New Technologies

Devices and Methods for Pharmacokinetic-Based Cell Culture System (D-2381)

Inventors: Michael L. Shuler, Gregory T. Baxter, Scott Meyers, Aaron Sin, and Andrew Harrison

Utilizing nanofabrication techniques, researchers have been able to replicate many properties of normal animal organs on a chip. This eliminates the need to test products directly on animals. The system mimics the normal reaction that real tissue has to drug candidates. The chips can be customized to emulate specific animals. This technology will greatly increase product throughput, reduce costs, and deflect criticism of animal testing. The invention aims to revolutionize testing with an "Animal on a Chip" model.

Aegen Biosciences of Monterey, CA, is now developing an AnimalChip product based on this Cornell technology. Gregory Baxter, CEO of Aegen Biosciences, says the technology will "increase drug development throughput, reduce the number of animals needed for toxicological screening, decrease the costs of nonclinical studies, and increase the efficiency of clinical trials."

Charles Harrington/CU

Michael Shuler
Chemical and
Biomolecular
Engineering

Frank DiMeo/CU

Gregory Baxter
CEO, Aegen
Biosciences

Method for Topographical Patterning of Materials (D-2620)

Inventors: Harold G. Craighead and Bojan Ilic

Cornell inventors have discovered a novel methodology for the patterning of chemically sensitive biological materials on various substrates. This technology facilitates the construction of an entire class of highly sensitive biological sensors. It also allows for the development of nanometer-scale structuring of biological molecules for the large-scale production of biological sensors and actuators for medical, clinical, and research use. The technology has been licensed to a leader in high throughput technology.

Robert Barker/CU

Harold Craighead
Applied and Engineering Physics

Nicola Kountoupes/CU

Antje Baeumner

Filtration-Detection Device for Rapid Hybridization Assays (D-2560)

Inventor: Antje J. Baeumner

This hand-held, portable device enables the rapid detection of biological compounds such as nucleic acids. The device detects compounds based on the concept of hybridization. Electrochemical and optical detection can be incorporated into the device. The device completes the entire assay in three to seven minutes. This invention could lead to a highly accurate and rapid tool for diagnosing human disease.

The technology is currently licensed to Innovative Biotechnologies International, Inc., a company specializing in the commercialization of academic discoveries. It is in development to be used as a rapid sensor for detection of biological warfare agents.

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