Product Name

Name: DMEM 2X Conc., High Glucose, without L-Glutamine, Sodium Bicarbonate, Sodium Pyruvate

Cat. No.: C3117-0500

Size: 500 mL

Product Description

DMEM 2X Conc. is a Dulbecco's modification of Eagle's medium (BME) that is considered one of the more common (e.g., MEM & RPMI) but less complex media in contrast to enriched media like Ham's F-12 or CMRL among others, which are utilized not only for more specialized cell types but also as the basis for some of the more unique serum-free media formulations. In essence, DMEM is a basal medium that requires supplementation to become a complete medium with a wider array of applications. DMEM 5X, High Glucose contains a four-fold higher concentration of amino acids (AA's) and vitamins in addition to other ancillary constituents. The original DMEM formulation contains 1000 mg/L of glucose and was first reported for culturing mouse embryonic cells (MEC). The high glucose formulation, containing glucose (4500 mg/L) at 1X concentration, has proven to be optimal for the cultivation of many other cell types.

Most common types of media consist of an isotonic, buffered basal nutrient enriched environment which provides an energy source, inorganic salts, vitamins, amino acids as well as additional constituents (e.g., supplements) according to the demands of a particular cell line. This relatively more complex medium formulation provides the optimal cell-culture environment in which in vitro culture conditions mimic those of the in vivo environment including basic nutritional requirements, osmotic pressure, physiological pH, and temperature among other considerations. At a minimum, it consists of the foundation medium components that are all part and parcel of a pre-tested complete media to assist the cells in meeting their metabolic demands.

DMEM 2X Conc., High Glucose, without L-Glutamine, with Sodium Bicarbonate contains no growth-promoting factors or antimicrobials. Whether DMEM or other media should be used is dependent upon the type and character of the cells in culture. Supplementation is also needed when specific additions or supplements (e.g., growth factors, serum, fatty-acids, buffers, and hormones) complement a typical basal or balanced salt solution medium or more complex media, such as Iscove's modification of DMEM. These more complex media not only meet the minimum requirements for cell growth and proliferation but also are part and parcel of a much wider array of factors culminating in a final medium that segues with the essential cell-niche requirements demanded for optimal results.

L-glutamine, a precursor of glutamate, is one of the most readily available sources of carbon skeleton or energy for many rapidly dividing cell-types for use in vitro and is a key component and essential amino acid that is found in many cell-culture media formulations and in virtually all mammalian cells in culture. Supplementation with sodium pyruvate serves as an additional and easily accessible carbohydrate energy source for cells in culture. Along with D-glucose, these balanced energy sources serve as the carbon skeletons for cell anabolic processes in addition to nucleic acid metabolism and protein production while limiting the potential accumulation toxic ammonia gas. DMEM utilizes the sodium bicarbonate ($NaHCO_3$) buffer system thereby requiring artificial levels of CO_2 to maintain the required pH. Optimally, the CO_2 level at 7 - 10% is maintained but it has been successfully used at 5% CO_2. Lowering CO_2

concentration increases pH especially when the medium is exposed to ambient levels of CO_2 in the presence of NaHCO3. Therefore, supplementation may affect the shelf-life and storage conditions by the very nature of the supplements.

DMEM 2X Conc., High Glucose, without L-Glutamine, with Sodium Bicarbonate contains numerous important basic constituents in a ready-to-use formulation that includes a typical and wide variety of components, among others:

- Amino acids
- Glucose
- Inorganic salts
- Vitamins
- Trace elements

Predominant Characteristics

- 2X Conc., liquid formulation
- With 4.5 g/L glucose (1:2 dilution)
- With phenol red ($C_{19}H_{13}NaO_5S$) as a pH indicator
- With sodium bicarbonate ($NaHCO_3$)
- Without sodium pyruvate ($C_3H_3NaO_3$)
- Without L-glutamine
- Promotes cell growth performance, productivity & an overall more uniform & consistent media performance
- Sterile filtered (0.1 µm)
- Cell culture performance and endotoxin Tested

Storage and Stability

The product should be kept at **2 - 8°C.**
The product is **light-sensitive** and therefore should not be left in the light.
Shelf life: 12 months from date of manufacture.

Procedure

1. Measure out sterile culture grade water to approximately 40% of desired total volume of media. Pour water into an appropriate sterile mixing container that is close to the desired final volume. The water should be at room temperature.
2. Add the required amount of the 2X concentrated medium.
3. Add the desired amount of 200 mM (stock concentration) L-glutamine solution to 4 mM (final concentration) if required.
4. Add the desired amount of 7.5% sodium bicarbonate solution to a final of 25 mM or 0.37%.
5. Add antibiotics or other nutrients if desired.
6. Add water to the final volume. During the dilution stir gently into equilibrium. If necessary, adjust pH with sterile 1 N NaOH or HCl.
7. Add the desired amount of serum, if required and Store at 2 - 8ºC.

Quality Control

DMEM 2X Conc is tested for sterility, pH, osmolality, and endotoxin concentration. In addition, each batch is tested for cell growth performance.

Manufacturer

Shanghai Dr. Cell Co., Ltd.

Issue Date

June 2023

Precaution and Disclaimer

For research use only, not for clinical diagnosis, and treatment.