MAYO CLINIC LABORATORIES

Test Definition: CIDPI

Chronic Inflammatory Demyelinating Polyradiculoneuropathy/Nodopathy Interpretation, Serum

Overview

Useful For

Interpretation for CIDP / Chronic Inflammatory Demyelinating Polyradiculoneuropathy/Nodopathy Evaluation, Serum

Method Name

Only orderable as part of a profile. For more information see CIDP / Chronic Inflammatory Demyelinating Polyradiculoneuropathy/Nodopathy Evaluation, Serum.

Medical Interpretation

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Frozen	28 days	
	Ambient	72 hours	

Clinical & Interpretive

Clinical Information

Chronic inflammatory demyelinating polyradiculoneuropathy (CIDP) is an acquired, immune-mediated condition effecting peripheral nerves and nerve roots and is characterized by electrodiagnostic features of demyelination with a chronic onset that leads to significant disability. The prevalence of CIDP is estimated at approximately 2 to 4 cases per 100,000 persons. Although a rarer cause of polyneuropathy, it is important to recognize as it is treatable with the appropriate use of immunomodulating therapies. Although the exact immunological trigger of CIDP remains unclear, a subset of patients with suspected CIDP have been identified with autoantibodies targeting nodal-paranodal proteins. These patients share common immunopathological mechanisms of disease, clinical features, and treatment responses that are distinct from classic CIDP. A common target of these autoantibodies is the neurofascin-155 (NF155): contactin-1 (CNTN1) complex. NF155 is expressed at the paranodal loops of Schwann cells where it interacts with CNTN1 expressed on adjacent axons. This interaction stabilizes and allows the proper organization of the paranodal axoglial junction. Antibody-mediated

disruption of this interaction in animal models recapitulates the pathophysiology observed in humans.

NF155 IgG antibodies are present in approximately 5% to 10% of patients with CIDP like presentations and, more rarely, in those with more acute forms of demyelinating polyradiculoneuropathy. NF155 IgG positive cases are more likely to present with distal weakness, gait disturbance, tremor, and dysarthria as compared to classic CIDP. Most patients who are seropositive for NF155 IgG have been reported to be refractory to intravenous immune globulin (IVIG) therapy and often require second line treatment that includes B-cell depleting therapies such as rituximab. Studies in animal models, as well as the disease pathology indicate NF155 IgG4 antibodies directly disrupt the paranodal axoglial junction ultimately leading to demyelination. IgG4 is the predominant antibody subclass found in these patients and associates with poorer treatment responses to IVIG. The detection of NF155 IgG4 is a highly specific finding and has not been reported in other disease mimics such as hereditary neuropathies, distal acquired demyelinating symmetric neuropathy, and motor neuron disease.

CNTN1 IgG antibodies are present in approximately 2% of patients with CIDP like presentations. CNTN1 IgG positive cases are more likely to present with neuropathic pain, sensory ataxia, and subacute progressive demyelinating polyradiculoneuropathy or polyradiculopathy. The majority of seropositive patients have been reported to be refractory to treatment with IVIG. However, some of these patients respond well to B-cell depleting therapies such as rituximab. Up to half of CNTN1 IgG positive patients with CIDP or CIDP-like presentations have been reported to develop membranous nephropathy and, thus, screening for proteinuria may be warranted.

Reference Values

Only orderable as part of a profile. For more information see CIDP / Chronic Inflammatory Demyelinating Polyradiculoneuropathy/Nodopathy Evaluation, Serum.

Interpretation

Seropositivity for contactin-1 IgG is consistent with an immune-mediated demyelinating polyradiculoneuropathy/polyradiculopathy.

Seropositivity for neurofascin-155 IgG4 is consistent with an immune-mediated demyelinating polyradiculoneuropathy.

Cautions

A negative result does not rule out an immune-mediated demyelinating disease.
This test should only be utilized in the appropriate clinical context.

The use of immunotherapy prior to sample collection may negatively impact the sensitivity of these assays.

Clinical Reference

1. Dubey D, Honorat JA, Shelly S, et al: Contactin-1 autoimmunity: Serologic, neurologic, and pathologic correlates. Neurol Neuroimmunol Neuroinflamm. 2020 May 27;7(4):e771
2. Cortese A, Lombardi R, Briani C, et al: Antibodies to neurofascin, contactin-1, and contactin-associated protein 1 in CIDP: Clinical relevance of IgG isotype. Neurol Neuroimmunol Neuroinflamm. 2020 Nov 21;7(1):e639
3. Manso C, Querol L, Mekaouche M, Illa I, Devaux JJ: Contactin-1 IgG4 antibodies cause paranode dismantling and conduction defects. Brain. 2016 Jun;139(Pt 6):1700-1712
4. Le Quintrec M, Teisseyre M, Bec N, et al: Contactin-1 is a novel target antigen in membranous nephropathy associated with chronic inflammatory demyelinating polyneuropathy. Kidney Int. 2021 Dec;100(6):1240-1249

5. Ogata H, Yamasaki R, Hiwatashi A, et al: Characterization of IgG4 anti-neurofascin 155 antibody-positive polyneuropathy. Ann Clin Transl Neurol. 2015 Oct;2(10):960-971
6. Cortese A, Lombardi R, Briani C, et al: Antibodies to neurofascin, contactin-1, and contactin-associated protein 1 in CIDP: Clinical relevance of IgG isotype. Neurol Neuroimmunol Neuroinflamm. 2020 Nov 21;7(1):e639
7. Querol L, Nogales-Gadea G, Rojas-Garcia R, et al: Neurofascin IgG4 antibodies in CIDP associate with disabling tremor and poor response to IVIg. Neurology. 2014 Mar 11;82(10):879-886
8. Shelly S, Klein CJ, Dyck PJB, et al: Neurofascin-155 immunoglobulin subtypes: Clinicopathologic associations and neurologic outcomes. Neurology. 2021;97(24):e2392-e2403

Performance

Method Description
A neuroimmunology expert reviews the laboratory data and an interpretive report is issued.

PDF Report
No

Day(s) Performed
Varies

Performing Laboratory Location
Rochester

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
Not Applicable

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CIDPI	CIDP/NP Interpretation, S	69048-7

Result ID	Test Result Name	Result LOINC® Value
616444	CIDP/NP Interpretation, S	69048-7