Autoimmune CNS Demyelinating Disease Reflexive Panel

Last Literature Review: July 2023 Last Update: September 2024

Autoimmune central nervous system (CNS) demyelinating diseases include acute disseminated encephalomyelitis (ADEM), myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD), and neuromyelitis optica spectrum disorder (NMOSD).[1] Antibodies associated with these conditions can serve as useful markers of disease.

Featured ARUP Testing

Autoimmune CNS Demyelinating Disease Reflexive Panel 3001283

Method: Semi-Quantitative Cell-Based Indirect Fluorescent Antibody

Disease Overview

Autoimmune CNS demyelinating diseases, including ADEM, MOGAD, and NMOSD, are inflammatory disorders in which the dysregulated immune system targets antigens within the CNS. The most common manifestations of these diseases are optic neuritis, acute myelitis, or encephalopathy.[1] Antineural antibodies serve as useful markers of these diseases, and their detection may help establish a diagnosis, support treatment decisions, aid prognostication, and serve as a prerequisite for enrollment in clinical trials. For more information about the testing strategy for NMOSD, refer to the ARUP Consult Neuromyelitis Optica Spectrum Disorders topic.

Multiple sclerosis (MS) is also an inflammatory demyelinating disease, but there are no specific antibody markers for this disease. For more information about the testing strategy for MS, refer to the ARUP Consult Multiple Sclerosis topic.

Test Description

ARUP's Autoimmune CNS Demyelinating Disease Reflexive Panel can be used for the evaluation of suspected autoimmune CNS demyelinating diseases, including ADEM, MOGAD, and NMOSD. This test is not intended for the evaluation of MS; for more information about appropriate testing for MS, refer to the ARUP Consult Multiple Sclerosis topic.

This panel includes antibodies associated with autoimmune CNS demyelinating disease. If there is subacute onset of progressive bilateral vision loss and concern for a paraneoplastic autoimmune etiology, consider the Autoimmune Vision Loss Reflexive Panel, which includes recoverin and CV2 antibodies. To compare these panels and the antibodies included, refer to ARUP Antineural Antibody Testing for Autoimmune Neurologic Disease page.

Testing for individual autoantibodies is also available separately and can be used for long-term monitoring.

Antibodies Tested and Methodology

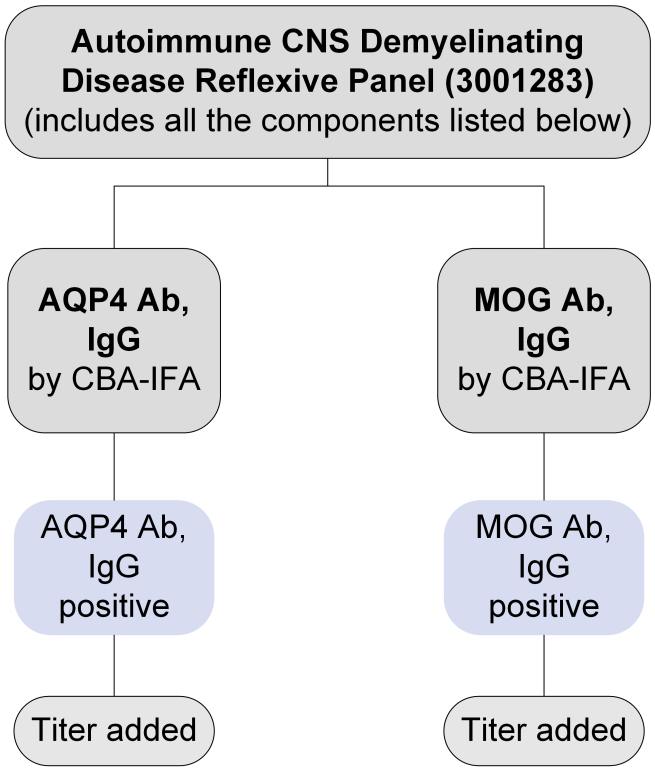
Autoimmune CNS Demyelinating Disease Reflexive Panel (3001283): Antibodies Tested and Methodology

Autoantibody Marker	Method	Individual Autoantibody Test Code
AQP4 Ab, IgG	CBA-IFA, reflex titer	2013320
MOG Ab, IgG	CBA-IFA, reflex titer	3001277

Ab, antibody; AQP4, aquaporin-4; CBA, cell-binding assay/cell-based assay; IFA, indirect immunofluorescence assay; Ig, immunoglobulin; MOG, myelin oligodendrocyte glycoprotein

Reflex Patterns

Autoimmune CNS Demyelinating Disease Reflexive Panel (3001283): Reflex Pattern



Abbreviations

Ab	Antibody
AQP4	Aquaporin-4
CBA	Cell-binding assay/cell-based assay
CNS	Central nervous system
IFA	Indirect immunofluorescence assay
IgG	Immunoglobulin G
MOG	Myelin oligodendrocyte glycoprotein

Limitations

This test does not include all known antineural antibodies. Patients may present with a clinical autoimmune CNS demyelinating disease but be negative for both MOG and AQP4 antibodies. Future studies are needed to understand whether these double negative patients have an as-yet undefined antineural antibody.

Test Interpretation

Results

Results must be interpreted in the clinical context of the individual patient; test results (positive or negative) should not supersede clinical judgment. This test is performed using a fixed CBA. Rare cases have been reported of patients testing negative using a fixed CBA, but positive using a live CBA.[2,3] If results are negative and there is a high suspicion for autoimmune CNS demyelinating disease, contact your laboratory and consider retesting by another method. At low titers (<1:40), the specificity of this assay decreases.[4,5]

Autoimmune CNS Demyelinating Disease Reflexive Panel (3001283): Results Interpretation	
Result	**Interpretation**
Positive for ≥1 autoantibodies	Autoantibody(ies) detected May support a diagnosis of an autoimmune CNS demyelinating disease

Result	Interpretation
Negative	No autoantibodies detected A diagnosis of an autoimmune CNS demyelinating disease is not excluded

References

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2. Waters PJ, Komorowski L, Woodhall M, et al. A multicenter comparison of MOG-IgG cell-based assays. *Neurology*. 2019;92(11):e1250-e1255.

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4. Levy M, Yeh EA, Hawkes CH, et al. Implications of low-titer MOG antibodies. *Mult Scler Relat Disord*. 2022;59:103746.

5. Alkabie S, Budhram A. Testing for antibodies against aquaporin-4 and myelin oligodendrocyte glycoprotein in the diagnosis of patients with suspected autoimmune myelopathy. *Front Neurol*. 2022;13:912050.

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