ARUP LABORATORIES | aruplab.com
500 Chipeta Way, Salt Lake City, Utah 84108-1221
phone: 801-583-2787, toll free: 800-522-2787
Jonathan R. Genzen, MD, PhD, Chief Medical Officer

PATIENT REPORT

Patient Age/Sex: Unknown

Specimen Collected: 16-Jun-23 16:00

Autoimmune Encephalitis Rflx Panel, CSF | **Received: 16-Jun-23 16:00** | **Report/Verified: 16-Jun-23 16:05**

Procedure	Result	Units	Reference Interval
NMDA Receptor Ab IgG CBA-IFA,CSF	**1:80** * f1 i1		[< 1:1]
NMO/AQP4 Ab IgG CBA-IFA Screen, CSF	**Detected** * t1 i2		[< 1:1]
AMPA Receptor Ab IgG CBA-IFA Screen,CSF	**Detected** * t2 i3		[< 1:1]
GABA-BR Ab IgG CBA-IFA Screen, CSF	**Detected** * t3 i4		[< 1:1]
CASPR2 Ab IgG CBA-IFA Screen,CSF	**Detected** * t4 i5		[< 1:1]
LGI1 Ab IgG CBA-IFA Screen,CSF	**Detected** * t5 i6		[< 1:1]
DPPX Ab IgG CBA-IFA Screen,CSF	**Detected** * t6 i7		[< 1:1]
GABA-AR Ab IgG CBA-IFA Screen, CSF	**Detected** * t7 i8		[< 1:1]
IgLON5 Ab IgG CBA-IFA Screen,CSF	**Detected** * t8 i9		[< 1:1]
mGluR1 Ab IgG CBA-IFA Screen,CSF	**Detected** * t9 i10		[< 1:1]
Voltage-Gated Potassium Channel Ab,CSF	**5.0** H i11	pmol/L	[0.0-1.1]
Glutamic Acid Decarboxylase Antibody CSF	**15.0** H i12	IU/mL	[0.0-5.0]

AMPA Rptr Ab IgG Titer by CBA-IFA, CSF | **Received: 16-Jun-23 16:00** | **Report/Verified: 16-Jun-23 16:05**

Procedure	Result	Units	Reference Interval
AMPA Receptor Ab IgG CBA-IFA Titer,CSF	**1:320** * i13		[< 1:1]

NMO/AQP4-Ab IgG Titer by CBA-IFA, CSF | **Received: 16-Jun-23 16:00** | **Report/Verified: 16-Jun-23 16:05**

Procedure	Result	Units	Reference Interval
NMO/AQP4 Ab IgG CBA-IFA Titer, CSF	**1:20** * i14		[< 1:1]

CASPR2 Ab IgG Titer by CBA-IFA, CSF | **Received: 16-Jun-23 16:00** | **Report/Verified: 16-Jun-23 16:05**

Procedure	Result	Units	Reference Interval
CASPR2 Ab IgG CBA-IFA Titer,CSF	**1:160** * i15		[< 1:1]

DPPX Ab IgG Titer by CBA-IFA, CSF | **Received: 16-Jun-23 16:00** | **Report/Verified: 16-Jun-23 16:05**

Procedure	Result	Units	Reference Interval
DPPX Ab IgG CBA-IFA Titer,CSF	**1:20** * i16		[< 1:1]

GABA-A Receptor IgG CBA-IFA Titer, CSF | **Received: 16-Jun-23 16:00** | **Report/Verified: 16-Jun-23 16:05**

Procedure	Result	Units	Reference Interval
GABA-AR Ab IgG CBA-IFA Titer,CSF	**1:40** * i17		[< 1:1]

*=Abnormal, #=Corrected, C=Critical, f=Result Footnote, H-High, i-Test Information, L-Low, t-Interpretive Text, @=Performing lab

GABA-B Rptr Ab IgG Titer by CBA-IFA, CSF	**Received: 16-Jun-23 16:00**		**Report/Verified: 16-Jun-23 16:05**
Procedure	**Result**	**Units**	**Reference Interval**
GABA-BR Ab IgG CBA-IFA Titer,CSF	**1:80** * i18		[< 1:1]

IgLON5 Ab IgG CBA-IFA Titer, CSF	**Received: 16-Jun-23 16:00**		**Report/Verified: 16-Jun-23 16:05**
Procedure	**Result**	**Units**	**Reference Interval**
IgLON5 Ab IgG CBA-IFA Titer,CSF	**1:640** * i19		[< 1:1]

LGI1 Ab IgG Titer by CBA-IFA, CSF	**Received: 16-Jun-23 16:00**		**Report/Verified: 16-Jun-23 16:05**
Procedure	**Result**	**Units**	**Reference Interval**
LGI1 Ab IgG CBA-IFA Titer,CSF	**1:80** * i20		[< 1:1]

mGluR1 Ab IgG CBA-IFA Titer, CSF	**Received: 16-Jun-23 16:00**		**Report/Verified: 16-Jun-23 16:05**
Procedure	**Result**	**Units**	**Reference Interval**
mGluR1 Ab IgG CBA-IFA Titer,CSF	**1:20** * i21		[< 1:1]

Interpretive Text

t1: 16-Jun-23 16:00 (NMO/AQP4 Ab IgG CBA-IFA Screen, CSF)
Aquaporin-4 Receptor Antibody, IgG is detected. Titer results to follow.

t2: 16-Jun-23 16:00 (AMPA Receptor Ab IgG CBA-IFA Screen, CSF)
AMPAR Antibody, IgG is detected. Titer results to follow.

t3: 16-Jun-23 16:00 (GABA-BR Ab IgG CBA-IFA Screen, CSF)
GABA-BR Antibody, IgG is detected. Titer results to follow.

t4: 16-Jun-23 16:00 (CASPR2 Ab IgG CBA-IFA Screen, CSF)
CASPR2 Antibody, IgG is detected. Titer results to follow.

t5: 16-Jun-23 16:00 (LGI1 Ab IgG CBA-IFA Screen, CSF)
LGI1 Antibody, IgG is detected. Titer results to follow.

t6: 16-Jun-23 16:00 (DPPX Ab IgG CBA-IFA Screen, CSF)
DPPX Antibody, IgG is detected. Titer results to follow.

t7: 16-Jun-23 16:00 (GABA-AR Ab IgG CBA-IFA Screen, CSF)
GABA-AR Antibody, IgG is detected. Titer results to follow.

t8: 16-Jun-23 16:00 (IgLON5 Ab IgG CBA-IFA Screen, CSF)
IgLON5 Antibody, IgG is detected. Titer results to follow.

t9: 16-Jun-23 16:00 (mGluR1 Ab IgG CBA-IFA Screen, CSF)
mGluR1 Antibody, IgG is detected. Titer results to follow.

Result Footnote

f1: NMDA Receptor Ab IgG CBA-IFA, CSF

Antibodies to NMDA were detected; titer was performed at an additional charge.

Clinical trials for anti-NMDA receptor encephalitis are currently underway (clinicaltrials.gov).

Test Information

i1: NMDA Receptor Ab IgG CBA-IFA, CSF
INTERPRETIVE INFORMATION: NMDA Receptor Ab IgG CBA-IFA, CSF

NMDA receptor antibody is found in a subset of patients with autoimmune limbic encephalitis and may occur with or without associated tumor. Decreasing antibody levels may be associated with therapeutic response. In addition, positive results have been reported in patients with non-autoimmune phenotypes. A negative test result does not rule out a diagnosis of autoimmune limbic encephalitis. Results

Test Information

i1: NMDA Receptor Ab IgG CBA-IFA, CSF

should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes full-length GluN1 transfected cell lines for the detection and semiquantification of NMDA receptor IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i2: NMO/AQP4 Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: NMO/AQP4 Ab IgG CBA-IFA Screen, CSF

Neuromyelitis optic (NMO) commonly presents with optic neuritis or longitudinally extensive transverse myelitis. Approximately 75 percent of patients with NMO have antibodies to the aquaporin-4 (AQP4) receptor. While the absence of AQP4 receptor antibodies does not rule out a diagnosis of NMO, presence of this antibody is diagnostic for NMO.

This indirect fluorescent antibody assay utilizes AQP4 receptor transfected cell lines for the detection and semiquantification of AQP4 IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i3: AMPA Receptor Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: AMPA Receptor Ab IgG CBA-IFA Screen, CSF

Alpha-amino-3-hydroxy-5-methyl-4-isoxazoleproprionic acid receptor (AMPAR) antibody is found in a subset of patients with autoimmune limbic encephalitis and may occur with or without associated tumor. Decreasing antibody levels may be associated with therapeutic response. A negative test result does not rule out a diagnosis of autoimmune encephalitis. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes AMPAR transfected cell lines for detection and semiquantification of AMPAR IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Test Information

i4: GABA-BR Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: GABA-BR Ab IgG CBA-IFA Screen, CSF

Gamma-amino butyric acid receptor, type B (GABA-BR) antibody is found in a subset of patients with autoimmune epilepsy and other autoimmune neurologic phenotypes; it may occur with or without associated tumor. Decreasing antibody levels may be associated with therapeutic response. A negative test result does not rule out a diagnosis of autoimmune neurologic disease. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes GABA-BR transfected cell lines for the detection and semiquantification of GABA-BR IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i5: CASPR2 Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: CASPR2 Ab IgG CBA-IFA Screen, CSF

Contactin-associated protein-2 (CASPR2) IgG antibody may occur as part of the voltage-gated potassium channel (VGKC) complex antibodies.

The presence of CASPR2 IgG antibody is associated with a wide spectrum of clinical manifestations, including acquired neuromyotonia, limbic encephalitis, painful neuropathy, and Morvan syndrome. Tumors such as thymoma, small cell lung cancer, and other rarer tumors may occur. The full-spectrum of clinical disorders and tumors associated with the CASPR2 IgG antibody continues to be defined. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes CASPR2 transfected cell lines for the detection and semiquantification of the CASPR2 IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i6: LGI1 Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: LGI1 Ab IgG CBA-IFA Screen, CSF

Leucine-rich, glioma-inactivated 1 protein (LGI1) IgG antibody may occur as part of the voltage-gated potassium channel (VGKC) complex antibodies.

Test Information

i6: LGI1 Ab IgG CBA-IFA Screen, CSF

The presence of LGI1 IgG antibody is mainly associated with limbic encephalitis, hyponatremia, and myoclonic movements. LGI1 IgG antibody is rarely associated with tumors but may occur infrequently in Morvan syndrome, neuromyotonia, and idiopathic epilepsy. The full-spectrum of clinical disorders associated with the LGI1 IgG antibody continues to be defined. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes LGI1 transfected cell lines for the detection and semi-quantification of the LGI1 IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i7: DPPX Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: DPPX Ab IgG CBA-IFA Screen, CSF

DPPX antibody is found in a subset of patients with autoimmune encephalitis, and is often associated with prodromal gastrointestinal symptoms and unintentional weight loss. It may occur with or without associated tumor. Decreasing antibody levels may be associated with therapeutic response. A negative test result does not rule out a diagnosis of autoimmune neurologic disease. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes DPPX transfected cells for the detection and semiquantification of the DPPX IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i8: GABA-AR Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: GABA-AR Ab IgG CBA-IFA Screen, CSF

Gamma-aminobutyric acid receptor, type A (GABA-AR) antibody is found in a subset of patients with autoimmune encephalitis or autoimmune epilepsy, and may occur with or without associated tumor. A negative test result does not rule out a diagnosis of autoimmune limbic encephalitis or autoimmune epilepsy. Interpretation of any anti-neural antibody test requires clinical correlation.

This indirect fluorescent antibody assay utilizes GABA-AR transfected cell lines for detection and semi-quantification of GABA-AR IgG antibody.

Test Information

i8: GABA-AR Ab IgG CBA-IFA Screen, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i9: IgLON5 Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: IgLON5 Ab IgG CBA-IFA Screen, CSF

IgLON Family Member 5 (IgLON5) antibody is found in a subset of patients with autoimmune encephalitis or other autoimmune neurologic/neurodegenerative disorders and may occur with or without associated tumor. A negative test result does not rule out a diagnosis of an autoimmune neurologic disorder. Interpretation of any anti-neural antibody test requires clinical correlation.

This indirect fluorescent antibody assay utilizes IgLON5 transfected cell lines for detection and semi-quantification of IgLON5 IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i10: mGluR1 Ab IgG CBA-IFA Screen, CSF

INTERPRETIVE INFORMATION: mGluR1 Ab IgG CBA-IFA Screen, CSF

Metabotropic glutamate receptor 1 (mGluR1) antibody is found in a subset of patients with autoimmune cerebellar ataxia or autoimmune encephalitis and may occur with or without associated tumor. A negative test result does not rule out a diagnosis of autoimmune cerebellar ataxia or limbic encephalitis. Interpretation of any anti-neural antibody test requires clinical correlation.

This indirect fluorescent antibody assay utilizes mGluR1 transfected cell lines for detection and semi-quantification of mGluR1 IgG antibody.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i11: Voltage-Gated Potassium Channel Ab, CSF

INTERPRETIVE INFORMATION: Voltage-Gated Potassium Channel (VGKC) Antibody, CSF

Voltage-Gated Potassium Channel (VGKC) antibodies are associated with neuromuscular weakness as found in neuromyotonia (also known as Issacs syndrome) and Morvan syndrome. VGKC antibodies are also associated with paraneoplastic neurological syndromes and limbic encephalitis; however, VGKC antibody-associated limbic encephalitis may be associated with antibodies to leucine-rich, glioma-inactivated 1

Test Information

i11: Voltage-Gated Potassium Channel Ab, CSF

protein (LGI1) or contactin-associated protein-2 (CASPR2) instead of potassium channel antigens. A substantial number of VGKC-antibody positive cases are negative for LGI1 and CASPR2 IgG autoantibodies, not all VGKC complex antigens are known. The clinical significance of this test can only be determined in conjunction with the patient's clinical history and related laboratory testing.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i12: Glutamic Acid Decarboxylase Antibody CSF

INTERPRETIVE INFORMATION: Glutamic Acid Decarboxylase Antibody, CSF

A value greater than 5.0 IU/mL is considered positive for glutamic acid decarboxylase antibody (GAD AB CSF).

This assay is intended for the semi-quantitative determination of the GAD Ab in human CSF. Results should be interpreted within the context of clinical symptoms.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i13: AMPA Receptor Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: AMPA Receptor Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i14: NMO/AQP4 Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: NMO/AQP4 Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i15: CASPR2 Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: CASPR2 Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Test Information

i16: DPPX Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: DPPX Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i17: GABA-AR Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: GABA-AR Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i18: GABA-BR Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: GABA-BR Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i19: IgLON5 Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: IgLON5 Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i20: LGI1 Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: LGI1 Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i21: mGluR1 Ab IgG CBA-IFA Titer, CSF

INTERPRETIVE INFORMATION: mGluR1 Ab IgG CBA-IFA Titer, CSF

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.