



Test Definition: ENS2

Encephalopathy, Autoimmune/Paraneoplastic
Evaluation, Serum

Reporting Title: Encephalopathy, Autoimm/Paraneo, S

Performing Location: Mayo Clinic Laboratories - Rochester Main Campus

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 test will be canceled.

For a list of antibodies performed with each evaluation, see [Autoimmune Neurology Antibody Matrix](#).

This test is intended to be ordered for **adult** patients. If this test is ordered for a patient younger than 18 years, it will be canceled and automatically reordered by the laboratory as PCDES / Pediatric Autoimmune Encephalopathy/CNS Disorder Evaluation, Serum. The pediatric autoimmune central nervous system disorders evaluation is part of an evolving approach to testing for autoimmune neurological disorders using phenotypic-specific evaluations that include multiple antibodies known for their disease association.

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 for 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 email address

Specimen Requirements:

Patient Preparation: For optimal antibody detection, specimen collection is recommended before starting immunosuppressant medication or intravenous immunoglobulin (IVIg) treatment.

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](#) 1 of the following with the specimen:

-[Neurology Specialty Testing Client Test Request](#) (T732)

-[General Test Request](#) (T239)

-[Microbiology Test Request](#) (T244)

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

Result Codes:

Result ID	Reporting Name	Type	Unit	LOINC®
89080	AGNA-1, S	Alphanumeric		84927-3
81722	Amphiphysin Ab, S	Alphanumeric		72327-0
80150	ANNA-1, S	Alphanumeric		33615-6
80776	ANNA-2, S	Alphanumeric		43187-4
83137	ANNA-3, S	Alphanumeric		43102-3
83077	CRMP-5-IgG, S	Alphanumeric		72504-4
81596	GAD65 Ab Assay, S	Numeric	nmol/L	94345-6
83138	PCA-2, S	Alphanumeric		84925-7
9477	PCA-1, S	Alphanumeric		84924-0
83076	PCA-Tr, S	Alphanumeric		84926-5
61516	NMDA-R Ab CBA, S	Alphanumeric		93503-1
61518	AMPA-R Ab CBA, S	Alphanumeric		93489-3
61519	GABA-B-R Ab CBA, S	Alphanumeric		93428-1
34257	Encephalopathy, Interpretation, S	Alphanumeric		69048-7
618896	IFA Notes	Alphanumeric		48767-8
64279	LGI1-IgG CBA, S	Alphanumeric		94287-0
64281	CASPR2-IgG CBA, S	Alphanumeric		94285-4
64933	DPPX Ab CBA, S	Alphanumeric		94676-4
64928	mGluR1 Ab IFA, S	Alphanumeric		94347-2
605155	GFAP IFA, S	Alphanumeric		94346-4
606964	NIF IFA, S	Alphanumeric		96486-6
606950	IgLON5 CBA, S	Alphanumeric		96478-3
615867	Neurochondrin IFA, S	Alphanumeric		101452-1
615875	Septin-7 IFA, S	Alphanumeric		101465-3
616445	TRIM46 Ab IFA, S	Alphanumeric		105525-0
620068	PDE10A Ab IFA, S	Alphanumeric		103842-1

LOINC® and CPT codes are provided by the performing laboratory.

Supplemental Report:

No

Components:

Test Id	Reporting Name	CPT Units	CPT Code	Always Performed	Available Separately
AEESI	Encephalopathy, Interpretation, S			Yes	No
AMPCS	AMPA-R Ab CBA, S	1	86255	Yes	No
AMPHS	Amphiphysin Ab, S	1	86255	Yes	No
AGN1S	Anti-Glial Nuclear Ab, Type 1	1	86255	Yes	No
ANN1S	Anti-Neuronal Nuclear Ab, Type 1	1	86255	Yes	No
ANN2S	Anti-Neuronal Nuclear Ab, Type 2	1	86255	Yes	No
ANN3S	Anti-Neuronal Nuclear Ab, Type 3	1	86255	Yes	No
CS2CS	CASPR2-IgG CBA, S	1	86255	Yes	No
CRMS	CRMP-5-IgG, S	1	86255	Yes	No
DPPCS	DPPX Ab CBA, S	1	86255	Yes	No
GABCS	GABA-B-R Ab CBA, S	1	86255	Yes	No
GD65S	GAD65 Ab Assay, S	1	86341	Yes	Yes
GFAIS	GFAP IFA, S	1	86255	Yes	No
GL1IS	mGluR1 Ab IFA, S	1	86255	Yes	No
IG5CS	IgLON5 CBA, S	1	86255	Yes	No
LG1CS	LGI1-IgG CBA, S	1	86255	Yes	No
NCDIS	Neurochondrin IFA, S	1	86255	Yes	No
NIFIS	NIF IFA, S	1	86255	Yes	No
NMDCS	NMDA-R Ab CBA, S	1	86255	Yes	No
PCABP	Purkinje Cell Cytoplasmic Ab Type 1	1	86255	Yes	No
PCAB2	Purkinje Cell Cytoplasmic Ab Type 2	1	86255	Yes	No
PCATR	Purkinje Cell Cytoplasmic Ab Type Tr	1	86255	Yes	No
PDEIS	PDE10A Ab IFA, S	1	86255	Yes	No
SP7IS	Septin-7 IFA, S	1	86255	Yes	No
T46IS	TRIM46 Ab IFA, S	1	86255	Yes	No

CPT Code Information:

86255 x 23

86341 x 1

84182-AGNBS (if appropriate)

86256 AGNTS (if appropriate)

86255-AINCS (if appropriate)

86256-AMPIS (if appropriate)

86256 APHTS (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 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)
- 84182-PC1BS (if appropriate)
- 86256 PC1TS (if appropriate)
- 86256 PC2TS (if appropriate)
- 84182-PCTBS (if appropriate)
- 86256 PCTTS (if appropriate)
- 86256 PDETCS (if appropriate)
- 86255 SP7CS (if appropriate)
- 86256 SP7TS (if appropriate)
- 86255 T46CS (if appropriate)
- 86256 T46TS (if appropriate)

Reflex Tests:

Test Id	Reporting Name	CPT Units	CPT Code	Always Performed	Available Separately
AGNBS	AGNA-1 Immunoblot, S	1	84182	No	No
AINCS	Alpha Internexin CBA, S	1	86255	No	No
AMPIS	AMPA-R Ab IF Titer Assay, S	1	86256	No	No
AMIBS	Amphiphysin Immunoblot, S	1	84182	No	No
AN1BS	ANNA-1 Immunoblot, S	1	84182	No	No
AN2BS	ANNA-2 Immunoblot, S	1	84182	No	No
CRMWS	CRMP-5-IgG Western Blot, S	1	84182	No	Yes
DPPTS	DPPX Ab IFA Titer, S	1	86256	No	No
GABIS	GABA-B-R Ab IF Titer Assay, S	1	86256	No	No
GFACS	GFAP CBA, S	1	86255	No	No
GFATS	GFAP IFA Titer, S	1	86256	No	No
IG5TS	IgLON5 IFA Titer, S	1	86256	No	No
GL1CS	mGluR1 Ab CBA, S	1	86255	No	No
GL1TS	mGluR1 Ab IFA Titer, S	1	86256	No	No
NFHCS	NIF Heavy Chain CBA, S	1	86255	No	No
NIFTS	NIF IFA Titer, S	1	86256	No	No

NFLCS	NIF Light Chain CBA, S	1	86255	No	No
NMDIS	NMDA-R Ab IF Titer Assay, S	1	86256	No	No
PC1BS	PCA-1 Immunoblot, S	1	84182	No	No
PCTBS	PCA-Tr Immunoblot, S	1	84182	No	No
AGNTS	AGNA-1 Titer, S	1	86256	No	No
APHTS	Amphiphysin Ab Titer, S	1	86256	No	No
AN1TS	ANNA-1 Titer, S	1	86256	No	No
AN2TS	ANNA-2 Titer, S	1	86256	No	No
AN3TS	ANNA-3 Titer, S	1	86256	No	No
CRMTS	CRMP-5-IgG Titer, S	1	86256	No	No
NCDCS	Neurochondrin CBA, S	1	86255	No	No
NCDTS	Neurochondrin IFA Titer, S	1	86256	No	No
PC1TS	PCA-1 Titer, S	1	86256	No	No
PC2TS	PCA-2 Titer, S	1	86256	No	No
PCTTS	PCA-Tr Titer, S	1	86256	No	No
SP7CS	Septin-7 CBA, S	1	86255	No	No
SP7TS	Septin-7 IFA Titer, S	1	86256	No	No
PDETS	PDE10A Ab IFA Titer, S	1	86256	No	No
T46CS	TRIM46 Ab CBA, S	1	86255	No	No
T46TS	TRIM46 Ab IFA Titer, S	1	86256	No	No

Result Codes for Reflex Tests:

Test ID	Result ID	Reporting Name	Type	Unit	LOINC®
CRMWS	83107	CRMP-5-IgG Western Blot, S	Alphanumeric		47401-5
AMPIS	61504	AMPA-R Ab IF Titer Assay, S	Alphanumeric	titer	93490-1
GABIS	61505	GABA-B-R Ab IF Titer Assay, S	Alphanumeric	titer	93427-3
NMDIS	61497	NMDA-R Ab IF Titer Assay, S	Alphanumeric	titer	In Process
DPPTS	64992	DPPX Ab IFA Titer, S	Alphanumeric	titer	94675-6
GL1CS	64932	mGluR1 Ab CBA, S	Alphanumeric		93498-4
GL1TS	64990	mGluR1 Ab IFA Titer, S	Alphanumeric	titer	93499-2
GFATS	605133	GFAP IFA Titer, S	Alphanumeric	titer	93423-2
GFACS	605153	GFAP CBA, S	Alphanumeric		93424-0
AGNBS	607270	AGNA-1 Immunoblot, S	Alphanumeric		83001-8
AMIBS	607268	Amphiphysin Immunoblot, S	Alphanumeric		94385-2
AN2BS	607262	ANNA-2 Immunoblot, S	Alphanumeric		94387-8
AN1BS	607260	ANNA-1 Immunoblot, S	Alphanumeric		94389-4
PC1BS	607264	PCA-1 Immunoblot, S	Alphanumeric		94271-4
PCTBS	607266	PCA-Tr Immunoblot, S	Alphanumeric		82999-4
AINCS	606966	Alpha Internexin CBA, S	Alphanumeric		96483-3
NFHCS	606968	NIF Heavy Chain CBA, S	Alphanumeric		96484-1
NFLCS	606970	NIF Light Chain CBA, S	Alphanumeric		96485-8

NIFTS	607771	NIF IFA Titer, S	Alphanumeric	titer	96487-4
IG5TS	606948	IgLON5 IFA Titer, S	Alphanumeric	titer	96477-5
AN2TS	43432	ANNA-2 Titer, S	Alphanumeric	titer	94343-1
SP7CS	615873	Septin-7 CBA, S	Alphanumeric		101467-9
NCDCS	615865	Neurochondrin CBA, S	Alphanumeric		101450-5
PC2TS	43438	PCA-2 Titer, S	Alphanumeric	titer	94351-4
AN3TS	43433	ANNA-3 Titer, S	Alphanumeric	titer	94344-9
AGNTS	43434	AGNA-1 Titer, S	Alphanumeric	titer	94341-5
PC1TS	43437	PCA-1 Titer, S	Alphanumeric	titer	94350-6
APHTS	618165	Amphiphysin Ab Titer, S	Alphanumeric	titer	94340-7
AN1TS	43431	ANNA-1 Titer, S	Alphanumeric	titer	94342-3
NCDTS	616111	Neurochondrin IFA Titer, S	Alphanumeric	titer	In Process
CRMTS	43436	CRMP-5-IgG Titer, S	Alphanumeric	titer	94815-8
PCTTS	43439	PCA-Tr Titer, S	Alphanumeric	titer	94352-2
SP7TS	616115	Septin-7 IFA Titer, S	Alphanumeric	titer	101456-2
T46CS	616449	TRIM46 Ab CBA, S	Alphanumeric		105525-0
PDETS	620070	PDE10A Ab IFA Titer, S	Alphanumeric	titer	105523-5
T46TS	616447	TRIM46 Ab IFA Titer, S	Alphanumeric	titer	105527-6

Reference Values:

est ID	Reporting name	Methodology*	Reference value
AEESI	Encephalopathy, 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
GL1IS	mGluR1 Ab IFA, S	IFA	Negative
IG5CS	IgLON5 CBA, S	CBA	Negative
LG1CS	LGI1-IgG CBA, S	CBA	Negative
NCDIS	Neurochondrin IFA, S	IFA	Negative
NIFIS	NIF IFA, S	IFA	Negative

NMDCS	NMDA-R Ab CBA, S	CBA	Negative
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
PDEIS	PDE10A Ab IFA, S	IFA	Negative
SP7IS	Septin-7 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
APHTS	Amphiphysin Ab Titer, 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
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
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
PDETS	PDE10A Ab IFA Titer, S	IFA	<1:240
SP7CS	Septin-7 CBA, S	CBA	Negative
SP7TS	Septin-7 IFA Titer, S	IFA	<1:240

T46CS	TRIM46 CBA, S	CBA	Negative
T46TS	TRIM46 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, 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.