GPIHBP1 MUTATION ANALYSIS

JOHN WELSH CARDIOVASCULAR DIAGNOSTIC LABORATORY

The GPIHBP1 (glycosylphosphatidylinositol anchored high density lipoprotein binding protein 1) gene contains 4 exons and spans around 4 kB mapped to 8q24.3. Dietary fats are packaged by intestine into triglyceride-rich lipoproteins called chylomicrons. The triglycerides in chylomicrons are hydrolyzed by lipoprotein lipase (LPL) along the luminal surface of capillaries, mainly in heart, skeletal muscle, and adipose tissue. GPIHBP1 is a capillary endothelial cell protein that provides a platform for LPL-mediated processing of chylomicrons. Diseases associated with GPIHBP1 include familial lipoprotein lipase deficiency and hyperlipoproteinemia type ib. Definitive genotype/phenotype correlations have not been described.

The John Welsh Cardiovascular Diagnostic Laboratory offers molecular genetic testing for GPIHBP1 mutations. Individuals are tested by DNA sequencing of the coding exons of the GPIHBP1 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 familial lipoprotein lipase deficiency and hyperlipoproteinemia type IB.

METHODOLOGY

Genomic DNA is analyzed for GPIHBP1 mutations by DNA sequencing of the coding exons of the GPIHBP1 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

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<tr>
<th>Index Case (Male or Female)</th>
<th>Direct and Institutional Billing</th>
<th>CPT Codes</th>
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<tr>
<td></td>
<td>$600 per sample</td>
<td>81404</td>
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| Additional Family Members   | $300 per sample; known familial mutation only | 81403     |

SENSITIVITY

DNA Sequencing Analysis: Approximately 99 percent detection of mutations in the coding exons 1-4 of GPIHBP1.

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