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## TECHNICAL INFORMATION

Catalog Number: 1046820, 1046822, 1046824

### Dulbecco's Modification of Eagle's Medium/Ham's F-12 Medium (1:1) without L-glutamine, sodium bicarbonate with 3151 mg dextrose/L

**Description:** For over a decade, the interest in serum-free cell culture has steadily grown. This medium is a 1:1 mixture of DMEM and Ham's F-12 and specially suited for culturing cells without serum supplementation. It is one of the most universal media for serum-free cell culture techniques. HEPES buffer is included in the formulation at 15 mM for added buffering capacity which is lost due to the elimination of serum. Also available through MP is TCH and TCM serum replacements.

#### Formulation:

<b>Component</b>	<b>mg/lit</b>	<b>Mol. Wt.</b>	<b>Mol. (mM)</b>
<b>Amino Acids</b>			
L-Alanine	4.46000	89.1	0.05
L-Arginine HCl	147.40000	210.7	0.70
L-Asparagine H <sub>2</sub> O	7.51000	150.1	0.05
L-Aspartic Acid	6.66000	133.1	0.05
L-Cysteine HCl H <sub>2</sub> O	17.57000	175.6	0.10
L-Cystine 2Na	28.39000	284.3	0.10
L-Glutamic Acid	7.36000	147.1	0.05
Glycine	18.76000	75.07	0.25
L-Histidine HCl H <sub>2</sub> O	31.48000	209.6	0.15
L-Isoleucine	54.37000	131.2	0.41
L-Leucine	58.96000	131.2	0.45
L-Lysine HCl	91.37000	182.6	0.50
L-Methionine	17.24000	149.2	0.12
L-Phenylalanine	35.48000	165.2	0.21
L-Proline	17.27000	115.1	0.15
L-Serine	26.26000	105.1	0.25
L-Threonine	53.56000	119.1	0.45
L-Tryptophan	9.02000	204.2	0.04
L-Tyrosine	38.72000	181.2	0.21

L-Valine	52.66000	117.1	0.45
<b>Vitamins</b>			
Biotin	0.00370	244.3	0.00002
Choline Chloride	8.98000	139.6	0.06
D-Calcium Pantothenate	2.11900	238.3	0.01
Folic Acid	2.66000	441.4	0.01
myo-Inositol	12.51000	180.2	0.07
Nicotinamide	2.01900	122.13	0.02
Pyridoxal HCl	2.00000	203.6	0.01
Pyridoxine HCl	0.03100	205.6	0.0002
Riboflavin	0.21900	376.4	0.0006
Thiamine HCl	2.16900	337.3	0.01
Vitamin B12	0.68000	1355.4	0.0005
<b>Inorganic Salts</b>			
Calcium Chloride [CaCl <sub>2</sub> 2H <sub>2</sub> O] Dihydrate	154.50000	147	1.05
Cupric Sulfate [CuSO <sub>4</sub> ]	0.00080	159.68	0.00001
Ferric Nitrate [Fe(NO <sub>3</sub> ) <sub>3</sub> 9H <sub>2</sub> O] Nonahydrate	0.05000	404	0.0001
Ferrous Sulfate [FeSO <sub>4</sub> 7H <sub>2</sub> O] Heptahydrate	0.41700	278	0.0015
Magnesium Sulfate [MgSO <sub>4</sub> ]	84.95000	120.4	0.71
Potassium Chloride [KCl]	311.90000	74.55	4.18
Sodium Chloride [NaCl]	7000.00000	58.44	119.78
Sodium Phosphate Dibasic [Na <sub>2</sub> HPO <sub>4</sub> ]	71.00000	141.96	0.50
Sodium Phosphate Monobasic [NaH <sub>2</sub> PO <sub>4</sub> H <sub>2</sub> O] Monohydrate	62.50000	137.99	0.455
Zinc Sulfate [ZnSO <sub>4</sub> 7H <sub>2</sub> O] Heptahydrate	0.43200	287.5	0.0015
<b>Other</b>			
Dextrose	3151.00000	180.2	17.49
Hypoxanthine	2.04000	136.1	0.01
Lipoic Acid	0.10300	206.3	0.0005
Methyl Linoleate	0.04400	294.5	0.0001
Phenol Red Sodium Salt	8.12000	376.4	0.02
Putrescine 2HCl	0.08060	161.1	0.0005
Sodium Pyruvate	110.00000	110	1.00
Thymidine	0.36400	242.2	0.0015
<b>Add</b>			
NaHCO <sub>3</sub> Powder (g/L)		2.4380	
NaHCO <sub>3</sub> 7.5% Solution (mL/L)		32.5700	
L-glutamine Powder (mg/L)		365.10000	
L-glutamine 200 mM Solution (ml/L)		12.50000	

**Availability:****1X Liquid:****Dulbecco's Modification of Eagle's Medium (DMEM):**

Catalog Number	Description	Size
1233249	1X DMEM with 4500 mg/l glucose, without L-glutamine	100 ml
1233254		500 ml
1233226		1 liter
1233354	1X DMEM with 4500 mg/l dextrose, L-glutamine	500 ml
1234354	1X DMEM with 1000 mg/l dextrose, L-glutamine	500 ml
1233654	1X DMEM with 4500 mg/l dextrose, L-glutamine, without sodium pyruvate	500 ml
1233854	1X DMEM with 4500 mg/l dextrose, without sodium pyruvate, L-glutamine	500 ml
1233449	1X DMEM with 20 mM HEPES, without L-glutamine, sodium bicarbonate	100 ml
1233454		500 ml
1642249	1X DMEM with 4500 mg/l dextrose, without L-glutamine, methionine	100 ml
1642254		500 ml
1642449	1X DMEM with 4500 mg/l dextrose, without L-glutamine, cystine, methionine, cysteine	100 ml
1642454		500 ml
1642054	1X DMEM without L-glutamine, cystine, methionine, cysteine, calcium	500 ml
1642149	1X DMEM with 4500 mg/l dextrose, without L-glutamine, L-leucine	100 ml 500 ml
1642349	1X DMEM with 4500 mg/l dextrose, without L-glutamine, phosphate	100 ml
1642354		500 ml
1642954	1X DMEM with 4500 mg/l dextrose, without L-glutamine, myo-inositol	500 ml
1642754	1X DMEM without L-glutamine, phenol red	500 ml

**Dulbecco's Modification of Eagle's Medium/Ham's F-12 Medium:**

Catalog Number	Description	Size
1246754	1X DMEM/Ham's F-12 (1:1) without L-glutamine	500 ml

**10X Liquid:****Dulbecco's Modification of Eagle's Medium (DMEM):**

Catalog Number	Description	Size
1433054	10X DMEM without sodium bicarbonate, L-glutamine	500 ml

**Powders:****Dulbecco's Modification of Eagle's Medium (DMEM):**

Catalog Number	Description	Size
1033120	DMEM with L-glutamine, 4500 mg/l dextrose, without sodium bicarbonate	10 x 1 liter
1033122		1 x 10 liter
1033124		1 x 50 liter
1033220	DMEM with L-glutamine, 4500 mg/l dextrose, without sodium bicarbonate, sodium pyruvate	10 x 1 liter
1033222		1 x 10 liter
		1 x 50 liter
1033522	DMEM with 20 mM HEPES, L-glutamine, without sodium bicarbonate	1 x 10 liter

**Dulbecco's Modification of Eagle's Medium/Ham's F-12 Medium:**

Catalog Number	Description	Size
1046820	DMEM/Ham's F-12 (1:1) without L-glutamine, sodium bicarbonate	10 x 1 liter
1046822	bicarbonate	1 x 10 liter
1046920	DMEM/Ham's F-12 (1:1) without L-glutamine, sodium bicarbonate, phenol red	10 x 1 liter
1046922		1 x 10 liter

**References:**

1. Ham, R.G., *Proc. Nat. Acad. Sci.*, v. **53**, 288 (1965).
2. Dulbecco, R. and Freeman, G., *Virology*, v. **8**, 396 (1959).
3. Smith, J.D., et. al., *Virology*, v. **12**, 185 (1960).
4. Morton, H.J., *In Vitro*, v. **6**, 89 (1970).
5. Rutzky, L.P. and Pumper, R.W., *In Vitro*, v. **9**, 468 (1974).