IRON (FERROZINE)

Code: IFER1 Size: 4×50 ml + 1×50 ml

Reagent kit for determination of iron concentration in serum. Colorimetric method.

PRINCIPLE

At pH=4.8 and in presence of ascorbic acid, trivalent iron [Fe(III)] dissociated from the transferrin becomes reduced to divalent iron [Fe(II)] which forms a red complex with ferrizine. The absorbance read at 570 nm is proportional to the iron concentration of sample.

Reference values

Serum total iron:

Male: 40-100 mmol/l
Female: 27-80 mmol/l

HAEMOLYSIS interferes with the test. Chelating compounds can not be used as anticoagulants. Thiourea prevents disturbing effects of copper ions. Do not use reagents after the expiry date stated on each reagent container label. Do not use products, test solutions and reagents described above for any purpose other than described herein.

For in vitro diagnostic use only.

The following symbols are used on labels

X: Harmful
IVD: For in vitro diagnostic use
LOT: Batch Code
REF: Code

Bibliography


The results from these studies are detailed below.

Correlation coefficient: r=0.9971
Linear regression: y = 0.954x + 1.070
(x=other commercial reagent y= own reagent)

Specificity

Hemoglobin 1.6 µmol/l (10 mg/dl), bilirubin 736 µmol/l (43 mg/dl), lipid 800 mg/dl, glucose 55.5 mmol/l (1000 mg/dl) and ascorbic acid 2.84 mmol/l (50 mg/dl) don't interfere with the assay up to the given levels.

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Procedure

Sample: Serum free of haemolys.

Mix and read Absorbance (A) after 5 minutes incubation against reagent blank.

Calculation

\[ \frac{A_{\text{sample}}}{A_{\text{standard}}} \times C_{\text{standard}} = C_{\text{sample}} \]

Quality control

A quality control program is recommended for all clinical laboratories. The analysis of control material in both the normal and abnormal ranges with each assay is recommended for monitoring the performance of the procedure. Each laboratory should establish corrective measures to be taken if values fall outside the limits.

PERFORMANCES DATA

The following data were obtained using the Olympus 600 analyzer (37°C).

Linearity

The test is linear up to 179 µmol/l (1000 μg/dl) iron concentration.

Sensitivity

It is recommended that each laboratory establishes its own range of sensitivity as this is limited by the sensitivity of the spectrophotometer used. Under manual conditions however, a change of 0.001 Abs is equivalent to 0.20 µmol/l (1.11 μg/dl) iron concentration at 578 nm.

Precision

<table>
<thead>
<tr>
<th>Repeatability</th>
<th>Sample I</th>
<th>Sample II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average conc.</td>
<td>20.9</td>
<td>36.1</td>
</tr>
<tr>
<td>(µmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>0.214</td>
<td>0.753</td>
</tr>
<tr>
<td>CV%</td>
<td>1.02</td>
<td>2.09</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparative studies were done to compare our reagent with another commercial Iron ferrizine assay.</td>
</tr>
</tbody>
</table>

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