

Glycogen Storage Disease Type VII (Tarui Disease) via *PFKM* Gene Sequencing (Test #230)

Brief Description of Clinical Features: Glycogen Storage Disease Type VII (GSDVII) (OMIM 232800), also known as Tarui Disease, is a rare childhood-onset disorder. The most consistent feature is exercise intolerance accompanied by muscle pain, cramps and nausea. Intense exercise may induce myoglobinuria and even kidney failure. Other symptoms may include jaundice, gallstones and gout. Adult and elderly patients may experience progressive muscle weakness. Symptoms are generally similar to Glycogen Storage Disease Type V. A less common, rapidly progressive and fatal infantile form characterized by myopathy, blindness and seizures has been reported. For more information see www.agsdus.org and www.emedicine.com/ped/topic2209.htm.

Genetics: GSDVII is an autosomal recessive disorder caused by absence or substantial reduction in the activity of the muscle form of the glycolysis enzyme phosphofructokinase. Muscle phosphofructokinase is encoded by the *PFKM* gene on chromosome 12. Different and distinct genes (*PFKL* and *PFKP*) encode the liver and platelet forms of the enzyme. About 20 different causative mutations have been reported in *PFKM* (www.hgmd.org; Rabin and Sherman Hum Mut 6:1-6, 1995). These mutations are predominantly missense and splicing and are located throughout the length of the gene. Two founder mutations account for ~95% of the known mutations in Ashkenazi Jewish patients.

Description of This Particular Test: This test involves bidirectional sequencing from a genomic DNA template of the coding regions of all 22 *PFKM* exons plus about 50 bp of non-coding flanking DNA on each side.

Indications for Test: All patients with symptoms consistent with GSDVII are candidates for this test. We will sequence DNA from likely carriers (for example parents of patients). We will sequence one or two, specified exons in members of families with known mutations and in research subjects to confirm research results.

Sensitivity of Test: Unknown. Because so few causative mutations have been reported in the literature, the frequency of uninterpretable mutations may be somewhat higher than in other sequencing tests.

Turn Around Time: Maximum of 40 days. Many tests, however, are completed in less than 2-3 weeks.

Specimen Requirements: See page 4 of the Requisition Form.

Price: Sequencing of *PFKM* exons 1 through 22 **\$1090**

CPT Codes:

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|-------------------|-------|--------|----------------------------------|-------|--------|
| Ascertainment | 83890 | \$ 30 | DNA Isolation | 83891 | \$ 40 |
| Amplification X18 | 83898 | \$ 350 | Mutation Ident by Sequencing X18 | 83904 | \$ 520 |
| Separation | 83894 | \$ 40 | Interpretation and Report | 83912 | \$ 110 |

Single exon sequencing is available for \$190, and two exon sequencing for \$340.

Accreditation Info. CLIA ID #: 52D1027685 (expires 1/18/13) (CAP#: 7185561, AU ID: 1407125 expires 12/20/12)

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