Lab Dept: Other Fluids

Test Name: ENCEPHALOPATHY AUTOIMMUNE EVALUATION, CSF

General Information

Lab Order Codes: ENC2

Synonyms: Encephalopathy Autoimmune Eval, Spinal Fluid

CPT Codes: 86255 x19 – Fluorescent noninfectious agent, antibody screen, each antibody
86341 – Islet cell antibody

Possible reflex testing (at an additional charge):

84182 x7 – Western blot, with interpretation and report, each
86255 x7 – Fluorescent noninfectious agent, antibody screen, each antibody
86256 x 8 – Fluorescent noninfectious agent, titer, each antibody

Test Includes: If IFA patterns suggest CRMP-5-IgG, then CRMP-5-IgG Western blot 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 AGNA-1 antibody, then AGNA-1 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 charged.

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

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

If IFA patterns suggest IgLON5 antibody, then IgLON5 IFA titer IgLON5 cell-binding assay (CBA) is performed at an additional charge.

If IFA pattern suggests AMPA-R antibody and AMPA-R antibody cell-binding assay (CBA) is positive, then AMPA-R IFA 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 IFA titer is performed at an additional charge

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

If IFA pattern suggests NMDA-R antibody and NMDA-R antibody CBA is positive, then NMDA-R IFA titer is performed at an additional charge.

If IFA pattern suggest DPPX antibody, then DPPX antibody CBA and DPPX IFA titer are performed at an additional charge.

If IFA pattern suggest mGluR1 antibody, then mGluR1antibody CBA and mGluR1 IFA titer are performed at an additional charge.

If IFA pattern suggests NIF antibody, then alpha internexin CBA, NIF heavy chain CBA, NIF light chain CBA, and NIF titer are performed at an additional charge.

Logistics

Test indications:

Evaluating new onset encephalopathy (non-infectious or metabolic) comprising confusional states, pyschosis,, delirium, memory loss, hallucinations, movement disorders, sensory or motor complaints, seizures, dyssomnias, ataxias, nausea, vomiting, inappropriate anti-diruresis, coma, dysautonomias, or hypoventilation in spinal fluid specimens.

The following accompaniments should increase suspicion for autoimmune encephalopathy:

● Headache
● Autoimmune stigmata (personal or family history or signs of diabetes mellitus, thyroid disorder, vitiligo, poliosis [premature graying], myasthenia gravis, rheumatoid arthritis, systemic lupus erythematosus)
● History of cancer
● Smoking history (20+ pack years) or other cancer risk factors
● Inflammatory cerebrospinal fluid (or isolated protein elevation)
● Neuroimaging signs suggest inflammation
● Evaluating limbic encephalitis
● Directing a focused search for cancer
● Investigating encephalopathy appearing in the course or wake of cancer therapy and not explainable by metastasis or drug effect

Lab Testing Sections: Other Fluids - Sendouts

Referred to: Mayo Clinic Laboratories – (Mayo test: ENC2)

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours

Turnaround Time: 5 – 10 days

Special Instructions: N/A

Specimen

Specimen Type: CSF

Container: Screw-capped, sterile, plastic vial

Draw Volume: 4.0 mL (Minimum: 2.0 mL) CSF

Processed Volume: Same as Draw Volume

Collection: Routine CSF collection

Special Processing: Lab Staff: Aliquot 4.0 (min: 2.0) mL CSF. Store and ship refrigerated in plastic vial.

Patient Preparation: None

Sample Rejection: Mislabeled or unlabeled specimens

Interpretive

Reference Range:

Antibody:	Reference Range:
AMPA-R Ab CBA	Negative
Amphiphysin Ab	<1:2
Anti-Glial Nuclear Ab Type 1	<1:2
Anti-Neuronal Nuclear Ab Type 1	<1:2
Anti-Neuronal Nuclear Ab Type 2	<1:2
Anti-Neuronal Nuclear Ab Type 3	<1:2
CASPR-2 IgG CBA	Negative
CRMP-5-IgG	<1:2
DPPX Ab IFA	Negative

Reflex Reference Ranges:

GABA-B-R Ab CBA	Negative
GAD65 Ab Assay	<0.02 nmol/L
GFAP IFA	Negative
IgLON5 IFA	Negative
LGI1-IgG CGA	Negative
mGluR1 Ab IFA	Negative
NIF IFA	Negative
NMDA-R Ab CBA	Negative
Purkinje Cell Cytoplasm Ab Type Tr	<1:2
Purkinje Cell Cytoplasmic Ab Type 1	<1:2
Purkinje Cell Cytoplasmic Ab Type 2	<1:2
AGNA-1 Immunoblot	Negative
Alpha Internexin CBA	Negative
AMPA-R Ab IF Titer Assay	<1:2
Amphiphysin Immunoblot	Negative
ANNA-1 Immunoblot	Negative
ANNA-2 Immunoblot	Negative
CRMP-5-IgG Western Blot	Negative
DPPX Ab CBA	Negative
DPPX Ab IFA Titer	<1:2
GABA-B-R Ab IF Titer Assay	<1:2
GFAP CBA	Negative
GFAP IFA Titer	<1:2

IgLON5 CBA	Negative
IgLON5 IFA Titer	<1:2
mGluR1 Ab CBA	Negative
mGluR1 Ab IFA Titer	<1:2
NIF Light Chain CBA	Negative
NMDA-R Ab IF Titer Assay	<1:2
PCA-1 Immunoblot	Negative
PCA-Tr Immunoblot	Negative
Neuron-restricted patterns of IgG staining that do not fulfill criteria for ANNA-1, ANNA-2, ANNA-3, 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."	
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 4 weeks). This supplemental testing is recommended in cases of chorea, vision loss, cranial neuropathy, and myelopathy.	

Limitations: Negative results do not exclude autoimmune encephalopathy or cancer. This test does not detect Ma1 or Ma2 antibodies (alias MaTa), which are sometimes associated with brainstem and limbic encephalitis in the context of testicular germ cell neoplasms. Scrotal ultrasound is advised for men who present with unexplained subacute encephalitis.

Methodology: Indirect immunofluorescence Assay (IFA), Radioimmunassay (RIA), Immunblot (IB), Cell Binding Assay (CBA), Western Blot

References: Mayo Clinic Laboratories (May 2020)