Test Definition: PCTTS

Purkinje Cell Cytoplasmic Antibody Type Tr (PCA-Tr) Titer, Serum (Non-Orderable)

Overview

Useful For

Only orderable as a reflex. For more information see:
PAVAL / Paraneoplastic Autoantibody Evaluation, Serum
DMS2 / Dementia, Autoimmune/Paraneoplastic Evaluation, Serum
ENS2 / Encephalopathy, Autoimmune/Paraneoplastic Evaluation, Serum
EPS2 / Epilepsy, Autoimmune/Paraneoplastic Evaluation, Serum
MDS2 / Movement Disorder, Autoimmune/Paraneoplastic Evaluation, Serum
PCDES / Pediatric Autoimmune Encephalopathy/CNS Disorder Evaluation, Serum

Serological testing for Purkinje cell cytoplasmic antibody-Tr for patients with acquired cerebellar ataxia of undetermined etiology, particularly if the patient has a history of Hodgkin lymphoma

Reporting an end titer result from serum specimens

Testing Algorithm

If the indirect immunofluorescence pattern suggests Purkinje cell cytoplasmic antibody type Tr (PCA-Tr), then this test will be performed at an additional charge.

Method Name

Only orderable as a reflex. For more information see:
-PAVAL / Paraneoplastic Autoantibody Evaluation, Serum
-DMS2 / Dementia, Autoimmune/Paraneoplastic Evaluation, Serum
-ENS2 / Encephalopathy, Autoimmune/Paraneoplastic Evaluation, Serum
-EPS2 / Epilepsy, Autoimmune/Paraneoplastic Evaluation, Serum
-MDS2 / Movement Disorder, Autoimmune/Paraneoplastic Evaluation, Serum
-PCDES / Pediatric Autoimmune Encephalopathy/CNS Disorder Evaluation, Serum

Indirect Immunofluorescence Assay (IFA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Only orderable as a reflex. For more information see:

-PAVAL / Paraneoplastic Autoantibody Evaluation, Serum
-DMS2 / Dementia, Autoimmune/Paraneoplastic Evaluation, Serum
-ENS2 / Encephalopathy, Autoimmune/Paraneoplastic Evaluation, Serum
-EPS2 / Epilepsy, Autoimmune/Paraneoplastic Evaluation, Serum
-MDS2 / Movement Disorder, Autoimmune/Paraneoplastic Evaluation, Serum
-PCDES / Pediatric Autoimmune Encephalopathy/CNS Disorder Evaluation, Serum

Specimen Minimum Volume

0.6 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	
	Ambient	72 hours	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Purkinje cell autoantibodies are among the antineuronal autoantibodies that are recognized clinically as markers of a patient's immune response to specific cancers (paraneoplastic autoantibodies).

The earliest description of a Purkinje cell cytoplasmic antibody (PCA) was reported by Trotter et al in 1976 as a serological accompaniment of paraneoplastic cerebellar ataxia in a patient with Hodgkin lymphoma.(1) IgG of that specificity was recently characterized more fully by Graus et al,(2) who confirmed the association with Hodgkin lymphoma and named the antibody "anti-Tr" in recognition of Dr. John L. Trotter's original report.

To accord with a generic classification of neuronal nuclear and cytoplasmic autoantibodies,(3) the name PCA-Tr was introduced to distinguish this Purkinje cell cytoplasmic antibody from PCA-1 (a marker of ovarian or breast carcinoma) and PCA-2 (a marker of small-cell lung carcinoma),(4) which are also found in patients presenting with paraneoplastic neurological autoimmunity.

Reference Values

Only orderable as a reflex. For more information see:
-PAVAL / Paraneoplastic Autoantibody Evaluation, Serum
-DMS2 / Dementia, Autoimmune/Paraneoplastic Evaluation, Serum

-ENS2 / Encephalopathy, Autoimmune/Paraneoplastic Evaluation, Serum
-EPS2 / Epilepsy, Autoimmune/Paraneoplastic Evaluation, Serum
-MDS2 / Movement Disorder, Autoimmune/Paraneoplastic Evaluation, Serum
-PCDES / Pediatric Autoimmune Encephalopathy/CNS Disorder Evaluation, Serum

<1:240
Neuron-restricted patterns of IgG staining that do not fulfill criteria for Purkinje cell cytoplasmic antibody type-Tr may be reported as "unclassified antineuronal IgG." Complex patterns that include nonneuronal elements may be reported as "uninterpretable."

Interpretation
A positive value (at 1:240 dilution or higher) is consistent with neurological autoimmunity and justifies a search for Hodgkin lymphoma. Purkinje cell cytoplasmic antibody type Tr has not yet been identified in any other context.

Seropositive patients usually have Hodgkin lymphoma and present with subacute cerebellar ataxia.(1-3)

Cautions
Interference from coexisting autoantibodies may preclude interpretation of the immunofluorescence pattern.

A negative result does not exclude neurological autoimmunity or Hodgkin lymphoma.

The Purkinje cell cytoplasmic antibody type Tr (PCA Tr) antigen, has not been defined immunochemically. It has been reported, but not yet confirmed that autoantibodies against glutamate receptors may occur in this context.(4)

No Western blot characteristics have been defined for the PCA Tr antigen.

Clinical Reference
1. Trotter JL, Hendin BA, Osterland CK: Cerebellar degeneration with Hodgkin disease. An immunological study. Arch Neurol. 1976 Sep;33(9):660-661
2. Graus F, Gultekin SH, Ferrer I, et al: Localization of the neuronal antigen recognized by anti-Tr antibodies from patients with paraneoplastic cerebellar degeneration and Hodgkin's disease in the rat nervous system. Acta Neuropathologica. 1998 Jul;96(1):1-7
3. Vernino S, Lennon VA: New Purkinje cell antibody (PCA-2): marker of lung cancer-related neurological autoimmunity. Ann Neurol. 2000 Mar;47(3):297-305
4. Graus F, Vincent A, Pozo-Rosich P, et al: Anti-glial nuclear antibody: marker of lung cancer-related paraneoplastic neurological syndromes. J Neuroimmunol. 2005 Aug;165(1-2):166-171
5. Klein CJ: Autoimmune-mediated peripheral neuropathies and autoimmune pain. In: Pittock SJ, Vincent A, eds. Autoimmune Neurology. Elsevier; 2016: 417-446. Aminoff MJ, Boller F, Swaab DF, eds. Handbook of Clinical Neurology; vol 133

Performance

Method Description

The patient's specimen is tested by a standardized immunofluorescence assay that uses a composite frozen section of mouse cerebellum, kidney, and gut tissues. After incubation with the specimen and washing, fluorescein-conjugated goat-antihuman IgG is applied. Neuron-specific autoantibodies are identified by their characteristic fluorescence staining patterns. Specimens that are scored positive for any neuronal nuclear or cytoplasmic autoantibody are titrated. Interference by coexisting non-neuron-specific autoantibodies can usually be eliminated by serologic absorption.(Honorat JA, Komorowski L, Josephs KA, et al. IgLON5 antibody: Neurological accompaniments and outcomes in 20 patients. Neurol Neuroimmunol Neuroinflamm. 2017;4[5]:e385. Published 2017 Jul 18. doi:10.1212/NXI.0000000000000385)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
6 to 8 days

Specimen Retention Time
2 days

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
86256

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PCTTS	PCA-Tr Titer, S	94352-2

Result ID	Test Result Name	Result LOINC® Value

43439	PCA-Tr Titer, S	94352-2