
MACCONKEY AGAR

INTENDED USE

Remel MacConkey Agar is a solid medium recommended for use in qualitative procedures for selective and differential isolation of gram-negative bacilli on the basis of lactose fermentation.

SUMMARY AND EXPLANATION

In 1900, MacConkey first described a neutral red bile salt medium for cultivation and identification of enteric organisms.¹ A detailed description of the selective and differential properties of the medium was published in 1905.² Over the years, MacConkey's original formula has been modified; the agar content has been reduced, the concentration of bile salts and neutral red has been adjusted, and sodium chloride has been added.³ The modification of MacConkey Agar which resulted has demonstrated improved inhibition of swarming by *Proteus* spp.

PRINCIPLE

Peptones provide nitrogenous nutrients and amino acids necessary for bacterial growth. Lactose is a carbon source for energy. Sodium chloride supplies essential electrolytes and maintains osmotic equilibrium. Crystal violet and bile salts are selective agents which inhibit most gram-positive organisms. Differentiation of gram-negative bacilli is accomplished by addition of lactose and neutral red which is an indicator. Gram-negative bacilli which ferment lactose form pink colonies. Nonlactose-fermenters, such as *Salmonella* and *Shigella*, form colorless, transparent colonies. The swarming of *Proteus* is inhibited; however, occasional strains may swarm.

REAGENTS (CLASSICAL FORMULA)*

Gelatin Peptone	17.0 g	Meat Peptone	1.5 g
Lactose.....	10.0 g	Neutral Red	30.0 mg
Sodium Chloride.....	5.0 g	Crystal Violet	1.0 mg
Bile Salts	1.5 g	Agar.....	13.5 g
Casein Peptone.....	1.5 g	Demineralized Water.....	1000.0 ml

pH 7.1 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS

This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM

1. Suspend 50 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve.
3. Sterilize by autoclaving at 121°C for 15 minutes or following established laboratory procedures.
4. Dispense into appropriate containers.

PROCEDURE

1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, testing, and interpretation.

QUALITY CONTROL

Each lot number of MacConkey Agar has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL

Escherichia coli ATCC® 25922
Proteus mirabilis ATCC® 12453
Proteus vulgaris ATCC® 6380
Salmonella enterica serovar Typhimurium ATCC® 14028
Enterococcus faecalis ATCC® 29212
Staphylococcus aureus ATCC® 25923

INCUBATION

Ambient, 18-24 h @ 33-37°C
Ambient, 18-24 h @ 33-37°C
Ambient, 18-24 h @ 33-37°C
Ambient, 18-24 h @ 33-37°C
Ambient, 18-24 h @ 33-37°C
Ambient, 18-24 h @ 33-37°C

RESULTS

Growth, pink to red colonies
Growth, colorless colonies, inhibition of swarming
Growth, colorless colonies, inhibition of swarming
Growth, colorless colonies
Inhibition (partial to complete)
Inhibition (partial to complete)

BIBLIOGRAPHY

1. MacConkey, A.T. 1900. Lancet. ii:20.
2. MacConkey, A.T. 1905. J. Hyg. 5:333.
3. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, sample collection, storage and transportation, materials required, quality control, and limitations.

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IFU 453801, Revised September 30, 2010

Printed in U.S.A.

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