Overview

Useful For
Molecular confirmation of a diagnosis of dentatorubral-pallidoluysian atrophy (DRPLA) for symptomatic patients

Predictive testing for individuals with a family history of DRPLA and a documented expansion in the ATN1 gene in an affected family member

Special Instructions
- Informed Consent for Genetic Testing
- Molecular Genetics: Neurology Patient Information
- Informed Consent for Genetic Testing (Spanish)

Method Name
Polymerase Chain Reaction (PCR)

NY State Available
Yes

Specimen

Specimen Type
Varies

Shipping Instructions
Specimen preferred to arrive within 96 hours of draw.

Specimen Required

Patient Preparation: A previous bone marrow transplant from an allogenic donor will interfere with testing. Call 800-533-1710 for instructions for testing patients who have received a bone marrow transplant.

Specimen Type: Whole blood

Container/Tube:

Preferred: Lavender top (EDTA) or yellow top (ACD)

Acceptable: Any anticoagulant

Specimen Volume: 3 mL

Collection Instructions:
1. Invert several times to mix blood.
2. Send specimen in original tube.

Forms
1. New York Clients-Informed consent is required. Document on the request form or electronic order that a copy...
Dentatorubral-pallidoluysian atrophy (DRPLA) is a rare autosomal dominant neurodegenerative disorder characterized by ataxia, choreoathetosis, dementia, and psychiatric disturbance in adults and ataxia, myoclonus, seizures, and progressive intellectual deterioration in children. Characteristic neuropathologic observations include degeneration of the dentatorubral and pallidoluysian systems of the central nervous system.

The prevalence of DRPLA depends on the geographic and ethnic origin of the population being studied. DRPLA was first described in a European individual without a family history; however, it is predominantly found as an inherited condition and is most prevalent in Japan (0.2-0.7 per 100,000). Although rare, DRPLA has been identified in other populations including Europe and North America.

DRPLA is caused by an expansion of the CAG trinucleotide repeat in the *ATN1 (DRPLA)* gene. This trinucleotide repeat is polymorphic in the general population, with the number of repeats ranging from 7 to 35. In affected individuals the CAG expansion ranges from 48 to 93 repeats. As with other trinucleotide repeat disorders, anticipation is frequently observed, and larger CAG expansions are associated with earlier onset and a more severe and rapid clinical course. In DRPLA, the observed anticipation appears to be significantly greater in paternal transmissions.

**Reference Values**

Normal alleles: 7-35 CAG repeats

Abnormal alleles: 49-93 CAG repeats

An interpretive report will be provided.
Interpretation
An interpretive report will be provided.

Cautions
For predictive testing, it is important to first document the presence of CAG-repeat amplification in the ATN1 gene in an affected family member to confirm that molecular expansion is the underlying mechanism of disease in the family.

We strongly recommend that patients undergoing predictive testing receive genetic counseling both prior to testing and after results are available.

Predictive testing of an asymptomatic child is not recommended.

Test results should be interpreted in the context of clinical findings, family history, and other laboratory data. Errors in our interpretation of results may occur if information given is inaccurate or incomplete.

The absence of an expansion in the ATN1 gene does not eliminate the diagnosis of other inherited neurodegenerative disorders that have overlapping clinical features with DRPLA, such as Huntington disease or spinocerebellar ataxias.

Supportive Data
Method validation involved comparative studies with other laboratories and testing 50 individuals from the general population (anonymous blood donors) and 48 patients with cerebellar ataxia. In each case, the distribution of observed repeat sizes closely correlated with previously reported values (ie, similar range and frequencies of specific repeat sizes). Sequencing of 2 specimens confirmed accuracy of CAG repeat numbers compared with estimations based on the size of polymerase chain reaction products.

Clinical Reference

Performance

Method Description
A PCR-based assay is used to amplify across the region of the ATN1 (DRPLA) gene containing the CAG repeats. Assay products are separated by capillary electrophoresis and are sized by comparison with an internal size standard. (Dorschner MO, Barden D, Stephens K: Diagnosis of five spinocerebellar ataxia disorders by multiplex amplification and capillary electrophoresis. J Mol Diag 2002;4:108-113)

PDF Report
No

Day(s) and Time(s) Test Performed
Tuesday; 2 p.m.
Analytic Time
5 days

Maximum Laboratory Time
11 days

Performing Laboratory Location
Rochester

Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information
81177-ATN1 (ataxin 2) (eg, denatatorubral-pallidolyuysian atrophy) gene analysis, evaluation to detect abnormal (eg, expanded) alleles

LOINC® Information

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