Retinitis Pigmentosa 59: \textit{DHDDS} Gene Sequencing

\textbf{Test Code:} SDHDD  
\textbf{Turnaround time:} 4 weeks  
\textbf{CPT Codes:} 81479 x1

\section*{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 the \textit{DHDDS} gene (1p36.11), account for \(? 1\% of autosomal recessive RP cases. A founder mutation c.124A>G (p.K42E) has been identified in the Ashkenazi Jewish population. \textit{DHDDS} codes for the enzyme dehydrodolichyl diphosphate synthase, which plays a key role in a pathway of dolichol, which is involved in the biosynthesis of glycoproteins, including rhodopsin.

This testing is for sequence analysis of the \textit{DHDDS} gene only.


\textbf{References:}

- GeneReviews
- OMIM: 608172
- OMIM: 613861

\section*{Genes}

\textbf{DHDDS}

\section*{Indications}

This test is indicated for:

- Confirmation of a clinical diagnosis of retinitis pigmentosa.
- Carrier testing in adults with a family history of retinitis pigmentosa.

\section*{Methodology}

PCR amplification of 8 exons contained in the \textit{DHDDS} 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.

\section*{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: \textnormal{\textasciitilde}99\%

\section*{Specimen Requirements}

Submit only 1 of the following specimen types

* Preferred specimen type: Whole Blood

\textbf{Type: Whole Blood}

Specimen Requirements:

In EDTA (purple top) or ACD (yellow 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
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

- 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.