NCTC 109 Medium
With L-Glutamine
Without Sodium bicarbonate

Product Code: AT138

Product Description:
NCTC 109 is one of the chemically defined medium in the series on NCTC media developed by Virginia Evans of the Tissue Culture Section of National Cancer Institute, Bethesda. NCTC 109 was the result of many years of development and modifications. The medium was originally formulated to establish and maintain a strain of mouse cells, L929. The medium has been shown to support growth of fibroblast-like and epithelial-like cells of both normal and malignant origin from mice, hamsters, monkeys and humans. NCTC 135 is similar to NCTC 109 except that L-Cysteine has been replaced with L-Cystine due to possible side effects of L-Cysteine on certain cell lines.

AT138 is NCTC 109 Medium with L-glutamine. Users are advised to review the literature for recommendations regarding medium supplementation and physiological growth requirements specific for different cell lines.

Composition:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INORGANIC SALTS</strong></td>
<td></td>
</tr>
<tr>
<td>Calcium chloride dihydrate</td>
<td>265.000</td>
</tr>
<tr>
<td>Magnesium sulphate anhydrous</td>
<td>100.000</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>400.000</td>
</tr>
<tr>
<td>Sodium acetate Anhydrous</td>
<td>30.000</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>6800.000</td>
</tr>
<tr>
<td>Sodium dihydrogen phosphate anhydrous</td>
<td>122.000</td>
</tr>
<tr>
<td><strong>AMINO ACIDS</strong></td>
<td></td>
</tr>
<tr>
<td>Glycine</td>
<td>13.510</td>
</tr>
<tr>
<td>Hydroxy-L-Proline</td>
<td>4.090</td>
</tr>
<tr>
<td>L-Alanine</td>
<td>34.480</td>
</tr>
<tr>
<td>L-Arginine hydrochloride</td>
<td>31.160</td>
</tr>
<tr>
<td>L-Asparagine monohydrate</td>
<td>9.190</td>
</tr>
<tr>
<td>L-Aspartic acid</td>
<td>9.910</td>
</tr>
<tr>
<td>L-Cysteine hydrochloride monohydrate</td>
<td>289.710</td>
</tr>
<tr>
<td>L-Cystine dihydrochloride</td>
<td>13.680</td>
</tr>
<tr>
<td>L-Glutamic acid</td>
<td>8.260</td>
</tr>
<tr>
<td>L-Glutamine</td>
<td>135.730</td>
</tr>
<tr>
<td>L-Histidine hydrochloride monohydrate</td>
<td>26.650</td>
</tr>
</tbody>
</table>

L-Isoleucine 18.040
L-Leucine 20.440
L-Lysine hydrochloride 38.430
L-Methionine 4.440
L-Orotate hydrochloride 9.410
L-Phenylalanine 16.530
L-Proline 6.130
L-Serine 10.750
L-Threonine 18.930
L-Tryptophan 17.500
L-Tyrosine disodium salt monohydrate 23.700
L-Valine 25.000

**VITAMINS**
Calciferol 0.250
Choline chloride 1.250
D-Biotin 0.025
D-Pantothenic acid (hemicalcium) 0.025
DL-Tocopherol phosphate disodium salt 0.025
Folic acid 0.040
L-Ascorbic acid 50.000
Menadione sodium bisulphite 0.125
Nicotinamide 0.0625
Nicotinic acid 0.0625
Pyridoxal hydrochloride 0.0625
Pyridoxine hydrochloride 0.0625
Retinol Acetate 0.250
Riboflavin 0.025
Thiamine hydrochloride 0.025
Vitamin B12 10.000
myo-Inositol 0.125
p-Amino benzoic acid (PABA) 0.125

**OTHERS**
2' Deoxyadenosine 10.000
2' Deoxycytidine hydrochloride 10.000
2' Deoxyguanosine hydrochloride 10.000
5'-Methylcytosine hydrochloride 0.100
Cocarboxylase 1.000
Coenzyme A sodium salt 2.500
D-Glucose 1000.000
D-Glucosamine hydrochloride 3.850

Please refer disclaimer overleaf
D-Glucuronolactone 1.800
Flavin Adenine Dinucleotide Disodium salt 1.000
Glucuronate sodium salt 1.800
Glutathione sodium salt 20.000
L-Amino-n-Butyric acid 5.510
L-Taurine 4.180
Phenol red sodium salt 20.000
Thymidine 10.000
Tween 80 12.500
Uridine triphosphate sodium salt 1.000
ß-NAD 7.000
ß-NADP 1.000

Directions:
1. Suspend 9.7gms in 900ml tissue culture grade water with constant, gentle stirring until the powder is completely dissolved. Do not heat the water.
2. Add 2.2gms of sodium bicarbonate powder (TC230) or 29.3ml of 7.5% sodium bicarbonate solution (TCL013) for 1 litre of medium and stir until dissolved.
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 9.7 gms/L.
PH without Sodium Bicarbonate
3.00 - 3.60

Preset in Searching:

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. Inspite 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.
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.

Disclaimer:
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