3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

16037 BROLACIN MUG Agar (Bromothymol-blue Lactose Cystine MUG Agar, C.L.E.D. MUG Agar, Cystine-Lactose-Electrolyte Deficient MUG Agar)

For the enumeration, isolation and identification of microorganisms in urine. Growth of all urinary microorganisms is favoured. Lactose catabolism produces a colour change of bromothymol blue to yellow. Alkalisation gives a colour change to deep-blue. Differention of *E. coli* colonies is possible by means of fluorescence in the UV.

Composition:

Ingredients	Grams/Litre
Casein peptone	4.0
Universal peptone	4.0
Meat extract	3.0
L-Cystine	0.128
Lactose	10.0
Bromothymol blue	0.02
Agar	12.0
4-Methylumbelliferyl-β-D-glucuronide	0.1
Final pH 7.3 +/- 0.2 at 37°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:
Dissolve 33.3 g in 1 litre distilled water and autoclave at 121°C for 15 minutes.
Check the plates under UV light at 360-370 nm. Light blue fluorescence indicates the presence of *E. coli*. If there is no fluorescence after 24 hours of incubation continue incubation for another 24 hours and check again for fluorescence. In addition the indole test can be made with Kovac's reagent (Cat. No. 60983). Cover a colony with 10-20 µl Kovac's reagent. A change of color to red after 2-10 seconds shows indole formation.

Principle and Interpretation:
Casein peptone, Universal peptone and Meat extract act as a source of nitrogen, carbon, vitamins and amino acids. Lactose is the fermentable carbohydrate. Bromothymol blue change to yellow in case of acid production during fermentation or change to deep blue in case of alkalinization. Lactose-positive bacteria build yellow colonies. Bacteria which decarboxylate L-Cystine cause an alkaline reaction and build deep blue colonies. The lack of electrolytes suppresses the swarming of Proteus (Sandys 1960).
The addition of tryptophan improves the indole reaction. β-D-glucoronidase, which is produced by *E. coli*, cleaves 4-Methylumbelliferyl-β-D-glucuronide to 4-methylumbelliferone and glucuronide. The fluorogen 4-methylumbelliferone can be detected under a long wavelength UV lamp.

Cultural characteristics after 24 hours at 35°C.

Organisms (ATCC)	Growth	Fluorescence	Appearance of colony
Escherichia coli (25922)	+++	+	golden yellow
Citrobacter freundii (8090)	+++	-	golden yellow
Salmonella typhimurium (13311)	+++	-	blue
Shigella flexneri (29903)	+++	-	blue
Proteus mirabilis (29906)	+++	-	blue
Proteus vulgaris (8427)	+++	-	blue
Pseudomonas aeruginosa (27853)	+++	-	blue
Streptococcus cremoris (19527)	+++	-	yellow, small, opaque
Staphylococcus aureus (25923)	+++	-	deep yellow, very small, opaque

References:

1. W. Graninger, et al., Rapid screening for bacteriuria, Infection 20, 9 (1992)
2. P. Munoz, et al., Diagn. Microbiol. Infect. Dis., 15, 287 (1992)
3. G.H. Sandys, A new method of preventing swarming of Proteus sp. with a description of a new medium suitable for use in routine laboratory practice, J. Med. Lab. Technol., 17, 224 (1960)