AlerTox® Sticks
Rapid Mustard Seed Allergen Detection

Limit of detection: 2 ppm
Pack size: 10 tests
**Intended use**
AlerTox Sticks Mustard Seeds is an immunochromatographic rapid test for qualitative detection of mustard antigen in food and surfaces.

**Introduction**
Mustard is a condiment made from the seeds of the mustard plants (white or yellow mustard, *Sinapis alba*; brown or Indian mustard, *Brassica juncea*; or black mustard, *Brassica nigra*). Oriental mustard, also called Chinese mustard or Jie Cai/Gai Choy (or *Sisymbrium orientale*) is another member of the mustard family, as well as the wasabi plant (*Eutrema japonicum*).

Mustard allergy can display a variety of symptoms from mild oral allergy or hives to severe life-threatening systemic reactions, i.e. anaphylactic shock or bronchial asthma. Allergy to mustard is one of the major food allergies in some geographical areas, though there is no estimation of overall global prevalence percentage. Mustard and products thereof are listed in Annex II of Regulation (EU) No. 1169/2011 on labelling of foods.

**Test sensitivity and specificity**
AlerTox Sticks Mustard Seeds uses a unique combination of monoclonal antibodies against a major mustard seed antigen, the legumin-like 11S seed storage protein (cruciferin, CRU4), known as allergen Sin a 2. AlerTox Sticks Mustard Seeds detects the antigens of all mustard varieties, including wasabi. AlerTox Sticks Mustard Seeds is highly cross-reactive with seeds of species of the cruciferous family (broccoli, Brussels sprouts, cabbage, cauliflower, horseradish, radish, rutabaga, turnip). The test is non-reactive to the edible parts (leaves and roots) of other species of the cruciferous family as well as rapeseed/canola oil.

The LOD (limit of detection) of AlerTox Sticks Mustard is 2 ppm of raw, unprocessed mustard seeds protein.

**PLEASE NOTE:** The sensitivity of the test decreases with heating of the food (cooking) at temperatures exceeding 150 ºC (302 ºF) and in fat-rich environments (e.g. in presence of oil or cream), in matrices with a low pH (e.g. vinegar or citric acid), or when performing the test at temperatures below 18 ºC (64.4 ºF).

The range of detection (ROD) is 5-1,000 ppm. Above this range, the test can present a hook effect. The hook effect can appear as a negative result or a test line with reduced intensity. If a false negative due to hook effect is suspected, repeat the test on a diluted sample.

**Kit contents**
- 10 immunochromatographic sticks individually packed in foil pouches
- 10 sample collection tubes (tube with yellow cap)
- 10 sample extraction buffer tubes, 10 mL (tube with blue cap)
- 10 spoons
- 10 pipettes (3 mL - only for testing liquid samples)
- 10 small pipettes
- 10 swabs (only for testing surfaces)
- Instructions for use

**Other materials not supplied**
- Grinder, mortar or any other manual or automatic homogenization system to crush the sample
- Scissors
- Optional: digital scale sensitive to 0.1 g

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Precautions

- The test sticks must be stored at a temperature between 10 ºC and 30 ºC (50 ºF and 86 ºF).
- Use the test within 10 minutes after opening the foil pouch.
- Do not touch the white end of the stick.
- Do not use the test stick when its pouch is torn, or the stick is broken or damaged.
- All the components of the test kit are disposable; do not reuse them.
- Do not use the test sticks beyond the expiry date.

Sample handling

The samples must be brought to a temperature between 18 ºC and 35 ºC (64.4 ºF and 95 ºF) before use. The test is designed to detect the target antigen in:

- Solid food.
- Liquid samples: beverages, washwater from cutting equipment and surfaces used in food processing and storage.
- Surfaces.

Validation

AlerTox Sticks Mustard Seeds has been validated for the following matrices:

- Mustard seeds (yellow mustard seed, brown mustard seed, black mustard seed and oriental mustard seed)
- Indian Spice mix
- Spice Mix for sausages (salt, vinegar, ground pepper, paprika, cayenne peppers, ground chili, cumin, brown mustard seeds)
- Flour (Mustard flour, yellow mustard flour, ground brown mustard, cracked yellow mustard seed, cracked brown mustard seed, mixed mustard bran, yellow mustard bran, brown mustard bran)
- The test has resulted positive but with a decrease in sensitivity in the following matrixes: pure oriental mustard and ground yellow mustard