Test Definition: MSMN

Membranous Nephropathy Target Antigen Identification, Mass Spectrometry, Tissue

Overview

Useful For

Identification of antigen in membranous nephropathy

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
MSMNT	Mass Spectrometry, MN TC	No, (Bill Only)	No
MNLCP	Microdissection, Laser Capture, MN	No, (Bill Only)	No

Testing Algorithm

Requests for this test are reviewed by a Mayo Clinic renal pathologist prior to testing. After review of the submitted pathology report, electron microscopy images, phospholipase A2 receptor (PLA2R) staining results, and paraffin block, testing will proceed. If PLA2R results are not available, the pathologist may contact the ordering healthcare professional for the results or for additional specimen (frozen material/slides) to conduct the studies at Mayo Clinic Laboratories.

Method Name

Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)

NY State Available

Yes

Specimen

Specimen Type

Special

Ordering Guidance

This test should be performed on cases with a confirmed diagnosis of membranous nephropathy. Ideally, these cases should already be confirmed as phospholipase A2 receptor (PLA2R) negative, based on PLA2R immunohistochemistry (IHC) or immunofluorescence (IF) testing, not PLA2R serology testing.

If PLA2R IHC or IF testing has not been performed, order test PLAIF / Phospholipase A2 Receptor (PLA2R), Renal Biopsy and submit the additional required specimen.

Additional Testing Requirements

If phospholipase A2 receptor testing using immunohistochemistry or immunofluorescence (IF) has not previously been performed, PLAIF / Phospholipase A2 Receptor (PLA2R), Renal Biopsy **must also** be ordered and will be charged

separately. An additional frozen IF block or frozen unstained slides will be required.

Necessary Information

The following information is required. Testing will not proceed without this information.

1. Preliminary pathology report and clinical history
2. Electron microscopy (EM) images (via external storage device or secured email to dlpathrenalsec@mayo.edu)
3. Immunofluorescence (IF) slides (or IF images via external storage device) if EM images are not available.

Specimen Required

Specimen Type: Kidney tissue

Supplies: Pathology Packaging Kit (T554)

Container/Tube: Formalin-fixed, paraffin-embedded tissue block

Additional Information: Do not send fixed tissue slides. Testing can only be done on paraffin-embedded tissue blocks.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:

-Kidney Transplant Test Request

-Renal Diagnostics Test Request (T830)

Specimen Minimum Volume

See Specimen Required

Reject Due To

Fixed tissue slides	Reject
Wet/frozen tissue	Reject
Cytological smears	Reject
Non-formalin fixed tissue	Reject
Nonparaffin embedded tissue	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Special	Ambient (preferred)		
	Refrigerated		

Clinical & Interpretive

Clinical Information

Membranous nephropathy (MN) is an autoimmune disease and a common cause of nephrotic syndrome in adults. MN results from glomerular accumulation of antigen-antibody complexes along the subepithelial region of the glomerular basement membranes. A series of novel antigens have recently been identified, and many of these antigen-associated MN have distinct clinical and pathologic findings as well as outcomes. This assay is intended to identify the antigens associated with MN using laser microdissection of MN glomeruli followed by mass spectrometry. The panel of MN antigens includes CNTN1, EXT1, EXT2, FAT1, HTRA1, NCAM1, NDNF, NELL1, PCDH7, PCSK6, PLA2R, SEMA3B, and THSD7A.

Reference Values

An interpretive report will be provided.

Interpretation

For results with a detected peptide profile, a description will be provided. The interpretation will include a diagnosis supported by the findings and a clinical reference. A simple description will be given for results that have no peptides detected or insufficient glomeruli.

Cautions

No significant cautionary statements

Clinical Reference

1. Sethi S, Madden B. Mapping antigens of membranous nephropathy: almost there. Kidney Int. 2023;103(3):469-472
2. Rovin BH, Adler SG, Barratt J, et al. Executive summary of the KDIGO 2021 Guideline for the Management of Glomerular Diseases. Kidney Int. 2021;100(4):753-779
3. Sethi S. Membranous nephropathy: a single disease or a pattern of injury resulting from different diseases. Clin Kidney J. 2021;14(10):2166-2169
4. Bobart SA, Tehranian S, Sethi S, et al. A target antigen-based approach to the classification of membranous nephropathy. Mayo Clin Proc. 2021;96(3):577-591
5. Ravindran A, Casal Moura M, Fervenza FC, et al. In patients with membranous lupus nephritis, exostosin-positivity and exostosin-negativity represent two different phenotypes. J Am Soc Nephrol. 2021;32(3):695-706

Performance

Method Description

Affected areas are removed from paraffin-embedded tissues by laser microdissection. Protein digestion is performed, followed by liquid chromatography tandem mass spectrometry.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Friday

MAYO CLINIC LABORATORIES

Test Definition: MSMN

Membranous Nephropathy Target Antigen Identification, Mass Spectrometry, Tissue

Report Available
7 to 15 days

Specimen Retention Time
Until reported

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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
This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
82542
88380

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MSMN	MN Target Antigen ID, LC MS, Ts	106784-2

Result ID	Test Result Name	Result LOINC® Value
620789	Interpretation	59465-5
620790	Participated in the Interpretation	No LOINC Needed
620791	Report electronically signed by	19139-5
620792	Material Received	81178-6
620793	Disclaimer	62364-5
620794	Case Number	80398-1
620795	Gross Description	22634-0
620796	Addendum	35265-8