HOTLINE: Effective November 18, 2019

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
6	2013502	A1 Antigen Typing, Patient				x								
7	0010003	ABO Group & Rh Type				x								
7	0010014	ABO-Rh Prenatal			x	x								
7	0080137	Amino Acids Quantitative by LC-MS/MS, CSF					x							
8	2009389	Amino Acids Quantitative by LC-MS/MS, Plasma					x							
10	2009419	Amino Acids Quantitative by LC-MS/MS, Urine					x							
13	0020043	Ammonia, Plasma		x			x							
13	0097303	*Anaplasma phagocytophilum* (HGA) Antibodies, IgG and IgM				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
13	0097317	*Anaplasma phagocytophilum* (HGA) Antibody, IgG				x								
13	0097318	*Anaplasma phagocytophilum* (HGA) Antibody, IgM				x								
13	0010020	Antibody Screen RBC with Reflex to Identification			x	x								
13	0013020	Antigen Testing, RBC Phenotype Extended				x								
13	0013019	Antigen Testing, Rh Phenotype				x								
14	3001431	Autoimmune Encephalitis Extended Panel, Serum	x				x					x		
14	2013601	Autoimmune Encephalitis Reflexive Panel, Serum	x				x					x		
15	2013944	Autoimmune Neurologic Disease Reflexive Panel, Serum	x				x		x	x	x	x		
16	2005640	Autoimmune Neuromuscular Junction Reflexive Panel					x					x		
17	0093048	*Babesia microti* Antibodies, IgG and IgM by IFA				x								
17	0093049	*Babesia microti* Antibody, IgG by IFA				x								
17	0093050	*Babesia microti* Antibody, IgM by IFA				x								
54	0051700	Biotinidase Deficiency (BTD) 5 Mutations												x
54	0049003	Blood Smear - with Interpretation												x
18	3001947	Blood Smear with Interpretation											x	
54	2011436	Bromide, Serum or Plasma												x
18	2007933	C Antigen Typing - Patient				x								
19	0080407	Catecholamines Fractionated by LC-MS/MS, Urine Free				x	x							
20	2007715	Cellano Antigen Typing - Patient				x								
54	2013767	*Chlamydia trachomatis* and *Neisseria gonorrhoeae* by Transcription-Mediated Amplification (TMA) with Reflex to *Chlamydia trachomatis* L serovars (LGV) by PCR												x
20	2008597	Clobazam Quantitative, Serum or Plasma			x	x								
21	3001982	Coccidioides Antibody Reflexive Panel											x	
22	3001986	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, CSF											x	
22	2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum	x									x		
23	3001971	Copper, Free, Serum or Plasma											x	
54	0020596	Copper, Serum Free (Direct)												x
23	0080480	Creatine Kinase, MB				x	x		x					
24	3002030	Creatine Kinase, MB and Relative Percent											x	
24	2013504	Cw Antigen Typing, Patient				x								

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24	0081106	Cystine Quantitative, Urine					x							
25	0081105	Cystinuria Panel					x							
25	2003414	Cytogenomic SNP Microarray				x								
54	2013111	Cytokine Production by Mononuclear Cells in Response to Antigen and Mitogen Stimulation												x
54	2013109	Cytokine Production by Mononuclear Cells in Response to Mitogen Stimulation												x
25	0013008	Direct Coombs (Anti-Human Globulin)				x								
25	2007941	E Antigen Typing - Patient				x								
25	0013010	Elution & Antibody Identification, RBC				x								
26	2006340	Exome Sequencing, Familial Control		x	x	x	x		x	x				
26	2006332	Exome Sequencing, Trio							x					
27	3002026	Explify Respiratory Pathogen Detection by Next Generation Sequencing											x	
54	2013694	Explify Respiratory Pathogens by Next Generation Sequencing												x
27	2007717	FYA Antigen Typing - Patient				x								
27	2007725	FYB Antigen Typing - Patient				x								
54	0080125	Galactose-1-Phosphate Uridyltransferase												x
28	3001790	Galactose-1-Phosphate Uridyltransferase (GALT Enzyme), RBC											x	
29	3001957	Gamma Globin (*HBG1* and *HBG2*) Sequencing											x	
29	2006450	Hepatitis Delta Antigen by ELISA			x	x								
30	0091203	Heroin - Screen with Reflex to Confirmation/Quantitation - Serum or Plasma			x	x								
30	0091586	Heroin - Screen with Reflex to Confirmation/Quantitation - Urine			x									
30	0092522	*Histoplasma* Antigen Quantitative by EIA, Serum					x	x						
30	3002008	Human Papillomavirus (HPV) High Risk by in situ Hybridization, Paraffin											x	
31	3002009	Human Papillomavirus (HPV) Low Risk by in situ Hybridization, Paraffin											x	
54	2002896	Human Papillomavirus (HPV) Low Risk by in situ Hybridization, Paraffin												x
54	2002899	Human Papillomavirus (HPV), High Risk by in situ Hybridization, Paraffin												x
31	3001969	Human Surfactant Protein D (SP-D)											x	
32	3000462	Immature PLT Fraction											x	

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32	3001968	Interstitial Lung Disease (ILD) Biomarkers Panel											x	
33	2000271	Isohemagglutinin Titer, IgG				x								
33	2000280	Isohemagglutinin Titer, IgG and IgM				x								
33	2000270	Isohemagglutinin Titer, IgM				x								
33	2007727	JKA Antigen Typing - Patient				x								
33	2007729	JKB Antigen Typing - Patient				x								
33	2007731	Kell Antigen Typing - Patient				x								
34	3002001	Kell K/k (KEL) Antigen Genotyping											x	
54	0051644	Kell K/k Antigen (KEL) Genotyping												x
35	2013690	Kpa Pt Antigen Typing IRL				x								
35	2007733	LEA Antigen Typing - Patient				x								
35	2007723	LEB Antigen Typing - Patient				x								
35	2009460	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG and Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titers, Serum	x				x					x		
36	3001992	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, CSF											x	
36	2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum	x									x		
36	0020038	Lithium, Serum or Plasma				x								
37	2007939	Little c Antigen Typing - Patient				x								
37	2007943	Little e Antigen Typing - Patient				x								
37	2007721	Little s Antigen Typing - Patient				x								
37	0055241	Liver-Kidney Microsome - 1 Antibody, IgG			x									
54	2013117	Lymphocyte Antigen and Mitogen Proliferation Panel with Cytokine Response												x
37	2012039	Lysozyme, Serum				x	x							
37	2007719	M Antigen Typing - Patient				x								
38	2007996	Metanephrines Fractionated by HPLC-MS/MS, Urine				x	x							
39	3002032	Methicillin Resistant *Staphylococcus aureus* (MRSA) by PCR, Nasal											x	
39	3001975	Methyl Bromide Metabolite, Serum or Plasma											x	
40	2003115	Methylphenidate and Metabolite, Urine, Quantitative					x	x						
54	2006065	Mitochondrial Disorders (mtDNA) Sequencing												x
40	3001965	Mitochondrial Disorders (mtDNA) Sequencing and Deletion Analysis by NGS											x	

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41	3001959	Mitochondrial Disorders Panel (mtDNA and Nuclear Genes)											x	
54	2006054	Mitochondrial Disorders Panel (mtDNA Sequencing, Nuclear Genes Sequencing, and Deletion/Duplication)												x
54	0050742	Myocardial Antibody, IgG with Reflex to Titer												x
41	2007735	N Antigen Typing - Patient				x								
41	0092628	P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody	x									x		
41	2007737	P1 Antigen Typing - Patient				x								
42	3001890	P501S by Immunohistochemistry											x	
42	2004232	Pancreastatin, Plasma			x									
42	0080336	Phenylalanine and Tyrosine					x							
42	0080315	Phenylalanine Monitoring, Plasma					x							
54	0051622	Phosphatidylethanolamine Antibodies, IgG, IgM and IgA												x
54	0051623	Phosphatidylglycerol Antibodies, IgG, IgM and IgA												x
54	0051624	Phosphatidylinositol Antibodies, IgG, IgM and IgA												x
42	0060052	*Pneumocystis jirovecii* DFA								x				
43	2009226	*Pneumocystis jirovecii* DFA with Reflex to *Pneumocystis jirovecii* by PCR								x				
43	3001255	14-3-3 Protein Tau, Total, CSF				x								
43	3002059	Pyruvate Kinase Deficiency (*PKLR*) Sequencing											x	
44	3000400	QuantiFERON-TB Gold Plus, 1-Tube				x								
45	0013014	Rh Type Only				x								
45	3002002	RhC/c (RHCE) Antigen Genotyping											x	
54	0050421	RhCc Antigen (RHCE) Genotyping												x
46	3002003	RhE/e (RHCE) Antigen Genotyping											x	
54	0050423	RhEe Antigen (RHCE) Genotyping												x
47	2007739	S Antigen Typing - Patient				x								
47	2013506	Sd(a) Antigen Typing, Patient				x								
54	0020044	Sulfonamides (Sulfas)												x
47	3001973	Sulfonamides, Quantitative, Serum or Plasma											x	
47	0091100	Sulfonylurea Hypoglycemia Panel, Quantitative, Urine			x									
48	3001896	TCR DELTA by Immunohistochemistry											x	
48	0070111	Testosterone Free, Adult Male								x				

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48	0081059	Testosterone Free, Females or Children								x				
48	0070102	Testosterone, Bioavailable and Sex Hormone Binding Globulin (Includes Total Testosterone), Adult Male								x				
48	0081057	Testosterone, Bioavailable and Sex Hormone Binding Globulin (Includes Total Testosterone), Females or Children								x				
48	0070109	Testosterone, Free and Total (Includes Sex Hormone Binding Globulin), Adult Male								x				
48	0081056	Testosterone, Free and Total (Includes Sex Hormone Binding Globulin), Females or Children								x				
49	0090369	THC Metabolite, Urine, Quantitative				x	x	x						
49	0013410	Thermal Amplitude Test				x								
54	0090064	Thiocyanate, 24-Hour Urine												x
54	0090063	Thiocyanate, Random Urine												x
50	3001801	Toxigenic *Clostridium difficile* by LFA with Reflex to PCR, Stool											x	
50	0080355	Tyrosine, Plasma					x							
51	3001755	*UGT1A1* Sequencing											x	
52	3002046	Voltage-Gated Calcium Channel (VGCC) Antibody Panel											x	
52	2009463	Voltage-Gated Potassium Channel (VGKC) Antibody with Reflex to LGI1 and CASPR2 Screen and Titer, Serum	x				x	x				x		
53	3001996	Voltage-Gated Potassium Channel (VGKC) Complex Antibody Panel with Reflex to Titer, CSF											x	
54	0020598	Wilson Disease Screening Panel, Serum												x
53	2013508	Wr(a) Antigen Typing, Patient				x								

2013502 **A1 Antigen Typing, Patient** **A1 AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA)
Storage/Transport Temperature: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0010003 ABO Group & Rh Type — IRL-ABORH

Specimen Required: Collect: Lavender (K_2EDTA), or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze red cells.** Transport 3 mL whole blood. (Min 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0010014 ABO-Rh Prenatal — ABORH-PR

Performed: Mon-Fri
Reported: 1-3 Days

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: Transport 7 mL whole blood. (Min: 3 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

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

0080137 Amino Acids Quantitative by LC-MS/MS, CSF — CSFAA QNT

Reference Interval:
Effective November 18, 2019

Components	Reference Interval	Components	Reference Interval
Alpha-Aminoadipic acid	Less than or equal to 2.0 µmol/L	Histidine	7.0 - 24.0 µmol/L
Alpha-Amino-n-butyric acid	Less than or equal to 8.0 µmol/L	Homocitrulline	Less than or equal to 5.0 µmol/L
Alanine	16.0 – 46.0 µmol/L	Homocystine	Less than or equal to 2.0 µmol/L
Alloisoleucine	Less than or equal to 2.0 µmol/L	Hydroxylysine	Less than or equal to 5.0 µmol/L
Anserine	Less than or equal to 7.0 µmol/L	Hydroxyproline	Less than or equal to 4.0 µmol/L
Arginine	8.0 – 31.0 µmol/L	Isoleucine	Less than or equal to 12.0 µmol/L
Argininosuccinic acid	Less than or equal to 2.0 µmol/L	Leucine	5.0 - 22.0 µmol/L
Asparagine	4.0 – 13.0 µmol/L	Lysine	10.0 – 36.0 µmol/L
Aspartic acid	Less than or equal to 5.0 µmol/L	Methionine	2.0 – 7.0 µmol/L
Beta-Alanine	Less than or equal to 25.0 µmol/L	Ornithine	Less than or equal to 10.0 µmol/L
Beta-Aminoisobutyric acid	Less than or equal to 5.0 µmol/L	Phenylalanine	6.0 - 20.0 µmol/L
Citrulline	Less than or equal to 5.0 µmol/L	Proline	Less than or equal to 5.0 µmol/L
Cystathionine	Less than or equal to 5.0 µmol/L	Sarcosine	Less than or equal to 5.0 µmol/L
Cystine	Less than or equal to 5.0 µmol/L	Serine	18.0 - 66.0 µmol/L
Ethanolamine	Less than or equal to 40.0 µmol/L	Taurine	Less than or equal to 13.0 µmol/L
Gamma-Amino-n-butyric acid	Less than or equal to 5.0 µmol/L	Threonine	14.0 - 59.0 µmol/L
Glutamic acid	Less than or equal to 5.0 µmol/L	Tryptophan	Less than or equal to 5.0 µmol/L
Glutamine	330.0 – 630.0 µmol/L	Tyrosine	5.0 - 23.0 µmol/L
Glycine	5.0 - 20.0 µmol/L	Valine	8.0 – 30.0 µmol/L

2009389 **Amino Acids Quantitative by LC-MS/MS, Plasma** **AA QNT P**

Reference Interval:
Effective November 18, 2019

Components	Reference Interval	
α-Aminoadipic acid	Less than or equal to 4 µmol/L	
α-Amino-n-butyric acid	Less than or equal to 40 µmol/L	
Alanine	**Age**	**Reference Interval**
	0-30 days	140-480 µmol/L
	1 month-11 months	150-520 µmol/L
	1 year and older	160-530 µmol/L
Alloisoleucine	Less than or equal to 5 µmol/L	
Anserine	Less than or equal to 5 µmol/L	
Arginine	**Age**	**Reference Interval**
	0-30 days	16-140 µmol/L
	1 month-11 months	35-140 µmol/L
	1 year and older	35-125 µmol/L
Argininosuccinic acid	Less than or equal to 2 µmol/L	
Asparagine	20-80 µmol/L	
Aspartic acid	**Age**	**Reference Interval**
	0-30 days	Less than or equal to 45 µmol/L
	1 month-11 months	Less than or equal to 30 µmol/L
	1 year and older	Less than or equal to 15 µmol/L
β-Alanine	Less than or equal to 25 µmol/L	
β-Aminoisobutyric acid	**Age**	**Reference Interval**
	0 day to 11 months	Less than or equal to 15 µmol/L
	1 year and older	Less than or equal to 10 µmol/L
Citrulline	**Age**	**Reference Interval**
	0 day to 11 months	7-40 µmol/L
	1 year and older	10-45 µmol/L
Cystathionine	Less than or equal to 5 µmol/L	
Cystine	**Age**	**Reference Interval**
	0-30 days	10-60 µmol/L
	1 month-11 months	10-50 µmol/L
	1 year and older	10-65 µmol/L
Ethanolamine	**Age**	**Reference Interval**
	0-30 days	Less than or equal to 100 µmol/L
	1 month-11 months	Less than or equal to 25 µmol/L
	1 year and older	Less than or equal to 15 µmol/L
γ-Amino-n-butyric acid	Less than or equal to 5 µmol/L	
Glutamic acid	**Age**	**Reference Interval**
	0-30 days	30-240 µmol/L
	1 month-11 months	30-210 µmol/L
	1 year and older	15-130 µmol/L
Glutamine	**Age**	**Reference Interval**
	0-30 days	295-900 µmol/L
	1 month-11 months	400-850 µmol/L
	1 year and older	380-680 µmol/L
Glycine	**Age**	**Reference Interval**
	0-30 days	160-470 µmol/L
	1 month-11 months	120-375 µmol/L
	1 year and older	140-420 µmol/L
Histidine	50-130 µmol/L	
Homocitrulline	Less than or equal to 5 µmol/L	
Homocystine	Less than or equal to 2 µmol/L	
Hydroxylysine	Less than or equal to 5 µmol/L	
Hydroxyproline	**Age**	**Reference Interval**
	0-30 days	15-90 µmol/L
	1 month-11 months	10-70 µmol/L
	1 year and older	5-40 µmol/L
Isoleucine	**Age**	**Reference Interval**
	0-30 days	20-110 µmol/L
	1 month and older	30-120 µmol/L

Leucine	**Age**	**Reference Interval**
	0-11 months	50-180 µmol/L
	1 year and older	60-180 µmol/L
Lysine	**Age**	**Reference Interval**
	0-30 days	70-270 µmol/L
	1 month-11 months	80-260 µmol/L
	1 year and older	85-230 µmol/L
Methionine	**Age**	**Reference Interval**
	0-11 months	15-55 µmol/L
	1 year and older	15-40 µmol/L
Ornithine	**Age**	**Reference Interval**
	0-30 days	30-180 µmol/L
	1 month-11 months	30-140 µmol/L
	1 year and older	25-110 µmol/L
Phenylalanine	**Age**	**Reference Interval**
	0-30 days	30-95 µmol/L
	1 month-11 months	30-90 µmol/L
	1 year and older	30-82 µmol/L
Proline	**Age**	**Reference Interval**
	0-30 days	110-340 µmol/L
	1 month-11 months	100-320 µmol/L
	1 year and older	90-350 µmol/L
Sarcosine	Less than or equal to 5 µmol/L	
Serine	**Age**	**Reference Interval**
	0-30 days	90-340 µmol/L
	1 month-11 months	90-275 µmol/L
	1 year and older	60-170 µmol/L
Taurine	**Age**	**Reference Interval**
	0-30 days	30-250 µmol/L
	1 month-11 months	30-170 µmol/L
	1 year and older	30 -130 µmol/L
Threonine	**Age**	**Reference Interval**
	0-30 days	60-400 µmol/L
	1 month-11 months	60-310 µmol/L
	1 year and older	60-190 µmol/L
Tryptophan	**Age**	**Reference Interval**
	0-30 days	15-75 µmol/L
	1 month-11 months	20-85 µmol/L
	1 year and older	25-80 µmol/L
Tyrosine	**Age**	**Reference Interval**
	0-30 days	30-140 µmol/L
	1 month-11 months	30-130 µmol/L
	1 year and older	35-110 µmol/L
Valine	**Age**	**Reference Interval**
	0-30 days	80-270 µmol/L
	1 month-11 months	90-310 µmol/L
	1 year and older	120-320 µmol/L

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

Reference Interval:
Effective November 18, 2019

Components	Age	Reference Interval
α-Aminoadipic acid	0-2 months	Less than or equal to 700 µmol/g creatinine
	3-11 months	Less than or equal to 520 µmol/g creatinine
	1-2 years	Less than or equal to 470 µmol/g creatinine
	3-5 years	Less than or equal to 200 µmol/g creatinine
	6-11 years	Less than or equal to 125 µmol/g creatinine
	12 years and older	Less than or equal to 100 µmol/g creatinine
α-Amino-n-butyric acid	0-2 months	Less than or equal to 120 µmol/g creatinine
	3-11 months	Less than or equal to 80 µmol/g creatinine
	1-2 years	Less than or equal to 70 µmol/g creatinine
	3-5 years	Less than or equal to 60 µmol/g creatinine
	6-11 years	Less than or equal to 50 µmol/g creatinine
	12 years and older	Less than or equal to 25 µmol/g creatinine
Alanine	0-2 months	475-3330 µmol/g creatinine
	3-11 months	270-3020 µmol/g creatinine
	1-2 years	170-1750 µmol/g creatinine
	3-5 years	100-1000 µmol/g creatinine
	6-11 years	80-930 µmol/g creatinine
	12 years and older	60 -500 µmol/g creatinine
Anserine	0-2 months	Less than or equal to 60 µmol/g creatinine
	3-11 months	Less than or equal to 300 µmol/g creatinine
	1-2 years	Less than or equal to 720 µmol/g creatinine
	3-5 years	Less than or equal to 385 µmol/g creatinine
	6-11 years	Less than or equal to 480 µmol/g creatinine
	12 years and older	Less than or equal to 250 µmol/g creatinine
Arginine	0-2 months	Less than or equal to 470 µmol/g creatinine
	3-11 months	Less than or equal to 340 µmol/g creatinine
	1-2 years	Less than or equal to 390 µmol/g creatinine
	3-5 years	Less than or equal to 270 µmol/g creatinine
	6-11 years	Less than or equal to 160 µmol/g creatinine
	12 years and older	Less than or equal to 100 µmol/g creatinine
Argininosuccinic acid	0-2 months	Less than or equal to 110 µmol/g creatinine
	3-11 months	Less than or equal to 100 µmol/g creatinine
	1-2 years	Less than or equal to 80 µmol/g creatinine
	3-5 years	Less than or equal to 65 µmol/g creatinine
	6-11 years	Less than or equal to 50 µmol/g creatinine
	12 years and older	Less than or equal to 40 µmol/g creatinine
Asparagine	0-2 months	55-1445 µmol/g creatinine
	3-11 months	45-910 µmol/g creatinine
	1-2 years	80-675 µmol/g creatinine
	3-5 years	50-345 µmol/g creatinine
	6-11 years	40-390 µmol/g creatinine
	12 years and older	25-180 µmol/g creatinine
Aspartic acid	0-2 months	Less than or equal to 370 µmol/g creatinine
	3-11 months	Less than or equal to 160 µmol/g creatinine
	1-2 years	Less than or equal to 65 µmol/g creatinine
	3 years and older	Less than or equal to 25 µmol/g creatinine
β-Alanine	0-5 months	Less than or equal to 250 µmol/g creatinine
	6 months and older	Less than or equal to 125 µmol/g creatinine
β-Aminoisobutyric acid	0-2 months	Less than or equal to 6780 µmol/g creatinine
	3-11 months	Less than or equal to 6000 µmol/g creatinine
	1-2 years	Less than or equal to 5500 µmol/g creatinine
	3-5 years	Less than or equal to 3490 µmol/g creatinine
	6-11 years	Less than or equal to 1720 µmol/g creatinine
	12 years and older	Less than or equal to 1200 µmol/g creatinine
Citrulline	0-2 months	Less than or equal to 145 µmol/g creatinine
	3-11 months	Less than or equal to 75 µmol/g creatinine
	1-2 years	Less than or equal to 40 µmol/g creatinine
	3 years and older	Less than or equal to 15 µmol/g creatinine
Cystathionine	0-2 months	Less than or equal to 235 µmol/g creatinine
	3-11 months	Less than or equal to 60 µmol/g creatinine
	1-2 years	Less than or equal to 75 µmol/g creatinine
	3-5 years	Less than or equal to 35 µmol/g creatinine
	6-11 years	Less than or equal to 25 µmol/g creatinine
	12 years and older	Less than or equal to 60 µmol/g creatinine

Cystine	0-2 months	Less than or equal to 870 µmol/g creatinine
	3-11 months	Less than or equal to 300 µmol/g creatinine
	1-2 years	Less than or equal to 150 µmol/g creatinine
	3-5 years	Less than or equal to 125 µmol/g creatinine
	6-11 years	Less than or equal to 100 µmol/g creatinine
	12 years and older	Less than or equal to 150 µmol/g creatinine
Ethanolamine	0-2 months	390-6560 µmol/g creatinine
	3-11 months	320-1410 µmol/g creatinine
	1-2 years	270-1160 µmol/g creatinine
	3-5 years	245-825 µmol/g creatinine
	6-11 years	130-770 µmol/g creatinine
	12 years and older	100-510 µmol/g creatinine
γ-Amino-n-butyric acid	0-2 months	Less than or equal to 60 µmol/g creatinine
	3-5 months	Less than or equal to 50 µmol/g creatinine
	6 months and older	Less than or equal to 25 µmol/g creatinine
Glutamic acid	0-2 months	Less than or equal to 560 µmol/g creatinine
	3-11 months	Less than or equal to 360 µmol/g creatinine
	1-2 years	Less than or equal to 190 µmol/g creatinine
	3-5 years	Less than or equal to 80 µmol/g creatinine
	6-11 years	Less than or equal to 70 µmol/g creatinine
	12 years and older	Less than or equal to 52 µmol/g creatinine
Glutamine	0-2 months	380-3860 µmol/g creatinine
	3-11 months	310-3240 µmol/g creatinine
	1-2 years	340-2225 µmol/g creatinine
	3-5 years	300-1525 µmol/g creatinine
	6-11 years	165-1530 µmol/g creatinine
	12 years and older	100-665 µmol/g creatinine
Glycine	0-2 months	1620-19725 µmol/g creatinine
	3-11 months	915-10220 µmol/g creatinine
	1-2 years	775-6600 µmol/g creatinine
	3-5 years	600-4600 µmol/g creatinine
	6-11 years	310-5700 µmol/g creatinine
	12 years and older	230 – 3510 µmol/g creatinine
Histidine	0-2 months	325-4940 µmol/g creatinine
	3-11 months	290-4850 µmol/g creatinine
	1-2 years	340-4420 µmol/g creatinine
	3-5 years	315-2460 µmol/g creatinine
	6-11 years	160-2380 µmol/g creatinine
	12 years and older	80-1130 µmol/g creatinine
Homocitrulline	0-2 months	Less than or equal to 675 µmol/g creatinine
	3-11 months	Less than or equal to 220 µmol/g creatinine
	1-2 years	Less than or equal to 150 µmol/g creatinine
	3-5 years	Less than or equal to 100 µmol/g creatinine
	6-11 years	Less than or equal to 70 µmol/g creatinine
	12 years and older	Less than or equal to 40 µmol/g creatinine
Hydroxylysine	0-2 months	Less than or equal to 510 µmol/g creatinine
	3-11 months	Less than or equal to 240 µmol/g creatinine
	1-2 years	Less than or equal to 85 µmol/g creatinine
	3-5 years	Less than or equal to 50 µmol/g creatinine
	6-11 years	Less than or equal to 40 µmol/g creatinine
	12 years and older	Less than or equal to 30 µmol/g creatinine
Hydroxyproline	0-2 months	Less than or equal to 6100 µmol/g creatinine
	3-11 months	Less than or equal to 1270 µmol/g creatinine
	1-2 years	Less than or equal to 100 µmol/g creatinine
	3-5 years	Less than or equal to 35 µmol/g creatinine
	6-11 years	Less than or equal to 20 µmol/g creatinine
	12 years and older	Less than or equal to 30 µmol/g creatinine
Isoleucine	0-2 months	Less than or equal to 360 µmol/g creatinine
	3-11 months	Less than or equal to 140 µmol/g creatinine
	1-2 years	Less than or equal to 100 µmol/g creatinine
	3-5 years	Less than or equal to 70 µmol/g creatinine
	6-11 years	Less than or equal to 60 µmol/g creatinine
	12 years and older	Less than or equal to 45 µmol/g creatinine
Leucine	0-2 months	20-420 µmol/g creatinine
	3-11 months	20-195 µmol/g creatinine
	1-2 years	20-190 µmol/g creatinine
	3-5 years	20-110 µmol/g creatinine
	6-11 years	20-100 µmol/g creatinine
	12 years and older	Less than or equal to 45 µmol/g creatinine

Lysine	0-2 months	120-2270 µmol/g creatinine
	3-11 months	55-1260 µmol/g creatinine
	1-2 years	45-930 µmol/g creatinine
	3-5 years	40-475 µmol/g creatinine
	6-11 years	25-440 µmol/g creatinine
	12 years and older	Less than or equal to 355 µmol/g creatinine
Methionine	0-2 months	Less than or equal to 100 µmol/g creatinine
	3-11 months	Less than or equal to 60 µmol/g creatinine
	1-2 years	Less than or equal to 50 µmol/g creatinine
	3-11 years	Less than or equal to 30 µmol/g creatinine
	12 years and older	Less than or equal to 20 µmol/g creatinine
Ornithine	0-2 months	Less than or equal to 475 µmol/g creatinine
	3-11 months	Less than or equal to 150 µmol/g creatinine
	1-2 years	Less than or equal to 70 µmol/g creatinine
	3 years and older	Less than or equal to 30 µmol/g creatinine
Phenylalanine	0-2 months	45-360 µmol/g creatinine
	3-11 months	65-370 µmol/g creatinine
	1-2 years	50-350 µmol/g creatinine
	3-5 years	35-170 µmol/g creatinine
	6-11 years	30-140 µmol/g creatinine
	12 years and older	15-85 µmol/g creatinine
Proline	0-2 months	130-2340 µmol/g creatinine
	3-11 months	Less than or equal to 1190 µmol/g creatinine
	1-2 years	Less than or equal to 170 µmol/g creatinine
	3-5 years	Less than or equal to 60 µmol/g creatinine
	6-11 years	Less than or equal to 40 µmol/g creatinine
	12 years and older	Less than or equal to 35 µmol/g creatinine
Sarcosine	0-2 months	Less than or equal to 300 µmol/g creatinine
	3-11 months	Less than or equal to 75 µmol/g creatinine
	1 year and older	Less than or equal to 25 µmol/g creatinine
Serine	0-2 months	70-4125 µmol/g creatinine
	3-11 months	275-2730 µmol/g creatinine
	1-2 years	390-1890 µmol/g creatinine
	3-5 years	260-990 µmol/g creatinine
	6-11 years	130-1100 µmol/g creatinine
	12 years and older	90-470 µmol/g creatinine
Taurine	0-2 months	95-9800 µmol/g creatinine
	3-11 months	Less than or equal to 7400 µmol/g creatinine
	1-2 years	Less than or equal to 9000 µmol/g creatinine
	3-5 years	Less than or equal to 4400 µmol/g creatinine
	6-11 years	Less than or equal to 3800 µmol/g creatinine
	12 years and older	Less than or equal to 3200 µmol/g creatinine
Threonine	0-2 months	125-2890 µmol/g creatinine
	3-11 months	50-1300 µmol/g creatinine
	1-2 years	85-910 µmol/g creatinine
	3-5 years	50-380 µmol/g creatinine
	6-11 years	40-470 µmol/g creatinine
	12 years and older	25-250 µmol/g creatinine
Tryptophan	0-2 months	25-395 µmol/g creatinine
	3-11 months	45-390 µmol/g creatinine
	1-2 years	45-325 µmol/g creatinine
	3-5 years	35-150 µmol/g creatinine
	6-11 years	20-180 µmol/g creatinine
	12 years and older	15-95 µmol/g creatinine
Tyrosine	0-2 months	50-870 µmol/g creatinine
	3-11 months	70-700 µmol/g creatinine
	1-2 years	65-560 µmol/g creatinine
	3-5 years	40-300 µmol/g creatinine
	6-11 years	40-280 µmol/g creatinine
	12 years and older	15-150 µmol/g creatinine
Valine	0-2 months	40-425 µmol/g creatinine
	3-11 months	30-250 µmol/g creatinine
	1-2 years	40-280 µmol/g creatinine
	3-5 years	30-160 µmol/g creatinine
	6-11 years	20-120 µmol/g creatinine
	12 years and older	Less than or equal to 55 µmol/g creatinine

0020043 Ammonia, Plasma — AMMON

Methodology: Enzymatic

Reference Interval:
Effective November 18, 2019

Age	Reference Interval
0-14 days	95 µmol/L or less
15 days-6 years	68 µmol/L or less
Greater than 6 years	72 µmol/L or less

0097303 *Anaplasma phagocytophilum* (HGA) Antibodies, IgG and IgM — HGE G/M

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: 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

0097317 *Anaplasma phagocytophilum* (HGA) Antibody, IgG — HGE IGG

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: 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

0097318 *Anaplasma phagocytophilum* (HGA) Antibody, IgM — HGE IGM

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: 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

0010020 Antibody Screen RBC with Reflex to Identification — ABSC-R

Performed: Mon-Fri
Reported: 1-3 Days

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 3 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma Separator Tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0013020 Antigen Testing, RBC Phenotype Extended — IRL-EXPHEN

Specimen Required: Collect: Lavender (K_2EDTA), or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0013019 Antigen Testing, Rh Phenotype — IRL-RHPHEN

Specimen Required: Collect: Lavender (K_2EDTA), or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Serum or plasma separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

3001431 Autoimmune Encephalitis Extended Panel, Serum ENCEPH EXT

Reference Interval:

Test Number	Components	Reference Interval	
2004221	N-methyl-D-Aspartate Receptor Antibody, IgG, Serum with Reflex to Titer	< 1:10	
2001771	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL	
2004890	Voltage-Gated Potassium Channel (VGKC) Antibody, Serum	Negative	31 pmol/L or less
		Indeterminate	32-87 pmol/L
		Positive	88 pmol/L or greater
2003036	Aquaporin-4 Receptor Antibody	Effective October 3, 2016	
		Negative	2.9 U/mL or less
		Positive	3.0 U/mL or greater
2013320	Aquaporin-4 Receptor Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10	
2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10	
2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10	
3001260	Alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid (AMPA) Receptor Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10	
3001270	Gamma Aminobutyric Acid Receptor, Type B (GABA-BR) Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10	
3001277	Myelin Oligodendrocyte Glycoprotein (MOG) Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10	

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 2009453, CASPR2 Ab IgG Screen by IFA to CASPR2 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.
Change the charting name for component 2009457, LGI1 Ab IgG Screen by IFA to LGI1 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.

2013601 Autoimmune Encephalitis Reflexive Panel, Serum AUTOENCEPH

Reference Interval:

Test Number	Components	Reference Interval	
2004221	N-methyl-D-Aspartate Receptor Antibody, IgG, Serum with Reflex to Titer	< 1:10	
2001771	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL	
2004890	Voltage-Gated Potassium Channel (VGKC) Antibody, Serum	Negative	31 pmol/L or less
		Indeterminate	32-87 pmol/L
		Positive	88 pmol/L or greater
2003036	Aquaporin-4 Receptor Antibody	Effective October 3, 2016	
		Negative	2.9 U/mL or less
		Positive	3.0 U/mL or greater
2013320	Aquaporin-4 Receptor Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10	
2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10	
2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10	

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for reflexed component 2009453, CASPR2 Ab IgG Screen by IFA to CASPR2 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.
Change the charting name for reflexed component 2009457, LGI1 Ab IgG Screen by IFA to LGI1 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.

2013944 Autoimmune Neurologic Disease Reflexive Panel, Serum NEURO R

Reference Interval:

Test Number	Components	Reference Interval		
0050746	Striated Muscle Antibodies, IgG with Reflex to Titer	Less than 1:40		
2004221	N-methyl-D-Aspartate Receptor Antibody, IgG, Serum with Reflex to Titer	Less than 1:10		
2001771	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL		
2013956	CV2.1 Screen by IFA with Reflex to Titer	Less than 1:10		
0092628	P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody	Effective November 14, 2011		
		Negative	0.0 to 24.5 pmol/L	
		Indeterminate	24.6 to 45.6 pmol/L	
		Positive	45.7 pmol/L or greater	
2005636	Titin Antibody	Effective January 17, 2012		
		Negative	0.00-0.45 IV	
		Indeterminate	0.46-0.71 IV	
		Positive	0.72 IV or greater	
2004890	Voltage-Gated Potassium Channel (VGKC) Antibody, Serum	Negative	31 pmol/L or less	
		Indeterminate	32-87 pmol/L	
		Positive	88 pmol/L or greater	
2003036	Aquaporin-4 Receptor Antibody	Effective October 3, 2016		
		Negative	2.9 U/mL or less	
		Positive	3.0 U/mL or greater	
0080009	Acetylcholine Receptor Binding Antibody	Negative	0.0-0.4 nmol/L	
		Positive	0.5 nmol/L or greater	
2007961	Paraneoplastic Antibodies (PCCA/ANNA) by IFA with Reflex to Titer and Immunoblot	**Test Number**	**Components**	**Reference Interval**
			Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
			Neuronal Nuclear Antibody (ANNA) IFA Titer, IgG	Less than 1:10
			Purkinje Cell Antibody, Titer	Less than 1:10
		2007963	Neuronal Nuclear Antibodies (Hu, Ri, Yo) IgG by Immunoblot	Refer to report
2008893	Amphiphysin Antibody, IgG	Negative		
2013320	Aquaporin-4 Receptor Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10		
2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10		
2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10		
0099521	Acetylcholine Receptor Modulating Antibody	Effective August 20, 2012		
		Negative	0-45% modulating	
		Positive	46% or greater modulating	
	N-Type Voltage-Gated Calcium Channel (VGCC) Antibody	0.0 to 69.9 pmol/L	Negative	
		70.0 to 110.0 pmol/L	Indeterminate	
		110.1 pmol/L or greater	Positive	
3001260	Alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid (AMPA) Receptor Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10		
3001270	Gamma Aminobutyric Acid Receptor, Type B (GABA-BR) Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10		
3001277	Myelin Oligodendrocyte Glycoprotein (MOG) Antibody, IgG by IFA with Reflex to Titer, Serum	Less than 1:10		

Note: If Striated Muscle Ab is detected, then a titer will be added. Additional charges apply.
If N-methyl-D-Aspartate Receptor Antibody is positive, then titer will be added. Additional charges apply.
If CV2.1 Antibody IgG Screen by IFA is positive, then a titer will be added. Additional charges apply.
If Aquaporin-4 Receptor Antibody IgG by ELISA is positive, then Aquaporin-4 Receptor Antibody, IgG by IFA will be added. If positive, then a titer will be added. Additional charges apply.
If Acetylcholine Receptor Binding Antibody result is greater than 0.4 nmol/L then Acetylcholine Receptor Modulating Antibody will be added. Additional charges apply.
Purkinje Cell (PCCA) antibody and Neuronal Nuclear (ANNA) antibody IgG are screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, and Yo) IgG by Immunoblot will be added. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, and Yo) IgG by Immunoblot will be added. Additional charges apply.
If LGI1 antibody IgG is positive, then LGI1 antibody IgG titer will be added. Additional charges apply.
If CASPR2 antibody IgG is positive, then CASPR2 antibody IgG titer will be added. Additional charges apply.
If Alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid (AMPA) Receptor Antibody, IgG by IFA with Reflex to Titer, Serum is positive, then an Alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid (AMPA) Receptor Antibody Titer, IgG, Serum is reported. Additional charges apply.
If Gamma Aminobutyric Acid Receptor, Type B (GABA-BR) Antibody, IgG by IFA with Reflex to Titer, Serum is positive, then a Gamma Aminobutyric Acid Receptor, Type B (GABA-BR) Antibody Titer, IgG, Serum is performed. Additional charges apply.

If Myelin Oligodendrocyte Glycoprotein (MOG) Antibody, IgG by IFA with Reflex to Titer, Serum is positive, then a Myelin Oligodendrocyte Glycoprotein (MOG) Antibody Titer, IgG is performed. Additional charges apply.

CPT Code(s): 83519 x4; 83516 x3; 86255 x9; 86341; if reflexed add 86256; if reflexed add 86256; if reflexed add 86256; if reflexed add 86255 if further reflexed add 86256; if reflexed add 83516; if reflexed add 83516 and/or 86256; if reflexed, add 86256; if reflexed, add 86256; if reflexed, add 86256; if reflexed, add 86256; if reflexed, add 86256; if reflexed add 86256.

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 0092629 from Voltage-Gated Calcium Channel (VGCC) Ab to P/Q-Type Calcium Channel Antibody.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.
HOTLINE NOTE: There is a component change associated with this test.
Add component 2009453, CASPR2 Ab IgG Screen by IFA, Serum
Add component 2009457, LGI1 Ab IgG Screen by IFA, Serum
Add component 3001261, AMPA Receptor Ab IgG Screen, Serum
Add component 3001271, GABA-B Receptor Ab IgG Screen, Serum
Add component 3001278, MOG Antibody IgG Screen, Serum
Add component 3002047, N-Type Calcium Channel Antibody
HOTLINE NOTE: There is a reflexive pattern change associated with this test.
Add reflex to 3001265, AMPA Receptor IgG Ab Serum, Titer
Add reflex to 3001275, GABA-B Receptor IgG Ab Serum, Titer
Add reflex to 3001280, MOG IgG Antibody Serum, Titer
Remove reflex from 2009460, LGI1 and CASPR2 Abs IgG w/Rflx to Titers

2005640 Autoimmune Neuromuscular Junction Reflexive Panel MUWA R PAN

Reference Interval:

Test Number	Components	Reference Interval	
0080009	Acetylcholine Receptor Binding Antibody	Negative	0.0-0.4 nmol/L
		Positive	0.5 nmol/L or greater
0099580	Acetylcholine Receptor Blocking Antibody	Effective November 18, 2013	
		Negative:	0-26% blocking
		Indeterminate:	27-41% blocking
		Positive:	42% or greater blocking
0099521	Acetylcholine Receptor Modulating Antibody	Effective August 20, 2012	
		Negative	0-45% modulating
		Positive	46% or greater modulating
0092628	P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody	Effective November 14, 2011	
		Negative	0.0 to 24.5 pmol/L
		Indeterminate	24.6 to 45.6 pmol/L
		Positive	45.7 pmol/L or greater
2004890	Voltage-Gated Potassium Channel (VGKC) Antibody, Serum	Negative	31 pmol/L or less
		Indeterminate	32-87 pmol/L
		Positive	88 pmol/L or greater
2005636	Titin Antibody	Effective January 17, 2012	
		Negative	0.00-0.45 IV
		Indeterminate	0.46-0.71 IV
		Positive	0.72 IV or greater
0050746	Striated Muscle Antibodies, IgG with Reflex to Titer	Less than 1:40	
2009460	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG and Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titers, Serum	**Test Number**	**Components** / **Reference Interval**
		2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum: Refer to report
		2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum: Refer to report

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 0092629 from Voltage-Gated Calcium Channel (VGCC) Ab to P/Q-Type Calcium Channel Antibody.
Change the charting name for reflexed component 2009453, CASPR2 Ab IgG Screen by IFA to CASPR2 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.
Change the charting name for reflexed component 2009457, LGI1 Ab IgG Screen by IFA to LGI1 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.

0093048 ***Babesia microti* Antibodies, IgG and IgM by IFA** **BAB MIC AB**

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) Parallel testing is preferred, and convalescent specimens must be received within 30 days from receipt of the acute specimens. **Mark specimens plainly as "acute" or "convalescent."**
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Bacterially contaminated, hemolyzed or 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)

0093049 ***Babesia microti* Antibody, IgG by IFA** **BAB IGG**

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 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 from receipt of the acute specimens. **Mark specimens plainly as "acute" or "convalescent."**
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Bacterially contaminated, hemolyzed, or 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)

0093050 ***Babesia microti* Antibody, IgM by IFA** **BAB IGM**

Specimen Required: Collect: Serum Separator Tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 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 from receipt of the acute specimens. **Mark specimens plainly as acute or convalescent.**
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Bacterially contaminated, hemolyzed, or 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 **3001947** **Blood Smear with Interpretation** **SMR INTRP**
Click for Pricing

Methodology: Cytochemical Stain
Performed: Mon-Fri
Reported: 1-2 days

Specimen Required: Collect: Lavender (EDTA) or Green (Sodium or Lithium Heparin). Immediately invert tube several times following procurement of whole blood.
Specimen Preparation: Transport 5 mL whole blood and 6 unfixed push smears. (Min: 0.1 mL whole blood and 2 unfixed push smears)
Storage/Transport Temperature: Room temperature.
Remarks: **Most recent CBC report, patient history, clinical indications and physician's name and telephone number are required.** An instructional video with more information on how to make an adequate slide can be found at: https://www.youtube.com/watch?v=ca3NwrlpS40&feature=youtu.be
Unacceptable Conditions: Serum or plasma.
Stability (collection to initiation of testing): **Whole Blood:** Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable
Unfixed Push Smears: Ambient: 5 days; Refrigerated: 5 days; Frozen: Unacceptable

Interpretive Data: Refer to report.

Note: Further information on how to make an adequate slide, in the form of an instructional video, can be found at: https://www.youtube.com/watch?v=ca3NwrlpS40&feature=youtu.be

CPT Code(s): 85060

New York DOH approval pending. Call for status update.

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

2007933 **C Antigen Typing - Patient** **C AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0080407 Catecholamines Fractionated by LC-MS/MS, Urine Free CATE UF

Specimen Required: Patient Prep: Drugs and medications may affect results and should be discontinued for at least 72 hours prior to specimen collection, if possible.
Collect: 24-hour or random urine. Refrigerate 24-hour specimen during collection.
Specimen Preparation: Thoroughly mix entire collection (24-hour or Random) in one container. Transfer a 4 mL aliquot to an ARUP Standard Transport Tube. (Min: 2.5 mL) Catecholamines are not stable above pH 7. The pH of such specimens must be adjusted by the addition of 6M HCl acid or sulfamic acid prior to transport. A pH less than 2 can cause assay interference.
Specimen preservation can be extended to 1 month refrigerated by performing one of the following:
Option 1: Transfer a 4 mL aliquot to an ARUP Standard Transport Tube and adjust pH to 2.0-4.0 with 6M HCl. (Min: 2.5 mL)
Option 2: Transfer a 4 mL aliquot to an ARUP Standard Transport Tube containing 20 mg sulfamic acid (ARUP Supply #48098), available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 2.5 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: Record total volume and collection time interval on transport tube and test request form.
Unacceptable Conditions: Specimens preserved with boric acid or acetic acid. Specimens with pH greater than 7.
Stability (collection to initiation of testing): **Unpreserved:** Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Undefined
Preserved: Ambient: Unacceptable; Refrigerated: 1 month; Frozen: 6 months

Reference Interval:

Reference Intervals for 24-Hour Calculations (24-Hour Urine)

Test Number	Components	Reference Interval		
	Dopamine	Effective November 18, 2019		
		Age	**Dopamine**	
		0-3 years	Not Established	
		4-10 years	80-440 µg/d	
		11-17 years	100-496 µg/d	
		18 years and older	71-485 µg/d	
	Epinephrine	Effective August 19, 2019		
		Age	**Epinephrine**	
		0-3 years	Not Established	
		4-10 years	1-14 µg/d	
		11-17 years	1-18 µg/d	
		18 years and older	1-14 µg/d	
	Norepinephrine	Effective November 18, 2019		
		Age	**Norepinephrine**	
		0-3 years	Not Established	
		4-10 years	7-65 µg/d	
		11-17 years	12-96 µg/d	
		18 years and older	14-120 µg/d	
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

Reference Intervals for Ratio-to-Creatinine (CRT) Calculations (Random Urine)

Test Number	Components	Age	Reference Interval
	Dopamine	0-11 months	240-1290 µg/g crt
		1-3 years	80-1220 µg/g crt
		4-10 years	220-720 µg/g crt
		11-17 years	120-450 µg/g crt
		18 years and older	0-250 µg/g crt
	Epinephrine	0-11 months	0-380 µg/g crt
		1-3 years	0-82 µ/g crt
		4-10 years	5-93 µg/g crt
		11-17 years	3-58 µg/g crt
		18 years and older	0-20 µg/g crt
	Norepinephrine	0-11 months	25-310 µg/g crt
		1-3 years	25-290 µg/g crt
		4 -10 years	27-110 µg/g crt
		11-17 years	4-105 µg/g crt
		18 years and older	0-45 µg/g crt

2007715 **Cellano Antigen Typing - Patient** **K LITTLEAG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2008597 **Clobazam Quantitative, Serum or Plasma** **CLOBA SP**

Performed: Varies
Reported: 4-7 days

Specimen Required: Collect: Plain Red, Lavender (K_2 or K_3EDTA) or Pink (K_2EDTA).
Specimen Preparation: Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 months

New Test Available Now Click for Pricing

3001982 **Coccidioides Antibody Reflexive Panel** **COCCI R**

Methodology: Semi-Quantitative Enzyme-Linked Immunosorbent Assay, Semi-Quantitative Complement Fixation, Qualitative Immunodiffusion
Performed: Sun-Sat
Reported: 1-3 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: 0.15 mL) Parallel testing is preferred and convalescent specimens **must** be received within 30 days from receipt of the acute specimens.
Storage/Transport Temperature: Refrigerated.
Remarks: **Please mark specimens plainly as "acute" or "convalescent."**
Unacceptable Conditions: 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)

Reference Interval:

Test Number	Components	Reference Interval	
0050179	*Coccidioides* Antibody, IgG by ELISA		
		0.9 IV or less	Negative - No significant level of Coccidioides IgG antibody detected.
		1.0-1.4 IV	Equivocal - Questionable presence of Coccidioides IgG antibody detected. Repeat testing in 10-14 days may be helpful.
		1.5 IV or greater	Positive - Presence of IgG antibody to *Coccidioides* detected, suggestive of current or past infection.
0050178	*Coccidioides* Antibody, IgM by ELISA		
		0.9 IV or less	Negative - No significant level of Coccidioides IgM antibody detected.
		1.0-1.4 IV	Equivocal - Questionable presence of *Coccidioides* IgM antibody detected. Repeat testing in 10-14 days may be helpful.
		1.5 IV or greater	Positive - Presence of IgM antibody to *Coccidioides* detected, suggestive of current or recent infection.
0050183	*Coccidioides* immitis Antibodies by Immunodiffusion	None Detected	
	Coccidioide Titer	Less than 1:2	

Interpretive Data:
Refer to report.

Note: Negative fungal serology does not rule out the possibility of current infection. *Coccidioides* Antibody IgG and IgM by ELISA are used to screen for *Coccidioides* antibodies. If the ELISA testing is equivocal or positive for IgG and/or IgM, then Coccidioides immitis Angibodies by Immunodiffusion, and Coccidioide Titer will be added. Additional charges apply.

CPT Code(s): 86635 x2; if reflexed add 86635 x2

New York DOH Approved.

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

New Test **3001986** **Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, CSF** **CASPR2GCSF**

Click for Pricing

Additional Technical Information

Methodology: Semi-Quantitative Indirect Fluorescent Antibody
Performed: Wed
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: Contaminated, hemolyzed, 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: Contactin-associated protein-2 (CASPR2) IgG antibody may occur as part of the voltage-gated potassium channel (VGKC) complex antibodies.

The presence of CASPR2 IgG antibody is associated with a wide spectrum of clinical manifestations, including acquired neuromyotonia, limbic encephalitis, painful neuropathy, and Morvan syndrome. Tumors such as thymoma, small cell lung cancer, and other rarer tumors may occur. The full-spectrum of clinical disorders and tumors associated with the CASPR2 IgG antibody continues to be defined. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes contactin-associated protein-2 (CASPR2) transfected cell lines for the detection and semi-quantification of the CASPR2 IgG antibody.

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

Note: If CASPR2 antibody IgG is positive, then CASPR2 antibody IgG titer 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.

2009452 **Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum** **CASPR2 IGG**

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 2009453 from CASPR2 Ab IgG Screen by IFA to CASPR2 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.

New Test **3001971** **Copper, Free, Serum or Plasma** **COPP FREE**
Click for Pricing

Methodology: Quantitative Inductively Coupled Plasma/Investigation
Performed: Varies
Reported: 8-11 days

Specimen Required: Collect: Royal Blue (K_2 EDTA), Royal Blue (Na_2 EDTA), or Royal Blue (No Additive).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 3 mL serum or plasma to an Acid Washed Transfer Vial (ARUP supply #54350) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 1.2 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: 1 month; Refrigerated: 1 month; Frozen: 1 month

Reference Interval: By report

CPT Code(s): 82525

New York DOH Approved.

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

0080480 **Creatine Kinase, MB** **CK MB**

Specimen Required: Collect: Serum Separator Tube (SST), Green (Sodium or Lithium Heparin), or Lavender (K_2 or K_3 EDTA).
Specimen Preparation: Allow specimen to clot for 15-20 minutes at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Frozen.
Unacceptable Conditions: Specimens containing particulate material. Grossly hemolyzed specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 12 hours; Refrigerated: 72 hours; Frozen: 3 months (No freeze/thaw cycles)

Reference Interval:
Effective November 18, 2019

Components	Reference Interval	
Creatine Kinase, Isoenzyme MB	Female	0 - 4.3 ng/mL
	Male	0 - 7.7 ng/mL

Note: Creatine Kinase, MB is quite labile. For calculation of relative percent, order Creatine Kinase, MB and Relative Percent (ARUP test code 3002030).

HOTLINE NOTE: Remove information found in the Specimen Required - Remarks field.

New Test **3002030** **Creatine Kinase, MB and Relative Percent** **CKMB PCT**
Click for Pricing

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

Specimen Required: Collect: Serum Separator Tube (SST), Green (Lithium Heparin), or Lavender (K_2 or K_3 EDTA).
Specimen Preparation: Allow specimen to clot for 15-20 minutes at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Frozen.
Unacceptable Conditions: Specimens containing particulate material. Grossly hemolyzed specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 12 hours; Refrigerated: 72 hours; Frozen: 1 month (No freeze/thaw cycles)

Reference Interval:

Test Number	Components	Reference Interval		
0080480	Creatine Kinase, Isoenzyme MB	Female	0 - 4.3 ng/mL	
		Male	0 - 7.7 ng/mL	
	CK-MB Relative Percent	0.0-5.0 percent		
0020010	CK-Total	Female	0-19 years	By report
			20 years and older	20-180 U/L
		Male	0-19 years	By report
			20 years and older	20-200 U/L

Note: Creatine Kinase, MB is quite labile.

CPT Code(s): 82553, 82550

New York DOH Approved.

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

2013504 **Cw Antigen Typing, Patient** **CW AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

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

Reference Interval:
Effective November 18, 2019

Components	Age	Reference Interval
Cystine	0-2 months	Less than or equal to 870 µmol/g creatinine
	3-11 months	Less than or equal to 300 µmol/g creatinine
	1-2 years	Less than or equal to 150 µmol/g creatinine
	3-5 years	Less than or equal to 125 µmol/g creatinine
	6-11 years	Less than or equal to 100 µmol/g creatinine
	12 years and older	Less than or equal to 150 µmol/g creatinine

0081105 Cystinuria Panel — CYS PAN

Reference Interval:
Effective November 18, 2019

Components	Age	Reference Interval
Arginine	0-2 months	Less than or equal to 470 µmol/g creatinine
	3-11 months	Less than or equal to 340 µmol/g creatinine
	1-2 years	Less than or equal to 390 µmol/g creatinine
	3-5 years	Less than or equal to 270 µmol/g creatinine
	6-11 years	Less than or equal to 160 µmol/g creatinine
	12 years and older	Less than or equal to 100 µmol/g creatinine
Cystine	0-2 months	Less than or equal to 870 µmol/g creatinine
	3-11 months	Less than or equal to 300 µmol/g creatinine
	1-2 years	Less than or equal to 150 µmol/g creatinine
	3-5 years	Less than or equal to 125 µmol/g creatinine
	6-11 years	Less than or equal to 100 µmol/g creatinine
	12 years and older	Less than or equal to 150 µmol/g creatinine
Lysine	0-2 months	120-2270 µmol/g creatinine
	3-11 months	55-1260 µmol/g creatinine
	1-2 years	45-930 µmol/g creatinine
	3-5 years	40-475 µmol/g creatinine
	6-11 years	25-440 µmol/g creatinine
	12 years and older	Less than or equal to 355 µmol/g creatinine
Ornithine	0-2 months	Less than or equal to 475 µmol/g creatinine
	3-11 months	Less than or equal to 150 µmol/g creatinine
	1-2 years	Less than or equal to 70 µmol/g creatinine
	3 years and older	Less than or equal to 30 µmol/g creatinine

2003414 Cytogenomic SNP Microarray — CMA SNP

Specimen Required: Collect: Green (Sodium Heparin). Peripheral blood required. Also acceptable: Lavender (K_2 EDTA).
New York State Clients: Green (Sodium Heparin) AND Lavender (K_2 EDTA).
Specimen Preparation: Transport 5 mL whole blood. (Min: 1 mL)
New York State Clients: Transport 8 mL (4 mL per tube) whole blood. (Min: 4 mL total (2 mL per tube)) Do not send to ARUP Laboratories. Specimen must be received at performing laboratory within 48 hours of collection. For specimen requirements and direct submission instructions please contact ARUP Referral Testing at (800) 242-2787, ext. 5145.
Storage/Transport Temperature: Room temperature.
Unacceptable Conditions: Clotted specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 72 hours; Frozen: Unacceptable
New York State Clients: Ambient: 48 hours; Refrigerated: 48 hours; Frozen: Unacceptable

0013008 Direct Coombs (Anti-Human Globulin) — IRL-DC

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 5 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: **Separator or gel tubes.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007941 E Antigen Typing - Patient — E AG

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0013010 Elution & Antibody Identification, RBC — IRL-ELU

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 5 mL whole blood. (Min: 2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: **Separator or gel tubes.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2006340 **Exome Sequencing, Familial Control** **TRACKEXADD**

Family Member Control History for Exome Sequencing

Informed Consent for Exome Sequencing

Methodology: Massively Parallel Sequencing
Performed: Varies
Reported: 4-8 weeks

Specimen Required: Collect: Lavender (K_2EDTA) or Yellow (ACD Solution A or B). Peripheral blood required. Contact ARUP's genetic counselor at (800) 242-2787 ext. 2141 if there are questions prior to test submission.
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Remarks: A completed exome consent form and patient history form is required on each parent or family member submitting a control sample.
Stability (collection to initiation of testing): Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: By report

Note: Up to four family members may serve as exome sequencing controls for a proband having Exome Sequencing, Trio (2006332). Family members samples are used to aid in interpretation of the proband's exome sequencing data. Secondary findings, including pathogenic variants in genes recommended for analysis by the American College of Medical Genetics (ACMG) and other actionable secondary variants will only be reported for control individuals who complete a separate Exome Sequencing consent form. ACMG genes are only analyzed to the extent that routine exome analysis allows and single disease-causing variants in autosomal recessive ACMG genes are not reported.

CPT Code(s): N/A

2006332 **Exome Sequencing, Trio** **EXOME SEQ**

Pre-Authorization for Exome Sequencing – (Not Required)

Informed Consent for Exome Sequencing (Required)

Patient History for Exome Sequencing (Required)

Additional Technical Information

Note: For each parental or family member's specimen, please indicate on the test requisition form that the sample is a control and reference the patient's name. Control samples submitted without a separate signed exome sequencing consent form will not receive a clinical report of their ACMG secondary findings or other actionable secondary variants.

New Test **3002026** **Explify Respiratory Pathogen Detection by Next Generation Sequencing** **RESP PATH**
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Explify Limitations and Validated Organisms

Methodology: Massively Parallel Sequencing
Performed: Varies
Reported: 3-6 days

Specimen Required: Collect: Bronchoalveolar lavage (BAL), sputum, tracheal aspirate, or nasopharyngeal swab.
Specimen Preparation: Transfer 2 mL BAL, sputum, or tracheal aspirate to an ARUP Standard Transport Tube. (Min: 1 mL) Place nasopharyngeal swab in viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. Place each specimen in an individually sealed bag.
Storage/Transport Temperature: Frozen
Remarks: Specimen source required.
Unacceptable Conditions: Thawed specimens. Nasopharyngeal swab not in viral transport media.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 4 days; Frozen: 1 month

Reference Interval: By report

CPT Code(s): 87999

New York DOH approval pending. Call for status update.

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

2007717 **FYA Antigen Typing - Patient** **FYA AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007725 **FYB Antigen Typing - Patient** **FYB AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

New Test **3001790** **Galactose-1-Phosphate Uridyltransferase (GALT Enzyme), RBC** **GALT ENZ**
Click for Pricing

Patient History For Galactosemia

Additional Technical Information

Methodology: Enzymatic/Liquid Chromatography-Tandem Mass Spectrometry
Performed: Mon, Wed, Fri
Reported: 2-5 days

Specimen Required: Collect: Green (Sodium or Lithium Heparin), Lavender (K_2EDTA), or Pink (K_2EDTA). Collect on ice.
Specimen Preparation: **DO NOT FREEZE.** Transport 7 mL whole blood. (Min: 3 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 5 days; Frozen: Unacceptable

Reference Interval: Greater than or equal to 19.4 U/g Hb

Interpretive Data:
One U/g Hb is equivalent to one umol/hour/gram of hemoglobin (umol/hr/g Hb).

Genotype	Galactose-1-Phosphate Uridyltransferase activity ($\mu mol\ h^{-1}\ gHb^{-1}$)
Classic galactosemia (G/G)	Less than or equal to 0.7
Duarte galactosemia (D/G)	3.1-7.8
Classic galactosemia carrier (G/N)	6.5-16.2
Duarte homozygous (D/D)	6.4-16.5
Duarte carrier (D/N)	12.0-24.0
Normal (N/N)	Greater than or equal to 19.4

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

Note: Values for enzyme activity only may not differentiate between variant form of galactosemia or carriers. For a more accurate evaluation of patients suspected to have galactosemia, the preferred test is Galactosemia (GALT) Enzyme Activity and 9 Mutations (ARUP test code 0051175). To monitor therapy in patients with galactosemia, order Galactose-1-Phosphate in Red Blood Cells (ARUP test code 0081296).

CPT Code(s): 82775

New York DOH Approved.

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

New Test **3001957** **Gamma Globin (*HBG1* and *HBG2*) Sequencing** **HBG FGS**

Click for Pricing

Additional Technical Information

Out of Pocket Estimator

Patient History for *HBG* Testing

Methodology: Polymerase Chain Reaction/Sequencing
Performed: Varies
Reported: Within 2 weeks

Specimen Required: Collect: Lavender (K_2EDTA), Pink (K_2EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 month; Frozen: 6 months

Reference Interval: By report

Interpretive Data: Background information for Gamma Globin (*HBG1* and *HBG2*) Sequencing:
Characteristics: Variants in the gamma globin genes, *HBG1* and *HBG2*, may occasionally result in either a quantitative defect (gamma thalassemia or nondeletional hereditary persistence of fetal hemoglobin) or a qualitative abnormality (gamma variant). Gamma variants resulting in unstable, high- and low-oxygen affinity or M hemoglobin variants may result in hemolytic anemia/hyperbilirubinemia, erythrocytosis/cyanosis, or methemoglobinemia in neonates, respectively. Clinical symptoms related to gamma globin variants commonly resolve after the first six months of life given the switch from fetal hemoglobin expression to adult hemoglobin expression.
Incidence: Unknown.
Inheritance: Autosomal dominant.
Cause: Pathogenic germline variants in *HBG1* or *HBG2*.
Clinical Sensitivity: Unknown. Gamma globin variants are a rare cause of neonatal hemolytic anemia, cyanosis, erythrocytosis, or methemoglobinemia.
Methodology: Long range PCR followed by nested PCR and bidirectional sequencing of all coding regions, intron/exon boundaries, proximal promoters, and 5' and 3' untranslated regions of the *HBG1* and *HBG2* genes.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations or repeat element insertions. Large deletions/duplications, distal regulatory region variants, deep intronic variants, and hybrid gene events will not be detected.

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

CPT Code(s): 81479

New York DOH approval pending. Call for status update.

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

2006450 **Hepatitis Delta Antigen by ELISA** **HEPD AG**

Performed: Varies
Reported: 7-10 days

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: Frozen. Also acceptable: Refrigerated.
Unacceptable Conditions: Grossly hemolyzed or lipemic specimens.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 3 months

0091203 **Heroin - Screen with Reflex to Confirmation/Quantitation - Serum or Plasma** **HEROIN SP**

Performed: Varies
Reported: 4-10 days

Specimen Required: Collect: Plain Red, Gray (Sodium Fluoride/Potassium Oxalate), Lavender (K_2 or K_3EDTA), or Pink (K_2EDTA).
Specimen Preparation: Transfer 3 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 1.3 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

0091586 **Heroin - Screen with Reflex to Confirmation/Quantitation - Urine** **HEROIN URN**

Performed: Varies
Reported: 4-10 days

0092522 ***Histoplasma* Antigen Quantitative by EIA, Serum** **HISTOAG S**

Reference Interval:
Effective November 18, 2019
Not Detected

Interpretive Data: The quantitative range of this assay is 0.19-60.0 ng/mL. Antigen concentrations less than 0.19 ng/mL or greater than 60.0 ng/mL fall outside the linear range of the assay and cannot be accurately quantified.

This EIA test should be used in conjunction with other diagnostic procedures, including microbiological culture, histological examination of biopsy samples, serology and/or radiographic evidence, to aid in the diagnosis of histoplasmosis.

Cross-reactivity with *Blastomyces dermatiditis*, *Coccidioides immitis*, and possibly *Talaromyces marneffei* have been observed with this EIA. Other clinically and geographically relevant endemic mycoses should be considered in the case of a positive test result.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement B: www.aruplab.com/CS

New Test **3002008** **Human Papillomavirus (HPV) High Risk by in situ Hybridization, Paraffin** **HPVHR ISH**
Click for Pricing

Methodology: In situ Hybridization
Performed: Mon-Fri
Reported: 2-5 days

Specimen Required: Collect: Tissue.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin) and paraffin-embed tissue. Transport tissue block or 5 unstained 5-micron 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: 4 slides) Protect paraffin block and/or slides from excessive heat.
Storage/Transport Temperature: Room temperature or refrigerated. Ship in cooled container during summer months.
Remarks: Include surgical pathology report.
Unacceptable Conditions: Specimens fixed or processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives (B-4 or B-5). Frozen 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

CPT Code(s): 88365

New York DOH Approved.

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

New Test **3002009** **Human Papillomavirus (HPV) Low Risk by in situ Hybridization, Paraffin** **HPVLR ISH**
Click for Pricing

Methodology: In situ Hybridization
Performed: Mon-Thu
Reported: 2-5 days

Specimen Required: Collect: Tissue.
Specimen Preparation: Formalin fix (10 percent neutral buffered formalin) and paraffin embed tissue. Transport tissue block or 5 unstained positively charged, 5-micron 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: 4 slides) Protect paraffin block and/or slides from excessive heat.
Storage/Transport Temperature: Room temperature. Also acceptable: Refrigerated. Ship in cooled container during summer months.
Remarks: Include surgical pathology report.
Unacceptable Conditions: Specimens fixed or processed in alternative fixatives (alcohol, Prefer) or heavy metal fixatives (B-4 or B-5). Frozen 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

CPT Code(s): 88365

New York DOH Approved.

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

New Test **3001969** **Human Surfactant Protein D (SP-D)** **SP-D**
Click for Pricing

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

Specimen Required: Collect: Plain Red.
Specimen Preparation: Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma, CSF, or other body fluids. Contaminated, heat-inactivated, hemolyzed, icteric, or severely lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Reference Interval: 1-300 ng/mL

Interpretive Data: Human Surfactant Protein D (SP-D) is a non-specific indicator of lung inflammation or damage. Elevated levels are associated with various types of interstitial lung diseases (ILD).

Abnormal SP-D results should be interpreted in the appropriate clinical context. A negative result does not rule out ILD.

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

CPT Code(s): 83520

New York DOH approval pending. Call for status update.

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

New Test **3000462** **Immature PLT Fraction** **IMM PLT**
Click for Pricing

Methodology: Automated Cell Count
Performed: Sun-Sat
Reported: Within 24 hours

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: Transport 3 mL whole blood. (Min: 0.5 m L)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Clotted or hemolyzed specimens.
Stability (collection to initiation of testing): Ambient: 8 hours; Refrigerated: 48 hours; Frozen: Unacceptable

Reference Interval:

Age	Male (percent)	Female (percent)
0-180 days	2.3-7.1	1.6-7.1
6-23 months	1.7-4.1	1.7-4.8
2-5 years	1.4-3.9	1.3-3.9
6-11 years	1.3-5.2	1.3-5.0
12-17 years	1.9-6.4	1.7-6.7
18 years and older	1.0-11.4	1.0-11.4

CPT Code(s): 85055

New York DOH approval pending. Call for status update.

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

New Test **3001968** **Interstitial Lung Disease (ILD) Biomarkers Panel** **KL6_SPD**
Click for Pricing

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

Specimen Required: Collect: Plain Red.
Specimen Preparation: Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 3 mL serum to ARUP Standard Transport Tube. (Min: 1.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma, CSF, or other body fluids. Contaminated, heat-inactivated, hemolyzed, icteric, or severely lipemic specimens.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Reference Interval:

Test Number	Components	Reference Interval
3001969	Human Surfactant Protein D (SP-D)	1-300 ng/mL
3001866	Krebs von den Lungen-6 (KL 6)	0-500 U/mL

Interpretive Data: Refer to report.

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

CPT Code(s): 83520 x2

New York DOH approval pending. Call for status update.

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

2000271 **Isohemagglutinin Titer, IgG** **IRL ISO G**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze red cells.** Transport 7 mL whole blood. (Min: 3 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator or gel tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2000280 **Isohemagglutinin Titer, IgG and IgM** **IRL ISO MG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 14 mL whole blood. (Min: 6 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: **Separator or gel tubes.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2000270 **Isohemagglutinin Titer, IgM** **IRL ISO M**

Specimen Required: Collect: Lavender (K_2EDTA), or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze red cells.** Transport 7 mL whole blood. (Min: 3 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator or gel tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007727 **JKA Antigen Typing - Patient** **JKA AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007729 **JKB Antigen Typing - Patient** **JKB AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007731 **Kell Antigen Typing - Patient** **K AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

New Test **3002001** **Kell K/k (KEL) Antigen Genotyping** **KEL GENO**

Click for Pricing

Time Sensitive

Out of Pocket Estimator

Additional Technical Information

Methodology: Polymerase Chain Reaction/Fluorescence Monitoring
Performed: Varies
Reported: 3-10 days

Specimen Required: Collect: **Fetal Genotyping:** Amniotic fluid OR two T-25 flasks at 80 percent confluency of cultured amniocytes. If the client is unable to culture amniocytes, this can be arranged by contacting ARUP Client Services at (800) 522-2787.
WITH Maternal Cell Contamination Specimen (see Note)**:** Lavender (K_2EDTA), Pink (K_2EDTA), or Yellow (ACD Solution A or B).
Parental Genotyping: Lavender (K_2EDTA), Pink (K_2EDTA).
Specimen Preparation:
Amniotic Fluid: Transport 10 mL unspun fluid. (Min: 5 mL)
Cultured Amniocytes: Fill flasks with culture media. Transport two T-25 flasks at 80 percent confluency of cultured amniocytes filled with culture media. Backup cultures must be retained the client's institution until testing is complete.
Maternal Cell Contamination Specimen: Transport 3 mL whole blood (Min: 1 mL)
Whole Blood (Parental Genotyping): Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: **Amniotic fluid:** Room temperature.
Cultured Amniocytes: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to liability of cells.
Whole Blood or Maternal Cell Contamination Specimen: Refrigerated.
Remarks: Patient History Form is available on the ARUP website or by contacting ARUP Client Services.
Unacceptable Conditions: Plasma or serum. Specimens collected in sodium heparin tubes.
Stability (collection to initiation of testing):
Fetal Specimen: Ambient: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable
Whole Blood or Maternal Cell contamination Specimen: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Reference Interval: By report.

Interpretive Data:
Background information: Kell K/k (KEL) Antigen Genotyping:
Characteristics: Erythrocyte alloimmunization may result in hemolytic transfusion reactions or hemolytic disease of the fetus and newborn (HDFN).
K Antigen Frequency: 9 percent of Caucasians, 2 percent of African Americans, rare in Asians.
Inheritance: Co-dominant.
Cause: Antigen-antibody mediated red-cell hemolysis between donor/recipient or transferred maternal antibodies.
Polymorphism Tested: Kell blood group KEL*01 (K), KEL*02 (k): c.578C>T, p.Thr193Met. The presence of KEL*01 allele predicts a K positive phenotype.
Clinical Sensitivity: 99 percent.
Methodology: Immucor PreciseType™ HEA Molecular BeadChip which is FDA-approved for clinical testing.
Analytic Sensitivity and Specificity: 99 percent.
Limitations: Bloody amniotic fluid samples may give false-negative results because of maternal cell contamination. Rare nucleotide changes leading to altered or partial antigen expression and null phenotypes are not detected by this assay. Patients who have had hematopoietic stem cell transplants may have inconclusive results on this test. Abnormal signal intensities may result in indeterminate genotyping results.

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

Note: Maternal specimen is recommended for proper test interpretation if contamination of the fetal specimen from the mother is suspected. Order Maternal Cell Contamination.

CPT Code(s): 0001U

New York DOH Approved.

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

2013690 **Kpa Pt Antigen Typing IRL** **P-KPA_IRL**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: Do not freeze. Transport 7 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 Week; Frozen: Unacceptable

2007733 **LEA Antigen Typing - Patient** **LEA AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007723 **LEB Antigen Typing - Patient** **LEB AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2009460 **Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG and Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titers, Serum** **LGI1CASPR2**

Reference Interval:

Test Number	Components	Reference Interval
2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10
2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 2009453, CASPR2 Ab IgG Screen by IFA to CASPR2 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.
Change the charting name for component 2009457, LGI1 Ab IgG Screen by IFA to LGI1 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.

New Test **3001992** **Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, CSF** **LGI1IGGCSF**

Click for Pricing

Additional Technical Information

Methodology: Semi-Quantitative Indirect Fluorescent Antibody
Performed: Wed
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: Contaminated, hemolyzed, 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: Leucine-rich, glioma-inactivated 1 protein (LGI1) IgG antibody may occur as part of the voltage-gated potassium channel (VGKC) complex antibodies.

The presence of LGI1 IgG antibody is mainly associated with limbic encephalitis, hyponatremia, and myoclonic movements. LGI1 IgG antibody is rarely associated with tumors but may occur infrequently in Morvan syndrome, neuromyotonia, and idiopathic epilepsy. The full-spectrum of clinical disorders associated with the LGI1 IgG antibody continues to be defined. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes leucine-rich, glioma-inactivated 1 protein (LGI1) transfected cell lines for the detection and semi-quantification of the LGI1 IgG antibody.

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

Note: If LGI1 antibody IgG is positive, then LGI1 antibody IgG titer 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.

2009456 **Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum** **LGI1 IGG**

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 2009457, LGI1 Ab IgG Screen by IFA to LGI1 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.

0020038 **Lithium, Serum or Plasma** **LI**

Specimen Required: Patient Prep: Specimens are commonly drawn approximately 12 hours after last dose of lithium taken.
Collect: Clot Activator Tube, Plain Red or Green (Sodium Heparin).
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: 0.2 mL)
Storage/Transport Temperature: Frozen.
Unacceptable Conditions: Specimens collected in lithium heparin or sodium fluoride/potassium oxalate. Grossly hemolyzed specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 24 hours; Refrigerated: 7 days; Frozen: 6 months

2007939 Little c Antigen Typing - Patient — C LITTLEAG

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007943 Little e Antigen Typing - Patient — E LITTLEAG

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007721 Little s Antigen Typing - Patient — S LITTLEAG

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0055241 Liver-Kidney Microsome - 1 Antibody, IgG — LKM1 IGG

Performed: Sun, Tue, Thu
Reported: 1-4 days

2012039 Lysozyme, Serum — LYSO SER

Specimen Required: Collect: Serum separator tube (SST).
Specimen Preparation: Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.4 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Hemolyzed, lipemic, icteric, or contaminated specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: Unacceptable; Refrigerated: 5 days; Frozen: 1 month.

Reference Interval:
Effective November 18, 2019
Less than or equal to 2.75 µg/mL

2007719 M Antigen Typing - Patient — M AG

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

2007996 Metanephrines Fractionated by HPLC-MS/MS, Urine — META URINE

Specimen Required: Patient Prep: If possible, abstain from medications for 72 hours prior to collection.
Collect: 24-hour or random urine. Refrigerate 24-hour specimen during collection.
Specimen Preparation: Thoroughly mix entire collection (24-hour or Random) in one container. Transfer a 4 mL aliquot to an ARUP Standard Transport Tube. (Min: 2.5 mL) A pH lower than 2 can cause assay interference. Record total volume and collection time interval on transport tube and test request form.
Specimen preservation can be extended to 1 month refrigerated by performing one of the following:
Option 1: Transfer a 4 mL aliquot to an ARUP Standard Transport Tube. (Min: 2.5 mL) Adjust pH to 2.0-4.0 with 6M HCl.
Option 2: Transfer a 4 mL aliquot to an ARUP Standard Transport Tube containing 20 mg sulfamic acid (ARUP Supply #48098), available online through eSupply using ARUP Connect™or contact ARUP Client Services at (800) 522-2787. (Min: 2.5 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Unacceptable Conditions: Specimens preserved with boric acid or acetic acid.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 2 weeks (unpreserved), 1 month (preserved); Frozen: 1 month

Reference Interval:

Reference Intervals for 24 Hour Calculations (24-Hour Urine)

Test Number	Components	Reference Interval
	Metanephrine	Effective November 18, 2019

Male Age	Male Range	Female Age	Female Range
0-6 years	Not Established	0-6 years	Not Established
7-12 years	45-273 µg/d	7-17 years	40-209 µg/d
13-17 years	56-298 µg/d	18 years and older	36-229 µg/d
18 years and older	55-320 µg/d		

Test Number	Components	Reference Interval
	Normetanephrine	Effective November 18, 2019

Male Age	Male Range	Female Age	Female Range
0-6 years	Not Established	0-6 years	Not Established
7-12 years	58-670 µg/d	7-12 years	48-474 µg/d
13-17 years	82-553 µg/d	13-17 years	65-406 µg/d
18-29 years	81-667 µg/d	18 years and older	95-650 µg/d
30 years and older	114-865 µg/d		

Test Number	Components	Reference Interval
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

Reference Intervals for Ratio-to-Creatinine (CRT) Calculations (Random Urine)

Components	Reference Interval	
	Age	**Metanephrine**
Metanephrine	0-3 months	0-700 µg/g crt
	4-6 months	0-650 µg/g crt
	7-11 months	0-650 µg/g crt
	1 year	0-530 µg/g crt
	2-5 years	0-500 µg/g crt
	6-17 years	0-320 µg/g crt
	18 years and older	0-300 µg/g crt
	Age	**Normetanephrine**
Normetanephrine	0-3 months	0-3400 µg/g crt
	4-6 months	0-2200 µg/g crt
	7-11 months	0-1100 µg/g crt
	1 year	0-1300 µg/g crt
	2-5 years	0-610 µg/g crt
	6-17 years	0-450 µg/g crt
	18 years and older	0-400 µg/g crt

New Test **3002032** **Methicillin Resistant *Staphylococcus aureus* (MRSA) by PCR, Nasal** **MRSA PCR**

Available Now
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Methodology: Qualitative Polymerase Chain Reaction
Performed: Sun-Sat
Reported: Within 6 hours

Specimen Required: Collect: Nasal specimen from ESwab (ARUP supply #45877) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. Collect the nasal specimen by sampling both nares one at a time with the same ESwab.
Specimen Preparation: Transfer Eswab to an ARUP Standard Transport Tube containing Liquid Amies Transport Medium. Place specimen in an individually sealed bag.
Storage/Transport Temperature: Refrigerated.
Remarks: Specimen source required.
Unacceptable Conditions: Specimen types other than those listed. Rayon swabs.
Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: Not Detected

Interpretive Data: Negative nasal MRSA PCR has a high negative predictive value for MRSA pneumonia. Consider stopping Vancomycin if no other clinical indication. Contact Antimicrobial Stewardship or Infectious Diseases for further recommendations.

Note: The Xpert MRSA NxG test performance has not been evaluated in patients less than two years of age.

CPT Code(s): 87641

New York DOH Approved.

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

New Test **3001975** **Methyl Bromide Metabolite, Serum or Plasma** **METH BRO**

Click for Pricing

Methodology: Quantitative Inductively Coupled Plasma-Mass Spectrometry
Performed: Varies
Reported: 8-11 days

Specimen Required: Patient Prep: Avoid exposure to gadolinium or iodine based contrast media for 96 hours prior to specimen collection. Do not use disinfectants containing iodine, such as Betadine, during draw (prior to draw).
Collect: Royal Blue (K_2 EDTA), Royal Blue (Na_2 EDTA), or Royal Blue (No Additive).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an Acid Washed Transfer Vial (ARUP supply #54350) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 0.7 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Room temperature or frozen.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: 1 month; Refrigerated: 1 month; Frozen: 1 year

Reference Interval: By report

CPT Code(s): 82542

New York DOH Approved.

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

2003115 Methylphenidate and Metabolite, Urine, Quantitative — METHPHENUR

Reference Interval:
Effective November 18, 2019

Drugs Covered	Methylphenidate
Methylphenidate	10 ng/mL
Ritalinic acid	50 ng/mL

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Positive Cutoff: Methylphenidate: 10 ng/mL
Ritalinic acid: 50 ng/mL

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

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

New Test 3001965 Mitochondrial Disorders (mtDNA) Sequencing and Deletion Analysis by NGS — MTDNA NGS

Click for Pricing

Patient History for Molecular Genetic Testing

Methodology: Next Generation Sequencing
Performed: Varies
Reported: 30-33 days

Specimen Required: Collect: Lavender (K_2 or K_3 EDTA). Also acceptable Buccal Swabs.
Specimen Preparation: Transport 5 mL whole blood (Min: 2 mL) or 2 buccal swabs. (Min: 2 swabs)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: By report

CPT Code(s): 81460; 81465

New York DOH Approved.

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

New Test **3001959** **Mitochondrial Disorders Panel (mtDNA and Nuclear Genes)** **MITO PAN**
Click for Pricing


Patient History for Molecular Genetic Testing


Informed Consent for Genetic Testing

Methodology: Next Generation Sequencing
Performed: Varies
Reported: 6-7 weeks

Specimen Required: Collect: Lavender (K_2 or K_3 EDTA). Also acceptable: Buccal Swabs.
Specimen Preparation: Transport 5 mL whole blood (Min: 2 mL) or 2 buccal swabs. (Min: 2 swabs)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 1 week; Frozen: Unacceptable

Reference Interval: By report

CPT Code(s): 81460; 81465; 81440

New York DOH Approved.

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

2007735 **N Antigen Typing - Patient** **N AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

0092628 **P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody** **VGCC AB**

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for component 0092629 from Voltage-Gated Calcium Channel (VGCC) Ab to P/Q-Type Calcium Channel Antibody

2007737 **P1 Antigen Typing - Patient** **P1 AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

New Test **3001890** **P501S by Immunohistochemistry** **P501S 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.

2004232 **Pancreastatin, Plasma** **PANCREA**

Performed: Varies
Reported: 7-10 days

0080336 **Phenylalanine and Tyrosine** **PHE/TYR**

Reference Interval:

Test Number	Components	Reference Interval	
0080315	Phenylalanine Monitoring, Plasma	Effective November 18, 2019	
		Age	**Reference Interval**
		0-30 days	30 - 95 µmol/L
		1 month - 11 months	30 - 90 µmol/L
		1 year and older	30 - 82 µmol/L
0080355	Tyrosine, Plasma	Effective November 18, 2019	
		Age	**Reference Interval**
		0-30 days	30-140 µmol/L
		1-11 months	30-130 µmol/L
		1 year and older	35-110 µmol/L

0080315 **Phenylalanine Monitoring, Plasma** **QNTPHE**

Reference Interval:
Effective November 18, 2019

Age	Reference Interval
0-30 days	30-95 µmol/L
1 month-11 months	30-90 µmol/L
1 year and older	30-82 µmol/L

0060052 ***Pneumocystis jirovecii* DFA** **PNEUMST**

CPT Code(s): 87015; 87281

2009226 ***Pneumocystis jirovecii* DFA with Reflex to *Pneumocystis jirovecii* by PCR** **PNEUMST R**

CPT Code(s): 87015; 87281; if reflexed, add 87798

3001255 **14-3-3 Protein Tau, Total, CSF** **14-3-3 TAU**

Specimen Required: Patient Prep: Patient must be 12 years of age or older.
Collect: CSF.
Specimen Preparation: The first 2 mL of CSF that flows from the tap should be discarded. Transfer 5 mL CSF to ARUP Standard Transport Tubes and freeze immediately. (Min: 2 mL)
Storage/Transport Temperature: Frozen.
Remarks: Completed requisition form required.
Stability (collection to initiation of testing): Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: Indefinitely (One freeze/thaw cycle is acceptable.)

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

New Test **3002059** **Pyruvate Kinase Deficiency (*PKLR*) Sequencing** **PKLR FGS**
Click for Pricing

Additional Technical Information

Out of Pocket Estimator

Patient History for Pyruvate Kinase Liver and RBC (*PKLR*) Sequencing Testing

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

Specimen Required: Collect: Lavender (K_2EDTA), Pink (K_2EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 month; Frozen: 6 months

Reference Interval: By report

Interpretive Data: Background information for Pyruvate Kinase Deficiency (*PKLR*) Sequencing:
Characteristics: Red cell pyruvate kinase (PK) deficiency, although relatively rare, is the most common glycolytic defect resulting in congenital non-spherocytic hemolytic anemia. Clinical features of PK deficiency are highly variable, ranging from well compensated anemia to severe disease with lifelong transfusion dependency. Other clinical manifestations may include jaundice, gallstones, iron overload and potential for other complications.
Prevalence: Varies by ethnicity; 1 in 20,000 Caucasians, higher prevalence in Pennsylvania Amish and Romani.
Inheritance: Autosomal recessive.
Cause: Pathogenic biallelic germline variants in *PKLR*.
Clinical Sensitivity: 98 percent.
Methodology: Bidirectional sequencing of all coding regions, intron/exon boundaries, 5' untranslated region and deep intronic variants c.1269+43T>C and c.1269+44C>T (also known as IVS9+43T>C and IVS9+44C>T, respectively) of the *PKLR gene*.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations or repeat element insertions. Deep intronic variants other than those targeted and large deletions/duplications will not be detected. Regulatory region variants outside of the 5' untranslated region will not be assessed.

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

CPT Code(s): 81405

New York DOH approval pending. Call for status update.

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

3000400 **QuantiFERON-TB Gold Plus, 1-Tube** **QFT-PLUS**

Specimen Required: Collect: QuantiFERON-TB Gold Plus 1-tube (ARUP Supply #54015) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. For collection and transport instructions refer to QuantiFERON under Special Handling at https://aruplab.com/testing/specimen/quantiferon.
Specimen Preparation: Transport 6 mL whole blood. (Min: 5 mL).
Storage/Transport Temperature: Refrigerated. **Must be collected and shipped directly to ARUP the same calendar day**.
Remarks: **Do not collect or ship on, or the day before, holidays.**
Stability (collection to initiation of testing): Ambient: 3 hours; Refrigerated: 48 hours; Frozen: Unacceptable

0013014 **Rh Type Only** **IRL-RH**

Specimen Required: Collect: Plain Red, Lavender (K_2EDTA), or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: **Separator or gel tubes.**
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

New Test **3002002** **RhC/c (RHCE) Antigen Genotyping** **RHC GENO**
Click for Pricing

Time Sensitive

Out of Pocket Estimator

Additional Technical Information

Methodology: Polymerase Chain Reaction/Fluorescence Monitoring
Performed: Varies
Reported: 3-10 days

Specimen Required: Collect: **Fetal Genotyping:** Amniotic fluid OR two T-25 flasks at 80 percent confluency of cultured amniocytes. If the client is unable to culture amniocytes, this can be arranged by contacting ARUP Client Services at (800) 522-2787.
WITH Maternal Cell Contamination Specimen (see Note): Lavender (K_2EDTA), Pink (K_2EDTA), or Yellow (ACD Solution A or B).
Parental Genotyping: Lavender (K_2EDTA), Pink (K_2EDTA)
Specimen Preparation: **Amniotic Fluid:** Transport 10 mL unspun fluid. (Min: 5 mL)
Cultured Amniocytes: Fill flasks with culture media. Transport two T-25 flasks at 80 percent confluency of cultured amniocytes filled with culture media. Backup cultures must be retained the client's institution until testing is complete.
Maternal Cell Contamination Specimen: Transport 3 mL whole blood (Min: 1 mL)
Whole Blood (Parental Genotyping): Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: **Amniotic fluid:** Room temperature.
Cultured Amniocytes: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to liability of cells.
Whole Blood or Maternal Cell Contamination Specimen: Refrigerated.
Remarks: Patient History Form is available on the ARUP website or by contacting ARUP Client Services.
Unacceptable Conditions: Plasma or serum. Specimens collected in sodium heparin tubes.
Stability (collection to initiation of testing): **Fetal Specimen:** Ambient: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable
Whole Blood or Maternal Cell Contamination Specimen: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Reference Interval: By report

Interpretive Data:
Background Information for RhC/c (RHCE) Antigen Genotyping
Characteristics: Erythrocyte alloimmunization may result in hemolytic transfusion reactions or hemolytic disease of the fetus and newborn (HDFN).
C Antigen Frequency: 0.68 Caucasians, 0.27 African Americans, 0.93 Asians.
c Antigen Frequency: 0.80 Caucasians, 0.98 African Americans, 0.47 Asians.
Inheritance: Co-dominant.
Cause: Antigen-antibody mediated red-cell hemolysis between donor/recipient or transferred maternal antibodies.
Polymorphisms Tested: Rh blood group RHCE*2 (C), RHCE*4 (c): c.307C>T; p.Pro103Ser and 109bp insertion.
Clinical Sensitivity: 99 percent.
Methodology: Immucor PreciseType™ HEA Molecular BeadChip which is FDA-approved for clinical testing.
Analytic Sensitivity and Specificity: 99 percent.
Limitations: Bloody amniotic fluid samples may give false-negative results because of maternal cell contamination. Rare nucleotide changes leading to altered or partial antigen expression may not be detected by this assay. Genotypes resulting in Rh null phenotypes will not be assessed. This assay is occasionally limited in predicting genotype due to extreme variation in the Rh locus. False-negative RhC or Rhc predictions may result due to *RHCE-D-CE* fusion genes. Patients who have had hematopoietic stem cell transplants may have inconclusive results on this test. Abnormal signal intensities may result in indeterminate genotyping results.

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

Note: Maternal specimen is recommended for proper test interpretation if contamination of the fetal specimen from the mother is suspected. Order Maternal Cell Contamination.

CPT Code(s): 0001U

New York DOH Approved.

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

New Test **3002003** **RhE/e (RHCE) Antigen Genotyping** **RHE GENO**

Click for Pricing

Time Sensitive

Out of Pocket Estimator

Additional Technical Information

Methodology: Polymerase Chain Reaction/Fluorescence Monitoring
Performed: Varies
Reported: 3-10 days

Specimen Required: Collect: **Fetal Genotyping**: Amniotic fluid OR two T-25 flasks at 80 percent confluency of cultured amniocytes. If the client is unable to culture amniocytes, this can be arranged by contacting ARUP Client Services at (800) 522-2787.
WITH Maternal Cell Contamination Specimen (see Note): Lavender (K_2EDTA), Pink (K_2EDTA), or Yellow (ACD Solution A or B).
Parental Genotyping: Lavender (K_2EDTA), Pink (K_2EDTA).
Specimen Preparation: **Amniotic Fluid:** Transport 10 mL unspun fluid. (Min: 5 mL)
Cultured Amniocytes: Fill flasks with culture media. Transport two T-25 flasks at 80 percent confluency of cultured amniocytes filled with culture media. Backup cultures must be retained the client's institution until testing is complete.
Maternal Cell Contamination Specimen: Transport 3 mL whole blood (Min: 1 mL)
Whole Blood (Parental Genotyping): Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: **Amniotic fluid:** Room temperature.
Cultured Amniocytes: CRITICAL ROOM TEMPERATURE. Must be received within 48 hours of shipment due to liability of cells.
Whole Blood or Maternal Cell Contamination Specimen: Refrigerated.
Remarks: Patient History Form is available on the ARUP Web site or by contacting ARUP Client Services.
Unacceptable Conditions: Plasma or serum. Specimens collected in sodium heparin tubes.
Stability (collection to initiation of testing): **Fetal Specimen:** Ambient: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable
Whole Blood or Maternal Cell Contamination Specimen: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Reference Interval: By report

Interpretive Data:
Background Information for RhE/e (RHCE) Antigen Genotyping
Characteristics: Erythrocyte alloimmunization may result in hemolytic transfusion reactions or hemolytic disease of the fetus and newborn (HDFN).
E Antigen Frequency: 0.29 Caucasians, 0.22 African Americans, 0.39 Asians.
e Antigen Frequency: 0.98 Caucasians, 0.98 African Americans, 0.96 Asians.
Inheritance: Co-dominant.
Cause: Antigen-antibody mediated red-cell hemolysis between donor/recipient or transferred maternal antibodies.
Polymorphism Tested: Rh blood group RHCE*3 (E), RHCE*5 (e): c.676G>C; p.Ala226Pro.
Clinical Sensitivity: 99 percent.
Methodology: Immucor PreciseType™ HEA Molecular BeadChip which is FDA-approved for clinical testing.
Analytic Sensitivity and Specificity: 99 percent.
Limitations: Bloody amniotic fluid samples may give false-negative results because of maternal cell contamination. Rare nucleotide changes leading to altered or partial antigen expression and null phenotypes are not detected by this assay. This assay is occasionally limited in predicting genotype due to extreme variation in the Rh locus. False-negative Rhe predictions may result due to *RHCE-D-CE* fusion genes. Patients who have had hematopoietic stem cell transplants may have inconclusive results on this test. Abnormal signal intensities may result in indeterminate genotyping results.

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

Note: Maternal specimen is recommended for proper test interpretation if contamination of the fetal specimen from the mother is suspected. Order Maternal Cell Contamination.

CPT Code(s): 0001U

New York DOH Approved.

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

2007739 **S Antigen Typing - Patient** **S AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

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2013506 **Sd(a) Antigen Typing, Patient** **SDA AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

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New Test **3001973** **Sulfonamides, Quantitative, Serum or Plasma** **SULFONA SP**
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Methodology: Quantitative Spectrophotometry
Performed: Varies
Reported: 8-11 days

Specimen Required: Collect: Plain Red, Lavender (K_2 or K_3EDTA), 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: 0.4 mL)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: 24 hours; Refrigerated: 3 months; Frozen: 3 months

Reference Interval: By report

Note: Interfering substances: Acetaminophen; Benzocaine; Furosemide; Lidocaine; para-aminobenzoic acid; Thaizide diuretics.

CPT Code(s): 80375 (Alt code: G0480)

New York DOH Approved.

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

0091100 **Sulfonylurea Hypoglycemia Panel, Quantitative, Urine** **SULFON UR**

Performed: Varies
Reported: 5-12 days

New Test Available Now Click for Pricing | **3001896** | **TCR DELTA by Immunohistochemistry** | **TCR D IHC**

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.

0070111	**Testosterone Free, Adult Male**	**FREE T2**

CPT Code(s): 84402

0081059	**Testosterone Free, Females or Children**	**TESTOS FR**

CPT Code(s): 84402

0070102	**Testosterone, Bioavailable and Sex Hormone Binding Globulin (Includes Total Testosterone), Adult Male**	**BIO T**

CPT Code(s): 84402; 84403; 84270

0081057	**Testosterone, Bioavailable and Sex Hormone Binding Globulin (Includes Total Testosterone), Females or Children**	**BIO T MASS**

CPT Code(s): 84402; 84403; 84270

0070109	**Testosterone, Free and Total (Includes Sex Hormone Binding Globulin), Adult Male**	**FREE T**

CPT Code(s): 84402; 84403; 84270

0081056	**Testosterone, Free and Total (Includes Sex Hormone Binding Globulin), Females or Children**	**TESTOS F&T**

CPT Code(s): 84402; 84403; 84270

0090369 THC Metabolite, Urine, Quantitative CDCO THC

Specimen Required: Collect: Random urine.
Specimen Preparation: Transfer 1 mL urine with no additives or preservatives to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Room temperature.
Unacceptable Conditions: Specimens exposed to repeated freeze/thaw cycles.
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 month; Frozen: 1 Month

Reference Interval:
Effective November 18, 2019

Drugs Covered	Cutoff Concentrations
11-Nor-9-carboxy-THC	15 ng/mL

Interpretive Data:
Methodology: Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 15 ng/mL

For medical purposes only; not valid for forensic use.

The drug analyte detected in this assay, 9-carboxy THC, is a metabolite of delta-9-tetrahydrocannabinol (THC). Detection of 9-carboxy THC suggests use of, or exposure to, a product containing THC. This test cannot distinguish between prescribed or non-prescribed forms of THC, nor can it distinguish between active or passive use. The 9-carboxy THC metabolite can be detected in urine for several weeks. Normalization of results to creatinine concentration can help document elimination or suggest recent use, when specimens are collected at least one week apart.
See Compliance Statement B: www.aruplab.com/CS

0013410 Thermal Amplitude Test IRL-THERM

Specimen Required: Collect: Lavender (K_2 EDTA), Pink (K_2 EDTA), or Plain Red.
Specimen Preparation: Maintain at 37°C until separated from cells. Transport 7 mL red blood cells and 5 mL plasma or serum in an ARUP Standard Transport Tube. (Min: 7 mL red blood cells and 3 mL plasma or serum)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator or Gel Tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

New Test **3001801** **Toxigenic *Clostridium difficile* by LFA with Reflex to PCR, Stool** **CDIFF LFA**
Available Now
Click for Pricing

Methodology: Qualitative Enzyme Immunoassay/Qualitative Polymerase Chain Reaction
Performed: Sun-Sat
Reported: Within 24 hours

Specimen Required: Collect: Stool.
Specimen Preparation: Transfer 5g stool to a clean, unpreserved transport vial (ARUP Supply# 40910) available online through eSupply using ARUP Connect™ or contact ARUP Client Services at (800) 522-2787. (Min: 1g)
Storage/Transport Temperature: Refrigerated. Also acceptable: Frozen.
Unacceptable Conditions: Specimens preserved in Cary Blair/C&S media, formalin-based fixative (eg, Formalin, SAF) or alcohol-based fixative (eg, PVA, Totalfix, Alcorfix, etc).
Stability (collection to initiation of testing): Ambient 2 hours; Refrigerated 72 hours; Frozen 2 weeks

Reference Interval: Not Detected

Interpretive Data: Refer to report.

Note: If *C. difficile* GDH antigen is detected by LFA but *C. difficile* toxin is not detected, *C. difficile* tcdB gene by PCR will be performed, additional charges apply.

CPT Code(s): 87324, 87449; if reflexed add 87493

New York DOH Approved.

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

0080355 **Tyrosine, Plasma** **TYRO**

Reference Interval:
Effective November 18, 2019

Age	Reference Interval
0-30 days	30-140 µmol/L
1-11 months	30-130 µmol/L
1 year and older	35-110 µmol/L

New Test **3001755** ***UGT1A1* Sequencing** **UGT1A1 FGS**

Click for Pricing


Additional Technical Information


Patient History for *UGT1A1* Sequencing Testing


Supplemental Resources

Out of Pocket Estimator

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

Specimen Required: Collect: Lavender (K_2 EDTA), Pink (K_2 EDTA), or Yellow (ACD Solution A or B).
Specimen Preparation: Transport 3 mL whole blood. (Min: 1 mL)
Storage/Transport Temperature: Refrigerated
Stability (collection to initiation of testing): Ambient: 1 week; Refrigerated: 1 month; Frozen: 6 months

Interpretive Data:
Background Information for *UGT1A1* Sequencing:
Characteristics: *UGT1A1* encodes the bilirubin uridine diphosphate glucuronosyl transferase 1A1 enzyme, which is responsible for the clearance of drugs (eg, irinotecan) and endogenous compounds (eg, bilirubin). UGT1A1 deficiency is associated with inherited nonhemolytic unconjugated hyperbilirubinemia and a spectrum of phenotypes dependent on the level of residual enzyme activity. Crigler-Najjar syndrome type I, results from absent enzyme activity and severe unconjugated hyperbilirubinemia causing jaundice and risk for kernicterus. Crigler-Najjar syndrome type II, is associated with reduced hepatic enzyme activity, intermediate levels of hyperbilirubinemia, and low risk for kernicterus. Gilbert syndrome is clinically benign and associated with mild, fluctuating hyperbilirubinemia, which can be caused by impaired bilirubin glucuronidation. Pathogenic *UGT1A1* variants are also associated with an increased risk for irinotecan toxicity (neutropenia and diarrhea) and bilirubin-related discontinuation of atazanavir.
Cause: Two pathogenic *UGT1A1* variants on opposite chromosomes. A variable number of TA repeats in the (TA)nTAA element of the *UGT1A1* promoter affects transcription efficiency. The common number of repeats is six (TA)6, **1* allele, while seven repeats (TA)7, **28* allele is associated with reduced transcription activity.
Epidemiology: Incidence of Crigler-Najjar syndrome is estimated at 1 in 1 million newborns worldwide. Approximately 3-7 percent of individuals in the U.S. have Gilbert syndrome.
Inheritance: Autosomal recessive for Crigler-Najjar and Gilbert syndromes.
Clinical Sensitivity/Specificity: Unknown for Crigler-Najjar and Gilbert syndromes. Estimated risk of irinotecan toxicity by genotype in Caucasian patients with colorectal cancer (PMID: 23529007).
(TA)6/6 (**1/*1*): diarrhea 15 percent; neutropenia 11 percent.
(TA)6/7 (**1/*28*): diarrhea OR=1.20; neutropenia OR=1.90.
(TA)7/7 (**28/*28*): diarrhea OR=1.84; neutropenia OR=4.79.
Risks for bilirubin-related atazanavir discontinuation by predicted UGT1A1 phenotype (PMID: 26417955):
Poor metabolizer (**28/*28*, **28/*37*, **37/*37*): 20-60 percent.
Intermediate metabolizer (**1/*28*, **1/*37*, **36/*28*, **36/*37*): less than 5 percent.
Extensive or normal metabolizer (**1/*1*, **1/*36*, **36/*36*): less than 5 percent.
Methodology: Bidirectional sequencing of the *UGT1A1* coding regions, intron/exon boundaries, and polymorphic (TA)nTAA repeat within the promoter region.
Analytical Sensitivity: Greater than 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations. *UGT1A1* regulatory region variants other than the (TA)nTAA promoter variant will not be analyzed. Deep intronic variants, large deletions/duplications/insertions, and gene conversion events will not be detected. Variants of uncertain clinical significance within the *UGT1A1* coding region will not be reported for pharmacogenetic indications. Genetic and non-genetic factors other than *UGT1A1*, may contribute to irinotecan toxicity and efficacy.

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

CPT Code(s): 81479

New York DOH approval pending. Call for status update.

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

New Test **3002046** **Voltage-Gated Calcium Channel (VGCC) Antibody Panel** **VGCC PAN**
Click for Pricing

Methodology: Quantitative Radioimmunoassay
Performed: Tue
Reported: 2-9 days

Specimen Required: Collect: Plain Red or Serum Separator Tube (SST).
Specimen Preparation: Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL to an ARUP Standard Transport Tube. (Min.: 0.2 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma. Hemolyzed or grossly lipemic specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Reference Interval:

Test Number	Components	Reference Interval	
	N-Type Voltage-Gated Calcium Channel (VGCC) Antibody	Effective November , 2019	
		Negative:	0.0 to 69.9 pmol/L
		Indeterminate:	70.0 to 110.0 pmol/L
		Positive:	110.1 pmol/L or greater
0092628	P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody	Effective November 14, 2011	
		Negative	0.0 to 24.5 pmol/L
		Indeterminate	24.6 to 45.6 pmol/L
		Positive	45.7 pmol/L or greater

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

CPT Code(s): 83519 x2

New York DOH approval pending. Call for status update.

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

2009463 **Voltage-Gated Potassium Channel (VGKC) Antibody with Reflex to LGI1 and CASPR2 Screen and Titer, Serum** **VGKC R**

Reference Interval:

Test Number	Components	Reference Interval	
2004890	Voltage-Gated Potassium Channel (VGKC) Antibody, Serum	Negative	31 pmol/L or less
		Indeterminate	32-87 pmol/L
		Positive	88 pmol/L or greater
2009456	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10	
2009452	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, Serum	Less than 1:10	

Interpretive Data: Voltage-Gated Potassium Channel (VGKC) antibodies are associated with neuromuscular weakness as found in neuromyotonia (also known as Issacs syndrome) and Morvan syndrome. VGKC antibodies are also associated with paraneoplastic neurological syndromes and limbic encephalitis; however, VGKC antibody-associated limbic encephalitis may be associated with antibodies to leucine-rich, glioma-inactivated 1 protein (LGIgi1) or contactin-associated protein-2 (CASPRaspr-2) instead of potassium channel antigens. A substantial number of VGKC-antibody positive cases are negative for LGI1 and CASPR-2 IgG autoantibodies, not all VGKC complex antigens are known. The clinical significance of this test can only be determined in conjunction with the patient's clinical history and related laboratory testing.

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

HOTLINE NOTE: There is a clinically significant charting name change associated with this test.
Change the charting name for reflexed component 2009453, CASPR2 Ab IgG Screen by IFA to CASPR2 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009455 from CASPR2 Ab IgG Titer by IFA to CASPR2 Ab IgG Titer by IFA, Serum.
Change the charting name for reflexed component 2009457, LGI1 Ab IgG Screen by IFA to LGI1 Ab IgG Screen by IFA, Serum.
Change the charting name for reflexed component 2009459, LGI1 Ab IgG Titer by IFA to LGI1 Ab IgG Titer by IFA, Serum.

New Test **3001996** **Voltage-Gated Potassium Channel (VGKC) Complex Antibody Panel with Reflex to Titer, CSF** **VGKCCSFPAN**

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Additional Technical Information

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

Specimen Required: Collect: CSF.
Specimen Preparation: Transfer 4 mL CSF to an ARUP Standard Transport Tube. (Min: 1.0 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Plasma. Grossly lipemic or icteric specimens.
Stability (collection to initiation of testing): After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Reference Interval:

Test Number	Components	Reference Interval	
3001387	Voltage-Gated Potassium Channel (VGKC) Antibody, CSF	Negative	0.0-1.1 pmol/L
		Positive	1.2 pmol/L or greater
3001992	Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG with Reflex to Titer, CSF	Less than 1:1	
3001986	Contactin-Associated Protein-2 Antibody, IgG with Reflex to Titer, CSF	Less than 1:1	

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

Note: If LGI1 antibody IgG is positive, then LGI1 antibody IgG titer will be added. If CASPR2 antibody IgG is positive, then CASPR2 antibody IgG titer will be added. Additional charges apply.

CPT Code(s): 83519; 86255 x2; if reflexed add 86256 per titer

New York DOH approval pending. Call for status update.

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

2013508 **Wr(a) Antigen Typing, Patient** **WRA AG**

Specimen Required: Collect: Lavender (K_2EDTA) or Pink (K_2EDTA).
Specimen Preparation: **Do not freeze.** Transport 7 mL whole blood. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.
Unacceptable Conditions: Separator tubes.
Stability (collection to initiation of testing): Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable

ARUP LABORATORIES

HOTLINE: Effective November 18, 2019

The following will be discontinued from ARUP's test menu on November 18, 2019.
Replacement test options are supplied if applicable.

Test Number	Test Name	Refer To Replacement
0051700	Biotinidase Deficiency (BTD) 5 Mutations	Biotinidase Deficiency (BTD) Sequencing (0051730)
0049003	Blood Smear - with Interpretation	Blood Smear with Interpretation (3001947)
2011436	Bromide, Serum or Plasma	Methyl Bromide Metabolite, Serum or Plasma (3001975)
2013767	*Chlamydia trachomatis* and *Neisseria gonorrhoeae* by Transcription-Mediated Amplification (TMA) with Reflex to *Chlamydia trachomatis* L serovars (LGV) by PCR	*Chlamydia trachomatis* and *Neisseria gonorrhoeae* by Transcription-Mediated Amplification (TMA) (0060241)
0020596	Copper, Serum Free (Direct)	Copper, Free, Serum or Plasma (3001971)
2013111	Cytokine Production by Mononuclear Cells in Response to Antigen and Mitogen Stimulation	
2013109	Cytokine Production by Mononuclear Cells in Response to Mitogen Stimulation	
2013694	Explify Respiratory Pathogens by Next Generation Sequencing	Explify Respiratory Pathogen Detection by Next Generation Sequencing (3002026)
0080125	Galactose-1-Phosphate Uridyltransferase	Galactose-1-Phosphate Uridyltransferase (GALT Enzyme), RBC (3001790)
2002896	Human Papillomavirus (HPV) Low Risk by in situ Hybridization, Paraffin	Human Papillomavirus (HPV) Low Risk by in situ Hybridization, Paraffin (3002009)
2002899	Human Papillomavirus (HPV), High Risk by in situ Hybridization, Paraffin	Human Papillomavirus (HPV) High Risk by in situ Hybridization, Paraffin (3002008)
0051644	Kell K/k Antigen (KEL) Genotyping	Kell K/k (KEL) Antigen Genotyping (3002001)
2013117	Lymphocyte Antigen and Mitogen Proliferation Panel with Cytokine Response	Lymphocyte Antigen and Mitogen Proliferation Panel (0096056), Lymphocyte Proliferation, Antigen-Mitogen Panel by Flow Cytometry (24-Hr Critical Room Temp) (3001319)
2006065	Mitochondrial Disorders (mtDNA) Sequencing	Mitochondrial Disorders (mtDNA) Sequencing and Deletion Analysis by NGS (3001965)
2006054	Mitochondrial Disorders Panel (mtDNA Sequencing, Nuclear Genes Sequencing, and Deletion/Duplication)	Mitochondrial Disorders Panel (mtDNA and Nuclear Genes) (3001959)
0050742	Myocardial Antibody, IgG with Reflex to Titer	
0051622	Phosphatidylethanolamine Antibodies, IgG, IgM and IgA	
0051623	Phosphatidylglycerol Antibodies, IgG, IgM and IgA	
0051624	Phosphatidylinositol Antibodies, IgG, IgM and IgA	
0050421	RhCc Antigen (RHCE) Genotyping	RhC/c (RHCE) Antigen Genotyping (3002002)
0050423	RhEe Antigen (RHCE) Genotyping	RhE/e (RHCE) Antigen Genotyping (3002003)
0020044	Sulfonamides (Sulfas)	Sulfonamides, Quantitative, Serum or Plasma (3001973)
0090064	Thiocyanate, 24-Hour Urine	
0090063	Thiocyanate, Random Urine	
0020598	Wilson Disease Screening Panel, Serum	Copper, Serum or Plasma (0020096), Ceruloplasmin (0050160) and Copper, Free, Serum or Plasma (3001971)