Test Definition: EPC2

Epilepsy, Autoimmune/Paraneoplastic Evaluation, Spinal Fluid

Overview

Useful For

Investigating new onset cryptogenic epilepsy with incomplete seizure control and duration of fewer than 2 years using spinal fluid specimens

Investigating new onset cryptogenic epilepsy plus 1 or more of the following accompaniments:
-Psychiatric accompaniments (psychosis, hallucinations)
-Movement disorder (myoclonus, tremor, dyskinesias)
-Headache
-Cognitive impairment/encephalopathy
-Autoimmune stigmata (personal history or family history or signs of diabetes mellitus, thyroid disorder, vitiligo, premature graying of hair, myasthenia gravis, rheumatoid arthritis, systemic lupus erythematosus, idiopathic adrenocortical insufficiency) or "multiple sclerosis"
-History of cancer
-Smoking history (20 or more pack-years) or other cancer risk factors
-Investigating seizures occurring within the context of a subacute multifocal neurological disorder without an obvious cause, especially in a patient with a past or family history of cancer

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
AEPCI	Epilepsy, Interpretation, CSF	No	Yes
AMPCC	AMPA-R Ab CBA, CSF	No	Yes
AMPHC	Amphiphysin Ab, CSF	No	Yes
AGN1C	Anti-Glial Nuclear Ab, Type 1	No	Yes
ANN1C	Anti-Neuronal Nuclear Ab, Type 1	No	Yes
ANN2C	Anti-Neuronal Nuclear Ab, Type 2	No	Yes
ANN3C	Anti-Neuronal Nuclear Ab, Type 3	No	Yes
CS2CC	CASPR2-IgG CBA, CSF	No	Yes
CRMC	CRMP-5-IgG, CSF	No	Yes
DPPCC	DPPX Ab CBA, CSF	No	Yes
GD65C	GAD65 Ab Assay, CSF	Yes	Yes
GABCC	GABA-B-R Ab CBA, CSF	No	Yes
GFAIC	GFAP IFA, CSF	No	Yes
LG1CC	LGI1-IgG CBA, CSF	No	Yes

GL1IC	mGluR1 Ab IFA, CSF	No	Yes
NCDIC	Neurochondrin IFA, CSF	No	Yes
NMDCC	NMDA-R Ab CBA, CSF	No	Yes
PCTRC	Purkinje Cell Cytoplasmc Ab Type Tr	No	Yes
PCA2C	Purkinje Cell Cytoplasmic Ab Type 2	No	Yes
PDEIC	PDE10A Ab IFA, CSF	No	Yes
T46IC	TRIM46 Ab IFA, CSF	No	Yes

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
CULFB	Fibroblast Culture for Genetic Test	Yes	No
CULAF	Amniotic Fluid Culture/Genetic Test	Yes	No
AGNBC	AGNA-1 Immunoblot, CSF	No	No
AMPIC	AMPA-R Ab IF Titer Assay, CSF	No	No
AMIBC	Amphiphysin Immunoblot, CSF	No	No
AN1BC	ANNA-1 Immunoblot, CSF	No	No
AN2BC	ANNA-2 Immunoblot, CSF	No	No
CRMWC	CRMP-5-IgG Western Blot, CSF	Yes	No
DPPTC	DPPX Ab IFA Titer, CSF	No	No
GABIC	GABA-B-R Ab IF Titer Assay, CSF	No	No
GFACC	GFAP CBA, CSF	No	No
GFATC	GFAP IFA Titer, CSF	No	No
GL1CC	mGluR1 Ab CBA, CSF	No	No
GL1TC	mGluR1 Ab IFA Titer, CSF	No	No
NMDIC	NMDA-R Ab IF Titer Assay, CSF	No	No
PCTBC	PCA-Tr Immunoblot, CSF	No	No
_STR1	Comp Analysis using STR (Bill only)	No, (Bill only)	No
_STR2	Add'l comp analysis w/STR (Bill Only)	No, (Bill only)	No
AGNTC	AGNA-1 Titer, CSF	No	No
AN1TC	ANNA-1 Titer, CSF	No	No

AN2TC	ANNA-2 Titer, CSF	No	No
AN3TC	ANNA-3 Titer, CSF	No	No
APHTC	Amphiphysin Ab Titer, CSF	No	No
CRMTC	CRMP-5-IgG Titer, CSF	No	No
NCDCC	Neurochondrin CBA, CSF	No	No
NCDTC	Neurochondrin IFA Titer, CSF	No	No
PC2TC	PCA-2 Titer, CSF	No	No
PCTTC	PCA-Tr Titer, CSF	No	No
PDETC	PDE10A Ab IFA Titer, CSF	No	No
T46CC	TRIM46 Ab CBA, CSF	No	No
T46TC	TRIM46 Ab IFA Titer, CSF	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 client requests or if the indirect immunofluorescence assay (IFA) patterns suggest collapsin response-mediator protein-5-IgG (CRMP-5-IgG), then the CRMP-5-IgG IFA titer and CRMP-5-IgG Western blot will be performed at an additional charge.

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

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

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

If the client requests or 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 Purkinje cytoplasmic antibody type 2 (PCA-2), then the PCA-2 IFA 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 the alpha-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid (AMPA)-receptor antibody cell-binding assay (CBA)

result is positive, then the AMPA-receptor antibody IFA titer assay 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 IFA titer assay will be performed at an additional charge.

If the 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 the NMDA-receptor antibody IFA titer assay will be performed at an additional charge.

If the 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 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 Epilepsy Evaluation Algorithm-Spinal Fluid
-Epilepsy: Unexplained Refractory and/or Familial Testing Algorithm

Special Instructions

- Autoimmune/Paraneoplastic Epilepsy Evaluation Algorithm-Spinal Fluid
- Epilepsy: Unexplained Refractory and/or Familial Testing Algorithm

Method Name

AGN1C, AGNTC, AMPIC, AMPHC, APHTC, ANN1C, AN1TC, ANN2C, AN2TC, ANN3C, AN3TC, CRMTC, CRMC, DPPTC, GABIC, GFAIC, GFATC, GL1IC, GL1TC, NCDIC, NCDTC, NMDIC, PCA2C, PC2TC, PCTRC, PCTTC, PDEIC, PDETC, T46IC, T46TC: Indirect Immunofluorescence Assay (IFA)

AMPCC, CS2CS, DPPCC, GABCC, GFACC, LG1CC, GL1CC, NCDCC, NMDCC, T46CC: Cell Binding Assay (CBA)

CRMWC: Western Blot (WB)

AGNBC, AMIBC, AN1BC, AN2BC, PCTBC: Immunoblot (IB)

GD65C: Radioimmunoassay (RIA)

NY State Available
Yes

Specimen

Specimen Type
CSF

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

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

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

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

Specimen Required
Container/Tube: Sterile vial
Preferred: Collection vial number 1
Acceptable: Any collection vial
Specimen Volume: 4 mL

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

Specimen Minimum Volume
2 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Antiepileptic drugs (AED) are the mainstay of treatment for epilepsy, but seizures continue in one-third of patients despite appropriate AED therapeutic trials. The etiology of epilepsy often remains unclear. Seizures are a common symptom in autoimmune neurological disorders, including limbic encephalitis and multifocal paraneoplastic disorders. Seizures may be the exclusive manifestation of an autoimmune encephalopathy without evidence of limbic encephalitis.

Autoimmune epilepsy is increasingly recognized in the spectrum of neurological disorders characterized by detection of neural autoantibodies in serum or spinal fluid (CSF) and responsiveness to immunotherapy. The advent of more sensitive and specific serological detection methods is increasingly revealing previously underappreciated autoimmune epilepsies. Neural autoantibodies specific for intracellular and plasma membrane antigens aid the diagnosis of autoimmune epilepsy, but no single antibody is specific for this diagnosis.

Autoantibody specificities most informative for autoimmune epilepsies include leucine-rich glioma inactivated protein-1 (LGI1), glutamic acid decarboxylase-65 (GAD65), N-methyl-D-aspartate receptor (NMDA-R), alpha-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid receptors (AMPA-R), and gamma-aminobutyric acid type B receptor (GABA-B-R) antibodies.

Autoantibodies recognizing onconeural proteins shared by neurons, glia, or muscle (eg, antineuronal nuclear antibody, type 1 [ANNA 1]; collapsin response-mediator protein-5 neuronal [CRMP-5-IgG]; N-type calcium channel antibody), also serve as markers of paraneoplastic or idiopathic autoimmune epilepsies. A specific neoplasm is often predictable by the individual patient's autoantibody profile.

Suspicion for autoimmune epilepsy on clinical grounds justifies comprehensive evaluation of CSF and serum for neural autoantibodies. Selective testing for individual autoantibodies is not advised because each is individually rare, and a timely diagnosis is critical. Collectively, the antibodies tested for in the autoimmune epilepsy evaluations represent a broad spectrum of treatable disorders, some of which are associated with occult cancer. Testing of CSF for autoantibodies is particularly helpful 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. In contrast, serum testing for LGI1 antibody is more sensitive than CSF testing. Failure to detect a neural antibody does not exclude the diagnosis of autoimmune epilepsy when other clinical clues exist. A trial of immunotherapy is justifiable in those cases.

Reference Values

Test ID	Reporting Name	Methodology*	Reference Value
AEPCI	Epilepsy, Interpretation, CSF	Medical interpretation	Interpretive report
AMPCC	AMPA-R Ab CBA, CSF	CBA	Negative
AMPHC	Amphiphysin Ab, CSF	IFA	Negative
AGN1C	Anti-Glial Nuclear Ab, Type 1	IFA	Negative
ANN1C	Anti-Neuronal Nuclear Ab, Type 1	IFA	Negative
ANN2C	Anti-Neuronal Nuclear Ab, Type 2	IFA	Negative
ANN3C	Anti-Neuronal Nuclear Ab, Type 3	IFA	Negative
CS2CC	CASPR2-IgG CBA, CSF	CBA	Negative
CRMC	CRMP-5-IgG, CSF	IFA	Negative
DPPCC	DPPX Ab CBA, CSF	CBA	Negative
GABCC	GABA-B-R Ab CBA, CSF	CBA	Negative
GD65C	GAD65 Ab Assay, CSF	RIA	< or =0.02 nmol/L Reference values apply to all ages.
GFAIC	GFAP IFA, CSF	IFA	Negative
LG1CC	LGI1-IgG CBA, CSF	CBA	Negative
GL1IC	mGluR1 Ab IFA, CSF	IFA	Negative
NCDIC	Neurochondrin IFA, CSF	IFA	Negative
NMDCC	NMDA-R Ab CBA, CSF	CBA	Negative
PCTRC	Purkinje Cell Cytoplasmic Ab Type Tr	IFA	Negative
PCA2C	Purkinje Cell Cytoplasmic Ab Type 2	IFA	Negative
PDEIC	PDE10A Ab IFA, CSF	IFA	Negative
T46IC	TRIM46 Ab IFA, CSF	IFA	Negative

Reflex Information:

Test ID	Reporting Name	Methodology*	Reference Value
AGNBC	AGNA-1 Immunoblot, CSF	IB	Negative
AGNTC	AGNA-1 Titer, CSF	IFA	<1:2
AMPIC	AMPA-R Ab IF Titer Assay, CSF	IFA	<1:2
AMIBC	Amphiphysin Immunoblot, CSF	IB	Negative
AN1BC	ANNA-1 Immunoblot, CSF	IB	Negative
AN1TC	ANNA-1 Titer, CSF	IFA	<1:2
AN2BC	ANNA-2 Immunoblot, CSF	IB	Negative
AN2TC	ANNA-2 Titer, CSF	IFA	<1:2

AN3TC	ANNA-3 Titer, CSF	IFA	<1:2
APHTC	Amphiphysin Ab Titer, CSF	IFA	<1:2
CRMTC	CRMP-5-IgG Titer, CSF	IFA	<1:2
CRMWC	CRMP-5-IgG Western Blot, CSF	WB	Negative
DPPTC	DPPX Ab IFA Titer, CSF	IFA	<1:2
GABIC	GABA-B-R Ab IF Titer Assay, CSF	IFA	<1:2
GFACC	GFAP CBA, CSF	CBA	Negative
GFATC	GFAP IFA Titer, CSF	IFA	<1:2
GL1CC	mGluR1 Ab CBA, CSF	CBA	Negative
GL1TC	mGluR1 Ab IFA Titer, CSF	IFA	<1:2
NCDCC	Neurochondrin CBA, CSF	CBA	Negative
NCDTC	Neurochondrin IFA Titer, CSF	IFA	<1:2
NMDIC	NMDA-R Ab IF Titer Assay, CSF	IFA	<1:2
PC2TC	PCA-2 Titer, CSF	IFA	<1:2
PCTBC	PCA-Tr Immunoblot, CSF	IB	Negative
PCTTC	PCA-Tr Titer, CSF	IFA	<1:2
PDETC	PDE10A Ab IFA Titer, CSF	IFA	<1:2
T46CC	TRIM46 Ab CBA, CSF	CBA	Negative
T46TC	TRIM46 Ab IFA Titer, CSF	IFA	<1:2

*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, PCA-2, or PCA-Tr may be reported as "unclassified antineuronal IgG." Complex patterns that include non-neuronal elements may be reported as "uninterpretable."

Note: CRMP-5 titers lower than 1:2 are detectable by recombinant CRMP-5 Western blot analysis. CRMP-5 Western blot analysis will be done on request on stored spinal fluid (held for 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 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 epilepsy:
-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-aminobutyric acid [GABA-B] receptor). These autoantibodies are all potential effectors of dysfunction

-Antineuronal nuclear antibody, type 1 (ANNA-1) or 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)
A rising autoantibody titer in a previously seropositive patient suggests cancer recurrence.

Cautions

Negative results do not exclude autoimmune epilepsy or cancer.

This evaluation does not detect Ma2 antibody (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.

Clinical Reference

1. Smith KM, Britton JW, Thakolwiboon S, et al. Seizure characteristics and outcomes in patients with neurological conditions related to high-risk paraneoplastic antibodies. Epilepsia. 2023;64(9):2385-2398. doi:10.1111/epi.17695
2. Garrido Sanabria ER, Zahid A, Britton J, et al. CASPR2-IgG-associated autoimmune seizures. Epilepsia. 2022;63(3):709-722. doi:10.1111/epi.17164
3. Smith KM, Zalewski NL, Budhram A, et al. Musicogenic epilepsy: Expanding the spectrum of glutamic acid decarboxylase 65 neurological autoimmunity. Epilepsia. 2021;62(5):e76-e81. doi:10.1111/epi.16888
4. Steriade C, Britton J, Dale RC, et al. Acute symptomatic seizures secondary to autoimmune encephalitis and autoimmune-associated epilepsy: Conceptual definitions. Epilepsia. 2020;61(7):1341-1351. doi:10.1111/epi.16571
5. Dubey D, Singh J, Britton JW, et al. Predictive models in the diagnosis and treatment of autoimmune epilepsy. Epilepsia. 2017;58(7):1181-1189. doi:10.1111/epi.13797

Performance

Method Description

Cell-Binding Assay:
Patient specimen 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)

Indirect Immunofluorescence Assay:
The patient's specimen is tested by a standardized immunofluorescence assay that uses a composite frozen section of mouse cerebellum, kidney, and gut tissues. After incubation with the specimen and washing, fluorescein-conjugated goat-antihuman IgG is applied. Neuron-specific autoantibodies are identified by their characteristic fluorescence staining patterns. Specimens that are scored positive for any neuronal nuclear or cytoplasmic autoantibody are titrated. 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. Published 2017 Jul 18. doi:10.1212/NXI.0000000000000385)

Radioimmunoassay:
(125)I-labeled recombinant human antigens or labeled receptors are incubated with patient specimen. 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: NR Rose, RG Hamilton, 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)

Immunoblot:
All steps are performed at ambient temperature (18-28 degrees C) utilizing the EUROBlot One instrument. Diluted patient specimen (1:12.5) 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 antibodies and then incubated with antihuman IgG antibodies (alkaline phosphatase-labeled) for 30 minutes. The strips are again washed to remove unbound antihuman IgG antibodies and nitroblue tetrazolium chloride/5-bromo-4-chloro-3-indolyl phosphate (NBT/BCIP) 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;6[3]:e552. doi:10.1212/NXI.0000000000000552)

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)

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

Mayo Clinic Laboratories - Rochester Main Campus

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 19
86341 x 1
84182-AGNBC (if appropriate)
86256-AGNTC (if appropriate)
86256-AMPIC (if appropriate)
84182-AMIBC (if appropriate)
84182-AN1BC (if appropriate)
86256 AN1TC (if appropriate)
84182-AN2BC (if appropriate)
86256-AN2TC (if appropriate)
86256-AN3TC (if appropriate)
86256-APHTC (if appropriate)
86256-CRMTC (if appropriate)
84182-CRMWC (if appropriate)
86256-DPPTC (if appropriate)
86256-GABIC (if appropriate)
86255-GFACC (if appropriate)
86256-GFATC (if appropriate)
86255-GL1CC (if appropriate)
86256-GL1TC (if appropriate)
86255-NCDCC (if appropriate)
86256-NCDTC (if appropriate)
86256-NMDIC (if appropriate)
86256-PC2TC (if appropriate)
84182-PCTBC (if appropriate)

86256-PCTTC (if appropriate)
86256-PDETC (if appropriate)
86255-T46CC (if appropriate)
86256-T46TC (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
EPC2	Epilepsy, Autoimm/Paraneo, CSF	In Process

Result ID	Test Result Name	Result LOINC® Value
89079	AGNA-1, CSF	90827-7
5906	Amphiphysin Ab, CSF	90815-2
3852	ANNA-1, CSF	44768-0
7472	ANNA-2, CSF	56959-0
21633	ANNA-3, CSF	90836-8
21650	CRMP-5-IgG, CSF	63216-6
21632	PCA-2, CSF	90843-4
21631	PCA-Tr, CSF	90845-9
21702	GAD65 Ab Assay, CSF	94359-7
61513	NMDA-R Ab CBA, CSF	93502-3
61514	AMPA-R Ab CBA, CSF	93491-9
61515	GABA-B-R Ab CBA, CSF	93426-5
34258	Epilepsy, Interpretation, CSF	69048-7
618897	IFA Notes	48767-8
64280	LGI1-IgG CBA, CSF	94288-8
64282	CASPR2-IgG CBA, CSF	94286-2
64927	mGluR1 Ab IFA, CSF	94361-3
64934	DPPX Ab CBA, CSF	94283-9
605156	GFAP IFA, CSF	94360-5
615866	Neurochondrin IFA, CSF	101451-3
620067	PDE10A Ab IFA, CSF	103842-1
616446	TRIM46 Ab IFA, CSF	103843-9