RP2-related X-linked Retinitis Pigmentosa: RP2 Gene Sequencing

Test Code: SRP20  
Turnaround time: 6 weeks  
CPT Codes: 81479 x1

Condition Description

Retinitis pigmentosa (RP) is a group of inherited disorders characterized by abnormalities of the photoreceptors on the retinal pigment epithelium. RP disorders lead to progressive visual loss. The first symptom is usually night blindness followed by visual field constriction which eventually leads to central vision loss. Isolated RP is most often inherited as an autosomal recessive disorder (50-60% of cases), but can be autosomal dominant (30-40%), or X-linked (5-15%) as well. More than 45 different genes accounting for approximately 60% of affected individuals have been implicated in RP.

Mutations in RP2 (Xp11.3) (OMIM #300757) account for 10-20% of X-linked RP cases (OMIM #312600). Carrier females may show mild retinal degeneration.

This testing is for the RP2 gene only.


References:
- GeneReviews  
  - OMIM #312600: Retinitis pigmentosa 2  
  - OMIM #300757: RP2 gene  

Genes

RP2

Indications

This test is indicated for:
- Confirmation of a clinical diagnosis of X-Linked Retinitis Pigmentosa.  
- Carrier testing in adults with a family history of X-Linked Retinitis Pigmentosa.

Methodology

PCR amplification of 5 exons contained in the RP2 gene is performed on the patient's genomic DNA. Direct sequencing of amplification products is performed in both forward and reverse directions, using automated fluorescence dideoxy sequencing methods. The patient's gene sequences are then compared to a normal reference sequence. Sequence variations are classified as mutations, benign variants unrelated to disease, or variations of unknown clinical significance. Variants of unknown clinical significance may require further studies of the patient and/or family members. This assay does not interrogate the promoter region, deep intronic regions, or other regulatory elements, and does not detect large deletions.

Detection

Clinical Sensitivity: Unknown. Mutations in the promoter region, some mutations in the introns and other regulatory element mutations cannot be detected by this analysis. Large deletions will not be detected by this analysis. Results of molecular analysis should be interpreted in the context of the patient's clinical and/or biochemical phenotype.

Analytical Sensitivity: ~99%

Specimen Requirements

Submit only 1 of the following specimen types

* Preferred specimen type: Whole Blood

Type: Whole Blood

Specimen Requirements:

In EDTA (purple top) tube:  
- Infants (2 years): 3-5 ml  
- Older Children & Adults: 5-10 ml

Specimen Collection and Shipping: Refrigerate until time of shipment. Ship sample within 5 days of collection at room temperature with overnight delivery.
Type: Saliva

Specimen Requirements:

Oragene™ Saliva Collection kit (available through EGL) used according to manufacturer instructions.

Specimen Collection and Shipping: Store sample at room temperature. Ship sample within 5 days of collection at room temperature with overnight delivery.

Related Tests

- Deletion/duplication analysis of the RP2 gene by CGH array is available for those individuals in whom sequence analysis is negative.
- Custom diagnostic mutation analysis (KM) is available to family members if mutations are identified by targeted mutation testing or sequencing analysis.
- Prenatal testing is available only for known familial mutations to individuals who are confirmed carriers of mutations. Please contact the laboratory genetic counselor to discuss appropriate testing prior to collecting a prenatal specimen.
- Sequencing and deletion/duplication analysis are available for the RPGR gene.