MCDB 153 MEDIUM
With L-Glutamine and 28 mM HEPES,
Without Sodium Bicarbonate

Product Number **M7403**
Storage Temperature 2-8°C

Product Description
MCDB media were designed for the low-protein or serum-free growth of specific cell types using hormones, growth factors, trace elements or low levels of dialyzed fetal bovine serum protein (FBSP). Each MCDB medium was formulated (qualitatively and quantitatively) to provide a defined and optimally balanced nutritional environment that selectively promoted growth of a specific cell type. MCDB 105 and 110 are modifications of MCDB 104 medium, optimized for long-term survival and rapid clonal growth of human diploid fibroblast-like cells (WI-38, MRC-5, IMR-90) and of low-passage human foreskin fibroblasts using FBSP or hormone and growth factor supplements. MCDB 151, 153, 201 and 302 are modifications of Ham's nutrient mixture F-12, designed for the growth of human keratinocytes, clonal growth of chicken embryo fibroblasts and chinese hamster ovary (CHO) cells using low levels of FBSP, extensive trace elements or no serum protein.

MCDB 153 MEDIUM, Product No. M7403 is one of the cell culture media available from Sigma. The selection of a nutrient medium is strongly influenced by 1] type of cell, 2] type of culture [monolayer, suspension, clonal] and 3] degree of chemical definition necessary. It is important to review the literature for recommendations concerning medium, supplementation and physiological parameters required for a specific cell line.

Components	g/L
Ammonium Metavanadate	0.000000585
Calcium Chloride•Anhydrous	0.00333
Cupric Sulfate•5H_2O	0.00000275
Ferrous Sulfate•7H_2O	0.00139
Magnesium Chloride	0.05713
Manganese Sulfate	0.000000151
Molybdic Acid•4H_2O (ammonium)	0.00000124
Nickel Chloride•6H_2O	0.00000012
Potassium Chloride	0.11183
Sodium Acetate (anhydrous)	0.30153
Sodium Chloride	7.599
Sodium Metasilicate•9H_2O	0.000142
Sodium Phosphate Dibasic (anhydrous)	0.284088
Sodium Selenite	0.0000038
Stannous Chloride•2H_2O	0.000000113
Zinc Sulfate•7H_2O	0.000144
L-Alanine	0.00891
L-Arginine•HCl	0.2107
L-Asparagine•H_2O	0.015
L-Aspartic Acid	0.00399
L-Cysteine•HCl•H_2O	0.04204
L-Glutamic Acid	0.01471
L-Glutamine	0.8772
Glycine	0.00751
L-Histidine•HCl•H_2O	0.01677
L-Isoleucine	0.001968
L-Leucine	0.0656
L-Lysine•HCl	0.01827
L-Methionine	0.00448
L-Phenylalanine	0.00496
L-Proline	0.03453
L-Serine	0.06306
L-Threonine	0.01191
L-Tryptophan	0.00306
L-Tyrosine•2Na	0.00341
L-Valine	0.03513
D-Biotin	0.0000146
Choline Chloride	0.01396
Folic Acid	0.00079
myo-Inositol	0.01802
Niacinamide	0.00003663
D-Pantothenic Acid (hemicalcium)	0.000238
Pyridoxine•HCl	0.00006171
Riboflavin	0.0000376
Thiamine•HCl	0.000337
Vitamin B-12	0.000407
Adenine•HCl	0.03088
D-Glucose	1.081
HEPES	6.6
Phenol Red•Na	0.001242
Putrescine•2HCl	0.000161
Pyruvic Acid•Na	0.055
Thioctic Acid	0.000206
Thymidine	0.000727

Precautions and Disclaimer
REAGENT
For R&D use only.
Not for drug, household or other uses.

Preparation Instructions
Powdered media are extremely hygroscopic and should be protected from atmospheric moisture. The entire contents of each package should be used immediately after opening. Preparing a concentrated solution of medium is not recommended as precipitates may form.

Supplements can be added prior to filtration or introduced aseptically to sterile medium. The nature of the supplement may affect storage conditions and shelf life of the medium.

1. Measure out 90% of final required volume of water. Water temperature should be 15-20°C.
2. While gently stirring the water, add the powdered medium. Stir until dissolved. Do NOT heat.
3. Rinse original package with a small amount of water to remove all traces of powder. Add to solution in step 2.

4. To the solution in step 3, add 1.2 g sodium bicarbonate or 15.7 ml of sodium bicarbonate solution [7.5%w/v] for each liter of final volume of medium being prepared. Stir until dissolved.
5. While stirring, adjust the pH of the medium to 0.1-0.3 pH units below the desired pH since it may rise during filtration. The use of 1N HCl or 1N NaOH is recommended.
6. Add additional water to bring the solution to final volume.
7. Sterilize immediately by filtration using a membrane with a porosity of 0.22 microns.
8. Aseptically dispense medium into sterile container.

Storage/Stability

Store the dry powdered medium at 2-8°C under dry conditions and liquid medium at 2-8°C in the dark. Deterioration of the powdered medium may be recognized by any or all of the following: [1] color change, [2] granulation/clumping, [3] insolubility. Deterioration of the liquid medium may be recognized by any or all of the following: [1] pH change, [2] precipitate or particulate matter throughout the solution, [3] cloudy appearance [4] color change. The nature of supplements added may affect storage conditions and shelf life of the medium. Product label bears expiration date.

Procedure

MATERIALS REQUIRED BUT NOT PROVIDED:
Water for tissue culture use [W3500]
Sodium Bicarbonate [S5761] or
Sodium Bicarbonate Solution, 7.5% [S8761]
1N Hydrochloric Acid [H9892]
1N Sodium Hydroxide [S2770]
Medium additives as required

References

1. Boyce, S.T. and Ham, R.G., (1983). Calcium-Regulated Differentiation of Normal Human Epidermal Keratinocytes in Chemically Defined Clonal Culture and Serum-Free Serial Culture. J. Invest. Dermatol, 81, 33-40.
2. McKeehan, W.L. and Ham, R.G., (1976). Stimulation of Clonal Growth of Normal Fibroblasts with Substrata Coated with Basic Polymers. J. Cell Biol., 71, 727-734.
3. Hamilton, W.G. and Ham, R.G., (1977). Clonal Growth of Chinese Hamster Ovary Cell Lines in Protein-Free Media. In Vitro, 13:9, 537-547.

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Sigma-Aldrich Inc.
3050 Spruce St. St. Louis, MO 63103 USA 314-771-5765
Technical Service: 800-325-5832 or call collect 314-771-5765
Or e-mail at techserv@sial.com
To order: 800-325-3010 or call collect 314-771-5750
www.sigma-aldrich.com