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Product Information

RPMI-1640 Media, HEPES Modification

RPMI-1640 medium was developed by Moore et al., at Roswell Park Memorial Institute, hence the acronym RPMI. The formulation is based on the RPMI-1630 series of media utilizing a bicarbonate buffering system and alterations in the amounts of amino acids and vitamins. RPMI-1640 medium has been used for the culture of human normal and neoplastic leukocytes. RPMI-1640 when properly supplemented, has demonstrated wide applicability for supporting growth of many types of cell cultures, including fresh human lymphocytes in the 72-hour phytohemagglutinin (PHA) stimulation assay.

RPMI-1640 Modified with HEPES contains 25 mM HEPES (Catalog Numbers R4130 and R5886) and 15 mM HEPES (Catalog Number R8005) to provide additional buffering capacity to the medium. A zwitterionic buffer, HEPES has a pK_a of 7.3 at 37 °C, which is more compatible with most culture systems than that of sodium bicarbonate, which is usually 6.2 under similar conditions. HEPES will reduce sudden, drastic pH shifts, but as with other buffers, it will not prevent pH shifts entirely.

	R4130	**R5886**	**R5158**	**R8005**
	[powder]	[1×]	[1×]	[powder]
COMPONENT	g/L	g/L	g/L	g/L
Inorganic Salts				
$Ca(NO_3)_2 \cdot 4H_2O$	0.1	0.1	0.1	0.1
$MgSO_4$ (anhydrous)	0.04884	0.04884	0.04884	0.04884
KCl	0.4	0.4	0.4	0.4
$NaHCO_3$	–	2	2	–
NaCl	6	6	6	5.9
Na_2HPO_4 (Anhydrous)	0.8	0.8	0.8	0.8
Amino Acids				
L-Arginine • HCl	0.2	0.2	0.2	0.2
L-Asparagine • H_2O	0.05	0.05	0.05	0.05
L-Aspartic Acid	0.02	0.02	0.02	0.02
L-Cystine • 2HCl • H_2O	0.0652	0.0652	0.0652	0.0652
L-Glutamic Acid	0.02	0.02	0.02	0.02
L-Glutamine	0.3	–	0.3	0.3
Glycine	0.01	0.01	0.01	0.01
L-Histidine • HCl • H_2O	0.015	0.015	0.015	0.015
Hydroxy-L-Proline	0.02	0.02	0.02	0.02
L-Isoleucine	0.05	0.05	0.05	0.05
L-Leucine	0.05	0.05	0.05	0.05
L-Lysine • HCl	0.04	0.04	0.04	0.04
L-Methionine	0.015	0.015	0.015	0.015
L-Phenylalanine	0.015	0.015	0.015	0.015
L-Proline	0.02	0.02	0.02	0.02
L-Serine	0.03	0.03	0.03	0.03
L-Threonine	0.02	0.02	0.02	0.02
L-Tryptophan	0.005	0.005	0.005	0.005
L-Tyrosine • 2Na • $2H_2O$	0.02883	0.02883	0.02883	0.02883
L-Valine	0.02	0.02	0.02	0.02
Vitamins				
D-Biotin	0.0002	0.0002	0.0002	0.0002
Choline Chloride	0.003	0.003	0.003	0.003
Folic Acid	0.001	0.001	0.001	0.001
myo-Inositol	0.035	0.035	0.035	0.035
Niacinamide	0.001	0.001	0.001	0.001
p-Aminobenzoic Acid	0.001	0.001	0.001	0.001
D-Pantothenic Acid • ½Ca	0.00025	0.00025	0.00025	0.00025
Pyridoxine • HCl	0.001	0.001	0.001	0.001
Riboflavin	0.0002	0.0002	0.0002	0.0002
Thiamine • HCl	0.001	0.001	0.001	0.001
Vitamin B_{12}	0.000005	0.000005	0.000005	0.000005

Other				
D-Glucose	2	2	2	4.5
Glutathione (reduced)	0.001	0.001	0.001	0.001
Phenol Red • Na	0.0053	0.0053	0.0053	0.0053
HEPES	5.96	5.96	5.96	3.5745
ADD				
L-Glutamine	–	0.3	–	–
Sodium Bicarbonate	2	–	–	2

References

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3. Moore, G.E., et al., Studies of Normal and Neoplastic Cells. Studies of Normal and Neoplastic Human Hematopoietic Cells *In Vitro*. Twenty-first Annual Symposium on Fundamental Cancer Research, February, 41-63 (1967).
4. Moore, G.E., and Kitamura, H., Cell Line Derived from Patient with Myeloma. NY State Journal of Medicine, **68**, 2054-2060 (1968).

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