LB Broth Autoinducible w/o Trace Element

Cat. 2094

For autoinducible expression of IPTG-inducible bacterial strains

Practical information

Aplications	Categories
Protein expression	Escherichia coli

Industry: Molecular biology / Microbiological Culture Media

Principles and uses

LB Broth Autoinducible w/o Trace Element is a medium which supports a high cell density and, in this case, it is formulated for the optimum growth of E.coli during the logarithmic phase for a long time. As a result, it yields a greater number of recombinant proteins and plasmic DNA.

Auto induction media was first formulated and developed by W. studier to grow IPTG-inducible expression strains. The principle of auto induction media is based on carbon sources in the medium that are metabolized differentially to promote high density cell growth and automatically induce protein expression from lac promoters. Auto induction media contains glucose as well as lactose as the carbon source. A limited concentration of glucose is metabolized preferentially during growth, which prevents uptake of lactose until the glucose is depleted, usually in mid to late log phase. As the glucose is depleted, lactose can be taken up and converted by the enzyme ß-galactosidase to the inducer allolactose. Allolactose causes the release of lac repressor from its specific binding sites in the DNA and thereby induces expression of T7 RNA polymerase from the lacUV5 promoter and unblocks T7lac promoters, allowing expression of target proteins by T7 RNA polymerase. With Auto induction media, a high density cell growth is followed by a spontaneous induction of protein expression. There is no need to monitor the cell density and there is no conventional induction with IPTG.

Parallel growth of many non-induced or auto-induced cultures is feasible because cultures are simply inoculated and grown to saturation. This is a great convenience and simplifies manual or automated induction and analysis of multiple clones compared to conventional IPTG induction, which requires monitoring growth of each culture and adding inducer at the proper stage of growth.

Formula in g/L

Glucose	0,5	Alpha-lactose	2
Ammonium sulfate	3,3	Disodium phosphate	7,1
Magnesium sulfate	0,15	Monopotassium phosphate	6,8
Tryptone	10	Yeast extract	5

Preparation

Suspend 34,85 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for 1 minute or until complete dissolution. Sterilize in autoclave at 121 ºC for 15 minutes. Mix well and dispense as wished.

Instructions for use

- Carry out the experimental procedure according to appropriate use or purpose.
- Inoculate and incubate at a temperature of 35±2 ºC for 18-48 hours.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Amber	7,0±0,2

Microbiological test

Incubation conditions: (35±2 ºC / 18-48 h).

Microorganisms	Specification
Escherichia coli ATCC 23724	Good growth
Escherichia coli ATCC 33694	Good growth
Escherichia coli ATCC 33849	Good growth
Escherichia coli ATCC 39403	Good growth
Escherichia coli ATCC 47014	Good growth

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

Studier, F. W. 2005. Protein production by auto-induction in high-density shaking cultures. Protein expression and purification 41: 207-234.