## Lab Dept: Serology

## Test Name: EPILEPSY AUTOIMMUNE EVALUATION

***General Information***

**Lab Order Codes:** EPS1

**Synonyms:** N/A

**CPT Codes:**

83519-ACh receptor (muscle) binding antibody
83519-AChR ganglionic neuronal antibody
83519-P/Q-type calcium channel antibody
86255-AGNA-1
86255-Amphiphysin
86255-ANNA-1
86255-ANNA-2
86255-ANNA-3
86255-CRMP-5-IgG
86255-PCA-2
86255-PCA-Tr
86255-AMPAR-Ab
86255-GABAR-Ab
86255-NMDAR-Ab
86255-LG1CS
86255-CS2CS
86255-DPPX
86255-GL1IS
86255-GFAIS
86341-GAD65
The following reflex testing may be added on at an additional charge:
83519-ARBI (if appropriate)
83519-ARMO (if appropriate)
84182-AGNBS (if appropriate)
86256-AMPIS (if appropriate)
84182-AMIBS (if appropriate)
84182-AN1BS (if appropriate)
84182-AN2BS (if appropriate)
84182-CRMWS Western blot confirmation (if appropriate)
86255-DPPCS (if appropriate)
86256-DPPTS (if appropriate)
86256-GABIS (if appropriate)
86255-GFACS (if appropriate)
86256-GFATS (if appropriate)
86255-PCA-1 (if appropriate)
86255-GL1CS (if appropriate)
86256-GL1TS (if appropriate)
86256-NMDIS (if appropriate)
84182-PC1BS (if appropriate)
84182-PCTBS (if appropriate)
86255-PCABP (if appropriate)

**Test Includes:**

If client requests, or if IFA patterns suggest CRMP-5-IgG, then CRMP-5-IgG Western blot, ACh Receptor muscle binding ab and aCH muscle modulating ab are performed at an additional charge.

If IFA pattern suggest NMO/AQP4-IgG, then NMO/AQP4-IgG FACS is performed at an additional charge.

If IFA pattern suggest AMPA-R antibody and AMPA-R antibody CBA is positive, then AMPA-R IF titer is performed at an additional charge.

If IFA pattern suggest GABA-B-R antibody and GABA-B-R antibody CBA is positive, then GABA-B-R IF titer is performed at an additional charge.

If IFA pattern suggests GFAP antibody, the GFAP IFA titer and GFAP CBA are performed at an additional charge.

If IFA patterns suggests NMDA-receptor ab, and NMDA-receptor ab CBA is positive, then NMDA-receptor ab IF titer assay is performed at an additional charge.

If IFA patterns suggest PCA-1, the Purkinje cell cytoplasmic antibody type 1 assay is performed at an additional charge.

If IFA patterns suggest AGNA-1 antibody, then AGNA-1 immunoblot is performed at an additional charge.

If IFA patterns suggest amphiphysin antibody, then amphiphysin immunoblot is performed at an additional charge.

If IFA patterns suggest ANNA-1 antibody, then ANNA-1 immunoblot is performed at an additional charge.

If IFA patterns suggest ANNA-2 antibody, then ANNA-2 immunoblot is performed at an additional charge.

If IFA patterns suggest PCA-1 antibody, then PCA-1 immunoblot is performed at an additional charge.

If IFA patterns suggest PCA-Tr antibody, the PCA-Tr is performed at an additional charge.

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## *Logistics*

**Test Indications:**

This assay is useful for investigating new onset cryptogenic epilepsy with incomplete seizure control and duration less than 2 years in serum specimens plus one or more of the following:

Psyhiatric accompaniments (psychosis, hallucinations), Movement disorder (myclonus, tremor, dyskinesias), Headache, Cognitive impairment/encephalopathy, Autoimmune stigmata, Smoking History, History of Cancer, Investigating Seizures, a rising Autoantibody titer in a previously seropositive patient suggests cancer recurrence.

**Lab Testing Sections:** Serology-Sendouts

**Referred to:** Mayo Clinical Laboratory (MML Code: EPS2)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 4- 10 days

**Special Instructions:** See Patient Preparation

## *Specimen*

**Specimen Type:** Blood

**Container:** SST (Marble, Gold or Red) tube

**Draw Volume:** 12 mL (Minimum:6 mL) blood

**Processed Volume:** 4 mL (Minimum:2 mL) blood

**Collection:** Routine blood collection

**Special Processing:** Lab Staff: Centrifuge specimen, remove serum from cells, aliquot into a screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly.

**Patient Preparation:** For optimal antibody detection, specimen collection is recommended prior to initiation of immunosuppressant medication.

This test should not be requested in 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 assayed if sufficiently decayed or canceled if radioactivity remains.

Patients should have no general anesthetic or muscle-relaxant drugs in the previous 24 hours.

**Sample Rejection:** Mislabeled or unlabeled; Gross Hemolysis; Lipemic, grossly icteric

## *Interpretive*

**Reference Range:**

| Antibody | Reference Range |
|---|---|
| ANNA-1 | <1:240 |
| ANNA-2 | <1:240 |

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|---|---|
| ANNA-3 | <1:240 |
| AGNA-1 | <1:240 |
| PCA-2 | <1:240 |
| PCA-Tr | <1:240 |
| Amphiphysin Ab | <1:240 |
| CRMP-5-IgG | <1:240 |
| N-Type Calcium Channel Ab | < or=0.03 nmol/L |
| P/Q-Type Calcium Channel Ab | < or=0.02 nmol/L |
| ACh Ganglionic Neuronal Ab | < or=0.02 nmol/L |
| GAD65 Ab | < or=0.02 nmol/L |
| NMDA-R Ab CBA | Negative |
| GABA-B-R- Ab CBA | Negative |
| LGI1-IgG CBA | Negative |
| CASPR2-IgG CBA | Negative |
| AMPA-R Ab CBA | Negative |
| DPPX Ab IFA | Negative |
| GFAP IFA | Negative |
| mGluRq Ab IFA | Negative |
| **Reflex Tests** | |
| AGNA-1 Immunoblot | Negative |
| ANNA-1 Immunoblot | Negative |
| ANNA-2 Immunoblot | Negative |
| PCA-1 | <1:240 |
| PCA-1 Immunoblot | Negative |
| PCA-Tr Immunoblot | Negative |
| CRMP-5-IgG Western Blot | Negative |
| ACh Receptor (Muscle) Binding Ab | < or=0.02 nmol/L |
| ACh Receptor (Muscle) Modulating Ab | 0-20% |
| DPPX Ab CBA | Negative |
| DPPX Ab IFA Titer | <1:240 |
| GFAP CBA | Negative |
| GFAP IFA Titer | <1:240 |
| Amphiphysin Immunoblot | Negative |
| GFAP IFA Titer | <1:240 |
| mGluR1 Ab CBA | Negative |
| mGluR1 Ab IFA Titer | <1:240 |
| NMDA-R Ab IF Titer Assay | <1:120 |
| AMPA-R-Ab IF Titer Assay | <1:120 |
| GABA-B-R- Ab IF Titer Assay | <1:120 |
| Neuron-restricted patterns of IgG staining that do not fulfill criterial for ANN1, ANNA-2, CRMP-5 IgG, PCA-1, PCA-2, or PCA-Tr may be reported as “unclassified anti-neuronal IgG.” Complex patterns that include non-neuronal elements may be reported as “uninterpretable.”<br>Note: CRMP-5 titers lower that 1:240 are detectable by recombinant CRMP-5 Western blot analysis. CRMP-5 Western blot analysis will | |

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|---|---|
| | 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. |
| **Critical Values:** | N/A |
| **Limitations:** | Negative results do not exclude autoimmune epilepsy or cancer.<br><br>This test does not detect Ma2 antibody (alias: 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. |
| **Methodology:** | Indirect Immunofliuorescence Assay(IFA), Western Blot (WB), Cell Binding Assay (CBA), Live Cell Assay (LCA), Immunoblot (IB), and RIA |
| **References:** | Mayo Clinical Laboratories Mayo 2020 |
| **Updates:** | 6/21/2019: Panel updated per Mayo, change in base test and new reflexes added.<br>4/15/2020: Updated algorithms and reflex testing. |