

LIMITATIONS OF THE ASSAY

1. As with all diagnostic tests, a definite clinical diagnosis should not be based on the results of a single test but should only be made by the physician after all clinical and laboratory findings have been evaluated.
2. This kit is only for human serum and plasma.













WARRANTY

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose. In the event of performance changes or product malfunction, please contact manufacturer.

BIBLIOGRAPHY

1. CHEN Ying-qin, CHUANG hai, WU Wei-wei. Clinical significance of serum iron and transferrin detection in patients with hepatitis B cirrhosis [J]. Journal of Guiyang Medical College. 2014, 39(4).
2. Yao ZJ, xia JR. The significance of serum ferritin detection in the assessment of liver injury [J]. Chinese Journal of Tropical Medicine. 2004, 4(3).
3. Dong Yi, Liu Lei, Zhu Taigang, et al. Clinical value of serum ferritin detection in anemia [J]. Chinese General Practice. 2010, 8(4).

SYMBOL KEYS

 Temperature Limitation	 Consult Instructions for use	 Date of Manufacture	 Do not reuse
 Manufacturer	 IVD In vitro Diagnostic Medical Device	 This side up	 Use by
 Contains sufficient for <n> tests	 REF Catalogue Number	 LOT Batch Number / Lot Number	 DEVICE Device



Manufactured by:

Zephyr Biomedicals

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FIAcheck™

Ferritin

Fluorescence Immunoassay for Quantitative determination of Ferritin in Human Serum and Plasma

DEVICE

FOR IN VITRO DIAGNOSTIC USE ONLY

Store at 4°C to 30°C

INTENDED USE

FIAcheck™ Ferritin Fluorescence Immunoassay is intended for the in-vitro quantitative measurement of Ferritin in human serum and plasma.

INTRODUCTION

One of the most prevalent disorders of man is the dietary deficiency of iron and the resulting anemia. Therefore, the assays of iron, total iron binding capacity and other assessments of iron compounds in the body are clinically significant.

Iron-storage compounds in the body include hemoglobin, hemosiderin, myoglobin and the cytochromes. In most tissues, ferritin is a major iron-storage protein. Human ferritin has a molecular weight of approximately 450,000 daltons, and consists of a protein shell around an iron core; each molecule of ferritin may contain as many as 4,000 iron atoms. Under normal conditions, this may represent 25% of the total iron found in the body.

High concentrations of ferritin are found in the cytoplasm of the reticuloendothelial system, the liver, spleen and bone marrow. Methods previously used to measure iron in such tissues are invasive, cause patient trauma and lack adequate sensitivity. The measurement of ferritin in serum is useful in determining changes in body iron storage, and is non-invasive with relatively little patient discomfort. Serum ferritin levels can be measured routinely and are particularly useful in the early detection of iron-deficiency anemia in apparently healthy people.

Serum ferritin measurements are also clinically significant in the monitoring of the iron status of pregnant women, blood donors, and renal dialysis patients. High ferritin levels may indicate iron overload without apparent liver damage, as may be noted in the early stages of idiopathic hemochromatosis. Ferritin levels in serum have also been used to evaluate clinical conditions not related to iron storage, including inflammation, chronic liver disease, and malignancy.

PRINCIPLE OF THE TEST

FIAcheck™ Ferritin is based on principle of agglutination of antibodies/anti-sera with respective antigen in immunochromatographic format using fluorophores as signal generators. The **FIAcheck™ Ferritin** test device is coated with immobilized Ferr mouse monoclonal antibody 1 on the test line, goat anti chicken IgY in control line and a mixture of Ferr mouse monoclonal antibody 2 and Chicken IgY labeled with fluorescent microspheres on the binding pad.

Ferritin in sample binds to the Ferritin mouse monoclonal antibody 2 labeled with fluorescent microspheres in the binding pad. The fluorescent labeled Ag-Ab complex moves forward due to capillary action and is captured by the immobilized Ferr mouse monoclonal antibody 1 forming a double antibody sandwich and produces the test line. Chicken IgY labelled with fluorescent microspheres binds with goat anti chicken IgY to produce the control line. When the **FIAcheck™** test device is inserted in the **FIAcheck™** analyzer, it scans both the test line and control line. The ratio of the two fluorescence values is used to calculate the concentration of the analyte present in the sample.

MATERIALS AND COMPONENTS

Materials provided with the test kits:

- **FIAcheck™ Ferritin** test device in a sealed pouch with desiccant.
- QR Code card for calibration.
- Sample Diluent. Ready to use.
- Empty vials for sample dilution.

Materials required but not provided

- Precision pipettes: 5µl, 100-1000µl
- Disposable pipette tips
- Disposable Gloves
- **FIAcheck™** Analyzer (Time Resolved Fluorescence Immunoassay Analyzer)
- Digital Thermometer
- Stopwatch

STORAGE AND STABILITY

1. **FIAcheck™ Ferritin** kit is stable at 4°C to 30°C upto expiry date printed on the label. DO NOT FREEZE.

2. **FIcheck™** Test device should be used within 30 minutes once the foil pouch is opened.
3. If the colour of the desiccant has changed from blue to pink or colourless at the time of opening the pouch, kindly discard the device and use another device.
4. Once opened, the sample diluent can be stored between 4°C to 30°C for remaining duration of shelf life.

SAMPLE COLLECTION

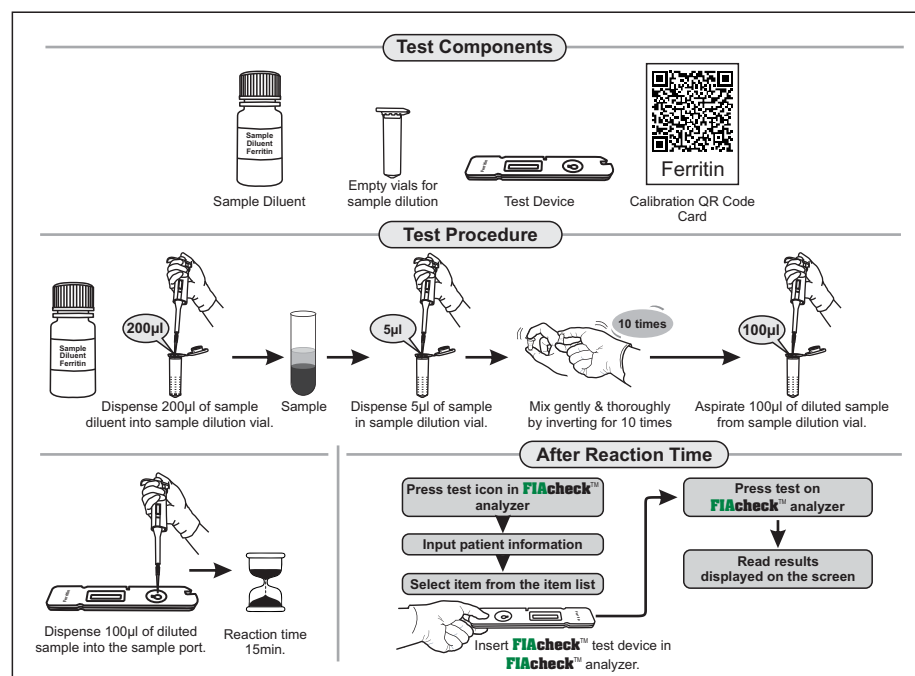
1. Only human Serum/Plasma sample should be used. Other bodily fluids and samples may not give accurate result.
2. Plasma can be anti-coagulated with Heparin and Sodium citrate or Tri sodium citrate under aseptic conditions.
3. The test should be performed within 4 hours after the sample collection at room temperature.
4. Avoid grossly hemolytic, lipemic or turbid samples.
5. Preferably use fresh samples. However, samples can be stored for 3 days at 2°C to 8°C, and if more than 3 days, they should be stored at -20°C.
6. The sample should be recovered to room temperature (18°C to 30°C) before testing. Avoid repeated freezing and thawing of samples as it can affect the test values.
7. Samples containing precipitate or particulate matter should be clarified by centrifugation prior to use.
8. Samples should be free from particulate matter and microbial contamination.

PRECAUTIONS

1. Only for In vitro diagnostic use.
2. Bring all reagents and samples to room temperature before use.
3. After the test device is removed from the sealed pouch, it should be used immediately or within 30 minutes of opening the pouch.
4. Do not reuse the tested **FIcheck™** device. Do not use sample dilution vial for more than one sample.
5. Do not use damaged **FIcheck™** test device or pouch.
6. All samples should be considered potentially infectious and discarded appropriately as per Standard Bio-Safety guidelines.
7. Do not use kit after the expiry date.
8. Do not mix components of one kit with another.
9. Always use new tip for each sample and reagent.
10. Scan QR code card specific to the lot you are using.
11. Ambient temperature of testing environment directly impacts the accuracy of results. Ideal working temperature is 18°C to 30°C.
12. It is highly recommended to mix the sample diluent and sample mixture thoroughly by gently inverting the vial 10 times. (Refer pictorial presentation.)
13. It is not recommended to use the sample diluent and sample mixture beyond specified time.
14. The **FIcheck™** test device should be read immediately after the specified reaction time. Delay in reading might affect the accuracy of results.
15. The **FIcheck™** test device should be used only in conjunction with **FIcheck™** analyzer for accurate and reliable results.

TEST PROCEDURE

1. To calibrate the **FIcheck™ Ferritin** kit, scan the QR code card provided with the kit.
2. Dispense 200 µl of sample diluent into the empty sample dilution vial.
3. Add 5 µl of the test sample into this sample diluent & mix by rinsing the tip 3 times.
4. Close the lid of the sample dilution vial, label with sample identity and mix the content of the vial by gently inverting it for 10 times. (See pictorial representation).
5. Remove **FIcheck™ Ferritin** test device from sealed pouch and place it horizontally on a clean table, label the device with sample identity.
6. Dispense 100 µl of the above mixture at the sample port in the **FIcheck™ Ferritin** test device.
7. Incubate at room temperature (18°C to 30°C) for 15 minutes.
8. After 15 minutes, insert the test device immediately into the **FIcheck™** analyzer and read results.



Expected Range

Reference Range:

Male: 16-220 ng/mL

Female: 10-125 ng/mL

Through the determination of Human Ferritin content in the whole blood, serum and plasma samples of 180 healthy people, the following reference interval was obtained after the statistical analysis of 95% distribution range.

It is recommended that each laboratory establish its own reference range for the population it serves.

PERFORMANCE CHARACTERISTICS

1. Measuring Range: 10-1000ng/ml, $r \geq 0.990$.
2. Lower Detection Limit: 5ng/ml.
3. Upper Detection Limit: ≥ 1000 ng/ml.
4. Accuracy: Based on comparison experiments, the relative standard deviation of $\leq 15\%$, and the correlation coefficient of $r \geq 0.990$ was observed.
5. Within-Run Precision: $\leq 15\%$.
6. Between-Run Precision: $\leq 15\%$.
7. Hook Test: No hook effect with high concentration sample. Hook test was conducted with reference material exceeding the upper limit of measuring range, and the detection result was greater than the upper limit of detection.
8. In an internal Study, **FIcheck™ Ferritin** was evaluated against commercially available licensed kit with 100 random clinical samples and **FIcheck™ Ferritin** has demonstrated 100% clinical correlation with the commercially available licensed kit.

Ferritin Levels	No. of samples	FIcheck™ Ferritin	EIA Ferritin
Normal	80	80	80
Low	8	8	8
High	12	12	12

9. In an external Study, **FIcheck™ Ferritin** has been evaluated by a NABL accredited lab against their reference method. In this evaluation **FIcheck™ Ferritin** has demonstrated 100% correlation with the reference method.

*Data file: Zephyr Biomedicals (A Division of Tulip Diagnostics (P) Ltd).