Product Name

Name: Minimum Essential Medium (MEM), Earle's Salts Base, with Non-Essential Amino Acids, without L-Glutamine

Cat. No.: C3053-0500

Size: 500 mL

Product Description

Minimum Essential Medium-Eagle, Earle's Salts Base, with Non-Essential Amino Acids, without L-Glutamine is one of the most widely utilized synthetic growth media. MEM has been used for the cultivation of a wide variety of cells grown in monolayers. Optional supplementation of Non-Essential Amino Acids (NEAA's) to the formulations that incorporate either Hank's or Eagle's salts has broadened the utility of this medium.

Living organisms differ considerably with respect to their ability to synthesize amino acids (AA) and the forms of nitrogen that they may utilize for such a purpose. The higher vertebrates do not possess the ability to synthesize all the common amino acids unlike some of the more versatile higher plants or microorganisms such as *E. coli*. Humans and albino rat can make only ten (10) of the twenty (20) AA's required for protein synthesis. These 10 AAs collectively are known as the Non-Essential Amino Acids (NEAA's), the remainder being the Essential Amino Acids (EAA's). Unlike fat and complex carbohydrates, the human body does not store excess amino acids as a reserve; they must be supplied in the diet every day. Concentrated supplements like MEM NEAA's 100X add nutrients that cells might not encounter thereby reducing the overall biosynthetic burden in the culture.

Basal medium must contain those essential amino acids (EAA's) that cannot be synthesized by the cells including L-cysteine and L-tyrosine at a rate to meet the rapid division of the cells in culture. Individual requirements vary for different cell type being cultured. Some more specialized media often have non-essential amino acids (NEAA's) added to ensure that amino acids do not limit the maximum cell number attainable in a particular cell type. It is recommended to review the extensive literature concerning cell culture media, their supplementation, and the physiological parameters required for each specific cell line as per their essential niche requirements.

MEM-NEAA (Earle's) culture media consists of NEAA's amino acids, energy sources, inorganic salts, and vitamins among other nutrients. It is basically an unsupplemented medium that promotes the growth of many types of cells that do not require any special nutrients. Optimal and critical nutrient components including such inorganic salts (e.g., NaCl, KCl, $CaCl_2$), amino acids (e.g., arginine, histidine, lysine), energy sources (e.g., glucose), and vitamins (e.g., folic acid, thiamine, riboflavin) are part and parcel that culminate in a perfect milieu for growth and viability.

Unlike the balanced salt solutions that form the basis of many complex media formulations and are utilized to maintain cells for a short-term, MEM-NEAA may be modified and further enriched to promote the growth and viability of cells in culture. MEM-NEAA may be utilized for a broad and variegated spectrum of cell lines when properly supplemented. For some applications, serum supplementation is required to supply essential growth factors and hormones in addition to carbohydrates, amino acids and vitamins.

Some Predominant Characteristics of MEM-NEAA (Earle's) without L-Glutamine

- Liquid formulation
- With non-essential amino acids
- With Earle's salts
- With sodium bicarbonate ($NaHCO_3$)
- With phenol red ($C_{19}H_{13}NaO_5S$) as pH indicator
- Sterile filtered (0.1 µm)
- Cell Culture 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. Take a bottle from the refrigerator at 2 - 8°C and read the label.
2. Ensure that the cap of the bottle is tight.
3. Gently swirl the solution in the bottle.
4. Wipe the outside of the bottle with a disinfectant solution such as 70% ethanol.
5. Pipette appropriate volume using aseptic/sterile technique under a laminar-flow culture hood.

Quality Control

The product is tested for sterility, pH, osmolality, and endotoxin concentration. In addition, each batch is tested for cell growth performance.

Precaution and Disclaimer

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