

## MaCconkey Agar

REF.	Pack size
618 01 100	100 gm
618 01 500	500 gm

### Intended Use

MacConkey Agar with Crystal Violet, NaCl and 0.15% Bile Salts is a slightly selective and differential medium for the detection of coliforms such as *Enterobacter aerogenes* and enteric pathogens in faeces and other specimens.

### Background

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric micro-organisms from a variety of specimens like water, faeces and other sources. Its formula was further modified to be more selective ; where the addition of bile salts allow the growth of 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 of proteus species.

### Principle

Peptone 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.

Components	gm/Liter
Peptone	1.5
Tryptone	1.5
Pancreatic Digest of Gelatin	17.0
Lactose	10.0
Bile Salts	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

### Preparation, Storage and Stability

Store the dehydrated medium at 10-30°C and use before the expiry date on the label. Store the prepared medium at 2-8°C. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

### Procedure

1. Suspend 50.031 g of the powder in 1000 ml distilled water and mix well.
2. Boil with frequent agitation to dissolve the powder completely.
3. Sterilize by autoclaving at 121°C for 15 minutes.
4. Cool to 45-50°C and pour into sterile petri plates.

### Quality Control

**Dehydrated Appearance :** Pinkish beige coloured, homogeneous, free flowing powder.

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

**Cultural Response:** Cultural characteristics after 18-72 hours at 30-35°C or 35± 2°C for clinical specimens

Organisms Colony	Growth	Colour of
<i>Enterobacter aerogenes</i>	Good	Pink to red
<i>Enterococcus faecalis</i>	Inhibited	-
<i>Escherichia coli</i> precipitate	Good	Pink to red with
<i>Proteus vulgaris</i>	Good	Colourless
<i>Shigella flexneri</i>	Fair to good	Colourless
<i>Staphylococcus aureus</i>	Inhibited	-

### Interpretation of the results

1. Lactose fermenting bacteria produce pink to brick-red colonies and may be surrounded by a zone of bile precipitation.
2. Non-Lactose fermenting bacteria produce colourless colonies.

### Precautions

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.

### Bibliography

1. MacConkey 1905, J. Hyg; 5: 333.
2. Downes and Ito (ed.) 2001, Compendium Of Methods For The Microbiological Examination Of Foods, 4 edition, APHA Washington DC.
3. Greenberg AE; Clesceri LS and Eaton AD (Eds), 1998, Standard Methods For The Examination of Water and Wastewater, 20 edition, APHA, Washington, DC.
4. US Food and Drug Administration; 1998, Bacteriological Analytical Manual, 8th Ed; Rev. A, AOAC, International, Gaithersburg, Md.