HiCrome™ MRSA Agar Base, Modified

Recommended for the differentiation and identification of MRSA and MRSE *Staphylococcus species.*

M1953

Composition **

Ingredients	Grams/Litre
Peptone	23.000
Sodium chloride	10.000
Sodium pyruvate	5.000
Chromogenic substrate	0.770
Inhibitor mixture	7.000
Agar	15.00

Final pH (at 25°C) 7.2±0.2

** Formula adjusted, standardized to suit performance parameters

Directions

Suspend 30.38 grams in 500 ml distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Aseptically add sterile rehydrated contents of 1 vial of MeReSa Selective Supplement (FD229) and Cefoxitin supplement (FD259), both in combination for more selectivity as desired. Mix well and pour into sterile Petri plates.

Principle and Interpretation

MRSA is a resistant variation of the common bacterium *Staphylococcus aureus* and MRSE is a resistant variation of the common bacterium *Staphylococcus epidermidis*. *Staphylococcus aureus* is an invasive pathogen that can cause disease in almost any tissue or organ in the human body, primarily in compromised individuals (1). Staphylococcal infections were earlier treated using Penicillin. But over the years resistance to this drug developed. Methicillin was the next drug of choice. While methicillin is very effective in treating most *Staphylococcus* infections some strains have developed resistance to methicillin and can no longer be killed by this antibiotic. These resistant bacteria are called Methicillin Resistant *Staphylococcus aureus* (MRSA) (2).Patients with breaks in their skin due to wounds, indwelling catheters or burns are those with certain risk of developing MRSA infection (3). Spread of MRSA infections can be controlled to a great extent by maintaining personal hygiene after interaction with an MRSA infected person (2).

Peptone provide the essential nutrients along with carbonaceous, nitrogenous and Vitamin B complex nutrients. The chromogenic mixture incorporated in the medium is specifically cleaved by *Staphylococcus aureus* to give green coloured colonies whereas Methicillin Resistant *Staphylococcus epidermidis* gives blue coloured colonies. This medium helps in identification and differentiation of MRSA and MRSE. Sodium pyruvate enhances the growth of *Staphylococcus* species. Sodium chloride in the medium helps to maintain the osmotic equilibrium of the medium. High concentration of sodium chloride also helps in inhibiting the accompanying microflora. Inhibitor mixture imparts selectivity to the medium. Cefoxitin is recommended to use for selective isolation of MRSA. The medium is made selective for MRSA by the addition of MeReSa Selective Supplement (FD229) and Cefoxitin Supplement (FD259) in combination.

Type of specimen

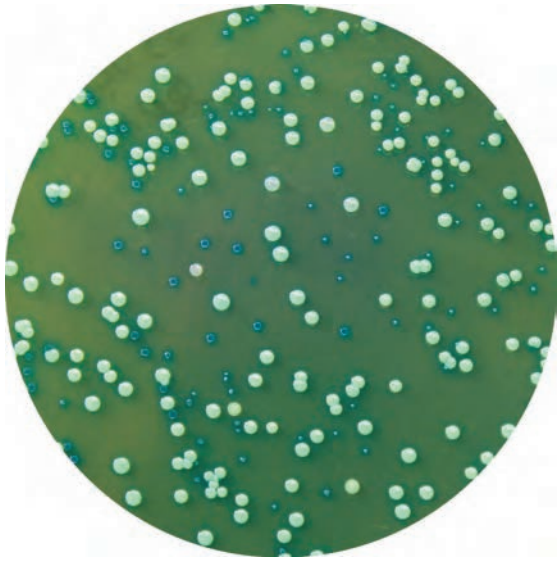
Clinical samples

Specimen Collection and Handling

For clinical samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (4, 5). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.



M1953 HiCrome™ MRSA Agar Base, Modified (Mixture)

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Limitations

1. Some intermediate strains may show poor growth due to nutritional variations and resistance to methicillin/cefoxitin.
2. Slight colour variation may be observed depending upon the utilization of the substrate by the organism.
3. Further confirmation must be carried out by sensitivity testing.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the recommended temperature.

Quality Control

Appearance of Powder : Cream to beige homogeneous free flowing powder

Gelling : Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium : Light purple coloured, clear to slightly opalescent gel forms in Petri plates

Reaction : Reaction of 6.08% w/v aqueous solution at 25°C. pH : 7.2±0.2.

Cultural Response : Cultural characteristics observed with added MeReSa Selective Supplement (FD229) and Cefoxitin Supplement (FD259) after an incubation at 30-35°C for 18-48 hours.

Organism (ATCC)	Inoculum (CFU)	Growth	Recovery	Colour of colony
Escherichia coli (25922) (00013*)	≥10^3	inhibited	0%	-
Enterococcus faecalis (29212) (00087*)	≥10^3	inhibited	0%	-
Staphylococcus aureus, MRSA (43300)	50-100	luxuriant	≥50%	green
Staphylococcus epidermidis, MRSE	50-100	luxuriant	≥50%	blue
Staphylococcus xylosus (29971)	≥10^3	inhibited	0%	-

Key : * : Corresponds to WDCM number

Storage and Shelf-life

Store between 2-8°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label.

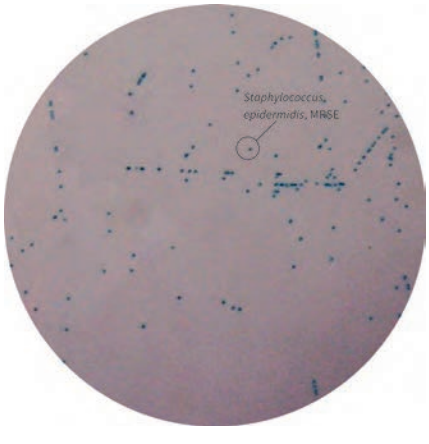
Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (4, 5).

References

1. DWorkin M et. al 2006. The Prokaryotes (a Handbook on the Biology of Bacteria) 3rd ed, Vol. 2, page 345.
2. Methicillin Resistant Staphylococcus aureus Copyright ã 1997-2005 Canadian Centre for Occupational Health and Safety, Sept 19th, 2005.
3. Dr. Alan Johnson, methicillin resistant Staphylococcus aureus (MRSA) infection. The Support group for MSRA sufferers and Dependents, Aug 1st , 2005.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
5. 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



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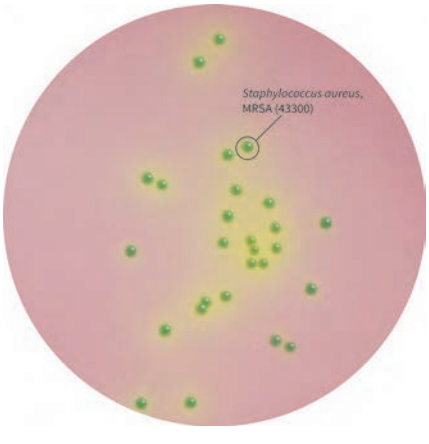

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