

CM 21,115 - MacCONKEY AGAR, RS

INTENDED USE

For isolating and differentiating Gram negative enteric bacilli from specimens containing swarming strains of *Proteus* species.

PRODUCT SUMMARY AND EXPLANATION

MacConkey agars are slightly selective and differential plating media mainly used for the detection and isolation of gram-negative organisms from clinical, dairy, food, water, pharmaceutical and industrial sources. It is also recommended for the selection and recovery of the Enterobacteriaceae and related enteric gram-negative bacilli. USP recommends this medium for use in the performance of Microbial Limit Tests.

These agar media are selective since the concentration of bile salts, which inhibit gram-positive microorganisms, is low in comparison with other enteric plating media. The medium MacConkey agar (w/ cv, nacl, 0.15% bile salts & 1% lactose), which corresponds with that recommended by APHA can be used for the direct plating of water samples for coliform bacilli, for the examination of food samples for food poisoning organisms and for the isolation of *Salmonella* and *Shigella* species in cheese. Other than that this medium is also used for count of coli-aerogenes bacteria in cattle and sheep faeces, the count of coli-aerogenes and non-lactose fermenters in poultry carcasses, bacterial counts on irradiated canned minced chicken and the recognition of coli-aerogenes bacteria during investigations on the genus *Aeromonas*.

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	17.000
Proteose peptone	3.000
Lactose	10.000
Bile salts	5.000
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.001
Agar	13.500

PRINCIPLE

Peptones are sources of nitrogen and other nutrients. Lactose is a fermentable carbohydrate, bile salts and crystal violet are selective agents that inhibit growth of gram-positive organisms. Neutral red is the pH indicator dye.

The 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. 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 colonies 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, transparent and typically do not alter appearance of the medium.

INSTRUCTION FOR USE

Dissolve 53.53 grams in 1000 ml 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.

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) : 7.1±0.2

INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Incubation Temperature	Incubation Period
Escherichia coli	25922	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours
Enterobacter aerogenes	13048	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours
Proteus vulgaris	13315	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours
Salmonella Paratyphi A	9150	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours
Shigella flexneri	12022	50-100	Fair to good	20 -40 %	35-37°C	18-24 Hours
Salmonella Paratyphi B	8759	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours
Salmonella Enteritidis	13076	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours
Salmonella Typhi	6539	50-100	Luxuriant	≥70 %	35-37°C	18-24 Hours



Staphylococcus aureus	25923	$\geq 10^3$	Inhibited	0%	35-37°C	18-24 Hours
-----------------------	-------	-------------	-----------	----	---------	-------------

PACKAGING:

Inpacksize 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.

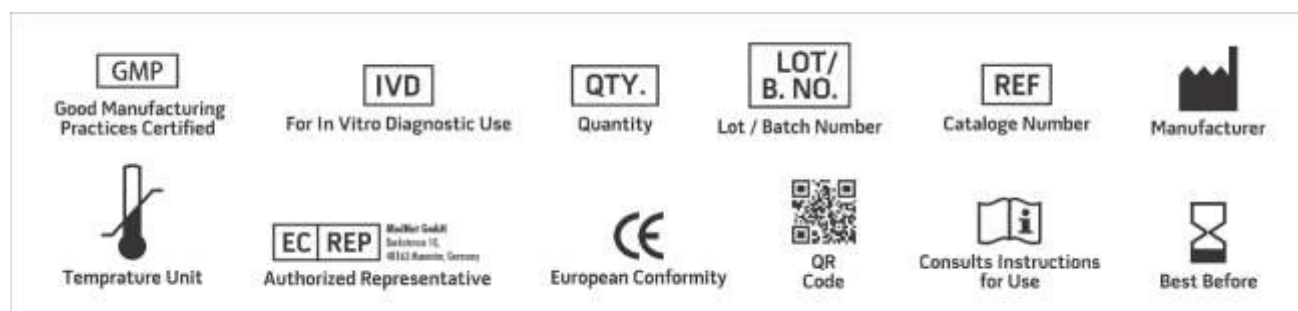
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

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

REFERENCES

1. Murray P. R, Baron E. J., Jorgensen J. H., Tenover F. C., Tenover F. C., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.
2. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
3. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
4. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, D.C.
5. Eaton A. D., Clesceri L. S. and Greenberg A. W. (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
6. The United States Pharmacopoeia, 2009, The United States Pharmacopoeial Convention, Rockville, M.D.
7. Williams, (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, Washington, D.C.
8. Medrek T. F and Barnes Ella M., 1962, J. Appl. Bacteriol., 25(2), 159-168
9. Barnes Ella M. and Shrimpton D. H., 1957, J. Appl. Bacteriol., 20(2), 273-285.
10. Thornley Margaret J., 1957, J. Appl. Bacteriol., 20(2), 273-285.
11. Eddy B. P., 1960, J. Appl. Bacteriol., 23(2), 216-249.
12. MacConkey A., 1905, J. Hyg., 5:333.
13. MacConkey A., 1900, The Lancet, ii:20.
14. British Pharmacopoeia, 2009, The Stationery Office British Pharmacopoeia



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

*For Lab Use Only

