

Product Information

Iscove's Modified Dulbecco's Medium

with 4.0 mM L-glutamine, with 25 mM HEPES

CATALOG NO. 51471C

Description

In 1976, Guilbert and Iscove published the formula for their modification of Dulbecco's Modified Eagle's Medium, creating Iscove's Modified Dulbecco's Medium (IMDM). It replaced ferric nitrate with potassium nitrate, and included selenium, additional amino acids and vitamins, sodium pyruvate and HEPES buffer. This medium, when supplemented with albumin, lecithin and transferrin, supported the growth of precursor cells of erythrocytes and macrophages in the absence of serum. Since then, IMDM has been used to culture a wide variety of cells including lymphocytes and hybrid cells for antibody production.

This product contains 25 mM HEPES to provide additional buffering capacity to the medium. HEPES, a zwitterionic buffer, has a pKa of 7.3 at 37 C, which is more compatible with most culture systems than the pKa of NaHCO₃ usually 6.2 under similar conditions. HEPES should not be used in place of bicarbonate, however, as most cells require CO₂, which is normally supplied in the form of the bicarbonate ion. HEPES will reduce sudden, drastic pH shifts, but as with other buffers, it cannot prevent pH shifts altogether.

Precautions

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

Storage

Store medium protected from light at 2 to 8 C. Do not freeze. Do not use after the expiration date.

Indications of Deterioration

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, pH shift or degradation of physical or performance characteristics.

Formulation

Component (all components measured in mg/L)	
INORGANIC SALTS	
Calcium chloride anhydrous	165.000
Magnesium sulfate anhydrous	97.670
Potassium chloride	330.000
Potassium nitrate	0.076
Sodium bicarbonate	3024.000
Sodium chloride	4505.000
Sodium phosphate monobasic monohydrate	125.000
Sodium selenite	0.0173
VITAMINS	
Biotin	0.013
D-calcium pantothenate	4.000
Choline chloride	4.000
Cyanocobalamin	0.013
Folic acid	4.000
i-inositol	7.200
Niacinamide	4.000
Pyridoxal HCl	4.000
Riboflavin	0.400
Thiamine HCl	4.000
AMINO ACIDS	
L-alanine	25.000
L-arginine HCl	84.000
L-asparagine monohydrate	28.400
L-aspartic acid	30.000
L-cystine 2HCl	91.240
L-glutamic acid	75.000
L-glutamine	584.000
Glycine	30.000
L-histidine HCl monohydrate	42.000
L-isoleucine	105.000
L-leucine	105.000
L-lysine HCl	146.000
L-methionine	30.000
L-phenylalanine	66.000
L-proline	40.000
L-serine	42.000
L-threonine	95.000
L-tryptophan	16.000
L-tyrosine 2Na dihydrate	103.790
L-valine	94.000
OTHER	
Dextrose anhydrous	4500.000
HEPES	5958.000
Phenol red sodium salt	15.930
Sodium pyruvate	110.000

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

www.safcbiosciences.com

Preparation Instructions

Supplements, such as antibiotics, can be added to the sterilized solution using aseptic technique. 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.

Characteristics

Appearance

Clear orange-red solution

Endotoxin

≤ 1.0 EU/mL

Osmolality (as supplied)

265 - 305 mOsm/kg H₂O

pH (as supplied)

6.8 - 7.2

Sterility

No microbial growth detected

References

1. Guilbert, L. and Iscove, N., *Nature* (1976) 36:405.
2. Iscove, N. and Melchers, F., *J Exp Med* (1978) 199:519.

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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