Luria Bertani Broth (Lennox)

M2195

Intended Use

Recommended for the cultivation and maintenance of recombinant strains of *Escherichia coli.*

Composition**

Ingredients	g / L
Tryptone	10.000
Yeast extract	5.000
Sodium chloride	5.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 20.0 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Dispense in tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Aseptically add filter sterilized Dextrose solution (1g/L) to prepare Lennox Broth.

Principle And Interpretation

Luria Bertani Broth is one of the many modifications, suggested by different authors, of the original formulation of Luria (1). This medium is generally used for molecular and genetic studies, because of its nutritive capacity and simple composition, which can be easily altered as per specific requirements. Luria Bertani Broth is the modification of the original formulation of Luria, as described by Lennox (2). Luria Broth contains half the concentration of sodium chloride than in Luria Broth, Miller (3). Therefore as per choice, the sodium chloride concentration can be altered. Luria Broth is used for the cultivation and maintenance of recombinant strains of *E. coli*, originally derived from *E. coli* strain K12, deficient in B vitamin production. These stains are specifically mutated to create an auxotrophic strain, unable to grow on a nutritionally deficient medium.

Luria Bertani Broth is a nutritionally rich medium due to the presence of tryptone and yeast extract. This allows the recombinant strains of *E. coli* to grow more rapidly since all the nutrients and essential growth nutrients required by these strains are readily available to them and they don't need to synthesize it themselves including B-vitamin (4). Sodium chloride maintains the osmotic equilibrium. Refer appropriate references for standard procedures (3,4,5).

Type of specimen

Recombinant strains of *E.coli*

Specimen Collection and Handling

For recombinant strain samples follow appropriate techniques for handling specimens as per established guidelines (2,3,5). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Some strains may show poor growth due to nutritional variations.
2. Further biochemical and serological tests must be carried out for complete identification.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Yellow to amber coloured clear solution in tubes

Reaction

Reaction of 2.0% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth
Escherichia coli ATCC 23724	50-100	luxuriant
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant
Escherichia coli DH5 alpha MTCC 1652	50-100	luxuriant

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

Reference

1. Luria S. E. and Burrous J. W., 1957, J. Bacteriol. 74: 461-476.
2. Lennox E. S., 1955, Transduction of Linked Genetic Characters of the host by bacteriophage P1., Virology, 1:190.
3. Miller, 1972, Experiments in Molecular Genetics, Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.
4. Ausubel F. M., Brent R., Kingston R. E., Moore D. D., Seidman J. G., Smith J. A. and Steuhl K., (Eds.), 1994, Current Protocols in Molecular Biology, Vol. I, Greene Publishing Associates, Inc. Brooklyn, N.Y.
5. Sambrook J., Fritsch E. F., and Maniatis T., 1989, Molecular Cloning: A Laboratory Manual, 2nd Ed., Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.
6. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
7. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

Revision : 00 / 2025