ARUP Laboratories

500 Chipeta Way – Salt Lake City, UT 84108 (800)522-2787 - www.aruplab.com Julio C. Delgado, M.D. M.S., Director of Laboratories Patient Age/Gender: Unknown Unknown Printed: 25-Jun-20 08:05:26

Procedure	Result	Units	Ref Interval	Reported/ Accession Collected Received Verified
MAG Antibody, IgM Elisa	1200 H	TU	[0-999]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
SGPG Antibody, IgM	250.00 н	IV	[0.00-0.99]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Purkinje Cell/Neuronal Nuclear IgG Scrn	ANNA Detected		[None	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
	*f		Detected]	11:46:00 11:46:00 12:11:17
Neuronal Nuclear Ab (ANNA) IFA Titer IgG	1:80 *		[<1:10]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Asialo-GM1 Antibodies, IgG/IgM	60 н	IV	[0-50]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
GM1 Antibodies, IgG/IgM	60 н	IV	[0-50]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
GD1a Antibodies, IgG/IgM	60 н	IV	[0-50]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
GD1b Antibodies, IgG/IgM	60 н	IV	[0-50]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
GQlb Antibodies, IgG/IgM	60 н	IV	[0-50]	11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
EER Motor Sensory Neuropathy Comp	See Note f			11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
Neuronal Nuclear Ab (Hu) IgG, IB, Serum	High Positive		[Negative]	11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
Nearonal Nacieal In (IIa, 130, 15, Belam	*		[Megaeive]	11:46:00 11:46:00 12:11:17
Neuronal Nuclear Ab (Ri) IgG, IB, Serum	Low Positive	*	[Negative]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Neuronal Nuclear Ab (Yo) IgG, IB, Serum	Low Positive	*	[Negative]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Neuronal Nuclear Ab (TR/DNER) IgG, IB	Low Positive	*	[Negative]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Immunoglobulin G	100	mg/dL		20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
Immunoglobulin A	100	mg/dL		11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
Immunoglobulin M	100	mg/dL		11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
Total Protein, Serum	>36.0	g/dL		11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
,		5.		11:46:00 11:46:00 12:11:17
Albumin	6.00 н	g/dL	[3.75-5.01]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Alpha 1 Globulin	6.00 н	g/dL	[0.19-0.46]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Alpha 2 Globulin	6.00 H	g/dL	[0.48-1.05]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Beta Globulin	6.00 н	g/dL	[0.48-1.10]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Gamma	6.00 н	g/dL	[0.62-1.51]	20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20 11:46:00 11:46:00 12:11:17
Immunofixation	IFE Done			20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
SPEP/IFE Interpretation	See Note			11:46:00 11:46:00 12:11:17 20-169-900111 17-Jun-20 17-Jun-20 17-Jun-20
,				11:46:00 11:46:00 12:11:17

17-Jun-20 11:46:00 Purkinje Cell/Neuronal Nuclear IgG Scrn:

Antibodies detected, therefore IFA titer and Immunoblot testing to be performed. 17-Jun-20 11:46:00 EER Motor Sensory Neuropathy Comp: Access ARUP Enhanced Report using the link below:

-Direct access:

17-Jun-20 11:46:00 MAG Antibody, IgM Elisa: INTERPRETIVE INFORMATION: MAG Antibody, IgM ELISA

An elevated IgM antibody concentration greater than 999 TU against myelin-associated glycoprotein (MAG) suggests active demyelination in peripheral neuropathy. A normal concentration (less than 999 TU) generally rules out an anti-MAG antibody-associated peripheral neuropathy.

TU=Titer Units

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

* Abnormal, # = Corrected, C = Critical, f = Footnote, H = High, L = Low, t = Interpretive Text, @ = Reference Lab

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ARUP Laboratories 500 Chipeta Way - Salt Lake City, UT 84108

Patient Age/Gender: Unknown Unknown (800)522-2787 - www.aruplab.com Printed: 25-Jun-20 08:05:26 Julio C. Delgado, M.D. M.S., Director of Laboratories

17-Jun-20 11:46:00 SGPG Antibody, IgM: INTERPRETIVE INFORMATION: SGPG Antibody, IgM

The majority of sulfate-3-glucuronyl paragloboside (SGPG) IgM-positive sera will show reactivity against MAG. Patients who are SGPG IgM positive and MAG IgM negative may have multi-focal motor neuropathy with conduction block.

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

17-Jun-20 11:46:00 Purkinje Cell/Neuronal Nuclear IgG Scrn: INTERPRETIVE INFORMATION: Purkinje Cell/Neuronal Nuclear IgG Scrn

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

17-Jun-20 11:46:00 Neuronal Nuclear Ab (ANNA) IFA Titer IgG: INTERPRETIVE INFORMATION: Neuronal Nuclear Ab (ANNA) IFA Titer IgG

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

17-Jun-20 11:46:00 GQlb Antibodies, IgG/IgM: INTERPRETIVE INFORMATION: Ganglioside (Asialo-GM1, GM1, GM2, GD1a, GD1b, and GQ1b) Antibodies, IgG/IgM

29 IV or less: Negative 30-50 IV: Equivocal 51-100 IV: Positive

101 IV or greater: Strong Positive

Ganglioside antibodes are associated with diverse peripheral neuropathies. Elevated antibody levels to ganglioside-monosialic acid (GM1), and the neutral glycolipid, asialo GM1 are associated with motor or sensorimotor neuropathies, particularly multifocal motor neuropathy. Anti-GM1 may occur as IgM (polyclonal or monoclonal) or IgG antibodies. These antibodies may also be found in patients with diverse connective tissue diseases as well as normal individuals. GD1a antibodies are associated with different variants of Guillain-Barre syndrome (GBS) particularly acute motor axonal neuropathy while GD1b antibodies are predominantly found in sensory ataxic neuropathy syndrome. Anti-GQ1b antibodies are seen in more than 80 percent of patients with Miller-Fisher syndrome and may be elevated in GBS patients with ophthalmoplegia. The role of isolated anti-GM2 antibodies is unknown. These tests by themselves are not diagnostic and should be used in conjunction with other clinical parameters to confirm disease.

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

17-Jun-20 11:46:00 Neuronal Nuclear Ab (Hu) IgG, IB, Serum:

* Abnormal, # = Corrected, \mathbf{C} = Critical, \mathbf{f} = Footnote, \mathbf{H} = High, \mathbf{L} = Low, \mathbf{t} = Interpretive Text, @ = Reference Lab

Chart ID: 13660121 Page 2 of 4 **ARUP** Laboratories

500 Chipeta Way – Salt Lake City, UT 84108 (800)522-2787 - www.aruplab.com Julio C. Delgado, M.D. M.S., Director of Laboratories Patient Age/Gender: Unknown Unknown Printed: 25-Jun-20 08:05:26

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

17-Jun-20 11:46:00 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

17-Jun-20 11:46:00 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

17-Jun-20 11:46:00 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

17-Jun-20 11:46:00 Immunoglobulin G: REFERENCE INTERVAL: Immunoglobulin G

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

17-Jun-20 11:46:00 Immunoglobulin A: REFERENCE INTERVAL: Immunoglobulin A

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

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Example Report

ARUP Laboratories
500 Chipeta Way – Salt Lake City, UT 84108
(800)522-2787 - www.aruplab.com
Julio C. Delgado, M.D. M.S., Director of Laboratories

Patient Age/Gender: Unknown Unknown Printed: 25-Jun-20 08:05:26

17-Jun-20 11:46:00 Immunoglobulin M: REFERENCE INTERVAL: Immunoglobulin M

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

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