~ Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: ~~at -20 Degrees C or below: 1 month; Frozen at -70 Degrees C or below:~~ 3 months |
| Methodology: | Chromogenic Assay |
| Performed: | Tue |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 85290 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

Factor XIII Activity 69-143%

Deleted Cells

## TEST CHANGE

# Sexually Transmitted Disease Panel 1 by Transcription-Mediated Amplification

2006258, STD PANEL1

| Specimen Requirements: | |
|---|---|
| Patient Preparation: | ~~MultiTest~~ Swab or ThinPrep Collection: Patient must be 14 years of age or older. |
| Collect: | Refer to "Sample Collection for the Diagnosis of STD" under Specimen Handling at www.aruplab.com for specific specimen collection and transport instructions.Vaginal specimen collected with pink swab from Aptima MultiTest Swab Collection kit (ARUP supply #55224 PK/50 or #55229 PK/10) available online through eSupply using ARUP Connect or contact Client Services at ~~(~~800~~-~~) 522-2787. ~~Also acceptable:~~ Cervical specimen collected with blue swab from Aptima Unisex Swab Specimen Collection kit (ARUP supply #28907 PK/50 or #54555 PK/10)~~,~~ F~~f~~irst catch urine collected in sterile container and then transferred to Aptima Urine tube Cervical~~or cervical~~ brush in ThinPrep Pap test collection kit. ~~Refer to "Sample Collection for the Diagnosis of STD" under Specimen Handling at www.aruplab.com for specific specimen collection and transport instructions.~~ |
| Specimen Preparation: | Swab: Place swab in Swab Specimen Transport Tube, break shaft off at scoreline then recap tube. Urine: Within 24 hours, transfer~~Transfer~~ 2 mL urine ~~within 24 hours~~ to Aptima Urine Specimen Transport Tube (ARUP supply #28908 PK/50 or #54556 PK/10). Liquid level must be between fill lines on tube. ThinPrep: Vortex ThinPrep PreservCyt solution and transfer 1 mL to an Aptima Specimen Transfer Tube (ARUP supply #42711). |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Large white swab included in Aptima Unisex Swab Specimen Collection kit is for preparatory cleaning of the endocervix and is unacceptable for testing. Specimens in any transport media other than indicated above. Specimen in swab transport media without a swab. |
| Remarks: | Specimen source is required. |
| Stability: | MultiTest or Unisex Swab: Ambient: 2 months; Refrigerated: 2 months; Frozen: 1 year Aptima Urine Specimen Transport Tube: Ambient: 1 month; Refrigerated: 1 month; Frozen: 3 months Aptima Specimen Transfer Tube: Ambient: 2 weeks; |

| | |
|---|---|
| | Refrigerated: 1 month; Frozen: 1 year ThinPrep: Ambient: 1 month; Refrigerated: 1 month; Frozen: Unacceptable |
| Methodology: | Qualitative Nucleic Acid~~Transcription-Mediated~~ Amplification Test (NAAT) |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 87491; 87591; 87661 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Refer to report.

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | C. trachomatis by TMA | Negative |
| | N. gonorrhoeae by TMA | Negative |
| | T. vaginalis by TMA | Negative |

TEST CHANGE

# Fibrin/Fibrinogen Degradation Split Products, Plasma

2006491, FDP PLASMA

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~Lt. blue (sodium citrate).~~ |
| Specimen Preparation: | Transfer 1 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA plasma, clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 8 hours; Refrigerated: Unacceptable; Frozen: 3 months~~1 month at -20 Degrees C, 1 year at -70 Degrees C.~~ |
| Methodology: | Latex Agglutination |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 85362 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |
| <5 ug~~µg~~/mL | |

## TEST CHANGE

# Thyroglobulin by LC-MS/MS, Serum or Plasma

2006550, THYROG MS

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube or green (sodium or lithium heparin), potassium EDTA |
| Specimen Preparation: | Separate serum or plasma from cells within 2 hours of collection. Transfer~~: Transport~~ 1.5 mL serum or plasma to an ARUP standard transport tube.~~.~~ (Min: 0.7 mL) |
| Transport Temperature: | Refrigerated or frozen. |
| Unacceptable Conditions: | Samples left ambient for greater than 1 day; grossly lipemic samples. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 1 day; Refrigerated: 1 week; Frozen: 1 year |
| Methodology: | High Performance Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Mon, Wed, Thu, Sat |
| Reported: | 2-6 days |
| Note: | |
| CPT Codes: | 84432 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Lower limit of detection for thyroglobulin by LC-MS/MS is 0.5 ng/mL.

Reference Interval:

| Age | Reference Interval |
|---|---|
| 6 months - 3 years | 7.4 - 48.7 ng/mL |
| 4 - 7 years | 4.1 - 40.5 ng/mL |
| 8 - 17 years | 0.8 - 29.4 ng/mL |
| 18 years and | 1.3 - 31.8 ng/mL |

| | |
|---|---|
| older | |

## TEST CHANGE

BRAF V600E Mutation Detection in Hairy Cell Leukemia by Real-Time PCR, Quantitative

2007132, BRAF HCL

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Whole blood or bone marrow in lavender (EDTA). |
| Specimen Preparation: | Whole Blood: Do not freeze. Transport 5 mL whole blood. (Min: 1 mL) Bone Marrow: Transport 3 mL bone marrow. (Min: 1 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Plasma, serum, FFPE tissue blocks/slides, or frozen tissue. Specimens collected in anticoagulants other than EDTA or sodium heparin. Clotted or grossly hemolyzed specimens. |
| Remarks: | |
| Stability: | Refrigerated: 7 days; Frozen: Unacceptable |
| Methodology: | Polymerase Chain Reaction (PCR) |
| Performed: | Varies |
| Reported: | 4-10 days |
| Note: | |
| CPT Codes: | 81210 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

HOTLINE NOTE: There is a component change associated with this test. One or more components have been added or removed. Refer to the Hotline Test Mix for interface build information.

## TEST CHANGE

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

2007443, RPR REV

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube (SST). |
| Specimen Preparation: | Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL). Avoid freezing if possible. |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, grossly hemolyzed, grossly lipemic, plasma, CSF, cord blood, or other body fluids. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles) |
| Methodology: | Semi-Quantitative Particle Agglutination |
| Performed: | Sun-Sat |
| Reported: | 1-4 days |
| Note: | If RPR is reactive, then a titer to endpoint will be added. If RPR is nonreactive, a TP-PA (MHA) confirmation will be added. Additional charges apply. |
| CPT Codes: | 86592 RPR; if reflexed, add (nonreactive) TP-PA 86780 or (reactive) 86593 RPR titer |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

| Component | Interpretation |
|---|---|
| Rapid Plasma Reagin (RPR) | RPR (+) = Reactive RPR (-) = Nonreactive |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Rapid Plasma Reagin (RPR) | Nonreactive~~Non Reactive~~ |
| | Rapid Plasma Reagin (RPR) | |
| | | Component Result: Rapid Plasma Reagin (RPR) — Interpretation: RPR (+) = Reactive RPR (-) = Nonreactive |

## TEST CHANGE

# Adenovirus by Qualitative PCR

2007473, ADENOPCR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA), pink (K2EDTA), serum separator tube, or urine. Also acceptable: Bronchoalveolar lavage (BAL), CSF, nasopharyngeal swab, sputum, or tissue. |
| Specimen Preparation: | Do not freeze whole blood specimens. Transfer 1 mL whole blood, serum, plasma, BAL, CSF, ~~or~~ sputum, or urine to a sterile container. (Min: 0.5 mL) Swabs: Transfer to viral transport media?( ~~(~~ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. Tissue: Transfer to a sterile container and freeze immediately. |
| Transport Temperature: | Whole blood: Refrigerated. All others: Frozen. |
| Unacceptable Conditions: | Heparinized specimens, tissues in optimal cutting temperature compound. |
| Remarks: | Specimen source required. |
| Stability: | Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months Urine: Ambient: 3 days; Refrigerated: 14 days; Frozen: 14 days. All others: Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 year |
| Methodology: | Qualitative Real-Time Polymerase Chain Reaction |
| Performed: | Sun-Sat |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 87798 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

Reference Interval:

| Test | Components | Reference Interval |
|---|---|---|

| Number | | |
|---|---|---|

ARUP LABORATORIES | *A nonprofit enterprise of the University of Utah and its Department of Pathology*

Effective Date: October 20, 2025

## TEST CHANGE

### Aripiprazole and Metabolite, Serum or Plasma

2007945, ARIPIPRAZO

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Pre-dose (trough) draw?-? - At steady state concentration. |
| Collect: | Plain Red. Also acceptable: Lavender (EDTA) or Pink (K 2 EDTAK2EDTA). |
| 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) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). |
| Remarks: | |
| Stability: | Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 weeks |
| Methodology: | Quantitative Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Wed, Sat |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 80342 (Alt code: G0480) |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects to aripiprazole therapy may include headache, nausea, somnolence, and blurred vision.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA -certified laboratory and is intended for clinical purposes.

Reference Interval:

| Test Number~~Effective June 7, 2021~~ | | Components | Reference Interval | |
|---|---|---|---|---|
| ~~Therapeutic Range (Aripiprazole and Dehydroaripiprazole)~~ | ~~150-500 ng/mL~~ | Total Aripiprazole and Metabolite S/P | | |
| ~~Toxic range (Aripiprazole and Dehydroaripiprazole)~~ | ~~Greater than or equal to 1000 ng/mL~~ | | | |
| | | | | |
| | | Total Aripiprazole and Metabolite S/P | | |
| | | | Therapeutic Range: | 150-350 ng/mL |
| | | | Toxic: | Greater than or equal to 1000 ng/mL |

Inserted Cells

Inserted Cells

## TEST CHANGE

# RBC Band 3 Protein Reduction in Hereditary Spherocytosis

2008460, RBC BAND3

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA) or green (sodium or lithium heparin). |
| Specimen Preparation: | Transport 4 mL whole blood in the original container. (Min: 0.5 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Clotted or grossly hemolyzed specimens, ambient samples >3 days, refrigerated samples >. ~~Specimens older than~~ 7 days, bone marrow. |
| Remarks: | Specimens must be analyzed within 7 days of collection. |
| Stability: | Ambient: 3 days; Refrigerated: 7 days; Frozen: Unacceptable |
| Methodology: | Qualitative Flow Cytometry |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 88184 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

This test can be used to confirm a suspected diagnosis of hereditary spherocytosis (HS). HS is a common inherited hemolytic anemia characterized by the presence of spherical erythrocytes (spherocytes). HS is diagnosed based on family history and clinical features, along with clinical laboratory tests, including peripheral smear examination, osmotic fragility (OF), flow cytometry, or by genetic testing (Hereditary Hemolytic Anemia Panel Sequencing,?, ~~-~~ARUP test code 2012052).

Band 3 (or solute carrier family 4 member 1, SLC4A1) is the most abundant transmembrane protein found in human red blood cells (RBC). Eosin-5-maleimide (EMA) dye binds to band 3 on intact RBC's. A reduction of fluorescence intensity will be seen in hereditary spherocytosis. This test by flow cytometry has been reported to have a sensitivity of 93 percent for a diagnosis of HS. Congenital dyserythropoietic anemia type II, Southeast Asian ovalocytosis, and hereditary pyropoikilocytosis are rare disorders that may also show a positive result.

Reference Interval:

Normal

## TEST CHANGE

# Histoplasma Galactomannan Antigen Quantitative by EIA, Urine

2009418, HISTOGM U

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Random urine. |
| Specimen Preparation: | Transfer 2 mL urine to an ARUP Standard Transport Tube~~standard transport tube~~. |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Specimens other than urine. Urine in boric acid. Serum; refer to test Histoplasma Antigen by EIA, Serum (ARUP test code 0092522). |
| Remarks: | |
| Stability: | Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 2 weeks |
| Methodology: | Quantitative Enzyme Immunoassay (EIA) |
| Performed: | Sun-Sat |
| Reported: | 1-2 days |
| Note: | |
| CPT Codes: | 87385 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Less than 0.4 ng/ml?=? ~~=~~Not Detected
0.4-0.7 ng/mL?=? ~~=~~Detected (below the limit of quantification)
0.8-24.0 ng/mL?=? ~~=~~Detected
Greater than 24.0 ng/mL?=? ~~=~~Detected (above the limit of quantification)

The quantitative range of this assay is 0.8-24.0 ng/mL. Antigen concentrations between 0.4-0.7 or?> ~~>~~24.0 ng/mL fall outside the linear range of the assay and cannot be accurately quantified.

This EIA test should be used in conjunction with other diagnostic procedures, including microbiological culture, histological examination of biopsy samples, and/or radiographic evidence, to aid in the diagnosis of histoplasmosis.
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Reference Interval:

Not Detected

HOTLINE NOTE: There is a result type change associated with this test. The result type has changed from non-numeric to numeric or vice versa. Refer to the Hotline Test Mix for interface build information.

HOTLINE NOTE: There is a numeric map change associated with this test. Refer to the Hotline Test Mix for interface build information.

## TEST CHANGE

# Platelet Surface Glycoprotein Expression (PGE) by Flow Cytometry, Whole Blood

2013070, PGE

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA), pink (K2EDTA~~K2 EDTA~~), or yellow (ACD s~~S~~olution B). |
| Specimen Preparation: | Transport 4 mL whole blood. (Min: 0.1 mL) |
| Transport Temperature: | Room temperature or refrigerated. |
| Unacceptable Conditions: | Clotted, hemolyzed, or frozen specimens; specimens older than 72 hours. |
| Remarks: | |
| Stability: | EDTA: Ambient: 72 hours; Refrigerated: 72 hours; Frozen: Unacceptable ACD solution B: Room temperature~~Ambient~~: 72 hours; Refrigerated: 72 hours~~Unacceptable~~; Frozen: Unacceptable |
| Methodology: | Qualitative Flow Cytometry |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 86022 x3 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Refer to report. ~~Refer to report.~~

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

Normal

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Effective Date: October 20, 2025

## TEST CHANGE

### Clozapine and Metabolites, Serum or Plasma, Quantitative

2013433, CLOZAP SP

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Timing of specimen collection: Predose(trough) draw?-?~~-~~at steady?-~~-~~state concentration. |
| Collect: | Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA). |
| Specimen Preparation: | Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube.(Min: 0.5 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 3 months |
| Methodology: | Quantitative Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Sun-Sat |
| Reported: | 1-5 days |
| Note: | |
| CPT Codes: | 80159 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The ~~Therapeutic ranges are not well established. Clozapine is metabolized to norclozapine and clozapine-N-oxide. Clozapine concentrations between 100 and 700 ng/mL may correlate more with clinical response; however, nonresponsiveness may also occur within this range. For refractory schizophrenia, clozapine concentrations greater than 350 ng/mL are suggested to achieve a~~ therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration.~~response.~~

~~Toxicity:~~ Adverse effects to clozapine therapy may include tachycardia, hematologic disorders, neuroleptic malignant syndrome, elevation of liver enzymes, ~~drowsiness, hypotension, and~~

seizures, and tardive dyskinesia. ~~.~~

Therapeutic and toxic ranges are not well established in children.
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

Reference Interval:

| Test Number | ~~Therapeutic Range~~ ~~Toxic Level~~ | ~~Not well established~~ ~~Total Clozapine and Metabolites: Greater than or equal to 1500 ng/mL~~ | Components | Reference Interval | |
|---|---|---|---|---|---|
| | | | Clozapine-N-Oxide, S/P, Quant | Therapeutic and toxic ranges are not well established | |
| | | | Norclozapine, S/P, Quant | Therapeutic and toxic ranges are not well established | |
| | | | Clozapine, S/P, Quant | | |
| | | | | Therapeutic Range: | 350-600 ng/mL |
| | | | | Toxic: | Greater than or equal to 1000 ng/mL |

Deleted Cells
Inserted Cells
Inserted Cells

## TEST CHANGE

# B-Lymphoblastic Leukemia (B-ALL) Minimum Residual Disease Detection by Flow Cytometry

3000724, B-ALL MRD

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Bone marrow aspirate or whole~~. Whole~~ blood: g~~G~~reen (sodium heparin) or lavender (EDTA). |
| Specimen Preparation: | Transport 2 mL heparinized bone marrow aspirate (Min: 1.0 mL) OR 3 mL whole blood (Min: 1.0 mL) |
| Transport Temperature: | Room temperature. Also acceptable: Refrigerated. Specimen should be received within 24 hours of collection for optimal cell viability. |
| Unacceptable Conditions: | Clotted or hemolyzed specimens. |
| Remarks: | Provide specimen source, CBC, Wright-stained smear (if available), clinical history, differential diagnosis. Follow up: If previous leukemia/lymphoma phenotyping was performed at another lab, the outside flow cytometry report and histograms (if possible) should accompany the specimen. |
| Stability: | Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable |
| Methodology: | Flow Cytometry |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | This assay is a minimal residual disease assessment of B-ALL by flow cytometry. Available markers*: CD3, CD9, CD10, CD13, CD19, CD20, CD33, CD34, CD38, CD45, CD58, CD71, Syto 16, CD66b, CD24, CD22 *Not all markers will be reported in all cases. The report will include a pathologist interpretation and a marker interpretation range corresponding to CPT codes of 2-8 markers or 9-15 markers interpreted. Charges apply per marker. |
| CPT Codes: | 88184; 88185 each additional marker; 88187 or 88188. |
| New York DOH Approval Status: | Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible. |

| Interpretive Data: |
| --- |
| Refer to report. |
| Reference Interval: |
| By Report |

## TEST CHANGE

# Multiple Myeloma Minimum Residual Disease by Flow Cytometry

3002069, MM MRD

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Bone marrow aspirate in green (sodium heparin) or lavender (EDTA). |
| Specimen Preparation: | Transport 5 mL bone marrow aspirate. (Min: 1 mL) Do not freeze. |
| Transport Temperature: | Room temperature. Also acceptable: Refrigerated. Specimen should be received within 24 hours of collection for optimal cell viability. |
| Unacceptable Conditions: | |
| Remarks: | |
| Stability: | Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable |
| Methodology: | Flow Cytometry |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 88184; 88185 x9; 88188 |
| New York DOH Approval Status: | Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

## TEST CHANGE

Chromogenic Factor VIII, Activity

3002343, CHROM F8

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Light blue (sodium citrate~~Blue (Sodium Citrate~~). Special Specimen Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://www.aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf |
| Specimen Preparation: | Transfer 1 mL platelet-poor plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.8 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum or EDTA plasma. Clotted or hemolyzed specimens. |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen~~ at -20 Degrees C~~: 3 months~~; Frozen at -70 Degrees C: 6 months New York State Clients: Ambient: 4 hours; Refrigerated: 4 hours; Frozen: 2 weeks~~ |
| Methodology: | Chromogenic Assay |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 85240 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Information on the clinical uses of chromogenic FVIII activity testing can be found at arupconsult.com.

Reference Interval:

| Age | Reference Interval |
|---|---|
| 0-6 years | 56-191 percent |
| 7-9 years | 76-199 percent |
| 10-11 years | 80-209 percent |
| 12-13 years | 72-198 percent |
| 14-15 years | 69-237 percent |
| 16-17 years | 63-221 percent |
| 18 years and older | 56-191 percent |

# TEST CHANGE

## SARS-CoV-2 (COVID-19) by NAA

3002638, COVID19NAA

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | ~~Saliva: Patients should not eat or drink for 30 minutes prior to providing a saliva sample.~~ |
| Collect: | Nasopharyngeal or ~~swab, oropharyngeal swab,~~ nasal swab~~, or saliva~~. |
| Specimen Preparation: | Place swab~~Nasopharyngeal, oropharyngeal, or nasal swab: Place~~ in viral transport media (ARUP supply #12884) available online through eSupply using ARUP Connect or contact ARUP Client Services at 800-522-2787.~~?~~ ~~Place~~ each specimen in an individually sealed bag.~~ Saliva: Transport in COVID-19 ARUP Transport Media (ATM) Saliva Collection Tube (ARUP supply #56257) available online through eSupply using ARUP Connect or contact ARUP Client Services at 800-522-2787.~~ |
| Transport Temperature: | Frozen |
| Unacceptable Conditions: | Saliva. Undiluted saliva. ~~Saliva submitted in anything other than the ARUP Saliva Collection Tube.~~ Swabs not in media. Wood swabs, calcium alginate swabs. Specimens in glass tubes. |
| Remarks: | Specimen source required. |
| Stability: | Swabs: Ambient: 2 days; Refrigerated: 3~~2~~ days; Frozen: 30~~1 month Saliva: Ambient: 5 days; Refrigerated: 5 days, Frozen: 5~~ days |
| Methodology: | Qualitative Nucleic Acid Amplification Test (NAAT~~(NAA~~) |
| Performed: | Sun-Sat |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 87635 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| This test should be ordered for the detection of the 2019 novel coronavirus SARS-CoV-2 in | |

individuals who meet SARS-CoV-2 clinical and/or epidemiological criteria.

~~The Coronavirus SARS-CoV-2 (COVID-19) by nucleic acid amplification test is for in vitro diagnostic use under the FDA Emergency Use Authorization (EUA) for U.S. laboratories certified under CLIA to perform high complexity tests. This test has not been FDA cleared or approved. In compliance with this authorization, please visit https://www.aruplab.com/infectious-disease/coronavirus for more information and to access the applicable information sheets.~~

Not Detected results do not rule out the presence of PCR inhibitors in the patient specimen or assay-specific nucleic acid in concentrations below the level of detection by the assay.

Detected results are indicative of the presence of SARS-CoV-2 RNA. Due to the complexity of nucleic acid amplification methodologies, there may be a risk of false-positive results. Clinical correlation with patient history and other diagnostic information is necessary to determine patient infection status.

Reliable results are dependent on adequate specimen collection, transport, storage, and handling.

Reference Interval:

## TEST CHANGE

Apixaban Level

3004090, APIX

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special Collection and~~Refer to Specimen~~ Handling Hemostasis/Thrombosis Specimens guide located at https://aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transport 2 mL platelet-poor plasma. (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when additional tests are ordered. |
| Unacceptable Conditions: | Serum. EDTA, oxalate, heparin, or plasma separator tubes, hemolyzed specimens. |
| Remarks: | This test cannot be used to quantitate anticoagulants other than apixaban (Eliquis).~~Apixaban.~~ This includes but is not limited to unfractionated heparin, low molecular weight heparin, rivaroxaban~~Unfractionated Heparin, Low Molecular Weight Heparin, Rivaroxaban~~ (Xarelto), e~~E~~doxaban (Savaysa), and f~~F~~ondaparinux (Arixtra). |
| Stability: | After separation from cells: Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 1 month~~ New York State Clients: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 42 days~~ |
| Methodology: | Chromogenic Assay |
| Performed: | Tue |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

When 5 mg apixaban was administered twice daily for treatment of DVT and PE, apixaban steady state levels were as follows:
Peak: 59-302 ng/mL
Trough: 22-177 ng/mL
The lower limit of detection for this assay is 23 ng/mL.
For additional information, please refer to www.arupconsult.com

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

Not established

## TEST CHANGE

Rivaroxaban Level

3004094, RIVAROX

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lt. blue (sodium citrate). Special Collection and~~Refer to Specimen~~ Handling Hemostasis/Thrombosis Specimens guide located at https://aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf ~~for hemostasis/thrombosis specimen handling guidelines.~~ |
| Specimen Preparation: | Transport 2 mL platelet-poor plasma. (Min: 1 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when additional tests are ordered |
| Unacceptable Conditions: | Serum. EDTA, oxalate, heparin, or plasma separator tubes, hemolyzed specimens. |
| Remarks: | This test cannot be used to quantitate anticoagulants other than rivaroxaban (Xarelto).~~Rivaroxaban.~~ This includes but is not limited to unfractionated heparin, low molecular weight heparin, apixaban~~Unfractionated Heparin, Low Molecular Weight Heparin, Apixaban~~ (Eliquis), e~~E~~doxaban (Savaysa), and f~~F~~ondaparinux (Arixtra). |
| Stability: | After separation from cells: Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 1 month~~ New York State Clients: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 42 days~~ |
| Methodology: | Chromogenic Assay |
| Performed: | Tue |
| Reported: | 1-8 days |
| Note: | |
| CPT Codes: | 80299 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

When 20 mg rivaroxaban was administered daily for treatment of DVT and PE, rivaroxaban steady state levels were as follows:
Peak: 189-419 ng/mL
Trough: 6-87 ng/mL
The lower limit of detection for this assay is 25 ng/mL.
For additional information, please refer to For additional information, please refer to www.arupconsult.com

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

Not established

## TEST CHANGE

# MLH1 Promoter Methylation

3004308, MLH1 PCR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Tumor tissue. |
| Specimen Preparation: | Tumor Tissue: Formalin fix (10 percent neutral buffered formalin) and paraffin embed tissue. Protect from excessive heat. Transport tissue block or 5 unstained 5-micron slides. Transport block and/or slide(s) in a tissue transport kit (ARUP Supply #47808) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. |
| Transport Temperature: | Room temperature. Also Acceptable: Refrigerated. Ship in cooled container during summer months. |
| Unacceptable Conditions: | Less than 25 percent tumor. Specimens fixed in any fixative other than 10 percent neutral buffered formalin. Bone specimens submitted in non-EDTA decalcifier. |
| Remarks: | Include surgical pathology report. If multiple specimens (blocks or slides) are sent to ARUP, they must be accompanied by one of the following: an order comment indicating that the ARUP pathologist should choose the specimen most appropriate for testing (e.g., "Choose best block"), or individual orders for each sample submitted. A Pathologist Block Selection Fee (ARUP test code 3002076) will be added to orders that utilize the first option. If multiple specimens are sent to ARUP without a request for pathologist block/slide selection or individual orders, they will be held until clarification is provided. |
| Stability: | Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable |
| Methodology: | Real-Time Polymerase Chain Reaction / ~~/~~Fluorescence Resonance Energy Transfer (FRET) |
| Performed: | Varies |
| Reported: | 7-12 days |
| Note: | |
| CPT Codes: | 81288 |

| | |
|---|---|
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

HOTLINE NOTE: There is a component change associated with this test. One or more components have been added or removed. Refer to the Hotline Test Mix for interface build information.

## TEST CHANGE

# Kratom, Umbilical Cord, Qualitative

3005874, KRA QQQ CD

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Umbilical cord (at least 8 inches, approximately the width of a sheet of paper) |
| Specimen Preparation: | Drain and discard any blood. Rinse the exterior of the cord segment with normal saline or water. Pat the cord dry and transport at least 8 inches of umbilical cord in a routine urine collection cup or Security Kit for Meconium/Umbilical Drug Detection (ARUP supply #51548) available online through eSupply using ARUP Connect~~?~~ or by contacting ARUP Client Services at 800-522-2787. (Min: 6 inches) |
| Transport Temperature: | Refrigerated |
| Unacceptable Conditions: | Cords soaking in blood or other fluid. Formalin fixed. Tissue that is obviously decomposed. |
| Remarks: | |
| Stability: | Ambient: 1 week; Refrigerated: 3 weeks; Frozen: 1 year |
| Methodology: | Qualitative Liquid Chromatography-Tandem Mass Spectrometry |
| Performed: | Wed |
| Reported: | 1~~8~~-9 days |
| Note: | Absolute minimum: 6 inches. |
| CPT Codes: | 80323 (Alt code: G0480) |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Methodology: Qualitative Liquid Chromatography-Tandem Mass Spectrometry

This test is designed to detect and document exposure to alkaloids found in kratom, an herbal product derived from the Mitragyna speciosa tree or related plants, that occurred during approximately the last trimester of a full-term pregnancy. While mitragynine is considered the primary pharmacologically active alkaloid, speciociliatine is also widely detected in umbilical cord tissue. Regular use of or exposure to kratom can lead to dependency, and abstinence may

contribute to signs and symptoms of drug withdrawal. Alternative testing is available to detect other drug exposures. The pattern and frequency of kratom used by the mother cannot be determined by this test. A negative result does not exclude the possibility that a mother used kratom during pregnancy. Detection of kratom alkaloids in umbilical cord tissue depends on extent of maternal use, as well as stability, unique characteristics of alkaloid deposition in umbilical cord tissue, and the performance of the analytical method. Detection of kratom alkaloids in umbilical cord tissue does not insinuate impairment and may not affect outcomes for the infant. Interpretive questions should be directed to the laboratory.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Mitragynine, Cord, Qual | |
| | | Cutoff Concentrations (ng/g)<br>0.08 |
| | Speciociliatine, Cord, Qual | |
| | | Cutoff Concentrations (ng/g)<br>0.08 |

ARUP LABORATORIES | A nonprofit enterprise of the University of Utah and its Department of Pathology

Effective Date: October 20, 2025

## TEST CHANGE

Angelman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA

3006247, AS-PWS DD

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Lavender (EDTA), pink (K2EDTA)<br>~~For Nonfetal Specimens: Lavender (EDTA), pink (K2EDTA) For Fetal Specimens: Two T-25 flasks at 80 percent confluent of cultured amniocytes AND Maternal Whole Blood Specimen: Lavender (EDTA), pink (K2EDTA), or yellow (ACD solution A) Fetal Specimens will require MCC-FETAL testing to be added on by ARUP, and additional charges will apply.~~ |
| Specimen Preparation: | Transport 3 mL whole blood (Min: 1mL)<br>~~For Nonfetal Specimens: Transport 3 mL whole blood (Min: 1mL) For Fetal Specimens: Cultured Amniocytes: Fill flasks with culture media. Transport two T-25 flasks at 80 percent confluent of cultured amniocytes filled with culture media. Backup cultures must be retained at the client's institution until testing is complete. If ARUP receives a sample below the minimum confluence, CG GRW&SND (0040182) will be added on by ARUP, and additional charges will apply. If clients are unable to culture specimens, CG GRW&SND should be added to initial order. Maternal Whole Blood Specimen: Transport 3 mL whole blood (Min: 1 mL)~~ |
| Transport Temperature: | ~~For Nonfetal Specimens:~~ Whole Blood: Refrigerated. ~~Also acceptable: Ambient. For Fetal Specimens: Cultured Amniocytes: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to viability Maternal Whole Blood Specimen: Refrigerated.~~ Also acceptable: Ambient. |
| Unacceptable Conditions: | ~~For Nonfetal Specimens:~~ Transfused whole blood, severely hemolyzed whole blood, heparinized whole blood, frozen whole blood. |
| Remarks: | ~~New York State Clients: Informed consent is required with submission.~~ |
| Stability: | ~~For Nonfetal Specimens:~~ Whole Blood: Room temperature: 1 week; Refrigerated: 1 month; Frozen: unacceptable. ~~For Fetal Specimens: Cultured Amniocytes: Room temperature: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable Maternal Whole Blood Specimen: Room temperature: 1 week; Refrigerated: 1 month; Frozen: Unacceptable.~~ |

| | |
|---|---|
| Methodology: | ~~Qualitative /~~Methylation-Specific Multiplex Ligation-Dependent Probe Amplification (MS-MLPA) |
| Performed: | Varies |
| Reported: | 12-14 days |
| Note: | |
| CPT Codes: | 81331~~; for fetal specimens add 81265~~ |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Refer to report. ~~BACKGROUND INFORMATION: Angleman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA~~

~~Characteristics of Angelman Syndrome (AS): Developmental delays by 6-12 months of age, seizures, microcephaly, movement or balance disorder, minimal or absent speech, and a distinctive behavioral phenotype, which includes a happy demeanor with frequent laughter, hand flapping, and excitability.~~
~~Characteristics of Prader-Willi Syndrome (PWS): Neonatal hypotonia, hyperphagia, obesity, global developmental delay, mild intellectual disability, hypogonadism, and a distinctive behavioral phenotype, which includes temper tantrums, stubbornness, manipulative behavior, and obsessive-compulsive behavior.~~
~~Prevalence: 1 in 15,000 for AS; 1 in 15,000 for PWS.~~
~~Inheritance: Varies, depending on the molecular genetic mechanism.~~
~~Cause: AS: Absence of maternal expression of the UBE3A gene. PWS: Absence of the paternally contributed PWS/AS critical region of chromosome 15q11.2-q13.~~
~~Molecular Genetic Mechanisms: AS: Microdeletions in the AS/PWS critical region (68 percent), UBE3A mutations (11 percent), paternal uniparental disomy of chromosome 15 (7 percent), imprinting center defects (3 percent), unbalanced chromosome translocation (less than 1 percent), and unknown (10 percent). PWS: Microdeletions in the PWS/AS critical region (70-75 percent), maternal uniparental disomy of chromosome 15 (25-29 percent), imprinting center defect or balanced chromosome translocation (less than 1 percent).~~
~~Clinical Sensitivity: PWS: Over 99 percent. AS: 80 percent.~~
~~Methodology: Methylation-specific multiplex ligation probe amplification (MLPA) of the AS/PWS critical region of chromosome 15q11.2-q13.~~
~~Analytical Sensitivity and Specificity: 99 percent for AS and PWS.~~
~~Limitations: Disease mechanisms causing AS that do not alter methylation patterns will not be detected. Diagnostic errors can occur due to rare sequence variations. This assay is not validated to detect increased copy number of 15q11.2-q13 nor determine parent of origin for duplications. This assay cannot distinguish between uniparental disomy (UPD) or an imprinting defect for PWS or AS. AS and PWS mosaicism will not be assessed by this assay. Interpretation of this test result may be impacted if this patient has had an allogeneic stem cell transplantation. Methylation patterns may not be fully established in early gestation; thus, diagnostic testing on chorionic villus samples is not recommended.~~

Reference Interval:

By Report

Inserted Cells

## TEST CHANGE

# JAK2 (V617F) Mutation by ddPCR, Qualitative With Reflex to JAK2 Exon 12 -Mutation Analysis by PCR

3016840, PV REFLEX

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Whole blood or bone marrow in lavender (EDTA). |
| Specimen Preparation: | Whole Blood: Do not freeze. Transport 5 mL whole blood. (Min: 1 mL) Bone Marrow: Do not freeze. Transport 3 mL bone marrow. (Min: 1 mL) |
| Transport Temperature: | Refrigerated |
| Unacceptable Conditions: | Plasma, serum, FFPE tissue blocks/slides, or fresh or frozen tissue. Specimens collected in anticoagulants other than EDTA. Clotted or grossly hemolyzed specimens. |
| Remarks: | |
| Stability: | Refrigerated: 7 days; Frozen: Unacceptable |
| Methodology: | Droplet Digital PCR (ddPCR) |
| Performed: | Varies |
| Reported: | 3-12 days |
| Note: | If JAK2 qualitative is reported as "Not Detected," then JAK2 Exon 12- Mutation Analysis by PCR will be added. Additional charges apply. |
| CPT Codes: | 81270; if reflexed, add 81279 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

HOTLINE NOTE: There is a reflexive pattern change associated with this test. One or more orderable or component has been added or removed to the reflexive pattern. Refer to the Hotline Test Mix for interface build information.

## TEST CHANGE

Cortisol by LC-MS/MS, Salivary

3016866, CORT S TMS

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Collect 1 mL or more of saliva (fully saturated swab). Do not eat for 60 minutes prior to collecting specimen. Do not consume alcohol 12 hours prior to collecting specimen. Do not brush teeth or use toothpaste immediately before collecting specimen, as gums may bleed and contaminate specimen, causing a falsely elevated result. Do not use mouthwash products prior to sample collection. Avoid using lipstick, ChapStick, and other lip items prior to sample collection. Avoid use of exogenous sources of cortisol (e.g., topical or oral hydrocortisone) or similar products during collection to reduce contamination. Rinse mouth thoroughly with water 10 minutes before collecting specimen. Recommended collection time is generally between 11~~:00~~ p.m. and 1 a.m. Your healthcare provider may also require different or additional collection times. Be sure to clearly label each tube collected with correct date and time. Specimens visibly contaminated with blood, cellular debris, food particles, or mucus must be recollected. |
| Collect: | Saliva. Swab must be completely saturated to ensure sufficient volume for testing. |
| Specimen Preparation: | Transfer saturated swab to ~~plain (noncitric acid) cotton~~ Salivette collection device (ARUP Supply #52056). Collection should follow ARUP instructions provided with Salivette. Do not centrifuge salivette. Record the time of collection on the test request form and on the Salivette transport container. Full Salivette device must be returned: blue stopper, swab, insert, and tube. |
| Transport Temperature: | Refrigerated or frozen |
| Unacceptable Conditions: | Specimens not collected using the Salivette collection~~Salivettecollection~~ device. Sodium azide preservative. Specimens visibly contaminated with blood, cellular debris, food particles, or mucus. |
| Remarks: | |
| Stability: | Ambient: 1 week Refrigerated: 3 weeks Frozen: 6 months |
| Methodology: | Quantitative~~:~~ Mass Spectrometry |

| | |
|---|---|
| Performed: | Sun-Sat |
| Reported: | 1-4 days |
| Note: | |
| CPT Codes: | 82533 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Reference Intervals:

7 a.m. to 9 a.m.: 0.1-0.75 ug/dL

3 p.m. to 5 p.m.:?<:<0.401 ug/dL

11 p.m. to midnight:?<:<0.1 ug/dL

Reference Interval:

By report

NEW TEST

Click for Pricing

# 11Q Aberrations by FISH

3019126, 11Q FISH

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Tumor tissue. |
| Specimen Preparation: | Formalin fix (10 percent neutral buffered formalin) and paraffin-embed specimen. Protect paraffin block from excessive heat. Transport tissue block or 6 unstained (3-micron thick sections) positively charged slides in a tissue transport kit (ARUP supply #47808) available online through eSupply using ARUP ConnectTM or contact ARUP Client Services at 800-522-2787 (kit is recommended but not necessary). (Min: 3 slides) |
| Transport Temperature: | Room temperature or refrigerated. Ship in cooled container during summer months. |
| Unacceptable Conditions: | Specimens fixed or processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives (B-4 or B-5). No tumor in tissue. Decalcified specimens. |
| Remarks: | Include surgical pathology report. If multiple specimens (blocks or slides) are sent to ARUP, they must be accompanied by one of the following: an order comment indicating that the ARUP pathologist should choose the specimen most appropriate for testing (e.g., "Choose best block"), or individual orders for each sample submitted. A Pathologist Block Selection Fee (ARUP test code 3002076) will be added to orders that utilize the first option. If multiple specimens are sent to ARUP without a request for pathologist block/slide selection or individual orders, they will be held until clarification is provided. |
| Stability: | Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable |
| Methodology: | Fluorescence in situ Hybridization (FISH) |
| Performed: | Mon-Fri |
| Reported: | 3-7 days |
| Note: | |

| | |
|---|---|
| CPT Codes: | 88377 |
| New York DOH Approval Status: | Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |
| By report | |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# High-Grade B-Cell Lymphoma Reflex Panel by FISH, Tissue

3019135, HGBCL RFLX

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Tumor tissue. |
| Specimen Preparation: | Formalin fix (10 percent neutral buffered formalin) and paraffin-embed specimen. Protect paraffin block from excessive heat. Transport tissue block or 8 unstained (3-micron thick sections) positively charged slides in a tissue transport kit (ARUP supply #47808) available online through eSupply using ARUP ConnectTM or contact ARUP Client Services at 800-522-2787 (kit is recommended but not necessary). (Min: 4 slides) |
| Transport Temperature: | Room temperature or refrigerated. Ship in cooled container during summer months. |
| Unacceptable Conditions: | Specimens fixed or processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives (B-4 or B-5). No tumor in tissue. Decalcified specimens. |
| Remarks: | Include surgical pathology report. If multiple specimens (blocks or slides) are sent to ARUP, they must be accompanied by one of the following: an order comment indicating that the ARUP pathologist should choose the specimen most appropriate for testing (e.g., "Choose best block"), or individual orders for each sample submitted. A Pathologist Block Selection Fee (ARUP test code 3002076) will be added to orders that utilize the first option. If multiple specimens are sent to ARUP without a request for pathologist block/slide selection or individual orders, they will be held until clarification is provided. |
| Stability: | Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable |
| Methodology: | Fluorescence in situ Hybridization (FISH) |
| Performed: | Mon-Fri |
| Reported: | 3-7 days |
| Note: | If Aggressive B-Cell Lymphoma Reflex Panel by FISH is |

| | |
|---|---|
| | positive, then IGH-BCL2 Fusion, t(14;18) by FISH (ARUP test code 3001298) and BCL6 (3q27) Gene Rearrangement by FISH (ARUP test code 3001311) will be added. If Aggressive B-Cell Lymphoma Reflex Panel by FISH is negative, then 11q Aberrations by FISH (ARUP test code 3019126) will be added. Additional charges apply. |
| CPT Codes: | 88366; if reflexed, add 88366; 88377 |
| New York DOH Approval Status: | Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible. |
| Interpretive Data:<br>Refer to report. | |
| Reference Interval:<br>By report | |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# Prion Markers (CJD) in CSF

3019310, PRION

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | Patient must be 12 years of age or older. |
| Collect: | Cerebrospinal fluid (CSF) |
| Specimen Preparation: | The first 2 mL of CSF that flows from the tap should be discarded. Transfer 2 mL CSF to ARUP standard transport tubes or other polypropylene tubes, taking care to avoid blood contamination from the tap. Freeze at -20 within 20 minutes of collection. (Min: 1 mL) Test is not performed at ARUP; separate specimens must be submitted when multiple tests are ordered. |
| Transport Temperature: | CRITICAL FROZEN |
| Unacceptable Conditions: | |
| Remarks: | Send NPDPSC Test Request Form with Order. Cloudy or pink specimens may result in partial results for some components. Variable charges may apply. |
| Stability: | Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: Indefinitely |
| Methodology: | Quantitative Enzyme-Linked Immunosorbent Assay (ELISA) / Qualitative Real-Time Quaking-Induced Conversion |
| Performed: | Varies |
| Reported: | 12-22 days |
| Note: | Repeat testing should be collected no sooner than 2 weeks following last encounter. |
| CPT Codes: | 86317 x2; 0035U |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

By report

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST – Available Now

Click for Pricing

# von Willebrand Factor (VWF) GPIbM Activity

3019671, VWF_GPIBM

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Light blue (sodium citrate). Special Collection and Handling Hemostasis/Thrombosis Specimens guide located at https://aruplab.com/Specimen-Handling/SpecialSpecimenCollection/Hemostasis-Thrombosis.pdf |
| Specimen Preparation: | Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1.0 mL) |
| Transport Temperature: | CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. |
| Unacceptable Conditions: | Serum, EDTA plasma, clotted, or hemolyzed specimens |
| Remarks: | |
| Stability: | Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 3 months |
| Methodology: | Quantitative Immunoturbidimetry |
| Performed: | Sun-Sat |
| Reported: | 1-3 days |
| Note: | |
| CPT Codes: | 85397 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Reference Interval: | |

| Test Number | Components | Reference Interval | |
|---|---|---|---|
| | von Willebrand Factor, Activity (GPIbM) | | |
| | | Age | Reference Intervals (%) |
| | | 0-6 years | 51-215 |
| | | 7-9 years | 52-176 |
| | | 10-11 years | 60-195 |
| | | 12-13 years | 50-184 |
| | | 14-15 years | 50-203 |
| | | 16-17 years | 49-204 |
| | | 18 years and older | 51-215 |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# Angelman Syndrome and Prader-Willi Syndrome by Methylation-Specific MLPA, Fetal

3019803, AS-PWSDDFE

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Fetal Specimens: Two T-25 flasks at 80 percent confluent of cultured amniocytes AND Maternal Whole Blood Specimen: Lavender (EDTA), pink (K2EDTA), or yellow (ACD solution A) |
| Specimen Preparation: | Fetal Specimens: Cultured Amniocytes: Fill flasks with culture media. Transport two T-25 flasks at 80 percent confluent of cultured amniocytes filled with culture media. Backup cultures must be retained at the client's institution until testing is complete. If ARUP receives a sample below the minimum confluence, CG GRW&SND (0040182) will be added on by ARUP, and additional charges will apply. If clients are unable to culture specimens, CG GRW&SND should be added to initial order. Maternal Whole Blood Specimen: Transport 3 mL whole blood (Min: 1 mL) |
| Transport Temperature: | Fetal Specimens: Cultured Amniocytes: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to viability. Maternal Whole Blood Specimen: Refrigerated. Also acceptable: Ambient. |
| Unacceptable Conditions: | Frozen specimens in glass collection tubes. |
| Remarks: | |
| Stability: | Fetal Specimens: Cultured Amniocytes: Room temperature: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable Maternal Whole Blood Specimen: Room temperature: 1 week; Refrigerated: 1 month; Frozen: Unacceptable |
| Methodology: | Methylation-Specific Multiplex Ligation-Dependent Probe Amplification (MS-MLPA) |
| Performed: | Varies |
| Reported: | 12-14 days |
| Note: | |
| CPT Codes: | 81331; 81265 Fetal Cell Contamination (FCC) |

| | |
|---|---|
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

Refer to report.

Reference Interval:

By Report

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

## NEW TEST – Available Now

Click for Pricing

# Viral Hepatitis Prenatal Panel

3019856, VPRENATHEP

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube (SST). Also acceptable: Lavender (EDTA) or pink (K2EDTA). |
| Specimen Preparation: | Separate from cells ASAP or within 2 hours of collection. Transfer 3.5 mL serum or plasma to an ARUP standard transport tube (Min: 3.0 mL). This test requires a dedicated transport tube submitted only for VPRENATHEP testing. |
| Transport Temperature: | Frozen |
| Unacceptable Conditions: | Specimen: Body fluids other than serum or plasma. Condition: Heparinized plasma. Specimens containing particulate material or obvious microbial contamination. Heat-inactivated, severely hemolyzed, or lipemic specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 24 hours; Refrigerated: 6 days; Frozen: 2 months (avoid freeze/thaw cycles). |
| Methodology: | Qualitative Chemiluminescent Immunoassay (CLIA) / Quantitative Polymerase Chain Reaction (PCR) |
| Performed: | Sun-Sat |
| Reported: | 1-4 days |
| Note: | Order this test only for prenatal specimens. If results for HBsAg screen are reactive (=1.0), then HBsAg Confirmation, Prenatal will be added. Additional charges apply. If the anti-HCV screening result is low positive or high positive, the Hepatitis C Virus (HCV) by Quantitative NAAT will be added. Additional charges apply. For HBsAb, results greater than 1,000.00 IU/L are reported as greater than 1,000.00 IU/L. The HBcAb assay tests for IgG and IgM antibodies, but does not differentiate between them. This test requires a dedicated transport tube submitted only for VPRENATHEP testing. |
| CPT Codes: | 87340; 86803; 86706; 86704; if reflexed, add 87341; 87522 |

New York DOH Approval Status: This test is New York DOH approved.

Interpretive Data:

This test should not be used for blood donor screening, associated reentry protocols, or for screening human cells, tissues, and cellular- and tissue-based products (HCT/P).

| Components | Reference Interval |
|---|---|
| Hepatitis C Antibody by CIA Index | 0.79 IV or less: Negative 0.80 to 0.99 IV: Equivocal 1.00 to 10.99 IV: Low Positive 11.00 IV or greater: High Positive |
| Hepatitis B Surface Antibody | Less than 10.00 IU/L: Negative Greater than or equal to 10.00 IU/L: Positive |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | Hepatitis B Surface Antigen, Prenatal | Negative |
| | Hepatitis B Surface Antigen, Prenatal | |
| | | |
| | Hepatitis B Surface Antigen, Prenatal | |
| | | |
| | Hepatitis C Antibody by CIA Interp | Negative |
| | Hepatitis B Core Antibodies, Total | Negative |
| | Hepatitis B Surface Antibody | Negative |
| | Hepatitis B Surface Antibody | |
| | | Components: Interpretation<br>Less than 10.00 IU/L: Negative<br>Greater than or equal to 10.00 IU/L: Positive |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# Chimerism, Donor, Pretransplant Process and Hold

3019882, STR DON PR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Whole blood or bone marrow in lavender (EDTA), pink (K2EDTA), or yellow (ACD solution A or B). OR buccal brushes from recipient. |
| Specimen Preparation: | Transport 2 mL whole blood (Min: 1 mL), OR 1 mL bone marrow (Min: 1 mL) refrigerated, OR 2 buccal brushes (cytology brushes) in a sterile, dry tube ambient. (Min: 2 brushes) |
| Transport Temperature: | Whole blood: Refrigerated. Buccal brush: Ambient. |
| Unacceptable Conditions: | Plasma, serum |
| Remarks: | Posttransplant results will be compared to pretransplant recipient and donor genotypes;, donor and recipient specimens must be obtained and genotyped before the transplant event occurs. |
| Stability: | Whole Blood: Room temperature: 1 week; Refrigerated: 1 month; Frozen: Unacceptable Buccal Brush: Room temperature: 1 week |
| Methodology: | Quantitative Polymerase Chain Reaction (PCR) |
| Performed: | Sun-Sat |
| Reported: | Varies |
| Note: | Extract and hold. |
| CPT Codes: | NA |
| New York DOH Approval Status: | Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible. |
| Interpretive Data: | |

Reference Interval:

| Test | Components | Reference Interval |
|---|---|---|

| Number | | |
|---|---|---|

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

## NEW TEST – Available Now

Click for Pricing

# Bartonella henselae Antibody, IgG With Reflex to Endpoint Titer

3019908, HENS G R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube or plain red. |
| Specimen Preparation: | Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 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." |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, hemolyzed, or severely lipemic specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles) |
| Methodology: | Semi-Quantitative Indirect Fluorescent Antibody (IFA) |
| Performed: | Mon-Sat |
| Reported: | 1-5 days |
| Note: | If testing for Bartonella henselae Antibody, IgG With Reflex to Endpoint Titer is positive, then Bartonella henselae, Antibody, IgG Endpoint Titer will be added. Additional charges apply. |
| CPT Codes: | 86611; if reflexed add 86611 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

A low positive result suggests past exposure or infection, while a high positive result may indicate recent or current infection, but is inconclusive for diagnosis. Seroconversion between acute and convalescent sera is considered strong evidence of recent infection. The best evidence for infection is significant change on two appropriately timed specimens where both tests are done in the same laboratory at the same time.

| Component | Interpretation |
|---|---|
| Bartonella henselae Antibody, IgG with Reflex to Endpoint Titer | Negative - No significant level of Bartonella henselae IgG antibody detected. Equivocal - Questionable presence of Bartonella henselae IgG antibody detected. Repeat testing in 10-14 days may be helpful. Positive - Presence of IgG antibody to Bartonella henselae detected, suggestive of current or past infection. |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | B. henselae IgG Screen | Negative |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# Huntington Disease (HD) CAG Repeat Expansion, Fetal

3019937, HD PCR FE

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Amniotic fluid OR cultured amniocytes OR cultured CVS: Two T-25 flasks at 80 percent confluency. AND maternal whole blood: lavender (K2 or K3EDTA), pink (K2EDTA), yellow (ACD solution A or B). If the client is unable to culture, order test Cytogenetics Grow and Send (ARUP test code 0040182) in addition to this test and ARUP will culture upon receipt (culturing fees will apply). If you have any questions, contact ARUP's Genetics Processing at 800-522-2787 ext. 3301. |
| Specimen Preparation: | Amniotic fluid: Transport 10 mL amniotic fluid in a sterile container (min: 5 mL) OR cultured amniocytes OR cultured CVS: Fill flasks with culture media. Backup cultures must be retained at the client's institution until testing is complete. AND maternal whole blood: 2 mL whole blood (min: 1 mL). |
| Transport Temperature: | Amniotic fluid, cultured amniocytes, or cultured CVS: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to lability of cells. Maternal whole blood: Room temperature. |
| Unacceptable Conditions: | Maternal: Frozen specimens in glass collection tubes. |
| Remarks: | |
| Stability: | Fetal Specimen: Ambient 48 hours; Refrigerated: unacceptable; Frozen: Unacceptable Maternal whole blood: Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable |
| Methodology: | Polymerase Chain Reaction (PCR) / Capillary Electrophoresis / Fragment Analysis |
| Performed: | Varies |
| Reported: | 7-10 days |
| Note: | |
| CPT Codes: | 81271; 81265 Fetal Cell Contamination (FCC) |
| New York DOH Approval Status: | Specimens from New York clients will be sent out to a New |

York DOH approved laboratory, if possible.

| |
|---|
| Interpretive Data: |
| Refer to report. |
| Reference Interval: |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST – Available Now

Click for Pricing

# Trypanosoma cruzi Antibody, IgG Panel

3020058, CHAGAS PAN

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Plain red or serum separator tube. |
| 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: 0.5 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days of the acute specimens. Mark specimens plainly as "acute" or "convalescent." |
| Transport Temperature: | Refrigerated. Also acceptable: Room temperature or frozen. |
| Unacceptable Conditions: | Plasma. Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year |
| Methodology: | Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA) |
| Performed: | Mon, Wed, Fri |
| Reported: | 1-6 days |
| Note: | T. cruzi IgG , Recombinant Antigen assay is performed using the Wiener Chagatest ELISA recombinante v.3.0. T. cruzi IgG , Purified Antigen assay is performed using the Hemagen Chagas Kit. |
| CPT Codes: | 86753 x2 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |

According to the CDC, at least two different serologic tests should be used to make the laboratory diagnosis of chronic Chagas Disease, as no single serologic test is sufficiently sensitive and specific. If results between the two assays are discrepant, repeat testing or testing by a third method may be helpful.
This assay should not be used for blood donor screening or associated re-entry protocols, or for screening Human Cell and Cellular Tissue-Based Products (HCT/Ps).

| Component | Unit Of Measure | Interpretation |
|---|---|---|
| T. cruzi IgG, Recombinant Antigen | 0.8 S/Co or less<br>0.9 to 1.1 S/Co<br>1.2 S/Co or greater | Negative - No significant level of Trypanosoma cruzi IgG antibody detected.<br>Equivocal - Questionable presence of Trypanosoma cruzi IgG antibody detected. Repeat testing in 10-14 days may be helpful.<br>Positive - IgG antibodies to Trypanosoma cruzi detected which may suggest current or past infection. |
| T. cruzi IgG, Purified Antigen | 1.0 IV or less<br>1.1 IV 1.2 IV or greater | Negative - No significant level of Trypanosoma cruzi IgG antibody detected.<br>Equivocal - Questionable presence of Trypanosoma cruzi IgG antibody detected. Repeat testing in 10-14 days may be helpful.<br>Positive - IgG antibodies to Trypanosoma cruzi detected which may suggest current or past infection. |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | T. cruzi IgG, Recombinant Antigen | 0.8 S/Co or less |
| | Trypanosoma cruzi Antibody, IgG | 1.0 IV or less |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

## NEW TEST – Available Now

Click for Pricing

### Bartonella quintana Antibody, IgG With Reflex to Endpoint Titer

3020065, QUINT G R

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube. |
| Specimen Preparation: | Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 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. |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, hemolyzed, or severely lipemic specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles) |
| Methodology: | Semi-Quantitative Indirect Fluorescent Antibody (IFA) |
| Performed: | Mon-Sat |
| Reported: | 1-5 days |
| Note: | If testing for Bartonella quintana Antibody, IgG With Reflex to Endpoint Titer is positive, then Bartonella quintana, Antibody, IgG Endpoint Titer will be added. Additional charges apply. |
| CPT Codes: | 86611; if reflexed add 86611 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

A low positive result suggests past exposure or infection, while a high positive result may indicate recent or current infection, but is inconclusive for diagnosis. Seroconversion between acute and convalescent sera is considered strong evidence of recent infection. The best evidence for infection is a significant change on two appropriately timed specimens where both tests are done in the same laboratory at the same time.

| Component | Interpretation |
|---|---|
| Bartonella quintana Antibody, IgG with Reflex to Endpoint Titer | Negative - No significant level of B. quintana IgG Equivocal - Questionable presence of B. quintana IgG antibody detected. Repeat testing in 10-14 days may be helpful. Positive - Presence of IgG antobody to B. quintana detected. |

Reference Interval:

| Test Number | Components | Reference Interval |
|---|---|---|
| | B. quintana IgG Screen | Negative |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# Soluble Transferrin Receptor, Serum or Plasma

3020070, STFR

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Serum separator tube or plasma separator tube. Also acceptable: green (lithium heparin). |
| Specimen Preparation: | Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.4 mL) |
| Transport Temperature: | Refrigerated. |
| Unacceptable Conditions: | Contaminated, severely hemolyzed, icteric, or lipemic specimens. |
| Remarks: | |
| Stability: | After separation from cells: Ambient: 5 days; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles) |
| Methodology: | Quantitative Chemiluminescent Immunoassay (CLIA) |
| Performed: | Sun-Sat |
| Reported: | Within 24 hours |
| Note: | |
| CPT Codes: | 84238 |
| New York DOH Approval Status: | This test is New York DOH approved. |

Interpretive Data:

The Beckman Coulter Access sTfR immunoassay is intended as an aid in the diagnosis of iron deficiency anemia, especially in patients with chronic disease.?In adult patients with anemia, an sTfR result greater than or equal to 1.55 mg/L is 86 percent sensitive and 49 percent specific for the presence of iron deficiency anemia, alone or in combination with anemia of chronic disease.?The sTfR assay is not intended to be used in isolation; results should be interpreted in conjunction with the patient?s clinical presentation and other diagnostic tests, such as other indicators of iron status (refer to table below).

| | Test for Changes in: | Iron Deficiency Anemia | Anemia of Chronic Disease | Iron Deficiency & Anemia of Chronic Disease |
|---|---|---|---|---|
| Ferritin | Iron Sores | Low | High | Normal or High |
| TIBC | Iron Status | High | Low | Normal or High |
| Serum Iron | Iron Status | Low | Low | Low |

| | | | | |
|---|---|---|---|---|
| sTfR | Iron Status | High | Normal | High |

Reference Interval:

| Test Number | Components | Reference Interval | | | | |
|---|---|---|---|---|---|---|
| | Soluble Transferrin Receptor | | | | | |
| | | | Tests for Changes in: | Iron Deficiency Anemia | Anemia of Chronic Disease | Iron Deficiency & Anemia of Chronic Disease |
| | | Ferritin | Iron Stores | Low | High | Normal or High |
| | | TIBC | Iron Status | High | Low | Normal or High |
| | | Serum Iron | Iron Status | Low | Low | Low |
| | | sTfR | Iron Status | High | Normal | High |
| | Soluble Transferrin Receptor | | | | | |
| | | age | mg/L | | | |
| | | 0 - <1 year | 0.98 - 1.99 | | | |
| | | 1 - <2.5 years | 1.37 - 2.64 | | | |
| | | 2.5 - <14 years | 1.03 - 2.09 | | | |
| | | 14 - <18 years | 0.79 - 1.68 | | | |
| | | 18 and older | 0.90 - 2.01 | | | |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# JAK2 Exon 12-Mutation Analysis by PCR

3020079, JAK2EX12

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Whole blood or bone marrow in lavender (EDTA). |
| Specimen Preparation: | Whole Blood: Do not freeze. Transport 5 mL whole blood. (Min: 1 mL) Bone Marrow: Do not freeze. Transport 3 mL bone marrow. (Min: 1 mL) |
| Transport Temperature: | Refrigerated |
| Unacceptable Conditions: | Plasma, serum, FFPE tissue blocks/slides, or frozen tissue. Specimens collected in anticoagulants other than EDTA. Clotted or grossly hemolyzed specimens. |
| Remarks: | |
| Stability: | Refrigerated: 7 days; Frozen: Unacceptable |
| Methodology: | Polymerase Chain Reaction (PCR) |
| Performed: | Varies |
| Reported: | 3-9 days |
| Note: | |
| CPT Codes: | 81279 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Refer to report. | |
| Reference Interval: | |

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

NEW TEST

Click for Pricing

# Eosinophilia Panel by FISH

3020097, FISH EOSP

| | |
|---|---|
| Specimen Requirements: | |
| Patient Preparation: | |
| Collect: | Non-diluted bone marrow aspirate collected in a heparinized syringe. Also acceptable: Green (Sodium Heparin). |
| Specimen Preparation: | Bone Marrow: Transfer 3 mL bone marrow to a green (Sodium Heparin) (Min: 1 mL). Whole Blood: Transport 5 mL whole blood. (Min: 2 mL) |
| Transport Temperature: | Room temperature. |
| Unacceptable Conditions: | Paraffin-embedded specimens. Clotted specimens. |
| Remarks: | |
| Stability: | Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable |
| Methodology: | Qualitative Fluorescence in situ Hybridization (FISH) |
| Performed: | Sun-Sat |
| Reported: | 3-10 days |
| Note: | A processing fee will be charged if this procedure is canceled, at the client's request, after the test has been set up, or if the specimen integrity is inadequate to allow culture growth. The fee will vary based on specimen type. Other specimen types may be acceptable, contact the Cytogenetics Laboratory for specific specimen collection and transportation instructions. If cell pellets or dropped cytogenetic slides are submitted, processing fee will not apply. This test must be ordered using Oncology test request form #43099 or through your ARUP interface. |
| CPT Codes: | 88271 x4; 88275 x4 |
| New York DOH Approval Status: | This test is New York DOH approved. |
| Interpretive Data: | |
| Probes included: PDGFR-alpha, PDGFR-beta, FGFR1, and JAK2. | |

Reference Interval:

By report

HOTLINE NOTE: Refer to the Hotline Test Mix for interface build information.

ARUP LABORATORIES

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# Inactivations

**The following will be discontinued from ARUP's test menu on October 20, 2025**
**Replacement test options are indicated when applicable.**

| Test Number | Test Name | Refer to Replacement Test |
|---|---|---|
| 0070283 | Soluble Transferrin Receptor (Change effective as of 10/20/25: Refer to 3020070 in the October Hotline) | Soluble Transferrin Receptor, Serum or Plasma (3020070) |
| 2002357 | JAK2 Exon 12 Mutation Analysis by PCR (Change effective as of 10/20/25: Refer to 3020079 in the October Hotline) | JAK2 Exon 12-Mutation Analysis by PCR (3020079) |
| 2002378 | Eosinophilia Panel by FISH (Change effective as of 10/20/25: Refer to 3020097 in the October Hotline) | Eosinophilia Panel by FISH (3020097) |
| 3001255 | Prion Markers (CJD), CSF (Change effective as of 10/20/25: Refer to 3019310 in the October Hotline) | Prion Markers (CJD) in CSF (3019310) |
| 3004071 | von Willebrand Factor (VWF) GPIbM Activity (Change effective as of 10/20/25: Refer to 3019671 in the October Hotline) | von Willebrand Factor (VWF) GPIbM Activity (3019671) |
| 3006343 | Prenatal Hepatitis Panel (Change effective as of 10/20/25: Refer to 3019856) | Viral Hepatitis Prenatal Panel (3019856) |