KPC Chromogenic Medium

Cat. 2063

Chromogenic medium for detection of Gram-negative with reduced susceptibility to most of the carbapenem agents.

Practical information

Aplications	Categories
Detection	Bacteria resistant to carbapenems

Industry: Clinical

CE
IVD

Principles and uses

Klebsiella pneumoniae carbapenemase (KPC)-producing bacteria are a group of emerging highly drug-resistant Gram-negative bacilli causing infections associated with significant morbidity and mortality. Carbapenem antibiotics are generally not effective against KPC-producing organisms.

Although K. pneumoniae remains the most prevalent bacterial species carrying KPCs, the enzyme has been identified in several other gram-negative bacilli. Infections caused by bacteria-producing carbapenemases are becoming an increasingly significant problem worldwide because they are often not detected by routine susceptibility screening and possess an exceptional potential for dissemination. Infections caused by these organisms present clinicians with serious treatment challenges, due to limited antibiotic options.

Peptones and growth factors provide nitrogen, vitamins, minerals and amino acids essential for growth. Chromogenic mixture allows the identification of Gram-negative bacteria with a reduced susceptibility to the carbapenem agents. The supplement inhibits the growth of all the KPC non-producing bacteria.

Characteristics of KPC colonies:
- Escherichia coli: colonias pink.
- Enterobacter aerogenes: dark blue.
- Klebsiella pneumoniae: dark blue.

Formula in g/L

Bacteriological agar	16	Chromogenic mixture	3
Peptone	14	Growth factors	15

Preparation

Suspend 48,0 grams of medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121 ºC for 15 minutes. Cool to 50 ºC and aseptically add two vials of KPC supplement (Cat. 6044) previously reconstituted with 5 ml of sterile distilled water. Mix well and dispense into plates.

Instructions for use

For clinical diagnosis, the type of sample is urine, lung aspirations and rectal samples.

- Inoculate on the surface making parallel striae with the handle or hyssop.
- Incubate in aerobic conditions at 35±2 °C for 18-24 hours.
- Reading and interpretation of results.

Note: It's important to notice that, as it happens in other chromogenic media, bacteria with atypical KPC enzyme may produce anomalous reactions in this medium.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)

w/o rests	Fine powder	Beige	Amber, slightly opalescent	7,2±0,2

Microbiological test

Incubation conditions: (35±2 ºC / 18-24 h).

Microrganisms	Specification	Characteristic reaction
Klebsiella pneumonieae ATCC 13883	Total inhibition	
Klebsiella BAA 1705	Good growth	Blue colonies
Enterococcus faecalis ATCC 19433	Partial inhibition	Light blue colonies
Escherichia coli ATCC 2469	Good growth	Pink colonies
Escherichia coli ATCC 25922	Total inhibition	
Staphylococcus aureus ATCC 25923	Total inhibition	
Proteus mirabilis ATCC 25933	Total inhibition	

Storage

Temp. Min.:2 ºC
Temp. Max.:8 ºC

Bibliography

Ryan S. Arnold, MD, Kerri A. Thom, MD, MS, [...], and Daniel J. Morgan, MD Emergence of Klebsiellapneumoniae Carbapenemase (KPC)-Producing Bacteria.
Paterson DL, Bonomo RA. Extended-spectrum beta-lactamases: a clinical update.Clinical Microbiology Reviews. 2005;18:657–686. [PMC free article] [PubMed]
Osterblad M, Kirveskari J, Koskela S, et al. First isolations of KPC-2-carrying ST258 Klebsiella pneumoniae strains in Finland, June and August 2009. Euro Surveill. 2009;14(40):19349. [PubMed]
Martín-Gil J, Villa FM, Ramos-Sánchez MC, Martín-Gil FJ. “Studies on beta-lactam antibiotics - Differential thermal-analysis of Cephalosporins”. J. Thermal Anal Cal, 1984, 29 (6): 1351-1357.
SebastianDroguettPerez (Dr.2)(2004)*Rossi S. (Ed.) (2004). Australian Medicines Handbook 2004. Adelaide: Australian Medicines Handbook. ISBN 0-9578521-4-2.(* Rossi S (Ed.) (2004).