RPMI 1640
With L- Glutamine, Sodium pyruvate, 4.5gms Glucose per liter and 10mM HEPES buffer
Without Sodium bicarbonate

Product Code: AT162

Product Description:
Roswell Park Memorial Institute (RPMI) media are a series of media developed by Moore et al for the culture of human normal and neoplastic cells in vitro. RPMI-1640 is the most commonly used medium in the series. A modification of McCoy's 5a medium, the medium was specifically designed to support the growth of human lymphoblastoid cells in suspension culture. Presently the medium is extensively used for a wide range of anchorage dependant cell lines. The medium needs to be supplemented with 5-20% fetal bovine serum. The medium is also known to support growth of cells in the absence of serum.

AT162 is RPMI-1640 medium supplemented with L-glutamine, sodium pyruvate, 4.5gms glucose per liter and 10mM HEPES buffer. HEPES, a zwitterionic buffer having a pKa of 7.3 at 37ºC prevents the initial rise in pH that tends to occur at the initiation of a culture and increases the buffering capacity of the medium. Users are advised to review the literature for recommendations regarding medium supplementation and physiological growth requirements specific for different cell lines.

Composition:

Inorganic Salts
- Calcium nitrate tetrahydrate: 1000.000 mg/L
- Magnesium sulphate anhydrous: 48.840 mg/L
- Potassium chloride: 400.000 mg/L
- Sodium chloride: 6000.000 mg/L
- Sodium phosphate dibasic anhydrous: 800.000 mg/L
- Sodium pyruvate: 110.000 mg/L

Amino Acids
- L-Glutamine: 300.000 mg/L
- L-Histidine hydrochloride: 20.960 mg/L
- L-Hydroxyproline: 20.000 mg/L
- L-Isoleucine: 50.000 mg/L
- L-Leucine: 50.000 mg/L
- L-Lysine hydrochloride: 40.000 mg/L
- L-Methionine: 15.000 mg/L
- L-Phenylalanine: 15.000 mg/L
- L-Proline: 20.000 mg/L
- L-Serine: 30.000 mg/L
- L-Threonine (Allo free): 20.000 mg/L
- L-Tryptophan: 5.000 mg/L
- L-Tyrosine sodium salt: 28.830 mg/L
- L-Valine: 20.000 mg/L

Vitamins
- Choline chloride: 3.000 mg/L
- D-Biotin: 0.200 mg/L
- D-Ca-Pantothenate: 0.250 mg/L
- Folic acid: 1.000 mg/L
- Niacinamide: 1.000 mg/L
- Pyridoxine hydrochloride: 1.000 mg/L
- Riboflavin: 0.200 mg/L
- Thiamine hydrochloride: 1.000 mg/L
- Vitamin B12: 0.005 mg/L
- i-Inositol: 35.000 mg/L
- p-Amino benzoic acid (PABA): 1.000 mg/L

Others
- D-Glucose: 4500.000 mg/L
- Glutathione reduced: 1.000 mg/L
- HEPES Buffer: 2383.000 mg/L
- Phenol red sodium salt: 5.300 mg/L

Directions:
1. Suspend 15.4gms in 900 ml tissue culture grade water with constant, gentle stirring until the powder is completely dissolved. Do not heat the water.
2. Add 2.0gms of Sodium bicarbonate powder (TC230) or 26.67ml of 7.5% Sodium bicarbonate solution (TCL013) for 1 litre of medium and stir until dissolved.

Please refer disclaimer overleaf
3. 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.
4. Make up the final volume to 1000ml with tissue culture grade water.
5. 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.
6. Aseptically add sterile supplements as required and dispense the desired amount of sterile medium into sterile containers.
7. 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)
- Foetal bovine serum (RM1112/RM10432)

Quality Control:

Appearance
Off-white to Creamish white, homogenous powder.

Solubility
Clear solution at 15.4gms/L.

pH without Sodium Bicarbonate
6.40 - 7.00

pH with Sodium Bicarbonate
6.80 - 7.40

Osmolality without Sodium Bicarbonate
255.00 - 295.00

Osmolality with Sodium Bicarbonate
295.00 - 335.00

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.

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.