IVD solutions through partnership

Mast Group

MASTDISCS® Combi

AmpC, ESBL & Carbapenemase Detection Set

- Differentiates ESBL and/or AmpC enzymes
- Indicates carbapenemase activity
- Convenient calculator provided for simple interpretation
- Supports Antibiotic Stewardship

Register online to download your **FREE** **Results Calculator** www.mast-group.com

MASTDISCS® *Combi*

Introduction

Antimicrobial resistance (AMR) has rapidly disseminated worldwide and continues to cause major issues in healthcare. Organisms with the ability to express multiple resistance mechanisms are increasingly being observed and are frequently reported within clinical laboratories and national reference centres.

The incidence of AMR continues to rise annually, particularly in ESBL and AmpC producing-Enterobacterales, and also in carbapenemase-producing-Enterobacterales (CPE). These mechanisms can be difficult to detect in singular, due to the diversity and spectrum of activity they demonstrate, and are further problematic when produced in combination.

AmpC and ESBLs hydrolyse broad spectrum antibiotics, which are the first line agents for many critically ill patients. Infections caused by such resistant organisms can increase the length of hospital stay and result in intensive care unit (ICU) admission. It is important to actively 'seek' ESBLs and AmpCs, to minimise the reporting of false cephalosporin susceptibility. There is a possibility of underreporting AmpC incidence due to lack of reliable commercial tests with some AmpCs appearing susceptible on first line screen. Cefoxitin is useful for screening for AmpCs, however not for confirming the presence of an AmpC as cefoxitin resistance can also arise due to reduced permeability. Some physicians may assume that carbapenems are the drugs of choice for treating all infections due to Enterobacterales isolates that demonstrate non-susceptibility to cefoxitin. However, in these cases the use of carbapenems may be unnecessary and may contribute to the increase of carbapenemase production. ESBL and AmpC's are carbapenem susceptible and thereby differentiating carbapenemases from ESBL's and AmpCs helps facilitate delivery of the appropriate targeted antibiotic therapy.

AmpC, ESBL & Carbapenemase Detection Set - D72C

D72C is a six disc system that has been developed for the detection of Gram-negative resistance in Enterobacterales including:

- ESBL positive strains
- AmpC (derepressed/hyperproduced, plasmid mediated and inducible) positive strains
- Co-production of AmpC and ESBL enzymes
- Screening for the production of carbapenemase enzymes.

The test is a combination disc set comprised of cefpodoxime, various inhibitors and a penem antibiotic. These components are used in combination to stimulate a synergistic reaction and interpretation is based on a difference between zone sizes for each disc.

D72C can be used in conjunction with D73C – **MAST**DISCS® *Combi Carba Plus*, to confirm and differentiate suspected carbapenemase production in Enterobacterales.

When used with **MAST®** DISCMASTER disc dispenser series, D72C can be easily integrated into existing laboratory workflows, and maintains an in-use shelf life of 4 weeks when employing a charged desiccant.

Results Calculator

Mast Group Ltd., have developed a convenient calculator that automatically generates results based on the zone size of each disc. Once users have input their data, interpretive criteria is provided, identifying the presence of specific resistance mechanisms or suspected carbapenemase production.

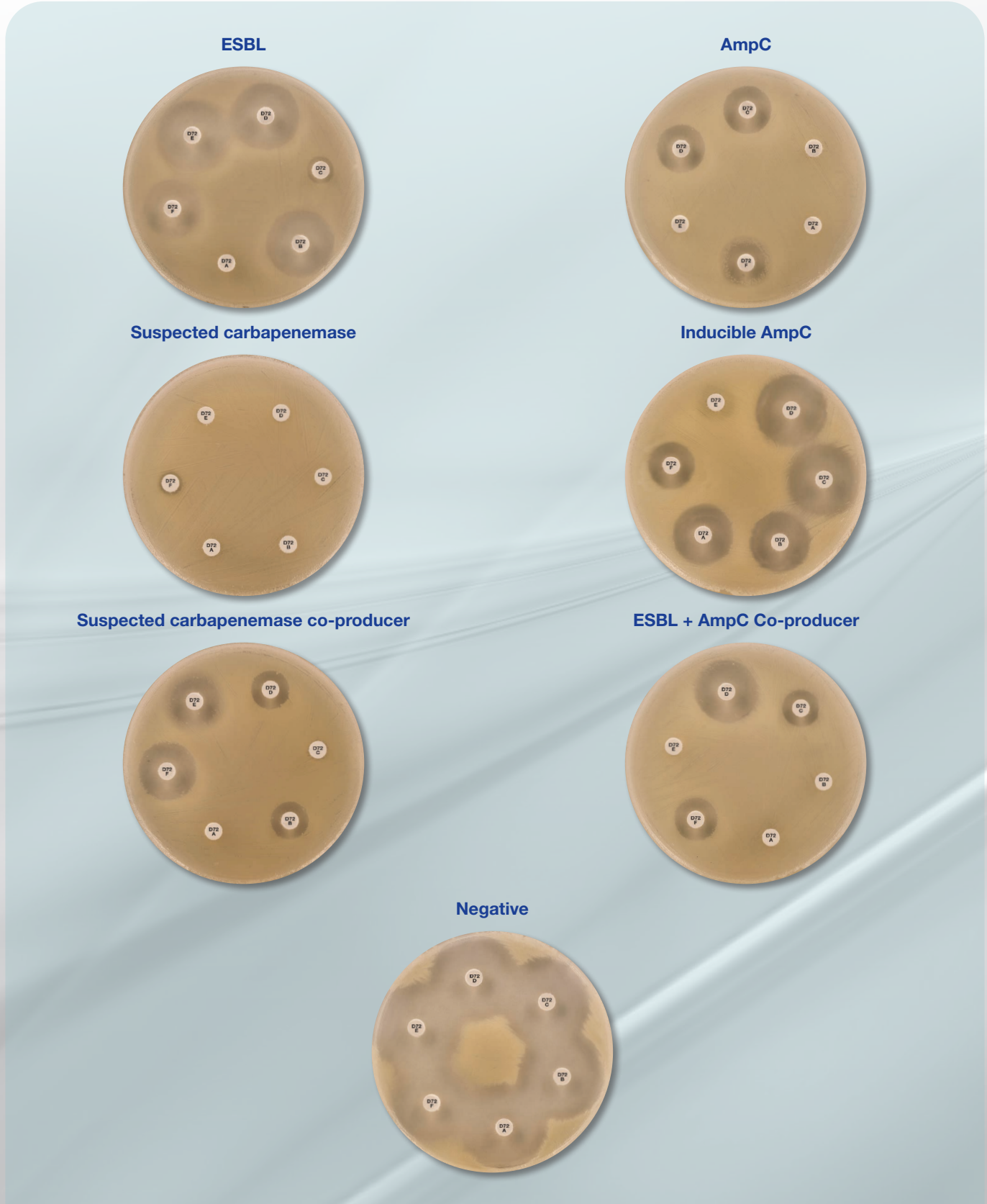
The calculator is available to download FREE from the Mast Group Ltd website (www.mast-group.com) once registered.

Interpretation of results

Measure zone sizes and input on the D72C calculator. Results are automatically generated. For manual interpretation please refer to the IFU.

D72A – Cefpodoxime 10µg discs
D72B – Cefpodoxime 10µg + ESβL inhibitor discs
D72C – Cefpodoxime 10µg + AmpC inhibitor discs
D72D – Cefpodoxime 10µg + ESβL inhibitor + AmpC inhibitor discs
D72E – Cefpodoxime 10µg + ESβL inhibitor + AmpC inducer discs
D72F – Penem antibiotic

Figure 1. Visual of results



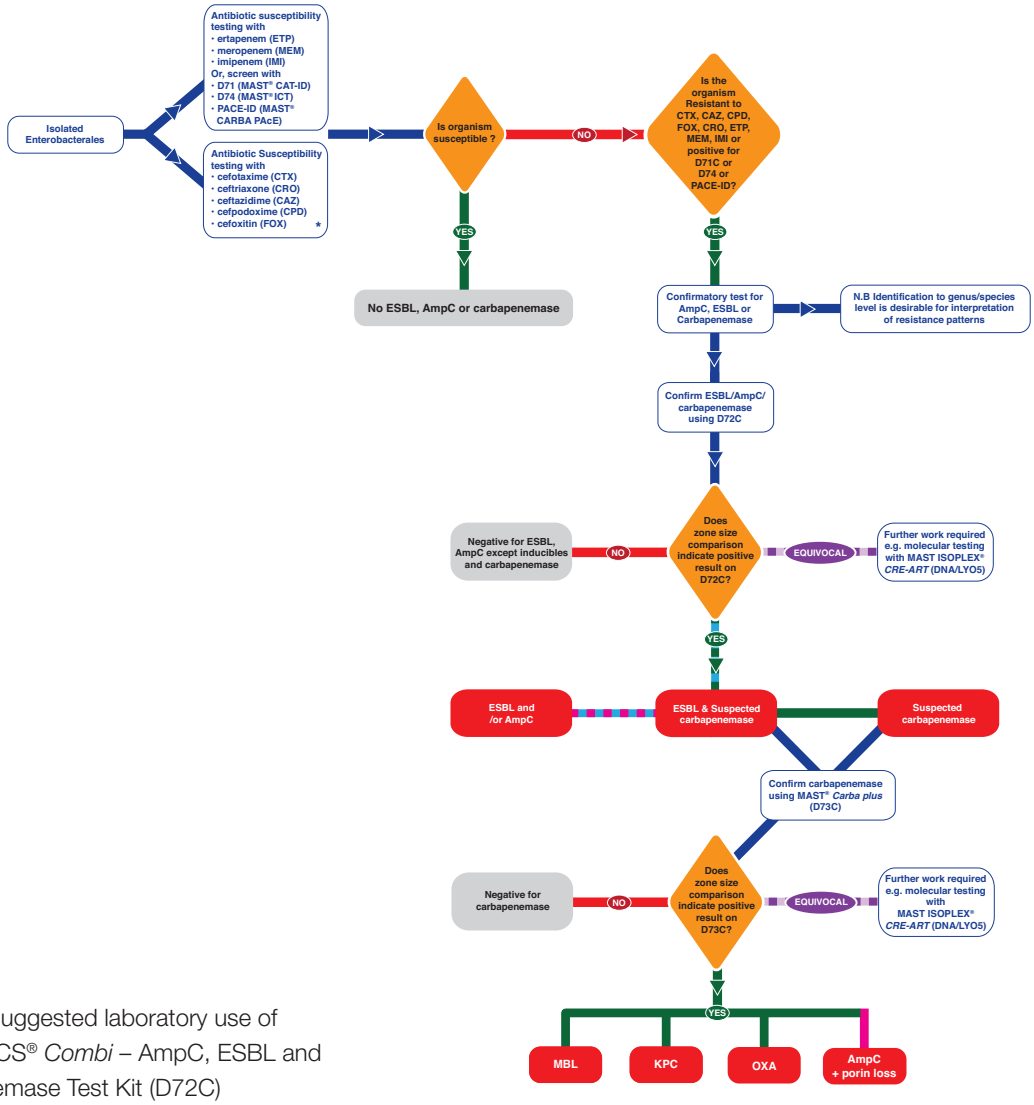


Figure 2. Suggested laboratory use of **MAST**DISCS® *Combi* – AmpC, ESBL and Carbapenemase Test Kit (D72C)

Ordering Information

Order Code	Product	Pack Size	No. Tests
D72C	**MAST**DISCS® *Combi* AmpC, ESBL & Carbapenemase Detection Set	6 × 50 discs	50
D73C	**MAST**DISCS® *Combi Carba plus*	5 × 50 discs	50
D74	**MAST**®ICT Indirect Carbapenemase Test	25	25
D71C	**MAST**DISCS® *ID* CAT-ID - Carbapenemase Activity Test	5 × 50 discs	250
PACE-ID	**MAST**® CARBA PAcE - Rapid carbapenemase detection	48	48
DNA/LYO5	**MAST** ISOPLEX® *CRE-ART* - Rapid molecular carbapenemase detection	10	10

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