

Protein Science - Dynamite Broth

Purpose

The purpose of this document is to provide a protocol for production of the Protein Expression Laboratory's most often used recombinant protein expression medium.

Scope

This protocol outlines the production of the liquid medium, Dynamite broth (Taylor *et al.*). This medium was developed as a modification of Studier's auto-induction media. It allows extremely high levels of cell density due to the buffering and carbon sources used, but still requires IPTG-induced protein expression.

Materials and Equipment

- Tryptone
- Yeast extract
- Glycerol
- KH_2PO_4
- K_2HPO_4
- Reverse osmosis (RO) water (or of similar quality)
- Glucose
- MgSO_4
- 0.22 μM sterile filtration units

Safety Precautions

Use standard laboratory personal protective equipment.

Procedure

1. Add the following to 700 mL RO water:
 - 12 g tryptone
 - 24 g yeast extract
 - 6.3 mL glycerol
2. Bring the volume to 940 mL with RO water.
3. Sterilize the media by autoclaving.
4. Allow the media to cool to room temperature.

5. Dissolve 3.8 g KH_2PO_4 and 12.5 g K_2HPO_4 in 30 mL of RO water and sterilize this mixture through a filter.
6. Dissolve 5 g glucose and 0.195 g MgSO_4 in 30 mL of RO water and sterilize this mixture through a filter.
7. Aseptically add the two 30 mL solutions to the 940 mL autoclaved solution and transfer the combined mixture to a sterile growth flask for immediate inoculation.

Reference

1. Taylor, T., Denson, J.-P., and Esposito, D. Optimizing Expression and Solubility of Proteins in *E. coli* Using Modified Media and Induction Parameters. *Methods Mol Biol*, 2017. **1586**: p. 65–82.