MAST OCCUTEST™ REAGENTS

For the detection of occult blood in faeces.

Introduction

The detection of occult blood in faeces helps to provide useful clinical information in the assessment of patients with gastrointestinal symptoms or suspected gastrointestinal blood loss. It may also be a useful screening tool for patients with gastrointestinal, particularly colorectal, cancer and colorectal polyps.1

Various tests have been performed over the years to detect faecal occult blood and include microscopic examination of stools for erythrocytes,2 crystals of haemoglobin and its derivatives,3 spectroscopic analysis of haemoglobin and its derivatives,2 immunological tests,4 radioisotopic methods using Fe59 (5) or Cr51 (6), and chemical tests using benzidine compounds or derivatives, orthotoludine, or guaiac.6

All chemical tests are based on the peroxidase-like activity of haemoglobin which, in the presence of hydrogen peroxide, oxidises a colourless compound such as 3,3’,5,5’ tetramethylbenzidine (TMB) to a coloured one. Chemical tests using TMB as the substrate appear to be the most sensitive and reliable6. The use of chemical tests for occult blood in random stool samples from patients on an unmodified diet may give rise to false positive reactions as naturally occurring vegetable peroxidases and ingested animal haemoglobin can interfere with the test.7,8 Also a number of drugs such as aspirin (acetylsalicylic acid) are known to induce gastrointestinal bleeding and should be avoided.9 A strict dietary regime is therefore recommended for patients providing samples.

It is known that healthy individuals lose between 0.5 and 1.0ml of blood per day from the gastrointestinal tract. Further studies have shown that bleeding of more than 3ml per day is pathologically important9.

MAST OCCUTEST™ is a chemical test using TMB as the substrate and provides a rapid, reliable, simple and sensitive system for the detection of occult blood in faeces when used under strict dietary conditions.

Intended Use

MAST OCCUTEST™ is intended for use as a means of detecting occult blood in faeces especially in patients with suspected gastrointestinal blood loss or with gastrointestinal cancer. MAST OCCUTEST™ should only be used with patients adhering to specific dietary conditions.

Test Principle

MAST OCCUTEST™ is based on the fact that haemoglobin has an activity similar to that of peroxidase. The chromogenic substrate 3,3’,5,5’ tetramethylbenzidine (TMB) is oxidised in the presence of hydrogen peroxide and haemoglobin giving a coloured product. The TMB is at a concentration of 0.15% with a 10 second time limit for a positive reaction.

Packing and Ordering Details

Order Code: OCCU1

MAST OCCUTEST™ kit contains sufficient reagents for the performance of 200 tests (Reagents only)

Order Code: OCCU2

MAST OCCUTEST™ Specimen Cards 50 cards per pack (300 tests)

Contents

Reagent A

One dropper bottle containing 8ml of 3,3’,5,5’ tetramethylbenzidine in a stabilised solution. Ready for use.

Reagent B

One dropper bottle containing 8ml of a buffered hydrogen peroxide solution with stabilisers. Ready for use.
Reagent C

One screw capped bottle containing 2ml of synthetic faecal control, incorporating an equivalent of 0.45mg haemoglobin per gram of stool. Ready for use.

Sufficient for 200 tests.

Materials required but not Provided

Specimen cards or filter paper e.g. MAST OCCUTEST™ specimen cards (available separately. Order Code: OCCU2)

Warnings And Precautions

1. The reagents supplied in this kit are for in vitro diagnostic use only.
2. Read the instructions carefully before conducting the assay. Do not modify the instructions.
3. Do not use reagents beyond their expiry date.
4. Store all reagents at 2-8°C and bring to room temperature before use.
5. Do not cross-contaminate reagents or interchange caps on bottles. Bottles may need wiping with a clean, unused paper towel after use.
6. Treat all used specimen cards, applicators and filter paper as microbiological waste and dispose of according to local procedures.
7. Reagent A contains acetic acid and ethanol. Acetic acid is corrosive and may cause severe burns or internal irritation if ingested. It also has an irritating vapour. Ethanol is flammable and may be intoxicating if inhaled or ingested. TMB should be handled with care. It is classified as harmful and should be treated as a suspected carcinogen and mutagen.
8. Protect reagents from direct sunlight, UV light or high temperatures.

Storage and Stability

All kit components should be stored at 2-8°C where they are stable until the expiry date given on the label.

Laboratory Procedure

1. Open the flap on the top side of the specimen card. (available separately. Order Code: OCCU2)
2. Add one drop of Reagent A then one drop of Reagent B to the filter paper on the reverse side of each faecal specimen.
3. Observe for a colour reaction within 10 seconds.

NB It is important to use at least three stool specimens as bleeding from a neoplasm may be intermittent.

Results and Interpretation

A blue-green colour within 10 seconds is counted as a positive reaction.

It is advisable to use negative and positive controls for validation of the test.

For a positive control use the synthetic stool specimen Reagent C.

For a negative control use 1 drop of Reagent A then 1 drop of reagent B directly onto a piece of filter paper or test card.

References