



# PRODUCT DESCRIPTION

AS-1269 | LB Broth (Lennox)

[www.ausamics.com.au](http://www.ausamics.com.au)

## LB Broth (Lennox)

Reduced-Salt Liquid Culture Medium for Molecular Biology Applications

**Catalogue Number:** AS-1269

Application	Medium Type	Typical pH	HS Code
E. coli & molecular biology	Non-selective liquid broth	7.0 ± 0.2 at 25 °C	3821.00.00

### Overview

LB Broth (Lennox) is a nutritionally rich, non-selective liquid culture medium originally developed by Lennox in 1955 for the growth and maintenance of *Escherichia coli* in molecular biology laboratories. It is particularly suitable for recombinant *E. coli* K-12 derivatives, which require enriched media for optimal growth and plasmid maintenance.

Compared to the Miller formulation (10.0 g/L NaCl), LB Broth (Lennox) contains reduced sodium chloride at 5.0 g/L, providing improved control over osmotic conditions. This makes it well suited for salt-sensitive strains and applications where lower ionic strength supports stable growth, improved transformation efficiency, and reliable plasmid propagation.

### Principle of the Medium

<b>Tryptone (10.0 g/L)</b>	Pancreatic digest of casein providing peptides, amino acids, nitrogen, and carbon sources for rapid bacterial growth
<b>Yeast Extract (5.0 g/L)</b>	Supplies B-group vitamins, trace elements, nucleotides, coenzymes, and growth factors essential for <i>E. coli</i> K-12
<b>Sodium Chloride (5.0 g/L)</b>	Maintains controlled osmotic balance; lower than Miller formulation to support salt-sensitive strains and transformation

### Typical Composition (per litre)

Component	CAS Number	Function	Amount
Tryptone (Pancreatic Digest of Casein)	73049-73-7	Nitrogen, carbon, amino acids	10.0 g
Yeast Extract	8013-01-2	Vitamins, growth factors	5.0 g



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Sodium Chloride	7647-14-5	Osmotic balance	5.0 g
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**Total per litre:** 20.0 g | Final pH: 7.0 ± 0.2 at 25 °C

### Comparison: LB Broth Formulations

Component	Lennox (AS-1269)	Miller	Difference
Tryptone	10.0 g/L	10.0 g/L	Same
Yeast Extract	5.0 g/L	5.0 g/L	Same
NaCl	5.0 g/L	10.0 g/L	Half — lower osmolarity
Total solids	20.0 g/L	25.0 g/L	Reduced
Best for	Salt-sensitive strains, transformation	Standard E. coli growth	

### Applications

#### Molecular Biology & Cloning

- Routine cultivation and propagation of E. coli strains for cloning
- Plasmid amplification and preparation
- DNA transformation — optimal ionic strength for competent cell protocols
- Expression of recombinant proteins in E. coli
- Preparation of overnight cultures for miniprep and midiprep

#### Salt-Sensitive & Controlled Osmolarity Studies

- Growth of salt-sensitive E. coli K-12 derivatives
- Osmotic stress studies and controlled ionic strength applications
- Phage lambda infection studies (reduced NaCl favours lambda growth)

#### Teaching & General Laboratory Use

- Standard liquid medium for molecular biology instruction
- General bacterial growth, propagation, and stock maintenance
- Antibiotic selection assays with supplemented ampicillin, kanamycin, or chloramphenicol



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## Preparation Instructions

1. Dissolve 20.0 g of dehydrated medium in 1 litre of demineralised or purified water.
2. Heat with frequent agitation until fully dissolved. The medium dissolves readily at room temperature.
3. Verify and adjust pH to  $7.0 \pm 0.2$  if required using 1 M NaOH or 1 M HCl.
4. Sterilise by autoclaving at 121 °C for 15 minutes.
5. Cool to room temperature (for liquid broth) or to 45–50 °C (if agar is to be added).
6. Add antibiotics or other heat-sensitive supplements aseptically after cooling.
7. Dispense into sterile culture tubes, flasks, or plates as required.

*Note: Do not overheat. For antibiotic selection plates, add agar (15 g/L) before autoclaving. Add filter-sterilised antibiotic solutions after cooling to 45–50 °C.*

## Common Antibiotic Supplements

Antibiotic	Working Concentration	Stock Solution	Application
Ampicillin	100 µg/mL	100 mg/mL in water	Ampicillin-resistant plasmid selection
Kanamycin	50 µg/mL	50 mg/mL in water	Kanamycin-resistant plasmid selection
Chloramphenicol	25 µg/mL	25 mg/mL in ethanol	Chloramphenicol-resistant selection
Tetracycline	12.5 µg/mL	12.5 mg/mL in ethanol	Tetracycline-resistant selection
Gentamicin	10 µg/mL	10 mg/mL in water	Gentamicin-resistant selection

*Note: Filter-sterilise all antibiotic stocks (0.22 µm membrane). Add aseptically to cooled medium. Store antibiotic stocks at -20 °C.*

## Incubation & Typical Growth

Inoculate with a single colony or from a frozen stock. Incubate with shaking (200–250 rpm) at 37 °C for 12–16 hours for overnight cultures, or 3–4 hours for mid-log phase growth.

Organism	Expected Result	Incubation
E. coli K-12 (e.g. DH5α, TOP10)	Good growth — turbid broth, OD <sub>600</sub> >2.0 overnight	37 °C, shaking, 12–16 h



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E. coli BL21(DE3)	Good growth — suitable for protein expression	37 °C, shaking, 3–4 h to OD 0.6
E. coli DH10B	Good growth — high-efficiency transformation host	37 °C, shaking, 12–16 h
Salmonella typhimurium	Good growth	37 °C, shaking, 12–16 h

## Storage & Stability

<b>Dehydrated powder</b>	Store in a cool, dry place (15–30 °C) with container tightly closed
<b>Protect from</b>	Moisture, direct light, and extreme temperatures
<b>Prepared broth</b>	Store at 2–8 °C, use within 1 week
<b>Prepared broth + agar</b>	Store at 2–8 °C, inverted, use within 4 weeks
<b>Shelf life (dehydrated)</b>	As per labelled expiry date
<b>Do not use if</b>	Contamination, precipitation, turbidity, or pH shift is observed

## Quality & Compliance

Manufactured under controlled conditions for batch-to-batch consistency. Performance tested against ATCC reference organisms prior to release. Compatible with standard molecular biology protocols including those described in Sambrook & Russell (Molecular Cloning), Current Protocols in Molecular Biology, and ATCC recommended media formulations.

## Customs & Trade Information

<b>HS / AHECC Code</b>	3821.00.00
<b>Description</b>	Prepared culture media for the development or maintenance of microorganisms
<b>Country of Origin</b>	Australia

## Disclaimer



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