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0013410	IRL-THERM	Thermal Amplitude Test			x		x	x													
0020045	LA	Lactic Acid, Plasma			x																
0020056	VIS-S	Viscosity, Serum					x		x	x											
0020504	LA-FL	Lactic Acid, Body Fluid			x																
0020516	LA-CF	Lactic Acid, CSF			x																
0030181	LUPUS R	Lupus Anticoagulant Reflexive Panel (Change effective as of 02/20/24: Refer to 3017009 in the February Hotline)																		x	
0030461	DRV CONF	Dilute Russell Viper Venom Time (dRVVT) with Reflex to dRVVT 1:1 Mix and Confirmation (Change effective as of 02/20/24: Refer to 3017009 in the February Hotline)																		x	
0050184	META PF	Metanephrines, Plasma (Free)					x														
0050253	LYME M WB	Borrelia burgdorferi Antibody, IgM by Immunoblot (Change effective as of 02/20/24: Refer to 0050254)																		x	

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0050610	HGBEL	Hemoglobin Evaluation with Reflex to Electrophoresis and/or RBC Solubility (Change effective as of 02/20/24: Refer to 3017101 in the February Hotline)																		x	
0050640	SPEP	Protein Electrophoresis, Serum								x											
0050676	IGG SYN	Immunoglobulin G, CSF Index			x				x			x									
0051050	PLT ABSCRN	Platelet Antibodies, Indirect (Inactive as of 02/20/2024)																			x
0051225	MSN PAN	Motor Neuropathy Panel								x											
0055662	B12 MMA	Vitamin B12 with Reflex to Methylmalonic Acid, Serum (Vitamin B12 Status)					x														
0060784	HMPVPCR	Human Metapneumovirus by PCR			x	x			x												
0070213	PYD	Pyridinium Crosslinks (Total), Urine(Inactive as of 02/20/24)																			x
0080111	VIT B6	Vitamin B[6] (Pyridoxal 5 -Phosphate)				x	x														
0080380	Vitamin C	Vitamin C (Ascorbic Acid), Plasma			x		x		x												
0080395	SEROT-WB	Serotonin, Whole Blood					x														
0080397	SEROT-SER	Serotonin, Serum					x														

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0080420	HIAA	5-Hydroxyindoleacetic Acid (HIAA), Urine					x														
0080421	VMA U	Vanillylmandelic Acid (VMA), Urine					x														
0080422	HVA U	Homovanillic Acid (HVA), Urine					x														
0080470	VH	Vanillylmandelic Acid (VMA) and Homovanillic Acid (HVA), Urine					x														
0080521	VIT E	Vitamin E, Serum or Plasma					x														
0083918	MMA U	Methylmalonic Acid (MMA) Quantitative, Urine					x														
0090003	FLEC	Flecainide					x														
0090057	GABAP	Gabapentin					x														
0090074	NORT HPLC	Nortriptyline					x														
0090102	DOXEPIN	Doxepin and Metabolite, Serum or Plasma					x														
0090106	PROTRIP	Protriptyline, Serum or Plasma					x														
0090151	PROC	Procainamide and NAPA (Inactive as of 02/20/24)																			x
0090157	DESIP/IMIP	Imipramine and Desipramine, Serum or Plasma					x														
0090158	AMIT/NORT	Amitriptyline and Nortriptyline, Serum or Plasma					x														

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0090161	AMIOD	Amiodarone and Metabolite					x														
0090359	CDCO COCA	Cocaine Metabolite, Urine, Quantitative					x														
0090362	CDCO METH	Methadone and Metabolite, Urine, Quantitative					x														
0090369	CDCO THC	THC Metabolite, Urine, Quantitative					x														
0090613	TNI	Troponin I(Inactive as of 02/20/24)																			x
0090684	COC MET SP	Cocaine Metabolite, Serum or Plasma, Quantitative					x														
0090699	METHADO SP	Methadone and Metabolite, Serum or Plasma, Quantitative					x														
0092100	CORTURATIO	Cortisol/Cortisone Urine Free by LC-MS/MS				x	x														
0092333	OHPRGNLON	17-Hydroxypregnenolone Quantitative by LC-MS/MS, Serum or Plasma					x														
0092334	PREGNLONE	Pregnenolone by LC-MS/MS, Serum or Plasma					x														
0092335	OHPRGNBASE	17-Hydroxypregnenolone Baseline Specimen					x														

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0092336	OHPRGN 30	17-Hydroxypregnenolone 30-Minute Timed Specimen					x														
0092337	OHPRGN 60	17-Hydroxypregnenolone 60-Minute Timed Specimen					x														
0092338	OHPRGN 90	17-Hydroxypregnenolone 90-Minute Timed Specimen					x														
0092356	NICOTINEUR	Nicotine and Metabolites, Urine, Quantitative					x														
0092361	NICOTINESP	Nicotine and Metabolites, Serum or Plasma, Quantitative					x														
0092570	CDCO FENU	Fentanyl and Metabolite, Urine, Quantitative					x														
0093247	ESDIOL TMS	Estradiol (Adult Males, Children, Postmenopausal Females, or Individuals on Estrogen-Suppressing Hormone Therapy)					x														
0093248	EST FR TMS	Estrogens, Fractionated, by Mass Spectrometry					x														
0093249	Estrone TMS	Estrone, by Mass Spectrometry					x														

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0097222	CORT UF	Cortisol Urine Free by LC-MS/MS					x														
0098834	OXCARB	Oxcarbazepine or Eslicarbazepine Metabolite (MHD)					x														
0099336	CLOMIP	Clomipramine and Metabolite, Serum or Plasma					x														
0099431	MMA QNT-P	Methylmalonic Acid, Serum or Plasma (Vitamin B12 Status)					x														
0099640	HALO	Haloperidol					x														
0099824	POR FECES	Porphyrins, Fecal					x														
0099906	FLUPHEN	Fluphenazine					x														
2000136	TH REQUEST	Cytology, ThinPrep Pap Test and Human Papillomavirus (HPV) High Risk Screen by Transcription-Mediated Amplification (TMA), With Reflex to Genotypes 16 and 18/45		x				x					x								
2000138	TR REQUEST	Cytology, ThinPrep Pap Test With Reflex to Human Papillomavirus (HPV), High Risk Screen by Transcription-Mediated Amplification (TMA), With Reflex to Genotypes 16 and 18/45		x				x					x								
2001763	HIRSUTISM	Hirsutism Evaluation Panel					x														

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2002028	VIRIL PANEL	Virilization Panel 1					x														
2002029	CAH RX PANEL	Congenital Adrenal Hyperplasia Treatment Panel					x														
2002109	SPEP REFLEX	Protein Electrophoresis with Reflex to Immunofixation, Serum								x											
2002281	VIRIL PAN2	Virilization Panel 2					x														
2002282	CAH 11-B HYDROX	Congenital Adrenal Hyperplasia Panel, 11-Beta Hydroxylase Deficiency					x														
2002283	CAH 21 HYDROX	Congenital Adrenal Hyperplasia Panel, 21-Hydroxylase Deficiency					x														
2002348	VITD2D3TMS	25-Hydroxyvitamin D[2] and D[3] by Tandem Mass Spectrometry, Serum					x														
2002437	KIT AML	KIT Mutations in AML by Fragment Analysis and Sequencing (Inactive as of 02/20/24)																			x
2002715	IFE FLC	Monoclonal Protein Study, Expanded Panel, Serum								x											
2003182	LACOSA SP	Lacosamide, Serum or Plasma					x														

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2003222	PHOS SYN	Antiphospholipid Syndrome Reflexive Panel (Change effective as of 02/20/24: Refer to 3017157 in the February Hotline)																		x	
2003246	FREE T TMS	Testosterone, Free, by Dialysis and Mass Spectrometry (Adult Males or Individuals on Testosterone Hormone Therapy)					x														
2004247	CEBPA MUT	CEBPA Mutation Detection (Inactive as of 02/20/24)																			x
2005016	BCR MIN	BCR-ABL1, Minor (p190), Quantitative (Change effective as of 02/20/24: Refer to 3016968)																		x	
2005255	MMA METD	Methylmalonic Acid, Serum or Plasma (Metabolic Disorders)					x														
2006385	THROMRISK R	Thrombotic Risk Reflexive Panel (Change effective as of 02/20/24: Refer to 3017156 in the February Hotline)																		x	
2007460	LEFLUMETS P	Leflunomide Metabolite, Serum or Plasma				x	x														
2007515	TADQNT U	Tricyclic Antidepressants, Quantitative, Urine					x														

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2007549	TADQNT SP	Tricyclic Antidepressants, Quantitative, Serum or Plasma					x														
2007918	RT3 TMS	Triiodothyronine, Reverse by Tandem Mass Spectrometry					x														
2007945	ARIPIPRAZO	Aripiprazole and Metabolite, Serum or Plasma					x														
2007949	PALIPERID	Paliperidone, Serum or Plasma					x														
2007951	RISPERIDON	Risperidone and Metabolite, Serum or Plasma					x														
2007957	VENLAFAXSP	Venlafaxine and Metabolite, Serum or Plasma					x														
2007967	MSNCR	Motor and Sensory Neuropathy Evaluation with Immunofixation Electrophoresis and Reflex to Titer and Neuronal Immunoblot								x											
2008291	CDCO BENZO	Benzodiazepines, Urine, Quantitative					x														
2008320	IFX NAB	Infliximab or Biosimilar Activity and Neutralizing Antibody (Change effective as of 02/20/24: Refer to 3016779 in the February Hotline)																		x	

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2008406	T3RT3RATIO	Triiodothyronine, Total and Triiodothyronine, Reverse with Ratio Calculation by Tandem Mass Spectrometry					x														
2010075	AMPS UR	Amphetamines, Urine, Quantitative					x														
2010092	BUPR UR	Buprenorphine and Metabolites, Urine, Quantitative					x														
2010359	MPA MET	Mycophenolic Acid and Metabolites					x														
2011248	ADA NAB	Adalimumab Activity and Neutralizing Antibody (Change effective as of 02/20/24: Refer to 3017043 in the February Hotline)																		x	
2011311	U CL RAND	Chloride, Random Urine (Inactive as of 02/20/24)																			x
2011487	DESIPRAMIN	Desipramine, Serum or Plasma by Tandem Mass Spectrometry					x														
2011539	MEXILE	Mexiletine, Serum or Plasma					x														
2011609	PREGABALIN	Pregabalin, Serum or Plasma					x														
2012213	BARB UR	Barbiturates, Urine, Quantitative					x														
2012227	GABAP U	Gabapentin, Urine					x														

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2012229	PREGABA U	Pregabalin, Urine					x														
2012319	ZOLPID UR	Zolpidem, Urine, Quantitative					x														
2013433	CLOZAP SP	Clozapine and Metabolites, Serum or Plasma, Quantitative					x														
2013605	ADA DL R	Adalimumab Activity with Reflex to Antibody (Change effective as of 02/20/24: Refer to 3017043 in the February Hotline)																		x	
2013612	IFX DL R	Infliximab or Biosimilar Activity with Reflex to Antibody (Change effective as of 02/20/24: Refer to 3016779 in the February Hotline)																		x	
2013956	CV2.1 SCRN	CV2.1 Antibody, IgG by CBA-IFA With Reflex to Titer, Serum (Change effective as of 02/20/24: Refer to 3016999 in the February Hotline)																		x	
3000258	CF FX SMA	Genetic Carrier Screen, (CF, FXS, and SMA) with Reflex to Methylation			x																
3002257	CV2.1 CSF	CV2.1 Antibody, IgG by CBA-IFA With Reflex to Titer, CSF (Change effective as of 02/20/24: Refer to 3017001 in the February Hotline)																		x	

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3002568	IFE SPEP	Monoclonal Protein Study, Serum								x											
3002867	CGA	Chromogranin A, Serum			x		x		x	x											
3002929	PNS PAN2	Paraneoplastic Reflexive Panel						x		x			x								
3003005	HPVNAA	Human Papillomavirus (HPV), High Risk with 16 and 18 Genotype by Nucleic Acid Amplification (NAA), ThinPrep (Change effective as of 02/20/23: Refer to 3016945 in the February Hotline)																		x	
3003254	LPEP ACUTE	Borrelia burgdorferi VlsE1/pepC10 Antibodies, Total by ELISA with Reflex to IgG and IgM by Immunoblot (Change effective as of 02/20/24: Refer to 3017059 in the Feb Hotline)																		x	
3004517	PNSPAN CSF	Paraneoplastic Reflexive Panel, CSF						x	x				x								
3005200	LEGION AB	Legionella pneumophila Antibodies (Types 1-6), IgG, IgM, and IgA by ELISA					x														
3005839	DX BCR RFX	Diagnostic Qualitative BCR-ABL1 Assay with Reflex to p190 or p210 Quantitative Assays			x			x					x								

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3005928	RWGS FAM	Rapid Whole Genome Sequencing, Familial Control			x			x													
3005933	RWGS FRPT	Rapid Whole Genome Sequencing, Familial Control with Report			x			x													
3005935	RWGS NGS	Rapid Whole Genome Sequencing			x																
3006051	NEURO R4	Autoimmune Neurologic Disease Panel with Reflex, Serum						x		x			x								
3006052	NEURORCSF2	Autoimmune Neurologic Disease Panel With Reflex, CSF						x					x								
3006201	AIENCDEMS	Autoimmune Encephalopathy/Dementia Panel, Serum			x			x		x			x								
3006202	AIENCDEMC	Autoimmune Encephalopathy/Dementia Panel, CSF			x			x					x								
3006203	AIDYS	Autoimmune Dysautonomia Panel, Serum			x			x		x			x								
3006204	AIEPS	Autoimmune Epilepsy Panel, Serum			x			x		x			x								
3006205	AIEPC	Autoimmune Epilepsy Panel, CSF			x			x					x								
3006206	AIMDS	Autoimmune Movement Disorder Panel, Serum			x			x		x			x								
3006207	AIMDC	Autoimmune Movement Disorder Panel, CSF			x			x					x								

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3006208	AIMYS	Autoimmune Myelopathy Panel, Serum			x			x		x			x								
3006209	AIMYC	Autoimmune Myelopathy Panel, CSF			x			x					x								
3006383	CLOT RFLX	Prolonged Clot Time Reflexive Profile			x			x										x			
3016493	WGS NGS	Whole Genome Sequencing			x																
3016497	WGS FRPT	Whole Genome Sequencing, Familial Control			x																
3016621	MYE CNV	Myeloid Malignancies Mutation and Copy Number Variation Panel by Next Generation Sequencing	x																		
3016636	HPV PRMRY	HPV Primary Screen by PCR With Reflex to Cytology	x																		
3016779	IFX PAN	Infliximab and Antibodies to Infliximab Quantitation	x																		
3016804	AIVLS	Autoimmune Vision Loss Panel, Serum				x		x		x			x								
3016862	AMH MENO	Anti-Mullerian Hormone With Menopausal Status (MenoCheck)	x																		
3016885	TRAP-IHC	Tartrate-Resistant Acid Phosphatase by Immunohistochemistry	x																		

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3016943	HPV SCREEN	Human Papillomavirus (HPV) High Risk Screen, by Transcription-Mediated Amplification (TMA), ThinPrep	x																		
3016944	HPVGENO	Human Papillomavirus (HPV) Genotypes 16 and 18/45, by Transcription-Mediated Amplification (TMA), ThinPrep	x																		
3016945	HPV REFLEX	Human Papillomavirus (HPV) High Risk Screen by Transcription-Mediated Amplification (TMA), with Reflex to Genotypes 16 and 18/45, ThinPrep	x																		
3016968	QNT BCRMIN	Quantitative Detection of BCR-ABL1, Minor Form (p190)	x																		
3016999	CV2 SER	CV2 Antibody, IgG by CBA-IFA With Reflex to Titer, Serum	x																		
3017001	CV2 CSF	CV2 Antibody, IgG by CBA-IFA With Reflex to Titer, CSF	x																		
3017009	LUPUS RFLX	Lupus Anticoagulant Reflex Panel	x																		
3017043	ADA PAN	Adalimumab and Antibodies to Adalimumab Quantitation	x																		

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3017046	SESAME COM	Allergen, Food, Sesame Seed Component rSes i 1	x																		
3017049	SESAME R	Allergen, Food, Sesame Seed With Reflex to Component, IgE	x																		
3017059	LYME STTT	Borrelia burgdorferi VlsE1/pepC10 Antibodies, Total by ELISA With Reflex to IgG and IgM by Immunoblot (Standard Two-Tier Testing)	x																		
3017101	HGBEL RFX	Hemoglobin Evaluation With Reflex to Electrophoresis and/or RBC Solubility	x																		
3017156	THROMRISK	Thrombotic Risk Reflex Panel	x																		
3017157	ANTI PHOS	Antiphospholipid Syndrome Reflex Panel	x																		

TEST CHANGE

Thermal Amplitude Test

0013410, IRL-THERM

Specimen Requirements:	
Patient Preparation:	
Collect:	Three 7 ml lavenderLavender (K2EDTA), Pink (K2 EDTA) or pink (K2EDTA)Plain Red.
Specimen Preparation:	Maintain tubes at 37 Degrees C until separated from cells. Centrifuge samples to separate plasma from the red blood cells and place in ARUP standard transport tubes. Transport packed7 mL red blood cells (in original EDTA tubes) ANDand 5 mL plasma (or serum in an ARUP standard transport tubes).Standard Transport Tube. (Min: 7 mL red blood cells and 103 mL plasma or serum)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Separator or gel tubesGel Tubes.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Qualitative Hemagglutination (HA)
Performed:	Mon-Fri
Reported:	2-51-3 days
Note:	Prior to ordering the thermal amplitude test, results from the Antibody ID Package (IRL) (ARUP test code 0013003) are required to identify specific antibodies that may interfere with testing. If Antibody ID Package has not been performed at ARUP within the last 7 days, the test will be added on by ARUP Laboratories and performed. Additional charges apply. Depending on antibody complexity, additional testing may be required. Additional charges apply. Client must provide patient transfusion history.
CPT Codes:	86870; additional CPT codes may apply
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

Reference Interval:

Test Number	Components	Reference Interval

TEST CHANGE

Lactic Acid, Plasma

0020045, LA

Specimen Requirements:	
Patient Preparation:	Patient should be fasting and at complete rest. Patient should avoid any exercise of the arm or hand before or during collection. Draw the specimen without the use of a tourniquet or within three minutes of applying the tourniquet, but before releasing the tourniquet.
Collect:	Gray (sodium fluoride/potassium oxalate). Collect blood without stasis.
Specimen Preparation:	Centrifuge specimen within 60 minutes of collection. Transport 1 mL plasma. (Min: 0.2 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Hemolyzed, EDTA, citrate, or iodoacetate as anticoagulants. Tubes less than half full.
Remarks:	
Stability:	After separation from cells: Ambient: 1 hour; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Enzymatic Assay
Performed:	Sun-Sat
Reported:	Within 24 hours
Note:	
CPT Codes:	83605
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Reference Interval:	
0.5-2.2 mmol/L	

TEST CHANGE

Viscosity, Serum

0020056, VIS-S

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator or plain red tube.
Specimen Preparation:	Transfer 1 mL serum to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Clotted specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 7 days; Frozen: 1 month
Methodology:	Quantitative Viscometry
Performed:	Sun, Tue, Thu, ~~Mon-~~Fri
Reported:	1-4 days
Note:	
CPT Codes:	85810
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Increased viscosity is associated with disorders such as monoclonal gammopathy, macroglobulinemia, and multiple myeloma. Significantly elevated viscosity (>3.0 cP) is associated with clinical symptoms of hyperviscosity syndrome. ~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

<~~Effective August 19, 2019~~
1.51~~10-1.80~~ cP

TEST CHANGE

Lactic Acid, Body Fluid

0020504, LA-FL

Specimen Requirements:	
Patient Preparation:	
Collect:	Peritoneal or synovial fluid.
Specimen Preparation:	Centrifuge and separate to remove cellular material. Transport 1 mL Peritoneal or synovial fluid in an ARUP standard transport Tube. (Min: 0.2 mL). Cannot be shared. Indicate source on test request form. If multiple tests are ordered separate specimens are required.
Transport Temperature:	Frozen.
Unacceptable Conditions:	Hemolyzed specimen. Specimens other than those listed.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Enzymatic Assay
Performed:	Sun-Sat
Reported:	Within 24 hours
Note:	
CPT Codes:	83605
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Reference ranges for this assay have not been established for body fluid. Results should be interpreted in comparison to the lactic acid concentration in blood and in conjunction with clinical context.

Reference Interval:

None established

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Effective Date: February 20, 2024

TEST CHANGE

Lactic Acid, CSF

0020516, LA-CF

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF. Collect on ice.
Specimen Preparation:	Separate and ship supernatant. Centrifuge and separate to remove cellular material. Transport 0.5 mL CSF. (Min: 0.2 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Hemolyzed specimen.
Remarks:	Specimen cannot be shared. If multiple tests are ordered, separate specimens are required.
Stability:	Ambient: 2 hours;~~Hour(s);~~ Refrigerated: 3 days;~~Day(s);~~ Frozen: 4 months;~~Month(s);~~ One freeze/thaw cycle is acceptable.~~?~~
Methodology:	Enzymatic Assay
Performed:	Sun-Sat
Reported:	Within 24 hours
Note:	
CPT Codes:	83605
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

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

Deleted Cells

Reference Interval:

AGE	Reference Interval
Birth to 15 years	0.5-2.8 mmol/L
16 years and older	1.2-2.6 mmol/L

TEST CHANGE

Metanephrines, Plasma (Free)

0050184, META PF

Specimen Requirements:	
Patient Preparation:	Drugs and medications may affect results and should be discontinued for at least 72 hours prior to specimen collection, if possible. Collection of the specimen after the patient has rested for 15 minutes in a supine position is recommended.
Collect:	Lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Centrifuge within 1 hour. Transfer 2 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 1 mL) Avoid hemolysis.
Transport Temperature:	Frozen. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Plasma separator tubes. Body fluids other than EDTA or heparinized plasma. Non-frozen specimens. Grossly hemolyzed.
Remarks:	
Stability:	After separation from cells: Ambient: 3 Days~~Unacceptable~~; Refrigerated: 10 Days~~Unacceptable~~; Frozen: 1 month
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	2-5~~4~~ days
Note:	Isoetharine, isoproterenol, 3,4-methylenedioxyamphetamine (MDA), and 3,4-methylenedioxymethamphetamine (MDMA) are known to interfere with this test. Many drugs/medications, including over-the-counter and herbal products, can interfere with test results. Testing for all potential interactions is not possible. If the patient is taking a drug not listed as an interferent, its potential effect on test results is unknown. If test results are inconsistent with clinical evidence, drug interference should be considered. If appropriate, the patient should discontinue the potential interferent for 48-72 hours and a new sample collected for retesting.

CPT Codes:	83835
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test is useful in the detection of pheochromocytoma, a rare neuroendocrine tumor. The majority of patients with pheochromocytoma have a plasma normetanephrine concentration in excess of 2.2 nmol/L and/or a metanephrine concentration in excess of 1.1 nmol/L. Increased concentrations of these analytes serve as confirmation for diagnosis. Patients with essential hypertension and plasma concentrations of normetanephrine below 0.9 nmol/L and a metanephrine concentration below 0.5 nmol/L, can be excluded from further testing. If clinical suspicion remains, repeat testing or testing for metanephrines in a 24-hr. urine specimen should be considered.

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

Reference Interval:

Normetanephrine: 0.0-0.89 nmol/L
Metanephrine: 0.0-0.49 nmol/L

TEST CHANGE

Protein Electrophoresis, Serum

0050640, SPEP

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Separator Tube (SST).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative Capillary Electrophoresis/Colorimetry
Performed:	Sun-Sat
Reported:	1-3 days
Note:	A copy of the graph will follow final report. For CSF electrophoresis, refer to Protein Electrophoresis, CSF (ARUP test code 0050590).
CPT Codes:	84155; 84165
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Serum protein electrophoresis, when used as a screening test, is useful in the detection of various pathophysiologic states such as inflammation, protein loss, gammopathies, and other dysproteinemias. However, immunofixation electrophoresis (IFE) is a more sensitive technique for the identification of small M-proteins found in patients with amyloidosis, early or treated myeloma or macroglobulinemia, solitary plasmacytoma, or extramedullary plasmacytoma.

Reference Interval:

Test Number	Components	Reference Interval
	Total Protein, Serum	Refer to report. Reference intervals may vary based on instrumentation.
	Albumin	3.75-5.01 g/dL
	Alpha 1 Globulin	0.19-0.46 g/dL
	Alpha 2 Globulin	0.48-1.05 g/dL
	Beta Globulin	0.48-1.10 g/dL
	Gamma	0.62-1.51 g/dL
	Monoclonal Protein	<=0.00 g/dL

~~Effective August 19, 2019~~

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Effective Date: February 20, 2024

TEST CHANGE

Immunoglobulin G, CSF Index

0050676, IGG SYN

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF AND serum separator tube. ~~Serum specimen should be drawn within 48 hours of CSF collection.~~
Specimen Preparation:	Centrifuge and separate CSF to remove cellular material. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL CSF AND 1 mL serum to individual ARUP standard transport tubes.~~Standard Transport Tubes.~~ (Min: 0.5 mL CSF AND 0.5 mL serum)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Grossly bloody or hemolyzed specimens, grossly lipemic specimens.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 14 days; Frozen: 6 months (if frozen within 24 hours)
Methodology:	Quantitative Immunoturbidimetry
Performed:	Sun-Sat
Reported:	1-3 days
Note:	
CPT Codes:	82784 x2; 82040; 82042
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (https://ltd.aruplab.com).

To ensure accurate result interpretation, it is recommended that both CSF and serum specimens be collected on the same day. If specimens are not

Inserted Cells

collected within this specified timeframe, it is advised to exercise caution when interpreting the results.

Reference Interval:

Test Number	Components	Reference Interval
	Albumin, CSF	0-35 mg/dL
	Immunoglobulin G	
		Age: Reference Interval (mg/dL) 0-2 years: 242-1108 3-4 years: 485-1160 5-9 years: 514-1672 10-14 years: 581-1652 15-18 years: 479-1433 19 years and older: 768-1632
	Immunoglobulin G CSF	0.0-6.0 mg/dL
	Albumin, Serum	3500-5200 mg/dL
	Albumin Index	0.0-9.0
	CSF IgG Synthesis Rate	Less than or equal to 8.0 mg/d
	CSF IgG/Albumin Ratio	0.09-0.25
	IgG Index	0.28-0.66

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

TEST CHANGE

Motor Neuropathy Panel

0051225, MSN PAN

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Separator Tube (SST).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 4 mL serum to an ARUP Standard Transport Tube. (Min: 2 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma, CSF, or other body fluids. Room temperature specimens. Contaminated, heat-inactivated, hemolyzed, severely icteric, or lipemic specimens.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Quantitative Immunoturbidimetry/Quantitative Capillary Electrophoresis/Qualitative Immunofixation Electrophoresis/Colorimetry
Performed:	Sun-Sat
Reported:	1-8 days
Note:	
CPT Codes:	83516 x7; 82784 x3; 84155; 84165; 86334
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

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

Components	Interpretive Data
Asialo-GM1 Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GM1 Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GD1a Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GD1b Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GQ1b Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive

Reference Interval:

Test Number	Components	Reference Interval
	Albumin	3.75-5.01 g/dL
	Alpha 1 Globulin	0.19-0.46 g/dL
	Alpha 2 Globulin	0.48-1.05 g/dL
	Beta Globulin	0.48-1.10 g/dL
	Gamma	0.62-1.51 g/dL
	Immunoglobulin A	
		Age: Reference Interval (mg/dL) 0-2 years: 2-126 3-4 years: 14-212 5-9 years: 52-226 10-14 years: 42-345 15-18 years: 60-349 19 years and older: 68-408
	Immunoglobulin G	
		Age: Reference Interval (mg/dL) 0-2 years: 242-1108 3-4 years: 485-1160 5-9 years: 514-1672 10-14 years: 581-1652 15-18 years: 479-1433 19 years and older: 768-1632
	Immunoglobulin M	
		Age: Reference Interval (mg/dL) 0-2 years: 21-215 3-4 years: 26-155 5-9 years: 26-188 10-14 years: 47-252 15-18 years: 26-232 19 years and older: 35-263
	Total Protein, Serum	Refer to report. Reference intervals may vary based on instrumentation.
	Asialo-GM1 Antibodies, IgG/IgM	0-50 IV
	Asialo-GM1 Antibodies, IgG/IgM	

		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GM1 Antibodies, IgG/IgM	0-50 IV		
	GM1 Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GD1a Antibodies, IgG/IgM	0-50 IV		
	GD1a Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GD1b Antibodies, IgG/IgM	0-50 IV		
	GD1b Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GQ1b Antibodies, IgG/IgM	0-50 IV		
	GQ1b Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	SGPG Antibody, IgM	Less than 1.00 IV		
	MAG Antibody, IgM Elisa	Less than 1000 TU		
	Monoclonal Protein	<=0.00 g/dL		

TEST CHANGE

Vitamin B12 with Reflex to Methylmalonic Acid, Serum (Vitamin B12 Status)

0055662, B12 MMA

Specimen Requirements:	
Patient Preparation:	
Collect:	Plain red or serum separator tube. Also acceptable: Green (sodium or lithium heparin).
Specimen Preparation:	Protect from light during collection, storage and shipment. Centrifuge and remove serum from cells within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube and refrigerate or freeze immediately. (Min: 1.5 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	EDTA plasma. Room temperature specimens. Grossly hemolyzed or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: 1 month
Methodology:	Quantitative Chemiluminescent Immunoassay (CLIA)/Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~3~~ days
Note:	If Vitamin B[12] is less than 300 pg/mL, then Methylmalonic Acid, Serum (Vitamin B[12] Status) will be added. Additional charges apply.
CPT Codes:	82607; if reflexed, add 83921
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Reference Interval:	

Available Separately	Components	Reference Interval
Yes (0070150)	Vitamin B{sb:12}	Effective December 2, 2013 180-914 pg/mL
No	Methylmalonic Acid, Serum (Vitamin B{sb:12} Deficiency)	0.00-0.40 umol/L

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Effective Date: February 20, 2024

TEST CHANGE

Human Metapneumovirus by PCR

0060784, HMPVPCR

Specimen Requirements:	
Patient Preparation:	
Collect:	Respiratory specimen: Nasopharyngeal swab, bronchoalveolarBronchoalveolar lavage (BAL), ~~sputum, swabs, washes~~ or pleural fluid.
Specimen Preparation:	Fluid: Transfer 1 mL respiratory specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-)~~ 522-2787. Swabs: Place in viral transport media. Place each specimen in an individually sealed bag.
Transport Temperature:	Frozen.
Unacceptable Conditions:	
Remarks:	Specimen source required.
Stability:	Nasopharyngeal Swab: Ambient: Unacceptable; Refrigerated: 4 days; Frozen: 1 month All others: Ambient: 24 hours; Refrigerated: 5 days; Frozen: 2 months
Methodology:	Qualitative Polymerase Chain Reaction (PCR)
Performed:	Sun-Sat
Reported:	1-4 days
Note:	
CPT Codes:	87798
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Test Number	Components	Reference Interval

Deleted Cells

Inserted Cells

TEST CHANGE

Vitamin B[6] (Pyridoxal 5-Phosphate)

0080111, VIT B6

Specimen Requirements:	
Patient Preparation:	Collect specimen after an overnight fast.
Collect:	Green (Sodium or Lithium Heparin), Lavender (EDTA), Pink (K2 EDTA), Plasma Separator Tube (PST), Serum Separator Tube (SST), or Plain Red.
Specimen Preparation:	Separate plasma or serum from cells, protect from light and transfer 1 mL plasma or serum to an ARUP Amber Transport Tube within 1 hour of collection. (Min: 0.5 mL) Separate light-protected specimens must be submitted when multiple tests are ordered.
Transport Temperature:	Frozen.
Unacceptable Conditions:	Whole blood. Specimens not protected from light. Icteric specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 3 Hours~~Unacceptable~~; Refrigerated: 1 week; Frozen: 2 months
Methodology:	Quantitative ~~High Performance~~ Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	This test measures pyridoxal 5-phosphate, the biologically active form of vitamin B6.
CPT Codes:	84207
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Pyridoxal 5'-phosphate measured in a specimen collected following an 8 hour or overnight fast accurately indicates vitamin B6 nutritional status. Non-fasting specimen concentration reflects recent vitamin intake.

This test was developed and its performance characteristics determined by ARUP Laboratories. It

has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Reference Interval:

20-125 nmol/L

TEST CHANGE

Vitamin C (Ascorbic Acid), Plasma

0080380, VIT C

Specimen Requirements:	
Patient Preparation:	
Collect:	Green (sodium or lithium heparin). Place specimen in ice bath immediately. Also acceptable: Plasma separator tube.
Specimen Preparation:	Protect from light, centrifuge, transfer plasma, and freeze within 1 hour of collection. Transfer 0.5 mL plasma to an ARUP amber transport tube. ~~Amber Transport Tube.~~ (Min: 0.3 mL)
Transport Temperature:	CRITICAL FROZEN AND LIGHT PROTECTED. Separate specimens must be submitted when multiple tests are ordered
Unacceptable Conditions:	EDTA plasma, whole blood, or body fluids. Grossly hemolyzed specimens.
Remarks:	Thawing and refreezing of the specimen and exposure to light will result in decreased v~~V~~itamin C concentration.
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month~~30 days~~
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun~~,~~ ~~Tue-Thu,~~ Sat
Reported:	1-6 days
Note:	Fasting specimen preferred. Thawing and refreezing of the specimen and exposure to light will result in decreased v~~V~~itamin C concentration.
CPT Codes:	82180
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Vitamin C concentrations lower than 11 u~~m~~mol/L indicate deficiency. Concentrations between 11 and 23 u~~m~~mol/L are consistent with a moderate risk of deficiency due to inadequate tissue stores.

Vitamin C concentration is reported as micromoles per liter (u~~m~~mol/L). To convert concentration to milligrams per deciliter (mg/dL), multiply the result by 0.0176.

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

Reference Interval:

23-114 µmol/L

TEST CHANGE

Serotonin, Whole Blood

0080395, SEROT-WB

Specimen Requirements:	
Patient Preparation:	Abstain from medications for 72 hours prior to collection.
Collect:	Lavender (EDTA) or pink (K2EDTA).
Specimen Preparation:	Place on ice. Transfer 3 mL whole blood to an ARUP Serotonin Transport Tube containing ascorbic acid (ARUP supply #16568). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 1 mL) Mix well. Specimen must be preserved and frozen within 2 hours of collection.
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Non-frozen specimens. Specimens other than whole blood.
Remarks:	Serotonin, Serum (ARUP test code 0080397) is recommended for patients that are difficult to draw.
Stability:	After transfer to Serotonin Transport Tube: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month
Methodology:	Quantitative High Performance Liquid Chromatography (HPLC)
Performed:	Mon, Wed, Thu, ~~Sun, Tue~~ Fri, Sat
Reported:	1-5 days
Note:	Medications that may affect serotonin concentrations include lithium, MAO inhibitors, methyldopa, morphine, and reserpine. In general, foods that contain serotonin do not interfere significantly. Slight increases may be seen in acute intestinal obstruction, acute MI, cystic fibrosis, dumping syndromes, and nontropical sprue. Metastasizing abdominal carcinoid tumors often show serotonin concentrations greater than 400 ng/mL.
CPT Codes:	84260
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

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

Reference Interval:

50-200 ng/mL

TEST CHANGE

Serotonin, Serum

0080397, SEROT-SER

Specimen Requirements:	
Patient Preparation:	Abstain from medications for 72 hours prior to collection.
Collect:	Serum Separator Tube(SST).
Specimen Preparation:	Separate from cells within 1 hour of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Transport Temperature:	Frozen. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Specimens other than serum. Non-frozen specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 24 hours; Frozen: 1 month
Methodology:	Quantitative High Performance Liquid Chromatography (HPLC)
Performed:	Mon, Wed, Thu, ~~Sun, Tue~~ Fri, Sat
Reported:	1-5 days
Note:	Medications that may affect serotonin concentrations include lithium, MAO inhibitors, methyldopa, morphine, and reserpine. In general, foods that contain serotonin do not interfere significantly. Slight increases may be seen in acute intestinal obstruction, acute MI, cystic fibrosis, dumping syndromes, and nontropical sprue. Metastasizing abdominal carcinoid tumors often show serotonin concentrations greater than 400 ng/mL. In general, EDTA whole blood (as compared to serum) preserved with ascorbic acid will give values most representative of blood concentrations. Most (95 percent) of blood serotonin is found in platelets. Refer to Serotonin, Whole Blood (ARUP test code 0080395).
CPT Codes:	84260
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test was developed and its performance characteristics determined by ARUP Laboratories. It

has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Reference Interval:

50-220 ng/mL

TEST CHANGE

5-Hydroxyindoleacetic Acid (HIAA), Urine

0080420, HIAA

Specimen Requirements:	
Patient Preparation:	Patients should abstain, if possible, from medications, over-the-counter drugs, and herbal remedies for at least 72 hours prior to the test. Foods rich in serotonin (avocados, bananas, eggplant, pineapple, plums, tomatoes, walnuts) and medications that may affect metabolism of serotonin must be avoided at least 72 hours before and during collection of urine for HIAA.
Collect:	24-hour or random urine. Refrigerate 24-hour specimens during collection.
Specimen Preparation:	Transfer 4 mL aliquot from a well-mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Any sample except urine.
Remarks:	Please see Note for a more comprehensive list of dietary restrictions.
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 months
Methodology:	Quantitative High Performance Liquid Chromatography - Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	Foods and medications associated with altered urinary HIAA results: Decreased HIAA: Aspirin, chlorpromazine (Thorazine), corticotropin, dihydroxyphenylacetic acid, alcohol, gentisic acid, homogentisic acid, hydrazine derivatives, imipramine (Tofranil(R)), isocarboxazid (Marplan), keto acids, levodopa, MAO inhibitors, methenamine, methyldopa (Aldomet(R)), perchlorperazine, phenothiazines (Compazine(R)), promazine, promethazine (Mepergan(R)). Increased HIAA: Acetaminophen, acetanilide, caffeine, coumaric acid, diazepam

	(Valium(R)), ephedrine, fluorouracil, glycerol guaiacolate (Guaifenesin), melphalan (Alkeran(R)), mephenesin, methamphetamine (Desoxyn), methocarbamol (Robaxin(R)), naproxen, nicotine, phenacetin, phenmetrazine, phenobarbital, phentolamine, rauwolfia, reserpine.
CPT Codes:	83497
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

5-Hydroxyindoleacetic acid (5-HIAA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Increased urine 5-HIAA concentration is common and may be the result of improper specimen collection, consumption of serotonin containing foods or dietary supplements, drug interference, or malabsorption syndromes. Significant elevation (ten times the upper reference limit) of urine 5-HIAA may indicate the presence of a carcinoid tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

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

Reference Interval:

<table>
<tr><th>Test Number</th><th>Components</th><th>Reference Interval</th></tr>
<tr><td></td><td>5-HIAA Urine - per 24h</td><td>0.0-15.0 mg/d</td></tr>
<tr><td></td><td>5-HIAA Urine - per volume</td><td>The HIAA-to-creatinine ratio will be reported whenever the urine collection is random or other than 24 hours, or the urine volume is less than 400 mL/24 hours.
0-14 mg/g crt</td></tr>
<tr><td></td><td>Creatinine, Urine - per 24h</td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
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TEST CHANGE

Vanillylmandelic Acid (VMA), Urine

0080421, VMA U

Specimen Requirements:	
Patient Preparation:	Abstain from medications for 72 hours prior to collection.
Collect:	24-hour or random urine. Refrigerate 24-hour specimens during collection.
Specimen Preparation:	Transfer 4 mL aliquot from a well-mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Specimen types other than urine.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 weeks
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun, Tue, Wed, Thu, Fri, Sat
Reported:	1-54 days
Note:	Moderately elevated VMA (vanillylmandelic acid) can be caused by a variety of factors such as essential hypertension, intense anxiety, intense physical exercise, and numerous drug interactions (including some over-the-counter medications and herbal products). Medications that may interfere with catecholamines and their metabolites include amphetamines and amphetamine-like compounds, appetite suppressants, bromocriptine, buspirone, caffeine, chlorpromazine, clonidine, disulfiram, diuretics (in doses sufficient to deplete sodium), epinephrine, glucagon, guanethidine, histamine, hydrazine derivatives, imipramine, levodopa (L-dopa, Sinemet(R)), lithium, MAO inhibitors, melatonin, methyldopa (Aldomet(R)), morphine, nitroglycerin, nose drops, propafenone (Rythmol), radiographic agents, rauwolfia alkaloids (Reserpine), tricyclic antidepressants, and vasodilators. The effects of some drugs on catecholamine metabolite results may not be predictable.

CPT Codes:	84585
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Vanillylmandelic acid (VMA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Slight or moderate increases in catecholamine metabolites may be due to extreme anxiety, essential hypertension, intense physical exercise, or drug interactions. Significant increase of one or more catecholamine metabolites (several times the upper reference limit) is associated with an increased probability of a secreting neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

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

Reference Interval:

Test Number	Components	Reference Interval
	Creatinine, Urine - per 24h	
		Age: Male (mg/d): Female (mg/d) 3-8 years: 140-700: 140-700 9-12 years: 300-1300: 300-1300 13-17 years: 500-2300: 400-1600 18-50 years: 1000-2500: 700-1600 51-80 years: 800-2100: 500-1400 81 years and older: 600-2000: 400-1300
	Vanillylmandelic Acid - per 24h	18 years and older: 0.0-7.0 mg/d
	Vanillylmandelic Acid - ratio to CRT	
		Age: mg/g CRT 0-2 years: 0-27 3-5 years: 0-13 6-17 years: 0-9 18 years and older: 0-6

TEST CHANGE

Homovanillic Acid (HVA), Urine

0080422, HVA U

Specimen Requirements:	
Patient Preparation:	Abstain from medications for 72 hours prior to collection.
Collect:	24-hour or random urine. Refrigerate 24-hour specimens during collection.
Specimen Preparation:	Transfer 4 mL aliquot from a well-mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Specimen types other than urine.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 weeks
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun, Tue, Wed, Thu, Fri, Sat
Reported:	1-54 days
Note:	Moderately elevated HVA (homovanillic acid) may be caused by a variety of factors such as essential hypertension, intense anxiety, intense physical exercise, and numerous drug interactions (including some over-the-counter medications and herbal products). Medications that may interfere with catecholamines and their metabolites include amphetamines and amphetamine-like compounds, appetite suppressants, bromocriptine, buspirone, caffeine, chlorpromazine, clonidine, disulfiram, diuretics (in doses sufficient to deplete sodium), epinephrine, glucagon, guanethidine, histamine, hydrazine derivatives, imipramine, levodopa (L-dopa, Sinemet(R)), lithium, MAO inhibitors, melatonin, methyldopa (Aldomet(R)), morphine, nitroglycerin, nose drops, propafenone (Rythmol), radiographic agents, rauwolfia alkaloids (Reserpine), and vasodilators. The effects of some drugs on catecholamine metabolite results may not be predictable.

CPT Codes:	83150
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Homovanillic acid (HVA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Slight or moderate increases in catecholamine metabolites may be due to extreme anxiety, essential hypertension, intense physical exercise, or drug interactions. Significant increase of one or more catecholamine metabolites (several times the upper reference limit) is associated with an increased probability of a secreting neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

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

Reference Interval:

Test Number	Components	Reference Interval
	Homovanillic Acid - per 24h	18 years and older: 0.0-15.0 mg/d
	Homovanillic Acid - ratio to CRT	

Age	mg/g CRT
0-2 years	0-42
3-5 years	0-22
6-17 years	0-15
18 years and older	0-8

	Creatinine, Urine - per 24h

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Effective May 19, 2014

TEST CHANGE

Vanillylmandelic Acid (VMA) and Homovanillic Acid (HVA), Urine

0080470, VH

Specimen Requirements:	
Patient Preparation:	Abstain from medications for 72 hours prior to collection.
Collect:	24-hour or random urine. Refrigerate 24-hour specimen during collection.
Specimen Preparation:	Transfer 4 mL aliquot from a well mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Specimen types other than urine.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 weeks
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun, Tue, Wed, Thu, Fri, Sat
Reported:	1-54 days
Note:	Moderately elevated HVA (homovanillic acid) and VMA (vanillylmandelic acid) can be caused by a variety of factors such as essential hypertension, intense anxiety, intense physical exercise, and numerous drug interactions (including some over-the-counter medications and herbal products). Medications that may interfere with catecholamines and their metabolites include amphetamines and amphetamine-like compounds, appetite suppressants, bromocriptine, buspirone, caffeine, chlorpromazine, clonidine, disulfiram, diuretics (in doses sufficient to deplete sodium), epinephrine, glucagon, guanethidine, histamine, hydrazine derivatives, imipramine, levodopa (L-dopa, Sinemet), lithium, MAO inhibitors, melatonin, methyldopa (Aldomet), morphine, nitroglycerin, nose drops, propafenone (Rythmol), radiographic agents, rauwolfia alkaloids (Reserpine), tricyclic antidepressants, and vasodilators. The effects of some drugs on catecholamine metabolite results may not be predicable.

CPT Codes:	83150; 84585
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Vanillylmandelic acid (VMA) and homovanillic acid (HVA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Slight or moderate increases in catecholamine metabolites may be due to extreme anxiety, essential hypertension, intense physical exercise, or drug interactions. Significant increase of one or more catecholamine metabolites (several times the upper reference limit) is associated with an increased probability of a secreting neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

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

Reference Interval:

Test Number	Components	Reference Interval
	Creatinine, Urine - per 24h	
		Age: Male (mg/d): Female (mg/d) 3-8 years: 140-700: 140-700 9-12 years: 300-1300: 300-1300 13-17 years: 500-2300: 400-1600 18-50 years: 1000-2500: 700-1600 51-80 years: 800-2100: 500-1400 81 years and older: 600-2000: 400-1300
	Homovanillic Acid - per 24h	18 years and older: 0.0-15.0 mg/d
	Vanillylmandelic Acid - per 24h	18 years and older: 0.0-7.0 mg/d
	Vanillylmandelic Acid - ratio to CRT	
		Age: mg/g CRT 0-2 years: 0-27 3-5 years: 0-13 6-17 years: 0-9 18 years and older: 0-6
	Homovanillic Acid - ratio to CRT	
		Age: mg/g CRT 0-2 years: 0-42 3-5 years: 0-22 6-17 years: 0-15 18 years and older: 0-8

TEST CHANGE

Vitamin E, Serum or Plasma

0080521, VIT E

Specimen Requirements:	
Patient Preparation:	Patient should fast for 12 hours and abstain from alcohol for 24 hours prior to collection.
Collect:	Green (sodium or lithium heparin) or serum separator tube. Also acceptable: Lavender (EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 1 hour of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL) Avoid hemolysis.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood or body fluids other than serum or plasma.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 month; Frozen at -20 Degrees C: 1 year
Methodology:	Quantitative High Performance Liquid Chromatography (HPLC)
Performed:	Sun-Sat
Reported:	1-4~~3~~ days
Note:	
CPT Codes:	84446
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Test Number	Components	Reference Interval	
	Vitamin E (Alpha-Tocopherol)		
		Age	Reference Interval
		0-1 month 2-5	1.0-3.5 mg/L 2.0-

		months 6 months-1 year 2-12 years 13 years and older	6.0 mg/L 3.5-8.0 mg/L 5.5-9.0 mg/L 5.5-18.0 mg/L	
	Vitamin E (Gamma-Tocopherol)	0-6.0 mg/L		

TEST CHANGE

Methylmalonic Acid (MMA) Quantitative, Urine

0083918, MMA U

Specimen Requirements:	
Patient Preparation:	
Collect:	24-hour or random urine. Refrigerate 24-hour specimens during collection.
Specimen Preparation:	Transfer a 4 mL aliquot from a well-mixed 24-hour or random urine collection to an ARUP Standard Transport Tube and refrigerate or freeze immediately. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Frozen.
Unacceptable Conditions:	Room temperature specimens.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~3~~ days
Note:	
CPT Codes:	83921
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Urinary methylmalonic acid, when increased, is an early and sensitive indicator of vitamin B12 (cobalamin) deficiency. This test can also be used to monitor patients with methylmalonic aciduria. Diagnosis of methylmalonic aciduria requires an organic acid panel and appropriate clinical history.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was

performed in a CLIA certified laboratory and is intended for clinical purposes.

Reference Interval:

Test Number	Components	Reference Interval
	Creatinine, Urine - per 24h	
		Age: Male (mg/d): Female (mg/d) 3-8 years: 140-700: 140-700 9-12 years: 300-1300: 300-1300 13-17 years: 500-2300: 400-1600 18-50 years: 1000-2500: 700-1600 51-80 years: 800-2100: 500-1400 81 years and older: 600-2000: 400-1300
	MMA - ratio to CRT	0.0-3.6 mmol/mol CRT

TEST CHANGE

Flecainide

0090003, FLEC

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (EDTA), pink (K2EDTA or K3EDTA), green (sodium or lithium heparin), or gray (sodium fluoride/potassium oxalate).
Specimen Preparation:	Separate serum or plasma from cells within 6 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Gel separator tubes or gels of any kind; drug loss is immediate and no testing will be performed.
Remarks:	
Stability:	After separation from cells: Ambient: 6 weeks; Refrigerated: 6 weeks; Frozen: 6 weeks
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Thu, Sat
Reported:	1-8~~5~~ days
Note:	
CPT Codes:	80181
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Toxic concentrations may cause cardiac abnormalities, hypotension and seizure.

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

Reference Interval:

Therapeutic Range:

0.20-1.00 µg/mL
Toxic: > 1.50 µg/mL

TEST CHANGE

Gabapentin

0090057, GABAP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or Pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 1 month; Refrigerated: 1 month; Frozen: 2 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Thu, Fri, -Sat
Reported:	1-74 days
Note:	
CPT Codes:	80171
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Pharmacokinetics of gabapentin vary widely among patients, particularly those with compromised renal function. Adverse effects may include somnolence, dizziness, ataxia, and fatigue.

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

Reference Interval:

Effective November 18, 2013

Therapeutic Range	2-20 ug/mL
Toxic	Not well established

TEST CHANGE

Nortriptyline

0090074, NORT HPLC

Specimen Requirements:	
Patient Preparation:	If amitriptyline is administered, order Amitriptyline and Nortriptyline (ARUP test code 0090158). Timing of specimen collection: Predose (trough) draw at steady -state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Toxic concentrations may cause anticholinergic effects, cardiac abnormalities, and seizures.

Reference Interval:

Therapeutic Range:
50-150 ng/mL
Toxic: > 500 ng/mL

TEST CHANGE

Doxepin and Metabolite, Serum or Plasma

0090102, DOXEPIN

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw at steady-state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-75 days
Note:	
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Toxic concentrations may cause anticholinergic effects and cardiac abnormalities.

Reference Interval:

Effective February 19, 2013

Therapeutic Range	Total (doxepin and nordoxepin): 100-300 ng/mL
Toxic Level	Greater than 500 ng/mL

TEST CHANGE

Protriptyline, Serum or Plasma

0090106, PROTRIP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw at steady-state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 5 days; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Toxic concentrations may cause hypotension, cardiac abnormalities, seizures, and coma.

Reference Interval:

Therapeutic Range:
70-240 ng/mL
Toxic: > 400 ng/mL

TEST CHANGE

Imipramine and Desipramine, Serum or Plasma

0090157, DESIP/IMIP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw at steady-state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	Report includes individual values for imipramine, desipramine, and total.
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Effective February 19, 2013

Therapeutic Range	Total (imipramine and desipramine):

	150-300 ng/mL
Toxic Level	Greater than 500 ng/mL

TEST CHANGE

Amitriptyline and Nortriptyline, Serum or Plasma

0090158, AMIT/NORT

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw at steady-state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	Report includes individual values for amitriptyline, nortriptyline, and total.
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Toxic concentrations may cause anticholinergic effects, cardiac abnormalities and seizures.

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

Reference Interval:

Effective February 19, 2013

Therapeutic Range	Total (amitriptyline and nortriptyline): 95-250 ng/mL	
Toxic Level	Greater than 500 ng/mL	

TEST CHANGE

Amiodarone and Metabolite

0090161, AMIOD

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw - at steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP amber standard transport tube to protect from light. Freeze immediately (Min: 0.5 mL)
Transport Temperature:	Critical Frozen. Additional specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 year
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Tue, Thu, Fri, Sat
Reported:	1-74 days
Note:	
CPT Codes:	80151
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Toxic concentrations may exacerbate arrhythmias, cause liver and lung toxicity, and thyroid dysfunction. The concentration of desethylamiodarone, an active major metabolite, is also reported but no therapeutic range is established. At steady-state, the metabolite concentration is similar to the amiodarone concentration.

Reference Interval:

Therapeutic Range	0.5-2.0 ug/mL
Toxic Level	Greater than 2.5 ug/mL

TEST CHANGE

Cocaine Metabolite, Urine, Quantitative

0090359, CDCO COCA

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 1 mL urine with no additives or preservatives to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-64 days
Note:	Compare to Pain Management, Cocaine Metabolite with Confirmation with medMATCH, Urine; Pain Management, Cocaine Metabolite, Quantitative, with medMATCH, Urine.
CPT Codes:	80353 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 50 ng/mL

For medical purposes only; not valid for forensic use.

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.

Reference Interval:

Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Benzoylecgonine	50 ng/mL

TEST CHANGE

Methadone and Metabolite, Urine, Quantitative

0090362, CDCO METH

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 1 mL with no additives or preservatives urine to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-74 days
Note:	Compare to Pain Management, Methadone, Quantitative, with medMATCH, Urine; Pain Management, Methadone, with Confirmation with medMATCH, Urine.
CPT Codes:	80358 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 100 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~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.

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Reference Interval:

Drugs Covered	Cutoff Concentrations
Methadone	100 ng/mL
EDDP	100 ng/mL

TEST CHANGE

THC Metabolite, Urine, Quantitative

0090369, CDCO THC

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 1 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 1 Month
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	Compare to Pain Management, Marijuana Metabolite, Quantitative, with medMATCH, Urine; Pain Management, Marijuana Metabolite, with Confirmation with medMATCH, Urine.
CPT Codes:	80349 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

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.

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

Reference Interval:

Effective November 18, 2019

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

TEST CHANGE

Cocaine Metabolite, Serum or Plasma, Quantitative

0090684, COC MET SP

Specimen Requirements:	
Patient Preparation:	
Collect:	Gray (sodium fluoride/potassium oxalate). Also acceptable: Plain red, green (sodium heparin), lavender (EDTA), or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Separator tubes. Plasma or whole blood collected in lt. blue (sodium citrate). Specimens exposed to repeated freeze/thaw cycles. Hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-64 days
Note:	
CPT Codes:	80353 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 20 ng/mL

For medical purposes only; not valid for forensic use.

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.

Reference Interval:

Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Benzoylecgonine	20 ng/mL

TEST CHANGE

Methadone and Metabolite, Serum or Plasma, Quantitative

0090699, METHADO SP

Specimen Requirements:	
Patient Preparation:	
Collect:	Gray (sodium fluoride/potassium oxalate). Also acceptable: Plain red, green (sodium heparin), lavender (EDTA), or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Separator tubes. Plasma or whole blood collected in lt. blue (sodium citrate). Specimens exposed to repeated freeze/thaw cycles. Hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-74 days
Note:	
CPT Codes:	80358 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 10 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~non-compliance~~, inappropriate timing of specimen collection relative to drug administration, poor drug

absorption, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

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

Reference Interval:

Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Methadone	10 ng/mL
EDDP	10 ng/mL

TEST CHANGE

Cortisol/Cortisone Urine Free by LC-MS/MS

0092100, CORTURATIO

Specimen Requirements:	
Patient Preparation:	
Collect:	24-hour or random urine. Refrigerate 24-hour specimen during collection.
Specimen Preparation:	Transport one 4 mL aliquot of urine. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Room temperature specimens. Acidified specimens or specimens with preservatives.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative ~~High Performance~~ Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	Reference intervals for children are based on literature from Taylor R.L. et al., Validation of a High-Throughput Liquid Chromatography-Tandem Mass Spectrometry Method for Urine Cortisol and Cortisone. Clinical Chemistry 2002; 48:1511-19. *The ratio of the concentrations of cortisol to cortisone will not be evaluated if the cortisol concentration is less than 5 microg/L.
CPT Codes:	82530; 83789
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

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

Reference Interval:

Test Number	Components	Reference Interval
	Creatinine, Urine - per 24h	

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

	Cortisol/Cortisone Ratio	18 years and older: 0.15-0.50
	Cortisol, Urine Free - ratio to CRT	

Age	Male (ug/g CRT)	Female (ug/g CRT)
Prepubertal	Less than 25	Less than 25
18 years and older	Less than 32	Less than 24
Pregnancy	Not Applicable	Less than 59

	Cortisol, Urine Free - per 24h	

Age	Male (ug/24 h)	Female (ug/24 h)
3-8 years	Less than or equal to 18	Less than or equal to 18
9-12 years	Less than or equal to 37	Less than or equal to 37
13-17 years	Less than or equal to 56	Less than or equal to 56
18 years and older	Less than or equal to 60	Less than or equal to 45

TEST CHANGE

17-Hydroxypregnenolone Quantitative by LC-MS/MS, Serum or Plasma

0092333, OHPRGNLON

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer two 0.5 mL serum or plasma specimens to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.25 mL/container)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon-Fri
Reported:	1-54 days
Note:	
CPT Codes:	84143
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Age	Female	Male
Premature (26-28 weeks)	1219-9799 ng/dL	1219-9799 ng/dL
Premature (29-36 weeks)	346-8911 ng/dL	346-8911 ng/dL
Full Term (1-5 months)	229-3104 ng/dL	229-3104 ng/dL
6-12 months	less than or equal to 917ng/dL	less than or equal to 917ng/dL
13-23 months	less than or equal to 592 ng/dL	less than or equal to 592 ng/dL
2-4 years	less than or equal to 280 ng/dL	less than or equal to 249 ng/dL
5-6 years	less than or equal to 350 ng/dL	less than or equal to 319 ng/dL
7-9 years	less than or equal to 212 ng/dL	less than or equal to 187 ng/dL
10-12 years	less than or equal to 398 ng/dL	less than or equal to 392 ng/dL
13-15 years	less than or equal to 407 ng/dL	35-465 ng/dL
16-17 years	less than or equal to 423 ng/dL	32-478 ng/dL
18 years and older	Less than 226 ng/dL	Less than 442 ng/dL
Tanner Stage I	less than or equal to 235 ng/dL	less than or equal to 208 ng/dL
Tanner Stage II	less than or equal to 367 ng/dL	less than or equal to 355 ng/dL
Tanner Stage III	less than or equal to 430 ng/dL	less than or equal to 450 ng/dL
Tanner Stage IV-V	less than or equal to 412 ng/dL	35-478 ng/dL

TEST CHANGE

Pregnenolone by LC-MS/MS, Serum or Plasma

0092334, PREGNLONE

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Specimen Preparation: Separate serum or plasma cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma in two ARUP Standard Transport Tubes and freeze immediately. (Min: 0.25 mL/container)
Transport Temperature:	CRITICAL FROZEN. Additional specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon-Fri
Reported:	1-54 days
Note:	
CPT Codes:	84140
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Age	Female	Male
6-12 months	13-327 ng/dL	13-327 ng/dL
13-23 months	12-171 ng/dL	12-171 ng/dL
2-4 years	15-125 ng/dL	10-125 ng/dL
5-6 years	13-191 ng/dL	10-156 ng/dL
7-9 years	14-150 ng/dL	13-205 ng/dL
10-12 years	19-220 ng/dL	15-151 ng/dL
13-15 years	22-210 ng/dL	18-197 ng/dL
16-17 years	22-229 ng/dL	17-228 ng/dL
18 years and older	15-132 ng/dL	23-173 ng/dL
Tanner Stage I	15-171 ng/dL	13-156 ng/dL
Tanner Stage II	22-229 ng/dL	12-143 ng/dL
Tanner Stage III	34-215 ng/dL	16-214 ng/dL
Tanner Stage IV-V	26-235 ng/dL	19-201 ng/dL

TEST CHANGE

17-Hydroxypregnenolone Baseline Specimen

0092335, OHPRGNBASE

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.25 mL)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon-Fri
Reported:	1-54 days
Note:	
CPT Codes:	84143
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Age	Female	Male
Premature (26-28 weeks)	1219-9799 ng/dL	1219-9799 ng/dL
Premature (29-36 weeks)	346-8911 ng/dL	346-8911 ng/dL
Full Term (1-5 months)	229-3104 ng/dL	229-3104 ng/dL
6-12 months	less than or equal to 917ng/dL	less than or equal to 917ng/dL
13-23 months	less than or equal to 592 ng/dL	less than or equal to 592 ng/dL
2-4 years	less than or equal to 280 ng/dL	less than or equal to 249 ng/dL
5-6 years	less than or equal to 350 ng/dL	less than or equal to 319 ng/dL
7-9 years	less than or equal to 212 ng/dL	less than or equal to 187 ng/dL
10-12 years	less than or equal to 398 ng/dL	less than or equal to 392 ng/dL
13-15 years	less than or equal to 407 ng/dL	35-465 ng/dL
16-17 years	less than or equal to 423 ng/dL	32-478 ng/dL
18 years and older	Less than 226 ng/dL	Less than 442 ng/dL
Tanner Stage I	less than or equal to 235 ng/dL	less than or equal to 208 ng/dL
Tanner Stage II	less than or equal to 367 ng/dL	less than or equal to 355 ng/dL
Tanner Stage III	less than or equal to 430 ng/dL	less than or equal to 450 ng/dL
Tanner Stage IV-V	less than or equal to 412 ng/dL	35-478 ng/dL

TEST CHANGE

17-Hydroxypregnenolone 30-Minute Timed Specimen

0092336, OHPRGN 30

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.25 mL)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon-Fri
Reported:	1-54 days
Note:	
CPT Codes:	84143
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

By report

TEST CHANGE

17-Hydroxypregnenolone 60-Minute Timed Specimen

0092337, OHPRGN 60

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.25 mL)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Fri
Reported:	1-54 days
Note:	
CPT Codes:	84143
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Test Number	Components	Reference Interval		
	17-Hydroxypregnenolone 60-Minute			
		Age	Male (ng/dL)	Female (ng/dL)
		1-5 months	633-3286	633-3286
		6-11 months	257-2173	257-2173
		1-5 years	45-740	45-740
		6-12 years	70-660	70-660
		Early puberty	88-675	251-756
		Late puberty	220-966	502-1402
		Adult	240-1000	290-1382
		Tanner Stage II-III	88-675	250-800
		Tanner Stage IV-V	220-860	500-1600

TEST CHANGE

17-Hydroxypregnenolone 90-Minute Timed Specimen

0092338, OHPRGN 90

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.25 mL)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon-Fri
Reported:	1-54 days
Note:	
CPT Codes:	84143
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

By report

TEST CHANGE

Nicotine and Metabolites, Urine, Quantitative

0092356, NICOTINEUR

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 4 mL with no additives or preservatives urine to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 10 days; Refrigerated: 10 days; Frozen: 8 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	
CPT Codes:	80323 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff:

Nicotine	15 ng/mL
Cotinine	15 ng/mL
3-OH-Cotinine	50 ng/mL
Anabasine	5 ng/mL

For medical purposes only; not valid for forensic use.

This test is designed to evaluate recent use of nicotine-containing products. Passive and active exposure cannot be discriminated definitively, although a cutoff of 100 ng/mL cotinine is frequently used for surgery qualification purposes. For smoking cessation programs or compliance testing, the absence of expected drug(s) and/or drug metabolite(s) may indicate

noncompliancenon-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. Anabasine is included as a biomarker of tobacco use, versus nicotine replacement. Interpretive questions should be directed to the laboratory.

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

Reference Interval:

Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Nicotine	15 ng/mL
Cotinine (metabolite)	15 ng/mL
3-OH-Cotinine (metabolite)	50 ng/mL
Anabasine (tobacco biomarker)	5 ng/mL

TEST CHANGE

Nicotine and Metabolites, Serum or Plasma, Quantitative

0092361, NICOTINESP

Specimen Requirements:	
Patient Preparation:	
Collect:	Plain red, green (sodium heparin), lavender (EDTA), or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 4 mL serum or plasma to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma or whole blood collected in lt. blue (sodium citrate) or SST. Specimens exposed to repeated freeze/thaw cycles. Hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	
CPT Codes:	80323 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 5 ng/mL

For medical purposes only; not valid for forensic use.

This test is designed to evaluate recent use of nicotine-containing products. Passive and active exposure cannot be discriminated definitively, although a cutoff of 10 ng/mL cotinine is frequently used for surgery qualification purposes. For smoking cessation programs or compliance testing, the absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~non-~~

~~compliance~~, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. This test cannot distinguish between use of tobacco and purified nicotine products. The concentration value must be greater than or equal to the cutoff to be reported as positive.

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

Reference Interval:

Effective August 15, 2022

Drugs Covered	Cutoff Concentrations
Nicotine	5 ng/mL
Cotinine (metabolite)	5 ng/mL

TEST CHANGE

Fentanyl and Metabolite, Urine, Quantitative

0092570, CDCO FENU

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 4 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.5 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 month; Refrigerated: 1 month; Frozen: 9 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	Compare to Fentanyl, Quantitative, with medMATCH, Urine.
CPT Codes:	80354 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Positive cutoff: 1.0 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~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.

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was~~

~~performed in a CLIA certified laboratory and is intended for clinical purposes.~~

Reference Interval:

Drugs Covered	Cutoff Concentrations
Fentanyl	1.0 ng/mL
Norfentanyl	1.0 ng/mL

TEST CHANGE

Estradiol (Adult Males, Children, Postmenopausal Females, or Individuals on Estrogen-Suppressing Hormone Therapy)

0093247, ESDIOL TMS

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube, lavender (EDTA), pink (K2EDTA) or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours after collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min 0.3 mL) Indicate age and sex of patient on test request form AND specimen tube.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82670
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0093247.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Estradiol by Mass Spec			
		Age	Male (pg/mL)	Female (pg/mL)
		7-9 years	Less than 7.0	Less than 36.0
		10-12 years	Less than 11.0	1.0-87.0
		13-15 years	1.0-36.0	9.0-249.0
		16-17 years	3.0-34.0	2.0-266.0
		18 years and older	10.0-42.0	Premenopausal Early Follicular: 30.0-100.0 Late Follicular: 100.0-400.0 Luteal: 50.0-150.0 Postmenopausal: 2.0-21.0
		Tanner Stage I	Less than 8.0	Less than 56.0
		Tanner Stage II	Less than 10.0	2.0-133.0
		Tanner Stage III	1.0-35.0	12.0-277.0
		Tanner Stage IV-V	3.0-35.0	2.0-259.0

TEST CHANGE

Estrogens, Fractionated, by Mass Spectrometry

0093248, EST FR TMS

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min 0.3 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82671
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0093248.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Estradiol by Mass Spec			
		Age	Male (pg/mL)	Female (pg/mL)
		7-9 years	Less than 7.0	Less than 36.0
		10-12 years	Less than 11.0	1.0-87.0
		13-15 years	1.0-36.0	9.0-249.0
		16-17 years	3.0-34.0	2.0-266.0
		18 years and older	10.0-42.0	Premenopausal Early Follicular: 30.0-100.0 Late Follicular: 100.0-400.0 Luteal: 50.0-150.0 Postmenopausal: 2.0-21.0
		Tanner Stage I	Less than 8.0	Less than 56.0
		Tanner Stage II	Less than 10.0	2.0-133.0
		Tanner Stage III	1.0-35.0	12.0-277.0
		Tanner Stage IV-V	3.0-35.0	2.0-259.0
	Estrone by Mass Spec			
		Age	Male (pg/mL)	Female (pg/mL)
		7-9 years	Less than 7.0	Less than 20.0
		10-12 years	Less than 11.0	1.0-40.0
		13-15 years	1.0-30.0	8.0-105.0
		16-17 years	1.0-32.0	4.0-133.0
		18 years and older	9.0-36.0	Premenopausal Early Follicular: Less than 150.0 Late Follicular: 100.0-250.0. Luteal: Less than 200.0 Postmenopausal: 3.0-32.0
		Tanner Stage I	Less than 7.0	Less than 27.0
		Tanner Stage II	Less than 11.0	1.0-39.0
		Tanner Stage III	1.0-31.0	8.0-117.0
		Tanner Stage IV-V	2.0-30.0	4.0-109.0
	Estrogens Total Calculation			

		Age	Male (pg/mL)	Female (pg/mL)
		7-9 years	Less than 10.0	1.0-48.0
		10-12 years	1.0-19.0	2.0-116.0
		13-15 years	3.0-62.0	15.0-333.0
		16-17 years	4.0-64.0	6.0-354.0
		18 years or older	19.0-69.0	Premenopausal Early Follicular: 30.0-250.0 Late Follicular: 200.0-650.0 Luteal: 50.0-350.0 Postmenopausal: 5.0-52.0
		Tanner Stage I	1.0-11.0	1.0-86.0
		Tanner Stage II	1.0-19.0	3.0-169.0
		Tanner Stage III	3.0-61.0	23.0-351.0
		Tanner Stage IV-V	4.0-62.0	8.0-341.0

TEST CHANGE

Estrone, by Mass Spectrometry

0093249, ESTRNE TMS

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube, lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min 0.3 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82679
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0093249.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Estrone by Mass Spec			
		Age	Male (pg/mL)	Female (pg/mL)
		7-9 years	Less than 7.0	Less than 20.0
		10-12 years	Less than 11.0	1.0-40.0
		13-15 years	1.0-30.0	8.0-105.0
		16-17 years	1.0-32.0	4.0-133.0
		18 years and older	9.0-36.0	Premenopausal Early Follicular: Less than 150.0 Late Follicular: 100.0-250.0. Luteal: Less than 200.0 Postmenopausal: 3.0-32.0
		Tanner Stage I	Less than 7.0	Less than 27.0
		Tanner Stage II	Less than 11.0	1.0-39.0
		Tanner Stage III	1.0-31.0	8.0-117.0
		Tanner Stage IV-V	2.0-30.0	4.0-109.0

TEST CHANGE

Cortisol Urine Free by LC-MS/MS

0097222, CORT UF

Specimen Requirements:	
Patient Preparation:	
Collect:	24-hour or random urine. Refrigerate 24-hour specimen during collection.
Specimen Preparation:	Transport one 4 mL aliquot of urine. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Room temperature specimens. Acidified specimens or specimens with preservatives.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	Reference intervals based on literature from Taylor R.L. et al., Validation of a High-Throughput Liquid Chromatography-Tandem Mass Spectrometry Method for Urine Cortisol and Cortisone. Clinical Chemistry 2002; 48:1511-1519.
CPT Codes:	82530
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was

performed in a CLIA certified laboratory and is intended for clinical purposes.

Reference Interval:

Test Number	Components	Reference Interval		
	Creatinine, Urine - per 24h			
		Age	Male (mg/d)	Female (mg/d)
		3-8 years	140-700	140-700
		9-12 years	300-1300	300-1300
		13-17 years	500-2300	400-1600
		18-50 years	1000-2500	700-1600
		51-80 years	800-2100	500-1400
		81 years and older	600-2000	400-1300
	Cortisol, Urine Free - ratio to CRT			
		Age	Male (ug/g CRT)	Female (ug/g CRT)
		Prepubertal	Less than 25	Less than 25
		18 years and older	Less than 32	Less than 24
		Pregnancy	Not Applicable	Less than 59
	Cortisol, Urine Free - per 24h			
		Age	Male (ug/24 h)	Female (ug/24 h)
		3-8 years	Less than or equal to 18	Less than or equal to 18
		9-12 years	Less than or equal to 37	Less than or equal to 37
		13-17 years	Less than or equal to 56	Less than or equal to 56
		18 years and older	Less than or equal to 60	Less than or equal to 45

TEST CHANGE

Oxcarbazepine or Eslicarbazepine Metabolite (MHD)

0098834, OXCARB

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2 EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 6 weeks; Refrigerated: 6 weeks; Frozen: 3 months (avoid repeated freeze/thaw cycles)
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~3~~ days
Note:	
CPT Codes:	80183
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test measures monohydroxyoxcarbazepine (MHD). Adverse effects may include dizziness, fatigue, nausea, headache, somnolence, ataxia and tremor.

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

Reference Interval:

Effective November 18, 2013

Therapeutic Range:	3-35 ug/mL
Toxic:	Greater than 40 ug/mL

TEST CHANGE

Clomipramine and Metabolite, Serum or Plasma

0099336, CLOMIP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw at steady-state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range listed relates to the antidepressant characteristics of the drug. A therapeutic range for treating obsessive compulsive disorder is not well established. Toxic concentrations may cause anticholinergic effects, CNS depression, cardiac abnormalities, seizures, and hypotension.

Reference Interval:

Effective February 19, 2013

Therapeutic Range	Total (clomipramine and norclomipramine):

	220-500 ng/mL
Toxic Level	Greater than 900 ng/mL

TEST CHANGE

Methylmalonic Acid, Serum or Plasma (Vitamin B12 Status)

0099431, MMA QNT-P

Specimen Requirements:	
Patient Preparation:	
Collect:	Plain red or serum separator tube. Also acceptable: Green (sodium heparin), green (lithium heparin), lavender (EDTA), or pink (K2EDTA).
Specimen Preparation:	Centrifuge and remove serum or plasma from cells within 2 hours of collection. Transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube and refrigerate or freeze immediately. (Min: 0.6 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Room temperature specimens. Grossly hemolyzed or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~3~~ days
Note:	
CPT Codes:	83921
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

0.00-0.40 µmol/L

TEST CHANGE

Haloperidol

0099640, HALO

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 4 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles)
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	
CPT Codes:	80173
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

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

Reference Interval:

Effective February 16, 2021

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

TEST CHANGE

Porphyrins, Fecal

0099824, POR FECES

Specimen Requirements:	
Patient Preparation:	
Collect:	Random stool.
Specimen Preparation:	Protect from light during collection, storage, and shipment. Freeze specimen and wrap in foil immediately after collection. Transport 5 g stool. (Min: 1 g)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Complete timed collections (24-72 hour). Specimens stored in one gallon cans or other large containers. Liquid stool.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 weeks
Methodology:	Quantitative High Performance Liquid Chromatography (HPLC)
Performed:	Mon~~, Thu~~
Reported:	2-8~~7~~ days
Note:	Bacterial modification of fecal porphyrins is extensive. The recommended specimen for uroporphyrin and coproporphyrin is urine (random or 24-hour). Refer to Porphyrins, Fractionation & Quantitation, Urine (ARUP test code 2002058). The recommended specimen for protoporphyrin is serum. Refer to Porphyrins, Serum Total (ARUP test code 0080429).
CPT Codes:	84126
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test is useful for differentiation of acute porphyrias following a positive porphobilinogen (PBG), or diagnosis or strong suspicion of acute porphyria. Fecal porphyrin excretion usually is not elevated in acute intermittent porphyria (AIP), but massive increases of fecal coproporphyrin are seen in hereditary coproporphyria (HCP). Fecal protoporphyrin and coproporphyrin excretion is increased in variegate porphyria (VP).
This fecal porphyrins assay is not a screening test. Total porphyrins are not measured.

For additional information, access the Porphyrias topic in ARUP Consult (arupconsult.com).

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

Reference Interval:

Test Number	Components	Reference Interval
	Coproporphyrin, Feces	0-45 nmol/g dry weight
	Protoporphyrin, Feces	0-100 nmol/g dry weight

TEST CHANGE

Fluphenazine

0099906, FLUPHEN

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2 EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Hemolyzed specimens. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles)
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-8~~5~~ days
Note:	
CPT Codes:	80342 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

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

Reference Interval:

Effective February 16, 2021

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

TEST CHANGE

Cytology, ThinPrep Pap Test and Human Papillomavirus (HPV)~~),~~ High Risk Screen~~with 16 and 18 Genotype~~ by Transcription-Mediated~~Nucleic Acid~~ Amplification (TMA), With Reflex to Genotypes 16 and 18/45~~NAA), ThinPrep (for routine co-testing in women over 30)~~

2000136, TH REQUEST

Specimen Requirements:	
Patient Preparation:	
Collect:	Cervical specimen in a ThinPrep Pap Test collection kit, broom kit (ARUP Supply #12587) or brush/spatula kit (ARUP Supply #40624) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at ~~(~~800~~-~~)~~ ~~522-2787.
Specimen Preparation:	Transport cervical specimen in the original collection kit.
Transport Temperature:	Ambient
Unacceptable Conditions:	Specimens not collected in a ThinPrep Pap Test collection vial or specimens submitted in an expired collection vial.
Remarks:	
Stability:	Ambient: 3 weeks; Refrigerated: 3 weeks; Frozen: Unacceptable
Methodology:	Microscopy
Performed:	Sun-Sat
Reported:	1-7 days
Note:	In addition to the ThinPrep Pap t~~T~~est, Human Papillomavirus (HPV), High Risk Screen~~with 16 and 18 Genotype~~ by Transcription-Mediated~~Nucleic Acid~~ Amplification (TMA), With Reflex to Genotypes 16 and 18/45~~NAA), ThinPrep~~ (ARUP test code 3016945~~3003005~~) will be performed and reported under a separate accession. Additional charges apply. The Pap t~~T~~est is a screening test for cervical cancer and its precursors with an inherent false-negative rate. Store collection vials without cytologic samples at room temperature (15 Degrees C to 30 Degrees C). Do not use solution beyond expiration date marked on the vial.
CPT Codes:	88142; if reviewed by pathologist add 88141; 87624
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

Refer to report.

Reference Interval:

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

TEST CHANGE

Cytology, ThinPrep Pap Test Wwith Reflex to Human Papillomavirus (HPV), High Risk Screenwith 16 and 18 Genotype by Transcription-MediatedNucleic Acid Amplification (TMA), With Reflex to Genotypes 16 and 18/45NAA), ThinPrep

2000138, TR REQUEST

Specimen Requirements:	
Patient Preparation:	
Collect:	Cervical specimen in a ThinPrep Pap Test collection kit, broom kit (ARUP Supply #12587) or brush/spatula kit (ARUP Supply #40624) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800-) 522-2787.
Specimen Preparation:	Transport cervical specimen in the original collection kit.
Transport Temperature:	Ambient
Unacceptable Conditions:	Specimens not collected in a ThinPrep Pap Test collection vial. Specimens submitted in an expired collection vial.
Remarks:	
Stability:	Ambient: 3 weeks; Refrigerated: 3 weeks; Frozen: Unacceptable
Methodology:	Microscopy
Performed:	Sun-Sat
Reported:	1-7 days
Note:	If the ThinPrep Pap tTest is interpreted as atypical squamous of undetermined significance (ASC-US), then Human Papillomavirus (HPV), High Risk Screenwith 16 and 18 Genotype by Transcription-MediatedNucleic Acid Amplification (TMA), with Reflex to Genotypes 16 and 18/45NAA), ThinPrep (ARUP test code 30169453003005) will be performed and reported under a separate accession. Additional charges apply. The Pap tTest is a screening test for cervical cancer and its precursors with an inherent false-negative rate. Store collection vials without cytologic samples at room temperature (15 Degrees C to 30 Degrees C). Do not use solution beyond expiration date marked on the vial.
CPT Codes:	88142; if reviewed by pathologist add 88141. If reflexed, add 87624

New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

Refer to report.

Reference Interval:

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

TEST CHANGE

Hirsutism Evaluation Panel

2001763, HIRSUTISM

Specimen Requirements:	
Patient Preparation:	Collect between 6-10 a.m.
Collect:	Serum separator tube.
Specimen Preparation:	Separate serum from cells ASAP or within 2 hours of collection. Transfer 2.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 1.5 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 2 hours; Refrigerated: 48 hours; Frozen: 2 months
Methodology:	Quantitative Chemiluminescent Immunoassay (CLIA)/~~/~~Electrochemiluminescent Immunoassay (ECLIA)/~~/~~Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat~~, Tue-Fri~~
Reported:	1-5~~4~~ days
Note:	
CPT Codes:	82157; 82627; 84403; 84270
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Test Number	Components	Reference Interval
	DHEAS	
		Age / Male (ug/dL) / Female (ug/dL) 0-6 days / 108-607 / 108-607 7-30 days / 32-431 / 32-431 1-5 months / 3-124 / 3-124 6-35 months / 0-33 / 0-29 3-6 years / 0-44 / 0-47 7-9 years / 5-115 / 5-94 10-14 years / 22-332 / 22-255 15-19 years / 88-483 / 63-373 20-24 years / 211-492 / 148-407 25-34 years / 160-449 / 99-340 35-44 years / 89-427 / 61-337 45-54 years / 44-331 / 35-256 55-64 years / 52-295 / 19-205 65-74 years / 34-249 / 9-246 75 years and older / 16-123 / 12-154 Tanner Stage I / 7-209 / 7-126 Tanner Stage II / 28-260 / 13-241 Tanner Stage III / 39-390 / 32-446 Tanner Stage IV & V / 81-488 / 65-371
	Testosterone by Mass Spec	

		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	59-125	5-16
		Premature (31-35 weeks)	37-198	5-22
		Newborn	75-400	20-64
		1-5 months	14-363	Less than 20
		6-24 months	Less than 37	Less than 9
		2-3 years	Less than 15	Less than 20
		4-5 years	Less than 19	Less than 30
		6-7 years	Less than 13	Less than 7
		8-9 years	2-8	1-11
		10-11 years	2-165	3-32
		12-13 years	3-619	6-50
		14-15 years	31-733	6-52
		16-17 years	158-826	9-58
		18-39 years	300-1080	9-55
		40-59 years	300-890	9-55
		60 years and older	300-720	5-32
		Premenopausal (18 years and older)	Not Applicable	9-55
		Postmenopausal	Not Applicable	5-32
		Tanner Stage I	2-15	2-17
		Tanner Stage II	3-303	5-40
		Tanner Stage III	10-851	10-63
		Tanner Stage IV-V	162-847	11-62
	Testosterone, Free by Mass Spec			

		Age	Male (pg/mL)	Female (pg/mL)
		1-6 years	Less than 0.6	Less than 0.6
		7-9 years	0.1-0.9	0.6-1.8
		10-11	0.1-6.3	0.1-3.5
		12-13	0.5-98.0	0.9-6.8
		14-15	3-138.0	1.2-7.5
		16-17	38.0-173.0	1.2-9.9
		18 years and older	47-244	Not Applicable
		18-30	Not Applicable	0.8-7.4
		31-40	Not Applicable	1.3-9.2
		41-51	Not Applicable	1.1-5.8
		Postmenopausal	Not Applicable	0.6-3.8
		Tanner Stage I	Less than or equal to 3.7	Less than 2.2
		Tanner Stage II	0.3-21	0.4-4.5
		Tanner Stage III	1.0-98.0	1.3-7.5
		Tanner Stage IV	35.0-169.0	1.1-15.5
		Tanner Stage V	41.0-239.0	0.8-9.2
	Sex Hormone Binding Globulin			
		Age	Male (nmol/L)	Female (nmol/L)
		1-30 days	13-85	14-60
		31-364 days	70-250	60-215
		1-3 years	50-180	60-190
		4-6 years	45-175	55-170
		7-9 years	28-190	35-170
		10-12 years	23-160	17-155
		13-15 years	13-140	11-120
		16-17 years	10-60	19-145
		18-49 years	17-56	25-122
		50 years and older	19-76	17-125
		Tanner Stage I	26-186	30-173
		Tanner Stage II	22-169	16-127
		Tanner Stage III	13-104	12-98
		Tanner Stage IV	11-60	14-151
		Tanner Stage V	11-71	23-165
	Androstenedione by TMS			

Age	Male (ng/mL)	Female (ng/mL)
Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
8-30 days	0.18-0.80	0.18-0.80
1-5 months	0.06-0.68	0.06-0.68
6-24 months	0.03-0.15	Less than 0.15
2-3 years	Less than 0.11	Less than 0.16
4-5 years	0.02-0.17	0.02-0.21
6-7 years	0.01-0.29	0.02-0.28
8-9 years	0.03-0.30	0.04-0.42
10-11 years	0.07-0.39	0.09-1.23
12-13 years	0.10-0.64	0.24-1.73
14-15 years	0.18-0.94	0.39-2.00
16-17 years	0.30-1.13	0.35-2.12
18-39 years	0.33-1.34	0.26-2.14
40 years and older	0.23-0.89	0.13-0.82
Premenopausal	Not Applicable	0.26-2.14
Postmenopausal	Not Applicable	0.13-0.82
Tanner Stage I	0.04-0.32	0.05-0.51
Tanner Stage II	0.08-0.48	0.15-1.37
Tanner Stage III	0.14-0.87	0.37-2.24
Tanner Stage IV-V	0.27-1.07	0.35-2.05

TEST CHANGE

Virilization Panel 1

2002028, VIRIL PANEL

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube or green (sodium or lithium heparin). Collect between 6-10 a.m. Also acceptable: Lavender (EDTA).
Specimen Preparation:	Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 2 hours; Refrigerated: 1 week; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82157; 82626; 84403
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Free or bioavailable testosterone measurements may provide supportive information.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Testosterone by Mass Spec			
		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	59-125	5-16
		Premature (31-35 weeks)	37-198	5-22
		Newborn	75-400	20-64
		1-5 months	14-363	Less than 20
		6-24 months	Less than 37	Less than 9
		2-3 years	Less than 15	Less than 20
		4-5 years	Less than 19	Less than 30
		6-7 years	Less than 13	Less than 7
		8-9 years	2-8	1-11
		10-11 years	2-165	3-32
		12-13 years	3-619	6-50
		14-15 years	31-733	6-52
		16-17 years	158-826	9-58
		18-39 years	300-1080	9-55
		40-59 years	300-890	9-55
		60 years and older	300-720	5-32
		Premenopausal (18 years and older)	Not Applicable	9-55
		Postmenopausal	Not Applicable	5-32
		Tanner Stage I	2-15	2-17
		Tanner Stage II	3-303	5-40
		Tanner Stage III	10-851	10-63
		Tanner Stage IV-V	162-847	11-62
	Androstenedione by TMS			

		Age	Male (ng/mL)	Female (ng/mL)
		Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
		Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
		Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
		8-30 days	0.18-0.80	0.18-0.80
		1-5 months	0.06-0.68	0.06-0.68
		6-24 months	0.03-0.15	Less than 0.15
		2-3 years	Less than 0.11	Less than 0.16
		4-5 years	0.02-0.17	0.02-0.21
		6-7 years	0.01-0.29	0.02-0.28
		8-9 years	0.03-0.30	0.04-0.42
		10-11 years	0.07-0.39	0.09-1.23
		12-13 years	0.10-0.64	0.24-1.73
		14-15 years	0.18-0.94	0.39-2.00
		16-17 years	0.30-1.13	0.35-2.12
		18-39 years	0.33-1.34	0.26-2.14
		40 years and older	0.23-0.89	0.13-0.82
		Premenopausal	Not Applicable	0.26-2.14
		Postmenopausal	Not Applicable	0.13-0.82
		Tanner Stage I	0.04-0.32	0.05-0.51
		Tanner Stage II	0.08-0.48	0.15-1.37
		Tanner Stage III	0.14-0.87	0.37-2.24
		Tanner Stage IV-V	0.27-1.07	0.35-2.05
	Dehydroepiandrosterone by TMS			

Age	Male (ng/mL)	Female (ng/mL)
Premature	Less than 40	Less than 40
0-1 days	Less than 11	Less than 11
2-6 days	Less than 8.7	Less than 8.7
7 days-1 month	Less than 5.8	Less than 5.8
1-5 months	Less than 2.9	Less than 2.9
6-24 months	Less than 2.5	Less than 1.99
2-3 years	Less than 0.63	Less than 0.85
4-5 years	Less than 0.95	Less than 1.03
6-7 years	0.06-1.93	Less than 1.79
8-9 years	0.10-2.08	0.14-2.35
10-11 years	0.32-3.08	0.43-3.78
12-13 years	0.57-4.10	0.89-6.21
14-15 years	0.93-6.04	1.22-7.01
16-17 years	1.17-6.52	1.42-9.00
18-39 years	1.33-7.78	1.33-7.78
40 years and older	0.63-4.70	0.63-4.70
Postmenopausal	Not Applicable	0.60-5.73
Tanner Stage I	0.11-2.37	0.14-2.76
Tanner Stage II	0.37-3.66	0.83-4.87
Tanner Stage III	0.75-5.24	1.08-7.56
Tanner Stage IV-V	1.22-6.73	1.24-7.88

TEST CHANGE

Congenital Adrenal Hyperplasia Treatment Panel

2002029, CAH RX PANEL

Specimen Requirements:	
Patient Preparation:	Collect between 6-10 a.m.
Collect:	Serum separator tube or green (sodium or lithium heparin). Also acceptable: Pink (K2EDTA).
Specimen Preparation:	Transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.7 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82157; 83498; 84403
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Free or bioavailable testosterone measurements may provide supportive information.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Testosterone by Mass Spec			
		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	59-125	5-16
		Premature (31-35 weeks)	37-198	5-22
		Newborn	75-400	20-64
		1-5 months	14-363	Less than 20
		6-24 months	Less than 37	Less than 9
		2-3 years	Less than 15	Less than 20
		4-5 years	Less than 19	Less than 30
		6-7 years	Less than 13	Less than 7
		8-9 years	2-8	1-11
		10-11 years	2-165	3-32
		12-13 years	3-619	6-50
		14-15 years	31-733	6-52
		16-17 years	158-826	9-58
		18-39 years	300-1080	9-55
		40-59 years	300-890	9-55
		60 years and older	300-720	5-32
		Premenopausal (18 years and older)	Not Applicable	9-55
		Postmenopausal	Not Applicable	5-32
		Tanner Stage I	2-15	2-17
		Tanner Stage II	3-303	5-40
		Tanner Stage III	10-851	10-63
		Tanner Stage IV-V	162-847	11-62
	17-Hydroxyprogesterone, HPLC-MS/MS			

		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	124-841	124-841
		Premature (29-35 weeks)	26-568	26-568
		Full term Day 3	7-77	7-77
		4 days-30 days	Less than 200	7-106
		1 month-2 months	Less than 200	13-106
		3 months-5 months	3-90	13-106
		6 months-1 year	Less than or equal to 148	Less than or equal to 148
		2-3 years	Less than or equal to 228	Less than or equal to 256
		4-6 years	Less than or equal to 208	Less than or equal to 299
		7-9 years	Less than or equal to 63	Less than or equal to 71
		10-12 years	Less than or equal to 79	Less than or equal to 129
		13-15 years	9-140	9-208
		16-17 years	24-192	Less than or equal to 178
		18 years and older	Less than 139	Less than 207
		Follicular	Not Applicable	15-70
		Luteal	Not Applicable	35-290
		Tanner Stage I	Less than or equal to 62	Less than or equal to 74
		Tanner Stage II	Less than or equal to 104	Less than or equal to 164
		Tanner Stage III	Less than or equal to 151	13-209
		Tanner Stage IV-V	20-173	7-170
	Androstenedione by TMS			

Age	Male (ng/mL)	Female (ng/mL)
Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
8-30 days	0.18-0.80	0.18-0.80
1-5 months	0.06-0.68	0.06-0.68
6-24 months	0.03-0.15	Less than 0.15
2-3 years	Less than 0.11	Less than 0.16
4-5 years	0.02-0.17	0.02-0.21
6-7 years	0.01-0.29	0.02-0.28
8-9 years	0.03-0.30	0.04-0.42
10-11 years	0.07-0.39	0.09-1.23
12-13 years	0.10-0.64	0.24-1.73
14-15 years	0.18-0.94	0.39-2.00
16-17 years	0.30-1.13	0.35-2.12
18-39 years	0.33-1.34	0.26-2.14
40 years and older	0.23-0.89	0.13-0.82
Premenopausal	Not Applicable	0.26-2.14
Postmenopausal	Not Applicable	0.13-0.82
Tanner Stage I	0.04-0.32	0.05-0.51
Tanner Stage II	0.08-0.48	0.15-1.37
Tanner Stage III	0.14-0.87	0.37-2.24
Tanner Stage IV-V	0.27-1.07	0.35-2.05

TEST CHANGE

Protein Electrophoresis with Reflex to Immunofixation, Serum

2002109, SPEP REFLEX

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Separator Tube (SST).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP Standard Transport Tube. (Min: 1.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative Capillary Electrophoresis/Qualitative Immunofixation Electrophoresis/Quantitative Immunoturbidimetry/Colorimetry
Performed:	Sun-Sat
Reported:	1-5 days
Note:	If patterns from serum protein electrophoresis are monoclonal or suspicious, then Immunofixation Electrophoresis will be added. Additional charges apply. No additional testing will be added for proteins that are normal, polyclonal, or that lack monoclonal patterns.
CPT Codes:	84155; 84165; if reflexed, add 82784 x3; 86334
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Serum protein electrophoresis, when used as a screening test, is useful in the detection of various pathophysiologic states such as inflammation, protein loss, gammopathies, and other dysproteinemias. However, immunofixation electrophoresis (IFE) is a more sensitive technique for the identification of small M-proteins found in patients with amyloidosis, early or treated myeloma or macroglobulinemia, solitary plasmacytoma, or extramedullary plasmacytoma.

Reference Interval:

Test Number	Components	Reference Interval
	Albumin	3.75-5.01 g/dL
	Alpha 1 Globulin	0.19-0.46 g/dL
	Alpha 2 Globulin	0.48-1.05 g/dL
	Beta Globulin	0.48-1.10 g/dL
	Gamma	0.62-1.51 g/dL
	Total Protein, Serum	Refer to report. Reference intervals may vary based on instrumentation.
	Monoclonal Protein	<=0.00 g/dL

TEST CHANGE

Virilization Panel 2

2002281, VIRIL PAN2

Specimen Requirements:	
Patient Preparation:	Collect between 6-10 a.m.
Collect:	Serum separator tube or green (sodium or lithium heparin). Also acceptable: Pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.7 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82157; 83498; 84403; 82626
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Free or bioavailable testosterone measurements may provide supportive information.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Testosterone by Mass Spec			
		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	59-125	5-16
		Premature (31-35 weeks)	37-198	5-22
		Newborn	75-400	20-64
		1-5 months	14-363	Less than 20
		6-24 months	Less than 37	Less than 9
		2-3 years	Less than 15	Less than 20
		4-5 years	Less than 19	Less than 30
		6-7 years	Less than 13	Less than 7
		8-9 years	2-8	1-11
		10-11 years	2-165	3-32
		12-13 years	3-619	6-50
		14-15 years	31-733	6-52
		16-17 years	158-826	9-58
		18-39 years	300-1080	9-55
		40-59 years	300-890	9-55
		60 years and older	300-720	5-32
		Premenopausal (18 years and older)	Not Applicable	9-55
		Postmenopausal	Not Applicable	5-32
		Tanner Stage I	2-15	2-17
		Tanner Stage II	3-303	5-40
		Tanner Stage III	10-851	10-63
		Tanner Stage IV-V	162-847	11-62
	17-Hydroxyprogesterone, HPLC-MS/MS			

		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	124-841	124-841
		Premature (29-35 weeks)	26-568	26-568
		Full term Day 3	7-77	7-77
		4 days-30 days	Less than 200	7-106
		1 month-2 months	Less than 200	13-106
		3 months-5 months	3-90	13-106
		6 months-1 year	Less than or equal to 148	Less than or equal to 148
		2-3 years	Less than or equal to 228	Less than or equal to 256
		4-6 years	Less than or equal to 208	Less than or equal to 299
		7-9 years	Less than or equal to 63	Less than or equal to 71
		10-12 years	Less than or equal to 79	Less than or equal to 129
		13-15 years	9-140	9-208
		16-17 years	24-192	Less than or equal to 178
		18 years and older	Less than 139	Less than 207
		Follicular	Not Applicable	15-70
		Luteal	Not Applicable	35-290
		Tanner Stage I	Less than or equal to 62	Less than or equal to 74
		Tanner Stage II	Less than or equal to 104	Less than or equal to 164
		Tanner Stage III	Less than or equal to 151	13-209
		Tanner Stage IV-V	20-173	7-170
	Androstenedione by TMS			

		Age	Male (ng/mL)	Female (ng/mL)
		Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
		Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
		Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
		8-30 days	0.18-0.80	0.18-0.80
		1-5 months	0.06-0.68	0.06-0.68
		6-24 months	0.03-0.15	Less than 0.15
		2-3 years	Less than 0.11	Less than 0.16
		4-5 years	0.02-0.17	0.02-0.21
		6-7 years	0.01-0.29	0.02-0.28
		8-9 years	0.03-0.30	0.04-0.42
		10-11 years	0.07-0.39	0.09-1.23
		12-13 years	0.10-0.64	0.24-1.73
		14-15 years	0.18-0.94	0.39-2.00
		16-17 years	0.30-1.13	0.35-2.12
		18-39 years	0.33-1.34	0.26-2.14
		40 years and older	0.23-0.89	0.13-0.82
		Premenopausal	Not Applicable	0.26-2.14
		Postmenopausal	Not Applicable	0.13-0.82
		Tanner Stage I	0.04-0.32	0.05-0.51
		Tanner Stage II	0.08-0.48	0.15-1.37
		Tanner Stage III	0.14-0.87	0.37-2.24
		Tanner Stage IV-V	0.27-1.07	0.35-2.05
	Dehydroepiandrosterone by TMS			

Age	Male (ng/mL)	Female (ng/mL)
Premature	Less than 40	Less than 40
0-1 days	Less than 11	Less than 11
2-6 days	Less than 8.7	Less than 8.7
7 days-1 month	Less than 5.8	Less than 5.8
1-5 months	Less than 2.9	Less than 2.9
6-24 months	Less than 2.5	Less than 1.99
2-3 years	Less than 0.63	Less than 0.85
4-5 years	Less than 0.95	Less than 1.03
6-7 years	0.06-1.93	Less than 1.79
8-9 years	0.10-2.08	0.14-2.35
10-11 years	0.32-3.08	0.43-3.78
12-13 years	0.57-4.10	0.89-6.21
14-15 years	0.93-6.04	1.22-7.01
16-17 years	1.17-6.52	1.42-9.00
18-39 years	1.33-7.78	1.33-7.78
40 years and older	0.63-4.70	0.63-4.70
Postmenopausal	Not Applicable	0.60-5.73
Tanner Stage I	0.11-2.37	0.14-2.76
Tanner Stage II	0.37-3.66	0.83-4.87
Tanner Stage III	0.75-5.24	1.08-7.56
Tanner Stage IV-V	1.22-6.73	1.24-7.88

TEST CHANGE

Congenital Adrenal Hyperplasia Panel, 11-Beta Hydroxylase Deficiency

2002282, CAH 11-B HYDROX

Specimen Requirements:	
Patient Preparation:	Collect between 6-10 a.m.
Collect:	Serum separator tube or green (sodium or lithium heparin). Also acceptable: Pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.7 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-84 days
Note:	
CPT Codes:	82157; 83498; 84403; 82634; 82626
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Free or bioavailable testosterone measurements may provide supportive information.

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

Reference Interval:

Test Number	Components	Reference Interval		
	Testosterone by Mass Spec			
		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	59-125	5-16
		Premature (31-35 weeks)	37-198	5-22
		Newborn	75-400	20-64
		1-5 months	14-363	Less than 20
		6-24 months	Less than 37	Less than 9
		2-3 years	Less than 15	Less than 20
		4-5 years	Less than 19	Less than 30
		6-7 years	Less than 13	Less than 7
		8-9 years	2-8	1-11
		10-11 years	2-165	3-32
		12-13 years	3-619	6-50
		14-15 years	31-733	6-52
		16-17 years	158-826	9-58
		18-39 years	300-1080	9-55
		40-59 years	300-890	9-55
		60 years and older	300-720	5-32
		Premenopausal (18 years and older)	Not Applicable	9-55
		Postmenopausal	Not Applicable	5-32
		Tanner Stage I	2-15	2-17
		Tanner Stage II	3-303	5-40
		Tanner Stage III	10-851	10-63
		Tanner Stage IV-V	162-847	11-62
	11-Deoxycortisol, HPLC-MS/MS			

		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	110-1376	110-1376
		Premature (29-36 weeks)	70-455	70-455
		Full Term (1-5 months)	10-200	10-200
		6-11 months	10-276	10-276
		1-3 years	7-202	7-247
		4-6 years	8-235	8-291
		7-9 years	Less than or equal to 120	Less than or equal to 94
		10-12 years	Less than or equal to 92	Less than or equal to 123
		13-15 years	Less than or equal to 95	Less than or equal to 107
		16-17 years	Less than or equal to 106	Less than or equal to 47
		18 years and older	Less than 50	Less than 33
		Tanner Stage I	Less than or equal to 105	Less than or equal to 94
		Tanner Stage II	Less than or equal to 108	Less than or equal to 136
		Tanner Stage III	Less than or equal to 111	Less than or equal to 99
		Tanner Stage IV & V	Less than or equal to 83	Less than or equal to 50
		After metyrapone stimulation	Greater than 8000	Greater than 8000
	17-Hydroxyprogesterone, HPLC-MS/MS			

		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	124-841	124-841
		Premature (29-35 weeks)	26-568	26-568
		Full term Day 3	7-77	7-77
		4 days-30 days	Less than 200	7-106
		1 month-2 months	Less than 200	13-106
		3 months-5 months	3-90	13-106
		6 months-1 year	Less than or equal to 148	Less than or equal to 148
		2-3 years	Less than or equal to 228	Less than or equal to 256
		4-6 years	Less than or equal to 208	Less than or equal to 299
		7-9 years	Less than or equal to 63	Less than or equal to 71
		10-12 years	Less than or equal to 79	Less than or equal to 129
		13-15 years	9-140	9-208
		16-17 years	24-192	Less than or equal to 178
		18 years and older	Less than 139	Less than 207
		Follicular	Not Applicable	15-70
		Luteal	Not Applicable	35-290
		Tanner Stage I	Less than or equal to 62	Less than or equal to 74
		Tanner Stage II	Less than or equal to 104	Less than or equal to 164
		Tanner Stage III	Less than or equal to 151	13-209
		Tanner Stage IV-V	20-173	7-170
	Androstenedione by TMS			

		Age	Male (ng/mL)	Female (ng/mL)
		Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
		Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
		Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
		8-30 days	0.18-0.80	0.18-0.80
		1-5 months	0.06-0.68	0.06-0.68
		6-24 months	0.03-0.15	Less than 0.15
		2-3 years	Less than 0.11	Less than 0.16
		4-5 years	0.02-0.17	0.02-0.21
		6-7 years	0.01-0.29	0.02-0.28
		8-9 years	0.03-0.30	0.04-0.42
		10-11 years	0.07-0.39	0.09-1.23
		12-13 years	0.10-0.64	0.24-1.73
		14-15 years	0.18-0.94	0.39-2.00
		16-17 years	0.30-1.13	0.35-2.12
		18-39 years	0.33-1.34	0.26-2.14
		40 years and older	0.23-0.89	0.13-0.82
		Premenopausal	Not Applicable	0.26-2.14
		Postmenopausal	Not Applicable	0.13-0.82
		Tanner Stage I	0.04-0.32	0.05-0.51
		Tanner Stage II	0.08-0.48	0.15-1.37
		Tanner Stage III	0.14-0.87	0.37-2.24
		Tanner Stage IV-V	0.27-1.07	0.35-2.05
	Dehydroepiandrosterone by TMS			

Age	Male (ng/mL)	Female (ng/mL)
Premature	Less than 40	Less than 40
0-1 days	Less than 11	Less than 11
2-6 days	Less than 8.7	Less than 8.7
7 days-1 month	Less than 5.8	Less than 5.8
1-5 months	Less than 2.9	Less than 2.9
6-24 months	Less than 2.5	Less than 1.99
2-3 years	Less than 0.63	Less than 0.85
4-5 years	Less than 0.95	Less than 1.03
6-7 years	0.06-1.93	Less than 1.79
8-9 years	0.10-2.08	0.14-2.35
10-11 years	0.32-3.08	0.43-3.78
12-13 years	0.57-4.10	0.89-6.21
14-15 years	0.93-6.04	1.22-7.01
16-17 years	1.17-6.52	1.42-9.00
18-39 years	1.33-7.78	1.33-7.78
40 years and older	0.63-4.70	0.63-4.70
Postmenopausal	Not Applicable	0.60-5.73
Tanner Stage I	0.11-2.37	0.14-2.76
Tanner Stage II	0.37-3.66	0.83-4.87
Tanner Stage III	0.75-5.24	1.08-7.56
Tanner Stage IV-V	1.22-6.73	1.24-7.88

TEST CHANGE

Congenital Adrenal Hyperplasia Panel, 21-Hydroxylase Deficiency

2002283, CAH 21 HYDROX

Specimen Requirements:	
Patient Preparation:	Collect between 6-10 a.m.
Collect:	Serum separator tube or green (sodium or lithium heparin). Also acceptable: Pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1.8 mL serum or plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.9 mL)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Refrigerated or room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	82157; 83498; 84143; 82626
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Test Number	Components	Reference Interval		
	17-Hydroxyprogesterone, HPLC-MS/MS			
		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	124-841	124-841
		Premature (29-35 weeks)	26-568	26-568
		Full term Day 3	7-77	7-77
		4 days-30 days	Less than 200	7-106
		1 month-2 months	Less than 200	13-106
		3 months-5 months	3-90	13-106
		6 months-1 year	Less than or equal to 148	Less than or equal to 148
		2-3 years	Less than or equal to 228	Less than or equal to 256
		4-6 years	Less than or equal to 208	Less than or equal to 299
		7-9 years	Less than or equal to 63	Less than or equal to 71
		10-12 years	Less than or equal to 79	Less than or equal to 129
		13-15 years	9-140	9-208
		16-17 years	24-192	Less than or equal to 178
		18 years and older	Less than 139	Less than 207
		Follicular	Not Applicable	15-70
		Luteal	Not Applicable	35-290
		Tanner Stage I	Less than or equal to 62	Less than or equal to 74
		Tanner Stage II	Less than or equal to 104	Less than or equal to 164
		Tanner Stage III	Less than or equal to 151	13-209
		Tanner Stage IV-V	20-173	7-170
	17-Hydroxypregnenolone Quant, MS/MS, Ser			

		Age	Male (ng/dL)	Female (ng/dL)
		Premature (26-28 weeks)	1219-9799	1219-9799
		Premature (29-36 weeks)	346-8911	346-8911
		Full Term (1-5 months)	229-3104	229-3104
		6-12 months	Less than or equal to 917	Less than or equal to 917
		13-23 months	Less than or equal to 592	Less than or equal to 592
		2-4 years	Less than or equal to 249	Less than or equal to 280
		5-6 years	Less than or equal to 319	Less than or equal to 350
		7-9 years	Less than or equal to 187	Less than or equal to 212
		10-12 years	Less than or equal to 392	Less than or equal to 398
		13-15 years	35-465	Less than or equal to 407
		16-17 years	32-478	Less than or equal to 423
		18 years and older	Less than 442	Less than 226
		Tanner Stage I	Less than or equal to 208	Less than or equal to 235
		Tanner Stage II	Less than or equal to 355	Less than or equal to 367
		Tanner Stage III	Less than or equal to 450	Less than or equal to 430
		Tanner Stage IV & V	35-478	Less than or equal to 412
	Androstenedione by TMS			

		Age	Male (ng/mL)	Female (ng/mL)
		Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
		Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
		Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
		8-30 days	0.18-0.80	0.18-0.80
		1-5 months	0.06-0.68	0.06-0.68
		6-24 months	0.03-0.15	Less than 0.15
		2-3 years	Less than 0.11	Less than 0.16
		4-5 years	0.02-0.17	0.02-0.21
		6-7 years	0.01-0.29	0.02-0.28
		8-9 years	0.03-0.30	0.04-0.42
		10-11 years	0.07-0.39	0.09-1.23
		12-13 years	0.10-0.64	0.24-1.73
		14-15 years	0.18-0.94	0.39-2.00
		16-17 years	0.30-1.13	0.35-2.12
		18-39 years	0.33-1.34	0.26-2.14
		40 years and older	0.23-0.89	0.13-0.82
		Premenopausal	Not Applicable	0.26-2.14
		Postmenopausal	Not Applicable	0.13-0.82
		Tanner Stage I	0.04-0.32	0.05-0.51
		Tanner Stage II	0.08-0.48	0.15-1.37
		Tanner Stage III	0.14-0.87	0.37-2.24
		Tanner Stage IV-V	0.27-1.07	0.35-2.05
	Dehydroepiandrosterone by TMS			

Age	Male (ng/mL)	Female (ng/mL)
Premature	Less than 40	Less than 40
0-1 days	Less than 11	Less than 11
2-6 days	Less than 8.7	Less than 8.7
7 days-1 month	Less than 5.8	Less than 5.8
1-5 months	Less than 2.9	Less than 2.9
6-24 months	Less than 2.5	Less than 1.99
2-3 years	Less than 0.63	Less than 0.85
4-5 years	Less than 0.95	Less than 1.03
6-7 years	0.06-1.93	Less than 1.79
8-9 years	0.10-2.08	0.14-2.35
10-11 years	0.32-3.08	0.43-3.78
12-13 years	0.57-4.10	0.89-6.21
14-15 years	0.93-6.04	1.22-7.01
16-17 years	1.17-6.52	1.42-9.00
18-39 years	1.33-7.78	1.33-7.78
40 years and older	0.63-4.70	0.63-4.70
Postmenopausal	Not Applicable	0.60-5.73
Tanner Stage I	0.11-2.37	0.14-2.76
Tanner Stage II	0.37-3.66	0.83-4.87
Tanner Stage III	0.75-5.24	1.08-7.56
Tanner Stage IV-V	1.22-6.73	1.24-7.88

TEST CHANGE

25-Hydroxyvitamin D[2] and D[3] by Tandem Mass Spectrometry, Serum

2002348, VITD2D3TMS

Specimen Requirements:	
Patient Preparation:	
Collect:	Plain red or serum separator tube. Also acceptable: Green (sodium heparin), lavender (EDTA), or pink (K2EDTA).
Specimen Preparation:	Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.15 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Room temperature specimens older than 24 hours.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months
Methodology:	Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	ARUP is unable to provide reliable results for specimens from infants (less than one year of age), since highly specialized test methodology is required. ARUP will refer all infant specimens to a laboratory that is able to perform this methodology. U.S. Patent No. 8,349,613
CPT Codes:	82306
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Total Concentrations of 25-hydroxyvitamin D2 and 25-hydroxyvitamin D3:
Deficiency: Less than 20 ng/mL
Insufficiency: 20-29 ng/mL
Optimal Level: 30-80 ng/mL
Possible Toxicity: Greater than 150 ng/mL

Separate values for Vitamin D2 and D3 are reported in addition to the total.

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

Reference Interval:

Effective May 16, 2011

1-17 years		
Deficiency	Less than 20 ng/mL	
Optimum level	Greater than or equal to 20 ng/mL*	
*(Wagner CL et al. Pediatrics 2008; 122: 1142-52.)		
18 years and older		
Deficiency	Less than 20 ng/mL	
Insufficiency	20-29 ng/mL	
Optimum Level	30-80 ng/mL	
Possible Toxicity	Greater than 150 ng/mL	
(Holick MF et al. JCEM 2011; 96:1911-30)		

TEST CHANGE

Monoclonal Protein Study, Expanded Panel, Serum

2002715, IFE FLC

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube~~Separator Tube~~ (SST).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 2.5 mL serum to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 2.0 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma. Room temperature specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Qualitative Immunofixation Electrophoresis (IFE)/~~/~~Quantitative Capillary Electrophoresis/Quantitative Immunoturbidimetry/Colorimetry
Performed:	Sun-Sat
Reported:	1-5 days
Note:	A copy of the graph will follow the final report. This assay is highly sensitive to increasing concentrations of monoclonal free kappa or free lambda light chains in the serum of patients with evolving or relapsing myelomas.
CPT Codes:	82784 x3; 84155; 84165; 86334; 83521 x2
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Undetected antigen excess is a rare event but cannot be excluded. Free light chain results should always be interpreted in conjunction with other clinical and laboratory findings.	
Reference Interval:	

Test Number	Components	Reference Interval
	Albumin	3.75-5.01 g/dL
	Alpha 1 Globulin	0.19-0.46 g/dL
	Alpha 2 Globulin	0.48-1.05 g/dL
	Beta Globulin	0.48-1.10 g/dL
	Gamma	0.62-1.51 g/dL
	Immunoglobulin A	
		Age: Reference Interval (mg/dL) 0-2 years: 2-126 3-4 years: 14-212 5-9 years: 52-226 10-14 years: 42-345 15-18 years: 60-349 19 years and older: 68-408
	Immunoglobulin G	
		Age: Reference Interval (mg/dL) 0-2 years: 242-1108 3-4 years: 485-1160 5-9 years: 514-1672 10-14 years: 581-1652 15-18 years: 479-1433 19 years and older: 768-1632
	Immunoglobulin M	
		Age: Reference Interval (mg/dL) 0-2 years: 21-215 3-4 years: 26-155 5-9 years: 26-188 10-14 years: 47-252 15-18 years: 26-232 19 years and older: 35-263
	Total Protein, Serum	Refer to report. Reference intervals may vary based on instrumentation.
	Kappa Qnt Free Light Chains	3.30 - 19.40 mg/L
	Lambda Qnt Free Light Chains	5.71-26.30 mg/L
	Kappa/Lambda Free Light Chain Ratio	0.26-1.65
	Monoclonal Protein	<=0.00 g/dL

TEST CHANGE

Lacosamide, Serum or Plasma

2003182, LACOSA SP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated: Also acceptable: Room temperature or frozen.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 2 weeks
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon-Fri
Reported:	1-54 days
Note:	
CPT Codes:	80235
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Lacosamide is an anticonvulsant drug indicated for adjunctive therapy for partial-onset seizures. The therapeutic range is based on serum, predose (trough) draw collection at steady-state concentration. Adverse effects may include dizziness, fatigue, nausea, vomiting, blurred vision, and tremor.

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

Reference Interval:

Effective November 15, 2021

Therapeutic Range:	Not well established. Suggested range 1.0-10.0 ug/mL	
Toxic Level	Greater than or equal to 20 ug/mL	

TEST CHANGE

Testosterone, Free, by Dialysis and Mass Spectrometry (Adult Males or Individuals on Testosterone Hormone Therapy)

2003246, FREE T TMS

Specimen Requirements:	
Patient Preparation:	Collect between 6-10 a.m.
Collect:	Serum separator tube or green (sodium or lithium heparin).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transport 1 mL serum or plasma. (Min: 0.4 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	EDTA plasma.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 months
Methodology:	Quantitative Equilibrium Dialysis (ED)/~~/~~High Performance Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun~~, Wed~~-Sat
Reported:	2~~1~~-6 days
Note:	
CPT Codes:	84402
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This laboratory reference method for the direct measurement of free testosterone is not recommended when low testosterone concentrations, such as those found in children and cisgender females, are expected. For these individuals, the preferred test is Testosterone, Free (Adult Females, Children, or Individuals on Testosterone-Suppressing Hormone Therapy) (ARUP test code 0081059).

For individuals on testosterone hormone therapy, refer to cisgender male reference intervals. No reference intervals have been established for males younger than 18 years or for cisgender females. For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/2003246.

This test was developed and its performance characteristics determined by ARUP Laboratories. It

has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Reference Interval:

Male Free Testosterone, pg/mL
18 years and older: 47-244 pg/mL

TEST CHANGE

Methylmalonic Acid, Serum or Plasma (Metabolic Disorders)

2005255, MMA METD

Specimen Requirements:	
Patient Preparation:	
Collect:	Plain red or serum separator tube. Also acceptable: Green (sodium or lithium heparin), lavender (EDTA), or pink (K2EDTA).
Specimen Preparation:	Centrifuge and remove serum or plasma from cells within 2 hours of collection. Immediately transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube and refrigerate or freeze. (Min: 0.6 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Room temperature specimens. Grossly hemolyzed or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~2~~ days
Note:	
CPT Codes:	83921
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Effective July 18, 2011

0.00-0.40 µmol/L

TEST CHANGE

Leflunomide Metabolite, Serum or Plasma

2007460, LEFLUMETSP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough). Obtain specimen 12 - 24 hours after last dose.
Collect:	Plain red. Also acceptable: Lavender (EDTA), pink (K2EDTA), green (sodium heparin), or gray (sodium fluoride).
Specimen Preparation:	Separate from cells within 2 hours of draw. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Transport Temperature:	Refrigerated. Also acceptable: Room temperature or frozen.
Unacceptable Conditions:	Whole blood. Potassium oxalate or separator tubes.
Remarks:	
Stability:	Ambient: 7 days; Refrigerated: 17 days; Frozen: 90 days
Methodology:	~~High Performance~~ Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun, Wed, Fri
Reported:	1-7~~6~~ days
Note:	
CPT Codes:	80193
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Therapeutic and toxic ranges are not well established. Concentrations greater than 40.000 µg/mL tend to correlate with improved patient outcome. A proposed therapeutic range is 50.000 - 100.000 µg/mL. Adverse reactions to Leflunomide, such as diarrhea, hypertension, and liver toxicity, do not correlate well with serum drug concentrations. Leflunomide has a potential risk for teratogenesis. For women being treated with Leflunomide who desire to become pregnant, enhanced drug elimination should be performed until plasma teriflunomide concentrations are lower than 0.020 µg/mL on two separate tests taken at least 14 days apart.

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

Reference Interval:

Therapeutic Range	Greater than 40.000 ug/mL
Toxic Level	Not well established.

TEST CHANGE

Tricyclic Antidepressants, Quantitative, Urine

2007515, TADQNT U

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 2 mL urine to ARUP standard transport tube. (Min: 0.7 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 11 days; Frozen: 2 weeks
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Tue, Thu, Sat
Reported:	1-7~~5~~ days
Note:	This test is used to quantitate the following tricyclic antidepressants: amitriptyline, clomipramine, desipramine, doxepin, imipramine, norclomipramine, nordoxepin, nortriptyline, and protriptyline.
CPT Codes:	80337 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Urine concentrations of tricyclic antidepressants do not correlate with signs or symptoms of therapy or toxicity.

Therapeutic ranges are not established.

100 ng/mL limit of quantification: Amitriptyline, nortriptyline, imipramine, desipramine, doxepin, nordoxepin, protriptyline
200 ng/mL limit of quantification: Clomipramine, norclomipramine

Reference Interval:

TEST CHANGE

Tricyclic Antidepressants, Quantitative, Serum or Plasma

2007549, TADQNT SP

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Predose (trough) draw at steady-state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	This test is used to quantitate the following tricyclic antidepressants: amitriptyline, clomipramine, desipramine, doxepin, imipramine, norclomipramine, nordoxepin, nortriptyline, and protriptyline.
CPT Codes:	80337 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Reference Interval:	

Effective November 18th, 2013

Drug	Therapeutic Range	Toxic
Amitriptyline (Elavil, Vanatrip)	Not established	Not established
Nortriptyline (Aventyl, Pamelor)	50-150 ng/mL	Greater than 500 ng/mL
Total Amitriptyline + Nortriptyline	95-250 ng/mL	Greater than 500 ng/mL
Imipramine (Tofranil)	Not established	Not established
Desipramine (Norpramin)	100-300 ng/mL	Greater than 500 ng/mL
Total Imipramine + Desipramine	150-300 ng/mL	Greater than 500 ng/mL
Doxepin (Sinequan, Zonalon)	Not established	Not established
Nordoxepin	Not established	Not established
Total Doxepin + Nordoxepin	100-300 ng/mL	Greater than 500 ng/mL
Protriptyline (Vivactil)	70-240 ng/mL	Greater than 400 ng/mL
Clomipramine (Anafranil)	Not established	Not established
Norclomipramine	Not established	Not established
Total Clomipramine + Norclomipramine	220-500 ng/mL	Greater than 900 ng/mL

TEST CHANGE

Triiodothyronine, Reverse by Tandem Mass Spectrometry

2007918, RT3 TMS

Specimen Requirements:	
Patient Preparation:	
Collect:	Plain red or serum separator tube. Also acceptable: Lavender (EDTA) or pink (K2EDTA).
Specimen Preparation:	Allow serum specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within two hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 1 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Grossly hemolyzed specimens
Remarks:	
Stability:	Ambient: 24 hours; Refrigerated: 1 week; Frozen: 3 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	84482
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Age	Reference Interval
0 -17 years	Not established
18 years and older	9.0 - 27.0 ng/dl

TEST CHANGE

Aripiprazole and Metabolite, Serum or Plasma

2007945, ARIPIPRAZO

Specimen Requirements:	
Patient Preparation:	Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain Red. Also acceptable: Lavender (EDTA) or Pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 weeks
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Wed, Sat
Reported:	1-8~~5~~ days
Note:	
CPT Codes:	80342 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

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

Reference Interval:

Effective June 7, 2021

Therapeutic Range (Aripiprazole and Dehydroaripiprazole)	150-500 ng/mL
Toxic range (Aripiprazole and Dehydroaripiprazole)	Greater than or equal to 1000 ng/mL

TEST CHANGE

Paliperidone, Serum or Plasma

2007949, PALIPERID

Specimen Requirements:	
Patient Preparation:	Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain Red. Also acceptable: Lavender (EDTA) or Pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Wed, Sat
Reported:	1-8~~5~~ days
Note:	
CPT Codes:	80342 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects to paliperidone therapy may include headache, nausea, dizziness, tachycardia, orthostatic hypotension and dyskinesia.

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

Reference Interval:

Effective June 7, 2021

Therapeutic range (Paliperidone (9-hydroxyrisperidone))	20 - 60 ng/mL
Toxic range (Paliperidone (9-hydroxyrisperidone))	Greater than 120 ng/mL

TEST CHANGE

Risperidone and Metabolite, Serum or Plasma

2007951, RISPERIDON

Specimen Requirements:	
Patient Preparation:	Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain Red. Also acceptable: Lavender (EDTA) or Pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	N/A
Stability:	Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Sat
Reported:	1-7~~5~~ days
Note:	
CPT Codes:	80342 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects to risperidone therapy may include headache, nausea, dizziness, tachycardia, orthostatic hypotension and dyskinesia.

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

Reference Interval:

Effective June 7, 2021

Therapeutic range (Risperidone)	20-60 ng/mL	
Therapeutic range (9-hydroxyrisperidone (Paliperidone))	20-60 ng/mL	
Toxic range (Risperidone and Metabolite)	Greater than 120 ng/mL	

TEST CHANGE

Venlafaxine and Metabolite, Serum or Plasma

2007957, VENLAFAXSP

Specimen Requirements:	
Patient Preparation:	Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain Red. Also acceptable: Lavender (EDTA) or Pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD Solution).
Remarks:	
Stability:	Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 weeks
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Wed, Sat
Reported:	1-8~~5~~ days
Note:	
CPT Codes:	80338 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

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

Reference Interval:

Effective June 7, 2021

Therapeutic range (Venlafaxine and o-Desmethylvenlafaxine)	195-400 ng/mL
Toxic range (Venlafaxine and o-Desmethylvenlafaxine)	Greater than or equal to 800 ng/mL

TEST CHANGE

Motor and Sensory Neuropathy Evaluation with Immunofixation Electrophoresis and Reflex to Titer and Neuronal Immunoblot

2007967, MSNCR

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Separator Tube (SST).
Specimen Preparation:	Separate serum from cells ASAP or within 2 hours of collection. Transfer 5 mL serum to an ARUP Standard Transport Tube. (Min: 2.5 mL)
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Plasma, CSF, or other body fluids. Contaminated, heat-inactivated, grossly hemolyzed, severely icteric, or lipemic specimens.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Semi-Quantitative Indirect Fluorescent Antibody/Qualitative Immunoblot/Quantitative Immunoturbidimetry/Quantitative Capillary Electrophoresis/Qualitative Immunofixation Electrophoresis/Colorimetry
Performed:	Tue
Reported:	3-9 days
Note:	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, Yo, and Tr/DNER) 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, Yo, and Tr/DNER) IgG by Immunoblot will be added. Additional charges apply.
CPT Codes:	83516 x7; 82784 x3; 84155; 84165; 86334; 86255 if reflexed add 84182 x4 and/or 86256
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Components	Interpretive Data
Asialo-GM1 Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GM1 Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GD1a Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GD1b Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive
GQ1b Antibodies, IgG/IgM	29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive 101 IV or greater: Strong Positive

Reference Interval:

Test Number	Components	Reference Interval
	Albumin	3.75-5.01 g/dL
	Alpha 1 Globulin	0.19-0.46 g/dL
	Alpha 2 Globulin	0.48-1.05 g/dL
	Beta Globulin	0.48-1.10 g/dL
	Gamma	0.62-1.51 g/dL
	Immunoglobulin A	
		Age: Reference Interval (mg/dL) 0-2 years: 2-126 3-4 years: 14-212 5-9 years: 52-226 10-14 years: 42-345 15-18 years: 60-349 19 years and older: 68-408
	Immunoglobulin G	
		Age: Reference Interval (mg/dL) 0-2 years: 242-1108 3-4 years: 485-1160 5-9 years: 514-1672 10-14 years: 581-1652 15-18 years: 479-1433 19 years and older: 768-1632
	Immunoglobulin M	
		Age: Reference Interval (mg/dL) 0-2 years: 21-215 3-4 years: 26-155 5-9 years: 26-188 10-14 years: 47-252 15-18 years: 26-232 19 years and older: 35-263
	Total Protein, Serum	Refer to report. Reference intervals may vary based on instrumentation.
	Asialo-GM1 Antibodies, IgG/IgM	0-50 IV
	Asialo-GM1 Antibodies, IgG/IgM	

		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GM1 Antibodies, IgG/IgM	0-50 IV		
	GM1 Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GD1a Antibodies, IgG/IgM	0-50 IV		
	GD1a Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GD1b Antibodies, IgG/IgM	0-50 IV		
	GD1b Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	GQ1b Antibodies, IgG/IgM	0-50 IV		
	GQ1b Antibodies, IgG/IgM			
		29 IV or less	Negative	
		30-50 IV	Equivocal	
		51-100 IV	Positive	
		101 IV or greater	Strong Positive	
	SGPG Antibody, IgM	Less than 1.00 IV		
	MAG Antibody, IgM Elisa	Less than 1000 TU		
	Monoclonal Protein	<=0.00 g/dL		

TEST CHANGE

Benzodiazepines, Urine, Quantitative

2008291, CDCO BENZO

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 0.5 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.3 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-4 days
Note:	Compare to Pain Management, Benzodiazepines, Quantitative, w/ medMATCH, Urine (Drugs of Abuse Confirmation/Quantitation - Benzodiazepines - Urine); Pain Management, Benzodiazepines, w/Confirmation w/med MATACH, Urine (Drugs of Abuse Confirmation/Quantitation - Benzodiazepines - Urine).
CPT Codes:	80346 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

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

Positive cutoff: 20 ng/mL unless specified below:
Alprazolam : 5 ng/mL

Alpha-hydroxyalprazolam : 5 ng/mL
Clonazepam : 5 ng/mL
7-aminoclonazepam : 5 ng/mL

For medical purposes only; not valid for forensic use.

Identification of specific drug(s) taken by specimen donor is problematic due to common metabolites, some of which are prescription drugs themselves. The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~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.

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

Reference Interval:

Drugs Covered	Cutoff Concentrations
Alprazolam	5 ng/mL
Alpha-hydroxyalprazolam	5 ng/mL
Chlordiazepoxide	20 ng/mL
Clonazepam	5 ng/mL
7-aminoclonazepam	5 ng/mL
Diazepam	20 ng/mL
Lorazepam	20 ng/mL
Midazolam	20 ng/mL
Alpha-hydroxymidazolam	20 ng/mL
Nordiazepam	20 ng/mL
Oxazepam	20 ng/mL
Temazepam	20 ng/mL

TEST CHANGE

Triiodothyronine, Total and Triiodothyronine, Reverse with Ratio Calculation by Tandem Mass Spectrometry

2008406, T3RT3RATIO

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube or plain red. Also acceptable: Lavender (EDTA) or pink (K2EDTA).
Specimen Preparation:	Allow serum specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within two hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 1 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Grossly hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 3 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	84480; 84482
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

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

Reference Interval:

Test Number	Components	Reference Interval		
	Triiodothyronine, Reverse - LC-MS/MS			
		Age	ng/dL	
		0-17 years	Not Applicable	
		18 years and older	9.0-27.0	
	Triiodothyronine, Total - LC-MS/MS			
		Age	ng/dL	
		Cord Blood	14-86	
		0-3 days	96-292	
		4-30 days	62-243	
		1-23 months	81-281	
		2-6 years	83-252	
		7-11 years	92-219	
		12-19 years	83-215	
		20 years and older	80-200	
	Triiodothyronine, Ratio (T3:RT3)			
		Age	Ratio	
		0-17 years	Not Applicable	
		18 years and older	4.2-11.0	

TEST CHANGE

Amphetamines, Urine, Quantitative

2010075, AMPS UR

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 0.5 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.3 mL)
Transport Temperature:	Room temperature
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	Compare to Pain Management, MDMA/MDA, Quantitative, with medMATCH, Urine; Pain Management, Amphetamines, with Confirmation with medMATCH, Urine; Pain Management, Amphetamines, Quantitative, with medMATCH, Urine.
CPT Codes:	80325; 80359 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry.

Positive cutoff: 200 ng/mL unless specified below:
Amphetamine: 50 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~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.

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

Reference Interval:

Effective November 11, 2018

Drugs Covered	Cutoff Concentrations
Amphetamine	50 ng/mL
Methamphetamine	200 ng/mL
Methylenedioxyamphetamine (MDA)	200 ng/mL
Methylenedioxymethamphetamine (Ecstasy, MDMA)	200 ng/mL
Methylenedioxyethylamphetamine (Eve, MDEA)	200 ng/mL
Phentermine	200 ng/mL

TEST CHANGE

Buprenorphine and Metabolites, Urine, Quantitative

2010092, BUPR UR

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 2 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years (Avoid repeated freeze/thaw cycles)
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-54 days
Note:	
CPT Codes:	80348 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff:
Buprenorphine : 2 ng/mL
Norbuprenorphine : 2 ng/mL
Buprenorphine glucuronide : 5 ng/mL
Norbuprenorphine glucuronide : 5 ng/mL
Naloxone : 100 ng/mL

For medical purposes only; not valid for forensic use.

The presence of metabolite(s) without parent drug is common and may indicate use of parent drug during the prior week. Naloxone is included to detect the addition of a naloxone-containing drug

directly into the urine.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~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.

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

Reference Interval:

Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Buprenorphine	2 ng/mL
Norbuprenorphine	2 ng/mL
Buprenorphine glucuronide	5 ng/mL
Norbuprenorphine glucuronide	5 ng/mL
Naloxone	100 ng/mL

TEST CHANGE

Mycophenolic Acid and Metabolites

2010359, MPA MET

Specimen Requirements:	
Patient Preparation:	Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.
Collect:	Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).
Specimen Preparation:	Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.1 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).
Remarks:	
Stability:	After separation from cells: Ambient: 6 weeks; Refrigerated: 6 weeks; Frozen: 11 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-4~~3~~ days
Note:	
CPT Codes:	80180
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. A proposed therapeutic range is 1.0-3.5 μg/mL for a 2 g/day dose. A 3 g/day dose may have plasma concentrations up to 5.0 μg/mL. Trough concentrations between 2.0 and 4.0 μg/mL have been suggested to maximize efficacy and minimize adverse effects. Mycophenolic acid glucuronide is an inactive metabolite and a range of 35.0-100.0 μg/mL indicates normal metabolism. During the first two weeks of transplantation, mycophenolic acid glucuronide concentrations are typically 100 - 250 μg/mL. Adverse effects of toxicity include abdominal pain, peripheral edema, cardiac abnormalities, hypertension and electrolyte disturbances.

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

Reference Interval:

Available Separately	Component	Therapeutic Range	Toxic
No	Mycophenolic Acid	1.0 - 3.5 ug/mL	Greater than 25.0 ug/mL
No	Mycophenolic Acid Glucuronide	35.0-100.0 ug/mL	Not well established

TEST CHANGE

Desipramine, Serum or Plasma by Tandem Mass Spectrometry

2011487, DESIPRAMIN

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum predose (trough) draw at a steady-state concentration or plasma predose (trough) draw at a steady-state concentration in plain red, lavender (K2EDTA), lavender (K3EDTA), or pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Remarks:	
Stability:	Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Fri
Reported:	1-7~~5~~ days
Note:	
CPT Codes:	80335 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range is based on serum predose (trough) draw at steady-state concentration. Toxic concentrations may cause anticholinergic effects, drowsiness and cardiac abnormalities.

Reference Interval:

Therapeutic Range:	100-300 ng/mL
Toxic:	Greater than 500 ng/mL

TEST CHANGE

Mexiletine, Serum or Plasma

2011539, MEXILE

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K2EDTA), Lavender (K3EDTA), or Pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Whole blood. Gel Separator Tubes, Light Blue (Sodium Citrate), or Yellow (SPS or ACD Solution).
Remarks:	
Stability:	Ambient: 48 hours; Refrigerated: 5 days; Frozen: 2 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Thu, Sat
Reported:	1-8~~5~~ days
Note:	
CPT Codes:	80299
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Toxic concentrations may cause hypotension, tremor and cardiac abnormalities.

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

Reference Interval:

Effective November 12, 2018

Therapeutic Range	0.5-2.0 ug/mL
Toxic Level	Greater than 2.0 ug/mL

TEST CHANGE

Pregabalin, Serum or Plasma

2011609, PREGABALIN

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Pre-dose (Trough) Draw - At a Steady State Concentration or Plasma Pre-dose (Trough) Draw - At a Steady State Concentration in Plain Red, Lavender (K2EDTA), Lavender (K3EDTA), or Pink (K2EDTA).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Citrated Plasma.
Remarks:	
Stability:	Ambient: 1 month; Refrigerated: 1 month; Frozen: 2 months
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Wed, Sat
Reported:	1-8~~6~~ days
Note:	
CPT Codes:	80366 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Therapeutic and toxic ranges are not well established. Proposed Dose-Related Range: 2 - 10 ug/mL. Adverse effects may include peripheral edema, allergic reactions, dizziness and somnolence.

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

Reference Interval:

Therapeutic Range	Not well established
Toxic	Not well established

TEST CHANGE

Barbiturates, Urine, Quantitative

2012213, BARB UR

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 3.5 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1.5 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years
Methodology:	~~Quantitative Gas Chromatography-Mass Spectrometry/~~Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Tue, Thu, Sat
Reported:	1-4 days
Note:	Compare to; Pain Management, Barbiturates, Quantitative, with medMATCH, Urine; Pain Management, Barbiturates, with Confirmation with medMATCH, Urine.
CPT Codes:	80345 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Gas Chromatography-Mass Spectrometry/Quantitative Liquid Chromatography-Tandem Mass Spectrometry.

Positive cutoff: 50 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance~~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.

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Reference Interval:

Drugs Covered	Cutoff Concentrations
Butalbital	50 ng/mL
Pentobarbital	50 ng/mL
Phenobarbital	50 ng/mL

TEST CHANGE

Gabapentin, Urine

2012227, GABAP U

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 1 mL urine to an ARUP Standard Transport Tube. (Min: 0.6 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 1 month; Refrigerated: 1 month; Frozen: 1 month
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Mon, Wed, Sat
Reported:	1-7~~6~~ days
Note:	
CPT Codes:	80355 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Positive cutoff: 5.0 µg/mL

For medical purposes only; not valid for forensic use.

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

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

Reference Interval:

By report

TEST CHANGE

Pregabalin, Urine

2012229, PREGABA U

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 1 mL urine to an ARUP Standard Transport Tube. (Min: 0.6 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: 1 month; Refrigerated: 1 month; Frozen: 1 month
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Wed, Sat
Reported:	1-7~~6~~ days
Note:	
CPT Codes:	80366 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Positive cutoff: 5.0 µg/mL

For medical purposes only; not valid for forensic use.

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

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Reference Interval:

By report

TEST CHANGE

Zolpidem, Urine, Quantitative

2012319, ZOLPID UR

Specimen Requirements:	
Patient Preparation:	
Collect:	Random urine.
Specimen Preparation:	Transfer 0.5 mL urine with no additives or preservatives to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.3 mL)
Transport Temperature:	Room temperature.
Unacceptable Conditions:	Specimens exposed to repeated freeze/thaw cycles.
Remarks:	
Stability:	Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years
Methodology:	Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Performed:	Sun-Sat
Reported:	1-5~~4~~ days
Note:	
CPT Codes:	80368 (Alt code: G0480)
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Drugs covered: zolpidem.
Positive cutoff: 20 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug may indicate noncompliance~~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.

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

Reference Interval:

TEST CHANGE

Clozapine and Metabolites, Serum or Plasma, Quantitative

2013433, CLOZAP SP

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

Interpretive Data:

Therapeutic ranges are not well established. Clozapine is metabolized to norclozapine and clozapine-N-oxide. Clozapine concentrations between 100 and 700 ng/mL may correlate more with clinical response; however, nonresponsiveness may also occur within this range. For refractory schizophrenia, clozapine concentrations greater than 350 ng/mL are suggested to achieve a therapeutic response.

Toxicity: Adverse effects to clozapine therapy may include tachycardia, drowsiness, hypotension, and seizures.

Therapeutic and toxic ranges are not well established in children.

Reference Interval:

Therapeutic Range	Not well established
Toxic Level	Total Clozapine and Metabolites: Greater than or equal to 1500 ng/mL

TEST CHANGE

Genetic Carrier Screen, (CF, FXS, and SMA) with Reflex to Methylation

3000258, CF FX SMA

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender (K2EDTA). Also acceptable: Pink (K2EDTA).
Specimen Preparation:	Transport 5 mL whole blood. (Min: 3 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma or serum. Specimens collected in sodium heparin, yellow (ACD solution A), or lithium heparin tubes. Frozen specimens in glass collection tubes.
Remarks:	
Stability:	Ambient: 72 hours~~1 week~~; Refrigerated: 1 week~~month~~; Frozen: unacceptable~~1 month~~
Methodology:	Matrix-Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Mass Spectrometry/Polymerase Chain Reaction (PCR)/~~/~~Capillary Electrophoresis/Multiplex Ligation-Dependent Probe Amplification (MLPA)
Performed:	Sun-Sat
Reported:	4-14 days
Note:	Cystic Fibrosis (CF): The Cystic Fibrosis (CFTR) Expanded Variant Panel includes the 23 pathogenic CF variants recommended by the American College of Medical Genetics for population carrier screening as well as many others. Fragile X: If a CGG repeat of 100 or greater is detected by PCR and capillary electrophoresis~~Capillary Electrophoresis~~; methylation analysis will be added. Additional charges apply.
CPT Codes:	81220; 81329; 81243; if reflexed, add 81244
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

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

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was~~

performed in a CLIA certified laboratory and is intended for clinical purposes.

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

Reference Interval:

By report

TEST CHANGE

Monoclonal Protein Study, Serum

3002568, IFE SPEP

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Separator Tube (SST).
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma.
Remarks:	
Stability:	After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month
Methodology:	Qualitative Immunofixation Electrophoresis/Quantitative Capillary Electrophoresis/Colorimetry
Performed:	Sun-Sat
Reported:	1-5 days
Note:	A copy of the graph will follow the final report.
CPT Codes:	84155; 84165; 86334
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Reference Interval:

Test Number	Components	Reference Interval
	Albumin	3.75-5.01 g/dL
	Alpha 1 Globulin	0.19-0.46 g/dL
	Alpha 2 Globulin	0.48-1.05 g/dL
	Beta Globulin	0.48-1.10 g/dL
	Gamma	0.62-1.51 g/dL
	Total Protein, Serum	Refer to report. Reference intervals may vary

		based on instrumentation.
	Monoclonal Protein	<=0.00 g/dL

TEST CHANGE

Chromogranin A, Serum

3002867, CGA

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube or plain red.
Specimen Preparation:	Allow serum specimen to clot completely at room temperature. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Transport Temperature:	Frozen.
Unacceptable Conditions:	Plasma.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 3 days; Frozen: 3 months~~4 weeks~~
Methodology:	Immunofluorescence
Performed:	Sun, Mon, Wed, Fri
Reported:	1-5 days
Note:	
CPT Codes:	86316
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test is performed using the BRAHMS CGA II Kryptor kit. Results obtained with different methods or kits cannot be used interchangeably. Results cannot be interpreted as absolute evidence of the presence or absence of malignant disease and should be evaluated in combination with clinical symptoms, diagnostic evidence, and/or other laboratory parameters.

The change ofCgA concentration over time provides diagnostic information whether a tumor progression has occurred.

An increase of CgA serum concentrations of more than 50% to avalue of greater than 100 ng/ml between consecutive monitoring visits defines a positive test result, representing a higher probability that a tumor progression has occurred.

A change of CgA serum concentrations of equal or less than 50% increase between monitoring visits or to a value of 100 ng/ml or less defines a negative test result, representing a lower

probability that a tumor progression has occurred.

Nontumor ~~.~~

~~Nontumor-~~related elevations of Chromogranin A can be observed in gastrointestinal, cardiovascular, and renal disorders, cancers other than neuroendocrine tumors, as well as with proton pump inhibitor (PPI) therapy. It is recommended to stop PPI treatment for at least 14 days prior to testing. ~~two weeks prior to testing. Moderate H2-receptor antagonist therapy does not lead to significant elevations of Chromogranin A.~~

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

Reference Interval:

0-187~~103~~ ng/mL

TEST CHANGE

Paraneoplastic Reflexive Panel

3002929, PNS PAN2

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum Separator Tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer 3 mL serum aliquot to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1.0 mL)
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Contaminated, heat-inactivated, hemolyzed, or lipemic specimens
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Qualitative Immunoblot
Performed:	Wed
Reported:	1-9 days
Note:	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, Yo, Tr/DNER) 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, Yo, Tr/DNER) IgG by Immunoblot will be added. Additional charges apply. If CV2~~.1~~ Antibody IgG Screen by IFA is positive, then CV2~~.1~~ Antibody IgG Titer by IFA will be added. Additional charges apply.
CPT Codes:	86255 x2; 84182 x2; if reflexed add 86256 and/or 84182 x4; if reflexed add 86256
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	Neuronal Antibody (Amphiphysin)	Negative
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:100
	SOX1 Antibody, IgG by Immunoblot, Serum	Negative

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

TEST CHANGE

Paraneoplastic Reflexive Panel, CSF

3004517, PNSPAN CSF

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF.
Specimen Preparation:	Transfer 2 mL CSF to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 1 mL).
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Contaminated, heat-inactivated, hemolyzed, or lipemic specimens
Remarks:	
Stability:	Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Semi-Quantitative Indirect Fluorescent Antibody (IFA)/~~/~~Qualitative Immunoblot/Semi-Quantitative Cell-Based Indirect Fluorescent Antibody
Performed:	Wed
Reported:	1-9 days
Note:	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, Yo, Tr/DNER) IgG by Immunoblot will be added. If the IFA screen is positive at 1:1 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be added. Additional charges apply. If CV2~~.1~~ Antibody IgG Screen by IFA is positive, then CV2~~.1~~ Antibody IgG Titer by IFA will be added. Additional charges apply.
CPT Codes:	86255 x2; 84182 x2; if reflexed add 86256 and/or 84182 x4; if reflexed add 86256
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

Refer to report ~~Refer to report~~

~~This test was developed and its performance characteristics determined by ARUP Laboratories. It~~

~~has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.~~

Reference Interval:

Test Number	Components	Reference Interval
	Paraneoplastic Abs (PCCA/ANNA) IgG, CSF	None Detected
	CV2~~.1~~ Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	SOX1 Antibody, IgG by Immunoblot, CSF	Negative
	Amphiphysin Antibody, CSF	Negative

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

TEST CHANGE

Legionella pneumophila Antibodies (Types 1-6), IgG, IgM, and IgA by ELISA

3005200, LEGION AB

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube (SST) or plain red.
Specimen Preparation:	Transfer 1 mL serum to an ARUP standard transport tube.~~Standard Transport Tube.~~ (Min: 0.3 mL)
Transport Temperature:	Preferred transport temp: Refrigerated. Also acceptable: Frozen
Unacceptable Conditions:	Contaminated, heat-inactivated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Mon~~,~~ -Fri
Reported:	1-64 days
Note:	
CPT Codes:	86713
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Component	Interpretation
L. pneumophila (Types 1-6), Antibodies	{<=}0.90 IV Negative: No significant amount of IgG/IgM/IgA antibodies to L. pneumophila detected. 0.91 to 1.09 IV Equivocal: Recommend repeat testing in 1-3 weeks with fresh sample. {>=}1.10 IV Positive:

	IgG/IgM/IgA antibodies specific to L. pneumophila suggesting current or prior infection. A positive result cannot distinguish between previous or active infection, therefore this result alone cannot be used to establish a diagnosis.	

Reference Interval:

Test Number	Components	Reference Interval
	L. pneumophila (Types 1-6), Antibodies	0.90 IV or less
	L. pneumophila (Types 1-6), Antibodies	

TEST CHANGE

Diagnostic Qualitative BCR-ABL1 Assay with Reflex to p190 or p210 Quantitative Assays

3005839, DX BCR RFX

Specimen Requirements:	
Patient Preparation:	
Collect:	Whole blood or bone marrow in lavender (EDTA).
Specimen Preparation:	Whole blood: Transport 5 mL whole blood. (Min: 3 mL) Bone marrow: Transport 3 mL bone marrow. (Min: 1 mL) Refrigerate immediately. Specimens must be received within 48 hours of collection due to lability of RNA.
Transport Temperature:	Whole blood and bone marrow: CRITICAL REFRIGERATED. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Serum, plasma, extracted DNA, CSF, FFPE tissue, ambient whole blood, or frozen whole blood or bone marrow. Specimens collected in anticoagulants other than EDTA. Severely hemolyzed or clotted specimens. Ambient bone marrow specimens past 7 days will be canceled. Refrigerated whole blood or bone marrow specimens past 7 days will be canceled.
Remarks:	This qualitative ~~test is intended as a~~ screening test is appropriate~~only~~ for initial diagnosis of chronic myeloid leukemia (CML) or acute lymphoblastic leukemia/lymphoma (ALL). ~~.~~ For ~~those~~ patients with a known history of p210 or p190 fusion transcripts, refer to~~an established diagnosis, please order~~ Quantitative Detection of BCR-ABL1, Major Form (p210) (~~ARUP test code~~ 3005840) or Quantitative Detection of BCR-ABL1, Minor Form (p190) (3016968~~Quantitative (ARUP test code 2005016~~).
Stability:	Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable
Methodology:	Reverse Transcription Polymerase Chain Reaction
Performed:	Varies
Reported:	4-10 days
Note:	This reflex assay is recommended when the BCR-ABL1 fusion form is not known or unclear. This reflex assay detects the

	presence of either the p210 (major breakpoint), p190 (minor breakpoint), or p230 (micro breakpoint). If the presence of either the common p210 or p190 BCR-ABL1 fusion is detected, then the appropriate quantitative test will be performed. Additional charges apply. If the fusion form is known, refer to Quantitative Detection of BCR-ABL1, Major Form (p210) (ARUP test code 3005840) or Quantitative Detection of BCR-ABL1, Minor Form (p190) (ARUP test code 3016968~~Quantitative (2005016~~).
CPT Codes:	81206; 81207; 81208; If reflexed, add 81206 or 81207
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data: Refer to report.	
Reference Interval:	

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

TEST CHANGE

Rapid Whole Genome Sequencing, Familial Control

3005928, RWGS FAM

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender or pink (EDTA) ~~or yellow (ACD solution A or B~~). Peripheral blood required. Contact ARUP's genetic counselor at 800-242-2787 ext. 2141 prior to test submission.
Specimen Preparation:	Transport 2 mL whole blood. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	This test is used for parental control samples associated with a proband sample submitted for Rapid Whole Genome Sequencing (ARUP test code 3005935). ~~RWGS NGS.~~ A report will NOT be provided for samples ordered using this test code. If a report for parental control sample is desired, order Rapid Whole Genome Sequencing, Familial Control with Report (ARUP test code 3005933). ~~RWGS FRPT (3005933).~~
Stability:	Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Massively Parallel Sequencing
Performed:	Varies
Reported:	5-7 days
Note:	Parental samples are used to aid in interpretation of the proband's genome sequencing data. This test is ordered when a report of the American College of Medical Genetics and Genomics (ACMG) secondary findings is not desired for submitted parental controls.
CPT Codes:	NA
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data:	
Refer to report.	

Reference Interval:

By report

TEST CHANGE

Rapid Whole Genome Sequencing, Familial Control with Report

3005933, RWGS FRPT

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender or pink (EDTA~~) or yellow (ACD solution A or B~~). Peripheral blood required. Contact ARUP's genetic counselor at 800-242-2787 ext. 2141 prior to test submission.
Specimen Preparation:	Transport 2 mL whole blood. (Min: 0.5 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	
Remarks:	This test is used for parental control samples associated with a proband sample submitted for Rapid Whole Genome Sequencing (ARUP test code 3005935).~~RWGS NGS.~~ A report will be provided for samples ordered using this test code. If a report for parental control sample is not desired, order Rapid Whole Genome Sequencing, Familial Control (ARUP test code 3005928). ~~RWGS FAM (3005928).~~
Stability:	Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Massively Parallel Sequencing
Performed:	Varies
Reported:	5-7 days
Note:	Parental samples are used to aid in interpretation of the proband's genome sequencing data. This test is ordered when a report of the American College of Medical Genetics and Genomics (ACMG)~~ACMG~~ secondary findings is desired for submitted parental controls. For each parental specimen, please indicate on the intake form that the sample is control and reference the patient's name.
CPT Codes:	NA
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data:	

Refer to report.

Reference Interval:

By report

TEST CHANGE

Rapid Whole Genome Sequencing

3005935, RWGS NGS

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender or pink (EDTA) ~~or yellow (ACD solution A or B~~). Peripheral blood required. Contact ARUP's genetic counselor at 800-242-2787 ext. 2141 prior to test submission. Refer to Rapid Whole Genome Sequencing, Familial Control (ARUP test code ~~RWGS FAM (~~3005928) or Rapid Whole Genome Sequencing, Familial Control with Report (ARUP test code ~~RWGS FRPT (~~3005933) for parental specimen requirements. Rapid Whole Genome Sequencing ~~RWGS NGS~~ requires two parental controls ordered using either of the test codes above. Testing will not be approved if 3 specimens (proband, 2 parental controls) are not received with associated orders. New York State Clients: ARUP cannot facilitate testing for New York patients. Please work directly with a New York-approved laboratory.
Specimen Preparation:	Transport 2 mL whole blood. (Min: 0.5 mL) Refer to Rapid Whole Genome Sequencing, Familial Control (ARUP test code ~~RWGS FAM (~~3005928) or Rapid Whole Genome Sequencing, Familial Control with Report (ARUP test code ~~RWGS FRPT (~~3005933) for parental specimen requirements.
Transport Temperature:	Refrigerated. Refer to Rapid Whole Genome Sequencing, Familial Control (ARUP test code ~~RWGS FAM (~~3005928) or Rapid Whole Genome Sequencing, Familial Control with Report (ARUP test code ~~RWGS FRPT (~~3005933) for parental specimen requirements.
Unacceptable Conditions:	
Remarks:	Testing will not be approved if 3 total specimens (proband, 2 parental controls) are not received with associated orders.
Stability:	Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Massively Parallel Sequencing
Performed:	Varies
Reported:	5-7 days
Note:	This test is not orderable on proband only. Familial (parental)

	controls are required for analysis. The ability to identify causative variant(s) for the patient's presentation is strongly influenced by the quality of the clinical information required.
CPT Codes:	81425; per familial comparator, 81426 is added
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data: Refer to report.	
Reference Interval: By report	

TEST CHANGE

Autoimmune Neurologic Disease Panel with Reflex, Serum

3006051, NEURO R4

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer four 1 mL serum aliquots to ARUP standard transport tubes. (Min: 2.8 mL)
Transport Temperature:	Frozen
Unacceptable Conditions:	Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, grossly hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month (Three freeze/thaw cycles are acceptable)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Qualitative Immunoblot/Quantitative Radioimmunoassay (RIA)/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Tue
Reported:	3-10 days
Note:	If N-methyl-D-Aspartate Receptor Antibody is positive, then titer will be performed. Additional charges apply. If CV2.1 Antibody IgG Screen by IFA is positive, then titer will be performed, and Acetylcholine Receptor Binding Antibody will be added. Additional charges apply. If AQP4 antibody IgG is positive, then titer will be added. Additional charges apply. If PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 antibody IgG is

	positive, then titer will be added. Additional charges apply. If AMPAR antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-BR antibody IgG is positive, then titer will be added. Additional charges apply. If MOG antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX antibody IgG is positive, then titer will be added. Additional charges apply. If ITPR1 antibody IgG is positive, then titer will be added. Additional charges apply. If IgLON5 antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-AR antibody IgG is positive, then titer will be added. Additional charges apply. If mGLUR1 antibody IgG is positive, then titer will be added. Additional charges apply.
CPT Codes:	83519 x2; 84182 x2; 86255 x12; 86341; 86052; 86362; 86596; if reflexed, add 83519; 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Refer to Report

Component	Interpretation
Voltage-Gated Potassium Channel (VGKC) Antibody, Serum	31 pmol/L or less: Negative 32-87 pmol/L: Indeterminate 88 pmol/L or greater: Positive
P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody	0.0 to 24.5 pmol/L: Negative 24.6 to 45.6 pmol/L: Indeterminate 45.7 pmol/L or greater: Positive
Ganglionic Acetylcholine Receptor Antibody	0.0 to 8.4 pmol/L: Negative 8.5 to 11.6 pmol/L: Indeterminate 11.7 pmol/L or greater: Positive

Reference Interval:

Test Number	Components	Reference Interval
	Neuronal Antibody (Amphiphysin)	Negative
	P/Q-Type Calcium Channel Antibody	24.5 pmol/L or less
	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL
	NMDA Receptor Ab IgG CBA-IFA, Serum	Less than 1:10
	Voltage-Gated Potassium Channel Ab, Ser	31 pmol/L or less
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	CASPR2 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	LGI1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	NMO/AQP4 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:100
	AMPA Receptor Ab IgG CBA-IFA Scrn, Serum	Less than 1:10
	GABA-BR Ab IgG CBA-IFA Scrn, Ser	Less than 1:10
	MOG Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	SOX1 Antibody, IgG by Immunoblot, Serum	Negative
	Ganglionic Acetylcholine Receptor Ab	8.4 pmol/L or less
	DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	ITPR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	IgLON5 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	GABA-AR Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	mGluR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

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

TEST CHANGE

Autoimmune Neurologic Disease Panel With Reflex, CSF

3006052, NEURORCSF2

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF
Specimen Preparation:	Transfer four 1 mL CSF aliquots to ARUP standard transport tubes. (Min: 2.8 mL)
Transport Temperature:	Frozen
Unacceptable Conditions:	Fluid other than CSF. Grossly hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month (Three freeze/thaw cycles are acceptable)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Qualitative Immunoblot/Quantitative Radioimmunoassay (RIA)/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Tue
Reported:	3-10 days
Note:	If NMDA CSF antibody IgG is positive, then titer will be added. Additional charges apply. If AMPA CSF antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-BR CSF antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 CSF antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA CSF antibodies are screened by IFA. If the IFA screen is indeterminate, then the Immunoblot will be added. If the IFA screen is positive at 1:1, then a specific titer (PCCA or ANNA) and Immunoblot will be added. Additional charges apply. If LGI1 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If CV2~~.1~~ CSF antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX CSF antibody IgG is positive, then titer will be added. Additional charges apply. If ITPR1 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If IgLON5 CSF antibody IgG is positive, then titer will be added.

	Additional charges apply. If GABA-AR CSF antibody IgG is positive, then titer will be added. Additional charges apply. If mGLUR1 antibody IgG is positive, then titer will be added. Additional charges apply.
CPT Codes:	86255 x12; 83519; 86341; 84182 x2; if reflexed, add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Refer to Report

Component	Interpretive Data
Voltage-Gated Potassium Channel Ab, CSF	0.0-1.1 pmol/L: Negative 1.2 pmol/L or greater: Positive

Reference Interval:

Test Number	Components	Reference Interval
	NMDA Receptor Ab IgG CBA-IFA, CSF	Less than 1:1
	Paraneoplastic Abs (PCCA/ANNA) IgG, CSF	None Detected
	AMPA Receptor Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	GABA-BR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	CASPR2 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Voltage-Gated Potassium Channel Ab, CSF	0.0-1.1 pmol/L
	LGI1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	CV2.1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Glutamic Acid Decarboxylase Antibody CSF	0.0-5.0 IU/mL
	SOX1 Antibody, IgG by Immunoblot, CSF	Negative
	Amphiphysin Antibody, CSF	Negative
	DPPX Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	ITPR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	IgLON5 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	GABA-AR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	mGluR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1

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

TEST CHANGE

Autoimmune Encephalopathy/Dementia Panel, Serum

3006201, AIENCDEMS

Specimen Requirements:	
Patient Preparation:	N/A
Collect:	Serum sparator tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If NMDA antibody IgG is positive, then titer will be performed. Additional charges apply. If CV2~~.1~~ antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 antibody IgG is positive, then titer will be added. Additional charges apply. If AMPA antibody IgG is positive, then titer will be added.

	Additional charges apply. If GABA-BR antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If IgLON5 antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 84182 x2; 86255 x10; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:1000
	Neuronal Antibody (Amphiphysin)	Negative
	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	NMDA Receptor Ab IgG CBA-IFA, Serum	Less than 1:10
	SOX1 Antibody, IgG by Immunoblot, Serum	Negative
	AMPA Receptor Ab IgG CBA-IFA Scrn, Serum	Less than 1:10
	GABA-BR Ab IgG CBA-IFA Scrn, Ser	Less than 1:10
	DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	IgLON5 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	mGluR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	CASPR2 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	LGI1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

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

TEST CHANGE

Autoimmune Encephalopathy/Dementia Panel, CSF

3006202, AIENCDEMC

Specimen Requirements:	
Patient Preparation:	N/A
Collect:	CSF
Specimen Preparation:	Transfer three 1 mL CSF aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Fluid other than CSF. Grossly hemolyzed specimens
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If NMDA CSF antibody IgG is positive, then titer will be added. Additional charges apply. If AMPA CSF antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-BR CSF antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 CSF antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA CSF antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If CV2~~.1~~ CSF antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX CSF antibody IgG by IFA is positive,

	then titer will be added. Additional charges apply. If IgLON5 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 84182 x2; 86255 x10; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data: Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	mGluR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Glutamic Acid Decarboxylase Antibody CSF	0.0-5.0 IU/mL
	LGI1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	NMDA Receptor Ab IgG CBA-IFA, CSF	Less than 1:1
	CASPR2 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	AMPA Receptor Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	GABA-BR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	CV2.1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	DPPX Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	IgLON5 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	SOX1 Antibody, IgG by Immunoblot, CSF	Negative
	Amphiphysin Antibody, CSF	Negative
	Paraneoplastic Abs (PCCA/ANNA) IgG, CSF	None Detected

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

TEST CHANGE

Autoimmune Dysautonomia Panel, Serum

3006203, AIDYS

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 14 days; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Radioimmunoassay (RIA)/Qualitative Immunoblot
Performed:	Varies
Reported:	3-10 days
Note:	PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu) IgG by Immunoblot will be performed. Additional charges apply. If CASPR2 antibody IgG is positive, then titer will be added. Additional charges apply. If LGI1 antibody IgG is positive, then titer will be added. Additional charges apply. If CV2~~.1~~ antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	83519; 86255 x5; if reflexed add 84182; 86256 per titer

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

Interpretive Data:

Refer to report

Component	Interpretation
Ganglionic Acetylcholine Receptor Antibody	0.0 - 8.4 pmol/L Negative 8.5 - 11.6 pmol/L Indeterminate 11.7 pmol/L or greater Positive

Reference Interval:

Test Number	Components	Reference Interval
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:100
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	Ganglionic Acetylcholine Receptor Ab	8.4 pmol/L or less
	DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	CASPR2 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	LGI1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

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

TEST CHANGE

Autoimmune Epilepsy Panel, Serum

3006204, AIEPS

Specimen Requirements:	
Patient Preparation:	N/A
Collect:	Serum separator tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If NMDA antibody IgG is positive, then titer will be performed. Additional charges apply. If CV2~~.1~~ antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 antibody IgG is positive, then titer will be added. Additional charges apply. If AMPA antibody IgG is positive, then titer will be added.

	Additional charges apply. If GABA-BR antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If GABA-AR antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 84182 x2; 86255 x10; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data: Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:1000
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	Neuronal Antibody (Amphiphysin)	Negative
	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL
	NMDA Receptor Ab IgG CBA-IFA, Serum	Less than 1:10
	SOX1 Antibody, IgG by Immunoblot, Serum	Negative
	AMPA Receptor Ab IgG CBA-IFA Scrn, Serum	Less than 1:10
	GABA-BR Ab IgG CBA-IFA Scrn, Ser	Less than 1:10
	DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	GABA-AR Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	mGluR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	CASPR2 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	LGI1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

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

TEST CHANGE

Autoimmune Epilepsy Panel, CSF

3006205, AIEPC

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF
Specimen Preparation:	Transfer three 1 mL CSF aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Fluid other than CSF. Grossly hemolyzed specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If NMDA CSF antibody IgG is positive, then titer will be performed. Additional charges apply. If CV2~~.1~~ CSF antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA CSF antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If AMPA CSF antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-BR CSF antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If

	GABA-AR CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 84182 x2; 86255 x10; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	mGluR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Glutamic Acid Decarboxylase Antibody CSF	0.0-5.0 IU/mL
	LGI1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	NMDA Receptor Ab IgG CBA-IFA, CSF	Less than 1:1
	CASPR2 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	AMPA Receptor Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	GABA-BR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	CV2.1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	DPPX Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	SOX1 Antibody, IgG by Immunoblot, CSF	Negative
	Amphiphysin Antibody, CSF	Negative
	GABA-AR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Paraneoplastic Abs (PCCA/ANNA) IgG, CSF	None Detected

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

TEST CHANGE

Autoimmune Movement Disorder Panel, Serum

3006206, AIMDS

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)/Quantitative Radioimmunoassay (RIA)
Performed:	Varies
Reported:	3-10 days
Note:	If NMDA antibody IgG is positive, then titer will be performed. Additional charges apply. If CV2~~.1~~ antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX antibody IgG by IFA is positive, then titer will be added.

	Additional charges apply. If AMPA antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-BR antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-AR antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If ITPR1 antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If IgLON5 antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 86596; 84182 x2; 86255 x12; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Refer to report.

Component	Interpretation
P/Q-Type Voltage-Gated Calcium Channel (VGCC) Antibody	0.0-24.5 pmol/L Negative 24.6-45.6 pmol/L Indeterminate 45.7 pmol/L or greater Positive

Reference Interval:

Test Number	Components	Reference Interval
	CV2.1 Ab IgG CBA-IFA Screen, Serum	Less than 1:100
	Neuronal Antibody (Amphiphysin)	Negative
	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	NMDA Receptor Ab IgG CBA-IFA, Serum	Less than 1:10
	P/Q-Type Calcium Channel Antibody	24.5 pmol/L or less
	SOX1 Antibody, IgG by Immunoblot, Serum	Negative
	AMPA Receptor Ab IgG CBA-IFA Scrn, Serum	Less than 1:10
	GABA-BR Ab IgG CBA-IFA Scrn, Ser	Less than 1:10
	DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	GABA-AR Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	IgLON5 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	mGluR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	ITPR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	CASPR2 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

	LGI1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

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

TEST CHANGE

Autoimmune Movement Disorder Panel, CSF

3006207, AIMDC

Specimen Requirements:	
Patient Preparation:	N/A
Collect:	CSF
Specimen Preparation:	Transfer three 1 mL CSF aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Fluid other than CSF. Grossly hemolyzed specimens
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If NMDA CSF antibody IgG is positive, then titer will be performed. Additional charges apply. If CV2~~.1~~ CSF antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA CSF antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If LGI1 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If CASPR2 CSF antibody IgG is positive, then titer will be added. Additional charges apply. If DPPX CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If AMPA CSF antibody IgG is positive, then titer will be added. Additional charges apply. If GABA-BR CSF antibody

	IgG is positive, then titer will be added. Additional charges apply. If GABA-AR CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If ITPR1 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If IgLON5 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 84182 x2; 86255 x12; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	mGluR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Glutamic Acid Decarboxylase Antibody CSF	0.0-5.0 IU/mL
	LGI1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	NMDA Receptor Ab IgG CBA-IFA, CSF	Less than 1:1
	CASPR2 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	AMPA Receptor Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	GABA-BR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	CV2.1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	DPPX Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	IgLON5 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	SOX1 Antibody, IgG by Immunoblot, CSF	Negative
	Amphiphysin Antibody, CSF	Negative
	GABA-AR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	ITPR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Paraneoplastic Abs (PCCA/ANNA) IgG, CSF	None Detected

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

TEST CHANGE

Autoimmune Myelopathy Panel, Serum

3006208, AIMYS

Specimen Requirements:	
Patient Preparation:	N/A
Collect:	Serum separator tube (SST)
Specimen Preparation:	Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month~~30 days~~ (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If CV2~~.1~~ antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If DPPX antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If AQP4/NMO antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If MOG antibody IgG by IFA is

	positive, then titer will be added. Additional charges apply. If GABA-BR antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 86362; 86052; 84182 x2; 86255 x5; if reflexed add 84182 x4; 86256 per titer
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	
Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:100
	Neuronal Antibody (Amphiphysin)	Negative
	Glutamic Acid Decarboxylase Antibody	0.0-5.0 IU/mL
	Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
	SOX1 Antibody, IgG by Immunoblot, Serum	Negative
	NMO/AQP4 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	GABA-BR Ab IgG CBA-IFA Scrn, Ser	Less than 1:10
	MOG Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
	mGluR1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

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

TEST CHANGE

Autoimmune Myelopathy Panel, CSF

3006209, AIMYC

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF
Specimen Preparation:	Transfer three 1 mL CSF aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)
Transport Temperature:	Frozen
Unacceptable Conditions:	Fluid other than CSF. Grossly hemolyzed specimens
Remarks:	
Stability:	After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles)
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Immunoblot/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Varies
Reported:	3-10 days
Note:	If CV2 CSF antibody IgG is positive, then titer will be added. Additional charges apply. PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, Tr/DNER) IgG by Immunoblot will be performed. Additional charges apply. If DPPX CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If GABA-BR CSF antibody IgG is positive, then titer will be added. Additional charges apply. If AQP4/NMO CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply. If mGluR1 CSF antibody IgG by IFA is positive, then titer will be added. Additional charges apply.
CPT Codes:	86341; 86052; 84182 x2; 86255 x5; if reflexed add 84182 x4; 86256 per titer

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

Interpretive Data:

Refer to report

Reference Interval:

Test Number	Components	Reference Interval
	mGluR1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	Glutamic Acid Decarboxylase Antibody CSF	0.0-5.0 IU/mL
	NMO/AQP4 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	GABA-BR Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	CV2.1 Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	DPPX Ab IgG CBA-IFA Screen, CSF	Less than 1:1
	SOX1 Antibody, IgG by Immunoblot, CSF	Negative
	Amphiphysin Antibody, CSF	Negative
	Paraneoplastic Abs (PCCA/ANNA) IgG, CSF	None Detected

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

TEST CHANGE

Prolonged Clot Time Reflexive Profile

3006383, CLOT RFLX

Specimen Requirements:	
Patient Preparation:	N/A
Collect:	At least five light blue (sodium citrate) tubes. Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.
Specimen Preparation:	Transfer five 1 mL aliquots of platelet-poor plasma to five ARUP standard transport tubes and label as sodium citrate. (Min: 1 mL/aliquot and 5 mL total)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when additional tests codes are ordered.
Unacceptable Conditions:	Anything other than sodium citrated plasma. Specimens containing anticoagulant medications. Clotted or hemolyzed specimens.
Remarks:	Submit the Patient History form for the Prolonged Clot Time Reflexive Profile.
Stability:	Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen at -20C: 2~~202~~ weeks~~; Frozen at -706 months~~
Methodology:	Electromagnetic Mechanical Clot Detection/Immunoturbidimetry/Microlatex Particle-Mediated Immunoassay/Platelet Agglutination/Chromogenic Assay
Performed:	Sun-Sat
Reported:	2-10 days
Note:	Submission of a completed Patient History form with test order will allow for optimal panel interpretation. The Patient History form for the Prolonged Clot Time Reflexive Profile is available on the ARUP web site or by contacting ARUP Client Services at 800-522-2787. Initial testing will include D-Dimer (0030057), Fibrinogen (0030130), and Lupus Anticoagulant Reflex~~ive~~ Panel (3017009~~0030181~~). Depending on these initial findings, a pathologist will order one or more reflexive tests to provide a comprehensive interpretation. Additional testing may include Factor II, Activity (Prothrombin) (0030007); Factor V, Activity (0030075); Factor VII Activity (0030080), Factor VIII Activity

	(0030095), Chromogenic Factor VIII, Activity (3002343); Factor VIII Activity with Reflex to Bethesda Quantitative, Factor VIII (0030026); Factor IX, Activity (0030100); Factor IX Activity with Reflex to Bethesda Quantitative, Factor IX (0030032); Factor X, Activity (0030105); Factor XI, Activity (0030110); Factor XII, Activity (0030115); von Willebrand Factor Activity (Ristocetin Cofactor) (0030250); von Willebrand Factor Antigen (0030285); Fibrinogen Antigen (0030135); Inhibitor Assay, PT with Reflex to PT 1:1 Mix (2003260); and Inhibitor Assay, PTT with Reflex to PTT 1:1 Mix, with Reflex to 1-Hour Incubation (2003266). Additional charges apply.
CPT Codes:	85390-26; additional CPT codes may apply: 85210; 85220; 85230; 85240; 85245; 85246; 85250; 85260; 85270; 85280; 85335; 85379; 85384; 85385; 85520; 85525; ~~85597;~~ 85598; 85610; 85611; 85613; ~~85635;~~ 85670; 85730.; ~~85732~~
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data: Refer to report.	
Reference Interval: Refer to individual components.	

TEST CHANGE

Whole Genome Sequencing

3016493, WGS NGS

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender (EDTA) or pink (EDTA~~) or yellow (ACD solution A or B~~). Peripheral blood required. Contact ARUP's genetic counselor at 800-242-2787 ext. 2141 prior to test submission. Refer to Whole Genome Sequencing, Familial Control (ARUP test code 3016497) for parental specimen requirements. Two parental controls are recommended for optimal whole genome analysis. New York State Clients: ARUP cannot facilitate testing for New York patients. Please work directly with a New York-approved laboratory.
Specimen Preparation:	Transport 2 mL whole blood. (Min: 1.0 mL) Refer to Whole Genome Sequencing, Familial Control (ARUP test code 3016497) for parental specimen requirements.
Transport Temperature:	Refrigerated. Refer to Whole Genome Sequencing, Familial Control (ARUP test code 3016497) for parental specimen requirements.
Unacceptable Conditions:	
Remarks:	When ARUP is requested to initiate preauthorization, DNA extraction will be performed on the proband and comparator samples to ensure sample stability (DNA Extract and Hold, ARUP test code 3005714, will be added to each sample by ARUP, additional charges apply). The cost of DNA extraction is credited when genome sequencing is performed.
Stability:	Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Massively Parallel Sequencing
Performed:	Varies
Reported:	14-21 days
Note:	The ability to identify causative variant(s) for the patient's presentation is strongly influenced by the quality of the clinical information provided.
CPT Codes:	81425; per familial comparator, 81426 is added

New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

Reference Interval:

Test Number	Components	Reference Interval

TEST CHANGE

Whole Genome Sequencing, Familial Control

3016497, WGS FRPT

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender (EDTA) or pink (EDTA~~) or yellow (ACD solution A or B~~). Peripheral blood required. Contact ARUP's genetic counselor at 800-242-2787 ext. 2141 prior to test submission. New York State Clients: ARUP cannot facilitate testing for New York patients. Please work directly with a New York-approved laboratory.
Specimen Preparation:	Transport 2 mL whole blood. (Min: 1.0 mL)
Transport Temperature:	Refrigerated
Unacceptable Conditions:	
Remarks:	This test is used for parental control samples associated with a proband sample submitted for Whole Genome Sequencing~~whole genome sequencing~~ (ARUP test code 3016493). If a report for a parental control sample is desired, indicate opt-in status for the American College of Medical Genetics and Genomics (ACMG) secondary findings on the whole genome sequencing intake form (additional charges apply). When ARUP is requested to initiate preauthorization, DNA extraction will be performed on the proband and comparator samples to ensure sample stability (DNA Extract and Hold, ARUP test code 3005714, will be added to each sample by ARUP, additional charges apply). The cost of DNA extraction is credited when genome sequencing is performed.
Stability:	Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Massively Parallel Sequencing
Performed:	Varies
Reported:	14-21 days
Note:	Parental samples are used to aid in interpretation of the proband's genome sequencing data. Please indicate on the whole genome sequencing intake form if a report of American College of Medical Genetics and Genomics (ACMG) secondary findings is desired for submitted parental controls (additional charges apply). Please list the name/DOB for parental controls

	on the whole genome sequencing intake form.
CPT Codes:	
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data: Refer to report.	
Reference Interval:	

NEW TEST – Available Now

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Myeloid Malignancies Mutation and Copy Number Variation Panel by Next Generation Sequencing

3016621, MYE CNV

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender (EDTA), green (sodium heparin), bone marrow (EDTA), or bone marrow (sodium heparin).
Specimen Preparation:	Whole Blood or Bone Marrow: Transport 3 mL. (Min: 1.0 mL for bone marrow, 1.5 mL for whole blood) Separate specimens must be submitted when multiple tests are ordered.
Transport Temperature:	Whole Blood or Bone Marrow: Refrigerated.
Unacceptable Conditions:	Serum, plasma, grossly hemolyzed specimens, buccal brush or swab, FFPE tissue.
Remarks:	Specimen source is required.
Stability:	Whole Blood or Bone Marrow: Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	Massively Parallel Sequencing
Performed:	Varies
Reported:	12-14 days
Note:	Genes tested: ANKRD26; ASXL1; ASXL2; BCOR; BCORL1; BRAF; CALR; CBL; CBLB; CEBPA; CSF3R; CUX1*; DDX41; DNMT1*; DNMT3A; ELANE; ETNK1; ETV6; EZH2; FBXW7; FLT3; GATA1; GATA2; GNAS; HNRNPK; IDH1; IDH2; IL7R; JAK1; JAK2; JAK3; KDM6A*; KIT; KMT2A; KRAS; LUC7L2; MPL; NOTCH1; NPM1*; NRAS; NSD1; PHF6; PIGA; PPM1D; PRPF40B; PRPF8; PTPN11; RAD21; RUNX1; SAMD9; SAMD9L; SETBP1; SF3B1; SH2B3; SMC1A; SMC3; SRSF2; STAG2; STAT3; STAT5B*; SUZ12*; TET2; TP53; U2AF1; U2AF2; UBA1; WT1; ZRSR2 *One or more exons are not covered by sequencing for the indicated gene; see Additional Technical Information.
CPT Codes:	81455

New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

Refer to report.

Reference Interval:

By report

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

NEW TEST

Click for Pricing

HPV Primary Screen by PCR With Reflex to Cytology

3016636, HPV PRMRY

Specimen Requirements:	
Patient Preparation:	
Collect:	Cervical or endocervical specimen with SurePath collection kit. Cervical or endocervical specimen with brush or spatula from ThinPrep collection kit (ARUP supply #41785 ThinPrep (Vial and Broom) or #51369 ThinPrep (Vial, Brush and Spatula)) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
Specimen Preparation:	Place collection device in corresponding SurePath or ThinPrep media vial.
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Bloody or dark brown specimens. Specimens in any media other than indicated above.
Remarks:	
Stability:	SurePath - Ambient: 1 month; Refrigerated: 6 months; Frozen: Unacceptable ThinPrep - Ambient: 6 months; Refrigerated: 6 months; Frozen: Unacceptable
Methodology:	Qualitative Polymerase Chain Reaction (PCR)
Performed:	Tue-Sat
Reported:	1-5 days
Note:	For cervical sources, a negative high-risk HPV result does not exclude the possibility of future cytologic abnormalities, underlying CIN2-3, or cancer.
CPT Codes:	87624; if reflexed add 88142; if reviewed by pathologist add 88141
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test amplifies DNA of HPV16, HPV18 and 12 other high-risk HPV types (31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) associated with cervical cancer and its precursor lesions. Sensitivity may be affected by specimen collection methods, stage of infection, and the presence of interfering

substances. Results should be interpreted in conjunction with other available laboratory and clinical data. A negative high-risk HPV result does not exclude the presence of other high-risk HPV types, the possibility of future cytologic abnormalities, underlying CIN2-3, or cancer.

HPV testing should not be used for screening or management of atypical squamous cells of undetermined significance (ASCUS) in women under age 21.

Reference Interval:

Negative

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

NEW TEST

Click for Pricing

Infliximab and Antibodies to Infliximab Quantitation

3016779, IFX PAN

Specimen Requirements:	
Patient Preparation:	Collect specimen before next scheduled dose of infliximab or infliximab biosimilar (trough specimen). Avoid exposure to biotin (vitamin B7) for 12 hours prior to specimen collection.
Collect:	Serum separator tube.
Specimen Preparation:	Separate serum from cells ASAP. Transfer 1 mL serum to an ARUP standard transport tube. (Min 0.1 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Grossly hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 2 days; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles).
Methodology:	Quantitative Electrochemiluminescence Immunoassay (ECLIA) with Acid Dissociation
Performed:	Sun-Sat
Reported:	3-7 days
Note:	
CPT Codes:	80230; 82397
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

Infliximab Quantitation:

Results of 0.5 ug/mL or higher indicate the detection of infliximab or an infliximab biosimilar. Therapeutic level may vary depending on the disease being treated.

Antibodies to Infliximab Quantitation:

Results of 20 ng/mL or higher indicate the detection of antibodies against infliximab or an infliximab biosimilar. Interpret in the context of infliximab or infliximab biosimilar trough

concentration to determine clinical significance and impact on treatment efficacy.

Reference Interval:

Test Number	Components	Reference Interval
	Infliximab Quantitation	0.5 ug/mL or greater
	Antibodies to Infliximab Quantitation	19 ng/mL or less

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

TEST CHANGE

Autoimmune Vision Loss Panel, Serum

3016804, AIVLS

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube.
Specimen Preparation:	Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.30 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma. Contaminated, heat-inactivated, hemolyzed, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Qualitative Immunoblot/Semi-Quantitative Cell-Based Indirect Fluorescent Antibody
Performed:	Varies
Reported:	1-8 days
Note:	If CV2~~.1~~ Antibody IgG Screen by IFA is positive, then CV2~~.1~~ Antibody IgG Titer by IFA will be added. Additional charges apply.
CPT Codes:	84182, 86255; if reflexed, add 86256
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data:	
Refer to report	

Reference Interval:

Test Number	Components	Reference Interval
	CV2~~.1~~ Ab IgG CBA-IFA Screen, Serum	Less than 1:100
	Recoverin Ab, IgG by Immunoblot, Serum	Negative

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

NEW TEST

Click for Pricing

Anti-Mullerian Hormone With Menopausal Status (MenoCheck)

3016862, AMH MENO

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube. Also acceptable: Plain red or green (lithium heparin).
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)
Transport Temperature:	Frozen.
Unacceptable Conditions:	
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 3 weeks (avoid repeated freeze/thaw cycles)
Methodology:	Quantitative Enzyme-Linked Immunosorbent Assay
Performed:	Sun-Sat
Reported:	1-3 days
Note:	
CPT Codes:	82166
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

MenoCheck is an FDA-cleared test intended to be used as an aid in the determination of menopausal status in people between 42 to 62 years of age that were assigned female at birth. This test should be used in conjunction with other clinical and laboratory findings. This test should not be used to assess a menstruating individual's fertility status or for use in monitoring or predicting the ovarian response in menstruating individuals undergoing or planning to undergo fertility treatments.

Reference Interval:

Test Number	Components	Reference Interval		
	Anti-Mullerian Hormone, Menopause			
		Age	Reference Intervals (ng/mL)	
		40-45 years	Less than or equal to 6.282	
		46-50 years	Less than or equal to 0.064	
		Postmenopausal	Less than or equal to 0.003	

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

NEW TEST – Available Now

Click for Pricing

Tartrate-Resistant Acid Phosphatase by Immunohistochemistry

3016885, TRAP-IHC

Specimen Requirements:	
Patient Preparation:	
Collect:	Tissue or cells
Specimen Preparation:	Formalin fix (10 percent neutral buffered formalin) and paraffin embed specimen (cells must be prepared into a cellblock). Protect paraffin block and/or slides from excessive heat. Transport tissue block or 5 unstained (3- to 5-micron thick sections), positively charged slides in a Tissue Transport Kit (ARUP supply #47808 highly recommended) 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.
Transport Temperature:	Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable
Unacceptable Conditions:	Tissue or cells not processed and placed in a paraffin block; serum, blood, or other body fluids; tissue not mounted on positively charged slides.
Remarks:	
Stability:	
Methodology:	Qualitative Immunohistochemistry (IHC)
Performed:	Mon-Fri
Reported:	1-3 days
Note:	
CPT Codes:	88342
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

Reference Interval:

Test Number	Components	Reference Interval

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

NEW TEST – Available Now

Click for Pricing

Human Papillomavirus (HPV) High Risk Screen, by Transcription-Mediated Amplification (TMA), ThinPrep

3016943, HPV SCREEN

Specimen Requirements:	
Patient Preparation:	Females should avoid high concentrations of antifungal cream or contraceptive jelly, and should not douche prior to time of collection.
Collect:	Cervical, anal, or vaginal specimen with brush or spatula from ThinPrep kit and place in PreservCyt Media
Specimen Preparation:	Transport original ThinPrep or briefly vortex and transfer 1 mL to an Aptima Specimen Transfer Tube (ARUP supply #42711). Available online through eSupply using ARUP Connect (TM) or contact ARUP Client Services at 800-522-2787. To reduce the potential for contamination, ThinPrep specimens should be poured off, using sterile technique, into the Aptima Specimen Transfer Tube prior to cytology testing.
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Bloody or dark brown specimens. Specimens in any media other than indicated above.
Remarks:	Specimen source required.
Stability:	Ambient: 1 month; Refrigerated: 105 days; Frozen: Unacceptable
Methodology:	Qualitative Nucleic Acid Amplification (NAA)
Performed:	Sun-Sat
Reported:	1-5 days
Note:	For cervical sources, a negative high-risk HPV result does not exclude the possibility of future cytologic abnormalities, underlying CIN2-3, or cancer.
CPT Codes:	87624
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test detects E6/E7 viral messenger RNA of 14 high-risk HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) associated with cervical cancer and its precursor lesions. This test does not discriminate between the 14 high-risk HPV types. Sensitivity may be affected by specimen collection methods, stage of infection, and the presence of interfering substances. Results should be interpreted in conjunction with other available laboratory and clinical data. A negative high-risk HPV result does not exclude the presence of other high-risk HPV types.

HPV testing should not be used for screening or management of atypical squamous cells of undetermined significance (ASCUS) in women under age 21.

Reference Interval:

Negative

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

NEW TEST – Available Now

Click for Pricing

Human Papillomavirus (HPV) Genotypes 16 and 18/45, by Transcription-Mediated Amplification (TMA), ThinPrep

3016944, HPVGENO

Specimen Requirements:	
Patient Preparation:	Patient should avoid high concentrations of antifungal cream or contraceptive jelly, and should not douche prior to time of collection.
Collect:	Cervical, anal, or vaginal specimen with brush or spatula from ThinPrep kit and place in PreservCyt Media
Specimen Preparation:	Transport original ThinPrep or briefly vortex and transfer 1 mL to an Aptima Specimen Transfer Tube (ARUP supply #42711). Available online through eSupply using ARUP Connect (TM) or contact ARUP Client Services at 800-522-2787. To reduce the potential for contamination, ThinPrep specimens should be poured off, using sterile technique, into the Aptima Specimen Transfer Tube prior to cytology testing.
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Bloody or dark brown specimens. Specimens in any media other than indicated above.
Remarks:	Specimen source required.
Stability:	Ambient: 1 month; Refrigerated: 105 days; Frozen: Unacceptable
Methodology:	Qualitative Nucleic Acid Amplification (NAA)
Performed:	Wed, Sat
Reported:	1-5 days
Note:	For cervical sources, a negative high-risk HPV result does not exclude the possibility of future cytologic abnormalities, underlying CIN2-3, or cancer.
CPT Codes:	87625
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test detects E6/E7 viral messenger RNA of the high-risk HPV types 16, 18, and 45 only. It is intended for use in women 21 years and older with ASC-US cervical cytology results and in women 30 years and older as a follow-up to a positive high-risk HPV screen. Sensitivity may be affected by specimen collection methods, stage of infection, and the presence of interfering substances. Results should be interpreted in conjunction with other available laboratory and clinical data. This test is not intended for use as a stand-alone test.

HPV testing should not be used for screening or management of atypical squamous cells of undetermined significance (ASCUS) in women under age 21.

Reference Interval:

Negative

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

NEW TEST – Available Now

Click for Pricing

Human Papillomavirus (HPV) High Risk Screen by Transcription-Mediated Amplification (TMA), with Reflex to Genotypes 16 and 18/45, ThinPrep

3016945, HPV REFLEX

Specimen Requirements:	
Patient Preparation:	Patients should avoid high concentrations of antifungal cream or contraceptive jelly, and should not douche prior to time of collection.
Collect:	Cervical, anal, or vaginal specimen with brush or spatula from ThinPrep kit and place in PreservCyt Media
Specimen Preparation:	Transport original ThinPrep or briefly vortex and transfer 1 mL to an Aptima Specimen Transfer Tube (ARUP supply #42711). Available online through eSupply using ARUP Connect (TM) or contact ARUP Client Services at 800-522-2787. To reduce the potential for contamination, ThinPrep specimens should be poured off, using sterile technique, into the Aptima Specimen Transfer Tube prior to cytology testing.
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Bloody or dark brown specimens. Specimens in any media other than indicated above.
Remarks:	Specimen source required.
Stability:	Ambient: 1 month; Refrigerated: 105 days; Frozen: Unacceptable
Methodology:	Qualitative Nucleic Acid Amplification (NAA)
Performed:	Sun-Sat
Reported:	1-5 days
Note:	For cervical sources, a negative high-risk HPV result does not exclude the possibility of future cytologic abnormalities, underlying CIN2-3, or cancer.
CPT Codes:	87624; if reflexed, add 87625
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

This test detects E6/E7 viral messenger RNA of 14 high-risk HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) associated with cervical cancer and its precursor lesions. This test does not discriminate between the 14 high-risk HPV types. Sensitivity may be affected by specimen collection methods, stage of infection, and the presence of interfering substances. Results should be interpreted in conjunction with other available laboratory and clinical data. A negative high-risk HPV result does not exclude the presence of other high-risk HPV types.

HPV testing should not be used for screening or management of atypical squamous cells of undetermined significance (ASCUS) in women under age 21.

If Human Papillomavirus (HPV), High Risk is positive, then HPV genotypes 16, 18/45 will be added. Additional charges apply.

Reference Interval:

Negative

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

NEW TEST

Click for Pricing

Quantitative Detection of BCR-ABL1, Minor Form (p190)

3016968, QNT BCRMIN

Specimen Requirements:	
Patient Preparation:	
Collect:	Whole blood or bone marrow in lavender (EDTA).
Specimen Preparation:	Whole Blood: Transport 5 mL whole blood. (Min: 3 mL) Bone Marrow: Transport 3 mL bone marrow. (Min: 1 mL) Refrigerate immediately. Specimens must be received within 48 hours of collection due to lability of RNA.
Transport Temperature:	Whole Blood or Bone Marrow: CRITICAL REFRIGERATED. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Serum, plasma, extracted DNA, CSF, FFPE tissue, ambient whole blood, or frozen whole blood or bone marrow. Specimens collected in anticoagulants other than EDTA. Severely hemolyzed or clotted specimens. Ambient bone marrow specimens past 7 days will be canceled. Refrigerated whole blood or bone marrow specimens past 7 days will be canceled.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable
Methodology:	Quantitative Reverse Transcription Polymerase Chain Reaction
Performed:	Varies
Reported:	5-9 days
Note:	For p210 fusion form (major breakpoint), order BCR-ABL1, Major (p210), Quantitative (ARUP test code 3005840).
CPT Codes:	81207
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data:	

Refer to report.	
Reference Interval:	

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

NEW TEST

Click for Pricing

CV2 Antibody, IgG by CBA-IFA With Reflex to Titer, Serum

3016999, CV2 SER

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube (SST) or plain red
Specimen Preparation:	Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.25 mL)
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Hemolyzed, contaminated, or severely lipemic specimens
Remarks:	
Stability:	Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody
Performed:	Thu
Reported:	1-8 days
Note:	If CV2 Antibody IgG Screen by IFA is positive, then CV2 Antibody IgG Titer by IFA will be added. Additional charges apply.
CPT Codes:	86255; if reflexed, add 86256
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

CV2 antibodies aid in discriminating between chronic paraneoplastic neurological disorder (PND) and other inflammatory disorders of the nervous system. Anti-CV2 is associated with small-cell lung cancer and thymoma. A negative test result does not rule out a diagnosis of autoimmune neurologic disease. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes CV2 transfected cell lines for the detection and semiquantification of the CV2 IgG antibody.

Reference Interval:

Test Number	Components	Reference Interval
	CV2 Ab IgG CBA-IFA Screen, Serum	Less than 1:100

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

NEW TEST

Click for Pricing

CV2 Antibody, IgG by CBA-IFA With Reflex to Titer, CSF

3017001, CV2 CSF

Specimen Requirements:	
Patient Preparation:	
Collect:	CSF.
Specimen Preparation:	Transfer 0.5 mL CSF to an ARUP standard transport tube. (Min: 0.15 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Hemolyzed, contaminated, or severely lipemic specimens.
Remarks:	
Stability:	Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month
Methodology:	Semi-Quantitative Cell-Based Indirect Fluorescent Antibody
Performed:	Thu
Reported:	1-8 days
Note:	If CV2 Antibody IgG Screen by IFA, CSF is positive, then CV2 Antibody IgG Titer, CSF will be added. Additional charges apply.
CPT Codes:	86255; if reflexed, add 86256
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

CV2 antibodies aid in discriminating between chronic paraneoplastic neurological disorder (PND) and other inflammatory disorders of the nervous system. Anti-CV2 is associated with small-cell lung cancer and thymoma. A negative test result does not rule out a diagnosis of autoimmune neurologic disease. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes CV2 transfected cell lines for the detection and semiquantification of the CV2 IgG antibody.

Reference Interval:

Test Number	Components	Reference Interval

	CV2 Ab IgG CBA-IFA Screen, CSF	Less than 1:1

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

NEW TEST

Click for Pricing

Lupus Anticoagulant Reflex Panel

3017009, LUPUS RFLX

Specimen Requirements:	
Patient Preparation:	
Collect:	Light blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.
Specimen Preparation:	Transfer 3 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 2 mL)
Transport Temperature:	CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Unacceptable Conditions:	Serum. EDTA plasma, clotted or hemolyzed specimens.
Remarks:	
Stability:	Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20 C or below: 3 months
Methodology:	Electromagnetic Mechanical Clot Detection/Chromogenic Assay
Performed:	Sun-Sat
Reported:	1-3 days
Note:	If PTT-LA Ratio and dRVVT Screen Ratio are normal, then no further testing is performed. If either the PTT-LA Ratio or dRVVT Screen Ratio are elevated, then Anti-Xa Qualitative Interpretation is added. If PTT-LA Ratio is elevated, then Thrombin Time is also added. If Anti-Xa Qualitative Interpretation is Present and Thrombin Time is elevated, then Hepzyme treatment is added. If PTT-LA Ratio is Normal and Anti-Xa Qualitative Interpretation is Present, or Thrombin Time is Abnormal and Anti-Xa Qualitative Interpretation is Not Present, or Thrombin Time is Normal and Anti-Xa Qualitative Interpretation is Present, then DOAC-Stop treatment is added. If either Hepzyme or DOAC-Stop treatment is added, then Neutralized PTT-LA Ratio and/or Neutralized dRVVT Screen Ratio are added. If dRVVT Screen Ratio is elevated in the absence of Hepzyme or DOAC-Stop, or if Neutralized dRVVT Screen Ratio is elevated, then dRVVT 1:1 Mix Ratio and dRVVT

	Confirmation Ratio are added. If PTT-LA Ratio is elevated in the absence of Hepzyme or DOAC-Stop treatment, or if Neutralized PTT-LA Ratio is elevated, then Hexagonal Phospholipid Confirmation is added. Additional charges apply.
CPT Codes:	85610; 85613; 85730; if reflexed, additional CPT codes may apply: 85520; 85525; 85598; 85613; 85670; 85730.
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

Reference Interval:

Test Number	Components	Reference Interval
	Prothrombin Time (PT)	12.0-15.5 seconds
	PTT-LA Ratio	≤ 1.20
	dRVVT Screen Ratio	≤ 1.20
	Anti-Xa Qualitative Interpretation	Not Present
	Thrombin Time (TT)	≤ 19.5 seconds
	Anticoagulant Medication Neutralization	Not Performed
	Neutralized PTT-LA Ratio	≤ 1.20
	Neutralized dRVVT Screen Ratio	≤ 1.20
	dRVVT 1:1 Mix Ratio	≤ 1.20
	dRVVT Confirmation Ratio	≤ 1.20
	Hexagonal Phospholipid Confirmation	≤ 7.9

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

NEW TEST

Click for Pricing

Adalimumab and Antibodies to Adalimumab Quantitation

3017043, ADA PAN

Specimen Requirements:	
Patient Preparation:	Collect specimens before next scheduled dose of adalimumab or adalimumab biosimilar (trough specimen). Avoid exposure to biotin (vitamin B7) for 12 hours prior to specimen collection.
Collect:	Serum separator tube.
Specimen Preparation:	Separate serum from cells ASAP. Transfer 1 mL serum to an ARUP standard transport tube. (Min 0.1 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Grossly hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 2 days; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles).
Methodology:	Quantitative Electrochemiluminescent Immunoassay (ECLIA) with Acid Dissociation
Performed:	Sun-Sat
Reported:	3-7 days
Note:	
CPT Codes:	80145; 82397
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.

Interpretive Data:

Adalimumab Quantitation:

Results of 0.4 ug/mL or higher indicate the detection of adalimumab or an adalimumab biosimilar. Therapeutic level may vary depending on the disease being treated.

Antibodies to Adalimumab Quantitation:

Results of 20 ng/mL or higher indicate the detection of antibodies against adalimumab or an adalimumab biosimilar. Interpret in the context of adalimumab or adalimumab biosimilar trough

concentration to determine clinical significance and impact on treatment efficacy.

Reference Interval:

Test Number	Components	Reference Interval
	Adalimumab Quantitation	0.4 ug/mL or greater
	Antibodies to Adalimumab Quantitation	19 ng/mL or less

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

NEW TEST – Available Now

Click for Pricing

Allergen, Food, Sesame Seed Component rSes i 1

3017046, SESAME COM

Specimen Requirements:	
Patient Preparation:	Multiple patient encounters should be avoided.
Collect:	Serum separator tube.
Specimen Preparation:	Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP standard transport tube. (Min: 0.25 mL). For multiple allergen orders refer to "Allergen Specimen Collection Instructions" at www.aruplab.com/testing/resources/specimen.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year
Methodology:	Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed:	Sun-Sat
Reported:	1-3 days
Note:	
CPT Codes:	86008
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

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

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

Reference Interval:

Test Number	Components	Reference Interval
	Allergen, Food, Sesame rSes i 1 IgE	Less than or equal to 0.09 kU/L
	Allergen, Food, Sesame rSes i 1 IgE	

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

NEW TEST – Available Now

Click for Pricing

Allergen, Food, Sesame Seed With Reflex to Component, IgE

3017049, SESAME R

Specimen Requirements:	
Patient Preparation:	Multiple patient encounters should be avoided.
Collect:	Serum separator tube.
Specimen Preparation:	Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP standard transport tube. (Min: 0.25 mL). For multiple allergen orders refer to "Allergen Specimen Collection Instructions" at www.aruplab.com/testing/resources/specimen.
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year
Methodology:	Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay
Performed:	Sun-Sat
Reported:	1-3 days
Note:	This assay will reflex to Sesame rSes i 1 component if the result is 0.35 kU/L or higher. Additional charges apply.
CPT Codes:	86003; if reflexed add 86008
New York DOH Approval Status:	This test is New York DOH approved.
Interpretive Data:	

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

Reference Interval:

Test Number	Components	Reference Interval
	Allergen, Food, Sesame Seed IgE	Less than or equal to 0.34 kU/L

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

NEW TEST

Click for Pricing

Borrelia burgdorferi VlsE1/pepC10 Antibodies, Total by ELISA With Reflex to IgG and IgM by Immunoblot (Standard Two-Tier Testing)

3017059, LYME STTT

Specimen Requirements:	
Patient Preparation:	
Collect:	Serum separator tube.
Specimen Preparation:	Transfer 2 mL serum to an ARUP standard transport tube. (Min: 0.15 mL)
Transport Temperature:	Refrigerated.
Unacceptable Conditions:	Plasma, CSF. Contaminated, heat-inactivated, hemolyzed, icteric, or lipemic specimens.
Remarks:	
Stability:	After separation from cells: Ambient: 48 hours; Refrigerated:10 days; Frozen: 1 month.
Methodology:	Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)/Qualitative Immunoblot
Performed:	Sun-Sat
Reported:	1-4 days
Note:	If VlsE1/pepC10 antibodies by ELISA is 0.91 IV or greater, then B. burgdorferi IgG antibody by immunoblot and IgM antibody by immunoblot will be added. Additional charges apply.
CPT Codes:	86618; if reflexed, add 86617 x2
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Component	Interpretation
B. burgdorferi VlsE1/pepC10 Abs, ELISA	0.90 IV or less: Negative; VlsE1 and pepC10 antibodies to B. burgdorferi not detected. 0.91-1.09 IV: Equivocal; repeat

	testing in 10-14 days may be helpful. 1.10 IV or greater: Positive; VlsE1 and pepC10 antibodies to B. burgdorferi detected.	

Reference Interval:

Test Number	Components	Reference Interval
	B. burgdorferi VlsE1/pepC10 Abs, ELISA	0.90 IV or less
	B. burgdorferi VlsE1/pepC10 Abs, ELISA	

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

NEW TEST

Click for Pricing

Hemoglobin Evaluation With Reflex to Electrophoresis and/or RBC Solubility

3017101, HGBEL RFX

Specimen Requirements:	
Patient Preparation:	
Collect:	Lavender (EDTA) or pink (K2EDTA).
Specimen Preparation:	Transport 5 mL whole blood. (Min: 0.5 mL)
Transport Temperature:	Refrigerated
Unacceptable Conditions:	Frozen or room temperature specimens.
Remarks:	
Stability:	Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Unacceptable
Methodology:	High Performance Liquid Chromatography (HPLC) /Electrophoresis/RBC Solubility
Performed:	Sun-Sat
Reported:	1-5 days
Note:	If abnormal peaks suggestive of a hemoglobin variant are detected, then RBC Solubility and/or Capillary Electrophoresis will be performed to aid in confirmation and identification of the variant. Additional charges apply. If a hemoglobin variant cannot be quantitated by HPLC, results from capillary electrophoresis will be reported. Quantitation of hemoglobin is recommended for a definitive diagnosis in infants 1 year and older.
CPT Codes:	83021; if reflexed, add 83020; 85660
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Sickle Cell Solubility Reflex:

Not Performed: Solubility testing for Hemoglobin S not indicated.
Positive: Positive for Hemoglobin S by HPLC and confirmed by solubility testing. Additional charges apply.
Conf Previous: Positive for Hemoglobin S by HPLC. Solubility testing performed previously and not

repeated with this submission.

Hgb Capillary Electrophoresis Reflex:

Not Performed: Confirmation by Capillary Electrophoresis not indicated.
Performed: Results confirmed by Capillary Electrophoresis. Additional charges apply.
Conf Previous: Capillary Electrophoresis confirmation performed as part of a previous submission. Confirmation not repeated with this submission.

Reference Interval:

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

NEW TEST

Click for Pricing

Thrombotic Risk Reflex Panel

3017156, THROMRISK

Specimen Requirements:	
Patient Preparation:	Fasting preferred. Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.
Collect:	Four light blue (sodium citrate) AND two lavender (EDTA) AND two serum separator tubes (SSTs). Also acceptable in place of one of the serum separator tubes (SSTs): green (sodium or lithium heparin) or EDTA (K2 or K3).
Specimen Preparation:	One serum separator tube (SST), green (sodium or lithium heparin) or EDTA (K2 or K3) must be centrifuged and serum or plasma separated within 1 hour of collection. Transfer 1 mL centrifuged serum or plasma to ARUP standard transport tube and label centrifuged tube for homocysteine testing. (Min: 0.5 mL) AND Transfer 2 mL serum into 2 ARUP standard transport tubes, label as serum. (Min: 0.5 mL/tube) AND Transfer 7.5 mL platelet poor plasma prepared from the sodium citrate tubes to 5 ARUP standard transport tubes, label as sodium citrate. (Min: 1 mL/tube) AND Transfer 3 mL lavender whole blood to 2 ARUP standard transport tubes. (Min: 1 mL/tube)
Transport Temperature:	Light blue (sodium citrate): CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. Lavender whole blood and serum, green (sodium or lithium heparin) or EDTA (K2 or K3): Frozen.
Unacceptable Conditions:	Specimens collected in any tube type not listed above.
Remarks:	
Stability:	Light blue (sodium citrate): Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 2 weeks Lavender whole blood: Ambient: 7 days; Refrigerated: 1 week; Frozen: 1 month Serum: Ambient: 2 hours; Refrigerated: 1 week; Frozen: 2 weeks Green (sodium or lithium heparin) or EDTA (K2 or K3): Ambient: 4 days; Refrigerated: 1 month; Frozen: 10 months
Methodology:	Electromagnetic Mechanical Clot Detection/Chromogenic Assay/Quantitative Enzymatic Assay/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)/Polymerase Chain Reaction (PCR)/Fluorescence Monitoring/Microlatex Particle-Mediated Immunoassay

Performed:	Varies
Reported:	2-7 days
Note:	Testing will include Antithrombin, Enzymatic (Activity) (0030010); Protein S Free, Antigen (0098894); Protein C, Functional (0030113); Beta-2 Glycoprotein 1 Antibodies, IgG and IgM (0050321); Cardiolipin Antibodies, IgG and IgM (0099344); Lupus Anticoagulant Reflex Panel (3017009); Prothrombin (F2) c.*97G>A (G20210A) Pathogenic Variant (0056060); APC Resistance Profile with Reflex to Factor V Leiden (0030192); and Homocysteine, Total (0099869). If APC resistance is low, or if a valid result cannot be obtained for the APC portion of the profile, then Factor V Leiden by PCR will be added. Additional charges apply. For the Lupus Anticoagulant Reflex Panel (3017009) portion of the panel, if PTT-LA Ratio and dRVVT Screen Ratio are normal, then no further clot-based testing is performed. If either the PTT-LA Ratio or dRVVT Screen Ratio are elevated, then Anti-Xa Qualitative Interpretation is added. If PTT-LA Ratio is elevated, then Thrombin Time is also added. If Anti-Xa Qualitative Interpretation is Present and Thrombin Time is elevated, then Hepzyme treatment is added. If PTT-LA Ratio is normal and Anti-Xa Qualitative Interpretation is Present, or Thrombin Time is abnormal and Anti-Xa Qualitative Interpretation is Not Present, or Thrombin Time is normal and Anti-Xa Qualitative Interpretation is Present, then DOAC-Stop treatment is added. If either Hepzyme or DOAC-Stop treatment is added, then Neutralized PTT-LA Ratio and/or Neutralized dRVVT Screen Ratio are added. If dRVVT Screen Ratio is elevated in the absence of Hepzyme or DOAC-Stop, or if Neutralized dRVVT Screen Ratio is elevated, then dRVVT 1:1 Mix Ratio and dRVVT Confirmation Ratio are added. If PTT-LA Ratio is elevated in the absence of Hepzyme or DOAC-Stop treatment, or if Neutralized PTT-LA Ratio is elevated, then Hexagonal Phospholipid Confirmation is added. Additional charges apply. False elevations of plasma or serum homocysteine may occur if the plasma or serum is not promptly separated from the cells at the time of collection.
CPT Codes:	81240; 83090; 85300; 85303; 85306; 85307; 85610; 85613; 85730; 86147x2; 86146x2; if reflexed, additional CPT codes may apply: 81241; 85520; 85525; 85598; 85613; 85670; 85730.
New York DOH Approval Status:	This test is New York DOH approved.

Interpretive Data:

Refer to individual components.

Reference Interval:

Refer to individual components.

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

NEW TEST

Click for Pricing

Antiphospholipid Syndrome Reflex Panel

3017157, ANTI PHOS

Specimen Requirements:	
Patient Preparation:	
Collect:	Light blue (sodium citrate) AND serum separator tube (SST). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.
Specimen Preparation:	Transport 2 mL platelet poor plasma in an ARUP standard transport tube. (Min: 2 mL) AND transport 1 mL serum in an ARUP standard transport tube. (Min: 0.6 mL)
Transport Temperature:	Plasma: CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. Serum: Frozen.
Unacceptable Conditions:	For Lupus Anticoagulant Reflexive Panel (Plasma): Serum. EDTA plasma, clotted or hemolyzed specimens. For cardiolipin and beta-2 glycoprotein antibodies (serum): Plasma and other body fluids, heat-inactivated, hemolyzed, lipemic, or contaminated specimens.
Remarks:	
Stability:	Plasma: Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20 or below: 3 months Serum: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)
Methodology:	Electromagnetic Mechanical Clot Detection/Chromogenic Assay/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)
Performed:	Sun-Sat
Reported:	1-3 days
Note:	Testing will include Beta-2 Glycoprotein 1 Antibodies, IgG and IgM (0050321); Cardiolipin Antibodies, IgG and IgM (0099344); and Lupus Anticoagulant Reflex Panel (3017009). For the Lupus Anticoagulant Reflex Panel (3017009) portion of the panel, if PTT-LA Ratio and dRVVT Screen Ratio are normal, then no further clot-based testing is performed. If either the PTT-LA Ratio or dRVVT Screen Ratio are elevated, then Anti-Xa Qualitative Interpretation is added. If PTT-LA Ratio is elevated,

	then Thrombin Time is also added. If Anti-Xa Qualitative Interpretation is Present and Thrombin Time is elevated, then Hepzyme treatment is added. If PTT-LA Ratio is normal and Anti-Xa Qualitative Interpretation is Present, or Thrombin Time is abnormal and Anti-Xa Qualitative Interpretation is Not Present, or Thrombin Time is normal and Anti-Xa Qualitative Interpretation is Present, then DOAC-Stop treatment is added. If either Hepzyme or DOAC-Stop treatment is added, then Neutralized PTT-LA Ratio and/or Neutralized dRVVT Screen Ratio are added. If dRVVT Screen Ratio is elevated in the absence of Hepzyme or DOAC-Stop, or if Neutralized dRVVT Screen Ratio is elevated, then dRVVT 1:1 Mix Ratio and dRVVT Confirmation Ratio are added. If PTT-LA Ratio is elevated in the absence of Hepzyme or DOAC-Stop treatment, or if Neutralized PTT-LA Ratio is elevated, then Hexagonal Phospholipid Confirmation is added. Additional charges apply.
CPT Codes:	85610; 85613; 85730; 86147x2; 86146x2; if reflexed, additional CPT codes may apply: 85520; 85525; 85598; 85613; 85670; 85730.
New York DOH Approval Status:	Specimens from New York clients will be sent out to a New York DOH approved laboratory, if possible.
Interpretive Data: See individual components.	
Reference Interval:	

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

ARUP LABORATORIES

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

Inactivations

The following will be discontinued from ARUP's test menu on February 20, 2024
Replacement test options are indicated when applicable.

Test Number	Test Name	Refer to Replacement Test
0030181	Lupus Anticoagulant Reflexive Panel (Change effective as of 02/20/24: Refer to 3017009 in the February Hotline)	Lupus Anticoagulant Reflex Panel (3017009)
0030461	Dilute Russell Viper Venom Time (dRVVT) with Reflex to dRVVT 1:1 Mix and Confirmation (Change effective as of 02/20/24: Refer to 3017009 in the February Hotline)	Lupus Anticoagulant Reflex Panel (3017009)
0050253	Borrelia burgdorferi Antibody, IgM by Immunoblot (Change effective as of 02/20/24: Refer to 0050254)	Borrelia burgdorferi Antibodies, IgG and IgM by Immunoblot (0050254)
0050610	Hemoglobin Evaluation with Reflex to Electrophoresis and/or RBC Solubility (Change effective as of 02/20/24: Refer to 3017101 in the February Hotline)	Hemoglobin Evaluation with Reflex to Electrophoresis and/or RBC Solubility (3017101)
0051050	Platelet Antibodies, Indirect (Inactive as of 02/20/2024)	
0070213	Pyridinium Crosslinks (Total), Urine(Inactive as of 02/20/24)	
0090151	Procainamide and NAPA(Inactive as of 02/20/24)	
0090613	Troponin I(Inactive as of 02/20/24)	
2002437	KIT Mutations in AML by Fragment Analysis and Sequencing (Inactive as of 02/20/24)	
2003222	Antiphospholipid Syndrome Reflexive Panel (Change effective as of 02/20/24: Refer to 3017157 in the February Hotline)	Antiphospholipid Syndrome Reflex Panel (3017157)

Test Number	Test Name	Refer to Replacement Test
2004247	CEBPA Mutation Detection (Inactive as of 02/20/24)	
2005016	BCR-ABL1, Minor (p190), Quantitative (Change effective as of 02/20/24: Refer to 3016968)	Quant Detection of BCR-ABL1 Minor (p190) (3016968)
2006385	Thrombotic Risk Reflexive Panel (Change effective as of 02/20/24: Refer to 3017156 in the February Hotline)	Thrombotic Risk Reflex Panel (3017156)
2008320	Infliximab or Biosimilar Activity and Neutralizing Antibody (Change effective as of 02/20/24: Refer to 3016779 in the February Hotline)	Infliximab and Antibodies to Infliximab Quantitation (3016779)
2011248	Adalimumab Activity and Neutralizing Antibody (Change effective as of 02/20/24: Refer to 3017043 in the February Hotline)	Adalimumab and Antibodies to Adalimumab Quantitation (3017043)
2011311	Chloride, Random Urine (Inactive as of 02/20/24)	
2013605	Adalimumab Activity with Reflex to Antibody (Change effective as of 02/20/24: Refer to 3017043 in the February Hotline)	Adalimumab and Antibodies to Adalimumab Quantitation (3017043)
2013612	Infliximab or Biosimilar Activity with Reflex to Antibody (Change effective as of 02/20/24: Refer to 3016779 in the February Hotline)	Infliximab and Antibodies to Infliximab Quantitation (3016779)
2013956	CV2.1 Antibody, IgG by CBA-IFA With Reflex to Titer, Serum (Change effective as of 02/20/24: Refer to 3016999 in the February Hotline)	CV2 Antibody, IgG by CBA-IFA With Reflex to Titer, Serum (3016999)
3002257	CV2.1 Antibody, IgG by CBA-IFA With Reflex to Titer, CSF (Change effective as of 02/20/24: Refer to 3017001 in the February Hotline)	CV2 Antibody, IgG by CBA-IFA With Reflex to Titer, CSF (3017001)

Test Number	Test Name	Refer to Replacement Test
3003005	Human Papillomavirus (HPV), High Risk with 16 and 18 Genotype by Nucleic Acid Amplification (NAA), ThinPrep (Change effective as of 02/20/23: Refer to 3016945 in the February Hotline)	Human Papillomavirus (HPV) High Risk Screen by Transcription-Mediated Amplification (TMA), with Reflex to Genotypes 16 and 18/45, ThinPrep (3016945)
3003254	Borrelia burgdorferi VlsE1/pepC10 Antibodies, Total by ELISA with Reflex to IgG and IgM by Immunoblot (Change effective as of 02/20/24: Refer to 3017059 in the Feb Hotline)	Borrelia burgdorferi VlsE1/pepC10 Antibodies, Total by ELISA with Reflex to IgG and IgM by Immunoblot (Standard Two-Tier Testing)(3017059)