**TRIGLYCERIDES**

**GPO-PAP with ATCS**

Single Reagent

Diagnostic reagent for quantitative in vitro determination of triglycerides in human serum or plasma on photometric systems

<table>
<thead>
<tr>
<th>REF</th>
<th>Kit Size</th>
<th>Configuration</th>
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<tbody>
<tr>
<td>D96385B</td>
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<td>D00389</td>
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<td>D96388</td>
<td>5 x 50 mL</td>
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<td>D00390</td>
<td>5 x 25 mL</td>
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<tr>
<td>D98390</td>
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<td>DK0740</td>
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<td>DB0943</td>
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</tbody>
</table>

Additionally offered

- D99486 3 x 3 mL Lipid Control normal Diacon Lipids
- D98486 5 x 3 mL Lipid Control abnormal Diacon N
- D11487SV 1 x 3 mL Lipid Control normal Diacon Lipids
- D99486SV 1 x 3 mL Lipid Control abnormal Diacon N
- D98482 12 x 5 mL Control abnormal Diacon P
- D11487 3 x 3 mL Lipid Control abnormal Diacon Lipids High

**TEST PRINCIPLE**

Determination of triglycerides after enzymatic splitting with lipoprotein lipase. Indicator is quinoneimine which is generated from 4-aminoaipiptine and 4-chlorophenol by hydrogen peroxide under the catalytic action of peroxidase.

**TEST PARAMETERS**

Method: Colorimetric, enzymatic, GPO – PAP, endpoint, increasing reaction

Wavelength: 500 nm, Hg 546 nm

Temperature: 20 - 25 °C or 37 °C

Sample: Serum, heparinized or EDTA-plasma

Linearity: up to 1000 mg/dL (11.3 mmol/L)

Sensitivity: Lower limit of detection: 2 mg/dL (0.02 mmol/L)

**SUMMARY**

Triglycerides are esters of glycerol with three fatty acids and are the most abundant naturally occurring lipids. They are transported in plasma bound to apolipoproteins forming very low density lipoproteins (VLDL) and chylomicrons. Measurement of triglycerides is used in screening of the lipid status to detect atherosclerotic risks and in monitoring of lipid lowering measures. Studies have shown that elevated triglyceride concentrations combined with increased low density lipoprotein (LDL) concentrations constitute an especially high risk for coronary heart disease (CHD). High triglyceride levels also occur in various diseases of liver, kidneys and pancreas.

**UNIT CONVERSION**

mg/dL x 0.01126 = mmol/L

**REFERENCE RANGE**

<table>
<thead>
<tr>
<th>mg/dL</th>
<th>mmol/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desirable (fasting):</td>
<td>&lt; 200</td>
</tr>
<tr>
<td>Borderline high:</td>
<td>200 – 400</td>
</tr>
<tr>
<td>Elevated:</td>
<td>&gt; 400</td>
</tr>
</tbody>
</table>

* Each laboratory should check if the reference ranges are transferable to its own patient population and determine own reference ranges if necessary.

**MANUAL TEST PROCEDURE**

Bring reagents and samples to room temperature.

Mix. Incubate 10 minutes at 37 °C or 20 minutes at 20 – 25 °C. Measure absorbance of sample and std./cal. within 60 minutes against the reagent blank.

**CALCULATION**

Triglycerides [mg/dL] = \( \frac{\Delta A \text{Sample}}{\Delta A \text{Std./Cal.}} \times \text{Conc. Std./Cal. [mg/dL]} \)

To correct for free glycerol, subtract 10 mg/dL (0.11 mmol/L) from the triglycerides value calculated above.
PERFORMANCE CHARACTERISTICS

LINEARITY, MEASURING RANGE
The test has been developed to determine triglycerides concentrations within a measuring range from 2 – 1000 mg/dL (0.02 – 11.3 mmol/L). If values exceed this range, samples should be diluted 1+4 with NaCl solution (9 g/L) and the result multiplied by 5.

SENSITIVITY/LIMIT OF DETECTION
The lower limit of detection is 2 mg/dL (0.02 mmol/L).

PRECISION (at 37°C)

<table>
<thead>
<tr>
<th></th>
<th>n  = 20</th>
<th>Mean [mg/dL]</th>
<th>SD [mg/dL]</th>
<th>CV [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra-assay Sample 1</td>
<td>55.5</td>
<td>0.301</td>
<td>0.54</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sample 2</td>
<td>212</td>
<td>1.69</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Sample 3</td>
<td>447</td>
<td>3.09</td>
<td>0.69</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th></th>
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<th>Mean [mg/dL]</th>
<th>SD [mg/dL]</th>
<th>CV [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-assay Sample 1</td>
<td>88.9</td>
<td>0.795</td>
<td>0.89</td>
<td></td>
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<tr>
<td></td>
<td>Sample 2</td>
<td>235</td>
<td>3.61</td>
<td>1.54</td>
</tr>
</tbody>
</table>

SPECIFICITY/INTERFERENCES
no interference up to:
Ascorbic acid 3 mg/dL
Bilirubin, conjugated 30 mg/dL
Bilirubin, unconjugated 9 mg/dL
Hemoglobin 500 mg/dL

For further information on interfering substances refer to Young DS [5].

METHOD COMPARISON
A comparison between Dialab Triglycerides (y) and a commercially available test (x) using 95 samples gave following results: y = 0.969 x – 0.092 mg/dL; r = 0.9999.

CALIBRATION
The assay requires the use of a Triglycerides Standard or Calibrator.
We recommend the Dialab Triglycerides Standard or the multi calibration serum Diacal Auto. The assigned values of the calibrator have been made traceable to the reference method gas chromatography – isotope dilution mass spectrometry (CG-IDMS).

QUALITY CONTROL
All control sera with Triglycerides values determined by this method can be used.
We recommend the Dialab lipid control sera Diacon Lipids and Diacon Lipids High and the Dialab multi control sera Diacon N (with values in the normal range) and Diacon P (with values in the pathological range).
Each laboratory should establish corrective action in case of deviations in control recovery.

AUTOMATION
Special applications for automated analysers can be made on request.

WARNINGS AND PRECAUTIONS
1. The reagent contains sodium azide (0.95 g/L) as preservative. Do not swallow! Avoid contact with skin and mucous membranes.
2. The reagent contains biological material. Handle the product as potentially infectious according to universal precautions and good laboratory practice.
3. In very rare cases, samples of patients with gammopathy might give falsified results [6].
4. N-acetylcysteine (NAC), acetaminophen and metamizole medication leads to falsely low results in patient samples.
5. Please refer to the safety data sheet and take the necessary precautions for the use of laboratory reagents.
6. For diagnostic purposes, the results should always be assessed with the patient’s medical history, clinical examinations and other findings.
7. For professional use only!

WASTE MANAGEMENT
Please refer to local legal requirements.

REFERENCES