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## Monoclonal Protein Study, Serum

**Test ID:** MPSS

### Explanation:

On the effective date this test will become obsolete due to the availability of an improved methodology to detect monoclonal proteins.

### Recommended Alternative Test:

## Protein Electrophoresis and Isotype, Serum

**Test ID:** PEISO

For more information on how Mayo Clinic Laboratories is using this testing to detect monoclonal proteins, please visit our website: <https://news.mayocliniclabs.com/2021/02/02/mass-fix-a-test-in-focus/>

### Useful for:

Diagnosis of monoclonal gammopathies, when used in conjunction with locally performed serum free light chain studies (performed at client site)

### Advisory Information:

To monitor a patient with an established diagnosis of a monoclonal gammopathy, order TMOGA / Monoclonal Gammopathy, Monitoring, Serum.

Protein electrophoresis alone is not considered an adequate screen for monoclonal gammopathies. When screening a patient or establishing a first-time diagnosis for a monoclonal gammopathy, consider ordering DMOGA / Monoclonal Gammopathy, Diagnostic, Serum instead, which includes free light chain analysis.

### Profile Information:

Test ID	Reporting Name	Available Separately	Always Performed
TMAB	Therapeutic Antibody Administered?	No	Yes
TPE	Total Protein	Yes (Order TP)	Yes
SPE	Protein Electrophoresis	No	Yes
MPTS	M-protein Isotype MALDI-TOF MS, S	Yes (Order MALD)	Yes

### Reflex Test:

Test ID	Reporting Name	Available Separately	Always Performed
IFXED	Immunofixation Delta and Epsilon, S	Yes	No

### Testing Algorithm:

This test includes total protein, serum protein electrophoresis, and heavy and light chain typing (kappa and lambda).

If a light chain is identified without a corresponding heavy chain during initial testing, immunofixation with IgD and IgE antisera will be performed at an additional charge.

### Method Name:

TPE: Colorimetric, Biuret

SPE: Agarose Gel Electrophoresis

MPTS: Matrix-Assisted Laser Desorption/Ionization-Time of Flight Mass Spectrometry (MALDI-TOF MS)

### Reference Values:

TOTAL PROTEIN

> or =1 year: 6.3-7.9 g/dL

Reference values have not been established for patients that are <12 months of age.

PROTEIN ELECTROPHORESIS

Albumin: 3.4-4.7 g/dL

Alpha-1-globulin: 0.1-0.3 g/dL

Alpha-2-globulin: 0.6-1.0 g/dL

Beta-globulin: 0.7-1.2 g/dL

Gamma-globulin: 0.6-1.6 g/dL

An interpretive comment is provided with the report.

Reference values have not been established for patients that are <16 years of age.

M-PROTEIN ISOTYPE MALDI-TOF MS, S

No monoclonal protein detected

M-protein Isotype MALDI-TOF MS Flag

Negative

### Specimen Requirements:

**Patient Preparation:** Fasting (12 hour) preferred but not required

**Container/Tube:**

**Preferred:** Serum gel

**Acceptable:** Red top

**Specimen Volume:** 1 mL

**Minimum Specimen Volume:** 0.6 mL

### Specimen Stability Information:

Specimen Type	Temperature	Time
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Serum	Refrigerated (preferred)	14 days
	Ambient	7 days
	Frozen	14 days

**Cautions:**

Very large IgG M-spikes (>4 g/dL) may saturate the protein stain. In these situations, quantitative IgG assays (IGG / Immunoglobulin G [IgG], Serum) should be performed to accurately determine M-spike concentrations to monitor disease progression or response to therapy.

Fibrinogen will migrate as a distinct band in the beta-gamma fraction. Serum specimens from new patients with a beta-gamma band are to be treated with thrombin to ensure complete conversion of fibrinogen.

Hemolysis may augment the beta fraction.

Penicillin may split the albumin band.

Radiographic agents may produce an uninterpretable pattern.

**CPT Code:**

- 84155
- 84165
- 0077U
- 86334 (if appropriate)

**Day(s) Setup:**

TPE, SPE: Monday through Saturday;  
 Continuously until 2 p.m.  
 MPTS: Monday through Friday  
 IFXED: Monday through Friday; 2 p.m.

**Analytic Time:** 2 days

**Questions**

Contact Amy Ennis, Laboratory Technologist Resource Coordinator at 800-533-1710.