

IVD solutions through partnership



MASTDISCS[®] *Combi*

Carba plus

Complete CPE and OXA-48 confirmation - D73C

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Results Calculator
www.mast-group.com

- Detects and identifies MBL, KPC and OXA-48
- Ideal for confirmatory testing
- Simple and cost effective
- Supports antibiotic stewardship

MASTDISCS® Combi

Since the dawn of the antibiotic age, bacteria have adapted by developing new resistance mechanisms to antimicrobial agents. Mast Group Ltd. remains at the forefront of the fight against these threats and is committed to providing effective laboratory solutions to aid antibiotic stewardship.

Introduction

The emergence and spread of carbapenem resistance in carbapenemase producing Enterobacteriaceae (CPE) poses a major healthcare threat. The high rate of transmissibility of genes conferring carbapenem resistance justifies the need for rapid identification in order to guide antibiotic therapy and help to prevent or control outbreak situations.

The effectiveness of carbapenem antibiotics, which are often used as a 'last resort' for critically ill patients, is increasingly threatened by the emergence of carbapenemase enzymes. Of particular concern is the future of modern surgical techniques including transplantation and high dependency unit, in which carbapenems play a major role in preventing life threatening infections.

What are carbapenemases?

Carbapenemases are bacterial enzymes that hydrolyse most beta-lactam antibiotics (see Figure 1). They are readily transferable and have disseminated amongst all members of Enterobacteriaceae worldwide. Carbapenem resistance can occur in AmpC producers with porin loss, although this is not a transferable mechanism.

Class	Carbapenemase
A <i>Serine based hydrolytic mechanism</i>	KPC
B <i>Metallo – Zinc catalysed at active site</i>	MBL (including VIM, IMP and NDM)
D <i>Carbapenem-hydrolyzing class D β-lactamases</i>	OXA-48-like

Figure 1 - The 'Big 5' carbapenemases

Benefits of Carba plus

Confirmation of all CPEs including OXA-48

MASTDISCS® Combi Carba plus is a five disc system for the detection of MBL, KPC and OXA-48-like carbapenemases produced by Enterobacteriaceae. Including the reliable discrimination of KPC from AmpC producing isolates. The addition of a temocillin disc incorporating MBL inhibitor (Disc E), rather than temocillin only disc improves OXA-48 identification, by removing the ambiguity of MBLs being incorrectly identified as OXA-48 (See Figure 2).

Easily integrated into laboratory workflow

MASTDISCS® Combi Carba plus can be used in conjunction with CAT-ID, to confirm and differentiate enzymes expressed by CPE once screened positive for carbapenemase activity. Compatible with **MAST® DISCMASTER** disc dispenser, permitting smooth integration into the laboratory workflow. (See Figure 3) Additionally, **MASTDISCS® Combi Carba**

plus is provided as a stock product with an in-use shelf life of 4 weeks when stored in a **MAST® DISCMASTER** containing charged desiccant.

Supports antibiotic stewardship

Reliable identification helps to guide appropriate antibiotic usage, conserving carbapenems for complicated infections. This may allow selection of a targeted narrow spectrum antibiotic rather than those with broad spectrum activity, minimising the risk of selecting for, or promoting the development of resistance.

Quality

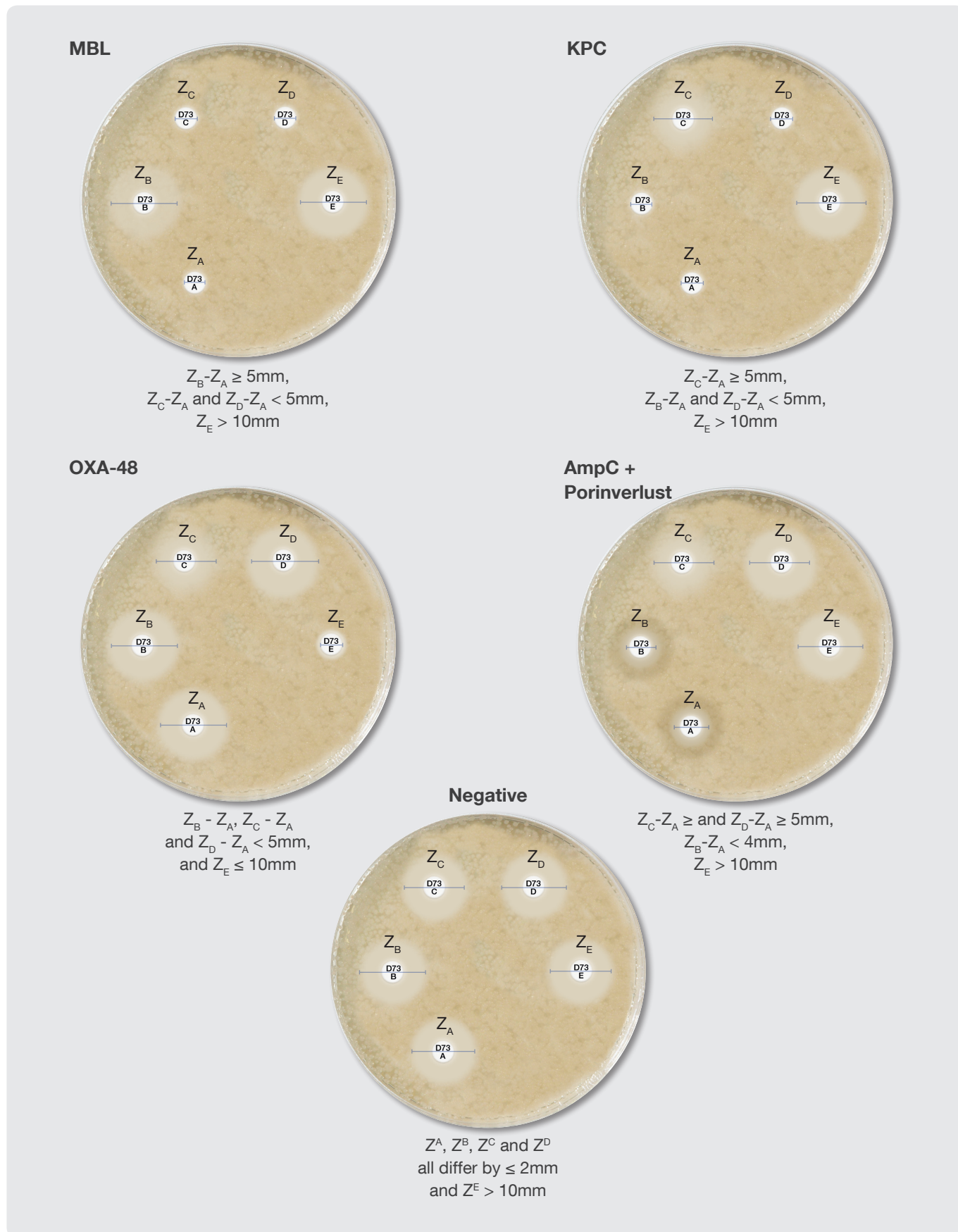
Optimised combinations for increased sensitivity and specificity, including detection of low level VIM producers. **MASTDISCS® Combi Carba plus** combination discs are jointly manufactured and QC tested to prevent erroneous results arising from variations in content.

Interpretation of results

MASTDISCS® Combi Carba plus - confirmation of MBL, KPC and OXA-48-like carbapenemases.

- (A) Penem
- (B) Penem + MBL inhibitor
- (C) Penem + KPC inhibitor
- (D) Penem + AmpC inhibitor
- (E) Temocillin + MBL inhibitor

Figure 2 - Interpretation of **MASTDISCS® Combi Carba plus**
N.B. Images are shown for demonstration purposes only, actual diameters may differ in use.



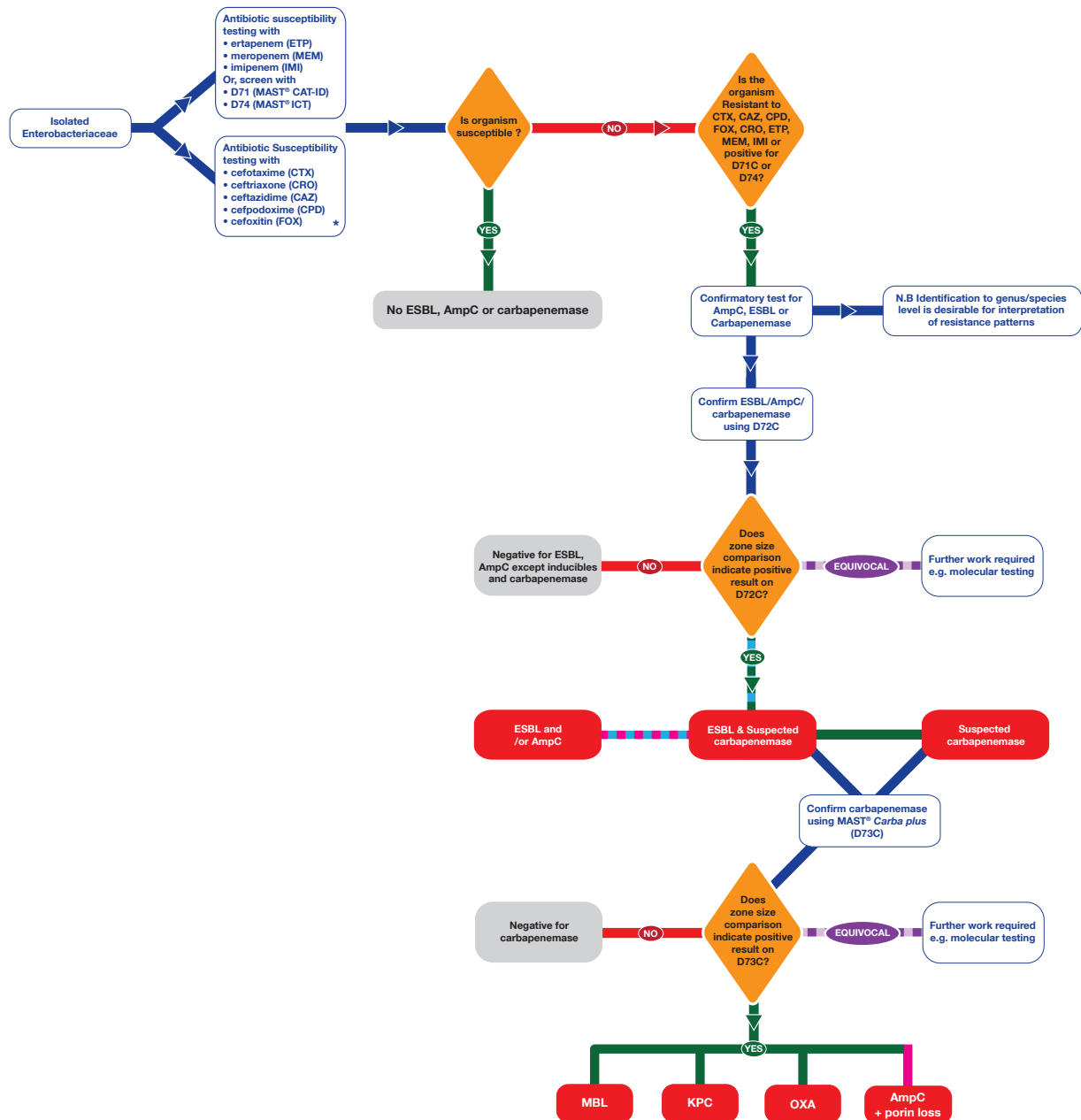


Figure 3. Suggested laboratory use of **MASTDISCS® Combi Carba plus** (D73C)

Ordering Information

Order Code	Product	€	No. Tests
171732	MASTDISCS® Combi Carba plus D73C		50
171722	MASTDISCS® Combi AmpC, ESBL & Carbapenemase Deteccion Set - D72C		50
171742	MAST® ID Indirect Carbapenemase Test (ICT) - D74		25
171712	MASTDISCS® ID Carbapenemase Activity Test (CAT) - D71C		250

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United Kingdom
Mast Group Ltd.
 Mast House, Derby Road, Bootle
 Merseyside L20 1EA

Tel: +44 (0)151 933 7277
 Fax: +44 (0)151 944 1332
 e-mail: sales@mastgrp.com

Germany
Mast Diagnostica GmbH
 Feldstraße 20
 DE-23858 Reinfeld

Tel: +49 (0)4533 2007 0
 Fax: +49 (0)4533 2007 68
 e-mail: mast@mast-diagnostica.de

France
Mast Diagnostic
 12 rue Jean-Jacques Mention
 CS91106, 80011 Amiens, CEDEX 1

Tél: +33 (0)322 80 80 67
 Fax: +33 (0)322 80 99 22
 e-mail: info@mast-diagnostic.fr