IVD solutions through partnership

Mast Group

MASTDISCS® Combi

ESBL & AmpC Detection Disc Sets - D68C

- Differentiate resistance enzyme types
- Simple comparative interpretation
- Low cost implementation
- Compliance with international standard methodologies (EUCAST & CLSI)

EXTENDED SPECTRUM β LACTAMASE DETECTION

Extended spectrum beta-lactamases (ESBL) are bacterial enzymes which confer resistance to penicillin and cephalosporin antibiotics. The emergence of ESBL producing pathogens has become increasingly significant in limiting the antibiotic treatment options, representing a serious complication for antibiotic management.

Mast Group Ltd. range of ESBL detection discs offers laboratories a simple, reliable and low cost means of identification and detection by double disc diffusion, using paired and combination disc sets.

The presence of an ESBL and/or AmpC is easily determined by zone size comparison when simultaneously tested with antibiotic and antibiotic plus inhibitor combinations.

Visual of results

D68C[1]

AmpC & ESBL Detection Set
Confirmation of AmpC and/or ESβL production in Enterobacteriaceae

A CPD10

B CPD10 + ESβL inhibitor

C CPD10 + AmpC inhibitor

D CPD10 + ESβL inhibitor + AmpC Inhibitor

Calculator programme is available to download from www.mastgrp.com

ESBL Positive

$Z_B - Z_A$ **and** $Z_D - Z_C \geq 5$mm
and the differences of each of
Z_B and Z_D **and** Z_A and Z_C are < 4mm

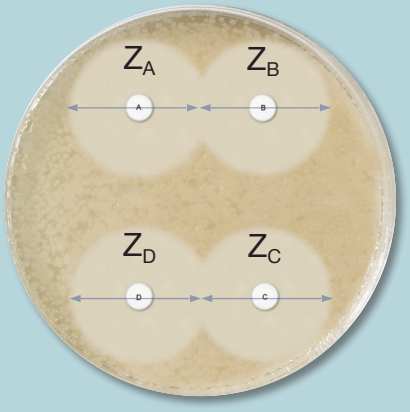
AmpC Positive

$Z_D - Z_B$ **and** $Z_C - Z_A \geq 5$mm
and the differences of each of
Z_A and Z_B **and** $Z_C - Z_D$ are < 4mm

AmpC and ESBL Positive

$Z_D - Z_C \geq 5$mm **and** the difference of
Z_A and Z_B is < 4mm

AmpC and ESBL Negative



All zones differ by ≤ 2mm

CPD – Cefpodoxime

D69C[2]

AmpC Detection Set
Confirmation of either chromosomal or plasmid acquired AmpC

A CPD10 + AmpC inducer

B CPD10 + AmpC inducer
+ ESβL inhibitor

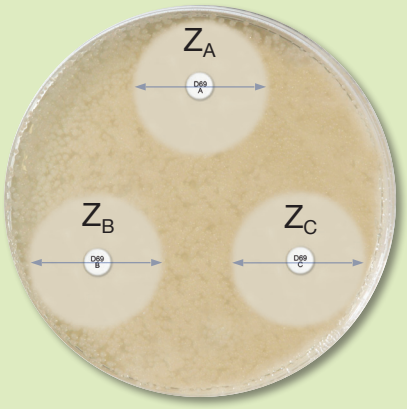
C CPD10 + AmpC inducer
+ ESβL inhibitor
+ AmpC inhibitors

CPD – Cefpodoxime

AmpC Positive

Z_C-Z_A **and** Z_C-Z_B ≥ 5mm

AmpC Negative



All zones differ by ≤ 3mm

D63C[3]

Cefepime 30 & Cefepime 30/Clavulanic Acid 10
Confirmation of ESβL production in Enterobacteriaceae with chromosomal AmpC

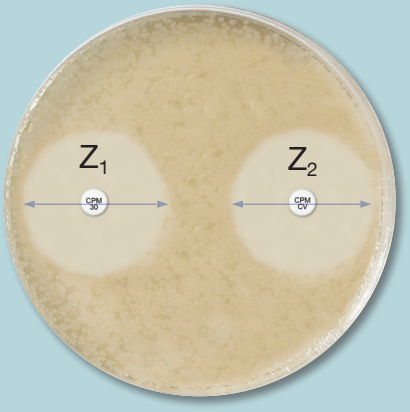
CPM30
CPM30/CLAV10

CPM – Cefepime
CLAV – Clavulanic Acid

ESBL Positive

Z_2 - Z_1 ≥ 5mm

ESBL Negative



All zones differ by ≤ 2mm

D52C[4]

Extended Spectrum βLactamase Set
Confirmation of ESβL production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC

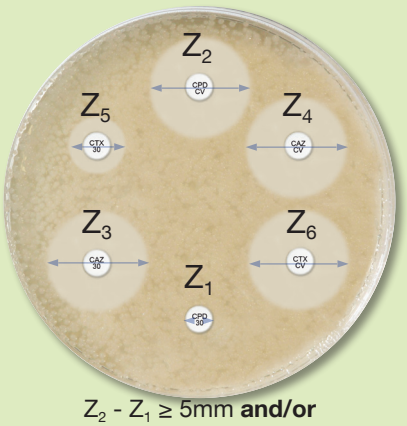
CAZ30
CAZ30/CLAV10

CTX30
CTX30/CLAV10

CPD30
CPD30/CLAV10

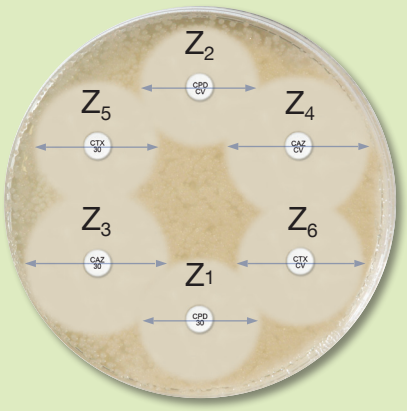
CAZ – Ceftazidime
CLAV – Clavulanic Acid
CTX – Cefotaxime
CPD – Cefpodoxime

ESBL Positive



Z_2 - Z_1 ≥ 5mm **and/or**
Z_4 - Z_3 ≥ 5mm **and/or** Z_6 - Z_5 ≥ 5mm

ESBL Negative



All zones differ by ≤ 2mm

D67C[5]

Extended Spectrum β Lactamase Set (CPD10)
Confirmation of ESβL production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC

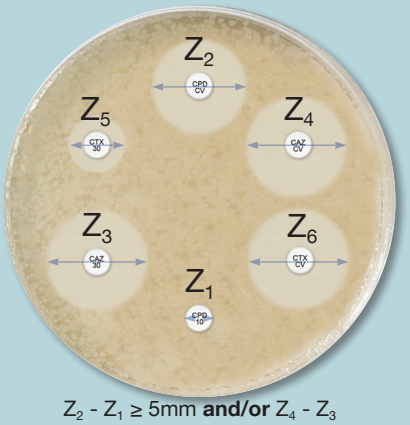
CAZ30
CAZ30/CLAV10

CTX30
CTX30/CLAV10

CPD10
CPD10/CLAV1

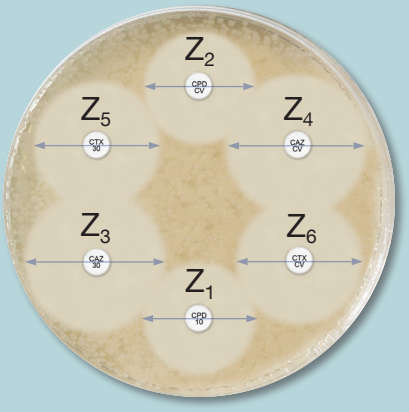
CAZ – Ceftazidime
CLAV – Clavulanic Acid
CTX – Cefotaxime
CPD – Cefpodoxime

ESBL Positive



$Z_2 - Z_1 \geq 5$mm **and/or** $Z_4 - Z_3 \geq 5$mm **and/or** $Z_6 - Z_5 \geq 5$mm

ESBL Negative



All zones differ by ≤ 2mm

D62C[6]

Cefotaxime 30 & Cefotaxime 30 /Clavulanic Acid 10

D64C[6]

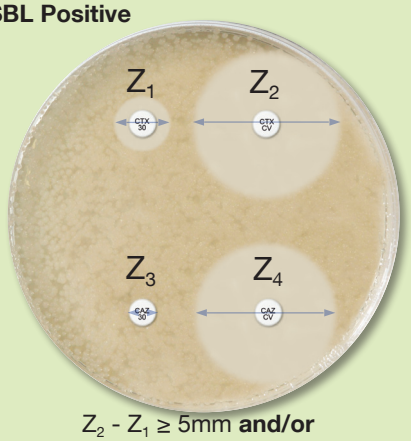
Ceftazidime 30 & Ceftazidime 30/Clavulanic Acid 10

Confirmation of ESβL production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC when both disc sets used concurrently

CTX30
CTX30/CLAV10
CAZ30
CAZ30/CLAV10

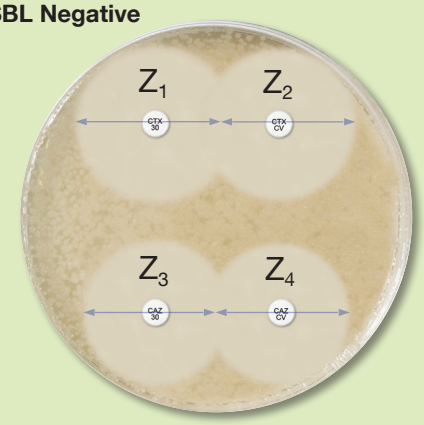
CTX – Cefotaxime
CAZ – Ceftazidime
CLAV – Clavulanic Acid

ESBL Positive



$Z_2 - Z_1 \geq 5$mm **and/or** $Z_4 - Z_3 \geq 5$mm

ESBL Negative



All zones differ by ≤ 2mm

D66C[7]

Cefpodoxime 10 & Cefpodoxime 10/Clavulanic Acid 1
Confirmation of ESβL production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC

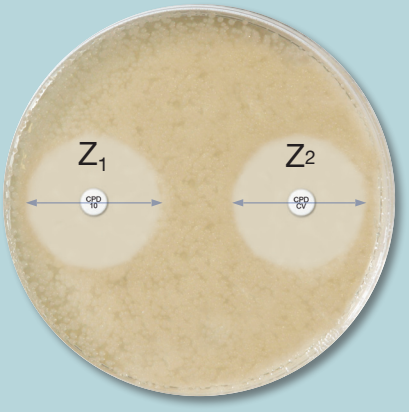
CPD10
CPD10/CLAV1

CPD – Cefpodoxime
CLAV – Clavulanic Acid

ESBL Positive

$Z_2 - Z_1 \geq 5$mm

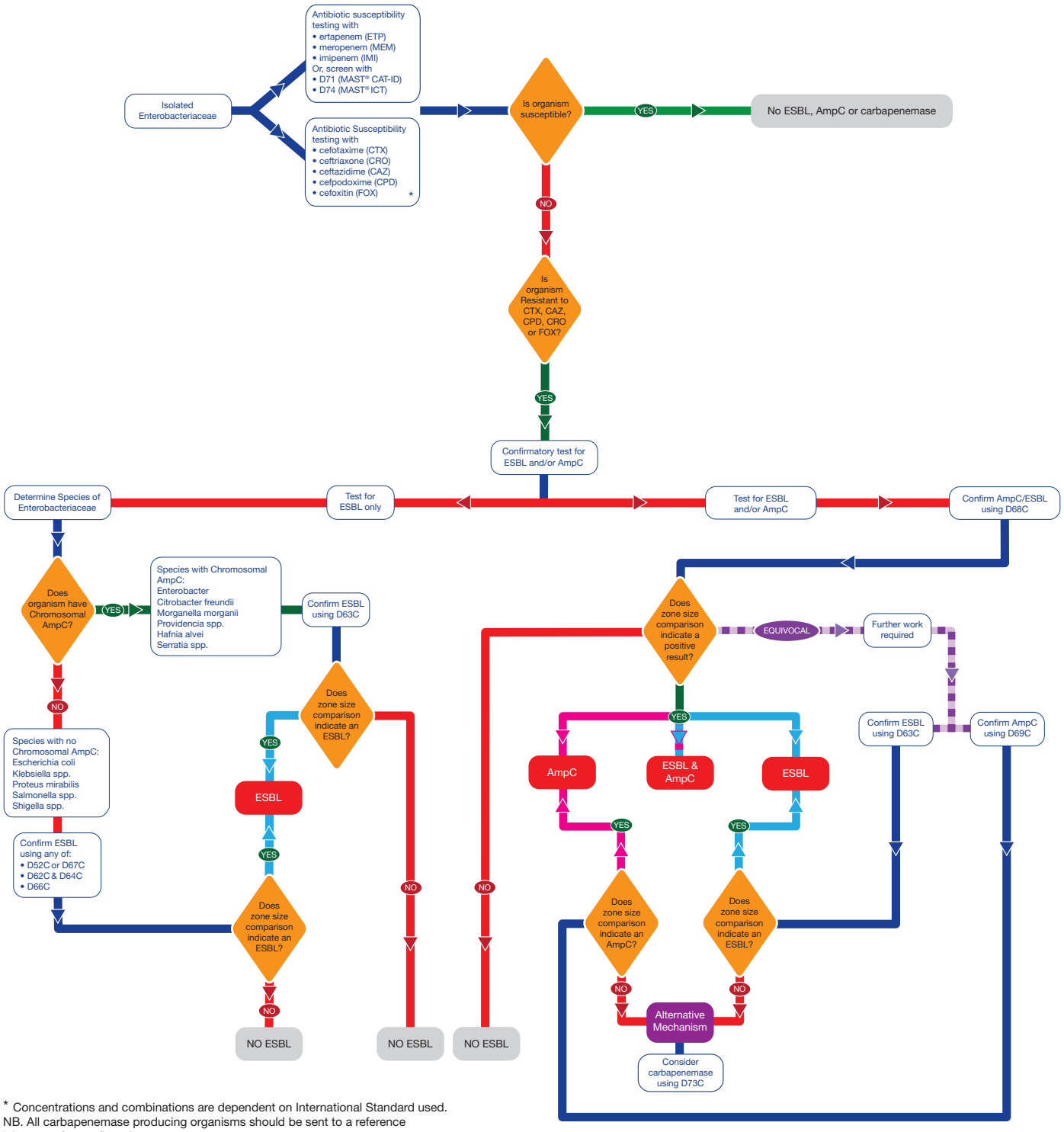
ESBL Negative



All zones differ by ≤ 2mm

Flowchart for laboratory use of MASTDISCS® *Combi*

D52C - Extended Spectrum β Lactamase Set (50 tests)
D62C - Cefotaxime 30ug & Cefotaxime 30ug/Clavulanic Acid 10ug (150 tests)
D63C - Cefepime 30ug & Cefepime 30ug/Clavulanic Acid 10ug (150 tests)
D64C - Ceftazidime 30ug & Ceftazidime 30ug/Clavulanic Acid 10ug (150 tests)
D66C - Cefpodoxime 10ug & Cefpodoxime 10ug/Clavulanic Acid 1ug (150 tests)
D67C - Extended Spectrum β Lactamase Set (CPD10) (50 tests)
D68C - AmpC & ESBL Detection Set (50 tests)
D69C - AmpC Detection Set (50 tests)
D71C - MAST® CAT-ID - Faropenem discs (250 tests)
D73C - MAST® Carba plus Detection Set (50 tests)
D74 - MAST® ICT Indirect Carbapenemase Test (25 tests)



* Concentrations and combinations are dependent on International Standard used.
NB. All carbapenemase producing organisms should be sent to a reference laboratory for confirmation

Ordering Information

Order Code	Product/Usage	Pack size	No. Tests
171682	**MAST**DISCS® *Combi* AmpC & ESBL Detection Set - **D68C**[1] Confirmation of AmpC and/or ESBL production in isolates of Enterobacteriaceae. When interpreted as 'further work required' use D69C to confirm AmpC production and D63C for confirmation of ESBL production when AmpC is also present.	4 × 50 discs	50 tests
171692	**MAST**DISCS® *Combi* AmpC Detection Set -**D69C**[2] Confirmation of AmpC production in isolates of Enterobacteriaceae with either plasmid acquired or chromosomal AmpC. Can be used when interpreted as 'further work required' on D68C for confirmation of AmpC production.	3 × 50 discs	50 tests
171632	**MAST**DISCS® *Combi* Cefepime ESBL ID Disc Set - **D63C**[3] Confirmation of ESBL production in isolates of Enterobacteriaceae with chromosomal AmpC e.g. *Enterobacter* spp., *Citrobacter freundii*, *Morganella morganii*, *Providencia* spp., *Hafnia alvei*, *Serratia* spp. Can be used when interpreted as 'further work required' on D68C for confirmation of ESBL production when AmpC is also present.	6 × 50 discs	150 tests
701055	**MAST**DISCS® *Combi* ESBL ID Disc Set - **D52C**[4] **(EUCAST & CLSI)** Confirmation of ESBL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. *Escherichia coli*, *Klebsiella* spp., *Proteus mirabilis*, *Salmonella* spp., *Shigella* spp.	6 × 50 discs	50 tests
171672	**MAST**DISCS® *Combi* ESBL ID Disc Set (CPD10) - **D67C**[5] **(EUCAST & CLSI)** Confirmation of ESBL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. *Escherichia coli*, *Klebsiella* spp., *Proteus mirabilis*, *Salmonella* spp., *Shigella* spp.	6 × 50 discs	50 tests
171622	**MAST**DISCS® *Combi* Cefotaxime ESBL ID Disc Set **D62C**[6] **(CLSI)** Confirmation of ESBL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. *Escherichia coli*, *Klebsiella* spp., *Proteus mirabilis*, *Salmonella* spp., *Shigella* spp.	6 × 50 discs	150 tests
171642	**MAST**DISCS® *Combi* Cefepime ESBL ID Disc Set - **D64C**[6] **(CLSI)** Confirmation of ESBL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. *Escherichia coli*, *Klebsiella* spp., *Proteus mirabilis*, *Salmonella* spp., *Shigella* spp. **D62C & D64C must be used concurrently**	6 × 50 discs	150 tests
171662	**MAST**DISCS® *Combi* Cefpodoxime ESBL ID Disc Set - **D66C**[7] **(EUCAST)** Confirmation of ESBL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. *Escherichia coli*, *Klebsiella* spp., *Proteus mirabilis*, *Salmonella* spp., *Shigella* spp.	6 × 50 discs	150 tests

Additional products from Mast Group Ltd.'s Range

Order Code	Product	Pack size	No. Tests
171712	**MAST**DISCS® *ID* - Carbapenemase Activity Test (CAT) - **D71C**	6 × 50 discs	250 tests
171722	**MAST**DISCS® *Combi* AmpC, ESBL & Carbapenemase Detection Set - **D72C**	6 × 50 discs	50 tests
171732	**MAST**DISCS® *Combi* Carba plus - **D73C**	5 × 50 discs	50 tests
171742	**MAST**®*ID* - Indirect Carbapenemase Test (ICT) - **D74**	25 devices	25 tests

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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

www.mast-group.com