



## TECHNICAL BRIEF:

### LB Broth (Lennox) and LB Broth (Miller) : Understanding the Key Differences

#### Introduction

**LB Broth** is a fundamental growth medium in molecular biology laboratories, supporting the cultivation of *E. coli* and other bacteria for cloning and protein expression applications. While both Lennox and Miller formulations share the same basic nutrient profile, their distinct salt concentrations make them suitable for different applications and bacterial strains.

Understanding these differences is crucial for optimal experimental outcomes. Using the wrong formulation can lead to poor growth, plasmid instability, or cell death in sensitive strains.

#### LB Broth Lennox and Miller Formulations

**LB Broth Lennox** features a low-salt formulation containing peptides, amino acids, and carbohydrates optimized for salt-sensitive applications. With only 5 g/L of NaCl, this formulation excels in maintaining and propagating *E. coli* strains that require reduced salt levels. The lower salt content makes it more suitable for culturing salt-sensitive bacterial strains and for reduced salt level applications.

**LB Broth Miller** contains the same core nutrient composition - peptides, amino acids, and carbohydrates - but with double the salt concentration at 10 g/L NaCl. This higher salt concentration provides osmotic support for a wider range of bacterial species, making it suitable for bacterial cultivation and growth.

#### Formulation Summary

Feature	LB Broth (Lennox)	LB Broth (Miller)
NaCl Concentration	5 g/L (low salt)	10 g/L (high salt)
Formulation	Tryptone (10 g/L) Yeast Extract (5 g/L) NaCl (5 g/L)	Tryptone (10 g/L), Yeast Extract (5 g/L) NaCl (10 g/L)
Applications	<ul style="list-style-type: none"> <li>• Salt-sensitive bacterial strains</li> <li>• Use with salt-sensitive antibiotics (Zeocin, kanamycin, blasticidin, hygromycin)</li> <li>• Applications requiring reduced salt levels</li> </ul>	<ul style="list-style-type: none"> <li>• General bacterial cultivation</li> <li>• Applications requiring robust, consistent growth</li> <li>• Bacterial strains tolerant of high salt</li> </ul>
Catalog Numbers	340-016-101	340-004-101 (500 mL), 340-004-131 (1000 mL), 340-004-721 (4 x 100 mL)

#### Additional Ready-to-Use Growth Media Options:

**Terrific Broth** - Cat. No. 340-071-101 - Optimized for increased plasmid DNA yield from *E. coli* strains

**Super Broth** - Cat. No. 340-018-131 - Designed for high-yield protein and plasmid DNA production

**SOC Medium** - Cat. No. 340-031-671 - Recovery medium used in final step of bacterial cell transformation

TB1202506