MAYO CLINIC LABORATORIES

Test Definition: DMS2

Dementia, Autoimmune/Paraneoplastic Evaluation, Serum

Overview

Useful For

Investigating new onset dementia and cognitive impairment plus 1 or more of the following using serum specimens:
-Rapid onset and progression
-Fluctuating course
-Psychiatric accompaniments (psychosis, hallucinations)
-Movement disorder (myoclonus, tremor, dyskinesias)
-Headache
-Autoimmune stigmata (personal history or family history or signs of diabetes mellitus, thyroid disorder, vitiligo, poliosis [premature graying], myasthenia gravis, rheumatoid arthritis, systemic lupus erythematosus)
-Smoking history (20 or more pack-years) or other cancer risk factors
-History of cancer
-Inflammatory cerebrospinal fluid
-Neuroimaging findings atypical for degenerative etiology

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
ADMSI	Dementia, Interpretation, 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
CS2CS	CASPR2-IgG CBA, S	No	Yes
CRMS	CRMP-5-IgG, S	No	Yes
DPPCS	DPPX Ab CBA, 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
IG5CS	IgLON5 CBA, S	No	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
PCAB2	Purkinje Cell Cytoplasmic Ab Type 2	No	Yes
PCATR	Purkinje Cell Cytoplasmic Ab Type Tr	No	Yes
PDEIS	PDE10A Ab IFA, S	No	Yes
T46IS	TRIM46 Ab 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
CRMWS	CRMP-5-IgG Western Blot, S	Yes	No
DPPTS	DPPX Ab IFA Titer, S	No	No
GABIS	GABA-B-R Ab IF Titer Assay, S	No	No
GFACS	GFAP CBA, S	No	No
GFATS	GFAP IFA Titer, S	No	No
IG5TS	IgLON5 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
PCTBS	PCA-Tr Immunoblot, S	No	No
AN1TS	ANNA-1 Titer, S	No	No
AN2TS	ANNA-2 Titer, S	No	No
AN3TS	ANNA-3 Titer, S	No	No
APHTS	Amphiphysin Ab Titer, S	No	No
CRMTS	CRMP-5-IgG Titer, S	No	No
NCDCS	Neurochondrin CBA, S	No	No
NCDTS	Neurochondrin IFA Titer, S	No	No

PC2TS	PCA-2 Titer, S	No	No
PCTTS	PCA-Tr Titer, S	No	No
AGNTS	AGNA-1 Titer, S	No	No
PDETS	PDE10A Ab IFA Titer, S	No	No
T46CS	TRIM46 Ab CBA, S	No	No
T46TS	TRIM46 Ab IFA Titer, S	No	No

Testing Algorithm

To determine the necessity of laboratory testing for patients with suspected autoimmune encephalitis, epilepsy or dementia, see the Antibody Prevalence in Epilepsy and Encephalopathy (APE2) scorecard.

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

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

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

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

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

If client requests or if the IFA patterns suggest collapsin response-mediator protein 5 (CRMP-5)-IgG, then the CRMP-5-IgG Western blot and CRMP-5-IgG IFA titer will be performed at an additional charge.

If the AMPA (alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid 9) receptor antibody cell-binding assay (CBA) result is positive, then the AMPA receptor antibody IFA titer will be performed at an additional charge.

If the contactin-associated protein-like-2 (CASPR2)-receptor antibody CBA result is positive, then the CRMP-5-IgG Western blot will be performed at an additional charge.

If the gamma-aminobutyric acid B (GABA-B) receptor antibody CBA result is positive, then the GABA-B receptor antibody IF titer will be performed at an additional charge.

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

If the N-methyl-D-aspartate (NMDA)-receptor antibody CBA result is positive, then NMDA receptor antibody IF titer will be performed at an additional charge.

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

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

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

If the IgLON5 antibody CBA result is positive, then the IgLON5 IFA titer will be performed at an additional charge.

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

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

If the IFA pattern suggests tripartite motif-containing protein 46 (TRIM46) antibody, then the TRIM46 antibody CBA and TRIM46 IFA titer will be performed at an additional charge.

If the IFA pattern suggests phosphodiesterase 10A (PDE10A) antibody, then the PDE10A antibody IFA titer will be performed at an additional charge.

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

Special Instructions

- Autoimmune/Paraneoplastic Dementia Evaluation Algorithm-Serum

Method Name

ADMSI: Medical Interpretation

AMPCS, CS2CS, LG1CS, DPPCS, GABCS, GFACS, IG5CS, GL1CS, NCDCS, AINCS, NFLCS, NFHCS, NMDCS, T46CS: Cell Binding Assay (CBA)

AGN1S, AGNTS, AMPIS, AMPHS, APHTS, ANN1S, AN1TS, ANN2S, AN2TS, ANN3S, AN3TS, CRMS, CRMTS, DPPTS, GABIS, GFAIS, GFATS, IG5TS, GL1IS, GL1TS, NCDIS, NCDTS, NIFIS, NIFTS, NMDIS, PCAB2, PC2TS, PCATR, PCTTS, PDEIS, PDETS, T46IS, T46TS: Indirect Immunofluorescence Assay (IFA)

GD65S: Radioimmunoassay (RIA)

CRMWS: Western Blot (WB)

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

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.

When more than one evaluation is ordered on the same order number, the duplicate test will be canceled.

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

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.

Necessary Information

Provide the following information:
-Relevant clinical information
-Ordering healthcare professional's name, phone number, mailing address, and e-mail address

Specimen Required

Patient Preparation:
1. For optimal antibody detection, specimen collection is recommended before starting immunosuppressant medication or intravenous immunoglobulin (IVIG) treatment.
2. For 24 hours before specimen collection, patient **should not** receive general anesthetic or take muscle-relaxant drugs.
Supplies: Sarstedt Aliquot Tube, 5 mL (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

2.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

The rapid identification of subacute cognitive decline as autoimmune dementia facilitates optimum treatment with immunotherapy and an expedited search for a limited stage of cancer in some patients. Traditionally, neurologists have been reluctant to consider a diagnosis of an autoimmune cognitive disorder in the absence of delirium. However, some recent case series and clinical-serologic observations have suggested a growing appreciation for autoimmune neurologic disorders presenting with features of a rapidly progressive dementia rather than delirium. These disorders can affect all age groups.

Unfortunately, these potentially reversible conditions may be misdiagnosed as being progressive neurodegenerative (currently irreversible) disorders with devastating consequences for the patient. In the evaluation of a patient with cognitive decline, clinicians should consider the possibility of an autoimmune etiology on their list of differential diagnoses. The importance of not overlooking this possibility rests in the experience that these patients have a potentially immunotherapy-responsive, reversible disorder. The development and widespread availability of neural antibody marker testing has changed this perspective so that other presenting symptoms, such as personality change, executive dysfunction, and psychiatric symptoms, are increasingly recognized in an autoimmune context.

Clues that are helpful in identifying patients with an autoimmune dementia can be summarized as a triad of:
-Suspicious clinical features (a subacute onset of symptoms, a rapidly progressive course, and fluctuating symptoms) and radiological findings
-Detection of cerebrospinal fluid (CSF) or serological biomarkers of autoimmunity
-Response to immunotherapy

Detection of neural autoantibodies in serum or CSF serves 2 purposes: to inform the physician of a likely autoimmune etiology and to raise suspicion for a paraneoplastic cause. The neurological associations of neural autoantibodies tend to be diverse and multifocal, although certain syndromic associations may apply. For example, LGI1 (leucine-rich, glioma inactivated 1) antibody was initially considered to be specific for autoimmune limbic encephalitis but, over time, other presentations have been reported, including rapidly progressive course of cognitive decline mimicking neurodegenerative dementia.

Since neurological presentations are often multifocal and diverse, comprehensive antibody testing is usually more informative than testing for 1 or 2 selected antibodies. Some of the antibodies are highly predictive of an unsuspected underlying cancer. For example, small-cell lung carcinoma (antineuronal nuclear antibody-type 1 [ANNA-1]; collapsin response-mediator protein-5 neuronal [CRMP-5-IgG]), ovarian teratoma (N-methyl-D-aspartate receptor: NMDA-R), and thymoma (CRMP-5 IgG).

Also, a profile of seropositivity for multiple autoantibodies may be informative for cancer type. For example, in a patient presenting with a rapidly progressive dementia who has CRMP-5-IgG, and subsequent testing reveals muscle acetylcholine receptor (AChR) binding antibody, the findings should raise a high suspicion for thymoma. If an associated tumor is found, its resection or ablation optimizes the neurological outcome.

Antibody testing on CSF is additionally helpful, particularly when serum testing is negative, although, in some circumstances, testing both serum and CSF simultaneously is pertinent. Testing of CSF is recommended for some antibodies (eg, NMDA-R antibody and glial fibrillary acidic protein [GFAP]-IgG) because CSF testing is more sensitive and specific.

Reference Values

Test ID	Reporting name	Methodology	Reference value
ADMSI	Dementia, Interpretation, S	Medical interpretation	Interpretive report
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
CS2CS	CASPR2-IgG CBA, S	CBA	Negative
CRMS	CRMP-5-IgG, S	IFA	Negative
DPPCS	DPPX Ab CBA, S	CBA	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
IG5CS	IgLON5 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
PCAB2	Purkinje Cell Cytoplasmic Ab Type 2	IFA	Negative
PCATR	Purkinje Cell Cytoplasmic Ab Type Tr	IFA	Negative
PDEIS	PDE10A Ab IFA, S	IFA	Negative
T46IS	TRIM46 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
APHTS	Amphiphysin Ab Titer, S	IFA	<1:240
CRMTS	CRMP-5-IgG Titer, S	IFA	<1:240
CRMWS	CRMP-5-IgG Western Blot, S	WB	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
IG5TS	IgLON5 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
PC2TS	PCA-2 Titer, S	IFA	<1:240
PCTTS	PCA-Tr Titer, S	IFA	<1:240
PCTBS	PCA-Tr Immunoblot, S	IB	Negative
PDETS	PDE10A Ab IFA Titer, S	IFA	<1:240
T46CS	TRIM46 CBA, S	CBA	Negative
T46TS	TRIM46 IFA Titer, S	IFA	<1:240

*Methodology abbreviations used:
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."

Note: CRMP-5 titers lower than 1:240 are detectable by recombinant CRMP-5 Western blot analysis. CRMP-5 Western blot analysis will be done on request on stored serum (held 4 weeks). This supplemental testing is recommended in cases of chorea, vision loss, cranial neuropathy, and myelopathy. Call the Neuroimmunology Laboratory at 800-533-1710 to request CRMP-5 Western blot.

Interpretation

Antibodies specific for neuronal, glial, or muscle proteins are valuable serological markers of autoimmune epilepsy and of a patient's immune response to cancer. These autoantibodies are not found in healthy subjects and are usually accompanied by subacute neurological symptoms and signs. It is not uncommon for more than 1 of the following autoantibodies to be detected in patients with autoimmune dementia:
-Plasma membrane antibodies (N-methyl-D-aspartate [NMDA] receptor; 2-amino-3-[5-methyl-3-oxo-1,2-oxazol-4-yl] propanoic acid [AMPA] receptor; gamma-amino butyric acid [GABA-B] receptor). These autoantibodies are all potential effectors of dysfunction.
-Neuronal nuclear autoantibody, type 1 (ANNA-1) or type 3 (ANNA-3).
-Neuronal or muscle cytoplasmic antibodies (amphiphysin, Purkinje cell antibody-type 2 [PCA-2], collapsin response-mediator protein-5 neuronal [CRMP-5-IgG], or glutamic acid decarboxylase [GAD65] antibody).

Cautions

Negative results do not exclude autoimmune dementia or cancer.

This test does not detect Ma1 or Ma2 antibodies (also known as MaTa). Ma2 antibody has been described in patients with brainstem and limbic encephalitis in the context of testicular germ cell neoplasms. Scrotal ultrasound is advisable in men who present with unexplained subacute encephalitis.

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

Clinical Reference

1. Sechi E, Flanagan EP. Diagnosis and management of autoimmune dementia. Curr Treat Options Neurol. 2019;21(3):11. Published 2019 Feb 27. doi:10.1007/s11940-019-0550-9
2. Bastiaansen AEM, van Steenhoven RW, de Bruijn MAAM, et al. Autoimmune encephalitis resembling dementia syndromes. Neurol Neuroimmunol Neuroinflamm. 2021;8(5):e1039. Published 2021 Aug 2. doi:10.1212/NXI.0000000000001039
3. Flanagan EP, Geschwind MD, Lopez-Chiriboga AS, et al. Autoimmune encephalitis misdiagnosis in adults. JAMA

Neurol. 2023;80(1):30-39. doi:10.1001/jamaneurol.2022.4251
4. Orozco E, Valencia-Sanchez C, Britton J, et al. Autoimmune encephalitis criteria in clinical practice. Neurol Clin Pract. 2023;13(3):e200151. doi:10.1212/CPJ.0000000000200151
5. Bastiaansen AEM, van Steenhoven RW, Te Vaarwerk ES, et al. Antibodies associated with autoimmune encephalitis in patients with presumed neurodegenerative dementia. Neurol Neuroimmunol Neuroinflamm. 2023;10(5):e200137. Published 2023 Jun 13. doi:10.1212/NXI.0000000000200137

Performance

Method Description

Indirect Immunofluorescence Assay:
The patient's sample is tested by a standardized immunofluorescence assay 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. Neurol Neuroimmunol Neuroinflamm. 2017;4[5]:e385. doi:10.1212/NXI.0000000000000385)

Radioimmunoassay:
(125)I-labeled recombinant human antigens or labeled receptors are incubated with patient sample. After incubation, anti-human IgG is added to form an immunoprecipitate. The amount of (125)I-labeled antigen in the immunoprecipitate is measured using a gamma-counter. The amount of gamma emission in the precipitate is proportional to the amount of antigen-specific IgG in the specimen. Results are reported as units of precipitated antigen (nmol) per liter of patient sample.(Griesmann GE, Kryzer TJ, Lennon VA: Autoantibody profiles of myasthenia gravis and Lambert-Eaton myasthenic syndrome. In: Rose NR, Hamilton RG, eds. Manual of Clinical and Laboratory Immunology. 6th ed. ASM Press; 2002:1005-1012; Walikonis JE, Lennon VA. Radioimmunoassay for glutamic acid decarboxylase [GAD65] autoantibodies as a diagnostic aid for stiff-man syndrome and a correlate of susceptibility to type 1 diabetes mellitus. Mayo Clin Proc. 1998;73[12]:1161-1166; Jones AL, Flanagan EP, Pittock SJ, et al. Responses to and outcomes of treatment of autoimmune cerebellar ataxia in adults. JAMA Neurol. 2015;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;49[2]:146-154; Dubey D, Jitprapaikulsan J, Bi H, et al. Amphiphysin-IgG autoimmune neuropathy: A recognizable clinicopathologic syndrome. Neurology. 2019;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

sample (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 samples will bind to the purified recombinant antigen and negative samples will not bind. Strips are washed to remove unbound 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 (NBT/BCIP) substrate is added. Alkaline phosphatase enzyme converts the soluble substrate into a colored insoluble product on the membrane to produces 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;6[3]:e552. doi:10.1212/NXI.0000000000000552)

Cell-Binding Assay:
Patient sample is applied to a composite slide containing transfected and nontransfected EU90 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, 02/25/2019)

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 x 21
86341
84182-AGNBS (if appropriate)
86256 AGNTS (if appropriate)
86255-AINCS (if appropriate)
86256-AMPIS (if appropriate)
84182-AMIBS (if appropriate)
84182-AN1BS (if appropriate)
86256-AN1TS (if appropriate)
84182-AN2BS (if appropriate)
86256-AN2TS (if appropriate)
86256-AN3TS (if appropriate)
86256-APHTS (if appropriate)
86256-CRMTS (if appropriate)
84182-CRMWS (if appropriate)
86256-DPPTS (if appropriate)
86256-GABIS (if appropriate)
86255-GFACS (if appropriate)
86256-GFATS (if appropriate)
86256-IG5TS (if appropriate)
86255-GL1CS (if appropriate)
86256-GL1TS (if appropriate)
86255-NCDCS (if appropriate)
86256-NCDTS (if appropriate)
86255-NFHCS (if appropriate)
86256-NIFTS (if appropriate)
86255-NFLCS (if appropriate)
86256-NMDIS (if appropriate)
86256-PC2TS (if appropriate)
84182-PCTBS (if appropriate)
86256-PCTTS (if appropriate)
86256 PDETS (if appropriate)
86255 T46CS (if appropriate)
86256 T46TS (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
DMS2	Dementia, Autoimm/Paraneo, S	94696-2

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
83077	CRMP-5-IgG, S	72504-4
81596	GAD65 Ab Assay, S	30347-9
83138	PCA-2, S	84925-7
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
34255	Dementia, Interpretation, S	69048-7
618894	IFA Notes	48767-8
64279	LGI1-IgG CBA, S	94287-0
64281	CASPR2-IgG CBA, S	94285-4
64933	DPPX Ab CBA, S	94676-4
64928	mGluR1 Ab IFA, S	94347-2
605155	GFAP IFA, S	94346-4
606964	NIF IFA, S	96486-6
606950	IgLON5 CBA, S	96478-3
615867	Neurochondrin IFA, S	101452-1
616445	TRIM46 Ab IFA, S	103843-9
620068	PDE10A Ab IFA, S	103842-1