

## TM 199 - MacCONKEY AGAR BASE W/O CARBOHYDRATE

### INTENDED USE

For detection of carbohydrate fermentation by adding single or multiple carbohydrates.

### PRODUCT SUMMARY AND EXPLANATION

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens. MacConkey Agar Base is used for studying carbohydrate fermentation reactions of coliforms by adding carbohydrates either individually or in combination.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	17.000
Proteose peptone	3.000
Bile salts	1.500
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.001
Agar	13.500

### PRINCIPLE

MacConkey Agar Base has peptone and proteose peptone, which provide nitrogen, carbon and vitamin source for the growth of bacteria. This medium does not contain carbohydrates. However, for studying fermentation reaction, carbohydrate of interest has to be added while preparing medium. The selective action of this medium is attributed to bile salts and crystal violet, which are inhibitory to most of the species of gram-positive bacteria. Gram-negative bacteria usually grow well on the medium and are differentiated by their ability to ferment carbohydrates. Carbohydrate 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 carbohydrate, absorption of neutral red and subsequent colour change of the dye when the pH of the medium falls below 6.8. Sodium chloride helps to maintain osmotic balance.

### INSTRUCTION FOR USE

- Dissolve 40.03 grams in 1000 ml purified/distilled water.
- Add desired amount of carbohydrate either individually or in combination.
- Heat to boiling with gentle swirling to dissolve the medium completely.
- Sterilize by autoclaving at 15 psi pressure for 15 minutes. Avoid overheating.
- Cool to 45-50°C. Mix well and pour 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 clear to slightly opalescent gel forms in Petri plates.
- pH (at 25°C)** : 7.1±0.2

### INTERPRETATION

Cultural characteristics observed with added 1% lactose, after an incubation.



Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
<i>Klebsiella aerogenes</i>	13048	50-100	Luxuriant	>=70 %	Pink to red	35-37°C	18-24 Hours
<i>Enterococcus faecalis</i>	29212	50-100	Fair to good	20 -40 %	Pale pink to red	35-37°C	18-24 Hours
<i>Escherichia coli</i>	25922	50-100	Luxuriant	>=70 %	Pink to red with bile precipitate	35-37°C	18-24 Hours
<i>Proteus vulgaris</i>	13315	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Paratyphi A</i>	9150	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Shigella dysenteriae</i>	13313	50-100	Fair to good	20 -40 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Paratyphi B</i>	8759	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Enteritidis</i>	13076	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Salmonella Typhi</i>	6539	50-100	Luxuriant	>=70 %	Colourless	35-37°C	18-24 Hours
<i>Staphylococcus aureus subsp. aureus</i>	25923	>=10 <sup>3</sup>	Inhibited	0%	-	35-37°C	18-24 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.

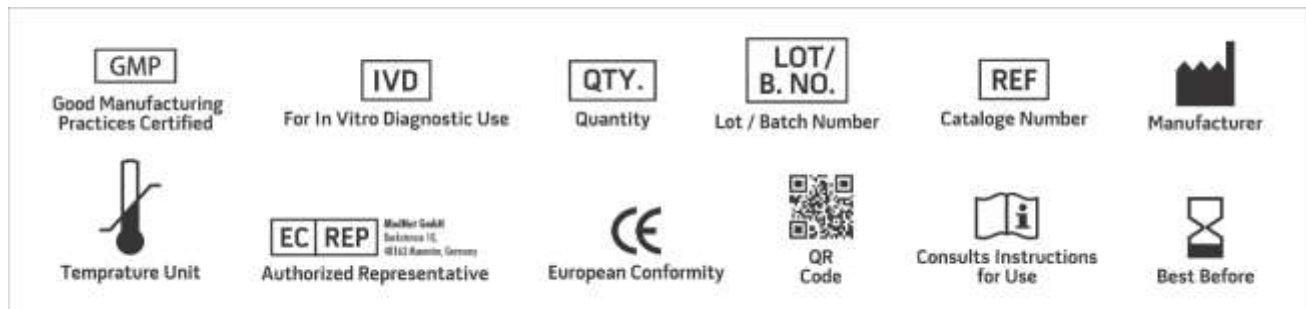
**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

### DISPOSAL

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

### REFERENCES

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Holt, Harris and Teague, 1916, J. Infect. Dis., 18:596.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. MacConkey, 1900, The Lancet, ii:20.
6. MacConkey, 1905, J. Hyg., 5:333.
7. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
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**NOTE:** Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

**\*For Lab Use Only**  
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