

## TM 232 - MacCONKEY AGAR (W/ 0.075 NR, 0.5% BILE SALTS & 1.2% AGAR W/O CV & NaCl)

### INTENDED USE

For 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 was 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. The original medium contains peptone, bile salts, sodium chloride and two dyes. MacConkey Agar w/o CV, NaCl W/ 0.5% Bile Salts is a modification of the original formulation with the exception of crystal violet and sodium chloride. This medium prevents the swarming of *Proteus* species that are generally encountered in pathological specimens. Also potentially pathogenic gram- positive organisms can be isolated using this medium.

### COMPOSITION

Ingredients	Gms / Ltr
Peptone	20.000
Lactose	10.000
Bile salts	5.000
Neutral red	0.075
Agar	12.000

### PRINCIPLE

The selective action of this medium is attributed to bile salts, which are inhibitory to most species of gram-positive bacteria. 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.

### INSTRUCTION FOR USE

- Dissolve 47.07 grams of medium in 1000 ml purified/distilled water.
- Heat to boiling with gentle swirling to dissolve the agar completely.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Avoid overheating.
- Cool to 45-50°C and pour into sterile Petri plates.
- The surface of the medium should be dry when inoculated.

Note: For the cultivation of *Vibrio* species add 5 grams per litre of sodium chloride before sterilization.

### QUALITY CONTROL SPECIFICATIONS

- Appearance of Powder** : Light yellow to pink homogeneous free flowing powder.
- Appearance of prepared medium** : Orange red coloured clear to slightly opalescent gel forms in Petri plates.
- pH (at 25°C)** : 7.4±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>	25922	50-100	Luxuriant	>=70 %	Pink to red with bile precipitate	35-37°C	18-24 Hours
<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>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 flexneri</i>	12022	50-100	Luxuriant	>=70 %	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	50-100	Fair-good	20 -40 %	Pale pink to red	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.

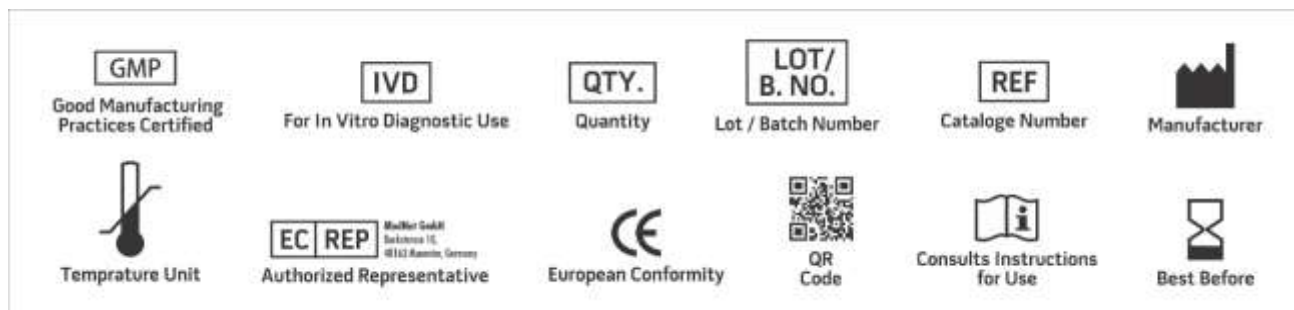
**Product Deterioration:** Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

**DISPOSAL**

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

**REFERENCES**

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2. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition
3. 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.
4. MacConkey, 1900, The Lancet, ii:20.
5. MacConkey, 1905, J. Hyg., 5:333.
6. 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.
7. The United States Pharmacopoeia XXI and the National Formulary, 16th ed., 1985, United States Pharmacopoeial Convention, Inc., 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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