

Supporting Information

Nanoparticle colloidal stability in cell culture media and impact on cellular interactions

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Table S1. Formulation of Dulbecco's Modified Eagle Media.

Components	Molecular Weight	Concentration (mg/mL)	mM
		Amino Acids	
Glycine	75.0	30.0	0.400
L-Arginine hydrochloride	211.0	84.0	0.398
L-Cystine 2HCl	313.0	63.0	0.201
L-Glutamine	146.0	584.0	4.000
L-Histidine hydrochloride-H ₂ O	210.0	42.0	0.200
L-Isoleucine	131.0	105.0	0.802
L-Leucine	131.0	105.0	0.802
L-Lysine hydrochloride	183.0	146.0	0.798
L-Methionine	149.0	30.0	0.201
L-Phenylalanine	165.0	66.0	0.400
L-Serine	105.0	42.0	0.400
L-Threonine	119.0	95.0	0.798
L-Tryptophan	204.0	16.0	0.078
L-Tyrosine disodium salt dihydrate	261.0	104.0	0.398
L-Valine	117.0	94.0	0.803
		Vitamins	
Choline chloride	140.0	4.0	0.029
D-Calcium pantothenate	477.0	4.0	0.008
Folic acid	441.0	4.0	0.009
Niacinamide	122.0	4.0	0.033
Pyridoxine hydrochloride	206.0	4.0	0.019
Riboflavin	376.0	0.4	0.002
Thiamine hydrochloride	337.0	4.0	0.012
i-Inositol	180.0	7.2	0.040
		Inorganic Salts	
Calcium chloride (CaCl ₂) (anhyd.)	111.0	200.0	1.802
Ferric nitrate (Fe(NO ₃) ₃ · 9 H ₂ O)	404.0	0.1	2.475 E-4
Magnesium sulfate (MgSO ₄) (anhyd.)	120.0	97.7	0.814
Potassium chloride (KCl)	75.0	400.0	5.333
Sodium bicarbonate (NaHCO ₃)	84.0	3700.0	44.048
Sodium chloride (NaCl)	58.0	6400.0	110.345
Sodium phosphate monobasic (NaH ₂ PO ₄ · H ₂ O)	138.0	125.0	0.906
		Other Components	
D-Glucose (Dextrose)	180.0	4500.0	25.000
Phenol red	376.4	15.0	0.040
Sodium pyruvate	110.0	110.0	1.000

Adapted from: "Technical Resources – 11995 – DMEM, high glucose, pyruvate." www.lifetechnologies.com, Accessed: 27 January 2015.

Table S2. Formulation of RPMI-1640 Media

Components	Molecular Weight	Concentration (mg/mL)	mM
		Amino Acids	
Glycine	75.0	10.0	0.133
L-Arginine	174.0	200.0	1.149
L-Asparagine	132.0	50.0	0.379
L-Aspartic acid	133.0	20.0	0.150
L- Cystine 2HCl	313.0	65.0	0.208
L-Glutamic acid	147.0	20.0	0.136
L-Glutamine	146.0	300.0	2.055
L-Histidine	155.0	15.0	0.097
L-Hydroxyproline	131.0	20.0	0.153
L-Isoleucine	131.0	50.0	0.382
L-Leucine	131.0	50.0	0.382
L-Lysine hydrochloride	183.0	40.0	0.219
L-Methionine	149.0	15.0	0.101
L-Phenylalanine	165.0	15.0	0.091
L-Proline	115.0	20.0	0.174
L-Serine	105.0	30.0	0.286
L-Threonine	119.0	20.0	0.168
L-Tryptophan	204.0	5.0	0.025
L-Tyrosine disodium salt dihydrate	261.0	29.0	0.111
L-Valine	117.0	20.0	0.171
		Vitamins	
Biotin	244.0	0.2	8.197 E-4
Choline chloride	140.0	3.0	0.021
D-Calcium pantothenate	477.0	0.25	5.241 E-4
Folic acid	441.0	1.0	0.002
Niacinamide	122.0	1.0	0.008
Para-aminobenzoic acid	137.0	1.0	0.007
Pyridoxine hydrochloride	206.0	1.0	0.005
Riboflavin	376.0	0.2	5.319 E-4
Thiamine hydrochloride	337.0	1.0	0.003
Vitamin B12	1355.0	0.005	3.690 E-6
i-Inositol	180.0	35.0	0.194
		Inorganic Salts	
Calcium nitrate (Ca(NO ₃) ₂ · 4 H ₂ O)	236.0	100.0	0.424
Magnesium sulfate (MgSO ₄) (anhyd.)	120.0	48.8	0.407
Potassium chloride (KCl)	75.0	400.0	5.333
Sodium bicarbonate (NaHCO ₃)	84.0	2000.0	23.810
Sodium chloride (NaCl)	58.0	6000.0	103.448
Sodium phosphate dibasic (Na ₂ HPO ₄) (anhyd.)	142.0	800.0	5.634
		Other Components	
D-Glucose (Dextrose)	180.0	2000.0	11.111
Glutathione (reduced)	307.0	1.0	0.003
Phenol red	376.4	5.0	0.013

Adapted from: "Technical Resources – 11875 – RPMI 1640." www.lifetechnologies.com, Accessed: 27 January 2015.

Table S3. Formulation of Minimum Essential Media

Components	Molecular Weight	Concentration (mg/mL)	mM
		Amino Acids	
L-Arginine hydrochloride	211.0	126.0	0.597
L- Cystine 2HCl	313.0	31.0	0.099
L- Glutamine	146.0	292.0	2.000
L-Histidine hydrochloride H ₂ O	210.0	42.0	0.200
L-Isoleucine	131.0	52.0	0.397
L-Leucine	131.0	52.0	0.397
L-Lysine hydrochloride	183.0	73.0	0.399
L-Methionine	149.0	15.0	0.101
L-Phenylalanine	165.0	32.0	0.194
L-Threonine	119.0	48.0	0.403
L-Tryptophan	204.0	10.0	0.049
L-Tyrosine disodium salt dihydrate	261.0	52.0	0.199
L-Valine	117.0	46.0	0.393
		Vitamins	
Choline chloride	140.0	1.0	0.007
D-Calcium pantothenate	477.0	1.0	0.002
Folic acid	441.0	1.0	0.002
Niacinamide	122.0	1.0	0.008
Pyridoxal hydrochloride	204.0	1.0	0.005
Riboflavin	376.0	0.1	2.660 E-4
Thiamine hydrochloride	337.0	1.0	0.003
i-Inositol	180.0	2.0	0.011
		Inorganic Salts	
Calcium chloride (CaCl ₂) (anhyd.)	111.0	200.0	1.802
Magnesium sulfate (MgSO ₄) (anhyd.)	120.0	97.7	0.814
Potassium chloride (KCl)	75.0	400.0	5.333
Sodium bicarbonate (NaHCO ₃)	84.0	2200.0	26.190
Sodium chloride (NaCl)	58.0	6800.0	117.241
Sodium phosphate monobasic (NaH ₂ PO ₄ -H ₂ O)	138.0	140.0	1.014
		Other Components	
D-Glucose (Dextrose)	180.0	1000.0	5.556
Phenol red	376.4	10.0	0.027

Adapted from: "Technical Resources – 11095 – MEM." www.lifetechnologies.com, Accessed: 27 January 2015.