

# Terrific Broth

## Intended Use

Terrific Broth is used with glycerol in cultivating recombinant strains of *Escherichia coli*.

## Summary and Explanation

Terrific Broth is a highly enriched medium developed by Tartoff and Hobbs to improve yield in plasmid-bearing *E. coli*.<sup>1</sup> Recombinant strains have an extended growth phase in the medium. The addition of extra peptone and yeast extract in the medium allows higher plasmid yield per volume. Glycerol is used as the carbohydrate source in this formulation. Unlike glucose, glycerol is not fermented to acetic acid.

## Principles of the Procedure

Peptone and yeast extract provide necessary nutrients and cofactors for excellent growth of recombinant strains of

*E. coli*. The yeast extract concentration is increased to allow for elevated cell yields. Potassium phosphates are added to provide potassium for cellular systems and prevent cell death due to a drop in pH. Glycerol is added as a carbon and energy source.

## Formula

### Difco™ Terrific Broth

Approximate Formula* Per Liter	
Pancreatic Digest of Casein .....	12.0 g
Yeast Extract .....	24.0 g
Dipotassium Phosphate .....	9.4 g
Monopotassium Phosphate .....	2.2 g

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

## Directions for Preparation from Dehydrated Product

1. Dissolve 47.6 g of the powder in 1 L of purified water.
2. Add 4 mL of glycerol to the medium.
3. Autoclave at 121°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

Consult appropriate references for recommended test procedures.<sup>1,2</sup>

## Expected Results

Growth is evident in the form of turbidity.

## References

1. Tartoff and Hobbs. 1987. Bethesda Research Laboratories Focus 9:12.
2. Sambrook, Fritsch and Maniatis. 1989. Molecular cloning: a laboratory manual, 2nd ed. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.

## Availability

### Difco™ Terrific Broth

Cat. No.	243820	Dehydrated – 500 g
	243810	Dehydrated – 2 kg

### Difco™ Glycerol

Cat. No.	228210	Bottle – 100 g
	228220	Bottle – 500 g

## User Quality Control

### Identity Specifications

#### Difco™ Terrific Broth

Dehydrated Appearance:	Light beige, free-flowing, homogeneous.
Solution:	4.76% solution, soluble in purified water. Solution is light to medium amber, clear.
Prepared Appearance:	Light to medium amber, clear.
Reaction of 4.76% Solution at 25°C:	pH 7.2 ± 0.2

### Cultural Response

#### Difco™ Terrific Broth

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

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
<i>Escherichia coli</i> (C600)	23724	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Escherichia coli</i> (HB101)	33694	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Escherichia coli</i> (DH-1)	33849	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Escherichia coli</i> (JM103)	39403	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Escherichia coli</i> (JM107)	47014	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Escherichia coli</i> (DH-5)	53868	10 <sup>2</sup> -10 <sup>3</sup>	Good