ZINC
(Colorimetric Test with 5-Brom-PAPS)

REF: 330 001 (2 x 25 ml) 50 test
REF: 330 002 (4 x 25 ml) 100 test

Intended Use
Spectrum Diagnostics liquizyme Zinc reagent is intended for the in-vitro quantitative, diagnostic determination of Zinc in human serum, plasma or Urine.

Background
Zinc is an essential element in the nutrition of human beings, zinc is required in the genetic make-up of every cell and is an absolute requirement for all biologic reproduction. Zinc is needed in all DNA and RNA syntheses and is required at every step of the cell cycle. About 2 grams of zinc is distributed throughout the body human.

Hypozincemia is a condition where insufficient zinc is available for metabolic needs. The deficiency may lead to Anorexia, Diarrhea and Pneumonia or cognitive and motor function impairment in children.

Zinc deficiency during pregnancy can negatively affect both the mother and fetus.

Method
Colorimetric Method with 5-Brom-PAPS.

Assay Principle
Zinc forms with 2-(5-Brom-2-pyridylazo)-5-(N-propyl-N-sulfo-propylamino)-phenol a red chelate complex. The increase of absorbance can be measured and is proportional to the concentration of total zinc in the sample.

Reagents
Standard (St) 200 µg/dl (30.6 µmol/l)
Reagent (R) 0.02 mmol/L
Bicarbonate buffer pH 9.8 200 mmol/L
Sodium Citrate 170 mmol/L
Dimethylglyoxime 4 mmol/L
Detergent 1 %

For further information, refer to the Aspartate aminotransferase reagent material safety data sheet.

Precautions and Warnings
Do not ingest or inhale. In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.

Reagent Preparation
Spectrum Zinc reagents are supplied ready-to-use.

Reagent Storage and Stability
All reagents are stable until expiration date stated on label when stored refrigerated at 2 - 8 °C.

Specimen
Serum, Plasma or Urine

System Parameters
Wavelength 560 nm
Optical path 1 cm
Assay type Colorimetric End point
Sample : Reagent ratio e.g.: Reagent volume
Sample volume
Temperature 25 °C or 37 °C
Zero adjustment Against Reagent blank (RBL)
Linearity 400 µg/dl (61.2 mmol/l)

Procedure

<table>
<thead>
<tr>
<th>Blank</th>
<th>Standard</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reagent (R)</td>
<td>1 ml</td>
<td>1 ml</td>
</tr>
<tr>
<td>Standard (St)</td>
<td>.......</td>
<td>50 µl</td>
</tr>
<tr>
<td>Sample</td>
<td>.........</td>
<td>.........</td>
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</table>

Mix and incubate for 10 min at 25 °C or 5 min at 37 °C. Measure the absorbance of the sample As and the absorbance of standard Ast against reagent blank.

Calculation
Zinc Concentration (µg/dl) = \( \frac{As}{Ast} \times 200 \)

Zinc Concentration (µmol/l) = \( \frac{As}{Ast} \times 30.6 \)

Quality Control
Normal & abnormal control serum of known concentrations should be analyzed with each run.

Methods Comparison
A comparison between Spectrum Diagnostics Zinc reagent and a commercial reagent of the same methodology was performed on 20 human serum.A correlation of 0.993 was obtained.

Linearity
The reaction is linear up to Zinc concentration of 400 µg/dl.

Expected values

<table>
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<tr>
<th>Serum/Plasma</th>
<th>Male: 72.6 - 127 µg/dl (11.1 - 19.5 µmol/l)</th>
<th>Female: 70.6 - 114 µg/dl (10.7 - 17.5 µmol/l)</th>
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</thead>
<tbody>
<tr>
<td>During pregnancy and menstruation the concentration of zinc can be very low.</td>
<td></td>
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<tr>
<td>Children: 63.8 - 110 µg/dl (9.8 - 16.8 µmol/l)</td>
<td>New born: 49.5 - 99.7 µg/dl (7.6 - 15.3 µmol/l)</td>
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<tr>
<td>Urine</td>
<td>300 - 800 µg/dl</td>
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Waste Disposal
This product is made to be used in professional laboratories.
Please consult local regulations for a correct waste disposal.
S56: dispose of this material and its container at hazardous or special waste collection point.
S57: use appropriate container to avoid environmental contamination.
S61: avoid release in environment. refer to special instructions/safety data sheets.

Spectrum Diagnostics does not interpret the results of a clinical laboratory procedure; interpretation of the results is considered the responsibility of qualified medical personnel. All indications of clinical significance are supported by literature references.

References
2. Tietz, text book of clinical chemistry and molecular diagnostics
   ISBN 0-7216-0189-8

ORDERING INFORMATION

<table>
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