

# BIOCARD™ Celiac Test

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**Biocard™ Celiac Test is a rapid, simple and reliable immunochromatographic test for the qualitative detection of anti-tTG IgA antibodies from a fingertip blood sample.**

Cat. No. 3-028-000

Carefully read the instructions for use before testing. To perform a **Biocard™ Celiac Test** you will also need a timer. Perform the test in a well illuminated place.

## PRINCIPLE OF THE TEST

Celiac disease (CD) is a serious, lifelong, gastrointestinal disorder that can cause a wide spectrum of clinical symptoms of diarrhea, abdominal distension, weight loss, malnutrition and skin disorders (Dermatitis herpetiformis) due to permanent intolerance to gluten, a complex mixture of storage proteins found in wheat, barley and rye. It was first described by Samuel Gee in 1888.

Studies have found the prevalence of CD to be highly variable from population to population and the true prevalence has been difficult to ascertain. The disparate criteria in diagnosing of CD are often the cause. If only the clinical criteria are used the incidence of CD is much lower compared with incidence established by serological methods. Using serological methods of diagnosis, the incidence of CD in the general population is app. 1 in 200.

The enzyme tissue transglutaminase (tTG) has been identified as the endomysial antigen in CD. A strong indication of CD is the presence of antibodies specific for the tTG.

**Biocard™ Celiac Test** is a rapid immunochromatographic test that detects the anti-tTG IgA antibodies from a blood sample. If the sample contains anti-tTG IgA antibodies these will bind with the gold labelled antibodies, with tTG derived from red blood cells and with the stationary reagents in the test membrane forming a visible, red test line. The test also contains total IgA measuring system. Red line in the control window shows that there are IgA antibodies in the sample. This will make it impossible to get false negative results in the case of IgA deficiency.

The test requires only 1 drop (10 µl) of blood from the fingertip, and it can be carried out and evaluated in about 5 minutes.

## CONTENTS

- 10 aluminium sachets containing a test card and a pipette
- 10 sterile automatic lancets for obtaining a blood sample
- 10 plastic vessels with a 10 microlitre glass capillary
- 10 alcohol-soaked swabs
- 10 tubes containing 0,5 ml sample buffer
- 1 package leaflet with instructions for use.



## SAMPLES

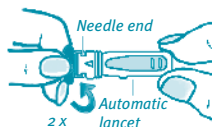
**Biocard™ Celiac Test** is intended for use with capillary whole blood samples, but also IV whole blood samples may be used. If using IV samples start the test procedure from phase 6 by adding 10 microlitres of whole blood sample into the tube containing the buffer. The sample dilution is 1/50. IV samples should be analyzed within one working day or frozen for later studies. Blood may be collected in EDTA or citrate tubes. Diluted samples (capillary or IV) should be used within one working day.

## TEST PROCEDURE

All components required for the test should be at room temperature.

Before taking the blood sample, prepare all the test components: the automatic lancet, the alcohol-soaked swab and the glass capillary. Open the tube containing the buffer by removing the cap. Then take the test card and the pipette out of the aluminium sachet. Place the test card horizontally on a level dry surface (with application fields up). When the aluminium sachet has been opened you should carry out the test within 15 minutes.

- ① Twist the grey cap until it bounces up. Continue to rotate the cap for at least 2 full rounds and then pull it out.



- ② Gently massage the fingertip then clean it with the alcohol-soaked swab. Leave until the finger is dry. Warming up your finger will make sample collection easier.

- ③ Press the automatic lancet with the round opening firmly against the cleaned fingertip, and activate it with the button. The puncture is practically painless.



- ④ Press a drop of blood out of your fingertip. Open the plastic vessel and remove with caution the glass capillary. Hold one end of the glass capillary horizontally in the drop of blood until it has completely filled.

- ⑤ Place the filled glass capillary in the tube containing buffer and close the tube firmly with the cap. Shake the tube several times until blood from the capillary is mixed completely with the buffer.



- ⑥ Open the buffer tube and take a few drops of diluted sample with the pipette. Hold the pipette containing the diluted blood sample vertically over the round sample well (S) and drop 3 drops in it.



After applying the drops, do not touch the test card for 2 minutes. The test result can be read after 5 minutes. Do not read the test result after more than 10 minutes

## INTERPRETATION OF RESULTS

The test result is **positive** if a light to dark red line in the control field (C) appears and a light to dark red line forms in the test field (T).

### Positive



The test result is **negative** if a light to dark red line appears in the control field (C) and no red line forms in the test field (T). In the case of a faint control line, IgA titer is low and negative result should be confirmed with some other way.

### Negative



If there is no line either in the test field or in the control field or the line intensity in the control field is faint, there are either no IgA antibodies or the titer of IgA antibodies is low in the sample. The incidence of IgA deficiency is about 0,5 % in the normal population and among CD patients about 2-3 %. There is no possibility to detect celiac disease in this case with **Biocard™ Celiac Test**.

### IgA deficiency



### Positive:

The test indicates that there are anti-tTG IgA antibodies in the blood sample. The detection of these antibodies indicates with a high probability an existing celiac disease.

### Negative:

The test indicates that there are no anti-tTG IgA antibodies in the tested blood. An existing celiac disease can virtually be ruled out. If gastrointestinal complaints are present, further medical investigation is necessary.

### IgA deficiency

The test indicates that either IgA antibody titer is low or there are no IgA antibodies in the sample. Since the test line measures IgA antibodies against tTG there is no possibility to detect celiac disease with the **Biocard™ Celiac Test**. In that case separate IgG testing should be done.

Anti-tTG IgA antibody titers diminish with the institution of a gluten free diet, often within weeks and by 6 months may be undetectable. Therefore **Biocard™ Celiac Test** may be used for monitoring the effects of gluten free diet.

## STORAGE

Store the test devices, buffer and accessories in room temperature at +10°C...+27°C. Avoid freezing. The self life of the tests is 24 months provided that the storage conditions are followed. The date of expiry is indicated on the aluminium pouch of the test device and on the outer carton box.

## SENSITIVITY AND SPECIFICITY

Sensitivity of **Biocard™ Celiac Test** was studied with 390 clinical samples and the results were compared to the biopsy proven clinical diagnosis.

|                                | Clinical diagnosis |     |
|--------------------------------|--------------------|-----|
|                                | +                  | -   |
| <b>Biocard™ Celiac Disease</b> | +221               | 6   |
|                                | -5                 | 158 |

**Biocard™ Celiac Test** showed 97,4 % sensitivity and 96,9 % specificity with the cut-off of 5 U/ml.

## WARNINGS AND LIMITATIONS

- ❖ If the instructions for use are not followed in detail, outcome of the test may be false. Do not reuse tests or accessories.
- ❖ A final diagnosis should in principle only be made in conjunction with the clinical symptoms and further laboratory data.
- ❖ Use only whole blood samples, tTG derived from red blood cells is needed for the proper functioning of the test.
- ❖ General laboratory procedures and precautions shall be followed in the handling and disposal of samples and used materials.
- ❖ Do not use the test after the expiry date.
- ❖ Do not use the test if the aluminium sachet is damaged or broken accessories.
- ❖ After the aluminium sachet has been opened, the test should be carried out within the next 10 minutes.
- ❖ Do not mix reagents or tests from different lots.
- ❖ The sample buffer contains 0.09 % sodium azide. Avoid contact with the skin. Do not swallow!
- ❖ The incidence of IgA deficiency in CD patients is 2 – 3 %. Patients with IgA deficiency can not be diagnosed as coeliacs with **Biocard™ Celiac Test**.

## REFERENCES

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