

Product Information

Dulbecco's Modified Eagle's Medium/ High Modified

with 4500 mg/L dextrose, with 4.0 mM L-glutamine, without phenol red,

without sodium bicarbonate, without sodium pyruvate

CATALOG NO. 56436C

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, as well as a variety of normal and transformed cells. Each of these media offers a different combination of L-glutamine and sodium pyruvate. Additionally, the dextrose level has been raised to 4500 mg/L, contributing to the name "DMEM/High."

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 the expiration date. Store hydrated medium at 2 to 8 C, protected from light.

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 | 4500.00 |
| ADD: Sodium bicarbonate | 3700.000 |
| Grams of powder per liter | 13.359 |

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Preparation Instructions

1. Measure 80 - 90% of final required volume of cell culture grade water (Catalog No. 59900C) into an appropriate size mixing vessel. Water temperature should be 15 to 30 C.
2. Slowly add 13.36 g/L dry powder medium. Stir until completely dissolved. Rinse the package with a small amount of cell culture grade water to remove traces of powder and add to the solution.
3. Mix until completely dissolved. Do not heat the medium.
4. Add 3.7 g/L of sodium bicarbonate (Catalog No. 90421C) or 49.3 mL/L of sodium bicarbonate solution 7.5% (Catalog No. 59221C). Mix until fully dissolved.
6. While mixing the solution, adjust the pH to 6.9 - 7.1 using NaOH 1N (Catalog No. 59223C) or HCl 1N. The pH of this medium usually rises 0.1 - 0.2 units during the filtration.
7. Add cell culture grade water to the solution to bring it to final volume. To avoid fluctuation in pH, keep the vessel closed until the medium is filtered.
8. To sterilize the medium, sterile filter using a low protein-binding membrane filter with a pore size of 0.22 µm. For larger volumes, a low-protein binding 0.45 µm pre-filter is recommended. To minimize CO₂ loss, a peristaltic pump or an inert gas, such as nitrogen, can be used to provide positive pressure at 2 - 15 psi. Do not use CO₂ gas.

NOTE: 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.

9. Dispense medium into sterile containers using aseptic technique. Store liquid medium protected from light at 2 to 8 C.

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)

230 - 270 mOsm/kg H₂O

pH (as supplied)

6.0 - 6.4

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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