



Company specialized on electrochemical and biosensors and investigative methods

## Drug & Tox Screening (DTS)

Efficient, secure and sensitive prediction of benefits and risks of food and cosmetic ingredients, drugs, chemicals and toxic substances influencing human cells

Cost and time saving analytical service, reducing animal studies and excluding individual factors



## Drug & Tox Screening (DTS) – an innovative tool

There are a lot of environmental and digestive influences on the organism of human beings and animals. The effect of those influences can be positive but harmful actions caused e.g. by pernicious food components or radiation can happen, too.

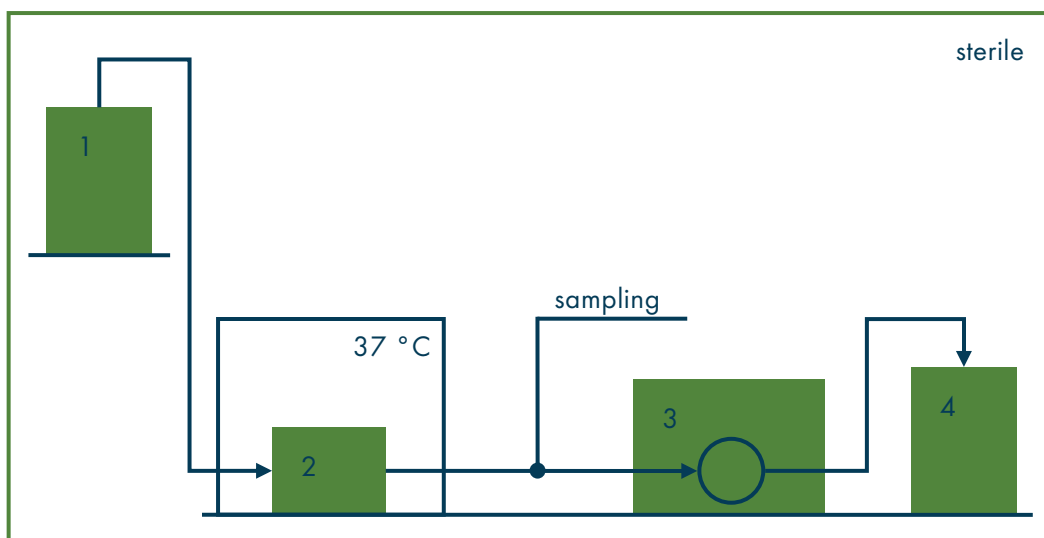
In any case both positive and harmful effects are reflected by reactions of cells. A very sensitive system suitable to detect minimum changes of metabolic parameters of the objects being investigated is needed to observe the effect of different influences on human and animal cells and to characterize their result.

An essential precondition to control the metabolism of cells over predetermined times is to realize their live under in vivo like conditions. In contrast to conventional stationary cell cultures those conditions can be realized with perfused cells only. Fresh digestive medium needed by the living cells will be supplied and metabolic products will be removed continuously.

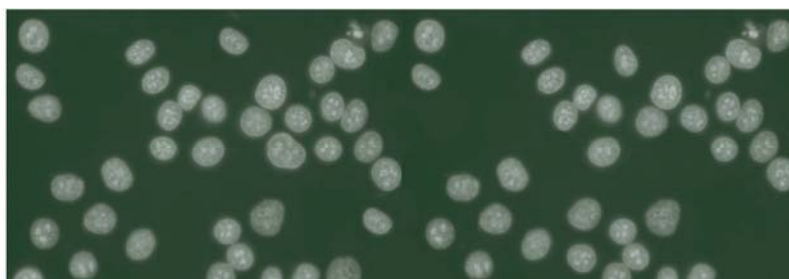
With our DTS we are able to realize in vivo like conditions of the cells over their whole lifetime. Furthermore it makes possible the addition of drugs and components of them with different doses, application regimes to the perfusion medium and the burden of the cells with noxes of different kinds.

We detect actual glucose consumption, lactate generation, pH value, and oxygen partial pressure as important metabolic parameters at any time interval needed for the current study. All measurements can be correlated with any event (addition of drugs, change of the medium and others) during the test period.

So far, human FL cells are living (measured by glucose consumption and other parameters) 10 - 14 days, dependent on their state at the beginning of the test period and on the influence of substances to be tested.



DTS flow scheme: 1- Medium supply; 2- Perfused cell chamber; 3 - Pump; 4 - Waste

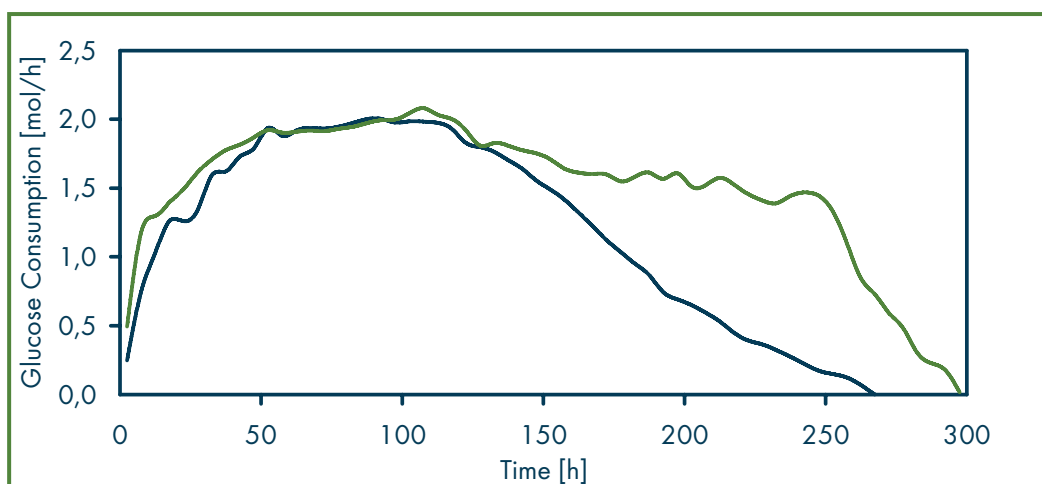


## Description of the test period

During the first 6 to 8 days a very stable metabolism of the cells can be observed. Especially during this time any stimulating or inhibiting effect of possible influences on cell metabolism can be observed very well. This stabile metabolic period can be prolonged or shortened by active ingredients. They may be added with constant or preprogrammed single doses to recognize the effect of different dose regime.

Of course the influence of any substance soluble in the medium and of other potential noxes as electromagnetic fields, radiation and more on cell metabolism can be investigated with the DTS too.

The course of measured metabolic parameters opens the possibility to compare the "undisturbed" metabolism with the metabolism under influence of the substances to be investigated.



Prolongation of the stable phase of cell metabolism and cell lifetime (green line) under influence of a *Ganoderma Pfeifferi* extract (Biologically active compounds of *Ganoderma Pfeifferi* DMS 13239, Juelich, W.D.; Lindequist, U., WO 002000053207 A1).

## More DTS

Method for detection of sub toxic and chronic toxic substances using perfusion cell cultures. Juelich, W. D.; Von Woedtke, Th.; Abel, P. U. ;(1998), 6 pp., DE 19709649 A1

The usefulness of a biosensor controlled perfusion cell culture for the investigation of new drugs demonstrated with the marine fungus *Kirschsteiniotelia maritima*. Von Woedtke, Th.; Lindequist, U.; Alhitari, N.; Kusnick, C.; Julich, W.-D.; Abel, P. U., Pharmazie, (2002), 57(4), 270-27

Biosensor-controlled perfusion culture to estimate the viability of cells. von Woedtke, T.; Juelich, W. D.; Alhitari, N.; Hanschke, R.; Abel, P. U., Medical & biological engineering & computing (2002), 40(6), 704-11

Testung der Wirkung von Extrakten des Pilzes *Ganoderma Pfeifferi* auf den Stoffwechsel von Zellen unter Anwendung einer biosensorüberwachten Perfusionzellkultur. Fechner, Ch. ;( 2005) diploma thesis at the Ernst-Moritz-Arndt University of Greifswald



## DTS for Customers

You may now participate from the singular benefits of the DTS. If you are interested in our DTS service, please do not hesitate to contact us:

We like to help you with more information about our Drug & Tox Screening and to plan with you the extent and the procedure individually optimized to your demands.

To contact us you may use the contact form on our homepage [www.analysisio.com](http://www.analysisio.com) or write us an email to [info@analysisio.com](mailto:info@analysisio.com). Of course you may also contact us by telephone or fax.

## Contact

analysisio GmbH  
Brandteichstrasse 20  
D-17489 Greifswald, Germany  
Tel.: +49 (0)3834 550263  
Fax: +49 (0)3834 550222  
E-mail: [info@analysisio.com](mailto:info@analysisio.com)  
General manager: Jens Pörksen  
Commercial registry: Stralsund HRB 7139  
Sales tax id. number: DE252491041