Product Data Sheet

Animal Product Free LB Broth

Luria, Lennox and Miller Versions

Catalog Numbers: 0131, 0132, 0133, 0173, 0174 and 0175

Product Description:

LB broth has been the venerable culture medium formulation used by researchers for over 50 years. First introduced in 1955 by two groups^{1,2,3} LB broth has three different variations, designated here as LB Miller,⁴ LB Lennox, and LB Luria, named after the respective lead authors who developed the formulations. LB is a simple medium composed of three ingredients: yeast extract, sodium chloride and casein hydrolysate.

In recent years, the use of animal-derived raw materials has become a concern to manufacturers of biopharmaceutical products, because they can contain harmful contaminants.⁵ Initially, this concern was confined to the manufacturing end of the industry. As the regulatory environment has evolved with regard to the use of animal-derived materials, greater restrictions are being placed at earlier stages of product development. The consequence is a pressing need for media formulations which are not made from animal sources.

To address this issue, we have developed a non-animal protein hydrolysate to replace the casein hydrolysate. An obvious choice for the casein replacement would be plant-derived hydrolysates; however, no one plant protein source has the same amino acid composition as casein. Therefore, the direct replacement of casein hydrolysate with a plant protein hydrolysate will not yield a medium with the same nutritional composition. To overcome this limitation, we have designed a blended plant-based protein hydrolysate that matches casein hydrolysate in composition and in performance. This replacement hydrolysate, Atholate TM , is used to manufacture the *APF* versions of the LB Broths. Table 1 gives the formulation for each of the three different variations.

Table 1. Composition of APF LB Broths (g/L).

Ingredient Cat. No.	Luria (0131, 0174)	Lennox (0132, 0175)	Miller (0133, 0173)
Yeast Extract	5	5	5
NaCl	0.5	5	10
Atholate™	15	15	15

Cat. No. 0131, 0132, and 0133 are dry powdered media. Cat No. 0173, 0174 and 0175 are ready-to-use liquid media.

Instructions for Use: (for powdered products)

- Dissolve 20.5, 25 or 30 g of the LB Luria, Lennox or Miller Broth powder, respectively, in 1 liter of deionized water.
- 2. Steam or filter sterilize.
- 3. Store at room temperature or at 4°C.
- 4. Shelf-life is 3 months at room temperature and 6 months at 4°C.

Material Safety Data:

FOR RESEARCH USE ONLY. NOT INTENDED OR APPROVED FOR HUMAN, DIAGNOSTICS OR VETERINARY USE. Do not ingest, swallow or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. For complete safety information see the full Material Safety Data Sheet.



Athena Enzyme Systems™ 1450 South Rolling Road Baltimore, MD 21227 USA Tel.: 888-892-8408 Intl.: 410-455-6310 Fax.: 410-455-1155 support@athenaes.com

A Division of Athena Environmental Sciences, Inc.



Growth curves for wild-type and four commonly used *E. coli* strains. Dashed lines – standard LB (Miller) Broth; Solid Lines – *APF* LB (Miller) Broth. Duplicate cultures of each strain were grown in 1 ml of *APF* LB (Miller) Broth in a 24-well dish with shaking at 37°C. The absorbance at 600 nm was measured at 30 min. intervals.



Growth curves for *Vibro paraheamolyticus, Klebsiella oxytoca, Shigella sonnei* and *Salmonella typhi* cultured in standard LB, LB with soy protein hydrolysate and LB with Atholate™.

References:

- 1. Luria, S. E. and J. W. Burrous. 1955. Hybridization between *Escherichia coli* and *Shigella*. J. Bacteriol. 74:461-476.
- Lennox, E. S. 1955. Transduction of linked genetic characters of the host by bacteriophage P1. Virology. 1:190-206.
- Luria, S. E., J. N. Adams, and R. C. ting. 1960. Transduction of lactose-utilizing ability among strains of *E. coli* and *S. dysenteriae* and the properties of the transducing phage particles. Virology. 12:348-390.
- 4. Miller, 1972. Experiments in Molecular Genetics. Cold Spring Harbor Laboratory. Cold Spring Harbor, NY.
- CDRH BSE Working Group. Guidance for FDA Reviewers and Industry: Medical Devices Containing Materials Derived from Animal Sources (Except for In vitro Diagnostic Devices) Nov. 6, 1998. U.S. FDA. http://origin.www.fda.gov/cdrh/ode/88.html.