

## Medium 199 liquid and powder medium

Medium 199, developed by Morgan, Morton, and Parker, was one of the first chemically defined media used without a serum supplement for the continuous growth of primary chick embryo heart

and fibroblast cells. With a serum supplement or in combination with less complex media, Medium 199 can support a broad spectrum of mammalian cells.

Product	Cat. No.	Unit
<b>Medium 199 liquid medium with Earle's salts</b> with 2.2 g/l NaHCO <sub>3</sub> , without L-glutamine Storage temperature: +2 – +8 °C	F 0613	100 ml
	F 0615	500 ml
<b>Medium 199 liquid medium with Earle's salts, with stable glutamine</b> with 2.2 g/l NaHCO <sub>3</sub> Storage temperature: +2 – +8 °C	FG 0615	500 ml
<b>Medium 199 liquid medium with Earle's salts, with 20 mM HEPES</b> without NaHCO <sub>3</sub> , without L- glutamine Storage temperature: +2 – +8 °C	F 0663	100 ml
	F 0665	500 ml
<b>Medium 199 liquid medium with Hanks' salts</b> with 0.35 g/l NaHCO <sub>3</sub> , without L- glutamine Storage temperature: +2 – +8 °C	F 0635	500 ml
<b>Medium 199 powder medium</b> without NaHCO <sub>3</sub> , with L- glutamine, with Earle's salts Storage temperature: +2 – +8 °C	T 061-01	1 l
	T 061-05	5 l
	T 061-10	10 l
	T 061-50	50 l

## Formulation

Tab. 25: Composition of the Medium 199

Substance	Concentration (mg/l)	Substance	Concentration (mg/l)
DL-alanine	50	Hypoxanthine	0.3
L-arginine-HCl	70	Thymine	0.3
DL-aspartic acid	60	Uracil	0.3
L-cysteine-HCl	0.1	Xanthine	0.3
L-cystine	20	ATP-Na <sub>2</sub>	1
L-glutamine	100	AMP	0.2
L-glutamic acid-H <sub>2</sub> O	150	Ascorbic acid	0.05
Glycine	50	Biotin	0.01
L-histidine-HCl	20	Calciferol	0.1
L-hydroxyproline	10	D-Ca-pantothenate	0.01
DL-isoleucine	40	Cholin chloride	0.5
DL-leucine	120	Folic acid	0.01
L-lysine-HCl	70	Myo-inositol	0.05
DL-methionine	30	Menadione	0.01
DL-phenylalanine	50	Nicotinic acid	0.025
L-proline	40	Nicotin acid amide	0.025
DL-serine	50	p-amino benzoic acid	0.05
DL-threonine	60	Pyridoxal-HCl	0.025
DL-tryptophane	20	Pyridoxin-HCl	0.025
L-tyrosine	40	Riboflavin	0.01
DL-valine	50	Thiamine-HCl	0.01
Glutathione	0.5	DL- $\alpha$ -tocopherol phosphate Na <sub>2</sub>	0.01
Sodium acetate	50	Vitamin A	0.1
Fe(NO <sub>3</sub> ) <sub>2</sub> ·9H <sub>2</sub> O	0.7	Cholesterol	0.2
Polysorbate 80 VG	20	2-Desoxy-D-ribose	0.5
Adenine sulfate	10	D-ribose	0.5
Guanine-HCl	0.3		

## Composition of the media

Tab. 26: Composition of the Medium 199 with Earle's salts and with Hanks' salts

Substance	Medium 199 with Earle's salts (mg/l)	Medium 199 with Hanks' salts (mg/l)
NaCl	6800	8000
KCl	400	400
Na <sub>2</sub> HPO <sub>4</sub> ·2H <sub>2</sub> O	-	60
NaH <sub>2</sub> PO <sub>4</sub> ·H <sub>2</sub> O	140	-
KH <sub>2</sub> PO <sub>4</sub>	-	60
MgSO <sub>4</sub> ·7H <sub>2</sub> O	200	200
CaCl <sub>2</sub>	200	140
D-glucose	1000	1000
Phenol red	17	17
NaHCO <sub>3</sub>	2200	350

## Reference:

Morgan, J.F. et al.; *Proc. Soc. Exp. Biol. Med.* **73**, 1 [1950]