

Luria Agar Base, Miller • Luria Broth Base, Miller

Intended Use

Luria Agar Base, Miller and Luria Broth Base, Miller are used for maintaining and propagating *Escherichia coli* in molecular microbiology procedures with or without added glucose.

Summary and Explanation

Luria Agar Base, Miller and Luria Broth Base, Miller are nutritionally rich media designed for growth of pure cultures of recombinant strains, based on the Luria agar and broth formulae described by Miller.¹ *E. coli* is grown to late log phase in LB Medium. Some plasmid vectors replicate to high copy numbers and do not require selective amplification. Some vectors do not replicate so freely and need to be selectively

User Quality Control

Identity Specifications

Difco™ Luria Agar Base, Miller

Dehydrated Appearance: Light tan, free-flowing, homogeneous.

Solution: 3.05% solution, soluble in purified water upon boiling. Solution is light amber, very slightly to slightly opalescent.

Prepared Appearance: Very light amber, slightly opalescent.

Reaction of 3.05%

Solution at 25°C: pH 7.0 ± 0.2

Difco™ Luria Broth Base, Miller

Dehydrated Appearance: Light tan, free-flowing, homogeneous.

Solution: 1.55% solution, soluble in purified water. Solution is very light to light amber, clear to very slightly opalescent.

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

Reaction of 1.55%

Solution at 25°C: pH 7.0 ± 0.2

Cultural Response

Difco™ Luria Agar Base, Miller or Luria Broth Base, Miller

Prepare the medium with 10 mL sterile 20% glucose solution per label directions. Inoculate and incubate at 35 ± 2°C for 18-24 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
<i>Escherichia coli</i> (K802)	33526	10 ² -3×10 ² (Agar) 10 ² -10 ³ (Broth)	Good Good

amplified. Chloramphenicol may be added to inhibit host synthesis and, as a result, prevent replication of the bacterial chromosome.²

Luria Agar Base, Miller and Luria Broth Base, Miller contain one-tenth and one-twentieth, respectively, the sodium chloride level of the LB Agar, Lennox and LB Agar, Miller formulations.¹⁻³ This allows the researcher to select the optimal salt concentration for a specific strain. The medium may be aseptically supplemented with glucose, if desired.

Principles of the Procedure

Peptone and yeast extract provide nitrogen, carbon, vitamins (including B vitamins) and certain trace elements. Sodium chloride provides essential ions. Agar is the solidifying agent.

Formulae

Difco™ Luria Agar Base, Miller

Approximate Formula* Per Liter	
Pancreatic Digest of Casein	10.0 g
Yeast Extract	5.0 g
Sodium Chloride	0.5 g
Agar	15.0 g

Difco™ Luria Broth Base, Miller

Consists of the same ingredients without the agar.

*Adjusted and/or supplemented as required to meet performance criteria.

Directions for Preparation from Dehydrated Product

1. Suspend/dissolve the powder in 1 L of purified water:
Difco™ Luria Agar Base, Miller – 30.5 g;
Difco™ Luria Broth Base, Miller – 15.5 g.
Mix thoroughly.
2. Heat the agar medium with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes. Cool to 45-50°C.
4. If desired, aseptically add 10 mL of sterile 20% glucose solution and mix thoroughly.
5. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Consult appropriate references for recommended test procedures.^{1,2}

Expected Results

Growth is evident in the form of isolated colonies and/or a confluent lawn on the surface of the agar medium or the appearance of turbidity in the broth medium.

References

1. Miller. 1972. Experiments in molecular genetics. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.
2. Sambrook, Fritsch and Maniatis. 1989. Molecular cloning: a laboratory manual, 2nd ed. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.
3. Lennox. 1955. Virology 1:190.

Availability

Difco™ Luria Agar Base, Miller

Cat. No.	241320	Dehydrated – 500 g
	211829	Dehydrated – 2 kg

Difco™ Luria Broth Base, Miller

COMPF

Cat. No.	241420	Dehydrated – 500 g
	241410	Dehydrated – 2 kg