

## MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts

### Intended Use

MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts is a slightly selective and differential medium recommended for the detection of coliforms and other enteric pathogens.

### Summary

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of specimens like water, faeces and other sources suspected of containing these microorganisms. The original MacConkey Agar was based on the bile salt-neutral red-lactose agar of MacConkey, which was used to differentiate strains of *Salmonella typhosa* from members of the coliform group. The formula was further modified to be more selective. The presence of bile salts allows the growth of enteric Gram-negative organisms. MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts is designed to achieve more differentiation of lactose fermenters and non-lactose fermenters, for the promotion of superior growth of enteric pathogens and to improve the inhibition of swarming *Proteus* species.

MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts is recommended for use in microbiological examination of clinical specimens, foodstuffs and for direct plating and inoculation of water samples for coliform counts. These media are included in the Standard Methods for the Examination of Milk and Dairy Products, pharmaceutical preparations and industrial sources. They are also included in the Official Methods of Analysis as well as the Bacteriological Analytical Manual.

### Principle

Peptone, pancreatic digest of gelatin and tryptone provide nitrogen and other nutrients, while lactose is the carbohydrate source. Bile salts and crystal violet are selective agents that inhibit the growth of Gram-positive bacteria but allow enteric Gram-negative bacteria to grow. Neutral red is the pH indicator.

### Formula\*

Ingredients	g/L
Peptone	1.5
Tryptone	1.5
Pancreatic Digest of Gelatin	17.0
Lactose	10.0
Bile Salts Mixture	1.5
Sodium Chloride	5.0
Crystal Violet	0.001
Neutral Red	0.03
Agar	13.5
Final pH (at 25°C)	7.1 ± 0.2

\*Adjusted to suit performance parameters.

### Directions

1. Loosen the cap.
2. Melt the medium completely in a water bath at 100°C. Do not remove the cap of the bottle while melting.
3. Cool to 45°C-50°C, mix well and pour into presterile petriplate.

### Quality Control

**Appearance:** Red with purplish tinge, slightly opalescent gel.

**Cultural Response:** Cultural characteristics observed after an incubation of 18-72 hours at 30°C-35°C.

<b>Organism (ATCC)</b>	<b>Growth</b>	<b>Colour of Colony</b>
<i>Escherichia coli</i> (25922)	Good	Pink with bile precipitate
<i>Klebsiella aerogenes</i> (13048)	Good	Pink
<i>Proteus hauseri</i> (13315)	Good	Colourless
<i>Salmonella enterica</i> subsp. <i>enterica</i> serovar <i>Typhimurium</i> (14028)	Good	Colourless
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> (25923)	Inhibited	-
<i>Enterococcus faecalis</i> (29212)	Inhibited	-

**Note:** For good growth, growth obtained on the test media should not differ by a factor greater than 2 from the calculated value for a standardized inoculum.

Inoculum cfu for good growth is 10-100.

For inhibition no growth of test microorganism should occur.

### Remarks

1. Do not use media bottles that exhibit any damage, cracks, microbial contamination, discoloration, drying or other sign of deterioration.
2. Ensure that the temperature of water bath is at 100°C so that the medium melts completely. Cooler water baths give rise to lumpy, uneven medium.
3. Before pouring into sterile petriplates, gently swirl the bottle to check whether the entire contents are properly mixed and melted.
4. Good laboratory practices and hazard precautions must be observed at all times.
5. After use media containers, prepared plates, sample, sample containers and other contaminated materials must be sterilized or incinerated before discarding.

### Storage and Stability

1. Store the ready to use MacConkey Agar with Crystal Violet, NaCl, and 0.15% Bile Salts at 15°C-25°C in a cool, dry place away from light.
2. Stability of the kit is as per expiry date mentioned on the label.

### Limitations

1. Incubation of plates under increased CO<sub>2</sub> has been reported to reduce the growth and recovery of a number of strains of Gram-negative bacilli.
2. Not all strains of *E. coli* ferment lactose.

### Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

### References

1. Downes and Ito (ed.) 2001, Compendium of Methods for The Microbiological Examination of Foods, 4<sup>th</sup> edition, APHA Washington DC.
2. Greenberg AE; Clesceri LS and Eaton AD (Eds), 1998, Std Methods for The Examination of Water and Wastewater, 20<sup>th</sup> edition, APHA, Washington, DC.
3. H. Wehr and J. Frank, 2004, Std. Methods For The Examination of Dairy Products, 17<sup>th</sup> Edition; APHA, Washington, DC.
4. IP, 1996, Ministry of Health and Family Welfare, Govt. of India, Vol. 2.
5. US Pharmacopeial Convention, Inc. 2001. The United States Pharmacopoeia 25/NF 20-2002. The US Pharmacopeial Convention, Inc; Rockville, Md.
6. US Food and Drug Adm; 1998, Bacteriological Analytical Manual, 8<sup>th</sup> Ed; Rev. A, AOAC, International, Gaithersburg, Md.
7. MacConkey 1900, The Lancet ii:20.
8. MacConkey 1905. J. Hyg; 5:333.
9. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

**Product Presentation:**

**Cat. No.**  
203130760250  
203130760100

**Product Description**  
Bottle Media  
Bottle Media

**Pack Size**  
6 x 250 mL  
100 mL

 Temperature Limit	 Manufacturer	 Batch Code	 Date of Manufacture
 Catalogue Number	 Consult Instructions for use	 Use-by Date	 This way up

Revision: 0825/VER-03

**Disclaimer**

Information provided is based on our inhouse technical data on file, it is recommended that user should validate at his end for suitable use of the product.

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