The *DLL3* gene is composed of eight exons spanning 10 kb on chromosome 19q13.2. It encodes a member of the delta protein ligand family, which functions as Notch ligands that are characterized by a DSL domain, EGF repeats, and a transmembrane domain. Two transcript variants encoding distinct isoforms have been identified for this gene. The *DLL3* mutations are passed on in an autosomal recessive fashion. Diseases associated with *DLL3* include spondylocostal dysostosis 1 and congenital heart disease. Definitive genotype/phenotype correlations have not been described.

The John Welsh Cardiovascular Diagnostic Laboratory offers molecular genetic testing for *DLL3* mutations. Individuals are tested by DNA sequencing of the coding exons of the *DLL3* 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.

**METHODOLOGY**

Genomic DNA is analyzed for *DLL3* mutations by DNA sequencing of the coding exons of the *DLL3* 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>$800 per sample</th>
<th>81405</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Family Members</td>
<td>$300 per sample;</td>
<td>81403</td>
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<tr>
<td></td>
<td>known familial mutation only</td>
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</table>

**SENSITIVITY**

DNA Sequencing Analysis: Approximately 99 percent detection of mutations in the coding exons 1-8 of *DLL3*.

**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