

Product Information

Dulbecco's Modified Eagle's Medium/ Low Modified

with 1000 mg/L dextrose, with 4.0 mM L-glutamine, with 110 mg/L sodium pyruvate,
without sodium bicarbonate

CATALOG NO. 56469C

Description

Dulbecco's Modified Eagle's Medium (DMEM) is a modification of Basal Medium Eagle (BME) that contains four-fold concentrations of the amino acids and vitamins. The original formulation contained 1000 mg/L of dextrose and was used to culture embryonic mouse cells. Since then, it has been modified in several ways to support primary cultures of mouse and chicken cells and a variety of normal and transformed cells. In these modifications, pyridoxine HCl has been substituted for pyridoxal HCl in order to extend shelf-life of the medium. Studies have demonstrated the substitution results in cell growth equivalent to the traditional DMEM formulation.

Precautions

Use aseptic technique when handling or supplementing this medium after filtration. This product is for further manufacturing use. THIS PRODUCT IS NOT INTENDED FOR HUMAN OR THERAPEUTIC USE.

Storage

Store dry powder medium at 2 to 8 C. Do not use after expiration date. Store hydrated medium protected from light at 2 to 8 C.

Indications of Deterioration

Dry powder medium should be free flowing. Do not use if powder is caked. Prepared medium should be clear of particulates and flocculent material. Do not use if liquid medium is cloudy or contains precipitate. Other evidence of deterioration may include color change or degradation of physical or performance characteristics.

Formulation

Component (all components measured in mg/L)	
INORGANIC SALTS	
Calcium chloride anhydrous	200.000
Ferric nitrate nonahydrate	0.100
Magnesium sulfate anhydrous	97.670
Potassium chloride	400.000
Sodium chloride	6400.000
Sodium phosphate monobasic monohydrate	125.000
VITAMINS	
D-calcium pantothenate	4.000
Choline chloride	4.000
Folic acid	4.000
i-inositol	7.000
Niacinamide	4.000
Pyridoxal HCl	4.000
Riboflavin	0.400
Thiamine HCl	4.000
AMINO ACIDS	
L-arginine HCl	84.000
L-cystine 2HCl	62.570
L-glutamine	584.000
Glycine	30.000
L-histidine HCl monohydrate	42.000
L-isoleucine	104.800
L-leucine	104.800
L-lysine HCl	146.200
L-methionine	30.000
L-phenylalanine	66.000
L-serine	42.000
L-threonine	95.200
L-tryptophan	16.000
L-tyrosine 2Na dihydrate	103.790
L-valine	93.600
OTHER	
Dextrose anhydrous	1000.000
Phenol red sodium salt	15.930
Sodium pyruvate	110.000
ADD: Sodium bicarbonate	3700.000
Grams of powder per liter	9.985

United States

SAFC Biosciences, Inc.
13804 W. 107th Street
Lenexa, Kansas 66215
USA
Phone +1 913-469-5580
Toll free-USA 1 800-255-6032
Fax +1 913-469-5584
E-mail info-na@sial.com

Europe

SAFC Biosciences Ltd.
Smeaton Road, West Portway
Andover, Hampshire SP10 3LF
UNITED KINGDOM
Phone +44 (0)1264-333311
Fax +44 (0)1264-332412
E-mail info-eu@sial.com

Asia Pacific

SAFC Biosciences Pty. Ltd.
18-20 Export Drive
Brooklyn, Victoria 3025
AUSTRALIA
Phone +61 (0)3-9362-4500
Toll free-AUS 1 800-200-404
Fax +61 (0)3-9315-1656
E-mail info-ap@sial.com

Preparation Instructions

1. Measure 80 - 90% of the final volume of cell culture grade water (Catalog No. 59900C) into an appropriate size mixing vessel. Water temperature should be 15 to 30 C. Do not heat water.
2. Add the dry powder medium to the water. Rinse the original package with a small amount of cell culture grade water to remove all traces of powder and add to the solution. Mix until completely dissolved.
3. For each liter being prepared, add 3.70 g/L of sodium bicarbonate (Catalog No. 90421C) or 49.3 mL/L of sodium bicarbonate solution 7.5% (Catalog No. 59221C). Mix until completely dissolved.
4. While stirring the solution in Step 3, adjust the pH to 6.9 - 7.1 using NaOH 1N (Catalog No. 59223C) or HCl 1N. The pH of bicarbonate buffered solutions usually rises 0.1 - 0.2 units during filtration.
5. Add cell culture grade water to the solution in Step 4 to bring it to the final volume. Keep the vessel closed until the solution is filtered to avoid fluctuations in pH.
6. Sterilize the solution using a membrane filter with a pore size of 0.22 μm or less. A peristaltic pump or an inert gas such as nitrogen can be used to provide positive pressure at 3 - 15 psi. Do not use CO₂ gas.
7. Sterile solutions should be dispensed aseptically into sterile containers. Store protected from light at 2 to 8 C.
8. Supplements, such as antibiotics, can be added to the sterilized solution aseptically. Storage conditions and shelf life of the supplemented product may be affected by the nature of the supplements. Sterile serum should not be refiltered before or after being added to sterile medium because growth promoting capacity may be reduced upon refiltration.

NOTE: Dry powder medium is extremely hygroscopic and must be protected from atmospheric moisture. We recommend that the entire contents of each package be used immediately after opening.

Characteristics

Appearance

Off-white free-flowing powder

Bioburden

≤ 100 CFU/100 mL

Endotoxin

≤ 1.0 EU/mL

Osmolality (as supplied)

220 - 260 mOsm/kg H₂O

Osmolality (with NaHCO₃)

295 - 335 mOsm/kg H₂O

pH (as supplied)

6.0 - 6.4

pH (with NaHCO₃)

7.5 - 7.9

References

1. Eagle, H., *Science* (1959) 130:432.
2. Dulbecco, R. and Freeman, G., *Virology* (1979) 8:396.
3. Smith, J. D., Freeman, G., Vogt, M., and Dulbecco, R., *Virology* (1960) 12:185.
4. Morton, H. J., *In Vitro* (1970) 6:89.

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United States

S AFC Biosciences, Inc.
13804 W. 107th Street
Lenexa, Kansas 66215
USA
Phone +1 913-469-5580
Toll free-USA 1 800-255-6032
Fax +1 913-469-5584
E-mail info-na@sial.com

Europe

S AFC Biosciences Ltd.
Smeaton Road, West Portway
Andover, Hampshire SP10 3LF
UNITED KINGDOM
Phone +44 (0)1264-333311
Fax +44 (0)1264-332412
E-mail info-eu@sial.com

Asia Pacific

S AFC Biosciences Pty. Ltd.
18-20 Export Drive
Brooklyn, Victoria 3025
AUSTRALIA
Phone +61 (0)3-9362-4500
Toll free-AUS 1 800-200-404
Fax +61 (0)3-9315-1656
E-mail info-ap@sial.com