Product Specification Sheet

Brilliance™ ESBL Agar

Intended Usage: A selective medium for the screening of clinical samples for the presence of extended-spectrum beta-lactamase (ESBL) producing bacteria.

For professional use only.
Thermo Scientific™ Brilliance™ ESBL Agar

Form of Product: Poured plate
Storage: 2 – 12°C, dark
Filling weight: 17 g ± 5 %
Packaging: 10 plates wrapped in film
pH: 6.9 ± 0.2
Appearance: Oyster white opaque
Shelf life: 8 weeks
Intended Usage: A selective medium for the screening of clinical samples for the presence of extended-spectrum beta-lactamase (ESBL) producing bacteria. For professional use only.
Technique: Depends on the different methods. For information see product information.

Typical formulation*  | g/l
---|---
Peptone | 12.0
Sodium chloride | 5.0
Phosphate buffers | 4.0
Chromogenic mix | 4.0
Antibiotic mix | 0.28
Agar | 15.0

*Adjusted as required to meet performance standards.
Quality Control

1. Control for general characteristics, labelling and printing.

2. Contamination check
   \[ \geq 72 \text{ h @ 20 – 25 °C, aerobic} \]
   \[ \geq 72 \text{ h @ 30 – 35 °C, aerobic} \]

3. Microbiological control

<table>
<thead>
<tr>
<th>Positive Controls</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoculum 50 – 120 colony forming units (cfu), quantitative</td>
<td></td>
</tr>
<tr>
<td>Incubation conditions: 18 – 24 h @ 36 ± 1°C, aerobic</td>
<td></td>
</tr>
<tr>
<td><em>Klebsiella pneumoniae</em> SHV-18 ATCC® 700603™</td>
<td>1 - 2 mm, green colonies.</td>
</tr>
<tr>
<td><em>Escherichia coli</em> TEM-3 NCTC 13351</td>
<td>1 - 2 mm, blue/turquoise colonies.</td>
</tr>
<tr>
<td>Colony counts shall be ( \geq 50% ) of the control medium TSA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Controls</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoculum ( \geq 10^4 ) cfu, quantitative, control medium TSA</td>
<td>Complete inhibition (( \leq 10 ) cfu).</td>
</tr>
<tr>
<td>Incubation conditions: 18 – 24 h @ 36 ± 1°C, aerobic</td>
<td></td>
</tr>
<tr>
<td><em>Enterobacter cloacae</em> ATCC® 23355™</td>
<td></td>
</tr>
<tr>
<td><em>Citrobacter freundii</em> NCTC 8581</td>
<td>Complete inhibition (( \leq 10 ) cfu).</td>
</tr>
</tbody>
</table>

| Inoculum \( 10^4 – 10^5 \) cfu, qualitative, control medium SAB | Complete inhibition (\( \leq 10 \) cfu). |
| Incubation conditions: 18 – 24 h @ 36 ± 1°C, aerobic |        |
| *Candida albicans* ATCC® 10231™                         | No to inhibited growth. |

ATCC® registered trademark of American Type Culture Collection.
Background

Enterobacteriaceae have become one of the most important causes of nosocomial and community-acquired infections. The main therapeutic choices to treat such infections are β-lactam antibiotics (mainly broad spectrum penicillins and cephalosporins). However, there exist members of the Enterobacteriaceae which possess so-called Extended Spectrum β-Lactamases (ESBLs) which provide resistance against many of those antibiotics. ESBL producing organisms mainly include E. coli and members of the KESC group (Klebsiella, Enterobacter, Serratia and Citrobacter). Because of the transmissible nature of the resistance mechanism the proportion of ESBL producing organisms is dramatically growing and therefore becoming more and more a significant threat to global public health.

Brilliance™ ESBL Agar is a chromogenic screening plate for the detection and presumptive identification of ESBL producing organisms supporting an early and effective medical treatment.

Description

Oxoid™ Brilliance™ ESBL Agar contains cefpodoxime, in combination with additional antibacterial agents, to inhibit non-ESBL Enterobacteriaceae and to suppress the growth of most AmpC organisms and other non-ESBL flora. Differentiation of the most prevalent ESBL-producing organisms is achieved through the inclusion of two chromogens that specifically target two enzymes. Members of the KESC group express galactosidase, resulting in green colonies. E. coli however, express galactosidase and glucuronidase which, depending on the activity of the respective enzymes, will appear as blue colonies. Galactosidase negative E. coli (less than 5%) will appear pink. Proteus, Morganella and Providencia do not utilise either chromogen, but are able to deaminate tryptophan, resulting in tan-coloured colonies with a brown halo. Colourless colonies refer to Salmonella, Acinetobacter or other bacteria with other resistance mechanisms which may grow on this medium. Any such isolate may be clinically significant and should be investigated further.

Method of use

Brilliance™ ESBL Agar can be directly inoculated from faecal samples, swabs, isolated colonies or from liquid suspensions. The medium should be allowed to warm to room temperature before inoculation. Results will be available after aerobic incubation for 18 – 24 hours at 37 °C. Negative plates should be re-incubated for an additional 24 hours.

Limitations

Unspecific discolouration of the medium is likely to be seen when faecal material is directly plated onto the medium. This is caused by faecal components interfering with the chromogenic substrates, but does not affect the overall performance of the medium. Only coloured colonies (rather than scum or discolouration of the medium) should be regarded as a presumptive positive result.

The medium must not be used beyond the stated expiry date, or if the product shows any sign of deterioration.

Identifications are presumptive and should be confirmed.