**PATIENT REPORT** 

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

Specimen Collected: 19-Dec-22 08:00			
Autoimmune Neurologic Disease Pan   F	Received: 19-Dec-22 0	8:06 Report/Ver	ified: 19-Dec-22 08:15
w/Rflx Procedure	Result	Units	Reference Interval
Neuronal Antibody (Amphiphysin)		011200	[Negative]
Purkinje Cell/Neuronal Nuclear	ANNA Detected * f1 i2		[None Detected]
IgG Scrn			
N-methyl-D-Aspartate Receptor	1:160 * f2 i3		[<1:10]
Ab, Serum			
CASPR2 Ab IgG Screen by IFA,	Detected * t1 i4		[<1:10]
Serum			
LGI1 Ab IgG Screen by IFA, Serum	Detected * t2 i5		[<1:10]
Neuromyelitis Optica/AQP4-IgG,	Detected * t3 i6		[<1:10]
Serum			
CV2.1 Antibody IgG Screen by IFA	A Detected * t4 i7		[<1:10]
AMPA Receptor Ab IgG Screen,	Detected * t5 i8		[<1:10]
Serum			
GABA-B Receptor Ab IgG Screen,	Detected * t6 i9		[<1:10]
Serum			
MOG Antibody IgG Screen, Serum	Detected * t7 i10		[<1:10]
SOX1 Antibody, IgG by Immunoblot	, Positive * <sup>i11</sup>		[Negative]
Serum			
DPPX Ab IgG CBA IFA Screen, Serur	n Detected * t8 i12		[<1:10]
GABA-AR Ab IgG CBA-IFA Screen,	Detected * t9 i13		[<1:10]
Serum			
IgLON5 Ab IgG CBA-IFA Screen,	Detected * t10 i14		[<1:10]
Serum			
ITPR1 Ab IgG CBA-IFA Screen,	Detected * t11 i15		[<1:10]
Serum			
mGluR1 Ab IgG CBA-IFA Screen,	Detected * t12 i16		[<1:10]
Serum		7 (-	[0 0 04 F]
P/Q-Type Calcium Channel	55.0 H i17	pmol/L	[0.0-24.5]
Antibody	ee u i10		[0-31]
Voltage-Gated Potassium Channel	55 * ***	pmol/L	[0-31]
Ab,Ser Ganglionic Acetylcholine	15.0 H i19	pmol/L	[0.0-8.4]
Receptor Ab	15.0 - 223	БШОТ/П	[0.0-8.4]
Glutamic Acid Decarboxylase	50.0 H i20	IU/mL	[0.0-5.0]
Antibody	50.0	10/ mi	[0.0 0.0]
_	Received: 19-Dec-22 0	8.06 Banant /17am	ified: 19-Dec-22 08:15
Titer, IgG	Received: 13-Dec-22 U	keport/ver	111ed. 19-Dec-22 00:15
Procedure	Result	Units	Reference Interval
Neuronal Nuclear Ab (ANNA) IFA	1:160 * i21		[<1:10]
Titer IgG			

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Unless otherwise indicated, testing performed at:ARUP Accession:22-353-900009ARUP LaboratoriesReport Request ID:16445748500 Chipeta Way, Salt Lake City, UT 84108Printed:23-Dec-22 13:01Laboratory Director: Jonathan R. Genzen, MD, PhDPage 1 of 14

 $<sup>^* =</sup> Abnormal, \ \# = Corrected, \ C = Critical, \ f = Result \ Footnote, \ H-High, \ i-Test \ Information, \ L-Low, \ t-Interpretive \ Text, \ @ = Performing \ label{eq:label_equation}$ 

PATIENT REPORT

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

Neuronal Nuclear Ab IgG, Immunoblot, Ser	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:15
Procedure Neuronal Nuclear Ab (Hu) IgG,I Serum	Result B, Positive * i22	Units	Reference Interval [Negative]
Neuronal Nuclear Ab (Ri) IgG,I Serum	B, High Positive * i	23	[Negative]
Neuronal Nuclear Ab (Yo) IgG,I Serum	B, Positive * 124		[Negative]
Neuronal Nuclear Ab (TR/DNER) IgG,IB	High Positive * i	25	[Negative]
AMPA Receptor IgG Ab Serum, Titer	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:15
Procedure	Result	Units	Reference Interval
AMPA Receptor Ab IgG Titer, Ser	rum <b>1:80</b> * <sup>i26</sup>		[<1:10]
Neuromyelitis Optica/AQP4-IgG Titer Ser	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:15
Procedure Neuromyelitis Optica/AQP4-IgG Titer Ser	Result 1:40 * <sup>i27</sup>	Units	Reference Interval [<1:10]
CASPR2 Ab Titer IgG by IFA, Serum	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
CASPR2 Ab IgG Titer by IFA, Ser	rum <b>1:40</b> * <sup>i28</sup>		[<1:10]
CV2.1 Antibody Titer, IgG	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:16
Procedure CV2.1 Antibody IgG Titer by IF	Result 'A 1:80 * <sup>i29</sup>	Units	<pre>Reference Interval [ &lt;1:10 ]</pre>
DPPX IgG Ab Titer, Serum	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
DPPX Ab IgG CBA IFA Titer, Serv	ım <b>1:80</b> *		[<1:10]
GABA-A Receptor IgG CBA-IFA Titer, Serum	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
GABA-AR Ab IgG CBA-IFA Titer, Serum	1:160 * <sup>i30</sup>		[<1:10]
GABA-B Receptor IgG Ab Serum, Titer	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
GABA-B Receptor Ab IgG Titer, Serum	1:40 * <sup>i31</sup>		[<1:10]
ITPR1 Ab IgG CBA-IFA Titer, Serum	Received: 19-Dec-22	08:06	Report/Verified: 19-Dec-22 08:16
Procedure ITPR1 Ab IgG CBA-IFA Titer, Ser	<b>Result</b> rum <b>1:80</b> * <sup>i32</sup>	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:** 

22-353-900009 Report Request ID: 16445748

Printed:

23-Dec-22 13:01

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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

IgLON5 Ab IgG CBA-IFA Titer, Serum	Received: 19-Dec-	22 08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
IgLON5 Ab IgG CBA-IFA Titer Serum	1:80 * <sup>133</sup>		[<1:10]
LGI1 Ab Titer IgG by IFA, Seru	m   Received: 19-Dec-	22 08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
LGI1 Ab IgG Titer by IFA,Se	rum 1:40 * <sup>i34</sup>		[<1:10]
MOG IgG Antibody Serum, Titer	Received: 19-Dec-		Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
MOG Antibody IgG Titer, Seru			[<1:10]
mGluR1 Ab IgG CBA-IFA Titer, Serum	Received: 19-Dec-	22 08:06	Report/Verified: 19-Dec-22 08:16
Procedure	Result	Units	Reference Interval
mGluR1 Ab IgG CBA-IFA Titer	1:80 * <sup>i36</sup>		[<1:10]
Serum			
Acetylcholine Binding Ab	Received: 19-Dec-		Report/Verified: 19-Dec-22 08:19
Procedure	Result	Units	Reference Interval
Acetylcholine Binding Antib	oody 5.0 H i37	nmol/L	[0.0-0.4]
Interpretive Text			
THEETPIECIVE TEXE			
t1: 19-Dec-22 08:00 (CASPR2 Ab	IgG Screen by IFA, Serum	m)	
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG	is detected. Titer		llow.
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I	is detected. Titer agg Screen by IFA, Serum)	results to fo	
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is	is detected. Titer a gG Screen by IFA, Serum) detected. Titer res	results to fo sults to foll	
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is t3: 19-Dec-22 08:00 (Neuromyel	is detected. Titer agg Screen by IFA, Serum) detected. Titer resitis Optica/AQP4-IgG, Ser	results to fo sults to foll rum)	OW.
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is t3: 19-Dec-22 08:00 (Neuromyel Aquaporin-4 Receptor	is detected. Titer agg Screen by IFA, Serum) detected. Titer resitis Optica/AQP4-IgG, Ser Antibody, IgG is det	results to fo sults to foll rum)	OW.
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is t3: 19-Dec-22 08:00 (Neuromyel Aquaporin-4 Receptor t4: 19-Dec-22 08:00 (CV2.1 Ant	is detected. Titer name of Screen by IFA, Serum) detected. Titer resitis Optica/AQP4-IgG, Serantibody, IgG is detibody IgG Screen by IFA)	results to fo sults to foll rum) tected. Titer	ow. results to follow.
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is t3: 19-Dec-22 08:00 (Neuromyel Aquaporin-4 Receptor t4: 19-Dec-22 08:00 (CV2.1 Ant	is detected. Titer agg Screen by IFA, Serum) detected. Titer resitis Optica/AQP4-IgG, Ser Antibody, IgG is detibody IgG Screen by IFA) s detected. Titer resident	results to foll rum) tected. Titer esults to fol	OW.
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is t3: 19-Dec-22 08:00 (Neuromyel Aquaporin-4 Receptor t4: 19-Dec-22 08:00 (CV2.1 Ant CV2.1 Antibody, IgG i	is detected. Titer agg Screen by IFA, Serum) detected. Titer resitis Optica/AQP4-IgG, Ser Antibody, IgG is detibody IgG Screen by IFA) s detected. Titer reptor Ab IgG Screen, Serum	results to foll rum) tected. Titer esults to fol	ow. results to follow. low. Additional charges apply.
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t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is 19-Dec-22 08:00 (Neuromyel Aquaporin-4 Receptor 19-Dec-22 08:00 (CV2.1 Antibody, IgG is 19-Dec-22 08:00 (AMPA Receivant Ampara Antibody, IgG is 19-Dec-22 08:00 (GABA-B Receivant Ampara Antibody, IgG is 19-Dec-22 08:00 (Mog Antib Mog Antibody, IgG is 19-Dec-22 08:00 (DPPX Ab I DPPX Antibody, IgG is 19-Dec-22 08:00 (GABA-AR Artibody, IgG is 19-Dec-22 08:00 (GABA-AR Artibody, IgG is 19-Dec-22 08:00 (IgLON5 Ab IgLON5 Antibody, IgG is 19-Dec-22 08:00 (ITPR1 Ab ITPR1 Antibody, IgG is 19-Dec-22 08:00 (ITPR1 Ab ITPR1 Antibody, IgG is 19-Dec-22 08:00 (ITPR1 Ab ITPR1 Antibody, IgG is 10-Dec-22 08:00 (ITPR1 Ab ITPR1 Antibody, IgG ITPR1 Ab ITPR1 Antibody, IgG ITPR1 AD ITPR1 AD ITPR1 Antibody	is detected. Titer regg Screen by IFA, Serum) detected. Titer regitis Optica/AQP4-IgG, Ser Antibody, IgG is det ibody IgG Screen by IFA) s detected. Titer regetor Ab IgG Screen, Serum s detected. Titer regetor Ab IgG Screen, Serum ceptor Ab IgG Screen, Serum detected. Titer regg GCBA IFA Screen, Serum detected. Titer regg CBA-IFA Screen, Serum is detected. Titer IgG CBA-IFA Screen, Serum is detected. Titer IgG CBA-IFA Screen, Serum is detected. Titer reggis GCBA-IFA Screen, Serum s detected. Titer reggis GCBA-IFA Screen, Serum	results to following tected. Titer esults to following to following the following the following to following the following to following the following to following the followi	ow. results to follow. low. Additional charges apply. low. ollow. w. ow. ollow. llow.
t1: 19-Dec-22 08:00 (CASPR2 Ab CASPR2 Antibody, IgG t2: 19-Dec-22 08:00 (LGI1 Ab I LGI1 Antibody, IgG is 19-Dec-22 08:00 (Neuromyel Aquaporin-4 Receptor 19-Dec-22 08:00 (CV2.1 Antibody, IgG is 19-Dec-22 08:00 (AMPA Receivant Ampara Antibody, IgG is 19-Dec-22 08:00 (GABA-B Receivant Ampara Antibody, IgG is 19-Dec-22 08:00 (Mog Antib Mog Antibody, IgG is 19-Dec-22 08:00 (DPPX Ab I DPPX Antibody, IgG is 19-Dec-22 08:00 (GABA-AR Artibody, IgG is 19-Dec-22 08:00 (GABA-AR Artibody, IgG is 19-Dec-22 08:00 (GABA-AR Artibody, IgG is 19-Dec-22 08:00 (IgLON5 Ab IgLON5 Antibody, IgG is 19-Dec-22 08:00 (IgLON5 Ab IgLON5 Antibody, IgG is 19-Dec-22 08:00 (ITPR1 Ab	is detected. Titer regg Screen by IFA, Serum) detected. Titer regitis Optica/AQP4-IgG, Ser Antibody, IgG is det ibody IgG Screen by IFA) s detected. Titer regetor Ab IgG Screen, Serum s detected. Titer regetor Ab IgG Screen, Serum ceptor Ab IgG Screen, Serum detected. Titer regg GCBA IFA Screen, Serum detected. Titer regg GCBA-IFA Screen, Serum is detected. Titer regg GCBA-IFA Screen, Serum s detected. Titer IgG CBA-IFA Screen, Serum is detected. Titer is IgG CBA-IFA Screen, Serum s detected. Titer regger GCBA-IFA Screen, Serum	results to following tected. Titer esults to following to following the followi	ow. results to follow. low. Additional charges apply. low. ollow. w. ow. ollow. llow. llow.

\*=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:** 

Report Request ID: 16445748

22-353-900009

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PATIENT REPORT

Unknown

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:

#### 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.

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

#### Test Information

il: 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 by IFA, Serum

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

\*- Abnormal #- Corrected C-Critical f-Pocult Footnote H High i Toot Information 1. Low t Information Toyt @-Porforming Ich

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PATIENT REPORT

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

i4: CASPR2 Ab IgG Screen by IFA, Serum

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 Screen by IFA, 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, 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

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Laboratory Director: Jonathan R. Genzen, MD, PhD

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PATIENT REPORT

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

Neuromyelitis Optica/AQP4-IgG, Serum

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

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PATIENT REPORT

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

i9: GABA-B Receptor Ab IgG Screen, Serum

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.

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.

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

il2: DPPX Ab IgG CBA IFA Screen, Serum

INTERPRETIVE INFORMATION: DPPX Ab IgG CBA IFA Screen, Serum

Anti-DPPX IgG antibody is found in a subset of patients with autoimmune 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.

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Laboratory Director: Jonathan R. Genzen, MD, PhD

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PATIENT REPORT

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

Patient Age/Sex:

Unknown

#### Test Information

DPPX Ab IgG CBA IFA Screen, Serum i12:

> This indirect fluorescent antibody cell-based assay (CBA) utilizes dipeptidyl aminopeptidase-like protein 6 (DPPX) transfected cells for the detection 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 US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

i13: GABA-AR Ab IgG CBA-IFA Screen, Serum

INTERPRETIVE INFORMATION: GABA-AR Ab IqG 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 Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

i14: IgLON5 Ab IgG CBA-IFA Screen, Serum

INTERPRETIVE INFORMATION: IgLON5 Ab IgG CBA-IFA Screen,

Serum

IqLON Family Member 5 (IqLON5) 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 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.

i15: ITPR1 Ab IgG CBA-IFA Screen, Serum

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

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PATIENT REPORT

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

Patient Age/Sex:

Unknown

#### Test Information

i15: 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.

i16: mGluR1 Ab IgG 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.

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

i17: 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.

Voltage-Gated Potassium Channel Ab, Ser

INTERPRETIVE INFORMATION: Voltage-Gated Potassium Channel

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PATIENT REPORT

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

il8: Voltage-Gated Potassium Channel Ab, Ser (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

Negative . . . . . . 0.0-8.4 pmol/L Indeterminate . . . . 8.5-11.6 pmol/L

Positive . . . . . . . 11.7 pmol/L or greater

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

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PATIENT REPORT

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phone: 801-583-2787, toll free: 800-522-2787

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

Patient Age/Sex:

Unknown

# Test Information

i21: Neuronal Nuclear Ab (ANNA) IFA Titer IgG

> Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Neuronal Nuclear Ab (Hu) IgG, IB, Serum i22:

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

i23: 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

i24: 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

Neuronal Nuclear Ab (TR/DNER) IgG, IB i25:

INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (TR/DNER)

IgG, IB

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

i26: AMPA Receptor Ab IgG Titer, Serum

INTERPRETIVE INFORMATION: 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.

i27: Neuromyelitis Optica/AQP4-IgG Titer Ser

INTERPRETIVE INFORMATION: Neuromyelitis Optica/AQP4-IgG

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phone: 801-583-2787, toll free: 800-522-2787

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

Patient Age/Sex:

Unknown

# Test Information

i27: Neuromyelitis Optica/AQP4-IgG Titer Ser

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.

i28: CASPR2 Ab IgG Titer by IFA, Serum

INTERPRETIVE INFORMATION: CASPR2 Ab Titer IgG 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.

i29: 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.

i30: 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.

i31: 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.

i32: 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.

i33: IgLON5 Ab IgG CBA-IFA Titer, Serum

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

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

Patient Age/Sex:

Unknown

#### <u>Test Information</u>

i33: 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: 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.

i35: MOG Antibody IgG Titer, Serum

INTERPRETIVE INFORMATION: 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.

i36: 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.

i37: 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

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

Patient Age/Sex:

Unknown

# Test Information

i37: Acetylcholine Binding Antibody

Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

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