FORMEDIUM™

CREATING THE CULTURE FOR DISCOVERY

# MICROBIOLOGICAL MEDIA

PRODUCT CATALOGUE 2025/26

# DICTYOSTELIUM DISCOIDEUM

Dictyostelium Discoideum is a slime mold from the phylogenic order Ascrasiales within the phylum Myxomycophyta. What makes this mold very interesting from a scientific point of view is the fact that Dictyostelium Discoideum represents a junction between single and multi-cellular organisms. Being a meat eater Dictyostelium Discoideum grows vigorously as autonomous cells when, as a food source, bacteria are present. When the cells are depleted from the bacterial food source they join with other adjacent cells to form multi cellular structures. To survive this period of nutritional starvation Dictyostelium Discoideum may eventually form fruiting bodies containing spores to increase the rate of survival during starvation. The ability to select between uni-cellular and multi-cellular life forms makes Dictyostelium Discoideum and interesting model for cell-cell interactions and development.

The genomic content of Dictyostelium Discoideum is four times that of Saccharomyces Cerevisiae with about 50 Mb of low GC DNA (20 %) localised at six chromosomes. Functional heterologous proteins are excreted into the media correctly folded and glycosylated.

As a food source Dictyostelium Discoideum feed on bacteria. Escherichia Coli or Aerobacter Aerogenus are nutrional sources for Dictyostelium Discoideum. The bacterial cells are grown on the nutrient SM medium and Dictyostelium Discoideum feed on these bacteria. The mold cells, feeding and dividing on the bacterial layer, forms colonies of growing and dividing cells. As the colony grows, the local bacteria layer becomes depleted.

Subsequently the individual slime mold amoeba join together to form multi-cellular structures and finally forming fruiting bodies. Within 3 to 4 days on SM medium, Dictyostelium Discoideum, starting as a uni-cellular organism, becomes a multi-cellular life form capable of making spores to survive starvation conditions.

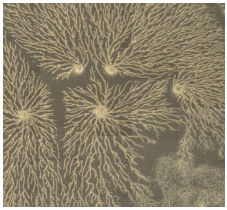
Some specific strains of Dictyostelium Discoideum are capable to grow axenically in a liquid medium without bacteria as food. Two types of media are available for culturing Dictyosteliium Discoideum cells.

Non defined complex media based on mainly Peptone and Yeast extract. Proteose peptone provides high molecular weight peptides and proteins as a nitrogen source. Yeast extract is a source of Vitamins, co-factors and carbohydrates. Both components are often supplemented by additional buffers, Glucose and Magnesium. HL5 is a good example of a non defined complex medium routiniously used in the lab for culturing Dicty.

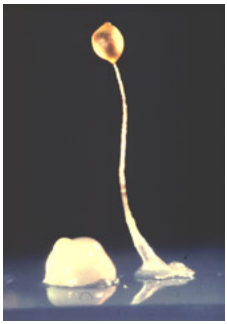
Synthetic defined minimal media such as FM medium and SIH medium are based on a well defined composition of mineral salts, Vitamins and amino Acids.

FM medium supports the growth of most strains that are capable of growing on HL5. The medium developed by Franke and Kessin is used for transformation of Dictyostelium Discoideum and genomic studies.

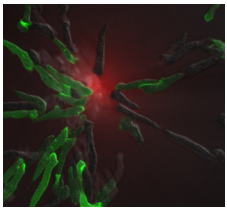
SIH is a newly developed modification of FM Medium. Aspartic Acid is added. Tryptophane and Lysine concentrations are significantly increased, resulting in an increase of cell density up to 5 x 10^7.



*Phase constrast image of a large field of aggregating Dictyostelium cells. Douwe Veltman, MRC Laboratory of Molecular Biology, Cambridge*



*The mound & fb, shows a mound of cells on the left (about half-way through the developmental cycle) and a mature fruiting body on the right. Rob Kay, MRC Cambridge*



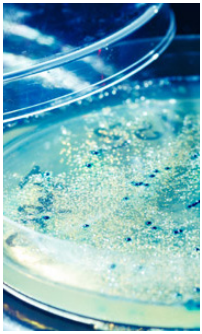
*Confocal / DIC overlay image of a group of Dictyostelium cells chemotaxing towards a source of chemoattractant in the center of the field. Douwe Veltman, MRC Laboratory of Molecular Biology, Cambridge*

# CONTENTS

# NON DEFINED COMPLEX DICTYOSTELIUM DISCOIDEUM

Some specific strains of Dictyostelium Discoideum are capable to grow axenically in liquid media without bacteria as food. Peptone and Yeast Extract are the main components of these media within this group. Both products are present in various ratio's in different Dicty media. Peptone provides high molecular weight peptides and proteins as a nitrogen source. Yeast Extract is a source of Vitamins, co-factors and carbohydrates. Often there is an additional Phosphate buffer present to inhibit Acidification of the medium during cell growth.

Commonly used HL5 and HL5-C media are also available supplemented with extra Vitamins and micro-elements. This supplement gives good results for cultures of Dicty cellines who require additional nutritional elements for starting up vigorous growth or protein synthesis.



## A MEDIUM

| SKU | Size |
|---|---|
| AMD0101 | 250g |
| AMD0102 | 1kg |
| AMD0103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Peptone | 5 |
| Yeast Extract | 0.5 |
| Glucose | 5 |
| KH2PO4 | 2.25 |
| K2HPO4 | 0.7 |
| MgSO4.anhydrous | 0.25 |

Suspend 13.7 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

## AX MEDIUM

| SKU | Size |
|---|---|
| AXM0101 | 250g |
| AXM0102 | 1000g |
| AXM0103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Peptone | 14.3 |
| Yeast Extract | 7.15 |
| Glucose | 18 |
| KH2PO4 | 0.49 |
| Na2HPO4.anhydrous | 0.49 |

Suspend 40.4 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# HL5 MEDIUM INCLUDING GLUCOSE

| SKU | Size |
|---|---|
| HLG0101 | 250g |
| HLG0102 | 1000g |
| HLG0103 | 6 x 1kg |

| Formula | g/l |
|---|---|
| Peptone | 14 |
| Yeast Extract | 7 |
| Glucose | 13.5 |
| KH2PO4 | 0.5 |
| Na2HPO4 | 0.5 |

Suspend 35.5 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


# HL5 MEDIUM WITHOUT GLUCOSE

| SKU | Size |
|---|---|
| HLB0101 | 250g |
| HLB0102 | 1000g |
| HLB0103 | 6 x 1kg |

| Formula | g/l |
|---|---|
| Peptone | 14 |
| Yeast Extract | 7 |
| KH2PO4 | 0.5 |
| Na2HPO4 | 0.5 |

Suspend 22 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# HL5-C MEDIUM INCLUDING GLUCOSE

| SKU | Size |
|---|---|
| HLC0101 | 250g |
| HLC0102 | 1000g |
| HLC0103 | 6 x 1kg |

| Formula | g/l |
|---|---|
| Peptone | 5 |
| Yeast Extract | 5 |
| Tryptone | 5 |
| KH2PO4 | 1.2 |
| Na2HPO4 | 0.35 |
| Glucose | 10 |

Suspend 26.55 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


# HL5-C MEDIUM WITHOUT GLUCOSE

| SKU | Size |
|---|---|
| HLD0101 | 250g |
| HLD0102 | 1000g |
| HLD0103 | 6 x 1kg |

| Formula | g/l |
|---|---|
| Peptone | 5 |
| Yeast Extract | 5 |
| Tryptone | 5 |
| KH2PO4 | 1.2 |
| Na2HPO4 | 0.35 |

Suspend 16.55 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# HL5 MEDIUM INCLUDING GLUCOSE SUPPLEMENTED WITH VITAMINS AND MICRO-ELEMENTS

| SKU | Size |
|---|---|
| HLE1 | 250g |
| HLE2 | 1000g |
| HLE3 | 6 x 1kg |


HL5 supplemented with Vitamins and micro-elements as present in FM and SIH media.

The addition of extra Vitamins and micro-elements gives good results for cultures of Dicty who require additional nutritional elements for starting up vigorous growth or protein synthesis.

| Formula | g/l |
|---|---|
| Peptone | 14 |
| Yeast Extract | 7 |
| Glucose | 13.5 |
| KH2PO4 | 0.5 |
| Na2HPO4 | 0.5 |
| FM Vitamins and Micro-elements | 0.01 |

Suspend 35.5 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# HL5 MEDIUM WITHOUT GLUCOSE SUPPLEMENTED WITH VITAMINS AND MICRO-ELEMENTS

| SKU | Size |
|---|---|
| HLF1 | 250g |
| HLF2 | 1000g |
| HLF3 | 6 x 1kg |


HL5 Medium supplemented with Vitamins and micro-elements as present in FM and SIH media.

The addition of extra Vitamins and micro-elements gives good results for cultures of Dictyostelium Discoideum who require additional nutritional elements for starting up vigorous growth or protein synthesis.

| Formula | g/l |
|---|---|
| Peptone | 14 |
| Yeast Extract | 7 |
| KH2PO4 | 0.5 |
| Na2HPO4 | 0.5 |
| FM Vitamins and Micro-elements | 0.01 |

Suspend 22 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# HL5-C MEDIUM INCLUDING GLUCOSE SUPPLEMENTED WITH VITAMINS AND MICRO-ELEMENTS

| SKU | Size |
|---|---|
| HLH1 | 250g |
| HLH2 | 1kg |
| HLH3 | 6 x 1kg |


HL5-C supplemented with Vitamins and micro-elements as present in FM and SIH media.

The addition of extra Vitamins and micro-elements gives good results for cultures of Dicty who require additional nutritional elements for starting up vigorous growth or protein synthesis.

| Formula | g/l |
|---|---|
| Peptone | 5 |
| Yeast Extract | 5 |
| Tryptone | 5 |
| KH2PO4 | 1.2 |
| Na2HPO4 | 0.35 |
| Glucose | 10 |
| FM Vitamins and Micro-elements | 0.01 |

Suspend 26.5 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# HL5-C MEDIUM WITHOUT GLUCOSE SUPPLEMENTED WITH VITAMINS AND MICRO-ELEMENTS

| SKU | Size |
|---|---|
| HLI1 | 250g |
| HLI2 | 1kg |
| HLI3 | 6 x 1kg |


HL5-C supplemented with Vitamins and micro-elements as present in FM and SIH media.

The addition of extra Vitamins and micro-elements gives good results for cultures of Dicty who require additional nutritional elements for starting up vigorous growth or protein synthesis.

| Formula | g/l |
|---|---|
| Peptone | 5 |
| Yeast Extract | 5 |
| Tryptone | 5 |
| KH2PO4 | 1.2 |
| Na2HPO4 | 0.35 |
| FM Vitamins and Micro-elements | 0.01 |

Suspend 16.55 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# LOFLO MEDIUM

| SKU | Size |
|---|---|
| LF0501 | 500g |
| LF1001 | 1kg |
| LF6001 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Glucose | 11 |
| KH2PO4 | 0.68 |
| Casein Peptone | 5 |
| NH4Cl | 26.8 |
| MgCl2 | 37.1 |
| CaCl2 | 1.1 |
| FeCl3 | 8.11 |
| Na2-EDTA | 4.84 |
| ZnSO4 | 2.30 |
| H3BO3 | 1.11 |
| MnCl2.4H2O | 0.51 |
| CoCl2 | 0.17 |
| CuSO5.5H2O | 0.15 |
| (NH4)6M07O24.4H2O | 0.1 |

Suspend 16.8 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.
Adjust to pH 6.5.

# LOFLO MEDIUM SUPPLEMENTED WITH YEAST EXTRACT

| SKU | Size |
|---|---|
| LFG0501 | 500g |
| LFG1001 | 1kg |
| LFG6001 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Glucose | 11 |
| KH2PO4 | 0.68 |
| Casein Peptone | 5 |
| Yeast extract | 0.7 |
| NH4Cl | 26.8 |
| MgCl2 | 37.1 |
| CaCl2 | 1.1 |
| FeCl3 | 8.11 |
| Na2-EDTA | 4.84 |
| ZnSO4 | 2.30 |
| H3BO3 | 1.11 |
| MnCl2.4H2O | 0.51 |
| CoCl2 | 0.17 |
| CuSO5.5H2O | 0.15 |
| (NH4)6M07O24.4H2O | 0.1 |

Suspend 17.5 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.
Adjust to pH 6.5.

## SM AGAR

| SKU | Size |
|---|---|
| SMA0101 | 250g |
| SMA0102 | 1000g |
| SMA0103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Peptone | 10 |
| Yeast Extract | 1 |
| Glucose | 10 |
| KH2PO4 | 1.9 |
| K2HPO4.3H2O | 1.3 |
| MgO4.anhydrous | 0.49 |
| Agar | 17 |

Suspend 41.7 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

## SM AGAR/5

| SKU | Size |
|---|---|
| SMA50101 | 250g |
| SMA50102 | 1000g |
| SMA50103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Peptone | 2 |
| Yeast Extract | 0.2 |
| Glucose | 2 |
| KH2PO4 | 1.9 |
| K2HPO4.3H2O | 1.3 |
| MgO4.anhydrous | 0.49 |
| Agar | 17 |

Suspend 24.9 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

## SM BROTH

| SKU | Size |
|---|---|
| SMB0101 | 250g |
| SMB0102 | 1000g |
| SMB0103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Peptone | 10 |
| Yeast Extract | 1 |
| Glucose | 10 |
| KH2PO4 | 1.9 |
| K2HPO4.3H2O | 1.3 |
| MgO4.anhydrous | 0.49 |
| Agar | 17 |

Suspend 41.7 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

## SM BROTH/5

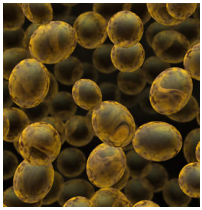
| SKU | Size |
|---|---|
| SMB50101 | 250g |
| SMB50102 | 1000g |
| SMB50103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| Peptone | 2 |
| Yeast Extract | 0.2 |
| Glucose | 0.2 |
| KH2PO4 | 1.9 |
| K2HPO4.3H2O | 1.3 |
| MgO4.anhydrous | 0.49 |

Suspend 7.89 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

# FM DEFINED MINIMAL MEDIA

## SYNTHETIC DEFINED MINIMAL MEDIA



This media is based on well defined formulations of mineral salts, Vitamins and amino Acids.

Two commonly used synthetic defined minimal Dictystelium Discoideum media are FM and SIH.

FM medium developed by Franke and Kessin is used for transformation of Dictyostelium Discoideum and genomic studies. This formulation supports the growth of most strains that are capable of growing on HL5.

SIH medium is a newly developed modification of FM with regards to its amino Acid compostion. Aspartic Acid is added. Tryptophane and Lysine concentrations are significantly increased, resulting in an increase of cell density up to 5 x 10^7.

Both FM and SIH media are based on mineral salts in micro and macro concentrations supplemented with several Vitamins. Besides these components, there is a large group of amino Acids present. To facilitate genetic studies Formedium™offers complete formulations of FM and SIH as well as both media lacking various amino Acids such as without Arginine, Glutamic Acid, Lysine and Methionine.

New to our range of synthetic media are FM and SIH without all amino Acids. These two newly developed media combined with a range of amino Acid Drop-out mixtures gives the option to make every synthetic Drop-out medium required for genetic studies.

*Improvement of a synthetic medium for Dictyostelium Discoideum,*
*Sang-In Han, Karl Friehs and Erwin Flaschel,*
*Process Biochemistry, 39 (8), 925 - 930, 2004.*

# FM AMINO ACID DROP-OUT MIXTURES

| SKU | Size |
|---|---|
| FMM0101 | 250g |
| FMM0102 | 1kg |
| FMM0103 | 6 x 1kg |


FM Amino Acid Drop-out mixture is based on the Amino Acids present in FM Minimal medium. These Amino Acids form a basis for many “Drop-out” mixtures to select for auxotrophic requirements and transformants. Each FM Drop-out mixture contain all components except for one or two essential Amino Acids, i.e. the “dropped out” supplements. FM Amino Acids Drop-out mixtures are used in combination with FM Minimal medium w/o Amino Acids or FM Minimal medium w/o Amino Acids and w/o Ammonium chloride to complete the medium.

Complete Supplement Mixture formulations are available in 25 gram and 250 gram pack sizes.

Please enquire about custom made formulations.

| Formula | g/l |
|---|---|
| Amino Acids | |
| Arg | 700 |
| Asp | 300 |
| Cys | 200 |
| GluA | 500 |
| Gly | 900 |
| His | 300 |
| Ile | 600 |
| Leu | 900 |
| Lys | 900 |
| Met | 300 |
| Phe | 500 |
| Pro | 800 |
| Thr | 500 |
| Trp | 200 |
| Val | 700 |
| **Total** | 8300 mg/l |

## FM DROP-OUT MIXTURE, MINUS ARGININE,

**7600 MG/L**

| SKU | Size |
|---|---|
| FMA47 | 100g |
| FMA48 | 250g |


## FM DROP-OUT MIXTURE, MINUS CYSTEINE,

**8100 MG/L**

| SKU | Size |
|---|---|
| FMA05 | 100g |
| FMA06 | 250g |


## FM DROP-OUT MIXTURE, MINUS GLUTAMIC ACID,

**7800 MG/L**

| SKU | Size |
|---|---|
| FMA08 | 100g |
| FMA09 | 250g |


## FM DROP-OUT MIXTURE, MINUS LYSINE,

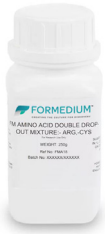
**7400 MG/L**

| SKU | Size |
|---|---|
| FMA11 | 100g |
| FMA12 | 250g |

## FM DROP-OUT MIXTURE, MINUS METHIONINE, 8000 MG/L


| SKU | Size |
|---|---|
| FMA14 | 100g |
| FMA15 | 250g |

## FM DROP-OUT MIXTURE, MINUS ARGININE AND W/O CYSTEINE, 7400 MG/L




| SKU | Size |
|---|---|
| FMA17 | 100g |
| FMA18 | 250g |

## FM DROP-OUT MIXTURE, MINUS ARGININE & W/O GLUTAMIC ACID, 7100 MG/L


| SKU | Size |
|---|---|
| FMA20 | 100g |
| FMA21 | 250g |

## FM DROP-OUT MIXTURE, MINUS ARGININE AND W/O LYSINE, 6700 MG/L


| SKU | Size |
|---|---|
| FMA23 | 100g |
| FMA24 | 250g |

## FM DROP-OUT MIXTURE, MINUS ARGININE & W/O METHIONINE, 7300 MG/L

| SKU | Size |
|---|---|
| FMA26 | 100g |
| FMA27 | 250g |


## FM DROP-OUT MIXTURE, MINUS CYSTEINE & W/O GLUTAMIC ACID, 7600 MG/L

| SKU | Size |
|---|---|
| FMA29 | 100g |
| FMA30 | 250g |


## FM DROP-OUT MIXTURE, MINUS CYSTEINE AND W/O LYSINE, 7200 MG/L

| SKU | Size |
|---|---|
| FMA32 | 100g |
| FMA33 | 250g |


## FM DROP-OUT MIXTURE, MINUS CYSTEINE & W/O METHIONINE, 7800 MG/L

| SKU | Size |
|---|---|
| FMA35 | 100g |
| FMA36 | 250g |

## FM DROP-OUT MIXTURE, MINUS GLUTAMIC ACID & W/O LYSINE, 6900 MG/L


| SKU | Size |
|---|---|
| FMA38 | 100g |
| FMA39 | 250g |

## FM DROP-OUT MIXTURE, MINUS GLUTAMIC ACID & W/O METHIONINE, 7500 MG/L


| SKU | Size |
|---|---|
| FMA41 | 100g |
| FMA42 | 250g |

## FM DROP-OUT MIXTURE, MINUS LYSINE & W/O METHIONINE, 7100 MG/L


| SKU | Size |
|---|---|
| FMA44 | 100g |
| FMA45 | 250g |

# FM MINIMAL MEDIUM

| SKU | Size |
|---|---|
| FMM0101 | 250g |
| FMM0102 | 1kg |
| FMM0103 | 6 x 1kg |


| Formula | g/l |
|---|---|
| **Amino Acids** | |
| Arg | 700 |
| Asp | 300 |
| Cys | 200 |
| GluA | 500 |
| Gly | 900 |
| His | 300 |
| Ile | 600 |
| Leu | 900 |
| Lys | 900 |
| Met | 300 |
| Phe | 500 |
| Pro | 800 |
| Thr | 500 |
| Trp | 200 |
| Val | 700 |
| **Vitamins** | |
| Biotin | 0.02 |
| Cyanocobalamin | 0.01 |
| Folic Acid | 0.2 |
| Lipoic Acid | 0.4 |
| Riboflavin | 0.5 |
| Thiamine | 0.6 |
| **Micro Elements** | |
| Na2EDTA.2H2O | 4.84 |
| ZnSO4 | 2.3 |
| H3BO3 | 1.11 |
| MnCl2.4H2O | 0.51 |
| CoCl2.6H2O | 0.17 |
| CuSO4.5H2O | 0.15 |
| (NH4)6Mo7O24.4H2O | 0.1 |
| **Minerals** | |
| NH4Cl | 53.5 |
| CaCl2.2H2O | 2.94 |
| FeCl3 | 16.2 |
| MgCl2.6H2O | 81.32 |
| KH2PO4 | 870 |
| Carbon Source | |
| Glucose | 10000 |
| **Total** | 19334.87 |

Suspend 19.3 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

## FM MINIMAL MEDIUM W/O AMINO ACIDS

| SKU | Size |
|---|---|
| FMM0501 | 250g |
| FMM0502 | 1kg |
| FMM0503 | 6 x 1kg |

Suspend 11.0 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## FM MINIMAL MEDIUM W/O AMINO ACIDS AND W/O AMMONIUM CHLORIDE

| SKU | Size |
|---|---|
| FMM0601 | 250g |
| FMM0602 | 1kg |
| FMM0603 | 6 x 1kg |

Suspend 11.0 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## FM MINIMAL MEDIUM W/O ARGININE AND W/O LYSINE

| SKU | Size |
|---|---|
| FMM0401 | 250g |
| FMM0402 | 1kg |
| FMM0403 | 6 x 1kg |

Suspend 17.7 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# FM MINIMAL MEDIUM W/O CYSTEINE AND W/O METHIONINE

| SKU | Size |
|---|---|
| FMM0701 | 250g |
| FMM0702 | 1000g |
| FMM0703 | 6 x 1kg |

Suspend 18.8 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


# FM MINIMAL MEDIUM W/O GLUTAMIC ACID AND W/O LYSINE

| SKU | Size |
|---|---|
| FMM0801 | 250g |
| FMM0802 | 1kg |
| FMM0803 | 6 x 1kg |

Suspend 18.8 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

## FM MINIMAL MEDIUM W/O METHIONINE

| SKU | Size |
|---|---|
| FMM0301 | 250g |
| FMM0302 | 1kg |
| FMM0303 | 6 x 1kg |

Suspend 19.0 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## FM MINIMAL MEDIUM W/O NH4CL

| SKU | Size |
|---|---|
| FMM0201 | 250g |
| FMM0202 | 1kg |
| FMM0203 | 6 x 1kg |

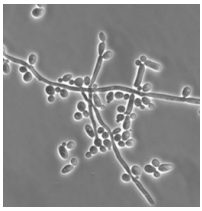
Suspend 19.3 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# SIH DEFINED MINIMAL MEDIA

## Dictyostelium Discoideum

### SYNTHETIC DEFINED MINIMAL MEDIA



*Improvement of a synthetic medium for Dictyostelium discoideum, Sang-In Han, Karl Friehs and Erwin Flaschel, Process Biochemistry, 39 (8), 925 - 930, 2004*

This media is based on well defined formulations of mineral salts, Vitamins and amino Acids.

Two commonly used synthetic defined minimal Dictyostelium Discoideum media are FM Media and SIH Media.

FM medium developed by Franke and Kessin is used for transformation of Dictyostelium Discoideum and genomic studies. This formulation supports the growth of most strains that are capable of growing on HL5.

SIH medium is a newly developed modification of FM with regards to its amino Acid compostion. Aspartic Acid is added. Tryptophane and Lysine concentrations are significantly increased, resulting in an increase of cell density up to 5 x 10^7.

Both FM and SIH media are based on mineral salts in micro and macro concentrations supplemented with several Vitamins. Besides these components, there is a large group of amino Acids present. To facilitate genetic studies ForMedium™offers complete formulations of FM and SIH as well as both media lacking various amino Acids such as without Arginine, Glutamic Acid, Lysine and Methionine.

New to our range of synthetic media are FM and SIH without all amino Acids. These two newly developed media, combined with a range of amino Acid Drop-out mixtures gives the option to make every synthetic Drop-out medium required for genetic studies.

# SIH MEDIUM

| SKU | Size |
|---|---|
| SIH0101 | 250g |
| SIH0102 | 1kg |
| SIH0103 | 6 x 1kg |

| Formula | g/l |
|---|---|
| Amino Acids | |
| Arg | 700 |
| Asp | 300 |
| Asp A | 150 |
| Cys | 300 |
| GluA | 545 |
| Gly | 900 |
| His | 300 |
| Ile | 600 |
| Leu | 900 |
| Lys | 1250 |
| Met | 350 |
| Phe | 550 |
| Pro | 800 |
| Thr | 500 |
| Trp | 350 |
| Val | 700 |
| Vitamins | |
| Biotin | 0.02 |
| Cyanocobalamin | 0.01 |
| Folic Acid | 0.2 |
| Lipoic Acid | 0.4 |
| Riboflavin | 0.5 |
| Thiamine | 0.6 |
| Micro Elements | |
| Na2EDTA.2H2O | 4.84 |
| ZnSO4 | 2.3 |
| H3BO3 | 1.11 |
| MnCl2.4H2O | 0.51 |
| CoCl2.6H2O | 0.17 |
| CuSO4.5H2O | 0.15 |
| (NH4)6Mo7O24.4H2O | 0.1 |
| Minerals | |
| NH4Cl | 53.5 |
| CaCl2.2H2O | 2.94 |
| FeCl3 | 16.2 |
| MgCl2.6H2O | 81.32 |
| KH2PO4 | 870 |
| Carbon Source | |
| Glucose | 10000 |
| Total | 20326 |


SIH medium, developed by Hanh, Friehs and Flaschel (2004), is the next step in the development of synthetic media designed to grow D. discoideum in high cell densities.

SIH medium is an improved version of FM medium, as developed by Frank and Kessin (1977).

The main difference between SIH and FM is the novel addition of Aspartic Acid (1.1 mM) and increased levels of Lysine (8.5 mM) and Tryptophane (1.7 mM). Concentrations of Cysteine, Glutamic Acid, Methionine, Phenylalanine, Threonine are slightly increased as well in SIH.

The alterations in amino Acid formulation of SIH medium resulted in a more even and better amino Acid utilisation. Cell density of D. discoideum rose up to levels in excess of 5 x 107 cells compared to FM medium with cell density levels of 3 x 107.

Improvement of a synthetic medium for Dictyostelium discoideum, Sang-In Han, Karl Friehs and Erwin Flaschel, Process Biochemistry, 39 (8), 925, 930, 2004.

Cultivation of Dictostelium discoideum on an improved synthetic medium in a conventional bioreactor.
Sang-In Han, Karl Friehs and Erwin Flaschel, Process Biochemistry, 39, 585 - 589, 2004.

Suspend 20.3 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

## SIH MEDIUM W/O NH4CL

| SKU | Size |
|---|---|
| SIH0501 | 250g |
| SIH0502 | 1kg |
| SIH0503 | 6 x 1kg |

Suspend 20.3 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## SIH MEDIUM W/O AMINO ACIDS

| SKU | Size |
|---|---|
| SIH0601 | 250g |
| SIH0602 | 1kg |
| SIH0603 | 6 x 1kg |

Suspend 11.1 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## SIH MEDIUM W/O AMINO ACIDS AND W/O AMMONIUM CHLORIDE

| SKU | Size |
|---|---|
| SIH0701 | 250g |
| SIH0702 | 1kg |
| SIH0703 | 6 x 1kg |

Suspend 11.1 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

## SIH MEDIUM W/O METHIONINE

| SKU | Size |
|---|---|
| SIM0101 | 250g |
| SIM0102 | 1kg |
| SIM0103 | 6 x 1kg |

Suspend 20.0 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## SIH MEDIUM W/O ARGININE AND W/O LYSINE

| SKU | Size |
|---|---|
| SIH1001 | 250g |
| SIH1002 | 1kg |
| SIH1003 | 6 x 1kg |

Suspend 18.4 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

## SIH MEDIUM W/O CYSTEINE AND W/O METHIONINE

| SKU | Size |
|---|---|
| SIH0801 | 250g |
| SIH0802 | 1kg |
| SIH0803 | 6 x 1kg |

Suspend 19.7 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.


## SIH MEDIUM W/O GLUTAMIC ACID AND W/O LYSINE

| SKU | Size |
|---|---|
| SIH0901 | 250g |
| SIH0902 | 1kg |
| SIH0903 | 6 x 1kg |

Suspend 18.6 gram powdered medium in 1 litre distilled water.

Store dry at room temperature.

# SIH AMINO ACID DROP-OUT MIXTURE

| SKU | Size |
|---|---|
| SHA02 | 100g |
| SHA03 | 250g |


SIH Amino Acid Drop-out mixture is based on the Amino Acids present in SIH Minimal medium. These Amino Acids form a basis for many “Drop-out” mixtures to select for auxotrophic requirements and transformants. Each SIH Drop-out mixture contain all components except for one or two essential Amino Acids, i.e. the “dropped out” supplements. SIH Amino Acids Drop-out mixtures are used in combination with SIH Minimal medium w/o Amino Acids or SIH Minimal medium w/o Amino Acids and w/o Ammonium chloride to complete the medium.

Complete Supplement Mixture formulations are available in 25 gram and 250 gram pack sizes.

Please enquire about custom made formulations.

**Complete SIH Amino Acid mixture, 9195 mg/l**

| Formula | g/l |
|---|---|
| Amino Acids | |
| Arg | 700 |
| Asp | 300 |
| Asp A | 150 |
| Cys | 300 |
| GluA | 545 |
| Gly | 900 |
| His | 300 |
| Ile | 600 |
| Leu | 900 |
| Lys | 1250 |
| Met | 350 |
| Phe | 550 |
| Pro | 800 |
| Thr | 500 |
| Trp | 350 |
| Val | 700 |
| Total | 9195 mg/l |

## SIH DROP-OUT MIXTURE, MINUS ARGININE,

### 8495 MG/L

| SKU | Size |
|---|---|
| SHA05 | 100g |
| SHA06 | 250g |


## SIH DROP-OUT MIXTURE, MINUS CYSTEINE,

### 8895 MG/L

| SKU | Size |
|---|---|
| SHA08 | 100g |
| SHA09 | 250g |


## SIH DROP-OUT MIXTURE, MINUS GLUTAMIC ACID,

### 8650 MG/L

| SKU | Size |
|---|---|
| SHA11 | 100g |
| SHA12 | 250g |

## SIH DROP-OUT MIXTURE, MINUS LYSINE, 7945 MG/L

| SKU | Size |
|---|---|
| SHA14 | 100g |
| SHA15 | 250g |


## SIH DROP-OUT MIXTURE, MINUS METHIONINE, 8845 MG/L

| SKU | Size |
|---|---|
| SHA17 | 100g |
| SHA18 | 250g |


## SIH DROP-OUT MIXTURE, MINUS ARGININE AND W/O CYSTEINE, 8195 MG/L

| SKU | Size |
|---|---|
| SHA20 | 100g |
| SHA21 | 250g |

## SIH DROP-OUT MIXTURE, MINUS ARGININE AND W/O GLUTAMIC ACID, 7950 MG/L

| SKU | Size |
|---|---|
| SHA23 | 100g |
| SHA24 | 250g |


## SIH DROP-OUT MIXTURE, MINUS ARGININE AND W/O LYSINE, 7245 MG/L

| SKU | Size |
|---|---|
| SHA26 | 100g |
| SHA27 | 250g |


## SIH DROP-OUT MIXTURE, MINUS ARGININE AND W/O METHIONINE, 8145 MG/L

| SKU | Size |
|---|---|
| SHA29 | 100g |
| SHA30 | 250g |

## SIH DROP-OUT MIXTURE, MINUS CYSTEINE AND W/O GLUTAMIC ACID, 8350 MG/L

| SKU | Size |
|---|---|
| SHA32 | 100g |
| SHA33 | 250g |


## SIH DROP-OUT MIXTURE, MINUS CYSTEINE AND W/O LYSINE, 7645 MG/L

| SKU | Size |
|---|---|
| SHA35 | 100g |
| SHA36 | 250g |


## SIH DROP-OUT MIXTURE, MINUS CYSTEINE AND W/O METHIONINE, 8545 MG/L

| SKU | Size |
|---|---|
| SHA38 | 100g |
| SHA39 | 250g |

## SIH DROP-OUT MIXTURE, MINUS GLUTAMIC ACID AND W/O LYSINE, 7400 MG/L

| SKU | Size |
|---|---|
| SHA41 | 100g |
| SHA42 | 250g |

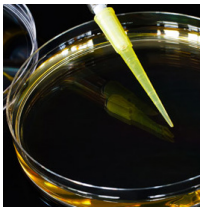

## SIH DROP-OUT MIXTURE, MINUS GLUTAMIC ACID AND W/O METHIONINE, 8300 MG/L

| SKU | Size |
|---|---|
| SHA44 | 100g |
| SHA45 | 250g |


## SIH DROP-OUT MIXTURE, MINUS LYSINE AND W/O METHIONINE, 7595 MG/L

| SKU | Size |
|---|---|
| SHA47 | 100g |
| SHA48 | 250g |

# YEAST MEDIA COMPONENTS



Formedium™ manufactures a large range of media for yeast, fungi and bacterial cell cultures. Part of these media are nutritional elements like Agar, Casamino Acids, Glucose, Peptone, Tryptone and Yeast extract.

These nutrients are also offered by Formedium™ as separate media components to allow the researcher to select the optimal concentration of each component for a specific strain.

All products offered are used by Formedium™ are of high quality and purity and used to produce an extended range of cell culture media.

## AGAR

| SKU | Size |
|---|---|
| AGA01 | 250g |
| AGA02 | 500g |
| AGA03 | 1000g |
| AGA04 | 6 x 1kg |

Agar is natural product derived from seaweed. During the production process all impurities are carefully removed to obtain an agar with a high gel strength, excellent clarity and low mineral content. The result is an agar well suited for cell cultures.


Store dry at room temperature.

## AGAR GRANULATED, BACTERIOLOGICAL GRADE

| SKU | Size |
|---|---|
| AGR02 | 250g |
| AGR05 | 500g |
| AGR10 | 1000g |
| AGR60 | 6 x 1kg |

Agar Granulated, Bacteriological grade is a fine granulated agar with excellent characteristics for bacteriological growth.

Due to the fine granule structure of this agar dusting while handling is very low.

Store dry at room temperature.

# CASAMINO ACIDS

| SKU | Size |
|---|---|
| CAS01 | 250g |
| CAS02 | 500g |
| CAS03 | 1000g |
| CAS04 | 6 x 1kg |


Casamino Acids are manufactured by a controlled Acid hydrolysis of casein . Hydrolysis is not completed until all the nitrogen in the casein is converted to amino Acids or other compounds of relative chemical simplicity.
As a result of the Acid hydrolysis process all Vitamins and growth factors present in casein are destroyed.

Due to the low sodium chloride concentration ForMedium™Casamino Acids are well suited for cultivation of yeast cells.

Store dry at room temperature

GHS07 Skin & Eye Irritation

# D(+) - GALACTOSE

| SKU | Size |
|---|---|
| ARA001 | 100g |
| ARA005 | 500g |
| ARA010 | 1kg |


$C_6H_{12}O_6 = 180.16$

Purity HPLC >99%
Water < 0.3%
White Crystalline powder

Store dry at room temperature.

## D(+) - GLUCOSE ANHYDROUS

| SKU | Size |
|---|---|
| GLU01 | 250g |
| GLU02 | 500g |
| GLU03 | 1000g |
| GLU04 | 6 x 1kg |

C6H12O6 = 180

A fine white crystalline quality with excellent properties for cell culture.

Store dry at room temperature.


## D(+) - RAFFINOSE PENTAHYDRATE

| SKU | Size |
|---|---|
| RAF01 | 100g |
| RAF02 | 250g |
| RAF03 | 500g |
| RAF04 | 1kg |

C18H32O16.5H2O = 594.5

Purity HPLC >99%
White powder

Store dry at room temperature.


## D(+) - SORBITOL

| SKU | Size |
|---|---|
| SOR02 | 1kg |
| SOR03 | 5kg |

C6H14O6 = 182.17

Complies to Ph. Eur.

White crystalline powder.

Store dry at room temperature.

# L- ARABINOSE

| SKU | Size |
|---|---|
| ARA001 | 100g |
| ARA005 | 500g |
| ARA010 | 1kg |


C5H10O5 = 150.13

Purity HPLC 99%
Purity TLC Single spot
Water < 0.3%
White Crystalline powder

Store dry at room temperature.

# LEE'S MEDIUM

| SKU | Size |
|---|---|
| LEES0500 | 500g |
| LEES1000 | 1kg |


Suspend 17.09g in 1L of Distilled or De-ionised Water

| Formulation | | |
|---|---|---|
| (NH4)2SO4 | 5.0 | g/L |
| MgSO4.7H2O | 0.2 | g/L |
| K2HPO | 2.5 | g/L |
| NaCl | 5.0 | g/L |
| L-Alanine | 0.5 | g/L |
| L-Leucine | 1.3 | g/L |
| L-Lysine | 1.0 | g/L |
| L-Methionine | 0.1 | g/L |
| L-Ornithine | 0.0714 | g/L |
| L-Phenylalanine | 0.5 | g/L |
| L-Proline | 0.5 | g/L |
| L-Threonine | 0.5 | g/L |
| Biotin | 0.001 | g/L |

Store at Room Temperature.
Keep Container Tightly Closed.

# LEE'S MULTI-DIFFERENTIAL AGAR (LMDA) MEDIUM

| SKU | Size |
|---|---|
| LMDA01 | 1kg |
| LMDA05 | 5kg |
| LMDA10 | 10kg |
| LMDA25 | 25kg |


Suspend 17.09g in 1L of Distilled or De-ionised Water

| Formulation | | |
|---|---|---|
| (NH4)2SO4 | 5.0 | g/L |
| MgSO4.7H2O | 0.2 | g/L |
| K2HPO | 2.5 | g/L |
| NaCl | 5.0 | g/L |
| L-Alanine | 0.5 | g/L |
| L-Leucine | 1.3 | g/L |
| L-Lysine | 1.0 | g/L |
| L-Methionine | 0.1 | g/L |
| L-Ornithine | 0.0714 | g/L |
| L-Phenylalanine | 0.5 | g/L |
| L-Proline | 0.5 | g/L |
| L-Threonine | 0.5 | g/L |
| Biotin | 0.001 | g/L |

Store at Room Temperature.
Keep Container Tightly Closed.

# MALT EXTRACT

| SKU | Size |
|---|---|
| MAL03 | 1kg |


Malt extract is prepared from Malt by extracting the soluble products from sprouted grain.

The product contains a mix of carbohydrates (mainly maltose) and growth factors.

Solubility in water at 3 % Complete
pH (3 % solution) 4.8 - 5.8
Loss on drying ≤ 6.0 %
Reducing sugars (as maltose) ≥ 60.0 %
Residue on ignition ≤ 4.5 %
Chloride (as NaCl) ≤ 1.0 %

Store dry at room temperature.

# PEPTONE

| SKU | Size |
|---|---|
| PEP01 | 250g |
| PEP02 | 500g |
| PEP03 | 1000g |
| PEP04 | 6 x 1kg |


GHS07 Skin & Eye Irritation

Peptone is a spray dried powder, manufactured by a controlled enzymatic hydrolysis of animal tissue. The most commonly used enzymes are pepsin, papain and pancreatin. The latter containing trypsin.

Pepsin will cut the peptide chain anywhere there is a phenylalanine or leucine bond.

Papain cuts in the peptide chain adjacent to arginine, lysine, phenylalanine and glycine. Pancreatin has its action at arginine, lysine, tyrosine, tryptophan, phenylalanine and leucine bonds.

The tissues are hydrolysed to produce straw coloured peptones which are highly nutritious and clearly soluble in water. Peptones contain a mix of peptides, free amino Acids and growth factors.

Due to the low sodium chloride concentration ForMedium™Pepton is well suited for cultivation of yeast cells.

Store dry at room temperature.

# POTATO EXTRACT

| SKU | Size |
|---|---|
| PTE01 | 250g |
| PTE02 | 500g |
| PTE03 | 1000g |
| PTE04 | 6 x 1kg |


Potato extract is a mixture of potato proteins, manufactured by controlled enzymatic hydrolysis. The extract is an excellent nitrogen source for bacteria, yeasts and fungi. Potato extract is rich in Vitamins and minerals and supports a vigorous growth of micro-organisms.

Store dry at room temperature.

# SODIUM CHLORIDE

| SKU | Size |
|---|---|
| NAC02 | 1000g |
| NAC03 | 6 x 1kg |


NaCl = 58.4

Complies to Ph. Eur and USP
Heavy metals < 5 ppm
Ferrocyanides

A fine white crystalline quality with excellent properties for cell culture.

Store dry at room temperature.

## SOYA PEPTONE

| SKU | Size |
|---|---|
| VPEP01 | 250g |
| VPEP02 | 500g |
| VPEP03 | 1000g |
| VPEP04 | 6 x 1kg |

Soya Peptone is a papaic digest of defatted soybean flour and is a well-balanced source of essential amino Acids, carbohydrates and Vitamins in cell cultures.

Soya Peptone is used for growth of a wide variety of bacteria and yeasts in cell cultures and is often combined with Tryptone or Peptone for a rapid and abundant growth of cells.

This plant peptone is classified animal-free by Formedium Ltd. Based on the manufacturing protocol, we attest that no animal raw materials are prescribed for use in the production of this product, nor are any of the raw materials derived from animal products.


Soya Peptone is classified animal free, GMO free (according to the European Directive 2001/18/CE)

Store dry at room temperature.

## SYNTHETIC SEAWATER SALTS

| SKU | Size |
|---|---|
| FSS10 | 1kg |

Applications: Environmental & Aqua-culture: for the preparation of synthetic seawater to culture micro algae

Store dry at room temperature.

## TRYPTONE

| SKU | Size |
|---|---|
| TRP01 | 250g |
| TRP02 | 500g |
| TRP03 | 1000g |
| TRP04 | 6 x 1kg |


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 amino Acids especially Tryptophan is present in high 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.

Store dry at room temperature.

## YEAST EXTRACT, POWDER

| SKU | Size |
|---|---|
| YEA01 | 250g |
| YEA02 | 500g |
| YEA03 | 1000g |
| YEA04 | 6 x 1kg |


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. Besides peptides and amino Acids yeast extract also contains purine and pyrimidine bases, carbohydrates and water soluble Vitamins of B group.

Sodium Chloride concentration of Formedium™Yeast Extract is low and also therefore well suited for cultivation of yeast cells.

Due to its carbohydrate content, typically 10%, yeast extract is not suitable for media intended for the study of sugar fermentation.

Store dry at room temperature.

# ASPERGILLUS MEDIA

Aspergillus Complete Medium (ACM) and Aspergillus Minimal Medium (AMM) used for the research of Aspergillus, a highly aerobic fungus whose spores are present in the air we breathe, and thrives on carbon-rich substrates containing monosaccharides and polysaccharides, and Aspergillosis, a group of diseases, including allergic bronchopulmonary aspergillosis (ABPA), chronic pulmonary aspergillosis (CPA), and invasive aspergillosis that can affect people with asthma, cystic fibrosis or immunocompromised individuals.

## ASPERGILLUS COMPLETE MEDIUM (ACM)

| SKU | Size |
|---|---|
| ACM0210 | 1kg |

Aspergillus Complete Medium (ACM) is a rich medium used for general culture purposes for Aspergillus species. It allows for rapid growth and sporulation of many different fungi. Researchers like to use it because it is a defined medium (unlike most rich medium which contains batch dependent mix of things).

The Aspergillus Complete Medium (ACM) as as our Aspergillus Minimal Medium (AMM) are standard medium that are recommended by the Fungal Genetics Stock Center. Both date back almost 50 years and considered a community standard, and similar in composition to M9 and LB of mycology.


1kg pack size, sufficient to prepare 57 Litre medium.

## ASPERGILLUS MINIMAL MEDIUM (AMM)

| SKU | Size |
|---|---|
| AMM0110 | 1kg |

Aspergillus Minimal Medium (AMM) is a minimal medium and similar to bacterial work, this allows for slower growth but tends to be used as a nutrient limited medium where nutritional composition can easily be changed, things can be added.

The Aspergillus Minimal Medium (AMM) as as our Aspergillus Complete Medium (ACM) are standard medium that are recommended by the Fungal Genetics Stock Center. Both date back almost 50 years and considered a community standard, and similar in composition to M9 and LB of mycology.


1kg pack size, sufficient to prepare 75 Litre medium.

## 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.

## SABOURAUD BROTH

| SKU | Size |
|---|---|
| SAB0202 | 250g |
| SAB0205 | 500g |
| SAB0210 | 1kg |

| Formula | g/l |
|---|---|
| Peptone | 10 |
| Glucose | 40 |

Final pH 7.0 ± 0.2 at 25°C


Suspend 50 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

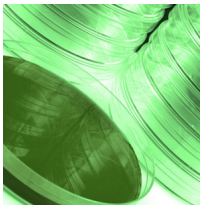
## SABOURAUD DEXTROSE AGAR

| SKU | Size |
|---|---|
| SDA0250 | 250g |
| SDA0500 | 500g |
| SDA1000 | 1kg |

| Formula | g/l |
|---|---|
| Tryptone | 5 |
| Soya Peptone | 5 |
| Glucose | 40 |
| 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.

# FUSARIUM SP



## POTATO DEXTROSE

Potato Dextrose Agar (PDA) and Potato Dextrose Broth (PDB) are excellent media for the detection of Fusaria species.

The medium is made of Glucose and Potato Extract and eventually supplemented with Agar.

Potato Extract is a mixture of potato proteins, manufactured by controlled enzymatic hydrolysis. The extract is an excellent nitrogen source for Fusarium species and many other fungi, yeasts and prokaryotes and contains Vitamins and minerals as well.

In order to inhibit bacterial growth the medium may be Acidified to pH 3.5 by adding tartaric Acid, lactic Acid or some other organic Acid. The medium must not be heated after the addition of the Acid, this will result in the hydrolysis of the Agar and destroy its gelling properties.

For technical data please see table below.

| Physical chemical characteristics | |
|---|---|
| Solubility in water at 1 % | Complete |
| PH (1 % solution) | 6.7-7.3 |
| Loss on drying | < 6% |
| Total nitrogen TN | 9.5 -10.5 |
| ?-amino nitrogen AN | 5.0 - 5.8 % |
| AN/TN x 100 | 51 - 57 |
| Residue on ignition | < 25.0 % |
| Chloride (as NaCl) | < 20.0 % |

| Molecular weight distribution g/100 g | |
|---|---|
| >10000 daltons | 0.3 |
| 1000 - 10000 daltons | 8.0 |
| 500 - 1000 daltons | 17.7 |
| 300 - 500 daltons | 18.7 |
| < 300 daltons | 55.3 |

# PDA, POTATO DEXTROSE AGAR

| SKU | Size |
|---|---|
| PDA0101 | 100g |
| PDA0102 | 1000g |
| PDA0103 | 5000g |

| Formula | g/l |
|---|---|
| Glucose | 20 |
| Potato extract | 4 |
| Agar | 17 |

Suspend 41 gram powdered medium in 1 litre distilled water. Store dry at room temperature.


# PDB, POTATO DEXTROSE BROTH

| SKU | Size |
|---|---|
| PDB0101 | 100g |
| PDB0102 | 1000g |
| PDB0103 | 5000g |

| Formula | g/l |
|---|---|
| Glucose | 20 |
| Potato extract | 4 |

Suspend 24 gram powdered medium in 1 litre distilled water. Store dry at room temperature.

# LACTOBACILLI

MRS Medium, named for its inventors De Man, Rogosa and Sharpe is a selective culture medium designed to favour the luxuriant growth of Lactobacilli in bacteriological cell cultures.

Although MRS medium is selective for lactobacilli but some growth of leuconostocs and pediococci may occur. One of the constituents of MRS is sodium acetate, which suppresses the growth of many competing bacteria.

Yeast extract and meat extract present in MRS medium provide sources of carbon, nitrogen, and Vitamins for general bacterial growth. The yeast extract also contains Vitamins and amino Acids specifically required by Lactobacilli.

Polysorbate 80 is a surfactant which assists in nutrient uptake by Lactobacilli.

Magnesium sulfate and manganese sulfate provide cations used in metabolism.

## MRS AGAR

| SKU | Size |
|---|---|
| MRSA0500 | 500g |
| MRSA1000 | 1kg |
| MRSA5000 | 5kg |


| Specifications | % w/w |
|---|---|
| Peptone | 28.5 |
| Glucose | 28.5 |
| Agar | 21.4 |
| Yeast Extract | 7.1 |
| Sodium Acetate | 7.1 |
| K2HPO4 | 2.8 |
| TriAmmonium Citrate | 2.8 |
| Magnesium Sulphate | 0.3 |
| Manganese Sulphate | 0.1 |
| Tween 80 | 1.4 |

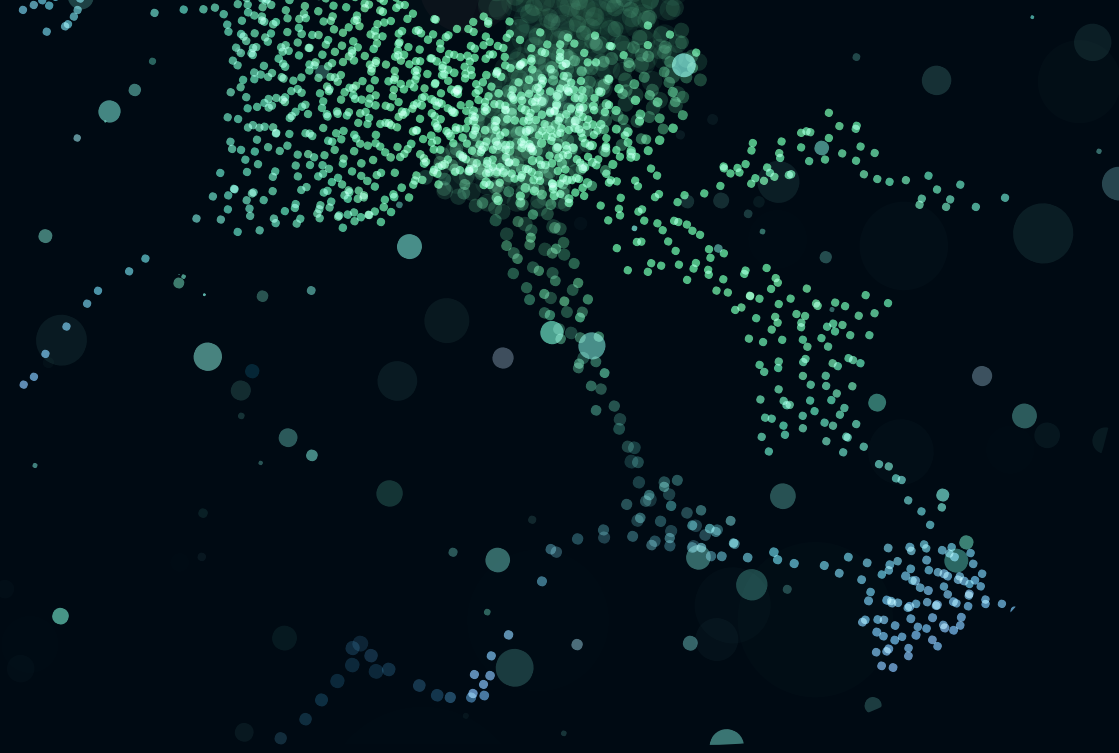
Suspend 70.3g in 1L of Distilled or De-ionised Water. Store at 8-25°C

## MRS BROTH

| SKU | Size |
|---|---|
| MRSB0500 | 500g |
| MRSB1000 | 1kg |
| MRSB5000 | 5kg |


| Specifications | % w/w |
|---|---|
| Peptone | 36.2 |
| Glucose | 36.2 |
| Yeast Extract | 9.0 |
| Sodium Acetate | 9.1 |
| K2HPO4 | 3.6 |
| TriAmmonium Citrate | 3.6 |
| Magnesium Sulphate | 0.4 |
| Manganese Sulphate | 0.1 |
| Tween 80 | 1.8 |

Suspend 70.3g in 1L of Distilled or De-ionised Water. Store at 8-25°C



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