



1 Cell and tissue samples grown in a 37 °C-incubator

2 Quartz resonator to analyze cytomechanics

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QUANTIFYING BIOLOGICAL IMPACTS

Application areas

Experiments with living human or animal cells, so-called cell-based assays, have emerged to an enormously powerful and widespread tool in fundamental and applied biomedical research. Mammalian cells – isolated from different organs or tissues of the donor organism and cultured in the lab *in vitro* – serve as living model systems in high-throughput analysis without using test animals. Cell-based assays support fundamental biomedical studies, drug development, cytotoxicity screening as well as approaches from personalized medicine.

Service offering

Fraunhofer EMFT is pursuing the concept of growing living cells directly on the surface of physical transducers (noble metal or polymer electrodes, piezo-resonators, optrodes) and to follow the cells' response to chemicals, drugs or microorganisms

non-invasively and label-free in real time. Key parameters of cell physiology, like cell viability, cell proliferation or cell migration rates, become experimentally accessible in medium throughput.

Besides the development of tailor-made assays, Fraunhofer EMFT offers proof-of-concept studies as well as consulting on all aspects of cell monitoring from an initial selection of assay formats to data analysis.

Advantages

The individual physical transducers provide:

- quantitative analysis of the integrated cell response to a test substance
- continuous, non-invasive monitoring of cell physiology in real time
- no use of additional reagents/chemical indicators (label-free)
- completely automated data recording

Fraunhofer EMFT is participant of the