

**PAN**<sup>TM</sup>  
**BIOTECH**

Your expert around cell culture

## Serum-Free Media





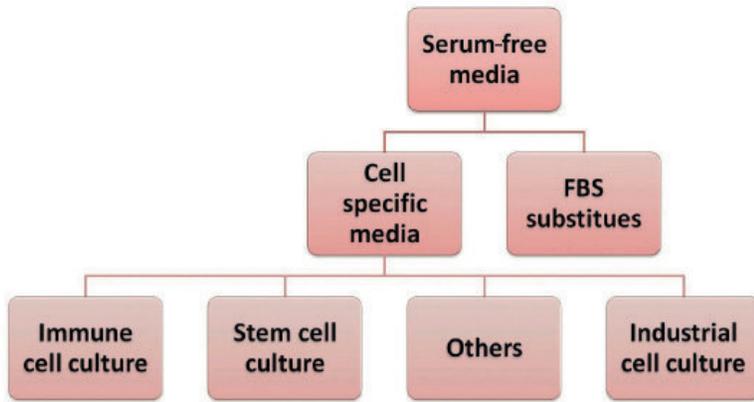
### *Do you know?*

Serum introduces several severe unknown variables into the cell culture procedure, as serum (a) is a poorly defined supplement (*Bjare, 1992; Gstraunthaler, 2003*); (b) batches show typically qualitative variations and different amount of endotoxins, haemoglobin and other factors (*Price and Gregory, 1982*); (c) can be a potential source of contamination (*Dormont, 1999; Eliot, 1999; Wessman and Levings, 1999*) and (d) does not represent physiological conditions. Therefore, FBS may alter the experimental output or the performance of assays.

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## OVERVIEW

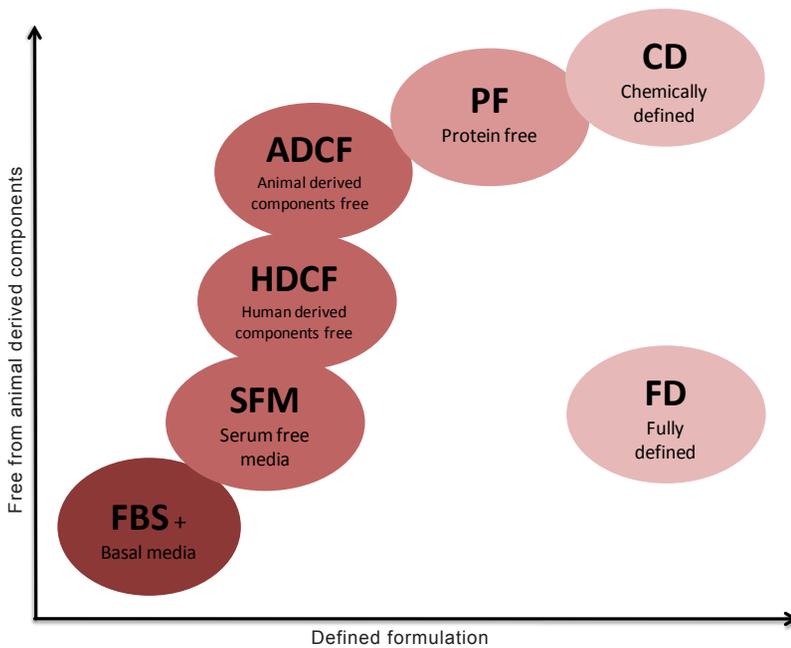


**Figure 1:** PAN-Biotech offers a broad range of serum-free media products in different categories.

Serum-free cell media have increasingly become an important but challenging topic for many cell products and cell cultivation processes.

With more than 16 years of professional experience in providing serum-free solutions for customers worldwide, PAN-Biotech has developed a product portfolio of more than 450 different media products for a wide range of cell cultures.

Customers of PAN-Biotech are not only the users of our products with high-quality standards but also become part of our network of brilliant experts in stem cell research, tissue engineering, immunological therapy, toxicology and many other.



**Figure 2:** Quality specifications of serum-free cell culture media. (Every components in FD and CD media has a purity > 98%. CD media could contain animal derived components, like BSA.)

## Advantages

- ✓ Compliance with legal requirements for the manufacture of medical products
- ✓ Compliance with legal requirements for importing biotechnological products
- ✓ Lower risk of contamination
- ✓ Reproducibility
- ✓ Costly batch testing can be dispensed
- ✓ Simplified downstream processes





## SERUM SUBSTITUTES

### Use Panexin to develop your own serum-free media.

The serum substitutes (Panexin) developed by PAN-Biotech can be used for many cell lines to replace FBS. Due to selected and pretested raw materials Panexin batches are very homogeneous. Therefore the complex batch testing known from FBS can be omitted with the use of Panexin.

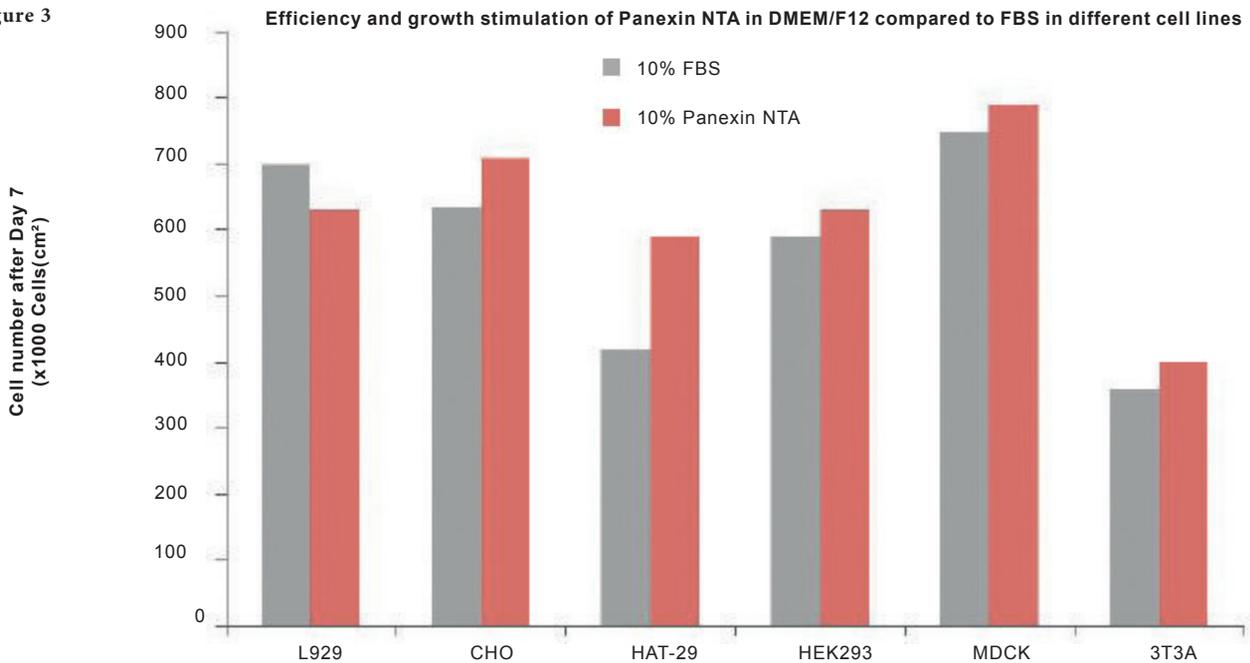
In addition there is no need to change the previously used basal medium. Panexin is completely fully defined and contains no growth factors, undefined peptones or hydrolysates.

Medium	Suitable Cells	Availability	SFM	PF	ADCF	HDCF	FD
Panexin basic	Wide range of cells	✓	✓				✓
Panexin NTS	Wide range of suspension cells	✓	✓				✓
Panexin NTA	Wide range of adherent cells	✓	✓				✓
Panexin <i>Pharma</i>	Wide range of cells	✓	✓		✓		✓
Panexin BMM	Mouse bone marrow macrophages	✓	✓				

**SFM:** Serum Free Medium    **PF:** Protein Free    **ADCF:** Animal Derived Components Free    **HDCF:** Human Derived Components Free    **FD:** Fully Defined

### No more serum testing! Enjoy the easy handling and the full reproducibility!

Figure 3



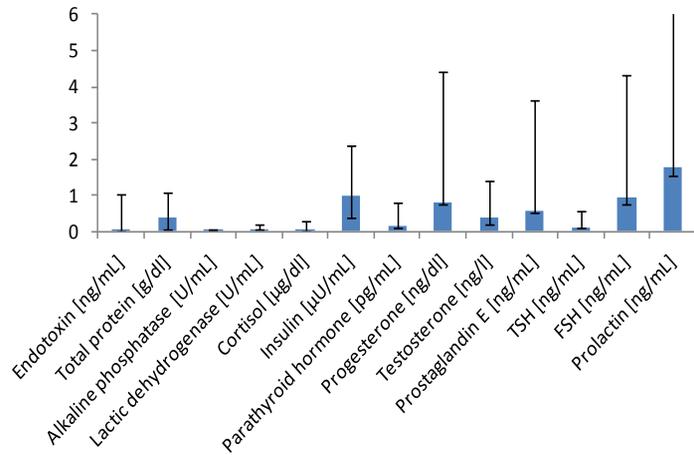
# SERUM SUBSTITUTES



## Media with 10% FBS:

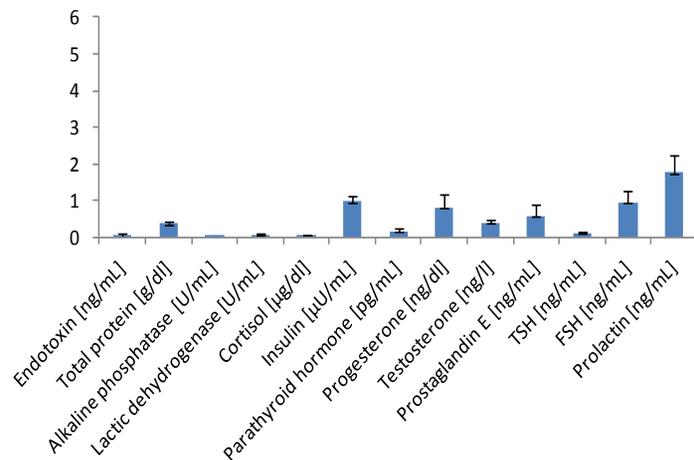
- FBS contains hundreds of distinct proteins and thousands of metabolites in undefined, varying concentrations
- Resulting in inconsistent results and unreproducible data
- Data in figure from *M. Baker, Nature 537 2016 433–435*

Bioactive components in FBS



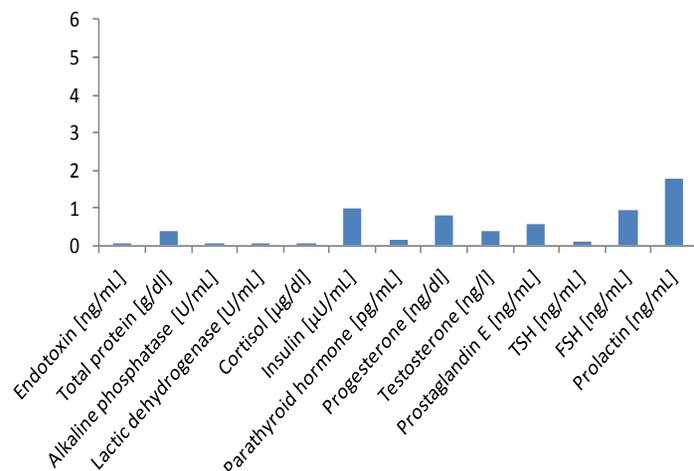
## Media with 1% FBS and 9% Panexin:

- The variation of bioactive components in FBS from lot to lot can be reduced tremendously
- Can be easily adapted to a wide range of cell types
- With significantly improved reproducibility
- More independent from the lot, the origin and the supplier of FBS



## Serum-free media with Panexin:

- Constant quality
- Highest reproducibility
- No more serum testing!





## MEDIA FOR STEM CELL AND IMMUNE CELL CULTURE

### Stem cell media free of animal-derived components

PAN-Biotech offers a broad range of serum-free media for stem and progenitor cells in the most important fields of research and development.

Most of the media are developed free of animal-derived

components to meet the demand of clinical applications, especially with respect to regenerative medicine, toxicology and diagnostics.

Medium	Suitable Cells	Availability	SFM	PF	ADCF	HDCF	FD
PowerStem HE	Human embryonic stem cells	✓	✓		✓		✓
PowerStem iPS	Human induced pluripotent stem cells	✓	✓		✓		✓
PowerStem MSC	Human mesenchymal stem cells	✓	✓		✓		
PowerStem HPSC	Human hematopoietic stem cells	✓	✓		✓		✓
PowerStem PEC	Human angiogenetic stem cells	✓	✓				
<i>And more!</i>							

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With the immunological cell therapy moving to commercialization the demand of scalable production of immune cells also increased significantly.

PAN-Biotech has developed a wide range of serum-free media for the effective *in vitro* expansion of immune cell cultures.

Medium	Suitable Cells	Availability	SFM	PF	ADCF	HDCF	FD
Panserin 413	T cells, NKT and CIK cells	✓	✓				
Panserin 413 Pharma Grade	T cells, NKT and CIK cells	Coming soon!	✓		✓		✓
Panserin 416	Dendritic cells	✓	✓				
Panserin 416 Pharma Grade	Dendritic cells	Coming soon!	✓		✓		✓
Panserin 701	Lymphocytes	✓	✓				✓
Panserin 411	Myeloid/lymphoid cells	✓	✓				✓
<i>And more!</i>							

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## OTHER CELL SPECIFIC SERUM-FREE MEDIA

PAN-Biotech also produces many other cell specific serum-free media for toxicology, tissue engineering, industrial vaccine and antibody productions.

Medium	Suitable Cells	Availability	SFM	PF	ADCF	HDCF	FD
<b>Endopan 300SL</b>	Human endothelial cells	✓	✓				
<b>Endopan 300SL Pharma Grade</b>	Human endothelial cells	<i>Coming soon!</i>	✓		✓		
<b>Neuropan</b>	Neuronal cells	✓	✓				
<b>Panserlin 293S</b>	HEK-293 (suspension)	✓	✓		✓	✓	
<b>Panserlin 401</b>	Wide range of different cells	✓	✓				✓
<b>Panserlin 801</b>	Human keratinocytes	✓	✓				
<b>Panserlin 801 Pharma Grade</b>	Human keratinocytes	<i>Coming soon!</i>	✓		✓		
<b>Panserlin C6000</b>	CHO (suspension)	✓	✓	✓	✓	✓	
<b>Panserlin H4000</b>	Hybridoma (suspension)	✓	✓	✓	✓	✓	
<b>Panserlin Pro Vero</b>	Vero cells (adherent)	✓	✓				✓
<b>Spodopan</b>	Insect cells (suspension)	✓	✓	✓	✓	✓	
<i>And more!</i>							

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Visit our onlineshop!



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