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Patient Report

Patient Age/Gender: Unknown

Specimen Collected: 23-Jun-21 06:09

Autoimmune Neurologic Disease Rflx Pan | **Received: 23-Jun-21 06:09** | **Report/Verified: 23-Jun-21 06:12**

Procedure	Result	Units	Reference Interval
Neuronal Antibody (Amphiphysin)	**Positive** * i1		Negative
Purkinje Cell/Neuronal Nuclear IgG Scrn	**PCCA Detected** * f1 i2		None Detected
N-methyl-D-Aspartate Receptor Ab,Serum	**1:40** * f2 i3		<1:10
CASPR2 Ab IgG Screen by IFA,Serum	**Detected** * t1 i4		<1:10
LGI1 Ab IgG Screen by IFA,Serum	**Detected** * t2 i5		<1:10
Neuromyelitis Optica/ AQP4-IgG,Serum	**Detected** * t3 i6		<1:10
CV2.1 Antibody IgG Screen by IFA	**Detected** * t4 i7		<1:10
AMPA Receptor Ab IgG Screen,Serum	**Detected** * t5 i8		<1:10
GABA-B Receptor Ab IgG Screen,Serum	**Detected** * t6 i9		<1:10
MOG Antibody IgG Screen,Serum	**Detected** * t7 i10		<1:10
SOX1 Antibody,IgG by Immunoblot,Serum	**Positive** * i11		Negative
Acetylcholine Binding Antibody	**1.0** H i12	nmol/L	0.0-0.4
Voltage-Gated Potassium Channel Ab, Ser	**39** H i13	pmol/L	0-31
Glutamic Acid Decarboxylase Antibody	**6.0** H i14	IU/mL	0.0-5.0

Neuronal Nuclear Ab IgG, Immunoblot, Ser | **Received: 23-Jun-21 06:09** | **Report/Verified: 23-Jun-21 06:12**

Procedure	Result	Units	Reference Interval
Neuronal Nuclear Ab (Hu) IgG,IB,Serum	**Positive** * i15		Negative
Neuronal Nuclear Ab (Ri) IgG,IB,Serum	**Positive** * i16		Negative
Neuronal Nuclear Ab (Yo) IgG,IB,Serum	**Positive** * i17		Negative
Neuronal Nuclear Ab (TR/DNER) IgG,IB	**Positive** * i18		Negative

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

Purkinje Cell Ab Titer, IgG |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
Purkinje Cell Antibody Titer IgG	1:80 * i19		<1:10

AMPA Receptor IgG Ab Serum, Titer |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
AMPA Receptor Ab IgG Titer,Serum	1:80 * i20		<1:10

Neuromyelitis Optica/AQP4-IgG Titer Ser |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
Neuromyelitis Optica/ AQP4-IgG Titer Ser	1:80 * i21		<1:10

CASPR2 Ab Titer IgG by IFA, Serum |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
CASPR2 Ab IgG Titer by IFA,Serum	1:40 * i22		<1:10

CV2.1 Antibody Titer, IgG |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
CV2.1 Antibody IgG Titer by IFA	1:80 * i23		<1:10

GABA-B Receptor IgG Ab Serum, Titer |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
GABA-B Receptor Ab IgG Titer,Serum	1:160 * i24		<1:10

LGI1 Ab Titer IgG by IFA, Serum |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
LGI1 Ab IgG Titer by IFA,Serum	1:80 * i25		<1:10

MOG IgG Antibody Serum, Titer |Received: 23-Jun-21 06:09 Report/Verified: 23-Jun-21 06:12

Procedure	Result	Units	Reference Interval
MOG Antibody IgG Titer,Serum	1:80 * i26		<1:10

Interpretive Text

t1: 23-Jun-21 06:09 (CASPR2 Ab IgG Screen by IFA, Serum)
CASPR2 Antibody, IgG is detected. Titer results to follow.
t2: 23-Jun-21 06:09 (LGI1 Ab IgG Screen by IFA, Serum)
LGI1 Antibody, IgG is detected. Titer results to follow.
t3: 23-Jun-21 06:09 (Neuromyelitis Optica/AQP4-IgG, Serum)
Aquaporin-4 Receptor Antibody, IgG is detected. Titer results to follow.
t4: 23-Jun-21 06:09 (CV2.1 Antibody IgG Screen by IFA)
CV2.1 Antibody, IgG is detected. Titer results to follow. Additional charges apply.
t5: 23-Jun-21 06:09 (AMPA Receptor Ab IgG Screen, Serum)
AMPAR Antibody, IgG is detected. Titer results to follow.
t6: 23-Jun-21 06:09 (GABA-B Receptor Ab IgG Screen, Serum)

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

Interpretive Text

t6: 23-Jun-21 06:09 (GABA-B Receptor Ab IgG Screen, Serum)
GABA-BR Antibody, IgG is detected. Titer results to follow.

t7: 23-Jun-21 06:09 (MOG Antibody IgG Screen, Serum)
MOG Antibody, IgG is detected. Titer results to follow.

Result Footnote

f1: Purkinje Cell/Neuronal Nuclear IgG Scrn

Antibodies detected, therefore IFA titer and Immunoblot testing to be performed.

f2: N-methyl-D-Aspartate Receptor Ab, Serum

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

Test Information

i1: Neuronal Antibody (Amphiphysin)
INTERPRETIVE INFORMATION: Amphiphysin Antibody, IgG

Amphiphysin antibody is present in about 5 percent of patients with stiff-person syndrome and is found variably in other causes of paraneoplastic neurological syndrome (PNS). Amphiphysin antibody is mainly associated with small-cell lung cancer and breast tumors.

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: Purkinje Cell/Neuronal Nuclear IgG Scrn
INTERPRETIVE INFORMATION: Purkinje Cell/Neuronal Nuclear IgG Scrn

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: N-methyl-D-Aspartate Receptor Ab, Serum
INTERPRETIVE INFORMATION: N-methyl-D-Aspartate Receptor Ab, Serum
Anti-NMDA receptor IgG 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; therefore, clinical correlation must be strongly considered. A negative test result does not rule out a diagnosis of autoimmune limbic encephalitis.

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.

i4: CASPR2 Ab IgG Screen by IFA, Serum
INTERPRETIVE INFORMATION: CASPR2 Ab IgG w/Reflex to Titer, Serum

Test Information

i4: CASPR2 Ab IgG Screen by IFA, Serum

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 contactin-associated protein-2 (CASPR2) transfected cell lines for the detection and semi-quantification 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.

i5: LGI1 Ab IgG Screen by IFA, Serum

INTERPRETIVE INFORMATION: LGI1 Ab IgG w/Reflex to Titer, Serum

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

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 leucine-rich, glioma-inactivated 1 protein (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.

i6: Neuromyelitis Optica/AQP4-IgG, Serum

INTERPRETIVE INFORMATION: Neuromyelitis Optica/AQP4-IgG w/Rfx, Ser

Test Information

i6: Neuromyelitis Optica/AQP4-IgG, Serum

Diagnosis of neuromyelitis optica (NMO) requires the presence of longitudinally extensive acute myelitis (lesions extending over 3 or more vertebral segments) and optic neuritis. Approximately 75 percent of patients with NMO express 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 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: CV2.1 Antibody IgG Screen by IFA

INTERPRETIVE INFORMATION: CV2.1 Antibody IgG Screen by IFA

CV2.1 antibodies aid in discriminating between chronic paraneoplastic neurological disorder (PND) and other inflammatory disorders of the nervous system. Anti-CV2.1 is associated with small-cell lung cancer and thymoma.

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.

i8: AMPA Receptor Ab IgG Screen, Serum

INTERPRETIVE INFORMATION: AMPA Receptor Ab IgG Screen, Serum

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; therefore, clinical correlation must be strongly considered. A negative test result does not rule out a diagnosis of autoimmune encephalitis.

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

i9: GABA-B Receptor Ab IgG Screen, Serum

INTERPRETIVE INFORMATION: GABA Receptor Ab IgG Screen, Serum

Gamma-amino butyric acid receptor, type B (GABA-BR) 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

Test Information

i9: GABA-B Receptor Ab IgG Screen, Serum

response; therefore, clinical correlation must be strongly considered. A negative test result does not rule out a diagnosis of autoimmune encephalitis.

This indirect fluorescent antibody assay utilizes GABA-BR transfected cell lines for the detection and semi-quantification 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.

i10: MOG Antibody IgG Screen, Serum

INTERPRETIVE INFORMATION: MOG Antibody IgG Screen, Serum

Myelin oligodendrocyte glycoprotein (MOG) antibody is found in a subset of patients with neuromyelitis optica spectrum disorders including optic neuritis and transverse myelitis, brainstem encephalitis and acute disseminated encephalomyelitis. Persistence of antibody positivity may be associated with a relapsing course. Decreasing antibody levels may be associated with therapeutic response; therefore, clinical correlation must be strongly considered. A negative test result does not rule out a diagnosis of CNS demyelinating disease or autoimmune encephalitis.

This indirect fluorescent antibody assay utilizes full-length MOG transfected cell lines for the detection and semi-quantification of MOG 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.

i11: SOX1 Antibody, IgG by Immunoblot, Serum

INTERPRETIVE INFORMATION: SOX1 Antibody, IgG by Immunoblot, Serum

SOX1 antibody is detected in patients with Lambert-Eaton myasthenic syndrome (LEMS) and in patients with paraneoplastic cerebellar degeneration (PCD), paraneoplastic and nonparaneoplastic neuropathy. SOX1 antibody is associated with small cell lung cancer. A negative test result does not rule out a diagnosis of LEMS or other causes of paraneoplastic neurological syndrome.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement D: aruplab.com/CS

i12: Acetylcholine Binding Antibody

INTERPRETIVE INFORMATION: Acetylcholine Binding Ab

Negative ..... 0.0 - 0.4 nmol/L
Positive ..... 0.5 nmol/L or greater

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

Test Information

i12: Acetylcholine Binding Antibody

Approximately 85-90 percent of patients with myasthenia gravis (MG) express antibodies to the acetylcholine receptor (AChR), which can be divided into binding, blocking, and modulating antibodies. Binding antibody can activate complement and lead to loss of AChR. Blocking antibody may impair binding of acetylcholine to the receptor, leading to poor muscle contraction. Modulating antibody causes receptor endocytosis resulting in loss of AChR expression, which correlates most closely with clinical severity of disease. Approximately 10-15 percent of individuals with confirmed myasthenia gravis have no measurable binding, blocking, or modulating antibodies.

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: Voltage-Gated Potassium Channel Ab, Ser

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

Negative	31 pmol/L or less
Indeterminate	32 - 87 pmol/L
Positive	88 pmol/L or greater

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 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.

i14: Glutamic Acid Decarboxylase Antibody

INTERPRETIVE INFORMATION: Glutamic Acid Decarboxylase Antibody

A value greater than 5.0 IU/mL is considered positive for Glutamic Acid Decarboxylase Antibody (GAD Ab). This assay is intended for the semi-quantitative

Test Information

i14: Glutamic Acid Decarboxylase Antibody
determination of the GAD Ab in human serum. Results should be interpreted within the context of clinical symptoms.

i15: Neuronal Nuclear Ab (Hu) IgG, IB, Serum
INTERPRETIVE INFORMATION: Neuronal Nuclear Ab IgG, Immunoblot, Ser
This test detects IgG antineuronal antibodies to Hu, Ri, Yo and Tr (DNER) antigens.

Antineuronal antibodies serve as markers that aid in discriminating between a true paraneoplastic neurological disorder (PND) and other inflammatory disorders of the nervous system. Anti-Hu (antineuronal nuclear antibody, type I) is associated with small-cell lung cancer. Anti-Ri (antineuronal nuclear antibody, type II) is associated with neuroblastoma in children and with fallopian tube and breast cancer in adults. Anti-Yo (anti-Purkinje cell cytoplasmic antibody) is associated with ovarian and breast cancer. Anti-Tr(DNER) is associated with Hodgkin's lymphoma.

The presence of one or more of these antineuronal antibodies supports a clinical diagnosis of PND and should lead to a focused search for the underlying neoplasm.

Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement D: aruplab.com/CS

i16: Neuronal Nuclear Ab (Ri) IgG, IB, Serum
INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (Ri) IgG, IB, Serum
Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement D: aruplab.com/CS

i17: Neuronal Nuclear Ab (Yo) IgG, IB, Serum
INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (Yo) IgG, IB, Serum
Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement D: aruplab.com/CS

i18: Neuronal Nuclear Ab (TR/DNER) IgG, IB
INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (TR/DNER) IgG, IB
Test developed and characteristics determined by ARUP Laboratories. See Compliance Statement D: aruplab.com/CS

i19: Purkinje Cell Antibody Titer IgG
INTERPRETIVE INFORMATION: Purkinje Cell Ab Titer, IgG

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.

i20: AMPA Receptor Ab IgG Titer, Serum
INTERPRETIVE INFORMATION: AMPA Receptor Ab IgG Titer, Serum

Test Information

i20: AMPA Receptor Ab IgG Titer, Serum

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: Neuromyelitis Optica/AQP4-IgG Titer Ser

INTERPRETIVE INFORMATION: Neuromyelitis Optica/AQP4-IgG Titer Ser

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.

i22: CASPR2 Ab IgG Titer by IFA, Serum

INTERPRETIVE INFORMATION: CASPR2 Ab Titer IgG by IFA, Serum

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.

i23: CV2.1 Antibody IgG Titer by IFA

INTERPRETIVE INFORMATION: CV2.1 Antibody IgG Titer by IFA

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.

i24: GABA-B Receptor Ab IgG Titer, Serum

INTERPRETIVE INFORMATION: GABA-B Receptor Ab IgG Titer, Serum

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.

i25: LGI1 Ab IgG Titer by IFA, Serum

INTERPRETIVE INFORMATION: LGI1 Ab Titer IgG by IFA, Serum

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.

i26: MOG Antibody IgG Titer, Serum

INTERPRETIVE INFORMATION: MOG Antibody IgG Titer, Serum

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Patient Age/Gender: Unknown

Test Information

i26: MOG Antibody IgG Titer, Serum

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.

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