

NZY Auto-Induction LB medium (powder)

Catalogue number:

MB17901, 100 g
MB17903, 1000 g

Features

- No need to monitor cell-growth
- No need for IPTG induction
- Ideal for IPTG-inducible bacterial systems
- Ideal for high-throughput (HTP) methods
- High cell-densities (OD₆₀₀ up to 14-20) and protein expression levels

Description

NZY Auto-Induction LB medium (powder) is an innovative culture medium for growing *Escherichia coli* to high cell densities and obtaining high-levels of recombinant protein expression with IPTG-inducible bacterial expression systems. This medium does not require the addition of IPTG and consequently to monitor cell growth. The method is based on the presence of medium components that are metabolized differentially to promote culture growth to high cell densities and subsequently induce protein expression from *lac*-based promoters. This offers great conveniences allowing high cell densities and spontaneous gene induction without monitoring cell grow, saving you more time to perform other tasks. NZY Auto-Induction LB medium (powder) is ideal for high-throughput (HTP) methods, when you have to grow multiple cultures expressing various proteins simultaneously.

Shipping conditions

NZY Auto-Induction LB medium (powder) is shipped at room temperature.

Storage conditions

Store the NZY Auto-Induction LB medium (powder) dry at room temperature.

Protocol

1. To prepare 1 Litre of medium, weight 50 g of NZY Auto-Induction LB medium (powder), add 10 mL of glycerol (not provided) and add the required volume of distilled/de-ionised sterile water.
2. Heat the medium in a microwave to dissolve (usually 2 minutes at high power). In alternative, you can autoclave the medium for the shortage liquid autoclave cycle, i.e at 121 °C for 15 min; and then cool down the medium as fast as possible. For the preparation of smaller aliquots of medium, filter sterilization is the preferred method.
3. Supplement with appropriate antibiotic and inoculate with recombinant strain keeping appropriate aeration during culture grow.

Important notes

- NZYTech sells the glycerol required to prepare the NZY Auto-Induction LB medium (powder). The catalogue number is MB16101 (1000 mL format).
- In case you autoclave the medium, avoid overheating it. After the process finishes, open the autoclave as soon as possible and immediately cool down the medium. If needed, reduce the time cycle to 10-12 min.
- Efficient growth to saturation and utilization of NZY Auto-Induction LB medium requires agitation and appropriate aeration.
- The cells should grow until the stationary phase is reached, which usually occurs after 10-20 hours when cultures are incubated at 37 °C. After being at stationary phase for several hours of incubation protein expression levels may decrease.
- NZY Auto-Induction LB medium (powder) only works in expression strains that contain the *lac* operon, producing functional *lac* permease (encoded by the *lacY*) and β -galactosidase (encoded by the *lacZ*).
- The NZY Auto-Induction LB medium (powder) works well in strains that contain a pLysS plasmid. However, in some cases, the combination of the T7 lysozyme expressed by the pLysS and the *lac* repressor may result in reduced levels of protein expression. In these cases, IPTG induction may help improving levels of expression.

Quality control assays

Functional assay

NZY Auto-Induction LB medium (powder) is tested functionally in a protocol designed to express recombinant proteins in *E. coli* BL21(DE3). The recombinant proteins are purified through immobilized metal affinity chromatography (IMAC) and separated through SDS-PAGE.

Data

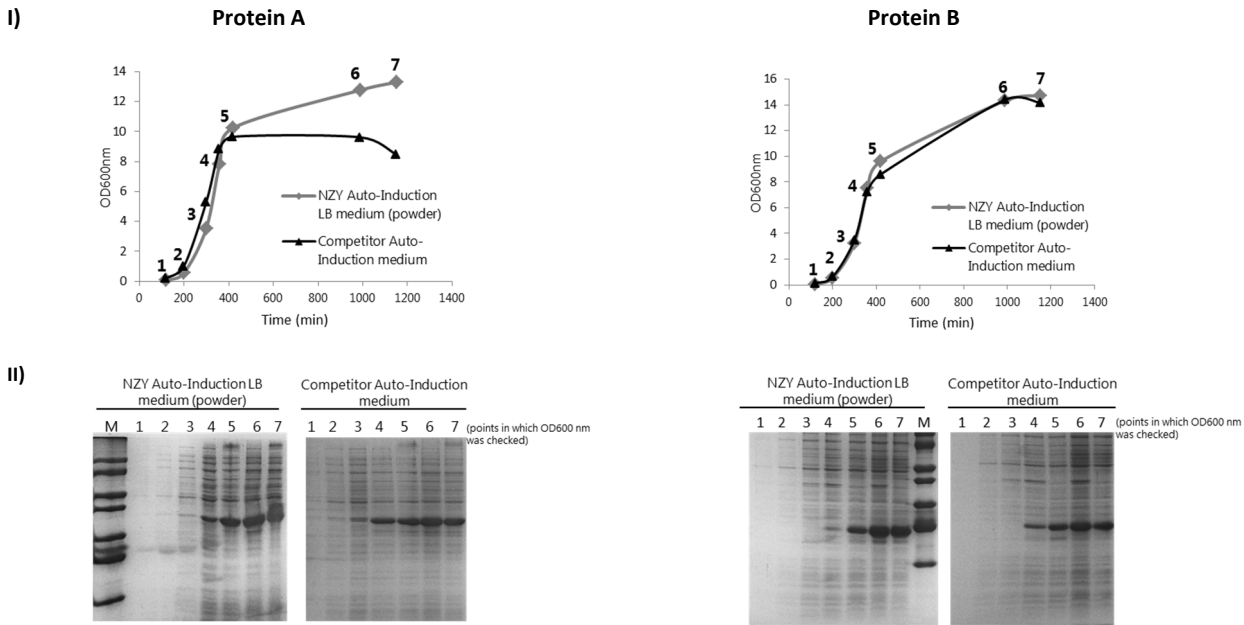


Figure 1. Levels of expression of two recombinant proteins (A and B) were tested when *E. coli* BL21(DE3) strains were grown in NZY Auto-Induction LB medium (powder) or a Competitor Auto-Induction medium. Samples were taken at different checkpoints (1-7) during growth to construct growth curves (I) and the corresponding cell extracts were separated through SDS-PAGE (II). M: Low Molecular Weight (LMW) Protein Marker (MB082).

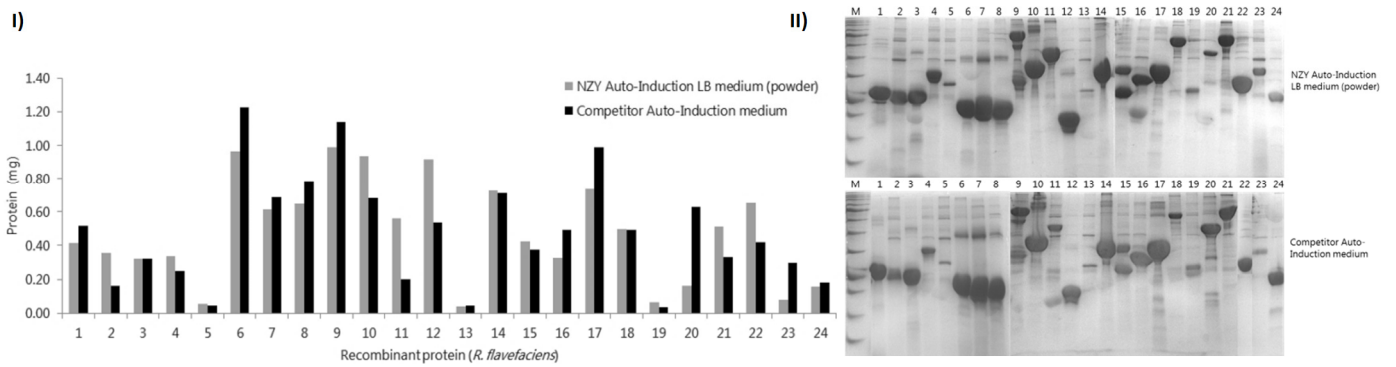


Figure 2. Levels of purified protein obtained from 24 different recombinant *E. coli* BL21(DE3) strains grown in NZY Auto-Induction LB medium (powder) or in a Competitor Auto-Induction medium. The 24 recombinant proteins from *Ruminococcus flavefaciens* were purified through IMAC and levels of protein obtained evaluated (I) while degree of purification was confirmed through SDS-PAGE (II). M: Low Molecular Weight (LMW) Protein Marker (MB082).

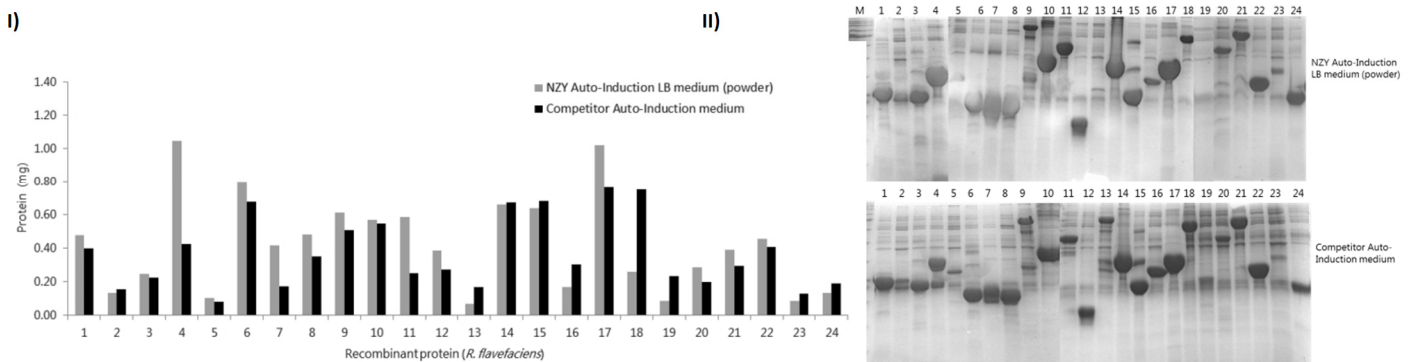


Figure 3. Levels of purified protein obtained from 24 different recombinant *E. coli* BL21(DE3)pLysS strains grown in NZY Auto-Induction LB medium (powder) or in a Competitor Auto-Induction medium. The 24 recombinant proteins from *Ruminococcus flavefaciens* were purified through IMAC and levels of protein obtained evaluated (I) while degree of purification was confirmed through SDS-PAGE (II). M: Low Molecular Weight (LMW) Protein Marker (MB082).

Certificate of Analysis

Test

Result

Functional assay

Pass

Approved by:



Patrícia Ponte
Senior Manager, Quality Systems

For research use only

