

## 04313 Fluorocult® DEV Lactose Peptone Broth

This medium is particularly suited for the enrichment and determination of the titre of coliform bacteria in the bacteriological analysis of water. *E. coli* shows a positive fluorescence under UV light (366 nm). A positive indole reaction is made for confirmation.

### Composition:

Ingredients	Grams/Litre
Peptone from casein	17.0
Peptone from soya	3.0
Lactose	10.0
Sodium chloride	5.0
Bromocresol purple	0.02
Tryptophan	1.0
4-Methylumbelliferyl- $\beta$ -D-glucuronide	0.1
Final pH 7.2 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

### Directions:

Suspend 36.1 g/litre or 72.2 g/litre, dispense into test tubes fitted with DURHAM tubes, autoclave (15 min at 121° C).

Gas production from lactose fermentation is indicated by using inverted Durham tubes. Inoculate at least 1 ml sample in a tube containing 10 ml of broth and a Durham tube. Incubate at 37°C for 16-24 hours. In case of gas formation the Durham tubes rise or/and show bubbles. If no gas has formed in the inverted tube, reincubate and reexamine after 48 hours. Turbidity of the medium accompanied by formation of gas within 48 hours is a positive presumptive test for the presence of *E. coli* and/or other coliform organisms.

In addition, check the tubes under UV light at about 360-370 nm. Slightly blue fluorescence indicates the presence of *E. coli*. If no fluorescence occurs after 24 hours of incubation do not add Kovacs reagent (Cat. No. 60983) for checking the indole reaction as this alcoholic reagent will destroy the growth conditions for cultures. Continue incubation for another 24 hours and check again for fluorescence and indole reaction. For confirmation add Kovacs reagent to the tubes (5 mm layer). If the reagent layer becomes cherry red after 1-2 minutes, the presence of *E. coli* is confirmed.

### Principle and Interpretation:

Peptone from casein and soya provide carbon, nitrogen, minerals, vitamins, trace elements and other essential nutrients for growth. Sodium chloride is for the osmotic balance. Lactose is the carbohydrate source. Bromocresol purple is a pH indicator which has a yellow color below pH 5.3 and a purple color above pH 6.7. Due to the fermentation of lactose and the attendant acid production the color changes to yellow. The addition of tryptophan improves the indole reaction.

$\beta$ -D-glucuronidase produced by *E. coli*, cleaves 4-Methylumbelliferyl- $\beta$ -D-glucuronide to 4-methylumbelliferone and glucuronide. The fluorogen 4-methylumbelliferone can be detected under a long wavelength UV lamp. In addition, the indole test with Kovacs' reagent (Cat. No. 60983) can be performed.



Cultural characteristics after 24-48 hours at 35°C.

Organisms (ATCC)	Growt h	Color change to yellow	Gas formation	Fluorescenc e	Indole reaction
<i>Escherichia coli</i> (25922)	+++	+	+	+	+
<i>Enterobacter aerogenes</i> (13048)	+++	+	+	-	-
<i>Enterococcus faecalis</i> (11700)	++	+/-	-	-	-
<i>Klebsiella pneumoniae</i> (13883)	+++	+	+	-	-
<i>Aeromonas hydrophila</i> (7966)	++	-	-	-	-
<i>Salmonella typhimurium</i> (14028)	+++	-	-	-	-

#### References:

1. K. Kolbeck, et al., Supervision of the hygienic quality of bathing water by detection of *E. coli* after a 7-day salt water stress period, *Zbl. Hyg.*, 193, 31437 (1992)
2. Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlammuntersuchung, VCH Verlagsgesellschaft, D-6940 Weinheim
3. Verordnung über Trinkwasser und über Wasser für Lebensmittelbetriebe vom 12. Dezember 1990, *Bundesgesetzbl.*, Teil I; 2613 (1990)

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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