

## Dulbecco's modified eagle medium (DMEM)

### Product use

Dulbecco's modified eagle medium was developed in 1969 and is a modification of basal medium eagle (BME) that differs from BME and MEM by the following characteristics:

- Vitamins 4X greater than MEM. Vitamins and amino acids greater than BME
- Types and quantities of amino acids greater than MEM and BME
- Iron (ferric nitrate)

### Description

- 12-604 With 4.5 g/L glucose, with L-glutamine  
 12-614 With 4.5 g/L glucose, without L-glutamine  
 12-707 With 1.0 g/L glucose, without L-glutamine  
 12-708 With 1.0 g/L glucose, and 25 mM HEPES buffer, without L-glutamine  
 12-709 With 4.5 g/L glucose, and 25 mM HEPES buffer, without L-glutamine  
 12-733 With 4.5 g/L glucose, without L-glutamine, without sodium pyruvate  
 12-741 With 4.5 g/L glucose, with L-glutamine, without sodium pyruvate  
 12-914 With 4.5 g/L glucose, without L-glutamine, screened to support hybridoma growth  
 12-917 With 4.5 g/L glucose, without L-glutamine or phenol red  
 15-604 With 4.5 g/L glucose, with L-glutamine, without sodium pyruvate, powder  
 15-614 With 4.5 g/L glucose, without L-glutamine or sodium pyruvate, powder  
 (Powder formulations require the addition of 49.3 ml/L of NaHCO<sub>3</sub> 7.5% solution or 3.70 g/L of NaHCO<sub>3</sub> powder)

### Quick reference chart

	Glucose	L-glutamine	Phenol red	HEPES buffer	Sodium pyruvate
12-604	4.5 g/L	+	+	-	+
12-614	4.5 g/L	-	+	-	+
12-707	1.0 g/L	-	+	-	+
12-708	1.0 g/L	-	+	+	+
12-709	4.5 g/L	-	+	+	+
12-733	4.5 g/L	-	+	-	-
12-741	4.5 g/L	+	+	-	-
12-914	4.5 g/L	-	+	-	+
12-917	4.5 g/L	-	-	-	+

## Specifications

	Sterility	pH	Osmolality (mOsm)	Cell growth promotion (% of control)	Endotoxin (EU/ml)
12-604	Neg.	7.0-7.4	324-352	≥75%	FIO
12-614	Neg.	7.0-7.4	324-352	≥75%	FIO
12-707	Neg.	7.0-7.4	306-346	≥75%	FIO
12-708	Neg.	7.03-7.27	300-326	≥75%	FIO
12-709	Neg.	7.0-7.4	321-351	≥75%	FIO
12-733	Neg.	7.0-7.4	318-360	≥75%	FIO
12-741	Neg.	7.0-7.4	318-360	≥75%	FIO
12-914	Neg.	7.0-7.4	324-352	≥85% **	FIO
12-917	Neg.	7.0-7.4	329-343	≥75%	FIO
15-604 ***	-	5.5-7.0	235-265	≥75%	≤1.0
15-614 ***	-	5.5-7.0	235-265	≥75%	≤1.0

FIO – for information only

\*\* Result of functional test

\*\*\* Moisture content #1.0

## Storage

2°C to 8°C

## Product use statement

**THESE PRODUCTS ARE FOR RESEARCH USE ONLY.** Not approved for human or veterinary use, for application to humans or animals, or for use in clinical or *in vitro* procedures.

## Ordering information

Catalog number	Description	Size
12-604F	DMEM with 4.5 g/L glucose, with L-glutamine	500 ml
12-604Q	DMEM with 4.5 g/L glucose, with L-glutamine	1 L
12-614F	DMEM with 4.5 g/L glucose, without L-glutamine	500 ml
12-614Q	DMEM with 4.5 g/L glucose, without L-glutamine	1 L
12-707F	DMEM with 1.0 g/L glucose, without L-glutamine	500 ml
12-708F	DMEM with 1.0 g/L glucose, and 25 mM HEPES buffer, without L-glutamine	500 ml
12-709F	DMEM with 4.5 g/L glucose, and 25 mM HEPES buffer, without L-glutamine	500 ml
12-733F	DMEM with 4.5 g/L glucose, without L-glutamine, without sodium pyruvate	500 ml
12-733Q	DMEM with 4.5 g/L glucose, without L-glutamine, without sodium pyruvate	1 L
12-741F	DMEM with 4.5 g/L glucose, with L-glutamine, without sodium pyruvate	500 ml
12-914F	DMEM with 4.5 g/L glucose, without L-glutamine, screened to support hybridoma growth.	500 ml
12-917F	DMEM with 4.5 g/L glucose, without L-glutamine or phenol red.	500 ml
15-604D	DMEM with 4.5 g/L glucose, with L-glutamine, without sodium pyruvate, powder	1 x 10L
15-604F	DMEM with 4.5 g/L glucose, without L-glutamine or sodium pyruvate, powder	1 X 50L
15-614D	DMEM with 4.5 g/L glucose, without L-glutamine or sodium pyruvate, powder	1 x 10L

DMEM 1.0 g/L Glucose  
w/o L-Glutamine

12-707

Lonza

Description	CAS #	Chemical Formula	Concentration		Molarity	
			g/L	mg/L	mM	uM
Calcium Chloride Anhydrous	10043-52-4	CaCl <sub>2</sub>	0.200	200.000	1.802	1.802E+03
Dextrose	50-99-7	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	1.000	1.000E+03	5.551	5.551E+03
Ferric Nitrate Nonahydrate	7782-61-8	Fe(NO <sub>3</sub> ) <sub>3</sub> • 9H <sub>2</sub> O	1.000E-04	0.100	2.475E-04	0.248
Magnesium Sulfate Anhydrous	7487-88-9	MgSO <sub>4</sub>	0.098	97.670	0.811	811.415
Potassium Chloride	7447-40-7	KCl	0.400	400.000	5.366	5.366E+03
Sodium Bicarbonate	144-55-8	NaHCO <sub>3</sub>	3.700	3.700E+03	44.042	4.404E+04
Sodium Chloride	7647-14-5	NaCl	6.400	6.400E+03	109.514	1.095E+05
L-Arginine Monohydrochloride	1119-34-2	C <sub>6</sub> H <sub>14</sub> N <sub>4</sub> O <sub>2</sub> • HCl	0.084	84.000	0.399	398.747
Glycine	56-40-6	HO <sub>2</sub> CCH <sub>2</sub> NH <sub>2</sub>	0.030	30.000	0.400	399.627
L-Histidine Monohydrochloride Monohydrate	5934-29-2	C <sub>6</sub> H <sub>9</sub> N <sub>3</sub> O <sub>2</sub> • HCl • H <sub>2</sub> O	0.042	42.000	0.200	200.382
L-Isoleucine	73-32-5	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>3</sub>	0.105	104.800	0.799	798.963
L-Leucine	61-90-5	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> ) <sub>2</sub>	0.105	104.800	0.799	798.963
L-Lysine Monohydrochloride	657-27-2	C <sub>6</sub> H <sub>14</sub> N <sub>2</sub> O <sub>2</sub> • HCl	0.146	146.200	0.800	800.438
L-Methionine	63-68-3	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH <sub>2</sub> CH <sub>2</sub> SCH <sub>3</sub>	0.030	30.000	0.201	201.072
L-Phenylalanine	63-91-2	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub>	0.066	66.000	0.400	399.540
L-Serine	56-45-1	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH <sub>2</sub> OH	0.042	42.000	0.400	399.657
L-Threonine	72-19-5	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH(OH)CH <sub>3</sub>	0.095	95.200	0.799	799.194
L-Tryptophan	73-22-3	C <sub>11</sub> H <sub>12</sub> N <sub>2</sub> O <sub>2</sub>	0.016	16.000	0.078	78.343
L-Valine	72-18-4	HO <sub>2</sub> CCH(NH <sub>2</sub> )CH(CH <sub>3</sub> ) <sub>2</sub>	0.094	93.600	0.799	799.317
D-Calcium Pantothenate (Vitamin B5)	137-08-6	C <sub>18</sub> H <sub>32</sub> CaN <sub>2</sub> O <sub>10</sub>	4.000E-03	4.000	8.394E-03	8.394
Choline Chloride	67-48-1	HOCH <sub>2</sub> CH <sub>2</sub> N(CH <sub>3</sub> ) <sub>3</sub> Cl	4.000E-03	4.000	0.029	28.647
Folic Acid	59-30-3	C <sub>19</sub> H <sub>19</sub> N <sub>7</sub> O <sub>6</sub>	4.000E-03	4.000	9.062E-03	9.062
l-Inositol	87-89-8	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	7.000E-03	7.000	0.039	38.846
Niacinamide (Nicotinamide)	98-92-0	C <sub>6</sub> H <sub>6</sub> N <sub>2</sub> O	4.000E-03	4.000	0.033	32.757
Pyridoxine Monohydrochloride	58-56-0	C <sub>8</sub> H <sub>11</sub> NO <sub>3</sub>	4.000E-03	4.000	0.019	19.455
Riboflavin (Vitamin B2)	83-88-5	C <sub>17</sub> H <sub>20</sub> N <sub>4</sub> O <sub>6</sub>	4.000E-04	0.400	1.063E-03	1.063
Thiamine Monohydrochloride (Vitamin B1)	67-03-8	C <sub>12</sub> H <sub>18</sub> N <sub>4</sub> O <sub>4</sub> S	4.000E-03	4.000	0.012	11.859
Phenol Red	34487-61-1	C <sub>19</sub> H <sub>14</sub> O <sub>5</sub> S	0.015	15.340	0.041	40.755
Pyruvic Acid Sodium Salt	113-24-6	CH <sub>3</sub> COCO <sub>2</sub> Na	0.110	110.000	1.000	999.636
L-Tyrosine Disodium Salt, Dihydrate	122666-78-9	C <sub>9</sub> H <sub>9</sub> NO <sub>3</sub> Na <sub>2</sub> • 2H <sub>2</sub> O	0.104	103.790	0.397	397.374
L-Cystine Dihydrochloride	30925-07-6	C <sub>6</sub> H <sub>12</sub> N <sub>2</sub> O <sub>4</sub> S <sub>2</sub> •2HCl	0.063	62.580	0.200	199.808
Sodium Phosphate Monobasic, Anhydrous	7558-80-7	NaH <sub>2</sub> PO <sub>4</sub>	0.109	108.690	0.906	905.750