

Introduction

Intended Use

InTray® SMA (Sorbitol MacConkey Agar) is a selective and differential media for the detection of sorbitol-non-fermenting *Escherichia coli* serotype O157:H7 associated with hemorrhagic colitis. This medium is also referred to as “MacConkey Sorbitol Agar”.

Description and Principle

E. coli serotype O157:H7 is a human pathogen associated with hemorrhagic colitis that results from the action of a shiga-like toxin.¹ On standard MacConkey agar containing lactose, this strain is indistinguishable from other lactose-fermenting *E. coli*. Field results show that the growth of *E. coli* O157:H7 on SMA is heavy and occurs in almost pure culture — as colorless sorbitol-non-fermenting colonies. Most organisms of the fecal flora ferment sorbitol and appear pink on this medium. SMA, therefore, permits ready recognition of *E. coli* O157:H7 in stool cultures.^{2,3}

Reagents and Appearance

InTray SMA (Sorbitol MacConkey Agar) appears transparent with a medium rose hue and contains agar, peptone nutrients, lactose, bile salts, selective compounds and chromogenic additives. Media has a final of pH 7.1 ± 0.2 .

Precautions, Safety and Disposal

For In Vitro Diagnostic Use

Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing and gloves.

Once the tray has been inoculated and resealed, re-open only in a biological safety cabinet. Because of the potential for containing infectious materials, the tray must be destroyed by autoclaving at 121°C for 20 minutes.

Storage

Upon receipt, store InTray SMA (Sorbitol MacConkey Agar) under refrigeration ($2-8^\circ\text{C}$). Medium can be kept for one day at ambient temperature. Avoid freezing or prolonged storage at temperatures above 40°C . Do not open until ready to use. Do not use if the medium shows signs of deterioration or contamination.

Shelf Life

InTray SMA has a shelf life of 12 months from the date of manufacture.

Procedure

Materials Provided

- InTray SMA (Sorbitol MacConkey Agar)

Materials Required but Not Provided

- Sterile inoculating tool (e.g., cotton swab/forceps/scalpel blade)
- Laboratory incubator capable of incubation at $35 \pm 2^\circ\text{C}$

1 Prepare InTray



Allow the InTray to warm to $18-25^\circ\text{C}$.

Lift the lower right corner of the flexible InTray label until the protective seal is completely visible.

2 Open Seals



Remove the paper-foil seal by pulling the tab.

Discard the seal.

Do not remove or alter the white filter strip over the vent hole!

3 Inoculate Sample



Streak sample onto the agar surface.

4 Secure InTray



Reseal InTray label to the plastic tray body.

Press all around the perimeter of the InTray to ensure a complete seal.

Immediately label the InTray with patient or sample information and date.

Do not cover the viewing window.

Incubation

Incubate at $35 \pm 2^\circ\text{C}$ for 18-24 hours under ambient atmosphere.

Quality Control

This product has been tested and meets the CLSI (formerly NCCLS) Approved Standard for commercially prepared media (M22-A3). At the time of manufacture, quality control testing is performed on each lot of the InTray SMA (Sorbitol MacConkey Agar). The ability of the media to support growth and demonstrate expected biochemical reactions and morphology is verified by lot.

All Biomed products lots are performance verified with ATCC® microbe strains. Product performance is also verified periodically throughout the marked shelf life of each lot.

Organism	ATCC	Colony Appearance
<i>E. coli</i> O157:H7	35150	Colorless
<i>E. coli</i>	25922	Pink to red, w/ bile ppt.
<i>E. faecalis</i>	259212	Marked to complete inhibition

Reading the Results

Evaluation

Use standard procedures to obtain isolated colonies from specimens. After incubation, the plates should show isolated colonies in streaked areas and confluent growth in areas of heavy inoculation. Sorbitol fermenters produce pink to red colonies, some surrounded by zones of precipitated bile, while sorbitol-non-fermenters produce colorless colonies.

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<i>E. coli</i> O157:H7	Colorless
<i>E. coli</i>	Pink to red w/ bile ppt.
<i>E. faecalis</i>	Marked to complete inhibition

Limitations

Gram staining, biochemical tests and serological procedures should be performed to confirm findings. It has been reported that some *Enterobacteriaceae* sp. and *Pseudomonas aeruginosa* are inhibited on SMA when incubated in a CO₂-enriched atmosphere. Prolonged incubation of the culture may result in colonies of *E. coli* O157:H7 losing their characteristic colorless appearance. There are additional species of facultative anaerobic gram-negative rods that do not ferment sorbitol. The color of sorbitol-positive colonies can fade, making them hard to distinguish from sorbitol-negative colonies.

The InTray SMA (Sorbitol MacConkey Agar) is an agar medium that is susceptible to condensation collection within the inner seal, especially when stored at low temperatures and/or having been exposed to extreme temperature fluctuations. If moisture is visible on the surface of the InTrays, dry them (with the seal removed and InTray label in a position allowing for air flow) under a BSL-2 cabinet just prior to inoculation. There should be no visible droplets of moisture on the surface of the agar when they are inoculated. The surface of the dried medium should be smooth and should not show signs (webbed ribbing pattern on the agar surface) of desiccation.

Scan for additional product information



References

1. March and Ratnam. 1986. J. Clin. Microbiol. 23.
2. CDC. 1991. Morbid Mortal Weekly Rep, 40.
3. Bopp, et al. 1999. In Murray, et al. [eds.] Manual of Clinical Microbiology, 7th ed. ASM, Washington, D.C.

Symbol glossary: biomeddiagnostics.com/l/symbol-glossary

IFU Translations: biomeddiagnostics.com

Document Revision History

Rev. E, October 2019

New format; added new catalog numbers, In Vitro Diagnostic Use, CE Mark, shelf life, sterile inoculating tool, CLSI standard, limitation about condensation, reference to online symbol glossary and IFU translations, document revision history; corrected name InTray SMA (Sorbitol MacConkey) where appropriate, corrected O157 to O157; replaced room temperature with 18-25°C; removed "For research use only"; reorganized and retitled some sections



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InTray[®] SMA (Sorbitol MacConkey Agar)

REF	11-423-001	Σ 5
REF	11-423-002	Σ 20

Not available in all countries; please inquire.

For In Vitro Diagnostic Use



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