

## TM 322 - MacCONKEY BROTH W/ NEUTRAL RED

### INTENDED USE

For selective enrichment and enumeration of coliforms from water.

### PRODUCT SUMMARY AND EXPLANATION

MacConkey Broth is widely used as a differential medium for detection and enumeration of coliforms from a wide variety of clinical, food and water samples. Identification is based on colour change of the medium due to the indicator neutral red used.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	20.000
Lactose	10.000
Bile salts	5.000
Sodium chloride	5.000
Neutral red	0.075

### PRINCIPLE

Peptone provides necessary nitrogen source. Lactose serves as the fermentable carbohydrate source. Sodium chloride maintains the osmotic balance of the cells. The selective action of these media is attributed to the presence of bile salts, which are inhibitory to most species of gram-positive bacteria. Gram-negative bacteria usually grow well on these media and are differentiated by their ability to ferment lactose. The colour change of the medium shown by lactose- fermenters is due to production of acid from lactose and a subsequent colour change of the indicator dye when the pH of the media falls below 6.8. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* do not alter the appearance of the medium. The medium turns pink in case of lactose fermenters and yellow in case of non-lactose- fermenters, due to neutral red. MacConkey Broth, which contains neutral red as an indicator is considered as a standard medium for the primary isolation as well as presumptive identification of coliform-aerogenes group of organisms in food and water.

### INSTRUCTION FOR USE

- Dissolve 40.07 grams in 1000 ml purified/distilled water.
- Heat if necessary to dissolve the medium completely.
- Distribute into tubes with inverted Durham's tubes.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool the tubes before inoculation.

### QUALITY CONTROL SPECIFICATIONS

- Appearance of Powder** : Pale yellow to pink homogeneous free flowing powder.  
**Appearance of prepared medium** : Red coloured clear solution without any precipitate.  
**pH (at 25°C)** : 7.4±0.2

### INTERPRETATION

Cultural characteristics observed after an incubation.



Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Acid	Gas	Incubation Temperature	Incubation Period
<i>Enterobacter aerogenes</i>	13048	50-100	Good-luxuriant	Positive reaction	Positive reaction	35-37°C	18-24 Hours
<i>Escherichia coli</i>	25922	50-100	Good-luxuriant	Positive reaction	Positive reaction	35-37°C	18-24 Hours
<i>Klebsiella pneumoniae</i>	13883	50-100	Good-luxuriant	Positive reaction	Positive reaction	35-37°C	18-24 Hours
<i>Proteus mirabilis</i>	25933	50-100	Good-luxuriant	Negative reaction	Negative reaction	35-37°C	18-24 Hours
<i>Salmonella Choleraesuis</i>	12011	50-100	Fair to good	Negative reaction	Negative reaction	35-37°C	18-24 Hours
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	25923	$\geq 10^3$	Inhibited	-	-	35-37°C	18-24 Hours
<i>Enterococcus faecalis</i>	29212	50-100	None-poor	Positive reaction	Negative reaction	35-37°C	18-24 Hours

#### PACKAGING:

In pack size of 100 gm and 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

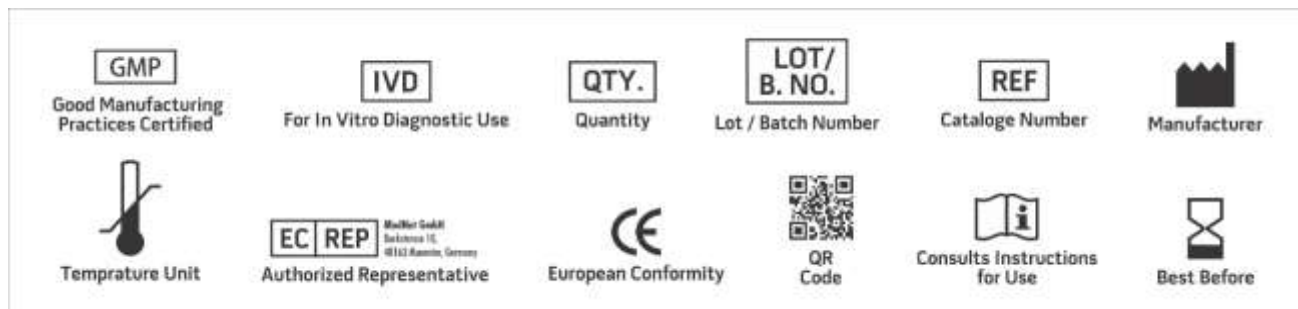
After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

#### REFERENCES

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.



2. 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
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 A. T., 1900, The Lancet, ii: 20.
6. MacConkey A. T., 1905, J. Hyg. 5: 333.
7. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
8. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.



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

**\*For Lab Use Only**  
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