

# MacConkey III Agar | Ready-to-use Media





Rev: 0

Effective Date: 20/05/2024

REF FP90M1002

### Intended Use::

Selective and differential plating media are mainly used to detect and isolate gram-negative organisms from clinical, dairy, food, water, pharmaceutical, cosmetic, and other industrial sources.

### **Principle Of The Procedure:**

Peptone supplies nutrients and agar is the solidifying agent. Bile salts are inhibitory to non-intestinal bacteria and help to prevent the swarming of Proteus spp. The bile salt mixture in the MacConkey agar no. 3 was modified to allow the growth of Acinetobacter spp. as well. Bile salts and crystal violet inhibit the growth of Gram-positive cocci. Lactose is added as a carbon source. Differentiation of bacteria is achieved by the combination of lactose and the indicator dye neutral red, which is red at acid pH and yellow at alkaline. Bacteria which ferment lactose appear as red - pink-coloured colonies which may be surrounded by zones of precipitated bile salts. Precipitation is caused by the action of the acid produced by lactose fermentation on the bile salts. Bacteria which do not ferment lactose, such as Salmonella, usually appear as colourless to straw colonies. Therefore, MacConkey agar No. 3 can be used with clinical specimens likely to contain mixed flora such as urine and wounds as it allows the preliminary grouping of Gram-negative bacteria into lactose fermenters and non-fermenters.

#### **Product Summary:**

Lactose fermenters are microorganisms that ferment lactose and those that are unable to ferment lactose are called non-lactose fermenters1. Escherichia coli (E. coli) are non-spore forming bacteria that are able to grow in aerobic and anaerobic conditions1. Salmonella is a bacterial pathogen that can be isolated from faeces, blood, bone marrow, bile, urine, food, animal feed and environmental materials. Ingestion of contaminated food and water can cause foodborne infections, including gastroenteritis, typhoid fever, paratyphoid fever or even death in humans. All Salmonella serotypes can cause disease in humans<sup>2</sup>. Acinetobacter baumannii is a Gram-negative nosocomial pathogen that can persists on dry surfaces longer than any other Gram-negative bacteria. It can persist on moist and dry surfaces for more than 20 days contributes to its widespread in a hospital setting<sup>3</sup>. Acinetobacter spp. are commonly isolated from locations such as hand, groin, toe webs etc4. Due to the high antibiotic resistance shown. by this bacterium an early identification is often recommended. Acinetobacter spp. have been isolated in connection with community acquired and nosocomial pneumonias, urogenital tract, eye and soft tissue infections and are difficult to treat particularly due to their broad antibiotic resistance.

### Formulation\*(PER LITER):

Peptones	20.0g	Neutral red	0.03g
Lactose	10.0g	Crystal violet	0.001g
Bile salts No. 3	1.5g	Agar	15.0g
	5.0g		
Sodium chloride	3.06		

pH 7.1 +/- 0.2

# **Procedure**

### **Materials Provided**

90mm MacConkey III Agar.

### **Materials Required But Not Provided**

Ancillary culture media, reagents, and laboratory equipment as required.



<sup>\*</sup>Adjust and/or supplemental as required to meet performance criteria



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#### **Test Procedure**

- 1. Streak the specimen as soon as possible after it is received in the laboratory with aseptic technique.
- 2. The streak plate is used primarily to isolate pure cultures from specimens containing mixed flora.
- 3. Alternatively, if material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak for isolation from this inoculated area.
- 4. Incubate plates at 35°C ± 2°C for 18 to 24 hours.

#### **Results**

After incubation, most plates will show an area of confluent growth. Because the streaking procedure is, in effect, a dilution technique, diminishing numbers of micro-organisms are deposited on the streaked areas.

### **Quality Control**

Inoculate representative samples with the following strains. Incubate the inoculated plates at  $35 \pm 2^{\circ}\text{C}$  for 18 to 24 hrs. to allow colonies to develop on the medium<sup>5</sup>.

Strains	ATCC®	Growth Results
Escherichia coli	25922	Pink to red growth
Proteus mirabilis	12453	Growth Colorless Inhibition of swarming
Salmonella choleraesuis subsp. choleraesuis serotype Typhimurii	14028	Growth Colourless
Staphylococcus aureus	25923	No growth
Enterococcus faecalis	29212	No growth
Uninoculated plate	-	No growth

### **Storage And Shelf Life:**

MacConkey III Agar should stored at 2 to 8°C in their original pack wrapping until prior to use. Avoid freezing and overheating. The plates may be inoculated up to the expiration date (see package label) and incubated for the recommended incubation times.

### **Warning And Precautions:**

For in vitro diagnostic use. For Professional Use Only. Do Not Reuse.

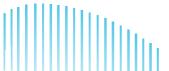
Do not use plates if they show evidence of microbial contamination, discoloration, drying, cracking, or other signs of deterioration.

### **Limitation Of The Procedure**

For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification<sup>2-5</sup>

# Reference

- Public Health England. 2015. "Identification of Enterobacteriaceae." UK Standards for Microbiology Investigations. UK SMI ID 16 Issue 4. https://assets.publishing.service.gov.uk/govern ment/uploads/system/uploads/attachment\_data/ file/423601/ID\_16i4.pdf
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- 3. Gerner-Smidt, P. (1995). Taxonomy and epidemiology of Acinetobacter infections. Rev Med Microbiol., 6, 186-195.
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- 5. Koneman, E.W., S.D. Allen, W.M. Janda, P.C. Schreckenberger, and W.C. Winn, Jr. 1997. Color atlas and textbook of diagnostic microbiology, 5th ed. Lippincott-Raven, Philadelphia.





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# **Packaging Symbol**

Symbol	Definition
REF	Catalogue number
IVD	In Vitro Diagnostic Medical Device
LOT	Batch code
سا	Date of manufacture
Å	Temperature limit
Ω	Use-by date
类	Keep away from sunlight
	Do not re-use
Ī	Fragile, handle with care
$\bigcap_{i}$	Consult instructions for use or consult electronic instructions for use
	Do not use if packaging damaged and consult instructions for use
<b>—</b>	Manufacturer

# **Further Information:**

For further information please contact your Biomed MDx representative.



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