

Disp&FLOW®-Celery

Rapid test for the detection of specific protein

N° cat. : BIO.045.1
Number of test : 1



Rapid immuno-chromatographic test for the qualitative determination of celery antigen in food, cooking utensils and preparatory surfaces in food production or processing facilities.

The Disp&FLOW - Celery test has been designed to detect the target antigen in two main types of specimens:

1. Solid food samples / solid food products / kitchen utensils / technical surfaces dedicated to the cutting or processing of foodstuffs.
2. Liquid samples of the following types: soups; beverages; rinsing water from food preparation tools, rinsing water from kitchen utensils, technical surfaces dedicated to cutting, processing and storing food products.

How it works

Celery (*Apiumgraveolens*) is a plant belonging to the Apiaceae family, which also includes carrots, parsnips, parsley, anise, coriander, cumin, fennel and dill. The stalks, leaves, roots (celery root) and seeds (spice) are widely used in the food industry.

Allergy to celery can present a range of symptoms, from mild oral allergy to severe, life-threatening systemic reactions (anaphylactic shock or bronchial asthma). Sensitization to celery is frequently associated with allergy to birch and/or mugwort pollen ("celery-birch" syndrome).

Celery allergy ranks among the top 10 food allergies in Central Europe, accounting for up to 30% of cases of oral allergy syndrome. The potential presence of food allergens must be indicated on the packaging.

The Disp&FLOW - Celery test detects the main allergens in celery seeds - the Api g 1 allergen (also known as PR-10). This heat-resistant protein belongs to the family of major birch pollen allergens (Bet v 1).

The Disp&FLOW - Celery test is based on the principle of rapid immuno-chromatography (lateral flow migration). The target antigen present in the sample is absorbed by the strip and then recognized by specific antibodies conjugated to colored, free-moving microparticles. Once formed, this complex migrates along the strip to a highly focused area, where it encounters another specific antibody attached to the support. The accumulation of microparticles rapidly forms a colored line, indicating a positive result. The presence of a second control line ensures that the test works properly.

The test can be used for qualitative detection (screening) or semi-quantitative measurement (monitoring or comparative studies) of target antigens in samples of complex foods and buffers taken from surfaces.

Test specificity and sensitivity

The Disp&FLOW - Celery test uses a pair of monoclonal antibodies specific to a celery antigen.

The test detects antigens from all varieties of celery tested to date, but does not react to other vegetables, legumes, nuts, spices and cereals. The test is reactive not only with the root (celery root) but also with other parts of the plant, including leaves, stem (stick) and seeds. The test may, however, show a slight cross-reactivity in coriander extracts.

The sensitivity of the Disp&FLOW - Celery test is around 100 ppm per "dried root" (celery root), and 1000 ppm per "fresh root". **The other plant parts (branch/stem, leaves, seeds) have a lower sensibility (between 10 000 and 100 000 ppm).**

The sensitivity of the test decreases with heating of the food (cooking) to temperatures above 100°C, showing only low sensitivity for boiled celery root (soup).

NOTE: sensitivity is calculated considering the content of target antigenic material in the extracted solid material (ratio solid / liquid 1:10 wt / vol). Test sensitivity can be improved by lowering the solid/liquid ratio, but this may result in a thick liquid no longer penetrating the strip. Sensitivity data for liquid samples are 5x lower than for solid samples.

Detailed, up-to-date test performance data (sensitivity, specificity, variability, influence of matrix and processing) for the Disp&FLOW - Celery test can be requested via our messaging service info@biotem.fr.

If the test result is a weakly colored line or is difficult to interpret, BIOTEM recommends retesting the sample with a different method, such as quantitative ELISA or PCR.

Kit contents

The Disp&FLOW - Celery test contains the following components:

- A test strip packaged in a hermetically sealed foil pouch containing a desiccant.
- A sampling swab (surface test).
- A tube containing 3 ml extraction buffer for sample preparation and test migration.
- A test tube without buffer
- A 250 µl transfer pipette
- Instructions for use

Storage and stability

- The kit should be stored between +2 and +30°C in a dry environment, away from direct sunlight.
- **The strips must not be frozen and should be kept in their hermetically sealed foil pouch.**
- The kit must be used before the expiration date indicated on the packaging.

Equipment required but not supplied

- Sampling spatula, preferably single-use.
- Pair of gloves
- Precision balance or digital dosing spoon (optional, reference BIO.044.1)

Precautions

- Kit components are for *in vitro* use only.
- The kit may be used up to its expiration date if stored under the recommended conditions.
- Heat-sealed bags containing test strips should be stored between +2 and +30°C.
- All handling associated with the use of this test must be carried out in strict compliance with the conditions for non-contamination of samples; in particular, gloves must be worn during handling.
- Strips should be handled by their upper colored part. Do not directly touch the central part of the strip or its absorbent end.
- **Strips must be stored in their hermetically sealed foil pouch** (strips are highly sensitive to moisture) - do not use a strip more than 10 minutes after opening the pouch.
- Do not use the test if the foil pouch has been torn.
- Proceed with care when opening the foil pouch (see test procedure), to avoid cutting or damaging the test strip.
- Use only the tube containing the extraction buffer supplied in the kit. Never use components from different kits.
- **Do not immerse the strip deeper than the line under the arrows.**
- The Disp&FLOW - Celery test contains only single-use components; do not use again.

Waste disposal

- Dispose of all used consumables in accordance with biomedical waste regulations.
- Each user is responsible for managing the waste they produce, and for ensuring that it is disposed of in accordance with applicable regulations.

Sample preparation

Prior to testing, samples and test strips should be brought to a temperature of between +18°C and +35°C; analysis of colder samples reduces test sensitivity; analysis of warmer samples is not possible due to the risk of degradation of the antibodies present in the strip.

Ensure that the material to be tested is a mixture of all the ingredients making up the final solid food product.

Liquid samples can be tested directly.

The test detection limit for liquid samples depends on their viscosity and turbidity (presence of particles). If the sample is viscous and cannot reach the test zone, it must be diluted in the dilution/extraction buffer. In this case, the sensitivity of the test must be adjusted by the dilution factor.

Cloudy specimens should be filtered through a textile or paper filter.

1. Take 1 mL of liquid sample (using a laboratory pipette or by aspirating 4 times the total volume from the transfer pipette supplied) and place in the test tube. Add an equal volume of extraction buffer.
2. Hermetically seal the test tube with the stopper.
3. Discard tube containing remaining dilution/extraction buffer.
4. Vigorously shake the test tube manually or by vortexing at maximum speed for 20-30 seconds.
5. Place the tube upright on a stand and allow the tube contents to settle, or centrifuge at low speed in a centrifuge, leaving the supernatant ready for testing.

For solids testing, we recommend the following procedure:

1. Using clean, sharp tools (preferably disposable), cut and weigh a small piece (**0.1 to 0.5 g**) of the material to be tested and place it in the test tube.
2. If an accurate volume-measuring tool (pipette) is available, calculate the volume of sample extraction buffer required as 10 times the actual weight (e.g. if the weight is 0.23 g, add 2.3 ml of buffer). Otherwise, add no more than half the tube volume of sample extraction buffer. Adjust test sensitivity if weight/volume ratio is different from 1:10.
3. Add the appropriate volume of dilution/extraction buffer to the test tube.
4. Hermetically seal the test tube with the stopper.
5. Vigorously shake the test tube manually or by vortexing at maximum speed for 20-30 seconds.
6. Place the tube upright on a stand and allow the contents to settle (approx. 2 minutes) or centrifuge at low speed, the supernatant is then ready for testing.

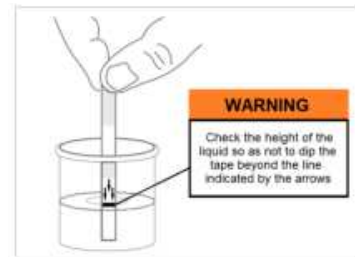
Note: If the liquid is thick/cloudy, it may not penetrate the strip. To avoid this, let the diluted sample stand for longer (up to 6 hours). The extract can also be filtered through textile material or centrifuged.

For testing solid materials, utensils or other surfaces, we recommend the following procedure:

1. Add 1 ml of dilution/extraction buffer to the test tube.
2. Take the provided swab and run it over the surface of the object to be tested (paying particular attention to suspect spots).
3. Swipe crosswise, first in one direction, then in the other, then diagonally.
4. Return the swab to the test tube containing the dilution/extraction buffer and shake vigorously for 15-30 seconds.
5. Remove any excess liquid from the swabbing tool against the wall of the test tube and remove the swab from the test tube.
6. Hermetically seal the test tube with the stopper.
7. Shake vigorously for 15-30 seconds or **vortex**.
8. Place tube upright on a stand and allow contents to settle (approx. 2 minutes) or centrifuge at low speed, the supernatant is then ready for testing.

Test procedure

1. Bring samples to a temperature between +18 and +35°C.
2. Remove the foil pouch (without opening it) and leave at room temperature for 5 to 10 minutes.
3. Open the pouch containing the test strip, taking care not to cut the strip.
4. Grasp the strip by the upper colored part and dip the other end vertically into the test tube supernatant. **Caution:** make sure the strip is not immersed too deeply - see picture opposite →
5. Leave the strip to soak for **20-30 seconds**, then place it on a CLEAN, horizontal surface; do not touch or move the strip for 10 minutes, while the sample migrates.
6. Read the result and interpret it according to the picture and instructions below.



Interpretation of results

The test is positive if 2 red lines appear clearly in the central area of the strip (test line and control line, see below). Disregard the order of appearance of the 2 lines and any nuances in color intensity.



The test is negative if a single red line appears (see below): this is the control line which guarantees that the test is working correctly.



If only the test line appears (see below), the test cannot be interpreted, and no result is validated.



If no line appears (see below), the test cannot be interpreted, and no result is validated.



In the latter two cases, before starting again with another Disp&FLOW - Celery test, make sure that all the test preparation, storage and application instructions have been followed, as well as the expiration date.