

## TM 1698 - MacCONKEY AGAR MEDIUM (as per IP)

### INTENDED USE

For selective isolation and differentiation of lactose fermenting and nonlactose fermenting enteric bacteria.

### PRODUCT SUMMARY AND EXPLANATION

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens. Subsequently MacConkey Agar and Broth have been recommended for use in microbiological examination of foodstuffs and for direct plating / inoculation of water samples for coliform counts. These media are also accepted by the Standard Methods for the Examination of Milk and Dairy Products and pharmaceutical preparations as per Indian Pharmacopoeia. It is recommended for selective isolation and differentiation of lactose fermenting and lactose non-fermenting enteric bacteria. After enrichment of *Escherichia coli* in MacConkey Broth, it is then subcultured on MacConkey Agar. Gram- negative bacteria usually grow well on the medium and are differentiated by their ability to ferment lactose. Lactose fermenting strains grow as red or pink and may be surrounded by a zone of acid precipitated bile. The red colour is due to production of acid from lactose, absorption of neutral red and a subsequent colour change of the dye when the pH of medium falls below 6.8. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colourless and transparent and typically do not alter appearance of the medium. *Yersinia enterocolitica* may appear as small, non-lactose fermenting colonies after incubation at room temperature.

### COMPOSITION

Ingredients	Gms / Ltr
Peptones (meat and casein, equal parts)	3.000
Pancreatic digest of gelatin	17.000
Lactose	10.000
Bile salts	1.500
Sodium chloride	5.000
Crystal violet	0.001
Neutral red	0.030
Agar	13.500

### PRINCIPLE

Original medium contains protein, bile salts, sodium chloride and two dyes. The selective action of this medium is attributed to crystal violet and bile salts, which are inhibitory to most species of gram-positive bacteria. Essential nutrients, vitamins and nitrogenous factors are provided by a combination of peptones (meat and casein) and pancreatic digest of gelatin. Lactose is the fermentable source of carbohydrate. Sodium chloride maintains the osmotic balance in the medium. Neutral red is the pH indicator.

### INSTRUCTION FOR USE

- Dissolve 50.03 gm of medium in 1000 ml purified/distilled water.
- Heat to boiling with gentle swirling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool to 45-50°C. Mix well before pouring into sterile Petri plates.
- The surface of the medium should be dry when inoculated.

### QUALITY CONTROL SPECIFICATIONS



**Appearance of Powder** : Light yellow to pink homogeneous free flowing powder.  
**Appearance of prepared medium** : Red with purplish tinge coloured clear to slightly opalescent gel forms in Petri plates.  
**pH (at 25°C)** : 7.1±0.2

### INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
<i>Escherichia coli</i>	8739	50-100	Luxuriant	≥70%	Pink-red with bile precipitate	30-35°C	18 -72 Hours
<i>Escherichia coli</i>	25922	50-100	Luxuriant	≥70%	Pink-red with bile precipitate	30-35°C	18-24 Hours
<i>Klebsiella aerogenes</i>	13048	50-100	Luxuriant	≥70%	Pink to red	30-35°C	18-24 Hours
<i>Enterococcus faecalis</i>	29212	50 -100	Fair-good	20 -40 %	Colourless pale pink	30-35°C	18-24 Hours
<i>Salmonella Typhimurium</i>	14028	50-100	Luxuriant	≥70%	Colourless	30-35°C	18-24 Hours
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	6538	≥10 <sup>3</sup>	Inhibited	0%	-	30-35°C	≥24 Hours
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	25923	≥10 <sup>3</sup>	Inhibited	0%	-	30-35°C	≥24 Hours
<i>Salmonella Enteritidis</i>	13076	50 -100	Luxuriant	≥70%	Colourless	30-35°C	18-24 Hours
<i>Salmonella Paratyphi A</i>	9150	50 -100	Luxuriant	≥70%	Colourless	30-35°C	18-24 Hours

<i>Salmonella</i> Paratyphi B	8759	50 -100	Luxuriant	>=70%	Colourless	30-35°C	18-24 Hours
<i>Salmonella</i> Typhi	6539	50 -100	Luxuriant	>=70%	Colourless	30-35°C	18-24 Hours
<i>Proteus vulgaris</i>	13315	50 -100	Luxuriant	>=70%	Colourless	30-35°C	18-24 Hours
<i>Shigella flexneri</i>	12022	50 -100	Fair-good	20 -40 %	Colourless	30-35°C	18-24 Hours
<i>Staphylococcus</i> <i>epidermidis</i>	12228	>=10 <sup>3</sup>	Inhibited	0%	-	30-35°C	>=24 Hours

#### PACKAGING:

In pack size of 500 gm bottles.

#### STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.













#### DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

#### REFERENCES

1. MacConkey, 1900, The Lancet, ii:20.
2. MacConkey, 1905, J. Hyg., 5:333.
3. Speck M. (Ed.), 1985, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
4. Greenberg A. E., Clesceri L. S. and Eaton A. D., (Eds.), 1992, Standard Methods for the Examination of Water and Wastewater, 18th ed., APHA, Washington, D.C.
5. Marshall R. (Ed.), 1992, Standard Methods for the Examination of Dairy Products, 16th ed., APHA, Washington, D.C.
6. Indian Pharmacopoeia, 2010 Ministry of Health and Family Welfare, Govt. of India



 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative <small>MedNet GmbH Buckenhof 10 48143 Aachen, Germany</small>	 European Conformity	 QR Code	 Consults instructions for Use	 Best Before

**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
**Revision: 08 Nov., 2019**