2X YT Broth (AIM)

#GCM18.0500 (500g)

(FOR RESEARCH ONLY)

Product: Dehydrated powder for the preparation of 2xYT Broth w/o trace elements, supplemented with glucose and alpha lactose for the auto induction of protein expression under the control of IPTG-inducible promoters in *Escherichia coli.*

Quantity: 500g

Formulation (g/L)

Tryptone:	16.00	Yeast Extract:	10.00
$MgSO_4$:	0.15	$(NH_4)_2SO_4$:	3.30
KH_2PO_4:	6.80	Na_2HPO_4:	7.10
Glucose:	0.50	Alpha lactose:	2.00

Final pH (25ºC): 7.0 ± 0.2

Appearance: Beige powder. Autoclaved medium should be amber, slightly opalescent

Storage: 2ºC – 25ºC. When not in use, keep container closed to avoid hydration.

Bibliography:

Studier (2005) Protein production by auto-induction in high-density shaking cultures. Protein Expr.Purif. 41: 207-234

Preparation:

Add 45,85g of the dehydrated medium to one liter of distilled water. Mix well and dissolve by heating with regular agitation. Boil for 1 minute in order to dissolve completely. Dispense in appropriate containers and sterilize by autoclaving at 121ºC for 15 to 20 minutes. Store at 2ºC to 8ºC.

Usage

Commonly, heterologous protein expression is carried out in bacterial systems where the expression is under the control of an IPTG-inducible promoter, such as the Lac promoter. Cells are grown until a desired density and protein expression is subsequently induced by adding IPTG to the medium. With this Auto Induction Medium (AIM), it is no longer required to monitor cell density and to add IPTG at the proper stage, as the medium contains an optimized ratio of glucose and alpha lactose as carbon sources. Glucose, who serves as a repressor of the Lac operon, by preventing uptake of alpha lactose (hence and IPTG) is metabolized preferentially during growth, promoting high cell density. Once glucose is depleted, usually in mid to late log phase, lactose enters the cell where it is converted by ß-galactosidase into allolactose, which in turn serves as the inducer of the IPTG-inducible promoter, resulting in protein expression. This is a great convenience and simplifies manual or automatic induction and analysis of multiple clones compared to conventional IPTG induction.