NEUROMYELITIS OPTICA (NMO) SPECTRUM DISORDERS
INCREASED SENSITIVITY AND SPECIFICITY WITH AQUAPORIN-4-IgG CELL-BINDING ASSAYS
WHAT IS NEUROMYELITIS OPTICA (NMO)?

Neuromyelitis optica (NMO) is an inflammatory, demyelinating disease of the central nervous system. NMO is characterized by severe relapsing attacks of optic neuritis and transverse myelitis.

Unlike the attacks associated with multiple sclerosis, NMO attacks commonly spare the brain in the early stages.

The spectrum of NMO was traditionally restricted to the optic nerves and the spinal cord. However, Mayo Clinic physician Dr. Vanda Lennon discovered an antibody called aquaporin-4 (AQP4), which targets the water channel on astrocytes. Since then, a much broader category called “NMO spectrum” disorders has evolved to include patients with:

- Single or recurrent episodes of optic neuritis who test positive for AQP4-IgG
- Single or recurrent episodes of transverse myelitis who test positive for AQP4-IgG

WHY TEST FOR NMO?

TO DIFFERENTIATE BETWEEN NMO AND MULTIPLE SCLEROSIS.
- Although NMO spectrum disorders have very similar clinical and radiologic characteristics to multiple sclerosis (MS), the diseases are treated very differently.
- A majority of NMO patients, typically women, are initially misdiagnosed with MS.
- While NMO is treated by immunosuppressant therapy, MS is treated by immunomodulation therapy, which may worsen NMO.

BECAUSE AN EARLY DIAGNOSIS CAN STOP THE DISABILITY.
- Unlike MS, the neurological disability caused by NMO spectrum disorders is based on the number of attacks rather than a progressive phase of the illness.
- Initiating therapy early in the course to eliminate recurrence of attacks will minimize patient disability.
- If not treated appropriately, within 5 years, 50% of NMO patients lose functional vision in at least 1 eye or are unable to walk.

MAYO MEDICAL LABORATORIES: YOUR PARTNER IN COMMUNITY LABORATORY MEDICINE

With a strong emphasis on patient care and community-based medicine, Mayo Medical Laboratories does more than deliver groundbreaking testing solutions. We connect you with world-renowned neurologists and laboratory experts who help you work with your results every step of the way.

FOR MORE INFORMATION ABOUT DIAGNOSIS AND TREATMENT OF NMO, CONTACT US AT 855-516-8404
NEW METHOD FOR TESTING AVAILABLE THROUGH MAYO MEDICAL LABORATORIES

Mayo Clinic studies, involving thousands of patients, have found the cell-based AQP4 antibody assay to be more sensitive and specific than ELISA methods. The improved sensitivity and specificity of the AQP4 test offered by Mayo Medical Laboratories will assist clinicians in distinguishing early-stage NMO spectrum disorders from MS.

WHICH TESTS SHOULD I ORDER?

- Neuromyelitis Optica (NMO)/Aquaporin-4-IgG Cell-Binding Assay, Serum* (Mayo ID: NMOCS)
  TAT: 2 days negative / 3 days positive
  * Serum is generally more sensitive than CSF for detection of NMO/Aquaporin-4-IgG
- Neuromyelitis Optica (NMO)/Aquaporin-4-IgG Cell-Binding Assay, CSF (Mayo ID: NMOCC)
  TAT: 2 days negative / 3 days positive

WHEN SHOULD I ORDER THESE TESTS?

- DEFINITELY ORDER AQUAPORIN-4-IgG CELL-BINDING ASSAY
- CONSIDER ORDERING AQUAPORIN-4-IgG CELL-BINDING ASSAY

**RECOMMENDED**

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<th>CELL-BINDING ASSAY</th>
<th>ELISA</th>
<th>INDIRECT IMMUNOFLUORESCENCE</th>
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<tr>
<td>SENSITIVITY*</td>
<td>70–75%</td>
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<td>SPECIFICITY</td>
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THE LIKELIHOOD HAVING A FALSE-POSITIVE RESULT WITH ELISA METHODOLOGY IS AT LEAST 5X GREATER WHEN COMPARED WITH THE MAYO CLINIC CELL-BINDING ASSAY

The Mayo Clinic Neuroimmunology Laboratory was the first to introduce comprehensive serological evaluations to aid the diagnosis of neurological autoimmunity. The laboratory continues to discover and clinically validate novel autoantibody profiles that inform neurological decision-making and guide the search for cancer.

The clinical and research activities of the Mayo Clinic Neuroimmunology Laboratory focus on autoimmunity affecting the brain, optic nerve, retina, spinal cord, autonomic and somatic nerves and muscle. The neuroimmunology laboratory complements Mayo Clinic’s Autoimmune Neurology Clinic.

FOR MORE INFORMATION ABOUT AUTOIMMUNE NEUROLOGY TESTING
MayoMedicalLaboratories.com/NMO