

## Oxoid Prepared Medium

### Oxoid *Brilliance* VRE Agar

REF PO1175A

#### Intended Use

##### IVD

Thermo Scientific™ Oxoid™ *Brilliance*™ VRE Agar is a chromogenic screening plate for the detection of Vancomycin Resistant Enterococci (VRE). The medium provides presumptive identification of resistant *Enterococcus faecium* and *Enterococcus faecalis*, direct from clinical samples in 24 hours. For professional use only (in vitro diagnostic use).

#### Summary and Explanation

Vancomycin-resistant enterococci (VRE) have recently emerged as nosocomial pathogens, due to the increased use of vancomycin for treatment of methicillin-resistant *Staphylococcus aureus* in the United States of America and use of a vancomycin-like glycopeptide (avoparcin) as a growth promoter in animal husbandry in Europe<sup>1</sup>. In recent years, VRE screening technology has improved with chromogenic media becoming available for the detection of VRE. While sensitivity of these chromogenic media is higher than that of traditional media, most still require 48 hours incubation to detect certain VanB VRE strains.

#### Principle

Differentiation of vancomycin resistant *E. faecium* from *E. faecalis* is achieved through the inclusion of two chromogens that are targeted by specific enzymes: phosphatase and  $\alpha$ -galactosidase. The action of these enzymes on the chromogens causes release of the coloured component inside the bacterial cell, resulting in coloured colonies. The colour produced depends on which enzymes the organisms produce. The presence of phosphatase enzymes in both *E. faecium* and *E. faecalis* results in a light blue colony; however, *E. faecium* also produces  $\alpha$ -galactosidase, resulting in a mix of blue and pink to produce indigo to purple colonies. These are easily distinguished from the light blue *E. faecalis* colonies. Additional antibiotics, in combination with vancomycin, are present to suppress the growth of competing flora including *E. gallinarum* and *E. casseliflavus*, both of which are intrinsically resistant to vancomycin, possessing the chromosomally-encoded VanC resistance mechanism.

#### Typical Formula\*

Peptone mix	25.0 g/L
Salt mix	13.0 g/L
Chromogenic mix	0.45 g/L
Antibiotic cocktail (including vancomycin)	5.0 mL/L
Agar	12.5 g/L

\* Adjusted as required to meet performance standards

#### Physical Characteristics

Colour: Pale buff  
 Fill weight 19.5g  $\pm$  1.0g  
 pH 6.5  $\pm$  0.2 @ 25°C

#### Precautions

This product is for *in vitro* diagnostic use and should only be used by trained individuals. This includes the disposal of used or unused reagents as well as any other contaminated disposable material following procedures for infectious or potentially infectious products. It is the responsibility of each laboratory to manage waste produced according to their nature and degree of hazard and to have them treated or disposed of in accordance with any federal, state and local applicable regulations. Directions should be read and followed carefully.

#### Storage

This product is ready to use and no further preparation is necessary.  
 Store product in its original packaging at 2–10°C until used.  
 Allow product to equilibrate to room temperature before use. Do not incubate prior to use.  
 Store away from light.

#### Specimen Collection, Handling and Storage

Specimen should be collected and handled following the recommended guidelines<sup>2</sup>.

#### Materials Required but Not Supplied

- (1) Inoculating loops, swabs, collection containers
  - (2) Incubators
  - (3) Quality control organisms
- More information on [www.oxoid.com](http://www.oxoid.com)

#### Procedure

- (1) *Brilliance* VRE Agar can be inoculated direct from faecal/rectal screening swabs, faecal samples, isolated colonies or from liquid suspensions, according to local guidelines
- (2) Incubate plates aerobically for 18–24 hours at 36 $\pm$ 1°C
- (3) Negative plates should be re-incubated for an additional 24 hours
- (4) Light blue colonies are presumptive positive for VRE *E. faecalis*
- (5) Indigo-purple colonies are presumptive for VRE *E. faecium*.
- (6) Identifications can be confirmed using Oxoid Streptococcus Grouping Kit and O.B.I.S. PYR direct from the plate.
- (7) If sub-cultured on to a suitable medium, RapID STR can be used to confirm speciation.
- (8) Susceptibility testing must be performed on colonies subcultured to a non-selective medium. For an accurate determination of the vancomycin minimum inhibitory concentration, Vancomycin M.I.C.Evaluator™ Strips, may be used.

Streptococcus Grouping Kit DR0585A  
 O.B.I.S. PYR ID0580M  
 RapID One R8311003  
 Rapid identification of streptococci and enterococci  
 M.I.C.Evaluator™ Strips  
 Vancomycin 256 - 0.015 $\mu$ g/ml MA0102D  
 Vancomycin 256 - 0.015 $\mu$ g/ml MA0102F

More information on:  
[www.thermoscientific.com/microbiology](http://www.thermoscientific.com/microbiology)

## Quality Control

This medium can be tested with the following strains:  
Incubation Conditions: 18–24 hours aerobically at 35–39°C  
Negatives 36–48 hours aerobically at 35–39°C

Positive Controls	
<i>Enterococcus faecalis</i> NCTC 12201	Light blue colonies.
<i>Enterococcus faecium</i> NCTC 12202	Indigo-purple colonies
<i>Escherichia coli</i> ATCC® 25922	No growth
<i>Enterococcus faecalis</i> ATCC® 29212	No growth
<i>Enterococcus faecalis</i> ATCC® 19433	No growth
<i>Enterococcus gallinarum</i> ATCC® 35038	No growth
<i>Enterococcus casseliflavus</i> ATCC® 12755	No growth

### Note:

It is the responsibility of the user to perform Quality Control testing taking into account the intended use of the medium, and in accordance with any local applicable regulations (frequency, number of strains, incubation temperature etc.).

The product should not be used if

- (1) The product is contaminated
- (2) The colour has changed
- (3) The expiration date has passed
- (4) There are other signs of deterioration

## Performance

Oxoid *Brilliance* VRE Agar was evaluated at a clinical trial site, using a panel of 120 well-characterised, stored clinical isolates. *Brilliance* VRE Agar gave a sensitivity of 94.7% and 100% at 24 and 48 hours, respectively, with the trial site reporting that it was able to detect more positives at 24 hours with *Brilliance* VRE Agar than with the chromogenic agar currently in use<sup>3</sup>.

In a separate internal evaluation using a panel of 79 non-VRE strains, *Brilliance* VRE Agar was 100% selective compared to a medium from an alternative supplier, which achieved selectivity of 94%<sup>3</sup>.

## Limitations

It should be noted that organisms with atypical enzyme patterns may give anomalous reactions and that the growth of organisms with atypical resistance patterns may not be as expected.

Samples containing faecal material or blood may cause some localised discolouration within the medium; this discolouration should not be confused with a true chromogenic reaction where coloured colonies are visible.

## Packaging









PO1175A Ten 90mm plates, film wrapped

## Bibliography

- (1) Bell J.M., Paton J.C., Tumidge J. (1998). Emergence of Vancomycin Resistant Enterococci in Australia: Phenotypic and Genotypic Characteristic of Isolates. J. Clin. Microbiol. 36, 2187-2190.

- (2) Carpenter, C.M and H.E. Morton. 1947. Proc. N.Y. State Assoc. Public Health Labs. 27:58-60
- (3) Data on file at Oxoid.

## Symbol Legend

Symbol	Meaning
	Catalogue number
	In Vitro Diagnostic Medical Device
	Manufacturer
	Temperature limitation (storage temp.)
	Use by (expiration date)
	Lot number
	Protect from light
	Consult instructions for use

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Version 1

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