

For the detection of Carbapenem Resistant *Enterobacteriaceae*

HiCrome™ KPC Agar Base

Recommended for the detection of gram negative bacteria with a reduced susceptibility to a carbapenem agents.

M1831

Composition **

Ingredients	Grams/Litre
Peptone	15.00
Chromogenic mixture	3.00
Agar	15.00

Final pH (at 25°C) 7.0 ± 0.2

** Formula adjusted, standardized to suit performance parameters

Directions

Suspend 16.50 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 and aseptically add rehydrated contents of 1 vial of HiCrome™ KPC Agar Supplement (FD279). Mix well and pour into sterile Petri plates.

Principle and Interpretation

HiCrome™ KPC Agar Base is a chromogenic medium designed for the detection and differentiation of KPC producing gram negative bacterial species without selective pre-enrichment. Carbapenems are the last line of defense against invasive or serious infections and are used to treat these life threatening infections that are caused by gram negative, drug resistant pathogens (2). Production of carbapenemase enzyme results in resistance to penicillins, cephalosporins (i.e. cefepime, ceftriaxone), carbapenems (i.e. meropenem, ertapenem) and aztreonam thereby making these pathogens multi drug resistant.

Most carbapenemase producing bacteria are included in the family *Enterobacteriaceae* and are thus termed as carbapenem resistant *Enterobacteriaceae* (CRE). Besides the *Enterobacteriaceae* family, rare strains of *Pseudomonas aeruginosa* and *Acinetobacter baumannii* have also found to produce carbapenemase (1, 2, 3).

Peptone provides nitrogenous and carbonaceous compounds long chain amino acids and other essential growth nutrients. This medium can be made selective by supplementation with antibiotics for detecting microorganisms associated with hospital borne infections. Selective supplement have been added to inhibit the growth of yeast, gram positive organisms and gram negative organisms that do not produce carbapenemase.

This medium is intended to be used as a screening medium. Isolates should be tested further for carbapenem susceptibility following CLSI guidelines. Indole test may be performed for the confirmation of carbapenem resistant *E. coli* because some rare strains of *C. freundii* may produce small pink to magenta coloured colonies similar to *E. coli*. Carbapenem resistant strains of *Klebsiella*, *Enterobacter* and *Serratia* species produce bluish green colonies. *Acinetobacter* and *Salmonella* species produce smooth, colourless colonies. *Pseudomonas* species

produce colourless to light yellowish green, translucent colonies with wrinkled edges. Further biochemical tests may be needed for complete identification.

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 (1).

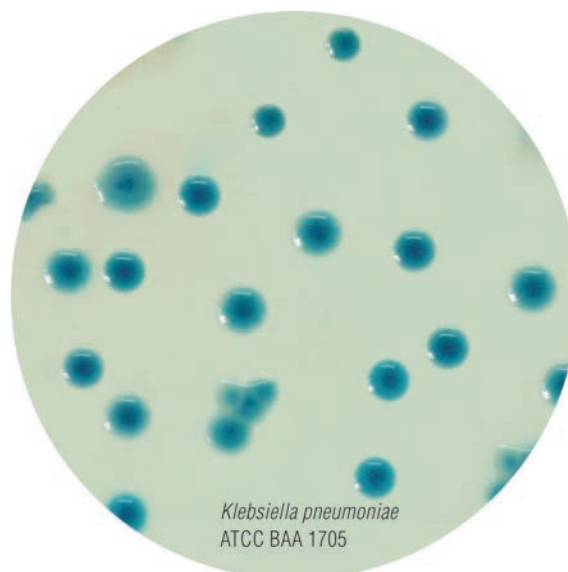
After use, contaminated materials must be sterilized by autoclaving before discarding.

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

Limitations

1. Some species may show poor growth due to nutritional variations and resistance to antibiotics.
2. Slight colour variation may be observed depending upon strains.



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3. Indole test may be performed for the confirmation of carbapenem resistant *E. coli* because some rare strains of *C. freundii* may produce small pink to magenta coloured colonies similar to *E. coli*.

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 homogeneous free flowing powder.
- Gelling** : Firm, comparable with 1.5% Agar gel
- Colour and Clarity of prepared medium** : Light amber coloured, clear to slightly opalescent gel forms in Petri plates.
- Reaction** : Reaction of 3.3% w/v aqueous solution at 25°C. pH : 7.0 ± 0.2.
- Cultural Response** : Cultural characteristics observed with added HiCrome™ KPC Agar Supplement (FD279) after an incubation at 35-37°C for 18-24 hours.

Organism (ATCC)	Inoculum (CFU)	Growth	Recovery	Colour of Colony
<i>Enterococcus faecalis</i> (29212) (00087*)	≥10 ³	inhibited	0%	—
<i>Klebsiella pneumoniae</i> (BAA 1705)	50-100	luxuriant	≥50%	bluish green
<i>Klebsiella pneumoniae</i> (13883) (00097*)	≥10 ³	inhibited	0%	—
<i>Candida albicans</i> (10231) (00054*)	≥10 ³	inhibited	0%	—
<i>Staphylococcus aureus</i> sub-sp <i>aureus</i> (25923) (00034*)	≥10 ³	inhibited	0%	—

Key : * = corresponding WDCM Numbers

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 (4, 5).

References

- Hindiyeth, M., et. al. 2008, J. Clin. Microbiol.; Vol. 46, p.2879 -2883
- Pillai D.R. et.al. 2009. Emerg. Infect. Dis; Vol. 15, P.827-829
- Samra, Z., 2008, J. Clin. Microbiol; Vol. 146, P.3110-3111.
- Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
- 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
Category : 90 mm Sterile Ready Prepared Plate			
MP1831	HiCrome™ KPC Agar Plate	for detection of Gram-negative bacteria with a reduced susceptibility to carbapenem agents	20 plts 50 plts