

LB Broth, Miller (i23085)

For the cultivation of *E. coli* in fermentation and molecular genetic studies.

Industry: Molecular Biology

Principles & Uses

Luria Bertani Broth, Miller, is a slightly modified version of the original Lennox media, designed to support the cultivation and maintenance of recombinant *Escherichia coli* strains. It contains double the amount of sodium chloride, providing essential sodium ions for membrane transport and maintaining osmotic balance.

This medium is particularly suitable for the growth of pure cultures of recombinant strains, especially those derived from *E. coli* K12, which cannot synthesize Vitamin B and have been further mutated to create auxotrophic strains incapable of growing on nutritionally deficient media. It offers the necessary nutrients for these nutritionally demanding microorganisms, with tryptone providing peptides and peptones and yeast extract supplying a Vitamin B complex.

The addition of sterile glucose (10 ml of sterile 20% solution) and adjustments in salt concentrations can tailor the medium for specific strains, ensuring optimal growth conditions for various applications like culturing bacteria with plasmid. It's particularly valuable for molecular biology procedures and growing strains that have specific nutritional requirements.

Composition (gr/L)

Tryptone 10, Yeast Extract 5, Sodium Chloride 10.

Final pH at 25°C 7.0 ± 0.2

Preparation from dehydrated Powder

Suspend 25 g in 1 Liter of distilled water. Sterilize by autoclaving at 121°C for 15 minutes.

Quality Control

Dehydrated Appearance: Tan, free-flowing, homogeneous.

Prepared Appearance: Light amber, very slightly to slightly opalescent.

Reaction of 2.5% Solution at 25°C: pH 7.0 ± 0.2

Cultural Response

Cultural response was observed after 18-48 hours of incubation at 35 ± 2°C.

Organism (ATCC*)	Recovery
<i>Escherichia coli</i> (25922)	Good
<i>Enterococcus faecalis</i> (19433)	Good
<i>Pseudomonas aeruginosa</i> (27853)	Good

*ATCC is a registered trade mark of the American Type Culture Collection.



Both *E. coli* (left) and *E. faecalis* (right) exhibit turbidity due to good growth.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.