BIOCHROM AG

New from Biochrom

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Serum-free cell culture: Biochrom AG products

Overview on serum-free media, supplements and enzymes

Biochrom AG offers serum-free media for the cultivation of, inter alia, hybridoma, CHO, ceratinocytes, or insect cells. Serum-free media can be used to establish monitorable and reproducible cultivation conditions.

In order to ensure serum-free work, supplements and growth factors need to be added to the media. Animal-free enzymes are needed for the detachment of adherent cells. All serum-free cell culture products can be found in our overview.

Serum-free cell freezing with Biofreeze

Biofreeze is a serum- and DMSO-free freezing medium for the cryopreservation of cell cultures in liquid nitrogen. It is suitable for freezing a wide range of cell lines. Biofreeze has no cytotoxic effect and may be used within the framework of all traditional freezing methods.

Serum-free transport and cold storage of cells with ChillProtec®

Adherent cells, cell suspensions or small tissue pieces are able to remain intact after cold storage when kept in the new medium Chillprotec. The protective medium reduces cell damage caused by cold. Primary human hepatocytes, for example, remained intact at 2-8 °C for several days.

Free samples of the freezing media Biofreeze and ChillProtec® available at: info@biochrom.de

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Overview on Biochrom AG's serum-free media

What cell types do you intend to cultivate?
We recommend some suitable serum-free media for your cells:

cell type (recommended)	Biochrom AG's serum-free media	cat. no.	additives
CHO	**ISF-1**	F 9061-01	
	Octomed	F 8085	
FRTL 5	**Coon's F-12** serum-free with additives	F 0855	insulin, hydrocortisone, transferrin, glycyl-L-histidyl-L-lysine-acetate, somatostatin, thyrotropin
hybridoma	**HybridoMed DIF 1000**	F 8055/1	
	ISF-1	F 9061-01	
insect cells	**Insectomed SF express**	F 8275	
	TC-100	F 0545	
	Grace's insect cell medium	F 0555	
ceratinocytes	**MCDB 153** serum-free with additives	F 8105	EGF, insulin, hydrocortisone, ethanolamine, phosphoethanol-amine
lymphocytes	**Iscove's (IMDM)** serum-free with additives	F 0465 FG 0465	recombinant BSA, soybean lipides, transferrin
neuroblastoma glioma hybrid cells, neuronal primary cells	**TNB 100** serum-free with additives	F 8023	lipide-protein complex
neuronal primary rat cells	**Start V**	F 8075	
sebocytes	**Sebomed™**	F 8205	
Vero, 3T6	**PFEK-1**	F 8045	

Supplements for serum-free media

Representing a defined medium for the clonal growth of human ceratinocytes, MCDB 153 basal medium needs to be added by 5 ng/ml EGF, 5 mg/l insulin, 1.4 mM hydrocortisone, 0.1 mM ethanolamine, and 0.1 mM phosphoethanolamine.[1]

supplements for MCDB 153 medium	cat. no.	unit
ethanolamine	K 3530	10 ml
hydrocortisone	K 3520	10 ml
insulin (recombinant)	K 3620	5 ml
phosphoethanolamine	K 3540	10 ml

HAT medium is used for the selection of hybridoma cells. HAT is composed of hypoxanthine, thymidine and aminopterin. Following a successful selection, the cells are being cultivated in HAT medium for several passages, before being transferred into normal hybridoma medium.

supplements	cat. no.	unit
HAT supplement	F 0483	100 ml
HT supplement	F 0493	100 ml
ITS (insulin, transferrin, selenium)	K 3560	5 ml

Enzyme for serum-free cell culture

Biotase can be used to detach cells carefully. Significant surface structures of the cells remain intact. The source material of Biotase is being obtained from invertebrates.

Enzyme	cat. no.	unit
Biotase	L 2193	100 ml
trypsin inhibitor from soybeans	L 2180	5 ml

[1] Boyce, S.T. et al. (1983): *Calcium-regulated differentiation of normal human epidermal keratinocytes in chemically defined clonal culture and serum-free serial culture*, J of Invest. Dermatol., 81, 33-40.

Adaptation of cells to serum-free media

Adapting cells to serum-free media can be performed either directly or gradually in accordance with the following protocols.

The source material should be in the logarithmic growth phase featuring the maximum number of living cells (> 90%). In principle, a successful adaptation also depends on the nature of the cell line used. It is thus highly recommended that the retained cultures are kept in the original medium until the transfer into serum-free medium has been completed successfully.

Direct transfer of the cells:

1. Transfer the cells from serum-containing medium into serum-free medium that has been warmed to reach +37 °C. The seeding density should correspond to that in the original culture. Incubate the cells at +37 °C and 5% CO_2.
2. Passage the cells for a minimum of 4 to 8 passages, while closely monitoring growth and viability.
3. If there is a significant decrease of growth and viability during these passages, the user should switch to the gradual adaptation method.

Gradual adaptation of the cells:

1. Seed the cells with a density twice as high as in the normal inoculum in a 3:1 mixture of serum-containing to serum-free medium.
2. Having reached a density of 10^6 viable cells/ml, transfer the cells into a 1:1 mixture of serum-containing to serum-free medium.
3. Once the cell density is $1x10^6$ viable cells/ml, transfer the culture into a 1:3 mixture of serum-containing to serum-free medium.
4. Having reached a cell density of $1x10^6$ viable cells/ml, transfer the cells into 100% serum-free medium.

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