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**Lab Dept:** Chemistry

**Test Name:** IMMUNOELECTROPHORESIS, SERUM

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***General Information***

**Lab Order Codes:** IMEL

**Synonyms:** Monoclonal Protein Study, Serum

**CPT Codes:** 86334 – Immunofixation electrophoresis  
84165 – Protein; electrophoretic fractionation and quantitation  
84155 – Protein; total

**Test Includes:** Serum protein electrophoresis (SPEP), heavy-chain typing, and light-chain typing (kappa and lambda).

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***Logistics***

**Test Indications:** Useful for identifying and characterizing cases of monoclonal gammopathy when used in conjunction with urine monoclonal studies. Protein electrophoresis alone is not considered an adequate screening for monoclonal gammopathies. Also useful for monitoring patients with known monoclonal gammopathies.

**Lab Testing Sections:** Chemistry - Sendouts

**Referred to:** Mayo Medical Laboratories (MML Test: 81756/MPSS)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 2-3 days, test set up Monday through Saturday

**Special Instructions:** See [Patient Preparation](#)

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***Specimen***

**Specimen Type:** Blood

**Container:** Red top tube

**Draw Volume:** 3 mL blood

**Processed Volume:** 1 mL serum

**Collection:** Routine venipuncture

**Special Processing:** Lab Staff: Centrifuge specimen, remove serum aliquot into a screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly.

**Patient Preparation:** Fasting specimen is recommended.

**Sample Rejection:** Mislabeled or unlabeled specimen; gross lipemia; grossly icteric

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***Interpretive***

**Reference Range:**

<b>Protein electrophoresis:</b>	
Total Protein (≥1 year):	6.3 – 7.9 g/dL
Albumin:	3.4 – 4.7 g/dL
α-1-globulin:	0.1 – 0.3 g/dL
α-2-globulin:	0.6 – 1.0 g/dL
β-globulin:	0.7 – 1.2 g/dL
γ-globulin:	0.6 – 1.6 g/dL
An interpretive comment is provided with the report.	
<b>Immunofixation:</b>	
Negative (reported as positive or negative)	

**Critical Values:** N/A

**Limitations:**

Very large IgG M-spikes (>4 g/dL) may saturate the protein stain. In these situations, quantitative IgG assays 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 function.

Penicillin may split the albumin band.

Radiographic agents may produce an uninterpretable pattern.

**Methodology:**

Total protein: Biuret

Protein Electrophoresis: Agarose Gel Electrophoresis

Immunofixation: Immunofixation and/or Immunodiffusion

**References:**

[Mayo Medical Laboratories Web Site](#) (May 2011)