

# Dulbecco's Modified Eagle Medium (DMEM)

With 4.5gm Glucose per litre

Without L-Glutamine, Sodium bicarbonate and Sodium pyruvate

**Product Code: AT066A**

## Product Description :

Dulbecco's Modified Eagle Medium is one of the most widely used modification of Eagles medium. DMEM is a modification of Basal Medium Eagle (BME) that contains four fold concentration of amino acids and vitamins. Additionally, the formulation also includes glycine, serine and ferric nitrate. The original formulation contains 1000mg glucose per litre and was originally used to culture embryonic mouse cells.

DMEM high glucose is a further modification of original DMEM and contains 4500mgs glucose per litre. The additional glucose has proved to be useful in cultivating various other cell lines including primary cultures of mouse and chicken cells as well as various normal and transformed cell lines.

AT066A is DMEM with 4.5gm glucose per litre. It does not contain L-glutamine and sodium pyruvate. Users are advised to review the literature for recommendations regarding medium supplementation and physiological growth requirements specific for different cell lines.

## Composition :

| Ingredients                           | mg/L     |
|---------------------------------------|----------|
| <b>INORGANIC SALTS</b>                |          |
| Calcium chloride dihydrate            | 265.000  |
| Ferric nitrate nonahydrate            | 0.100    |
| Magnesium sulphate anhydrous          | 97.720   |
| Potassium chloride                    | 400.000  |
| Sodium chloride                       | 6400.000 |
| Sodium dihydrogen phosphate anhydrous | 109.000  |
| <b>AMINO ACIDS</b>                    |          |
| Glycine                               | 30.000   |
| L-Arginine hydrochloride              | 84.000   |
| L-Cystine dihydrochloride             | 62.570   |
| L-Histidine hydrochloride monohydrate | 42.000   |
| L-Isoleucine                          | 105.000  |
| L-Leucine                             | 105.000  |
| L-Lysine hydrochloride                | 146.000  |
| L-Methionine                          | 30.000   |
| L-Phenylalanine                       | 66.000   |

|                          |          |
|--------------------------|----------|
| L-Serine                 | 42.000   |
| L-Threonine              | 95.000   |
| L-Tryptophan             | 16.000   |
| L-Tyrosine disodium salt | 103.790  |
| L-Valine                 | 94.000   |
| <b>VITAMINS</b>          |          |
| Choline chloride         | 4.000    |
| D-Ca-Pantothenate        | 4.000    |
| Folic acid               | 4.000    |
| Nicotinamide             | 4.000    |
| Pyridoxal hydrochloride  | 4.000    |
| Riboflavin               | 0.400    |
| Thiamine hydrochloride   | 4.000    |
| i-Inositol               | 7.200    |
| <b>OTHERS</b>            |          |
| D-Glucose                | 4500.000 |
| Phenol red sodium salt   | 15.900   |

## Directions :

- Suspend 12.8gms in 900ml tissue culture grade water with constant, gentle stirring until the powder is completely dissolved. Do not heat the water.
- Add 3.7gms of Sodium bicarbonate powder (TC230) or 49.3ml of 7.5% Sodium bicarbonate solution (TCL013) and 0.584gms of L-Glutamine powder (TC243) or 20ml of 200mM L-Glutamine solution (TCL012) for 1 litre of medium and stir until dissolved.
- Adjust the pH to 0.2-0.3 pH units below the desired pH using 1N HCl or 1N NaOH since the pH tends to rise during filtration.
- Make up the final volume to 1000ml with tissue culture grade water.
- Sterilize the medium immediately by filtering through a sterile membrane filter with a porosity of 0.22 micron or less, using positive pressure rather than vacuum to minimize the loss of carbon dioxide.
- Aseptically add sterile supplements as required and dispense the desired amount of sterile medium into sterile containers.
- Store liquid medium at 2-8°C and in dark till use.

## Material required but not provided :

Tissue culture grade water (TCL010)  
Sodium bicarbonate (TC230)  
Sodium bicarbonate solution 7.5% (TCL013)  
1N Hydrochloric acid (TCL003)  
1N Sodium hydroxide (TCL002)  
L-Glutamine powder (TC243)  
L-Glutamine solution 200mM (TCL012)  
Foetal bovine serum (RM1112/RM10432)

## Quality Control:

### Appearance

Off-white to Creamish white.

### Solubility

Clear solution at 12.8 gms/L.

### pH without Sodium Bicarbonate

6.00 -6.60

### pH with Sodium Bicarbonate

7.50 -8.10

### Osmolality without Sodium Bicarbonate

250.00 -290.00

### Osmolality with Sodium Bicarbonate

330.00 -370.00

### Cultural Response

The growth promotion capacity of the medium is assessed qualitatively by analyzing the cells for the morphology and quantitatively by estimating the cell counts and comparing it with a control medium through minimum three subcultures.

### Endotoxin Content

NMT 5EU/ml

## Storage and Shelf Life:

1. All the powdered media and prepared liquid culture media should be stored at 2-8°C. Use before the expiry date. In spite of above recommended storage condition, certain powdered medium may show some signs of deterioration /degradation in certain instances. This can be indicated by change in colour, change in appearance and presence of particulate matter and haziness after dissolution.
2. Preparation of concentrated medium is not recommended since free base amino acids and salt complexes having low solubility may precipitate in concentrated medium.

3. pH and sodium bicarbonate concentration of the prepared medium are critical factors affecting cell growth. This is also influenced by amount of medium and volume of culture vessel used (surface to volume ratio). For example, in large bottles, such as Roux bottles pH tends to rise perceptibly as significant volume of carbon dioxide is released. Therefore, optimal conditions of pH, sodium bicarbonate concentration, surface to volume ratio must be determined for each cell type. We recommend stringent monitoring of pH. If needed, pH can be adjusted by using sterile 1N HCl or 1N NaOH or by bubbling in carbon dioxide.

4. If required, supplements can be added to the medium prior to or after filter sterilization observing sterility precautions. Shelf life of the medium will depend on the nature of supplement added to the medium.

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### Disclaimer :

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