HOTLINE: Effective February 18, 2020

MEDICARE COVERAGE OF LABORATORY TESTING

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

1. Only tests that are medically necessary for the diagnosis or treatment of the patient should be ordered. Medicare does not pay for screening tests except for certain specifically approved procedures and may not pay for non-FDA approved tests or those tests considered experimental.
2. If there is reason to believe that Medicare will not pay for a test, the patient should be informed. The patient should then sign an Advance Beneficiary Notice (ABN) to indicate that he or she is responsible for the cost of the test if Medicare denies payment.
3. The ordering physician must provide an ICD-10 diagnosis code or narrative description, if required by the fiscal intermediary or carrier.
4. Organ- or disease-related panels should be billed only when all components of the panel are medically necessary.
5. Both ARUP- and client-customized panels should be billed to Medicare only when every component of the customized panel is medically necessary.
6. Medicare National Limitation Amounts for CPT codes are available through the Centers for Medicare & Medicaid Services (CMS) or its intermediaries. Medicaid reimbursement will be equal to or less than the amount of Medicare reimbursement.

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

The regulations described above are only guidelines. Additional procedures may be required by your fiscal intermediary or carrier.

Hotline Page #	Test Number	Summary of Changes by Test Name	Name Change	Methodology	Performed/Reported Schedule	Specimen Requirements	Reference Interval	Interpretive Data	Note	CPT Code	Component Change	Other Interface Change	New Test	Inactive
5	0081170	Acylglycines, Quantitative, Urine									x			
5	0070073	Aldosterone/Renin Activity Ratio				x								
6	2007211	Allergen, Food, Peanut Components IgE					x		x	x	x			
7	3002253	Allergen, Food, Peanut with Reflex											x	
7	0099266	Aluminum, Serum				x		x	x					
8	2009419	Amino Acids Quantitative by LC-MS/MS, Urine									x			
8	2003126	Anti-IgA Antibody by ELISA				x								
8	2011478	Arsenic, Random Urine with Reflex to Fractionated				x								

Hotline Page #	Test Number	Summary of Changes by Test Name	Name Change	Methodology	Performed/Reported Schedule	Specimen Requirements	Reference Interval	Interpretive Data	Note	CPT Code	Component Change	Other Interface Change	New Test	Inactive
8	0025000	Arsenic, Urine with Reflex to Fractionated				x								
8	0051415	Ashkenazi Jewish Diseases, 16 Genes								x				
8	2014314	Autism and Intellectual Disability Comprehensive Panel									x			
9	2014312	Autism and Intellectual Disability Metabolic Panel									x			
9	3002216	B Cell Subset Analysis											x	
10	3000724	B-Cell Acute Lymphocytic Leukemia (B-ALL) Minimum Residual Disease Detection by Flow Cytometry (COG Protocol)										x		
40	2008901	B-Cell Memory and Naive Panel												x
11	2005010	*BCR-ABL1*, Qualitative with Reflex to *BCR-ABL1* Quantitative			x	x			x	x				
40	2002464	Bence Jones Protein, Quantitation and Characterization, with Reflex to Kappa/Lambda Free Light Chains with Ratio, Urine												x
11	0070029	Beta-hCG, Quantitative (Tumor Marker)								x				
11	0020140	Calcium, Ionized, Whole Blood				x	x		x					
40	2013901	Candida FKS Drug Resistance by Sequencing												x
40	2013784	Candida Species by PCR with Reflex to *FKS* Drug Resistance by Sequencing												x
11	0081308	Carnitine, Free and Total, Urine									x			
12	0081309	Carnitine, Free, Urine									x			
12	0081307	Carnitine, Total, Urine									x			
12	2012941	Carrier Screen, 4 Conditions (Horizon)								x				
12	0098830	Chromium, Serum			x	x		x	x					
13	3002343	Chromogenic Factor VIII, Activity											x	
13	2007252	Copper, RBC			x	x								
13	0020096	Copper, Serum or Plasma				x								
14	0060055	Coxsackie B Virus Antibodies				x								
14	3002257	CV2.1 Screen by IFA with Reflex to Titer, CSF											x	
14	0081106	Cystine Quantitative, Urine									x			
14	0081105	Cystinuria Panel									x			
14	2010229	Cytogenomic Molecular Inversion Probe Array, FFPE Tissue - Oncology									x			
15	2010795	Cytogenomic Molecular Inversion Probe Array, FFPE Tissue - Products of Conception									x			
15	3002337	2,3 Dinor-11Beta-Prostaglandin F2 Alpha, Urine											x	

Hotline Page #	Test Number	Summary of Changes by Test Name	Name Change	Methodology	Performed/Reported Schedule	Specimen Requirements	Reference Interval	Interpretive Data	Note	CPT Code	Component Change	Other Interface Change	New Test	Inactive
15	3001585	Early-Onset Alzheimer's Panel, Sequencing											x	
16	0060053	Echovirus Antibodies				x								
17	2008916	Encephalitis Panel with Reflex to Herpes Simplex Virus Types 1 and 2 Glycoprotein G-Specific Antibodies, IgG, CSF					x					x		
18	2008915	Encephalitis Panel with Reflex to Herpes Simplex Virus Types 1 and 2 Glycoprotein G-Specific Antibodies, IgG, Serum					x					x		
19	0050246	Epstein-Barr Virus by Qualitative PCR	x			x								
19	3002107	Free Light Chains, Quantitative, Urine											x	
19	2001510	Glutarylcarnitine Quantitative, Urine									x			
20	2005792	Hemoglobin Evaluation Reflexive Cascade				x								
20	0020058	Hemoglobin, Plasma			x									
20	0020057	Hemoglobin, Serum			x									
20	0020221	Hemoglobin, Urine			x									
20	0092283	Herpes Gestationis Factor (Complement-Fixing Basement Membrane Zone Antibody IgG)		x										
20	0051152	Herpes Simplex Type 1 and Type 2 Glycoprotein G-Specific Antibodies, IgG by CIA					x	x						
21	0050916	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG and IgM with Reflex to Type 1 and 2 Glycoprotein G-Specific Ab, IgG					x							
21	0051708	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG with Reflex to Type 1 and 2 Glycoprotein G-Specific Ab, IgG					x							
22	0050292	Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA					x							
22	0050294	Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA					x							
40	0070265	21-Hydroxylase Antibody												x
22	3001962	21-Hydroxylase Autoantibodies, Serum											x	
23	3002135	1p19q Deletion by FISH and IDH1 R132H Point Mutation by Immunohistochemistry with Reflex to IDH1 and IDH2 Mutation Analysis, Exon 4											x	
24	3002134	IDH1 R132H Point Mutation by Immunohistochemistry with Reflex to IDH1 and IDH2 Mutation Analysis, Exon 4											x	
25	3002104	Immunofixation with Free Light Chains, Quantitative, Urine											x	
25	3002106	Immunofixation, Random, Urine											x	

Hotline Page #	Test Number	Summary of Changes by Test Name	Name Change	Methodology	Performed/Reported Schedule	Specimen Requirements	Reference Interval	Interpretive Data	Note	CPT Code	Component Change	Other Interface Change	New Test	Inactive
26	0050345	Immunoglobulin E				x								
26	2007465	Iodine, Urine				x	x							
40	0050161	Kappa and Lambda Free Light Chains (Bence Jones Protein), Qualitative, Urine												x
40	0050618	Kappa and Lambda Free Light Chains (Bence Jones Protein), Quantitative, Urine												x
40	0050689	Kappa Free Light Chains (Bence Jones Protein), Quantitative, Urine												x
27	0055167	Kappa/Lambda Quantitative Free Light Chains with Ratio, Serum		x	x	x	x			x		x		
40	0050682	Lambda Free Light Chains (Bence Jones Protein), Quantitative, Urine												x
27	0055233	*Leptospira* Antibody, IgM by Dot Blot				x								
28	3002351	Leukotriene E4, Urine											x	
28	3002266	Lp-PLA$_2$, Lipoprotein-Associated Phospholipase A$_2$, Activity (PLAC)											x	
29	3002309	Malignancy Assessment, Pelvic Mass, Overa Plus											x	
40	3000394	Malignancy Risk Assessment, Pelvic Mass, OVA1												x
29	0099265	Manganese, Serum			x	x		x	x					
30	2002715	Monoclonal Protein Detection, Quantitation, Characterization, SPEP, IFE, IgA, IgG, IgM, FLC		x	x		x			x		x		
31	3002105	Monoclonal Protein Study, 24 hour, Urine											x	
32	3002069	Multiple Myeloma Minimum Residual Disease by Flow Cytometry											x	
40	2011713	Mycobacterium tuberculosis Drug Resistance by Sequencing												x
32	3002118	NKX3.1 by Immunohistochemistry											x	
33	0080235	5'Nucleotidase			x									
33	2011375	Occupation Screen - MMR/VZV Antibody Assessment Panel, IgG					x					x		
33	0098389	Organic Acids, Urine									x			
33	3000704	Orotic Acid, Urine									x			
40	2002277	Ova and Parasite Exam, Body Fluid or Urine												x
34	3001663	Ova and Parasite Exam, Body Fluid or Urine											x	
35	3001662	Ova and Parasite Exam, Fecal (Immunocompromised or Travel History)											x	
40	2002272	Ova and Parasite Exam, Fecal (Immunocompromised or Travel History)												x
35	3001890	P501S (Prostein) by IHC	x											

Hotline Page #	Test Number	Summary of Changes by Test Name	Name Change	Methodology	Performed/Reported Schedule	Specimen Requirements	Reference Interval	Interpretive Data	Note	CPT Code	Component Change	Other Interface Change	New Test	Inactive
35	2002871	*PML-RARA* Detection by RT-PCR, Quantitative	x									x		
36	0030215	Prothrombin Time				x								
36	0080342	Pyridinoline and Deoxypyridinoline by HPLC									x			
40	2010172	Regulatory T-Cell Panel												x
36	3002249	Regulatory T-Cell Panel, *FOXP3*											x	
37	0025023	Selenium, Serum or Plasma				x	x	x	x					
40	0099430	Thyroid Stimulating Immunoglobulin												x
37	3002287	Thyroid Stimulating Immunoglobulin											x	
38	0050206	*Treponema pallidum* (VDRL), Cerebrospinal Fluid with Reflex to Titer				x								
38	0050920	*Treponema pallidum* Antibody, IgG by ELISA				x								
38	0051075	*Trypanosoma cruzi* Antibody, IgM				x								
38	0050162	Varicella-Zoster Virus Antibodies, IgG and IgM					x					x		
38	0050167	Varicella-Zoster Virus Antibody, IgG					x					x		
39	0054444	Varicella-Zoster Virus Antibody, IgG, CSF					x					x		
40	0013030	Warm Auto Adsorption												x
40	0013025	Warm Triple Adsorption												x

0081170 Acylglycines, Quantitative, Urine **ACYLGLY**

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002335, Creatinine, Urine
Remove component 0020533, Creatinine, Urine

0070073 Aldosterone/Renin Activity Ratio **A/RA**

Specimen Required: Patient Prep: Collect midmorning after patient has been sitting, standing, or walking for at least 2 hours, and seated for 5-15 minutes. Refer to the Additional Technical Information for specific patient preparation recommendations.
Collect: Serum Separator Tube (SST) **AND** Lavender (K_2EDTA) or Pink (K_2EDTA). Do not collect in refrigerated tubes.
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection.
Serum: Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)
AND
Plasma: Transfer 2 mL EDTA plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 1.2 mL)
Storage/Transport Temperature: Both specimens should be submitted together for testing.
Serum: Frozen.
Plasma: CRITICAL FROZEN. Separate specimens must be submitted when additional tests are ordered.
Unacceptable Conditions: Plasma collected in citrate, heparin, or oxalate. Hemolyzed specimens.
Stability (collection to initiation of testing): **Serum:** Ambient: 8 hours; Refrigerated: 5 days; Frozen: 1 month
Plasma: Ambient: 6 hours; Refrigerated: Unacceptable; Frozen: 1 month

2007211 **Allergen, Food, Peanut Components IgE** **PEANUT COM**

Reference Interval:
Effective February 18, 2020

Test Number	Components	Reference Interval		
0055024	Allergen, Food, Peanut	Effective 02/18/2014		
		Reporting Range (reported in kU/L)	**Probability of IgE Mediated Clinical Reaction**	**Class Scoring**
		Less than 0.10	No significant level detected	0
		0.10 - 0.34	Clinical relevance undetermined	0/1
		0.35 - 0.70	Low	1
		0.71 - 3.50	Moderate	2
		3.51 - 17.50	High	3
		17.51 - 50.00	Very high	4
		50.01 - 100.00	Very high	5
		Greater than 100.00	Very high	6
	Allergen, Food, Severe Peanut Ara h 1	0.09 kU/L or less		
	Allergen, Food, Severe Peanut Ara h 2	0.09 kU/L or less		
	Allergen, Food, Severe Peanut Ara h 3	0.09 kU/L or less		
	Allergen, Food, Severe Peanut Ara h 6	0.09kU/L or less		
	Allergen, Food, Severe Peanut Ara h 9	0.09 kU/L or less		
	Allergen, Food, Mild Peanut Ara h 8	0.09 kU/L or less		

Note: Test methodology uses solid-phase immunoassays against the whole peanut allergen (f13) and 6 antigenic epitopes (Ara h1, Ara h2, Ara h3, Ara h6, Ara h8, and Ara h9) and measures IgE antibody concentrations in patient serum or plasma. The binding of a specific IgE to an immobilized allergen component is detected by the addition of a secondary fluorescence-labeled anti-human IgE antibody.

CPT Code(s): 86003; 86008 x6

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002252, Allergen, Food, Severe Peanut Ara h 6

New Test **3002253** **Allergen, Food, Peanut with Reflex** **PEANUT R**
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Methodology: Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed: Sun-Sat
Reported: 1-2 days

Specimen Required: Patient Prep: Multiple patient encounters should be avoided.
Collect: Serum Separator Tube (SST). Multiple specimen tubes should be avoided.
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.25 mL serum **plus** 0.1 mL for each additional allergen ordered to an ARUP Standard Transport Tube. (Min: 0.25 mL **plus** 0.04 mL for each allergen ordered)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, icteric, or lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Reference Interval:

Reporting Range (reported in kU/L)	Probability of IgE Mediated Clinical Reaction	Class Scoring
Less than 0.10	No significant level detected	0
0.10 - 0.34	Clinical relevance undetermined	0/1
0.35 - 0.70	Low	1
0.71 - 3.50	Moderate	2
3.51 - 17.50	High	3
17.51 - 50.00	Very high	4
50.01 - 100.00	Very high	5
Greater than 100.00	Very high	6

Interpretive Data: Allergen results of 0.10-0.34 kU/L are intended for specialist use as the clinical relevance is undetermined. Even though increasing ranges are reflective of increasing concentrations of allergen-specific IgE, these concentrations may not correlate with the degree of clinical response or skin testing results when challenged with a specific allergen. The correlation of allergy laboratory results with clinical history and in vivo reactivity to specific allergens is essential. A negative test may not rule out clinical allergy or even anaphylaxis**.**

Note: This assay will reflex to 6 unique peanut protein components if the result is 0.1 or higher. Additional charges apply.

CPT Code(s): 86003; if reflexed add 86008 x6

New York DOH Approved.

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

0099266 **Aluminum, Serum** **AL S**

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).
Collect: Royal Blue (No Additive).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated or frozen.
Unacceptable Conditions: Plasma. Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely (If the specimen is drawn and stored in the appropriate container, the trace element values do not change with time.)

Interpretive Data: Serum aluminum greater than 50.0 µg/L is consistent with overload and may correlate with toxicity.

Elevated levels of aluminum in serum should be confirmed with a second specimen due to a high susceptibility of the specimen to collection-related environmental contamination.

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

HOTLINE NOTE: Remove information found in the Note field.

2009419 Amino Acids Quantitative by LC-MS/MS, Urine — URNAA QNT

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002334, Creatinine, Urine
Remove component 0020207, Creatinine, Urine - per volume

2003126 Anti-IgA Antibody by ELISA — ANTI IGA

Specimen Required: Collect: Plain Red or Serum Separator Tube (SST).
Specimen Preparation: Transfer 1 mL serum to an ARUP standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 week; Frozen: 2 weeks

2011478 Arsenic, Random Urine with Reflex to Fractionated — U ARS RAND

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, nonessential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours. High concentrations of iodine may interfere with elemental testing. Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post contrast media exposure.
Collect: Random urine.
Specimen Preparation: Transfer an 8 mL aliquot from a well-mixed collection to ARUP Trace Element-Free Transport Tubes (ARUP supply #43116), available online through eSupply using ARUP Connector contact ARUP Client Services at (800) 522-2787. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Remarks: Trace Elements requisition form may be required (ARUP form #32990-Barcode; #32991-No Barcode).
Unacceptable Conditions: Acid preserved urine. Specimens collected within 72 hours after administration of iodinated or gadolinium-based contrast media.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 1 year

0025000 Arsenic, Urine with Reflex to Fractionated — ARS U

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, nonessential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours. High concentrations of iodine may interfere with elemental testing. Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post contrast media exposure.
Collect: 24-hour or random urine collection. Specimen must be collected in a plastic container and refrigerated during collection. **ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately if tested within 14 days of collection.**
Specimen Preparation: Transfer an 8 mL aliquot from a well-mixed collection to ARUP Trace Element-Free Transport Tubes (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Remarks: Trace Elements requisition form may be required (ARUP form #32990-Barcode; #32991-No Barcode).
Unacceptable Conditions: Acid preserved urine. Specimens collected within 72 hours after administration of iodinated or gadolinium-based contrast media. Specimens contaminated with blood or fecal material. Specimens transported in non-trace element-free transport tube (with the exception of the original device).
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 1 year

0051415 Ashkenazi Jewish Diseases, 16 Genes — AJP

CPT Code(s): 81412

2014314 Autism and Intellectual Disability Comprehensive Panel — AID COMP

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002336, Creatinine, Urine
Remove component 0020533, Creatinine, Urine

2014312 **Autism and Intellectual Disability Metabolic Panel** **AID PAN**

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002336, Creatinine, Urine
Remove component 0020533, Creatinine, Urine

New Test **3002216** **B Cell Subset Analysis** **B SUBSETS**
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Methodology: Flow Cytometry
Performed: Sun-Sat
Reported: 1-3 days

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: Transport 4 mL whole blood. (Min: 2 mL) Specimens must be analyzed within 48 hours of collection.
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Clotted or hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable

Reference Interval:

Components	Reference Interval				
CD19+ B cells percent	**Age**	**Percent**	CD19+ B cells	**Age**	**Cells/µL**
	0-7 days	6.2-25.0		0-7 days	200-800
	8 days-1 month	10.0-31.0		8 days-1 month	700-1800
	2-4 months	18.0-38.0		2-4 months	700-2400
	5-8 months	16.0-34.0		5-8 months	700-2800
	9-14 months	14.0-28.0		9-14 months	400-2900
	15-23 months	16.0-34.0		15-23 months	600-1900
	2-4 years	14.0-29.0		2-4 years	400-1700
	5-9 years	10.0-24.0		5-9 years	300-600
	10-15 years	9.4-23.0		10-15 years	200-600
	16 years and older	6.4-22.0		16 years and older	110-450
CD20+ percent	**Age**	**Percent**	CD20+	**Age**	**Cells/µL**
	0-15 years	N/A		0-15 years	N/A
	16 years and older	96.0-100.0		16 years and older	110-450
Total Memory CD27+ percent	**Age**	**Percent**	Total Memory CD27+	**Age**	**Cells/µL**
	0-7 days	3.6-14.0		0-7 days	20-70
	8 days-1 month	3.1-11.0		8 days-1 month	30-100
	2-4 months	3.2-12.0		2-4 months	40-230
	5-8 months	5.3-12.0		5-8 months	50-270
	9-14 months	4.1-21.0		9-14 months	40-190
	15-23 months	9.5-27.0		15-23 months	50-330
	2-4 years	7.8-37.0		2-4 years	50-390
	5-9 years	18.6-47.0		5-9 years	60-230
	10-15 years	13.3-48.0		10-15 years	50-200
	16 years and older	10.0-33.0		16 years and older	23-110
Non switched CD27+IgD+IgM+ percent	**Age**	**Percent**	Non switched CD27+IgD+IgM+	**Age**	**Cells/µL**
	0-7 days	2.6-12.0		0-7 days	10-40
	8 days-1 month	1.7-6.5		8 days-1 month	20-50
	2-4 months	2.5-8.7		2-4 months	20-200
	5-8 months	2.8-7.4		5-8 months	30-120
	9-14 months	3.0-11.0		9-14 months	20-140
	15-23 months	4.1-14.0		15-23 months	30-170
	2-4 years	2.7-20.0		2-4 years	20-180
	5-9 years	5.2-20.0		5-9 years	20-100
	10-15 years	4.6-18.0		10-15 years	20-70
	16 years and older	2.4-15.0		16 years and older	5-46
Class-switched CD27+IgD-IgM- percent	**Age**	**Percent**	Class-switched CD27+IgD-IgM-	**Age**	**Cells/µL**
	0-7 days	1.0-7.2		0-7 days	0-30
	8 days-1 month	1.5-7.1		8 days-1 month	10-90
	2-4 months	0.3-9.0		2-4 months	10-170
	5-8 months	1.6-7.0		5-8 months	20-140
	9-14 months	1.4-12.0		9-14 months	10-100
	15-23 months	3.9-14.0		15-23 months	30-180
	2-4 years	4.7-21.0		2-4 years	20-220
	5-9 years	11.0-30.0		5-9 years	40-140
	10-15 years	8.7-26.0		10-15 years	30-110
	16 years and older	5.1-22.0		16 years and older	11-61

Transitional CD38+IgM+ percent	Age	Cells/µL	Transitional CD38+IgM+	Age	Cells/µL
	0-7 days	1.2-42.0		0-7 days	0-210
	8 days-1 month	4.1-44.0		8 days-1 month	50-570
	2-4 months	11.0-38.0		2-4 months	130-940
	5-8 months	7.2-20.0		5-8 months	100-300
	9-14 months	3.6-13.0		9-14 months	20-210
	15-23 months	3.3-17.0		15-23 months	30-200
	2-4 years	3.1-12.0		2-4 years	20-200
	5-9 years	4.6-8.3		5-9 years	10-40
	10-15 years	1.4-13.0		10-15 years	10-60
	16 years and older	0.7-5.9		16 years and older	1-17
Plasmablasts CD38+IgM- percent	**Age**	**Percent**	Plasmablasts CD38+IgM-	**Age**	**Cells/µL**
	0-7 days	0.2-3.2		0-7 days	0-10
	8 days-1 month	0.2-2.7		8 days-1 month	0-30
	2-4 months	0.4-3.3		2-4 months	0-40
	5-8 months	0.2-4.0		5-8 months	0-60
	9-14 months	0.4-5.5		9-14 months	0-30
	15-23 months	0.5-3.0		15-23 months	10-40
	2-4 years	0.6-4.0		2-4 years	10-50
	5-9 years	0.6-5.3		5-9 years	0-30
	10-15 years	0.6-6.5		10-15 years	0-20
	16 years and older	0.4-4.1		16 years and older	1-8
Activated CD21 low CD38- percent	**Age**	**Percent**	Activated CD21 low CD38-	**Age**	**Cells/µL**
	0-7 days	0.5-22.0		0-7 days	0-80
	8 days-1 month	0.4-2.2		8 days-1 month	0-20
	2-4 months	0.5-2.9		2-4 months	0-50
	5-8 months	0.4-3.3		5-8 months	0-50
	9-14 months	0.5-4.5		9-14 months	0-40
	15-23 months	1.0-5.7		15-23 months	10-60
	2-4 years	1.7-5.4		2-4 years	10-60
	5-9 years	2.3-10.0		5-9 years	10-40
	10-15 years	2.7-8.7		10-15 years	10-30
	16 years and older	1.2-9.0		16 years and older	3-26

Interpretive Data: This panel identifies B cell dysregulation. B cells start development in the bone marrow (stem-cell, pro-B, pre-B), then transition to the spleen and lymph nodes where some mature by acquiring CD27 and switching immunoglobulin class from IgD and IgM to IgG or IgA. Class-switched B cells may further progress to plasmablasts and finally plasma cells. Different disorders may block different parts of this pathway, disrupting immunoglobulin production.

This panel can also be used to monitor B cell reconstitution after bone marrow transplantation or targeted B cell depletion therapy.

This panel can assist in the diagnosis and subclassification of Common Variable Immune Deficiency (CVID). CVID is a heterogeneous group of disorders characterized by low antibody production, defective antibody responses, and recurrent infections. Most cases of CVID have a severe reduction in class switched memory B cells (CD27+, IgD-, IgM-) that correlates with granulomatous disease. Many also have an expanded population of CD21low, CD38low B cells that correlates with splenomegaly. Increased transitional B cells (CD38+, IgM+) in CVID correlates with lymphadenopathy. Most CVID patients have a low percentage of plasmablasts (CD38+, IgM-) that has a correlation with autoimmune cytopenia.

Class switched memory B cells are also low in ALPS, but are typically increased in SLE and infection.

Please note, reference intervals for CD20+ B cells were not established for patients less than 16 years of age. For all other B cell subsets, reference intervals for populations younger than 16 years are adopted from literature. Piatosa B, Wolska-Kusnierz B, Pac M, Siewiera K, Galkowska E, Bernatowska E. B cell subsets in healthy children: Reference values for evaluation of B cell maturation process in peripheral blood. Cytometry Part B 2010; 78B: 372381.

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

CPT Code(s): 86355; 86356 x6

New York DOH approval pending. Call for status update.

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

3000724 **B-Cell Acute Lymphocytic Leukemia (B-ALL) Minimum Residual Disease Detection by Flow Cytometry (COG Protocol)** **B-ALL MRD**

HOTLINE NOTE: There is a result type change associated with this test.
Change the result type for component 3000737, Number of Markers from numeric to alpha.

2005010 *BCR-ABL1*, Qualitative with Reflex to *BCR-ABL1* Quantitative — BCR RFLX

Performed: **RNA isolation:** Sun-Sat
Assay: Sun-Sat
Reported: 4-8 days

Specimen Required: Collect: Lavender (EDTA) or bone marrow (EDTA). Sodium Heparin Whole Blood or Bone Marrow. Also acceptable: RNA extracted by CLIA certified lab.
Specimen Preparation: **Whole Blood:** Transport 5 mL whole blood. (Min: 4 mL)
Bone Marrow: Transport 3 mL bone marrow. (Min: 1 mL)
Specimens must be received within 48 hours of collection due to lability of RNA.
Extracted RNA: Transport 40 uL RNA with at least 40 ng/uL concentration. (Min: 40 uL) Transport RNA in a tissue transport kit (ARUP Supply #47808) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787.
Storage/Transport Temperature: **Whole Blood or Bone Marrow**: CRITICAL REFRIGERATED. Separate specimens must be submitted when multiple tests are ordered.
Extracted RNA: CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions: Serum, plasma, CSF, extracted DNA, RNA extracted by a non-CLIA lab, bone core, or FFPE tissue. Specimens collected in anticoagulants other than indicated. Severely hemolyzed or clotted specimens.
Stability (collection to initiation of testing): Ambient: 1 hour; Refrigerated: 48 hours; Frozen: Unacceptable
Extracted RNA: Ambient: Unacceptable; Refrigerate: Unacceptable; Frozen: Indefinitely

Note: This reflex assay is recommended when the *BCR-ABL1* fusion form is not known or unclear. This reflex assay detects the presence of either the p210 (major breakpoint), p190 (minor breakpoint), or p230 (micro breakpoint). If the presence of either the p210 or p190 *BCR-ABL1* fusion is detected, then the appropriate quantitative test will be performed. Additional charges apply.

If the fusion form is known, refer to *BCR-ABL1*, Major (p210), Quantitative (ARUP test code 2005017) or *BCR-ABL1*, Minor (p190), Quantitative (ARUP test code 2005016).

CPT Code(s): 81206; 81207; 81208; If reflexed, add 81206 or 81207

0070029 Beta-hCG, Quantitative (Tumor Marker) — BHCG TM

CPT Code(s): 84704

0020140 Calcium, Ionized, Whole Blood — IONCA-WB

Time Sensitive UUHSC Testing Only

Specimen Required: Collect: Green (Sodium or Lithium Heparin). Collect on ice.
Specimen Preparation: **Do not freeze.** Transport 0.5 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated. Deliver to lab within 10 minutes on wet ice.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 4 hours; Frozen: Unacceptable

Reference Interval:
Effective February 18, 2020

Ionized calcium (ISE)	Reference Interval
Birth - 1 month	1.10-1.35 mmol/L
1 month - adult	1.11-1.30 mmol/L

HOTLINE NOTE: Remove information found in the Unacceptable Conditions and Note fields. Also remove information distinguishing reference intervals for Ionized calcium (ISE) from Ionized calcium (calculation at pH 7.4).

0081308 Carnitine, Free and Total, Urine — CARN URINE

HOTLINE NOTE: There is a component change associated with this test.
Add component 2001266, Creatinine, Urine

0081309 **Carnitine, Free, Urine** **CARNU FREE**

HOTLINE NOTE: There is a component change associated with this test.
Add component 2001266, Creatinine, Urine

0081307 **Carnitine, Total, Urine** **CARNU TOT**

HOTLINE NOTE: There is a component change associated with this test.
Add component 2001266, Creatinine, Urine

2012941 **Carrier Screen, 4 Conditions (Horizon)** **CAR SCN4**

CPT Code(s): 81220; 81408; 81243; 81329; 81161

0098830 **Chromium, Serum** **CR S**

Performed: Sat-Sun
Reported: 1-4 days

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).
Collect: Royal Blue (No Additive).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated or frozen.
Unacceptable Conditions: Plasma. Royal Blue (EDTA) or separator tubes. Specimens that are not separated from the clot within 2 hours. Specimens transported in tubes other than specified.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Interpretive Data: Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum chromium, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Whole blood is the preferred specimen type for evaluating chromium metal ion release from metal-on-metal joint arthroplasty. Whole blood chromium levels may be increased in asymptomatic patients with metal-on-metal prosthetics and should be considered in the context of the overall clinical scenario. The form of chromium greatly influences distribution. Trivalent chromium resides in the plasma and is usually not of clinical importance. Hexavalent chromium is considered highly toxic; however, chromium serum levels should not be used to assess toxic exposures to hexavalent chromium as it is predominately taken up and retained by red blood cells. Symptoms associated with chromium toxicity vary based on route of exposure and dose, and may include dermatitis, impairment of pulmonary function, gastroenteritis, hepatic necrosis, bleeding, and acute tubular necrosis.

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

HOTLINE NOTE: Remove information found in the Note field.

New Test **3002343** **Chromogenic Factor VIII, Activity** **CHROM F8**
Click for Pricing

Methodology: Chromogenic
Performed: Mon, Wed, Fri
Reported: 1-4 days

Specimen Required: Collect: Light 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. (Min: 0.8 mL)
Storage/Transport Temperature: **CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.**
Unacceptable Conditions: Serum or EDTA plasma. Clotted or hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20° C: 3 months; Frozen at -70° C: 6 months

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

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

CPT Code(s): 85240

New York DOH approval pending. Call for status update.

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

2007252 **Copper, RBC** **COPPER RBC**

Performed: Varies
Reported: 8-11 days

Specimen Required: Collect: Royal Blue (K_2 or Na_2 EDTA).
Specimen Preparation: Separate cells ASAP or within 2 hours of collection. Transport 2 mL RBCs in the original collection tube. (Min: 0.7 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Unacceptable Conditions: Heparinized specimens.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 2 weeks

0020096 **Copper, Serum or Plasma** **COPPER**

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).
Collect: Royal Blue (No Additive), Royal Blue (K_2 EDTA), or Royal Blue (Na_2 EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated or frozen.
Unacceptable Conditions: Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

0060055 **Coxsackie B Virus Antibodies** **COX B**

Specimen Required: Collect: Serum Separator Tube (SST) or Plain Red.
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 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 from receipt of acute specimens.
Storage/Transport Temperature: Refrigerated.
Remarks: Mark specimens plainly as "acute" or "convalescent."
Unacceptable Conditions: CSF or plasma. Contaminated, hemolyzed, or severely lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

New Test
Available Now
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3002257 **CV2.1 Screen by IFA with Reflex to Titer, CSF** **CV2.1 CSF**

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

Specimen Required: Collect: CSF.
Specimen Preparation: Transfer 0.5 mL CSF to an ARUP Standard Transport Tube. (Min: 0.15 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, contaminated, or severely lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Reference Interval: Less than 1:1

Interpretive Data: CV2.1 antibodies aid in discriminating between chronic paraneoplastic neurological disorder (PND) and other inflammatory disorders of the nervous system. Anti-CV2.1 is associated with small-cell lung cancer and thymoma.

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

Note: If CV2.1 Antibody IgG Screen by IFA, CSF is positive, then CV2.1 Antibody IgG Titer, CSF will be added. Additional charges apply.

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

New York DOH approval pending. Call for status update.

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

0081106 **Cystine Quantitative, Urine** **QNT CYS U**

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002334, Creatinine, Urine
Add component 3002356, Hours Collected
Add component 3002357, Total Volume
Remove component 0020533, Creatinine, Urine
Remove component 0097111, Hours Collected
Remove component 0097110, Total Volume

0081105 **Cystinuria Panel** **CYS PAN**

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002334, Creatinine, Urine
Remove component 0020533, Creatinine, Urine

2010229 **Cytogenomic Molecular Inversion Probe Array, FFPE Tissue - Oncology** **FFPE ARRAY**

HOTLINE NOTE: There is a component change associated with this test.
Add component 2002148, Block ID

2010795	**Cytogenomic Molecular Inversion Probe Array, FFPE Tissue - Products of Conception**	**CMA PFFPE**

HOTLINE NOTE: There is a component change associated with this test.
Add component 2002148, Block ID

New Test 3002337 **2,3 Dinor-11Beta-Prostaglandin F2 Alpha, Urine** **BETA PG U**
Click for Pricing

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)
Performed: Varies
Reported: 3-9 days

Specimen Required: Patient Prep: Patients taking aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs) may have decreased concentrations of prostaglandin F2 alpha. If possible, discontinue for 2 weeks or 72 hours, respectively, prior to collecting a specimen.
Collect: 24 hour urine. Also acceptable: Random urine collection.
Specimen Preparation: Refrigerate specimen during collection. Transfer 4 mL urine to an ARUP Standard Transport Tube. (Min: 3 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Stability (collection to initiation of testing): Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 1 month

Reference Interval: By Report

CPT Code(s): 84150

New York DOH Approved.

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

New Test 3001585 **Early-Onset Alzheimer's Panel, Sequencing** **ALZ NGS**
Available Now
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Methodology: Massively Parallel Sequencing
Performed: Varies
Reported: 3-6 weeks

Specimen Required: Collect: Lavender (K_2 or K_3EDTA) or Yellow (ACD Solution A or B). Peripheral blood required.
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: By report

Interpretive Data: Refer to report.
See Compliance Statement C: www.aruplab.com/CS

Note: Genes tested: *APP*, *PSEN1*, *PSEN2*

CPT Code(s): 81405; 81406

New York DOH approval pending. Call for status update.

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

0060053 **Echovirus Antibodies** **ECHO**

Specimen Required: Collect: Serum Separator Tube (SST) or Plain Red.
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL) Parallel testing is preferred and convalescent samples must be received within 30 days from receipt of acute samples.
Storage/Transport Temperature: Refrigerated.
Remarks: Mark samples plainly as "acute" or "convalescent."
Unacceptable Conditions: CSF or plasma. Contaminated, hemolyzed, or severely lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

2008916 **Encephalitis Panel with Reflex to Herpes Simplex Virus Types 1 and 2 Glycoprotein G-Specific Antibodies, IgG, CSF** **ENCEPHCSF**

Reference Interval:

Test Number	Components	Reference Interval	
0054440	Measles (Rubeola) Antibody, IgG, CSF	Effective September 3, 2019	
		13.4 AU/mL or less	Negative - No significant level of IgG antibody to measles (rubeola) virus detected.
		13.5-16.4 AU/mL	Equivocal - Repeat testing in 10-14 days may be helpful.
		16.5 AU/mL or greater	Positive - IgG antibody to measles (rubeola) detected, which may indicate a current or past measles (rubeola) infection.
0054441	Measles (Rubeola) Antibody, IgM, CSF	0.79 AU or less	Negative - No significant level of IgM antibodies to measles (rubeola) virus detected.
		0.80-1.20 AU	Equivocal - Repeat testing in 10-14 days may be helpful.
		1.21 AU or greater	Positive - IgM antibodies to measles (rubeola) virus detected. Suggestive of current or recent infection or immunization. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.
0054442	Mumps Virus Antibody IgG, CSF	Effective August 20, 2012	
		8.9 AU/mL or less	Negative - No significant level of detectable IgG mumps virus antibody.
		9.0-10.9 AU/mL	Equivocal - Repeat testing in 10-14 days may be helpful.
		11.0 AU/mL or greater	Positive - IgG antibody to mumps virus detected, which may indicate a current or past mumps virus infection.
0054443	Mumps Virus Antibody IgM, CSF	0.79 IV or less	Negative - No significant level of detectable IgM antibody to Mumps virus.
		0.80-1.20 IV	Equivocal - Borderline levels of IgM antibody to Mumps virus. Repeat testing in 10-14 days may be helpful.
		1.21 IV or greater	Positive - Presence of IgM antibody to Mumps virus detected, which may indicate a current or recent infection. However, low levels of IgM antibody may occasionally persist for more than 12 months post-infection or immunization.
0054444	Varicella-Zoster Virus Antibody, IgG, CSF	Effective February 18, 2020	
		134.9 IV or less	Negative - No significant level of IgG antibody to varicella-zoster virus detected.
		135.0-164.9 IV	Equivocal - Repeat testing in 10-14 days may be helpful.
		165.0 IV or greater	Positive - IgG antibody to varicella-zoster virus detected, which may indicate a current or past varicella-zoster infection.
0054445	Varicella-Zoster Virus Antibody, IgM by ELISA (CSF)	0.90 ISR or less	Negative - No significant level of IgM antibody to varicella-zoster virus detected.
		0.91-1.09 ISR	Equivocal - Repeat testing in 10-14 days may be helpful.
		1.10 ISR or greater	Positive - Significant level of IgM antibody to varicella-zoster virus detected, which may indicate current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.
0050408	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgM by ELISA, CSF	0.89 IV or less	Negative - No significant level of detectable HSV IgM antibody.
		0.90-1.09 IV	Equivocal - Questionable presence of IgM antibodies. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgM antibody to HSV detected, which may indicate a current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.
0050394	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG, CSF	0.89 IV or less	Negative - No significant level of detectable HSV IgG antibody.
		0.90-1.09 IV	Equivocal - Questionable presence of IgG antibodies. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV detected which may indicate a current or past HSV infection.
0050379	Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by ELISA, CSF	0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
		0.90-1.10 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1. Repeat testing in 10-14 days may be helpful.
		1.11 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past infection.
0050359	Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by ELISA, CSF	0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
		0.90-1.10 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2. Repeat testing in 10-14 days may be helpful.
		1.11 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.
0050238	West Nile Virus Antibody, IgG by ELISA, CSF	1.29 IV or less	Negative - No significant level of West Nile virus IgG antibody detected.
		1.30-1.49 IV	Equivocal - Questionable presence of West Nile virus IgG antibody detected. Repeat testing in 10-14 days may be helpful.
		1.50 IV or greater	Positive - Presence of IgG antibody to West Nile virus detected, suggestive of current or past infection.
0050239	West Nile Virus Antibody, IgM by ELISA, CSF	0.89 IV or less	Negative - No significant level of West Nile virus IgM antibody detected.
		0.90-1.10 IV	Equivocal - Questionable presence of West Nile virus IgM antibody detected. Repeat testing in 10-14 days may be helpful.
		1.11 IV or greater	Positive - Presence of IgM antibody to West Nile virus detected, suggestive of current or recent infection.

HOTLINE NOTE: There is a numeric map change associated with this test.
Change the numeric map for component 0054444, VZV Antibody IgG CSF from XXXXX to XXXX.X.

2008915 **Encephalitis Panel with Reflex to Herpes Simplex Virus Types 1 and 2 Glycoprotein G-Specific Antibodies, IgG, Serum** **ENCEPH**

Reference Interval:

Test Number	Components	Reference Interval	
0050380	Measles (Rubeola) Antibody, IgG	Effective September 3, 2019	
		13.4 AU/mL or less	Negative - No significant level of detectable measles (rubeola) IgG antibody.
		13.5-16.4 AU/mL	Equivocal - Repeat testing in 10-14 days may be helpful.
		16.5 AU/mL or greater	Positive - IgG antibody to measles (rubeola) detected, which may indicate a current or past exposure/immunization to measles (rubeola).
0099597	Measles (Rubeola) Antibody, IgM	0.79 AU or less	Negative - No significant level of IgM antibodies to measles (rubeola) virus detected.
		0.80-1.20 AU	Equivocal - Repeat testing in 10-14 days may be helpful.
		1.21 AU or greater	Positive - IgM antibodies to measles (rubeola) virus detected. Suggestive of current or recent infection or immunization. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.
0050390	Mumps Virus Antibody, IgG	Effective August 20, 2012	
		8.9 AU/mL or less	Negative - No significant level of detectable IgG mumps virus antibody.
		9.0-10.9 AU/mL	Equivocal - Repeat testing in 10-14 days may be helpful.
		11.0 AU/mL or greater	Positive - IgG antibody to mumps virus detected, which may indicate a current or past exposure/immunization to mumps virus.
0099589	Mumps Virus Antibody, IgM	0.79 IV or less	Negative - No significant level of detectable IgM antibody to Mumps virus.
		0.80-1.20 IV	Equivocal - Borderline levels of IgM antibody to Mumps virus. Repeat testing in 10-14 days may be helpful.
		1.21 IV or greater	Positive - Presence of IgM antibody to Mumps virus detected, which may indicate a current or recent infection. However, low levels of IgM antibody may occasionally persist for more than 12 months post-infection or immunization.
0050167	Varicella-Zoster Virus Antibody, IgG	Effective February 18, 2020	
		134.9 IV or less	Negative - No significant level of detectable varicella-zoster IgG antibody.
		135.0-164.9 IV	Equivocal - Repeat testing in 10-14 days may be helpful.
		165.0 IV or greater	Positive - IgG antibody to varicella-zoster detected, which may indicate a current or past varicella-zoster infection.
0099314	Varicella-Zoster Virus Antibody, IgM	0.90 ISR or less	Negative - No significant level of detectable varicella-zoster virus IgM antibody.
		0.91-1.09 ISR	Equivocal - Repeat testing in 10-14 days may be helpful.
		1.10 ISR or greater	Positive - Significant level of detectable varicella-zoster virus IgM antibody. Indicative of current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.
0050641	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgM by ELISA	0.89 IV or less	Not Detected.
		0.90-1.09 IV	Indeterminate - Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Detected - IgM antibody to HSV detected, which may indicate a current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.
0050292	Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past HSV infection.
0050294	Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.
0050293	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG	0.89 IV or less	Not Detected.
		0.90-1.09 IV	Indeterminate - Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Detected.
0050234	West Nile Virus Antibody, IgG by ELISA, Serum	1.29 IV or less	Negative - No significant level of West Nile virus IgG antibody detected.
		1.30-1.49 IV	Equivocal - Questionable presence of West Nile virus IgG antibody detected. Repeat testing in 10-14 days may be helpful.
		1.50 IV or greater	Positive - Presence of IgG antibody to West Nile virus detected, suggestive of current or past infection.
0050236	West Nile Virus Antibody, IgM by ELISA, Serum	0.89 IV or less	Negative - No significant level of West Nile virus IgM antibody detected.
		0.90-1.10 IV	Equivocal - Questionable presence of West Nile virus IgM antibody detected. Repeat testing in 10-14 days may be helpful.
		1.11 IV or greater	Positive - Presence of IgM antibody to West Nile virus detected, suggestive of current or recent infection.

HOTLINE NOTE: There is a numeric map change associated with this test.
Change the numeric map for component 0050167, Varicella-Zoster Virus Antibody, IgG from XXXXX to XXXX.X.

0050246 Epstein-Barr Virus by Qualitative PCR EBVPCR

Specimen Required: Collect: Lavender (K_2EDTA), Pink (K_2EDTA), or Serum Separator Tube (SST). Also acceptable: Bone marrow aspirate in Lavender (K_2EDTA) or Pink (K_2EDTA), **OR** CSF or tissue.
Specimen Preparation: Transfer 1 mL whole blood, bone marrow or CSF to a sterile container. (Min: 0.5 mL)
Serum or Plasma: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum, plasma to a sterile container. (Min: 0.5 mL)
Tissue: Transfer to sterile container and freeze immediately.
Storage/Transport Temperature: **Whole Blood or Bone Marrow:** Refrigerated.
All others: Frozen.
Remarks: Specimen source required.
Unacceptable Conditions: Heparinized specimens.
Stability (collection to initiation of testing): **Whole Blood or Bone Marrow:** Ambient: 1 week; Refrigerated: 1 week; Frozen: 1 week
Fresh Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 year
All others: Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 year

New Test 3002107 Free Light Chains, Quantitative, Urine U FLC

Click for Pricing

Methodology: Quantitative Immunoturbidimetry
Performed: Sun-Sat
Reported: 1-3 days

Specimen Required: Collect: 24-hour urine. Refrigerate during collection. Also acceptable: Random urine and urine supernatant.
Specimen Preparation: Transfer 1 mL aliquot from a well-mixed 24-hour collection to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: **Record total volume and collection time interval on transport tube and test request form.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 3 weeks; Frozen: 6 months

Reference Interval:

Components	Reference Interval
Free Urinary Kappa Light Chains	0.00 - 32.90 mg/L
Free Urinary Kappa Excretion/Day	By report
Free Urinary Lambda Light Chain	0.00 - 3.79 mg/L
Free Urinary Lambda Excretion/Day	By report
Total Protein	Less than 150 mg/d

Interpretive Data: Results of urine free light chain testing can be used to monitor disease progression or response to therapy in patients for whom urine electrophoresis is unable to provide reliable Bence Jones Protein quantification. The results of urine kappa and lambda free light chains must be interpreted in conjunction with urine immunofixation. The free light chain quantitative values may be misleading in specimens with high levels of urinary polyclonal free light chains, and absent Bence Jones protein by immunofixation; therefore correlation with urine immunofixation is required to identify inconsistent results.

Total Urinary protein is determined turbidimetrically by adding the albumin and kappa and/or lambda light chains. This value may not agree with the total protein as determined by chemical methods, which characteristically underestimates urinary light chains.

CPT Code(s): 84156; 83520 x2

New York DOH Approved.

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

2001510 Glutarylcarnitine Quantitative, Urine C5DC URINE

HOTLINE NOTE: There is a component change associated with this test.
Add component 2001513, Creatinine, Urine

2005792 Hemoglobin Evaluation Reflexive Cascade — HB CASCADE

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: Transport 5 mL whole blood. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated. Separate specimens must be submitted when multiple tests are ordered.
Remarks: Patient history form, including information from a recent CBC, is required for interpretation.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

HOTLINE NOTE: Remove information found in the Unacceptable Conditions field.

0020058 Hemoglobin, Plasma — HGBP

Performed: Sun-Sat
Reported: 1-3 days

0020057 Hemoglobin, Serum — HGBS

Performed: Sun-Sat
Reported: 1-3 days

0020221 Hemoglobin, Urine — HGBU

Performed: Sun-Sat
Reported: 1-3 days

0092283 Herpes Gestationis Factor (Complement-Fixing Basement Membrane Zone Antibody IgG) — HG FACTOR

Methodology: Semi-quantitative Immunofluorescence/Enzyme-Linked Immunosorbent Assay

0051152 Herpes Simplex Type 1 and Type 2 Glycoprotein G-Specific Antibodies, IgG by CIA — HERP PAN 2

Reference Interval:

Test Number	Components	Reference Interval	
0050292	Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past HSV infection.
0050294	Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.

Interpretive Data:
Individuals infected with HSV may not exhibit detectable IgG antibody to type-specific HSV antigens 1 and 2 in the early stages of infection. Detection of antibody presence in these cases may only be possible using a non-type specific screening test.

0050916 Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG and IgM with Reflex to Type 1 and 2 Glycoprotein G-Specific Ab, IgG — HERPR PAN

Reference Interval:

Test Number	Components	Reference Interval	
	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG by Chemiluminescent Immunoassay	0.89 IV or less	Not Detected.
		0.90-1.09 IV	Indeterminate - Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Detected.
0050641	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgM by ELISA	0.89 IV or less	Not Detected.
		0.90-1.09 IV	Indeterminate - Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Detected - IgM antibody to HSV detected, which may indicate a current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.
0050292	Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past HSV infection.
0050294	Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.

0051708 Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG with Reflex to Type 1 and 2 Glycoprotein G-Specific Ab, IgG — HERPR PAN2

Reference Interval:

Test Number	Components	Reference Interval	
	Herpes Simplex Virus Type 1 and/or 2 Antibodies, IgG by Chemiluminescent Immunoassay	0.89 IV or less	Not Detected.
		0.90-1.09 IV	Indeterminate - Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Detected.
0050292	Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past HSV infection.
0050294	Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA	Effective February 18, 2020	
		0.89 or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
		0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2 glycoprotein G. Repeat testing in 10-14 days may be helpful.
		1.10 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.

0050292 Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA HERP I

Reference Interval:
Effective February 18, 2020

0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1 glycoprotein G. Repeat testing in 10-14 days may be helpful.
1.10 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past HSV infection.

0050294 Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA HERP II

Reference Interval:
Effective February 18, 2020

0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
0.90 – 1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2 glycoprotein G. Repeat testing in 10-14 days may be helpful.
1.10 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.

New Test 3001962 21-Hydroxylase Autoantibodies, Serum 21OH AB

Click for Pricing

Methodology: Qualitative Enzyme-Linked Immunosorbent Assay
Performed: Tue, Fri
Reported: 2-7 days

Specimen Required: Collect: Serum Separator Tube (SST) or Plain Red.
Specimen Preparation: Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Grossly hemolyzed or lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month

Reference Interval: Negative

Interpretive Data: The 21-Hydroxylase Antibody assay is intended for the qualitative determination of antibodies to steroid 21-hydroxylase in human serum.

A positive result is indicative of primary adrenal insufficiency (Addison's disease). Results should be interpreted within the context of clinical symptoms, including functional adrenal testing.

In males with adrenal insufficiency and negative results for 21-hydroxylase antibodies, X-Linked Adrenoleukodystrophy (X-ALD) should be excluded by using Very Long-Chain Branched Fatty Acids in plasma (ARUP Test Code 2004250) for screening.

CPT Code(s): 83516

New York DOH approval pending. Call for status update.

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

New Test **3002135** **1p19q Deletion by FISH and IDH1 R132H Point Mutation by Immunohistochemistry with Reflex to IDH1 and IDH2 Mutation Analysis, Exon 4** **OLIGO PAN**

Click for Pricing

Additional Technical Information

Methodology: Fluorescence in situ Hybridization/Immunohistochemistry/Polymerase Chain Reaction/Sequencing
Performed: Mon-Fri
Reported: 1-7 days, add 8-14 days if reflexed

Specimen Required: Collect: Tumor tissue.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin is preferred) and paraffin embed specimen. Protect paraffin block and/or slides from excessive heat. Transport tissue block or 10 unstained (5-micron thick sections), positively charged slides in a tissue transport kit (ARUP supply #47808) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800)522-2787. (Min. 6 slides) If sending precut slides, do not oven bake.
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated. Ship in cooled container during summer months.
Remarks: Include surgical pathology report.
Unacceptable Conditions: Paraffin block with less than 25 percent tumor tissue. Specimens fixed/processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives (B-4 or B-5). Decalcified specimens.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Interpretive Data: Refer to report.

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

Note: This test code includes pathologist interpretation.

Negative IDH1 IHC results will reflex to IDH1 and IDH2 Mutation Analysis, Exon 4, to assess for less common IDH mutations. Additional charges apply.

The 1p19q FISH probe is added automatically and is performed along with IDH1 by Immunohistochemistry. However, due to the potential for IDH1 to reflex and the longer turnaround time for IDH1-2 gene sequencing, the result of 1p19q FISH testing is reported as soon as available and is charged separately.

CPT Code(s): 88342, 88377 x2, if reflexed add 88381; 81120; 81121

New York DOH Approved.

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

New Test **3002134** **IDH1 R132H Point Mutation by Immunohistochemistry with Reflex to IDH1 and IDH2 Mutation Analysis, Exon 4** **IDH1 RFLX**

Click for Pricing

Additional Technical Information

Methodology: Immunohistochemistry
Performed: Mon-Fri
Reported: 1-5 days, add 8-14 days if reflexed

Specimen Required: Collect: Tumor tissue.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin is preferred) and paraffin embed specimen. Protect paraffin block and/or slides from excessive heat. Transport tissue block or 7 unstained (5-micron thick sections), positively charged slides in a tissue transport kit (ARUP supply #47808) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800)522-2787. (Min. 4 slides) If sending precut slides, do not oven bake.
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated. Ship in cooled container during summer months.
Remarks: Include surgical pathology report.
Unacceptable Conditions: Paraffin block with less than 25 percent tumor tissue. Specimens fixed/processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives (B-4 or B-5). Decalcified specimens.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Interpretive Data: Refer to report.

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

Note: This test code includes pathologist interpretation.

Negative IHC results will reflex to IDH1 and IDH2 Mutation Analysis, Exon 4, to assess for less common IDH mutations. Additional charges apply.

CPT Code(s): 88342, if reflexed add 88381; 81120; 81121

New York DOH Approved.

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

New Test **3002104** **Immunofixation with Free Light Chains, Quantitative, Urine** **U IFE FLC**
Click for Pricing

Methodology: Qualitative Immunofixation Electrophoresis/Quantitative Immunoturbidimetry
Performed: Sun-Sat
Reported: 1-5 days

Specimen Required: Collect: 24-hour urine. Refrigerate during collection. Also acceptable: Random urine specimens and urine supernate.
Specimen Preparation: Transfer two 4 mL aliquots from a well-mixed 24-hour collection to individual ARUP Standard Transport Tubes. (Min: 4 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: **Record total volume and collection time interval on transport tube and test request form.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 3 weeks; Frozen: 6 months

Reference Interval:

Components	Reference Interval
Total Protein	Less than 150 mg/d
Free Urinary Kappa Light Chains	0.00 – 32.90 mg/L
Free Urinary Kappa Excretion/Day	By report
Free Urinary Lambda Light Chain	0.00 – 3.79 mg/L
Free Urinary Lambda Excretion/Day	By report
IFE Interpretation	By report

Interpretive Data: Results of urine free light chain testing can be used to monitor disease progression or response to therapy in patients for whom urine electrophoresis is unable to provide reliable Bence Jones Protein quantification. The results of urine kappa and lambda free light chain quantitative values may be misleading in specimens with high levels of urinary polyclonal free light chains, and absent Bence Jones protein by immunofixation; therefore correlation with urine immunofixation is required to identify inconsistent results.

Total urinary protein is determined turbidimetrically by adding the albumin and kappa and/or lambda light chains. This value may not agree with the total protein as determined by chemical methods, which characteristically underestimates urinary light chains.

CPT Code(s): 84156; 86335; 83520 x2

New York DOH Approved.

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

New Test **3002106** **Immunofixation, Random, Urine** **U IFE**
Click for Pricing

Methodology: Qualitative Immunofixation Electrophoresis
Performed: Sun-Sat
Reported: 1-3 days

Specimen Required: Collect: Random urine. Also acceptable: Urine supernatant.
Specimen Preparation: Transfer one 4 mL aliquot to an ARUP Standard Transport Tube. (Min: 4 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 3 weeks; Frozen: 6 months

Reference Interval: By report

CPT Code(s): 84156; 86335

New York DOH Approved.

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

0050345 Immunoglobulin E — IGE

Specimen Required: Collect: Serum Separator Tube (SST) or Plasma Separator Tube (PST). Also acceptable: Green (Sodium or Lithium Heparin), Lavender (K_2EDTA), or Pink (K_2EDTA).
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: 0.3 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, Icteric, or lipemic specimens
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

2007465 Iodine, Urine — IODINE U

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, nonessential over-the-counter medications for 48 hours (upon the advice of their physician). In addition, the administration of iodine-based contrast media and drugs containing Iodine may yield elevated results. Specimen must be collected in a plastic container and should be refrigerated after collection.
Collect: 24-hour or random urine collection.
Specimen Preparation: Transfer an 8 mL aliquot from a well-mixed collection to ARUP Trace Element-Free Tubes (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Record the total volume and collection time interval on transport tube and on test request form.
Unacceptable Conditions: Acid preserved urine. Specimens collected within 72 hours after administration of iodinated or gadolinium-based contrast media. Specimens contaminated with blood or fecal material. Specimens transported in non-trace element-free transport tube (with the exception of the original device).
Stability (collection to initiation of testing): Ambient: 2 months; Refrigerated: 2 months; Frozen: 2 months

Reference Interval:

Test Number	Components	Reference Interval		
	Iodine, Urine - per volume	**Age**	**Reference Interval**	
		16 years and older	26.0-705.0 ug/L	
	Iodine, Urine - per 24h	**Age**	**Reference Interval**	
		16 years and older	93.0 - 1125.0 ug/d	
	Iodine per gram of Creatinine	Effective February 18, 2020 35.0-540.0 µg/g crt		
0020473	Creatinine, Urine - per 24h	**Age**	**Male**	**Female**
		3-8 years	140-700 mg/d	140-700 mg/d
		9-12 years	300-1300 mg/d	300-1300 mg/d
		13-17 years	500-2300 mg/d	400-1600 mg/d
		18-50 years	1000-2500 mg/d	700-1600 mg/d
		51-80 years	800-2100 mg/d	500-1400 mg/d
		81 years and older	600-2000 mg/d	400-1300 mg/d

0055167 Kappa/Lambda Quantitative Free Light Chains with Ratio, Serum — KAP/LAM F

Methodology: Quantitative Immunoturbidimetry
Performed: Sun-Sat
Reported: 1-4 days

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma.
Stability (collection to initiation of testing): After separation from cells: Ambient: Unacceptable; Refrigerated: 3 weeks; Frozen: 6 months

Reference Interval:

Components	Reference Interval
Lambda Quantitative Free Light Chains, Serum	Effective February 18, 2020 5.71-26.30 mg/L
Kappa Quantitative Free Light Chains, Serum	Effective February 18, 2020 3.30-19.40 mg/L
Kappa/Lambda Free Light Chain Ratio, Serum	0.26-1.65

CPT Code(s): 83520 x2

HOTLINE NOTE: There is a unit of measure change associated with this test.
Change the unit of measure for component 0055168, Kappa Qnt Free Light Chains from mg/dL to mg/L.
Change the unit of measure for component 0055169, Lambda Qnt Free Light Chains from mg/dL to mg/L.

0055233 *Leptospira* Antibody, IgM by Dot Blot — LEPTO M

Specimen Required: Patient Prep:
Collect: Serum Separator Tube (SST) or 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: 0.2 mL) Parallel testing is preferred and convalescent specimens **must** be received within 30 days from receipt of the acute specimens. **Please mark specimen plainly as acute or convalescent.**
Storage/Transport Temperature: Refrigerated.
Remarks:
Unacceptable Conditions: Any other body fluid. Contaminated, heat-inactivated, hemolyzed, severely lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

New Test **3002351** **Leukotriene E4, Urine** **LTE URN**

Click for Pricing

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)
Performed: Varies
Reported: 3-9 days

Specimen Required: Patient Prep: Patients taking 5-lipoxygenase inhibitor Zileuton/Zyflo may have decreased concentrations of leukotriene E4 (LTE4) if dosage has not been discontinued for 48 hours. If possible, discontinue for 48 hours before testing.
Collect: 24-hour urine. Also acceptable Random urine.
Specimen Preparation: Refrigerate specimen during collection. Transfer 4 mL urine to an ARUP Standard Transport Tube. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month

Reference Interval: By Report

CPT Code(s): 82542

New York DOH Approved.

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

New Test **3002266** **Lp-PLA$_2$, Lipoprotein-Associated Phospholipase A$_2$, Activity (PLAC)** **PLAC A**

Click for Pricing

Methodology: Quantitative Enzymatic/Spectrophotometry
Performed: Thu
Reported: 1-8 days

Specimen Required: Collect: Serum Separator Tube (SST). Also acceptable: Plain Red.
Specimen Preparation: Ensure complete clot formation has taken place prior to centrifugation. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 24 hours; Refrigerated: 2 week; Frozen: 18 months

Reference Interval: 0-224 **U/mL**

Interpretive Data: Lp-PLA2 activity should be interpreted in conjunction with clinical evaluation and patient risk assessment as an indicator of atherosclerotic cardiovascular disease. This test does not replace blood lipid testing or other traditional risk factors identified for cardiovascular disease.
U/mL is equivalent to nmol/min/mL.

Note: Samples that are visibly hemolyzed should be redrawn.

CPT Code(s): 83698

New York DOH approval pending. Call for status update.

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

New Test **3002309** **Malignancy Assessment, Pelvic Mass, Overa Plus** **OVA1 PLUS**
Click for Pricing

Methodology: Electrochemiluminescent Immunoassay (ECLIA)/Fixed-Rate-Time Nephelometry
Performed: Varies
Reported: 4-8 days

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Transfer 2.2 mL serum to an ARUP Standard Transport Tube. (Min: 1.1 mL)
Storage/Transport Temperature: Frozen. Also acceptable: Refrigerated.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 8 days; Frozen: 9 weeks

Reference Interval: By Report

Note: Biomarkers: CA-125 II, Apoliproprotein A1 (Apo A-1), Beta-2 Microglobulin (B2M), Transferrin, and Prealbumin.

CPT Code(s): 81503

New York DOH Approved.

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

0099265 **Manganese, Serum** **MANG**

Performed: Sat-Sun
Reported: 1-5 days

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).
Collect: Royal Blue (No Additive).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)
Storage/Transport Temperature: Room temperature.
Unacceptable Conditions: Plasma Specimens that are not separated from clot, within 2 hours. Separator tubes or Royal Blue (EDTA). Specimens transported in tubes other than specified. Hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Interpretive Data: Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum manganese, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Less than 5 percent of manganese present in circulation resides in the serum.

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

HOTLINE NOTE: Remove information found in the Note field.

2002715 Monoclonal Protein Detection, Quantitation, Characterization, SPEP, IFE, IgA, IgG, IgM, FLC — IFE FLC

Methodology: Qualitative Immunofixation Electrophoresis/Quantitative Capillary Electrophoresis/Quantitative Immunoturbidimetry/Quantitative Spectrophotometry
Performed: Sun-Sat
Reported: 1-5 days

Reference Interval:

Test Number	Components	Reference Interval
0050640	Protein Electrophoresis, Serum	Effective August 19, 2019

Components	Reference Interval
Total Protein, Serum	Refer to report
Albumin	Refer to report
Alpha-1 Globulins	Refer to report
Alpha-2 Globulins	Refer to report
Beta Globulins	Refer to report
Gamma	Refer to report

0050340 Immunoglobulin A — Effective February 16, 2016

Age	Reference Interval	Age	Reference Interval
0-30 days	1-7 mg/dL	9-11 months	16-83 mg/dL
1 month	1-53 mg/dL	1 year	14-105 mg/dL
2 months	3-47 mg/dL	2 years	14-122 mg/dL
3 months	5-46 mg/dL	3 years	22-157 mg/dL
4 months	4-72 mg/dL	4 years	25-152 mg/dL
5 months	8-83 mg/dL	5-7 years	33-200 mg/dL
6 months	8-67 mg/dL	8-9 years	45-234 mg/dL
7-8 months	11-89 mg/dL	10 years and older	68-408 mg/dL

0050350 Immunoglobulin G

Age	Reference Interval	Age	Reference Interval
0- 30 days	611-1542 mg/dL	9-11 months	282-1026 mg/dL
1 month	241-870 mg/dL	1 year	331-1164 mg/dL
2 months	198-577 mg/dL	2 years	407-1009 mg/dL
3 months	169-558 mg/dL	3 years	423-1090 mg/dL
4 months	188-536 mg/dL	4 years	444-1187 mg/dL
5 months	165-781 mg/dL	5-7 years	608-1229 mg/dL
6 months	206-676 mg/dL	8-9 years	584-1509 mg/dL
7-8 months	208-868 mg/dL	10 years and older	768-1632 mg/dL

0050355 Immunoglobulin M — Effective February 16, 2016

Age	Reference Interval	Age	Reference Interval
0-30 days	0-24 mg/dL	9-11 months	39-142 mg/dL
1 month	19-83 mg/dL	1 year	41-164 mg/dL
2 months	16-100 mg/dL	2 years	46-160 mg/dL
3 months	23-85 mg/dL	3 years	45-190 mg/dL
4 months	26-96 mg/dL	4 years	41-186 mg/dL
5 months	31-103 mg/dL	5-7 years	46-197 mg/dL
6 months	33-97 mg/dL	8-9 years	49-230 mg/dL
7-8 months	32-120 mg/dL	10 years and older	35-263 mg/dL

	Kappa Quantitative Free Light Chains, Serum	Effective February 18, 2020 3.30 – 19.40 mg/L
	Lambda Quantitative Free Light Chains, Serum	Effective February 18, 2020 5.71-26.30 mg/L
	Kappa/Lambda Free Light Chain Ratio, Serum	0.26-1.65

CPT Code(s): 82784 x3; 84155; 84165; 86334; 83520 x2

HOTLINE NOTE: There is a unit of measure change associated with this test.
Change the unit of measure for component 0055168, Kappa Qnt Free Light Chains from mg/dL to mg/L.
Change the unit of measure for component 0055169, Lambda Qnt Free Light Chains from mg/dL to mg/L.

New Test **3002105** **Monoclonal Protein Study, 24 hour, Urine** **U-PEP**

Click for Pricing

Methodology: Semi-Quantitative Electrophoresis/Qualitative Immunofixation Electrophoresis
Performed: Mon-Fri
Reported: 1-5 days

Specimen Required: Collect: 24-hour urine. Refrigerate during collection. Also acceptable: Random urine specimens and urine supernate.
Specimen Preparation: Transfer two 4 mL aliquots from well-mixed 24 hour collection to individual ARUP Standard Transport Tubes. (Min: 4 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: **Record total volume and collection time interval on transport tube and test request form.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month

Reference Interval:

Components	Reference Interval
Total Protein, Urine mg/dL	Not established
Urine 24 Hour Protein	40 - 150 mg/d
Albumin%, Urine	Not established
Alpha-1 Globulins%, Urine	Not established
Alpha-2 Globulins%, Urine	Not established
Beta Globulins%, Urine	Not established
Gamma Globulins%, Urine	Not established
Paraprotein%, Urine	Not established
Paraprotein Excretion mg/dL	Not established
IFE Interpretation	By report

Interpretive Data: Total urine protein measurement using this method characteristically underestimates urinary light chains

CPT Code(s): 84156; 84166; 86335

New York DOH Approved.

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

New Test **3002069** **Multiple Myeloma Minimum Residual Disease by Flow Cytometry** **MM MRD**
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Time Sensitive

Methodology: Flow Cytometry
Performed: Sun-Sat
Reported: 1-2 days

Specimen Required: Collect: Bone marrow in Green (Sodium Heparin)
Specimen Preparation: Transport 5 mL bone marrow. (Min: 1 mL) Do not freeze.
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated. **Specimen should be received within 24 hours of collection for optimal cell viability.**
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable

Interpretive Data: Refer to report.

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

CPT Code(s): 88184; 88185 x9; 88188

New York DOH approval pending. Call for status update.

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

New Test **3002118** **NKX3.1 by Immunohistochemistry** **NKX3.1 IHC**
Available Now
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Methodology: Immunohistochemistry
Performed: Mon-Fri
Reported: 1-3 days

Specimen Required: Collect: Tissue.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin) and paraffin embed specimen (cells must be prepared into a cellblock). Protect paraffin block and/or slides from excessive heat. Transport tissue block or 5 unstained (3- to 5-micron thick sections), positively charged slides in a tissue transport kit (recommended but not required), (ARUP supply #47808) available online through eSupply using ARUP Connect or contact ARUP Client Services at (800) 522-2787. (Min: 2 slides) If sending precut slides, do not oven bake.
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated. Ship in cooled container during summer months.
Unacceptable Conditions: Specimens submitted with non-representative tissue type. Depleted specimens.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Interpretive Data:

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

Note: This test is performed as a stain and return (technical) service only.

CPT Code(s): 88342

New York DOH Approved.

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

0080235 5'Nucleotidase 5NUCL

Performed: Sun-Sat
Reported: 1-3 days

2011375 Occupation Screen - MMR/VZV Antibody Assessment Panel, IgG MMRV PAN

Reference Interval:

Components	Reference Interval	
Measles Virus (Rubeola) Antibody IgG	13.4 AU/mL or less	Negative - No significant level of detectable measles (rubeola) IgG antibody.
	13.5-16.4 AU/mL	Equivocal - Repeat testing in 10-14 days may be helpful.
	16.5 AU/mL or greater	Positive - IgG antibody to measles (rubeola) detected, which may indicate a current or past exposure/immunization to measles (rubeola).
Mumps Virus Antibody IgG	8.9 AU/mL or less	Negative - No significant level of detectable IgG mumps virus antibody.
	9.0-10.9 AU/mL	Equivocal - Repeat testing in 10-14 days may be helpful.
	11.0 AU/mL or greater	Positive - IgG antibody to mumps virus detected, which may indicate a current or past exposure/immunization to mumps virus.
Rubella Virus Antibody IgG	Less than 9 IU/mL	Not Detected.
	9-9.9 IU/mL	Indeterminate - Repeat testing in 10-14 days may be helpful.
	10 IU/mL or greater	Detected.
Varizella-zoster Virus Ab IgG	Effective February 18, 2020	
	134.9 IV or less	Negative - No significant level of detectable varicella-zoster IgG antibody.
	135.0-164.9 IV	Equivocal - Repeat testing in 10-14 days may be helpful.
	165.0 IV or greater	Positive - IgG antibody to varicella-zoster detected, which may indicate a current or past varicella-zoster infection.

HOTLINE NOTE: There is a numeric map change associated with this test.
Change the numeric map for component 2011399, Varizella-zoster Virus Ab IgG from XXXXX to XXXX.X.

0098389 Organic Acids, Urine ORG AC

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002336, Creatinine, Urine
Remove component 0020533, Creatinine, Urine

3000704 Orotic Acid, Urine OROTICACID

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002339, Creatinine, Urine
Remove component 0020207, Creatinine, Urine - per volume

New Test **3001663** **Ova and Parasite Exam, Body Fluid or Urine** **OP BF/U**

Click for Pricing

Methodology: Qualitative Concentration/Microscopy
Performed: Sun-Sat
Reported: 1-2 days

Specimen Required: Patient Prep: **Urine:** If *S. haematobium* is suspected, collect at midday or 24-hour collection in a container without preservative. Peak egg excretion occurs between noon and 3 p.m.
Collect: Body fluid, CSF, or urine.
Specimen Preparation: Transfer 4 mL body fluid, CSF, or urine to an ARUP Standard Transport Tube. (Min: 1 mL)
Storage/Transport Temperature: **Body Fluid or Urine:** Refrigerated.
CSF: Room temperature.
Remarks: Specimen source required.
Stability (collection to initiation of testing): **Body Fluid:** Ambient: Unacceptable; Refrigerated: 72 hours; Frozen: Unacceptable
Urine: Ambient: 72 hours; Refrigerated: 72 hours; Frozen: Unacceptable
CSF: Ambient: 72 hours; Refrigerated: Unacceptable; Frozen: Unacceptable

Reference Interval: Negative

CPT Code(s): 87177; 87209

New York DOH approval pending. Call for status update.

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

New Test **3001662** **Ova and Parasite Exam, Fecal (Immunocompromised or Travel History)** **OP FEC**

Click for Pricing

Additional Technical Information

Methodology: Qualitative Concentration/Trichrome Stain/Microscopy
Performed: Sun-Sat
Reported: 3-7 days

Specimen Required: Patient Prep: Specimens analyzed to determine the efficacy of treatment should be collected three to four weeks after completion of therapy. Antibiotics may affect results of exam.
Collect: Stool. Recommended collection: 3 separate stool specimens within a 5-7-day period **(an individual order must be submitted for each specimen)**.
Specimen Preparation: Transfer 2 g of stool within one hour of collection into AlcorFix (ARUP Supply #52059) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 1 g)
Also acceptable: Transfer 5 g of stool within one hour of collection into both 10 percent formalin and modified PVA (10 g total). (Min: 10 g total)
Additional specimen collection instructions can be found at https://www.aruplab.com/parasep.
Storage/Transport Temperature: Room temperature.
Remarks: Indicate suspected parasites.
Unacceptable Conditions: Rectal swabs. Multiple specimens (more than one in 24 hours). Unpreserved specimens. Specimens containing barium, oil, or urine.
Stability (collection to initiation of testing): Ambient: 9 months; Refrigerated: 9 months; Frozen: Unacceptable

Reference Interval: Negative

Interpretive Data: Method for identification of Ova and Parasites includes wet mount and trichromes stain.

Due to the various shedding cycles of many parasites, three separate stool specimens collected over a 5-7-day period are recommended for ova and parasite examination. A single negative result does not rule out the possibility of a parasitic infection. The ova and parasite exam does not specifically detect *Cryptosporidium*, *Cyclospora*, *Cystoisospora*, and Microsporidia. For additional test information refer to ARUP consult, https://arupconsult.com/content/diarrhea

Note: For Ova and Parasite exams from non-stool sources, refer to Ova and Parasite Exam, Body Fluid or Urine (ARUP test code 3001663). For *Cryptosporidium*, *Cyclospora* and *Cystoisospora* stains, refer to Parasitology Stain by Modified Acid-Fast (ARUP test code 0060046). For macroscopic parasite identification (worms or proglottids), refer to Parasite Examination, Macroscopic (ARUP test code 2007361). For additional test information refer to ARUP consult, https://arupconsult.com/content/diarrhea

CPT Code(s): 87177; 87209

New York DOH approval pending. Call for status update.

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

3001890 **P501S (Prostein) by IHC** **P501S IHC**

HOTLINE NOTE: Name change only.

2002871 ***PML-RARA* Detection by RT-PCR, Quantitative** **PML QNT**

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 2002872, PML-RARA Translocation, t(15;17) from PML-RARA Translocation, t(15;17) to PML-RARA Translocation.
Change the charting name for component 2002874, PML-RARA Translocation, t(15;17) Quant from PML-RARA Translocation, t(15;17) Quant to PML-RARA Translocation Quant.

0030215 **Prothrombin Time** **PT**

Specimen Required: Collect: Light 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. (Min: 0.5 mL)
Storage/Transport Temperature: CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions: Serum or EDTA plasma. Clotted or hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 2 weeks
University of Utah Clients: Ambient: 24 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

0080342 **Pyridinoline and Deoxypyridinoline by HPLC** **PYD & DPD**

HOTLINE NOTE: There is a component change associated with this test.
Add component 3002333, Creatinine, Urine
Remove component 0020207, Creatinine, Urine - per volume

New Test **3002249** **Regulatory T-Cell Panel, *FOXP3*** **TREGSFOXP3**
Click for Pricing

Test not New York DOH approved at any laboratory. An approved NPL form must accompany specimen.

Methodology: Quantitative Flow Cytometry
Performed: Sun-Sat
Reported: 1-3 days

Specimen Required: Collect: Lavender (K_2 EDTA) or Pink (K_2 EDTA).
Specimen Preparation: Transport 4 mL whole blood. (Min: 1 mL) Specimens must be analyzed within 48 hours of collection.
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Clotted or hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable

Reference Interval:

Available Separately	Components	Reference Interval (Adults 19 & older)
No	**TREGS CD4+CD25+FOXP3+CD127- Percent**	1.0-7.0 percent of CD4
No	**TREGS CD4+CD25+FOXP3+CD127-**	8-48 cells/µL

Interpretive Data: Regulatory T cells (Tregs) suppress the immune response, predominately through the transcription factor FOXP3. The major Treg population is CD4+, CD25+, CD127- with expression of intracellular FOXP3. Decreased Tregs occur in autoimmune disorders including allergy and asthma. Low numbers or compromised function of Tregs are found in graft vs host disease following bone marrow transplantation. Increasing Tregs is a potential cell therapy and decreasing Tregs may enhance immune surveillance of cancer cells. Monitoring Tregs may reflect the mechanism of disease and can assess the efficacy of treatment.

Severe FOXP3 compromise identified by low or absent Tregs is characteristic of the IPEX syndrome, which stands for Immune dysregulation, Polyendocrinopathy, Enteropathy, and X-linked syndrome. However, some FOXP3 mutations may completely inhibit function, yet still allow detection of the intracellular protein by immunologic methods, so absent Tregs by flow cytometry is sufficient, but not necessary for diagnosis.

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

Note: Pediatric ranges were not established.

CPT Code(s): 86356 x4

New York DOH approval pending. Call for status update.

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

0025023 **Selenium, Serum or Plasma** **SE S**

Specimen Required: Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).
Collect: Royal Blue (No Additive), Royal Blue (K_2 EDTA), or Royal Blue (Na_2 EDTA).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated or frozen.
Unacceptable Conditions: Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified.
Stability (collection to initiation of testing): Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Reference Interval: 23.0-190.0 µg/L

Interpretive Data: Elevated results may be due to contamination from skin or other collection-related issues, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum/plasma selenium, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Serum selenium levels can be used in the determination of deficiency or toxicity. Plasma and serum contains 75 percent of the selenium measured in whole blood and reflects recent dietary intake. Selenium deficiency can occur endemically or as a result of sustained TPN or restricted diets and has been associated with cardiomyopathy and may exacerbate hypothyroidism. Selenium toxicity is relatively rare. Excess intake of selenium can result in symptoms consistent with selenosis and include gastrointestinal upset, hair loss, white blotchy nails, and mild nerve damage.

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

HOTLINE NOTE: Remove information found in the Note field.

New Test **3002287** **Thyroid Stimulating Immunoglobulin** **TSIG**
Click for Pricing

Additional Technical Information

Methodology: Semi-Quantitative Chemiluminescent Immunoassay
Performed: Sun-Sat
Reported: Within 24 hours

Specimen Required: Collect: Serum Separator Tube (SST), Green (Lithium Heparin), or Lavender (K_2 EDTA).
Specimen Preparation: Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Frozen.
Stability (collection to initiation of testing): After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 year

Reference Interval:

0.54 IU/L or less	Consistent with healthy thyroid function or non-Graves thyroid or autoimmune disease. Those with healthy thyroid function typically have results less than 0.1 IU/L.
0.55 IU/L or greater	Consistent with Graves disease (autoimmune hyperthyroidism).

Interpretive Data: This assay specifically detects thyroid stimulating autoantibodies. For diagnostic purposes, the results obtained from this assay should be used in combination with clinical examination, patient medical history, and other findings.

CPT Code(s): 84445

New York DOH Approved.

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

0050206 *Treponema pallidum* (VDRL), Cerebrospinal Fluid with Reflex to Titer — VDRL CSF

Specimen Required: Collect: CSF.
Specimen Preparation: Transfer 0.5 mL CSF to an ARUP Standard Transport Tube. (Min: 0.4 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Other body fluids. Contaminated, hemolyzed, xanthochromic, or severely lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

0050920 *Treponema pallidum* Antibody, IgG by ELISA — SYPH G

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma or other body fluids. Contaminated, hemolyzed, or severely lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

0051075 *Trypanosoma cruzi* Antibody, IgM — CHAGAS M

Specimen Required: Patient Prep:
Collect: Serum Separator Tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 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.**
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Remarks:
Unacceptable Conditions: Plasma. Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

0050162 Varicella-Zoster Virus Antibodies, IgG and IgM — VZV PAN

Reference Interval:

Test Number	Components	Reference Interval	
0050167	Varicella-Zoster Virus Antibody, IgG	Effective February 18, 2020	
		134.9 IV or less	Negative - No significant level of detectable varicella-zoster IgG antibody.
		135.0-164.9 IV	Equivocal - Repeat testing in 10-14 days may be helpful.
		165.0 IV or greater	Positive - IgG antibody to varicella-zoster detected, which may indicate a current or past varicella-zoster infection.
0099314	Varicella-Zoster Virus Antibody, IgM	0.90 ISR or less	Negative - No significant level of detectable varicella-zoster virus IgM antibody.
		0.91-1.09 ISR	Equivocal - Repeat testing in 10-14 days may be helpful.
		1.10 ISR or greater	Positive - Significant level of detectable varicella-zoster virus IgM antibody. Indicative of current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.

HOTLINE NOTE: There is a numeric map change associated with this test.
Change the numeric map for component 0050167, Varicella-Zoster Virus Antibody, IgG from XXXXX to XXXX.X.

0050167 Varicella-Zoster Virus Antibody, IgG — VZE

Reference Interval:
Effective February 18, 2020

134.9 IV or less	Negative - No significant level of detectable varicella-zoster IgG antibody.
135.0-164.9 IV	Equivocal - Repeat testing in 10-14 days may be helpful.
165.0 IV or greater	Positive - IgG antibody to varicella-zoster detected, which may indicate a current or past varicella-zoster infection.

HOTLINE NOTE: There is a numeric map change associated with this test.
Change the numeric map for component 0050167, Varicella-Zoster Virus Ab, IgG from XXXXX to XXXX.X.

0054444 **Varicella-Zoster Virus Antibody, IgG, CSF** **VZECSF**

Reference Interval:
Effective February 18, 2020

134.9 IV or less	Negative - No significant level of IgG antibody to varicella-zoster virus detected.
135.0-164.9 IV	Equivocal - Repeat testing in 10-14 days may be helpful.
165.0 IV or greater	Positive - IgG antibody to varicella-zoster virus detected, which may indicate a current or past varicella-zoster infection.

HOTLINE NOTE: There is a numeric map change associated with this test.
Change the numeric map for component 0054444, VZV Antibody IgG CSF from XXXXX to XXXX.X.

The following will be discontinued from ARUP's test menu on February 18, 2020.
Replacement test options are supplied if applicable.

Test Number	Test Name	Refer To Replacement
2008901	B-Cell Memory and Naive Panel	B Cell Subset Analysis (3002216)
2002464	Bence Jones Protein, Quantitation and Characterization, with Reflex to Kappa/Lambda Free Light Chains with Ratio, Urine	Monoclonal Protein Study, 24 hour, Urine (3002105)
2013901	*Candida FKS* Drug Resistance by Sequencing	
2013784	*Candida* Species by PCR with Reflex to *FKS* Drug Resistance by Sequencing	
0070265	21-Hydroxylase Antibody	21-Hydroxylase Autoantibodies, Serum (3001962)
0050161	Kappa and Lambda Free Light Chains (Bence Jones Protein), Qualitative, Urine	Immunofixation, Random, Urine (3002106)
0050618	Kappa and Lambda Free Light Chains (Bence Jones Protein), Quantitative, Urine	Immunofixation with Free Light Chains, Quantitative, Urine (3002104)
0050689	Kappa Free Light Chains (Bence Jones Protein), Quantitative, Urine	
0050682	Lambda Free Light Chains (Bence Jones Protein), Quantitative, Urine	
3000394	Malignancy Risk Assessment, Pelvic Mass, OVA1	Malignancy Assessment, Pelvic Mass, Overa Plus (3002309)
2011713	Mycobacterium tuberculosis Drug Resistance by Sequencing	
2002277	Ova and Parasite Exam, Body Fluid or Urine	Ova and Parasite Exam, Body Fluid or Urine (3001663)
2002272	Ova and Parasite Exam, Fecal (Immunocompromised or Travel History)	Ova and Parasite Exam, Fecal (Immunocompromised or Travel History) (3001662)
2010172	Regulatory T-Cell Panel	Regulatory T-Cell Panel, FOXP3 (3002249)
0099430	Thyroid Stimulating Immunoglobulin	Thyroid Stimulating Immunoglobulin (3002287)
0013030	Warm Auto Adsorption	
0013025	Warm Triple Adsorption	