



## AMPHA X30 CELL ANALYZER

The novel Ampha X30 opens a new era of cell analysis: simultaneous measurement of cell count and cell viability, and in addition crucial information about the status of the cells, like metabolic activity. Based on Impedance Flow Cytometry, no dyes, no markers, and no incubation are required. Results are available after minutes – including sample preparation! With one instrument and four different chip sizes of the microfluidic chip the whole range of cells can be measured: bacteria, human and animal cells, algae, yeast, and others like somatic cells in milk.

### UNIQUE

- ✓ All cell types like bacteria, human and animal, algae, yeast, somatic cells
- ✓ Reuse of cells for sorting, tissue culture
- ✓ One instrument, four chips, all cells

### EFFICIENT

- ✓ No staining, no molecular markers, no incubation needed
- ✓ Low operation cost
- ✓ Fast and simple sample preparation and measurement: results immediately available

### FLEXIBLE

- ✓ Online analysis via bypass approach
- ✓ Sophisticated software for measurement and data analysis
- ✓ Maintenance wizards for daily simple usage

### UNIQUE

With the Ampha X30 all cell types can be analyzed with one instrument, using chips with different channel diameters. The cells are not harmed by the measurement and due to the absence of dyes and markers, the cells can be recovered and reused, e.g., for sorting or tissue culture.

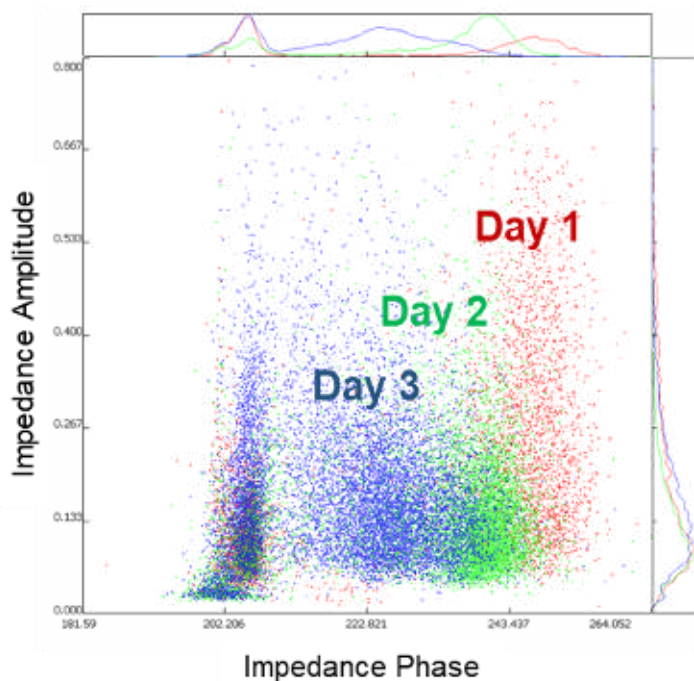
### EFFICIENT

One chip lasts for 1000 measurements and no markers or dyes are required which reduces the operational cost. In addition, no incubation time is needed which shortens the whole measurement to few minutes – from sample preparation until the result.

### FLEXIBLE

The instrument is highly flexible and can be used for online analysis via a bypass of the reaction solution. The sample can be pumped from the reactor directly through the microfluidic chip and back into the reactor. The sophisticated software thereby facilitates measurement and data analysis and integrated wizards promote a simple workflow.

# CASE STUDY: YEAST FERMENTATION



Monitoring the cell health status is essential to avoid cell culture loss.

An example performed in yeast culture shows the health status on different measurement days after starting the fermentation.

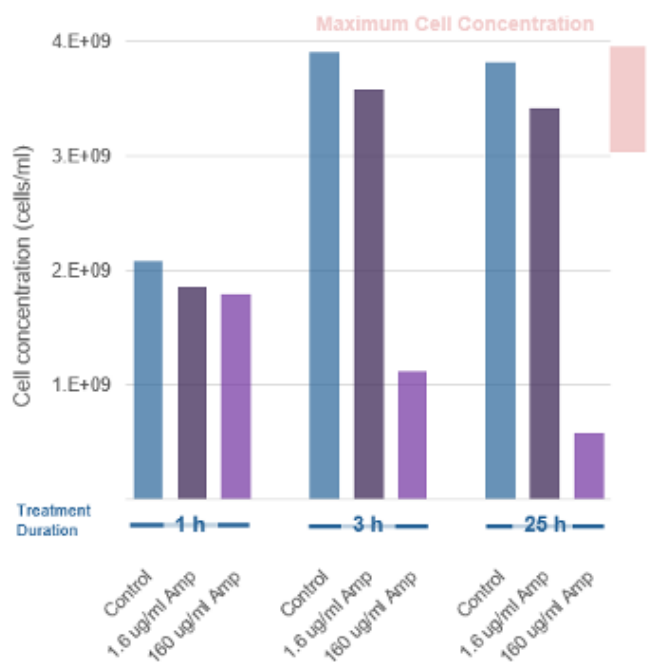
Until the end of day 1 (red), the yeast culture moved from the lag to early exponential (log) phase. Significant cell proliferation occurs in the exponential growth phase which takes place between day 1 to day 2 (green). Due to the strong proliferation and a depletion of the nutrients, the viable population (blue) further shifts to lower phase angles until the end of day 3. This information shows the yeast cells health status and allows an early detection of fermentation issues and helps to troubleshoot the problems.

# CASE STUDY: EFFICACY OF ANTIBIOTIC COMPOUNDS

Amphasys' technology enables to determine the efficacy of antibiotic compounds on bacterial cultures quickly and easily. To carry out the measurement, neither markers nor staining dyes are needed, and an incubation overnight is not necessary neither.

An unknown strain of *E. coli* was prepared in three samples and Ampicillin was added in 1.6 mg and 160 mg doses. Samples were measured 1 hour, 3 hours and 25 hours after the treatment.

The figure shows the measured cell concentration of the bacteria. A timely monitoring of the efficacy of the applications allows to find the right treatment in an easy, very fast and accurate way.



## YOUR BENEFITS:

- ✓ No labeling, no staining, no incubation
- ✓ No calibration
- ✓ Short sample preparation, short measuring times, immediate results
- ✓ Highly sophisticated software for operation and data analysis
- ✓ Simultaneous analysis of cell viability, counting and other cell properties like cell health
- ✓ Cell sizes between 1  $\mu\text{m}$  and 50  $\mu\text{m}$
- ✓ Low operational costs
- ✓ Online measurements via bypass approach possible