Expanded Neuromuscular Disorders: Deletion/Duplication Panel

**Test Code:** MD360  
**Turnaround time:** 2 weeks  
**CPT Codes:** 81405 x1, 81161 x1, 81404 x1, 81406 x1

### Condition Description

Neuromuscular disorders (NMDs) collectively refer to the many disorders that affect the peripheral nervous system either by impairing the proper development or functioning of muscles, or by damaging the associated nerves or neuromuscular junctions. NMDs comprise over 200 Mendelian disorders, all of which are rare individually, but have an approximate disease prevalence of 1 in 3,000 altogether. Of the inherited NMDs, muscular dystrophies are the most common. Muscular dystrophies are highly heterogeneous muscle disorders that share clinical, genetic, and pathological characteristics; their major clinical characteristics include muscle degeneration and wasting, progressive muscle weakness, hypotonia, and elevated serum creatine kinase levels.

The expanded neuromuscular panel includes 79 genes which demonstrate a wide range of clinical presentation and heterogeneity. They include muscular dystrophies, congenital myopathies, and congenital myasthenic syndrome. Over the past few years a number of genes with overlapping clinical phenotypes have been identified in neuromuscular disorders. The expanded neuromuscular disorders panel is designed to capture the entire mutation spectrum of these genes.

### References


### Genes

- ACTA1, AMPD1, ANOS, BAG3, BIN1, BSCR2, CAPN3, CAV3, CAVIN1, CFL2, CHAT, CHRNA1, CHRNA6, CHRNA7, CHRNA8, CHRNA9, CHRNB1, CHRNDC1, CHRNE, CHRNG, COL6A1, COL6A2, COL6A3, COLQ, CRPPA, CRYP, DAG1, DES, DMD, DNM2, DOK7, DYSF, EM2, FHL1, FKRP, FKTN, FLNC, GAA, GLE1, GNE, IGHMBP2, ITGA7, ITGB7, LAMA2, LARGE1, LDB3, LAMA4, LMNA, LLMN1, LMN2, LMX1A, MUSK, MYH2, MYH7, MYOT, NEB, PABPN1, PLEC, PLEKHG5, POMM2, POMGNT1, POMT1, POMT2, PYGM, RAPSN, RYR1, RYR2, SCN4A, SELENON, SGCA, SGCB, SGCD, SGCE, SGCG, SLC1, SYNE1, TCAP, TNN1, TNN2, TNNT1, TPM2, TPM3, TRIM32, TTN, VRK1

### Indications

This test is indicated for:

- Confirmation of a clinical diagnosis of neuromuscular disorders.

### Methodology

**Deletion/Duplication Analysis:** DNA isolated from peripheral blood is hybridized to a gene-targeted CGH array to detect deletions and duplications. The targeted CGH array has overlapping probes that cover the entire genomic region.

**Detection**

Deletion/Duplication Analysis: Detection is limited to duplications and deletions. The CGH array will not detect point or intronic mutations. Results of molecular analysis must be interpreted in the context of the patient's clinical and/or biochemical phenotype.

### Specimen Requirements

- **Submit only 1 of the following specimen types**

#### Type: DNA, Isolated

**Specimen Requirements:**

- Microtainer
- 3µg

Isolation using the Perkin Elmer™Chemagen™ Chemagen™ Automated Extraction method or Qiagen™ Puregene kit for DNA extraction is recommended.

- **Specimen Collection and Shipping:**
  - Refrigerate until time of shipment in 100 ng/μL in TE buffer. Ship sample at room temperature with overnight delivery.

#### Type: Whole Blood (EDTA)

**Specimen Requirements:**

- EDTA (Purple Top)
- Infants and Young Children (2 years of age to 10 years old): 3-5 ml
- Older Children & Adults: 5-10 ml

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Autopsy: 2-3 ml unclotted cord or cardiac blood

**Specimen Collection and Shipping:**
Ship sample at room temperature for receipt at EGL within 72 hours of collection. Do not freeze.

**Related Tests**

- Neuromuscular Disorders Panel.
- Limb-girdle Muscular Dystrophy Panel.
- Congenital Muscular Dystrophy Panel.
- Expanded Neuromuscular Disorders: Sequencing Panel.