

SERUM-FREE MEDIA FOR CELL CULTURE

Compiled by Focus on Alternatives

This document provides an overview of the range of commercially available serum-free media for cell culture, and has been compiled by Focus on Alternatives (FoA), a group of British organisations working together to advance the replacement of animal experiments. The members of FoA currently include the Dr Hadwen Trust for Humane Research, FRAME, Humane Research Trust, Lord Dowding Fund for Humane Research, RSPCA, St Andrew Animal Fund and the UK Human Tissue Bank. FoA would welcome feedback on ways of encouraging the use of serum-free media and on user's suggestions regarding the content of the table. To learn more about the work of FoA please visit our website at www.focusonalternatives.org.uk

Further copies of this table can be obtained from rita@frame.org.uk

PLEASE NOTE: The information in this document has been compiled mainly from details provided by companies selling cell culture media on the Worldwide Web. The document is not intended to be comprehensive, and although every effort has been made to ensure the details contained are correct, the author cannot be held responsible for any inaccuracies. For full up-to-date information on any product in this table it is recommended that you contact the manufacturer or supplier directly.

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The following organisations are members of FoA:



WHY USE SERUM FREE MEDIA FOR CELL CULTURE?

Animal serum is routinely added to culture media as a source of nutrients and other ill-defined factors, despite technical disadvantages to its inclusion and its high cost. Technical disadvantages to using serum include the undefined nature of serum, batch-to-batch variability in composition, and the risk of contamination. There are increasing concerns about animal suffering inflicted during serum collection that add an ethical imperative to move away from the use of serum wherever possible.

Collection of Fetal Calf Serum

The preferred source of serum for cell culture is fetal calf serum (FCS). FCS is prepared from blood extracted from fetuses removed from cows found pregnant at slaughter. The fetus is removed during evisceration and blood extracted via cardiac puncture without any anaesthesia.

Recent years have seen an increased awareness of fetal sensitivity to pain and growing evidence of resistance to anoxia in mammalian fetuses. Consequently calf fetuses are likely to be alive and have normal brain function during blood collection, and can be expected to experience suffering until death actually occurs. It is estimated that one to two million bovine fetuses are subjected each year to this inhumane process, yet many scientists regularly using FCS for cell culture remain unaware of the animal suffering involved in its collection. There are humane protocols (for example, van der Valk, J. *et al* [2004]. *Toxicology in Vitro* 18, 1-12) but it is difficult to regulate their implementation, especially as collection occurs in slaughter houses not laboratories and the scientific problems still remain.

The Serum-Free Media Table

This table has been compiled by Focus on Alternatives (FoA) to highlight the range of serum-free media currently available, and to encourage a move away from the use of animal serum in cell culture. The table lists serum-free media products available for specific cell types, listed in alphabetical order.

Some media are designed to support a particular cell type but may support a wider range of cells. For this reason, some products will be listed under a specific heading but may also be suitable for other cell types. The index at the back of this document (page 52) can be used to identify the cell types included. Media that are entirely free of animal ingredients are in shaded rows. More detailed information on particular products should be obtained by contacting the supplier directly.

Content of Serum-Free Media

Many companies offer to provide full details of the ingredients in their serum-free media directly to interested researchers, and some list the ingredients on their websites or in technical product datasheets. However, because serum-free media is a commercially competitive field a few companies wish to keep their patented media formulations a secret.

By definition serum-free medium lacks whole serum as an ingredient, but it may not be entirely free of serum-derived products. FoA has not researched in detail the sources of other animal-derived ingredients with regard to animal welfare, but our primary concern is the extraction of blood from living fetuses. Products derived from adult animals, or at slaughter may cause less suffering, but media containing no animal-derived ingredients are preferable.

Animal-Free Culture Media

The purest and most consistent cell culture environment is a totally chemically defined medium that is entirely free of animal-derived components. Several companies now offer such specialised animal-free media and these are highlighted in the serum-free media table.

Weaning and Performance

Most companies can provide technical advice to researchers on persuading cells to grow in serum-free medium, a process that usually involves gradual weaning. Some companies offer a limited range of cells already adapted to their own serum-free media products.

During weaning it is necessary to monitor cellular functions, as changes in culture conditions may affect aspects of cellular function of interest to the investigator. However the major benefits gained from switching to serum-free media can outweigh the effort required to overcome these initial hurdles. Many companies claim that their serum-free media can outperform comparable serum-supplemented media, and publish literature displaying results for particular cell types that show comparable or better growth of cells, at higher densities, and/or producing higher yields of end products.

Once cells have been adapted to serum-free media, researchers can benefit from improved control over culture conditions; the elimination of contaminant interference; improved reproducibility between cultures; consistency of media that avoids the need to screen batches; and avoidance of any serum cytotoxicity.

Serum of Alternative Sources

Bovine serum is also used to supplement many reagents used for blocking excess binding sites in ELISA assays, blotting, immunohistochemistry and other immunochemical applications. Fish plasma (e.g. SeaBlock™ fish plasma) is now available as an alternative to the bovine serum, thereby decreasing the background activity as it does not substantially interact with mammalian antibodies as FCS does.

The Way Forward

There is both a moral and legal imperative (European Directive 86/609/EEC) for scientists to use alternatives to animals wherever possible. ESAC has released a statement recommending, whenever possible, the replacement of FCS (http://ecvam.jrc.it/f_home.cfm?voce=s&idvoce=27&idmm=4&idsm=27). This is of particular relevance for scientists wishing to forward methods to ECVAM for validation/prevalidation as justification to using FCS will be required.

Cell cultures have already proved immensely valuable in replacing procedures on living animals. Their value to animal welfare would be further enhanced by the removal of serum, in particular FCS, from culture media.

Economic and safety reasons have already provided the impetus for industry to switch to serum-free culture conditions for biopharmaceutical production, and have paved the way for biomedical researchers to follow suit. Weaning cells off serum-supplement medium and onto serum-free conditions may cost researchers some time and effort, but this investment would be repaid in terms of consistency and quality of results. FoA would urge all users of cell culture to make the extra effort to switch to serum-free media. We welcome feedback on ways of encouraging the use of serum-free media and on improving this table.

To learn more about the work of FoA please visit our website at www.focusonalternatives.org.uk

Further copies of this table can be obtained from rita@frame.org.uk

Cell type	Composition	Applications	Supplier	Further Information on the use of product
267B-1 (human prostate epithelial cell line)				
BRFF-P4-8F™	Complete serum-free medium	Designed to grow immortalized normal prostatic cell line 267B-1. Supports the growth of certain established human prostatic cancer cell lines (e.g. PC-3).	www.athenaes.com www.axxora.com	http://www.axxora.com/scripts/pdf/reports/rep_F62jdK.pdf
Adipocytes				
Praedipocyte Basal Medium	Serum free medium	General purpose	www.cellapplications.com	
Subcutaneous basal medium	With essential additives and without antibiotics. Available with or without phenol red.	Developed to maintain subcutaneous cells for up to 3 days. It can be supplemented for specific purposes.	www.stratech.co.uk www.zen-bio.com	
Subcutaneous adipocyte medium	Composed of DMEM/Ham's F-12, dexamethasone, human insulin, D-biotin, Na pantothenate, HEPES, penicillin, streptomycin and amphotericin B.	General application	www.stratech.co.uk www.zen-bio.com	
Subcutaneous preadipocyte medium	Composed of DMEM/Ham's F-12, HEPES, penicillin, streptomycin and amphotericin B.	General application (preadipocytes prior to differentiation)	www.stratech.co.uk www.zen-bio.com	
Subcutaneous differentiation medium	Composed of Adipocyte Medium, isobutyl methylxanthine and a proprietary PPAR gamma agonist.	Used to differentiate subcutaneous preadipocytes to mature adipocytes in culture.	www.stratech.co.uk www.zen-bio.com	
Visceral basal medium	Serum-free medium with essential additives.	General use for visceral preadipocytes and adipocytes.	www.stratech.co.uk www.zen-bio.com	
Visceral adipocyte medium	Contains all of the factors necessary to support lipid accumulation in the maturing adipocytes.	General use.	www.stratech.co.uk www.zen-bio.com	
Visceral preadipocyte medium	Serum free medium	General use (preadipocytes prior to differentiation).	www.stratech.co.uk www.zen-bio.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Adipocytes				
Visceral differentiation medium	Serum free medium	Used to differentiate visceral preadipocytes to mature adipocytes in culture.	www.stratech.co.uk www.zen-bio.com	
Visceral preadipocytes cryopreservation medium	Serum free medium	Long-term cryopreservation of visceral preadipocytes.	www.stratech.co.uk www.zen-bio.com	
BHK cells				
MP-BHK	Chemically defined, serum and animal component free medium. With inorganic salts, essential and non-essential amino acids, vitamins, recombinant human protein and growth factors, other organic compounds and trace elements (requires L-glutamine).	This formulation is designed to be a production medium.	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_34&products_id=20130&depth=nested&keywords=serum%20free%20medium
Breast cells				
BRFF-BMZERO™	Complete serum-free medium	Designed for growing human breast cells. Used for establishing new epithelial cell lines from explants of human breast tissue and growing immortalized normal breast cell lines.	www.athenaes.com	http://www.athenaes.com/datasheet_bmzero.php?osCsid=02c01177221fcc44f895ec5c9e68ac96
CHO (Chinese Hamster Ovary)				
BIOCHO-1 SFM Base & BIOCHO-2 SFM Base BIOGRO-CHO SFM Supplement	Serum-free base media, with amino acids, vitamins, salts, lipids, trace elements. Supplement for above base. With proteins. The complete medium does not contain albumin, growth factors, or hormones (other than insulin).	CHO cells of various kinds. BIOCHO-1 for adherent CHO cells and BIOCHO-2 for suspension cultures.	www.bioind.com	http://www.bioind.com/Htmls/article.aspx?C2004=12430&BSP=12419 http://www.bioind.com/Htmls/article.aspx?C2004=12431&BSP=12419&BSS51=12018

Cell type	Composition	Applications	Supplier	Further Information on the use of product
CHO (Chinese Hamster Ovary)				
BioPro 1	Low protein, serum-free liquid medium, without L-glutamine and without glucose.	Supports CHO cell lines	www.lonza.com	
UltraCHO™	Serum-free modified DMEM: F12 base, supplemented with insulin, transferring, and proprietary purified proteins. Contains L-glutamine.	Optimised to support the growth of transfected and non-transfected CHO cells. Also suitable for HeLa cells (suspension or attached) and human leukaemia cell lines.	www.lonza.com	https://bcprd.lonza.com/group/en/products_services/products/catalog_new.ParSys.0007.File0.tmp?path=eshop/IMS_DOCS/DC/DCF6060EC6D3A5F19B3800110A5E23B5.pdf
Specialty Media CHO	Serum free media	General use	www.millipore.com/	
Octomed	Serum and protein-free medium.	Designed for growth of CHO cells.	www.clonagen.com	
ProCHO Series	Three chemically defined serum-free media without hypoxanthine, thymidine or L-glutamine. With phenol red and Pluronic F-68 and recombinant human insulin.	Optimized to support large scale, high density bioprocessing suspension cultures of CHO cells.	www.lonza.com	https://bcprd.lonza.com/shop/b2c/display/(isQuery=yes&xcm=lonza_b2b&query=procho&layout=6_1_65_52_7&uiarea=2&care=DCEA2D5E710DB8F18C7C001A4B525E10)/.do
ChoMaster F, art. CHFR medium	Serum and protein free medium	Cryopreservation of CHO cells	www.cellculture.com	
ChoMaster HTS medium, art. CHTS	Serum and protein free medium	Transfection and selection of CHO cells	www.cellculture.com	
ChoMaster HP-1 medium, art. CHP1	Serum and protein free medium	Selection and routine maintenance of CHO cells in simple culture systems	www.cellculture.com	
ChoMaster HP-5 medium, art. CHP5	Serum and protein free medium	Cultivation of CHO cells in agitated culture systems	www.cellculture.com	
ChoMaster HP-6 medium, art. CHP6	Serum and protein free medium.	For the production of recombinant glycoproteins in fed batch cultures.	www.cellculture.com	Final composition adjusted according to the client's needs
CD CHO	Chemically defined, protein and animal component free. Requires addition of L-glutamine.	For growth and production of recombinant proteins in suspension culture.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3868%20CD%20CHO.pdf
CHO-S-SFM II	Low protein (>75µg/ml) serum-free medium.	Growth and production of recombinant proteins in suspension culture.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3404.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
CHO (Chinese Hamster Ovary)				
CHO III PFM	Protein-free medium.	Growth and production of recombinant proteins in suspension culture.	www.invitrogen.com	
CHO III A PFM	Protein-free medium	Growth and production of recombinant proteins in adherent culture.	www.invitrogen.com	
CD CHO-A	Low protein (<250µg/ml) and serum-free.	Growth and production of recombinant proteins in adherent culture.	www.invitrogen.com	
FreeStyle CHO Expression medium	Serum and protein-free, defined medium. Requires supplementation with L-glutamine.	Growth of wild-type and recombinant CHO cells in suspension culture.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/5002%20Freestyle%20CHO.pdf
HyQ® CDM4CHO	Serum free medium with Pluronic F-68. Does not contain phenol red. Available without L-glutamine to support the GS gene expression system.	For therapeutic recombinant protein expression in CHO cells, increases process yields.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_CDM4CHO_Product_Insert.pdf
SFM4CHO™	Serum and protein-free medium, with cholesterol, cod liver oil and no components of bovine origin or phenol red. Contains Pluronic F-68 and NaHCO ₃ . Available with or without L-glutamine.	Designed to increase process yields for the manufacturing of recombinant proteins in various CHO cells. Supports the DHFR selection/amplification system and the GS gene expression system.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_SFM4CHO_Product_Insert.pdf
SFM4CHO-A™	Protein-free medium with no animal derived components.	Supports growth of multiple CHO cell clones and the production of a variety of recombinant proteins in adherent cultures. Tested in various culture systems (e.g. T-flasks, microcarrier cultures).	www.hyclone.com	http://www.hyclone.com/pdf/SFM4CHO-A_Product_Insert%20.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
CHO (Chinese Hamster Ovary)				
SFM4CHO™-Utility	Serum and protein-free medium. Contains Pluronic F-68. Available with or without L-glutamine. Without phenol red	Supports growth of multiple CHO cell clones and production of recombinant proteins.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_SFM4CHO_Utility_Product_Insert.pdf
IS-CHO™	Serum-free medium, with L-glutamine. Contains bovine-derived components. Without hypoxanthine or thymidine.	Optimised to promote long-term, high-density growth of CHO cells and expression of recombinant proteins. For use with dihydrofolate reductase and other selection systems.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/40630_Rev1.pdf http://www.irvinesci.com/techinfo/docs/91109_PB_IS_CHO_Rev2.pdf http://www.irvinesci.com/techinfo/docs/91109_AP_IS_CHO_Rev1.pdf
IS-CHO-V™	Serum-free medium. With no components derived from human or other mammalian sources. Without L-glutamine, hypoxanthine or thymidine.	Optimised to promote long-term, high-density growth of CHO cells and expression of recombinant proteins. For use with dihydrofolate reductase and other selection systems.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/9197_9198_PB_IS_CHO_V_VGS_Rev2.pdf
IS-CHO-V-GS™	Serum-free medium. With no components derived from human or other mammalian sources. With hypoxanthine and thymidine. Without L-glutamine.	Optimised to promote long-term, high-density growth of CHO cells and expression of recombinant proteins. For use with glutamine synthetase selection system.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/9197_9198_PB_IS_CHO_V_VGS_Rev2.pdf
IS-CHO-CD	Defined, serum-free medium. Without components of animal origin, L-glutamine or hypoxanthine.	For production of recombinant proteins using CHO cells in suspension or stationary cultures.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/91119_PB_IS_CHO_CD_Rev2.pdf http://www.irvinesci.com/techinfo/docs/91119_AP_IS_CHO_CD_Rev2.pdf http://www.irvinesci.com/techinfo/docs/40690_Rev1.pdf
IS CHO-CD4™	Chemically-defined, animal-component-free medium. Available in liquid and powder formulations.	For CHO cultures.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/IS%20CHO-CD4%20Bulletin%20Rev1.pdf http://www.irvinesci.com/techinfo/docs/40766%20Rev0.pdf http://www.irvinesci.com/techinfo/docs/91119_AP_IS_CHO_CD_Rev2.pdf
IS CHO FEED-CD™	Chemically-defined, animal-component-free medium.	For fed-batch CHO cultures.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/IS_CHO_FEED-CD_Bulletin-Rev0.pdf http://www.irvinesci.com/techinfo/docs/40837-Rev0.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
CHO (Chinese Hamster Ovary)				
EX-CELL™ 302	Serum-free medium. Contains HEPES, Pluronic F-68, glucose, human recombinant protein and plant derived hydrolysate. Without L-glutamine. Available in 4 different combinations (without phenol red or sodium bicarbonate).	Supports CHO cells in suspension culture for expression of antibodies or protein products. Appropriate for use with DHFR or GS selection systems.	www.sigmaaldrich.com	
EX-CELL® ACF CHO	Animal component-free medium. Contains inorganic salts, HEPES, sodium bicarbonate, amino acids, vitamins, recombinant human insulin, plant hydrolysates, organic compounds, trace elements and surfactants. Without antibiotics, antimycotics, L-glutamine or transferrin. Available in liquid or powder formulations.	Growth and protein expression in suspension cultures of CHO cells. Supports and maintains high cell densities for extended periods.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/c5467dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/cell_culture_poster_ch0001.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol4%20issue3%20cell%20culture.pdf
EX-CELL® CD CHO	Defined, animal-component and serum-free medium. Available in various combinations regarding the presence of hypoxanthine, thymidine, L-glutamine and sodium bicarbonate.	For long-term growth of CHO cells and expression of antibodies or protein products in suspension cultures.	www.sigmaaldrich.com	
EX-CELL® CD CHO-2	Serum- and animal-component free medium. With sodium bicarbonate, without L-glutamine or phenol red.	For growth and protein expression in CHO cells.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/c4726dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol4%20issue2%20cc%20medium.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
CHO (Chinese Hamster Ovary)				
EX-CELL [®] CD CHO-3	Chemically defined, animal-component free	For growth and protein expression in CHO cells. Supports rapid initial cell growth and high levels of protein expression in suspension cultures.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/general%20information/volume6%20issue1%20chocd3.pdf
EX-CELL [®] CHO Cloning Medium	Animal component-free medium. Contains inorganic salts, sodium bicarbonate, amino acids, vitamins, trace elements, plant hydrolysates, and other organic compounds. Without antibiotics, antimycotics, L-glutamine, insulin or transferrin.	Developed to meet the needs of the biotechnology industry, this medium is designed for single-cell cloning of recombinant CHO cell lines adapted to serum-free suspension culture.	www.sigmaaldrich.com	
EX-CELL [™] 325 PF CHO	Protein and serum-free medium. Contains HEPES, sodium bicarbonate, Pluronic F-68, glucose, plant derived hydrolysate. Without L-glutamine, hypoxanthine and thymidine. Available in liquid or powder formulations.	For growth of CHO cells and expression of recombinant products. Appropriate for use with DHFR or GS selection systems.	www.sigmaaldrich.com	
EX-CELL [®] CHO DHFR ⁻	Animal component-free medium. Contains inorganic salts, HEPES, sodium bicarbonate, amino acids, vitamins, recombinant human insulin, plant hydrolysates, other organic compounds, trace elements and surfactants. Without antibiotics, antimycotics, L-glutamine or transferrin.	Formulated to maximize cell growth and recombinant protein production using the Dihydrofolate Reductase (DHFR) gene amplification system in DHFR ⁻ Chinese Hamster Ovary (CHO) cells.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/c8862dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol4%20issue2%20cc%20medium.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol4%20issue3%20cell%20culture.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
CHO (Chinese Hamster Ovary)				
CHO Feed Bioreactor Supplement	Animal component-free bioreactor supplement.	Formulated to optimize CHO cell growth and recombinant protein production in fed-batch bioreactor cultures.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/c1615dat.pdf
CHO Medium Optimization Kit 2	Optimization kit consists of a concentrated basal medium, five concentrated basal supplements and six concentrated optimization supplements.	All the supplements have significant effects on CHO cell growth and/or recombinant protein production. The kit utilizes a statistical approach, Design of Experiment (DOE), to perform media optimization.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/general%20information/vol5%20issue3%20cell%20culture.pdf http://www.sigmaaldrich.com/sigma/bulletin/c4364bul.pdf
Cellgro FREE™ Serum-free/Protein-free Media	Serum and protein-free medium, without hormones or growth factors.	Designed for growth of CHO cells.	www.cellgro.com	http://www.cellgro.com/shop/files/documents/cellgroFREE.pdf
PANSERIN™ 604	Complete serum free medium. Available protein free and without animal or human components.	For transfected and non-transfected CHO cells in adherent or suspension cultures (continuous perfusion or batch systems).	www.pan-biotech.com	http://www.pan-biotech.com/cms/fileadmin/doks/new_Panserin604.pdf
CHO Express Media SFC-60 & SFC-70	Protein and serum-free medium (formulation is confidential)	For cultivation of CHO cells producing recombinant proteins. Unsuitable for bio-pharmaceuticals.	www.promocell.com	http://www.promocell.com/pdf/C-78560.pdf http://www.promocell.com/pdf/C-78570.pdf
CHO Express Media SFC-30 & SFC-50	Serum-free medium (formulation is confidential).	For cultivation of CHO cells. SFC-20 and SFC-30 for anchorage dependent cells; SFC-40 and SFC-50 for suspension cultures.	www.promocell.com	http://www.promocell.com/pdf/C-78530.pdf http://www.promocell.com/pdf/C-78550.pdf
Chondrocytes				
Chondrocyte Basal Medium	Serum free medium	General use	www.cellapplications.com	
Rhesus Monkey Chondrocyte Basal Medium	Serum free medium	General use	www.cellapplications.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Dendritic cells				
CellGro® DC	Serum free medium	Designed for the generation of dendritic cells and expansion of T cells	www.cellgenix.com	http://www.cellgenix.com/ex-vivo-therapeutics/pdf/CellGro-Leaflet-SFMedia.pdf
PANSERIN™ 416	Serum free medium. Requires supplements (included with the medium).	Designed for the generation of dendritic cells.	www.pan-biotech.com	http://www.pan-biotech.com/cms/fileadmin/doks/new_Panserin416.pdf
Stemline® Dendritic Cell Maturation Medium	Serum-free medium. Contains human serum albumin, cholesterol and transferrin. Without L-glutamine.	Developed to promote the propagation of mature dendritic cells from human peripheral blood CD14+ monocytes.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/s3444dat.pdf
Endometrial cells				
Bovine Endometrial Basal Medium	Serum free medium	General use for bovine endometrial epithelial cells	www.cellapplications.com	
Endothelial cells				
Bovine/Mouse Microvascular Endothelial Brain Cell Basal Medium	Serum free medium	General use	www.cellapplications.com	
CADMEC™	Serum free medium	For induction of differentiation.	www.cellapplications.com	
Endothelial Cell Basal Medium human/bovine/porcine/rat	Serum free medium	General use	www.cellapplications.com	
Endothelial Cell Defined Medium	Serum free medium	General use	www.cellapplications.com	
Endothelial-SFM	Basal serum-free medium	Growth and maintenance of endothelial cells for studying cell-cell interactions, injury analysis and atherosclerosis.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3759.pdf
Endothelial Cell Medium	Ready to use, defined and serum-free medium. Without L-glutamine.	Optimized for the cultivation of umbilical arterial and dermal microvascular endothelial cells.	www.paa.com	
Endothelial Basal Medium MCDB 131	Defined basal medium which requires the individual components as supplement.	Optimized for the cultivation of umbilical arterial and dermal microvascular endothelial cells.	www.paa.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Endothelial cells				
Endothelial Medium Supplement	Medium supplement with growth factors and heparin without antibiotics.	General use	www.paa.com	
Epithelial cells				
BRFF-EPM2™	Complete serum-free medium	Designed to grow human epidermal-like cells. Originally optimised for human oesophageal epithelial cells. Explant cultures of human skin in BRFF-EPM2 yield outgrowths of epithelial cells. Also useful for culturing some human cancer cell lines.	www.athenaes.com	http://www.athenaes.com/BRFF-EPM2.php?osCsid=aaa6d531c03e1a1bd6e0dd09e52cce29
Bronchia/Tracheal Epithelium SFM Medium	Serum free growth and basal medium	General use	www.cellapplications.com	
Mammary Epithelial Cell Basal Medium	Serum free medium	General use	www.cellapplications.com	
Mouse Lung Epithelial Lung Growth Medium	Serum free medium	General use	www.cellapplications.com	
HuMEC Basal Serum Free Medium	Serum free medium. Should be supplemented with HuMEC Supplement Kit	For culturing human mammary epithelial cells (conditions optimized for breast cancer research).	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/5009%20HUMEC.pdf
HuMEC Ready Medium	Includes HuMEC Basal Serum Free Medium and HuMEC Supplement Kit (containing epidermal growth factor, hydrocortisone, isoproterenol, transferrin, insulin and bovine pituitary extract).	For culturing human mammary epithelial cells (conditions optimized for breast cancer research).	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/5009%20HUMEC.pdf
LHC Basal, LHC-8 and LHC-9 Media	Serum free medium, available with or without supplements.	For culturing bronchial epithelial cells.	www.invitrogen.com	
Airway Epithelial Cell Basal Medium	Basal serum free medium. Requires supplements.	For culturing airway epithelial cells.	www.promocell.com	http://www.promocell.com/pdf/C-21265.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Epithelial cells				
Airway Epithelial Cell Growth Medium	The kit contains the base medium and supplements required for producing a complete medium. It is possible to adjust the final amounts of supplements.	For culturing airway epithelial cells.	www.promocell.com	http://www.promocell.com/pdf/C-21060.pdf
Mammary Epithelial Cell Growth Medium	Serum free medium. Contains the base medium and supplements required for producing the complete medium. It is possible to adjust the final amount of supplements.	For culturing mammary epithelial cells.	www.promocell.com	http://www.promocell.com/pdf/C-21010.pdf
Renal Epithelial Cell Growth Medium	Serum-free, fully defined supplemented medium.	For culturing renal proximal tubule epithelial cells and renal cortical epithelial cells.	www.promocell.com	http://www.promocell.com/pdf/C-26001.pdf
Small Airway Epithelial Cell Growth Medium	Serum free medium. Contains basal medium and supplements required for producing the complete medium.	Suitable for culturing HSAEpC (Normal Human Small Airway Epithelial Cells)	www.promocell.com	http://www.promocell.com/pdf/C-21070.pdf
Fibroblasts				
Fibroblast Basal Medium	Serum free medium	General use for human dermal fibroblasts	www.cellapplications.com	
Lung/Cardiac Fibroblast Basal Medium	Serum free medium	General use	www.cellapplications.com	
Rat Fibroblast Basal Medium	Serum free medium	General use	www.cellapplications.com	
Fibroblast Growth Medium	Medium kit contains the basal medium and supplements for producing the complete medium. It is possible to adjust the final amounts of supplements.	General use	www.promocell.com	http://www.promocell.com/pdf/C-23010.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Fibroblasts				
Dermal fibroblast basal medium	Contains essential requirements for dermal fibroblasts. It can be supplemented with factors for specific research purposes.	General use	www.stratech.co.uk www.zen-bio.com	
Dermal fibroblast culture medium	Contains specific growth factors necessary for optimal expansion of human dermal fibroblasts.	General use for human dermal fibroblasts.	www.stratech.co.uk www.zen-bio.com	
Dermal fibroblast cryopreservation medium	Serum free medium	For long-term cryopreservation of human dermal fibroblasts.	www.stratech.co.uk www.zen-bio.com	
Hair follicle dermal papilla cells (HFDPs)				
HFDP Basal Medium	Serum free medium	General purpose for HFDPs	www.cellapplications.com	
HEK 293 cells (human embryonic kidney)				
Hektor G, Art. HEKG	Serum and protein free medium	For routine maintenance and cryopreservation	www.cellculture.com	
Hektor S, Art. HEKS	Serum and protein free medium	For production of recombinant proteins upon transient transfection of HEK 293, HEK 293EBNA and HEK 293T cells.	www.cellculture.com	
HektorTM	Serum, protein and peptide free medium. Without L-glutamine.	For the growth and maintenance of HEK-293 cells.	www.cellgro.com	
CDM4HEK293™	Chemically-defined, animal derived component and protein-free cell culture medium.	For the growth of HEK 293 cultures and adenovirus and recombinant protein production. Developed to support high cell density in suspension cultures.	www.hyclone.com	http://www.hyclone.com/pdf/media/CDM4HEK293/CDM4HEK293%20LR.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
HEK 293 cells (human embryonic kidney)				
SFM4Transfx-293™	Serum-free, animal derived component free medium.	For the growth of HEK 293 cultures and transfection using lipofection or similar methods. Supports high transfection efficiency, productivity and cell density in suspension cultures.	www.hyclone.com	http://www.hyclone.com/pdf/media/SFM4Transfx-293/SFM4Transfx293%20LR.pdf
SFM4HEK293™	Protein-free medium containing no animal derived components. Contains L-glutamine and Pluronic® F-68, does not contain phenol red.	Designed to support the growth of HEK 293 cells and the production of adenoviral vectors and proteins.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_SFM4HEK293_Product_Insert.pdf
293-SFM II	Serum-free medium, without components of human or animal origin. Very low protein concentration.	Developed to adapt and support the growth of 293 cells in suspension. May be used with HeLa and PerC6 cells.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3919.pdf
CD 293	Defined, protein-free medium. Devoid of any animal-origin components, undefined lysates or hydrolysates.	Developed to adapt and support the growth of 293 cells in suspension. May be used with HeLa and PerC6 cells.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3924%20CD%20293.pdf
FreeStyle™ 293 Expression Medium	Complete, defined and protein-free. With GlutaMAX™-I supplement. Animal-origin free.	Developed to support the growth and transfection of 293-F cells under suspension type culture conditions.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3945.pdf
IS-293	Serum-free medium, with low protein content (human transferrin and recombinant human insulin).	For long-term, high-density culture of 293 cells, production of adenovirus or recombinant protein expression. Optimised to limit cell aggregation in suspension cultures. Can be used with other cells (HeLa, myelomas, hybridomas, human breast cancer cells).	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/91101_AP_IS_293_Rev0.pdf http://www.irvinesci.com/techinfo/docs/IS_293_without_L-glut_Rev4.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
HEK 293 cells (human embryonic kidney)				
IS-293-V	Modified version of IS-293 without transferrin. Requires non-protein iron chelate for optimum performance, and Pluronic F-68 for suspension cultures.	Optimised for long-term, high-density culture of 293 cells for production or adenovirus or recomb protein expression. Also for growth of other cells.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/IS_293-V_without_L-glut_Rev5.pdf http://www.irvinesci.com/techinfo/docs/91107_AP_IS_293_V_Rev0.pdf
Pro293s-CDM and Pro293a-CDM	Serum-free, low protein and chemically defined media. With L-glutamine, phenol red and Pluronic F-68. Contains only one protein: rh insulin. Without hypoxanthine and thymidine.	Supports high-density cultures of 293 cells for research gene therapy and protein and vaccine production. Pro293s-CDM for suspension cultures and Pro293a-CDM for adherent cultures.	www.lonza.com	
EX-CELL™ 293	Serum and animal protein free medium. With Pluronic F-68, glucose, hypoxanthine and thymidine. Available with or without L-glutamine and sodium bicarbonate.	For long-term growth of HEK 293 and related cells for adenovirus production in suspension culture.	www.sigmaaldrich.com	
EX-CELL® GTM-3	Complete, ready-to-use medium that requires only the addition of L-glutamine.	For growing HEK-293 cells, retinoblastoma-like cells and propagation of adenoviruses. Supports growth of cells in suspension culture.	www.sigmaaldrich.com	
HeLa cells				
EX-CELL® HeLa Serum-Free Medium	Animal-protein and serum-free medium.	Developed for the long-term growth of HeLa cells in suspension culture.	www.sigmaaldrich.com	
Quantum 101	Serum and protein free complete medium. With L-glutamine.	Optimized for growing HeLa cells.	www.paa.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hematopoietic cells				
QBSF-58	Serum-free, low protein medium including HEPES, sodium bicarbonate, BSA, human transferrin, hr insulin, cholesterol and L-glutamine.	Designed for expansion of human and murine bone marrow cells.	www.qualitybiological.com	http://www.qualitybiological.com/ptistore/resource/tis/160-109.pdf
QBSF-60	Serum-free medium	Designed for human hematopoietic stem and progenitor cells.	www.qualitybiological.com	http://www.qualitybiological.com/ptistore/resource/tis/160-204.pdf
HIT - <i>Serum Substitute</i>	It contains only pre-screened batches of human-derived or recombinant human proteins and is supplied as a 5X concentrate.	Developed for applications where a defined culture medium is required. It can be used to prepare serum-free media, with the addition of desired cytokines and supplements, for culturing human hematopoietic progenitors.	www.stemcell.com	http://www.stemcell.com/technical/09550-PIS.pdf
BIT 9500 - <i>Serum Substitute</i>	Contains BSA, rh insulin, human transferrin (Iron-Saturated) and Iscove's MDM. 5X Solution.	Developed for applications where a defined culture medium is required. It can be used for methylcellulose-based colony assays, for <i>in vitro</i> expansion media of hematopoietic progenitors (human and mouse) and for the generation and culturing of dendritic cells.	www.stemcell.com	http://www.stemcell.com/technical/28440_stemspan%20sfem%20prog.pdf http://www.stemcell.com/technical/09550-PIS.pdf
Hepatocytes				
BD Hepato STIM™	Serum free medium	Media supplement	www.bdbiosciences.com	
Hepatozyme-SFM	Serum-free medium	Maintenance of primary hepatocyte cells (cytochromes P450 induction maintained >9 days)	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3736.pdf
Hepatocyte Growth Medium	Serum-free, fully defined medium. Contains all supplements required for producing the complete medium.	General use	www.promocell.com	http://www.promocell.com/pdf/C-25010.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
FetalClone® I	FBS alternative: IgG levels comparable to those found in FBS.	No adaptation is required. Suggested concentrations are the same as with FBS Optimised for the growth of hybridomas but other cells successfully grown.	www.hyclone.com	
FetalClone II	FBS Alternative	Reduced cost, unlimited supply and readily available. No adaptation is required and suggested concentrations are the same as with FBS	www.hyclone.com	
CDM4NS0™	Chemically-defined medium with no animal derived components. Contains Pluronic® F68, and does not contain L-glutamine and phenol red.	Designed to increase process yields in the manufacture of monoclonal antibodies using a variety of NS0 cell clones. Requires no cholesterol or GS supplementation. Tested in various systems (T-flasks, shaker flasks and bioreactors) using batch and fed-batch strategies.	www.hyclone.com	
LS250™	Defined, lipid supplement. Designed to supplement a variety of HyClone serum-free media. May be used in the preparation of liquid media from dry powder.	Developed to stimulate cell growth and monoclonal antibody (MAb) production in cholesterol auxotrophic NS0 cell lines.	www.hyclone.com	
MaxiCell™/Hybridoma-PF	Chemically defined, serum-free medium. No proteins, peptides or animal-derived constituents. Fortified with key amino acids.	Formulated for optimal growth of hybridoma cell lines and monoclonal antibody production.	www.atlantabio.com	http://www.atlantabio.com/pdf/pds/PDS-MAXIC.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
MaxiCell™/Hybridoma-PFplus	Chemically defined, serum-free medium. No proteins, peptides or animal-derived constituents. Fortified with key amino acids.	Formulated for use with more demanding high-density cell cultures. Suitable for cell culture bioreactors.	www.atlantabio.com	
HybridoMed DIF 1000	Serum-free medium based on a 1:1 mixture of Iscove's medium and Ham's F12, supplemented with transferrin, insulin and a BSA/oleic acid complex.	Developed for growth of hybridoma but suitable for various cells, including YAC-1, HeLa, BJA-B, BHK-21 and L-psv 129.	www.autogen-bioclear.com	http://www.autogenbioclear.com/F8055-1.pdf
BD Cell™ MAb Media, Serum Free	Complete serum-free HEPES based medium. Contains BSA, L-glutamine and phenol red. Without pluronic acid or other surfactants.	Supports a wide variety of myeloma fusion partners and hybridomas. Designed to enhance monoclonal antibody production.	www.bdbiosciences.com	
BD Cell™ MAb Media, Quantum Yield	Defined, serum and animal component free basal medium. Requires supplementation. Contains L-glutamine and phenol red. Without pluronic acid or other surfactants.	Supports a wide variety of myeloma fusion partners and hybridomas. Designed to enhance monoclonal antibody production.	www.bdbiosciences.com	
BD Cell™ MAb Media, Animal Component Free	Serum, animal component-free HEPES based medium. Contains L-glutamine, 0.3% select soytone. Without phenol red, pluronic acid, other surfactants or attachment factors.	Supports a wide variety of myeloma fusion partners and hybridomas. Designed to enhance monoclonal antibody production.	www.bdbiosciences.com	
UltraDOMA™	Serum-free medium composed of RPMI-1640 base, supplemented with bovine insulin, bovine transferrin and bovine albumen. Without L-glutamine.	Supports the growth of murine, human and chimeric hybridomas for monoclonal antibody production in batch culture and in hollow fibre bioreactors.	www.lonza.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
UltraDOMA-PF™	Serum and protein-free medium. Contains L-glutamine.	Supports murine, human and chimeric hybridomas for monoclonal antibody production. Also suitable for some transfected CHO cell lines, human and murine lymphoid origin cells. For lab or industrial scale use.	www.lonza.com	https://bcprd.lonza.com/group/en/products_services/products/catalog_new.ParSys.0007.File0.tmp?path=eshop/IMS_DOCS/DC/DCF5F1FAEC389BF18C7C001A4B525E10.pdf
DCCM-1 & DCCM-2	Serum-free media, containing BSA.	For myeloma and hybridoma cells and monoclonal antibody production. Suitable for human lymphocytes (stimulated and transformed cells) and virus production.	www.bioind.com	
LPM	Free of BSA, low protein without L-glutamine.	Effective for the growth of a variety of hybridomas and other lymphocytes.	www.bioind.com	http://www.bioind.com/Htmls/product.aspx?C1010=12191&BSP=12186
HL-1	Serum-free defined medium. Includes a modified DMEM/F12 base, HEPES, insulin, transferrin, testosterone, sodium selenite, ethanolamine, fatty acids and proprietary stabilizing proteins. Without BSA.	Supports growth of various hybridomas and certain other cell types of lymphoid origin.	www.lonza.com	https://bcprd.lonza.com/group/en/products_services/products/catalog_new.ParSys.0007.File0.tmp?path=eshop/IMS_DOCS/DC/DCF5E635B735A3F18C7C001A4B525E10.pdf
ProDoma™ NAO Hybridoma Media	Protein free medium. Contains Hepes, NaHCO ₃ , rh insulin and Pluronic acid. Without L-glutamine or phenol red.	Supports murine, rat, chimeric and human hybridoma cell lines.	www.lonza.com	
TurboDoma TP-6, art. TPP-6	Fortified, protein and serum free medium	Production of monoclonal Ab and recomb proteins with hybridomas and myeloma cells.	www.cellculture.com	
TurboDoma, art. THP	Minimal nutrient, protein and serum free medium	For selection, maintenance and cryopreservation of cholesterol-independent myeloma and hybridoma cells.	www.cellculture.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
CD Hybridoma	Defined, protein and animal component free medium. Without L-glutamine or phenol red. Contains surfactant and inorganic iron carrier.	For hybridoma growth and monoclonal antibody production.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3951%20CD%20Hybridoma.pdf
Hybridoma-SFM	Serum-free, low protein medium. With phenol red and surfactant. Supplementation with a lipoprotein preparation required for cholesterol dependent cells (e.g. NSO and derivatives).	For hybridoma growth and monoclonal antibody production.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3913.pdf
PFHM-II	Protein and serum-free medium. Contains phenol red and inorganic iron carrier.	For hybridoma growth and monoclonal antibody production.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3913.pdf
CDM4MAb™	Defined medium with no animal derived components. Contains Pluronic® F68 and does not contain phenol red. It is available with and without L-glutamine.	For various engineered hybridoma and recombinant myeloma cell lines. Developed to increase yields for the manufacture of monoclonal antibodies for therapeutic use.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_CDM4MAb_Product_Insert.pdf
SFM4Mab™	Serum-free medium. Contains synthetic cholesterol and Pluronic F-68. Without phenol red. Available with or without L-glutamine.	Designed to increase yields for the industrialised manufacture of human and humanized recombinant antibodies for therapeutic use in a variety of engineered hybridoma and recombinant myeloma cell lines.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_SFM4MAb_Product_Insert.pdf
SFM4Mab™- Utility	Serum-free medium, contains cholesterol and L-Glutamine. Without Phenol Red or Pluronic F-68.	Designed to support growth of hybridoma cells and production of monoclonal antibodies.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_SFM4MAb-Utility_Product_Insert.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
ADCF-MAB™	Protein-free medium with no animal derived components. Contains Pluronic® F68 and does not contain phenol red. Available with or without L-glutamine.	For various engineered hybridoma and recombinant myeloma cell lines. Developed to increase the yields for the manufacture of antibodies and antibody fragments for therapeutic use.	www.hyclone.com	http://www.hyclone.com/pdf/adcf-mab_sm0389.pdf
CCM1™	Serum free medium	General use for hybridoma and myeloma cell lines. Has been shown to work in lymphocytes and epithelial cells.	www.hyclone.com	
SFX-MAB™	Serum free medium	General use for hybridoma and myeloma cell lines	www.hyclone.com	
PF-MAB™	100X concentrate supplement	Designed for use with RPMI-1640 and other basal formulations to reduce or eliminate serum dependency in various cells.	www.hyclone.com	
MP-Hybridoma	Complete, defined, serum-free medium. With inorganic salts, amino acids, vitamins, human insulin and growth factors. Requires L-glutamine.	General application for hybridoma cells and mAb production in both stationary and stirred-tank bioreactors.	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_34&products_id=20132&depth=nested&keywords=MP-hybridoma
IS-MAB-V	Serum-free medium with no animal derived components. Without L-glutamine. Requires an iron chelate.	Developed for growth of hybridoma for manufacture of monoclonal antibodies.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/IS_MAB-CD_IS_MAB-V_Adaptation%20Protocol.pdf
IS MAB-CD™	A defined, animal-component-free medium.	Developed for hybridoma and myeloma cell lines.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/IS_MAB-CD_IS_MAB-V_Adaptation%20Protocol.pdf http://www.irvinesci.com/techinfo/docs/IS_MAB-CD_Bulletin_Rev1.pdf http://www.irvinesci.com/techinfo/docs/91104_40784_Rev1.pdf
HB Basal Medium	Serum-free medium. Available in liquid and powder formulations.	For hybridoma and myeloma cell lines.	www.irvinesci.com	
HB 101®	Lyophilized supplement for HP Basal Medium.	Ideal for murine hybridomas and myelomas.	www.irvinesci.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
EX-CELL™ 620-HSF	Low-protein, serum-free medium. Available with or without sodium bicarbonate.	For long-term growth of hybridoma and lymphoid cells, expression and isolation of monoclonal antibodies and other protein products. Suitable for most cholesterol-dependent hybridoma cultures.	www.sigmaaldrich.com	
EX-CELL™ 610-HSF	Low protein, serum-free, defined medium. With L-glutamine. Available with or without sodium bicarbonate.	Designed for antibody production. Supports various cells (lymphoid, epithelial cells, B cell hybridomas of murine and human origin).	www.sigmaaldrich.com	
EX-CELL® Sp2/0	Defined, animal component, protein and serum free medium. Without glutamine. Available with or without sodium bicarbonate.	For monoclonal antibody production from Sp2/0 cells.	www.sigmaaldrich.com	
EX-CELL® Hybridoma Medium	Contains inorganic salts, amino acids, vitamins, sodium bicarbonate, HEPES, trace elements, fatty acids, other organics compounds, low concentrations of bovine insulin, BSA and human transferrin. Without L-glutamine, antibiotics, antimycotics or phenol red.	Designed to support the rapid growth of cells to high densities and the maintenance of viable cells for extended culture periods.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/h4281dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/h4281_biopharm_article.pdf http://www.sigmaaldrich.com/sigma/general%20information/h4281_mbc_article.pdf http://www.sigmaaldrich.com/sigma/general%20information/sg_ls_cc_h4409_poster.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol2%20issue2%20cell%20culture.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
EX-CELL [®] CD Hybridoma Medium	Defined, animal component free medium. Contains inorganic salts, amino acids, vitamins, recombinant human insulin, other organic compounds and trace elements. Without antibiotics, antimycotics, transferrin, L-glutamine and sodium bicarbonate. Available in liquid or powder formulations.	Supports rapid initial cell growth and high levels of antibody expression. It also supports high cell densities at high viability for extended periods without the use of animal-derived proteins.	www.sigmaaldrich.com	
EX-CELL [®] Hybri-Max	Protein free. With L-glutamine, MOPS buffer, sodium bicarbonate, with or without phenol red.	General use with hybridoma cells.	www.sigmaaldrich.com	
EX-CELL [®] NS0	Animal component and serum free medium. Without L-glutamine. Available with or without sodium bicarbonate.	Developed for the long-term growth of NS0-related cells in suspension culture.	www.sigmaaldrich.com	
Hybridoma Express	Defined, low protein serum-free medium. With Pluronic F68 and without L-glutamine.	For hybridoma cells and antibody production. High growth capability for lymphoid and epithelial cells	www.paa.com	
Hybridoma Express Plus	Defined, serum and animal component free medium. Low protein, with Pluronic and without phenol red.	For the cultivation of various hybridoma cells and antibody production. Suitable for use in fermenters.	www.paa.com	
PANSERIN [™] PX10	Serum free medium ready for use. Contains cleaned proteins, L-glutamine, lipids, salts, amino acids, trace elements and hormones. Without antibiotic, undefined hydrolysates or lysates.	For the production of monoclonal antibodies.	www.pan-biotech.com	http://www.pan-biotech.com/cms/fileadmin/doks/new_PanserinPX10.pdf
Hybridoma Growth Medium 7	Defined medium, protein-free, with or without phenol red.	For cultivating hybridomas.	www.promocell.com	http://www.promocell.com/pdf/C-78440.pdf http://www.promocell.com/pdf/C-78447.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
Hybridoma Growth Medium 6 and Hybridoma Growth Medium 7 (HYGM-6 Express and HYGM-7 Express)	Serum and protein-free medium with L-glutamine. Available with or without phenol red.	For cultivating hybridomas.	www.promocell.com	http://www.promocell.com/pdf/C-78417.pdf http://www.promocell.com/pdf/C-78410.pdf http://www.promocell.com/pdf/C-78417.pdf
Nutridoma-CS	Defined supplement that can completely replace serum in cell culture medium. With albumin, insulin, transferrin, cytokines, a cholesterol source and other organic and inorganic compounds.	Optimised for freshly fused hybridomas during selection and cloning procedures in serum-free cell culture.	www.roche-applied-science.com	https://www.roche-applied-science.com/pack-insert/1363743a.pdf
Nutridoma-HU	Defined, serum-free supplement. Can be used to replace serum in cell culture medium. Contains albumin, insulin, transferrin, and other organic and inorganic compounds.	Supports the growth of most lymphoblastoid, myeloma and hybridoma cell lines, as well as primary lymphoid cell cultures.	www.roche-applied-science.com	http://www.roche-applied-science.com/pack-insert/1011367a.pdf
Nutridoma-SP	Defined, serum-free supplement. Can be used to replace serum in cell culture medium. Composed of albumin, insulin, transferrin and other defined compounds.	Supports murine myelomas and hybridomas (with intact cholesterol biosynthesis pathway). Also for culture of various other cell types, including neural explants.	www.roche-applied-science.com	http://www.roche-applied-science.com/pack-insert/1011367a.pdf
Nutridoma-NS	Defined, serum-free supplement. Can be used to replace serum in cell culture medium (e.g. high glucose DMEM/Ham's F12). Composed of albumin, insulin, transferrin, and other organic and inorganic compounds. With a cholesterol source.	Supports most lymphoblastoid, myeloma and hybridoma cell lines, as well as primary lymphoid cell cultures. Occasionally successful with non-lymphoid cell lines. Meets nutritional requirements for cells with a deficiency in the cholesterol biosynthetic pathway.	www.roche-applied-science.com	http://www.roche-applied-science.com/pack-insert/1011367a.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Hybridomas and Myelomas				
ProNS0™ 1 and ProNS0™ 2	Chemically defined, protein-free medium, with HEPES and Pluronic®. Without L-glutamine, phenol red or cholesterol	For NS0 (mouse myeloma) cells, widely used for recombinant mammalian protein expression.	www.lonza.com	
Insect cells				
BIOINSECT-1	Serum-free medium	For culturing lepidopteran insect cells	www.bioind.com	http://www.bioind.com/HTMLs/product.aspx?C1010=12193&BSP=12186
Insect-XPRESS™	Serum-free and protein-free medium. Contains L-glutamine	For growing insect cells and expressing proteins (using BEVs).	www.lonza.com www.fishersci.com	
Drosophila-SFM	Protein-free and serum-free medium	Growth and maintenance of adherent or suspension cultures of <i>Drosophila</i> cells (D.Mel2, Schneider S2 cells).	www.invitrogen.com	
Express Five SFM	Protein and serum free medium	Growth and maintenance of BT1-TN-5B1-4 insect cells used for the baculovirus expression vector system (BEVS) for adherent or suspension cultures. Large-scale production of recombinant protein expressed by BEVS.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3798.pdf
Sf-900 II SFM	Serum-free medium	Growth and maintenance of insect cells used for BEVS for adherent or suspension cultures. Large-scale production of recombinant protein expressed by BEVS.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3408.pdf
Sf-900 III SFM	Protein- and serum-free	Growth and maintenance of cells used for BEVs (adherent or suspension cultures). Large-scale production of recombinant protein.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/5003%20SF900%20III.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Insect cells				
SFX-Insect™	Protein-free cell culture medium. Contains Pluronic® F-68	Developed to support the growth of multiple insect cells and production of a variety of recombinant proteins.	www.hyclone.com	
CCM3™	Serum-free medium	General use for Sf9 cells.	www.hyclone.com	
CELLect™	Complete, ready to use serum-free medium. With L-glutamine. Available in liquid or solid formulations.	For the production of insect viruses	www.mpbio.com	
IS-BAC	Serum and proteinfree medium.	Supports long-term growth of insect cells for production of insect virus and recombinant DNA proteins.	www.irvinesci.com	http://www.irvinesci.com/techinfo/docs/9194_PB_IS_BAC_Rev2.pdf http://www.irvinesci.com/techinfo/docs/9194_AP_IS_BAC_Rev0.pdf
EX-CELL™ 405	Protein and serum free medium. Hydrolysate source yeast. Without hypoxanthine or thymidine. Available with or without sodium bicarbonate.	Optimised for <i>Trichoplusia ni</i> (High Five cells) in suspension and adherent culture systems. Can be used for expressing recombinant products using the BEV system.	www.sigmaaldrich.com	
EX-CELL™ 420	Protein and serum free medium. Contains Pluronic F-68 and glucose. Hydrolysate source yeast. Without hypoxanthine or thymidine. Available with or without L-glutamine in liquid or powder formulations.	Optimised for growth of Sf9 and Sf21 cells. Can be used in both suspension and adherent culture systems.	www.sigmaaldrich.com	
Serum-free Insect Medium-1	Protein-free medium. With L-glutamine and sodium bicarbonate.	General use for insect cell culture.	www.sigmaaldrich.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Insect cells				
EX-CELL [®] TiterHigh [™]	Includes inorganic salts, sodium bicarbonate, amino acids, vitamins, yeast extract, a proprietary lipid formulation and trace elements. Glutamine in the form of an alanine-glutamine dipeptide. Without phenol red, antibiotics, antimycotics or transferrin.	For Sf21 and Sf9 insect cells. Designed to support fast cell growth rates and high cell densities, while maintaining high cell viability and high recombinant protein production using the Baculovirus Expression Vector System (BEVS).	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/i5408dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol5%20issue2%20cellculture.pdf
INSECTAGRO DS2	Serum and protein free medium. Without L-glutamine.	For growth of <i>Drosophila</i> S2 cells.	www.cellgro.com	
INSECTAGRO FIVE	Serum and protein free medium. With L-glutamine.	General use	www.cellgro.com	
INSECTAGRO SF9	Serum and protein free medium. With L-glutamine.	For growth of Sf9 cells.	www.cellgro.com	
BacVector [®] Insect Cell Medium Cell Medium	Serum free medium.	For growth of Sf9 insect cells.	www.merckbiosciences.com	Kathryn H. Loomis, et al. (2005) InsectDirect [™] System: rapid, high-level protein expression and purification from insect cells. <i>Journal of Structural and Functional Genomics</i> 6, 189–194.
Insect Express [™] Sf9-S2	Defined, protein and serum free complete medium. With Pluronic F-68 and L-glutamine. Without hypoxanthine, thymidine, HEPES or phenol red.	Optimized for the cultivation of <i>Spodoptera frugiperda</i> and <i>Drosophila</i> S2 cells. Developed for the baculovirus expression system with BEVS Suitable for adherent as well as suspension cells in bioreactors. Suitable as freezing medium.	www.paa.com	
Insect Express Prime	Protein free, defined complete medium, defined. Without animal derived components. Contains an insect specific lipid mixture, L-glutamine, cholesterol, Pluronic F-68 and trace elements.	For the cultivation of various <i>Spodoptera frugiperda</i> (Sf9 and Sf21), BT1-Tn-5B1-4 (High Five) and <i>Drosophila melanogaster</i> cell lines. Developed for the baculovirus expression with BEVS. Suitable for adherent cells and suspension cultures in bioreactors.	www.paa.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Keratinocytes				
MCDB 153	Complete serum free medium	General application	www.autogen-biocular.com/	
Epilife Medium	Serum-free HEPES based medium. Requires supplementation with one of the following: Epilife Defined Growth Supplement (BSA, bovine transferrin, hydrocortisone, rh insulin-like growth factor). Human Corneal Growth Supplement (bovine pituitary extract, bovine insulin, hydrocortisone, bovine transferrin, and mouse epidermal growth factor). Human keratinocyte growth (bovine pituitary extract, bovine insulin, hydrocortisone, bovine transferrin, and human EGF).	Primary isolation and long-term culture of normal human corneal epithelial cells and human epidermal keratinocytes. For lab research only.	www.cascadebio.com	http://www.cascadebio.com/product_files/doc87.5%20EpiLife.pdf
Keratinocyte Basal Medium	Serum free medium	General use	www.cellapplications.com	
Rat Keratinocyte Basal Medium	Serum free medium	General use	www.cellapplications.com	
CnT-02 and CnT-02CF	Includes basal medium and separate supplements. Defined, serum and BPE-free. Without antibiotics or antimycotics. Contains amino acids, minerals, vitamins and organic compounds. Available with or without calcium.	Developed for differentiation of mouse and human keratinocytes. May also be used for mouse keratinocyte isolation.	www.cellintec.com www.millipore.com	http://www.cellintec.com/resources/CnT-02.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Keratinocytes				
CnT-57 and CnT-57CF	Progenitor cell targeted culture medium. Protein free, available with or without calcium. Includes basal medium and separate supplements. Contains a low BPE concentration, amino acids, minerals, vitamins and organic compounds. It does not contain antibiotics or antimycotics.	Developed for human and mouse keratinocytes.	www.cellIntec.com www.millipore.com	http://www.cellIntec.com/resources/CnT-57.pdf
CnT-07 and CnT-07CF	Progenitor cell targeted culture medium. Includes basal medium (with amino acids, minerals, vitamins and organic compounds) and protein free supplements. Defined, serum and BPE-free formulation, with or without calcium. Does not contain antibiotics or antimycotics.	Developed for human and mouse keratinocytes.	www.cellIntec.com www.millipore.com	http://www.cellIntec.com/resources/CnT-07.pdf
CnT-02-3D	Culture medium kit includes basal medium (with amino acids, minerals, vitamins and organic compounds) and protein free supplements. Defined, high calcium, serum and BPE-free formulation. Without antibiotics or antimycotics.	Developed for 3-dimensional (air/liquid interface) culture of epidermal keratinocytes on a porous membrane.	www.cellIntec.com www.millipore.com	http://www.cellIntec.com/resources/CnT-02-3D.pdf
CnT-03	Culture medium kit includes basal and separate supplements. Fully defined.	Developed for the culture of rat epidermal keratinocytes.	www.cellIntec.com www.millipore.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Keratinocytes				
Defined Keratinocyte-SFM	Low protein serum-free medium, with insulin, epidermal growth factor and fibroblast growth factor.	Growth and maintenance of human epidermal keratinocytes and cervical epithelial cells.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3867.pdf
Keratinocyte-SFM	Basal serum-free medium, plus bovine pituitary extract, human recombinant epidermal growth factor. With or without calcium.	Growth and maintenance of human epidermal keratinocytes and cervical epithelial cells. May be suitable for other epithelial cells (e.g. human bronchial epithelial cells).	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3867.pdf
EpiLife® Medium and EpiLife® Medium with 60 µM Calcium	Requires growth supplements. Contains amino acids, vitamins, other organic compounds, trace minerals and inorganic salts. Without antibiotics, antimycotics, hormones, growth factors or proteins. With HEPES and bicarbonate.	Long-term, serum-free culture of human epidermal keratinocytes and human corneal epithelial cells.	www.invitrogen.com www.cascadebio.com	http://tools.invitrogen.com/content/sfs/manuals/proddoc87.6%20EpiLife_111507.pdf
Keratinocyte Growth Medium 2	Serum free medium. Contains the base medium, the Supplement Mix and a separate vial of calcium chloride.	General use	www.promocell.com	http://www.promocell.com/pdf/C-20011.pdf
Stemline® Keratinocyte Medium II	Serum-free medium. Without L-glutamine and calcium. Contains HEPES, sodium bicarbonate and phenol red. Requires supplementation.	Developed to promote the optimal expansion of human epidermal keratinocytes from adult and neonatal sources.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/S0196dat.pdf
Stemline® Keratinocyte Growth Supplement	Contains bovine pituitary extract, EGF, human recombinant insulin, hydrocortisone, human transferrin, epinephrine and calcium chloride.	For use with Sigmaaldrich's, Stemline® Keratinocyte Medium II	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/S9945dat.pdf
KGS-acf	Medium supplement.	General purpose for keratinocyte growth.	www.tcscellworks.co.uk	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Kidney cells				
Nephros-LP	Serum-free medium, supplemented with growth factors.	Optimized to support growth of kidney cells.	www.lonza.com	
ProVero-1	Protein free medium containing rh insulin and L-glutamine. May benefit from EGF supplementation.	Optimised to support adherent cultures of Vero and MDCK used to support virus production.	www.lonza.com	https://bcprd.lonza.com/group/en/products_services/products/catalog_new.ParSys.0007.File0.tmp?path=eshop/IMS_DOCS/DC/DCF5E685E19FEFF18C7C001A4B525E10.pdf
UltraMDCK	Serum-free and low protein basal medium supplemented with only two proteins: bovine insulin and bovine transferrin	Designed to support growth of MDCK cells (low and high plating densities). Suitable for large scale bioprocessing and for in vitro diagnostic use.	www.lonza.com	https://bcprd.lonza.com/group/en/products_services/products/catalog_new.ParSys.0007.File0.tmp?path=eshop/IMS_DOCS/DC/DCFF2C53E2598BF19B3800110A5E23B5.pdf
InVirus™ VP-6, art IVP6	Protein free, fortified nutrient, serum free medium	Production of recombinant proteins from various kidney cell lines.	www.cellculture.com	
InVirus™, art ITV	Minimal nutrient, protein and serum free medium.	For routine maintenance and cryopreservation of mammalian kidney cell lines.	www.cellculture.com	
OptiPRO SFM	Serum-free, low protein (7.5µg/l) medium, and without components of animal or human origin.	For growth and maintenance of kidney-derived cell lines.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3943%20OptiPro%20SFM.pdf
EX-CELL™ MDCK	Serum, and animal protein free medium. With Pluronic F-68, glucose, hypoxanthine and thymidine. Available with or without L-glutamine.	For long-term growth of MDCK and related cells in attachment culture.	www.sigmaaldrich.com	
EX-CELL® MDCK Production Medium	Complete, protein free medium. Contains inorganic salts, amino acids, vitamins, recombinant human insulin and growth factors, other organic compounds and trace elements. Without L-glutamine.	Formulated to support the growth of Madin-Darby Canine Kidney (MDCK) cells for the growth and production of viruses.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/m3678dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol2%20issue1%20cell%20culture.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Kidney cells				
EX-CELL [®] MDCK Growth Medium	Contains inorganic salts, amino acids, vitamins, recombinant human insulin and growth factors, other organic compounds, trace elements and BSA.	Formulated to support the growth of Madin-Darby Canine Kidney (MDCK) cells for the growth and production of viruses.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/m3803dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol2%20issue1%20cell%20culture.pdf
InVirusTM	Serum, protein and peptide free medium. Without L-glutamine.	For the protein and peptide-free growth of mammalian kidney cell lines.	www.cellgro.com	
Protein-free BHK Cell Culture Medium (SFC-10 and SFC-20 BHK Express)	Fully defined serum free medium. Available without proteins.	For culturing BHK cells. Especially suited for cells producing recombinant proteins.	www.promocell.com	http://www.promocell.com/pdf/C-78720.pdf http://www.promocell.com/pdf/C-78710.pdf
Lymphocytes				
AB-MAX	Serum free, lymphokine-rich conditioned medium.	Suitable for long-term culture of peripheral lymphocytes, hybridoma cloning even without feeder cells, improving cell viability after thawing, producing polyclonal antibodies in vitro and creating antibody libraries.	www.abcell.fi	
BD [™] -STIM Culture Supplements	Media supplement	Used to promote proliferation and activation of T-cells	www.bdbiosciences.com	http://www.bdbiosciences.com/nvCategory.jsp?action=SELECT&form=formTree_catBean&item=378137
PANSERIN [™] 413	Serum free medium with trace elements, albumin, cholesterol, soya-lipids and vitamins. A growth factor mixture is supplied which has to be added to the medium before the cultivation.	For culturing blood lymphocytes.	www.pan-biotech.com	http://www.pan-biotech.com/cms/fileadmin/doks/new_Panserin413.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Lymphocytes				
TB-1 ClonalExpress Lymphocyte Medium	Defined serum-free medium. Contains albumin, transferrin, lecithin, ethanolamine, fatty acids, selenium pyruvate, potassium nitrate, additional amino acids, vitamins and HEPES buffer.	General purpose	www.promocell.com	http://www.promocell.com/pdf/C-78610.pdf
QBSF-56	Serum-free, low protein medium consisting of Iscove's (IMDM) base, with HEPES, sodium bicarbonate, bovine serum albumin, human transferrin, human recombinant insulin, cholesterol, L-glutamine.	Designed to support human peripheral blood blastogenesis and cell cultures. Has been used to support proliferation of primary cells, to grow a number of immunoglobulin secreting clones and other cell lines.	www.qualitybiological.com	http://www.qualitybiological.com/ptistore/resource/tis/160-108.pdf
Stemline [®] T Cell Expansion Medium	Serum free medium. Contains human serum albumin, cholesterol and transferrin. Without antibiotics or cytokines.	Developed to promote the optimal expansion of adult human T cells.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/s1694regdat.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol6_iss2_cell_culture.pdf http://www.sigmaaldrich.com/sigma/bulletin/s1694bul.pdf
MDCK cells				
MP-MDCK	Complete, defined, serum-free medium. Contains inorganic salts, amino acids, peptide supplements of plant origin, vitamins, recombinant human protein and growth factors. Requires L-glutamine.	MP-MDCK™ was designed for both research and production applications involving MDCK cells.	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_35&products_id=20133&depth=nested&keywords=MP-MDCK
Melanocytes				
Melanocyte Growth Medium	Serum free medium	General use	www.cellapplications.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Melanocytes				
Melanocyte Growth Medium	Contains a base medium and supplements. It is possible to adjust the final amount of supplements.	General use	www.promocell.com	http://www.promocell.com/pdf/C-24010.pdf
Melanocyte Growth Medium M2	Serum free medium. Without PMA (Phorbol-Myristate-Acetate i.e TPA, Tetradecanoylphorbol-acetate) or other tumor promoting or toxic agents. Contains basal medium and a Supplement Mix complete medium.	General purpose	www.promocell.com	http://www.promocell.com/pdf/C-24300.pdf
Mononuclear cells				
BIOTARGET-1	Serum free medium	Developed for use with mononuclear cells (lymphocytes and monocytes) from peripheral blood.	www.bioind.com	http://www.bioind.com/Htmls/article.aspx?C2004=12428&BSP=12419
Macrophage-SFM	Serum free medium	Growth and maintenance of human blood peripheral macrophages and monocytes (addition of GM-CSF may be necessary).	www.invitrogen.com	
Macrophage Medium	Serum-free defined medium. With L-glutamine.	General use. Supports macrophages as well as monocytes.	www.paa.com	
MRC-5 cells				
MP-MRC-5	Complete, animal component free medium. Contains inorganic salts, amino acids, peptide supplements of plant origin, vitamins, recombinant human protein and growth factors. Requires L-glutamine.	Developed specifically for microcarrier culture of MRC-5 cells in production systems.	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_35&products_id=20134&depth=nested&keywords=MP-MRC

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Neuronal cells				
TNB 100 Medium	Serum free medium defined medium, should contain complex lipid supplement	General use	www.autogenbioclear.com	http://www.autogenbioclear.com/PROD_F8023.html
Neurobasal Medium	Basal medium lacking excitatory amino acids. Used with supplements to make a complete serum-free medium. With or without phenol red.	Long-term growth of foetal neurons.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3946%20Neurobasal.pdf
Neurobasal A Medium	Basal medium lacking excitatory amino acids. Used with supplements to make a complete serum-free medium. With or without phenol red.	Long-term growth of foetal and adult neurons.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3946%20Neurobasal.pdf
Supplement B-27	Serum substitute	For growth and maintenance of primary embryonic hippocampal neurons, primary neurons from striatum, substantia nigra, septum and cortex.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3889.pdf
Supplement B-27 minus AO	B-27 supplement without any cortical antioxidants.		www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3890.pdf
Supplement B-27 minus vitamin A	Medium supplement		www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3962%20B27%20without%20Vit%20A%20manual%201169.pdf
Supplement N-2	Defined supplement, with insulin (bovine), human transferrin, progesterone, putrescine and selenite.	For growth and maintenance of primary embryonic hippocampal neurons and tumour cell lines of neuronal origin.	www.invitrogen.com	
Supplement G-5	Chemically defined supplement with insulin, human transferrin, selenite, biotin, hydrocortisone, FGF and EGF.	For growth and maintenance of primary glial cells, tumour cells of glial origin, astrocytes, microglia and oligodendrocytes.	www.invitrogen.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Neuronal cells				
StemPRO NSC SFM	Kit including: KnockOut™ DMEM/F-12 Basal Medium, StemPro® NSC SFM Supplement, FGF Basic recombinant human and EGF recombinant human (contains non-essential amino acids, low glucose, L-glutamine, sodium phosphate, sodium bicarbonate and sodium pyruvate).	For growth and expansion of human neural stem cells (NSCs). Supports differentiation capability into astrocytes, oligodendrocytes and neurons. Enables superior human NSC expansion of both adherent and spheroid cultures derived from human embryonic stem cells or fetal tissue.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/5020%20Stempro%20NSC%20SFM.pdf
Hibernate E		Specially formulated for working with embryonic neuronal tissue in an ambient atmosphere. Ideal for use in tissue dissections, transporting tissues between labs, live microscopy, flow cytometry and electrophysiology. Tissue will remain viable for 1-2 weeks at 4°C.	www.neuromics.com	
Osteoblasts				
Osteoblast Basal Medium	Serum free medium	General purpose	www.cellapplications.com	
Osteoblast Differentiation Medium	Serum free medium	General purpose	www.cellapplications.com	
PANSERINTM 415	Complete serum free medium. Contains lipids, albumin, transferrin, insulin and trace elements.	General purpose.	www.pan-biotech.com	http://www.pan-biotech.com/cms/fileadmin/doks/new_Panserin415.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
PBMCs				
CTL-CryoABC™ Kit (CTLC-ABC™)	Medium and buffer solutions for freezing lymphocytes. Includes sterile DMSO. CryoA,C medium contains insulin and transferrin, other defined proteins in a proprietary composition. CTL-CryoA™ requires 20% high grade DMSO (included in the kit).	CTL-Cryo™ medium (CryoABC kit) when mixed is a serum-free freezing medium formulated to cryopreserve freshly isolated PBMCs. It has been designed to ensure unimpaired PBMC function in T cell cytokine recall assays (ELISPOT, ELISA) protein arrays and cytokine capture assays.	www.immunospot.com	http://www.immunospot.com/fileadmin/Documents/Documentations/MSDS_PDS/PDS-CryoABC-2008.pdf
CTL-wash™ (CTLW-010)	Contains insulin, transferrin, glucose, other proteins, saturated and unsaturated fatty acids and sugars (10x).	10x serum free formulation to be diluted with RPMI-1640 (and 1% glutamine) and used for washing PBMCs.	www.immunospot.com	http://www.immunospot.com/fileadmin/Documents/Documentations/CTL%20Wash%20Supplement%20PDS.pdf
CTL-Test™ medium	Contains injection grade water with insulin, transferrin, testosterone, glucose, saturated and unsaturated fatty acids, buffers and other defined proteins.	General purpose	www.immunospot.com	http://www.immunospot.com/fileadmin/Documents/Documentations/CTL%20Test%20PDS.pdf
PER.C6 (Human Embryonic Retinoblast cells)				
ProPer-1	Serum Free, without L-glutamine or phenol red, with 0.1% Pluronic acid.	For culturing Per.C6 cells used for adenoviral-based gene therapy, production of vaccines, cytokines, antibodies, and other therapeutic proteins.	www.lonza.com	https://bcprd.lonza.com/group/en/products_services/products/catalog_new.ParSys.0007.File0.tmp?path=eshop/IMS_DOCS/DD/DD0D4A2EE98032F19D7B001A4B525E10.pdf
CDM4PERMAb™	Chemically-defined medium containing no animal derived components.	Developed to increase process yields in the production of human antibodies and recombinant proteins using PER.C6® technology.	www.hyclone.com	http://www.hyclone.com/pdf/media/CDM4PERMAb/CDM4PERMAb%20LR.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
PER.C6 (Human Embryonic Retinoblast cells)				
CDM4Retino™	Chemically-defined medium containing no proteins or animal derived components.	Designed to increase the process yields for industrial manufacture of adenoviral vectors and rproteins. Formulated for enhanced stability and growth promotion of PER.C6 and other retinoblast cells.	www.hyclone.com	http://www.hyclone.com/pdf/media/HyQ_CDM4Retino_Product_Insert.pdf
IS ProVec CD	Chemically defined, serum-free medium formulated with only non-animal origin components.	Optimised for high-density suspension cultures of PER.C6 cells for production of bio-pharmaceuticals.	www.irvinesci.com	
EX-CELL™ VPRO	Serum-free medium, free of animal protein. With Pluronic F-68, glucose, hypoxanthine and thymidine. Available with or without L-glutamine and sodium bicarbonate.	Developed for long-term growth of human embryo retinoblast cells (PER.C6™ and related cell lines) for production of adenovirus. Cells can be grown as suspension cultures either in shaker flasks or roller bottles.	www.sigmaaldrich.com	
Prostate tissue				
BRFF-HPC1™	Complete serum-free medium. Contains dihydrotestosterone.	Designed for establishing new cell lines from human prostate tissue. Epithelial cell lines, from both benign prostatic hyperplasia and prostatic carcinoma have been established and maintained in this medium.	www.athenaes.com	http://www.athenaes.com/BRFF-HPC1.php?osCsid=afe9cb2a2d2a4fb35777ef3a7636cfd9
BRFF-P4-8F™	Complete serum-free medium.	Designed to grow immortalized normal prostatic cell line 267-B1. Also supports the growth of certain established human prostatic cancer cell lines such as PC-3.	www.athenaes.com	http://www.athenaes.com/BRFF-P4-8F.php?osCsid=afe9cb2a2d2a4fb35777ef3a7636cfd9

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Sebaceous gland cells				
Sebomed serum free medium	Serum free medium	General application	www.autogen-bioclear.com	http://www.autogenbioclear.com/F8205.pdf
Skeletal muscle cells				
Skeletal Muscle Basal Medium	Serum free media	General purpose	www.cellapplications.com	
Smooth Muscle Basal Medium	Serum free medium	General purpose for human/bovine/chicken/canine/porcine/rat/rabbit	www.cellapplications.com	
Smooth Muscle Differentiation Medium	Serum free medium	General purpose for human/bovine/chicken/porcine/rat/rabbit	www.cellapplications.com	
Skeletal Muscle Cell Differentiation Medium	Serum free medium. Contains the base medium and all supplements required for producing the complete medium. It is possible to adjust the final amounts of supplements.	Suitable for differentiating SkMC (Human Skeletal Muscle Cells) as well as many other skeletal muscle cells.	www.promocell.com	http://www.promocell.com/pdf/C-23061.pdf
Stem cells				
ESGRO Complete Basal Medium	A defined serum-free medium	Suitable for use as a base medium for differentiation studies (upon addition of differentiation factors of choice), for serum free culture of ES cells (when used with LIF and BMP), for use on feeder independent cell lines and during routine washing steps when passaging cells.	www.millipore.com	http://www.millipore.com/publications.nsf/a73664f9f981af8c852569b9005b4eee/e1440a9a6645f2e58525736a0046a360/\$FILE/ATT2XSZR/SF002-500.pdf
ESGRO Complete Clonal Grade Medium	Complete serum and feeder free medium. Contains BM4 and LIF.	Allows growth of murine ES cells without FBS.	www.millipore.com	http://www.millipore.com/publications.nsf/a73664f9f981af8c852569b9005b4eee/a673384d3964575b8525736a00465430/\$FILE/ATTJFMVO/SF001-500.pdf
CellGro® SCGM	Serum-free medium containing only human derived or recombinant human proteins. Without cytokines, or other growth factors.	To sustain the growth of human hematopoietic peripheral blood progenitor cells, NK cells as well as cord blood cells.	www.clonagen.com www.cellgenix.com	http://www.cellgenix.com/ex-vivo-therapeutics/pdf/CellGro-Leaflet-SFMedia.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Stem cells				
CellGro® SCGM	Serum free medium	Developed for the culture of hematopoietic stem and progenitor cells, NK cells and cord blood cells.	www.cellgenix.com	http://www.cellgenix.com/ex-vivo-therapeutics/pdf/CellGro-Leaflet-SFMedia.pdf
STEMPRO® hESC SFM	Defined medium. StemPro hESC SFM components: StemPro® hESC Supplement DMEM/F-12 with GlutaMAX™ medium, BSA 25%. Additional components required for complete medium (need to be purchased separately): FGF BASIC (full length) REC HU, 2-mercaptoethanol.	Enables growth and expansion of human embryonic stem cells in a serum free medium without feeder cells. Maintains pluripotency of hESC.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/stempro_hESC_SFM_man.pdf http://tools.invitrogen.com/content/sfs/manuals/Pointstoconsider_STEMPROhESCSFM.pdf
Knockout™ SR	Defined serum replacement.	Replaces FBS in existing protocols (performance is enhanced when used with Knockout™ D-MEM). To grow and maintain murine and human embryonic stem cells.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3878.pdf
Knockout™ D-MEM	Basal serum-free medium	To grow and maintain murine and human embryonic stem cells.	www.invitrogen.com	
StemPro® MSC SFM	StemPRO MSC SFM contains a basal medium and a StemPRO MSC SFM supplement. Requires addition of L-glutamine.	Growth and multi-passage expansion of human bone marrow derived mesenchymal stem cells (MSCs).	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/5019%20Stempro%20MSC%20SFM.pdf
StemPRO-34 SFM	Serum-free medium. Requires L-glutamine and StemPRO supplement. Extended cell support requires addition of cytokines and growth factors.	Supports growth of human hematopoietic progenitor cells (CD34+) from bone marrow, peripheral blood and neonatal cord blood.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3838.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Stem cells				
Stemline™ Serum-free Methylcellulose Medium Without Growth Factors, Human	Semi-solid serum-free medium. Consists of Iscove's Modified Dulbecco's Medium, methylcellulose, BSA, L-glutamine, 2-mercaptoethanol, rh insulin, human transferrin, iron-saturated. Does not contain erythropoietin or other cytokines.	For assay of human clonogenic hematopoietic progenitor cells isolated from bone marrow or other hematopoietic cells. For enumeration and evaluation of stem cell derived progeny characterised as colony forming units.	www.sigmaaldrich.com	
Stemline™ Hematopoietic Stem Cell Expansion Medium	Serum-free medium, with no animal components. Human serum albumin is the only human origin material. Requires addition of desired cytokines and/or antibiotics. Available with or without L-glutamine.	Developed to promote the optimal expansion of human hematopoietic stem cells (HSC) from bone marrow, mobilized peripheral blood, and cord blood.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/s0189dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/hematopoieticstem.pdf http://www.sigmaaldrich.com/sigma/general%20information/cell_culture_poster_s0189_1.pdf http://www.sigmaaldrich.com/sigma/general%20information/cell_culture_poster_s0189_2.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol4%20issue1%20cell%20culture.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol5%20issue2%20feature%20article.pdf
Stemline® Neural Stem Cell Expansion Medium	Serum and animal component free. Without L-glutamine, growth factors and antibiotics.	Developed to promote the expansion of human neural stem cells (NSC) in both neurosphere and monolayer cultures.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/s3194dat.pdf
StemSpan® SFEM - Serum-Free Expansion Medium	Contains BSA, recombinant human insulin, human transferrin, 2-mercaptoethanol, supplements and Iscove's MDM.	Developed for the culture and expansion of human hematopoietic progenitors from bone marrow, cord blood and mobilized peripheral blood. With the addition of recombinant cytokines, StemSpan® SFEM also supports the expansion of mouse colony-forming cells, LTC-IC and long-term repopulating cells. Also suited for culture of rat and non-human primate hematopoietic cells.	www.stemcell.com	http://www.stemcell.com/technical/09600_09650-PIS.pdf http://www.stemcell.com/technical/28440_stemspan%20sfem%20prog.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Stem cells				
StemSpan™H3000	Serum-free defined medium with human-derived or recombinant human proteins. Requires supplementing with recombinant cytokines.	Culture and expansion of human CD34 ⁺ cells and hematopoietic progenitors from bone marrow, mobilized peripheral blood and cord blood.	www.stemcell.com	http://www.stemcell.com/technical/09800_09850-PIS.pdf
Various cell types				
DMEM/F12 SFM	Complete serum-free medium. Blend of DMEM and F12 HAM medium containing L-glutamine, Hepes, BPE and EGF.	General application	www.athenaes.com	http://www.athenaes.com/DMEM.php?osCsid=afe9cb2a2d2a4fb35777ef3a7636cfd9
Freezing Media Pair	Serum-free cryopreservation media.	Cryopreservation system used to store suspensions of viable cells detached from monolayer cultures using the "cold trypsin" method. Used for various human cell lines grown in serum-free media.	www.athenaes.com	http://www.athenaes.com/FreezingMediaPair.php?osCsid=4a5c07307e6dc991cae33657346b424f
Serum-free Media Screening Kit	Kit contains a 100 ml sample of each of five serum-free media, ready for use. These are BRFF-BMZERO™, BRFF-EMP2™, BRFF-P4-8F™, DMEM/F12, and IMDM.	Screening kit is intended for researchers seeking to identify the most appropriate serum-free medium for a specific cell type.	www.athenaes.com	http://www.athenaes.com/SFMScreeningKit.php?osCsid=a8bb0e62328e6acb9c6c8c49cd284973
UltraCULTURE™	Complete serum-free media consisting of a DMEM: F12 base, supplemented with bovine insulin, bovine transferrin and purified mixture of bovine serum proteins including albumin.	Supports growth of a variety of both adherent and non-adherent cell lines. Used to grow cells of primary origin and established cell lines (including cells of lymphoid origin, monocyte and macrophage cell lines; epithelial and fibroblastic cells; hybridomas).	www.lonza.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Various cell types				
PC-1™	Complete liquid media system with frozen supplement. Low protein and serum-free. Modified DMEM/F12 base, with HEPES, insulin, transferrin and fatty acids.	All purpose medium for culture of primary cells and anchorage dependent cell lines.	www.lonza.com	
BIO-MPM-1	Ready-to-use serum-free medium. Requires L-glutamine. Without albumin, growth factors or hormones other than insulin. Contains no attachment factor, which in many (but not all) cases must be added. Protein content of BIO-MPM-1 <30 mg/l.	Multi-purpose media for adherent cells	www.bioind.com	http://www.bioind.com/Htmls/article.aspx?C2004=12429&BSP=12419
Serum-free Cell Freezing Medium	Serum-free medium for freezing cells. Contains methylcellulose and DMSO	Cryopreservation medium	www.bioind.com	
TCM™ and TCM Insulin Free	Completely defined, serum-free, serum replacement. Add to basal medium to replace serum.	For a wide range of cell types from a variety of species. Also primary cell cultures. Supports long-term culture of both anchorage dependant and suspension cultures.	www.mpbio.com	
BD™ ITS Universal Culture Supplement	Contains insulin, human transferrin, and selenous acid.	Media supplement for a variety of cells under serum-reduced conditions.	www.bdbiosciences.com	http://www.bdbiosciences.com/nvCategory.jsp?action=SELECT&form=formTree_catBean&item=378368
BD™ MITO+ Serum Extender Supplement	Concentrated, defined formulation of hormones, growth factors (EGF and FGF) and other metabolites (insulin and steroid hormones).	Media supplement. It can be used to culture a variety of cells under serum-free or serum-reduced conditions.	www.bdbiosciences.com	http://www.bdbiosciences.com/nvCategory.jsp?action=SELECT&form=formTree_catBean&item=378238
Nu Serum Replacements	Low protein alternative to fetal calf serum.	Media supplement	www.bdbiosciences.com	http://www.bdbiosciences.com/nvCategory.jsp?action=SELECT&form=formTree_catBean&item=378536
BeFutur	Serum free medium	General purpose	www.befutur.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Various cell types				
Synth-a-freeze® cryopreservation medium	Serum and protein free cryopreservation medium.	Cryopreservation of cells	www.cascadebio.com	http://www.cascadebio.com/product_files/doc79.8%20SynthaFreeze%20.pdf
SeaBlock™ fish plasma	Fish plasma	Fish plasma blocking agent as an alternative to bovine serum as a blocking reagent.	www.eastcoastbio.com	http://www.eastcoastbio.com/datasheets/pdf/JJ71.pdf
AIM V	Contains L-glutamine, streptomycin and gentamicin.	General purpose	www.invitrogen.com	http://tools.invitrogen.com/Content/SFS/ProductNotes/F_AIM%20V-RD-MKT-TL-HL0506021.pdf
Opti-MEM I reduced serum media	Modification of Eagle's minimum essential medium. With HEPES, sodium bicarbonate, hypoxanthine, thymidine sodium pyruvate, L-glutamine, trace elements and growth factors.	For growth and maintenance of a variety of adherent and non-adherent cells.	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/2017.pdf
EHAA Medium (Eagle's Ham's Amino Acids or Click's Medium)	Serum-free medium with Hanks BSS, essential amino acids, nonessential amino acids, sodium pyruvate. No L-glutamine, antibiotics or 2-mercaptoethanol.	General application	www.invitrogen.com	
VP-SFM	Ultra low protein and serum-free. With human recombinant EFG and insulin. Transferrin is replaced by iron-chelate and albumin replaced by di- and tripeptides from plants.	General use and for growing viruses and produce recombinant proteins (VERO cells, COS-7, MDCK, BHK-21, Hep2 cell lines).	www.invitrogen.com	http://tools.invitrogen.com/content/sfs/manuals/3918%20VP%20SFM.pdf
ProFreeze™ NOA Freezing Medium (2X)	Serum and protein free, requires the addition of DMSO at time of use.	Formulated for cryopreserving cells that have been propagated in serum free media. Maintains high cell viability upon recovery from frozen storage.	www.lonza.com	

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Various cell types				
Long™ EGF	Recombinant analog of human epidermal growth factor (EGF).	For research and large-scale culture systems utilizing serum-free or low-level serum applications and a variety of fibroblast and endothelial cells.	www.novozymes.com	http://www.novozymes.com/NR/rdonlyres/DBAC79A7-1619-4EFB-B0C5-B51F7EA5E971/0/AFccsupplementsbrochure2008.pdf
Long™ R ³ IGF-I	Engineered insulin alternative	Supplement of serum-free cell culture media to enhance the survival and proliferation of mammalian cells.	www.novozymes.com	http://www.novozymes.com/NR/rdonlyres/DBAC79A7-1619-4EFB-B0C5-B51F7EA5E971/0/AFccsupplementsbrochure2008.pdf
Long™ TGF-alpha	Recombinant analogue of human transforming growth factor-alpha (TGF-α)	Supplement of serum-free cell culture media for a variety of cells.	www.novozymes.com	http://www.novozymes.com/NR/rdonlyres/DBAC79A7-1619-4EFB-B0C5-B51F7EA5E971/0/AFccsupplementsbrochure2008.pdf
PF-MAb™	100X concentrate supplement	Designed for use with RPMI-1640 and other basal formulations to reduce or eliminate serum dependency in various cells.	www.hyclone.com	
IPL-41	Basal medium, frequently used for serum-free media development/optimization.	General application.	www.hyclone.com	
SFM4MegaVir™	Protein-free medium containing no animal derived components. Contains phenol red.	Developed to increase process yields in the manufacture of viral vaccines. For a variety of cell lines including Vero, COS-7, MDCK and MDBK.	www.hyclone.com	
Cellvation™	Serum-free and DMSO-free cryopreservation medium.	For cryopreservation of various cells.	www.mpbio.com	http://www.mpbio.com/product_info.php?products_id=20300

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Various cell types				
CELLect™ Serum-Free Medium, Mammalian	Based on a 50/50 mix of DMEM/F12 with smaller percentages of RPMI 1640 and McCoy's 5A. Contains trace elements, high molecular weight carbohydrates, vitamins, a non-animal protein source and a small amount of BSA. Available with or without L-glutamine.	Formulated for mammalian cell cultures. Originally designed for hybridomas and suspension cell lines but suitable for some anchorage dependent cell lines.	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_34&products_id=20110&depth=nested&keywords=Serum-free%20Medium,%20Mammalian
TCH® Defined Serum Replacement, 50X Concentrate	Completely defined constituents, low protein content.	For long-term culturing of primarily human anchorage-dependent and suspension cells.	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_34&products_id=20200&depth=nested&keywords=Serum-free%20Medium,%20Mammalian
TM-235® Serum Replacement, 50X Concentrate	Serum replacement	Developed for the culture of fastidious cells. For long-term propagation of anchorage dependent and independent cells from a broad range of eukaryotic species.	www.mpbio.com	http://www.mpbio.com/product_info.php?products_id=20400&depth=nested&keywords=tcm%20supplement
EX-CELL® GTM-3	Complete, ready-to-use medium. Requires the addition of L-glutamine.	Suitable for HEK-293 cells, retinoblastoma-like cells and propagation of adenoviruses. Designed to support the growth of cells in suspension culture (for vaccine manufacturing).	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/g9916dat.pdf http://www.sigmaaldrich.com/sigma/general%20information/sg_ls_cc_g9916.pdf http://www.sigmaaldrich.com/sigma/general%20information/vol3%20issue2%20cell%20culture.pdf
BIOGRO-1	Serum-free supplement for addition to basal medium. Contains albumin.	Culture of myeloma and hybridoma cells Monoclonal antibody production Culture of human lymphocyte cells (including stimulated or transformed cells) Viral production.	www.bioind.com	http://www.bioind.com/Htmls/article.aspx?C2004=12424&BSP=12418&BSS51=12018

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Various cell types				
BIOGRO-2	Serum-free supplement, for addition to basal medium. Very low protein and albumin-free.	Culture of myeloma and hybridoma cells, monoclonal antibody production; culture of human lymphocyte cells (including stimulated and transformed cells); and virus production.	www.bioind.com	http://www.bioind.com/Htmls/article.aspx?C2004=12424&BSP=12418&BSS51=12018
Cellgro Complete™ Serum Free Media	Complete medium. Based on 50/50 mix of DMEM/F12, with RPMI 1640 and McCoy's 5A. Contains trace elements, carbohydrates, vitamins, non-animal protein, BSA (1gm/L). No insulin, transferrin, cholesterol, growth or attachment factors. Available with or without phenol red.	General use.	www.cellgro.com	http://www.cellgro.com/shop/files/documents/cellgroCOMPLETE.pdf
Panserin™-401	Complete serum free medium. Contains trace elements, albumin, cholesterol, soya lipids and vitamins. Without growth or attachment factors or insulin.	General use	www.pan-biotech.com	http://www.pan-biotech.com/cms/fileadmin/doks/new_Panserin401.pdf
Cryo-SFM	Serum free cryopreservation medium.	Cryopreservation of animal and human cells.	www.promocell.com	http://www.promocell.com/pdf/C-29912.pdf
Cell Freezing Medium-DMSO, Serum-Free	Serum-free medium for cryopreservation, with 8.7% DMSO in MEM supplemented with methylcellulose.	Designed to protect and preserve cells during frozen storage.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/general%20information/vol2%20issue1%20cell%20culture.pdf
Cell Freezing Medium Serum-Free	Serum-free medium for cryopreservation, without DMSO.	Designed to protect and preserve cells during frozen storage.	www.sigmaaldrich.com	http://www.sigmaaldrich.com/sigma/datasheet/C2639dat.pdf

Cell type	Composition	Applications	Supplier	Further Information on the use of product
Various cell types				
Cryopreservation Media (BRFF GTC-80, Freezing Media Pair)	Cryopreservation medium	Used to cryopreserve suspensions of viable cells detached from monolayer cultures using the "cold trypsin" method using PET.	www.usbio.net	http://www.usbio.net/technicalSheet.php?prodSku=C7938
Vero cells				
PFEK-1	Serum-free and protein-free medium.	For proliferation of VERO cells, for propagation of human pathogenic viruses (Coxsackie B4, herpes simplex type 1 and 2, measles, polio type 1-3).	www.clonagen.com	
PF-Vero™	Protein-free medium, without L-glutamine.	General use	www.hyclone.com	
MP-VERO	Serum-free, animal component-free medium (requires L-glutamine). With inorganic salts, essential and non-essential amino acids, vitamins, recombinant human protein and growth factors.	Formulated for use in both stationary and agitated culture of Vero cells	www.mpbio.com	http://www.mpbio.com/product_info.php?cPath=491_6_35&products_id=20135&depth=nested&keywords=mp-vero
EX-CELL® Vero	Animal component- and serum-free medium. Available with or without glutamine and sodium bicarbonate.	For virus production or high density growth of Vero cells.	www.sigmaaldrich.com	

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