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: 18-Dec-23 09:34

Autoimmune Neurologic Disease Pan | Received: 18-Dec-23 09:40 Report/Verified: 18-Dec-23 09:53 w/Rflx Procedure Result Reference Interval Units Positive * ⁱ¹ Neuronal Antibody (Amphiphysin) [Negative] Purkinje Cell/Neuronal Nuclear ANNA Detected * f1 i2 [None Detected] IgG Scrn NMDA Receptor Ab IgG CBA-IFA, 1:160 * f2 i3 [<1:10] Serum Detected * t1 i4 CASPR2 Ab IgG CBA-IFA Screen, [<1:10] Serum LGI1 Ab IgG CBA-IFA Screen, Serum Detected * t2 i5 [<1:10] NMO/AQP4 Ab IgG CBA-IFA Screen, Detected * t3 i6 [<1:10] Serum CV2 Ab IgG CBA-IFA Screen, Serum Detected * t4 i7 [<1:100] AMPA Receptor Ab IqG CBA-IFA Detected * t5 i8 [<1:10] Scrn, Serum GABA-BR Ab IqG CBA-IFA Scrn, Ser Detected * t6 i9 [<1:10] MOG Ab IgG CBA-IFA Screen, Serum Detected * t7 i10 [<1:10] SOX1 Antibody, IgG by Immunoblot, High Positive * 111 [Negative] Serum DPPX Ab IgG CBA-IFA Screen, Serum Detected * t8 i12 [<1:10] GABA-AR Ab IgG CBA-IFA Screen, Detected * t9 i13 [<1:10] Serum Detected * t10 i14 [<1:10] ITPR1 Ab IqG CBA-IFA Screen, Serum Detected * t11 i15 IgLON5 Ab IgG CBA-IFA Screen, [<1:10] Serum Detected * t12 i16 [<1:10] mGluR1 Ab IgG CBA-IFA Screen, Serum 50.0 H i17 P/Q-Type Calcium Channel pmol/L [0.0 - 24.5]Antibody Voltage-Gated Potassium Channel 50 H i18 pmol/L [0-31]Ab,Ser Ganglionic Acetylcholine 10.0 H i19 [0.0 - 8.4]pmol/L Receptor Ab Glutamic Acid Decarboxylase 10.0 H i20 IU/mL [0.0-5.0] Antibody Neuronal Nuclear Ab (ANNA) IFA Received: 18-Dec-23 09:40 Report/Verified: 18-Dec-23 09:53 Titer, IgG Procedure Result Reference Interval Units Neuronal Nuclear Ab (ANNA) IFA 1:320 * i21 [<1:10] Titer IqG

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

Unless otherwise indicated, testing performed at: ARUP Laboratories 500 Chipeta Way, Salt Lake City, UT 84108 Laboratory Director: Jonathan R. Genzen, MD, PhD
 ARUP Accession:
 23-352-900109

 Report Request ID:
 18510350

 Printed:
 20-Dec-23 12:40

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500 Chipeta Way, Salt Lake City, Utah 84108-1221 phone: 801-583-2787, toll free Jonathan R. Genzen, MD, Phi

Neuronal Nuclear Ab (Yo) IgG, IB, Positive * 124

Serum

PATIENT REPORT

phone: 801-583-2787, toll free: 800-522-2787 Jonathan R. Genzen, MD, PhD, Chief Medica		Patient Age/Sex:	Unknown
Neuronal Nuclear Ab IgG, Immunoblot, Ser	Received: 18-Dec-23	3 09:40 Report,	/Verified: 18-Dec-23 09:53
Procedure Neuronal Nuclear Ab (Hu) Ig Serum	Result G,IB, Positive * ⁱ²²	Units	Reference Interval [Negative]
Neuronal Nuclear Ab (Ri) Ig Serum	G,IB, Positive * ⁱ²³		[Negative]

[Negative]

Serum Neuronal Nuclear Ab (TR/DNER) IqG,IB	Positive * ⁱ²⁵		[Negative]
AMPA Rptr Ab IgG Titer by CBA-IFA, Ser	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:53
Procedure AMPA Receptor Ab IgG CBA-IFA Titer,Ser	Result 1:160 * ⁱ²⁶	Units	Reference Interval [<1:10]
NMO/AQP4-Ab IgG Titer by CBA-IFA, Ser	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:54
Procedure NMO/AQP4 Ab IgG CBA-IFA Titer Serum	Result , 1:160 * ⁱ²⁷	Units	Reference Interval [<1:10]
CASPR2 Ab IgG Titer by CBA-IFA, Ser	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:54
Procedure CASPR2 Ab IgG CBA-IFA Titer, Serum	Result 1:40 * ⁱ²⁸	Units	Reference Interval [<1:10]
CV2 Ab IgG Titer by CBA-IFA, Ser	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:54
Procedure CV2 Ab IgG CBA-IFA Titer,Serur	Result n 1:1600 * ¹²⁹	Units	Reference Interval [<1:100]
DPPX Ab IgG Titer by CBA-IFA, Ser	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:54
Procedure DPPX Ab IgG CBA-IFA Titer,Serv	Result am 1:80 * ⁱ³⁰	Units	Reference Interval [<1:10]
GABA-A Receptor IgG CBA-IFA Titer, Serum	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:54
Procedure GABA-AR Ab IgG CBA-IFA Titer, Serum	Result 1:40 * ⁱ³¹	Units	Reference Interval [<1:10]
GABA-B Rptr Ab IgG Titer by CBA-IFA, Ser	Received: 18-Dec-23	8 09:40	Report/Verified: 18-Dec-23 09:54
Procedure GABA-BR Ab IgG CBA-IFA Titer,S	Result Ser 1:160 * ⁱ³²	Units	Reference Interval [<1:10]

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

Unless otherwise indicated, testing performed at: **ARUP Laboratories** 500 Chipeta Way, Salt Lake City, UT 84108 Laboratory Director: Jonathan R. Genzen, MD, PhD

ARUP Accession: 23-352-900109 Report Request ID: 18510350 Printed: 20-Dec-23 12:40 Page 2 of 14

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 Office

Unknown

Patient Age/Sex:

rocedureResultUnitsReference Interval [<1:10]	Jonathan R. Genzen, MD, PhD, Chief Medical Officer		Patient Age/Sex:		Unknown			
gLON5 Ab IgG CBA-IFA Titer, 1:160 **** [<1:10] erum [<1:10] erum [<1:10] FRI Ab IgG CBA-IFA Titer, Serum [Received: 18-Dec-23 09:40 Report/Verified: 18-Dec-23 09:55 FORCEAURE Result Units Reference Interval [<1:10] CALL [<1:10] Report/Verified: 18-Dec-23 09:55 FORCEAURE Result Units Reference Interval [<1:10] COA b IgG CBA-IFA Titer, Serum 1:80 * 13* [<1:10] COA b IgG CBA-IFA Titer, Serum 1:80 * 13* [<1:10] Report/Verified: 18-Dec-23 09:55 Frocedure Result Units Reference Interval [<1:10] GURN AFG CBA-IFA Titer, Serum 1:40 * 13* [<1:10] GURN AFG CBA-IFA Titer, [Received: 18-Dec-23 09:40 Report/Verified: 18-Dec-23 09:55 recodure Result Units Reference Interval GluRI Ab IgG CBA-IFA Titer, 1:160 * 13* [<1:10] recodure Result Units Reference Interval GluRI Ab IgG CBA-IFA Titer, 1:160 * 13* [<1:10] recodure Result Units Reference Interval Gurta Ab IgG CBA-IFA	IgLON! Serum	5 Ab IgG CBA-IFA Titer,	Received:	18-Dec-23	09:40	Report/Verif:	ied: 18-Dec-23 09:54	
rocedureResultUnitsReference Interval [<1:10]TPR1 Ab IgG CBA-IFA Titer, Serum 1:160 * 194[<1:10]		5 Ab IgG CBA-IFA Titer,		i33	Units			
GII Ab IgG Titer by CEA-IFA, Ser [Received: 18-Dec-23 09:40 Report/Verified: 18-Dec-23 09:50 Conceure Result Units Reference Interval GII Ab IgG CEA-IFA Titer, Serum 1:80 ⁺¹³⁵ [<1:10]	<td>Proced</td> <td>lure</td> <td>Result</td> <th></th> <th></th> <td>R</td> <th>eference Interval</th>	Proced	lure	Result			R	eference Interval
rocedureResultUnitsReference Interval0G Ab IgG CBA-IFA Titer, Serum1:40 * 136[<1:10]	LGI1 2 Proces	Ab IgG Titer by CBA-IFA, Ser dure	Received:	18-Dec-23		R	eference Interval	
erum Result Units Reference Interval [<1:0] GluR1 Ab IgG CBA-IFA Titer, 1:160 * ¹³⁷ [<1:10]	Proces	lure	Result			R	eference Interval	
ProcedureResultUnitsReference IntervalGluRI Ab IgG CBA-IFA Titer,1:160 * 137[<1:10]	mGluR Serum	Ab IgG CBA-IFA Titer,	Received:	18-Dec-23	09:40	Report/Verif:	ied: 18-Dec-23 09:54	
ProcedureResultUnitsReference Intervalcetylcholine Binding Antibody5.0 H 139nmol/L[0.0-0.4]Interpretive Text118-Dec-23 09:34 (CASPR2 Ab IgG CBA-IFA Screen, Serum) CASPR2 Antibody, IgG is detected. Titer results to follow.[0.0-0.4]2: 18-Dec-23 09:34 (LGI1 Ab IgG CBA-IFA Screen, Serum) LGI1 Antibody, IgG is detected. Titer results to follow.[0.0-0.4]3: 18-Dec-23 09:34 (NMO/AQP4 Ab IgG CBA-IFA Screen, Serum) Aquaporin-4 Receptor Antibody, IgG is detected. Titer results to follow.[0.0-0.4]4: 18-Dec-23 09:34 (CV2 Ab IgG CBA-IFA Screen, Serum) CV2 Antibody, IgG is detected. Titer results to follow. Additional charges apply.5: 18-Dec-23 09:34 (MAPA Receptor Ab IgG CBA-IFA Scrn, Serum) AMPAR Antibody, IgG is detected. Titer results to follow.6: 18-Dec-23 09:34 (GABA-BR Ab IgG CBA-IFA Scrne, Serum) GABA-BR Antibody, IgG is detected. Titer results to follow.7: 18-Dec-23 09:34 (MOG Ab IgG CBA-IFA Screen, Serum) MOG Antibody, IgG is detected. Titer results to follow.8: 18-Dec-23 09:34 (GABA-AR Ab IgG CBA-IFA Screen, Serum) DPPX Antibody, IgG is detected. Titer results to follow.9: 18-Dec-23 09:34 (GABA-AR Ab IgG CBA-IFA Screen, Serum) GABA-AR Antibody, IgG is detected. Titer results to follow.9: 18-Dec-23 09:34 (ITERI Ab IgG CBA-IFA Screen, Serum) GABA-AR Antibody, IgG is detected. Titer results to follow.10: 18-Dec-23 09:34 (ITERI Ab IgG CBA-IFA Screen, Serum) GABA-AR Antibody, IgG is detected. Titer results to follow.10: 18-Dec-23 09:34 (ITERI Ab IgG CBA-IFA Screen, Serum) ITERI Antibody, IgG is detected. Titer results to follow.11: 18-Dec-23 09:34 (ITERI Ab IgG CBA-IFA Screen, Serum) 	Proced	1 Ab IgG CBA-IFA Titer,		i37	Units	_		
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 8: 18-Dec-23 09:34 (DPPX Ab IgG CBA-IFA Screen, Serum) DPPX Antibody, IgG is detected. Titer results to follow. 9: 18-Dec-23 09:34 (GABA-AR Ab IgG CBA-IFA Screen, Serum) GABA-AR Antibody, IgG is detected. Titer results to follow. 10: 18-Dec-23 09:34 (ITPR1 Ab IgG CBA-IFA Screen, Serum) ITPR1 Antibody, IgG is detected. Titer results to follow. 11: 18-Dec-23 09:34 (IgLON5 Ab IgG CBA-IFA Screen, Serum) IgLON5 Antibody, IgG is detected. Titer results to follow. 12: 18-Dec-23 09:34 (mGluR1 Ab IgG CBA-IFA Screen, Serum) 	t7:	18-Dec-23 09:34 (MOG Ab IgG CB	A-IFA Screen	ı, Serum)				
 9: 18-Dec-23 09:34 (GABA-AR Ab IgG CBA-IFA Screen, Serum) GABA-AR Antibody, IgG is detected. Titer results to follow. 10: 18-Dec-23 09:34 (ITPR1 Ab IgG CBA-IFA Screen, Serum) ITPR1 Antibody, IgG is detected. Titer results to follow. 11: 18-Dec-23 09:34 (IgLON5 Ab IgG CBA-IFA Screen, Serum) IgLON5 Antibody, IgG is detected. Titer results to follow. 12: 18-Dec-23 09:34 (mGluR1 Ab IgG CBA-IFA Screen, Serum) 	t8:	18-Dec-23 09:34 (DPPX Ab IgG C	BA-IFA Scree	en, Serum)				
 18-Dec-23 09:34 (ITPR1 Ab IgG CBA-IFA Screen, Serum) ITPR1 Antibody, IgG is detected. Titer results to follow. 18-Dec-23 09:34 (IgLON5 Ab IgG CBA-IFA Screen, Serum) IgLON5 Antibody, IgG is detected. Titer results to follow. 18-Dec-23 09:34 (mGluR1 Ab IgG CBA-IFA Screen, Serum) 	t9:	18-Dec-23 09:34 (GABA-AR Ab Ig	G CBA-IFA So	creen, Serum	1)			
11: 18-Dec-23 09:34 (IgLON5 Ab IgG CBA-IFA Screen, Serum) IgLON5 Antibody, IgG is detected. Titer results to follow. 12: 18-Dec-23 09:34 (mGluR1 Ab IgG CBA-IFA Screen, Serum)	t10:	18-Dec-23 09:34 (ITPR1 Ab IgG	CBA-IFA Scre	een, Serum)				
12: 18-Dec-23 09:34 (mGluR1 Ab IgG CBA-IFA Screen, Serum)	t11:	18-Dec-23 09:34 (IgLON5 Ab IgG	CBA-IFA Sci	reen, Serum)				
	t12:	18-Dec-23 09:34 (mGluR1 Ab IgG	CBA-IFA Sci	reen, Serum)				

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

Unless otherwise indicated, testing performed at: ARUP Laboratories 500 Chipeta Way, Salt Lake City, UT 84108 Laboratory Director: Jonathan R. Genzen, MD, PhD
 ARUP Accession:
 23-352-900109

 Report Request ID:
 18510350

 Printed:
 20-Dec-23 12:40

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Unknown

<u>Result Footnote</u>

f1: Purkinje Cell/Neuronal Nuclear IgG Scrn

Antibodies detected, therefore IFA titer and Immunoblot testing to be performed. f2: NMDA Receptor Ab IgG CBA-IFA, Serum

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

The ExTINGUISH Trial (safety and efficacy of Inebilizumab in anti-NMDA receptor encephalitis, NCT04372615) is actively recruiting patients. To learn more, or to refer your patient, call 1-844-427-2465, email ExTINGUISH@hsc.utah.edu, or visit https://neuronext.org/projects/nnlll-extinguish.

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: NMDA Receptor Ab IgG CBA-IFA, Serum INTERPRETIVE INFORMATION: NMDA Receptor Ab IgG CBA-IFA,

Serum

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 should be interpreted in correlation with the patient's clinical history and other laboratory findings. Serum testing should be paired with CSF testing for improved diagnostic sensitivity.

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

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 ARUP Accession:
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Unknown

Test Information

 i3: NMDA Receptor Ab IgG CBA-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.
 i4: CASPR2 Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: CASPR2 Ab IgG CBA-IFA Screen, 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 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.

i5: LGI1 Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: LGI1 Ab IgG CBA-IFA Screen, 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 LGI1 transfected cell lines for the detection and semiquantification 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

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Unknown

Test Information

LGI1 Ab IgG CBA-IFA Screen, Serum i5: Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

NMO/AQP4 Ab IgG CBA-IFA Screen, Serum i6: INTERPRETIVE INFORMATION: NMO/AQP4 Ab IqG CBA-IFA Screen,

Serum

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.

i7: CV2 Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: CV2 Ab IgG CBA-IFA Screen, Serum

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

i8: AMPA Receptor Ab IgG CBA-IFA Scrn, Serum

INTERPRETIVE INFORMATION: AMPA Receptor Ab IgG CBA-IFA Scrn,

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. 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.

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Laboratory Director: Jonathan R. Genzen, MD, PhD

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Jonathan R. Genzen, MD, PhD, Chief Medical Officer

PATIENT REPORT

Patient Age/Sex:

Unknown

Test Information

i8: AMPA Receptor Ab IgG CBA-IFA Scrn, Serum

This indirect fluorescent antibody assay utilizes AMPAR transfected cell lines for the 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.

i9: GABA-BR AD IGG CBA-IFA Scrn, Ser INTERPRETIVE INFORMATION: GABA-BR AD IGG CBA-IFA Scrn, Ser

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.

i10: MOG Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: MOG Ab IgG CBA-IFA 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. A negative test result does not rule out a diagnosis of CNS demyelinating disease. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

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

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Patient Age/Sex:

Unknown

Test Information

ill: 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.

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.

i12: DPPX Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: DPPX Ab IgG CBA-IFA Screen, Serum

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.

il3: GABA-AR Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: GABA-AR Ab IgG CBA-IFA Screen,

Serum

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 antineural 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.

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

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Unknown

Test Information

i13: GABA-AR Ab IgG CBA-IFA Screen, Serum Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i14: ITPR1 Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: ITPR1 Ab IgG CBA-IFA Screen, Serum

Inositol 1, 4, 5-trisphosphate receptor type 1 (ITPR1) antibody is found in a subset of patients with autoimmune cerebellar ataxia, encephalitis, neuropathy, or myelopathy and may occur with or without associated tumor. A negative test result does not rule out a diagnosis of autoimmune cerebellar ataxia or related autoimmune neurologic disorders. Interpretation of any antineural antibody test requires clinical correlation.

This indirect fluorescent antibody assay utilizes ITPR1 transfected cell lines for detection and semi-quantification of ITPR1 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.

i15: IgLON5 Ab IgG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: IgLON5 Ab IgG CBA-IFA Screen,

Serum

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 antineural antibody test requires clinical correlation.

This indirect fluorescent antibody assay utilizes IqLON5 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.

i16: mGluR1 Ab IqG CBA-IFA Screen, Serum INTERPRETIVE INFORMATION: mGluR1 Ab IgG CBA-IFA Screen, Serum

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 antineural antibody test requires clinical correlation.

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Patient Age/Sex:

Unknown

Test Information

il6: mGluR1 Ab IgG CBA-IFA Screen, Serum

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.

il7: P/Q-Type Calcium Channel Antibody INTERPRETIVE INFORMATION: P/Q-Type Calcium Channel Antibody

> 0.0 to 24.5 pmol/L Negative 24.6 to 45.6 pmol/L Indeterminate 45.7 pmol/L or greater.... Positive

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.

i18: 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.

i19: Ganglionic Acetylcholine Receptor Ab REFERENCE INTERVAL: Ganglionic Acetylcholine Receptor Ab

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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 Age/Sex:

Unknown

Test Information

i19: Ganglionic Acetylcholine Receptor Ab

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: 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 determination of the GAD Ab in human serum. Results should be interpreted within the context of clinical symptoms.

i21: Neuronal Nuclear Ab (ANNA) IFA Titer IgG INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (ANNA) IFA 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.

i22: 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.

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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Patient Age/Sex:

Unknown

Test	Information
i23:	Neuronal Nuclear Ab (Ri) IgG, IB, Serum
	INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (Ri) IgG, IB,
	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.
i24:	Neuronal Nuclear Ab (Yo) IgG, IB, Serum
	INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (Yo) IgG, IB,
	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
i25:	intended for clinical purposes. Neuronal Nuclear Ab (TR/DNER) IgG, IB
123.	INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (TR/DNER)
	IqG, IB
	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:	AMPA Receptor Ab IgG CBA-IFA Titer, Ser
	INTERPRETIVE INFORMATION: AMPA Receptor Ab IgG CBA-IFA
	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.
i27:	NMO/AQP4 Ab IgG CBA-IFA Titer, Serum
	INTERPRETIVE INFORMATION: NMO/AQP4 Ab IgG CBA-IFA 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.
i28:	CASPR2 Ab IgG CBA-IFA Titer, Serum
	INTERPRETIVE INFORMATION: CASPR2 Ab IgG CBA-IFA 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.
i29:	CV2 Ab IgG CBA-IFA Titer, Serum
	INTERPRETIVE INFORMATION: CV2 Ab IgG CBA-IFA Titer, Serum

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Test Information

i29: CV2 Ab IgG CBA-IFA 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. i30: DPPX Ab IgG CBA-IFA Titer, Serum INTERPRETIVE INFORMATION: DPPX Ab IgG CBA-IFA 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. i31: GABA-AR Ab IgG CBA-IFA Titer, Serum INTERPRETIVE INFORMATION: GABA-AR Ab IgG CBA-IFA Titer, Serum 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. GABA-BR Ab IgG CBA-IFA Titer, Ser i32: INTERPRETIVE INFORMATION: GABA-BR Ab IgG CBA-IFA 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. i33: IgLON5 Ab IgG CBA-IFA Titer, Serum INTERPRETIVE INFORMATION: IgLON5 Ab IgG CBA-IFA Titer, Serum 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. i34: ITPR1 Ab IgG CBA-IFA Titer, Serum INTERPRETIVE INFORMATION: ITPR1 Ab IgG CBA-IFA Titer, Serum 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. i35: LGI1 Ab IgG CBA-IFA Titer, Serum INTERPRETIVE INFORMATION: LGI1 Ab IgG CBA-IFA 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

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Laboratory Director: Jonathan R. Genzen, MD, PhD

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Patient Age/Sex:

Unknown

Test Information

 i35: LGI1 Ab IgG CBA-IFA Titer, Serum Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.
 i36: MOG Ab IgG CBA-IFA Titer, Serum

INTERPRETIVE INFORMATION: MOG Ab IqG CBA-IFA 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.

i37: mGluR1 Ab IgG CBA-IFA Titer, Serum INTERPRETIVE INFORMATION: mGluR1 Ab IgG CBA-IFA Titer, Serum

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.

i38: Acetylcholine Binding Antibody INTERPRETIVE INFORMATION: Acetylcholine Binding Ab

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

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.

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