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. The value of AKA CCP RF in the diagnosis of rheumatoid arthritis [J].Situ Yijian, Ma Jingwei, Wen Zhuohui. Shenzhen Journal of Integrated Traditional Chinese and Western Medicine. 2018(03).
2. Expression of anti-cyclic citrate peptide antibody and anti-mutant citrate vimimin antibody in serum of patients with early rheumatoid arthritis and its diagnostic value [J].Xu Fuliang, Yi Xin, Zhang Xia, Yu Xiaoqian.Chinese Journal of Immunology. 2013(12).
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4. Evaluation of Anti-Mutated Citrullinated Vimentin Antibodies, Anti-Cyclic Citrullinated Peptide Antibodies and Rheumatoid Factor in Omani Patients with Rheumatoid Arthritis [J]. Ahmed Al-Shukaili, Saif Al-Ghafri, Safia Al-Marhoobi, Juma Alkaabi, Ruben Burgos-Vargas. International Journal of Rheumatology. 2012.
5. Conventional Radiology in Rheumatoid Arthritis [J]. Eva Llopis, Herman M. Kroon, Jose Acosta, Johan L. Bloem. Radiologic Clinics of North America. 2017 (5).

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

A Division of Tulip Diagnostics (P) Ltd.

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0323/VER-01

FIAcheck™

Anti-CCP

Fluorescence Immunoassay for Quantitative determination of IgG class auto antibodies against cyclic citrullinated peptides in Human Serum and Plasma

DEVICE

FOR IN VITRO DIAGNOSTIC USE ONLY

Store at 4°C to 30°C

INTENDED USE

FIAcheck™ Anti-CCP Fluorescence Immunoassay is intended for the in-vitro quantitative measurement of IgG class auto antibodies against cyclic citrullinated peptides in human serum and plasma.

INTRODUCTION

Rheumatoid arthritis (RA) is an inflammatory rheumatic disorder with a worldwide prevalence of about 0.5-1%. The serum of RA patients contains a variety of Antibodies directed against self-Antigens. The most widely known of these auto Antibodies is the rheumatoid factor (RF) Antibody directed against the constant domain of IgG molecules. Although the RF test has good sensitivity for RA, it is not very specific for the disease as it can also be detected in the serum of patients with other rheumatic or inflammatory diseases and even in a substantial percentage of the healthy (elderly) population. The RF Antibodies are sensitive but not very specific markers; In contrast, Anti-CCPs are characterized by a specificity of over 90% in patients affected by RA and are detectable in a very early asymptomatic stage in the approximately 70% of RA patients whereas only 2% of the control subjects resulted positive. Therefore, the presence of Anti-CCP Antibodies can be used in the diagnosis of RA, particularly in the case of erosive arthritis, in childhood in the case of juvenile RA. The Anti-CCP Antibody test, together with the determination of RF, increases the ratio of sensitivity/specificity. The simultaneous positive result of a sample to RF and CCP has a positive predictive value of about 100%. The advantage of CCP Antibodies is a higher sensitivity and specificity for the diagnosis of rheumatoid arthritis in comparison to the rheumatoid factors alone. Anti-CCP is often found at a very early state of the disease and it has a high predictive value for development of the disease.

PRINCIPLE OF THE TEST

FIAcheck™ Anti-CCP is based on principle of agglutination of antibodies/anti-sera with respective antigen in immuno-chromatographic format using fluorophores as signal generators. The **FIAcheck™ Anti-CCP** test device is coated with immobilized CCP antigen on the test line, goat anti chicken IgY in control line and a mixture of goat anti-human IgG antibody and Chicken IgY labeled with fluorescent microspheres on the binding pad.

Anti-CCP in sample binds to the goat anti-human IgG antibody labeled with fluorescent microspheres in the binding pad.

The fluorescent labeled complex moves forward due to capillary action and is captured by the immobilized CCP antigen and produces the test line. Chicken IgY labeled 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™ Anti-CCP** 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: 10µl, 100-1000µl
- Disposable pipette tips
- Disposable Gloves
- **FIAcheck™** Analyzer (Time Resolved Fluorescence Immunoassay Analyzer)
- Digital Thermometer
- Stopwatch

STORAGE AND STABILITY

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

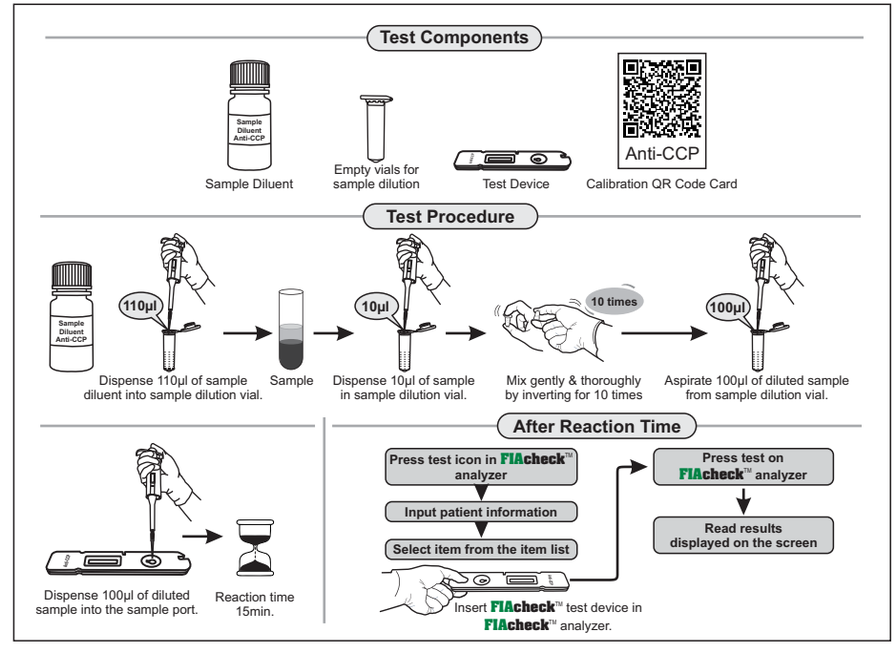
1. Only human Serum and Plasma sample should be used. Other bodily fluids and samples may not give accurate result.
2. Plasma can be anti-coagulated with Heparin and Sodium citrate or Tri sodium citrate under aseptic conditions.
3. The test should be performed within 4 hours after the sample collection 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 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 **FIAcheck**™ device. Do not use sample dilution vial for more than one sample.
5. Do not use damaged **FIAcheck**™ 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 **FIAcheck**™ test device should be read immediately after the specified reaction time. Delay in reading might affect the accuracy of results.
15. The **FIAcheck**™ test device should be used only in conjunction with **FIAcheck**™ analyzer for accurate and reliable results.

TEST PROCEDURE

1. To calibrate the **FIAcheck**™ **Anti-CCP** kit, scan the QR code card provided with the kit.
2. Dispense **110** µl of sample diluent into the empty sample dilution vial.
3. Add **10**µl of the test sample into this sample diluent and mix thoroughly 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 **FIAcheck**™ **Anti-CCP** 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 **FIAcheck**™ **Anti-CCP** 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 **FIAcheck**™ analyzer and read results.



Expected Range

Reference range: <17 U/mL

Through the determination of Anti-CCP content in serum and plasma samples from 180 healthy people, 95% confidence interval statistical analysis was conducted to obtain the following reference interval.

NOTE: It is suggested that each laboratory establish its own reference range interval of regional population with clinical significance due to geographical, ethnic and age differences.

PERFORMANCE CHARACTERISTICS

1. Measuring Range: 8-500 U/mL, r≥0.990.
2. Lower Detection Limit: ≤8U/mL.
3. Upper Detection Limit: ≥500U/mL.
4. Accuracy: the relative deviation ≤15%.
5. Within-Run Precision: ≤15%.
6. Between-Run Precision: ≤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, **FIAcheck**™ **Anti-CCP** was evaluated against commercially available licensed kit with 100 random clinical samples and **FIAcheck**™ **Anti-CCP** has demonstrated 100% clinical correlation with the commercially available licensed kit.

Anti-CCP Levels	No. of samples	FIAcheck™ Anti-CCP	EIA Anti-CCP
Normal	80	80	80
Low	8	8	8
High	12	12	12

9. In an external Study, **FIAcheck**™ **Anti-CCP** has been evaluated by a NABL accredited lab against their reference method. In this evaluation **FIAcheck**™ **Anti-CCP** has demonstrated 100% correlation with the reference method.
*Data file: Zephyr Biomedicals (A Division of Tulip Diagnostics (P) Ltd).