MAYO CLINIC LABORATORIES

Test Definition: MDS2

Movement Disorder, Autoimmune/Paraneoplastic Evaluation, Serum

Overview

Useful For

Evaluating patients with suspected paraneoplastic or other autoimmune movement disorders including patients with ataxia, brainstem encephalitis, chorea, dyskinesias, myoclonus, and parkinsonism using serum specimens

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
MDSI	Movement Disorder Interp, S	No	Yes
AMPCS	AMPA-R Ab CBA, S	No	Yes
AMPHS	Amphiphysin Ab, S	No	Yes
AGN1S	Anti-Glial Nuclear Ab, Type 1	No	Yes
ANN1S	Anti-Neuronal Nuclear Ab, Type 1	No	Yes
ANN2S	Anti-Neuronal Nuclear Ab, Type 2	No	Yes
ANN3S	Anti-Neuronal Nuclear Ab, Type 3	No	Yes
APBIS	AP3B2 IFA, S	No	Yes
CS2CS	CASPR2-IgG CBA, S	No	Yes
CRMWS	CRMP-5-IgG Western Blot, S	Yes	Yes
DPPIS	DPPX Ab IFA, S	No	Yes
GABCS	GABA-B-R Ab CBA, S	No	Yes
GD65S	GAD65 Ab Assay, S	Yes	Yes
GFAIS	GFAP IFA, S	No	Yes
GRFIS	GRAF1 IFA, S	No	Yes
IG5IS	IgLON5 IFA, S	No	Yes
ITPIS	ITPR1 IFA, S	No	Yes
K11CS	KLHL11 Ab CBA, S	Yes	Yes
LG1CS	LGI1-IgG CBA, S	No	Yes
GL1IS	mGluR1 Ab IFA, S	No	Yes
NCDIS	Neurochondrin IFA, S	No	Yes
NIFIS	NIF IFA, S	No	Yes
NMDCS	NMDA-R Ab CBA, S	No	Yes
CCPQ	P/Q-Type Calcium Channel Ab	No	Yes

PCABP	Purkinje Cell Cytoplasmic Ab Type 1	No	Yes
PCAB2	Purkinje Cell Cytoplasmic Ab Type 2	No	Yes
PCATR	Purkinje Cell Cytoplasmic Ab Type Tr	No	Yes
SP5IS	Septin-5 IFA, S	No	Yes
SP7IS	Septin-7 IFA, S	No	Yes

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
AGNBS	AGNA-1 Immunoblot, S	No	No
AINCS	Alpha Internexin CBA, S	No	No
AMPIS	AMPA-R Ab IF Titer Assay, S	No	No
AMIBS	Amphiphysin Immunoblot, S	No	No
AN1BS	ANNA-1 Immunoblot, S	No	No
AN2BS	ANNA-2 Immunoblot, S	No	No
DPPCS	DPPX Ab CBA, S	No	No
DPPTS	DPPX Ab IFA Titer, S	No	No
GABIS	GABA-B-R Ab IF Titer Assay, S	No	No
GRFCS	GRAF1 CBA, S	No	No
GRFTS	GRAF1 IFA Titer, S	No	No
IG5CS	IgLON5 CBA, S	No	No
IG5TS	IgLON5 IFA Titer, S	No	No
ITPCS	ITPR1 CBA, S	No	No
ITPTS	ITPR1 IFA Titer, S	No	No
GL1CS	mGluR1 Ab CBA, S	No	No
GL1TS	mGluR1 Ab IFA Titer, S	No	No
NFHCS	NIF Heavy Chain CBA, S	No	No
NIFTS	NIF IFA Titer, S	No	No
NFLCS	NIF Light Chain CBA, S	No	No
NMDIS	NMDA-R Ab IF Titer Assay, S	No	No
PC1BS	PCA-1 Immunoblot, S	No	No
PCTBS	PCA-Tr Immunoblot, S	No	No
K11TS	KLHL11 Ab IFA Titer, S	No	No
AGNTS	AGNA-1 Titer, S	No	No

AN1TS	ANNA-1 Titer, S	No	No
AN2TS	ANNA-2 Titer, S	No	No
AN3TS	ANNA-3 Titer, S	No	No
APBCS	AP3B2 CBA, S	No	No
APBTS	AP3B2 IFA Titer, S	No	No
APHTS	Amphiphysin Ab Titer, S	No	No
CRMTS	CRMP-5-IgG Titer, S	No	No
GFACS	GFAP CBA, S	No	No
GFATS	GFAP IFA Titer, S	No	No
NCDCS	Neurochondrin CBA, S	No	No
NCDTS	Neurochondrin IFA Titer, S	No	No
PC1TS	PCA-1 Titer, S	No	No
PC2TS	PCA-2 Titer, S	No	No
PCTTS	PCA-Tr Titer, S	No	No
SP5CS	Septin-5 CBA, S	No	No
SP5TS	Septin-5 IFA Titer, S	No	No
SP7CS	Septin-7 CBA, S	No	No
SP7TS	Septin-7 IFA Titer, S	No	No

Testing Algorithm

If the immunofluorescence assay (IFA) patterns suggest amphiphysin antibody, then amphiphysin immunoblot (IB) and amphiphysin titer will be performed at an additional charge.

If the IFA pattern suggests antiglial nuclear antibody-1 (AGNA)-1, then AGNA-1 IB and AGNA-1 titer will be performed at an additional charge.

If the IFA pattern suggests antineuronal nuclear antibody type 1 (ANNA-1), then ANNA-1 IB, ANNA-1 titer, and ANNA-2 IB will be performed at an additional charge.

If the IFA pattern suggests ANNA-2 antibody, then ANNA-2 IB, ANNA-2 titer, and ANNA-1 IB will be performed at an additional charge.

If client requests or the IFA pattern suggests ANNA-3 antibodies, then ANNA-3 titer will be performed at an additional charge.

If the IFA pattern suggests adaptor protein 3 beta 2 (AP3B2) antibodies, then AP3B2 cell-binding assay (CBA) and AP3B2 titer will be performed at an additional charge.

If collapsin response-mediator protein-5 (CRMP-5)-IgG Western blot is positive, then CRMP-5-IgG IFA titer will be performed at an additional charge.

If the IFA pattern suggests Purkinje cytoplasmic antibody type 1 (PCA-1), then PCA-1 IB and PCA-1 titer will be performed

at an additional charge.

If the IFA pattern suggests PCA-2 antibody, then PCA-2 titer will be performed at an additional charge.

If the IFA pattern suggests PCA-Tr antibody, then PCA-Tr IB and PCA-Tr titer will be performed at an additional charge.

If the IFA pattern suggests IgLON5 antibody, then IgLON5 CBA and IgLON5 antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests GTPase regulator associated with focal adhesion kinase-1 (GRAF1) antibody, then GRAF1 CBA and GRAF1 antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests inositol 1,4,5-trisphosphate receptor (ITPR1) antibody, then ITPR1 CBA and ITPR1 antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests alpha-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid (AMPA)-receptor antibody, then AMPA-receptor antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests dipeptidyl-peptidase-like protein-6 antibody (DPPX) antibody, then DPPX CBA and DPPX antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests gamma-aminobutyric acid B (GABA-B)-receptor antibody, then GABA-B-receptor antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests glial fibrillary acidic protein (GFAP) antibody, then GFAP antibody CBA and GFAP antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests metabotropic glutamate receptor 1 (mGluR1) antibody, then mGluR1 CBA and mGluR1 antibody IFA titer will be performed at an additional charge.

If N-methyl-D-aspartate (NMDA)-receptor antibody CBA is positive, then NMDA-receptor antibody IFA titer is performed at an additional charge.

If the IFA pattern suggests neuronal intermediate filament (NIF) antibody, then alpha internexin CBA, NIF heavy chain CBA, NIF light chain CBA, and NIF antibody IFA titer will be performed at an additional charge.

If the Kelch-like protein 11 (KLHL11) CBA is reactive, then KLHL11 antibody IFA titer will be performed at an additional charge.

If the IFA pattern suggests neurochondrin antibody, then neurochondrin antibody CBA and neurochondrin titer will be performed at an additional charge.

If the IFA pattern suggests septin-5 antibody, then septin-5 CBA and septin-5 titer will be performed at an additional

charge.

If the IFA pattern suggests septin-7 antibody, then septin-7 CBA and septin-7 titer are performed at an additional charge.

For more information see Autoimmune/Paraneoplastic Movement Disorder Evaluation Algorithm-Serum.

Special Instructions

- Autoimmune/Paraneoplastic Movement Disorder Evaluation Algorithm-Serum

Method Name

GRFIS, GRFTS, K11TS, AGN1S, AGNTS, AMPIS, AMPHS, APHTS, ANN1S, AN1TS, ANN2S, AN2TS, ANN3S, AN3TS, APBIS, APBTS, CRMTS, DPPIS, DPPTS, GABIS, GFAIS, GFATS, IG5IS, IG5TS, ITPIS, ITPTS, GL1IS, GL1TS, NCDIS, NCDTS, NIFIS, NIFTS, NMDIS, PCABP, PC1TS, PCAB2, PC2TS, PCATR, PCTTS, SP7IS, SP7TS, SP5IS, SP5TS: Indirect Immunofluorescence Assay (IFA)

GRFCS, K11CS, AMPCS, APBCS, CS2CS, DPPCS, GABCS, GFACS, IG5CS, ITPCS, LG1CS, GL1CS, NCDCS, AINCS, NFLCS, NFHCS, NMDCS, SP7CS, SP5CS: Cell Binding Assay (CBA)

CRMWS: Western Blot (WB)

AGNBS, AMIBS, AN1BS, AN2BS, PC1BS, PCTBS: Immunoblot (IB)

CCPQ, GD65S: Radioimmunoassay (RIA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Ordering Guidance

Multiple neurological phenotype-specific autoimmune/paraneoplastic evaluations are available. For more information as well as phenotype-specific testing options, refer to Autoimmune Neurology Test Ordering Guide.

For a list of antibodies performed with each evaluation, see Autoimmune Neurology Antibody Matrix.

Necessary Information

Provide the following information:
-Relevant clinical information

-Ordering provider name, phone number, mailing address, and e-mail address

Specimen Required

Patient Preparation:

1. For optimal antibody detection, specimen collection is recommended prior to initiation of immunosuppressant medication or intravenous immunoglobulin treatment.
2. This test should not be requested for patients who have recently received radioisotopes, therapeutically or diagnostically, because of potential assay interference. The specific waiting period before specimen collection will depend on the isotope administered, the dose given, and the clearance rate in the individual patient. Specimens will be screened for radioactivity prior to analysis. Radioactive specimens received in the laboratory will be held 1 week and assayed if sufficiently decayed or canceled if radioactivity remains.

Supplies: Sarstedt 5 mL Aliquot Tube (T914)
Collection Container/Tube:
Preferred: Red top
Acceptable: Serum gel
Submission Container/Tube: Plastic vial
Specimen Volume: 4 mL
Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Forms

If not ordering electronically, complete, print, and send a Neurology Specialty Testing Client Test Request (T732) with the specimen.

Specimen Minimum Volume

3 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Frozen	28 days	
	Ambient	72 hours	

Clinical & Interpretive

Clinical Information

Autoimmune movement disorders encapsulate a large and diverse group of neurologic disorders occurring either in isolation or accompanying more diffuse autoimmune encephalitic illnesses.

The full range of movement phenomena has been described, and, as they often occur in adults, many of the presentations can mimic neurodegenerative disorders, such as autoimmune chorea mimicking Huntington disease. Disorders may be ataxic, hypokinetic (parkinsonism), or hyperkinetic (myoclonus, chorea other dyskinetic disorders). Associated disorders may fall under the rubric of brainstem encephalitis.

The autoantibody targets are diverse and include neuronal surface proteins, such as leucine-rich, glioma-inactivated 1 (LGI1), as well as antibodies reactive with intracellular antigens (such as Purkinje cell cytoplasmic antibody type 1 [PCA-1]) that are markers of a central nervous system process mediated by CD8+ cytotoxic T cells.

In some instances (such as PCA-1 autoimmunity), antibodies detected in serum and cerebrospinal fluid can be indicative of a paraneoplastic cause and may direct the cancer search. In other instances (such as 65-kDa isoform of glutamic acid decarboxylase [GAD65] autoimmunity), a paraneoplastic cause is very unlikely, and early treatment with immunotherapy may promote improvement or recovery.

Reference Values

Test ID	Reporting Name	Methodology*	Reference Value
MDSI	Movement Disorder Interp, S	Medical interpretation	N/A
AMPCS	AMPA-R Ab CBA, S	CBA	Negative
AMPHS	Amphiphysin Ab, S	IFA	Negative
AGN1S	Anti-Glial Nuclear Ab, Type 1	IFA	Negative
ANN1S	Anti-Neuronal Nuclear Ab, Type 1	IFA	Negative
ANN2S	Anti-Neuronal Nuclear Ab, Type 2	IFA	Negative
ANN3S	Anti-Neuronal Nuclear Ab, Type 3	IFA	Negative
APBIS	AP3B2 IFA, S	IFA	Negative
CS2CS	CASPR2-IgG CBA, S	CBA	Negative
CRMWS	CRMP-5-IgG Western Blot, S	WB	Negative
DPPIS	DPPX Ab IFA, S	IFA	Negative
GABCS	GABA-B-R Ab CBA, S	CBA	Negative
GD65S	GAD65 Ab Assay, S	RIA	< or =0.02 nmol/L Reference values apply to all ages.
GFAIS	GFAP IFA, S	IFA	Negative
GRFIS	GRAF1 IFA, S	IFA	Negative
IG5IS	IgLON5 IFA, S	IFA	Negative
ITPIS	ITPR1 IFA, S	IFA	Negative
K11CS	KLHL11 Ab CBA, S	CBA	Negative

LG1CS	LGI1-IgG CBA, S	CBA	Negative
GL1IS	mGluR1 Ab IFA, S	IFA	Negative
NCDIS	Neurochondrin IFA, S	IFA	Negative
NIFIS	NIF IFA, S	IFA	Negative
NMDCS	NMDA-R Ab CBA, S	CBA	Negative
CCPQ	P/Q-Type Calcium Channel Ab	RIA	< or =0.02 nmol/L
PCABP	Purkinje Cell Cytoplasmic Ab Type 1	IFA	Negative
PCAB2	Purkinje Cell Cytoplasmic Ab Type 2	IFA	Negative
PCATR	Purkinje Cell Cytoplasmic Ab Type Tr	IFA	Negative
SP5IS	Septin-5 IFA, S	IFA	Negative
SP7IS	Septin-7 IFA, S	IFA	Negative

Reflex Information:

Test ID	Reporting Name	Methodology*	Reference Value
AGNBS	AGNA-1 Immunoblot, S	IB	Negative
AGNTS	AGNA-1 Titer, S	IFA	<1:240
AINCS	Alpha Internexin CBA, S	CBA	Negative
AMPIS	AMPA-R Ab IF Titer Assay, S	IFA	<1:240
AMIBS	Amphiphysin Immunoblot, S	IB	Negative
AN1BS	ANNA-1 Immunoblot, S	IB	Negative
AN1TS	ANNA-1 Titer, S	IFA	<1:240
AN2BS	ANNA-2 Immunoblot, S	IB	Negative
AN2TS	ANNA-2 Titer, S	IFA	<1:240
AN3TS	ANNA-3 Titer, S	IFA	<1:240
APBCS	AP3B2 CBA, S	CBA	Negative
APBTS	AP3B2 IFA Titer, S	IFA	<1:240
APHTS	Amphiphysin Ab Titer, S	IFA	<1:240
CRMTS	CRMP-5-IgG Titer, S	IFA	<1:240
DPPCS	DPPX Ab CBA, S	CBA	Negative
DPPTS	DPPX Ab IFA Titer, S	IFA	<1:240
GABIS	GABA-B-R Ab IF Titer Assay, S	IFA	<1:240
GFACS	GFAP CBA, S	CBA	Negative
GFATS	GFAP IFA Titer, S	IFA	<1:240
GRFCS	GRAF1 CBA, S	CBA	Negative
GRFTS	GRAF1 IFA Titer, S	IFA	<1:240
IG5CS	IgLON5 CBA, S	CBA	Negative
IG5TS	IgLON5 IFA Titer, S	IFA	<1:240
ITPCS	ITPR1 CBA, S	CBA	Negative
ITPTS	ITPR1 IFA Titer, S	IFA	<1:240
K11TS	KLHL11 Ab IFA Titer, S	IFA	<1:240
GL1CS	mGluR1 Ab CBA, S	CBA	Negative
GL1TS	mGluR1 Ab IFA Titer, S	IFA	<1:240

NCDCS	Neurochondrin CBA, S	CBA	Negative
NCDTS	Neurochondrin IFA Titer, S	IFA	<1:240
NFHCS	NIF Heavy Chain CBA, S	CBA	Negative
NIFTS	NIF IFA Titer, S	IFA	<1:240
NFLCS	NIF Light Chain CBA, S	CBA	Negative
NMDIS	NMDA-R Ab IF Titer Assay, S	IFA	<1:240
PC1BS	PCA-1 Immunoblot, S	IB	Negative
PC1TS	PCA-1 Titer, S	IFA	<1:240
PC2TS	PCA-2 Titer, S	IFA	<1:240
PCTBS	PCA-Tr Immunoblot, S	IB	Negative
PCTTS	PCA-Tr Titer, S	IFA	<1:240
SP5CS	Septin-5 CBA, S	CBA	Negative
SP5TS	Septin-5 IFA Titer, S	IFA	<1:240
SP7CS	Septin-7 CBA, S	CBA	Negative
SP7TS	Septin-7 IFA Titer, S	IFA	<1:240

*Methodology abbreviations:
Immunofluorescence assay (IFA)
Cell-binding assay (CBA)
Western blot (WB)
Radioimmunoassay (RIA)
Immunoblot (IB)

Neuron-restricted patterns of IgG staining that do not fulfill criteria for ANNA-1, ANNA-2, ANNA-3, CRMP-5-IgG, PCA-1, PCA-2, or PCA-Tr may be reported as "unclassified anti-neuronal IgG." Complex patterns that include nonneuronal elements may be reported as "uninterpretable."

Interpretation

A positive antibody result is consistent with a diagnosis of an autoimmune movement disorder.

A search for cancer may be indicated, depending on the antibody profile.

A trial of immune therapy may bring about improvement in neurological symptoms.

Cautions

A negative antibody test result does not exclude an autoimmune movement disorder.

Corticosteroid treatment prior to the serum collection may cause a false-negative result.

Intravenous immunoglobulin (IVIg) treatment prior to the serum collection may cause a false-positive result.

Clinical Reference

1. Honorat JA, McKeon A: Autoimmune movement disorders: a clinical and laboratory approach. Curr Neurol Neurosci

Rep. 2017 Jan;17(1):4. doi: 10.1007/s11910-017-0709-2
2. Dubey D, Wilson MR, Clarkson B, et al: Expanded clinical Phenotype, oncological associations, and immunopathologic insights of paraneoplastic Kelch-like protein-11 encephalitis. JAMA Neurol. 2020 Nov 1;77(11):1420-1429. doi: 10.1001/jamaneurol.2020.2231

Performance

Method Description

Cell-Binding Assay
Patient specimen is applied to a composite slide containing transfected and nontransfected HEK-293 cells. After incubation and washing, fluorescein-conjugated goat-antihuman IgG is applied to detect the presence of patient IgG binding.(Package insert: IIFT: Neurology Mosaics, Instructions for the indirect immunofluorescence test. EUROIMMUN; FA_112d-1_A_UK_C13, 02/2019)

Methodology for detecting Kelch-like protein 11 (KLHL11)-IgG uses an in-house developed cell binding assay (CBA) with confirmation by a tissue indirect immunofluorescence assay (IFA). The CBA utilizes HEK293 cells that are stably transfected with DNA encoding the KLHL11 protein that has been tagged with green fluorescent protein (GFP). Since KLHL11 is localized to cytoplasmic vesicles when ectopically expressed, cells will be fixed and permeabilized prior to exposure to patient sample. Patients that are positive for KLHL11-IgG will have human IgG bound to the transfected cells. Binding will colocalize with the GFP-tagged KLHL11 protein in cytoplasmic vesicles. Patient IgG will be detected using a tetramethylrhodamine conjugated anti-human secondary antibody. The negative samples will not bind to KLHL11-GFP in transfected cells. Performed in a 96 well plate format, the plates are scanned, and images saved using the ImageXpress Micro Confocal High-Content Imaging System (Molecular Devices). Images will be scored positive or negative.(Unpublished Mayo method)

Indirect Immunofluorescence Assay
The patient's sample is tested by a standardized IFA that uses a composite frozen section of mouse cerebellum, kidney, and gut tissues. After incubation with sample and washing, fluorescein-conjugated goat-antihuman IgG is applied. Neuron-specific autoantibodies are identified by their characteristic fluorescence staining patterns. Samples that are scored positive for any neuronal nuclear or cytoplasmic autoantibody are titrated to an endpoint. Interference by coexisting non-neuron-specific autoantibodies can usually be eliminated by serologic absorption.(Honorat JA, Komorowski L, Josephs KA, et al: IgLON5 antibody: neurological accompaniments and outcomes in 20 patients. Neruol Neruoimmunol Neruoinflamm. 2017 Jul 18;4(5):e385. doi: 10.1212/NXI.0000000000000385)

Radioimmunoassay
Duplicate aliquots of the patient specimen are incubated with (125)I-labeled antigen. Immune complexes, formed by adding secondary (goat) antihuman immunoglobulin, are pelleted by centrifugation and washed. Gamma emission from the washed pellet is counted, and mean counts per minute (cpm) are compared with results yielded by high positive and negative control sera. Specimens yielding cpm higher than the background cpm yielded by normal human specimens are retested to confirm positivity and titrated as necessary to obtain a value in the linear range of the assay. The antigen binding capacity (nmol per liter) is calculated from the cpm precipitated at a dilution yielding a linear range

value.(Griesmann GE, Kryzer TJ, Lennon VA: Autoantibody profiles of myasthenia gravis and Lambert-Eaton myasthenic syndrome. In: Rose NR, Hamilton RG, et al, eds. Manual of Clinical and Laboratory Immunology. 6th ed. ASM Press; 2002:1005-1012; Jones AL, Flanagan EP, Pittock SJ, et al: Responses to and outcomes of treatment of autoimmune cerebellar ataxia in adults. JAMA Neurol. 2015 Nov;72[11]:1304-1312. doi: 10.1001/jamaneurol.2015.2378)

Western Blot
Neuronal antigens extracted aqueously from adult rat cerebellum, full-length recombinant human collapsin response-mediator protein-5 (CRMP-5), or full-length recombinant human amphiphysin protein is denatured, reduced, and separated by electrophoresis on 10% polyacrylamide gel. IgG is detected autoradiographically by enhanced chemiluminescence.(Yu Z, Kryzer TJ, Griesmann GE, et al: CRMP-5 neuronal autoantibody: marker of lung cancer and thymoma-related autoimmunity. Ann Neurol. 2001 February;49[2]:146-154; Dubey D, Jitprapaikulsan J, Bi H, et al: Amphiphysin-IgG autoimmune neuropathy: A recognizable clinicopathologic syndrome. Neurology. 2019 Nov 12;93[20]:e1873-e1880. doi: 10.1212/WNL.0000000000008472)

Immunoblot
All steps are performed at room temperature (18-28 degrees C) utilizing the EUROBlot One instrument. Diluted patient serum (1:101) is added to test strips (strips containing recombinant antigen manufactured and purified using biochemical methods) in individual channels and incubated for 30 minutes. Positive specimens will bind to the purified recombinant antigen and negative specimens will not bind. Strips are washed to remove unbound serum antibodies and then incubated with anti-human IgG antibodies (alkaline phosphatase-labelled) for 30 minutes. The strips are again washed to remove unbound anti-human IgG antibodies and nitroblue tetrazolium chloride/5-bromo-4-chloro-3-indolylphosphate substrate is added. Alkaline phosphatase enzyme converts the soluble substrate into a colored insoluble product on the membrane to produce a black band. Strips are digitized via picture capture on the EUROBlot One instrument and evaluated with the EUROLineScan software.(O'Connor K, Waters P, Komorowski L, et al: GABAA receptor autoimmunity: A multicenter experience. Neurol Neuroimmunol Neuroinflamm. 2019 Apr 4;6[3]:e552. doi: 10.1212/NXI.0000000000000552)

PDF Report
No

Day(s) Performed
Profile tests: Monday through Sunday; Reflex tests: Varies

Report Available
8 to 12 days

Specimen Retention Time
28 days

Performing Laboratory Location
Rochester

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

86255 x24
86596
84182
0432U
86341
84182 AGNBS (if appropriate)
86256 AGNTS (if appropriate)
86255 AINCS (if appropriate)
84182 AMIBS (if appropriate)
86256 AMPIS (if appropriate)
84182 AN1BS (if appropriate)
86256 AN1TS (if appropriate)
84182 AN2BS (if appropriate)
86256 AN2TS (if appropriate)
86256 AN3TS (if appropriate)
86255 APBCS (if appropriate)
86256 APBTS (if appropriate)
86256 APHTS (if appropriate)
86256 CRMTS (if appropriate)
86255 DPPCS (if appropriate)
86256 DPPTS (if appropriate)
86256 GABIS (if appropriate)
86255 GFACS (if appropriate)
86256 GFATS (if appropriate)
86255 GL1CS (if appropriate)
86256 GL1TS (if appropriate)
86255 GRFCS (if appropriate)
86256 GRFTS (if appropriate)
86255 IG5CS (if appropriate)
86256 IG5TS (if appropriate)

86255 ITPCS (if appropriate)
86256 ITPTS (if appropriate)
86256 K11TS (if appropriate)
86255 NCDCS (if appropriate)
86256 NCDTS (if appropriate)
86255 NFHCS (if appropriate)
86255 NFLCS (if appropriate)
86256 NIFTS (if appropriate)
86256 NMDIS (if appropriate)
84182 PC1BS (if appropriate)
86256 PC1TS (if appropriate)
86256 PC2TS (if appropriate)
84182 PCTBS (if appropriate)
86256 PCTTS (if appropriate)
86255 SP5CS (if appropriate)
86256 SP5TS (if appropriate)
86255 SP7CS (if appropriate)
86256 SP7TS (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MDS2	Movement, Autoimm/Paraneo, S	94701-0

Result ID	Test Result Name	Result LOINC® Value
89080	AGNA-1, S	84927-3
81722	Amphiphysin Ab, S	72327-0
80150	ANNA-1, S	33615-6
80776	ANNA-2, S	43187-4
83137	ANNA-3, S	43102-3
81185	P/Q-Type Calcium Channel Ab	94349-8
83107	CRMP-5-IgG Western Blot, S	47401-5
81596	GAD65 Ab Assay, S	30347-9
83138	PCA-2, S	84925-7
9477	PCA-1, S	84924-0
83076	PCA-Tr, S	84926-5
61516	NMDA-R Ab CBA, S	93503-1
61518	AMPA-R Ab CBA, S	93489-3
61519	GABA-B-R Ab CBA, S	93428-1
64279	LGI1-IgG CBA, S	94287-0
64281	CASPR2-IgG CBA, S	94285-4
64930	DPPX Ab IFA, S	82976-2

64928	mGluR1 Ab IFA, S	94347-2
601998	Movement Disorder Interp, S	69048-7
618903	IFA Notes	48767-8
605155	GFAP IFA, S	94346-4
606946	IgLON5 IFA, S	96476-7
606952	ITPR1 IFA, S	96464-3
606964	NIF IFA, S	96486-6
606958	GRAF1 IFA, S	96471-8
610581	KLHL11 Ab CBA, S	99072-1
615867	Neurochondrin IFA, S	101452-1
615871	Septin-5 IFA, S	101460-4
615875	Septin-7 IFA, S	101465-3
615863	AP3B2 IFA, S	101907-4