

Overview

Useful For

Confirming the 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 collection.

Specimen Required

Specimen Type: Whole blood

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.

Container/Tube:

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

Acceptable: Any anticoagulant

Specimen Volume: 3 mL

Collection Instructions:

- Invert several times to mix blood.
- Send whole blood specimen in original tube. **Do not aliquot.**

Forms

1. **New York Clients-Informed consent is required.** Document on the request form or electronic order that a copy is on file. The following documents are available:
[-Informed Consent for Genetic Testing \(T576\)](#)
[-Informed Consent for Genetic Testing \(Spanish\) \(T826\)](#)
2. [Molecular Genetics: Neurology Patient Information](#)
3. If not ordering electronically, complete, print, and send a [Neurology Specialty Testing Client Test Request \(T732\)](#) with the specimen.

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

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.

It is strongly recommended 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 the 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

1. Ikeuchi T, Onodera O, Oyake M, Koide R, Tanaka H, Tsuji S: Dentatorubral-pallidoluysian atrophy (DRPLA): close correlation of CAG repeat expansions with the wide spectrum of clinical presentations and prominent anticipation. *Semin Cell Biol.* 1995 Feb;6(1):37-44
2. Tsuji S: Dentatorubral-pallidoluysian atrophy: clinical aspects and molecular genetics. *Ad Neurol.* 2002;89:231-239
3. Oyanagi S: Hereditary dentatorubral-pallidoluysian atrophy. *Neuropathology.* 2000 Sep;20 Suppl:S42-S46

Performance

Method Description

A polymerase chain reaction-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 May;4(2):108-113)

PDF Report

No

Day(s) Performed

Tuesday

Report Available

14 to 21 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

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

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
DRPL	DRPLA Gene Analysis	In Process

Result ID	Test Result Name	Result LOINC® Value
53234	Result Summary	50397-9
53235	Result	49631-5
53236	Interpretation	69047-9
53237	Specimen	31208-2
53238	Source	31208-2
53239	Released By	18771-6