Test Definition: PLA2M

Phospholipase A2 Receptor, Monitoring, Enzyme-Linked Immunosorbent Assay, Serum

Overview

Useful For

Distinguishing primary from secondary membranous nephropathy

Monitoring patients with membranous nephropathy, over time, for trends in anti-phospholipase A2 receptor antibody levels

Highlights

This test can be used to identify whether a specific autoantibody is present in a patient with biopsy proven membranous nephropathy or in a patient without a renal biopsy but with a clinical picture consistent with membranous nephropathy.

Anti-phospholipase A2 receptor (PLA2R) antibodies are highly specific for the diagnosis of primary membranous nephropathy.

If a patient is already known to have anti-phospholipase A2 receptor positive membranous nephropathy, this test can be used to monitor response to treatment or detect relapse.

As many as 70% to 75% of patients with primary membranous nephropathy are positive for anti-PLA2R.

A titer increase, decrease, or disappearance generally precedes a change in clinical status.

Method Name

Enzyme-Linked Immunosorbent Assay (ELISA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL

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Collection Instructions: Centrifuge and aliquot serum into plastic vial

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

0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	OK
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	14 days	
	Ambient	8 hours	
	Frozen	14 days	

Clinical & Interpretive

Clinical Information

Membranous nephropathy (MN) is a rare disease in which immune complexes deposit at the glomerular basement membrane, causing damage to the filtration barrier, resulting in proteinuria. Recent studies have shown that in approximately 70% of patients with primary MN (pMN), the immune complexes consist of autoantibodies against the podocyte protein M-type phospholipase A2 receptor (PLA2R).(1) There is also evidence that levels of anti-PLA2R autoantibodies correlate well with disease activity and progression.(2) The presence of anti-PLA2R antibodies could also potentially be used to differentiate pMN from other causes of nephrotic syndrome if a biopsy is not possible. Among patients with chronic kidney disease awaiting kidney transplantation, higher levels of anti-PLA2R could predict those more likely to recur after transplantation.(2)

Mayo Clinic Laboratories data suggests high concordance between the enzyme-linked immunosorbent assay (ELISA) and indirect immunofluorescence assay PLA2R results; however, the ELISA assay alone may be preferred for monitoring patients with membranous nephropathy over time for trends in anti-PLA2R antibody levels.

Reference Values

<14 RU/mL: Negative
14 to 19 RU/mL: Borderline

> or =20 RU/mL: Positive

Interpretation

Therapy outcome can be monitored by measuring the anti-phospholipase A2 receptor antibody titer. A titer increase, decrease, or disappearance generally precedes a change in clinical status. Thus, the determination of the antibody titer has a high predictive value with respect to clinical remission, relapse, or risk assessment after kidney transplantation.

Cautions

This test should not be used as a stand-alone test but an adjunct to other clinical information. A diagnosis of primary or secondary membranous nephropathy (MN) should not be made on a single test result. The clinical symptoms, results on physical examination, and laboratory tests (eg, serological tests), when appropriate, should always be taken into account when considering the diagnosis of primary versus secondary MN.

Absence of circulating anti-phospholipase A2 receptor autoantibodies does not rule out a diagnosis of primary MN.

Clinical Reference

1. Beck Lh Jr, Bonegio RGB, Lambeau G, et al: M-type phospholipase A2 receptor as target antigen in idiopathic membranous nephropathy. N Engl J Med. 2009 Jul 2;361(1):11-21
2. Schlumberger W, Hornig N, Lange S, et al: Differential diagnosis of membranous nephropathy with autoantibodies to phospholipase A2 receptor 1. Autoimmun Rev. 2014 Feb;13(2)108-113

Performance

Method Description

The test kit provides microtiter strips, each with 8 break-off reagent wells. In the case of positive samples, specific IgG antibodies (also IgA and IgM) will bind to the antigens. To detect the bound antibodies, a second incubation is carried out using an enzyme-labelled antihuman IgG (enzyme conjugate) catalyzing a color reaction.(Package insert: Anti-PLA2R ELISA [IgG] Kit. EUROIMMUN US; V 07/2020)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

3 to 7 days

Specimen Retention Time

7 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Main Campus

MAYO CLINIC LABORATORIES

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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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

83520

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PLA2M	PLA2R, Monitoring, ELISA, S	73737-9

Result ID	Test Result Name	Result LOINC® Value
PLA2M	PLA2R, Monitoring, ELISA, S	73737-9