TNXB (tenascin XB) gene encodes a member of the tenascin family of extracellular matrix glycoproteins. The tenascins have anti-adhesive effects, as opposed to fibronectin which is adhesive. It is thought to function in matrix maturation during wound healing, and its deficiency has been associated with the connective tissue disorder Ehlers-Danlos syndrome. TNXB gene contains 13 coding exons and spans 74.2 kb genomic distance which was mapped to chromosome 6p21.3. An incomplete duplicated TNXB pseudogene was also identified in the major histocompatibility complex (MHC) class III region. Multiple transcript variants encoding different isoforms have been found for this gene. This gene is unusual in that it overlaps the CREBL1 and CYP21A2 genes at its 5' and 3' ends, respectively. Diseases associated with TNXB mutations include arrhythmia, autosomal recessive Ehlers-Danlos syndrome due to tenascin X deficiency and autosomal dominant hypermobility type Ehlers-Danlos syndrome. TNXB mutations demonstrate both autosomal dominant and recessive inheritance with a broad range of clinical severity both within and between families. Definitive genotype/phenotype correlations have not been described.

The John Welsh Cardiovascular Diagnostic Laboratory offers molecular genetic testing for TNXB mutations. Individuals are tested by automatic fluorescent DNA sequencing of the coding exons of the TNXB 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 the diagnosis of arrhythmia, autosomal recessive Ehlers-Danlos syndrome due to tenascin X deficiency and autosomal dominant hypermobility type Ehlers-Danlos syndrome.

**METHODOLOGY**

Genomic DNA is analyzed for TNXB mutations by DNA sequencing of the coding exons of the TNXB gene, as well as the exon/intron junctions and a portion of the 5’ and 3’ untranslated region. 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**

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<th>Direct and Institutional Billing</th>
<th>CPT Codes</th>
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<td>Index Case (Male or Female)</td>
<td>$1,000 per sample</td>
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<tr>
<td>Additional Family Members</td>
<td>$300 per sample; known familial mutation only</td>
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**SENSITIVITY**

DNA Sequencing Analysis: Approximately 99 percent detection of mutations in the coding exons 1-13 of TNXB.

**SPECIMEN REQUIREMENTS**

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

**Tissue:** Frozen (preferred), RNAlater

**Other Body Fluids or Formalin-fixed, Paraffin-embedded Tissue:** Call to inquire