



BioMEMS Plate Sensor

Aston University researchers have invented a highly novel BioMEMS device for characterising a diverse array of physical properties and behaviour of biological cells. Aston's Business Partnership Unit is now actively seeking commercial partners to license this promising technology.

The technology could however be used in many other biosensing applications, to solve day-to-day problems. For instance, measuring the physical properties and behaviour of biological cells is typically performed with microscopy imaging systems. Culturing, monitoring and manipulating cells can moreover be tedious and time-consuming for researchers; cell responses to stimuli are frequently difficult to visualise in real-time.

Highlights

- Drastically improves the detection and monitoring of the dynamical properties of biological cells
- Collates real-time and historical views of the cells' dynamical information
- No need for continuous monitoring of microscopy images

The Technology

Aston researchers have invented a novel BioMEMS sensing device that dramatically improves the detection and monitoring of the dynamical properties of biological cells. The technique uses a micro plate submerged within a cell culture medium, with at least one cell in contact with the plate. By integrating plate dynamics and automated time series analysis, the device collates a real-time and historical view of the cells' dynamical information, without the need for continuous monitoring of microscopy images. The technique is useful for characterising cell proliferation, cell polarity, cell movement, cell growth, cell contraction, cell migration, cell differentiation, and in vitro microbe growth.

Background

Microelectromechanical Systems (MEMS) are increasingly used as sensors in various technologies areas. MEMS accelerometers, geophones and gyroscopes are used in mobile computing and telephony devices for sensing different aspects of motion. MEMS devices are also increasingly used for detecting the presence of chemicals, heat and radiation. BioMEMS sensors have previously been proposed for detecting pathogenic bacteria and DNA, and monitoring ssDNA hybridisation.

Intellectual Property Protection

This technology is the subject of a UK patent application:

<i>Title</i>	<i>Patents Granted</i>	<i>Application Number</i>	<i>Priority Claimed</i>	<i>Our Ref</i>
Submerged Micro Plate	-	GB 0911331.7	June 30, 2009	PAT-2009-006

Further Information

Further information can be made available and commercial discussions commenced on entering into a non-disclosure agreement.

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