2017/18 PRODUCT CATALOGUE

ESCHERICHIA COLI MEDIA

FORMEDIUM

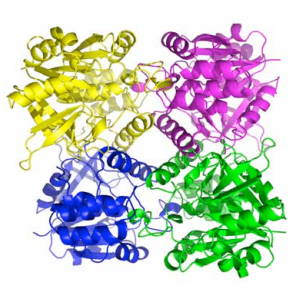
CREATING THE CULTURE FOR DISCOVERY™

CONTENTS

ESCHERICHIA COLI MEDIA

Formedium™ manufactures a large range of powdered Escherichia Coli media

- Auto Induction Medium - LB Broth base, 2YT Broth base, Terrific Broth base, Super Broth base
- Media for optimal cell growth and yield of E. coli cultures - LB media, Tryptone media, Terrific media, SuperBroth media, M9 Minimal Salts
- Bacteriophage Lambda medium formulations - NZ, NZM, NZY, NZYM, NZCYM, NZYDT
- M13 phage and ssDNA bacteriophages medium formulations -YT media, 2xYT media.
- Competent Cells medium formulations - SOB ,SOC
- Bacterial Media components



Crystal and molecular structure of RmlA
Dr. Magnus S. Alphey, University of St. Andrews

The main components of most Esherichia Coli media are:-

Tryptone, enzymatic digest of casein.

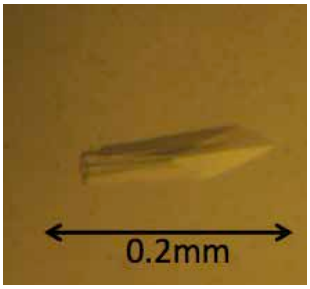
Tryptone is a pancreatic digest of casein. Casein is the main protein of milk and is a rich source of amino acid nitrogen. Amongst all the amino acids, Tryptophan is present in the highest concentrations.

Due to the rich nutritional properties, Tryptone is added to media as an accelerator to increase the yield of organisms and is recommended where a rapid and luxuriant growth of micro organisms is required.

Yeast Extract

Yeast Extract is a spray dried extract manufactured by complete autolysis, i.e. a transformation of proteins into peptides and amino acids, implemented through the proteolytic enzymes present in yeast cells.

The cell membranes are discarded, enabling completely soluble yeast extracts to be obtained. In LB media, Yeast Extract is an essential nitrogen source for bacteria besides peptides and amino acids. Yeast extract also contains purine and pyrimidine bases, carbohydrates and water soluble vitamins of B group.



Above 2 images: Crystals of MscS
Dr. Magnus S. Alphey, University of St. Andrews

Glucose

As the main carbon source

Sodium Chloride

To set the osmolarity of the medium at a suitable osmotic environment.

Agar

When added, to solidify the medium.

Additives

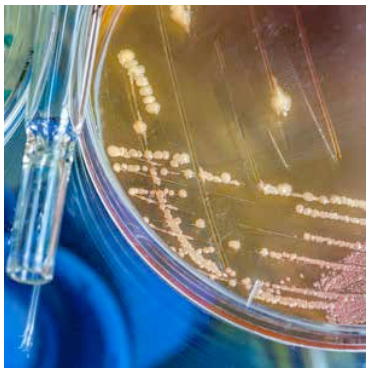
Like Casamino acids, Magnesium sulfate, Maltose, Thymidine.

In fact most *Escherichia Coli* media do contain these components, but all in different compositions and ratios to obtain an optimal result for cell growth and yield, propagation of bacteriophages and preparation of competent cells.

AIM - AUTO INDUCTION MEDIUM

Auto Induction Media (AIM) have been formulated to grow IPTG-inducible expression strains, initially without induction, and then to induce production of target protein automatically, usually near saturation at high cell density. 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 β-galactosidase to the inducer allolactose. Allolactose causes 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 AIM 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. The principle of AIM 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.



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.

The components used in AIM media can be grouped in five functional clusters of components.

Nitrogen Source

Tryptone and Yeast Extract are present as a general nitrogen source for growth and protein expression. Both are excellent sources for nitrogen and additionally Yeast Extract provides B-type vitamins, carbohydrates and growth factors. Due to different demands for nitrogen by various cellines for both growth and protein production Formedium™has developed four different types of AIM media based upon a different quantity and ratio in Tryptone and Yeast Extract.

Within our AIM range are AIM-LB Broth, AIM-2YT Broth, AIM-Terrific Broth and AIM-Super Broth. For more detailed information about concentrations and quantities look at the different product descriptions. For the researcher it is up to decide which type of AIM medium will supports growth and yield at maximum.

Additionally Ammonium Sulphate (NH4)2SO4 is added to the medium for increased protein synthesis.

Carbon Source

In AIM media D-Glucose and α-Lactose are present in a blend optimized for tightly regulated uninduced growth to high cell density followed by high-level induction due to the depletion of glucose and subsequently the conversion of lactose in allolactose.

Buffer

In AIM media a phosphate buffer is present to reduce a drop in pH because of glucose metabolism.

Magnesium Sulphate (MgSO4)

High density growth in complex media is often limited by lack of Magnesium Sulphate. Extra is added to the medium to achieve high saturation cell density.

Trace Elements

Growth to high cell density and high yield protein expression might require the addition of an extra addition of trace elements. Although these elements are present in complex media based on Tryptone and Yeast Extract an extra addition of nine different trace elements plus iron provides amounts sufficient to saturate substantial production of target protein. CaCl2, MnSO4, ZnSO4, CoCl2, CuSO4, NiCl2, NaMoO4, Na2SeO3 and FeCl3 are supplementary to the AIM media including trace elements.

AIM media can be supplied with or without the extra addition of trace metals.

The AIM or Auto Induction Media as produced and supplied by Formedium™ are based on the work of F. William Studier, Protein Production by Auto-Induction in High-Density Shaking Cultures. Brookhaven National Laboratory, Upton, NY 11973

This product category includes:

6	AIM - LB Broth Base w/o Trace elements
7	AIM - LB Broth Base including Trace elements
8	AIM - 2YT Broth Base w/o Trace elements
9	AIM - 2YT Broth Base including Trace elements
10	AIM - Terrific Broth Base w/o Trace elements
11	AIM - Terrific Broth Base including Trace elements
12	AIM - Super Broth Base w/o Trace elements
13	AIM - Super Broth Base including Trace elements

AIM - LB BROTH BASE W/O TRACE ELEMENTS

SKU	Size
AIMLB0101	100g
AIMLB0105	500g
AIMLB0110	1000g
AIMLB0160	6 x 1kg

Formula	g/l
Tryptone	10
Yeast extract	5
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15

GHS07 Skin & Eye Irritation

Suspend 34.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - LB BROTH BASE INCLUDING TRACE ELEMENTS

SKU	Size
AIMLB0201	100g
AIMLB0205	500g
AIMLB0210	1000g
AIMLB0260	6kg

Formula	g/l
Tryptone	10
Yeast extract	5
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15
Trace Elements	0.03

GHS07 Skin & Eye Irritation

Suspend 34.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - 2YT BROTH BASE W/O TRACE ELEMENTS

SKU	Size
AIM2YT0101	100g
AIM2YT0105	500g
AIM2YT0110	1000g
AIM2YT0160	6 x 1kg

Formula	g/l
Tryptone	16
Yeast extract	10
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15

GHS07 Skin & Eye Irritation

Suspend 45.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - 2YT BROTH BASE INCLUDING TRACE ELEMENTS

SKU	Size
AIM2YT0201	100g
AIM2YT0205	500g
AIM2YT0210	1000g
AIM2YT0260	6 x 1kg

Formula	g/l
Tryptone	16
Yeast extract	10
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15
Trace Elements	0.03

GHS07 Skin & Eye Irritation

Suspend 45.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - TERRIFIC BROTH BASE W/O TRACE ELEMENTS

SKU	Size
AIMTB0101	100g
AIMTB0105	500g
AIMTB0110	1000g
AIMTB0160	6kg

Formula	g/l
Tryptone	12
Yeast extract	24
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15

GHS07 Skin & Eye Irritation

Suspend 55.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - TERRIFIC BROTH BASE INCLUDING TRACE ELEMENTS

SKU	Size
AIMTB0201	100g
AIMTB0205	500g
AIMTB0210	1000g
AIMTB0260	6kg

Formula	g/l
Tryptone	12
Yeast extract	24
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15
Trace Elements	0.03

GHS07 Skin & Eye Irritation

Suspend 55.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - SUPER BROTH BASE W/O TRACE ELEMENTS

SKU	Size
AIMSB0101	100g
AIMSB0105	500g
AIMSB0110	1000g
AIMSB0160	6kg

Formula	g/l
Tryptone	35
Yeast extract	20
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15

GHS07 Skin & Eye Irritation

Suspend 74.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

AIM - SUPER BROTH BASE INCLUDING TRACE ELEMENTS

SKU	Size
AIMSB0201	100g
AIMSB0205	500g
AIMSB0210	1000g
AIMSB0260	6kg

Formula	g/l
Tryptone	35
Yeast extract	20
(NH4)2SO4	3.3
KH2PO4	6.8
Na2HPO4	7.1
Glucose	0.5
α-Lactose	2.0
MgSO4	0.15
Trace Elements	0.03

GHS07 Skin & Eye Irritation

Suspend 74.85 gram powdered medium in 1 litre distilled water

Store dry at room temperature

MEDIA FOR OPTIMAL CELL GROWTH AND YIELD OF ESCHERICHIA COLI CULTURES

LB Media (Luria-Bertani) are common bacterial growth media for Escherichia Coli.

Although already described in the fifties in the early days of phage genetics these media are still widely used in molecular biology.

The two main components of LB media are Tryptone and Yeast Extract. Tryptone is used in a concentration of 10 gram / litre and Yeast Extract in a concentration of 5 gram / litre. Many variations of LB medium only differs in the concentration of NaCl. All LB-Media are listed in order of increasing concentration of NaCl.

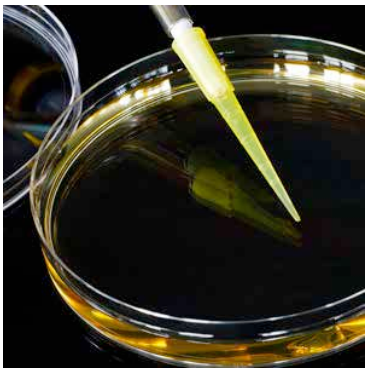
LB Medium Miller is the High Salt LB medium type with 10 gram /litre whereas LB Medium Lennox is the Low Salt LB medium type with 5 gram / litre. L-Broth only contain 0.5 gram of NaCl per litre and is used mainly when working with phage P1 where CaCl2 is added for efficient adherence of the phage to the cell. In LBM media Mg2+ is added to enhance adsorption of phage lambda to the cells. Tryptone and Yeast Extract do not contain enough Mg2+ for optimal adsorption.

Many synonymous names are know for several different type of LB media. We have tried to rank them all.

In case a medium cannot be found please also look at the synonymous names.

Tryptone broth is a moderately rich medium for growth and cultivation of Escherichia Coli.

Terrific Broth is a rich medium compared to LB and Tryptone Media. The medium is developed for higher density growth of Escherichia Coli cells and higher yield of plasmid DNA compared to LB and Tryptone broth.



Super Broth is an even richer medium developed for obtaining high yields of lambda bacteriophage in liquid lysates, Botstein, D. et al.

Powdered Media Storage and Preparation

Ready made powdered media are hygroscopic and must be protected from atmospheric moisture. Always reseal tightly after opening.

Store the medium dry at room temperature.

Preparing media in a concentrated form is not recommended. Some salt and protein complexes may precipitate in a concentrated solution.

Sterilise the medium in a validated autoclave at 1 kg/cm2 (15 psi) at 121°C. for 15 minutes. Higher temperatures or exceeding the period of time for autoclavation may cause a brown decolourisation of the medium due to caramelisation of the glucose present in the medium. Denaturising of proteins may occur as well. Both will result in poor cell growth.

References:

Botstein, D. et al, Mol. Biol., 91, 439, (1975)
Lennox, E.S., Virology, 1, 190, (1955).
Luria, S.E. and Burrous, J.W., J. Bacteriol. 74, 471, (1957).
Luria, S.E. et al., Virology, 12, 348, (1960).
Blattner, F., et al. Science, 196, 161, (1977).
Miller, J.H., Experiments in Molecular Genetics, C.S.H. Press, N.Y., (1972)

This product category includes:

LB BROTH W/O NACL

SKU	Size
LBO0101	250g
LBO0102	1000g
LBO0103	6 x 1kg

Formula	g/l
Tryptone	10
Yeast extract	5
Final pH	7.0 ± 0.2 at 25°C

Suspend 15 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SABOURAUD AGAR

SKU	Size
SAB0102	250g
SAB0105	500g
SAB0110	1kg

Formula	g/l
Peptone	10
Glucose	40
Agar	20

Final pH 7.0 ± 0.2 at 25°C

Suspend 70 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

LB AGAR W/O NACL

SKU	Size
LBO0201	250g
LBO0202	1000g
LBO0203	6 x 1kg

Formula	g/l
Tryptone	10
Yeast extract	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 30 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

L-BROTH

SKU	Size
LBL0101	250g
LBL0102	1000g
LBL0103	6 x 1kg

GHS07 Skin & Eye Irritation

Luria Broth Base (Miller's Modification)

Luria Broth Base or L-Broth is based upon the Luria Broth formulation as originally developed by Miller for cultivation and maintenance of E. coli cells in molecular biology.

L-Broth is a nutritionally rich medium originally developed for growth and maintenance of recombinant E. coli strains. E. coli is grown to late log phase in LB Broth. These strains are generally derived from E. coli K12 which are deficient in B vitamin production. K12 has been ultimately modified by specific mutation into an auxothropic strain not capable of growth on nutritionally deficient medium. All nutritional requirements of E. coli strains are provided by LB Broth. Peptides and amino acids are abundantly present in Tryptone. Yeast extract is a rich source of amino acids, vitamins, nucleotides and carbohydrates. These nutritional elements in LB media, which otherwise the cell would have to synthesize, support a luxurious growth of E. coli cells.

Sodium ions for transport and osmotic balance are provided by Sodium chloride.

The concentration of NaCl in L-Broth is low compared to both LB Miller and LB Lennox formulations, respectively 10% and 5% of the NaCl concentration is present in both formulations.

These variations in Sodium chloride content make it possible to select the optimal salt concentration for a specific strain.

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	0.5
Final pH	7.0 ± 0.2 at 25°C

Suspend 15.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

Miller, J.H., Experiments in molecular genetics, Cold Spring harbour Laboratory, Cold Spring harbour, New York, (1972).

Lennox, E.S., Transuction of linked genetic characters of the host by bacteripphage P1, 1, 190-206, (1955).

Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.

L-BROTH AGAR

SKU	Size
LBL0201	250g
LBL0202	1000g
LBL0203	6 x 1kg

Luria Agar Base (Miller's Modification)

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	0.5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 30.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

L-BROTH TOP AGAR

SKU	Size
LBL0301	250g
LBL0302	1000g

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	0.5
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 22.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

LB-BROTH LENNOX

SKU	Size
LBX1L	1 Litre pack
LBX2L	2 Litre pack
LBX5L	5 Litre pack
LBX10L	10Litre pack
LBX20L	20Litre pack
LBX0101	250g
LBX0104	500g
LBX0102	1kg
LBX0103	6 x 1kg

LB-Broth Low Salt, Lennox L Broth

LB Broth Lennox is a nutritionally rich medium originally developed for growth and maintenance of recombinant E. coli strains. E. coli is grown to late log phase in LB Broth. These strains are generally derived from E. coli K12 which are deficient in B vitamin production. K12 has been ultimately modified by specific mutation into an auxothropic strain not capable of growth on nutritionally deficient medium. All nutritional requirements of E. coli strains are provided by LB Broth. Peptides and amino acids are abundantly present in Tryptone. Yeast extract is a rich source of amino acids, vitamins, nucleotides and carbohydrates. These nutritional elements in LB media, which otherwise the cell would have to synthesize, support a luxurious growth of E. coli cells.

Sodium ions for transport and osmotic balance are provided by Sodium chloride. The concentration of NaCl in LB Lennox is half the concentration of the LB Miller Broth formulation and ten times the concentration of LB Luria Broth formulation. These variations in Sodium chloride content make it possible to select the optimal salt concentration for a specific strain.

Lennox, E.S., Transuction of linked genetic characters of the host by bacteripphage P1, 1, 190-206, (1955).

Assubel, F.M., R. Brent, R.E. Kingston, D.D. Moore, J.G. Seidman, J.A. Smith and K. Struhl, Current protocols in molecular biology, vol. 1, Current Protocols, New York, (1994).

GHS07 Skin & Eye Irritation

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
Final pH	7.0 ± 0.2 at 25°C

Suspend 20 gram powdered medium in 1 litre distilled water

Store dry at room temperature

LB-AGAR LENNOX

SKU	Size
LBXA1L	1 Litre pack
LBXA2L	2 Litre pack
LBXA5L	5 Litre pack
LBXA10L	10 Litre pack
LBXA20L	20 Litre pack
LBX0201	250g
LBX0202	1000g
LBX0203	6 x 1kg

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C


GHS07 Skin & Eye Irritation

Suspend 35 gram powdered medium in 1 litre distilled water

Store dry at room temperature

LB-TOP AGAR LENNOX

SKU	Size
LBL0201	250g
LBL0202	1000g
LBL0203	6 x 1kg

LB-Top Agar Low Salt, Lennox L

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 27 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

LBM-BROTH LENNOX

SKU	Size
LXM0101	250g
LXM0102	1000g
LXM0103	6 x 1kg

LBM-Broth Low Salt

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Final pH	7.0 ± 0.2 at 25°C

For propagation of of lambda phages in Escherichia coli.

In LBM media Mg2+ is added to enhance adsorbtion of phage lambda to the cells. Tryptone and Yeast extract do not contain enough Mg2+ for optimal adsorption.

Suspend 21 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

LBM-AGAR LENNOX

SKU	Size
LXM0201	250g
LXM0202	1000g
LXM0203	6 x 1kg

LBM-Agar Low Salt

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Agar	15
Final pH	7.0 ± 0.2 at 25°C

For propagation of of lambda phages in Escherichia coli.

In LBM media Mg2+ is added to enhance adsorbtion of phage lambda to the cells. Tryptone and Yeast extract do not contain enough Mg2+ for optimal adsorption

Suspend 36 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

LB-BROTH MILLER

SKU	Size
LMM1L	1 Litre pack - 25g
LMM2	L2 Litre pack - 50g
LMM5	L5 Litre pack - 125g
LMM10L	10 Litre pack - 250g
LMM20L	20 Litre pack - 500g
LMM0101	250g
LMM0104	500g
LMM0102	1000g
LMM01051	500g
LMM0103	6 x 1kg

LB-Broth High Salt, Miller's LB Broth, Luria Broth

LB Broth Miller is a nutritionally rich medium originally developed for growth and maintenance of recombinant E. coli strains. E. coli is grown to late log phase in LB Broth. These strains are generally derived from E. coli K12 which are deficient in B vitamin production. K12 has been ultimately modified by specific mutation into an auxothropic strain not capable of growth on nutritionally deficient medium. All nutritional requirements of E. coli strains are provided by LB Broth. Peptides and amino acids are abundantly present in Tryptone. Yeast extract is a rich source of amino acids, vitamins, nucleotides and carbohydrates. These nutritional elements in LB media, which otherwise the cell would have to synthesize, support a luxurious growth of E. coli cells.

Sodium ions for transport and osmotic balance are provided by Sodium chloride. The concentration of NaCl in LB Miller is twice the concentration of the LB Lennox Broth formulation and twenty times the concentration of LB Luria Broth formulation.

These variations in Sodium chloride content make it possible to select the optimal salt concentration for a specific strain.

Luria, S.E. and J.W. Burrous, Hybridization between Escherich coli and Shigella, J. Bacteriol., 74, 461-476. 1955.

Luria, S.E., J.N. Adams and R.C. Ting, Transduction of lactose-utilizing ability amongst strains of E. coli and S. dysenteria and the properties of transducing phage particles, Virology, 12, 348-390, 1960.

GHS07 Skin & Eye Irritation

Lennox, E.S., Transuction of linked genetic characters of the host by bacteripphage P1, 1, 190-206, (1955).

Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.

Assubel, F.M., R. Brent, R.E. Kingston, D.D. Moore, J.G. Seidman, J.A. Smith and K. Struhl, Current protocols in molecular biology, vol. 1, Current Protocols, New York, (1994).

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	10
Final pH	7.0 ± 0.2 at 25°C

Suspend 25 gram powdered medium in 1 litre distilled water

Store dry at room temperature

LB-AGAR MILLER

SKU	Size
LMM02-1L	1 Litre pack
LMM02-2L	2 Litre pack
LMM02-5L	5 Litre pack
LMM02-10L	10L pack
LMM02-20L	20 Litre pack
LMM02012	50g
LMM0204	500g
LMM0202	1000g
LMM0203	6 x 1kg

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	10
Agar	15
Final pH	7.0 ± 0.2 at 25°C

GHS07 Skin & Eye Irritation

Suspend 40 gram powdered medium in 1 litre distilled water

Store dry at room temperature

LB-TOP AGAR MILLER

SKU	Size
LMM0301	250g
LMM0302	1000g

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	10
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 32 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

LBM-BROTH MILLER

SKU	Size
LMG0101	250g
LMG0102	1000g
LMG0103	6 x 1kg

LBM-Broth High Salt

In LBM media Mg2+ is added to enhance adsorption of phage lambda to the cells. Tryptone and Yeast extract do not contain enough Mg2+ for optimal adsorption.

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	10
MgSO4. anhydrous	0.98
Final pH	7.0 ± 0.2 at 25°C

GHS07 Skin & Eye Irritation

Suspend 32 gram powdered medium in 1 litre distilled water

Store dry at room temperature

LBM-AGAR MILLER

SKU	Size
LMG0201	250g
LMG0202	1000g
LMG0203	6 x 1kg

GHS07 Skin & Eye Irritation

LBM-Agar Low Salt

In LBM media Mg2+ is added to enhance adsorbtion of phage lambda to the cells. Tryptone and Yeast extract do not contain enough Mg2+ for optimal adsorption.

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	10
MgSO4. anhydrous	0.98
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 41 gram powdered medium in 1 litre distilled water

Store dry at room temperature

2X LB-BROTH

SKU	Size
LBD0101	250g
LBD0102	1000g
LBD0103	6 x 1kg

For maintenance and propagation of *Escherichia coli.*

Formula	g/l
Tryptone	20
Yeast extract	15
NaCl	20
Final pH	7.0 ± 0.2 at 25°C

Suspend 55 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

2X LB-AGAR

SKU	Size
LBD0201	250g
LBD0202	1000g
LBD0203	6 x 1kg

For maintenance and propagation of *Escherichia coli.*

Formula	g/l
Tryptone	20
Yeast extract	15
NaCl	20
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 70 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NUTRIENT BROTH

SKU	Size
NBO01	500g
NBO02	1000g
NBO03	6 x 1kg

Formula	g/l
Peptone	5
Beef Extract	1
Yeast Extract	2
NaCl	5
Final pH	7.0 ± 0.2 at 25°C

Suspend 13 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NUTRIENT AGAR

SKU	Size
NAO01	500g
NAO02	1000g
NAO03	6 x 1kg

Formula	g/l
Peptone	5
Beef Extract	1
Yeast Extract	2
NaCl	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 28 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TRYPTONE BROTH

SKU	Size
TPB0101	250g
TPB0102	1000g
TPB0103	6 x 1kg

General purpose medium for maintenance and propagation of *Escherichia coli*.

Formula	g/l
Tryptone	10
NaCl	8
Final pH	7.0 ± 0.2 at 25°C

Suspend 18 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TRYPTONE AGAR

SKU	Size
TPA0101	250g
TPA0102	1000g
TPA0103	6 x 1kg

Formula	g/l
Tryptone	10
NaCl	8
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 33 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TRYPTONE TOP AGAR

SKU	Size
TPT0101	250g
TPT0102	1000g

Formula	g/l
Tryptone	10
NaCl	8
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 25 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TERRIFIC BROTH

SKU	Size
TRB0101	250g
TRB0104	500g
TRB0102	1000g
TRB0103	6 x 1kg

Terrific Broth is rich nutritional medium developed by Tartoff and Hobbs supporting luxurious high density growth of E.coli and a higher yield of plasmid DNA compared to LB type media. Recombinant E. coli cells have an extended growth phase in Terrific medium.

Terrific medium is used with glycerol as a carbon source. Unlike glucose, glycerol is not fermented to acetic acid.

Tryptone and Yeast are present in the medium in elevated concentrations and provide nitrogen, vitamins and cofactors for a luxurious growth.

Potassium phosphate is present in Terrific broth buffered to balance the pH and subsequently prevent cell death due to a drop in pH.

Tartoff, K. D., and C. A. Hobbs, Improved media for growing plasmids and cosmid clones, Bethesda Research Laboratories, 9, 12, (1987).

Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.

Formula	g/l
Tryptone	12
Yeast Extract	24
Final pH	7.0 ± 0.2 at 25°C

Suspend 36 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TERRIFIC AGAR

SKU	Size
TRA0101	250g
TRA0102	1000g
TRA0103	6 x 1kg

Formula	g/l
Tryptone	12
Yeast Extract	24
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 51 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TERRIFIC BROTH PHOSPHATE BUFFERED

SKU	Size
TBP0101	250g
TBP0102	1kg
TBP0103	6 x 1kg

Phosphate Buffered

Formula	g/l
Tryptone	12
Yeast Extract	24
KH2PO4	9.4
K2HPO4	2.2
Final pH	7.0 ± 0.2 at 25°C

Suspend 47.6 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

TERRIFIC AGAR PHOSPHATE BUFFERED

SKU	Size
TAP0101	250g
TAP0102	1000g
TAP0103	6 x 1kg

Phosphate Buffered

Formula	g/l
Tryptone	12
Yeast Extract	24
KH2PO4	9.4
K2PO4	2.2
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 62.6 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SUPER BROTH

SKU	Size
SPB0101	250g
SPB0102	1000g
SPB0103	6 x 1kg

Super broth is an extremely rich medium with highly elevated levels of Tryptone and Yeast extract. Due to the high levels of peptides, amino acids, vitamins and cofactors high yields of E. coli cells and lambda bacteriophages are obtained.

Formula	g/l
Tryptone	35
Yeast Extract	20
NaCl	5
Final pH	7.0 ± 0.2 at 25°C

GHS07 Skin & Eye Irritation

Suspend 60 gram powdered medium in 1 litre distilled water
Store dry at room temperature

SUPER BROTH AGAR

SKU	Size
SPA0101	250g
SPA0102	1000g
SPA0103	6 x 1kg

Formula	g/l
Tryptone	35
Yeast Extract	20
NaCl	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 75 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SUPER BROTH TOP AGAR

SKU	Size
SPT0101	250g
SPT0102	1000g

Formula	g/l
Tryptone	35
Yeast Extract	20
NaCl	5
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 67 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

M9 MINIMAL SALTS BASE, 5X

SKU	Size
MMS0101	250g
MMS0102	1000g
MMS0103	6 x 1kg

M9 Minimal Salts Base, 5x is used in preparing M9 Minimal medium used for the cultivation and maintenance of E. coli in molecular biology.

M9 is a chemical defined minimal medium supporting the growth of 'wild-type' strains of E.coli. The medium can be supplemented with specific amino acids or other required nutrients allowing for selection of specific auxotrophs.

Glucose may be added as a source of carbohydrate. Nitrogen is provided by ammonium chloride final osmolarity of the medium is maintained by NaCl. Addition of magnesium and calcium increases the growth of the recombinant cells.

M9 Minimal Salts Base, 5x is a 5x concentrate and has to be diluted to a 1x concentration and subsequently supplemented with an appropriate carbon source, such as glucose. Addition of required nutritionally elements may be added.

Difco Manual, 11th edition, Sparks, MD, 272, 1998.

Davis, L.G., M.D. Dibner and J.F. Battey, Basic methods in molecular biology, Elsevier, new York, (1986).

Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.

Formula	g/l
Na2HPO4	33.9
KH2PO4	15
NaCl	2.5
NH4Cl	5
Final pH	6.8 ± 0.2 at 25°C

GHS07 Skin & Eye Irritation

Suspend 56.4 gram powdered medium in 1 litre distilled water

Store dry at room temperature

M17 BROTH

SKU	Size
M170110	1kg
M170160	6 x 1kg

M17 Medium is a well buffered enriched medium for bacterial growth. The medium is optimized for isolating lactic Streptococci. Casein hydrolysate, Beef extract and Soya peptone supply carbon sources, nitrogen, vitamins and minerals essential for vigorous growth. Yeast extract supplies B-complex vitamins which stimulate bacteria growth. The medium is buffered by Disodium-β-glycerophosphate which prevents a drop in pH by the production of organic acids, such as lactic acid, during fermentation.

Ascorbic acid and Magnesium sulphate are added to stimulate growth.

Formula	g/l
Pancreatic Digest of Casein	5.0
Soy Peptone	5.0
Beef Extract	5.0
Yeast Extract	2.5
Ascorbic Acid	0.5
Magnesium Sulfate	0.25
Disodium-β-glycerophosphate	19.0

GHS07 Skin & Eye Irritation

Suspend 36.15 grams of powdered medium in 1 litre distilled water

Store dry at room temperature

BLOOD AGAR BASE

SKU	Size
BAB0105	500g
BAB0110	1000g
BAB0160	6 x 1kg

Formula	g/l
Peptone	10
Beef Extract	10
NaCl	5
Agar	12
Final pH	7.0 ± 0.2 at 25°C

Suspend 37gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

MALT EXTRACT AGAR

SKU	Size
MEA0102	250g
MEA0110	1000g
MEA0160	6 x 1kg

Formula	g/l
Malt Extract	30
Peptone	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 50 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

MACCONKEY AGAR BASE

SKU	Size
MAB10	1000g
MAB60	6 x 1kg

Formula	g/l
Peptone	20
Bile salts	1.5
NaCl	5
Neutral red	0.03
Crystal violet	0.001
Agar	13.5
Final pH	7.0 ± 0.2 at 25°C

Suspend 40 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

MUELLER HINTON BROTH

SKU	Size
MHB0100	250g
MHB0101	1000g
MHB0102	6 x 1kg

Formula	g/l
Casamino acids	17.5
Peptone	2
Soluble starch	1.5
Soluble starch	7.0 ± 0.2 at 25°C

Suspend 21 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

BACTERIOPHAGE LAMBDA MEDIUM FORMULATIONS

Formedium™ manufactures a large range of media for maintenance and propagation of bacteriophage lambda in Escherichia Coli cells as described by Blattner, F. et al., Science, **196**, 161, 1977.

NZCYM medium, as originally developed by Blattner, is available in several modification providing the researcher to select the optimum medium formulation for a specific strain.

Tryptone or Casein, Yeast Extract and Casamino acids are sources of nitrogen within this group of media. Peptides and amino acids are abundantly present in Tryptone. Yeast Extract is a abundantly source of amino acids, vitamins, nucleotides and carbohydrates. Due to its high degree of digestion Casamino acids is a rich source of free amino acids.

Sodium ions for transport and a suitable osmotic balance are provided by Sodium Chloride.

Magnesium Sulfate provides magnesium ions required in a variety of enzymatic reactions, including DNA replication.

To optimise binding of phage lambda to Escherichia Coli cells add 0.2% Maltose to the medium for inducing lambda receptors (LampB) on host cells.

Blattner, F.R., et al., Charon phages: Safer derivatives of bateriophage for DNA cloning, Science, 196, 161, (1977).
Difco manual 11th ed., Sparks, MD (1998), 22-23.
Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.
Assubel, F.M., R. Brent, R.E. Kingston, D.D. Moore, J.G. Seidman, J.A. Smith and K. Struhl, Current protocols in molecular biology, vol. 1, Current Protocols, New York, (1994).

This product category includes:

NZ BROTH

SKU	Size
NZB0101	250g
NZB0102	1000g

NZM Broth

Formula	g/l
Tryptone	10
NaCl	5
MgSO4 anhydrous	0.98
Final pH	7.0 ± 0.2 at 25°C

Suspend 16 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZ AGAR

SKU	Size
NZA0101	250g
NZA0102	1000g

NZM Agar

Formula	g/l
Tryptone	10
NaCl	5
MgSO4 anhydrous	0.98
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 31 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZCYM BROTH

SKU	Size
NZC0101	250g
NZC0102	1000g
NZC0103	6 x 1kg

Formula	g/l
Casamino acids	1
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Final pH	7.0 ± 0.2 at 25°C

Suspend 22 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZCYM AGAR

SKU	Size
NZC0201	250g
NZC0202	1000g
NZC0203	6 x 1kg

Formula	g/l
Casamino acids	1
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 37 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZCYM TOP AGAR

SKU	Size
NZC0301	250g
NZC0302	1000g

Formula	g/l
Casamino acids	1
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 29 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZY BROTH

SKU	Size
NZY0101	250g
NZY0102	1000g

Harvard Broth

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	8
Final pH	7.0 ± 0.2 at 25°C

Suspend 23 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZY AGAR

SKU	Size
NZY0201	250g
NZY0202	1000g

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	8
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 38 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZYDT BROTH

SKU	Size
NZD0101	500g

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.49
Thymidine	0.04
Final pH	7.0 ± 0.2 at 25°C

Suspend 20.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZYDT AGAR

SKU	Size
NZD0201	500g

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.49
Thymidine	0.04
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 35.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZYM BROTH

SKU	Size
NZM0101	250g
NZM0102	1000g
NZM0103	6 x 1kg

NZY Broth

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Final pH	7.0 ± 0.2 at 25°C

Suspend 21 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZYM AGAR

SKU	Size
NZM0201	250g
NZM0202	1000g
NZM0203	6 x 1kg

NZY Agar

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 36 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

NZYM TOP AGAR

SKU	Size
NZM0301	250g
NZM0302	1000g

NZY Top Agar

Formula	g/l
Tryptone	10
Yeast extract	5
NaCl	5
MgSO4 anhydrous	0.98
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 28 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

M13 PHAGE AND SSDNA BACTERIOPHAGES MEDIUM FORMULATIONS

YT and 2X YT are designed for cultivation of recombinant strains of Escherichia Coli . These media are also used for maintenance and propagation of M13 bacteriophage and several types of ssDNA bacteriophage.

YT is a moderately rich medium, where 2x YT is a nutritional rich medium providing nitrogen and growth factors allowing bacteriophage to reproduce in large quantities without exhausting the host cells. The presence of amino acids, nucleotides, vitamins and other nutritional elements, that the cell would otherwise have to synthesize, stimulates a luxurious growth and high yields of the host cells. Sodium Chloride is present in the medium to provide a suitable osmolarity.

Difco manual 11th ed., Sparks, MD (1998), 22-23.
Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.
Assubel, F.M., R. Brent, R.E. Kingston, D.D. Moore, J.G. Seidman, J.A. Smith and K. Struhl, Current protocols in molecular biology, vol. 1, Current Protocols, New York, (1994).
Davis, L.G., M.D. Dibner and J.F. Battey, Basic methods in molecular biology, Elsevier, new York, (1986).

This product category includes:

YT BROTH

SKU	Size
YTB0101	250g
YTB0102	1000g
YTB0103	6 x 1kg

Formula	g/l
Tryptone	8
Yeast extract	5
NaCl	5
Final pH	7.0 ± 0.2 at 25°C

Suspend 18 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

YT AGAR

SKU	Size
YTA0201	250g
YTA0202	1000g
YTA0203	6 x 1kg

Formula	g/l
Tryptone	8
Yeast extract	5
NaCl	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 33 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

YT TOP AGAR

SKU	Size
YTT0301	250g
YTT0302	1000g

Formula	g/l
Tryptone	8
Yeast extract	5
NaCl	5
Agar	7
Final pH	7.0 ± 0.2 at 25°C

Suspend 25 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

YT AGAR

SKU	Size
YDB1L	1 Litre pack - 31g
YDB2L	2 Litre pack
YDB5L	5 Litre pack
YDB10L	10 Litre pack - 310g
YDB20L	20 Litre pack
YDB0101	250g
YDB0102	1000g
YDB0103	6 x 1kg

Formula	g/l
Tryptone	16
Yeast extract	10
NaCl	5
Final pH	7.0 ± 0.2 at 25°C

Suspend 31 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

2X YT AGAR

SKU	Size
YDA1L	1 Litre pack
YDA2L	2 Litre pack
YDA5L	5 Litre pack
YDA10L	10L pack
YDA20L	20 Litre pack
YDA0201	250g
YDA0202	1000g
YDA0203	6 x 1kg

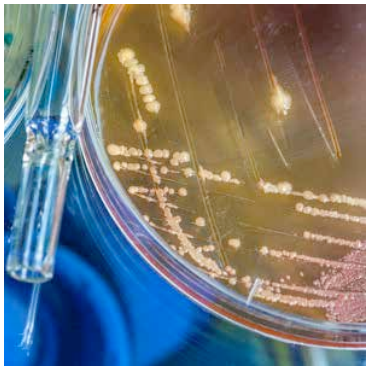
Formula	g/l
Tryptone	16
Yeast extract	10
NaCl	5
Agar	15
Final pH	7.0 ± 0.2 at 25°C

GHS07 Skin & Eye Irritation

Suspend 46 gram powdered medium in 1 litre distilled water

Store dry at room temperature

COMPETENT CELLS MEDIUM FORMULATIONS



SOB is originally developed by Hanahan as a medium to prepare competent cells prior to transformation for maximizing transformation efficiency. Transformation requires making perforations in the bacterium (i.e. making the cells 'Competent') to allow the introduction of foreign DNA into the cell. To survive the process of perforating the cell, competent Escherichia Coli cells need a nutritionally rich and well balanced isotonic medium.

Tryptone and Yeast Extract are sources of nitrogen, vitamins, growth factors and carbohydrates supporting the cell to recover from the stress of transformation and subsequently grow well.

To set a well balanced isotonic environment Sodium Chloride and Potassium Chloride are present in the medium.

Magnesium ions required in a variety of enzymatic reactions including DNA replication are provided by Magnesium Sulfate.

SOC medium as used in the final stage of transformation and is prepared by adding glucose in a final concentration of 20 mM to SOB medium. The glucose added is a readily available carbon and energy source for Escherichia Coli cells in mending the perforations and for replication.

Hanahan, D., Studies on transformation of Escherichia coli with plasmids, J. Mol., Biol., 166, 557, 1983.
Sambrook, J,., E. F. Fritsch, and T. Maniatis, 1989, Molecular cloning: a laboratory manual, 2nd edition ed., Cold Spring Harbour laboratory, Cold Spring Harbour, N.Y.
Difco manual 11th ed., Sparks, MD (1998), 22-23.

This product category includes:

SOB

SKU	Size
SOB0101	250g
SOB0102	1000g

Formula	g/l
Tryptone	20
Yeast extract	5
NaCl	0.5
MgSO4	2.44
Final pH	7.0 ± 0.2 at 25°C

Suspend 27.9 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SOC BROTH

SKU	Size
SOC0201	250g
SOC0202	1kg

Formula	g/l
Glucose	3.6 (20 mN)
Tryptone	20
Yeast extract	5
NaCl	0.5
MgSO4	2.44
Final pH	7.0 ± 0.2 at 25°C

Suspend 31.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SOB, HANAHAN'S BROTH

SKU	Size
SOB0201	250g
SOB0202	1000g

Formula	g/l
Tryptone	20
Yeast extract	5
NaCl	0.5
MgSO4	2.44
KCl	0.186
Final pH	7.0 ± 0.2 at 25°C

Suspend 28.1 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SOA

SKU	Size
SOA0101	250g
SOA0102	1000g

Formula	g/l
Tryptone	20
Yeast extract	5
NaCl	0.5
MgSO4	2.44
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 42.9 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SOA, HANAHAN'S AGAR

SKU	Size
SOA0201	250g
SOA0202	1000g

Formula	g/l
Tryptone	20
Yeast extract	5
NaCl	0.5
MgSO4	2.44
KCl	0.186
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 43.1 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

SOC AGAR

SKU	Size
SOC0101	250g
SOC0102	1000g

Formula	g/l
Glucose	3.6 (20 mN)
Tryptone	20
Yeast extract	5
NaCl	0.5
MgSO4	2.44
Agar	15
Final pH	7.0 ± 0.2 at 25°C

Suspend 46.5 gram powdered medium in 1 litre distilled water

Store dry at room temperature

GHS07 Skin & Eye Irritation

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