Test Definition: CCPQ

P/Q-Type Calcium Channel Antibody, Serum

Overview

Useful For

Confirming a diagnosis of Lambert-Eaton syndrome

Implicating autoimmunity as a disease-causing mechanism in patients with complex neurologic presentations, particularly in those with a history of cancer

Implicating autoimmunity as the basis of limbic encephalitis, cerebellar ataxia, myelopathy, peripheral neuropathy, or autonomic neuropathy

This test is **not useful** as a general screening test for cancer.

Method Name

Only orderable as part of a profile. For more information see:
PAVAL / Paraneoplastic, Autoantibody Evaluation, Serum
MGLE / Myasthenia Gravis/Lambert-Eaton Myasthenic Syndrome Evaluation, Serum
MDS2 / Movement Disorder, Autoimmune Evaluation, Serum
PNEFS / Neuroimmunology Antibody Follow-Up, Serum

Radioimmunoassay (RIA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Ordering Guidance

The profile test should not be requested in patients who have recently received radioisotopes, therapeutically or diagnostically, because of potential assay interference. The specific waiting period before specimen collection will depend on the isotope administered, the dose given, and the clearance rate in the individual patient. Specimens will be screened for radioactivity prior to analysis. Radioactive samples received in the laboratory will be held 1 week and assayed if sufficiently decayed or canceled if radioactivity remains.

Specimen Required

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MDS2 / Movement Disorder, Autoimmune Evaluation, Serum
PNEFS / Neuroimmunology Antibody Follow-Up, Serum

Specimen Minimum Volume
0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Frozen	28 days	
	Ambient	72 hours	

Clinical & Interpretive

Clinical Information
This test is not offered as a standalone test but is included in the following test procedures as an aid for diagnosis of neurological autoimmunity, usually in a paraneoplastic context.
-MGLE / Myasthenia Gravis/Lambert-Eaton Myasthenic Syndrome Evaluation, Serum
-MDS2 / Movement Disorder, Autoimmune Evaluation, Serum

P/Q-type calcium channels regulate neurotransmitter release at motor nerve terminals and are involved in central neurotransmission.

A snail venom toxin, omega conopeptide MVIIC, is a specific high-affinity antagonist for P/Q-type channels.

Autoantibodies directed against extracellular epitopes of P/Q-type calcium channels are implicated as the effectors of the Lambert-Eaton myasthenic syndrome (LES).

These antibodies generally reflect an immune response against cancer.

P/Q-type calcium channel binding antibodies are found in 95% of nonimmunosuppressed patients with LES (100% of those with cancer) and in 20% of patients who have encephalomyeloneuropathies related to carcinoma of lung, breast, or ovary.

Reference Values
Only orderable as part of a profile. For more information see:

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MGLE / Myasthenia Gravis/Lambert-Eaton Myasthenic Syndrome Evaluation, Serum
MDS2 / Movement Disorder, Autoimmune Evaluation, Serum
PNEFS / Neuroimmunology Antibody Follow-Up, Serum

< or =0.02 nmol/L

Interpretation

Values greater than 0.02 nmol/L are consistent with neurologic autoimmunity and suggest a paraneoplastic basis.

Values in nonimmunosuppressed patients with Lambert-Eaton syndrome are usually greater than 0.1 nmol/L.

Cautions

High-dose intravenous IgG therapy may cause false-lowering of (or negative) values.

Plasma specimens can yield false-positive results.

The influence of myeloma M proteins is uncertain.

Clinical Reference

1. Lennon VA, Kryzer TJ, Griesmann GE, et al. Calcium-channel antibodies in the Lambert-Eaton myasthenic syndrome and other paraneoplastic syndromes. N Engl J Med. 1995;332(22):1467-1474
2. Lennon VA. Serological profile of myasthenia gravis and distinction from the lambert-eaton myasthenic syndrome. Neurology. 1997;48(Suppl 5):S23-S27
3. Zalewski NL, Lennon VA, Lachance DH, Klein CJ, Pittock SJ, Mckeon A. P/Q- and N-type calcium-channel antibodies: Oncological, neurological, and serological accompaniments. Muscle Nerve. 2016;54(2):220-227. doi: 10.1002/mus.25027

Performance

Method Description

High voltage-activated calcium channels of P/Q-type (ie, high affinity receptors for omega-peptide MVIIC) are solubilized from porcine cerebral cortical membranes in detergent and are complexed with (125)I-labeled omega-conopeptide-MVIIC. After incubating patient sample with labeled receptors, anti-human IgG is added to form an immunoprecipitate. The amount of (125)I-labeled receptors in the immunoprecipitate is measured using a gamma-counter. The amount of gamma emission in the precipitate is proportional to the amount of CCPQ-IgG in the sample. Results are reported as units of precipitated antigen (nMol) per L of patient sample.(Griesmann GE, Kryzer, TJ, Lennon VA: Autoantibody profiles of myasthenia gravis and Lambert-Eaton myasthenic syndrome. In: Rose NR, Hamilton RG, Detrick B, eds. Manual of Clinical and Laboratory Immunology. 6th ed. ASM Press; 2002:1005-1012; Jones AL, Flanagan EP, Pittock SJ, et al. Responses to and outcomes of treatment of autoimmune cerebellar ataxia in adults. JAMA Neurol. 2015;72[11]:1304-1312 doi:10.1001/jamaneurol.2015.2378)

PDF Report

No

Day(s) Performed
Monday through Sunday

Report Available
3 to 7 days

Specimen Retention Time
28 days

Performing Laboratory Location
Rochester

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
86596

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CCPQ	P/Q-Type Calcium Channel Ab	94349-8

Result ID	Test Result Name	Result LOINC® Value
81185	P/Q-Type Calcium Channel Ab	94349-8