

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

## 1 Components

Component	HY-K3001-500 mL	HY-K3001-1 L	HY-K3001-3 L
DMEM (High 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 2 times the concentration of amino acids and 4 times the concentration of vitamins than the original MEM.

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

## 3 Characteristics

With (+)	Without (-)
D-Glucose (4.5 g/L)	HEPES
L-Glutamine (584 mg/L)	
Phenol Red (15 mg/L)	
Sodium Pyruvate (110 mg/L)	

## 4 General Protocol

DMEM 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	0.398104
L-Cystine 2HCl	313	63	0.201278
L-Glutamine	146	584	4
L-Histidine hydrochloride-H <sub>2</sub> O	210	42	0.2
L-Isoleucine	131	105	0.801527
L-Leucine	131	105	0.801527
L-Lysine hydrochloride	183	146	0.797814
L-Methionine	149	30	0.201342
L-Phenylalanine	165	66	0.4
L-Serine	105	42	0.4
L-Threonine	119	95	0.798319
L-Tryptophan	204	16	0.078431
L-Tyrosine disodium salt dihydrate	261	104	0.398467
L-Valine	117	94	0.803419
<b>Inorganic Salts</b>			
Calcium Chloride (CaCl <sub>2</sub> ) (anhyd.)	111	200	1.801802
Ferric Nitrate (Fe(NO <sub>3</sub> ) <sub>3</sub> ·9 H <sub>2</sub> O)	404	0.1	0.000248
Magnesium Sulfate (MgSO <sub>4</sub> ) (anhyd.)	120	97.67	0.813917
Potassium Chloride (KCl)	75	400	5.333334
Sodium Bicarbonate (NaHCO <sub>3</sub> )	84	3700	44.04762
Sodium Chloride (NaCl)	58	6400	110.3448
Sodium Phosphate monobasic (NaH <sub>2</sub> PO <sub>4</sub> ·H <sub>2</sub> O)	138	125	0.905797
<b>Vitamins</b>			
Choline chloride	140	4	0.028571
D-Calcium pantothenate	477	4	0.008386
Folic Acid	441	4	0.00907
i-Inositol	180	7.2	0.04
Niacinamide	122	4	0.032787
Pyridoxine hydrochloride	206	4	0.019417
Riboflavin	376	0.4	0.001064
Thiamine hydrochloride	337	4	0.011869
<b>Other Components</b>			
D-Glucose (Dextrose)	180	4500	25
Phenol Red	376.4	15	0.039851
Sodium Pyruvate	110	110	1
HEPES	238		