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# MUELLER HINTON AGAR

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## INTENDED USE

Remel Mueller Hinton is a solid medium recommended for use in qualitative procedures in antimicrobial susceptibility testing by the disk diffusion method.

## SUMMARY AND EXPLANATION

Mueller Hinton agar was developed in 1941 for cultivation of pathogenic *Neisseria* spp. In 1966, Bauer et al. adopted the use of Mueller Hinton agar for antimicrobial susceptibility testing.<sup>1,2</sup> They recommended the use of standardized methods which included Mueller Hinton Agar to increase the predictive value of single disk concentration procedures. Mueller Hinton Agar is recommended by the American Society for Microbiology and Clinical and Laboratory Standards Institute for antibiotic susceptibility testing of bacteria.<sup>3</sup>

## PRINCIPLE

Mueller Hinton Agar contains beef extract and acid hydrolysate of casein which supply amino acids, nitrogenous substances, vitamins, and minerals necessary for growth. Starch acts as a protective colloid against toxic materials which may be present in the medium. The medium contains low levels of thymidine and thymine, as excess amounts can have an adverse effect on the performance of certain antibiotics. Calcium and magnesium levels are controlled to facilitate appropriate activity of aminoglycosides, tetracycline, and colistin. Agar is the solidifying agent. Sheep blood may be added to enhance the growth of fastidious microorganisms.

## REAGENTS (CLASSICAL FORMULA)\*

Acid Digest of Casein.....	17.5 g	Starch.....	1.5 g
Beef Extract.....	2.0 g	Agar.....	17.0 g
		Demineralized Water.....	1000.0 ml

pH 7.3 ± 0.1 @ 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 38 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.
4. Sheep blood may be added if desired; cool medium to 45-50°C and aseptically add sheep blood to a concentration of 5%.
5. 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 of Mueller Hinton Agar is tested according to, and meets the acceptance limits of, the current version of M6 published by Clinical and Laboratory Standards Institute.<sup>4</sup>

Each lot number of Mueller Hinton Agar has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers of Mueller Hinton Agar have been tested using the methods and quality control organisms recommended by Clinical and Laboratory Standards Institute according to the current version of M2 and have been found to be acceptable.<sup>5</sup> 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.

## BIBLIOGRAPHY

1. Mueller, J.H. and J. Hinton. 1941. Proc. Soc. Exp. Biol. Med. 48:330-333.
2. Bauer, A.W., W.M.M. Kirby, J.C. Sherris, and M. Turck. 1966. Am. J. Clin. Pathol. 45:493-496.
3. Garcia, L.S. 2010. Clinical Microbiology Procedures Handbook. 3<sup>rd</sup> ed. ASM Press, Washington D.C.
4. Clinical and Laboratory Standards Institute. 2006. Protocols for Evaluating Dehydrated Mueller-Hinton Agar; Approved Standard, 2<sup>nd</sup> ed. M6-A2. CLSI, Wayne, PA.
5. Clinical and Laboratory Standards Institute. 2012. Performance Standards for Antimicrobial Disk Susceptibility Tests; Approved Standard, 11<sup>th</sup> ed. M2-A11. CLSI, Wayne, PA.

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

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