

FCS-free Database Manual

Content of the Database

The FCS-free Database compiles an overview of commercially available FCS replacement supplements for cell culture media, as well as medium compositions obtained from scientific literature. Some media are designed to support a particular cell type, others may support a wider range of cells. Users of the database can browse for their specific application by filtering for specific parameters.

Filter definitions

Cell line/type

The cell line/type filter is the main entry of the database, allowing to search for products which are available for specific cell lines or cell types. Common, commercially available cell lines are often abbreviated, whereas primary cell lines are written out. Some cells are (also) present with their [Cellosaurus](#) appellation (CCVL), for unambiguous labelling and standardised identification of a particular cell line. After clicking on 'please select a cell line/type', the user can start typing a cell type of interest and the results will be shown in a drop-down menu.

Animal-free

All products in this database are FCS-free. Media supplements that are entirely free of animal-derived components are listed as "Animal free" and this criterion can be selected as a filter in your search. It is essential to note that human-derived components, such as human platelet lysates or human serum, are considered as "Animal free – yes" in this database. "Animal free – unspecified" option encompasses media supplements that lack an extensive description on the origin of their constituents.

Source

The source filter allows to choose between different companies that produce FCS-free supplements or media, or to choose a product that is documented in scientific literature.

Species

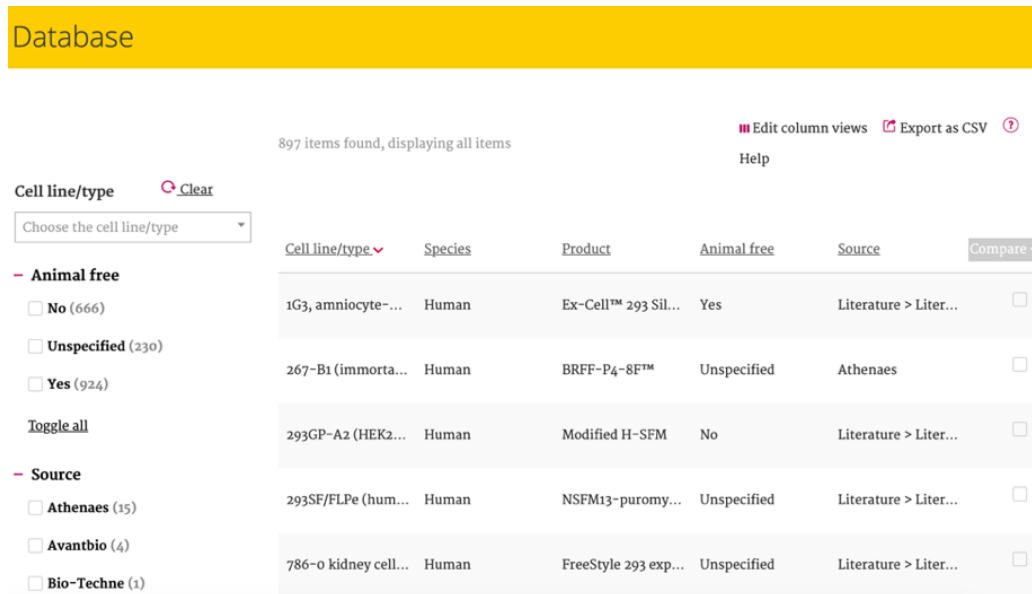
The species filter allows users to choose the specific species from which the cells have been collected and on which the supplements or media have been tested.

Parameters

In addition to the filters mentioned above, the parameter filter provides additional possibilities to narrow the search. This filter contains sub-filters which become visible after clicking on the "+" sign in front of the parameter name. The parameters are organised alphabetically and comprise whether media or supplements are *Antibiotics-free*, *Chemically defined* or *Contains phenol red*. Note: not all the supplements and media contain information on those extra parameters.

Use of filters and filter options

When no filter has been selected yet, a screen with a selection of default results is shown (Figure 1). The user can start a search by selecting a cell line/ type. Only one cell line can be selected at the time. After making the cell line selection, species, products, sources, animal free status and parameters can be selected. Some filters also contain sub filters which become visible after clicking on the “+” sign in front of the name. After selecting a filter, the other available filters will be adjusted. The chosen options are displayed above the data table for easy recall. To clear all selected filters at the conclusion of the research, users can click the 'Clear' icon located at the top left of the table.

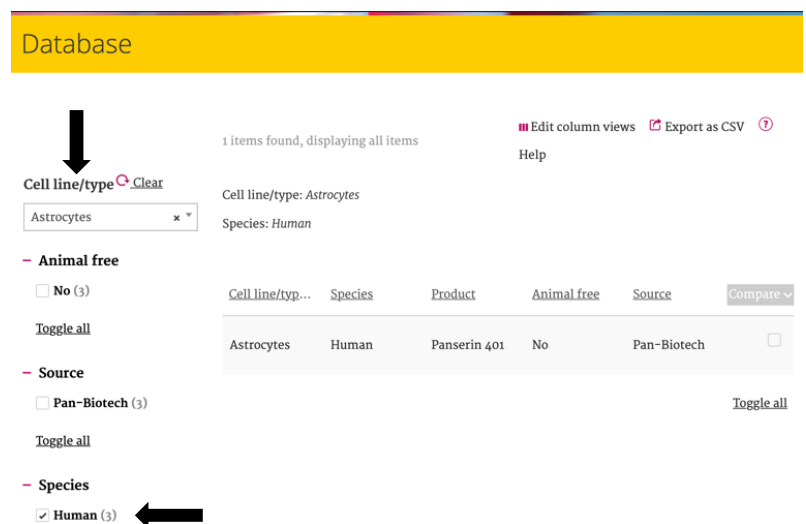


The screenshot shows the 'Database' interface with a yellow header. Below the header, it states '897 items found, displaying all items'. There are links for 'Edit column views', 'Export as CSV', and 'Help'. A 'Cell line/type' filter is active, showing a dropdown menu with 'Choose the cell line/type'. Below this, there are filter sections for 'Animal free' (No: 666, Unspecified: 230, Yes: 924) and 'Source' (Athenaes: 15, Avantbio: 4, Bio-Technie: 1). A table of results is displayed with columns: Cell line/type, Species, Product, Animal free, Source, and Compare. The table contains five rows of data.

Cell line/type	Species	Product	Animal free	Source	Compare
1G3, amniocyte-...	Human	Ex-Cell™ 293 Sil...	Yes	Literature > Liter...	<input type="checkbox"/>
267-B1 (immorta...	Human	BRFF-P4-8F™	Unspecified	Athenaes	<input type="checkbox"/>
293GP-A2 (HEK2...	Human	Modified H-SFM	No	Literature > Liter...	<input type="checkbox"/>
293SE/FLPe (hum...	Human	NSFM13-puromy...	Unspecified	Literature > Liter...	<input type="checkbox"/>
786-o kidney cell...	Human	FreeStyle 293 exp...	Unspecified	Literature > Liter...	<input type="checkbox"/>

Figure 1: The FCS-free database interface (no filters applied).

For example: after choosing the of “cell line/ type - Astrocyte” and “Species - Human”, only parameters and conditions which are applicable to this selection are shown in the filters (Figure 2).



The screenshot shows the 'Database' interface with a yellow header. Below the header, it states '1 items found, displaying all items'. There are links for 'Edit column views', 'Export as CSV', and 'Help'. A 'Cell line/type' filter is active, showing a dropdown menu with 'Astrocytes'. Below this, there are filter sections for 'Animal free' (No: 3) and 'Source' (Pan-Biotech: 3). A table of results is displayed with columns: Cell line/typ..., Species, Product, Animal free, Source, and Compare. The table contains one row of data. A black arrow points to the 'Human (3)' filter option under the 'Species' section.

Cell line/typ...	Species	Product	Animal free	Source	Compare
Astrocytes	Human	Panserin 401	No	Pan-Biotech	<input type="checkbox"/>

Figure 2: Example of results when “Cell line/ type - Astrocyte” and “Species -Human” filters are applied

Presentation of results

The outcomes of the selection appear on the right side of the filters in the results screen. The filter names serve as column titles in the results display. Using the 'edit column views' option, users can determine which filters or parameters will be visible in the results screen. Clicking on a column title allows the user to sort the results. Long texts in the results screen are shortened, and a part of the text is shown followed by dots. When moving the computer mouse over the text, the full text appears.

By clicking on a result (anywhere), a pop-up window will appear with more detailed information. In this pop-up window all data that are available for the selected combination (animal free, cell line/type, product, source, species, and other parameter) are shown. For all data, a product description is available by clicking on the red arrow next to the parameter value. In case of commercially available products, this information also contains an URL to the website of the product supplier (Figure 3).

A549 cells, Panexin CD ×

Animal free	Yes
Cell line/type	A549 cells
Product	Panexin CD ➔

Panexin CD is a chemically defined serum replacement for the cultivation of adherent and non-adherent cells under serum-free conditions or to significantly reduce the amount serum in cell culture. It supports the growth of many cell types in an optimak manner.

Compared to our other serum replacements, Panexin CD contains only chemically defined components (Difference to other Panexin products also see table below).

[Find out more about solutions to replace serum developed by PAN-Biotech!](#)

<https://www.pan-biotech.de/Panexin-CD-Serum-Replacement-with-Defined-Components/P04-930500>

Source	Pan-Biotech
Species	Human
Contains phenol red	No
Chemically defined	Yes
Antibiotics free	Unspecified

Figure 3: The red arrow gives access to the detailed product description.

Comparing results

To compare results, the user can select multiple boxes at the right end of each row and click on 'compare'. The compare screen will appear, displaying filter titles and parameters in rows and species in columns. When the results for a particular parameter are similar across the different results, the corresponding row is highlighted in green facilitating the identification of similarities and differences in details between the media (Figure 4).

The rows in the compare screen can be locked, so they will stay in position when scrolling up or down. More detailed information on the results becomes visible by clicking on the cell line. This triggers a pop-up window like the one in the results screen.

By clicking 'back to overview' the user returns to the results screen. All selections remain and no results are removed. Removing results can either be done by clicking 'remove' in the compare screen or by tapping the boxes in the results screen again (deselecting them). Without doing this, in another selection session (even when clicking 'clear') the results will still appear in the compare screen and multiple selection sessions can be compared. Selected results can be removed by refreshing the internet browser.

	Remove ✕ 1G3, amniocyte-deriv...	Remove ✕ 267-B1 (immortalize...	Remove ✕ 293GP-A2 (HEK293)
Cell line/type	1G3, amniocyte-derived cell line	267-B1 (immortalized normal prostatic cell line)	293GP-A2 (HEK293 clone)
Animal free	Yes	Unspecified	No
Source	Literature - modified commercial product	Anonymous2	Literature - modified com
Species	Human	Human	Human
Condition			
Product description	Silva, A. C., Simão, D., Klüppers, C., Lucas, T., Sousa, M. F., Cruz, P., ... & Alves, P. M. (2015). Human amniocyte-derived cells are a promising cell host for adenoviral vector production under serum-free conditions. <i>Biotechnology journal</i> , 10(5), 760-771. In this study, the generation of a new human amniocyte-derived cell line named 1G3 is described and showed that it can	BRFF-P4-8F™ Serum-Free Media <ul style="list-style-type: none"> • Supports growth of human prostatic cancer cell lines • Complete serum-free 	Ghani, K., Cottin, S., Kame (2007). Generation of a high cell line for the production of vectors in suspension and Gene therapy, 14(24), 1705 DOI: 10.1038/sj.gt.3303039

Figure 4: Highlighted in green are the similarities for different parameters after a query.

Additional features

The user can edit the columns shown by clicking the 'Edit column views' button in the top right corner of the database. It is also possible to sort the results based on a specific column by clicking on the column name. Furthermore, it is possible to export the search results into a CSV-file, by clicking on the 'Export to CSV' button in the top right corner of the database. Note: To prevent that all results from different columns merge into a single column after exporting, users need to use the 'text to columns' button to separate the contents of each cell into distinct columns (in Windows Excel).

Further questions?

Contact us: 3RCU@uu.nl

3Rs Centre Utrecht

University Utrecht

University Corporate Offices

Bolognalaan 50 3584 CJ

Utrecht The Netherlands