

DMEM/F-12 with L-Glutamine#GTC44.0500 (500ml)
(FOR RESEARCH ONLY)

Product:	Filter sterilized DMEM/F-12 supplemented with L-Glutamine. This formulation is with Phenol Red and Sodium Pyruvate and without HEPES. Detailed formulation can be found on page 2.
Quantity:	#GTC44.0500 comprises 500ml of DMEM/F-12 with L-Glutamine.
Applications:	Cell Culture.
Appearance:	Clear red/orange solution.
Specifications:	pH: 7.0-7.6 Osmolality: 280-320 mOsm/kg Sterility: sterile Endotoxin: <1.0 EU/ml
Storage:	Store at +4°C, protected from light, for up to 12 months. Once the product has been opened, store at +4°C and use within 1 or 2 months.
Shipment:	Shipment is typically carried out at room temperature as this product can be kept at room temperature for up to 2 weeks without any problem.

Usage: DMEM/F-12 (also known as DMEM/Ham's F-12) is a 1:1 mixture of DMEM (Dulbecco's Modified Eagle Medium) and HAM's Nutrient Mixture F-12. This combination provides a richer and more complex nutrient profile than each of the single media alone. Whereas DMEM provides high concentrations of glucose, amino acids and vitamins, Ham's F-12 provides a higher variety in amino acids and vitamins and contains putrescine and trace elements (zinc and copper). DMEM/F-12 is widely used in cell culture as a basal medium. It provides basic nutrients for growth of many cell lines, including Hela, HEK-293, Cos-7, PCC-12, MDCK, HUVECs, smooth muscle cells, glial cells, fibroblasts, human endothelial cells, rat fibroblasts, and many primary cells. This particular formulation is supplemented with L-Glutamine.

DMEM/F-12 is ideal for low-serum or serum-free conditions (e.g. for hPSCs, iPSCs), however, since it does not contain protein, lipids or growth factors, essential for cell proliferation, long-term viability and robust cell attachment it is often supplemented with 5-10% FBS (Fetal Bovine Serum). To maintain physiological pH, DMEM contains sodium bicarbonate and therefore must be kept in a controlled CO₂-environment (5-10%). The pH indicator (phenol red) allows for monitoring pH changes from 6.2 (yellow) to 8.2 (red).

Detailed Formulation:

Table 1. Composition of #GTC44 DMEM/F-12 with L-Glutamine.

Amino Acids	(mg/L)	Vitamins	(mg/L)
Glycine	18.75	D-Biotin	0.0035
L-Alanine	4.45	Choline chloride	8.98
L-Arginine HCl	147.50	D-Calcium pantothenate	2.24
L-Asparagine H ₂ O	7.50	Folic Acid	2.66
L-Aspartic Acid	6.65	Myo-Inositol	12.60
L-Cysteine HCl H ₂ O	17.56	Nicotinamide	2.02
L-Cystine 2HCl	31.29	Pyridoxal HCl	2.00
L-Glutamic Acid	7.35	Pyridoxine HCl	0.031
L-Glutamine	365.00	Riboflavin	0.219
L-Histidine HCl H ₂ O	31.48	Thiamine HCl	2.17
L-Isoleucine	54.47	Vitamin B12	0.68
L-Leucine	59.05		
L-Lysine HCl	91.25	Salts	(mg/L)
L-Methionine	17.24	CaCl ₂ ·2H ₂ O	154.50
L-Phenylalanine	35.48	CuSO ₄ ·5H ₂ O	0.0013
L-Proline	17.25	Fe(NO ₃) ₃ ·9H ₂ O	0.05
L-Serine	26.25	FeSO ₄ ·7H ₂ O	0.417
L-Threonine	53.45	KCl	311.80
L-Tryptophan	9.02	MgCl ₂ ·6H ₂ O	61.20
L-Tyrosine 2Na 2H ₂ O	55.79	MgSO ₄ ·7H ₂ O	100.00
L_Valine	52.85	NaCl	6996.00
		NaHCO ₃	1200.00
Others	(mg/L)	Na ₂ HPO ₄	71.02
D-Glucose	3151.00	NaH ₂ PO ₄ · 2H ₂ O	70.87
Phenol Red (Na)	8.63	ZnSO ₄ ·7H ₂ O	0.432
Hypoxanthine	2.40		
Linoleic Acid	0.042		
Lipoic Acid	0.105		
Putrescine 2 HCl	0.081		
Sodium Pyruvate	55.00		
Thymidine	0.365		