

# The *BioLector* Technology

High Information Content for Fast Selection

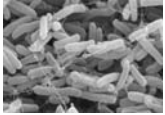


- Screening
- Media optimisation
- HT protein expression
- Automation

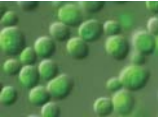
# Features of the *BioLector*

The BioLector is the first bench top microfermentation system to perform **high throughput fermentations** together with online monitoring of the most common fermentation parameters. The system is based on microtiter plate formats and operates with non-invasive, optical sensors. Due to the continuous and rigorous shaking during the optical measurements and over the whole experimental time it is ideally suited for aerobic cultures. For the first time **real time culture monitoring** at a massive parallel scale becomes possible!

## Online measured parameters



- > biomass concentration
- > NAD(P)H and riboflavins



- > protein concentration with fluorescent reporters (e.g. GFP)
- > pH, pO<sub>2</sub>, pCO<sub>2</sub>, T (using optodes)



Multiparameter microplate with optodes

## System performance



- > working volumes of 50 - 1000µL
- > 24 - 96 parallel microreactions



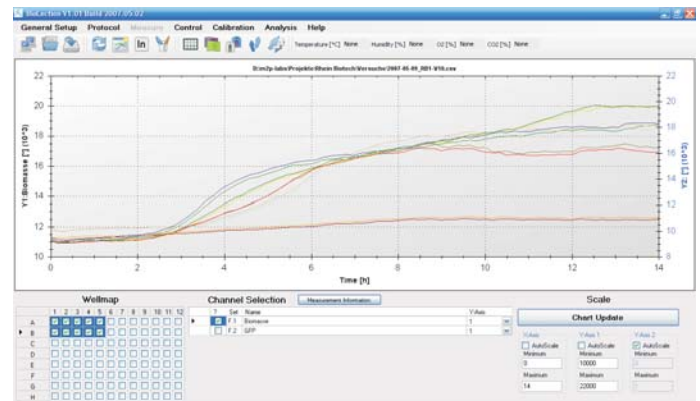
- > no foaming problems
- > very high k<sub>la</sub> values (> 500 1/h)
- > continuous gas exchange and oxygen supply



- > equal power input to each reactor
- > defined engineering parameters and scalability

## Applications

- > strain screening
- > growth activity test
- > protein building kinetics
- > enzyme activity test
- > media optimisation
- > optimisation of fermentation parameters
- > systems biology
- > functional genomic and proteomic studies
- > HT protein expression
- > evaluation of scale down models
- > inhibition and toxicity tests
- > quality control

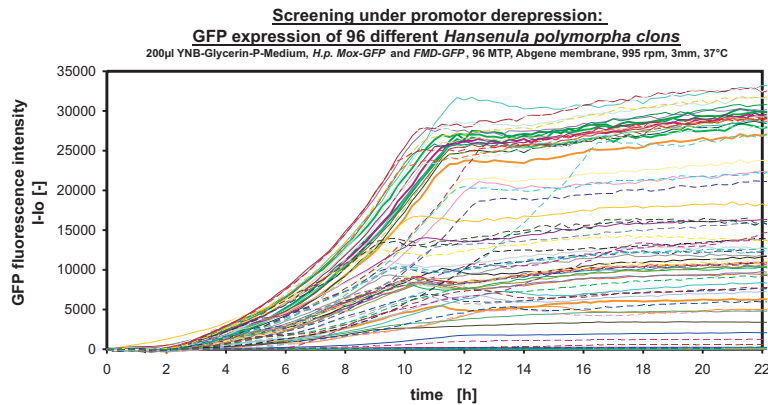
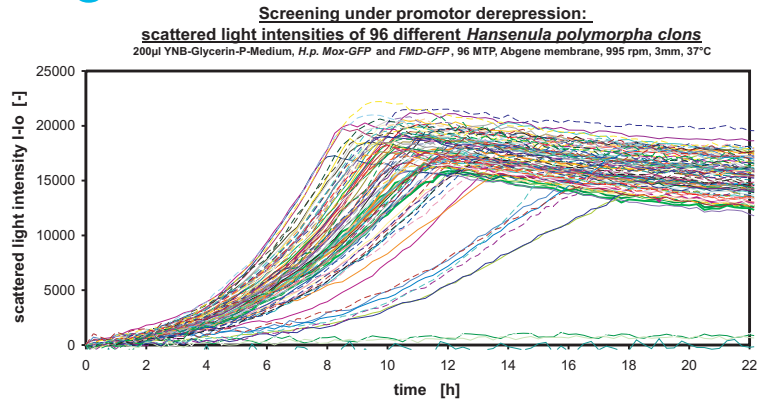


Screenshot from the BioLector software

from microreactor to process

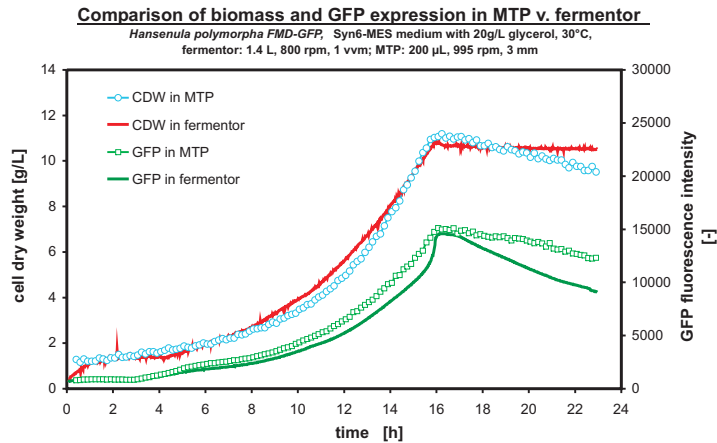
# Measurement examples

## Mass screening

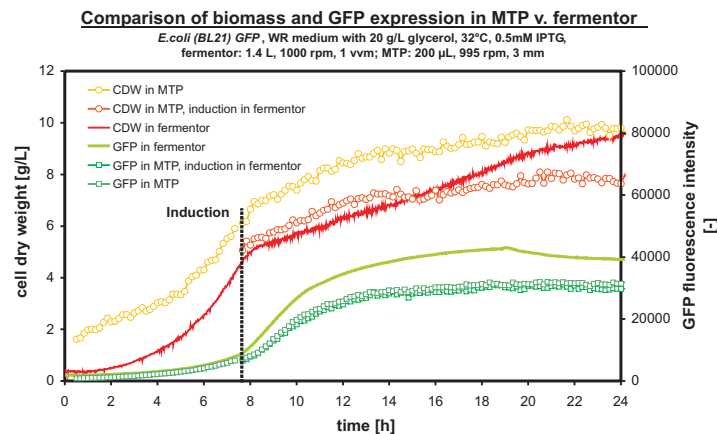


## Scale up - 200µL to 1.4L

### Yeast



### Bacteria



from microreactor to process

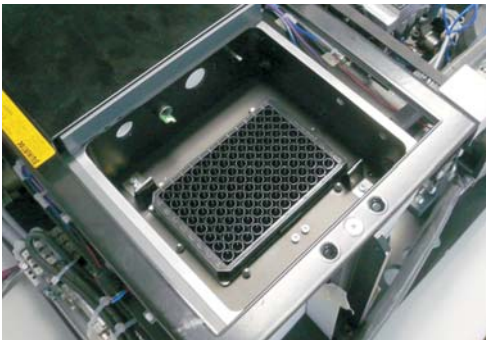
# Advantages / Specifications



BioLector integrated into a liquid handling system

## Plenty of advantages

- > real time kinetics out of 96 parallel fermentations
- > microfermentation in standard MTP format
- > high throughput and easy automation
- > broad linear range for biomass (up to 50 g/L)
- > good reproducibility (CV < 5%)
- > continuous shaking operation (no artefacts)
- > defined mass transfer conditions (no O<sub>2</sub>-limitation)
- > high information content



Reaction chamber of the BioLector

## Technical Specifications

Plate formats	6, 12, 24, 48, 96
Volumes	50 - 1000 µl
Temperature	15 - 50 °C
Humidity	>75 % rH
Shaker	200 - 1800 rpm
Light source	LED technology
Detector	Photomultiplier
MTP read time	1.5 min / Parameter / 96 Wells
Operation	Manual or automatic top load
Compatibility	standard MTP formats
Automation	with standard liquid handling systems like Tecan, Perkin Elmer etc. possible
Dimensions	650x400x225 mm <sup>3</sup>
Weight	~ 30 kg
Power source	90 - 230 VAC, 50/60 Hz
Interface	Ethernet

## Contact

m2p-labs GmbH  
Forckenbeckstr. 6  
52074 Aachen

[www.m2p-labs.com](http://www.m2p-labs.com)  
[info@m2p-labs.com](mailto:info@m2p-labs.com)  
+49-241-608513120

from microreactor to process