Lab Dept: Chemistry

Test Name: PROTEIN ELECTROPHORESIS, SERUM

*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.

*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

*Specimen*

Specimen Type: Blood

Container: SST (Marble, gold or red)

Draw Volume: 3 mL (Minimum: 1.5 mL) blood
Processed Volume: 1 mL (Minimum: 0.5 mL) serum
Collection: Routine blood collection
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 is preferred, but not required
Sample Rejection: Specimens other than serum; mislabeled or unlabeled specimens

**Interpretive**

<table>
<thead>
<tr>
<th>Reference Range:</th>
<th>Protein Fraction</th>
<th>Age</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Albumin</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All ages:</td>
<td></td>
<td>3.4 – 4.7 g/dL</td>
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<tr>
<td><strong>Globulins</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>α1 (alpha 1)</td>
<td>All ages:</td>
<td></td>
<td>0.1 - 0.3 g/dL</td>
</tr>
<tr>
<td>α2 (alpha 2)</td>
<td>All ages:</td>
<td></td>
<td>0.6 – 1.2 g/dL</td>
</tr>
<tr>
<td>β (beta)</td>
<td>All ages:</td>
<td></td>
<td>0.7 - 1.2 g/dL</td>
</tr>
<tr>
<td>γ (gamma)</td>
<td>All ages:</td>
<td></td>
<td>0.6 - 1.6 g/dL</td>
</tr>
<tr>
<td><strong>Total Protein</strong></td>
<td></td>
<td>≥1 year</td>
<td>6.3 - 7.9 g/dL</td>
</tr>
</tbody>
</table>

*Note:* An interpretive comment is provided with the report. If the electrophoretic pattern is abnormal, it will be sent by mail from Mayo.

Reference ranges have not been established for patients that are less than 12 months of age.

**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](https://www.mayoclinic.org) January 2017

**Updates:**

12/23/2004: Lab orderable test code changed from PELPS to SELP.
8/3/2016: Update tube type SST