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**Lab Dept:** Chemistry

**Test Name:** PROTEIN ELECTROPHORESIS, SERUM

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***General Information***

**Lab Order Codes:** SELP

**Synonyms:** Protein ELP, Serum

**CPT Codes:** 84155 – Protein; total, except refractometry  
84165 – Protein; electrophoretic fractionation and quantitation  
86334 – Immunofixation, if appropriate

**Test Includes:** Protein electrophoresis, Total protein. If a discrete electrophoresis band is identified, the laboratory will evaluate the serum protein electrophoresis and may suggest immunofixation as an additional test at an additional charge. See [Immunelectrophoresis, Serum](#).

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***Logistics***

**Test Indications:** Monitoring patients with monoclonal gammopathies. Diagnosis of monoclonal gammopathies, when used in conjunction with Immunofixation.

**Lab Testing Sections:** Chemistry – Sendouts

**Referred to:** Mayo Medical Laboratories (MML Test: PEL)

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

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 1 – 2 days, test performed Monday – Saturday.

**Special Instructions:** If multiple myeloma is suspected, please indicate. See [Patient Preparation](#)

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***Specimen***

**Specimen Type:** Blood

**Container:** SST (Marble, gold or red)

**Draw Volume:** 3 mL (Minimum: 1.5 mL) blood

<b>Processed Volume:</b>	1 mL (Minimum: 0.5 mL) serum
<b>Collection:</b>	Routine blood collection
<b>Special Processing:</b>	Lab Staff: Centrifuge specimen, remove serum aliquot into a screw-capped round bottom plastic vial. Store and ship at refrigerated temperatures. Forward promptly.
<b>Patient Preparation:</b>	Fasting is preferred, but not required
<b>Sample Rejection:</b>	Specimens other than serum; mislabeled or unlabeled specimens

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***Interpretive***

**Reference Range:**

Protein Fraction	Age	Range
<b>Albumin</b>		
	All ages:	3.4 – 4.7 g/dL
<b>Globulins</b>		
α1 (alpha 1)	All ages:	0.1 - 0.3 g/dL
α2 (alpha 2)	All ages:	0.6 – 1.2 g/dL
β (beta)	All ages:	0.7 - 1.2 g/dL
γ (gamma)	All ages:	0.6 - 1.6 g/dL
<b>Total Protein</b>		
	≥1 year	6.3 - 7.9 g/dL
<p><b>Note:</b> An interpretive comment is provided with the report. If the electrophoretic pattern is abnormal, it will be sent by mail from Mayo.</p> <p>Reference ranges have not been established for patients that are less than 12 months of age.</p>		

**Critical Values:** N/A

**Limitations:**

A normal serum Protein Electrophoresis does not rule out disease.

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.

Hemolysis may augment the beta fraction. Penicillin may split the albumin band. Radiographic agents may produce an uninterpretable pattern.

**Methodology:**

ELP: agarose gel electrophoresis

Total Protein: colorimetric reflectance spectrophotometry (biuret)

**References:**

[Mayo Medical Laboratories](#) January 2017

**Updates:**

4/28/2004: Test moved from Fairview University Diagnostic Laboratories to Mayo Medical Laboratories. Note: Slight changes in reference ranges.

12/23/2004: Lab orderable test code changed from PELPS to SELP.

8/3/2016: Update tube type SST