

MILK Rapid Test

COD 14210	10 tests
Reagents for the detection of milk	

MILK Rapid Test

PARTICLE IMMUNOASSAY ON NITROCELLULOSE

INTENDED USE

The test is applicable for qualitative detection of target antigens in the samples of complex foods and production facilities.

GENERAL INFORMATION

Milk of cow (*Bos taurus*) and the products of its processing (dairy products) are the basic parts of human alimentation. Other related species – zebu (*B. indicus*), domesticated yak (*B. grunnius*), banteng (*B. javanicus*) and related genuses (buffaloes, goat, sheep, horse) are common sources of milk for human consumption in some geographical areas.

Milk allergy can display the variety of symptoms from mild oral allergy or hives to severe life-threatening systemic reactions, i.e. anaphylactic shock or bronchial asthma. True (IgE or IgG-antibody mediated) allergy to milk proteins is clinically distinguishable from milk intolerance caused by lactase deficiency.

Allergy to milk proteins is one of most frequent allergies especially in infants and children, affecting 0.5%-3% of the populations in different age and geographical groups.

A target distribution of allergy to three major milk proteins (caseins, alpha-lactalbumin and beta-lactoglobulin) is almost equal among allergic patients, with slight predominance of caseins. The protein composition of dairy products is very variable, for example with substantial enrichment by casein in cheese and predominance of two other proteins in whey products.

Consumption and handling of milk is regulated by some religious confessions.

Food Allergen Labeling and Consumer Protection Act (FALCPA) identified that milk allergy is one of the 8 major food allergies, and milk should be labeled on the package.

In EU milk is included into the list of allergens established by European Food Safety Authority, which must be indicated in foods according to EU law No 1169/2011 Annex II.

PRINCIPLE OF THE METHOD

MILK Rapid Test represents an immunochromatographic rapid test (lateral flow) and may be used for qualitative determination of milk specific antigen in foods, kitchen and production facilities.

In immunochromatographic (lateral flow) method, the target antigens are bound by highly specific antibodies attached to colored microparticles. Then this complex migrates to the test line where binds to another specific antibody to form a colored line indicating positive result. Unbound conjugate migrates to the control area where it forms a colored control line, thus indicating a correct test procedure..

CONTENTS AND COMPOSITION

Test strips. 10 individually packed into sealed aluminium foil pouches

Specimen collection tubes. 10 tubes

Specimen extraction buffer. 1 x 50 mL

Pipettes. 10 x 3 mL pipettes

Scoops. 10 scoops

STORAGE AND STABILITY

Store at 2-30°C. Each component is stable until the expiry date marked in the label.

Use the test within 10 minutes after opening the pouch. The test strips are very sensitive to moisture.

Indications of deterioration: do not use the kit when its pouch is torn, or test strip is broken or damaged.

REAGENT PREPARATION

All the reagents are provided ready to use.

PRECAUTIONS

Do not touch the reaction membrane.

All the components of the test kit are disposable; do not use them repeatedly.

SAMPLE TREATMENT

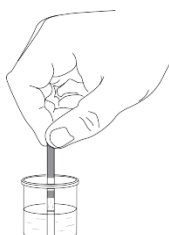
The specimens should be brought to room temperature (18-35 °C) before assaying; testing of colder specimens diminishes the sensitivity of the assay; testing of hot specimens is not possible.

A homogeneous sample has to be obtained from a representative part of the compound.

PROCEDURE

Solid foods

1. Allow test strips to reach room temperature for 5 - 10 minutes before opening the pouches.
2. Put a small piece of tested material (0.1 - 0.5 g) into a specimen collection tube.
3. Add Specimen extraction buffer in a weight/volume ratio of 1:10.
4. Screw the cap securely onto the tube and shake vigorously for 15 - 30 seconds. Allow to settle for 2 minutes to obtain clean supernatant. The extract may be also filtered.
5. Dip the test strip into the liquid portion of the test solution. Ensure the test strip is dipped as shown in the figure. The direction and the depth of immersion must be as shown for correct operation.
6. Allow the strip to remain in the solution for 5 - 10 seconds.
7. Remove the test strip and place onto a clean horizontal surface; do not touch or move the test strip for 5 to 10 minutes and read the test result.



Liquid materials

1. Allow test strips to reach room temperature for 5 - 10 minutes before opening the pouches.
2. Collect 1 mL of liquid specimen into a specimen collection tube.
3. Add an equal volume of Specimen extraction buffer, screw the cap securely onto the tube and mix.
4. If the liquid is cloudy, allow to settle. Then follow the instructions from point 5 of test procedure for solid materials.

Surfaces

1. Allow test strips to reach room temperature for 5 - 10 minutes before opening the pouches.
2. Add 1 mL of Specimen extraction buffer to the tube into a Specimen collection tube.
3. Place the swabbing tool (for example, cotton tip) into the tube, rinse the swabbing tool in the buffer.
4. Squeeze off any excessive liquid off the swabbing tool against the tube wall.
5. Swab the tested surface 10 x 10 cm with special attention to suspected spots.
6. Put the swab back into the tube containing the rest of the buffer and shake vigorously for 15 - 30 seconds or use the vortex mixer.
7. Remove the swab from the tube and follow the instructions from point 5 of test procedure for solid materials outlined above.

READING

Positive result. Two colored lines appear in the test zone.



Negative result. Only one coloured line is clearly visible.



Invalid result. Absence of color lines. Try to repeat it with another test strip, check the correct specimen handling and test procedure, expiry date and storage conditions.



ASSAY CHARACTERISTICS

- Limit of detection: 1 ppm for raw milk; 0.1 ppm powdered milk (by weight per weight of dry material). In surface swab the LOD is approximately 0.26 µg/100 cm².
- Range of detection: 1 – 100000 ppm.
- Sensitivity: May decrease in fat-rich environment (e.g. in cream) but does not decrease with heating of the food (cooking) up to 160°C. It varies 3 - 5 times between different species (goat, camel, horse). MILK Rapid Test sensitivity varies 3 - 5 times between different species (goat, camel, horse).
- Specificity: MILK Rapid Test detects beta-lactoglobulin a member of lipocalin family and comprises approximately 10% of dry weight of defatted milk proteins. MILK Rapid Test detects all edible species milk tested to date however does not detect human milk and the antigens of animal meat, blood and other parts of the animal body.