

NZY Auto-Induction LB medium (powder)

Catalogue number	Presentation
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 nm 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 must grow multiple cultures expressing various proteins simultaneously.

Shipping & Storage Conditions

This product is shipped at room temperature and should be stored at 15°C to 25°C. The product will remain stable till the expiry date if stored as specified.

Standard Protocol

Procedure

1. To prepare 1 Litre of medium, weight 50 g of NZY Auto-Induction LB medium (powder), add 10 mL of glycerol (MB16101, 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.

Technical Notes

- 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.

Data

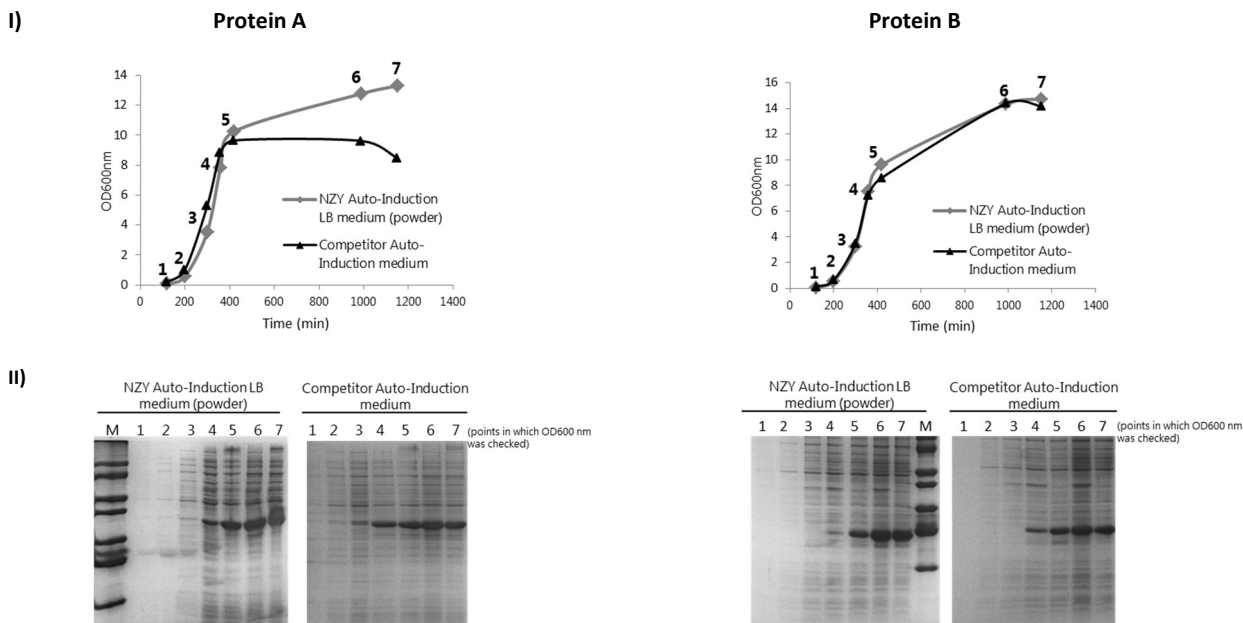


Figure 1. Levels of expression of two recombinant proteins (A and B) were tested when *E. coli* BL21(DE3) strains were grown in NZY Auto-Induction LB medium (powder) or a Competitor Auto-Induction medium. Samples were taken at different checkpoints (1-7) during growth to construct growth curves (I) and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

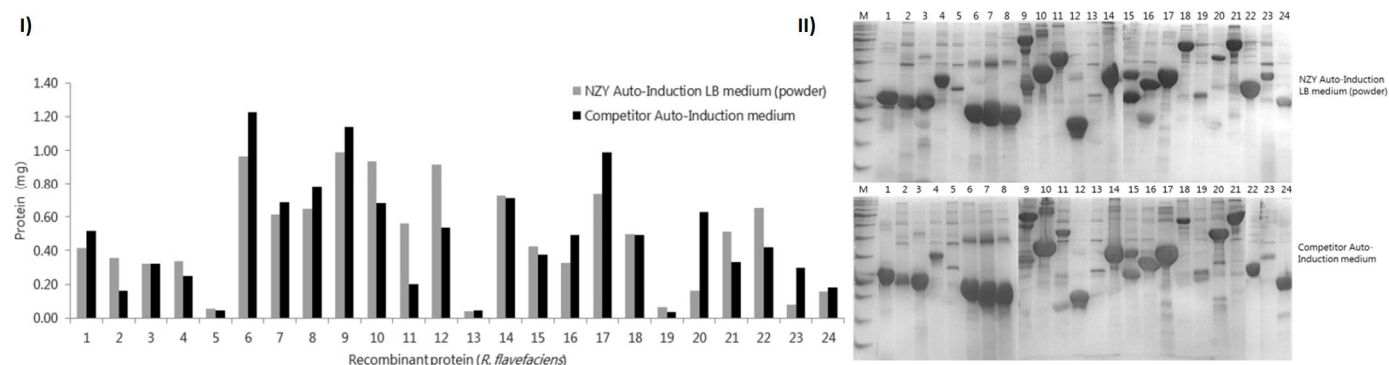


Figure 2. Levels of purified protein obtained from 24 different recombinant *E. coli* BL21(DE3) strains grown in NZY Auto-Induction LB medium (powder) or in a Competitor Auto-Induction medium. The 24 recombinant proteins from *Ruminococcus flavefaciens* were purified through IMAC and levels of protein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

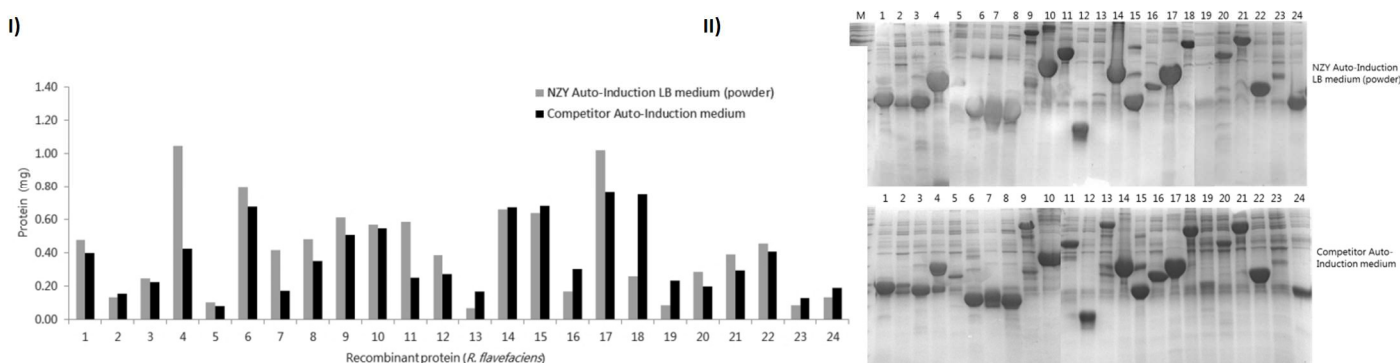


Figure 3. Levels of purified protein obtained from 24 different recombinant *E. coli* BL21(DE3)pLysS strains grown in NZY Auto-Induction LB medium (powder) or in a Competitor Auto-Induction medium. The 24 recombinant proteins from *Ruminococcus flavefaciens* were purified through IMAC and levels of protein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

Quality control

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.

For life science research only. Not for use in diagnostic procedures.

NZYtech Lda. Estrada do Paço do Lumiar, Campus do Lumiar - Edifício E, R/C, 1649-038 Lisboa, Portugal Tel.: +351.213643514 Fax: +351.217151168 www.nzytech.com