

# DMEM (Low Glucose, L-Glutamine, Pyruvate, Phenol Red, no HEPES)

## 1 Components

Component	HY-K3003-500 mL	HY-K3003-1 L	HY-K3003-3 L
DMEM (Low Glucose, L-Glutamine, Pyruvate, Phenol Red, no HEPES)	500 mL	500 mL × 2	500 mL × 6

## 2 Introduction

DMEM (Dulbecco's Modified Eagle Medium) is a widely used basal medium for supporting the growth of many different mammalian cells. Cell lines successfully cultured in DMEM include Hela, 293, Cos-7, and PC-12, as well as primary fibroblasts, neurons, glial cells, HUVECs, and smooth muscle cells. DMEM contains 4 times the concentration of amino acids and vitamins than the original MEM.

MCE offers a range of different formulations of DMEM medium for different cell culture applications.

## 3 Characteristics

With (+)	Without (-)
Low Glucose (1.0 g/L)	HEPES
L-Glutamine (584 mg/L)	
Phenol Red (15 mg/L)	
Sodium Pyruvate (0.11 g/L)	

## 4 General Protocol

DMEM/F-12 requires a 5–10% CO<sub>2</sub> environment to maintain physiological pH.

## 5 Storage

Store at 2–8°C for 1 year.

Protect from light.

## 6 Precautions

1. DMEM contains no proteins, lipids, or growth factors. Therefore, DMEM requires supplementation, commonly with Insulin-Transferrin-Selenium (ITS) or 10% Fetal Bovine Serum (FBS).
2. This product is for R&D use only, not for drug, household, or other uses.
3. For your safety and health, please wear a lab coat and disposable gloves to operate.

**7 Appendix: The formula table of medium**

Components	Molecular	Concentration (mg/L)	mM
<b>Amino Acids</b>			
Glycine	75	30	0.4
L-Arginine hydrochloride	211	84	0.39810428
L-Cystine 2HCl	313	63	0.20127796
L-Glutamine	146	584	4
L-Histidine hydrochloride-H <sub>2</sub> O	210	42	0.2
L-Isoleucine	131	105	0.8015267
L-Leucine	131	105	0.8015267
L-Lysine hydrochloride	183	146	0.7978142
L-Methionine	149	30	0.20134228
L-Phenylalanine	165	66	0.4
L-Serine	105	42	0.4
L-Threonine	119	95	0.79831934
L-Tryptophan	204	16	0.078431375
L-Tyrosine disodium salt dihydrate	261	104	0.39846742
L-Valine	117	94	0.8034188
<b>Inorganic Salts</b>			
Calcium Chloride (CaCl <sub>2</sub> ) (anhyd.)	111	200	1.8018018
Ferric Nitrate (Fe(NO <sub>3</sub> ) <sub>3</sub> ·9H <sub>2</sub> O)	404	0.1	0.000247525
Magnesium Sulfate (MgSO <sub>4</sub> ) (anhyd.)	120	97.67	0.8139166
Potassium Chloride (KCl)	75	400	5.3333335
Sodium Bicarbonate (NaHCO <sub>3</sub> )	84	3700	44.04762
Sodium Chloride (NaCl)	58	6400	110.344826
Sodium Phosphate monobasic (NaH <sub>2</sub> PO <sub>4</sub> ·H <sub>2</sub> O)	138	125	0.9057971
<b>Vitamins</b>			
Choline chloride	140	4	0.028571429
D-Calcium pantothenate	477	4	0.008385744
Folic Acid	441	4	0.009070295
i-Inositol	180	7.2	0.04
Niacinamide	122	4	0.032786883
Pyridoxine hydrochloride	206	4	0.019417476
Riboflavin	376	0.4	0.00106383
Thiamine hydrochloride	337	4	0.011869436
<b>Other Components</b>			
D-Glucose (Dextrose)	180	1000	5.5555553
Phenol Red	376.4	15	0.039851222
Sodium Pyruvate	110	110	1
HEPES	238		