Dilute the stain (entire contents of vial) with 1 L.

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The PDF document contains instructions for using a QuickGel lipoprotein gel to determine the levels of lipoproteins in a sample. The procedure includes steps for gel preparation, application of the sample, staining the gel, and evaluation of the results. The document also includes tables for calculating the percentage of lipoprotein bands and a figure illustrating the band positions on the gel.
**IV. Preparation**

1. Carefully cut open the end of the gel pouch. Remove one gel from the protective pack. Fold and tape the open end of the pouch to prevent drying of the gel. Remove the gel from the plastic retic and discard the mold.

2. Place a Quick Gel Electrophoresis Chamber on the table and position the gel facing down with the tabs at the bottom of the chamber.

3. Gels to be scanned for the quantitative determination of the bands should be scanned as soon as possible. Gel banding patterns are fixed immediately for qualitative evaluation or may be kept only an indefinite time after being processed. Calibration: A calibration curve is not necessary because relative concentration of the bands is constant.

**Quality Control:** Lipoprotein (Cat. No. 5600) may be used to verify all phases of the procedure and should be used on each gel run. The control should be used as a marker for location of the lipoprotein bands and may also be quantitated to verify the accuracy of quantities. Reference the package insert provided with each control for details. Additional controls may be required for federal, state or local regulations.

**REFERENCE Ranges**

Reference range studies were established using 37 male and female adults with a total cholesterol of 200 mg/dl. These values are intended as guidelines. Each laboratory should establish its own normal range studies due to distribution differences in various populations.

**RESULTS**

The Lipoprotein (HLA) band is the fastest moving fraction and is stained darkest to the anode. The Beta (HLA) band (Lipid) band is usually the most prominent fraction and is near the origin, migrating cathodic to the point of application. The Pre-Beta (Lipid) band migrates more slowly than the major Pre-Beta and Beta lipoproteins. The lipid of the Pre-Beta band can be treated with deoxyribonuclease, with the degree of resolution obtained, the type of Pre-Beta band present, and the percent of Beta band present. Sometimes Pre-Beta will be seen as a smear just ahead of the Beta fraction. Other times it may be split into more fractions or may be lacking altogether. The integity of the Pre-Beta fraction decreases with sample age. Chylomicrons, when present, stay at the point of application.

**STABILITY of End Product:** Oils to be scanned for the quantitative determination of the bands must be scanned as soon as possible. Gel banding patterns are fixed immediately for qualitative evaluation or may be kept only an indefinite time after being processed.
Because of its particular lipid contents, it stains poorly or not at all with the usual lipid stains. Lipoprotein-X is an abnormal lipoprotein often seen in patients with liver disease. It consists of different combinations of protein, cholesterol, glycerides, cholesterol esters, phospholipids, and free fatty acids. Several techniques have been employed to separate plasma lipoproteins, including ultra-centrifugation, thin layer chromatography, immunological techniques, and electrophoresis. Ultra-centrifugation and ultracentrifugation are two of the most widely-used methods and each has given rise to its own terminology. Table 1 shows the correlation of these classifications with the electrophoretic and lipid composition of each fraction.

### Table 1: Classification and Composition of Lipoprotein Fractions

<table>
<thead>
<tr>
<th>Lipoprotein Fraction</th>
<th>Mobility</th>
<th>Centrifuge</th>
<th>Protein</th>
<th>Glyceride</th>
<th>Cholesterol</th>
<th>Lipids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Beta</td>
<td>Fast</td>
<td>45</td>
<td>5%</td>
<td>6%</td>
<td>18%</td>
<td>26%</td>
</tr>
<tr>
<td>Alpha HDL*</td>
<td>Medium</td>
<td>21%</td>
<td>12%</td>
<td>45%</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>Beta LDL*</td>
<td>Slow</td>
<td>21%</td>
<td>12%</td>
<td>45%</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>Pre-Beta LDL*</td>
<td>Very slow</td>
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