

IVD solutions through partnership



mastdiscs™ *combi*

ESBL & AmpC Detection Disc Sets

- Differentiate resistance enzyme types
- Simple comparative interpretation
- Low cost implementation
- Compliance with international standard methodologies

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's 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.

Interpretation of results

D68C¹

AmpC & ESBL Detection Set

Confirmation of AmpC and/or ESBL production in Enterobacteriaceae

A CPD10

B CPD10 + ES β L inhibitor

C CPD10 + AmpC inhibitor

D CPD10 + ES β L inhibitor + AmpC Inhibitor

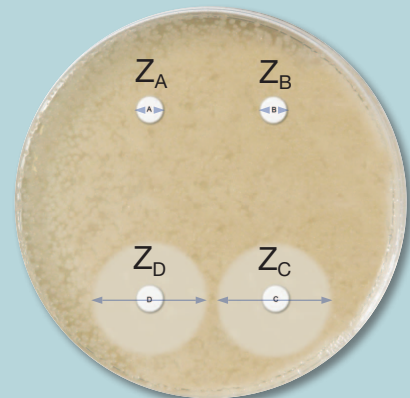
Calculator programme is available to download from www.mastgrp.com

ESBL Positive



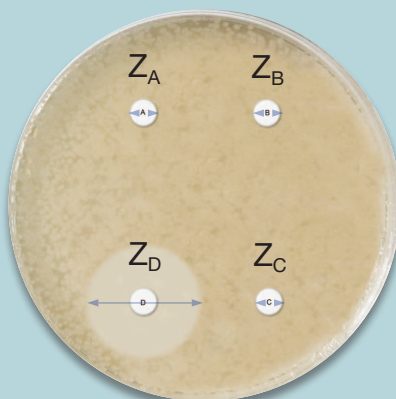
$Z_B - Z_A$ and $Z_D - Z_C \geq 5\text{mm}$
and the differences of each of Z_B and Z_D and Z_A and Z_C are $< 4\text{mm}$

AmpC Positive



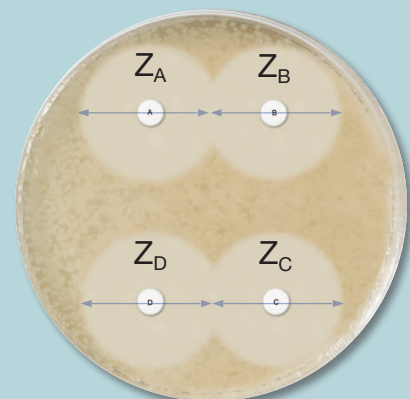
$Z_D - Z_B$ and $Z_C - Z_A \geq 5\text{mm}$
and the differences of each of Z_A and Z_B and $Z_C - Z_D$ are $< 4\text{mm}$

AmpC and ESBL Positive



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

AmpC and ESBL Negative



All zones differ by $\leq 2\text{mm}$

CPD - Cefpodoxime

D69C²

AmpC Detection Set

Confirmation of either chromosomal or plasmid acquired AmpC

A CPD10 + AmpC inducer

AmpC Positive

B CPD10 + AmpC inducer
+ ESβL inhibitor

C CPD10 + AmpC inducer
+ ESβL inhibitor
+ AmpC inhibitors



$Z_C - Z_A$ and $Z_C - Z_B \geq 5\text{mm}$

CPD – Cefpodoxime

AmpC Negative



All zones differ by $\leq 3\text{mm}$

D63C³

Cefepime 30 & Cefepime 30/Clavulanic Acid 10

Confirmation of ESβL production in Enterobacteriaceae with chromosomal AmpC

CPM30

CPM30/CLAV10

ESBL Positive

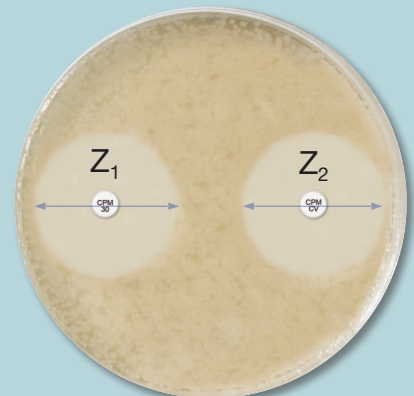


$Z_2 - Z_1 \geq 5\text{mm}$

CPM – Cefepime

CLAV – Clavulanic Acid

ESBL Negative



All zones differ by $\leq 2\text{mm}$

D52C⁴

Extended Spectrum β Lactamase Set

Confirmation of ESβL production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC

CAZ30

CAZ30/CLAV10

CTX30

CTX30/CLAV10

CPD30

CPD30/CLAV10

ESBL Positive



$Z_2 - Z_1 \geq 5\text{mm}$ and/or
 $Z_4 - Z_3 \geq 5\text{mm}$ and/or $Z_6 - Z_5 \geq 5\text{mm}$

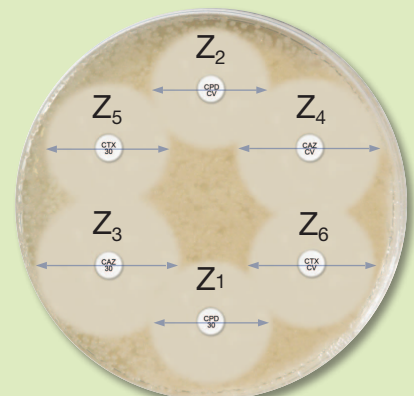
CAZ – Ceftazidime

CLAV – Clavulanic Acid

CTX – Cefotaxime

CPD – Cefpodoxime

ESBL Negative



All zones differ by $\leq 2\text{mm}$

D67C⁵

Extended Spectrum β Lactamase Set (CPD10)

Confirmation of ES β L production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC

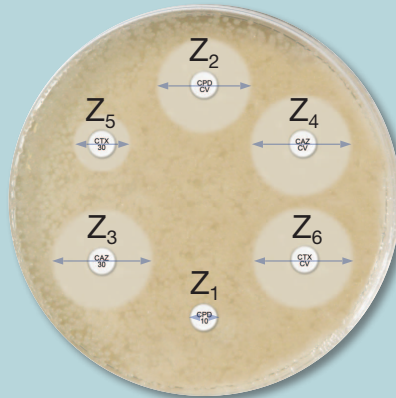
CAZ30
CAZ30/CLAV10

CTX30
CTX30/CLAV10

CPD10
CPD10/CLAV1

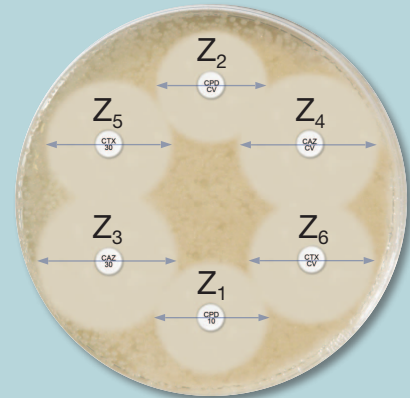
CAZ - Ceftazidime
CLAV - Clavulanic Acid
CTX - Cefotaxime
CPD - Cefpodoxime

ESBL Positive



$Z_2 - Z_1 \geq 5\text{mm}$ and/or $Z_4 - Z_3 \geq 5\text{mm}$ and/or $Z_6 - Z_5 \geq 5\text{mm}$

ESBL Negative



All zones differ by $\leq 2\text{mm}$

D62C⁶

Cefotaxime 30 & Cefotaxime 30/Clavulanic Acid 10

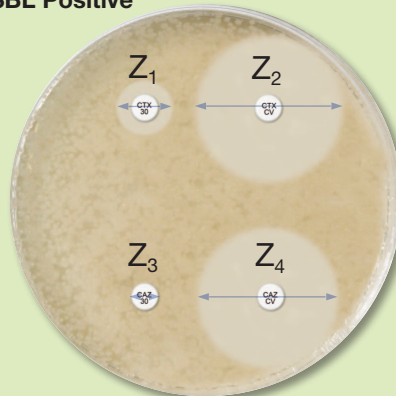
D64C⁶

Ceftazidime 30 & Ceftazidime 30/Clavulanic Acid 10

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

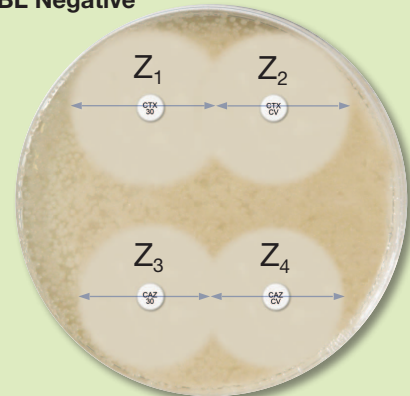
CTX30
CTX30/CLAV10
CAZ30
CAZ30/CLAV10

ESBL Positive



$Z_2 - Z_1 \geq 5\text{mm}$ and/or $Z_4 - Z_3 \geq 5\text{mm}$

ESBL Negative



All zones differ by $\leq 2\text{mm}$

CTX - Cefotaxime
CAZ - Ceftazidime
CLAV - Clavulanic Acid

D66C⁷

Cefpodoxime 10 & Cefpodoxime 10/Clavulanic Acid 1

Confirmation of ES β L production in Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC

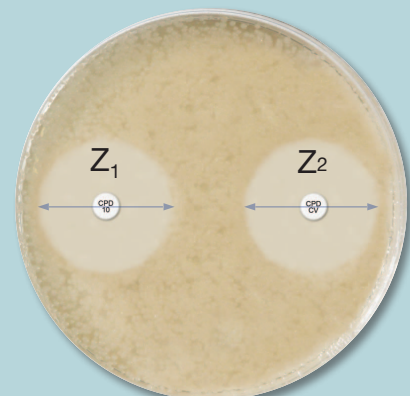
CPD10
CPD10/CLAV1

ESBL Positive



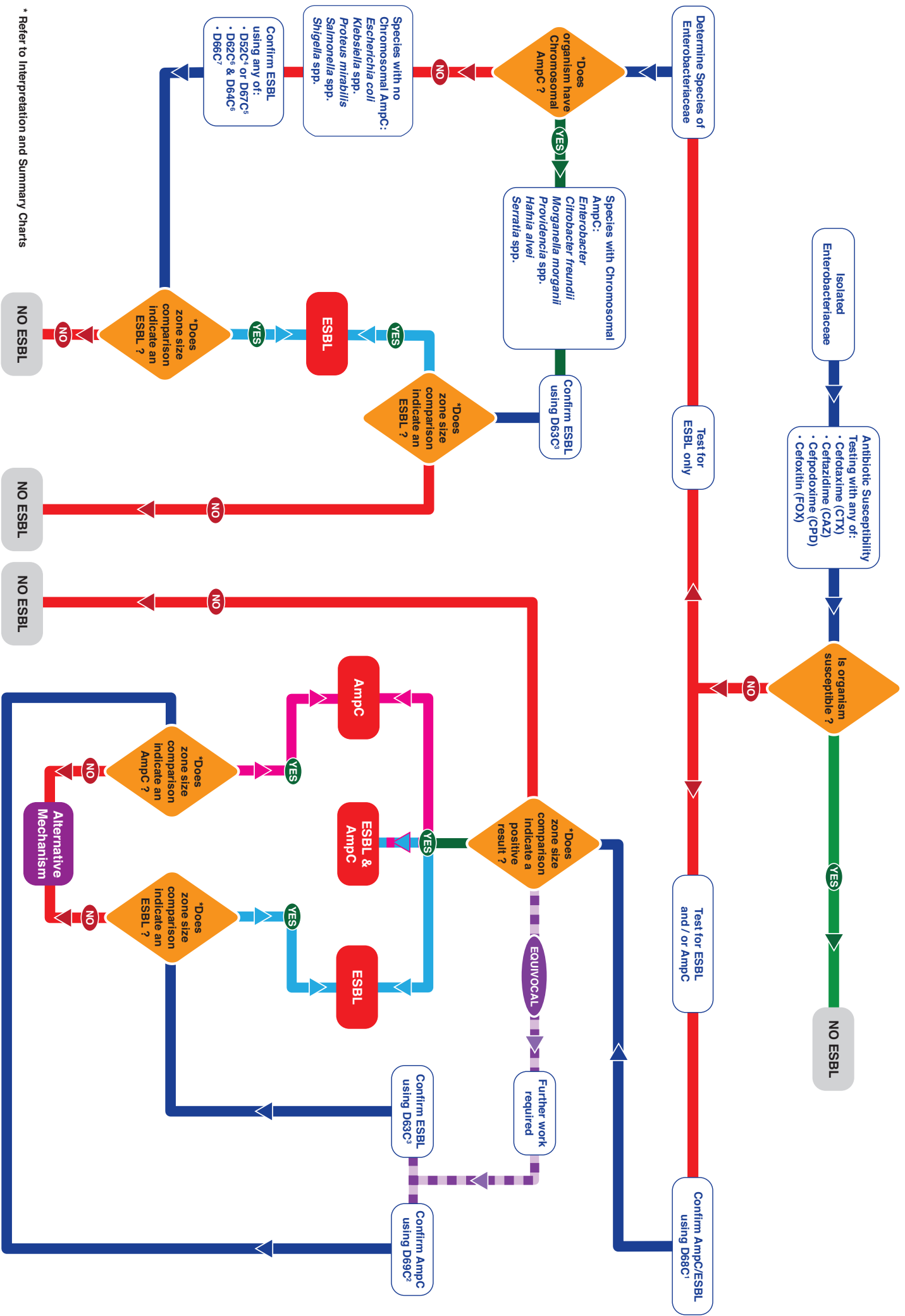
$Z_2 - Z_1 \geq 5\text{mm}$

ESBL Negative



All zones differ by $\leq 2\text{mm}$

CPD - Cefpodoxime
CLAV - Clavulanic Acid



* Refer to Interpretation and Summary Charts

Product Code	Contents	Usage
D68C¹ 4 x 50 discs	<p>A Cefpodoxime 10µg x 1</p> <p>B Cefpodoxime 10µg + ESβL inhibitor x 1</p> <p>C Cefpodoxime 10µg + AmpC inhibitor x 1</p> <p>D Cefpodoxime 10µg + ESβL inhibitor + AmpC inhibitor x 1</p>	<p>Confirmation of AmpC and/or ESβL production in isolates of Enterobacteriaceae.</p> <p>When interpreted as 'further work required' use D69C to confirm AmpC production and D63C for confirmation of ESβL production when AmpC is also present.</p>
D69C² 3 x 50 discs	<p>A Cefpodoxime 10µg + AmpC inducer x 1</p> <p>B Cefpodoxime 10µg + AmpC inducer + ESβL inhibitor x 1</p> <p>C Cefpodoxime 10µg + AmpC inducer + ESβL inhibitor + AmpC inhibitors x 1</p>	<p>Confirmation of AmpC production in isolates of Enterobacteriaceae with either plasmid acquired or chromosomal AmpC.</p> <p>Can be used when interpreted as 'further work required' on D68C for confirmation of AmpC production.</p>
D63C³ 6 x 50 discs	<p>Cefepime 30µg x 3</p> <p>Cefepime 30µg + Clavulanic acid 10µg x 3</p>	<p>Confirmation of ESβL production in isolates of Enterobacteriaceae with chromosomal AmpC e.g. <i>Enterobacter</i> spp., <i>Citrobacter freundii</i>, <i>Morganella morganii</i>, <i>Providencia</i> spp., <i>Hafnia alvei</i>, <i>Serratia</i> spp.</p> <p>Can be used when interpreted as 'further work required' on D68C for confirmation of ESβL production when AmpC is also present.</p>
D52C⁴ 6 x 50 discs	<p>Ceftazidime 30µg x 1</p> <p>Ceftazidime 30µg + Clavulanic acid 10µg x 1</p> <p>Cefotaxime 30µg x 1</p> <p>Cefotaxime 30µg + Clavulanic acid 10µg x 1</p> <p>Cefpodoxime 30µg x 1</p> <p>Cefpodoxime 30µg + Clavulanic acid 10µg x 1</p>	<p>Confirmation of ESβL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. <i>Escherichia coli</i>, <i>Klebsiella</i> spp., <i>Proteus mirabilis</i>, <i>Salmonella</i> spp., <i>Shigella</i> spp.</p> <p>Applicable to CLSI methodology.</p>
D67C⁵ 6 x 50 discs	<p>Ceftazidime 30µg x 1</p> <p>Ceftazidime 30µg + Clavulanic acid 10µg x 1</p> <p>Cefotaxime 30µg x 1</p> <p>Cefotaxime 30µg + Clavulanic acid 10µg x 1</p> <p>Cefpodoxime 10µg x 1</p> <p>Cefpodoxime 10µg + Clavulanic acid 1µg x 1</p>	<p>Confirmation of ESβL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. <i>Escherichia coli</i>, <i>Klebsiella</i> spp., <i>Proteus mirabilis</i>, <i>Salmonella</i> spp., <i>Shigella</i> spp.</p> <p>Applicable to CLSI, BSAC and DIN methodology</p>
D62C⁶ 6 x 50 discs	<p>Cefotaxime 30µg x 3</p> <p>Cefotaxime 30µg + Clavulanic acid 10µg x 3</p>	<p>Confirmation of ESβL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. <i>Escherichia coli</i>, <i>Klebsiella</i> spp., <i>Proteus mirabilis</i>, <i>Salmonella</i> spp., <i>Shigella</i> spp.</p>
D64C⁶ 6 x 50 discs	<p>Ceftazidime 30µg x 3</p> <p>Ceftazidime 30µg + Clavulanic acid 10µg x 3</p>	<p>Confirmation of ESβL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. <i>Escherichia coli</i>, <i>Klebsiella</i> spp., <i>Proteus mirabilis</i>, <i>Salmonella</i> spp., <i>Shigella</i> spp.</p> <p>D62C & D64C must be used concurrently</p> <p>Applicable to CLSI methodology.</p>
D66C⁷ 6 x 50 discs	<p>Cefpodoxime 10µg x 3</p> <p>Cefpodoxime 10µg + Clavulanic acid 1µg x 3</p>	<p>Confirmation of ESβL production in isolates of Enterobacteriaceae with no chromosomal de-repressed or inducible AmpC e.g. <i>Escherichia coli</i>, <i>Klebsiella</i> spp., <i>Proteus mirabilis</i>, <i>Salmonella</i> spp., <i>Shigella</i> spp.</p> <p>Applicable to BSAC and DIN methodology</p>

v 3.0 CEV 05/13

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