Pharmacogenetics Expanded Panel

**Test Code:** MPG01  
**Turnaround time:** 10 days  
**CPT Codes:** 81225 x1, 81226 x1, 81227 x1, 81230 x1, 81231 x1, 81328 x1, 81329 x1, 81340 x1, 81420 x1, 81421 x1

### Condition Description

Pharmacogenomics (or pharmacogenetics), abbreviated PGx, is the study of how genes affect a person’s response to certain drugs. PGx testing uses genetic information to predict how individual patients will metabolize some prescription medications. This prediction allows an effective dose to be tailored to a person’s genetic makeup, helping to prevent adverse drug reactions. Pharmacogenetics Extended Test targets variants to genotype for various haplotypes among the following 14 genes.

**Genes and Alleles Tested:**
- **ANKK1/DRD2**  
  DRD2::Taq1A;  
- **COMT** NM_000754.3:c.472G>A(p.V158M); rs4680  
- **F2** NM_000506.3:c.*97G>A; rs1799963  
- **F5** NM_000130.4:c.1601G>A(p.R534Q); rs6025  
- **OPRM1** NM_000914.3:c.118A>G(p.N40D); rs1799971  
- **SLCO1B1** *5  
- **VKORC1** NM_002406.4:c.-1639G>A; rs9923231

Note that “*“ (read as “star”) denotes the common name of a haplotype (or combination of alleles within a gene on the same chromosome).

### Indications

Individuals who meet the defined clinical criteria for being prescribed specific drugs for cardiovascular conditions, cancer treatments, psychotropic medications, and pain management.

### Methodology

The test uses custom manufactured TaqMan® drug metabolism and SNP genotyping assays in 384-well format that are run on the QuantStudio™ 6 Flex platform. The complete test consists of two components: SNP genotyping and copy number quantification. The SNP genotyping component consists of 64 TaqMan® SNP Assays for 63 loci, which include single base and short insertion/deletion polymorphisms. The copy number component consists of one TaqMan® Copy Number assay for the CYP2D6 gene.

### Specimen Requirements

#### 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  
Autopsy: 2-3 ml unclotted cord or cardiac blood

**Specimen Collection and Shipping:**  
Ship sample at room temperature for receipt at EGL within 24 hours of collection. Do not refrigerate or freeze.

#### 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:**

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Refrigerate until time of shipment in 100 ng/µL in TE buffer. Ship sample at room temperature with overnight delivery.

**Related Tests**

- Pharmacogenetics Cardiovascular Panel (MPG02)
- Pharmacogenetics Pain Management and Psychotropic Panel (MPG03)