

## Mucopolysaccharidoses, Eight-Enzyme Panel, Blood Spot

**Test ID:** MP8BS

### **Useful for:**

Supporting the biochemical diagnosis of mucopolysaccharidoses types II, IIIA, IIIB, IIIC, IVA, IVB, VI, and VII, and of multiple sulfatase deficiency

This test is **not useful for** carrier detection.

### **Genetics Information:**

This test is a screening panel for individuals with clinical signs and symptoms suspicious for one of several mucopolysaccharidoses (MPS types II, IIIA, IIIB, IIIC, IVA, IVB, VI, or VII) or for multiple sulfatase deficiency. Enzymatic analysis for MPS IIID is not included in this assay, however it is included on MCL test MP9W. If an enzyme deficiency is detected by this screening test, additional biochemical or molecular testing is required to confirm a diagnosis.

### **Methods:**

Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS)

### **Reference Values:**

Iduronate-2-sulfatase: >4.30 nmol/mL/hour

Heparan-N-sulfatase: >0.06 nmol/mL/hour

N-acetyl-alpha-D-glucosaminidase: >0.70 nmol/mL/hour

Heparan-alpha-glucosaminide N-acetyltransferase: >0.50 nmol/mL/hour

N-acetylgalactosamine-6-sulfatase: >0.70 nmol/mL/hour

Beta-galactosidase: >1.30 nmol/mL/hour

Arylsulfatase B: >0.90 nmol/mL/hour

Beta-glucuronidase: >2.60 nmol/mL/hour

An interpretive report will be provided.

## Specimen Requirements:

Submit only 1 of the following specimen types:

### Preferred:

**Specimen Type:** Blood spot

**Supplies:** Card-Blood Spot Card Collection (Filter Paper) (T493)

**Preferred:** Blood Spot collection Card

**Acceptable:** Whatman Protein Saver 903 Paper, PerkinElmer 226 filter paper, Munktell filter paper, or blood collected in tubes containing ACD or EDTA and dried on filter paper.

**Specimen Volume:** 2 Blood spots

**Collection Instructions:**

1. An alternative blood collection option for a patient 1 year of age or older is a fingerstick. See How to Collect Dried Blood Spot Samples via fingerstick.
2. At least 2 spots should be complete (ie, unpunched).
3. Let blood dry on filter paper at room temperature in a horizontal position for a minimum of 3 hours.
4. Do not expose specimen to heat or direct sunlight.
5. Do not stack wet specimens.
6. Keep specimen dry.

**Specimen Stability Information:** Refrigerated (preferred) 60 days/Ambient 7 days/Frozen 60 days

**Additional Information:**

1. For collection instructions, see [Blood Spot Collection Instructions](#)
2. For collection instructions in Spanish, see [Blood Spot Collection Card-Spanish Instructions](#) (T777)
3. For collection instructions in Chinese, see [Blood Spot Collection Card-Chinese Instructions](#) (T800)

**Minimum Volume:** 1 Blood Spot

### Acceptable:

**Specimen Type:** Whole blood

**Preferred:** Lavender top (EDTA)

**Acceptable:** Yellow top (ACD)

**Specimen Volume:** 2 mL

**Collection Instructions:** Send whole blood specimen in original tube. **Do not aliquot.**

**Specimen Stability Information:** Refrigerate (preferred) 7 days/Ambient: 48 hours

**Minimum Volume:** 0.5 mL

**Specimen Stability Information:**

Specimen Type	Temperature
Whole blood	Varies

**Cautions:**

Beta-galactosidase is reduced in patients with galactosialidosis. Those patients will also demonstrate deficient activity of neuraminidase which is not evaluated on this panel. If there is clinical suspicion of galactosialidosis, order test OLIGU / Oligosaccharide Screen, Random, Urine.

Mucopolidosis II (MLII, I-cell disease) may not be detectable by this assay. If there is clinical suspicion of MLII, order test LSDS / Lysosomal Storage Disorders Screen, Random, Urine, NAGS / Hexosaminidase A and Total Hexosaminidase, Serum, and/or molecular genetic analysis of the GNPTAB gene, L test CGPH / Custom Gene Panel, Hereditary, Next-Generation Sequencing, Varies, Gene List ID: IEMCP-L5VNMC)

The enzyme for MPSIIID (N-acetylglucosamine 6-sulfatase) is not evaluated on this panel.

Individuals with pseudodeficiency alleles can show reduced enzyme activity.

Carrier status (heterozygosity) for these conditions cannot be reliably detected.

Enzyme levels may be normal in individuals receiving enzyme replacement therapy or who have undergone hematopoietic stem cell transplant.

**CPT Code:**

82657

83864 (if appropriate)

**Day(s) Performed:** Thursday

**Report Available:** 8 to 15 days

**Questions**

Contact Melissa Tricker-Klar, Laboratory Resource Coordinator at 800-533-1710.