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ProductInformation

BGJb MEDIUM
Fitton-Jackson Modification
With L-Glutamine, Without Sodium Bicarbonate

Product No. **B 6644**
Store at 2-8 °C

Product Description
Medium BGJ was originally developed by Biggers, Gwatkin and Judah in the early 1960's at the Wistar Institute. Subsequent studies resulted in a modification designated BGJb which has been used for supporting cultures of cartilaginous embryonic bone. An additional modification, developed by Sylvia Fitton-Jackson at Strangeways Laboratory in England, is further enriched over the original formula. The additional amino acids and vitamins, and the increased buffering capacity conferred by the phosphates in the Fitton-Jackson modification, create conditions that permit calcification as well as growth of cartilaginous embryonic bone.

BGJb MEDIUM, Product No. B 6644 is one of the cell culture media available from Sigma. The selection of a nutrient medium is strongly influenced by 1] type of cell, 2] type of culture [monolayer, suspension, clonal] and 3] degree of chemical definition necessary. It is important to review the literature for recommendations concerning medium, supplementation and physiological parameters required for a specific cell line.

Components	g/L
Magnesium Sulfate	0.09768
Potassium Chloride	0.4
Sodium Acetate	0.05
Sodium Chloride	6.8
Sodium Phosphate Dibasic	0.112
Sodium Phosphate Monobasic	0.02434
L-Alanine	0.25
L-Arginine	0.175
L-Aspartic Acid	0.15
L-Cysteine•HCl•H_2O	0.1003
L-Glutamine	0.2
Glycine	0.8
L-Histidine	0.15
L-Isoleucine	0.03
L-Leucine	0.05
L-Lysine•HCl	0.24
L-Methionine	0.05
L-Phenylalanine	0.05
L-Proline	0.4
L-Serine	0.2
L-Threonine	0.075
L-Tryptophan	0.04
L-Tyrosine2•Na•2H_2O	0.05766
DL-Valine	0.065
Ascorbic Acid•Na	0.05
D-Biotin	0.0002
Choline Bitartrate	0.0907
Folic Acid	0.0002
myo-Inositol	0.0002
Nicotinic Acid	0.02
PABA	0.002
D-Pantothenic Acid (hemicalcium)	0.0002
Pyridoxal-5-Phosphate	0.0002
Riboflavin	0.0002
Thiamine•HCl	0.004
α-Tocopheral Phosphate•2Na	0.001
Vitamin B-12	0.00004
Lactic Acid (hemicalcium)	0.555
Glucose	10.0
Phenol Red•Na	0.02

Precautions and Disclaimer
For R&D use only.
Not for drug, household or other uses.

Preparation Instructions
Powdered media are extremely hygroscopic and should be protected from atmospheric moisture. The entire contents of each package should be used immediately after opening. Preparing a concentrated solution of medium is not recommended as precipitates may form.

Supplements can be added prior to filtration or introduced aseptically to sterile medium. The nature of the supplement may affect storage conditions and shelf life of the medium.

1. Measure out 90% of final required volume of water. Water temperature should be 15-20°C.
2. While gently stirring the water, add the powdered medium. Stir until dissolved. Do NOT heat.
3. Rinse original package with a small amount of water to remove all traces of powder. Add to solution in step 2.
4. To the solution in step 3, add 3.5 g sodium bicarbonate or 46.6 ml of sodium bicarbonate solution [7.5%w/v] for each liter of final volume of medium being prepared. Stir until dissolved.

5. While stirring, adjust the pH of the medium to 0.1-0.3 pH units below the desired pH since it may rise during filtration. The use of 1N HCl or 1N NaOH is recommended.
6. Add additional water to bring the solution to final volume.
7. Sterilize immediately by filtration using a membrane with a porosity of 0.22 microns.
8. Aseptically dispense medium into sterile container.

Product Storage

Store the dry powdered medium at 2-8°C under dry conditions and liquid medium at 2-8°C in the dark. Deterioration of the powdered medium may be recognized by any or all of the following: [1] color change, [2] granulation/clumping, [3] insolubility. Deterioration of the liquid medium may be recognized by any or all of the following: [1] pH change, [2] precipitate or particulate matter throughout the solution, [3] cloudy appearance [4] color change. The nature of supplements added may affect storage conditions and shelf life of the medium. Product label bears expiration date.

Materials Required but Not Provided

Water for tissue culture use [W3500]
Sodium Bicarbonate [S5761] or
Sodium Bicarbonate Solution, 7.5% [S8761]
1N Hydrochloric Acid [H9892]
1N Sodium Hydroxide [S2770]
Medium additives as required

Product Profile

Appearance	off-white powder
Moisture content	≤ 2.0%
Solubility	clear solution at 1x concentration
pH at RT [without sodium bicarbonate]	6.2 ± 0.3
pH at RT [with sodium bicarbonate]	7.4 ± 0.3
Osmolality [without sodium bicarbonate]	325 mOsm/kg H_2O± 5%
Osmolality [with sodium bicarbonate]	384 mOsm/kg H_2O ± 5%
Amino Acid Analysis by HPLC	Analysis has confirmed that amino acids are present at concentrations consistent with the formula.
Key Element Analysis by ICAP	Analysis has confirmed that key elements are present at concentrations consistent with the formula.

Biological Performance Characteristics

Biological performance is assessed using an appropriate cell line(s). Growth studies are carried through 2 subculture generations. Cells are counted and growth is plotted as a logarithmic function of time in culture. Seeding efficiencies, doubling time, and final cell densities are determined. During the testing period cultures are examined microscopically for atypical morphology and evidence of cytotoxicity. Test results are available upon request.

References

1. Biggers, J.D., Gwatkin, R.B.L., and Hetner, S., (1961). Growth of Embryonic Avian and Mammalian Tibiae on a Relatively Simple Chemically Defined Medium. Exp. Cell Res., 25:1, 41-58.

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