

MRSA AGAR BASE (7420)

Intended Use

MRSA Agar Base is used with added oxacillin (6 mg/L) in the preparation of MRSA Agar. MRSA Agar is used as a screening medium for the determination of methicillin resistance and oxacillin resistance in *Staphylococcus aureus*.

Product Summary and Explanation

Methicillin-resistant strains of *S. aureus* (MRSA) were first recognized in the 1980's as a major clinical and epidemiological problem.¹ Hospitals are still facing this problem today. MRSA Agar was developed to detect the presence of the *mecA* gene (classic resistance) in *S. aureus*.²

Principles of the Procedure

MRSA Agar Base is composed of Mueller Hinton Agar and Sodium Chloride. Mueller Hinton Agar is made up of Beef Extract and Acid Hydrolysate of Casein, providing nitrogen, vitamins, carbon, and amino acids. Starch is added to absorb any toxic metabolites produced. Agar is the solidifying agent. The high concentration of Sodium Chloride enhances growth of *S. aureus*. Oxacillin is added to determine if the particular strain of *S. aureus* is oxacillin resistant.

Formula / Liter

Mueller Hinton Agar 38 g
Sodium Chloride 40 g

Final pH: 7.3 ± 0.1 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Antimicrobial Additive

Oxacillin 6 mg/10 mL

Precautions

1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 78 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. After cooling to 45 - 50°C aseptically add 10 mL of a filter sterilized solution of oxacillin (6mg/10mL purified water).

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing and beige.

Prepared Appearance: Prepared medium is hazy, and yellow beige.

Expected Cultural Response: Cultural response incubated aerobically at 35 ± 2°C and examined for growth after 18 - 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results	
		Growth w/o Oxacillin	Growth w/Oxacillin
<i>Staphylococcus aureus</i> ATCC® 25923 (susceptible)	10 - 300	Growth	No growth
<i>Staphylococcus aureus</i> ATCC® 43300 (resistant)	10 - 300	Growth	Growth

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Inoculate MRSA Agar plates with 10 mcl of a 1:100 dilution of a 0.5 MacFarland standardized suspension of the strain of *S. aureus* to be tested. Incubate plates for 24 hours at 35°C and examine for any evidence of growth.

Results

The presence of growth indicates oxacillin and methicillin resistance. Lack of growth indicates that the strain lacks the *mecA* resistance gene. For a complete discussion on oxacillin resistance screening, please consult appropriate references.^{2,3}

Storage

Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the medium has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Packaging

MRSA Agar Base	Code No.	7420A	500 g
		7420B	2 kg
		7420C	10 kg

References

1. **Murray, P. R., E. J. Baron, and M. A. Pfaller, F. C. Tenover, and R. H. Tenover (eds.).** 1995. Manual of clinical microbiology, 6th ed. American Society for Microbiology, Washington, D.C.
2. **National Committee for Clinical Laboratory Standards.** 1997. Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically. 4th ed. Approved standard M7-A4. National Committee for Clinical Laboratory Standards, Villanova, PA.
3. **National Committee for Clinical Laboratory Standards.** 1997. Performance standards for antimicrobial disk susceptibility tests. 6th ed. Approved standard M2-A6. National Committee for Clinical Laboratory Standards, Villanova, PA.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.