SOB Medium

Intended Use

SOB Medium is used for cultivating recombinant strains of *Escherichia coli*.

User Quality Control

Identity Specifications

Difco™ SOB Medium

Dehydrated Appearance:	Light beige, free-flowing, homogeneous.
Solution:	2.8% solution, soluble in purified water. Solution is light to medium amber, clear.
Prepared Appearance:	Light to medium amber, clear.
Reaction of 2.8% Solution at 25°C:	pH 7.0 ± 0.2

Cultural Response

Difco™ SOB Medium

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 18-24 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
Escherichia coli (DH-5)	53868	10^2-3×10^2	Good

Summary and Explanation

SOB Medium was developed by Hanahan[1] as a nutritionally rich growth medium for preparation and transformation of competent cells. Transformation requires making perforations in the bacterium (i.e., making the cells "competent") to allow the introduction of foreign DNA into the cell. To survive this process, competent cells need a rich, isotonic environment.

SOC Medium, used in the final stage of transformation, may be prepared by aseptically adding 20 mL of a filter-sterilized 20% solution of glucose (dextrose) to the sterile SOB Medium. This addition provides a readily available source of carbon and energy in a form *E. coli* can use in mending the perforations and for replication.[2]

Principles of the Procedure

Peptone and yeast extract provide sources of nitrogen and growth factors which allow the bacteria to recover from the stress of transformation and grow well. Sodium chloride and potassium chloride provide essential ions. Magnesium sulfate is a source of magnesium ions required in a variety of enzymatic reactions, including DNA replication.

Formula

Difco™ SOB Medium

Approximate Formula* Per Liter

Tryptone	20.0	g
Yeast Extract	5.0	g
Sodium Chloride	0.5	g
Magnesium Sulfate (anhydrous)	2.4	g
Potassium Chloride	186.0	mg

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

Directions for Preparation from Dehydrated Product

1. Suspend 28 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. If desired, SOC Medium may be prepared by adding 20 mL filter-sterilized 20% glucose solution after cooling the medium to 45-50°C.
5. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Consult appropriate references for recommended test procedures.[2]

Expected Results

Growth is evident in the form of turbidity.

References

1. Hanahan. 1983. J. Mol. Biol. *166*:557.
2. Sambrook, Fritsch and Maniatis. 1989. Molecular cloning: a laboratory manual, 2nd ed. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.

Availability

Difco™ SOB Medium

Cat. No. 244310 Dehydrated – 500 g