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MASTDISCS® *Combi*
Cefotaxime ESβL ID Disc Set

D62C

Intended use
For the detection of extended spectrum beta-lactamases (ESβLs) in Enterobacterales.

FOR IN VITRO DIAGNOSTIC USE ONLY

Contents and Formulation*
3 x paired sets of cartridges per pack, each cartridge containing approximately 50 discs:

CTX30	Cefotaxime 30 µg discs (x3)
CTXCV	Cefotaxime 30 µg + clavulanic acid 10 µg discs (x3)

Storage and shelf life
Store at 2 to 8°C in the containers provided until the expiry date shown on the pack label. Allow to equilibrate to room temperature before opening.

Precautions
For *in vitro* diagnostic use only. Observe approved biohazard precautions and aseptic techniques. To be used only by adequately trained and qualified laboratory personnel. Sterilise all biohazard waste before disposal. Refer to Product Safety Data sheet.

Materials required but not provided
Standard microbiological supplies and equipment such as loops, MAST® culture media, Mueller-Hinton agar, swabs, forceps, callipers etc., as well as an incubator capable of maintaining 35±2 °C.

Procedure
1. Using a pure, fresh culture of the test organism, prepare a suspension equivalent in density to a 0.5 McFarland standard.
2. Using a sterile swab, spread the suspension uniformly across the surface of a single Mueller Hinton Agar plate in accordance with the Clinical and Laboratory Standards Institute (CLSI) procedure.
3. Using a MAST® DISCMASTER Dispenser, or alternatively a sterile needle or forceps, place one of each type of disc onto the plate of inoculated medium, ensuring sufficient space between the discs to allow formation of clearly defined zones of inhibition.
4. Incubate at 35±2 °C for 17±1 hours.
5. Measure and record the diameter of any zones of inhibition, to the nearest whole millimetre. Discs showing no zone of inhibition should be recorded as 6 mm.

Interpretation of results
Compare the zone of inhibition for the cefotaxime disc to that of the cefotaxime plus clavulanic acid combination disc. An increase in zone diameter of ≥5 mm in the presence of clavulanic acid indicates the presence of ESβL in the test organism.

Quality control
Check for signs of deterioration. Quality control must be performed with at least one organism to demonstrate a positive reaction and at least one organism to demonstrate a negative reaction. Zones of inhibition obtained using the combination disc plus clavulanic acid and corresponding cefotaxime only disc against ESβL-negative control organism *E. coli* ATCC® 25922, should be equal or show no greater difference in diameter than ±2 mm. Any greater difference implies malfunction or deterioration. Do not use the product if the reactions with the control organisms are incorrect. The list below illustrates a range of performance control strains which the end user can easily obtain:

Test Organism	Result
Escherichia coli NCTC 13351	Positive
Escherichia coli NCTC 13353	Positive
Escherichia coli ATCC® 25922	Negative

Limitations
D62C is not suitable for testing *Pseudomonas* spp. or *Acinetobacter* spp. D62C should always be used in conjunction with **MAST**DISCS® *Combi* Ceftazidime ESβL ID disc set (D64C); a positive result using one or both tests indicates the presence of an ESβL in the test organism. To avoid potentially erroneous results do not mix cartridges from different batches of D62C and ensure both discs in the set are tested on the same plate.

References
Bibliography available on request.

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*Formulation may change to meet performance criteria

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MASTDISCS® *Combi*
Cefepime ESβL ID Disc Set

D63C

Intended use
For the detection of extended spectrum beta-lactamases (ESβLs) in Enterobacterales with chromosomal AmpC.

FOR IN VITRO DIAGNOSTIC USE ONLY

Contents and Formulation*
3 x paired sets of cartridges per pack, each cartridge containing approximately 50 discs:

CPM30	Cefepime 30 µg discs (x3)
CPMCV	Cefepime 30 µg + clavulanic acid 10 µg discs (x3)

Storage and shelf life
Store at 2 to 8°C in the containers provided until the expiry date shown on the pack label. Allow to equilibrate to room temperature before opening.

Precautions
For *in vitro* diagnostic use only. Observe approved biohazard precautions and aseptic techniques. To be used only by adequately trained and qualified laboratory personnel. Sterilise all biohazard waste before disposal. Refer to Product Safety Data sheet.

Materials required but not provided
Standard microbiological supplies and equipment such as loops, MAST® culture media, Mueller-Hinton agar, swabs, forceps, callipers etc., as well as an incubator capable of maintaining 35 ± 1°C.

Procedure
1. Using a pure, fresh culture of the test organism, prepare a suspension equivalent in density to a 0.5 McFarland standard in physiological saline.
2. Using a sterile swab, spread the suspension uniformly across the surface of a single Mueller Hinton Agar plate in accordance with the European Committee on Antimicrobial Susceptibility Testing (EUCAST) procedure.
3. Using a MAST® DISCMASTER Dispenser, or alternatively a sterile needle or forceps, place one of each type of disc onto the plate of inoculated medium, ensuring sufficient space between the discs to allow formation of clearly defined zones of inhibition.
4. Incubate at 35 ± 1°C for 18 ± 2 hours.
5. Measure and record the diameter of any zones of inhibition, to the nearest whole millimetre. Discs showing no zone of inhibition should be recorded as 6 mm.

Interpretation of results
Compare the zone of inhibition for the cefepime disc to that of the cefepime plus clavulanic acid combination disc. An increase in zone diameter of ≥5 mm in the presence of clavulanic acid indicates the presence of ESβL in the test organism.

Quality control
Check for signs of deterioration. Quality control must be performed with at least one organism to demonstrate a positive reaction and at least one organism to demonstrate a negative reaction. Zones of inhibition obtained using the combination disc plus clavulanic acid and corresponding cefepime only disc against ESβL-negative control organism *E. coli* ATCC® 25922, should be equal or show no greater difference in diameter than ±2 mm. Any greater difference implies malfunction or deterioration. Do not use the product if the reactions with the control organisms are incorrect. The list below illustrates a range of performance control strains which the end user can easily obtain:

Test Organism	Result
Enterobacter cloacae NCTC 13464	Positive
Escherichia coli NCTC 13351	Positive
Escherichia coli NCTC 13352	Positive
Escherichia coli NCTC 13353	Positive
Escherichia coli ATCC® 25922	Negative

Limitations
D63C is not suitable for testing *Pseudomonas* spp. or *Acinetobacter* spp. To optimise ESBL detection it is recommended that these discs are used in combination with other products in the **MAST**DISCS® *Combi* range. To avoid potentially erroneous results do not mix cartridges from different batches of D63C and ensure both discs in the set are tested on the same plate.

References
Bibliography available on request.

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MASTDISCS® *Combi*
Ceftazidime ESβL ID Disc Set

D64C

Intended use
For the detection of extended spectrum beta-lactamases (ESβLs) in Enterobacterales.

FOR IN VITRO DIAGNOSTIC USE ONLY

Contents and Formulation*
3 x paired sets of cartridges per pack, each cartridge containing approximately 50 discs:

CAZ30	Ceftazidime 30 µg discs (x3)
CAZCV	Ceftazidime 30 µg + clavulanic acid 10 µg discs (x3)

Storage and shelf life
Store at 2 to 8°C in the containers provided until the expiry date shown on the pack label. Allow to equilibrate to room temperature before opening.

Precautions
For *in vitro* diagnostic use only. Observe approved biohazard precautions and aseptic techniques. To be used only by adequately trained and qualified laboratory personnel. Sterilise all biohazard waste before disposal. Refer to Product Safety Data sheet.

Materials required but not provided
Standard microbiological supplies and equipment such as loops, MAST® culture media, Mueller-Hinton agar, swabs, forceps, callipers etc., as well as an incubator capable of maintaining 35 ± 2°C.

Procedure
1. Using a pure, fresh culture of the test organism, prepare a suspension equivalent in density to a 0.5 McFarland standard.
2. Using a sterile swab, spread the suspension uniformly across the surface of a single Mueller Hinton Agar plate in accordance with the Clinical and Laboratory Standards Institute (CLSI) procedure.
3. Using a MAST® DISCMASTER Dispenser, or alternatively a sterile needle or forceps, place one of each type of disc onto the plate of inoculated medium, ensuring sufficient space between the discs to allow formation of clearly defined zones of inhibition.
4. Incubate at 35 ± 2°C for 17±1 hours.
5. Measure and record the diameter of any zones of inhibition, to the nearest whole millimetre. Discs showing no zone of inhibition should be recorded as 6 mm.

Interpretation of results
Compare the zone of inhibition for the ceftazidime disc to that of the ceftazidime plus clavulanic acid combination disc. An increase in zone diameter of ≥5 mm in the presence of clavulanic acid indicates the presence of ESβL in the test organism.

Quality control
Check for signs of deterioration. Quality control must be performed with at least one organism to demonstrate a positive reaction and at least one organism to demonstrate a negative reaction. Zones of inhibition obtained using the combination disc plus clavulanic acid and corresponding ceftazidime only disc against ESβL-negative control organism *E. coli* ATCC® 25922, should be equal or show no greater difference in diameter than ±2 mm. Any greater difference implies malfunction or deterioration. Do not use the product if the reactions with the control organisms are incorrect. The list below illustrates a range of performance control strains which the end user can easily obtain:

Test Organism	Result
Escherichia coli NCTC 13351	Positive
Escherichia coli NCTC 13353	Positive
Escherichia coli ATCC® 25922	Negative

Limitations

D64C is not suitable for testing *Pseudomonas* spp. or *Acinetobacter* spp. D64C should always be used in conjunction with **MAST**DISCS® *Combi* Cefotaxime ESβL ID disc set (D62C); a positive result using one or both tests indicates the presence of an ESβL in the test organism. To avoid potentially erroneous results do not mix cartridges from different batches of D64C and ensure both discs in the set are tested on the same plate.

References
Bibliography available on request.

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*Formulation may change to meet performance criteria