The DHCR24 gene is composed of 9 exons and spans approximately 46 kb on chromosome 1p32.3. It encodes the 3-beta-hydroxysterol delta-24-reductase, a member of the flavin adenine dinucleotide (FAD)-dependent oxidoreductase, which catalyzes the reduction of the delta-24 double bond of sterol intermediates during cholesterol biosynthesis. The DHCR24 protein contains a leader sequence that directs it to the endoplasmic reticulum membrane. The DHCR24 mutations are passed on in an autosomal recessive fashion. Missense mutations in this gene have been associated with desmosterolosis and congenital heart disease. Definitive genotype/phenotype correlations have not been described.

The John Welsh Cardiovascular Diagnostic Laboratory offers molecular genetic testing for DHCR24 mutations. Individuals are tested by DNA sequencing of the coding exons of the DHCR24 gene. We strongly recommend initial testing of a clearly affected individual, if available, in order to provide the greatest test sensitivity and clearest interpretation of results for subsequent family members. Genetic counseling is recommended for all individuals.

REASONS FOR REFERRAL

Molecular confirmation of congenital heart disease and desmosterolosis.

METHODOLOGY

Genomic DNA is analyzed for DHCR24 mutations by DNA sequencing of the coding exons of the DHCR24 gene, as well as the exon/intron junctions and a portion of the 5’ and 3’ untranslated regions. Patient DNA is sequenced in both the forward and reverse orientations. If a mutation is identified, additional family members are analyzed only for the familial mutation by automatic fluorescent DNA sequencing.

SERVICE FEES

<table>
<thead>
<tr>
<th>Index Case (Male or Female)</th>
<th>Direct and Institutional Billing</th>
<th>CPT Codes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$800 per sample</td>
<td>81405</td>
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</tbody>
</table>

<table>
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<tr>
<th>Additional Family Members</th>
<th>$300 per sample; known familial mutation only</th>
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</thead>
</table>

SENSITIVITY


SPECIMEN REQUIREMENTS

Blood (preferred): EDTA (purple-top) tubes: Adult: 5 cc Child: 5 cc Infant: 2-3 cc

Tissue: Frozen (preferred) or RNAlater

Other Body Fluids or Formalin-Fixed, Paraffin-Embedded Tissue: Call to inquire