LB Broth Base (Animal Free)

Intended Use

Select APS™ LB Broth Base is an animal-free medium used to grow and maintain recombinant strains of *Escherichia coli*.

Summary and Explanation

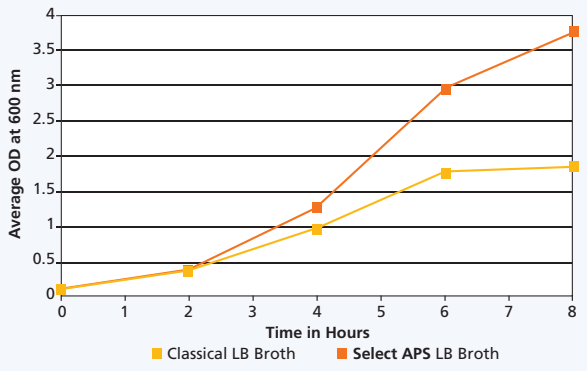
Select Alternative Protein Source (APS) media were designed as alternatives to classical animal-based media for the maintenance and propagation of *Escherichia coli* strains in molecular genetics procedures. **Select APS** media are manufactured from animal-free ingredients in order to minimize the risk of bovine spongiform encephalopathy in culture media containing animal, and especially bovine, materials. **Select APS** media are nutrient-rich formulations designed to out-perform classical animal-based molecular genetics media formulations.

Select APS LB Broth Base is based on the LB Broth Lennox formulation (1% tryptone, 0.5% yeast extract and 0.5% sodium chloride) with 5.0 g/L sodium chloride, which was developed by Lennox for the growth and maintenance of recombinant strains of *E. coli*.[1] The tryptone in the classical LB Lennox formulation is replaced by a combination of animal-free soy hydrolysate and yeast extract in the **Select APS** LB Broth Base.

Select APS LB Broth Base is an excellent all-purpose growth medium for the propagation and maintenance of *E. coli* in molecular biology procedures. Figure 1 shows *E. coli* DH5α growth curves comparing the classical LB Broth Base formulation to **Select APS** LB Broth Base in shaker flask culture. The **Select APS** LB Broth allowed for faster growth of the plasmid-carrying *E. coli* strain and showed twice the optical density (OD) after eight hours as did the classical LB Broth formulation containing tryptone.[2]

Figure 1. Growth Curve

Growth Performance of Classical LB Broth Base vs. **Select APS**™ LB Broth *E. coli* DH5α



Principles of the Procedure

Soy hydrolysate provides nitrogen and carbon essential for bacterial metabolism. Yeast extract supplies vitamins, amino acids and trace elements which enhance bacterial growth and plasmid yield. Sodium chloride provides sodium ions for transport and osmotic balance.

Formula

BBL™ Select APS™ LB Broth Base

Approximate Formula* Per Liter		
Soy Hydrolysate	2.5	g
Yeast Extract	12.5	g
Sodium Chloride	5.0	g

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

Directions for Preparation from Dehydrated Product

1. Dissolve 20.0 g of the powder in 1 L of purified water. Mix thoroughly.
2. Autoclave at 121°C for 15 minutes.
3. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Consult appropriate references for details on recommended test procedures.[3,4]

Expected Results

Growth is evident by the appearance of turbidity.

References

1. Lennox. 1955. Virology. *1*:190.
2. BD Biosciences. 2006. BD Bionutrients™ Technical Manual, Advanced Bioprocessing, 3rd ed. Becton, Dickinson, and Company, Sparks, Md.
3. Sambrook and Russell. 2001. Molecular cloning, a laboratory manual, 3rd ed. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.
4. Ausubel, Brent, Kingston, Moore, Seidman, Smith and Struhl. 2002. Short protocols in molecular biology, 5th ed. John Wiley & Sons, Inc., Hoboken, N.J.

Availability

BBL™ Select APS™ LB Broth Base

Cat. No.		
	292438	Dehydrated – 500 g
	212484	Dehydrated – 10 kg

User Quality Control

Identity Specifications

BBL™ Select APS™ LB Broth Base

Dehydrated Appearance:	Fine, homogeneous, free of extraneous material.
Solution:	2.0% solution, soluble in purified water. Solution is light to medium, yellow to tan, slightly hazy to hazy.
Prepared Appearance:	Light to medium, yellow to tan, slightly hazy to hazy.
Reaction of 3.5% Solution at 25°C:	pH 6.6 – 7.1

Cultural Response

BBL™ Select APS™ LB Broth Base

Prepare the medium per label directions. Inoculate and incubate at 37°C, 250 rpm for 16 hours.

ORGANISM	ATCC™	RECOVERY
Escherichia coli	700790	Good