Myelin Oligodendrocyte Glycoprotein (MOG) Antibody with Reflex to Titer

Uncovering new clinical insights from MOG antibody testing

Recent research and advances in technology have led to a better understanding of the role antibodies play in the diagnosis, treatment, and prognosis of central nervous system disorders.

Researchers have discovered that one particular antibody—myelin oligodendrocyte glycoprotein (MOG)—may be present in neuromyelitis optica spectrum disorder (NMOSD) and other autoimmune disorders. The new MOG Antibody test with reflex to titer for both serum and cerebrospinal fluid (CSF), from Quest Diagnostics, may help physicians and their patients navigate through the complexity of NMOSD on a streamlined path to a diagnosis.

What is NMOSD?

NMOSD is an immune-mediated, chronic, and often relapsing inflammatory disease that predominantly affects the optic nerve and spinal cord.[1] NMOSD can sometimes be mistaken for multiple sclerosis (MS) because many of the symptoms overlap between the two diseases.

- NMOSD attacks generally have a sudden, severe onset, causing immediate disability, including blindness and paralysis, while MS episodes tend to be more variable or milder, especially in the early stages of the disease
- NMOSD patients often simultaneously present with optic neuritis and transverse myelitis[1]
- NMOSD is generally mediated by anti-aquaporin (AQP4) antibodies. An AQP4 test is generally negative in MS patients[2]

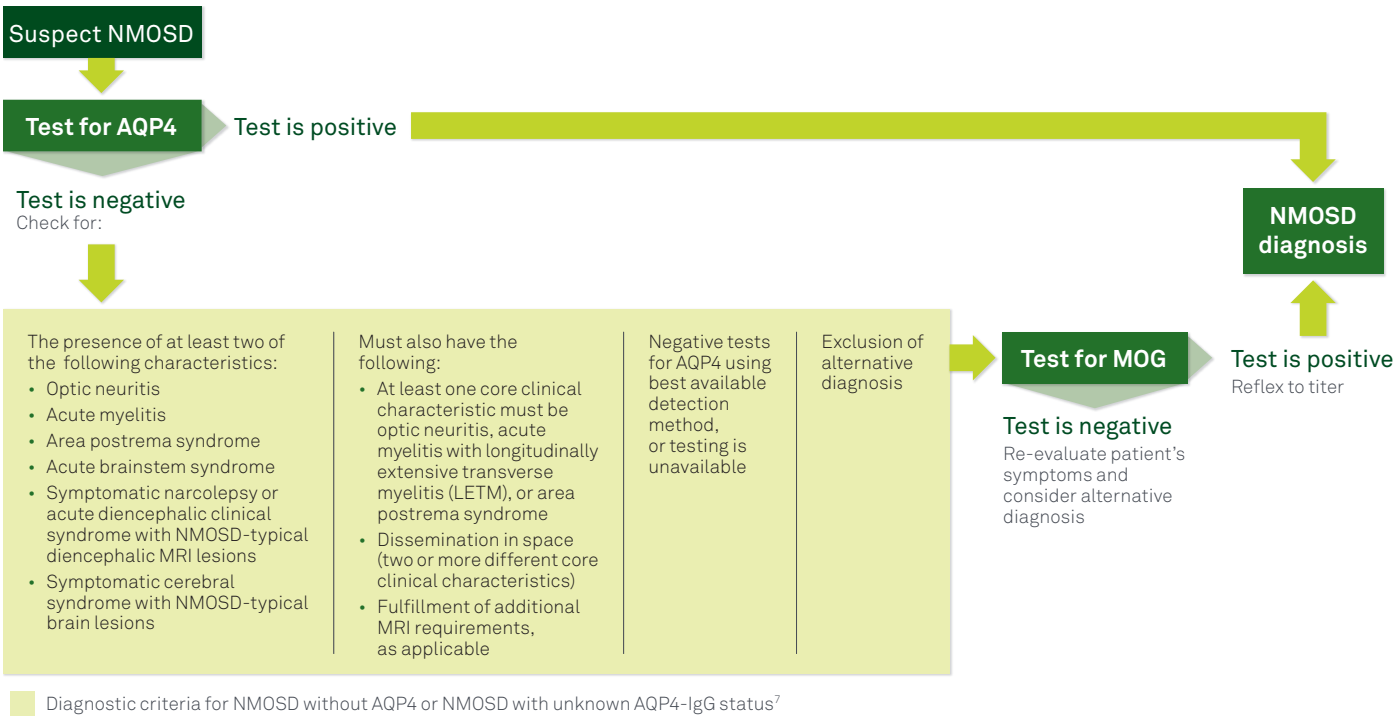
The limitations of AQP4 antibody testing

Based upon the patient's clinical presentation, testing for AQP4 is generally recognized in the literature as the first path to diagnosis. However, AQP4 is not the only antibody that can play a role in NMOSD. A growing body of research indicates that 10%-50% of patients with NMOSD still test negative for AQP4,[3] and 15%-35% of these patients test positive for MOG antibodies.[1,4,5,6]

MOG antibody testing can provide insight and streamline the path to diagnosis and treatment

No one clinical characteristic is exclusive to NMOSD,[7] so it can be difficult to make a definitive diagnosis. The MOG Antibody test with reflex to titer for both serum and CSF, from Quest Diagnostics, delivers clear, positive identification that can help you diagnose NMOSD and treat patients sooner.

Early diagnosis is critical, because treatments that are effective for MS or other demyelinating disorders might be ineffective, or even harmful, for patients with NMOSD.[5] When used in conjunction with other clinical testing, the MOG Antibody test with reflex to titer can help physicians make an informed diagnosis, and aid in clinical decision-making. Consider testing for AQP4 and MOG antibodies in the quest for an accurate diagnosis of NMOSD.



Diagnostic criteria for NMOSD without AQP4 or NMOSD with unknown AQP4-IgG status[7]

Test-ordering information for MOG Antibody and AQP4 Antibody

Test code	Test name	CPT code(s)*	Sample collection type	Sample specifications	Turnaround time	Specimen stability		
						Ambient	Refrigerated	Frozen
36952	Myelin Oligodendrocyte Glycoprotein (MOG) Antibody with Reflex to Titer, Serum	86255 reflex to 86256	Serum	Preferred: 2 mL in red-top tube (no gel) 0.5 mL minimum	3-7 days	7 days	14 days	21 days
36954	Myelin Oligodendrocyte Glycoprotein (MOG) Antibody with Reflex to Titer, CSF	86255 reflex to 86256	CSF	Preferred: 2 mL in a screw-cap vial 0.5 mL minimum	3-7 days	7 days	14 days	21 days
93893	Aquaporin-4 Antibody (IgG), CBA	86255	Serum or CSF	Preferred: 0.5 mL serum collected in red-top tube (no gel) or CSF collected in a sterile, screw-cap container	5-7 days	7 days	14 days	21 days

*The CPT codes provided are based on AMA Guidelines and are for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.

References

1. Kitley J, Waters P, Woodhall M, et al. Neuromyelitis optica spectrum disorders with aquaporin-4 and myelin-oligodendrocyte glycoprotein antibodies: a comparative study. *JAMA Neurol*. 2014;71(3):276-283. doi: 10.1001/jamaneurol.2013.5857 2. Kim SM, Kim SJ, Lee HJ, et al. Differential diagnosis of neuromyelitis optical spectrum disorders. *Ther Adv Neurol Disord*. 2017;10(7): 265-289. doi: 10.1177/1756285617709723 3. Pröbstel AK, Rudolf G, Dornmair K, et al. Anti-MOG antibodies are present in a subgroup of patients with a neuromyelitis optica phenotype. *J Neuroinflammation*. 2015;12:46. doi: 10.1186/s12974-015-0256-1 4. Kezuka T, Usui Y, Yamakawa N, et al. Relationship between NMO-antibody and anti-MOG antibody in optic neuritis. *J Neuroophthalmol*. 2012;32(2):107-110. doi: 10.1097/WNO.0b013e31823c9b6 5. Sato DK, Callegaro D, Lana-Peixoto MA, et al. Distinction between MOG antibody-positive and AQP4 antibody-positive NMO spectrum disorders. *Neurology*. 2014;82(6):474-481. doi: 10.1212/WNL.0000000000000101 6. Waters P, Woodhall M, O'Connor KC, et al. MOG cell-based assay detects non-MS patients with inflammatory neurologic disease. *Neurol Neuroimmunol Neuroinflamm*. 2015;2(3):e89. doi: 10.1212/NXI. 0000000000000089 7. Wingerchuck DM, Banwell B, Bennett JL, et al. International consensus diagnostic criteria for neuromyelitis optica spectrum disorders. *Neurology*. 2015;85(2):177-189. doi: 10.1212/WNL.0000000000001729 8. Höftberger R, Sepulveda M, Armangue T, et al. Antibodies to MOG and AQP4 in adults with neuromyelitis optica and suspected limited forms of the disease. *Mult Scler*. 2015;21(7):866-874. doi: 10.1177/13524585514555785 9. Hyun JW, Woodhall MR, Kim SH, et al. Longitudinal analysis of myelin oligodendrocyte glycoprotein antibodies in CNS inflammatory diseases. *J Neurol Neurosurg Psychiatry*. 2017;88(10):811-817. doi: 10.1136/jnnp-2017-315998

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