

For Identification of Methicillin Resistant *Staphylococcus aureus* (MRSA)

## HiCrome™ MeReSa Agar Base

For the isolation and selective identification of Methicillin Resistant *Staphylococcus aureus* (MRSA) from clinical isolates.

M1674

### Composition \*\*

Ingredients	Grams/Litre
Tryptone	13.00
Yeast extract	2.50
HM peptone B#	2.50
Sodium pyruvate	5.00
Sodium chloride	40.00
Chromogenic mixture	5.30
Agar	15.00

Final pH (at 25°C) 7.0 ± 0.2

\*\* Formula adjusted, standardized to suit performance parameters

#Equivalent to Beef extract

### Directions

Suspend 41.65 grams in 500 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Aseptically add sterile rehydrated contents of 1 vial of MeReSa Selective Supplement (FD229) and Cefoxitin supplement (FD259) for selectivity. Mix well and pour into sterile Petri plates.

### Principle and Interpretation

*Staphylococcus aureus* is an invasive pathogen that can cause disease in almost any tissue or organ in the human body, primarily in compromised individuals (3). Staphylococcal infections were earlier treated using Penicillin. But over the year's 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) (4). Patients with breaks in their skin due to wounds, indwelling catheters or burns are those with certain risk of developing MRSA infection (2). Spread of MRSA infections can be controlled to a

great extent by maintaining personal hygiene after interaction with an MRSA infected person (4).

CLSI recommends the usage of ceftazidime instead of oxacillin for determination of resistance against Methicillin for *S. aureus* (1). To increase the sensitivity for the detection of heterogeneously resistant MRSA strains, ceftazidime is used which selectively inhibits the susceptible strains.

Tryptone, HM peptone B and yeast extract provide the essential nutrients along with carbonaceous, nitrogenous and Vitamin B complex nutrients. The proprietary chromogenic mixture incorporated in the medium is specifically cleaved by *Staphylococcus aureus* to form bluish green coloured colonies. 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. The medium is made selective for MRSA by the addition of MeReSa Selective Supplement (FD229) and Cefoxitin Supplement (FD259).

### 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 (5, 6). 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 clinical specimens. Safety guidelines may be referred in individual safety data sheets



M1674 – HiCrome™ MeReSa Agar Base

**HiCromeVeg™**  
Single Streak Rapid Differentiation Series  
Freedom from BSE / TSE worries

HiCrome™ MeReSa Agar Base (M1674) is also available as HiCrome™ MeReSa HiVeg™ Agar Base (MV1674) wherein all the animal origin nutrients have been replaced by vegetable based nutrients.

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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 yellow coloured, homogeneous, free flowing powder.
- Gelling** : Firm, comparable with 1.5% Agar gel.
- Colour and Clarity of prepared medium** : Light yellow coloured, opaque gel forms in Petri plates.
- Reaction** : Reaction of 8.33% w/v aqueous solution at 25°C. pH:7.0 ± 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.

Organisms (ATCC)	Inoculum CFU	Growth w/FD229 & FD259	Recovery w/FD229 & FD259	Colour of colony
<i>Staphylococcus aureus subsp aureus</i> (25923) (00034*)	≥10 <sup>3</sup>	inhibited	0%	-
<i>Staphylococcus aureus</i> (MRSA) (43300)	50-100	luxuriant	≥50%	bluish - green
<i>Staphylococcus epidermidis</i> (12228) (00036*)	≥10 <sup>3</sup>	inhibited	0%	-
<i>Escherichia coli</i> (25922) (00013*)	≥10 <sup>3</sup>	inhibited	0%	-
<i>Enterococcus faecalis</i> (29212) (00087*)	≥10 <sup>3</sup>	inhibited	0%	-

<i>Staphylococcus aureus subsp aureus</i> (6538) (00032*)	≥10 <sup>3</sup>	inhibited	0%	-
<i>Staphylococcus xylosus</i> (29971)	≥10 <sup>3</sup>	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 in order 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 (5, 6).

### References

1. CLSI 2010. Performance Standard for antimicrobial disk susceptibility testing, Twentieth Informational Supplem.
2. Dr. Alan Johnson, methicillin resistant *Staphylococcus aureus* (MRSA) infection. The Support group for MSRA sufferers and Dependents, Aug 1st, 2005.ent.
3. DWorkin M et. al 2006. The Prokaryotes (a Handbook on the Biology of Bacteria) 3rd ed, Vol. 2, page 345.
4. Methicillin Resistant *Staphylococcus aureus* Copyright ©1997-2005 Canadian Centre for Occupational Health and Safety, Sept 19th, 2005.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
6. 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

### Ready Prepared Media

Code	Product Name	Usage	Packing
<b>Category : 90 mm Ready Prepared Petri Plates</b>			
MP1674	HiCrome™ MeReSa Agar Plate	for isolation and selective identification of Methicillin Resistant <i>Staphylococcus aureus</i> (MRSA) from clinical specimens.	50 plts