



BD™ Drigalski Lactose Agar with Ceftazidime

INTENDED USE

BD Drigalski Lactose Agar with Ceftazidime is used for isolating and detecting *Enterobacteriaceae* resistant to broad spectrum cephalosporins.

PRINCIPLES AND EXPLANATION OF THE PROCEDURE

Microbiological method.

Drigalski Lactose Agar is a selective differential medium similar to MacConkey Agar and Desoxycholate based media. It is used as a selective differential medium for Gram negative rods (*Enterobacteriaceae* and certain non-fermenters) and is inhibitory to Gram positive bacteria. It is recommended for use with clinical specimens likely to contain mixed microbial flora, such as urine, respiratory and wound, because it allows a preliminary grouping of enteric and other gram-negative bacteria.¹ The medium has also been used for the isolation of *Salmonella* and *Shigella* from stool specimens as a medium with low selectivity although XLD was shown to be superior for this purpose.²

With the addition of ceftazidime (4 mg per liter) or cefotaxime (2 mg per liter), both broad spectrum cephalosporins, Drigalski Lactose Agar has been used for isolating *Enterobacteriaceae* that produce extended spectrum beta-lactamases (ESBL), especially in *Klebsiella pneumoniae*, *Enterobacter cloacae*, *Citrobacter freundii*, and *Escherichia coli* from hospitalized patients.^{3,4}

In **BD Drigalski Lactose Agar with Ceftazidime**, peptone, meat extract, and yeast extract provide nutrients. Sodium desoxycholate, crystal violet and thiosulfate are inhibitors of Gram positive bacteria. Differentiation of Gram negative enteric micro-organisms into lactose fermenters (yellow) and lactose nonfermenters (blue) is achieved by the combination of lactose and the bromthymol blue indicator. Ceftazidime is a third generation cephalosporin that inhibits most Gram negative rods while only ESBL-producing strains will grow in its presence.

REAGENTS

Formula* Per Liter Purified Water

BD Drigalski Lactose Agar with Ceftazidime

Peptone	15.0 g
Meat Extract	3.0
Yeast Extract	3.0
Sodium Desoxycholate	1.0
Sodium Thiosulfate	1.0
Lactose	15.0
Crystal Violet	0.005
Bromthymol Blue	0.08
Ceftazidime	0.004
Agar	11.0

pH 7.3 +/- 0.2

*Adjusted and/or supplemented as required to meet performance criteria.

PRECAUTIONS

IVD . For professional use only. Ⓢ

Do not use plates if they show evidence of microbial contamination, discoloration, drying, cracking or other signs of deterioration.

Consult **GENERAL INSTRUCTIONS FOR USE** document for aseptic handling procedures, biohazards, and disposal of used product.

STORAGE AND SHELF LIFE

On receipt, store plates in the dark at 2 to 8° C, in their original sleeve wrapping until just prior to use. Avoid freezing and overheating. The plates may be inoculated up to the expiration date (see package label) and incubated for the recommended incubation times.

Plates from opened stacks of 10 plates can be used for one week when stored in a clean area at 2 to 8° C.

USER QUALITY CONTROL

Inoculate representative samples with the following strains (for details, see **GENERAL INSTRUCTIONS FOR USE** document). Incubate plates at 35 ± 2°C in an aerobic atmosphere. Examine plates after 18 to 24 h for amount of growth, colony size, pigmentation and selectivity.

Strains	Growth Results
<i>Enterobacter cloacae</i> ATCC™ 13047	Growth good to excellent; yellow colonies surrounded by yellow medium
<i>Escherichia coli</i> ATCC 25922	Inhibition complete
<i>Pseudomonas aeruginosa</i> ATCC 27853	Inhibition complete
<i>Enterococcus faecalis</i> ATCC 29212	Inhibition partial to complete
<i>Staphylococcus aureus</i> ATCC 25923	Inhibition complete

PROCEDURE

Materials Provided

BD Drigalski Lactose Agar with Ceftazidime (90 mm **Stacker™** plates). Microbiologically controlled.

Materials Not Provided

Ancillary culture media, reagents and laboratory equipment as required.

Specimen Types

This medium is a differential selective medium for detecting *Enterobacteriaceae* resistant to broad spectrum cephalosporins from all types of clinical specimens (see also **PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE**).

Test Procedure

Streak the specimen as soon as possible after it is received in the laboratory. The streak plate is used primarily to isolate pure cultures from specimens containing mixed flora.

Alternatively, if material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak from this inoculated area. In order to isolate the complete range of pathogens present in the specimen, include **BD Columbia Agar with 5% Sheep Blood**. Furthermore, it is recommended to include **Drigalski Lactose Agar** or another suitable selective medium for the isolation of Gram negative bacteria that are not resistant to broad spectrum cephalosporins. Incubate for 18 to 24 hours at 35 to 37° C in an aerobic atmosphere.

Results

On **BD Drigalski Lactose Agar with Ceftazidime**, only ceftazidime-resistant Gram negative rods (e.g., *Enterobacteriaceae* and certain nonfermenters) will grow. Depending on their ability to ferment lactose or not, they will appear in yellow or blue-grey to blue-green, respectively. Most frequently, ESBL producing strains belong to *E. coli*, *Klebsiella* and *Enterobacter*, and will, therefore, be yellow.

Further biochemical tests are necessary to identify the organisms isolated on this medium. Additional tests are necessary for confirmation that these isolates are ESBL-producers.⁵⁻⁷

PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE

BD Drigalski Lactose Agar with Ceftazidime is used for detecting *Enterobacteriaceae* resistant to broad spectrum cephalosporins.⁴

Resistance to ceftazidime and to other cephalosporins and the ESBL property must be confirmed by testing the isolates with approved susceptibility test procedures. Currently, disc susceptibility testing, using broad spectrum cephalosporin discs with or without beta-lactamase inhibitor discs are recommended for confirmation. Consult the references for a review on current methods for detecting ESBL.⁵⁻⁷

Swarming of *Proteus* is not completely inhibited on this medium because the desoxycholate concentration is comparably low.

REFERENCES

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PACKAGING/AVAILABILITY

BD Drigalski Lactose Agar with Ceftazidime

Cat. No. 256525

Ready-to-use Plated Media, cpu 20

FURTHER INFORMATION

For further information please contact your local BD representative.



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